Using the BayStack Model 350T 10/100 Autosense Switch

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Bay Networks

Bay Networks

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This is to certify that the Bay Networks BayStack Model 350T 10/100 Autosense Switch is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class A (CISPR 22).

Caution: This device is a Class A product. In a domestic environment, this device can cause radio interference, in which case, the user may be required to take appropriate measures.

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Preface

Welcome to the BayStack Model 350T 10/100 Autosense Switch, part of the Bay Networks® BayStack™ line of communications products. This using guide describes the features, uses, and installation procedures for the BayStack Model 350T 10/100 Autosense Switch (also referred to in this guide as the BayStack 350T switch or the switch).

Audience

This using guide is intended for network installers and administrators who are responsible for installing, configuring, or maintaining Ethernet and Fast Ethernet networks.

Organization

This guide has four chapters, three appendixes, and an index:

- Chapter 1—Provides a functional overview of the BayStack 350T switch. This chapter also includes a "Quick Start" section for quick access to the switch management features.
- Chapter 2—Explains how to install and verify the operation of the BayStack 350T switch. The chapter includes instructions for installing the switch on a tabletop or shelf, on a wall, or into a 19-inch equipment rack.
- Chapter 3—Explains how to connect to the BayStack 350T switch service port and how to use the console interface (CI) menus to configure and manage the switch.
- Chapter 4—Describes how to isolate and diagnose problems with the BayStack 350T switch as indicated by the switch LEDs.

- Appendix A—Lists operational and environmental specifications that apply to the BayStack 350T switch.
- Appendix B—Describes the BayStack 350T switch connectors (ports) and associated pin assignments.
- Appendix C—Lists factory default settings for the BayStack 350T switch.
- Index—Provides an alphabetical listing of the topics and subtopics in this guide, with cross references to relevant information.

Conventions

This section describes the conventions used in this guide.

Special Message Formats

This guide uses the following formats to highlight special messages:

Note: This format is used to highlight information of importance or special interest.

Caution: This format is used to highlight information that will help you prevent equipment failure or loss of data.

Warning: This format is used to highlight material involving possibility of injury or equipment damage.

Danger: This format is used to alert you that you may incur an electrical shock by mishandling equipment.

Use of Enter, Type, and Press

This guide uses “enter,” “type,” and “press” to describe the following actions:

- When you read “enter,” type the text and press the Enter key.
- When you read “type,” type the text, but do not press the Enter key.
- When you read “press,” press only the alphanumeric or named key.

Other Conventions

This guide uses the following typographical [substitute “additional” for “typographical” if you add the Model 500x convention] conventions:

This guide uses the following typographical conventions:

italics	Used for book titles. In command descriptions, italic type indicates a variable that you supply.
Monospaced type	Represents examples of screen text or screen field entries you might be required to type.
[Enter]	Named keys in text are shown enclosed in square brackets. The notation [Enter] is used for the Enter key and the Return key.
[Ctrl]+C	Two or more keys that must be pressed simultaneously are shown in text linked with a plus (+) sign.

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Safety Messages
Übersetzter Sicherheitshinweis
Traduction des Messages de Sécurité
Traducción de los mensajes de seguridad
Messaggi relativi alla sicurezza
翻訳された安全警告

This section translates the safety alert messages used in this guide. Safety alert messages notify users of unsafe actions or conditions that could lead to personal injury or equipment damage.

Safety Alert Message Format

All safety alert messages are tagged with an international alert symbol. When you see a safety alert in this guide, be sure to read, understand, and follow the instructions provided before continuing with the procedure.

The safety alert messages in this guide appear in the following format:

Symbol	Meaning (English, German, French, Spanish, Italian, Japanese)
	**Warning:** A warning alerts the user to some action or set of conditions that could result in personal injury.
	**Caution:** A caution alerts the user to some action or set of conditions that could result in damage to the equipment.

Symbol	Meaning (English, German, French, Spanish, Italian, Japanese)
	**Vorsicht:** Dieser Sicherheitshinweis macht den Benutzer auf Maßnahmen oder Bedingungen aufmerksam, die die Verletzung von Personen zur Folge haben können.
	**Achtung:** Dieser Sicherheitshinweis macht den Benutzer auf Maßnahmen oder Bedingungen aufmerksam, die eine Beschädigung der Geräte zur Folge haben können.
	**Avertissement :** La mention Avertissement attire l'attention de l'utilisateur sur une action ou un ensemble de conditions pouvant causer des blessures corporelles.
	**Attention :** La mention Attention attire l'attention de l'utilisateur sur une action ou un ensemble de conditions pouvant endommager l'équipement visé.
	**Advertencia:** Un mensaje de advertencia avisa al usuario sobre una acción o conjunto de condiciones que pueden causar daños personales.
	**Precaución:** Un mensaje de precaución avisa al usuario sobre alguna acción o conjunto de condiciones que pueden dañar el equipo.
	**Avvertenza:** L'avvertenza indica all'utente la presenza di una o più condizioni che possono causare lesioni fisiche.
	**Attenzione:** Questo messaggio indica all'utente la presenza di una o più condizioni che possono causare danni alle apparecchiature.
	警告：「警告」は、身体に損傷を与える恐れのある操作や状況に対してユーザに警戒を促します。
	注意：「注意」は、機器の損害を招く恐れのある操作や状況に対してユーザに警戒を促します。

Safety Alert Messages Used in This Guide

The following safety alert message are used throughout this guide. Please read and follow these instructions when you encounter them in the text.

Class A Product

Copyright page

Caution: This device is a Class A product. In a domestic environment, this device can cause radio interference, in which case, the user may be required to take appropriate measures.

Achtung: Dieses Gerät ist ein Produkt der Klasse A. Bei Heiminstallationen kann dieses Gerät Störungen des Rundfunkempfangs verursachen, wodurch der Benutzer gegebenenfalls entsprechende Maßnahmen ergreifen muß.

Attention : Appareil électrique de classe A pouvant causer des radio-interférences en utilisation domestique et nécessiter, le cas échéant, l'application de mesures correctives appropriées.

Precaución: Este dispositivo es un producto de la Clase A. En un entorno doméstico, este dispositivo puede producir interferencias de radio, en cuyo caso, puede exigirse al usuario que tome las medidas de corrección apropiadas.

Attenzione: Questo dispositivo è un prodotto di Classe A. Se utilizzato in ambiente domestico, può causare interferenze radio e, in tal caso, l'utente dovrà prendere le opportune precauzioni.

注意：この機器は、クラスAの製品です。国内の環境で、この機器は電波障害を引き起こす恐れがあります。この場合、ユーザは適切な対策を講じる必要があります。

Accumulated Weight (Wall Mount)

page 2-1

Caution: The screws and wall composition must be able to withstand the weight of the device, plus the additional weight of the attached network cables and power cords.

Achtung: Schrauben und Wand müssen so beschaffen sein, daß sie dem Gewicht des Geräts, zuzüglich des Gewichts der angeschlossenen Netzwerk- und Netzstromkabel, standhalten können.

Attention : Les vis de fixation et le mur doivent être capables de supporter le poids du dispositif, ainsi que des câbles réseau et cordons qui y sont rattachés.

Precaución: Los tornillos y la composición de la pared deben ser capaces de sostener el peso del dispositivo más el peso adicional de los cables de red y cables de alimentación conectados.

Attenzione: Le viti e la struttura a muro devono essere in grado di sostenere il peso del dispositivo, oltre a quello dei cavi di rete e di alimentazione collegati.

注意：ネジや壁の材質がディバイスとこれに接続されている
ネットワーク・ケーブルおよび電源コードを合わせた重さに
耐える必要があります。

Accumulated Weight (Shelf or Table Mount)

page 2-3

Caution: When this device is installed in a stack on a shelf or tabletop, the accumulated weight of the port cables increases with the height of the shelf or tabletop.

Achtung: Wenn dieses Gerät in einem Stapel auf einem Tisch oder einem Regalboden installiert wird, erhöht sich das Gesamtgewicht der Schnittstellenkabel mit der Höhe des Regalbodens oder Tisches.

Attention : Si l'appareil est posé dans un rack ou sur une étagère, notez bien que le poids du câblage réseau augmente avec la hauteur de l'installation.

Precaución: Cuando este dispositivo se instala apilado en un estante o sobre una mesa, el peso acumulado de los cables de los puertos aumenta según la altura del estante o de la mesa.

Attenzione: Quando il dispositivo viene installato in stack su un ripiano o su un tavolo, il peso dei cavi connessi alle porte aumenta in proporzione all'altezza del ripiano o del tavolo.

注意: このディバイスを棚や台のスタックにインストールする場合、棚や台が高くなるにつれて、ポート・ケーブルの総重量が増します。

Hazardous Electrical Current

page 2-5

Warning: To avoid bodily injury from hazardous electrical current, do not connect the power cord until instructed to do so.

Vorsicht: Um Verletzungsgefahr durch einen elektrischen Stromschlag auszuschließen, schließen Sie das Netzstromkabel erst an, wenn Sie dazu angewiesen werden.

Avertissement : Pour éliminer tout risque d'électrocution, ne jamais brancher le cordon avant le moment indiqué dans le mode d'emploi.

Advertencia: A fin de evitar daños personales debidos a corrientes eléctricas peligrosas, no conecte el cable de alimentación hasta que se le indique.

Avvertenza: Per evitare lesioni fisiche dovute a scariche elettriche pericolose, non collegare il cavo di alimentazione prima del momento indicato nelle istruzioni.

警告：危険な電流から身体を保護するために、指示が出るまで電源コードを接続しないでください。

Stacking Units in a Rack

page 2-11

Caution: When mounting this device in a rack, do not stack units directly on top of one another in the rack. Each unit must be secured to the rack with appropriate mounting brackets. Mounting brackets are not designed to support multiple units.

Achtung: Wenn Sie dieses Gerät in einem Gerätegestell installieren, stellen Sie die Geräte nicht direkt aufeinander. Jedes Gerät muß mit entsprechenden Halterungen im Gestell befestigt werden. Die Halterungen sind nicht dafür konzipiert, mehrere Geräte zu tragen.

Attention : Si cet appareil doit être encastré dans un rack, ne jamais empiler directement plusieurs unités les unes sur les autres. Chaque unité doit être correctement fixée avec les membrures appropriées. Les membrures ne sont pas conçues pour supporter le poids d'unités multiples.

Precaución: Al montar este dispositivo apilado con otros dispositivos, no apile las unidades directamente unas sobre otras. Cada unidad se debe fijar a la estructura mediante los soportes de montaje adecuados. Los soportes de montaje no están diseñados para soportar varias unidades.

Attenzione: Se il dispositivo viene installato su una cremagliera, non impilarlo su un altro dispositivo montato sulla cremagliera. Ciascuna unità deve essere fissata alla cremagliera con le apposite staffe di montaggio. Tali staffe non possono essere utilizzate per fissare più unità.

注意：このディバイスをラックに据え付ける場合、スタック・ユニットを別のユニットの上に直接積み重ねないでください。各ユニットは、適切な据え付けブラケットでラックに固定してください。据え付けブラケットは、複数のユニットを支えるように設計されていません。

Turning Off Power to the Unit

page 2-12

Warning: Removal of the power cord is the only way to turn off power to this device. The power cord must always be connected in a location that can be accessed quickly and safely in case of an emergency.

Vorsicht: Die Stromzufuhr zu diesem Gerät kann nur durch Ziehen des Netzstromkabels unterbrochen werden. Die Netzsteckdose, an die das Netzstromkabel angeschlossen ist, muß sich stets an einem Ort befinden, der bei einem Notfall schnell und einfach zugänglich ist.

Avertissement : Le débranchement du cordon d'alimentation constitue le seul moyen de mettre cet appareil hors tension. Le cordon d'alimentation doit donc toujours être branché dans une prise accessible pour faciliter la mise hors tension en cas d'urgence.

Advertencia: La única forma de desconectar la alimentación de este dispositivo es desenchufar el cable de alimentación. El cable de alimentación siempre debe estar conectado en una ubicación que permita acceder al cable de forma rápida y segura en caso de emergencia.

Avvertenza: Estrarre il cavo di alimentazione è l'unico sistema per spegnere il dispositivo. Il cavo di alimentazione deve essere sempre collegato in una posizione che permetta l'accesso facile e sicuro in caso di emergenza.

警告：電源コードを取り外すことが、このディバイスへの電源を切る唯一の方法です。電源コードは緊急の場合、迅速かつ安全に近づける場所に接続してください。

Reset To Default Settings Command

page 3-7

Caution: If you choose the Reset to Default Settings command, all of your configured settings will be replaced with factory default settings when you press [Enter].

Achtung: Bei Auswahl des Befehls zur Rücksetzung auf die Standardeinstellungen werden alle von Ihnen konfigurierten Einstellungen durch die werkseitigen Standardeinstellungen ersetzt, wenn Sie die Eingabetaste drücken.

Attention : Si vous restaurez la configuration usine, votre configuration courante sera remplacée par la configuration usine dès que vous appuierez sur [Entrée].

Precaución: Si selecciona el comando Restaurar valores predeterminados, todos los valores de configuración se sustituirán por las valores predeterminados en fábrica al pulsar [Intro].

Attenzione: Nel caso in cui si selezioni la reimpostazione dei valori di default, tutte le impostazioni configurate verranno sostituite dai default di fabbrica premendo il tasto [Invio].

注意: 「デフォルトの設定にリセット」コマンドを選択すると、現在のコンフィグレーションされた設定は、[Enter]を押したとき、工場出荷時の設定に変更されます。

Choosing a Baud Rate

page 3-33

Caution: If you choose a baud rate that does not match your console terminal baud rate, you will lose communication with the configuration interface when you press [Enter]. If communication is lost, set your console terminal to match the new service port setting.

Achtung: Bei Auswahl einer Baudrate, die nicht mit der Baudrate des Konsolenterminals übereinstimmt, geht die Kommunikation mit der Konsolenschnittstelle verloren, wenn Sie die Eingabetaste drücken. Stellen Sie in diesem Fall das Konsolenterminal so ein, daß es mit der neuen Einstellung der Service-Schnittstelle übereinstimmt.

Attention : Si vous sélectionnez un débit différent de celui de votre terminal, vous perdrez le contact avec l'interface de votre console dès que vous appuierez sur [Entrée]. Pour restaurer la communication, alignez le débit de votre terminal sur le nouveau débit de votre port de service.

Precaución: Si selecciona una velocidad de transmisión que no coincide con la velocidad de transmisión del terminal de la consola, perderá la comunicación con el interfaz de la consola al pulsar [Intro]. Si se pierde la comunicación, ajuste el terminal de la consola para que coincida con el nuevo valor del puerto de servicio.

Attenzione: Nel caso in cui si scelga una velocità di trasmissione non corrispondente a quella del terminale della console, la comunicazione con l'interfaccia della console cadrà premendo il tasto [Invio]. Se la comunicazione cade, impostare il terminale della console in modo tale che corrisponda alla nuova impostazione della porta di servizio.

注意: コンソール・ターミナルのボー・レートに合っていない
ボー・レートを選択すると、[Enter]を押したときに、
コンソール・インタフェイスとの通信が途切れてしまいます。
この場合には、新しいサービス・ポート設定に合うように
コンソール・ターミナルを設定してください。

Changing Passwords

page 3-34

Caution: If you change the system-supplied default passwords, be sure to write the new passwords down and keep them in a safe place. If you forget the new passwords, you cannot access the console interface. In that case, contact Bay Networks for help.

Achtung: Wenn Sie die für das System standardmäßig eingestellten Paßwörter ändern, notieren Sie sich die neuen Paßwörter, und bewahren Sie sie an einem sicheren Ort auf. Falls Sie die neuen Paßwörter vergessen, können Sie nicht mehr auf die Konsolenschnittstelle zugreifen. Wenden Sie sich in diesem Fall an Bay Networks, um Unterstützung zu erhalten.

Attention : Si vous changez les mots de passe par défaut du système, assurez-vous de bien noter vos nouveaux mots de passe et de les conserver dans un endroit sûr. Si vous perdez vos nouveaux mots de passe, vous ne pourrez plus accéder à votre interface. Le cas échéant, veuillez contacter Bay Networks.

Precaución: Si modifica las contraseñas predeterminadas asignadas por el sistema, asegúrese de anotar las nuevas contraseñas y guárdelas en un lugar seguro. Si olvida las nuevas contraseñas, no podrá acceder al interfaz de la consola. En ese caso, póngase en contacto con Bay Networks para obtener ayuda al respecto.

Attenzione: In caso di modifica delle password predefinite nel sistema, assicurarsi di annotare le nuove password e di conservarle in un luogo sicuro. Nel caso in cui le nuove password vengano dimenticate, non sarà possibile accedere all'interfaccia della console. In tal caso, contattare la Bay Networks per avere assistenza.

注意: システム装備したデフォルトのパスワードを変更する場合、必ず新しいパスワードを書き留めて安全な場所に保管してください。新しいパスワードを忘れてしまうと、コンソール・インタフェイスにアクセスできません。この場合は、Bay Networksまでご連絡ください。

Interrupting a Software Download

page 3-44

Caution: Do not interrupt power to the device during the software download process. If the power is interrupted, the firmware image can become corrupted.

Achtung: Unterbrechen Sie die Stromzufuhr zum Gerät nicht, während die Software heruntergeladen wird. Bei Unterbrechung der Stromzufuhr kann das Firmware-Image beschädigt werden.

Attention : Ne pas couper l'alimentation de l'appareil pendant le chargement du logiciel. En cas d'interruption, le programme résident peut être endommagé.

Precaución: No interrumpa la alimentación del dispositivo durante el proceso de descarga del software. Si lo hace, puede alterar la imagen de la programación (firmware).

Attenzione: Non interrompere l'alimentazione elettrica al dispositivo durante il processo di scaricamento del software. In caso di interruzione, l'immagine firmware potrebbe danneggiarsi.

注意：ソフトウェアをダウンロードしているとき、ディバイスへの電源を切らないでください。電源を切ると、ファームウェアのイメージを損う恐れがあります。

Removing the Top Cover

page 4-1

Warning: To avoid bodily injury from hazardous electrical current, never remove the top cover of the device. There are no user-serviceable components inside.

Vorsicht: Um Verletzungsgefahr durch einen elektrischen Stromschlag auszuschließen, nehmen Sie niemals die obere Abdeckung vom Gerät ab. Im Geräteinnern befinden sich keine Komponenten, die vom Benutzer gewartet werden können.

