TippingPoint®

TippingPoint IPS Hardware Installation and Safety Guide

V 2.5.4

Part Number: TECHD-0000000073
Publication Control Number: 070108:1500

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About This Guide

Explains who this book is intended for, how the information is organized, where information updates can be found, and how to obtain customer support if you cannot resolve a problem.

Overview

Welcome to the *TippingPoint* (TP) *IPS Hardware Installation and Configuration Guide*. The UnityOne™ is an Intrusion Prevention System that provides a unified approach to network security. The Local Security Manager (LSM) and Security Management System (SMS) provide management options for your IPS devices and network security.

This chapter includes the following sections:

- "Target Audience" on page xi
- "Organization" on page xii
- "Conventions" on page xiii
- "Related Documentation" on page xv
- "Customer Support" on page xvi

Target Audience

This guide is intended for use by technicians and maintenance personnel responsible for installing, configuring, and maintaining the UnityOne™. Users should be familiar with telecommunications products and networking concepts.

Organization

The *TippingPoint IPS Hardware Installation and Safety Guide* is organized as follows:

About the Guide

Explains who this book is intended for, how the information is organized, where information updates can be found, and how to obtain customer support if you cannot resolve a problem.

TippingPoint Overview

Provides a description of the deployment environment of the TippingPoint, including layout and illustrations of hardware components and features.

Prepare the Site

Provides general requirements for the installation site and guidelines for electrical and network connections. For specific requirements, review the chapter according to device model.

TippingPoint 50 Overview

Provides a description of the deployment environment of the TippingPoint-50, including layout and illustrations of hardware components and features. The chapter includes specification and advanced information for maintaining your TippingPoint device.

TippingPoint 100E Overview

Provides a description of the deployment environment of the TippingPoint 100E, including layout and illustrations of hardware components and features. The chapter includes specification and advanced information for maintaining your TippingPoint device.

TippingPoint 200E Overview

Provides a description of the deployment environment of the TippingPoint 200E, including layout and illustrations of hardware components and features. The chapter includes specification and advanced information for maintaining your TippingPoint device.

TippingPoint 210E Overview

Provides a description of the deployment environment of the TippingPoint 210E, including layout and illustrations of hardware components and features. The chapter includes specification and advanced information for maintaining your TippingPoint device.

TippingPoint 200/400/1200/2400 Overview

Provides a description of the deployment environment of the TippingPoint 200/400/1200/2400, including layout and illustrations of hardware components and features. The chapter includes specification and advanced information for maintaining your TippingPoint device.

TippingPoint 600E/1200E/2400E/5000E Overview

Provides a description of the deployment environment of the TippingPoint 1200E/2400E/5000E, including layout and illustrations of hardware components and features. The chapter includes specification and advanced information for maintaining your TippingPoint device.

Appendix A: Connector and Pinout Specifications

Provides connector and pinout information for the UnityOne™ system.

Appendix B: IPS Menu Options

Provides detailed information on the LCD functions for models supporting this feature.

Conventions

This book, and the other books in this series, follow some conventions for structuring information.

Headings

Every chapter starts with a brief description of the information you can find in that chapter, which correlates with the major headings in that chapter. Each major heading corresponds to a task or concept that is important for you to understand. Headings are of a different size and type to make them easy to skim, whether you are viewing an online or print copy of this document.

Typeface

This book uses the following typeface conventions:

Bold	Used for the names of screen elements like buttons, drop-down lists, or fields. For example, when you are done with a dialog, you would click the **OK** button.
`Code`	Used for text a user must type to use the product.
Italic	Used for book titles, variables, and important term.
Hyperlink	Used for web site and cross reference links.

Cross References

When a topic is covered in depth elsewhere in this guide, or in another book in this series, a cross reference to the other information will be provided. Cross references within this book will take the form: “for more information about conventions, see page 6, Conventions.” Cross references to other publications will take the form: “for more information about <topic>, see *Publication Name*.”

Messages

Messages are special text that are emphasized by font, format, and icons. There are four types of messages in this book:

- Warning
- Caution
- Note
- Tip

A description of each message type with an example message follows.

Warning

Warnings tell you how to avoid physical injury to people or equipment. For people, injury includes anything from temporary conditions, such as pain, to irreversible conditions such as death. For equipment, injury means anything requiring repair. Warnings tell you what you should or should not do, and the consequences of not heeding the warning.

Warnings have an icon to the left showing a white lightning bolt drawn inside of a red octagon. Warnings also start with the word "WARNING", and are presented in bold face type.



WARNING: Only trained and qualified personnel should install, replace, or service this equipment. Disconnect the system before servicing.

Caution

Cautions tell you how to avoid a serious loss that stops short of physical damage such as the loss of data, time, or security. Cautions tell you what you should or should not do to avoid such losses, and the consequences of not heeding the caution.

Cautions have an icon to the left showing a black exclamation point drawn inside of a yellow triangle. Cautions also start with the word "CAUTION".



CAUTION: Do not type del *.* from the root (C:\) directory. Typing del *.* from the root directory will destroy all the program and configuration data that your computer needs to run, and will render your system inoperable.

Note

Notes tell you about information that might not be obvious, or that does not relate directly to the current topic, but that may affect relevant behavior.

A note has an icon to the left showing a piece of note paper, and starts with the word "Note".



Note: Most car rental companies no longer allow cash deposits in lieu of a credit card when renting a car. Non-credit card deposits can only be arranged by a lengthy application and approval process.

Tip

Tips are suggestions about how you can perform a task more easily or more efficiently.

A tip has an icon to the left showing a light bulb drawn inside and starts with the word “Tip”.



Tip: Setting the **logging** parameter to “off” or “minimal” will improve your system’s processing performance, but it will make debugging very difficult in the event of a system crash. During system integration, you can set logging to “full” to ease debugging. After you have finished testing, set logging to “minimal” to improve performance.

Related Documentation

The UnityOne™ systems have a full set of documentation. These publications are available in electronic format on your installation CDs. For the most recent updates, check the Threat Management Center (TMC) web site at https://tmc.tippingpoint.com.

Table About - 1: TippingPoint Documents

Audience	Publication	Location
Hardware Technicians	• *Quick Start TippingPoint 50* • *Quick Start TippingPoint 50 Thumbdrive* • *Quick Start TippingPoint 100E* • *Quick Start TippingPoint100E Thumbdrive* • *Quick Start TippingPoint 200 E* • *Quick Start TippingPoint 210E* • *Quick Start TippingPoint 1200E/2400E/5000E* • *Quick Start TippingPoint 200/400/1200/2400*	printed version in the UnityOne™ box, UnityOne™ Documentation CD, https://tmc.tippingpoint.com
	• *TippingPoint IPS Hardware Installation and Safety Guide* • *TippingPoint Zero Power High Availability Installation Guide* • *TippingPoint Modular Fiber/Copper ZPHA Installation Guide*	UnityOne™ Documentation CD, https://tmc.tippingpoint.com
	TippingPoint SMS Installation and Configuration Guide	printed version in the UnityOne™ box, UnityOne™ Documentation CD, https://tmc.tippingpoint.com, SMS server

Table About - 1: TippingPoint Documents (Continued)

System Administrators	*TippingPoint Local Security Manager User's Guide*	UnityOne™ Documentation CD, https://tmc.tippingpoint.com
	TippingPoint Local Security Manager Online Help	available in the LSM application
	TippingPoint Command Line Interface Reference	UnityOne™ Documentation CD, https://tmc.tippingpoint.com
	TippingPoint SMS Installation and Configuration Guide	hard copy in the shipping materials, UnityOne™ Documentation CD, https://tmc.tippingpoint.com
	TippingPoint Security Management System User's Guide	UnityOne™ Documentation CD, https://tmc.tippingpoint.com and on the SMS server
	TippingPoint Security Management System Online Help	available in the SMS application
	TippingPoint SMS Web Services API	UnityOne™ Documentation CD, https://tmc.tippingpoint.com and on the SMS server
	Third Party Management for TippingPoint IPS	UnityOne™ Documentation CD, https://tmc.tippingpoint.com

Customer Support

The TippingPoint Technologies customer support phone number is 1-866-681-8324.

TippingPoint Technologies is committed to providing quality customer support to all of its customers. Each customer is provided with a customized support agreement that provides detailed customer and support contact information. For the most efficient resolution of your problem, please take a moment to gather some basic information from your records and from your system before contacting customer support, including your customer number (on the Customer Support Agreement and shipping invoice that came with your system).

Table About - 2: Customer Support Information

Information	Location
Your customer number	You can find this number on your Customer Support Agreement and on the shipping invoice that came with your TippingPoint system.
Your NDS serial number	You can find this number on the shipping invoice that came with your UnityOne™ system.

Table About - 2: Customer Support Information

Information	Location
Your NDS software version number	You can find this information in the LSM in the System Stats frame, in the **Update** tab, or by using the CLI `show version` command.
Your NDS system boot time	You can find this information in the LSM in the System Stats frame.

1 Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the TippingPoint Intrusion Prevention System (IPS). The TippingPoint includes the following models: 50/200/400/1200/2400 and the E Series 100E/200E/210E/1200E/2400E/5000E.

Overview

In the highly technical era of data transfers and the Internet, the protection of data and networks concern most businesses, corporations, and network administrators. TippingPoint has studied the issue of data security and network protection from malicious activity and attacks. One of the solutions is the TippingPoint Intrusion Prevention System (IPS). The IPS provides constant vigilance of a network, monitoring and managing packets while blocking malicious attacks.

This chapter includes the following topics:

- "TippingPoint Overview" on page 1
- "TippingPoint Environment" on page 2

TippingPoint Overview

The TippingPoint Intrusion Prevention System (IPS) provides total packet inspection differing on the megabits per second according to model. In addition, the IPS integrates Intrusion Prevention, Stateful IP Filtering (traffic management filters), and network discovery security applications into a device with the uniformity and simplicity needed to achieve a high level of protection and prevention with minimal administrative action.

The IPS detects and blocks inappropriate, incorrect, or anomalous activity on the network by comparing network traffic with *filters* defined by the TippingPoint (TP) Threat Management Center (TMC). Devices use filters to scan traffic and recognize header or data content in the attack along with the protocol, service, and the operating system or software the attack affects. The attack filter includes an *action set,* which defines the reaction when the IPS encounters packets that match attack filter parameters. In a broad sense, the IPS either drops matching packets or permits them.

The Stateful IP filtering provides service-level, stateful inspection of network traffic. It incorporates filtering functionality to protect mission-critical applications. An administrator can specify a traffic management filter that determines how the system handles traffic to and from a particular a service. These filters are specified by the source, destination, and service or protocol of the traffic.

The IPS is responsible for the host and service database used by TippingPoint. The IPS scans your network and maintains an inventory of the active hosts and services on those hosts. System administrators can use information collected by the IPS to tune attack and IP filters.

Core Functionality

TippingPoint provides the following core functionality:

- Detection and suppression — Unlike an intrusion detection system (IDS), the IPS identifies and *stops* malicious traffic on the edge of the network.
- Filter customization — Through IP filters, exceptions, and attack filter creation, you can customize TippingPoint to meet the specific needs of your enterprise.
- Real-time threat aggregation — The TMC collects threat information from throughout the world, converts it to attack filters, and distributes it to TippingPoint™ customers.
- Monitoring — Enterprise networks are in a constant state of change. Because enterprises regularly reconfigure and add new devices and services, TippingPoint monitors the network for these changes using network discovery.
- Intrinsic Network High Availability — The data network security is protected against failures in the host and network processors. A fallback state is automatically invoked in the event of a hardware or software failure.

The following sections describe each security application in more detail.

TippingPoint Environment

The principle component of the TippingPoint environment is the IPS. A single IPS can be installed at the perimeter of your network or on your Intranet or both. The TippingPoint-50 and TippingPoint-100E can secure 1 network segment. The other TippingPoint models 200/400/1200/2400 and the E Series 200E/210E/600E/1200E/2400E/5000E can secure up to 4 network segments. A *segment* is two ports on an IPS. Members of the segment are hosts connected to those ports. All of the functionality of the IPS runs directly on the device as the TippingPoint Operating System (TOS). The LSM provides a graphical interface for on-the-box administration, configuration, and reporting. The Local Security Manager (LSM) is a web-browser client for managing your IPS. The LSM accesses the functionality of the IPS TOS.

You can also access the functionality of the IPS using the Command Line Interface (CLI). The CLI provides a command line interface for you to set values, run setup commands, and perform general functions. However, the LSM provides most of the advanced functionality such as reporting and filter configuration.

The Security Management System (SMS) provides functionality beyond that provided by the LSM and CLI. The SMS enables you to manage not one but multiple IPS devices. The SMS coordinates all IPS

devices across your TippingPoint environment for administration, configuration, and monitoring. Most importantly, the SMS includes enterprise-wide reporting and trend analysis.

From the SMS, you must set an overall profile of settings for each IPS. The profile controls how the device responds to traffic that matches filters. The IPS is always in *Active* mode, and reacts to traffic as specified by the appropriate filter.

The LSM and IPS maintain a connection to the Threat Management Center (TMC), which is located at TippingPoint headquarters. The TMC monitors 10,000 sensors around the world for the latest attack information. As a result, your network can be continually inoculated.

Each component of the TippingPoint environment is discussed in more detail in the following sections.

Threat Suppression Engine

The Threat Suppression Engine (TSE) is a highly specialized, hardware-based intrusion prevention platform consisting of state-of-the-art network processor technology and TippingPoint's own set of custom ASICs. The TSE is a line-speed, hardware engine that contains all the functions needed for Intrusion Prevention, including IP defragmentation, TCP flow reassembly, statistical analysis, traffic shaping, flow blocking, flow state tracking, and application-layer parsing of over 170 network protocols.

The TSE reconstructs and inspects flow payloads by parsing the traffic at the application layer. As each new packet of the traffic flow arrives, the engine re-evaluates the traffic for malicious content. The instant the engine detects malicious traffic, it blocks all current and all subsequent packets pertaining to the traffic flow. The block of the traffic and packets ensures that the attack never reaches its destination.

The combination of high-speed network processors and custom ASIC chips provide the basis for IPS technology. These highly specialized traffic classification engines enable the IPS to filter with extreme accuracy at gigabit speeds and microsecond latencies. Unlike software-based systems whose performance is affected by the number of filters installed, the highly-scalable capacity of the hardware engine allows thousands of filters to run simultaneously with no impact on performance or accuracy.

IPS Devices

Intrusion Prevention System (IPS) devices protect your network by scanning, detecting, and responding to network traffic according to the filters, action sets, and global settings maintained on each device by a client. Each device provides intrusion prevention for your network according to the amount of network connections and hardware capabilities.

TippingPoint IPS devices are designed to handle the extremely high demands of carriers and high-density data centers. Even while under attack, TippingPoint Intrusion Prevention Systems are extremely low-latency network infrastructure ensuring switch-like network performance. TippingPoint also has built-in intrinsic high-availability features, guaranteeing that the network keeps running in the event of system failure.

TippingPoint IPS devices are active network defense systems using the Threat Suppression Engine (TSE) to detect and respond to attacks. TippingPoint Intrusion Prevention Systems are optimized to provide high resiliency, high availability security for remote branch offices, small-to-medium and large enterprises and collocation facilities. Each TippingPoint device can protect network segments from both external and internal attacks. TippingPoint Intrusion Prevention Systems are extremely low-latency network infrastructure ensuring switch-like network performance, even while under attack. TippingPoint also has built-in intrinsic high-availability features, guaranteeing that the network keeps running in the event of system failure.

