HP TippingPoint

TippingPoint 10/110/330 Hardware Installation and Safety Guide

Abstract

This document describes safety guidelines and procedures for hardware installation for the TippingPoint 10, TippingPoint 110, and TippingPoint 330.

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Legal and notice information

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TippingPoint 10/110/330 Hardware Installation and Safety Guide

Table of Contents

About This Guide

Explains intended audience, where related information is located, and how to obtain customer support.

Overview

Welcome to the *HP TippingPoint N-Platform Hardware Installation and Safety Guide*.

This section includes the following items:

Target Audience

The intended audience includes technicians and maintenance personnel responsible for installing, configuring, and maintaining TippingPoint security systems and associated devices. Users should be familiar with networking concepts and the following standards and protocols:

- TCP/IP
- UDP
- ICMP
- Ethernet
- Simple Network Time Protocol (SNTP)
- Simple Mail Transport Protocol (SNMP)
- Simple Network management Protocol (SNMP)

Conventions

This guide uses the following document conventions.

Typefaces

TippingPoint publications use the following typographic conventions for structuring information:

Table 1 Document Typographic conventions

Convention	Element
Medium blue text: Figure 1	Cross-reference links and e-mail addresses
Medium blue, underlined text (http://www.hp.com)	Web site addresses
Bold font	• Key names • Text typed into a GUI element, such as into a box • GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes. Example: Click **OK** to accept.
Italics font	Text emphasis, important terms, variables, and publication titles.
`Monospace font`	• File and directory names • System output • Code • Text typed at the command-line
`Monospace, italic font`	• Code variables • Command-line variables
`Monospace, bold font`	Emphasis of file and directory names, system output, code, and text typed at the command line

Document Messages

Document messages are special text that is emphasized by font, format, and icons. This <manual type> contains the following types of messages:

- Warning
- Caution
- Note
- Tip

WARNING! Warning notes alert you to potential danger of bodily harm or other potential harmful consequences.

CAUTION: Caution notes provide information to help minimize risk, for example, when a failure to follow directions could result in damage to equipment or loss of data.

NOTE: Notes provide additional information to explain a concept or complete a task. Notes of specific importance in clarifying information or instructions are denoted as such.

IMPORTANT: Another type of note that provides clarifying information or specific instructions.

TIP: Tips provide helpful hints and shortcuts, such as suggestions about how you can perform a task more easily or more efficiently.

Product Documentation

TippingPoint Systems have a full set of documentation. For the most current documentation, check the Threat Management Center (TMC) Web site at https://tmc.tippingpoint.com.

Customer Support

TippingPoint 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, take a moment to gather some basic information from your records and from your system before contacting customer support, including your customer number.

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 device serial number	You can find this information on the bottom of the server chassis. Also, from the TippingPoint CLI, you can run the `show version` command.
Your device version number	From the TippingPoint CLI, you can run the `show version` command.

Contact Information

For additional information or assistance, contact the HP TippingPoint Technical Assistance Center (TAC):

Telephone

North America: +1 866 681 8324
International: +1 512 681 8324

For a list of international toll-free contact numbers, consult the following web page:

https://tmc.tippingpoint.com/TMC/Content/support/Support_Contacts

Online Support Request

1. Log on to the TippingPoint Threat Management Center (TMC) with your HP Passport credentials.

NOTE: If you don't have HP Passport (HPP) credentials, access the TMC and on the Login page, select the **New User Registration** option to register for login credentials. If you are an existing registered TMC user and you have not updated your TMC account to an HPP account, you must log on using your email address registered on the TMC and reset your password. To reset your password, access the TMC and on the Login page, select **Forgot Password** and set a new password.

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2. In the menu bar click **Support > Support Request**.
3. Complete the information required in the Support Request form and submit the form.

E-mail

tippingpoint.support@hp.com

1 System Overview

The TippingPoint™ system is a high-speed, comprehensive security system that includes the Intrusion Prevention System (IPS), ™ Local Security Manager (LSM), Digital Vaccine™, the Security Management System Appliance™, and the Core Controller.

Overview

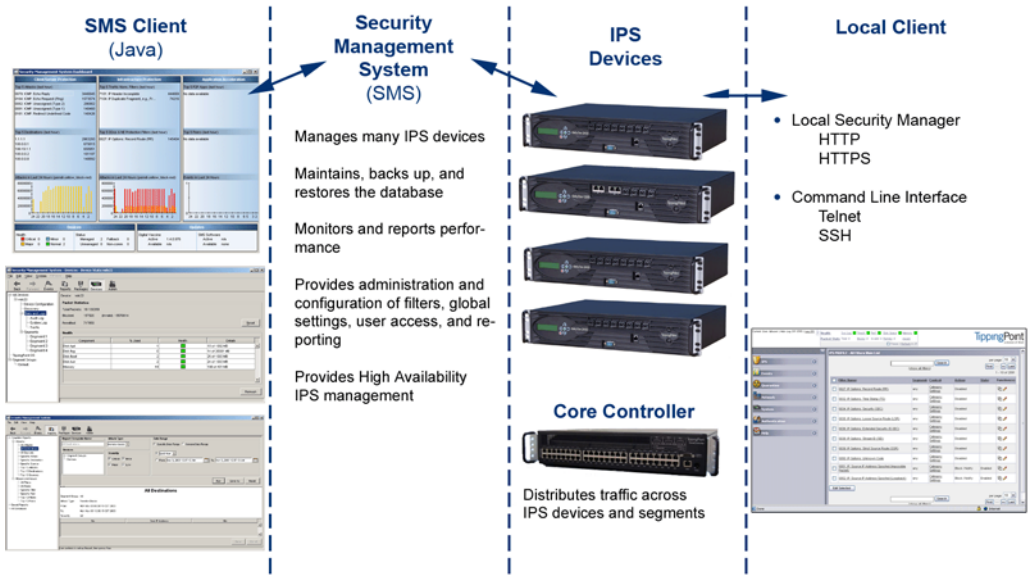
Enterprise security schemes once consisted of a conglomeration of disparate, static devices from multiple vendors. Today, TippingPoint's security system provides the advantages of a single, integrated, highly adaptive security system that includes powerful hardware and an intuitive management interface.