Avertissement : Pour éviter tout risque d'électrocution, ne jamais retirer le capot de l'appareil. Cet appareil ne contient aucune pièce accessible par l'utilisateur.

Advertencia: A fin de evitar daños personales por corrientes eléctricas peligrosas, no desmonte nunca la cubierta superior de este dispositivo. Los componentes internos no son reparables por el usuario.

Avvertenza: Per evitare lesioni fisiche dovute a scariche pericolose di corrente, non rimuovere mai il coperchio superiore del dispositivo. I componenti interni non possono essere manipolati dall'utente.

警告：危険な電流から身体を保護するために、ディバイスの上部カバーを決して取り外さないでください。内部には、ユーザが扱うコンポーネントはありません。

Chapter 1
Getting Started

Overview

This chapter provides a functional introduction to the BayStack Model 350T 10/100 Autosense Switch. The introduction includes a description of the ports, port LEDs, and connectors. This chapter also discusses network configuration and provides a Quick Start section that allows you to quickly set up switch parameters for managing the BayStack 350T switch with SNMP management or through the switch service port.

Hardware Description

The BayStack 350T switch (see Figure 1-1) provides wire-speed, Fast Ethernet switching that allows high-performance, low-cost connections to full-duplex and half-duplex 10 megabit per second (Mb/s) and 100 Mb/s Ethernet LANs.

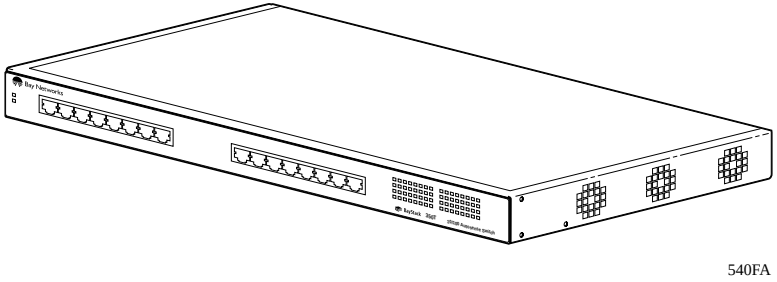


Figure 1-1. BayStack Model 350T 10/100 Autosense Switch

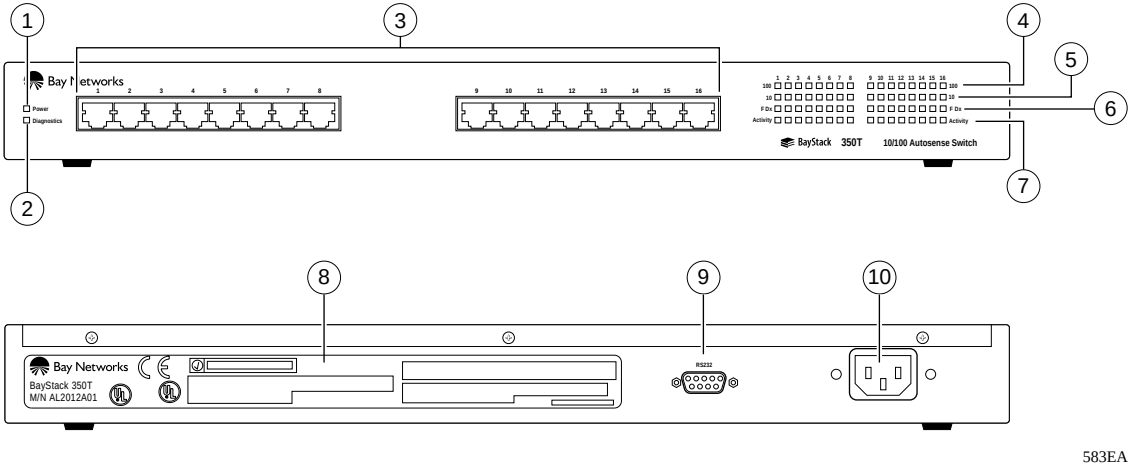
Based on advanced application-specific integrated circuit (ASIC) technology, the BayStack 350T switch can be cost effectively deployed into 10 Mb/s networks. As performance requirements grow and 100 Mb/s LANs are deployed, each port uses autosensing to support any mix of 10 Mb/s and 100 Mb/s Ethernet LANs.

One of the many benefits provided by the BayStack 350T switch is that network users now have the flexibility to grow from 10 Mb/s switching to 100 Mb/s switching in a single product.

BayStack 350T switching technology supports a rich feature set including virtual LANs (VLANs) and remote monitoring (RMON).

BayStack Model 350T 10/100 Autosense Switch Components

Figure 1-2 identifies the location of the BayStack 350T switch ports, corresponding status LEDs, service port, and AC power receptacle. For a description of each numbered component, see Table 1-1.



583EA

Figure 1-2. BayStack 350T switch front and back panel

Table 1-1 describes the components of the BayStack 350T switch as numbered in Figure 1-2.

Table 1-1. Front/back panel components

Item	Icon/label	Description	
1	Power	Power LED	
		Green	DC power is available to the switch's internal circuitry.
2	Diagnostics	Diagnostics LED	
		Green	The switch passes the self-test.
		Blinking	A nonfatal error occurs during the self-test.
		Off	The switch fails the self-test.
3	1 through 16	10BASE-T/100BASE-TX RJ-45 (8-pin modular) port connectors: Require 100-ohm unshielded twisted-pair (UTP) cable. The RJ-45 connectors are wired as MDI-X ports to connect end stations without using crossover cables.	
4	100	100BASE-TX Port Status LEDs, Ports 1 through 16:	
		Green	The corresponding port is set to operate at 100 Mb/s.
		Green blinking	The corresponding port is management disabled.
5	10	10BASE-T Port Status LEDs (yellow), Ports 1 through 16:	
		Yellow	The corresponding port is set to operate at 10 Mb/s.
		Yellow blinking	The corresponding port is management disabled.
6	FDX	Full-Duplex Port Status, Ports 1 through 16:	
		Green	The corresponding port is in full-duplex mode.
		Off	The corresponding port is in half-duplex mode.
7	Activity	Port Activity, ports 1 through 16:	
		Green blinking	Network activity for the corresponding port. Strong network activity can cause LEDs to appear to be continuously on.
8		Manufacturing Label—Lists the device model number, serial number, MAC address, and voltage rating.	
9	RS232	Service Port DB-9 (RS-232-D) serial port connector: Allows attachment of a console terminal device for accessing the console interface (CI) screens.	
10		AC Power Receptacle—Accepts AC power cord (supplied).	

Cooling Fans

Three variable-speed cooling fans in the BayStack 350T switch provide cooling for the internal components. Cooling air is drawn into air vents located on one side of the switch and expelled through the fans at the opposite side. When you install the switch, be sure to allow space at the sides of the switch for adequate airflow.

Features

The BayStack 350T switch includes the following features:

- High-speed forwarding rate—1.6 million packets per second peak
- Learning rate—1.6 million addresses per second peak
- Spanning Tree Protocol—IEEE 802.1D standards compliant
- Store-and-forward switch—full performance forwarding at full line speed
- Simple Network Management Protocol (SNMP) agent support for the following Management Information Bases (MIBs):
  - Bridge MIB (RFC 1493)
  - Ethernet MIB (RFC 1643)
  - Proprietary MIBs
  - RMON MIB (RFC 1757)
  - MIB II (RFC 1213)
- Service port for console connection—allows users to locally or remotely configure and manage the switch
- TELNET
  - Support for up to four simultaneous TELNET sessions
  - Optional password protection
  - Login timeout
  - Failed-login guard
  - Inactivity timeout
  - Allowed source addresses
  - Event logging

- IEEE 802.3u-compliant autonegotiation ports, with four modes:
  - 10BASE-T half-duplex
  - 10BASE-T full-duplex
  - 100BASE-TX half-duplex
  - 100BASE-TX full-duplex
- Remote monitoring (RMON) with four groups integrated:
  - Statistics
  - History
  - Alarms
  - Events
- Port-based virtual LANs (VLANs)
- Front panel light emitting diodes (LEDs) for monitoring the following:
  - Power status
  - System status
  - Per port status for the following:
    - 100 Mb link
    - 10 Mb link
    - Half- and full-duplex transmission
    - TX/RX activity
    - Management enable/disable
- Upgradeable device firmware in nonvolatile flash memory using Trivial File Transfer Protocol (TFTP)

Flash Memory Storage

The BayStack 350T switch uses flash memory to store the switch software image. Flash memory allows you to update the software image with a newer version without changing the switch hardware. An in-band connection between the switch and the TFTP load host is required to download the software image (refer to "Software Download" on page 3-44). For information about connecting a console terminal for this procedure, refer to "Service Port Cabling" on page 3-2.

If the BayStack 350T switch detects a corrupted software image during self-test, it automatically downloads a new software image, using the Bootstrap (BootP) and TFTP protocols.

BootP Automatic IP Configuration Capability

The BayStack 350T switch has a unique 48-bit hardware address, or MAC address, that is printed on a label on the back panel. This is the MAC address you use when you configure your network BootP server to recognize the BayStack 350T switch BootP requests. A properly configured BootP server allows the switch to automatically learn its assigned IP address, its subnet mask, the IP address of the default router (default gateway), and the software image file name. Refer to Appendix D, "Sample BootP Configuration File," to see an example of a BootP configuration file.

SNMP MIBs Support

The BayStack 350T switch supports an SNMP agent with private MIB extensions. Built-in SNMP agent support ensures compatibility with existing network management tools. The BayStack 350T switch supports MIB-II (RFC 1213) standards that provide access to detailed management statistics. With SNMP management, you can configure SNMP traps to be generated automatically for conditions such as an unauthorized access attempt or changes in operating status on individual ports.

Configuration and Switch Management

The BayStack 350T switch is shipped direct from the factory ready to operate in any 10BASE-T or 100BASE-TX standard network. You can manage the switch with Optivity® network management software, or with any generic SNMP-based network management software; however, you must assign an IP network address to the switch. You can set the BayStack 350T IP address by using the service port or by using the BootP protocol resident in the BayStack 350T switch. For more information about using the service port for manual configuration of the switch, see Chapter 3, “Using the Console Interface”.”

Network Configuration

The BayStack 350T switch can be connected to workstations and personal computers (PCs) either directly, through a hub, or through the creation of virtual LANs (VLANs). This section shows three network examples using the BayStack 350T switch in the following configurations:

- Desktop connections for power workgroups
- Desktop connections for power workgroups and shared media hub
- Virtual LAN workgroups

Connecting Power Workgroups

Figure 1-3 shows BayStack 350T switches connecting a mixture of dedicated power workgroups along with standard departmental users. In this example, all users have access to 10 Mb/s bandwidth or 100 Mb/s bandwidth on any port.

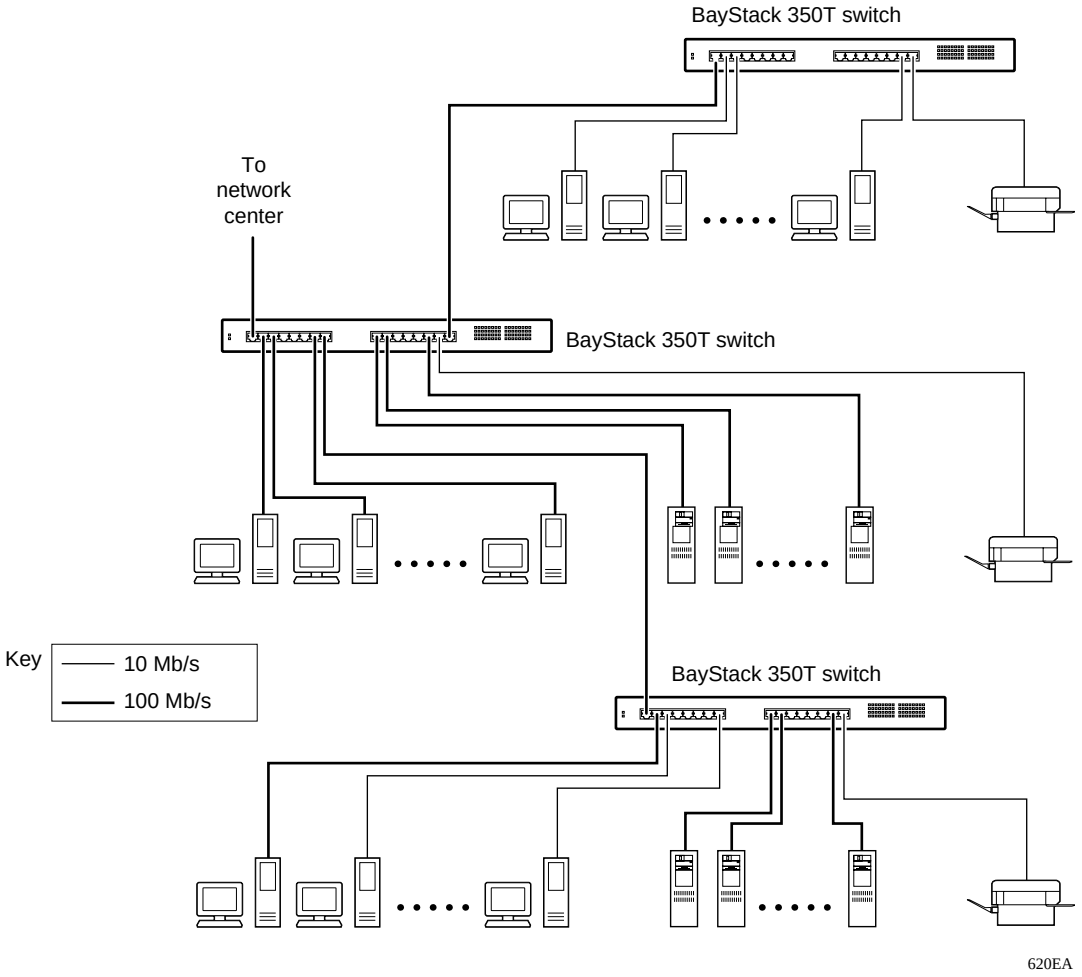


Figure 1-3. BayStack 350T switches for power workgroups

Acting as a Desktop/Segment Switch

Figure 1-4 shows groups of power users connected to servers through BayStack 350T switches in a small network. Network managers who do not want to provide each end station with the full 100 Mb/s bandwidth can designate a certain number of users to share the full bandwidth provided by one port of the switch. For example, one of the workgroups, connected to a 10BASE-T hub, is sharing 10 Mb/s bandwidth provided by one of the BayStack 350T switch ports.

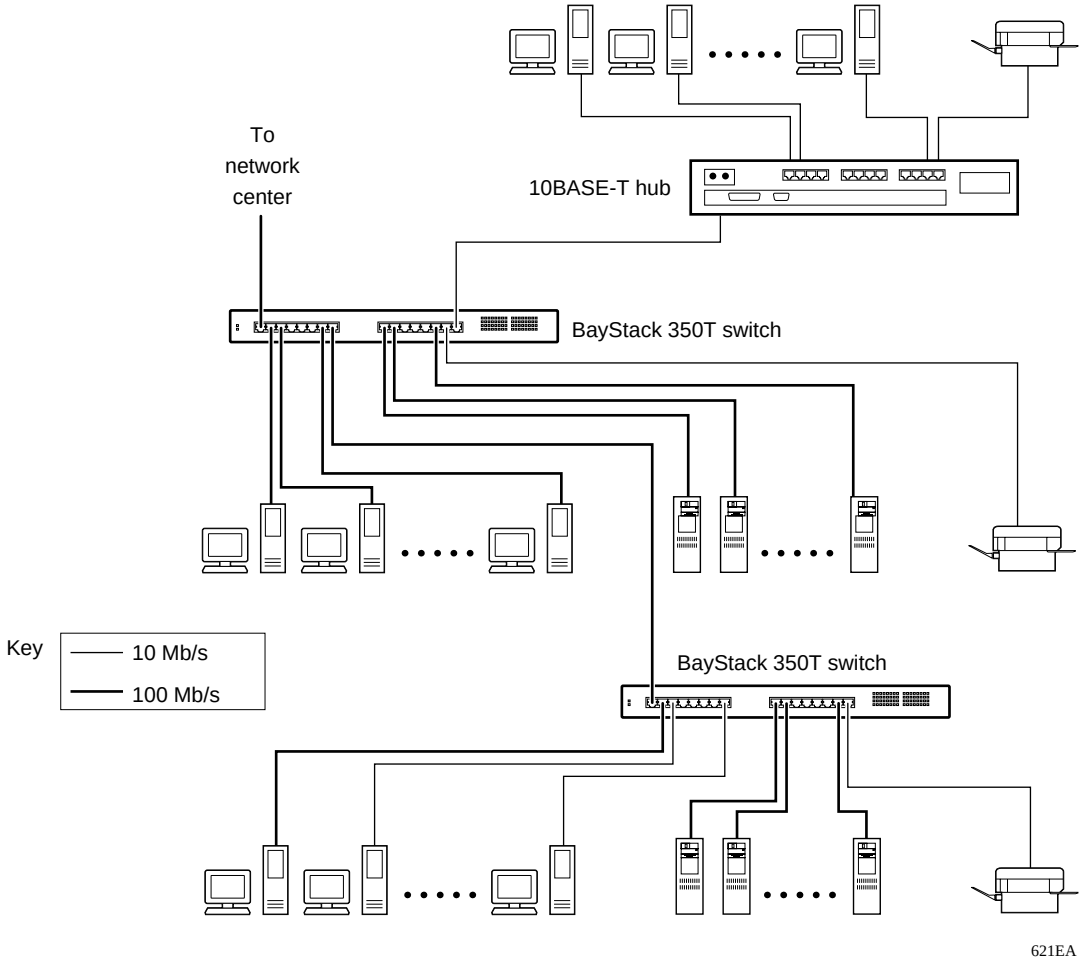


Figure 1-4. BayStack 350T switch as a desktop/segment switch

Creating Virtual LAN Workgroups

You can create and configure virtual LANs (VLANs) by segmenting networks into logical workgroups that are independent of physical connections and locations. The workgroups can be defined according to project or department. As shown in Figure 1-5, workgroup members on VLANs share computer resources but cannot communicate with other workgroups. Access to specific servers is restricted to all except the assigned workgroup. Broadcast packets are confined to a specific VLAN, which relieves traffic congestion.

Refer to "VLAN Configuration" in Chapter 3, "Using the Console Interface" to see how the individual BayStack 350T switches in Figure 1-5 are configured for this topology example.