IPS devices provide the following segments and traffic performance:

- TippingPoint-50 — One 10/100 segment at an aggregate 50 megabits/second
- TippingPoint 100E — One 10/100/1000 segment at an aggregate 100 megabits/second
- TippingPoint 200 and 200E — Two 10/100 segments at an aggregate 200 gigabits/second
- TippingPoint 210E —Five one-gigabit copper segments at an aggregate 5.0 gigabits/second
- TippingPoint 400 — Four 10/100 segments at an aggregate 400 gigabits/second
- TippingPoint 600E —Four 10/100 segments at an aggregate 400 gigabits/second
- TippingPoint 1200 and 1200E — Four 10/100/1000 segments at an aggregate 1.2 gigabits/second
- TippingPoint 2400 and 2400E — Four 10/100/1000 segments at an aggregate 2.0 gigabits/second
- TippingPoint 5000E — Four 10/100/1000 segments at an aggregate 5.0 gigabits/second

Multiple TippingPoint devices can be deployed to extend this unsurpassed protection to hundreds of enterprise zones. You can monitor and manage the devices through local clients or up to 1,000 devices through the SMS Client. E Series systems provide enhanced network protection through Distributed Denial of Service (DDoS) filters and reporting options.

You can also implement an optional device called the Zero Power High Availability (ZPHA). This device provides continued traffic in the event of a power loss in your IPS devices.

Local Security Manager

The Local Security Manager (LSM) is responsible for local administration, configuration, and reporting for a single IPS. Through the use of a graphical user interface (GUI), the LSM provides the interfaces, tools, and processes that configure and monitor the IPS. The LSM provides a subset of the management functionality offered through the Security Management System, which is designed to manage several IPS units from a central server.

You access the LSM through a web-browser (Internet Explorer V. 6+). The application accesses the TippingPoint Operating System and settings stored on the device. Through the LSM, you can manage settings directly to the device. You access each device to use the LSM. The LSM is not a central application that accesses each device in turn, but resides as a graphical client for managing the device.

For more detailed information, see the *TippingPoint Local Security Manager User's Guide*.

Security Management System

The Security Management System (SMS) provides a global view and control for the TippingPoint environment. It is shipped as a management server and includes an enterprise desktop—the workstation client—through which end users can perform secure, policy-based management tasks for multiple IPS devices. It provides facilities similar to the LSM, but supports a larger scope. Most importantly, it provides enterprise-wide reporting.

Unlike the LSM, the SMS client provides a central application for managing multiple IPS devices. You can create multiple profiles of filters with settings to distribute to specific devices organized in segment groups. You can also update the TOS software updates, Digital Vaccine packages, and configuration settings for all devices through the SMS.

For more detailed information, see the *TippingPoint Security Management System User's Guide*.

Threat Management Center

The Threat Management Center (TMC) is the central intelligence bureau for the TippingPoint environment. The TMC performs comprehensive global reconnaissance for emerging threats. It rapidly builds new signatures and algorithms to suppress such threats.

The TMC offers the following end user service:

- Digital Vaccine — A subscription service that offers real-time continuous update capability. With Digital Vaccine, the IPS devices pull new threat signatures from the TMC on a routine basis.
- Software Updates — Updated versions of the software you can use for your TippingPoint system, including the Local Security Manager and Security Management System.
- Documentation — Downloadable PDF files of software and hardware documentation, including release notes.
- Technical Support — Details information for contacting and receiving technical support for user issues.

2 Prepare the Site

This chapter discusses the general requirements necessary to prepare your site for the installation of the TippingPoint System.

Overview

Before installing the new TippingPoint, you need to gather materials and prepare the network and hardware site. To carefully and correctly install the component(s) you must read through all preparation instructions and requirements. This chapter includes general guideline information for all TippingPoint devices.

The chapter consists of the following sections:

- "Safety Requirements" on page 8
- "Rack and Clearance Requirements" on page 12
- "Ventilation and Location" on page 12
- "Environmental Requirements" on page 12
- "Reliable Earthing" on page 12
- "System Grounding Requirements" on page 13
- "Unpack the TippingPoint System" on page 13

For specific information on the models, review the specific chapters per model:

- Chapter 3, "TippingPoint 50 Overview"
- Chapter 4, "TippingPoint 100E Overview"
- Chapter 5, "TippingPoint 200E Overview"
- Chapter 6, "TippingPoint 210E Overview"
- Chapter 7, "TippingPoint 200/400/1200/2400 Overview"
- Chapter 8, "TippingPoint 600E/1200E/2400E/5000E Overview"

Safety Requirements

If not properly installed and maintained, electrical circuitry equipment like the TippingPoint can pose dangers to both personnel and equipment. To prevent accidents, adhere to the following guidelines to ensure general safety:

- Remove any dust from the area and keep the area around the TippingPoint system clear and dust-free during and after installation.
- Wear safety glasses if you are working under conditions that might be hazardous to your eyes.
- There are no serviceable parts inside.

Note: This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sure le matériel brouilleur du Canada.

Note: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: this device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

Note: This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions. Statement 191

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－ A

See the following list of cautions and warnings for further safety guidelines.

CAUTION: Before you start the installation procedures, read this entire chapter for important information and safety warnings.

Use proper electromagnetic static discharge (ESD) protection whenever you handle TippingPoint equipment.

Do not power up the equipment while you install and connect the system.

If you connect the power improperly and then apply power, the cards and chassis could be damaged.

The equipment rack must be anchored to an unmovable support to prevent it from falling over when one or more servers are extended in front of it on slide assemblies. The equipment rack must be installed according to the manufacturer's instructions. You must also consider the weight of any other device installed in the rack.

You are responsible for installing an AC power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire unit, not just to the server.

Make sure that the chassis cooling fans run continuously while the system is powered.

CAUTION: Make sure all cards are completely connected to the backplane. Improper connections can disrupt system operation

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

WARNING: This warning symbol means danger. It tells you how to avoid physical injury to people or equipment. For people, injury includes anything from temporary conditions, such as pain, to irreversible conditions such as death. For equipment, injury means anything requiring repair. Warnings tell you what you should or should not do, and the consequences of not heeding the warning.

Only trained and qualified personnel should install, replace, or service this equipment. Disconnect the system before servicing.

This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.

Do not operate the system unless all cards and top cover is in place.

To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

This equipment is to be installed and maintained by service personnel only as defined by AS/NZS 3260 Clause 1.2.14.3 Service Personnel.

This unit is intended for installation in restricted access areas only.

When connecting equipment to IT power distributions, Phase to phase voltage must not exceed 240 V.

The ports on the front of the TippingPoint are Safety Extra-Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

Do not work on the system or connect or disconnect cables during periods of lightning activity.

To prevent the unit from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 104° F (40° C). To prevent airflow restriction, allow at least 3 inches (7.6 cm) of clearance around the ventilation openings.



WARNING: Only trained and qualified personnel should install, replace, or service this equipment. Disconnect the system before servicing.

Read all of the installation instructions before you connect the system to its power source.

Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

This product can contain Class 1 lasers. Do not stare into the laser beam or view it directly with optical instruments. Install covers for the laser connectors when they are not in use.

When installing the TippingPoint-2000, always make the ground connection first and disconnect it last. This equipment needs to be grounded. Use a green and yellow 14 AWG ground wire to connect the host to earth ground during normal use.

The cards and modules can get hot during operation. When removing a card or module, hold it by the faceplate and bottom edge. Allow the card or module to cool before touching any other part of it or before placing it in an antistatic bag.

The TippingPoint-2000 uses double pole/neutral fusing. Use caution when servicing this product.

For protection against fire on the TippingPoint-2000, use replacement fuses with the following type and rating only: 250 Volts, 6.3 Amperes.

On the TippingPoint-2000, do not operate the system unless all cards, faceplates, front covers, and rear covers are in place. Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that could disrupt other equipment; and they direct the flow of cooling air through the chassis.

On the TippingPoint-2000 during this procedure, wear grounding wrist straps to avoid ESD damage to cards and modules. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

To prevent personal injury or damage to the chassis, lift the chassis from underneath its lower edge.

Enclosed racks may have higher ambient temperatures than open racks. Ensure enclosed racks ambient temperatures do not exceed maximum recommended ambient temperature of 104 °F (40 °C).

Rack and Clearance Requirements

Tipping Point recommends that you mount the TippingPoint system in a standard 19-or 23-inch rack. The vertical hole spacing on the rack rails must meet standard EIA-310-C requirements, which call for a one inch (2.54 cm) spacing. Ensure that you have a minimum of three inches clearance at the side of the ventilation slots.

Ventilation and Location

Ventilation and proper location are essential to the proper operation of the TippingPoint system.

To ensure that the TippingPoint receives adequate ventilation,

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- Ensure that the unit is positioned properly on the rack
- There should be three inches clearance at the ventilation openings.
- When mounting this unit in an enclosed or mulit-rack assembly, the operating ambient of the rack may be greater than the room ambient. Ensure the maximum ambient temperature of 104° F (40 ° C) is not exceeded.

Environmental Requirements

In order for the TippingPoint to run properly, your environment must meet the proper criteria.

The following table details the recommendations for temperature, humidity, and altitude settings for the Service Provider (SP) environment.

Table 2 - 1: TippingPoint Environmental Requirements for the TippingPoint

Environmental Specifications	Description
Temperature	0 to 40 ° C (32 to 104 ° F) — Operating -20 to 80° C (-4 to 176 ° F) — Storage
Humidity	5 to 95% (non-condensing)
Altitude	No degradation up to 13K feet above sea level

Reliable Earthing

Ensure the mounting rack is reliably connected to earth. When properly installed, the TippingPoint-50 will be grounded through the rack mounting ear's to the rack.

System Grounding Requirements

Damage from Electromagnetic Static Discharge (ESD) can occur when electronic components are improperly handled. Its results can be complete or intermittent system failures. Therefore, proper ESD protection is required whenever you handle equipment. It is not necessary to open the Unity One Model 50 chassis to add or remove any components. The following general grounding guidelines apply in the event that a redundant power supply module must be replaced.

Follow these guidelines to prevent ESD damage of the TippingPoint system and its components:

- Always use an ESD wrist strap when adding or removing components from the chassis.
- Avoid touching the circuit boards or connectors on all cards and modules.
- Avoid contact between the printed circuit boards and clothing. The wrist strap only protects components from ESD voltages on the body. ESD voltages on clothing can still cause damage.
- Place a removed component board-side-up on an antistatic surface or in a static-shielding container that is also grounded to the same point as the IPS. If you plan to return the component to the factory, immediately place it in a static-shielding container.

Grounding

Before handling the TippingPoint cards or modules, you must first ground yourself to the chassis. This action helps to prevent ESD damage, which can have devastating effects on the components.

Note: To complete this procedure, you must use an ESD grounding strap.

To ground yourself

STEP 1 Attach one end of the ESD grounding strap to your wrist. Ensure that it makes good contact with your skin.

STEP 2 Attach the other end of the ESD grounding strap onto a grounded surface.

Unpack the TippingPoint System

Each system chassis is securely packaged in a shipping box.

CAUTION: ESD can damage the TippingPoint if you do not take necessary precautions. Installation and maintenance personnel should be properly grounded using ground straps to eliminate the risk of ESD damage to the equipment. All cards and modules are subject to ESD damage whenever they are removed from the chassis.

Use caution when opening the TippingPoint boxes.

To unpack the TippingPoint system, complete the following steps:

STEP 1 Inspect the packing container. If you see any damage or other signs of mishandling, inform both the local freight provider and TippingPoint before unpacking. Your freight provider can provide you with the procedures necessary to file a claim for damages.

STEP 2 Carefully open the box.

STEP 3 Remove all packing material.

STEP 4 Verify the contents in the shipping package. Compare the packing list to your shipment and to your order. Are all items included? If items are missing, contact your TippingPoint sales or field representative.

STEP 5 Remove the chassis from the box.

STEP 6 Open the accessory kit. It contains the cables, documentation, and management software.

STEP 7 Inspect all the equipment inside for damage. If you think any equipment might be damaged, contact your freight provider for how to lodge a damage claim. Also, contact your TippingPoint sales or field representative for instructions.



Please Recycle: The shipping materials are recyclable. Please save for later use or dispose of them appropriately.

3 TippingPoint 50 Overview

This chapter discusses how to install and configure the TippingPoint 50 Intrusion Prevention System and its components.

Overview

This chapter details the components, chassis, requirements, and installation of the TippingPoint 50 IPS device.

Prior to installation, you should also obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will need to run through the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This chapter includes the following sections:

- "Chassis Overview" on page 15
- "Model Requirements" on page 18
- "Technical Specifications" on page 19
- "Hardware Installation and Configuration" on page 21

Chassis Overview

The TippingPoint 50 system comprises a one rack unit (RU, 1 = 1.75 inches) chassis that uses a front-access with access to one network segments. It is rack-mountable on a 19- or 23-inch rack and contains one power supply and two chassis cooling fans. You can also set the device on a desktop with rubber feet.

The system uses a USB ThumbDrive for updating and running the TippingPoint Operating System (TOS). The chassis includes a second USB port for use with future expansions. Do not use the USB port for connecting a workstation. There are no removable cards in the chassis, although some software commands may refer to slot 3 when configuring certain aspects of this IPS model. This is necessary to ensure Command Line Interface (CLI) compatibility with other models of the TippingPoint, specifically the TippingPoint Intrusion Prevention System Model 50.

The following figure displays the TippingPoint Model 50 front panel. TippingPoint

Figure 3 - 1: TippingPoint Model 50 - Front Panel

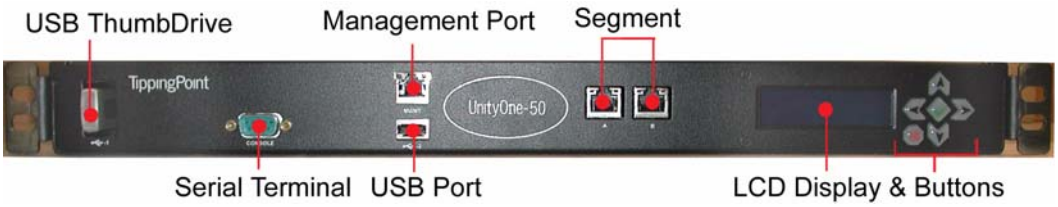


Figure 3 - 2: TippingPoint Model 50 - Back Panel



The following sections describe the TippingPoint IPS Model 50 hardware components.

Chassis Features

The chassis offers features for viewing the status of the system and modifying settings. This section includes the following topics:

- "LEDs" on page 16
- "Power Switch" on page 17
- "Liquid Crystal Display (LCD)" on page 18
- "USB ThumbDrive" on page 18

LEDs

There are a set of LED lights on the front panel: status and two for the ports.

The following table details the Link/Activity and Speed LEDs that are at the upper left and right corners of each port connector.

Table 3 - 1: Segment Port LED Descriptions

LED	Color	State	Description
Link/Activity (right)	No light	Not-Synchronized	Provides information about whether the port on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Green	Connected/ Synchronized	Green means the port is connected and ready for data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Speed (left)	No light	Speed 10Mbps	Provides information about speed of data passing through the port. Data passes through at 10Mbps.
	Green	Speed 100Mbps	Data passes through at 100Mbps.
	Yellow/Orange	Speed 1000Mbps	Data passes through at 1000Mbps.

