TREND MICRO™

TippingPoint

N-Platform Hardware Installation and Safety Guide

Legal and notice information

Contents

About this guide

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

This section covers the following topics:

- *Target audience* on page 1

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-

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 (SMTP)

- Simple Network management Protocol (SNMP)

Related documentation

A complete set of product documentation for the TippingPoint Intrusion Prevention Systems is available online. The product document set generally includes conceptual and deployment information, installation and user guides, CLI command references, safety and compliance information, and release notes.

For information about how to access the online product documentation, refer to the *Read Me First* document in your product shipment.

Conventions

This information uses the following conventions.

Typefaces

TippingPoint uses the following typographic conventions for structuring information:

Convention	Element
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

Messages

Messages are special text that is emphasized by font, format, and icons.

⚠**Warning!** Alerts you to potential danger of bodily harm or other potential harmful consequences.

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

Note: Provides additional information to explain a concept or complete a task.

Important: Provides significant information or specific instructions.

Tip: Provides helpful hints and shortcuts, such as suggestions about how to perform a task more easily or more efficiently.

Support information

Contact the TippingPoint Technical Assistance Center (TAC) by using any of the following options.

Note: Have the following information about your product available:

• Serial number and/or software version for your product

• System logs or event logs if available for your product

Online support

Go to the TippingPoint Threat Management Center (TMC) at:

https://tmc.tippingpoint.com/TMC/

Phone support

North America: +1 866 681 8324

International: see *https://tmc.tippingpoint.com/TMC/*

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.

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 topic includes the following information:

- *TippingPoint architecture* on page 4

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:
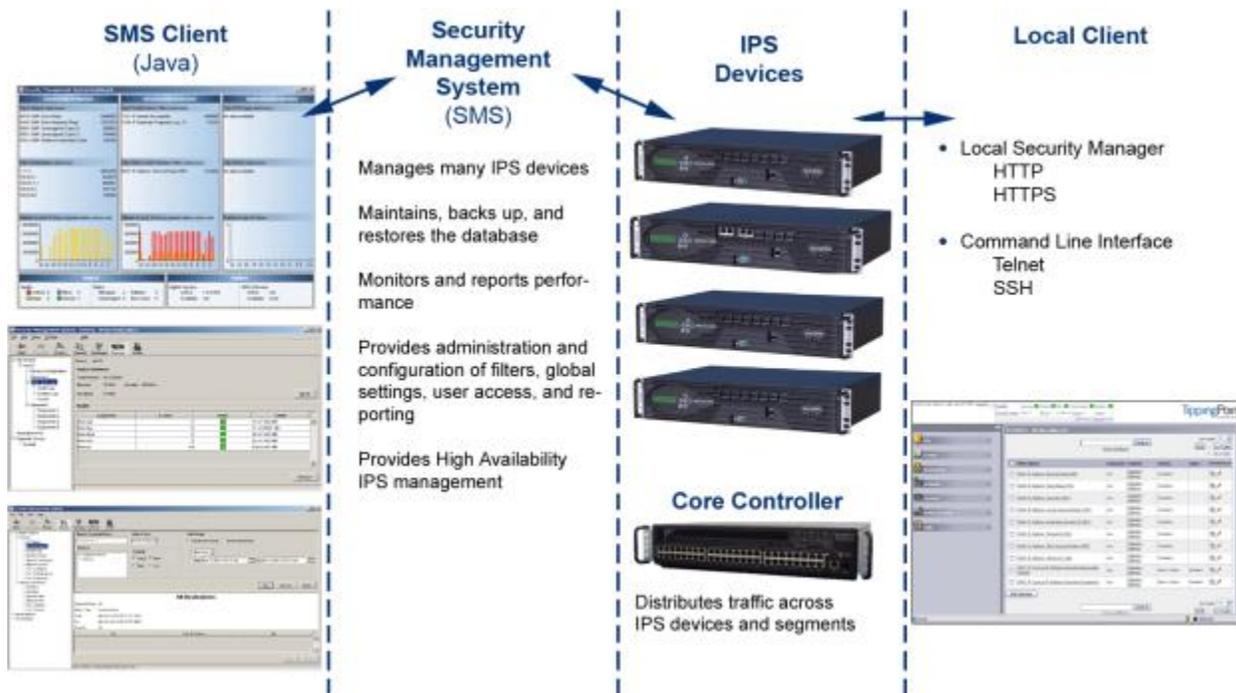
Figure 1. TippingPoint architecture

Security Management System (SMS)

Describes the core components of the 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 OS X

  - 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. Reporting includes 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. Included in the SMS dashboard display are the following items:

- Entries for the top five filters triggered over the past hour in various categories

- A graph of triggered filters over the past 24 hours

- The health status of devices

- 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

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, and high-availability security for remote branch offices, small-to-medium and large enterprises and collocation facilities. Each IPS 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 N-Platform and NX-Platform devices 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 IPS.

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 20Gbps of traffic by sending the traffic to as many as 24 IPS device segments.

The Core Controller 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 Core Controller 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 of the active system 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.

TSE features include:

- IP defragmentation
- TCP flow reassembly
- Statistical analysis
- Traffic shaping
- Flow blocking
- Flow state tracking
- 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 provides 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 TMC collects threat information and creates Digital Vaccine packages that are made available on the TMC website. 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 vulnerabilities and exploits filters.