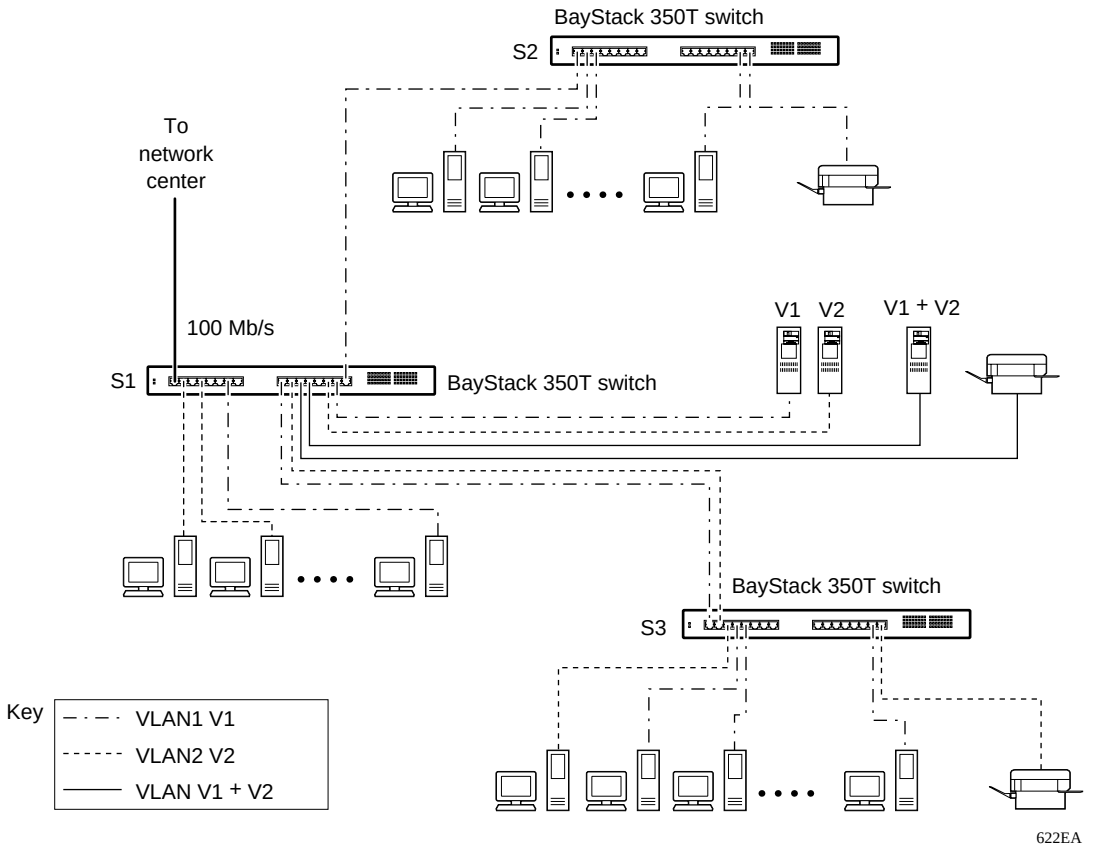


Figure 1-5. Virtual LANs/workgroups

Quick Start

This section provides Quick Start procedures for installing and setting up the BayStack 350T switch. It is intended for experienced installers or system administrators that are familiar with the BayStack 350T switch installation and setup procedures provided in this manual.

If you are experienced in installing network devices, or if you are installing multiple BayStack 350T switches, you can probably use the installation flowchart provided in this section to guide you through the installation. If you need more information about any of the steps listed in the flowchart, refer to Chapter 2, "Installation" for a complete explanation of the installation process.

After you have verified the installation, you can use other Quick Start procedures in this section to set up and begin the management of the switch. Refer to Chapter 3, "Using the Console Interface" for detailed information about setting up the switch and using the console interface (CI) screens.

Quick Start to Installing the BayStack 350T Switch

You can use the installation flowchart (see Figure 1-6) to install the BayStack 350T switch. If you need more information about any of the steps in the flowchart, refer to the appropriate section in Chapter 2, "Installation."

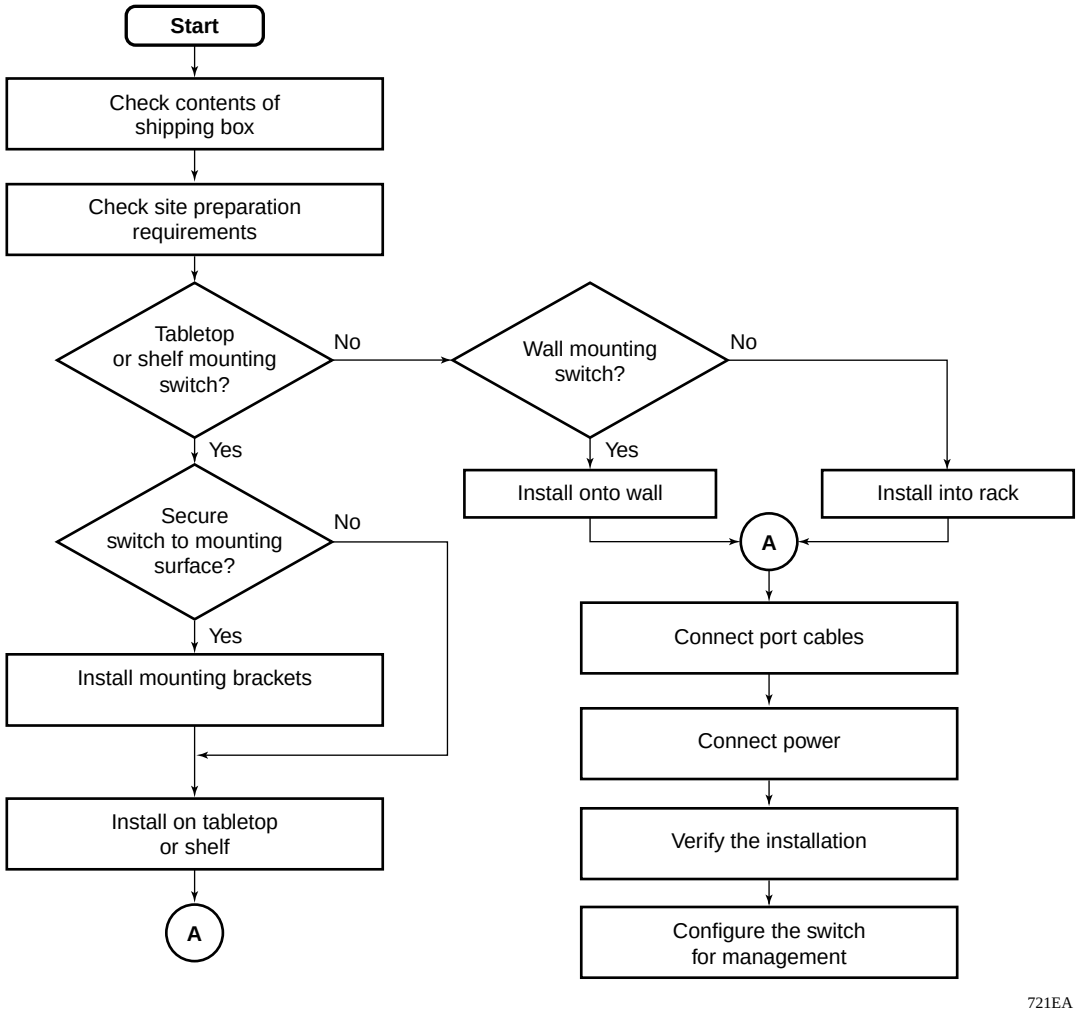


Figure 1-6. Installation Flowchart

Quick Start to Managing the BayStack 350T Switch

If you are already familiar with managing network devices, you can use the Quick Start procedures provided in this section to set up and begin managing the BayStack 350T switch. The procedures assume that the BayStack 350T switch has been installed and verified (as described in Chapter 2, "Installation"), and your network cables are attached to the switch.

This section describes how to manage the BayStack 350T switch using either of two methods:

- Through the Service Port Interface, using the CI screens
- Using an SNMP Management Application

Managing through the Service Port Interface

If you are managing the BayStack 350T switch through the service port interface, follow these steps:

1. **Connect a console terminal directly to the BayStack Model 350T service port or through a modem.**

   The console terminal can be a VT100 terminal or a PC running VT100 terminal-emulation software (refer to "Service Port Cabling" in Chapter 3, "Using the Console Interface").

2. **Configure the console terminal for 9600 baud, 8 data bits, no parity, and 1 stop bit.**

   Be sure to place the console terminal online; do not leave it in setup mode.

3. **Press [Ctrl]+C on the console terminal keyboard.**

4. **The console interface (CI) Main Menu appears on the screen.**

   For more information about the CI Main Menu, refer to"Using the CI Menus" in Chapter 3, "Using the Console Interface."

Managing with SNMP Management Applications

If you are using an SNMP management application to manage the BayStack 350T switch, you must first assign an IP address to the switch so that the SNMP management software can communicate with the switch.

To enter the BayStack 350T switch IP address, follow these steps:

1. **Connect a console terminal directly to the BayStack 350T switch service port or through a modem.**

   The console terminal can be a VT100 terminal or a PC running VT100 terminal-emulation software (see "Service Port Cabling" in Chapter 3, "Using the Console Interface").

2. **Configure the console terminal for 9600 baud, 8 data bits, no parity, and 1 stop bit.**

   Be sure to place the console terminal online; do not leave it in setup mode.

3. **Press [Ctrl]+C on the console terminal keyboard.**

4. **The console interface (CI) Main Menu appears on the screen (see "Using the CI Menus" in Chapter 3, "Using the Console Interface").**

5. **Select the IP Configuration option from the Main Menu.**

   The IP Configuration screen is displayed.

6. **In the IP Configuration screen, fill in the following fields:**

   — In-Band IP Address

   — In-Band Subnet Mask (if required)

   — Default Gateway (if required)

7. **Set SNMP traps, if needed.**

   To set SNMP traps, refer to "SNMP Configuration" in Chapter 3, "Using the Console Interface."

8. **Press [Ctrl]+C to return to the Main Menu.**

Chapter 2
Installation

Overview

This chapter explains how to install the BayStack Model 350T 10/100 Autosense Switch. The switch can be placed freestanding onto a tabletop or shelf, mounted on a wall, or installed into a 19-inch equipment rack.

Installing the BayStack 350T switch consists of unpacking the equipment, physically installing the switch, connecting the network cables, and then connecting the power.

Required Tools and Materials

The following tools are required to install the BayStack 350T switch:

- For installation in a standard 19-inch equipment rack—use a Phillips (or cross-head) screwdriver.
- For wall mounting—four screws (not supplied) are required to mount the BayStack 350T switch onto a wall. The screw size and type depends on the wall composition where you intend to mount the switch. Have an experienced maintenance person choose the appropriate hardware according to your wall composition.

Caution: The screws and wall composition must be able to withstand the weight of the device, plus the additional weight of the attached network cables and power cords.

Package Contents

While unpacking the equipment, verify that your BayStack 350T switch shipment includes all of the items shown in Figure 2-1.

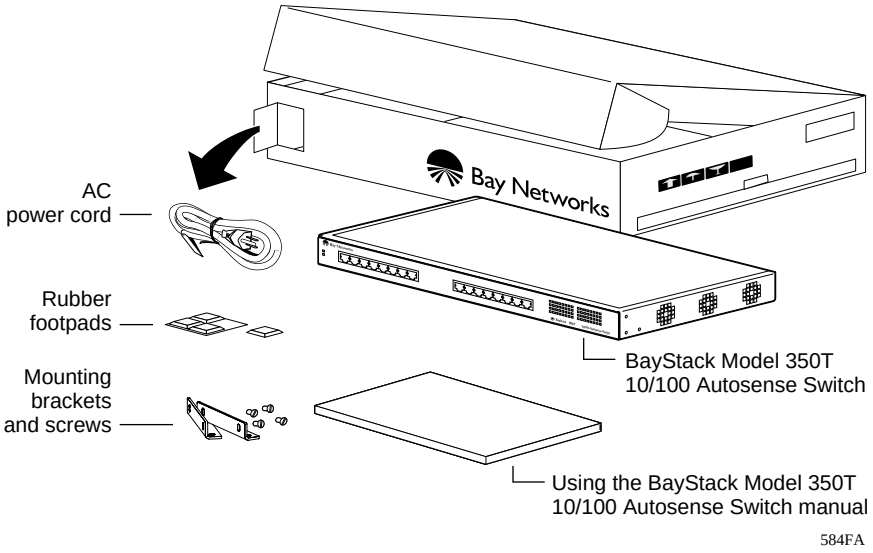


Figure 2-1. Package contents of the BayStack 350T switch

If any items are missing or damaged, contact the sales agent or the customer service representative where you purchased your BayStack 350T switch.

Site Preparation

Before beginning the switch installation, use the following checklist to ensure that your site is ready.

Hardware

Verify that you have the following hardware components appropriate to your method of installation:

- Console terminal—Ensure that you have a console terminal available. The terminal must be a VT100-compatible terminal or a PC running VT100 terminal-emulation software. (Although the BayStack 350T switch is operational as soon as you install it, you can customize the operational parameters to suit your needs.)
- Rack mounting—You need a single unit rack space for installing the BayStack 350T switch into a standard 19-inch equipment rack.
- Surface mounting:
  - — Tabletop—The table or shelf must be level and able to support at least 10 pounds, plus the additional weight of the suspended port cables. If you intend to stack additional BayStack 350T switches, one on top of another, remember to include this added weight in your calculations when selecting a suitable table or shelf.

Caution: When this device is installed in a stack on a shelf or tabletop, the accumulated weight of the port cables increases with the height of the shelf or tabletop.

  - — Wall mount screws—Mounting brackets are provided for securing the BayStack 350T switch onto a tabletop, shelf, or wall. However, because of the various types of wall compositions available at various sites, Bay Networks recommends that an experienced maintenance person choose the appropriate wall mounting hardware to safely mount your BayStack 350T switch onto your wall.
- Network cabling—Ensure that all network cables are in place and that they have been tested and tagged before you begin the installation.

Software

Verify that you have the following software components appropriate to your method of installation:

- BootP server—The BayStack 350T switch is capable of learning its IP address through the Bootstrap Protocol (BootP). To use this feature, ensure that a properly configured BootP server is present in your network.
- TFTP server—You can keep your BayStack 350T switch firmware up to date by upgrading the firmware as new versions become available. To upgrade the firmware, you need a properly configured Trivial File Transfer Protocol (TFTP) server in your network.

The Bay Networks network management applications EZ LAN™, Optivity Campus™, and Optivity Enterprise™ can help you with these BootP and firmware functions.

Environment

Be sure that the following items conform to the specifications described in Chapter A, "Technical Specifications":

- Temperature—Ensure that the temperature in the operating environment remains between 0^{o} and 40^{o} C (32^{o} and 104^{o} F). Do not place the BayStack 350T switch in direct sunlight or near warm air exhausts or heaters.
- Humidity—Ensure that the humidity level in the operating environment does not exceed 85 percent and that no water condenses on or around the BayStack 350T switch.
- Ventilation—Ensure that there is adequate airflow and clearance for air circulation around the BayStack 350T switch. Air enters the BayStack 350T switch from one side of the unit and flows out the opposite side. Allow at least two inches of ventilation space on both sides of the BayStack 350T switch.
- Electrical Power—Ensure that the site's power outlet matches the power requirement of the BayStack 350T switch and is within 1.8 meters (6 feet) of the installation site.

Installing the BayStack 350T Switch

This section explains how to install, power up, and verify the operation of the BayStack 350T switch. Before you begin these procedures, read and follow the instructions in "Site Preparation" on page 2-3.

Warning: To avoid bodily injury from hazardous electrical current, do not connect the power cord until instructed to do so.

The BayStack 350T switch can be installed in any of the following locations:

- Surface mount
  - — Tabletop or shelf (secured or unsecured)
  - — Wall mount
- Rack mount—19-inch equipment rack

Surface Mounting

The BayStack 350T switch can be surface mounted onto any appropriate surface that can safely support the weight of the switch and attached cables, as long as there is adequate space around the unit for ventilation and access to cable connectors. Mounting brackets supplied with the switch allow you to secure the BayStack 350T switch to the installation location.

Note: In most cases it is not necessary to secure the BayStack 350T switch onto a tabletop or shelf. However, if conditions warrant securing the switch, such as when installing the switch at locations that are subject to heavy traffic or at overhead locations, you can secure the BayStack 350T switch with two mounting brackets (supplied).

Installing Mounting Brackets

Figure 2-2 shows the mounting bracket positions for surface mounting the BayStack 350T switch onto a flat surface such as a tabletop, shelf, or wall. When rack mounting the switch, the same brackets are used, but they are positioned to attach to the rack mount holes in the chassis (see Figure 2-5).

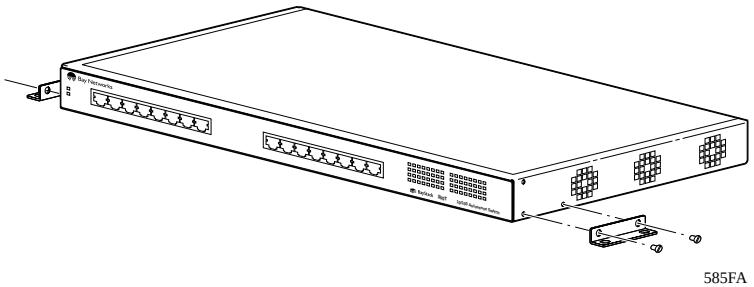


Figure 2-2. Attaching mounting brackets for a surface mount

To install the mounting brackets for surface mount configurations, follow these steps:

1. **Locate the surface mounting holes on both sides of the switch (see Figure 2-2).**
2. **Using a Phillips (or cross-head) screwdriver, attach the two mounting brackets to both sides of the switch with the four screws supplied with the unit.**
3. **Attach the switch to the tabletop, shelf, or wall as described in the appropriate section.**

Tabletop or Shelf Installation

To install the BayStack 350T switch onto a tabletop or shelf, follow these steps:

1. **Attach four rubber footpads onto the bottom of the unit, at each corner (see Figure 2-3).**
2. **Place the switch onto the tabletop or shelf with the front panel facing toward you. Be sure to leave adequate space around the unit for ventilation and access to the cables.**
3. **If you are securing the switch to the tabletop or shelf, insert two screws (not supplied) through each of the mounting brackets and tighten the screws.**
4. **Proceed to "Connecting Port Cables" on page 2-11 to connect the network cables.**

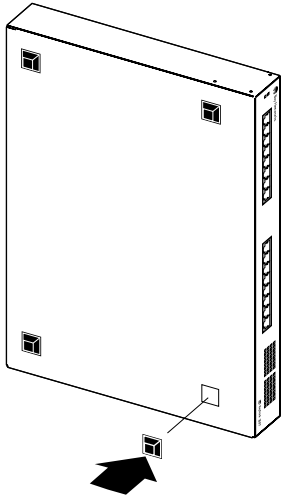


Figure 2-3. Attaching rubber footpads

Wall Mounting

The BayStack 350T switch can be installed onto any wall that can safely support the weight of the device and attached cables (see "Site Preparation" on page 2-3 for safety considerations). The BayStack 350T switch can be mounted with or without the rubber footpads attached.