This section includes the following topics:

TippingPoint Architecture

The TippingPoint System uses a flexible architecture that consists of a Java-based SMS Client, SMS Management Server, IPS device(s), and Local Clients including the Local Security Manager (LSM) and Command Line Interface (CLI). The system may also include the Core Controller, a hardware appliance that balances traffic loads for one or more IPSes. The following diagram provides an overview of the architecture:

Figure 1-1 TippingPoint Architecture



Security Management System (SMS)

The SMS core components include:

- **SMS Secure Server** —hardware appliance for managing multiple devices
- SMS Home Page — web-based interface with links to current Client software, documentation, and the Threat Management Center
- **SMS Management Client** — Java-based application for Windows or Linux workstations used to manage your TippingPoint system
- Graphical User Interface (GUI)
- Dashboard
- Command Line Interface (CLI)

The SMS communicates with managed devices that are installed in your network.

The SMS architecture also includes the following components:

- **Threat Management Center** (TMC) — Centralized service center that monitors global threats and distributes up-to-date attack filter packages, software updates, and product documentation.
- **Digital Vaccine** (DV) — Update service that includes up-to-date filter packages for protecting your network
- **Managed Devices** — TippingPoint IPS or Core Controller devices that are installed in your network

SMS Server

The SMS Server is an enterprise-class management platform that provides centralized administration, configuration, monitoring and reporting for well over a hundred TippingPoint IPS devices. The SMS provides the following functionality:

- **Enterprise-wide device status and behavior monitoring** — Stores logs and device status information, manages updates, and monitors filter, device, software, and network status.
- **IPS networking and configuration** — Stores device information and configures devices according to the settings that are modified, imported, or distributed by clients. These settings affect the flow and detection of traffic according to device, segment, or segment group.
- **Filter customization** — Stores filter customizations in profiles as maintained by the SMS client. These settings are distributed and imported to devices, which can be reviewed and modified by local clients. If a device is managed by the SMS Server, the local clients cannot modify settings.
- **Filter and software distribution** — Monitors and maintains the distribution and import of filters, Digital Vaccine packages, and software for the TippingPoint Operating System and SMS Client. The SMS client and Central Management Server can distribute these packages according to segment group settings. The Central Management Server maintains a link to the Threat Management Center (TMC) for downloading and installing package updates.

SMS Client

The TippingPoint Security Management System (SMS) client provides services and functions to monitor, manage, and configure the entire TippingPoint system. This client is a Java-based application installed and accessed on a computer running the appropriate operating system. Each user receives a specific user level with enhanced security measures to protect access and configuration of the system.

You can monitor the entire TippingPoint system through the SMS client on a computer with the following requirements:

- One of the following operating systems:
  - Windows 98, 2nd edition
  - Windows NT, Service Pack 5 or later
  - Windows 2000, Service Pack 3 or later
  - Windows XP
  - Windows 7

    - Apple
    - Red Hat Linux
- One of the following browsers:
    - Microsoft Internet Explorer, version 6.0 or higher
    - Firefox
    - Safari

The SMS features a policy-based operational model for scalable and uniform enterprise management. It enables behavior and performance analysis with trending reports, correlation and real-time graphs - including reports on all, specific, and top attacks and their sources and destinations as well as all, specific, and top peers and filters for misuse and abuse (peer-to-peer piracy) attacks. You can create, save, and schedule reports using report templates. All reports are run against system and audit logs stored for each device managed by the system. These logs detail triggered filters. You can modify, update, and control distribution of these filters according to segment groups for refined intrusion prevention.

The SMS dashboard provides at-a-glance monitors, with launch capabilities into the targeted management applications that provide global command and control of TippingPoint. It displays the entries for the top 5 filters triggered over the past hour in various categories, a graph of triggered filters over the past 24 hours, the health status of devices, and update versions for software of the system. Through the Dashboard, you gain an overview of the current performance of your system, including notifications of updates and possible issues with devices monitored by the SMS.

Intrusion Prevention System Devices (IPS)

Intrusion Prevention System (IPS) devices protect your network with the Threat Suppression Engine (TSE) 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 number of network connections and hardware capabilities. IPS devices also have built-in intrinsic high-availability features, guaranteeing that the network keeps running in the event of system failure.

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 can protect network segments from both external and internal attacks.

Multiple TippingPoint devices can be deployed to extend this unsurpassed protection to hundreds of enterprise zones. You can monitor and manage the devices by using the local client available on each device, or by using the SMS client to monitor and manage well over a hundred devices. The TippingPoint 660N/1400N/2500N/5100N support IPv6, tunneling (including GRE and multi-layer tunnels), and inspection bypass rules for trusted traffic.

IPS Local Clients

The TippingPoint System provides various points of interaction, management, and configuration of the intrusion prevention system. The clients include graphical user interfaces (GUI) and command line interfaces (CLI). These clients include the following:

- **Local Security Manager (LSM)** — Web-based GUI for managing one IPS device. The LSM provides HTTP and HTTPS (secure management) access. This access requires access from a supported web browser (Internet Explorer, Mozilla Firefox, and Netscape). Using the LSM, you have a graphical display for reviewing, searching, and modifying settings. The GUI interface also provides reports to monitor the device traffic, triggered filters, and packet statistics.
- **Command Line Interface (CLI)** — Command line interface for reviewing and modifying settings on the device. The CLI is accessible through Telnet and SSH (secure access).
- **LCD Panel** — Several IPS TippingPoint devices provide an LCD panel to view, configure and modify some device settings.

Core Controller

The TippingPoint Core Controller is a hardware-based device that enables inspection of up to 20 Gbps of traffic by sending the traffic to as many as 24 IPS device segments. The CoreController can control traffic across its three 10GbE network segment pairs and across multiple TippingPoint E-Series IPS devices. IPS devices are connected by 1GbE uplinks, and each packet that is received on a 10GbE CoreController interface passes through a load balancer that then determines the IPS connection to use for transmitting the packet.

The Core Controller provides:

- 10GbE bidirectional traffic inspection and policy enforcement
- High Availability with an optional Smart ZPHA module
- Central management through the SMS

NOTE: The Core Controller can be used with the 2400E and 5000E IPS devices, and with all N-Platform and NX-Platform devices.

High Availability

TippingPoint devices are designed to guarantee that your network traffic always flows at wire speeds in the event of internal device failure. The TippingPoint System provides Network High Availability settings for Intrinsic Network HA (INHA) and Transparent Network HA (TNHA). These options enact manually or automatically, according to settings you enter using the clients (LSM and SMS) or LCD panel for IPS devices. Zero-Power High Availability (ZPHA) is available for the IPS as an external modular device, as optional bypass I/O modules on NX-Platform devices, and for the Core Controller as an optional Smart ZPHA module.

