TippingPoint
a division of 3Com

X-Series Installation and Safety Guide

Version 2.5

Table of Contents

List of Figures

List of Figures

List of Tables

List of Tables

About This Guide

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

Overview

Welcome to the *TippingPoint X-Series Hardware Installation and Safety Guide*. The TippingPoint X-Series combines firewall and VPN functionality with the TippingPoint Intrusion Prevention System (IPS) to provide a unified approach to network security. The Local Security Manager (LSM) and Security Management System (SMS) provide management options for your X-Series devices and network security.

This chapter includes the following sections:

- "Target Audience" on page ix
- "Organization" on page x
- "Conventions" on page xi
- "Related Documentation" on page xiii
- "Customer Support" on page xv

Target Audience

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

Organization

The *TippingPoint X-Series Hardware Installation and Safety Guide* is organized as follows:

About the Guide

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

TippingPoint Overview

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

Prepare the Site

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

TippingPoint X505 Overview

Provides a description of the deployment environment of the TippingPoint X-Series X505, including layout and illustrations of hardware components and features.

TippingPoint X506 Overview

Provides a description of the deployment environment of the TippingPoint X-Series X506, including layout and illustrations of hardware components and features.

Appendix A: Connector and Pinout Specifications

Provides connector and pinout information for the TippingPoint X-Series systems.

Conventions

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

Headings

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

Typeface

This book uses the following typeface conventions:

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

Cross References

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

Messages

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

- Warning
- Caution
- Note
- Tip

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

Warning

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

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

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

Caution

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

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

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

Note

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

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

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

Tip

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

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

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

Related Documentation

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

Table About - 1: TippingPoint Documents

Audience	Publication	Location
Hardware Technicians	• *Quick Start TippingPoint X-Series X5* • *Quick Start TippingPoint X-Series X505* • *Quick Start TippingPoint X-Series X506* • *Quick Start TippingPoint X-Series X710*	printed version in the TippingPoint X-Series box, TippingPoint X-Series Documentation CD, https://tmc.tippingpoint.com
	TippingPoint X-Series Hardware Installation and Safety Guide	TippingPoint X-Series Documentation CD, https://tmc.tippingpoint.com
	SMS Installation and Configuration Guide	printed version in the TippingPoint X-Series box, TippingPoint X-Series Documentation CD, https://tmc.tippingpoint.com, X-Series server

Table About - 1: TippingPoint Documents (Continued)

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

Customer Support

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

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, please take a moment to gather some basic information from your records and from your system before contacting customer support, including your customer number (on the Customer Support Agreement and shipping invoice that came with your system).

Table About - 2: Customer Support Information

Information	Location
Your customer number	You can find this number on your Customer Support Agreement and on the shipping invoice that came with your TippingPoint system.
Your X-Series serial number	You can find this number on the shipping invoice that came with your TippingPoint X-Series system or on the X-Series device.
Your X-Series software version number	You can find this information in the LSM in the System Stats frame, in the **Update** tab, or by using the CLI `show version` command.
Your X-Series system boot time	You can find this information in the LSM in the System Stats frame.

Contact Information

Use the following information to contact TippingPoint Customer Support:

Telephone
North America: +1 866 681 8324
International: +1 512 681 8524
Australia:　 800 783 933
New Zealand: 0800 852 300

E-mail
support@tippingpoint.com

1   Overview

This chapter introduces TippingPoint concepts and functionality. It provides an overview of the TippingPoint X-Series. The TippingPoint X-Series includes the following models: X505 and X506.

Overview

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

This chapter includes the following topics:

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

TippingPoint X-Series Overview

The TippingPoint X-Series device combines virtual private network (VPN) management, stateful packet inspection firewall, bandwidth management, and web content filtering with the TippingPoint Intrusion Prevention System (IPS).