Before Mounting the BayStack 350T Switch to a Wall

Before installing the BayStack 350T switch onto the wall, take note of the following considerations that apply to wall mounting:

- The BayStack 350T switch can only be wall mounted with the front panel facing upward, as shown in Figure 2-4.
- Because the LEDs are located on the front panel, you should position the switch at a height that allows the LEDs to remain visible at all times.
- Do not allow attached port cables to hang freely from the port connectors. Instead, install plastic cable clamps appropriately to support and dress the cables.
- Because wall compositions vary at each site, wall mounting screws are not provided. You should choose the appropriate size mounting hardware according to your wall composition.
- A common and safe method for attaching devices to most wall types is to attach the device to a piece of plywood (at least 0.5 in. thick) that is firmly secured to the wall, preferably to the wall studs.

Wall Mounting the Switch

To install the BayStack 350T switch onto a wall, follow these steps:

1. **Using a Phillips (or cross-head) screwdriver, attach the two mounting brackets to both sides of the switch with the four screws supplied with the unit (see Figure 2-2).**
2. **Insert two screws (not supplied) through each of the mounting brackets and tighten the screws (see Figure 2-4).**
3. **Proceed to "Connecting Port Cables" on page 2-11 to connect the network cables.**

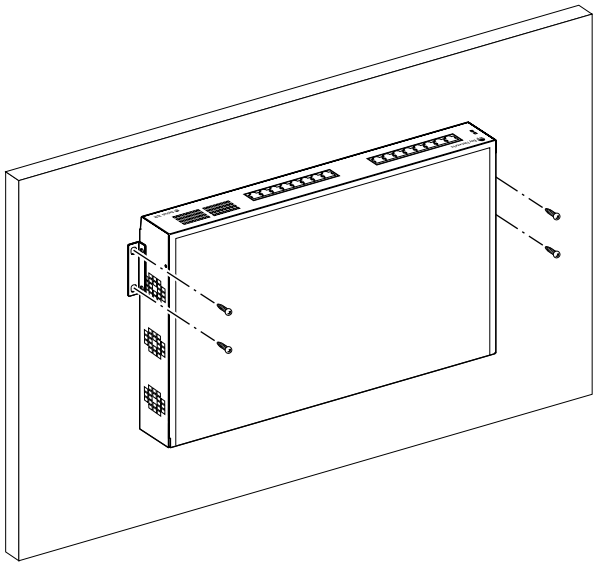


Figure 2-4. Attaching a BayStack 350T switch to a wall

Rack Mounting

The BayStack 350T switch occupies one single-unit rack space and can be installed in most standard 19-inch racks.

Note: When rack mounting the BayStack 350T switch, do not attach the four rubber footpads supplied with the unit. If your unit already has the rubber footpads attached, remove them before installing the switch in the rack.

To install the BayStack 350T switch in a 19-inch rack, follow these steps:

1. **If the switch has rubber footpads on the bottom of the unit, remove them.**
2. **Locate the rack mounting holes on both sides of the switch (see Figure 2-5).**
3. **Using a Phillips (or cross-head) screwdriver, attach the two mounting brackets to both sides of the switch with the four screws supplied with the unit.**

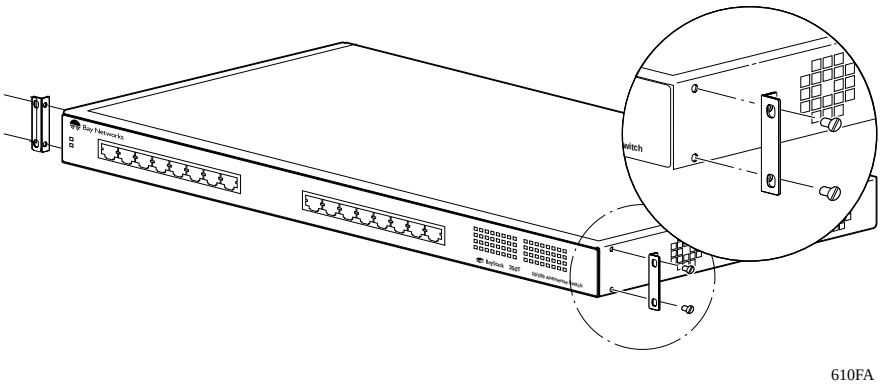


Figure 2-5. Attaching mounting brackets for a rack mount

4. **Position the switch in the rack and align the holes in the mounting bracket with the holes in the rack chassis (see Figure 2-6).**
5. **Insert two screws, appropriate for your 19-inch rack, into each of the mounting brackets and tighten with a suitable screwdriver.**
6. **Proceed to "Connecting Port Cables" on page 2-11 to connect the network cables.**

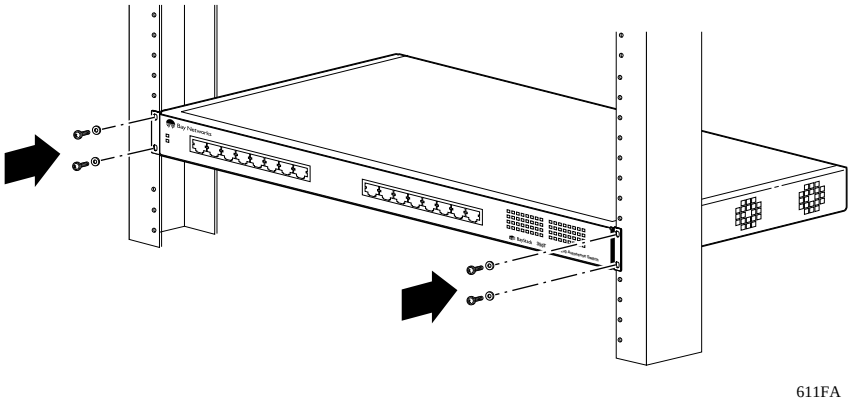


Figure 2-6. Installing the BayStack 350T switch in a 19-inch rack

Caution: When mounting this device in a rack, do not stack units directly on top of one another in the rack. Each unit must be secured to the rack with appropriate mounting brackets. Mounting brackets are not designed to support multiple units.

Connecting Port Cables

The switch ports are configured with RJ-45 (10BASE-T/100BASE-TX) connectors that are wired as MDI-X ports. As in conventional Ethernet repeater hubs, the BayStack 350T switch ports connect over straight-through cables to the network interface controller (NIC) card in a node or server. When connecting to an Ethernet hub or to another switch, you must use a crossover cable. Refer to Appendix B, "Connectors and Pin Assignments," for more information.

By default, all of the BayStack 350T switch ports are set with the autonegotiation feature enabled. This feature allows any port to match the best service provided by the connected station, up to 100 Mb/s at full-duplex mode.

To connect the port cables, insert the cable plug into the appropriate port connector until the release tab snaps into the locked position (see Figure 2-7).

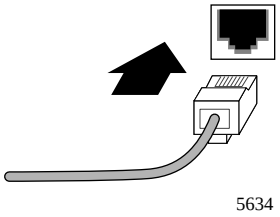


Figure 2-7. Connecting a port cable to the BayStack 350T switch

After connecting the port cables, proceed to "Connecting Power" to connect the AC power cord and power up the BayStack 350T switch.

Connecting Power

The BayStack 350T switch does not have a power on/off switch. When you connect the AC power cord to a suitable AC outlet, the switch powers up immediately.

Warning: Removal of the power cord is the only way to turn off power to this device. The power cord must always be connected in a location that can be accessed quickly and safely in case of an emergency.

To connect the BayStack 350T switch AC power cord, complete the following steps:

1. **Plug one end of the switch AC power cord into the switch AC power receptacle, located on the back panel.**
2. **Plug the other end of the AC power cord into a grounded AC power outlet.**
3. **Proceed to "Verifying the Installation" to verify proper operation.**

Verifying the Installation

Proper operation of the BayStack 350T switch is verified by observing the front panel LEDs. During the power-up sequence, the LEDs display the sequence described in Table 2-1.

Table 2-1. Power-up sequence of the BayStack 350T switch

Stage	Description	Indication
1	Immediately after AC power is applied to the unit, DC power is available to the switch's internal circuitry.	The Power LED lights (see Figure 2-8). If the Power LED does not light, verify that power is available at the AC outlet and that the power cable is securely fastened at both ends. If the Power LED still does not light, contact the sales agent or the customer service representative where you purchased your BayStack 350T switch.
2	The switch initiates its built-in self test.	As subroutines are initiated by the self-test, the port status LEDs flash various patterns. When the switch passes the self-test (within 10 seconds), the Diagnostics LED lights (see Figure 2-8). If a nonfatal error occurs during self-test, the Diagnostics LED blinks. If the switch fails the self-test, the Diagnostics LED remains off. Contact the sales agent or the customer service representative where you purchased your BayStack 350T switch.

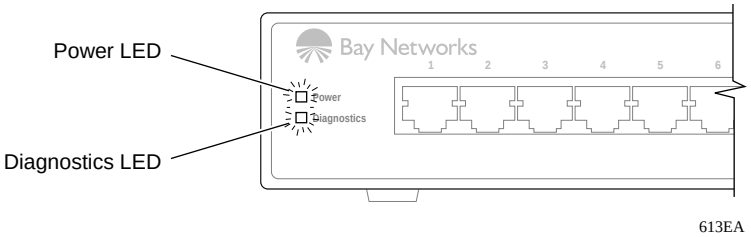


Figure 2-8. Observing LEDs to verify correct operation

After verifying the BayStack 350T switch operation, refer to Chapter 3, "Using the Console Interface" to configure and manage the switch using the console interface.

Chapter 3
Using the Console Interface

Overview

This chapter describes how to configure and manage the BayStack Model 350T 10/100 Autosense Switch using the menu-driven console interface (CI). You can access the CI menu screens through the service port located on the switch back panel. You can also manage the BayStack 350T switch with Optivity network management software or with a generic SNMP-based management application; however, you must first assign an IP address to the switch, as described in this chapter. If you have a BootP server that is correctly set up on your network, the IP address for the BayStack 350T switch will be detected and you do not have to manually assign the IP address.

Note: Refer to your network management documentation for information about SNMP network management.

CI Description

The console interface (CI) consists of menus and screen displays that enable you to manage the BayStack 350T switch and monitor its performance. You can manage the switch by using configuration menus to change its operational parameters. You can monitor the performance of the switch through the statistics screen, which displays the counters of the switch ports.

You can access the CI menus in the following ways:

- Locally, through a console terminal (must be a VT100-compatible terminal or a PC running VT100 terminal-emulation software)
- Remotely, through a dial-up modem connection
- Through an in-band TELNET session

Service Port Cabling

You can connect a console terminal directly to the BayStack 350T switch service port or you can connect a modem to the switch service port for remote access to the CI menus.

Note: To ensure correct connections between the service port and the console or modem port, refer to the service port pin assignments in Appendix B, "Connectors and Pin Assignments."

Console Terminal Requirements

To connect a console terminal to the BayStack 350T switch service port, you need the following equipment:

- An ASCII character terminal that has an RS-232 serial port or a computer that has an RS-232 serial port and terminal emulation, typically a PC running common communications software
- A standard RS-232 serial communications cable with a DB-9 connector at one end for connection to the service port and an appropriate connector (usually a DB-9 or DB-25 connector) at the other end for connection to the serial port on the console terminal

Modem Requirements

To connect a modem to the BayStack 350T switch service port, you need the following equipment:

- A 9600 baud (or higher speed) modem is recommended. The service port speed is set to 9600 baud (default factory setting) but supports 2400 baud through 38400 baud, as long as the speed at both ends of the communications link are identical.
- A standard RS-232 serial communications null-modem cable with a DB-9 connector at one end for connection to the service port and an appropriate connector (usually a DB-9 or DB-25 connector) at the other end for connection to the serial port on the modem is required.

Set the modem's serial port speed to match the speed of the BayStack 350T service port (9600 baud is the default). See "Service Port Configuration" on page 3-32 to modify the switch service port.

Connecting to the BayStack 350T Switch Service Port

To connect a console terminal or modem to the BayStack 350T switch service port, follow these steps:

1. **Plug the RS-232 cable DB-9 receptacle into the service port plug. Secure the connection with the two screws on the DB-9 receptacle.**
2. **Plug the other end of the RS-232 cable (DB-9 or DB-25, as appropriate) into the console terminal or modem RS-232 serial port.**

Accessing the CI Menus

You can access the CI menus through a local console terminal, remotely through a dial-up modem connection, or through a TELNET session.

To access the CI menus through a TELNET session, your workstation must be configured with an IP address, and you must know the IP address of the switch in order to establish a link. You can configure an IP address for the BayStack 350T switch using a console terminal (as described in this section). If you have a BootP server on your network, the IP address for the switch will be detected and you will not have to configure the IP address. Refer to your TELNET documentation for information about establishing TELNET connections.

To access the CI menus, complete the following steps:

1. **Power up the console terminal, or make sure that your PC is running in terminal-emulation mode.**
2. **Set the console terminal configuration parameters as follows:**
   - 9600 baud
   - 8 data bits
   - no parity
   - 1 stop bit
3. **Place the console terminal online; do not leave it in setup mode.**
4. **Press [Ctrl]+C on the console terminal keyboard.**

   The CI Main Menu appears on the screen; for more information about using the CI Main Menu, proceed to "Using the CI Menus."

Using the CI Menus

The CI menus and screens provide commands that allow you to configure and manage the BayStack 350T switch.

Although some commands carry out actions immediately, other commands are followed by an ellipsis (for example, IP Configuration...) indicating that the selection displays a submenu with other options.

Some commands can switch between several possible settings; these commands *toggle* a condition. Other commands allow you to enter information; these commands set or modify a parameter.

Navigating the CI Menus

Use the following methods to navigate the CI menus:

- To select a command:
  - — Use the arrow keys to highlight the command name.
  - — Press [Enter].

  Alternatively, you can press the key corresponding to the underlined letter in the command name. For example, to select the S<u>w</u>itch Configuration command in the Main Menu, press the [W] key. Note that the text characters are not case sensitive.
- To toggle between several possible settings:
  - — Use the Space bar to highlight the setting.
  - — Press [Enter].
- To clear a string field:
  - — Place the cursor in the string field.
  - — Press [Ctrl]+K.
- To return to the previous menu, press [Ctrl]+R.
- To return to the Main Menu at any time, press [Ctrl]+C.

Screen Fields and Descriptions

Figure 3-1 shows a map of the CI screens. The remainder of this chapter describes the CI screens, including each of the corresponding screen fields, beginning with the Main Menu.

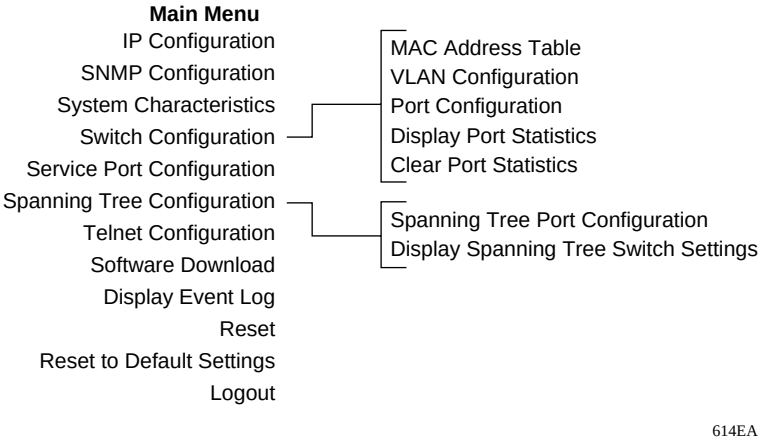


Figure 3-1. Map of console interface Main Menu screens

Main Menu

This section describes the commands available from the Main Menu (see Figure 3-2). The submenus for these commands are described in the following sections.

Note: The field values and settings shown in the screen displays throughout this section are provided as examples only.

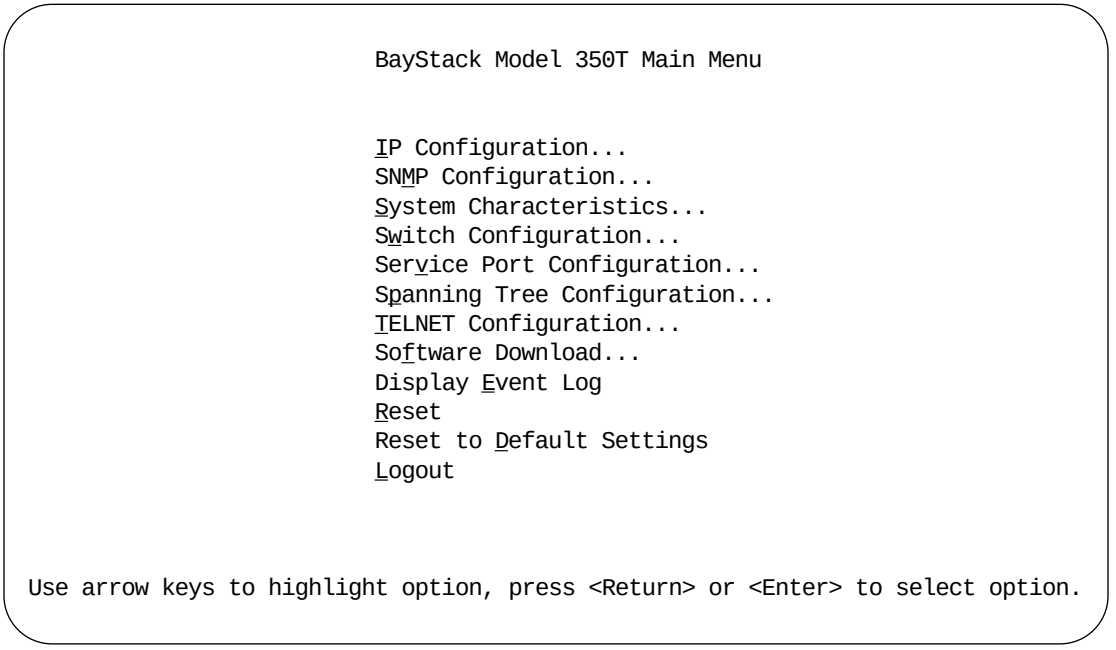


Figure 3-2. CI Main Menu

The CI Main Menu includes the commands listed in Table 3-1.