The IPS uses INHA for individual device deployment and TNHA for devices deployed in redundant configurations in which one device takes over for another in the event of system failure. With INHA, a failure puts the device into Layer-2 Fallback mode and permits or blocks traffic on each segment. In TNHA, multiple IPS devices are synchronized so that when one device experiences a system failure, traffic is routed to the other device with no interruption in intrusion prevention services.

SMS high availability provides continuous administration through an active-passive SMS system configuration. A passive SMS is configured, synchronized with the active system, and waits in standby mode and monitors the health of the active system. If the health or communications check fails, the passive SMS will be activated.

The ZPHA modular device can be attached to an IPS to route traffic in the event of power loss. Smart ZPHA modules, which are wired into the device, and bypass I/O modules, which are installed directly into NX-Platform devices, perform the same function.

Threat Suppression Engine

The Threat Suppression Engine (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 blocking of the traffic and packets ensures that the attack never reaches its destination.

The combination of high-speed network processors and custom 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.

Threat Management Center

The Threat Management Center (TMC) is a centralized service center that monitors global threats and distributes up-to-date attack filter packages, software updates, and product documentation.

The Threat Management Center (TMC) collects threat information and creates Digital Vaccine packages that are made available on the TMC web site. The packages include filters that block malicious traffic and attacks on your network. The filters provide the following protections:

- **Application Protection** — Defend against known and unknown exploits that target applications and operating systems:
  - Attack Protection filters — Detect and block traffic known to be malicious, suspicious, and to have known security implications. These filters include the following: Vulnerabilities and Exploits filters.
  - Security Policy filters — Detect and block traffic that may or may not be malicious. This traffic may be different in its format or content from standard business practice, aimed at specific software or operating systems, or contrary to your company's security policies.
  - Reconnaissance filters — Detect and block scans, sweeps, and probes for vulnerabilities and information about your network. These filters include the following: Probes and Sweeps/Scans filters.
  - Informational filters — Detect and block classic Intrusion Detection System (IDS) infiltration
- **Infrastructure Protection** — Protect network bandwidth and network infrastructure elements such as routers and firewalls from attack using a combination of filter types:
  - Advanced DDoS filters — Available on the 2400E and 5000E. Detect and block denial of service and flood requests, such as SYN Requests, that can overwhelm a system.
  - Network Equipment Protection filters — Protect networked equipment from attacks
  - Traffic Normalization filters — Detect and block abnormal or malicious traffic
- **Performance Protection** — Allow key applications to have prioritized bandwidth access setting that ensure mission critical applications have adequate performance during times of high congestion:
  - Misuse and Abuse filters — Protect the resources and usage of file sharing across networks and personal computers. These filters protect peer-to-peer services.
  - Traffic Management filters — Protect the network by shielding against IP addresses or permitting only a set of IP addresses

2 TippingPoint Hardware Safety and Compliance

This document describes TippingPoint product regulatory compliance and provides safety requirements and warnings.

Overview

Before installing your TippingPoint product, you must read through all preparation instructions and safety requirements.

Safety and Compliance Requirements

For detailed regulatory compliance information, refer to the *HP TippingPoint Hardware Safety and Compliance Guide*, available on the TMC and included with your product.

Safety Guidelines and Warnings

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

If not properly installed and maintained, electrical circuitry equipment 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 product clear and dust-free during and after installation.
- Wear safety glasses if you are working under conditions that might be hazardous to your eyes.
- This product has serviceable modules and hot-swappable power supplies. It has no other serviceable parts inside.

Cautions

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.

CAUTION: 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.

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.

CAUTION: 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.

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.

Warnings

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.

Installation Warnings

WARNING! Only trained and qualified personnel should install, replace, or service this equipment. Disconnect the power and network cables before servicing.

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

WARNING! When installing the product, always make the ground connection before applying power to the unit. This equipment needs to be grounded to an external ground connection. Use a green and yellow 14 AWG ground wire to connect the host to earth ground during normal use. Disconnect the ground connection only when the unit is completely powered down.

WARNING! On the product 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.

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

WARNING! This equipment is to be installed and maintained by service personnel only as defined by AS/NZS 60950-1 Service Personnel.

WARNING! The Installation of this product must comply with local and national electrical codes.

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

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.

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

WARNING! 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! 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)

WARNING! The final disposal of this product must be done according to all national laws and regulations.

Parts Warnings

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

WARNING! On the product, 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.

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

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

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

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

WARNING! This product might have more than one power supply source. All power sources must be removed to de-energize the unit.

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

WARNING! All optical interfaces and sources connected to this product and its modules must only use Class 1 lasers. Using any other Laser Class source can create hazardous conditions to the user.

WARNING! 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.

WARNING! 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.

WARNING! The product uses double pole/neutral fusing. Use caution when servicing this product.

Rack and Clearance Requirements

Tipping Point recommends that you mount the product 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 1.75 inch (44.45 mm) 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 product. Follow these guidelines to ensure that the product 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 multi-rack assembly, the operating ambient temperature of the rack may be greater than the room ambient temperature. Ensure that the maximum ambient temperature of 104° F (40 ° C) is not exceeded.

Environmental Requirements

For the product 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 Environmental Requirements

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 10,000 feet above sea level

Reliable Earthing

Ensure that an external grounding connection is available for the product and follow these guidelines:

- For AC-powered products, use only the AC power cords that have been provided with the product. Using other cords could be hazardous to your safety.
- For DC-powered products, ensure that the product is grounded to the ground termination connector labeled with the IEC 60417-5019 symbol:

Always make the ground connection first when you install the product, ensuring that it is in place before turning on the power or connecting any network cables. When disconnecting the product, remove the ground connection last, only after the power has been completely turned off and all cables have been disconnected.

ESD Requirements

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

- 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.

Hot Swapping Guidelines

Hot swapping allows you to remove and replace cards without disconnecting power to the system. Some TippingPoint devices allow you to hot swap cards or modules. The TippingPoint has a comprehensive detection system that senses automatically when you add or remove a card or module. It then runs diagnostic and discovery routines and acknowledges the presence or absence of the card.

If you remove a card or module and replace it with the same type of card or module, the system resumes operation without any operator intervention.