  - Security Policy filters — Detect and block traffic that might or might not be malicious. This traffic might 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 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 a prioritized bandwidth-access setting that ensures 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.

Hardware safety and compliance

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

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

- *Safety and compliance requirements* on page 11

- *Rack and clearance requirements* on page 14

- *Ventilation and location* on page 15

- *Environmental requirements* on page 15

- *Reliable earthing* on page 16

- *ESD requirements* on page 16

- *Hot swapping guidelines* on page 16

- *Unpack the product* on page 17

Safety and compliance requirements

Provides the location of hardware safety and compliance information.

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

Safety guidelines and warnings

Provides important information and safety warnings.

Before you start the installation procedures, read this entire section for important information and safety warnings. The warnings in this section have been localized to 28 languages in the *TippingPoint Safety Warning Notices* document available at the Threat Management Center (TMC) web site at *https://tmc.tippingpoint.com.*

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.

⚠️**Caution:** When using a DC power supply, be sure to replace the plastic cover on the on the terminal block input after connecting the power. Failure to do so exposes you to a risk of severe injury from electric shock.

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

Provides installation warnings to consider.

⚠️**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! While handling 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. The electrical rating is labeled on the product.

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

Provides parts warnings to consider.

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. To prevent electric shock, do not open the enclosure of the product.
⚠️**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. Always use the power adaptor and power cord shipped with the product to the correct voltage.
⚠️**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!**	Do not expose the product to strong magnets or magnetic fields.
⚠️**Warning!**	Keep all liquids and dust away from the product.
⚠️**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!**	Use caution when touching exposed metallic surfaces, which can become hot during normal operation.
⚠️**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.
⚠️**Warning!**	The user must install only Optical Transceiver Modules that comply with the appropriate standard and/or regulation - UL 60950-1, FDA/CDRH 21 CFR 1040 Class 1, or (IEC/CENELEC) EN 60825 Class 1.

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 one inch (2.54 cm) spacing. Ensure that you have a minimum of three inches clearance at the side of the ventilation slots.

Note: Some devices have different rack and clearance requirements, or may have other mounting and installation options. Refer to the appropriate chapter in this guide for more information.

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.

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.

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. When the installation is done in a rack, the rack must be grounded to provide an adequate ground location for the ground wire that is attached to the chassis.

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

Describes how to 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.

TippingPoint 660N and 1400N device overview

This topic describes the components, chassis, requirements, and installation of the TippingPoint 660N and TippingPoint 1400N and their components.

These devices are associated with the following part numbers:

Model	HPE part number	Trend Micro part number
TippingPoint 660N	JC019A	TPNN0020
TippingPoint 1400N	JC020A	TPNN0023

Prior to installation, you should also obtain the *IPS Command Line Interface Reference*. After installing the components, complete the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This topic includes the following information:

Device overview

Provides images and an overview of the TippingPoint 660N and 1400N IPS devices.

The TippingPoint 660N supports up to 750Mbps of traffic across multiple copper and fiber segments. The TippingPoint 1400N supports up to 1.5 Gbps of traffic across multiple copper and fiber segments. The chassis is rack-mountable on a 19- or 23-inch rack.

Figure 2. TippingPoint 660N/TippingPoint 1400N - front panel
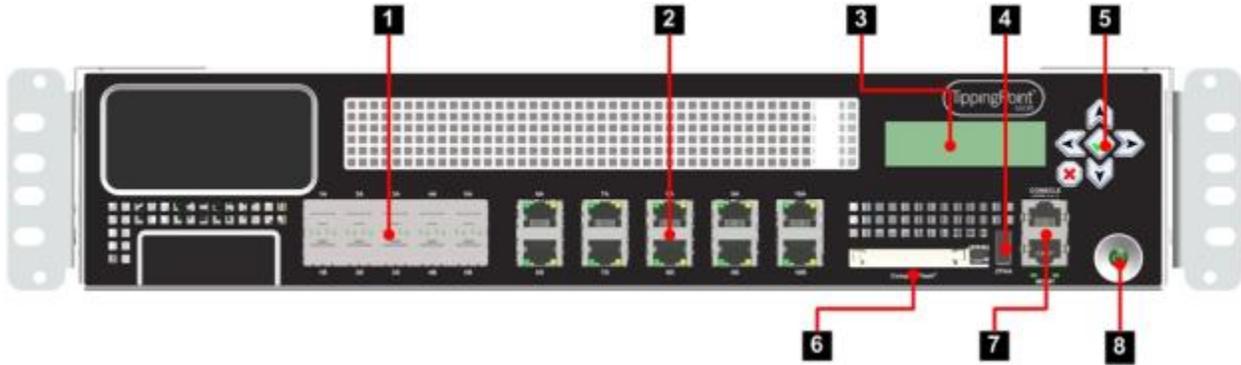
1. 1GbE Segments (Fiber)
2. 1GbE Segments (Copper)
3. LCD Screen
4. ZPHA Port
5. LCD Keypad
6. Compact Flash
7. Management Port
8. Power Button

Figure 3. TippingPoint 660N/TippingPoint 1400N - back panel

1. Power Supplies
2. Power Supply Reset Button
3. Power Cord Bracket

4. Ground Strap Mounting

Chassis features

Provides links to the various N-Platform chassis features.

Power switch

The power switch is located on the front panel.

The power switch light indicates its current status:

- **No light**: Device is powered off and no power cables are attached.

- **Green**: Device is powered on, operating normally.

- **Yellow**: Device is powered off and power cables are still attached.