Table 3-1. CI Main Menu commands

Command	Description
IP Configuration...	Displays the IP Configuration screen (see "IP Configuration" on page 3-8). The IP Configuration screen allows you to set or modify IP configuration parameters.
SNMP Configuration...	Displays the SNMP Configuration screen (see "SNMP Configuration" on page 3-13). This screen allows you to set or modify the SNMP read-only community and read-write community strings, to enable or disable the authentication trap, to set the IP address of trap receivers, and to set the trap community strings.
System Characteristics...	Displays the System Characteristics screen (see "System Characteristics" on page 3-15). This screen allows you to view switch characteristics such as the number of resets and the hardware and firmware version. This screen also contains three user-configurable fields: sysContact, sysName, and sysLocation.

Table 3-1. CI Main Menu commands (continued)

Command	Description
Switch Configuration...	Displays the Switch Configuration Menu (see "Switch Configuration" on page 3-17). This menu provides additional configuration commands. The commands include: MAC Address Table, VLAN Configuration, Port Configuration, and Display Port Statistics.
Service Port Configuration...	Displays the Service Port Configuration screen (see "Service Port Configuration" on page 3-32).
Spanning Tree Configuration...	Displays the Spanning Tree Configuration Menu (see "Spanning Tree Configuration Menu" on page 3-34).
TELNET Configuration...	Displays the TELNET Configuration screen (see "TELNET Configuration" on page 3-41).
Software Download...	Displays the Software Download screen (see "Software Download" on page 3-44).
Display Event Log	Displays the Event Log screen (see "Display Event Log" on page 3-47).
Reset	Resets the switch with the current configuration settings. When this command is selected, the switch resets, runs a self-test, and displays the Main Menu.
Reset to Default Settings	Resets the switch with factory default configuration settings. When this command is selected, the switch resets, runs a self-test, and displays the Main Menu.
	Caution: If you choose the Reset to Default Settings command, all of your configured settings will be replaced with factory default settings when you press [Enter].
Logout	The Logout command allows a user at a password-protected console terminal or an active TELNET session to disconnect the session (see "Logout" on page 3-51).

IP Configuration

The IP Configuration screen (see Figure 3-3) allows you to set or modify the BayStack 350T switch IP configuration parameters. Data entered into the configurable fields of the screen display take effect as soon as the user presses [Enter].

Note: The read-only fields in this screen are updated depending on the BootP mode selected in the BootP Request Mode: field (see "Choosing a BootP Request Mode" in this section for more information).

```
                              IP Configuration


                  BootP Request Mode:  [ BootP When Needed     ]


                             Configurable          In Use         Last BootP
                           -------------------  ---------------  ---------------
In-Band IP Address:        [ 0.0.0.0 ]          0.0.0.0          0.0.0.0
In-Band Subnet Mask:       [ 0.0.0.0 ]          0.0.0.0          0.0.0.0

Default Gateway:           [ 0.0.0.0 ]          0.0.0.0          0.0.0.0




Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-3. IP Configuration screen

The IP Configuration screen includes the fields listed in Table 3-2.

Table 3-2. IP Configuration screen fields

Field	Description
BootP Request Mode:	Sets one of four modes of operation for the BootP protocol (see "Choosing a BootP Request Mode" on page 3-10 for details about the four modes you can choose). Default Value: BootP When Needed Range: BootP When Needed, BootP Always, BootP Disabled, BootP or Last Address
Configurable	Column header for the (user) Configurable fields in this screen.
In Use	Column header for the read-only fields in this screen. The read-only data displayed in this column represents data that is currently in use.
Last BootP	Column header for the read-only fields in this screen. The read-only data generated in this column represents data obtained from the last BootP reply received.
In-Band IP Address:	The in-band IP address of the BayStack 350T switch. Default Value: 0.0.0.0 (no IP address assigned) Range: Four-octet decimal IP address notation, where each octet of the address is represented as a decimal value, separated by a decimal point
In-Band Subnet Mask:	Contains the subnet address mask that is associated with the in-band IP address shown on the screen. The subnet mask is used by network routers to determine the network or subnet address portion of a host's IP address. The bits in the IP address that contain the network address (including the subnet), are set to 1 in the address mask, and bits that contain the host identifier are set to 0. Default Value: 0.0.0.0 (no subnet mask assigned) Range: Four-octet decimal IP address notation, where each octet is represented as a decimal value, separated by a decimal point
Default Gateway:	The IP address of the default gateway. Default Value: 0.0.0.0 (no IP address assigned) Range: Four-octet decimal IP address notation, where each octet is represented as a decimal value, separated by a decimal point

Choosing a BootP Request Mode

The BootP Request Mode field (in the IP Configuration screen) allows you to choose one of the following methods for the switch to broadcast BootP requests:

- BootP When Needed
- BootP Always
- BootP Disabled
- BootP or Last Address

The following sections describe the BootP Request Modes.

BootP When Needed

This mode field setting allows the switch to request an IP address if it is not already configured into the switch from the console terminal.

When selected, this field operates as follows:

- When the IP data is entered from the console terminal, the entered data becomes the in-band address of the switch and BootP requests are not broadcast. The switch can be managed in-band using this in-band IP address.
- When the in-band IP address is not set from the console terminal, the switch broadcasts BootP requests until a BootP reply containing an IP address is received. If the switch does not receive a BootP reply that contains an IP address, it cannot be managed in-band.

If an IP address is *not* currently in use, these actions take effect immediately.

If an IP address *is* currently in use, these actions take effect only after the switch is reset or power cycled.

BootP Always

This mode field setting allows the switch to be managed only when configured with the IP address obtained from the BootP server.

When selected, this field operates as follows:

- The switch continues to broadcast BootP requests, regardless of whether an in-band IP address is set from the console terminal.
- If the switch receives a BootP reply that contains an in-band IP address, the switch uses this new in-band IP address.
- If a reply is not received, the switch cannot be managed with the in-band IP address set from the console terminal.

If an IP address is *not* currently in use, these actions take effect immediately.

If an IP address *is* currently in use, these actions take effect only after the switch is reset or power cycled.

BootP Disabled

This mode field setting allows the switch to be manageable only by using the IP address set from the console terminal.

When selected, this field operates as follows:

- The switch does not broadcast BootP requests, regardless of whether an IP address is set from the console terminal.
- The switch is manageable only when using the in-band IP address set from the console terminal.

These actions take effect after the switch is reset or power cycled, even if an IP address is not currently in use.

BootP or Last Address

This mode field setting allows the switch to continue to be manageable, even though a BootP server may not currently be reachable.

When selected, this field operates as follows:

- When the IP data is entered from the console terminal, the entered data becomes the in-band address of the switch, and BootP requests are not broadcast. The switch can be managed using this in-band IP address.
- When the in-band IP address is not set from the console terminal, the switch broadcasts BootP requests until a BootP reply containing an in-band IP address is received. If the switch does not receive a BootP reply that contains an in-band IP address within 10 minutes, the switch uses the last in-band IP address that was received from a BootP server. This IP information is displayed under the Last BootP column header.

If an IP address is *not* currently in use, these actions take effect immediately.

If an IP address *is* currently in use, these actions take effect only after the switch is reset or powe cycled.

SNMP Configuration

The SNMP Configuration screen (see Figure 3-4) allows you to set or modify your SNMP configuration parameters.

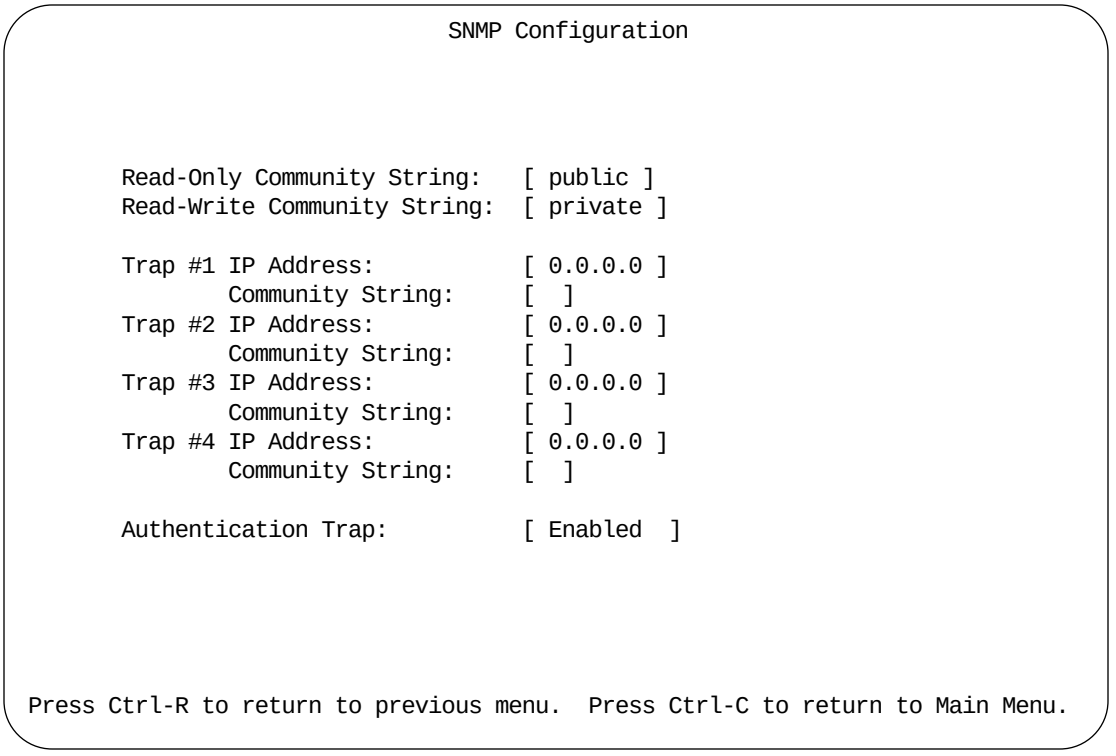


Figure 3-4. SNMP Configuration screen

The SNMP Configuration screen includes the fields listed in Table 3-3.

Table 3-3. SNMP Configuration screen fields

Field	Description	
Read-Only Community String:	The community string used for in-band read-only SNMP operations.	
	Default Value:	public
	Range:	Can be any ASCII string up to 32 printable characters
Read-Write Community String:	The community string used for in-band read-write SNMP operations.	
	Default Value:	private
	Range:	Can be any ASCII string up to 32 printable characters
Trap #1 IP Address:	Number one of four allowed Trap IP Addresses. Successive Trap Address fields are numbered #2, #3, and #4. Each of the Trap addresses has an associated Community String (see next field description).	
	Default Value:	0.0.0.0 (no IP address assigned)
	Range:	Four-octet decimal IP address notation, where each octet of the address is represented as a decimal value, separated by a decimal point
Community String:	The community string associated with one of the four allowed trap addresses (see Trap #1 IP Address field description).	
	Default Value:	Zero-length string
	Range:	Can be any ASCII string up to 32 printable characters
Authentication Trap:	Enables or disables sending a trap on an SNMP authentication failure.	
	Default Value:	Enabled
	Range:	Enabled, Disabled

System Characteristics

The System Characteristics screen (see Figure 3-5) allows you to view system characteristics and contains three user-configurable fields: sysContact, sysName, and sysLocation.

```
                          System Characteristics




MAC Address:      00-60-FD-00-03-A8

Reset Count:      2
Last Reset Type:  Software Download

sysDescr:         BayStack Model 350T HW:RevC FW:V1.00 SW:V1.00
sysObjectID:      1.3.6.1.4.1.45.3.30.1.2
sysUpTime:        01:36:49
sysServices:      3
sysContact:       [ M.J.Lento ]
sysName:          [ Engineering Switch ]
sysLocation:      [ Building 4, Floor 2 ]









Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-5. System Characteristics screen

The System Characteristics screen includes the fields listed in Table 3-4.

Table 3-4. System Characteristics screen fields

Field	Description	
MAC Address:	The MAC address of the BayStack 350T switch.	
Reset Count:	Read-only field—indicates the number of resets since the BayStack 350T switch was originally loaded with operational firmware.	
	Default Value:	1
	Range:	From 0 to 2^{32} –1
Last Reset Type:	Read-only field—indicates the type of reset last initiated.	
	Default Value:	Power Cycle
	Range:	Power Cycle, Software Download, Management Reset, Management Factory Reset
sysDescr:	Read-only field that specifies the hardware and software version.	
sysObjectID:	Read-only field that provides a unique identification of the device, containing the vendor's private enterprise number.	
sysUpTime:	Read-only field that shows the operational length of time since the last reset. Note: This field is updated when the screen is redisplayed.	
sysServices:	Read-only field indicating device physical and data link layer functionality.	
sysContact:	The name and phone number of the person responsible for the switch.	
	Default Value:	Zero-length string
	Range:	Can be any ASCII string up to 56 printable characters
sysName:	Any name that provides the switch with a unique identification.	
	Default Value:	Zero-length string
	Range:	Can be any ASCII string up to 56 printable characters
sysLocation:	The physical location of the switch.	
	Default Value:	Zero-length string
	Range:	Can be any ASCII string up to 56 printable characters

Switch Configuration

The Switch Configuration Menu (see Figure 3-6) provides a choice of commands you can use to set or modify your switch configuration.

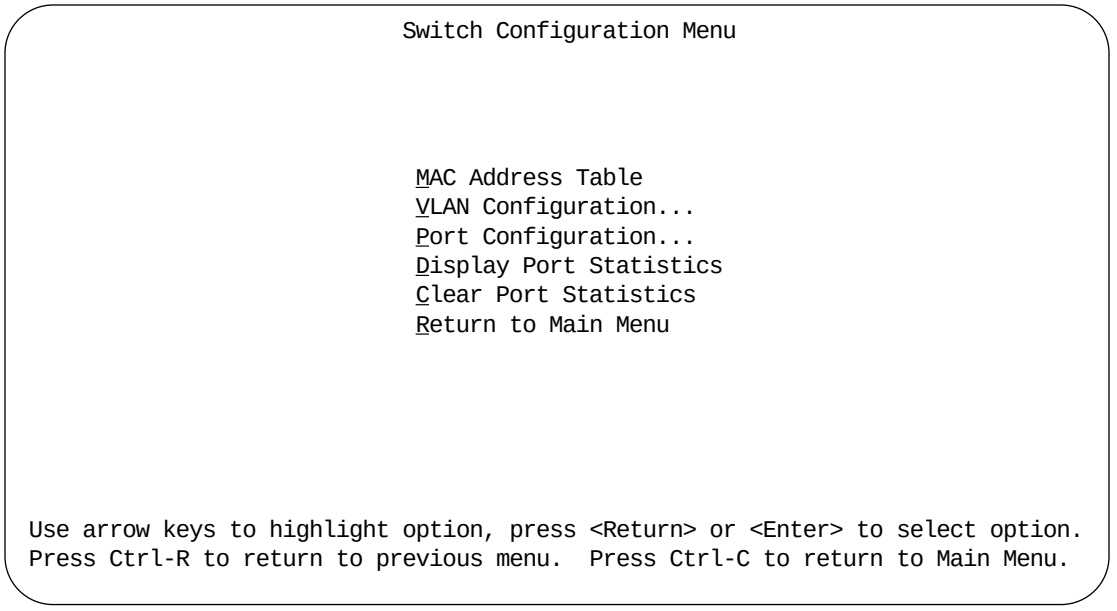


Figure 3-6. Switch Configuration Menu

The Switch Configuration Menu includes the commands listed in Table 3-5.

Table 3-5. Switch Configuration Menu commands

Command	Description
MAC Address Table...	Displays the MAC Address Table screen (see "MAC Address Table" on page 3-19). You can use this screen to view MAC addresses that were learned by the switch.
VLAN Configuration...	Displays the VLAN Configuration screen (see "VLAN Configuration" on page 3-20). You can use this screen to set up virtual LAN workgroups.
Port Configuration...	Displays the Port configuration screen (see "Port Configuration" on page 3-26). The Port Configuration screen allows you to selectively configure individual switch ports or all switch port parameters.
Clear Port Statistics	Displays the Clear Port Statistics screen (see "Clear Port Statistics on page 3-31). The Clear Port Statistics screen allows you to reset accumulated counters for a specific port or for all switch ports.
Display Port Statistics	Displays the Port Statistics screen (see "Port Statistics" on page 3-28). The Port Statistics screen allows you to view detailed information related to any switch port.
Return to Main Menu	This command exits the Switch Configuration Menu and displays the Main Menu.

MAC Address Table

The MAC Address Table screen (see Figure 3-7) allows you to view MAC addresses that were learned by the switch. You can also use this screen to search for specific MAC addresses.