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

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

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

Core Functionality

The X-Series provides the following core functionality:

• Optimized VPN connectivity — The TippingPoint X-Series allows inspection and control of traffic both inside and outside of VPN tunnels.

• Enforcement of usage policies — The TippingPoint X-Series can be used to rate-limit applications, such as peer-to-peer file sharing applications, and includes an optimal Web Content Filter subscription service.

• Multicast applications — The TippingPoint X-Series prioritizes real-time traffic and provides secure connectivity for IP multicast traffic.

• Detection and suppression — Unlike an intrusion detection system (IDS), the X-Series identifies and *stops* malicious traffic on the edge of the network.

• Filter customization — Through IP filters, exceptions, and attack filter creation, you can customize TippingPoint to meet the specific needs of your enterprise.

• Real-time threat aggregation — The TMC collects threat information from throughout the world, converts it to attack filters, and distributes it to TippingPoint™ customers.

• Monitoring — Enterprise networks are in a constant state of change. Because enterprises regularly reconfigure and add new devices and services, TippingPoint monitors the network for these changes using network discovery.

The following sections describe each security application in more detail.

TippingPoint X-Series Environment

A single X-Series can be installed at the perimeter of your network, on your Intranet, or both.

All of the functionality of the X-Series runs directly on the device as the TippingPoint Operating System (TOS). The Local Security Manager (LSM) is a web-browser client for managing your X-Series that provides a graphical interface for on-the-box administration, configuration, and reporting. The LSM accesses the functionality of the X-Series TOS.

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

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

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

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

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

Each component of the TippingPoint X-Series X-Series environment is discussed in more detail in the following sections. Additional information about the TippingPoint X-Series is available in the *TippingPoint X-Series Concepts Guide*.

Optimized VPN Connectivity

The X-Series VPN supports IPSec, L2TP, and PPTP tunneling protocols, as well as DES, 3DES, AES-128/192/256, MD5, and SHA-1 encryption standards, and manual keyring, IKE with pre-shared keys, and IKE with X.509 certificates. The device provides intrusion prevention inspection within VPN tunnels, and can also prioritize traffic bi-directionally, both inside and outside of the VPN tunnels. The VPN is hardware-accelerated, with an ASIC designed specifically for encrypting and decrypting packets. To increase network security, you can configure VPN traffic to terminate in a security zone that is separate from your internal LAN security zones. The X-Series also supports NAT deployment within VPN tunnels.

Policy Enforcement

Policy enforcement includes the X-Series firewall, content filtering, and the TippingPoint IPS. The TippingPoint X-Series has a stateful inspection firewall with a top-down rule evaluation engine. The firewall can be used to rate-limit both security zones and applications, preventing excess bandwidth consumption. TippingPoint offers a Content Filtering subscription service, which allows or denies web sites by category. You can also manually allow or block URLs as exceptions to the defined rules. Content Filtering is applied through firewall rules.

Security Zones and Network Interfaces

Security Zones enable you to define multiple Layer 2 VLANs. A security zone can be associated with a single physical port, or can exist virtually by logical definition. Policy enforcement is applied to traffic that moves between security zones. Network interfaces enable you to define Layer 3, and can represent two or more security zones. Security zones can be defined through 802.1q VLAN tags.

TippingPoint IPS

TippingPoint X-Series devices use the TippingPoint IPS to protect your network by scanning, detecting, and responding to network traffic according to the filters, action sets, and global settings maintained on each device by a client. Each device provides intrusion prevention for your network according to the amount of network connections and hardware capabilities.

The TippingPoint IPS is designed to handle the extremely high demands of carriers and high-density data centers. Even while under attack, TippingPoint Intrusion Prevention Systems are extremely low-latency network infrastructure ensuring switch-like network performance.