Ports

Describes the ports of the N-Platform IPS.

The TippingPoint 660N/TippingPoint 1400N front panel includes the following ports:

- 10 1GbE copper ports paired into 5 1GbE segments

- 10 1GbE fiber ports paired into 5 1GbE segments

- 1 1GbE copper management port

- 1 RJ-45 console port

- Interface for external ZPHA device

⚠**Caution:**   The ZPHA interface can only be used with TippingPoint ZPHA devices. It cannot be used with other USB devices.

LEDs

Describes the LEDs of the N-Platform IPS.

The following table describes each LED state.

Port Type	LED	Color	Description
Copper	Link	Green	Link is active.
	Activity	Blinking amber	Data traffic passing.
Fiber	Link	Green	Link is active.
	Activity	Amber	Data traffic passing.
Management Port	Link	Green	Link is active.
	Activity	Blinking amber	Data traffic passing.

Model requirements

Provides links to topics that describe power and cabling requirements.

The following topics describe power and cabling requirements for the TippingPoint 660N/ TippingPoint 1400N:

- *Power requirements* on page 22

- *Cabling requirements* on page 23

Power requirements

Describes the power requirements of the TippingPoint 660N/TippingPoint 1400N devices.

The TippingPoint 660N/TippingPoint 1400N requires one input of Alternating Current (AC) that must meet the following requirements:

- Voltage: 100-240VAC

- Current: 7-5 amperes

- Frequency: 50/60 Hertz

The device's maximum power consumption is 520 W.

> ⚠**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.

The TippingPoint 660N/TippingPoint 1400N power supply modules are hot-swappable. Refer to *Power supply and fan modules* on page 39 for information about hot-swapping modules.

Cabling requirements

Describes the cable requirements of the TippingPoint 660N/TippingPoint 1400N devices.

The TippingPoint 660N/TippingPoint 1400N ships with the following cables:

- Two AC power cables, one for each hot-swappable power supply

- Null modem cable for the serial console management port (DB-9 to RJ-45)

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 might 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

Provides links to topics that describe the hardware and software specifications of the TippingPoint 660N/TippingPoint 1400N devices.

The following topics describe the hardware, interface, and software specifications for the TippingPoint 660N/TippingPoint 1400N.

- *Hardware and interface specifications* on page 23

- *Software specifications* on page 24

Hardware and interface specifications

The following table provides technical specifications for the TippingPoint 660N/TippingPoint 1400N.

Specification	Description
Dimensions	2RU - 3.41 in x 16.84 in x 23.46 in (8.67 cm x 42.78 cm x 59.59 cm)
Weight	32.5 lbs (14.74 kg)

Specification	Description
Power Requirements	100-240 VAC @ 7-5 amperes, 50/60 Hertz Maximum power consumption 520W
Service Provider operating requirements:	
• Temperature	32 to 104° F (0-40° C) — Operating -4 to 158° F (-20 to 70° C) — Storage
• Altitude	No degradation up to 13,000 feet (3962.4 m)
• Humidity	5% to 95% (non-condensing)
External interfaces	• 10x1GbE copper ports paired into 5x1GbE segments • 10x1GbE fiber ports paired into 5x1GbE segments • 1x1GbE copper management port • 1x1 RJ-45 console port • 1 interface for external ZPHA device • 1 Compact Flash drive

Note: The fiber ports do not include SFP modules.

Software specifications

Provides software specification considerations.

To connect to and configure the TippingPoint 660N/TippingPoint 1400N, you must have a network-connected PC that supports Internet Explorer 7 and up, Firefox 1.5+, Mozilla 1.7+, or Netscape 8.1+.

If you want to use the TippingPoint Security Management System (SMS) to manage the TippingPoint 660N/TippingPoint 1400N, the TippingPoint SMS device must be installed on your network and you must have the TippingPoint SMS client software V. 3.6+ installed on an appropriate client computer. Refer to the SMS documentation for more information.

Hardware installation and configuration

Provides and introduction and topic links for installing and configuring your device.

After you have completed preparation procedures and unpacked the TippingPoint 660N/ TippingPoint 1400N, you can install and configure the components. Prior to installation, you should also obtain the *IPS Command Line Interface Reference*. After installation of the components, run through the OBE Setup Wizard as part of the installation and configuration procedures.

This topic includes the following information:

TippingPoint 660N/TippingPoint 1400N chassis

Provides the task topics that describe how to install the IPS device.

To install the TippingPoint 660N/TippingPoint 1400N you must do the following:

Determine total rack space

Provides rack space information for your IPS device.

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 660N/ TippingPoint 1400N fits in either a 19-inch or a 23-inch wide rack.

Attach the device to the rack

Describes how to load the device onto the rack.

The TippingPoint 660N/TippingPoint 1400N ships with a slide rail kit to mount the device to the rack. Slide rail kits are also available for order from TippingPoint. Refer to the instructions in the slide rail kit for information about installing the slide rails.

If you are bolting the TippingPoint 660N/TippingPoint 1400N to the rack, follow these guidelines.

⚠**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 660N/TippingPoint 1400N to the rack, you need to attach the power supply AC connections.

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

The TippingPoint 660N/TippingPoint 1400N comes with a power cord retention bracket and a cable management assembly. For instructions on installing these accessories, refer to *Installing the power cord retention bracket* on page 42.

Attach cables

Describes which connections to use to access the OBE setup wizard.