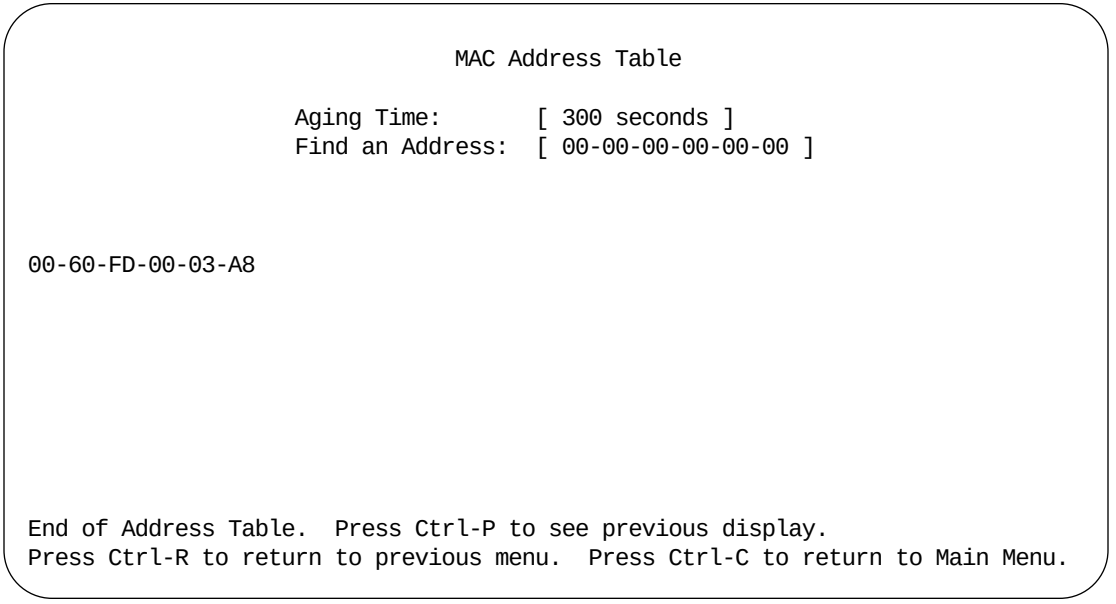


Figure 3-7. MAC Address Table screen

The MAC Address Table screen contains the fields listed in Table 3-6.

Table 3-6. MAC Address Table fields

Field	Description	
Aging Time:	Specifies the length of time that a learned MAC address remains in the switch forwarding database. If an entry is inactive during any time period that is longer than the specified aging time, the entry is removed.	
	Default Value:	300 seconds
	Range:	00-00-00-00-00-00 to FF-FF-FF-FF-FF-FF
Find an Address:	Allows user to search for specific existing MAC address.	
	Default Value:	00-00-00-00-00-00 (no MAC address assigned)
	Range:	00-00-00-00-00-00

VLAN Configuration

The VLAN Configuration screen (see Figure 3-8) allows you to configure your BayStack 350T switch with as many as eight virtual LANs (VLANs). The screen provides a matrix that allows you to group the switch ports into logical (virtual) workgroups. Users within each of the logical workgroups can share resources but cannot communicate with users in other logical workgroups.

Figure 3-8 shows the default setting for the VLAN Configuration screen, with all 16 ports configured in VLAN V1.

```
                              VLAN Configuration

Port     V1      V2      V3      V4      V5      V6      V7      V8
----   -----   -----   -----   -----   -----   -----   -----   -----
  1    [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
  2    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
  3    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
  4    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
  5    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
  6    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
  7    [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
  8    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
  9    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
 10    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
 11    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
 12    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
 13    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
 14    [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
 15    [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
 16    [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]


Use space bar to display choices, press <Return> or <Enter> to select choice.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-8. VLAN Configuration screen

The switch ports can be configured into logical workgroups by simply selecting the port numbers vertically, under the VLAN names. You can allow any port to be shared by users on a separate VLAN by selecting the same port horizontally under each VLAN name you want to connect.

You can create VLANs based on a single BayStack 350T switch, or you can create VLANs that span multiple switches, but each switch participating in the VLAN configuration must be configured separately.

You can also assign multiple VLANS to a port that is connected to a server, thereby allowing the server to be shared among multiple logical workgroups.

Note: To share VLANs between two switches, one connection per VLAN is required. Do not assign multiple VLANS to switch-to-switch connections.

See "Example VLAN Configuration" on page 3-22 to see VLAN configuration screens set up for multiple BayStack 350T switches.

Example VLAN Configuration

Figure 3-9 shows an example of a VLAN configuration that spans multiple BayStack 350T switches. Each of the switches, S1, S2, and S3, are participants in the VLAN configuration and are individually configured to create the VLAN configuration shown here.

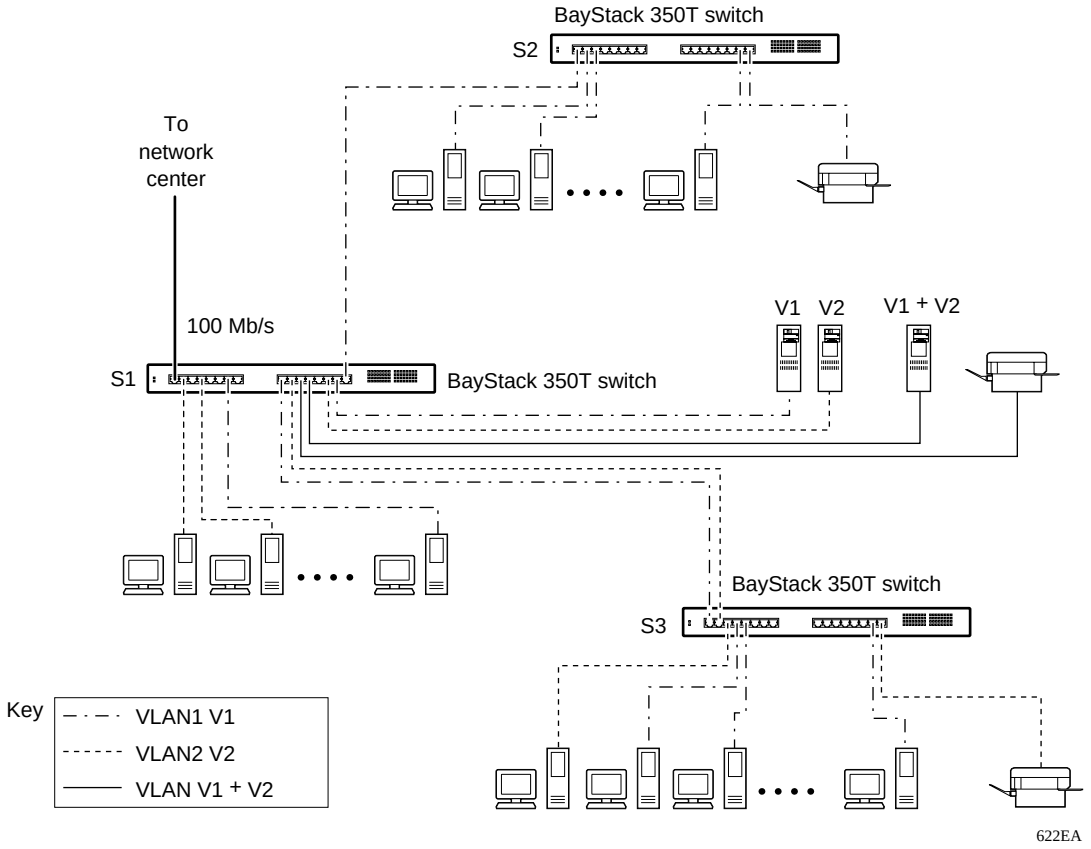


Figure 3-9. VLANs spanning multiple switches

Figure 3-10, Figure 3-11, and Figure 3-12 show the VLAN Configuration screen settings used with each of the switches (S1, S2, and S3) shown in Figure 3-9.

```
                                VLAN Configuration

          Port     V1      V2      V3      V4      V5      V6      V7      V8
          ----    -----   -----   -----   -----   -----   -----   -----   -----
            1     [ X ]   [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
            2     [   ]   [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
            3     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
            4     [   ]   [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
            5     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
            6     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
            7     [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
            8     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
            9     [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
           10     [   ]   [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
           11     [ x ]   [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
           12     [ x ]   [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
           13     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
           14     [   ]   [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
           15     [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
           16     [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]

Use space bar to display choices, press <Return> or <Enter> to select choice.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-10. VLAN Configuration screen for S1

```
                              VLAN Configuration

        Port     V1      V2      V3      V4      V5      V6      V7      V8
        ----    -----   -----   -----   -----   -----   -----   -----   -----
          1     [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          2     [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          3     [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          4     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          5     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          6     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          7     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          8     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          9     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         10     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         11     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         12     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         13     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         14     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         15     [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         16     [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]

Use space bar to display choices, press <Return> or <Enter> to select choice.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-11. LAN Configuration screen for S2

```
                                VLAN Configuration

        Port     V1      V2      V3      V4      V5      V6      V7      V8
        ----    -----   -----   -----   -----   -----   -----   -----   -----
          1     [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          2     [   ]   [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          3     [   ]   [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          4     [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          5     [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          6     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          7     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          8     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
          9     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         10     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         11     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         12     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         13     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         14     [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         15     [ X ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]
         16     [   ]   [ x ]   [   ]   [   ]   [   ]   [   ]   [   ]   [   ]


Use space bar to display choices, press <Return> or <Enter> to select choice.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-12. VLAN Configuration screen for S3

Port Configuration

The Port Configuration screen (see Figure 3-13) allows you to selectively configure individual switch ports or all switch port parameters. You can set your switch ports to autonegotiate for the highest available speed of the connected station, or you can choose a set speed for selected ports.

Note: If you are having connectivity problems, and you suspect that the link partner is not autonegotiating properly, use the Port Configuration screen to manually select a specific operating mode (refer to the Speed/Duplex field description).

```
                              Port Configuration

      Port      Status      Link   Auto Negotiation     Speed  Duplex
      ----   ------------   ----   ----------------   -----------------
       1     [ Enabled  ]   Down     [ Disabled ]     [ 100Mbs / Full ]
       2     [ Enabled  ]   Down     [ Disabled ]     [ 10Mbs  / Half ]
       3     [ Enabled  ]   Down     [ Disabled ]     [ 10Mbs  / Half ]
       4     [ Enabled  ]   Down     [ Disabled ]     [ 10Mbs  / Full ]
       5     [ Enabled  ]   Down     [ Disabled ]     [ 10Mbs  / Full ]
       6     [ Enabled  ]   Down     [ Disabled ]     [ 100Mbs / Full ]
       7     [ Enabled  ]   Down     [ Disabled ]     [ 100Mbs / Full ]
       8     [ Enabled  ]   Down     [ Disabled ]     [ 100Mbs / Full ]
       9     [ Enabled  ]    Up      [ Enabled  ]     [ 100Mbs / Full ]
       10    [ Enabled  ]    Up      [ Enabled  ]     [ 100Mbs / Full ]
       11    [ Enabled  ]    Up      [ Enabled  ]     [ 100Mbs / Full ]
       12    [ Enabled  ]    Up      [ Enabled  ]     [ 100Mbs / Full ]
       13    [ Enabled  ]    Up      [ Enabled  ]     [ 100Mbs / Full ]
       14    [ Enabled  ]    Up      [ Enabled  ]     [ 100Mbs / Full ]
       15    [ Enabled  ]    Up      [ Enabled  ]     [ 100Mbs / Full ]
       16    [ Enabled  ]    Up      [ Enabled  ]     [ 100Mbs / Full ]
      All    [ Enabled  ]            [ Disabled ]     [ 100Mbs / Full ]

Use space bar to display choices, press <Return> or <Enter> to select choice.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-13. Port Configuration screen

The Port Configuration screen contains the fields listed in Table 3-7.

Table 3-7. Port Configuration screen fields

Field	Description
Port	The Port heading indicates the switch port numbers, from 1 through 16, that correspond to the field settings in that row of the screen (for example, the field settings configured in row 2 apply to switch port 2). Note that settings configured in the All row (bottom row) affect all 16 switch port settings.
Status	This field allows you to disable, through management, any or all of the switch ports. You can use this feature to control access to any switch port. Default Value: Enabled Range: Enabled, Disabled
Link	The Link field is a read-only field that indicates the present link state of the corresponding port, as follows: Up—The port is connected and operational. Down—The port is not connected or not operational.
Auto Negotiation	When enabled, this field sets the corresponding port speed to match the best service provided by the connected station, up to 100 Mb/s at full-duplex mode. Default Value: Enabled Range: Enabled, Disabled
Speed/Duplex	This field can be set to manually configure any port to support 10 or 100 Mb/s Ethernet speeds, at half- or full-duplex mode. Range: 10 Mb/s / Half, 10Mbs / Full, 100Mbs / Half, 100Mbs / Full

Port Statistics

The Port Statistics screen (see Figure 3-14) allows you to view detailed information related to any switch port. The screen is divided into two sections (Received and Transmitted) for comparison evaluation of throughput or other port parameters. All data in this screen is updated (refreshed) approximately every 2 seconds.

You can also reset the port counters displayed in the Port Statistics screen to zero. To do this, see "Clear Port Statistics" on page 3-31.

```
Port:  [ 1  ]                Port Statistics
              Received                              Transmitted
-----------------------------------    -----------------------------------
Packets:                           0    Packets:                         497
Multicasts:                        0    Multicasts:                      497
Broadcasts:                        0    Broadcasts:                        0
Total Octets:                      0    Total Octets:                  31808
Lost Packets:                      0    Lost Packets:                      0
FCS Errors:                        0    Collisions:                        0
Frame Errors:                      0    Single Collisions:                 0
Undersized Packets:                0    Multiple Collisions:               0
Oversized Packets:                 0    Excessive Collisions:              0
Packets 64 bytes:                  0    Packets 64 bytes:                497
        65-127 bytes               0            65-127 bytes               0
        128-255 bytes              0            128-255 bytes              0
        256-511 bytes              0            256-511 bytes              0
        512-1023 bytes             0            512-1023 bytes             0
        1024-1518 bytes            0            1024-1518 bytes            0
Filtered Packets:                  0    Deferred Packets:                  0
Flooded Packets:                   0    Late Collisions:                   0



Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-14. Port Statistics screen

The Port Statistics screen contains the fields listed in Table 3-8.

Table 3-8. Port Statistics screen fields

Field	Description
Port:	This field allows you to select the number of the port you want to view. To view another port, type the port number you want to view and press [Enter], or press the space bar on your keyboard to toggle between the port numbers. All other fields in this screen are read-only fields.
Packets:	In the Received column—indicates the total number of packets received (including bad packets, broadcast packets, and multicast packets) on this port. In the Transmitted column—indicates the total number of successfully transmitted packets (including broadcast packets and multicast packets) on this port.
Multicasts:	In the Received column—indicates the total number of good multicast packets received on this port, excluding broadcast packets. In the Transmitted column—indicates the total number of multicast packets successfully transmitted on this port, excluding broadcast packets.
Broadcasts:	In the Received column—indicates the total number of good broadcast packets received on this port. In the Transmitted column—indicates the total number of broadcast packets successfully transmitted on this port.
Total Octets:	In the Received column—indicates the total number of octets of data (including data in bad packets) received on this port, excluding framing bits, but including FCS octets. In the Transmitted column—indicates the total number of successfully transmitted octets of data, including FCS octets.
Lost Packets:	In the Received column—indicates the total number of packets lost (discarded) when the capacity of the port receive buffer was exceeded. In the Transmitted column—indicates the total number of packets lost (discarded) when the capacity of the port transmit buffer was exceeded.
FCS Errors:	Frame Check Sequence Error indicates the total number of valid size packets that were received with proper framing but discarded because of CRC (cyclic redundancy check) errors.
Frame Errors:	Indicates the total number of valid size packets that were received but discarded because of CRC (cyclic redundancy check) errors and improper framing.
Undersized Packets:	Indicates the total number of packets received on this port with less than 64 bytes and with proper CRC and framing (also known as short frames or runts).
Oversized Packets:	Indicates the total number of packets received on this port with greater than 1518 bytes and with proper CRC and framing (also known as oversize frames).

Table 3-8. Port Statistics screen fields (continued)

Field	Description
Collisions:	Indicates the total number of collisions detected on this port.
Single Collisions:	Indicates the total number of packets that were successfully transmitted on this port after experiencing a single collision.
Multiple Collisions:	Indicates the total number of packets that were successfully transmitted on this port after experiencing more than one collision.
Excessive Collisions:	Indicates the total number of packets lost on this port due to excessive collisions.
Packets 64 bytes:	In the Received column—indicates the total number of 64-byte packets received on this port. In the Transmitted column—indicates the total number of 64-byte packets successfully transmitted on this port.
65-127 bytes:	In the Received column—indicates the total number of 65-byte- through 127-byte-size packets received on this port. In the Transmitted column—indicates the total number of 65-byte- through 127-byte-size packets successfully transmitted on this port.
128-255 bytes:	In the Received column—indicates the total number of 128-byte- through 255-byte-size packets received on this port. In the Transmitted column—indicates the total number of 128-byte- through 255-byte-size packets successfully transmitted on this port.
256-511 bytes:	In the Received column—indicates the total number of 256-byte- through 511-byte-size packets received on this port. In the Transmitted column—indicates the total number of 256-byte- through 511-byte-size packets successfully transmitted on this port.
512-1023 bytes:	In the Received column—indicates the total number of 512-byte- through 1023-byte-size packets received on this port. In the Transmitted column—indicates the total number of 512-byte- through 1023-byte-size packets successfully transmitted on this port.
1024-1518 bytes:	In the Received column—indicates the total number of 1024-byte- through 1518-byte-size packets received on this port. In the Transmitted column—indicates the total number of 1024-byte- through 1518-byte-size packets successfully transmitted on this port.
Filtered Packets:	Indicates the number of packets filtered (not forwarded) by this port.
Flooded Packets:	Indicates the total number of packets flooded (forwarded) through this switch port because the destination address was not in the address database.

Table 3-8. Port Statistics screen fields (continued)

Field	Description
Deferred Packets:	Indicates the total number of frames that were delayed on the first transmission attempt, but never incurred a collision.
Late Collisions:	Indicates the total number of packet collisions that occurred after a total length of time that exceeded 512 bit-times of packet transmission.

Clear Port Statistics

The Clear Port Statistics screen (see Figure 3-15) allows you to reset port counters that are displayed in the Port Statistics screen to zero. You can choose to reset the port counters for a specific port or for all ports.