The TippingPoint IPS is an active network defense system that uses the Threat Suppression Engine (TSE) to detect and respond to attacks. TippingPoint Intrusion Prevention Systems are optimized to provide high resiliency, high availability security for remote branch offices, small-to-medium and large enterprises and collocation facilities. Each TippingPoint can protect network segments from both external and internal attacks. TippingPoint Intrusion Prevention Systems are extremely low-latency network infrastructure ensuring switch-like network performance, even while under attack.

X-Series devices provide the following ethernet interfaces and traffic performance:

Table 1: X-Series System Performance

Model	Ethernet interfaces	Concurrent sessions	IPS Performance	Firewall Performance	Triple DES
X5, 25-user license	6 x 10/100	20,000	8 Mbps	50 Mbps	8 Mbps
X5, unlimited-user license	6 x 10/100	60,000	8Mbps	50 Mbps	8 Mbps
X505	4 x 10/100	130,000	50 Mbps	200 Mbps	50 Mbps
X506	6 x 10/100	130,000	50 Mbps	200 Mbps	50 Mbps

Threat Suppression Engine

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

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

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

Local Security Manager

The Local Security Manager (LSM) is responsible for local administration, configuration, and reporting for a single X-Series. Through the use of a graphical user interface (GUI), the LSM provides the interfaces, tools, and processes that configure and monitor the X-Series. The LSM provides a subset

of the management functionality offered through the Security Management System, which is designed to manage several X-Series units from a central server.

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

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

Security Management System

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

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

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

Threat Management Center

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

The TMC offers the following end user service:

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

2 Prepare the Site

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

Overview

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

The chapter consists of the following sections:

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

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

- Chapter 3, "TippingPoint X505 Overview"
- Chapter 4, "TippingPoint X506 Overview"
- Chapter 5, "TippingPoint X710 Overview"

Safety Requirements

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

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

Class A Notices

The following notices apply to the X505 and X506, which are Class A devices.

> **Note:** This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
>
> Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sure le matériel brouilleur du Canada.

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

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

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

General Guidelines

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The TippingPoint X506 uses double pole/neutral fusing. Use caution when servicing this product.

For protection against fire on the TippingPoint X506, use replacement fuses with the following type and rating only: 5x20 mm, 2a, 250 volts, fast acting.

Do not operate the system unless all faceplates and covers are in place. 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 personal injury or damage to the chassis, lift the chassis from underneath its lower edge.

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

Rack and Clearance Requirements

Tipping Point recommends that you mount the TippingPoint X-Series X505 and X506 models 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.

Ventilation and Location

Ventilation and proper location are essential to the proper operation of the TippingPoint X-Series system. Follow these guidelines to ensure that the TippingPoint X-Series 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 a minimum clearance of three inches (7.62 cm) 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 that of the room. Ensure that the maximum ambient temperature of 104° F (40 ° C) is not exceeded.

Environmental Requirements

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

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

Table 2 - 1: Environmental Requirements for the TippingPoint X-Series

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

Reliable Earthing

Ensure the mounting rack is reliably connected to earth.

System Grounding Requirements

Damage from Electromagnetic Static Discharge (ESD) can occur when electronic components are improperly handled. This damage can result in complete or intermittent system failures. Proper ESD

protection is required whenever you handle equipment. It is not necessary to open the TippingPoint chassis to add or remove any components.

Unpack the TippingPoint System

Each system chassis is securely packaged in a shipping box.

CAUTION: ESD can damage the TippingPoint X-Series 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.

Use caution when opening the TippingPoint X-Series boxes.

To unpack the TippingPoint X-Series system

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

STEP 2   Carefully open the box.

STEP 3   Remove all packing material.

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

STEP 5   Remove the chassis from the box.

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

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

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

3 TippingPoint X505 Overview

This chapter provides an overview of the TippingPoint X505.

Overview

This chapter describes the components, chassis, requirements, and installation of the TippingPoint X-Series X505 device.

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

This chapter includes the following topics:

Chassis Overview

The TippingPoint X505 system comprises a 1.15 rack unit chassis that uses a front-access architecture. The X505 has four ports supporting connections to two to four network security zones. The X505 is rack-mountable on a 19- or 23-inch rack.