The TippingPoint 660N can aggregate and redirect up to 750 Mbps of traffic. The TippingPoint 1400N can aggregate and redirect up to 1.5 Gbps of traffic. Both devices can distribute this traffic across 1GbE copper or fiber segments. During setup, use the console port or the LCD keypad to access the OBE setup wizard.

To attach the Console port connection

Describes how to attach the console port connection.

1. Connect the RJ-45 null modem cable to the Console port on the unit.

2. Connect the other end of your cable (standard-sized female DB-9 connector) to your VT100-compatible terminal or your computer.

Use the following terminal settings for the Console port:

- Baud rate: 115.2 Kbps

- Character size: 8 bits

- Parity: None

- Stop Bits: One

- Flow Control: None

To attach the Management Processor connection

Describes how to attach the management processor connection.

1. Connect one end of the Category 5 Ethernet cable to the port labeled MGMT (or 10/100 on some units) located on the front panel.

2. Connect the other end of the Ethernet cable to your network.

    This enables remote management of the system.

To attach network connections

Describes how to attach the network connections.

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.

Note: If you are using a TippingPoint Core Controller to distribute network traffic, attach the cables to the Core Controller 1GbE segment ports. Refer to the Core Controller documentation for more information.

For more information about TippingPoint 660N/TippingPoint 1400N configuration and network connections, refer to the *Local Security Manager User's Guide*.

Using the external ZPHA module

The TippingPoint 660N/TippingPoint 1400N can be used with the TippingPoint external ZPHA modular unit.

Modular ZPHA devices can be daisy-chained together via network cables and the Type A and Type B USB ports. Refer to the *TippingPoint Modular Copper/Fiber ZPHA Installation Guide* for more information.

Check LEDs

When you connect power to the TippingPoint 660N/TippingPoint 1400N, the system completes a series of component checks.

It then displays LEDs to show the status of each component. Refer to *LEDs* on page 21 for more information about the LEDs.

Setup wizard

After you have powered on, the TippingPoint Setup wizard is displayed on your COM port terminal.

The wizard prompts you to perform basic configuration tasks and periodically input information. You can also use the LCD keypad to perform these tasks. After you run the setup, you can further configure your system using subsequent setup commands through the Command Line Interface (CLI).

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

TippingPoint 2500N, 5100N, and 6100N devices overview

This topic describes the components, chassis, requirements, and installation of the TippingPoint 2500N/5100N/6100N devices and their components.

These devices are associated with the following part numbers:

Model	HPE part number	Trend Micro part number
TippingPoint 2500N	JC021A	N/A
TippingPoint 5100N	JC022A	N/A
TippingPoint 6100N	JC577A	N/A

Prior to installation, you should also obtain the *IPS Command Line Interface Reference*. After installing the components, complete the TippingPoint Setup Wizard as part of the installation and configuration procedures.

This topic includes the following information:

Device overview

Provides images and an overview of the TippingPoint 2500N/5100N/6100N IPS devices.

The following traffic throughput is supported across multiple copper and fiber segments for each model.

Model	Supported throughput
TippingPoint 2500N	Up to 3 Gbps

Model	Supported throughput
TippingPoint 5100N	Up to 5 Gbps
TippingPoint 6100N	Up to 8 Gbps

The TippingPoint 2500N/5100N/6100N chassis is rack-mountable on a 19- or 23-inch rack.
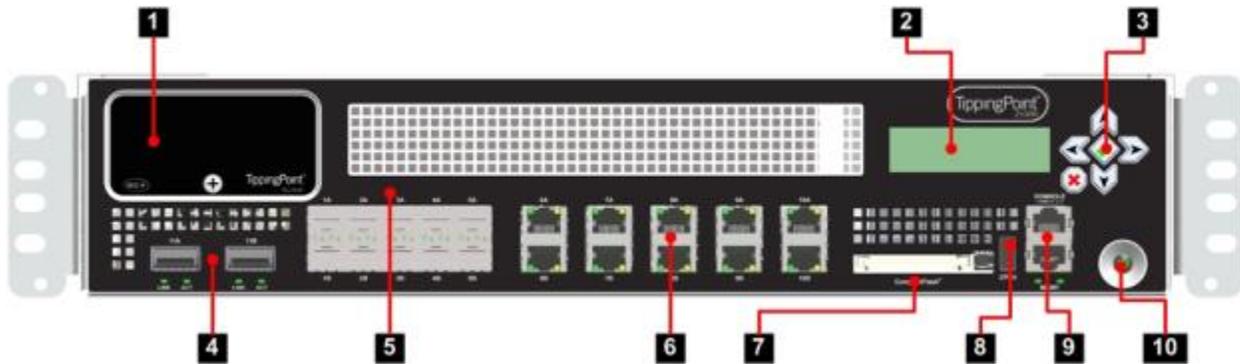
1. ZPHA Module Bay
2. LCD Screen
3. LCD Keypad
4. 10GbE Segment Ports
5. 1GbE Segments (Fiber)
6. 1GbE Segments (Copper)
7. Compact Flash
8. ZPHA Port
9. Console Port and Management Port
10. Power Button

Figure 4. TippingPoint 2500N/5100N/6100N - back panel

1. Power Supplies
2. Power Supply Reset Button
3. Power Cord Bracket
4. Ground Strap Mounting

Chassis features

Provides links to the various chassis features.

- *Power switch* on page 31
- *Ports* on page 31
- *LEDs* on page 32

Power switch

The power switch is located on the front panel.