The management port has its own set of LEDs.

Table 3 - 2: Management Port LED Descriptions

LED	Color	State	Description
Link/Activity (left)	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Green	Link Available	Solid green means the port is available, but not passing data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Speed (right)	No light	10Mbps	Provides information on the speed of data through the port. No light indicates data passes through the port at 10Mbps.
	Amber	100Mbps	Amber means the port passes data through at 100Mbps.

Power Switch

The power switch is located on the back panel. This unit contains a single universal AC-DC power supply. To use the keypad to turn the device on and off, you must turn the power switch to “on”. Use the Select Button for power on. Use the Cancel Button for power off (hold down for 6 seconds).

Liquid Crystal Display (LCD)

There is a two line LCD on the front panel of the IPS that is under software control and provides operational information during network operations.

USB ThumbDrive

Your version of the TippingPoint 50 may include ThumbDrive system. The device receives updates of the TippingPoint Operating System (TOS), storing the information and filters to this storage drive. You can insert or remove the ThumbDrive from a powered down device. When you update the TOS software through the LSM or SMS, the information on the removable storage updates.

You do not have to update FPGAs as on other TippingPoint devices.

CAUTION: Do not remove the ThumbDrive while the device is in use or powered up.

Model Requirements

The following sections detail the specific requirements for the TippingPoint 400/1200/2400 models:

- "Power Requirements" on page 18
- "Cabling Requirements" on page 18

Power Requirements

The TippingPoint requires one input of Alternating Current (AC): 100-240VAC @ 3-6 amperes, 50/60 Hertz (Max Power Consumption 200W).

WARNING: This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.

Cabling Requirements

The TippingPoint ships with the following cables:

- One AC power cable for the power supply
- Null modem cable (DB-9 FM - DB-9 FM) for (COM) port

You can also receive a Right Angle IEC Receptacle power cord for the device. You can use this cable for connecting power to the device in cases where you may not have enough room for a straight power connection cable. This cable helps in situations when you need to install a device in a tight rack with a door. The 90 degree bend in the female end of the cable prevents the cord from being pinched between the device and the door.

Technical Specifications

The following sections detail the hardware, technical, and software specification for the TippingPoint 50.

- "Hardware Specifications" on page 19
- "Technical Specifications" on page 20
- "Software Specifications" on page 20

Hardware Specifications

This section details the specifications for the hardware components:

The following table provides technical specifications for the TippingPoint Intrusion Prevention System.

Table 3 - 3: TippingPoint-50 Specifications

Specification		Description
Dimensions		1RU - 1.75in x 17.25in x 12.0in(4.45cm x 43.82cm x 30.48cm) Rack mountable in a 19" and 23" front or center mount racks.
Weight		12.5 lbs (5.8kg)
Management Interface		One 10/100 Ethernet interface
Serial Interface		DB-9 interface - COM1, 115200 baud, parity: none
Network Interfaces		1 copper port supporting up to 50 Mbps of traffic.
Power Requirements		100-240VAC @ 3-6 amperes, 50/60 Hertz Max Power Consumption 200W
Service Provider operating requirements	Temperature	32 to 104°F (0 to 40°C) — Operating -4 to 158°F (-20 to 70°C) — Storage
	Altitude	No degradation up to 13K feet
	Humidity	5% to 95% (non-condensing)

Technical Specifications

The following table provides technical specifications on the Model 50 hardware.

Table 3 - 4: Model 50 Hardware Specifications

Specification	Description
External hardware	USB ThumbDrive, 512 MB
Power consumption	Max 200W
External interfaces	One 10/100/1000 Ethernet Segment, one DB-9 serial, one USB
Bus interface	PCI bus, PCI Industry Consortium Manufacturing Group (PICMG)-compliant
Software requirements and network management requirement	TP Security Management Software (SMS) Version 1.4.2 and above.
Maximum data rates (per port)	50 Megabit per second
External interfaces	2 ports (standard copper)

Software Specifications

To run the TippingPoint Intrusion Prevention System (IPS), you need one of the following software applications/devices.

Table 3 - 5: Software Specifications for the TippingPoint-50

Specification	Description
TippingPoint Security Management System (SMS) Software, Version 1.4.2 and above. (optional)	SMS can optionally be used to manage multiple TippingPoint Intrusion Prevention System devices.
1 Windows-based PC running Windows 9x, NT or 2000	Must be attached to your network (PC needs a serial port available)

Hardware Installation and Configuration

After you have completed preparation procedures and unpacked the TippingPoint IPS, you can install and configure the components. The TippingPoint-50 IPS ships with the following pre-installed components:

- 2 Ethernet ports (segment)
- A host processor card to control, configure, monitor, and store network traffic
- One power supply
- A USB ThumbDrive port and ThumbDrive removable storage
- A USB port for connecting a workstation
- An integrated fan assembly
- A 32 character LCD Display

Prior to installation, obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will use one of the TippingPoint Setup Wizards as part of the installation and configuration procedures.

This section includes the following procedures:

- "TNHA Hardware Configuration" on page 21
- "TippingPoint 50 Chassis" on page 22
- "Attach Network Connections" on page 23
- "Check LEDs" on page 23
- "Setup Wizard" on page 25

TNHA Hardware Configuration

During the unpacking and installation of the TippingPoint IPS device, consider the following for Transparent Network High Availability (TNHA) configuration. Before configuring the TNHA settings, consider and perform specific hardware and software configurations for the devices and the network. These configuration settings include the following:

- The network and devices must have a secure connection to a partner for the TNHA to function.
- TNHA uses SSLv3. It also communicates on TCP port 9591.
- TNHA devices can only connect and communicate with a partner configured to talk to likewise configured machines. In other words, both machines participating must point to each other.



WARNING: Security caveat: A hi-jacked IPS or a rogue IPS that "steals" the IP address of a TRHA partner can communicate with a legitimate IPS.

TippingPoint 50 Chassis

Use the following sections to install the TippingPoint 50 Chassis:

- "Determine Total Rack Space" on page 22
- "Bolt the Device to the Rack" on page 22
- "Insert ThumbDrive" on page 22
- "Connect the Power Supply" on page 23

Determine Total Rack Space

Before you install the chassis, determine the total rack space that is required to install your system. The required rack space will increase if you plan to install multiple systems.

The TippingPoint system fits in either a 19-inch or a 23-inch wide rack. See the following table for individual rack space requirements.

Table 3 - 6: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Physical Size of Rack (Total number of chassis must be < or = 42 RUs). The TippingPoint 50 requires 1RU.	Typical	9 chassis maximum on a seven foot rack
Network Equipment Building Systems (NEBS) (Total number of chassis must generate: < or = 1372 Watts)	Typical	8 chassis generating < or = 168 Watts

Bolt the Device to the Rack

Use the following guidelines when bolting the TippingPoint to the rack:

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable.

- If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If you plan to expand your system to include additional TippingPoint systems in the future, allow space in the rack for additions. During the initial installation, keep in mind the weight distribution and stability of the rack.

Insert ThumbDrive

Insert a USB ThumbDrive into the TippingPoint-50. You received this storage unit with the TippingPoint 50. Carefully insert it into the USB ThumbDrive port (left-side of chassis front panel)

and make sure it is secure. The removable storage includes all TOS software and settings. The device runs and stores all data on this drive.

WARNING: You must insert the ThumbDrive before powering up the TippingPoint 50 IPS. All data, software, and settings are on the card.

Connect the Power Supply

After you have bolted the TippingPoint to the rack, attach the power supply AC connections.

The device also comes with a Right Angle IEC Receptacle power cord. Use this cable for connecting power to the device in cases where there is not enough room for a straight power connection cable. For example, use this cable when you need to install a device in a tight rack with a door. The 90 degree bend in the female end of the cable prevents the cord from being pinched between the device and the door.

To turn the power on, turn on the power switch located on the back panel of the device. To use the keypad to turn the device on and off, turn the power switch to "on". Use the **Select** button for power on. Use the **Cancel** button for power off (hold down for 6 seconds).

Attach Network Connections

The TippingPoint 50 IPS can act as a simple Layer 2 switch or can aggregate and redirect up to 50Mbps of traffic. The TippingPoint 50 contains 2 copper RJ-45 ports.

To connect to copper (RJ-45) ports

STEP 1 Locate the RJ-45 port on the module.

STEP 2 Plug one end of the Category 5 cable into the RJ-45 port.

STEP 3 Plug the other end of the cable into your network port.

STEP 4 Repeat the above-listed steps for each copper port on the MZD module.

To connect to a CONSOLE port

STEP 1 Locate the CONSOLE port.

STEP 2 Connect one end of the null modem cable to the IPS CONSOLE port.

STEP 3 Connect the other end of the modem cable to the CONSOLE port on your PC or terminal.

STEP 4 Perform the set-up procedure using the LSM or the SMS (refer to the appropriate user guide).

Check LEDs

When you connect power to the system, the system completes a series of component checks and then displays LEDs to show the status of each component. See the following sections for information about LEDs for individual components.

The following table provides a detailed description of the LEDs.

Table 3 - 7: LED Descriptions for the IPS

LED	Color	State	Description
Link/Activity (right, segment)	No light	Not-Synchronized	no link, no connection Provides information about whether the port on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Green	Connected/ Synchronized	Green means the port is connected and ready for data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Speed (left, segment)	No light	Speed 10Mbps	Provides information about speed of data passing through the port. Data passes through at 10Mbps.
	Green	Speed 100Mbps	Data passes through at 100Mbps.
	Yellow/Orange	Speed 1000Mbps	Data passes through at 1000Mbps.
Link/Activity (left, management port)	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Green	Link Available	Solid green means the port is available, but not passing data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Speed (right, management port)	No light	10Mbps	Provides information on the speed of data through the port. No light indicates data passes through the port at 10Mbps.
	Amber	100Mbps	Amber means the port passes data through at 100Mbps.

Setup Wizard

After you have powered on, the TippingPoint setup wizard displays on the COM port terminal. The wizard guides you through basic configuration tasks and prompts for input information. You can run the wizard through any of the following processes:

- Out-of-the-Box Terminal Setup Wizard — Runs when the setup wizard is activated for the first time or later with the `setup` command. This wizard is run on a serial port connected system, such as a workstation and laptop.
- Out-of-the-Box LCD Setup Wizard — Runs directly on the LCD panel, overriding any serial port connected system. You can access the device through a serial connected workstation or laptop after the setup completes.
- Additional Configuration — After you run the setup wizard using serial terminal or IPS LCD, you can further configure your system using subsequent setup commands through the Command Line Interface (CLI).

See the *TippingPoint Command Line Interface Reference* for detailed instructions.

4 TippingPoint 100E Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the TippingPoint Intrusion Prevention System (IPS) 100E.

Overview

This chapter details the components, chassis, requirements, and installation of the TippingPoint 100E IPS device.

Prior to installation, obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will use one of the TippingPoint Setup Wizards as part of the installation and configuration procedures.

This chapter includes the following topics:

- "Chassis Overview" on page 28
- "Technical Specifications" on page 30
- "Hardware Installation and Configuration" on page 32

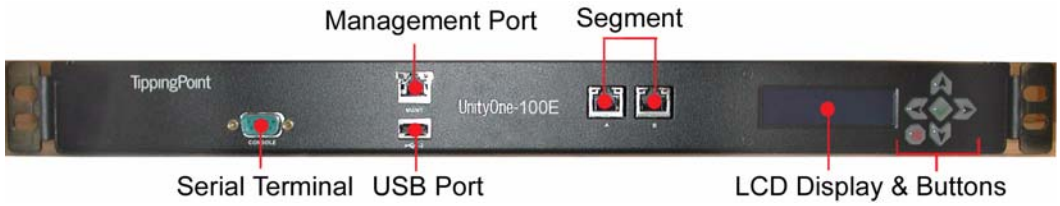
Chassis Overview

The TippingPoint 100E system comprises a one rack unit (RU, 1 = 1.75 inches) chassis that uses a front-access with access to one network segments. It is rack-mountable on a 19- or 23-inch rack and contains one power supply and two chassis cooling fans.

The system uses an IDE Flash drive for updating and running the TippingPoint Operating System (TOS). The chassis includes a USB port for use with future expansions. Do not use the USB port for connecting a workstation. There are no removable cards in the chassis, although some software commands may refer to slot 3 when configuring certain aspects of this IPS model. This is necessary to ensure Command Line Interface (CLI) compatibility with other models of the TippingPoint, specifically the TippingPoint Intrusion Prevention System Model 100E.

The following figure displays the TippingPoint Model 100E front panel.

Figure 4 - 1: TippingPoint Model 100E - Front Panel



Note: Your device may include an additional USB port on the front chassis, left side. This port is functional.

Figure 4 - 2: TippingPoint Model 100E - Back Panel



The following sections describe the TippingPoint IPS Model 100E hardware components.

Chassis Features

The chassis offers features for viewing the status of the system and modifying settings. This section includes the following topics:

- "LEDs" on page 29
- "Power Switch TippingPoint" on page 30
- "Liquid Crystal Display (LCD)" on page 30

LEDs

There are a set of LED lights on the front panel: status and two for the ports.

The following table details the Link/Activity and Speed LEDs that are at the upper left and right corners of each port connector.

Table 4 - 1: Segment Port LED Descriptions

LED	Color	State	Description
Link/Activity (right)	No light	Not-Synchronized	Provides information about whether the port on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Green	Connected/ Synchronized	Green means the port is connected and ready for data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Speed (left)	No light	Speed 10Mbps	Provides information about speed of data passing through the port. Data passes through at 10Mbps.
	Green	Speed 100Mbps	Data passes through at 100Mbps.
	Yellow/Orange	Speed 1000Mbps	Data passes through at 1000Mbps.

The management port has its own set of LEDs.

Table 4 - 2: Management Port LED Descriptions

LED	Color	State	Description
Link/Activity (left)	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Green	Link Available	Solid green means the port is available, but not passing data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Speed (right)	No light	10Mbps	Provides information on the speed of data through the port. No light indicates data passes through the port at 10Mbps.
	Amber	100Mbps	Amber means the port passes data through at 100Mbps.

Power Switch TippingPoint

The power switch is located on the back panel. This unit contains a single universal AC-DC power supply. To use the keypad to turn the device on and off, you must turn the power switch to “on”. Use the Select Button for power on. Use the Cancel Button for power off (hold down for 6 seconds).

Liquid Crystal Display (LCD)

There is a two line LCD on the front panel of the IPS that is under software control and provides operational information during network operations.

Technical Specifications

The following section details the hardware, technical, and software specification for the TippingPoint 100E.

- “Hardware Specifications” on page 30
- “Technical Specifications” on page 31
- “Software Specifications” on page 32

Hardware Specifications

This section details the specifications for the hardware components:

The following table provides technical specifications for the TippingPoint Intrusion Prevention System.