- Do not force the card or module into its slot. This can damage the pins on the backplane if they are not aligned properly with the card or module.
- Ensure that the card or module is straight and not at an angle when you install it in the slot, which can damage the equipment. Use the guide rails to install the card or module correctly.
- Fully depress the ejector tabs to ensure that the card connector mates with the backplane correctly. Firmly seat the card in the slot by locking the card with the black levers.

Unpack the Product

Each chassis is securely packaged in a shipping box.

CAUTION: ESD can damage the product 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 product boxes.

To unpack the product, complete the following steps:

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.
2. Carefully open the box.
3. Remove all packing material.
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.
5. Remove the chassis from the box.
6. Open the accessory kit. It contains the cables, documentation, and management software.
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.

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

3 TippingPoint 10 Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the TippingPoint 10.

Overview

This chapter details the components, chassis, requirements, and installation of the TippingPoint 10 IPS. This information applies to the following part numbers:

Device	HP SKU	TippingPoint SKU
TippingPoint 10 Copper Port, Single Device	JC184A	TPRN0010CAS96

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

The TippingPoint 10 system comprises a compact chassis that provides access to two network segments.

Figure 3-1 shows the front chassis interface for a TippingPoint 10.

Figure 3-1 TippingPoint 10 - Front Panel

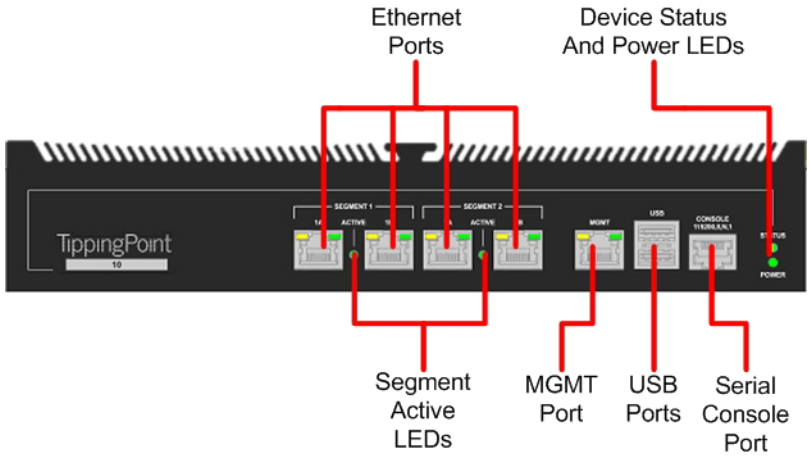
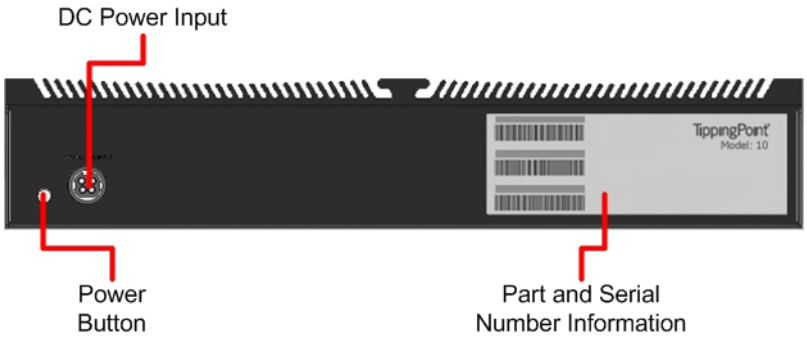


Figure 3-2 shows the chassis back panel for a TippingPoint 10.

Figure 3-2 TippingPoint 10 - Back Panel



The TippingPoint 10 ships with the following pre-installed components:

- Two 10/100/1000 Gigabit Ethernet segments supporting up to 20 Mbps aggregate across all segments
- One 10/100/1000 Gigabit Ethernet management port
- One serial console RJ-45 port (Pinout: 1-RTS, 2-DTR, 3-TXD, 4-GND, 5-GND, 6- RXD, 7-DSR, 8-CTS)
- Two USB ports

LEDs

The following table describes the status LEDs used by the TippingPoint 10.

Table 3-1 TippingPoint 10 LEDs

LED	Location	Description
Power	The right side of the front panel.	**Green**: Indicates that the device has power and is running.
Status	The right side of the front panel, above the Power LED.	**Off**: No power **Yellow**: Device is booting OR one of the following faults has occurred: • A Critical or Error event in the system log • A thermal, memory, or disk alert • High availability failover status due to another event **Green**: The device is running normally.
Link	The right side of each RJ45 port.	**Green**: The link on the port is active. **No light**: The link is down.
Packet Activity	The left side of each RJ45 port.	**Flashing Yellow**: The port is passing data. **Solid Yellow**: Link is present, but there is no packet activity. **No light**: No data is passing.

Table 3-1 TippingPoint 10 LEDs

LED	Location	Description
ACTIVE	In the middle of each port pair that comprises a segment.	**Green**: The unit is passing and inspecting traffic. **No Light**: The unit has no power or is using the internal ZPHA to pass traffic without inspection.
Power button	On the Power button on the back of the device.	**Off**: No power is coming from the AC/DC adapter. **Red**: The unit is standing by to start. Press the power button again to start the unit. **Blue**: The unit is running.

Technical Specifications

The following section details the hardware and software specification for the TippingPoint 10.

- "Hardware Specifications" on page 15
- "Software Specifications" on page 15

Hardware Specifications

This section details the specifications for the hardware components.

Table 3-2 TippingPoint 10 Specifications

Feature	Description
Dimensions	10.63 in x 7.32 in x 2.01 in (27.0 cm x 18.6 cm x 5.1 cm)
Weight	5.1 lbs (2.3 kg)
Temperature Requirements	0 to 40 ° C (32 to104 ° F) — Operating -25 to 70° C (-13 to 158 ° F) — Storage **Note**: Please allow time for the device to return to room temperature before powering the device on.
Humidity Requirements	5% to 95% (non-condensing)
Power Specifications	Power Adapter: 110-240 VAC universal, 50-60 Hz, 5A Power Output: 12 V DC
Maximum Data Rate	20 Mbps aggregate throughput between both segments
Rate Limits: Kbps	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900
Rate Limits: Mbps	1, 1.5, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20

Software Specifications

To run the TippingPoint Intrusion Prevention System (IPS), you must use one of the following:

- A network-connected PC that supports Internet Explorer 7.*x* or higher or Mozilla Firefox 3.*x* or higher.
- TippingPoint Security Management System (SMS) Software, Version 3.6 and above.