The power switch light indicates its current status:

- **No light** — Device is powered off and no power cables are attached.
- **Green** — Device is powered on, operating normally.
- **Yellow** — Device is powered off and power cables are still attached.

Ports

Describes the ports of the TippingPoint 2500N/5100N/6100N IPS.

The TippingPoint 2500N/5100N/6100N front panel includes the following ports:

- 10 1GbE copper ports paired into 5 1GbE segments
- 10 1GbE fiber ports paired into 5 1GbE segments
- 1 1GbE copper management port
- 1 RJ-45 console port
- 2 10GbE fiber ports paired into 1 10GbE segment
- Interface for external ZPHA device

⚠**Caution:** The ZPHA interface can only be used with TippingPoint ZPHA devices. It cannot be used with other USB devices.

LEDs

The following table describes each LED state.

Port Type	LED	Color	Description
Copper	Link	Green	Link is active.
	Activity	Blinking amber	Data traffic passing.
Fiber	Link	Green	Link is active.
	Activity	Amber	Data traffic passing.
Management Port	Link	Green	Link is active.
	Activity	Blinking amber	Data traffic passing.

Model requirements

Provides links to topics that describe power and cabling requirements.

The following topics describe power and cabling requirements for the TippingPoint 2500N/5100N/6100N:

Power requirements

Describes the power requirements of the TippingPoint 2500N/5100N/6100N devices.

The TippingPoint 2500N/5100N/6100N requires one input of Alternating Current (AC) that must meet the following requirements:

- Voltage: 100-240VAC

- Current: 7-5 amperes

- Frequency: 50/60 Hertz

The device's maximum power consumption is 520 W.

> ⚠**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.

The TippingPoint 2500N/5100N/6100N power supply modules are hot-swappable. Refer to *Power supply and fan modules* on page 39 for information about hot-swapping modules.

Cabling requirements

Describes the cable requirements of the TippingPoint 2500N/5100N/6100N devices.

The TippingPoint 2500N/5100N/6100N ships with the following cables:

- Two AC power cables, one for each hot-swappable power supply

- Null modem cable for the serial console management port (DB-9 to RJ-45)

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 might 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

Provides links to topics that describe the hardware and software specifications of the TippingPoint 2500N/5100N/6100N devices.

The following topics describe the hardware, interface, and software specifications for the TippingPoint 2500N/5100N/6100N.

Hardware and interface specifications

The following table provides technical specifications for the TippingPoint 2500N/5100N/6100N.

Specification	Description
Dimensions	2RU - 3.41 in x 16.84 in x 23.46 in (8.67 cm x 42.78 cm x 59.59 cm)
Weight	32.5 lbs (14.74 kg)
Power Requirements	100-240 VAC @ 7-5 amperes, 50/60 Hertz Maximum power consumption 520W
Service Provider operating requirements:	
• Temperature	32 to 104° F (0-40° C) — Operating -4 to 158° F (-20 to 70° C) — Storage
• Altitude	No degradation up to 13,000 feet (3962.4 m)
• Humidity	5% to 95% (non-condensing)
External interfaces	• 10x1GbE copper ports paired into 5x1GbE segments • 10x1GbE fiber ports paired into 5x1GbE segments • 2x10GbE fiber ports paired into 1x10GbE segments

Specification	Description
	• 1x1GbE copper management port
	• 1x1 RJ-45 console port
	• 1 interface for external ZPHA device
	• 1 Compact Flash drive

Note: The fiber ports do not include SFP or XFP modules.

Software specifications

Provides software specification considerations.

To connect to and configure the TippingPoint 2500N/5100N/6100N, you must have a network-connected PC that supports Internet Explorer 7 and up, Firefox 1.5+, Mozilla 1.7+, or Netscape 8.1+.

If you want to use the TippingPoint Security Management System (SMS) to manage your IPS, the TippingPoint SMS device must be installed on your network and you must have the TippingPoint SMS client software V. 3.6+ installed on an appropriate client computer. Refer to the SMS documentation for more information.

Hardware installation and configuration

After you have completed preparation procedures and unpacked your IPS, you can install and configure the components.

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

This topic includes the following information:

TippingPoint 2500N/5100N/6100N chassis

Provides the task topics that describe how to install the IPS device.

To install your IPS you must do the following:

-

-

-

Determine total rack space

Provides rack space information for your IPS device.

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 2500N/5100N/6100N fits in either a 19-inch or a 23-inch wide rack.

Attach the device to the rack

Describes how to load the device onto the rack.

The IPS ships with a slide rail kit to mount the device to the rack. Slide rail kits are also available for order from TippingPoint. Refer to the instructions in the slide rail kit for information about installing the slide rails.

If you are bolting the IPS to the rack, follow these guidelines.

⚠**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 IPS to the rack, attach the power supply AC connections.

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

The IPS comes with a power cord retention bracket and a cable management assembly. For instructions on installing these accessories, refer to

N-Platform Hardware Installation and Safety Guide

Attach cables

Describes which connections to use to access the OBE setup wizard.

The TippingPoint 2500N can aggregate and redirect up to 3 Gbps of traffic. The TippingPoint 5100N can aggregate and redirect up to 5 Gbps of traffic. The TippingPoint 6100N can aggregate and redirect up to 8 Gbps of traffic. All three devices can distribute this traffic across 1GbE copper or fiber segments. During setup, use the management processor connection or the console port to access the OBE setup wizard.