Table 4 - 3: TippingPoint 100E Specifications

Specification	Description
Dimensions	1RU - 1.75in x 17.25in x 12.0in (4.45cm x 43.82cm x 30.48cm) Rack mountable in a 19" and 23" front or center mount racks.
Weight	12.5 labs (5.8kg)
Management Interface	One 10/100 Ethernet interface
Serial Interface	DB-9 interface - COM1, 115200 baud, parity: none
Network Interfaces	1 copper port supporting up to 100 Maps of traffic.
Power Requirements	100-240VAC @ 3-6 amperes, 50/60 Hertz Max Power Consumption 200W

Table 4 - 3: TippingPoint 100E Specifications

Specification		Description
Service Provider operating requirements	Temperature	32 to 104F (0 to 40C) — Operating -4 to 158F (-20 to 70C) — Storage
	Altitude	No degradation up to 13K feet
	Humidity	5% to 95% (non-condensing)

Technical Specifications

The following table provides technical specifications on the Model 100E hardware.

Table 4 - 4: Model 100E Hardware Specifications

Specification	Detail	Description
Internal hardware	Processor	Punting 4 card at 2.8 Gaze with 256MB of DRAM. Hard drive capacity of minimum30 GB 1st level cache: 32 KB on CPU full-speed cache 2nd level cache: 256 KB on CPU full-speed cache BIOS: 2 Mb of VxWorks Flash
	Bus	PCI, 32 bits at 33 MHz
Power consumption		Max 300W
External interfaces		One 10/100/1000 Ethernet Segment, one DB-9 serial, one USB
Bus interface		PCI bus, PCI Industry Consortium Manufacturing Group (PICMG)-compliant
Software requirements and network management requirement		TP Security Management Software (SMS) Version 2.1 and above.
Maximum data rates (per port)		100 Megabit per second
External interfaces		4-8 ports (depending on model, standard copper or fiber or a combination of each)

Software Specifications

To run the TippingPoint Intrusion Prevention System (IPS), you need one of the following software applications/devices.

Table 4 - 5: Software Specifications for the TippingPoint 100E

Specification	Description
TippingPoint Security Management System (SMS) Software, Version 2.1 and above. (optional)	SMS can optionally be used to manage multiple TippingPoint Intrusion Prevention System devices.
1 Windows-based PC running Windows 9x, NT or 2000	Must be attached to your network (PC needs a serial port available)

Hardware Installation and Configuration

The TippingPoint 100E IPS ships with the following pre-installed components:

- 2 Ethernet ports (segment)
- A host processor card to control, configure, monitor, and store network traffic
- One power supply
- An IDE Flash Drive
- An integrated fan assembly
- A 32 character LCD Display

Prior to installation, obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will use one of the TippingPoint setup wizards as part of the installation and configuration procedures.

This chapter includes the following sections:

- "TNHA Hardware Configuration" on page 32
- "Install the TippingPoint Chassis" on page 33
- "Attach Network Connections" on page 34
- "Check LEDs" on page 34
- "Setup Wizard" on page 36

TNHA Hardware Configuration

During the unpacking and installation of the TippingPoint IPS device, consider the following for Transparent Network High Availability (TNHA) configuration. Before configuring the TNHA settings,

you must consider and perform specific hardware and software configurations for the devices and the network. These configuration settings include the following:

- The network and devices must have a secure connection to a partner for the TNHA to function.
- TNHA uses SSLv3. It also communicates on TCP port 9591.
- TNHA devices can only connect and communicate with a partner configured to talk to likewise configured machines. In other words, both machines participating must point to each other.

WARNING: Security caveat: A hi-jacked IPS or a rogue IPS that "steals" the IP address of a TRHA partner can communicate with a legitimate IPS.

Install the TippingPoint Chassis

To install the TippingPoint you must do the following:

- "Determine Total Rack Space" on page 33
- "Bolt the Device to the Rack" on page 33
- "Connect the Power Supply" on page 34

Determine Total Rack Space

Before you install the chassis, determine the total rack space that is required to install your system. The required rack space will increase if you plan to install multiple systems.

The TippingPoint system fits in either a 19-inch or a 23-inch wide rack. See the following table for individual rack space requirements.

Table 4 - 6: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Physical Size of Rack (Total number of chassis must be < or = 42 Us). The TippingPoint 100E requires 1RU.	Typical	42 chassis maximum on a seven foot rack
Network Equipment Building Systems (NEBS) (Total number of chassis must generate: < or = 1372 Watts)	Typical	13 chassis generating < or = 105 Watts

Bolt the Device to the Rack

Use the following guidelines when bolting the TippingPoint to the rack:

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable.

- If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If you plan to expand your system to include additional TippingPoint systems in the future, allow space in the rack for additions. During the initial installation, keep in mind the weight distribution and stability of the rack.

Connect the Power Supply

After you have bolted the TippingPoint to the rack, attach the power supply AC connections.

The device also comes with a Right Angle IEC Receptacle power cord. Use this cable for connecting power to the device in cases where there is not enough room for a straight power connection cable. For example, use this cable when you need to install a device in a tight rack with a door. The 90 degree bend in the female end of the cable prevents the cord from being pinched between the device and the door.

To turn the power on, you turn on the power switch located on the back panel of the device. To use the keypad to turn the device on and off, you must turn the power switch to "on". Use the Select Button for power on. Use the Cancel Button for power off (hold down for 6 seconds).

Attach Network Connections

The TippingPoint 100E IPS can act as a simple Layer 2 switch or can aggregate and redirect up to 100Mbps of traffic. The TippingPoint 100E contains 2 copper RJ-45 ports.

To connect to copper (RJ-45) ports

STEP 1 Locate the RJ-45 port on the module.

STEP 2 Plug one end of the Category 5 cable into the RJ-45 port.

STEP 3 Plug the other end of the cable into your network port.

STEP 4 Repeat the above-listed steps for each copper port on the MZD module.

To connect to a COM port

STEP 1 Locate the COM port.

STEP 2 Connect one end of the null modem cable to the IPS COM port.

STEP 3 Connect the other end of the modem cable to the COM port on your PC or terminal.

STEP 4 Perform the set-up procedure using the LSM or the SMS (refer to the appropriate user guide).

Check LEDs

When you connect power to the system, the system completes a series of component checks and then displays LEDs to show the status of each component. See the following sections for information about LEDs for individual components.

The following table provides a detailed description of the LEDs.

Table 4 - 7: LED Descriptions for the IPS

LED	Color	State	Description
Link/Activity (right, segment)	No light	Not-Synchronized	no link, no connection Provides information about whether the port on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Green	Connected/ Synchronized	Green means the port is connected and ready for data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Speed (left, segment)	No light	Speed 10Mbps	Provides information about speed of data passing through the port. Data passes through at 10Mbps.
	Green	Speed 100Mbps	Data passes through at 100Mbps.
	Yellow/Orange	Speed 1000Mbps	Data passes through at 1000Mbps.
Link/Activity (left, management port)	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Green	Link Available	Solid green means the port is available, but not passing data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Speed (right, management port)	No light	10Mbps	Provides information on the speed of data through the port. No light indicates data passes through the port at 10Mbps.
	Amber	100Mbps	Amber means the port passes data through at 100Mbps.

Setup Wizard

After you have powered on, the TippingPoint setup wizard displays on the COM port terminal. The wizard guides you through basic configuration tasks and prompts for input information. You can run the wizard through any of the following processes:

- Out-of-the-Box Terminal Setup Wizard — Runs when the setup wizard is activated for the first time or later with the `setup` command. This wizard is run on a serial port connected system, such as a workstation and laptop.
- Out-of-the-Box LCD Setup Wizard — Runs directly on the LCD panel, overriding any serial port connected system. You can access the device through a serial connected workstation or laptop after the setup completes.
- Additional Configuration — After you run the setup wizard using serial terminal or IPS LCD, you can further configure your system using subsequent setup commands through the Command Line Interface (CLI).

See the *TippingPoint Command Line Interface Reference* for detailed instructions.

5 TippingPoint 200E Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the Intrusion Prevention System (IPS) 200E (T200E).

Overview

This chapter details the components, chassis, requirements, and installation of the TippingPoint 200E IPS device.

Prior to installation, you should also obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will need to run through the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This chapter includes the following topics:

- "Chassis Overview" on page 38
- "Technical Specifications" on page 39
- "Hardware Installation and Configuration" on page 41

Chassis Overview

The T200E system comprises a one rack unit (RU, 1 = 1.75 inches) chassis that uses a front-access with access to one network segments. It is rack-mountable on a 19- or 23-inch rack and contains one power supply and two chassis cooling fans.

The system uses an IDE Flash drive for updating and running the TippingPoint Operating System (TOS). The chassis includes a USB port for use with future expansions. Do not use the USB port for connecting a workstation. There are no removable cards in the chassis, although some software commands may refer to slot 3 when configuring certain aspects of this IPS model. This is necessary to ensure Command Line Interface (CLI) compatibility with other models of the TippingPoint, specifically the TippingPoint Intrusion Prevention System Model 200E.

The following sections describe the TippingPoint IPS Model 200E hardware components.

Chassis Features

The chassis offers features for viewing the status of the system and modifying settings. This section includes the following topics:

- "LEDs" on page 38
- "Power Switches" on page 39

LEDs

There are 4 sets of LED lights on the front panel, 2 sets on each side of the segments.

Each port has a set of three LEDs as detailed below.

Table 5 - 1: Segment Port LED Descriptions

LED	Color	State	Description
Activity (top)	No light	Not-Synchronized	Provides information about whether the port on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Blinking Light	Connected/ Passing Data	A blinking light indicates a connected link and traffic being passed (packets received).
Link (middle)	No light	Not-Synchronized	Provides information about whether the port on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Light On	Connected/ Synchronized	An active light means the port is connected, ready for data, and a link is detected.

Table 5 - 1: Segment Port LED Descriptions

LED	Color	State	Description
100 (bottom, Speed)	No light	Speed 10Mbps	Provides information about speed of data passing through the port. Data passes through at 10Mbps.
	Light On	Speed 100Mbps	Data passes through at 100Mbps.

Power Switches

A power switch located on the back panel removes AC power from the power supply. This unit contains a single universal AC-DC power supply. A power switch on the front of the unit turns off DC power from the power supply.

Technical Specifications

The following section details the hardware, technical, and software specification for the T200E.

- "Hardware Specifications" on page 39
- "Technical Specifications" on page 40
- "Software Specifications" on page 41

Hardware Specifications

This section details the specifications for the hardware components:

The following table provides technical specifications for the TippingPoint Intrusion Prevention System.

Table 5 - 2: TippingPoint 200E Specifications

Specification	Description
Dimensions	2.0in x 17.25in x 12.0in (5.08cm x 43.82cm x 30.48cm) Rack mountable in a 19" and 23" front or center mount racks.
Weight	12.5 lbs (5.8kg)
Management Interface	One 10/100 Ethernet interface
Serial Interface	DB-9 interface - COM1, 115200 baud, parity: none

Table 5 - 2: TippingPoint 200E Specifications

Specification		Description
Power Requirements		100-240VAC @ 3-6 amperes, 50/60 Hertz Max Power Consumption 200W
Service Provider operating requirements	Temperature	32 to 104F (0 to 40C) — Operating -4 to 158F (-20 to 70C) — Storage
	Altitude	No degradation up to 13K feet
	Humidity	5% to 95% (non-condensing)

Technical Specifications

The following table provides technical specifications on the Model 200E hardware.

Table 5 - 3: Model 200E Hardware Specifications

Specification	Detail	Description
Internal hardware	Processor	Pentium 4 card at 2.4 GHz with 1GB of DRAM. IDE Flash Drive with minimum 1GB 1st level cache: 8 KB on CPU full-speed cache 2nd level cache: 512 KB on CPU full-speed cache BIOS: 2 Mb of VxWorks Flash
	Bus	PCI, 32 bits at 33 MHz
Power consumption		Max 200W
External interfaces		One 10/100 Ethernet, one DB-9 serial
Bus interface		PCI bus, PCI Industry Consortium Manufacturing Group (PICMG)-compliant
Software requirements and network management requirement		TP Security Management Software (SMS) Version 2.1 and above.
Maximum data rates (per port)		200 Megabit per second
External interfaces		4 ports (standard copper)

Software Specifications

To run the TippingPoint Intrusion Prevention System (IPS), you need one of the following software applications/devices.

Table 5 - 4: Software Specifications for the TippingPoint 200E

Specification	Description
TippingPoint Security Management System (SMS) Software, Version 2.1 and above. (optional)	SMS can optionally be used to manage multiple TippingPoint Intrusion Prevention System devices.
1 Windows-based PC running Windows 9x, NT or 2000	Must be attached to your network (PC needs a serial port available)

Hardware Installation and Configuration

The TippingPoint 200E IPS ships with the following pre-installed components:

- 4 Ethernet ports
- A host processor card to control, configure, monitor, and store network traffic
- One power supply
- An IDE Flash Drive
- An integrated fan assembly

Prior to installation, you should also obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will need to run through the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This chapter includes the following sections:

- "Install the Chassis" on page 41
- "Attach Network Connections" on page 43
- "Check LEDs" on page 43
- "Setup Wizard" on page 44

Install the Chassis

To install the TippingPoint you must do the following:

- "Determine Total Rack Space" on page 42
- "Bolt the Device to the Rack" on page 42
- "Connect the Power Supply" on page 42

Determine Total Rack Space

Before you install the chassis, you should determine the total rack space that is required to install your system. The required rack space will increase if you plan to install multiple systems.

The TippingPoint system fits in either a 19-inch or a 23-inch wide rack. See the following table for individual rack space requirements.

Table 5 - 5: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Physical Size of Rack (Total number of chassis must be < or = 42 RUs). The TippingPoint 200E requires 1.2 RU.	Typical	42 chassis maximum on a seven foot rack
Network Equipment Building Systems (NEBS) (Total number of chassis must generate: < or = 1372 Watts)	Typical	13 chassis generating < or = 105 Watts

Bolt the Device to the Rack

Use the following guidelines when bolting the TippingPoint to the rack:

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable.

- If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If you plan to expand your system to include additional TippingPoint systems in the future, allow space in the rack for additions. During the initial installation, keep in mind the weight distribution and stability of the rack.

Connect the Power Supply

After you have bolted the TippingPoint to the rack, you need to attach the power supply AC connections.

You can also receive a Right Angle IEC Receptacle power cord for the device. You can use this cable for connecting power to the device in cases where you may not have enough room for a straight power connection cable. This cable helps in situations when you need to install a device in a tight rack with a door. The 90 degree bend in the female end of the cable prevents the cord from being pinched between the device and the door.

To turn the power on, you turn on the power switch located on the back panel of the device. To use the keypad to turn the device on and off, you must turn the power switch to "on". Use the **Select** button for power on. Use the **Cancel** button for power off (hold down for 6 seconds).

Attach Network Connections

The T200E IPS can act as a simple Layer 2 switch or can aggregate and redirect up to 200Mbps of traffic. The T200E contains 4 copper RJ-45 ports.

To connect to copper (RJ-45) ports

STEP 1 Locate the RJ-45 port on the module.

STEP 2 Plug one end of the Category 3 cable into the RJ-45 port.

STEP 3 Plug the other end of the cable into your network port.

STEP 4 Repeat the above-listed steps for each copper port on the MZD module.

To connect to a COM port

STEP 1 Locate the COM port.

STEP 2 Connect one end of the null modem cable to the IPS COM port.

STEP 3 Connect the other end of the modem cable to the COM port on your PC or terminal.

STEP 4 Perform the set-up procedure using the LSM or the SMS (refer to the appropriate user guide).

Check LEDs

When you connect power to the system, the system completes a series of component checks. It then displays LEDs to show the status of each component. See the following sections for information about LEDs for individual components.

The following table provides a detailed description of the LEDs.