The following images shows the front and back chassis panels for a TippingPoint X505.

**Figure 3 - 1: TippingPoint X505 - Front Panel**
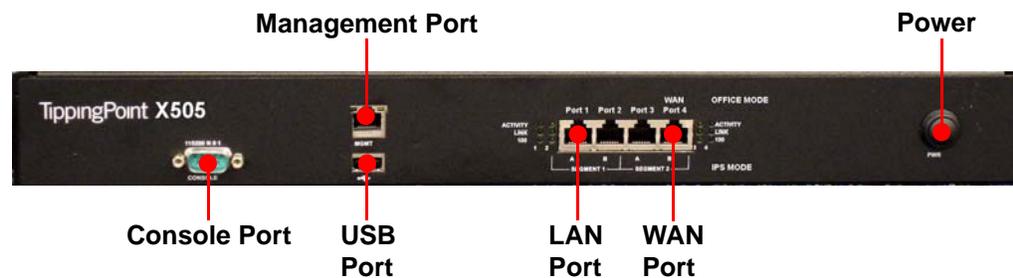
Figure 3 - 2: TippingPoint X505 - Back Panel

The following sections describe the TippingPoint X505 hardware components.

Chassis Features

The chassis offers features for viewing the status of the system and modifying settings. There is a push-button power switch with an LED on the front panel. This push-button turns the unit's DC voltage power on and off. There is also a power switch located at the back of the chassis, which controls the AC power to the power supply.

LEDs

The following table describes the LEDs.

Table 3 - 3: LED Descriptions

LED	Color	State	Description
Activity LED	No light	No traffic	Indicates that the port is not passing data.
	Blinking amber	Data Traffic	Indicates that port is passing data.
Link (left side LED)	No light	No link	Indicates that the port is not linked.
	Green	Active	Indicates that the port is connected and ready for data.
100 LED	Green	100 Mbps	Indicates the connection speed is 100 Mbps
	No light	10 Mbps	Indicates the connection speed is 10 Mbps

The management port has its own set of LEDs:

Table 3 - 4: Management Port LED Descriptions

LED	Color	State	Description
Link	No light	No traffic	Indicates that the port is not linked.
	Green	Link available	Indicates that the port is linked.
Activity	Blinking amber	Data Traffic	Indicates that the port is passing data.

Technical Specifications

The following section describes the hardware, technical, and software specification for the TippingPoint X505.

- "Hardware Specifications" on page 18
- "Technical Specifications" on page 19
- "Software Specifications" on page 19

Hardware Specifications

The following table lists hardware specifications for the TippingPoint X-Series X505.

Table 3 - 5: TippingPoint X-Series X505 Specifications

Specification		Description
Dimensions		17.25 in x 12.25 in x 2 in (43.8 cm x 31.1 cm x 4.4 cm)
Weight		9 lbs (2.2 kg)
Management Interface		One 10/100 Ethernet interface.
Serial Interface		RJ45 interface - COM1, 115200 baud, parity: none, flow control: none
Network Interfaces		Four 10/100 NIC copper interfaces, supporting up to 50 Mbps of traffic.
Power Requirements		100 to 240 VAC, 1-2 amperes @ 50-60 Hz Maximum Power Consumption: 64 Watts
Service Provider operating requirements	Temperature	0 to 40 ° C (32 to104 ° F) — Operating -20 to 70° C (-4 to 158 ° F) — Storage
	Altitude	No degradation up to 13K feet
	Humidity	5% to 95% (non-condensing)

Technical Specifications

The following table lists technical specifications on the X505 hardware.