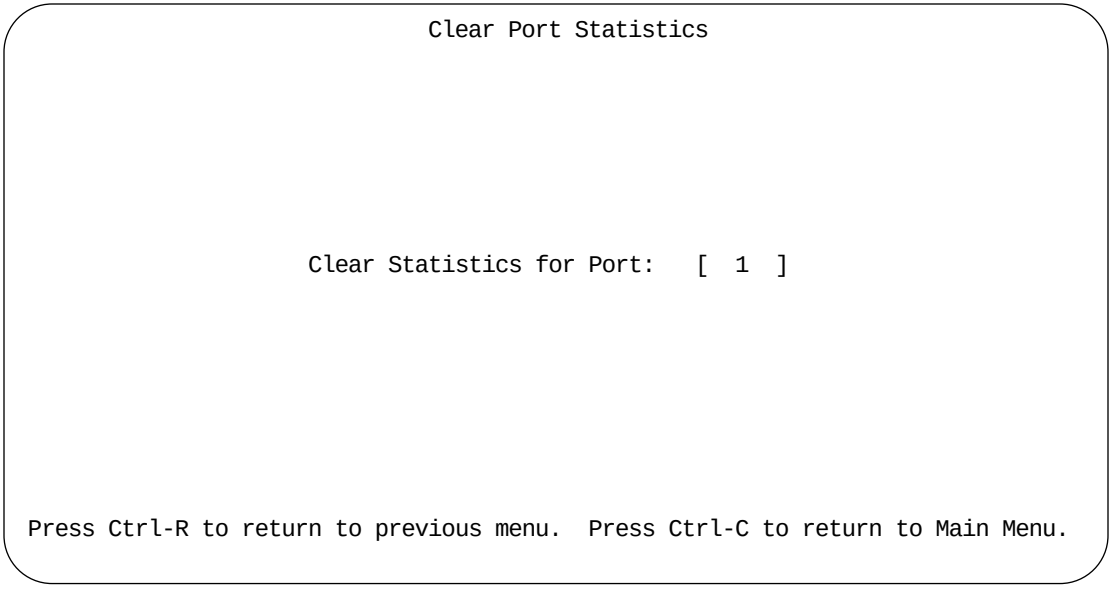


Figure 3-15. Clear Port Statistics screen

The Clear Port Statistics screen contains the field listed in Table 3-9.

Table 3-9. Clear Port Statistics field

Field	Description
Clear Statistics for Port	This field allows you to reset the port counters for a specified port or for all ports. If you choose "All," each of the switch port counters is reset to zero. See "Port Statistics" on page 3-28 for more information about port statistics. Default Value: 1 Range: 1 through All

Service Port Configuration

The Service Port Configuration screen (see Figure 3-16) allows you to configure and adjust the switch service port parameters.

```
                        Service Port Configuration




          Service Port Data Bits:       8 Data Bits
          Service Port Parity:          No Parity
          Service Port Stop Bits:       1 Stop Bit

          Console Port Speed:           [ 9600 Baud  ]
          Console Password:             [ Not Required         ]
          Console Read-Only Password:   [ user ]
          Console Read-Write Password:  [ secure ]




Use space bar to display choices, press <Return> or <Enter> to select choice.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-16. Service Port Configuration screen

The Service Port Configuration screen contains the fields listed in Table 3-10.

Table 3-10. Service Port Configuration screen fields

Field	Description
Service Port Data Bits:	Current service port data bit setting (read-only field).
Service Port Parity:	Current service port parity setting (read-only field).
Service Port Stop Bits:	Current service port stop bit setting (read-only field).
Console Port Speed:	Allows user to set the switch service port baud rate to match the console terminal baud rate setting. **Caution:** If you choose a baud rate that does not match your console terminal baud rate, you will lose communication with the configuration interface when you press [Enter]. If communication is lost, set your console terminal to match the new service port setting. Default Value: 9600 Baud Range: 2400 Baud, 4800 Baud, 9600 Baud, 19200 Baud, 38400 Baud
Console Password:	Enables password-protection for accessing the CI through a TELNET session, through a console terminal, or both. If you set this field to “Required,” you can use the Logout command to restrict access to the CI. Thereafter, you will need to supply the correct password at the Console terminal password prompt. Refer to the Console Read-only Password and the Console Read-Write Password field for more options. Default Value: Not Required Range: Not Required, Required for TELNET, Required for Console, Required for Both
Console Read-only Password:	When the Console Password field is set to “Required” (for TELNET, for Console, or for Both; see Console Password field), this field allows read-only password protection to the CI. Users can access the CI using the correct password (see Default Value) but cannot change any parameters, use the Reset command, or use the Reset to Default command. Default Value: user Range: Any ASCII string of up to 15 printable characters
Console Read-Write Password:	When the Console Password field is set to “Required” (for TELNET, for Console, or for Both; see Console Password field), this field allows read-write password protection to the CI. Users can log in to the CI, using the correct password (see Default Value), and can change any parameters. Note that the default passwords for read-only access and read-write access can be changed to your own private password.

Table 3-10. Service Port Configuration screen fields (continued)

Field	Description
	Caution: If you change the system-supplied default passwords, be sure to write the new passwords down and keep them in a safe place. If you forget the new passwords, you cannot access the configuration interface. In that case, contact Bay Networks for help.
	Default Value: secure
	Range: Any ASCII string of up to 15 printable characters

Spanning Tree Configuration Menu

The Spanning Tree Configuration Menu (see Figure 3-17) allows you to view spanning tree parameters and selectively configure individual switch ports to participate in the Spanning Tree Algorithm. To modify any of the switch spanning tree parameters, refer to your SNMP management documentation.

```
                    Spanning Tree Configuration Menu




            Spanning Tree Port Configuration...
            Display Spanning Tree Switch Settings
            Return to Main Menu




Use arrow keys to highlight option, press <Return> or <Enter> to select option.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-17. Spanning Tree Configuration Menu

The Spanning Tree Configuration Menu contains the commands listed in Table 3-11.

Table 3-11. Spanning Tree Configuration Menu commands

Command	Description
Spanning Tree Port Configuration...	Displays the Spanning Tree Port Configuration screen (see "Spanning Tree Port Configuration" on page 3-36).
Display Spanning Tree Switch Settings	Displays the Spanning Tree Switch Settings screen (see "Display Spanning Tree Switch Settings" on page 3-38).
Return to Main Menu	This command exits the Spanning Tree Configuration Menu and displays the Main Menu.

Spanning Tree Port Configuration

The Spanning Tree Port Configuration screen (see Figure 3-18) allows you to configure individual switch ports or all switch ports for participation in the Spanning Tree Algorithm.

```
                    Spanning Tree Port Configuration

      Port     Participation     Priority     Path Cost       State
      ----     -------------     --------     ---------     ----------
      1        [ Enabled  ]        128            10       Forwarding
      2        [ Enabled  ]        128            10       Listening
      3        [ Enabled  ]        128            10       Forwarding
      4        [ Enabled  ]        128            10       Forwarding
      5        [ Enabled  ]        128            10       Forwarding
      6        [ Enabled  ]        128            10       Forwarding
      7        [ Enabled  ]        128            10       Forwarding
      8        [ Enabled  ]        128            10       Forwarding
      9        [ Enabled  ]        128            10       Forwarding
      10       [ Enabled  ]        128            10       Forwarding
      11       [ Enabled  ]        128            10       Forwarding
      12       [ Enabled  ]        128            10       Forwarding
      13       [ Enabled  ]        128            10       Blocking
      14       [ Enabled  ]        128            10       Blocking
      15       [ Disabled ]        128            10       Forwarding
      16       [ Enabled  ]        128            10       Blocking
     All       [ Enabled  ]

Use space bar to display choices, press <Return> or <Enter> to select choice.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-18. Spanning Tree Port Configuration screen

The Spanning Tree Port Configuration screen contains the fields listed in Table 3-12.

Table 3-12. Spanning Tree Port Configuration screen fields

Field	Description
Port	The Port heading indicates the switch port numbers, from 1 through 16, that correspond to the field settings in that row of the screen (for example, the field settings configured in row 2 apply to switch port 2). Note that settings configured in the All row (bottom row) affect all 16 switch port settings.
Participation	This field allows you to prevent any (or all) of the switch ports from participating in the Spanning Tree Algorithm. Default Value: Enabled Range: Enabled, Disabled
Priority	This read-only field is a bridge spanning tree parameter that is used to prioritize the port's lowest path cost to the root. When one or more ports have the same path cost, the Spanning Tree Algorithm selects the path with the highest priority (lowest numerical value). See also Path Cost. Default Value: 128 Range: 0 through 255
Path Cost	This read-only field is a bridge spanning tree parameter that is used to determine the lowest path cost to the root. Default Value: 10 or 100 Path Cost = 1000/LAN speed in Mb/s Note that the higher the LAN speed, the lower the path cost. See also Priority. Range: 1 through 65535
State	This read-only field represents the current port state within the spanning tree topology. Each port can transition to various states as determined by the Participation field settings. For example, when the Participation field is set to Disabled, the port does not participate in the spanning tree and the port transitions to the Forwarding state (The default port state). When the Participation field is enabled on a port, the port transitions from the Disabled state through the Blocking state and Listening and Learning states before entering the Forwarding state. Default Value: Topology Dependent. Range: Disabled, Blocking, Listening, Learning, Forwarding.

Display Spanning Tree Switch Settings

The Spanning Tree Switch Settings screen (see Figure 3-19) allows you to view the BayStack 350T spanning tree parameter settings.

```
                        Spanning Tree Switch Settings




                Bridge Priority:          8000
                Designated Root:          80000060FD000090
                Root Port:                0
                Root Path Cost:           0
                Hello Time:               2 seconds
                Maximum Age Time:         20 seconds
                Forward Delay:            15 seconds
                Bridge Hello Time:        2 seconds
                Bridge Maximum Age Time:  20 seconds
                Bridge Forward Delay:     15 seconds




Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-19. Spanning Tree Switch settings screen

The Spanning Tree Switch Settings screen lists the spanning tree parameters listed in Table 3-13.

Table 3-13. Spanning Tree Switch Settings screen parameters

Parameter	Description
Bridge Priority:	Indicates the management-assigned priority value of the bridge ID in hexadecimal notation, which is the most significant byte of the bridge ID. This parameter is used by the spanning tree process to determine the root bridge or designated bridge. For example, the bridge with the lowest bridge ID becomes the root bridge (or designated bridge), with Bridge Priority values compared first and hardware addresses second. Default Value: 8000 Range: 0 through 65535
Designated Root:	Indicates the bridge ID of the root bridge, as determined by the spanning tree process. Default Value: 8000 (bridge_id) Range: 0 through 65535
Root Port:	Indicates the switch port number that offers the lowest path cost to the root bridge. Default Value: 0 Range: 0 through 16
Root Path Cost:	Indicates the path cost from this switch to the root bridge. Default Value: 0 Range: Not applicable
Hello Time:	Indicates the Actual Hello interval (the amount of time between transmissions of Configuration Bridge PDUs) that is currently in use by the root bridge. Note that all bridges participating in the spanning tree use the root bridge's Hello Interval parameter value (see also "Bridge Hello Time" parameter). Default Value: 2 Range: 1 to 10 seconds
Maximum Age Time:	Indicates the maximum age time parameter value, currently in use by the root bridge, that specifies the maximum length of time that a Hello message can attain before it is discarded. Note that, the root bridge's Maximum Age Time parameter value becomes the (actual) Maximum Age Time parameter value for all bridges participating in the spanning tree network (see also "Bridge Maximum Age Time" parameter). Default Value: 20 Range: 6 to 40 seconds

Table 3-13. Spanning Tree Switch Settings screen parameters (continued)

Parameter	Description
Forward Delay:	Indicates the Forward Delay parameter value, currently in use by the root bridge, that specifies the length of time that the bridge ports remain in the Listening and Learning states before entering the Forwarding state. Note that the root bridge's Forward Delay parameter value becomes the (actual) Forward Delay parameter value for all bridges participating in the spanning tree network (see also "Bridge Forward Delay" parameter). Default Value: 15 Range: 4 to 30 seconds
Bridge Hello Time:	Indicates the Hello interval (the amount of time between transmissions of Configuration Bridge PDUs) that is specified (set by management) for this bridge. This parameter takes effect only when this bridge becomes the root bridge. Note that, although you can set the Hello Interval for a bridge with bridge management software, once the spanning tree computation process is complete, all bridges participating in the spanning tree use the root bridge's Hello Interval parameter value. If any bridge becomes the root bridge, its Hello Interval parameter value becomes the (actual) Hello Interval parameter value for all bridges in the spanning tree network (see also "Hello Time" parameter). Default Value: 2 Range: 1 to 10 seconds
Bridge Maximum Age Time:	Specifies the maximum age (in seconds) that a Hello message can attain before it is discarded. This parameter, set for this bridge by management, takes effect only when this bridge becomes the root bridge. Note that, if this bridge becomes the root bridge, its Maximum Age Time parameter value becomes the (actual) Maximum Age Time parameter value for all bridges in the spanning tree network (see also "Maximum Age Time" parameter). Default Value: 20 Range: 6 to 40 seconds
Bridge Forward Delay:	Indicates the Forward Delay parameter value that is specified (set by management) for this bridge. This parameter takes effect only when this bridge becomes the root bridge. The Forward Delay parameter value specifies the length of time that the bridge ports remain in the Listening and Learning states before entering the Forwarding state. Note that all bridges participating in the spanning tree network use the root bridge's Forward Delay parameter value (see also "Forward Delay" parameter). Default Value: 15 Range: 4 to 30 seconds

TELNET Configuration

The TELNET Configuration screen (see Figure 3-20) allows a user at a remote console terminal to interactively communicate with the BayStack 350T switch, as if the console terminal is directly connected to it. Up to four TELNET sessions are allowed at any time.

```
                          TELNET Configuration

                    TELNET Access:       [ Enabled  ]
                    Login Timeout:       [ 1 minute ]
                    Login Retries:       [ 3 ]
                    Inactivity Timeout:  [ 15 minutes ]
                    Event Logging:       [ All      ]

          Allowed Source IP Address          Allowed Source Mask
          -------------------------          -------------------
             [ 0.0.0.0 ]                     [ 0.0.0.0 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]
             [ 255.255.255.255 ]             [ 255.255.255.255 ]


Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-20. TELNET Configuration screen

The TELNET Configuration screen contains the fields listed in Table 3-14.

Table 3-14. TELNET Configuration screen fields

Field	Description	
TELNET Access:	Enables or disables the CI to remote access through a TELNET session.	
	Default Value:	Enabled
	Range:	Enabled, Disabled
Login Timeout:	Specifies the amount of time a user has to enter the correct password at the console terminal's password prompt.	
	Default Value:	1 minute
	Range:	0 to 10 minutes (0 indicates "no timeout")
Login Retries:	Specifies the number of times a user can enter an incorrect password at the console terminal password prompt before disconnecting the session password prompt.	
	Default Value:	3
	Range:	1 to 100
Inactivity Timeout:	Specifies the amount of time the session can be inactive before the session is disconnected.	
	Default Value:	15 minutes
	Range:	0 to 60 minutes (0 indicates "no timeout")

Table 3-14. TELNET Configuration screen fields (continued)

Field	Description
Event Logging:	Specifies the types of events that will be displayed in the Event Log screen (see "Display Event Log" on page 3-47). Default Value: All Range: All, None, Accesses, Failures Description: ALL—logs the following TELNET events to the Event Log screen: • TELNET connect—indicates the IP address and access mode of the connected TELNET session. • TELNET disconnect—indicates the IP address of the remote host and the access mode, due to either a logout or inactivity. • Failed TELNET connection attempts—indicates the IP address of the remote host when the remote host's IP address is not on the list of allowed addresses, or the IP address of the remote host that did not supply the correct password. None—indicates that no TELNET events will be logged into the Event Log screen. Accesses—logs only TELNET connect and disconnect events into the Events Log screen. Failures—logs only failed TELNET connection attempts into the Events Log screen.
Allowed Source IP Address	Specifies up to 10 user-assigned host IP addresses that are allowed TELNET access to the CI. Default Value: 0.0.0.0 (no IP address assigned) Range: Four-octet decimal IP address notation, where each octet of the address is represented as a decimal value, separated by a decimal point
Allowed Source Mask	Specifies up to 10 user-assigned allowed source address masks. The remote IP address is masked with the source mask, and, if the resulting value equals the source IP address, then the connection is allowed. Default Value: 0.0.0.0 (no IP mask assigned) Range: Four-octet decimal IP address notation, where each octet of the address is represented as a decimal value, separated by a decimal point

Software Download

The Software Download screen (see Figure 3-21) allows you to revise your BayStack 350T switch software image that is located in nonvolatile flash memory. Note that to download the BayStack 350T software image, a properly configured Trivial File Transfer Protocol (TFTP) server must be present in your network, and your switch must be configured with an IP address (see "IP Configuration" on page 3-8 to configure the switch IP address).

You can monitor the progress of the software download process by observing the BayStack 350T LED indicators (see "LED Indications During the Download Process" on page 3-45).

Caution: Do not interrupt power to the device during the software download process. If the power is interrupted, the firmware image can become corrupted.

```
                              Software Download




      Image Filename:                [ b350_100.img ]
      TFTP Server IP Address:        [ 192.0.1.12 ]

      Start TFTP Load of New Image:  [ Yes ]

      The Software Download process has started.  Do NOT power down the
      switch before the process has completed (approximately 10 minutes).




Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-21. Software Download screen

The Software Download screen contains the fields listed in Table 3-15.

Table 3-15. Software Download screen fields

Field	Description	
Image Filename:	The software image load file name	
	Default Value:	Zero-length string
	Range:	An ASCII string of up to 30 printable characters
TFTP Server IP Address:	The IP address of your TFTP load host	
	Default Value:	0.0.0.0 (no IP address assigned)
	Range:	Four-octet decimal IP address notation, where each octet of the address is represented as a decimal value, separated by a decimal point
Start TFTP Load of New Image:	This field prompts the user to choose Yes to download the switch software image (default is No). Use the space bar to toggle the selection to Yes. Press [Return] to initiate the software download process.	
	Note: The software download process can take up to 60 seconds to complete (or more if the load host path or network levels are congested).	
	To ensure that the download process is completed without interruption, do not power down the switch for approximately 10 minutes.	
	Default Value:	No
	Range:	Yes, No

LED Indications During the Download Process

The software download feature is an automated process that, once initiated, runs to completion without user intervention. The download process erases the contents of flash memory and replaces it with a new image. Because the download process erases the contents of flash memory, it is important that the download process is not interrupted once it is initiated. After the software download process is complete, the switch is automatically reset and the new software image initiates self-test. The self-test results are briefly displayed in the BayStack 350T Self-Test screen, followed by the CI screens.

During the download process, the BayStack 350T switch is nonfunctional. You can monitor the progress of the software download process by observing the BayStack 350T LED indicators.

The LED indications are listed in Table 3-16.