Table 5 - 6: Segment Port LED Descriptions

LED	Color	State	Description
Activity (top)	No light	Not-Synchronized	Provides information about whether the port on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Blinking Light	Connected/ Passing Data	A blinking light indicates a connected link and traffic being passed (packets received).

Table 5 - 6: Segment Port LED Descriptions

LED	Color	State	Description
Link (middle)	No light	Not-Synchronized	Provides information about whether the port on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Light On	Connected/ Synchronized	An active light means the port is connected, ready for data, and a link is detected.
100 (bottom, Speed)	No light	Speed 10Mbps	Provides information about speed of data passing through the port. Data passes through at 10Mbps.
	Light On	Speed 100Mbps	Data passes through at 100Mbps.

Setup Wizard

Once you have powered on, the TippingPoint Setup wizard displays on your COM port terminal.The wizard prompts you to perform basic configuration tasks and periodically input information. You can run the wizard through on of the following processes:

- Out-of-the-Box Terminal Setup Wizard — Runs when the setup wizard is activated for the first time or later with the `setup` command. This wizard is run on a serial port connected system, such as a workstation and laptop.
- Additional Configuration — After you run the setup wizard using serial terminal or IPS LCD, you can further configure your system using subsequent setup commands through the Command Line Interface (CLI).

See the *TippingPoint Command Line Interface Reference* for detailed instructions.

6 TippingPoint 210E Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the Intrusion Prevention System (IPS) 210E.

Overview

This chapter details the components, chassis, requirements, and installation of the TippingPoint 210E IPS device.

Before you begin the installation process, obtain the *TippingPoint Command Line Interface Reference*. After the components are installed, the TippingPoint Setup Wizard guides you through the rest of the installation and configuration procedures.

This chapter includes the following topics:

- "Chassis Overview" on page 46
- "Technical Specifications" on page 47
- "Hardware Installation and Configuration" on page 49

Chassis Overview

The 210E system comprises a one rack unit (RU, 1 = 1.75 inches) chassis that uses a front-access with access to one network segments. It is rack-mountable on a 19- or 23-inch rack.

Figure 6 - 1 shows the front chassis interface for a TippingPoint 210E.

Figure 6 - 1: TippingPoint 210E - Front Panel

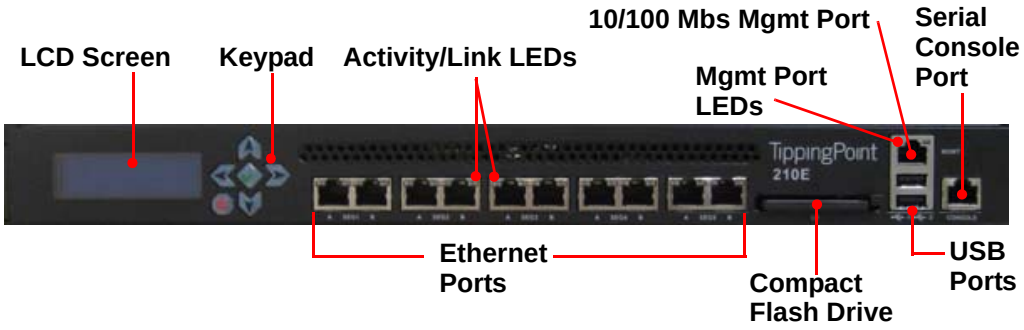


Figure 6 - 2 shows the chassis back panel for a TippingPoint 210E.

Figure 6 - 2: TippingPoint 210E - Back Panel



Chassis Features

The chassis offers features for viewing the system status and modifying settings.

LEDs

There are 11 sets of link/activity LEDs on the front panel: 2 sets on each side of the segments, and another set on the Management port.

Table 6 - 1 details the Link and Activity LEDs that are at the upper left and right corners of each segment connector.

Table 6 - 1: Segment Port LED Descriptions

LED	Description	Color	State
Link (left side LED)	Provides information about whether the port on the module is linked.	No light	No link
		Green	Active
Activity (right side LED)	Provides information about whether the port on the module is passing data.	No light	No traffic
		Blinking amber	Data traffic passing

The management port has its own set of LEDs, as described in Table 6 - 2 .

Table 6 - 2: Management Port LED Descriptions

LED	Description	Color	State
Link	Provides information about whether the port on the module is linked.	No light	No traffic
		Green	Link available
Activity	Provides information about whether data is passing through the port.	Blinking green	Data Traffic

Technical Specifications

The following section details the hardware, technical, and software specification for the T210E.

- "Hardware Specifications" on page 47
- "Technical Specifications" on page 48
- "Software Specifications" on page 49

Hardware Specifications

This section details the specifications for the hardware components:

Table 6 - 3 provides technical specifications for the TippingPoint Intrusion Prevention System.

Table 6 - 3: TippingPoint 210E Specifications

Specification	
Dimensions	17.25 in x 17.5 in x 1.75 in (43.8 cm x 44 cm x 4.4 cm)
Weight	21.5 lbs (8.0 kg)
Ethernet Management interface—10/100	IPS Interface / Ten Gigabit Ethernet copper interfaces supporting up to an aggregate of up to 200Mbps of IPS traffic
Serial Management Interface—RJ-45	Serial Console RJ45 Pinout 1-RTS, 2-DTR, 3-TXD, 4-GND, 5-GND, 6- RXD, 7-DSR, 8-CTS
Serial Interface	Ten Gigabit Ethernet (GigE) copper interfaces, supporting up to 100 Mbps of traffic.

Table 6 - 3: TippingPoint 210E Specifications

Specification		
Power Requirements		100 to 240 VAC, 1-2 amperes @ 50-60 Hz Maximum Power Consumption: 250 Watts
Service Provider operating requirements	Temperature	0 to 40 ° C (32 to104 ° F) — Operating -20 to 70° C (-4 to 158 ° F) — Storage
	Altitude	No degradation up to 13K feet
	Humidity	5% to 95% (non-condensing)

Technical Specifications

Table 6 - 4 provides technical specifications on the Model 210E hardware.

Table 6 - 4: TippingPoint 210E Hardware Specifications

Specification	Detail	Description
Internal hardware	Processor	3.4 Ghz Pentium 4 1 GB Compact Flash drive 1 GB DDR Primary cache: 32 KB Secondary cache: 1 MB
Power consumption		Max 250W
External interfaces		One 10/100 Ethernet One USB port One serial port Ten Gigabit RJ-45 copper ports
Software requirements and network management requirement		TP Security Management Software (SMS) Version 2.5 and above.
Maximum data rates (per port)		200 megabits per second

Software Specifications

To run the TippingPoint Intrusion Prevention System (IPS), you need one of the following software applications/devices described in Table 6 - 5 .

Table 6 - 5: Software Specifications for the TippingPoint 210E

Specification	Description
TippingPoint Security Management System (SMS) Software, Version 2.5.2 and above (optional)	SMS can optionally be used to manage multiple TippingPoint Intrusion Prevention System devices.
Any PC that supports Internet Explorer 6.x and 7, Mozilla Firefox v1.5+, and Netscape v8.1+	Must be attached to your network (PC must support a serial terminal interface).

Hardware Installation and Configuration

The TippingPoint 210E IPS ships with the following pre-installed components:

- One custom processor card with 10 Ethernet ports
- A host processor to control, configure, monitor, and store network traffic
- One power supply module
- Redundant fan cooling with speed control
- A 1GB Compact Flash Drive
- A 32 character LCD Display

Prior to installation, you should also obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will need to run through the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This chapter includes the following sections:

- "Install the Chassis" on page 49
- "Attach Network Connections" on page 51
- "Setup Wizard" on page 51

Install the Chassis

To install the TippingPoint you must do the following:

- "Determine Total Rack Space" on page 50
- "Bolt the Device to the Rack" on page 50
- "Connect the Power Supply" on page 50

Determine Total Rack Space

Before you install the chassis, you should determine the total rack space that is required to install your system. The required rack space will increase if you plan to install multiple systems.

The TippingPoint system fits in either a 19-inch or a 23-inch wide rack. See Table 6 - 6 for individual rack space requirements.

Table 6 - 6: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Physical Size of Rack (Total number of chassis must be < or = 42 RUs). The TippingPoint 210E requires 1 RU.	Typical	42 chassis maximum on a seven foot rack
Network Equipment Building Systems (NEBS) (Total number of chassis must generate: < or = 1372 Watts)	Typical	13 chassis generating < or = 105 Watts

Bolt the Device to the Rack

Use the following guidelines when bolting the TippingPoint to the rack:

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable.

- If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If you plan to expand your system to include additional TippingPoint devices in the future, allow space in the rack for additions. During the initial installation, keep in mind the weight distribution and stability of the rack.

Connect the Power Supply

After bolting the TippingPoint device to the rack, attach the power supply AC connections.

The device also comes with a Right Angle IEC Receptacle power cord. Use this cable for connecting power to the device in cases where there is not enough room for a straight power connection cable. For example, use this cable when you need to install a device in a tight rack with a door. The 90 degree bend in the female end of the cable prevents the cord from being pinched between the device and the door.

To turn the power on, use the power switch located on the back panel of the device.

Attach Network Connections

The T210E IPS can act as a simple Layer 2 switch or can aggregate and redirect up to 200Mbps of traffic. The T210E contains 10 copper RJ-45 ports.

To connect to copper (RJ-45) ports

STEP 1 Locate the RJ-45 port on the module.

STEP 2 Plug one end of the Category 5 cable into the RJ-45 port.

STEP 3 Plug the other end of the cable into your network port.

STEP 4 Repeat the above-listed steps for each copper port on the MZD module.

To connect to a COM port

STEP 1 Locate the RJ-45 Serial COM port. (This is located on the far right of the unit and does not have any LEDs.)

STEP 2 Connect one end of the null modem cable to the IPS RJ-45 COM port.

STEP 3 Connect the other end of the modem cable to the COM port on your PC or terminal.

STEP 4 Perform the set-up procedure using the LSM or the SMS (refer to the appropriate user guide).

Setup Wizard

After you have powered on, the TippingPoint setup wizard displays on the COM port terminal. The wizard prompts you to perform basic configuration tasks and periodically input information. You can run the wizard through one of the following processes:

- Out-of-the-Box Terminal Setup Wizard — Runs when the setup wizard is activated for the first time or later with the `setup` command. This wizard is run on a serial port connected system, such as a workstation and laptop.
- Additional Configuration — After running the setup wizard using the serial terminal or IPS LCD, you can configure the system using subsequent setup commands through the Command Line Interface (CLI).

See the *TippingPoint Command Line Interface Reference* for detailed instructions.

7 TippingPoint 200/400/1200/2400 Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the TippingPoint Intrusion Prevention System (IPS) Model 200/400/1200/2400.

Overview

This chapter details the components, chassis, requirements, and installation of the TippingPoint 200/400/1200/2400 IPS devices.

Prior to installation, you should also obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will need to run through the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This chapter includes the following topics:

- "Chassis Overview" on page 53
- "Model Requirements" on page 57
- "Technical Specifications" on page 58
- "Hardware Installation and Configuration" on page 60

Chassis Overview

The TippingPoint 200/400/1200/2400 system comprises a two rack unit (RU, 2 = 3.5 inches) chassis that uses a front-access, four (Model 200 IPS) or eight-port architecture, supporting connection to two to four network segments. It is rack-mountable on a 19- or 23-inch rack and contains two redundant hot swappable power supplies and three chassis cooling fans. There are no removable cards in the chassis, although some software commands may refer to slot 3 when configuring certain aspects of this

IPS model. This is necessary to ensure Command Line Interface (CLI) compatibility with other models of the TippingPoint, specifically the TippingPoint Intrusion Prevention System Model 2000, which can include up to four Multi-Zone Defense (MZD) modules.

The following figure displays the TippingPoint Model 1200 front and rear panels.

Figure 7 - 1: TippingPoint Model 1200 - Front Panel



Figure 7 - 2: TippingPoint Model 1200 - Rear Panel



The following sections describe the TippingPoint IPS Model 200/400/1200/2400 hardware components.

Chassis Features

The chassis offers features for viewing the status of the system and modifying settings. This section includes the following topics:

- "LEDs" on page 54
- "Power Switch and Audible Alarm" on page 56
- "Liquid Crystal Display (LCD)" on page 57

LEDs

There are two LEDs on the front panel, one for status and one for power. There is a power switch with an LED on the front panel. There are power supply LEDs located on the power modules on the back of the chassis.

The following table details the LED descriptions.

Table 7 - 1: LED Descriptions

LED	Color	State	Description
Status LED	Amber	Bootup	Indicates that the system is booting up.
	Green	Operational	Indicates that the system is powered and operating properly.
Power LED	Green	Operational	Indicates that power has been applied and the system is operating properly. This LED is in the center of the Power switch. Pressing this switch when operational shuts down most of the power to the unit.

The following table details the Link and Activity LEDs that are at the upper left and right corners of each segment connector.

Table 7 - 2: Segment Port LED Descriptions

LED	Color	State	Description
Link (left side LED)	No light	Not-Synchronized	Provides information about whether the port (eight in total) on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Green	Connected/ Synchronized	Green means the port is connected and ready for data.
Activity (right side LED)	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Blinking amber	Data Traffic	Amber means that port is passing data.

The management port has its own set of LEDs. Depending on your model as Intel 845 or 865, the LEDs may indicate differing activity. See the following information according to Intel model.

Table 7 - 3: Management Port LED Descriptions (Intel 845)

LED	Color	State	Description
Link	No light	10Mbps	Provides information on the speed of data through the port. No light indicates data passes through the port at 10Mbps.
	Green	100Mbps	Green means the port passes data through at 100Mbps.

Table 7 - 3: Management Port LED Descriptions (Intel 845) (Continued)

LED	Color	State	Description
Activity	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Amber	Link Available	Solid amber means the port is available, but not passing data.
	Blinking amber	Data Traffic	Blinking amber means that port is passing data.

Table 7 - 4: Management Port LED Descriptions (Intel 865)

LED	Color	State	Description
Link	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Green	Link Available	Solid green means the port is available, but not passing data.
	Blinking Green	Data Traffic	Blinking green means that port is passing data.
Activity	No light	10Mbps	Provides information on the speed of data through the port. No light indicates data passes through the port at 10Mbps.
	Amber	100Mbps	Amber means the port passes data through at 100Mbps.

Power Switch and Audible Alarm

The power switch on the front panel includes an integrated LED that is lit when power is applied. This unit contains dual redundant hot swappable, universal AC-DC power supplies.

The following table details the power supply LED descriptions.

Table 7 - 5: Power Supply LED Descriptions

LED	Color	State	Description
Power LED	Green	On	Power module is functioning properly and AC power is on
	None	Off	Power module has a failure or AC power to the module is off

The following table details the power supply audible alarm descriptions.

Table 7 - 6: Power Supply Audible Alarm Descriptions

Component	State	Description
Audible Alarm	Off	Power module is functioning properly and AC power is on
	On	Power module has a failure or AC power to one of the power modules is off. The audible alarm can be silenced by correcting the fault or by pressing the red Reset button on the rear of the power supply chassis.

Liquid Crystal Display (LCD)

There is a two line LCD on the front panel of the IPS that is under software control and provides operational information during network operations.

Model Requirements

The following sections detail the specific requirements for the TippingPoint 200/400/1200/2400 models:

- "Power Requirements" on page 57
- "Cabling Requirements" on page 57
- "Fiber-Optic Connection Guidelines" on page 58

Power Requirements

The TippingPoint requires two inputs of Alternating Current (AC): 100-240 VAC @ 6/3A, 60/50Hz.