Hardware Installation and Configuration

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

The TippingPoint 10 can be placed on a shelf or table on rubber feet, attached to a wall, or mounted in a rack.

CAUTION: The TippingPoint 10 is greater than 1 RU in height and requires 3" (7.62 cm) overhead clearance and 0.31" (8 mm) side clearance. Do not stack devices. If the devices are stacked, the cooling features of the devices will be compromised. This may lead to reliability problems or device failure.

Attaching Rubber Feet to the Chassis

The TippingPoint 10 comes with four rubber feet that can be attached to the unit. These feet should be detached from the square and attached to the base of the unit in the places marked by the etched circles. The device can then be placed on a shelf or on a table.

NOTE: The rubber feet should **not** be used with the wall mount or rack mount kits.

Using the TippingPoint 10 Wall and Rack Mount Kit

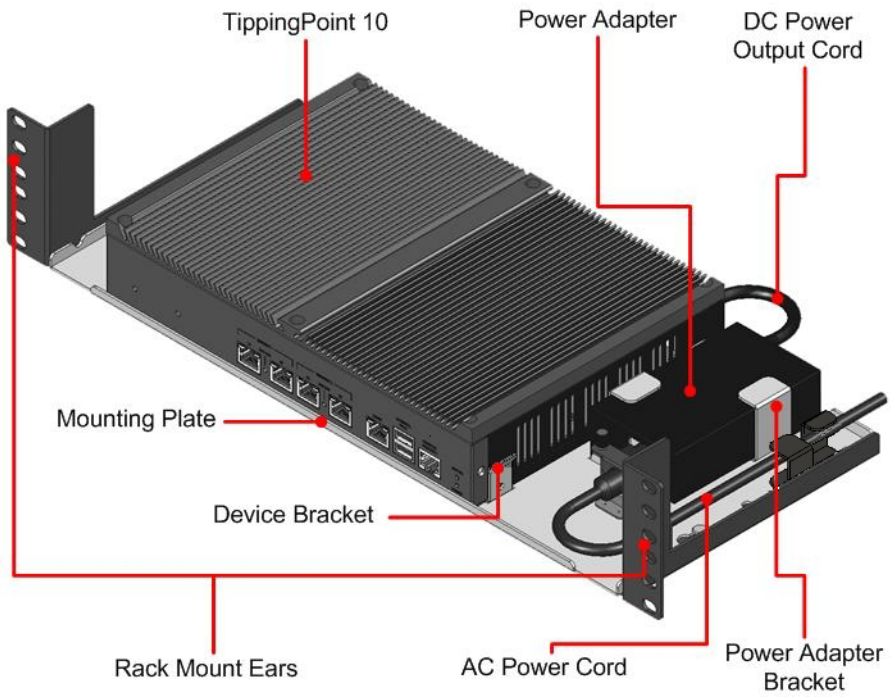
You can order an accessory kit for the TippingPoint 10 that enables you to mount the device on the wall or on a rack. The accessory kit includes:

- A mounting plate that is attached to the TippingPoint 10 and can then be attached to the wall.
- A pair of rack ears that attach to a server rack, on which the TippingPoint 10 and mounting plate can be placed.

NOTE: To use the rack ears, the TippingPoint 10 must be installed on the mounting plate first.

The following diagram shows the TippingPoint 10 on the fully-assembled mounting plate, with the rack ears attached.

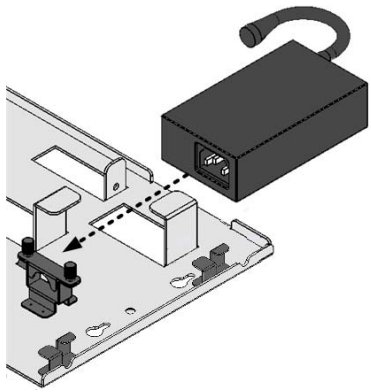
Figure 3-3 TippingPoint 10 Rack and Wall Mount Assembly



To attach the TippingPoint 10 to the mounting plate

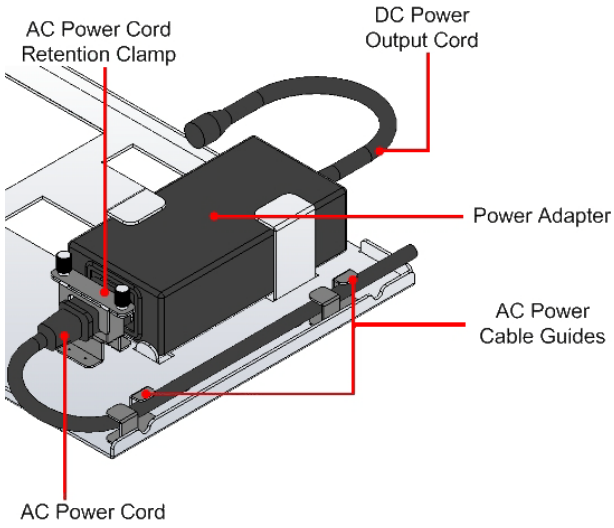
1. Place the mounting plate on a flat surface.
2. Place the TippingPoint 10 between the device brackets on the mounting plate.
3. Secure the TippingPoint 10 to the device brackets with screws.
4. Loosen the screws that secure the top of the AC power cord sufficiently to allow the AC power cord connector to pass through. (See Figure 3-5, "TippingPoint 10 Power Adapter Bracket," on page 18.)
5. Ensure that the AC power cord is not attached to the power adapter and slide the adapter into the bracket on the mounting plate: the power adapter in the power adapter bracket.

Figure 3-4 Placing the Power Adapter On the Mounting Plate



6. Attach the cables to the AC adapter. Refer to the following diagram:

Figure 3-5 TippingPoint 10 Power Adapter Bracket



a. Slide the AC power cord through the retention camp on the wall mount plate and plug the cord into the AC socket on the adapter.

b. Ensure the AC adapter is securely placed and screw the retention clamp down over the AC cord connector.