Table 3 - 6: TippingPoint X505 Hardware Specifications

Specification	Detail	Description
Internal hardware	Processor	Pentium 4 1 GB IDE Flash drive 1 GB 266 MHz DDR Primary cache: 32 KB Secondary cache: 1 MB
Power consumption		Max 64W
External interfaces		One 10/100 Ethernet, one USB port, 4 copper ports
Software requirements and network management requirement		TP Security Management Software (SMS) Version 2.5 and above.
Maximum data rates (per port)		50 Mbps

Software Specifications

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

Table 3 - 7: Software Specifications for the TippingPoint X-Series IPS

Specification	Description
TippingPoint X-Series Security Management System (SMS) Software, Version 2.5 and above. (optional)	SMS can optionally be used to manage multiple TippingPoint Intrusion Prevention Systems.
1 Windows-based PC running Windows 9x, NT, 2000, XP, or ME	Must be attached to your network via serial port.

Hardware Installation and Configuration

The TippingPoint X-Series X505 ships with the following pre-installed components:

- One custom processor card with four Ethernet ports
- A host processor to control, configure, monitor, and store network traffic
- A 1GB IDE Flash Drive
- A three-fan cooling unit.

This chapter includes the following sections:

Install the TippingPoint Chassis

To install the TippingPoint you must do the following:

- Determine Total Rack Space
- Bolt the Device to the Rack

Determine Total Rack Space

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

The X505 system fits in either a 19-inch or a 23-inch wide rack. See the following table for individual rack space requirements.

Table 3 - 8: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Physical Size of Rack (Total number of chassis must be < or = 42 RUs). Each TippingPoint X-Series X505 requires 1RU.	Typical	Maximum of 9 chassis on a 7-foot rack.
Network Equipment Building Systems (NEBS) (Total number of chassis must generate: < or = 1372 Watts)	Typical	13 chassis generating < or = 105 Watts

Bolt the Device to the Rack

Use the following guidelines when bolting the TippingPoint X-Series to the rack:

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

- If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If you plan to expand your system to include additional TippingPoint X-Series 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

STEP 1   Locate the male power inlet on the back of the chassis.

STEP 2   Plug one end of a standard female power plug into the power inlet

STEP 3   Plug the other end into an AC outlet or power strip and press the power switch to power on.

CAUTION: The X505 may take several minutes to boot up. When the Status LED is steady green, the device is powered up and ready to use.

Complete Initial Setup Configuration

STEP 1   Configure your computer's network connection to receive an IP address by DHCP.

STEP 2   Use an Ethernet cable to connect your computer to the X505 LAN port. Your computer will receive an IP address from the X505 device.

STEP 3   With your computer's internet browser, connect to the X505 default LAN address (https://192.168.1.254).

STEP 4   The OBE wizard opens.

    STEP A   Accept the default security level of Level 2.

    STEP B   Specify the SuperUser account information at the prompt:

- User Name
- Password
- Confirm password

    STEP C   Accept the default settings in the rest of the Setup Wizard by clicking **No** when prompted.

    STEP D   Depending on your internet connectivity, you may need to update your WAN settings in the Virtual Interfaces setup screen.

- If you use DHCP to connect to your Internet provider, accept the default WAN settings.
- If you use PPPoE, enter your ISP user name and password.
- If your ISP assigns a static IP address, select **Static** as the external interface type and enter the IP address, subnet mask, and default gateway information.

STEP E   Define additional user accounts if desired.

At this point, your initial configuration of the X505 is complete. You can use the LSM to change settings in the future.

> **Note:** When you connect to the LAN address, your browser may display a security certificate warning. Accept the certificate and continue with the configuration procedure.

Connect the X505 to the Internet

STEP 1   Use an Ethernet cable to connect the X505 WAN port to your router. If the X505 is configured to receive its WAN IP address by DHCP, PPPoE, PPTP, or L2TP, the device connects to your service provider. This may take a minute or more.

STEP 2   Check the status of the external virtual interface with the LSM or the CLI. If active, the interface will be in "Up" status, and will have an IP address.