Cabling Requirements

The TippingPoint ships with the following cables:

- Two AC power cables for the power supplies
- Fiber optic cables for SFP connections
- Null modem cable (DB-9 FM - DB-9 FM) for (COM) port



Note: The TippingPoint IPS can use Lucent Connector (LC) fiber-optic cables in single-mode or multi-mode. The module also supports Category 5 Ethernet cables for the 10/100/1000 Ethernet connections.

You can also receive a Right Angle IEC Receptacle power cord for the device. You can use this cable for connecting power to the device in cases where you may not have enough room for a straight power connection cable. This cable helps in situations when you need to install a device in a tight rack with a

door. The 90 degree bend in the female end of the cable prevents the cord from being pinched between the device and the door.

Note: Cable cord retention latch will not work with right angle power connectors.

Fiber-Optic Connection Guidelines

The TippingPoint IPS can use fiber-optic connectors. The connector type is a Small Form-Factor Pluggable (SFP) fiber optic connector that is LC-Duplex compatible. The TippingPoint also supports the following fiber-optic media:

- Multi-Mode Short Reach Fiber (MMSRF)
- Single-Mode Intermediate Reach Fiber (SMIRF)
- Single-Mode Long Reach Fiber (SMLRF)

WARNING: Fiber-optic connections and connectors are Class 1 laser products. Do not look into the connectors and always cover the connectors when not in use. Do not remove the SFP transceivers from the port even if the port is not being used.

Technical Specifications

The following section details the hardware, technical, and software specification for the TippingPoint 200/400/1200/2400.

- "Hardware Specifications" on page 58
- "Technical Specifications" on page 59
- "Software Specifications" on page 60

Hardware Specifications

This section details the specifications for the hardware components:

The following table provides technical specifications for the TippingPoint Intrusion Prevention System.

Table 7 - 7: TippingPoint IPS Specifications

Specification	Description
Dimensions	2RU's— 3.5 in. x 17.25 in. x 15.0 in. (8.9 cm x 43.8 cm x 30.5 cm) Rack mountable in a 19" and 23" front or center mount racks.

Table 7 - 7: TippingPoint IPS Specifications (Continued)

Specification		Description
Weight		27 lb (12.3 kg)
Management Interface		One 10/100 Ethernet interface.
Serial Interface		DB-9 interface - COM1, 115200 baud, parity: none
Network Interfaces		4 (Model 200) or 8 Gigabit Ethernet (GigE) copper or optical interfaces, supporting up to 2.0 Gbps of traffic.
Power Requirements		100 to 240 VAC, 6-3 amperes @ 50-60 Hz Maximum Power Consumption: 300 Watts
Service Provider operating requirements	Temperature	0 to 40 ° C (32 to104 ° F) — Operating -20 to 70° C (-4 to 158 ° F) — Storage
	Altitude	No degradation up to 13K feet
	Humidity	5% to 95% (non-condensing)

Technical Specifications

The following table provides technical specifications on the Model 200/400/1200/2400 hardware.

Table 7 - 8: Model 200/400/1200/2400 Hardware Specifications

Specification	Detail	Description
Internal hardware	Processor	Pentium 4 card at 2.8GHz with 256MB of DRAM. Hard drive capacity of 30 GB 1st level cache: 32 KB on CPU full-speed cache 2nd level cache: 256 KB on CPU full-speed cache BIOS: 2 Mb of VxWorks Flash
	Bus	PCI, 32 bits at 33 MHz
Power consumption		Max 300W
External interfaces		Two: one 10/100 Ethernet, one DB-9 serial.

Table 7 - 8: Model 200/400/1200/2400 Hardware Specifications (Continued)

Specification	Detail	Description
Bus interface		PCI bus, PCI Industry Consortium Manufacturing Group (PICMG)-compliant
Software requirements and network management requirement		TP Security Management Software (SMS) Version 1.3 and above.
Maximum data rates (per port)		1.25 Gigabit per second
External interfaces		4-8 ports (depending on model, standard copper or fiber or a combination of each)
Laser Modules (SFP) - not available on all IPS models		850 nanometers, Multi Mode: 500m

Software Specifications

To run the TippingPointIntrusion Prevention System (IPS), you need one of the following software applications/devices.

Table 7 - 9: Software Specifications for the TippingPoint IPS

Specification	Description
TippingPoint Security Management System (SMS) Software, Version 1.2 and above. (optional)	SMS can optionally be used to manage multiple TippingPoint Intrusion Prevention Systems.
1 Windows-based PC running Windows 9x, NT or 2000	Must be attached to your network (PC needs a serial port available)

Hardware Installation and Configuration

After you have completed preparation procedures and unpacked the TippingPoint IPS, you can install and configure the components. The TippingPoint IPS ships with the following pre-installed components:

- One custom processor card with four (Model 200) or eight Ethernet ports
- A host processor card to control, configure, monitor, and store network traffic
- Two redundant hot swappable AC-DC power supplies
- A 30 GB disk drive
- An integrated fan assembly (three fans)
- A 32 character LCD Display

Prior to installation, you should also obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will need to run through the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This section includes the following procedures:

- "TippingPoint 200/400/1200/2400 Chassis" on page 61
- "Attach Network Connections" on page 64
- "Check LEDs" on page 64
- "Setup Wizard" on page 66

TippingPoint 200/400/1200/2400 Chassis

To install the TippingPoint you must do the following:

- "Determine Total Rack Space" on page 61
- "Bolt the Device to the Rack" on page 61
- "Connect the Dual Power Supply" on page 62

Determine Total Rack Space

Before you install the chassis, you should determine the total rack space that is required to install your system. The required rack space will increase if you plan to install multiple systems.

The TippingPoint system fits in either a 19-inch or a 23-inch wide rack. See the following table for individual rack space requirements.

Table 7 - 10: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Physical Size of Rack (Total number of chassis must be < or = 42 RUs). Each TippingPoint IPS requires 2RU.	Typical	9 chassis maximum on a seven foot rack
Network Equipment Building Systems (NEBS) (Total number of chassis must generate: < or = 1372 Watts)	Typical	8 chassis generating < or = 168 Watts

Bolt the Device to the Rack

Use the following guidelines when bolting the TippingPoint to the rack:



WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable.

- If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If you plan to expand your system to include additional TippingPoint systems in the future, allow space in the rack for additions. During the initial installation, keep in mind the weight distribution and stability of the rack.

Connect the Dual Power Supply

After you have bolted the TippingPoint to the rack, you need to attach the dual power supply AC connections. This section details various options for connections. To gain the protection for these options, follow the diagrams for the connections to your dual power supply.

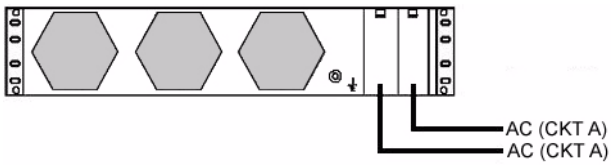
Note: You should apply AC power to both power supplies to insure uninterrupted service to the TippingPoint and to avoid audible alarms.

You can also receive a Right Angle IEC Receptacle power cord for the device. You can use this cable for connecting power to the device in cases where you may not have enough room for a straight power connection cable. This cable helps in situations when you need to install a device in a tight rack with a door. The 90 degree bend in the female end of the cable prevents the cord from being pinched between the device and the door.

Note: Cable cord retention latch will not work with right angle power connectors.

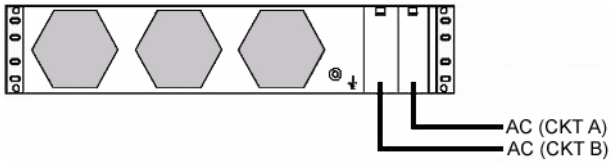
The following figure displays connections to provide protection against power supply failure.

Figure 7 - 3: Protection for Power Supply Failure



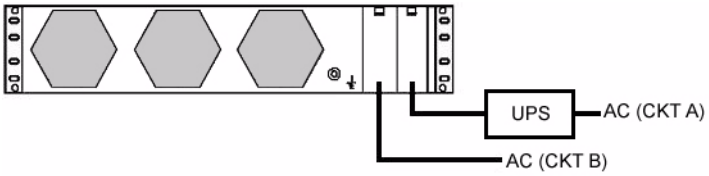
The following figure displays connections to provide protection against power supply failure and power failure on the one power feed circuit.

Figure 7 - 4: Protection for Power Supply Failure and One Power Feed Circuit



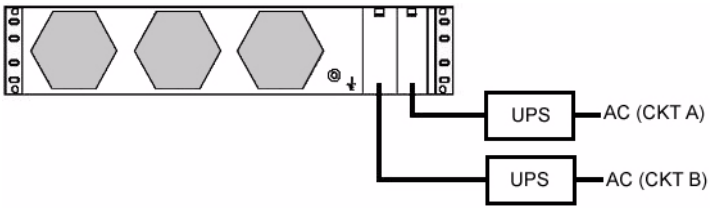
The following figure displays connections to provide protection against power supply failure and power failure on both power feed circuits.

Figure 7 - 5: Protection for Power Supply Failure and Both Power Feed Circuits



The following figure displays connections to provide maximum protection against power supply failure and power failure on both power feed circuits.

Figure 7 - 6: Maximum Protection for Power Supply Failure and Both Power Feed Circuits



See Appendix C, “Power Supply Module Replacement” for information on power supply replacement.

Attach Network Connections

The IPS can act as a simple Layer 2 switch or can aggregate and redirect up to 2.0 Gigabits per second (Gbps) of traffic. The IPS Model 200/400/1200/2400 contains four copper RJ-45 ports (Model 200) or eight ports, either fiber-optical, copper RJ-45 or a combination of both.

WARNING: Optical ports on this module are classified as Class 1 Lasers. Protection plugs should be installed when ports are not in use. The SFP transceivers should not be removed from the optical ports, even if the ports are not being used.

To connect to optical ports

STEP 1 Locate the optical port. It is a duplex port.

STEP 2 Plug the LC-duplex fiber-optic cable connector into the SFP transceiver (comes pre-installed)

STEP 3 Plug the other end of the fiber-optic cable into your network.

STEP 4 Repeat the above-listed steps for all other optical ports.

STEP 5 Cover any unused SFP ports with protective covers.

To connect to copper (RJ-45) ports

STEP 1 Locate the RJ-45 port on the module.

STEP 2 Plug one end of the Category 5 cable into the RJ-45 port.

STEP 3 Plug the other end of the cable into your network port.

STEP 4 Repeat the above-listed steps for each copper port on the MZD module.

To connect to a COM port

STEP 1 Locate the COM port.

STEP 2 Connect one end of the null modem cable to the IPS COM port.

STEP 3 Connect the other end of the modem cable to the COM port on your PC or terminal.

STEP 4 Perform the set-up procedure using the LSM or the SMS (refer to the appropriate user guide).

Check LEDs

When you connect power to the system, the system completes a series of component checks. It then displays LEDs to show the status of each component. See the following sections for information about LEDs for individual components.

The following table provides a detailed description of the LEDs.

Table 7 - 11: LED Descriptions for the IPS

LED	Color	State	Description
Status	Amber	Boot up	Indicates that the IPS is in the process of booting up. Or if it stays amber the IPS may be faulty and should be returned to the manufacturer.
	Solid green	Power On	Indicates that the IPS has power and is functioning properly.
	No light	Power Off	Indicates that the power is not on.
Power (in button)	No light	Power Off	Indicates that the power is not on.
	Solid green	Power On	Indicates that power has been applied to the chassis.
Activity	No light	No data traffic	Provides information about whether data is passing through a particular port. Off means that the port is not passing data.
	Blinking Amber	Data traffic	Amber means that port is passing data.
Link	No light	Not synchronized	Provides information about whether the port (eight in total) on the module is linked and ready for data to pass through it. Off means the port is not ready or it is malfunctioning.
	Green	Connected/ Synchronized	Green means the port is connected and ready for data.

Setup Wizard

After you have powered on, the TippingPoint Setup wizard displays on your COM port terminal.The wizard prompts you to perform basic configuration tasks and periodically input information. You can run the wizard through on of the following processes:

- Out-of-the-Box Terminal Setup Wizard — Runs when the setup wizard is activated for the first time or later with the `setup` command. This wizard is run on a serial port connected system, such as a workstation and laptop.
- Out-of-the-Box LCD Setup Wizard — Runs directly on the LCD panel, overriding any serial port connected system. You can access the device through a serial connected workstation or laptop after the setup completes.
- Additional Configuration — After you run the setup wizard using serial terminal or IPS LCD, you can further configure your system using subsequent setup commands through the Command Line Interface (CLI).

See the *TippingPoint Command Line Interface Reference* for detailed instructions.

8 TippingPoint 600E/ 1200E/2400E/5000E Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the TippingPoint Intrusion Prevention System (IPS) 600E/1200E/2400E/5000E.

Overview

This chapter details the components, chassis, requirements, and installation for the following TippingPoint IPS device models:

Model	Part Numbers (Copper, Fiber, Combo)
TippingPoint 600E	3CRTP0600EC96, 3CRTP0600ECF96, 3CRTP0600EF96 TPR600EC96, TPR600EF96, TPR600ECF96
TippingPoint 1200E	3CRTP1200EC96, 3CRTP1200ECF96, 3CRTP1200EF96 TPR1200EC96, TPR1200EF96, TPR1200ECF96
TippingPoint 2400E	3CRTP2400EC96, 3CRTP2400ECF96, 3CRTP2400EF96 TPR2400EC96, TPR2400EF96, TPR2400ECF96
TippingPoint 5000E	3CRTP5000EC96, 3CRTP5000ECF96, 3CRTP5000EF96 TPR5000EC96, TPR5000EF96, TPR5000ECF96

Prior to installation, you should also obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will need to run through the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This chapter includes the following sections:

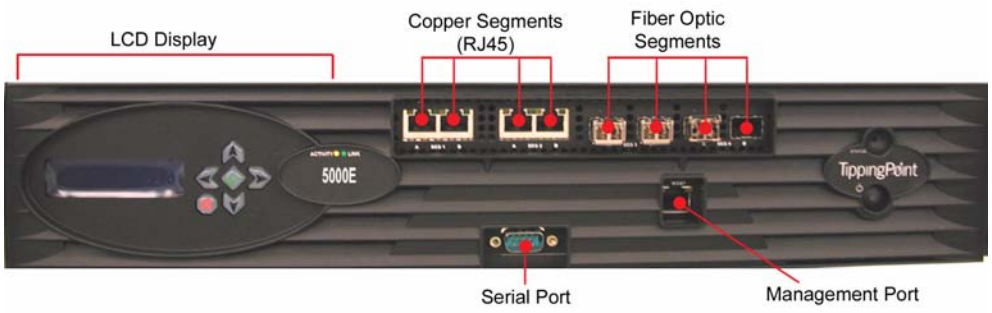
- "Chassis Overview" on page 68
- "Technical Specifications" on page 71
- "Hardware Installation and Configuration" on page 73

Chassis Overview

The TippingPoint 600E/1200E/2400E/5000E system comprises a two rack unit (RU, 2 = 3.5 inches) chassis that uses a front-access, eight-port architecture, supporting connection to two to four network segments. It is rack-mountable on a 19- or 23-inch rack and contains two redundant hot swappable power supplies and three chassis cooling fans. There are no removable cards in the chassis, although some software commands may refer to slot 3 when configuring certain aspects of this IPS model. This is necessary to ensure Command Line Interface (CLI) compatibility with other models of the TippingPoint, specifically the TippingPoint Intrusion Prevention System Model 2000, which can include up to four Multi-Zone Defense (MZD) modules.