To attach the Console port connection

Describes how to attach the console port connection.

1. Connect the RJ-45 null modem cable to the Console port on the unit.
2. Connect the other end of your cable (standard-sized female DB-9 connector) to your VT100-compatible terminal or your computer.

Use the following terminal settings for the Console port:

- Baud rate: 115.2 Kbps

- Character size: 8 bits

- Parity: None

- Stop Bits: One

- Flow Control: None

To attach the Management Processor connection

Describes how to attach the management processor connection.

1. Connect one end of the Category 5 Ethernet cable to the port labeled MGMT (or 10/100 on some units) located on the front panel.
2. Connect the other end of the Ethernet cable to your network.

    This enables remote management.

To attach network connections

Describes how to attach the network connections.

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.

Note: If you are using a TippingPoint Core Controller to distribute network traffic, attach the cables to the Core Controller 1GbE segment ports. Refer to the Core Controller documentation for more information.

For more information about IPS configuration and network connections, refer to the *Local Security Manager User's Guide*.

Using ZPHA

The TippingPoint 2500N/5100N/6100N can be used with the TippingPoint external ZPHA modular unit.

Modular ZPHA devices can be daisy-chained together via network cables and the Type A and Type B USB ports. Refer to the *TippingPoint SmartZPHA Module Installation and Safety Guide* for more information about this device.

The TippingPoint 2500N/5100N/6100N can also use the Smart ZPHA module with the 10GbE segment. Refer to the *TippingPoint SmartZPHA Module Installation and Safety Guide* for more information about this module.

Check LEDs

When you connect power to your IPS, the system completes a series of component checks.

It then displays LEDs to show the status of each component. Refer to *LEDs* on page 32 for more information about the LEDs.

Setup wizard

After you have powered on, the TippingPoint Setup wizard is displayed on your COM port terminal.

The wizard prompts you to perform basic configuration tasks and periodically input information. You can also use the LCD keypad to perform these tasks. After you run the setup, you can further configure your system using subsequent setup commands through the Command Line Interface (CLI).

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

Power supply and fan modules

This topic provides links to installation instructions for power supply modules and fans.

The following subjects are discussed.

- *N-Platform AC power supply* on page 39
- *N-Platform DC power supply* on page 40
- *N-Platform fans* on page 41

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

Note: This product has serviceable modules and hot-swappable power supplies. It has no other serviceable parts inside.

N-Platform AC power supply

Describes how to install the AC power supply.

The TippingPoint N-Platform includes two AC power modules by default. The following diagram shows the rear interface of the AC power supply:

Figure 5. TippingPoint N-Platform AC power supply
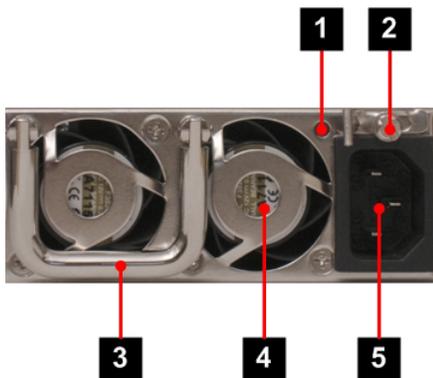
1. Status LED
2. Latch Locking Screw
3. Handle
4. Fan
5. AC Male Power Input

The Status LED is green when the module is powered and running normally.

When the AC power supply has been securely placed in the device, use the following procedure to connect power to the AC power supply:

1. Locate the male power input on the back of the chassis.

2. Plug one end of a standard female power plug into the power input.

3. Plug the other end into an AC outlet, power strip, or UPS.

   The power should meet the following requirements:

   • Voltage: 100 – 240 VAC

   • Current: 7/5 Amps

   • Frequency: 50/60 Hz

4. When ready, power on the device with the button on the front of the chassis.

N-Platform DC power supply

Describes how to install the DC power supply.

DC power supplies are available for the TippingPoint N-Platform. Consult your TippingPoint account contact for more information if you require a DC power supply.

> ⚠ **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 12 or 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.

The following diagram shows the rear interface of the DC power supply:

Figure 6. TippingPoint N-Platform DC power supply
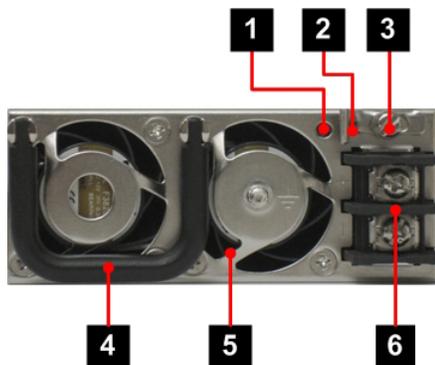
1. Status LED

2. Latch

3. Latch Locking Screw

4. Handle

5. Fan

6. Power Input Terminal Block

△**Caution:** Do *not* attach a ground wire to the ground screw on the DC power supply module. The ground wire must be attached to the N-Platform chassis ground terminal with a #10 screw. The ground terminal is located in the rear of the N-Platform chassis. Refer to the chassis diagram for your N-Platform model.

The Status LED is green when the module is powered and running normally.

When the DC power supply has been securely placed in the device, use the following procedure to connect power to the DC power supply:

1. Locate the ground screw on the back of the chassis.

2. Attach a 12 or 14 AWG ground wire to the chassis #10 ground screw.

   The wire should be crimped with a ring lug.