STEP 3   Use your web browser to connect to an external URL, such as http://www.tippingpoint.com If you can see the web site, your internet connection is active, and you can register your device and configure other features of the X505.

Register the TippingPoint X505

To activate your license, you must register the TippingPoint X505 on the 3Com eSupport Web site (http://esupport.3com.com). Have the following information available:

• Product code 3CRTPX505-73.
• Serial number. You can find the serial number:
  — in the Local Security Manager (LSM), on the **System Summary** page.
  — with the Command Line Interface (CLI) `show version` command.
  — on the bottom of the X505 unit, on the bar code sticker.
• Product purchase information:
  — Company Purchased From
  — Purchase Location City
  — Warranty Start Date in the format mm/dd/yyyy

4 TippingPoint X506 Overview

This chapter provides an overview of the TippingPoint X506.

Overview

This chapter describes the components, chassis, requirements, and installation of the TippingPoint X-Series X506 device.

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

This chapter includes the following topics:

- "Chassis Overview" on page 24
- "Technical Specifications" on page 25
- "Hardware Installation and Configuration" on page 27

Chassis Overview

The TippingPoint X506 system comprises a 1 rack unit chassis that uses a front-access architecture. The X506 has six ports supporting up to six network segments and is rack-mountable on a 19- or 23-inch rack.

The following image shows the front chassis interface for a TippingPoint X506.

Figure 4 - 1: TippingPoint X506 - Front Panel
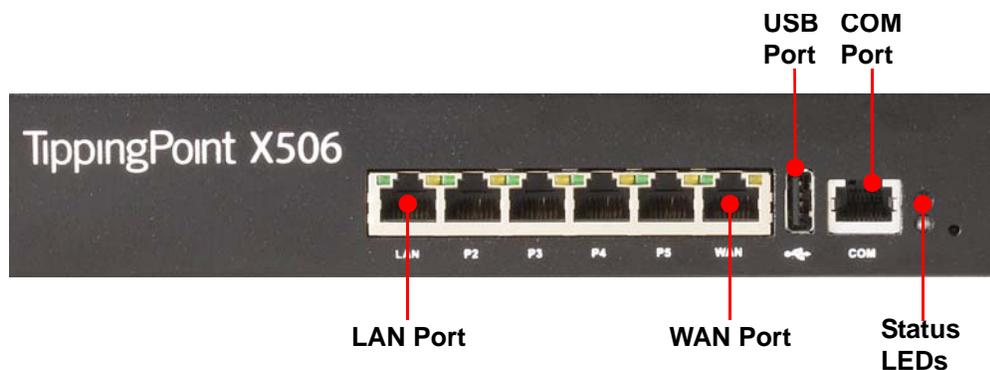
The following sections describe the TippingPoint X506 hardware components.

Chassis Features

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

LEDs

There are two LEDs on the front panel, one for status and one for power.

The following table describes the LEDs.

Table 4 - 2: LED Descriptions

LED	Color	State	Description
Top LED	Flashing green	Bootup	Indicates that the system is booting up.
	Solid green	Operational	Indicates that the system is powered and operating properly.
Bottom LED	Flashing	Establishing VPN	Indicates that the VPN connection is in the process of being established.
	Solid green	Operational	Indicates that all configured VPN connections are established successfully.
	Solid green, slow flash	Established with traffic	Indicates that the established VPN connections are passing data traffic.

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

Table 4 - 3: Segment Port LED Descriptions

LED	Color	State	Description
Link (left side LED)	No light	No link	Indicates that the port is not linked.
	Green	Active'	Indicates that the port is connected and ready for data.
Activity (right side LED)	No light	No traffic	Indicates that the port is not passing data.
	Blinking amber	Data Traffic	Indicates that port is passing data.

Technical Specifications

The following section lists the hardware, technical, and software specification for the TippingPoint X506.

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Hardware Specifications

The following table lists hardware specifications for the TippingPoint X-Series X506.