The following image details the front chassis interface for a TippingPoint 5000E.

Figure 8 - 1: TippingPoint Model 5000E - Front Panel



The following sections describe the TippingPoint IPS Model 1200E/2400E/5000E hardware components.

Chassis Features

The chassis offers features for viewing the status of the system and modifying settings. This section includes the following topics:

- "LEDs" on page 69
- "Power Switch and Audible Alarm" on page 70
- "Liquid Crystal Display (LCD)" on page 71

LEDs

There are two LEDs on the front panel, one for status and one for power. There is a power switch with an LED on the front panel. There are power supply LEDs located on the power modules on the back of the chassis.

The following table details the LED descriptions.

Table 8 - 1: LED Descriptions

LED	Color	State	Description
Status LED	Amber	Bootup	Indicates that the system is booting up.
	Green	Operational	Indicates that the system is powered and operating properly.
Power LED	Green	Operational	Indicates that power has been applied and the system is operating properly. This LED is in the center of the Power switch. Pressing this switch when operational shuts down most of the power to the unit.

The following table details the Link and Activity LEDs that are at the upper left and right corners of each segment connector.

Table 8 - 2: Segment Port LED Descriptions

LED	Color	State	Description
Link (left side LED)	No light	Not-Synchronized	Provides information about whether the port (eight in total) on the module is linked and ready for data to pass through it. No light means the port is not ready or it is malfunctioning.
	Green	Connected/ Synchronized	Green means the port is connected and ready for data.
Activity (right side LED)	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Blinking amber	Data Traffic	Amber means that port is passing data.

The management port has its own set of LEDs:

Table 8 - 3: Management Port LED Descriptions

LED	Color	State	Description
Link	No light	10Mbps	Provides information on the speed of data through the port. No light indicates data passes through the port at 10Mbps.
	Green	100Mbps	Green means the port passes data through at 100Mbps.
Activity	No light	No-Data Traffic	Provides information about whether data is passing through a particular port. No light means that the port is not passing data.
	Amber	Link Available	Solid amber means the port is available, but not passing data.
	Blinking amber	Data Traffic	Blinking amber means that port is passing data.

Power Switch and Audible Alarm

The power switch on the front panel includes an integrated LED that is lit when power is applied. This unit contains dual redundant hot swappable, universal AC-DC power supplies.

The following table details the power supply LED descriptions.

Table 8 - 4: Power Supply LED Descriptions

LED	Color	State	Description
Power LED	Green	On	Power module is functioning properly and AC power is on
	None	Off	Power module has a failure or AC power to the module is off

The following table details the power supply audible alarm descriptions.

Table 8 - 5: Power Supply Audible Alarm Descriptions

Component	State	Description
Audible Alarm	Off	Power module is functioning properly and AC power is on
	On	Power module has a failure or AC power to one of the power modules is off. The audible alarm can be silenced by correcting the fault or by pressing the red Reset button on the rear of the power supply chassis.

Liquid Crystal Display (LCD)

There is a two line LCD on the front panel of the IPS that is under software control and provides operational information during network operations.

Technical Specifications

The following section details the hardware, technical, and software specification for the TippingPoint 600E/1200E/2400E/5000E.

- "Hardware Specifications" on page 71
- "Technical Specifications" on page 72
- "Software Specifications" on page 73

Hardware Specifications

This section details the specifications for the hardware components:

The following table provides technical specifications for the TippingPoint Intrusion Prevention System.

Table 8 - 6: TippingPoint 600E/1200E/2400E/5000E IPS Specifications

Specification	Description
Dimensions	2RU's— 3.5 in. x 17.25 in. x 18.5 in. (8.9 cm x 43.8 cm x 47.0 cm) Rack mountable in a 19" and 23" front mount racks.
Weight	28.5 lb (13.0 kg)
Management Interface	One 10/100 Ethernet interface.
Serial Interface	DB-9 interface - COM1, 115200 baud, parity: none
Network Interfaces	8 Gigabit Ethernet (GigE) copper or optical interfaces, supporting up to 5.0 Gbps of traffic.
Power Requirements 300w power supply	100 to 240 VAC, 6-3 amperes @ 50-60 Hz Maximum Power Consumption: 300 Watts
Power Requirements 400w power supply	100 to 240 VAC, 8-5 amperes @ 50-60 Hz Maximum Power Consumption: 400 Watts

Table 8 - 6: TippingPoint 600E/1200E/2400E/5000E IPS Specifications

Specification		Description
Service Provider operating requirements	Temperature	0 to 40 ° C (32 to104 ° F) — Operating -20 to 70° C (-4 to 158 ° F) — Storage
	Altitude	No degradation up to 13K feet
	Humidity	5% to 95% (non-condensing)

Technical Specifications

The following table provides technical specifications on the 600E/1200E/2400E/5000E hardware.

Table 8 - 7: TippingPoint 600E/1200E/2400E/5000E Hardware Specifications

Specification	Detail	Description
Internal hardware	Processor	Pentium 4 at 3.4 GHz with 2 GB of DRAM. Flash drive capacity of minimum 1 GB BIOS: 2 Mb of VxWorks Flash
	Bus	PCI, 32 bits at 33 MHz
Power consumption (3CRTP# models)		300W
Power consumption (TRPR# models)		400W
External interfaces		Two: one 10/100 Ethernet, one DB-9 serial.
Bus interface		PCI bus, PCI Industry Consortium Manufacturing Group (PICMG)-compliant
Software requirements and network management requirement		TP Security Management Software (SMS) Version 1.3 and above.
Maximum data rates (per port)		5.0 Gigabit per second
External interfaces		8 ports (depending on model, standard copper or fiber or a combination of each)
Laser Modules (SFP) - not available on all IPS models		850 nanometers, Multi Mode: 500m (MMSRF) 1310 nanomaters, Single Mode: 10km (SMTRF) 1310 nanometers, Single Mode: 20km (SMLRF)

Software Specifications

To run the TippingPointIntrusion Prevention System (IPS), you need one of the following software applications/devices.

Table 8 - 8: Software Specifications for the TippingPoint IPS

Specification	Description
TippingPoint Security Management System (SMS) Software, Version 2.1 and above. (optional)	SMS can optionally be used to manage multiple TippingPoint Intrusion Prevention Systems.
1 Windows-based PC running Windows 9x, NT or 2000	Must be attached to your network (PC needs a serial port available)

Hardware Installation and Configuration

The TippingPoint IPS ships with the following pre-installed components:

- One custom processor card with eight Ethernet ports
- A host processor card to control, configure, monitor, and store network traffic
- Two redundant hot swappable AC-DC power supplies
- A minimum 1BG IDE Flash Drive
- An integrated fanless CPU cooling unit
- A 32 character LCD Display

Prior to installation, you should also obtain the *TippingPoint Command Line Interface Reference*. After installation of the components, you will need to run through the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This section includes the following topics:

- "TNHA Hardware Configuration" on page 74
- "Install the TippingPoint Chassis" on page 74
- "Attach Network Connections" on page 77
- "Check LEDs" on page 78
- "Setup Wizard" on page 79

TNHA Hardware Configuration

During the unpacking and installation of the TippingPoint IPS device, you should consider the following for Transparent Network High Availability (TNHA) configuration. Before configuring the TNHA settings, you must consider and perform specific hardware and software configurations for the devices and the network. These configuration settings include the following:

- The network and devices must have a secure connection to a partner for the TNHA to function.
- TNHA uses SSLv3. It also communicates on TCP port 9591.
- TNHA devices can only connect and communicate with a partner configured to talk to likewise configured machines. In other words, both machines participating must point to each other.

WARNING: Security caveat: A hi-jacked IPS or a rogue IPS that "steals" the IP address of a TRHA partner can communicate with a legitimate IPS.

Install the TippingPoint Chassis

To install the TippingPoint you must do the following:

- Determine Total Rack Space
- Bolt the Device to the Rack
- Connect the Dual Power Supply

Determine Total Rack Space

Before you install the chassis, you should determine the total rack space that is required to install your system. The required rack space will increase if you plan to install multiple systems.

The TippingPoint system fits in either a 19-inch or a 23-inch wide rack. See the following table for individual rack space requirements.

Table 8 - 9: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Physical Size of Rack (Total number of chassis must be < or = 42 RUs). Each TippingPoint IPS requires 2RU.	Typical	21 chassis maximum on a seven foot rack
Network Equipment Building Systems (NEBS) (Total number of chassis must generate: < or = 1372 Watts)	Typical	4 chassis generating < or = 343 Watts

Bolt the Device to the Rack

Use the following guidelines when bolting the TippingPoint to the rack:

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable.

- If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If you plan to expand your system to include additional TippingPoint systems in the future, allow space in the rack for additions. During the initial installation, keep in mind the weight distribution and stability of the rack.

Note: Advanced DDoS Protection Filters work in a symmetric network configuration. You must disable Asymmetric Mode for your device. See the "Configuration" Chapter of the TippingPoint Local Security Manager User's Guide for instructions on Asymmetric Network configuration.

CAUTION: Do not use the Power Supply handles to lift the product. These handles are only used to install and remove the power supply. Using them to carry the entire device will result can result in damage or injury.

Connect the Dual Power Supply

After you have bolted the TippingPoint to the rack, you need to attach the dual power supply AC connections. This section details various options for connections. To gain the protection for these options, follow the diagrams for the connections to your dual power supply.

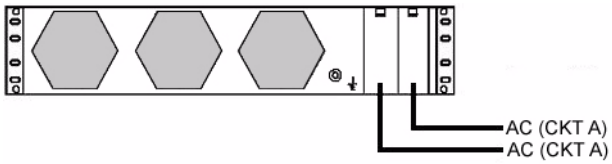
Note: You should apply AC power to both power supplies to insure uninterrupted service to the TippingPoint and to avoid audible alarms.

You can also receive a Right Angle IEC Receptacle power cord for the device. You can use this cable for connecting power to the device in cases where you may not have enough room for a straight power connection cable. This cable helps in situations when you need to install a device in a tight rack with a door. The 90 degree bend in the female end of the cable prevents the cord from being pinched between the device and the door.

Note: Cable cord retention latch will not work with right angle power connectors.

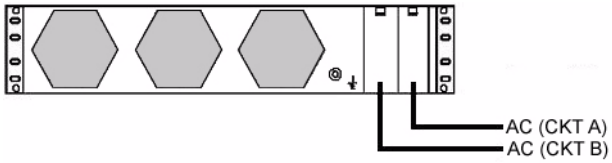
The following figure displays connections to provide protection against power supply failure.

Figure 8 - 2: Protection for Power Supply Failure



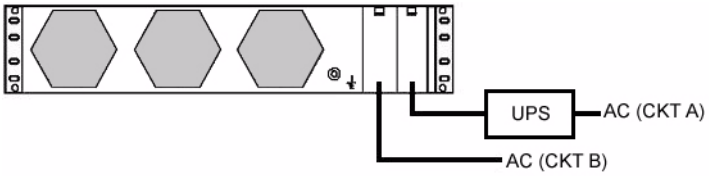
The following figure displays connections to provide protection against power supply failure and power failure on the one power feed circuit.

Figure 8 - 3: Protection for Power Supply Failure and One Power Feed Circuit



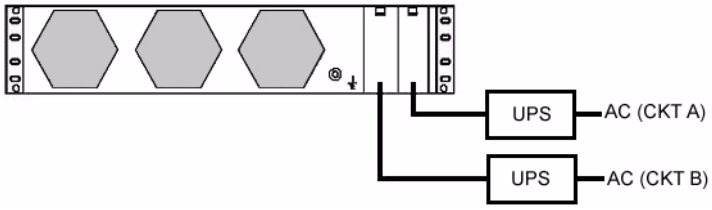
The following figure displays connections to provide protection against power supply failure and power failure on both power feed circuits.

Figure 8 - 4: Protection for Power Supply Failure and Both Power Feed Circuits



The following figure displays connections to provide maximum protection against power supply failure and power failure on both power feed circuits.

Figure 8 - 5: Maximum Protection for Power Supply Failure and Both Power Feed Circuits



Attach Network Connections

The IPS can act as a simple Layer 2 switch or can aggregate and redirect up to 5.0 Gigabits per second (Gbps) of traffic. The IPS Model 600E/1200E/2400E/5000E contains up to eight ports, either fiber-optical, copper RJ-45 or a combination of both.

WARNING: Optical ports on this module are classified as Class 1 Lasers. Protection plugs should be installed when ports are not in use. The SFP transceivers should not be removed from the optical ports, even if the ports are not being used.

To connect to optical ports

STEP 1 Locate the optical port. It is a duplex port.

STEP 2 Plug the LC-duplex fiber-optic cable connector into the SFP transceiver (comes pre-installed)

STEP 3 Plug the other end of the fiber-optic cable into your network.

STEP 4 Repeat the above-listed steps for all other optical ports.

STEP 5 Cover any unused SFP ports with protective covers.

To connect to copper (RJ-45) ports

STEP 1 Locate the RJ-45 port on the module.

STEP 2 Plug one end of the Category 5 cable into the RJ-45 port.

STEP 3 Plug the other end of the cable into your network port.

STEP 4 Repeat the above-listed steps for each copper port on the MZD module.

To connect to a COM port

STEP 1 Locate the COM port.

STEP 2 Connect one end of the null modem cable to the IPS COM port.

STEP 3 Connect the other end of the modem cable to the COM port on your PC or terminal.

STEP 4 Perform the set-up procedure using the LSM or the SMS (refer to the appropriate user guide).

Check LEDs

When you connect power to the system, the system completes a series of component checks. It then displays LEDs to show the status of each component. See the following sections for information about LEDs for individual components.

The following table provides a detailed description of the LEDs.

Table 8 - 10: LED Descriptions for the IPS

LED	Color	State	Description
Status	Amber	Boot up	Indicates that the IPS is in the process of booting up. Or if it stays amber the IPS may be faulty and should be returned to the manufacturer.
	Solid green	Power On	Indicates that the IPS has power and is functioning properly.
	No light	Power Off	Indicates that the power is not on.
Power (in button)	No light	Power Off	Indicates that the power is not on.
	Solid green	Power On	Indicates that power has been applied to the chassis.
Activity	No light	No data traffic	Provides information about whether data is passing through a particular port. Off means that the port is not passing data.
	Blinking Amber	Data traffic	Port is passing data.
Link	No light	Not synchronized	Provides information about whether the port (eight in total) on the module is linked and ready for data to pass through it. Off means the port is not ready or it is malfunctioning.
	Green	Connected/ Synchronized	Port is connected and ready for data.

Setup Wizard

Once you have powered on, the TippingPoint Setup wizard displays on your COM port terminal.The wizard prompts you to perform basic configuration tasks and periodically input information. You can run the wizard through on of the following processes:

- Out-of-the-Box Terminal Setup Wizard — Runs when the setup wizard is activated for the first time or later with the `setup` command. This wizard is run on a serial port connected system, such as a workstation and laptop.
- Out-of-the-Box LCD Setup Wizard — Runs directly on the LCD panel, overriding any serial port connected system. You can access the device through a serial connected workstation or laptop after the setup completes.
- Additional Configuration — After you run the setup wizard using serial terminal or IPS LCD, you can further configure your system using subsequent setup commands through the Command Line Interface (CLI).