3. Locate power input terminal block on the back of the module.

4. Attach the 12 or 14 AWG DC power wires to the power input terminal block labeled -48V and RTN.

   The power wires should be crimped with lug spades to ensure a secure connection.

5. Connect the other side of the power cable to the SELV power source.

   The power source should meet the following requirements:

   • Voltage: -36 to -60 Vdc +/- 20% SELV

   • Current: 8/4 Amps

6. When ready, power on the device with the button on the front of the chassis.

N-Platform fans

Provides fan replacement information.

In normal operation, the N-Platform fan is not hot-swappable. If you need a replacement fan, contact your TippingPoint representative to order an IPS N-Platform Spare Fan unit (part number TPNN0080). The IPS N-Platform Spare Fan is a replacement unit and can only be used with TippingPoint N-Platform devices.

Installing the power cord retention bracket

Provides links to topics with installation instructions for the power cord retention bracket.

The following subjects are discussed:

- *Power cord retention bracket* on page 42

- *Installing and using the bracket* on page 42

- *Removing the bracket* on page 44

Power cord retention bracket

Provides a description and image of the power cord retention bracket.

The power cord retention bracket (part number 5066-1202) helps reduce strain on the power cord and power supply outlets.

Figure 7. Power Cord retention bracket
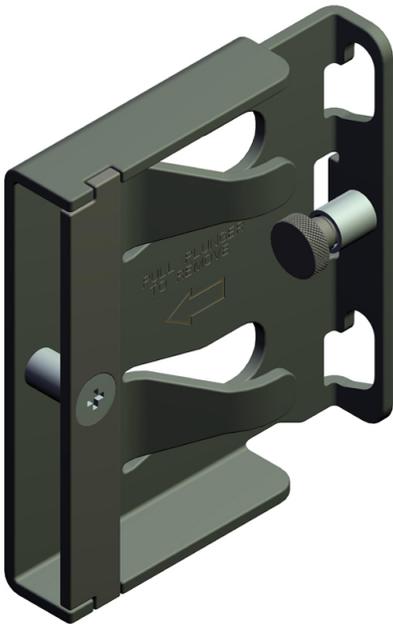
Installing and using the bracket

Shows an N-Platform IPS with the power cord retention bracket installed.

The following figure shows an N-Platform with the power cord retention bracket installed:

Figure 8. TippingPoint 660N - back panel

1. Power Supplies
2. Power Supply Reset Button
3. Power Cord Bracket
4. Ground Strap Mounting

Follow the procedures in this section to install and use the power cord retention bracket and the cable management bracket.

Installing the bracket

Describes how to install the bracket.

Use the following procedure to install the power cord retention bracket:

1. Orient the bracket against the back surface of the chassis.
2. Slide the bracket over the two shoulder rivets on the back of the chassis.

    The spring-loaded plunger in the center of the bracket slides into place.

Using the power cord retention bracket

Describes how to attach the power cord to the retention bracket.

Follow this procedure to attach the power cord to the retention bracket:

1. Fold the power cable and slide it into the slot.

2. Push the folded cable into the slot until the cable loop goes past the sheet metal tabs.

3. Secure the folded cable loop under the sheet metal tabs and attach the power cable to the power supply.

Removing the bracket

Describes how to remove a bracket.

If you need to remove one of the brackets, pull the spring-loaded plunger in the middle of the bracket and slide the bracket up and off the shoulder rivets.

Using the LCD panel

The LCD panel can be used to perform initial device configuration, as well as other maintenance tasks.

The following subjects are discussed:

Features of the LCD keypad

Provides information on navigating the LCD keypad.

The LCD keypad uses the following buttons to navigate the LCD interface and edit input:

- **Accept** — Accepts the input on the current screen and moves to the next screen.

- **Cancel** — Navigates back to the previous screen.

- **Arrow Keys** — Used to enter numerals or Yes/No input. When you enter numerals, the Up and Down keys cycle through the numbers 0-9, and the left and right keys move the cursor.

Note: Currently, you cannot enter IPv6 addresses with the LCD panel. If you require IPv6 connectivity, use the CLI OBE.

Configuring the TippingPoint IPS with the LCD panel

Describes how to configure the TippingPoint IPS with the LCD panel.

The following steps describe the use of the LCD panel to perform the initial configuration tasks on the TippingPoint IPS device. Throughout this procedure, use the **Accept** button to move to the next screen. At any time, you can move to the previous step in the wizard by pressing the **Cancel** button.

1. Turn on the device power.

   The system displays a welcome screen and a message indicating that the device is initializing.

2. When prompted to perform the initial setup with the LCD panel, press the **Accept** button to indicate that you want to proceed with the OBE.

   You will be prompted a second time to confirm.

3. The system generates a random initial super-user name and password. Record this information.

> **Note:** Without the system-generated super-user name and password, you cannot log in to the TippingPoint IPS device.

4. The system prompts you to enter a host name.

   By default, the host name is set to NCP00. You can edit the numerals but not the letters.

5. Enter the management IP address and netmask IP address with the arrow keys.

6. Indicate whether a gateway IP address is required.

   If so, use the arrow keys to configure the IP address.

7. Select a time zone by using the arrow keys to scroll through the list of available time zones.

8. Indicate if Daylight Saving Time is required.

9. Press the **Accept** button to complete the configuration process.

After the configuration process is complete, the TippingPoint IPS completes the boot-up process. You can now log in to the device through the CLI or LSM using the super-user name and password generated in Step 3.