Table 4 - 4: TippingPoint X-Series X506 Specifications

Specification	Description
Dimensions	17.25 in x 12.25 in x 1.75 in (43.8 cm x 31.1 cm x 4.4 cm)
Weight	9 lbs (2.2 kg)
Management Interface	One 10/100 Ethernet interface.
Serial Interface	RJ45 interface - COM1, 115200 baud, parity: none, flow control: none
Network Interfaces	Six 10/100 Ethernet copper interfaces, supporting up to 50 Mbps of traffic.

Table 4 - 4: TippingPoint X-Series X506 Specifications

Specification		Description
Power Requirements		100 to 240 VAC, 1-2 amperes @ 50-60 Hz Maximum Power Consumption: 64 Watts
Service Provider operating requirements	Temperature	0 to 40 ° C (32 to104 ° F) — Operating -20 to 70° C (-4 to 158 ° F) — Storage
	Altitude	No degradation up to 13K feet
	Humidity	5% to 95% (non-condensing)

Technical Specifications

The following table lists technical specifications for the X506 hardware.

Table 4 - 5: TippingPoint X506 Hardware Specifications

Specification	Detail	Description
Internal hardware	Processor	1.5 Ghz Celeron M 512 MB Compact Flash drive 1 GB PC2100 DDR Primary cache: 32 KB Secondary cache: 1 MB
Power consumption		Max 64W
External interfaces		One 10/100 Ethernet, one USB port, 6 copper ports
Software requirements and network management requirement		TP Security Management Software (SMS) Version 2.5 and above.
Maximum data rates (per port)		50 Mbps

WARNING: The X506 uses double pole/neutral fusing. To protect against risk of fire, replace X506 fuses only with the same type of fuse (5x20mm, 2A, 250 volts, fast-acting). Disconnect the power source before replacing the fuses.

Software Specifications

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

Table 4 - 6: Software Specifications for the TippingPoint X-Series IPS

Specification	Description
TippingPoint X-Series Security Management System (SMS) Software, Version 2.5 and above. (optional)	SMS can optionally be used to manage multiple TippingPoint Intrusion Prevention Systems.
1 Windows-based PC running Windows 9x, NT, 2000, XP, or ME	Must be attached to your network via serial port.

Hardware Installation and Configuration

This chapter includes the following sections:

- "Install the TippingPoint Chassis" on page 27
- "Connect the power" on page 28
- "Complete Initial Setup Configuration" on page 28
- "Connect the X506 to the Internet" on page 29
- "Register the TippingPoint X506" on page 30

Install the TippingPoint Chassis

To install the TippingPoint you must do the following:

- Determine Total Rack Space
- Bolt the Device to the Rack

Determine Total Rack Space

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

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

Table 4 - 7: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Physical Size of Rack (Total number of chassis must be < or = 42 RUs). Each TippingPoint X-Series X506 requires 1RU.	Typical	Maximum of 9 chassis on a 7-foot rack.

Table 4 - 7: Rack Space Requirements

Requirement	Configuration Type	Min/Max Number of Chassis
Network Equipment Building Systems (NEBS) (Total number of chassis must generate: < or = 1372 Watts)	Typical	13 chassis generating < or = 105 Watts

Bolt the Device to the Rack

Use the following guidelines when bolting the TippingPoint X-Series to the rack:

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

• If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

• If the rack is partially filled, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

• If you plan to expand your system to include additional TippingPoint X-Series 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

STEP 1   Locate the male power inlet on the back of the chassis.

STEP 2   Plug one end of a standard female power plug into the power inlet

STEP 3   Plug the other end into an AC outlet or power strip and press the power switch to power on.

CAUTION: The X506 may take several minutes to boot up. When the Status LED is steady green, the device is powered up and ready to use.

Complete Initial Setup Configuration

STEP 1   Configure your computer's network connection to receive an IP address by DHCP.