See the *TippingPoint Command Line Interface Reference* for detailed instructions.

A Connector and Pinout Specifications

This appendix provides connector and pinout information for the TippingPoint system. This appendix contains the following sections:

- "Management Processor Connectors" on page 81
- "Port Connectors" on page 83
- "Small Form-Factor Pluggable Transceivers" on page 83

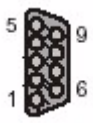
Management Processor Connectors

See the following sections for information on Management Processor connectors.

DB-9 (COM) Connector

The following figure displays a -DB-9 connector.

Figure A - 1: DB-9 Connector



DB-9 Connector Pinout

The following table details the pinout information for the DB-9 connector.

Table A - 1: DB-9 Connector Pinouts

Pin Number	Signal Name
1	Data Carrier Detect (DCD)
2	Receive Data (RxD)
3	Transmit Data (TxD)
4	Data Terminal Ready (DTR)
5	Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	Ring Indicator (RI)

RJ-45 Connector

The following figure displays the RJ-45 connector.

Figure A - 2: RJ-45 Connector



The following table details the pinout information for the RJ-45 connector

Table A - 2: RJ-45 Connector Pinouts

Pin Number	Signal Name
1	Transmit positive (Tx+)
2	Transmit negative (Tx-)
3	Receive positive (Rx+)
4	Ground (GND)
5	Ground (GND)
6	Receive negative (Rx-)
7	Ground (GND)

Table A - 2: RJ-45 Connector Pinouts

Pin Number	Signal Name
8	Ground (GND)

Port Connectors

The TippingPoint IPS supports two types of port connectors, the RJ-45 and the fiber optic, have pinouts shown below. The other type, the fiber-optic connector, has no pinouts and is not shown here.

The following figure displays an RJ-45 connector.

Figure A - 3: RJ-45 Connector



The following table details the pinout information for the RJ-45 connector.

Table A - 3: RJ-45 Connector Pinouts

Pin Number	Signal Name
1	Twisted Pair 1 positive (TP1+)
2	Twisted Pair 1 negative (TP1-)
3	Twisted Pair 2 positive (TP2+)
4	Twisted Pair 3 positive (TP3+)
5	Twisted Pair 3 negative (TP3-)
6	Twisted Pair 2 negative (TP2-)
7	Twisted Pair 4 positive (TP4+)
8	Twisted Pair 4 negative (TP4-)

Small Form-Factor Pluggable Transceivers

The IPS can also have Small Form-Factor Pluggable (SFP) transceivers; see Figure 4 for an illustration of an SFP transceiver. If your IPS includes fiber optic ports, ensure that the SFP transceivers are installed, even if the ports are not currently being used.

The following figure displays the SFP transceiver.

Figure A - 4: SFP Transceiver



The following table details the SFP transceiver information.

Table A - 4: SFP Transceiver Information

Fiber Input	Signal
Left side	Transmit
Right side	Receive

B IPS Menu Options

This appendix provides information on the IPS menu options and LCD messages. On the front panel of the IPS device, you can access a set of options to review the status of the IPS and perform some functions. The LCD also displays messages regarding the state and alerts of the device.

The appendix includes the following sections:

- "IPS LCD Panel" on page 86
- "Backlight Set" on page 87
- "Contrast Set" on page 88
- "Halt OS" on page 88
- "Layer 2 Fallback/Recover System" on page 89
- "Serial # Query" on page 90
- "Reload OS" on page 90
- "IPS Messages" on page 91

IPS LCD Panel

The IPS device provides a LCD display and set of buttons on the front panel for use during the LCD Setup Wizard and to use options directly on the IPS. The buttons allow you to enter and select values that display on the LCD. The IPS devices all have similar panels. The following image displays the general layout of the IPS panel.

Figure B - 1: Device Keypad



The following table details the buttons available on the front panel.

Table B - 1: LCD Panel Buttons

Button		Function
	Select Button	Use to choose a Yes or accept option. This button accepts a configuration you enter and continues to the next step of the setup wizard. You must press this button before you enter configuration settings during the LCD Setup Wizard or when using the LCD menu options.
	Cancel Button	Use to cancel an option or step backwards through the setup wizard. Each time you use the cancel button, the setup backs up to the previous step. You can use this button to return to the first entry menu, allowing you to choose the Out-of-the-Box Setup Wizard used through a serial connected workstation or laptop.
	Option Selection Buttons	Use to select an option or configure settings. These buttons provide the ability to select, Yes, No, and numbers. For entering numbers, you use the up button to increase and down button to decrease.
	Movement Buttons	Use to move forward and back through a line of configuration settings. You use these buttons to enter and edit IP and device name settings.

To enable the LCD menu, press the Select button. The device displays the following:

```
Menu--
up/down to view
```

To move through the available menu choices, press the Option Selection buttons. The LCD message describes them as the up/down buttons.

Timeout

While using the panel buttons, you must make selections within a certain amount of time of the panel will timeout. The IPS LCD will timeout after 15 seconds of inactivity and return to the default display. To return to the options menu, press the Select button and Option Selection buttons.

LCD Menu Overview

The LCD menu of the IPS provides the following options:

- Backlight Set — Increases or decreases the brightness of the LCD panel
- Contrast Set — Increases or decreases the contrast of the LCD panel
- Halt OS — Halts the entire IPS and deactivates the panel buttons. You use this option prior to unplugging the device.
- HA Query State — Displays the High Availability (HA) state of the IPS
- Layer 2 Fallback/Recover System — Places the IP in Layer 2 Fallback. Once in Fallback mode, the option is replaced with the Recover option. When selected, the Recover option places the IPS back in normal mode.
- View Memory Usage — Displays the memory usage as a percentage
- Serial # Query — Displays the IPS device's serial number
- Reload OS — Reboots the IPS

These options allow you to perform some system review and configurations outside of the Local Security Manager, Security Management System, and Command Line applications.

Backlight Set

When you set the backlight, the device increases or decreases the light of the LCD display.

STEP 1 On the LCD panel, press the **Select** button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **Backlight Set** option.

STEP 3 Select the option by pressing the Select button. The LCD displays the following:

```
Backlight 44
|||||||
```

STEP 4 Press the Option Selection buttons to increase or decrease the contrast.

When you press up, the vertical bars are replaced with >. When you press down, the vertical bars are replaced with <. The following example increases the setting.

```
Backlight 50
>>>>>>>>
```

STEP 5 Press Select button to enter the change. The LCD prompts for verification:

```
Backlight 50
Are You Sure?
```

STEP 6 Press Select button to verify the change. Press Cancel button to cancel the change.

LCD returns to the default display.

Contrast Set

When you set the contrast, the device increases or decreases the contrast of the LCD display.

STEP 1 On the LCD panel, press the Select button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **Contrast Set** option.

STEP 3 Select the option by pressing the Select button. The LCD displays the following:

```
Contrast 15
|||||||
```

STEP 4 Press the Option Selection buttons to increase or decrease the contrast.

When you press up, the vertical bars are replaced with >. When you press down, the vertical bars are replaced with <. The following example increases the setting.

```
Contrast 16
>>>>>>>>
```

STEP 5 Press Select button to enter the change. The LCD prompts for verification:

```
Contrast 16
Are You Sure?
```

STEP 6 Press Select button to verify the change. Press Cancel button to cancel the change.

LCD returns to the default display.

Halt OS

When you halt the system, the device performs an orderly shutdown to prepare for having the power turned off or removal of the IPS. You use this option when you need to replace a power supply or unplug the device. By halting the system, you end network traffic from the device and deactivate the panel buttons.

STEP 1 On the LCD panel, press the Select button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **Halt OS?** option.

STEP 3 Select the option by pressing the Select button. The LCD prompts for verification:

```
Are you sure?
```

STEP 4 If you want to halt the system, select yes using the Option Selection buttons and press the Select button. Press Cancel button to cancel. The system performs an orderly shutdown and is halted.

To restart the system, you must power the system down and turn it back on.

HA Query State

When you query for the HA state, the device displays the current High Availability state of the device.

STEP 1 On the LCD panel, press the Select button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **HA Query State** option.

STEP 3 Select the option by pressing the Select button. The LCD displays one of the following:

- The LCD displays `Normal` if the device is not in Layer 2 Fallback.
- The LCD displays the cause for the mode change, such as `watchdog`.

Layer 2 Fallback/Recover System

When you fallback a system, you manually place the device in Layer 2 Fallback, also known as Intrinsic Network HA. If the device is in Fallback mode, the menu displays a Recover option. The Recover option manually takes the device out of Layer 2 Fallback, returning it to a normal mode.

To place the device in Fallback mode

STEP 1 On the LCD panel, press the Select button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **Layer2 Fallback?** option.

STEP 3 Select the option by pressing the Select Button. The LCD prompts for verification:

```
Are you sure?
```

STEP 4 If you want to place the device in Layer 2 Feedback, select yes using the Option Selection buttons and press the Select button. The system is placed in Layer 2 Fallback mode.

To place the device in Recover mode

STEP 1 On the LCD panel, press the Select button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **Recover?** option.

STEP 3 Select the option by pressing the Select button. The LCD prompts for verification:

```
Are you sure?
```

STEP 4 If you want to return the system to a normal mode, select yes using the Option Selection buttons and press the Select button. The system is removed from Layer 2 Fallback to a normal mode.

View Memory Usage

When you reset the log alert, the device resets the syslog alert and the syslog alert icon in the LSM.

STEP 1 On the LCD panel, press the Select button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **Memory % Usage** option.

STEP 3 Select the option by pressing the Select button. The LCD displays the percentage of usage:

```
Mem Usage: 72%
```

STEP 4 Press Select button. LCD returns to the default display.

Serial # Query

When you query for the serial number, the device displays the serial number for the IPS device.

STEP 1 On the LCD panel, press the Select button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **Serial # Query** option.

STEP 3 Select the option by pressing the Select button. The LCD displays the serial number for the device.

Reload OS

When you reload a system, you reboot the device. The device performs an orderly shutdown and reloads the operating system. You should perform this function when you want to recover from a system error or when a setup option requires a reboot of the device.

STEP 1 On the LCD panel, press the Select button. The buttons activate.

STEP 2 Press the Option Selection buttons to move to the **Reload OS?** option.

STEP 3 Select the option by pressing the Select button. The LCD prompts for verification:

```
Are you sure?
```

STEP 4 If you want to halt the system, select yes using the Option Selection buttons and press the Select button. The system performs an orderly shutdown and reboots, which reloads the operating system.

IPS Messages

When the IPS device panel is not activated or in-use, it cycles through a set of system information. The information only displays if it has a value other than zero (0).

Table B - 2: IPS Messages

Message	Description
`Permit/Block Stats`	Displays the stats: (p)ermit or (b)lock
`Sys log CRIT & ERR alert`	Displays alert of a reset from the LSM as usual or from the LCD menu options listed in this table
`Thermal Alert`	Displays if the CPU's Thermal Control Circuit has stepped down the CPU's speed
`Memory Usage Alert`	Displays the state: yellow or red
`Disk Space Usage Alert`	Displays the state: yellow or red
`Intrinsic HA Alert`	IPS device in is Layer 2 Fallback mode
`Disk Alert`	Displays the state of the hard disk: yellow or red

WARNING: If the IPS displays the "Thermal Alert","CPU TCC set" alert, the device's CPU has reached an unsafe operating temperature. To reset the state, you must reboot the IPS. In the event that this message displays, you should contact the TAC.

C Power Supply Module Replacement

This appendix provides information for replacing a power supply module. It includes the following sections:

- "Supported Platforms" on page 93
- "Replacement Procedures for 300W Power Supply" on page 94
- "Replacement Procedures for 400W Power Supply" on page 95

Supported Platforms

The following platforms have power supply replacement options. These platform are 2U and provide hardware acceleration:

- TippingPoint 5000E
- TippingPoint 2400E
- TippingPoint 1200E
- TippingPoint 600E
- TippingPoint 200
- TippingPoint 400
- TippingPoint 1200
- TippingPoint 2400

Replacement Procedures for 300W Power Supply

The power supply system contains two hot swappable AC-DC power supply modules. When the power supply is faulty or needs replacing, an alarm will sound. To replace a faulty power supply module, see the following instructions.

WARNING: Power supply module removal and replacement should be performed by quality personnel. The procedure could result in electrical shock hazards if performed incorrectly.

To replace the 300W power supply

STEP 1 When a fault occurs with a power module, an audible alarm sounds. This alarm can be silenced by pressing the red Reset button located at the rear of the chassis next to the inside mounted power module.

STEP 2 Locate the faulty power module by checking the LEDs on the power modules. The faulty module's LED will be off.

STEP 3 Move the retention bracket to access the power cord and module:

- **STEP A** Loosen the screw of the retention bracket that is used to hold the power cord and faulty power module in place.
- **STEP B** Rotate the bracket 90 degrees.
- **STEP C** Tighten the retention bracket screw to hold the bracket out of the way.

STEP 4 Unplug the AC power cord to Remove power from the faulty module.

WARNING: Failure to remove the power cord from the power supply prior to removal could result in an electrical shock hazard.

STEP 5 To remove the faulty power module, press down the latching lever located at the top of the faulty module and pull the module from the chassis.

WARNING: The power supply module may be hot when removed. You should take precautions in handling the module to prevent contact with hot surfaces. The cover of the power modules is used as a heat sink and can reach temperatures of 50 degrees Celsius under a full load.

STEP 6 To install the power supply module replacement (PWRSP-0000000007), position the replacement in the open slot. Push the module in until the latching lever locks in place.

STEP 7 Plug in the AC power cord and check to see that the power module status LED is green.

STEP 8 Replace the retention bracket:

STEP A Loosen the retention clip screw.

STEP B Rotate the bracket into a locked position.

STEP C Retighten the retention clip screw.

Replacement Procedures for 400W Power Supply

The power supply system contains two hot swappable AC-DC power supply modules. When the power supply is faulty or needs replacing, an alarm will sound. To replace a faulty power supply module, see the following instructions.

WARNING: Power supply module removal and replacement should be performed by quality personnel. The procedure could result in electrical shock hazards if performed incorrectly.

To replace the 400W power supply

STEP 1 When a fault occurs with a power module, an audible alarm sounds. This alarm can be silenced by pressing the red Reset button located at the rear of the chassis next to the inside mounted power module.

STEP 2 Locate the faulty power module by checking the LEDs on the power modules. The faulty module's LED will be off.

STEP 3 Remove the power cord..

WARNING: Failure to remove the power cord from the power supply prior to removal could result in an electrical shock hazard.

STEP 4 Loosen the retention screw to access the module:

STEP 5 To remove the faulty power module, slide locking lever located at the top of the faulty module to the left and pull the module from the chassis.

WARNING: The power supply module may be hot when removed. You should take precautions in handling the module to prevent contact with hot surfaces. The cover of the power modules is used as a heat sink and can reach temperatures of 50 degrees Celsius under a full load.

STEP 6 To install the power supply module replacement (PWRSP-0000000025), position the replacement in the open slot. Push the module in until the latching lever locks in place.

STEP 7 Plug in the AC power cord and check to see that the power module status LED is green.

STEP 8 Tighten the retention lock screw.

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