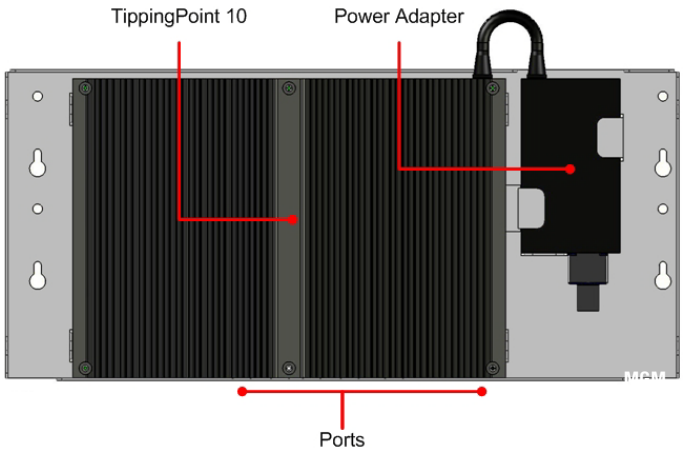
c. Route the AC power cord through the cable guidesand connect to AC power.

d. Attach the DC power output of the adapter to the back of the TippingPoint 10.

To attach the TippingPoint 10 to a wall

To attach the TippingPoint 10 to a wall, hold the device and mounting plate vertically so that the network ports are facing down. Use the four mounting holes in the plate to fasten the plate securely to the wall. The screws should have a head diameter of at least 8mm (0.31 in) and a thread shaft diameter of at least 4mm (0.16 in).

Figure 3-6 Positioning of the TippingPoint 10 On a Wall



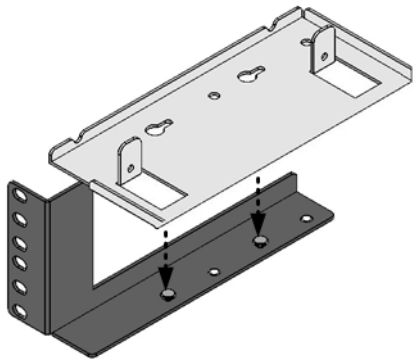
CAUTION: When mounting the TippingPoint 10 on a wall, the device should **only** be mounted with the ports facing down.

To attach the TippingPoint 10 to a rack

If you plan to install the TippingPoint 10 on a rack, follow these steps to attach the ears:

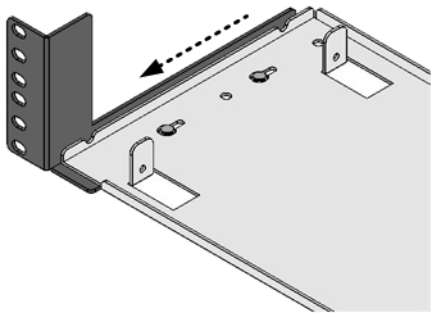
1. Attach the rack mount ears to the server rack with screws.
2. Place the mounting plate containing the TippingPoint 10 on to the rack mount ears with the ear lugs resting in the attachment holes.

Figure 3-7 Placing the Mounting Plate On the Rack Mount Ears



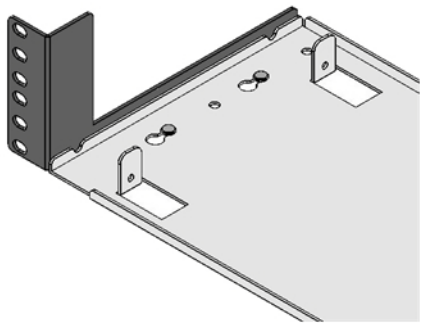
3. Slide the plate forward to lock it into place on the ear lugs.

Figure 3-8 Locking the Mounting Plate On the Rack Mount Ears



The following figure shows the completed assembly:

Figure 3-9 Mounting Plate Locked On the Rack Mount Ears



NOTE: You should always attach the TippingPoint 10 to the mounting plate before attaching the plate to the rack mount ears. The diagrams show the mounting plate and rack mount ears without the TippingPoint 10 for demonstration purposes only.

Connect cables

This section describes the steps for connecting cables to the TippingPoint 10.

- "Console Connection" on page 20
- "Management Port Connection" on page 20
- "Segment/Port Connections" on page 20

Console Connection

The initial configuration for the TippingPoint 10 is performed using the command line interface (CLI) on a serial terminal client.

1. Connect one end of the supplied serial cable to the Console port located on the front panel. The default settings are:
   - **Baud rate**: 115200
   - **Character size**: 8 bits
   - **Parity**: None
   - **Stop Bits**: 1
   - **Flow Control**: None
2. Connect the other end of the cable to the terminal.

Management Port Connection

Use the 10/100/1000 management port to access the TippingPoint 10 CLI or LSM from another computer on your network.

1. Connect one end of a Category 5e Ethernet cable to the MGMT port labeled located on the front panel.
2. Connect the other end of the cable to an Ethernet port connected to your network.

Segment/Port Connections

The TippingPoint 10 has two 10/100/1000 Gigabit Ethernet segments.

1. Attach the cable for incoming traffic to the A port on the segment.
2. Attach the cable for outgoing traffic to the B port on the segment.
3. Connect the cables to the appropriate ports on your network router.

Special Wiring Considerations

The TippingPoint 10 includes integrated Zero-Power High Availability (ZPHA) relays. The ZPHA relays provide a network bypass for Ethernet traffic in the event that the IPS loses power.

When you install and configure a device with integrated ZPHA, you should first connect the network cables with the device powered off and ensure that link is established and traffic passes successfully. If so, installation can proceed normally.

If the device does not pass traffic while powered off, ensure that you have the appropriate cable for your network. In many cases, replacing a straight-through cable with a cross-over cable will resolve link issues. In addition, ensure that all IPS interfaces and connected switches have the same linespeed and duplex settings.

Connect the Power

The TippingPoint 10 includes an AC/DC power adapter. Follow these steps to connect power to the device.

NOTE: You must always use the TippingPoint-supplied AC/DC power adapter with the TippingPoint 10. Do not use any other power adapters with this device.

1. Plug the included AC/DC power adapter into the power input at the back of the device.
2. Plug one end of the provided power cord into the AC/DC adapter.
3. Plug the other end into an AC outlet, power strip, or UPS. The power should meet the following requirements:
   - Voltage: 110-240 VAC
   - Current
     - At 110 V: 1.11 Amps
     - At 240 V: 0.414 Amps
   - Frequency: 50-60 Hz

The unit starts automatically when power is first connected. The LED on the rear power button will turn blue, and the Power LED on the front panel will turn green.

Using the Power Button

To power down the TippingPoint 10 while power is connected, press and hold the Power button on the back of the device for four seconds, then release it. Press the Power button to turn the device back on.

If power is disconnected while the TippingPoint 10 is off, the device will start automatically when power is re-connected. The first time that the TippingPoint 10 is unpacked and powered up and after the device is powered off with the Power button, the Power LED will be red when power is connected. After the unit is started by pressing the Power button, the power LED will be blue.