STEP 2   Use an Ethernet cable to connect your computer to the X506 LAN port. Your computer will receive an IP address from the X506 device.

STEP 3   With your computer's internet browser, connect to the X506 default LAN address (https://192.168.1.254).

STEP 4   The OBE wizard opens.

STEP A   Accept the default security level of Level 2.

STEP B   Specify the SuperUser account information at the prompt:

- User Name
- Password
- Confirm password

STEP C   Accept the default settings in the rest of the Setup Wizard by clicking **No** when prompted.

STEP D   Depending on your internet connectivity, you may need to update your WAN settings in the Virtual Interfaces setup screen.

- If you use DHCP to connect to your Internet provider, accept the default WAN settings.
- If you use PPPoE, enter your ISP user name and password.
- If your ISP assigns a static IP address, select **Static** as the external interface type and enter the IP address, subnet mask, and default gateway information.

STEP E   Define additional user accounts if desired.

At this point, your initial configuration of the X506 is complete. You can use the LSM to change settings in the future.

Note: When you connect to the LAN address, your browser may display a security certificate warning. Accept the certificate and continue with the configuration procedure.

Connect the X506 to the Internet

STEP 1   Use an Ethernet cable to connect the X506 WAN port to your router. If the X506 is configured to receive its WAN IP address by DHCP, PPPoE, PPTP, or L2TP, the device connects to your service provider. This may take a minute or more.

STEP 2   Check the status of the external virtual interface with the LSM or the CLI. If active, the interface will be in "Up" status, and will have an IP address.

STEP 3   Use your web browser to connect to an external URL, such as http://www.tippingpoint.com If you can see the web site, your internet connection is active, and you can register your device and configure other features of the X506.

Register the TippingPoint X506

To activate your license, you must register the TippingPoint X506 on the 3Com eSupport Web site (http://esupport.3com.com). Have the following information available:

- Product code 3CRTPX506-96.
- Serial number. You can find the serial number:
  — in the Local Security Manager (LSM), on the **System Summary** page.
  — with the Command Line Interface (CLI) `show version` command.
- Product purchase information:
  — Company Purchased From
  — Purchase Location City
  — Warranty Start Date in the format mm/dd/yyyy

A Connector and Pinout Specifications

This appendix provides connector and pinout information for the TippingPoint X-Series X-Series systems.

Port Connectors

The TippingPoint X-Series supports the RJ-45 connectors, which have pinouts shown below.

The following figure displays an RJ-45 connector.

Figure A - 1: RJ-45 Connector

The following table describes the pinout information for a 1000 Base-T RJ-45 connector.

Table A - 1: RJ-45 1000 Base-T 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-)

Table A - 1: RJ-45 1000 Base-T Connector Pinouts

Pin Number	Signal Name
6	Twisted Pair 2 negative (TP2-)
7	Twisted Pair 4 positive (TP4+)
8	Twisted Pair 4 negative (TP4-)

.The following table describes the pinout information for a 10/100 RJ-45 connector.

Table A - 2: RJ-45 10/100 Base-T Connector Pinouts

Pin Number	Signal Name
1	Transmit positive
2	Transmit negative
3	Receive positive
4	Unused
5	Unused
6	Receive negative
7	Unused
8	Unused

DB-9 Connector Pinout

The following figure displays a -DB-9 connector. This connector is used in the X505 only.

Figure A - 2: DB-9 Connector
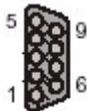
The following table details the pinout information for the DB-9 connector.

Table A - 3: DB-9 Connector Pinouts

Pin Number	Signal Name
1	Data Carrier Detect (DCD)
2	Receive Data (RxD)
3	Transmit Data (TxD)

Table A - 3: DB-9 Connector Pinouts

Pin Number	Signal Name
4	Data Terminal Ready (DTR)
5	Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	Ring Indicator (RI)

Index