> **Note:** When the LCD OBE wizard is in process, the console connected to the device displays a message stating that Initial Setup is currently in process via the LCD Panel.

After you have completed the initial setup wizard, you can use the Local Security Manager GUI to perform monitoring and configuration tasks or use the setup command in the CLI to perform additional configuration tasks. Refer to the *IPS Command Line Interface Reference* for more information.

Other LCD panel tasks

In addition to configuration tasks, you can use the LCD panel to view device status or perform maintenance tasks.

To access these options, press the Up or Down buttons to scroll through the LCD menu.

The following options are available on the LCD menu:

- **Thermal Query** — Displays the device temperature.

- **Serial # Query** — Displays the device serial number.

- **Reload OS** — Follow the prompts to reboot the operating system without turning off the device. This will be a hitless reboot.

- **Memory Usage** — Displays the current memory usage.

- **Layer-2 Fallback** — Follow the prompts to place the device in Layer-2 Fallback.

- **Halt OS** — Shuts down the IPS.

- **HA State Query** — Displays the current High Availability state and settings.

- **Contrast Set** — Set the display contrast for the LCD panel.

- **Backlight Set** — Set the backlight level for the LCD panel.

- **Eject CF** — See *Unmounting and ejecting the CompactFlash card* on page 49.

Using the external storage card

This topic provides links to topics with external storage card information.

The following topics are discussed:

- *About the external storage card* on page 48

- *External storage card commands* on page 48

- *Managing the N-Platform CompactFlash card in the LCD panel* on page 49

About the external storage card

The external storage card is used to store system logs, snapshots, and other system data.

The user can remove and insert the card while the device is running; however, the user must be sure to issue the appropriate mounting and preparation commands in the command line interface (CLI).

The device will continue to perform correctly if an external storage card is not available. However, if you attempt to take a system snapshot, the operation fails and an error is recorded in the system log.

All N-Platform devices come with a pre-formatted 1 GB CompactFlash card.

External storage card commands

Lists the commands used to manage the external storage card.

The following table lists the commands used to manage the external storage card in the CLI. Refer to the *IPS Command Line Interface Reference* for detailed documentation of these commands.

Command	Description
compact-flash format	Formats a new card that has not already been formatted according to TippingPoint guidelines.
compact-flash mount	Manually mounts the inserted card.
compact-flash unmount	Unmounts the card so that the user can remove it.

Command	Description
`conf t compact-flash operation-mode authenticate`	Sets the device to require authentication when a card is inserted.
`conf t compact-flash operation-mode auto-mount`	Sets the device to automatically mount cards when inserted.
`show compact-flash`	Displays whether the card is mounted, and if so, its model number, serial number, revision number, capacity, operation mode, and mount status.
`show conf compact-flash`	Shows the card's operation mode.

Managing the N-Platform CompactFlash card in the LCD panel

You can use the LCD keypad to manage the external storage card.

The LCD panel offers a menu option that performs the same function as the `compact-flash unmount` command in the CLI.

Note: There is no LCD panel on NX-Platform devices. The external storage card for these devices must be managed by the command line interface.

Unmounting and ejecting the CompactFlash card

Describes how to unmount and eject the CompactFlash card.

1. On the LCD panel, use the Up or Down arrow buttons to navigate to the **Eject CF?** menu option.
2. Press the check button to select the option.
3. When prompted to verify the action, press the check button again.
4. When the display indicates that the unmount operation was successful, you can remove the CompactFlash card.

Ejecting a CompactFlash card might fail after a 30-second timeout if the card is in use. The most common cause for failure is if a snapshot is being written to the card when the Eject command is issued.

Inserting a CompactFlash card

When you insert a CompactFlash card, the LCD display indicates when the card has been successfully mounted on the device.

If the device has been set to require authentication for CompactFlash cards, you must complete the mounting process manually using the `CLI compact-flash mount` command.

Connector and pinout specifications

This topic provides links to topics with connector and pinout information for the IPS.

This topic contains the following information:

- *RJ-45 (COM) console* on page 51

- *RJ-45 Ethernet connectors* on page 52

- *Pluggable transceivers* on page 53

RJ-45 (COM) console

Describes and provides an image of the RJ-45 connector.

The following figure displays the RJ-45 connector.

The following table shows the 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)

Pin number	Signal name
8	Clear to Send (CTS)

RJ-45 Ethernet connectors

Describes how to use the RJ-45 connector under different operating conditions.

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

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)
8	Ground (GND)

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

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

Pin number	Signal name
1	Twisted Pair 1 positive (TP1+)

Pin number	Signal name
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-)

Pluggable transceivers

The IPS can also have pluggable transceivers.

TippingPoint 2500N/5100N/6100N models support SM or MM XFP (10GbE Small Form-Factor Pluggable) transceivers.

Note: Only optical transceiver modules (including SFP, XFP, SFP+, and QSFP+) available from TippingPoint have been validated to achieve optimal performance with TippingPoint products. Other vendor devices are not supported. Using other vendor devices could be detrimental to proper operation of the TippingPoint system.

For a list of transceivers supported on N-Platform device modules, refer to the *TippingPoint Operating System V. 3.6.1 Release Notes*.

The following table details the information for XFP, SFP, and QSFP transceivers.

Fiber input	Signal
Left side	Transmit
Right side	Receive