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-Experience (OBE) 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 or laptop.
- Additional Configuration — After running the setup wizard using the serial terminal, 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.

NOTE: When using the command line interface, configure the terminal emulation package to transmit a Ctrl-H character when the Backspace key is pressed.

USB Update and Restore

The TippingPoint 10 supports TOS updates and snapshot restorations from update and snapshot files stored on a USB thumb drive. The device must be unconfigured or reset to pre-OBE factory settings.

1. Ensure that the desired TOS update or snapshot file with a .PKG extension is available in the top level directory of the USB drive.
2. With the device powered off, insert the USB drive.
3. Power on the device.
4. The device boots up and searches for the update or snapshot file and begins installation of the file.
5. Allow the device to complete installation and reboot.

If an update package and a snapshot file are both present on the device, the update package is installed first. The device reboots, and then the snapshot file is installed, and the device reboots a second time.

4 TippingPoint 110/330 Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the TippingPoint 110 and the TippingPoint 330.

Overview

This chapter details the components, chassis, requirements, and installation of the TippingPoint 110 and TippingPoint 330 IPS. This information applies to the following part numbers:

Device	HP SKU	TippingPoint SKU
TippingPoint 110 Copper Port	JC186A	TPRN0110CAS96
TippingPoint 330 Copper Port	JC187A	TPRN0330CAS96

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

The TippingPoint 110/330 systems comprise a 1U chassis that provides access to four network segments. The models differ in the levels of network traffic supported.

The following figures show the front and back chassis interfaces for the TippingPoint 110/330.

Figure 4-1 TippingPoint 110/330 - Front Panel

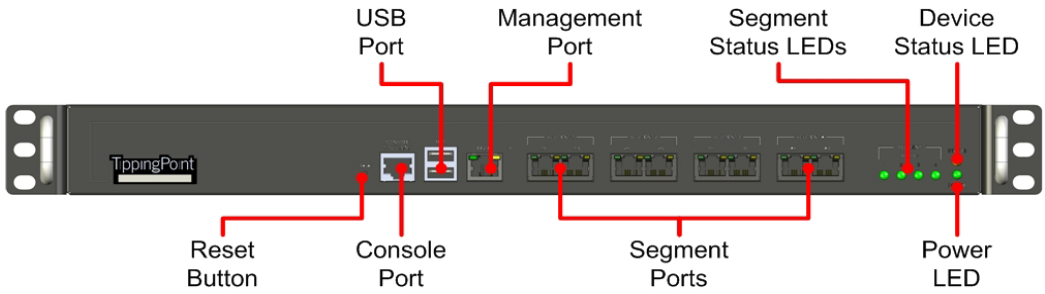
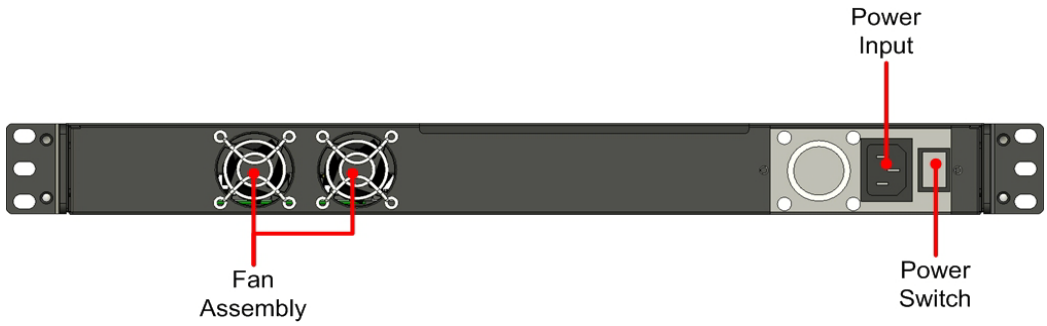


Figure 4-2 shows the chassis back panel for a TippingPoint 110/330.

Figure 4-2 TippingPoint 110/330 - Back Panel



The TippingPoint 110 and the TippingPoint 330 ship with the following pre-installed components:

- Four 10/100/1000 Gigabit Ethernet segments supporting up to:
  - 100 Mbps aggregate across all segments on the TippingPoint 110
  - 300 Mbps aggregate across all segments on the TippingPoint 330
- One 10/100/1000 Gigabit Ethernet management port
- One serial console RJ-45 port (Pinout: 1-RTS, 2-DTR, 3-TXD, 4-GND, 5-GND, 6- RXD, 7-DSR, 8-CTS)
- Two USB ports

LEDs

The following table describes the status LEDs used by the TippingPoint 110/330.

Table 4-1 TippingPoint 110/330 LEDs

LED	Location	Description
Power	The right side of the front panel.	**Green**: Indicates that the unit has power and is running.
Device Status	The right side of the front panel, above the Power LED.	**Off**: No power, or the unit has been shut down by CLI command. **Yellow**: Unit is booting OR one of the following faults has occurred: • A Critical or Error event in the system log • A thermal, memory, or disk alert • High availability failover status due to another event **Green**: The device is running normally.
Segment Status LEDs	In a row of four at the right of the front panel.	**Green**: The unit is passing and inspecting traffic on the identified segment. **No Light**: The unit has no power or is using the internal ZPHA to pass traffic without inspection on this segment.

Table 4-1 TippingPoint 110/330 LEDs

LED	Location	Description
Link	The left side of each RJ45 port.	**Green**: The link on the port is active. **No light**: The link is down.
Packet Activity	The right side of each RJ45 port.	**Flashing Yellow**: The port is passing data. **No light**: No data is passing.

Technical Specifications

The following section details the hardware and software specification for the TippingPoint 110/330.

- "Hardware Specifications" on page 25
- "Software Specifications" on page 26

Hardware Specifications

This section details the specifications for the hardware components.

Table 4-2 TippingPoint 110/330 Specifications

Feature	Description
Dimensions	18 in x 16.78 in x 1.73 in (45.72 cm x 42.62 cm x 4.4 cm)
Weight	18.74 lbs (8.5 kg) excluding shipping packaging
Temperature Requirements	0 to 40 ° C (32 to104 ° F) — Operating -20 to 85° C (-4 to 185 ° F) — Storage **Note:** Please allow time for the device to return to room temperature before powering the device on.
Humidity Requirements	5% to 90% (non-condensing)
Power Specifications	100-240 VAC universal, 50-60 Hz Maximum Power Consumption: 121W or 412 BTU/hour
Maximum Data Rate	TippingPoint 110: 100 Mbps aggregate throughput across all segments TippingPoint 330: 300 Mbps aggregate throughput across all segments
Memory	2 GB
Flash Storage	1 GB
Rate Limits: Kbps	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900
Rate Limits: Mbps	• TP 110: 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 35, 40, 50, 62, 83 • TP 330: 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 35, 40, 50, 62, 83, 125, 200, 250, 320

Software Specifications

To run the TippingPoint Intrusion Prevention System (IPS), you must use one of the following:

- A network-connected PC that supports Internet Explorer 7.*x* or higher or Mozilla Firefox 3.*x* or higher.
- TippingPoint Security Management System (SMS) Software, Version 3.6 and above.

Hardware Installation and Configuration

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

The TippingPoint 110/330 comes with a pair of rack mount ears that enable you to attach the device to a rack. Attach the ears to the side of the unit with the provided screws.

When you install the chassis in the rack, ensure that the vents on the side and rear of the unit are clear to enable sufficient air circulation. The unit draws cool air in through the side vents by the rack mount ears.

Connect cables

This section describes the steps for connecting cables to the TippingPoint 110/330.

Console Connection

The initial configuration for the TippingPoint 110/330 is performed using the command line interface (CLI) on a serial terminal client.

1. Connect one end of the supplied serial cable to the Console port located on the front panel. The default settings are:
   - **Baud rate**: 115200
   - **Character size**: 8 bits
   - **Parity**: None
   - **Stop Bits**: 1
   - **Flow Control**: None
2. Connect the other end of the cable to the terminal.

Management Port Connection

Use the 10/100/1000 management port to access the TippingPoint 110/330 CLI or LSM from another computer on your network.

1. Connect one end of a Category 5e Ethernet cable to the MGMT port located on the front panel.
2. Connect the other end of the cable to an Ethernet port connected to your network.

Segment/Port Connections

The TippingPoint 110/330 has four segments comprising two ports each.

1. Attach the Category 5e cable for incoming traffic to the A port on the segment.
2. Attach the Category 5e cable for outgoing traffic to the B port on the segment.
3. Connect the cables to the appropriate ports on your network router.

Special Wiring Considerations

The TippingPoint110 and 330 include integrated Zero-Power High Availability (ZPHA) relays. The ZPHA relays provide a network bypass for Ethernet traffic in the event that the IPS loses power.

When you install and configure a device with integrated ZPHA, you should first connect the network cables with the device powered off and ensure that link is established and traffic passes successfully. If so, installation can proceed normally.

If the device does not pass traffic while powered off, ensure that you have the appropriate cable for your network. In many cases, replacing a straight-through cable with a cross-over cable will resolve link issues. In addition, ensure that all IPS interfaces and connected switches have the same linespeed and duplex settings.

Connect the Power

The TippingPoint 110/330 includes a power cable. Follow these steps to connect power to the device.

1. Plug one end of the provided power cable into the power input at the back of the device.
2. Plug the other end into an AC outlet, power strip, or UPS. The power should meet the following requirements:
   - Voltage: 110-240 VAC
   - Current
     - At 110 V: 6A
     - At 240 V: 3A
   - Frequency: 50-60 Hz

After you plug in the unit, push the power switch on the rear of the device into the On position. The Power LED on the front panel will turn green to show that power is present.

Using the Power Switch

Use the following procedure to power down the TippingPoint 110/330 while power is connected:

1. In the CLI, issue the SHUTDOWN command.
   When the command is successfully executed, the Status LED will turn off.
2. Push the power switch on the rear of the device into the Off position.

Push the switch into the On position to turn the device back on.

If AC power is lost while the power switch is in the On position, the device will start automatically when AC power is re-connected.

CAUTION: Do not turn off the power using the switch without first shutting down the unit with a clean shutdown.

Using the Reset Button

Use the Reset button to perform a graceful shutdown or to restart the TippingPoint 110/330 in the event that the unit becomes unresponsive to LSM and CLI commands.

To perform a graceful shutdown with the Reset button, press and hold the Reset button for 2 seconds. After 2 seconds, the unit beeps and begins the shutdown sequence. The status LED turns yellow, the unit goes into bypass mode, and the segment active LEDs are extinguished. When the graceful shutdown is complete, the status LED on the front is extinguished. You may then disconnect the power or use the power switch to complete the system shutdown.

CAUTION: Be sure to release the power button as soon as the unit begins the shutdown sequence. If you hold the button for 4 seconds, the unit will perform a hard reset and power off **without** performing a graceful shutdown, which may result in loss of data.

Perform a hard reset **only** in case of emergency, when the standard shutdown procedure fails.

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 Experience (OBE) 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 or laptop.
- Additional Configuration — After running the setup wizard using the serial terminal, 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.

NOTE: When using the command line interface, configure the terminal emulation package to transmit a Ctrl-H character when the Backspace key is pressed.

USB Update and Restore

The TippingPoint 110/330 devices support TOS updates and snapshot restorations from update and snapshot files stored on a USB thumb drive. The device must be unconfigured or reset to pre-OBE factory settings.

1. Ensure that the desired TOS update or snapshot file with a `.pkg` extension is available in the top level directory of the USB drive.
2. With the device powered off, insert the USB drive.
3. Power on the device.
   The device boots up and searches for the update or snapshot file and begins installation of the file.
4. Allow the device to complete installation and reboot.

If an update package and a snapshot file are both present on the device, the update package is installed first. The device reboots, and then the snapshot file is installed, and the device reboots a second time.

A Connector and Pinout Specifications

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

RJ-45 (COM) Console

The following figure displays the RJ-45 connector.

Figure A-1 RJ-45 Connector

Table A-1 shows the RJ-45 console connector pinouts.

Table A-1 RJ-45 Console Connector Pinouts

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

RJ-45 Ethernet Connectors

Use the following pinout information when your RJ-45 device is operating in 10Mbps/100Mbps mode.

Table A-2 RJ-45 Ethernet 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-)

Table A-2 RJ-45 Ethernet Connector Pinouts

Pin Number	Signal Name
7	Ground (GND)
8	Ground (GND)

Use the following pinout information when your RJ-45 device is operating in 1000Mbps (1GbE) mode.

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-)

NOTE: These ports can auto-negotiate their mode and can automatically detect whether they should operate in straight-through or cross-over mode.

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