Table 3-16. LED Indications during download process

Phase	Description	LED Indications
1	The new software Image is downloading into the switch.	100 Mb/s Port Status LEDs (ports 11 through 16 only)—the LEDs begin to light green from right to left, beginning with port 16. The LED pattern indicates the progress of the downloading process. When port LEDs 11 through 16 are all lit, the switch successfully received the new software image.
2	The switch flash memory is being erased.	10 Mb/s Port Status LEDs (ports 1 through 9 only)—the LEDs begin to light yellow from left to right, beginning with port 1. The LED progression indicates various sectors of the switch flash memory are being erased. When LEDs 1 through 9 are all lit, the switch flash memory is erased.
3	The new software Image is being programmed into the switch flash memory.	100 Mb/s Port Status LEDs (ports 1 through 8 only)—the LEDs begin to light green from left to right, beginning with port 1. The LED progression indicates the new software image is being programmed into the switch memory. After LEDs 1 through 8 are all lit, LEDs 9 through 16 light, indicating that the new software image has been successfully programmed into the switch flash memory.
4	The switch is automatically reset.	The reset can take up to 20 seconds to complete. After the reset is complete, the new software image initiates the switch self-test that comprises various diagnostic routines and subtests. The switch LEDs display various patterns that indicate subtests are in progress. The results of the self-test are displayed briefly in the switch Self-Test screen, followed immediately by the CI screens.

Display Event Log

The Event Log screen (see Figure 3-22) provides informational messages about the following topics:

- Software Download—indicates new software version.
- Authentication Failure—indicates details of any attempted SNMP get or set access that used an improper community string.
- TELNET session status—indicates various TELNET events (for details on configuring this facility, see "TELNET Configuration" on page 3-41).

```
                                Event Log

Entry Number:  3          sysUpTime:  00:13:35       Reset Count:  2
Connection logout, IP address: 38.227.40.8, access mode: no security.

Entry Number:  2          sysUpTime:  00:00:53       Reset Count:  2
Successful connection from IP address: 38.227.40.8, access mode: no security.

Entry Number:  1          sysUpTime:  00:00:00       Reset Count:  1
Software downloaded to BayStack Model 350T HW:RevC FW:V1.00 SW:V1.00.

Press Ctrl-N or <Return> or <Enter> to see more entries.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.









End of Event Log.  Press Ctrl-P to see previous display.
Press Ctrl-R to return to previous menu.  Press Ctrl-C to return to Main Menu.
```

Figure 3-22. Event Log screen

Excessive Bad Entries

If the firmware detects excessive errors in the Flash Event Log (errors exceeding 75 percent), the Flash Event Log is cleared (discarded of all entries) and an event entry is displayed in the Event Log screen. Figure 3-23 shows an example of the Event Log entry for this type of event.

```
Entry Number:  4          sysUpTime:  00:20:53       Reset Count:  2
Excessive bad entries in log, Event Log cleared.
```

Figure 3-23. Event Log entry with excessive errors example

Write Threshold

To extend the lifetime of flash memory for the event log, a write limit threshold is set for each event that is entered into the event log. The write limit threshold is 20 entries for each event. If any event exceeds the write limit threshold, an event entry is displayed in the Event Log screen. Figure 3-24 shows an example of the Event Log entry for this type of event.

```
Entry Number:  3          sysUpTime:  00:38:53       Reset Count:  2
The last event exceeded the write threshold.  Further write attempts
by this event are blocked.  The write threshold will be cleared when
the switch is reset or when the Event Log is compressed.
```

Figure 3-24. Event Log entry exceeding write threshold example

The write limit threshold is reset when either of the following occurs:

- The BayStack 350T switch is reset.
- The firmware determines compression is required for the maintenance of the Event Log.

Reset

The Reset command allows you to reset the switch, without erasing any configured switch parameters.

Resetting the switch takes approximately 5 seconds to complete. During this time period, the switch initiates a self-test that comprises various diagnostic routines and subtests.

The results of the self-test are displayed briefly in the BayStack 350T Self-Test screen (see Figure 3-25), followed immediately by the CI screens.

```
BayStack Model 350T Self-Test

                    ASIC addressing test        ... Pass
                    ASIC buffer RAM test        ... Pass
                    Physical layer test         ... Pass
                    Port internal loopback test ... Pass

Self-test complete.
```

Figure 3-25. Reset command self-test result screen example

Note: The BayStack 350T Self-Test screen remains displayed only if the self-test detects a fatal error.

The switch LEDs also display various patterns that indicate subtests are in progress.

Reset to Default Settings

The Reset to Default Settings command allows you to reset the switch and replace all configured switch parameters with factory default settings.

Caution: If you choose this command, all of your configured settings will be replaced with factory default settings when you press [Enter].

For a list of factory default settings, refer to Appendix C, "Switch Default Settings."

The Reset to Default command takes approximately five seconds to complete. During this period, the switch initiates a self-test that comprises various diagnostic routines and subtests. The results of the self-test are displayed briefly in the BayStack 350T Self-Test screen (see Figure 3-26), and is followed immediately by the CI screens.

```
BayStack Model 350T Self-Test

                    ASIC addressing test        ... Pass
                    ASIC buffer RAM test        ... Pass
                    Physical layer test         ... Pass
                    Port internal loopback test ... Pass

Self-test complete.
```

Figure 3-26. Example of a Reset to Default command self-test result screen

Note: The BayStack 350T Self-Test screen remains displayed only if the self-test detects a fatal error.

The switch LEDs also display various patterns that indicate subtests are in progress.

Logout

The Logout command allows a user at a password-protected console terminal or an active TELNET session to disconnect the session.

The Logout command performs the following functions:

- When accessing the BayStack 350T switch through a TELNET session, selecting the Logout command disconnects the session.
- When accessing the BayStack 350T switch through a password-protected console (a terminal connected to the service port of the switch), selecting the Logout command returns you to the console terminal's password prompt (see Figure 3-27). The correct password must be entered to access the CI.

```
BayStack Model 350T HW:RevC  FW:V1.00 SW:V1.00




                Password:  [ ************** ]

                Enter Password:
```

Figure 3-27. Password prompt screen

You can specify whether or not a password is required for the TELNET session or for the console terminal using the Service Port Configuration screen (see "Service Port Configuration" on page 3-32).

The Logout command performs no function if the console terminal is not password protected.

Chapter 4
Troubleshooting

Overview

This chapter explains how to isolate and diagnose problems with your BayStack Model 350T 10/100 Autosense Switch.

Warning: To avoid bodily injury from hazardous electrical current, never remove the top cover of the device. There are no user-serviceable components inside.

This chapter is organized to help lead you through a logical process for troubleshooting your BayStack 350T switch. For example, because the LEDs provide visual indications of problems, the "LED Description" section helps you to understand the various states each LED can exhibit during operation.

If you need more help in determining the problem, the "Diagnosing and Correcting the Problem" section on page 4-3 provides a corrective action table that lists symptoms and corrective actions you can perform to resolve specific problems. Other sections provide step-by-step procedures for correcting specific problems listed in the table.

This chapter includes the following sections:

- LED Descriptions—maps the location of the BayStack 350T switch LEDs and describes their functionality.
- Diagnosing and Correcting the Problem—provides a table that lists various symptoms, lists the probable causes of problems, and provides corrective actions to take.
- Port Connection Problems—describes how to resolve port-related problems.

LED Description

All of the BayStack 350T status LEDs are located on the front panel (see Figure 4-1).

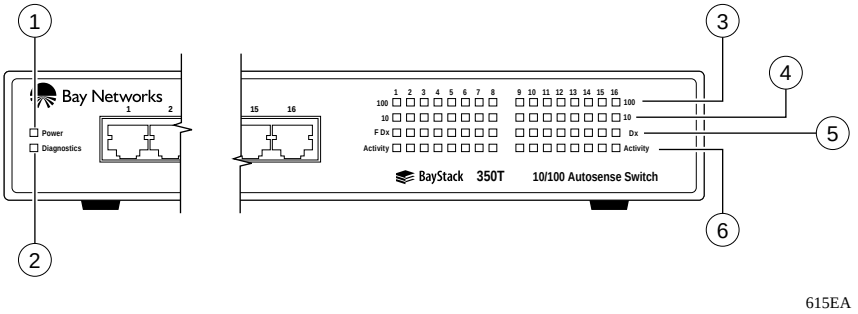


Figure 4-1. BayStack 350T LED Locations

Table 4-1 describes the functions of the BayStack 350T switch LEDs as numbered in Figure 4-1.

Table 4-1. BayStack 350T LED descriptions

Item	Icon/Label	Description
1	Power	When lit (green), indicates that DC power is available to the switch's internal circuitry.
2	Diagnostics	Lights (green) when the switch passes self-test. If the switch fails self-test, the LED remains off. If a nonfatal error occurs during self-test, the LED blinks.
3	100	100BASE-TX Port Status LEDs (Ports 1 through 16)—When lit (green), indicates that the corresponding port is set to operate at 100 Mb/s. If the corresponding port is management disabled, the LED blinks.
4	10	10BASE-T Port Status LEDs (Ports 1 through 16)—When lit (yellow), indicates that the corresponding port is set to operate at 10 Mb/s. If the corresponding port is management disabled, the LED blinks.
5	FDX	Full-Duplex (FDX) Port Status LEDs (Ports 1 through 16)—When lit (green), indicates that the corresponding port is in full-duplex mode. When off, indicates that the corresponding port is in half-duplex mode.
6	Activity	Port Activity LEDs (Ports 1 through 16)—When blinking (green), indicates network activity for the corresponding port. Strong network activity can cause the Port Activity LEDs to appear to be continuously on.

Diagnosing and Correcting the Problem

Before beginning the problem-solving steps recommended in this section, cycle the power to the BayStack 350T switch; then verify that the switch follows the normal power-up sequence.

Normal Power-up Sequence

When power is applied to the BayStack 350T switch, the LEDs display in the following sequence:

1. The Power LED lights as soon as power is applied to the switch.
2. The switch initiates its self-test routine. During the self-test, the port LEDs flash various patterns to indicate the progress of subroutines.
3. After the successful completion of the self-test (within 10 seconds after power is applied), the Diagnostics LED lights and remains lit.
4. The remaining LEDs (the Port LEDs) now indicate their operational status as described in Table 4-2.

Table 4-2. Corrective action table

Symptom	Probable Cause	Corrective Action
All LEDs are off.	The switch is not receiving AC power.	Verify that the AC power cord is securely fastened at both ends and that power is available at the AC outlet.
	Fans are not operating, or blocked air flow is causing the unit to overheat.	Verify that sufficient space exists for adequate airflow at both sides of the switch.
		Note: Operating temperature for the switch must not exceed 40°C (104°F). Verify that the switch is not placed in direct sunlight or near warm air exhausts or heaters.
Activity LED for a connected port is off or does not blink (and you have reason to believe that traffic is present).	The switch is experiencing a Port connection problem. The switch Link partner is not autonegotiating properly.	See "Port Connection Problems" on page 4-4.

Table 4-2. Corrective action table (continued)

Symptom	Probable Cause	Corrective Action
Diagnostic LED is off.	A fatal error was detected by the self-test.	Cycle power to the switch (disconnect and then reconnect the AC power cord). If the problem persists, replace the switch.
Diagnostic LED is blinking.	A nonfatal error occurred during the self-test.	Cycle power to the switch (disconnect and then reconnect the AC power cord). If the problem persists, contact Bay Networks customer support.

Port Connection Problems

Port connection problems can usually be traced to a bad connection or to an improper connection of the port cables at either end of the link. These types of problems can be remedied by checking that the cable connections are secure and that the cables are connected to the correct ports at both ends of the link.

Other problems can be related to the following areas:

- Port interface
- Autonegotiation modes

Port Interface

Check that the appropriate crossover or straight-through cables are implemented between the connected devices (see “MDI and MDI-X Devices” in Appendix B, “Connectors and Pin Assignments”).

Autonegotiation Modes

Port connection problems can occur when a port is connected to a station that is not operating in a compatible mode (for example, connecting a full-duplex port to a half-duplex port). The BayStack 350T switch negotiates port speeds according to the IEEE 802.3u autonegotiating standard. The switch adjusts (autonegotiates) its port speed and duplex mode to match the best service provided by the connected station, up to 100 Mb/s at full-duplex mode.

If the connected station uses a form of autonegotiation that is not compatible to the IEEE 802.3u autonegotiating standard, the connected stations cannot negotiate a compatible mode suitable for correct operation. In this situation, the BayStack 350T switch autosenses the speed of the connected port and, by default, reverts to half-duplex mode. If the connected station is operating in full-duplex mode, the stations cannot communicate.

To correct this type of "mode mismatch" problem, follow these steps:

1. **Use the BayStack 350T switch Port Configuration screen to disable autonegotiation for the suspect port (see "Port Configuration" in Chapter 3, "Using the Console Interface").**

2. **Set the Speed/Duplex field (see Table 3-7 in Chapter 3, "Using the Console Interface") to manually match the speed/mode of the connected station.**

   You may have to try several settings until you find the correct speed/mode of the connected station.

Appendix A
Technical Specifications

This appendix lists the technical specifications for the BayStack Model 350T 10/100 Autosense Switch.

Environmental

Temperature:	Operating:	0° to 40° C (32° to 104° F)
	Storage:	–25° to 70° C (–13° to 158° F)
Humidity:	Operating:	85% maximum relative humidity, noncondensing
	Storage:	95% maximum relative humidity, noncondensing
Altitude:	Operating:	3024 m (10,000 ft)
	Storage:	3024 m (10,000 ft)

Electrical

Input Voltage:	90 to 250 VAC @ 47 to 63 Hz
Power Consumption:	100 W maximum

Physical Size

Height:	4.33 cm (1.72 in.)
Width:	44.60 cm (17.7 in.)
Depth:	30.48 cm (12.0 in.)
Weight:	4.31 kg (9.5 lb)

Performance Specifications

Frame Forward Rate (64-byte Packets):	1.6 million packets per second, maximum—learned unicast traffic
Port Forwarding/Filtering Performance (64-byte Packets) Rx:	For 10 Mb/s: 14,880 packets per second maximum For 100 Mb/s: 148,810 pps
Address database size:	8000 entries
Addressing:	48-bit MAC address
Frame Length:	64 to 1518 bytes

Network Protocol and Standards Compatibility

- IEEE 802.3 10BASE-T (ISO/IEC 8802-3, clause 14)
- IEEE 802.3u 100BASE-TX (ISO/IEC 8802-3, clause 25)

Data Rate

- 10 Mb/s Manchester encoded or 100 Mb/s 4B/5B encoded

Interface Options

- RJ-45 (8-pin modular) connectors for MDI-X interface

Safety Agency Certification

- UL listed (UL 1950)
- IEC 950
- CUL
- TUV licensed (EN 60950)
- UL-94-V1 flammability requirements for PC board

Electromagnetic Emissions

Meets requirements of:

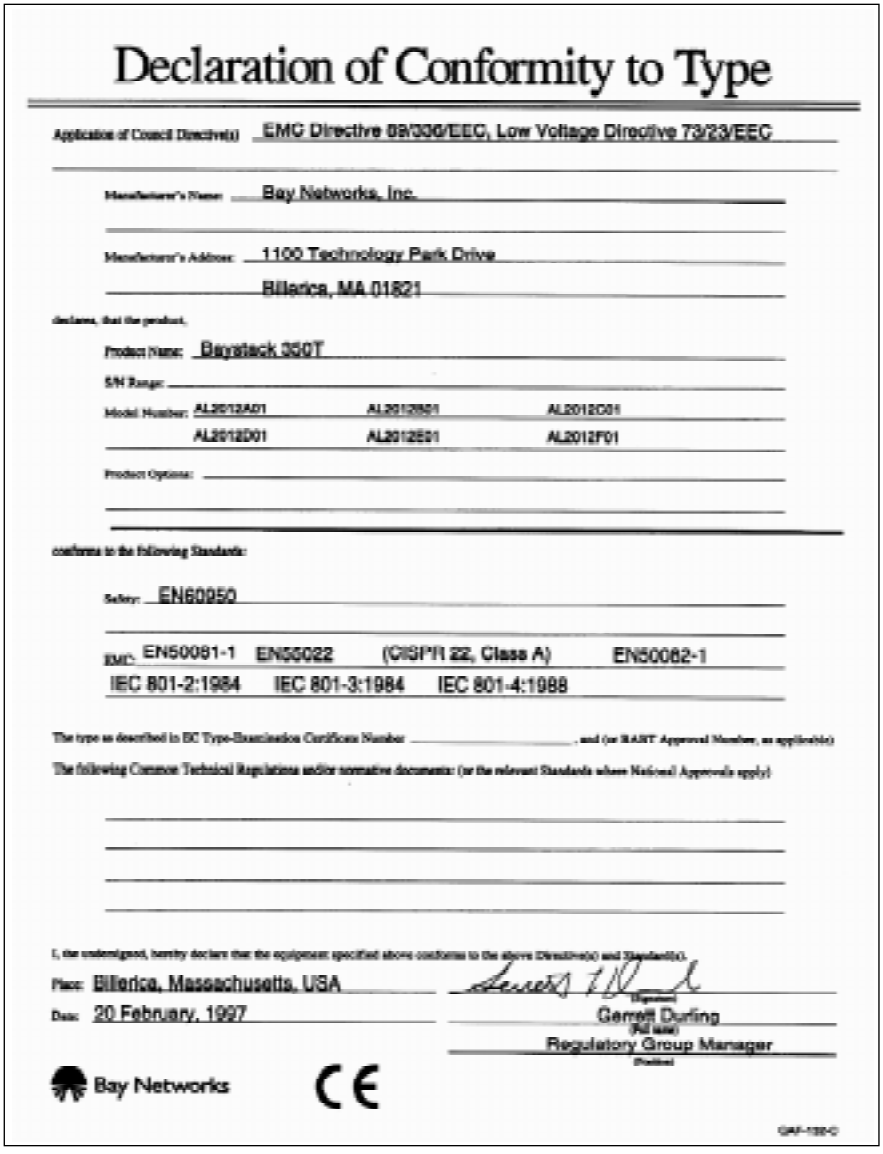
- FCC Part 15, Subpart B, Class A
- EN 55 022 (CISPR 22:1985), Class A
- VCCI Class 1 ITE
- Australian AS 3548

Electromagnetic Susceptibility

Electrostatic discharge (ESD):	EC 801-2, Level 2
Radiated electromagnetic field:	EC 801-3, Level 1
Electrical fast transient/burst:	EC 801-4, Level 2

Declaration of Conformity

The following Declaration of Conformity for the BayStack Model 350T 10/100 Autosense Switch complies with ISO/IEC Guide 22 and EN 45014. The declaration identifies the product, the Bay Networks name and address, and the applicable specifications that are recognized in the European community.



Declaration of Conformity to Type

Application of Council Directive(s): EMC Directive 89/336/EEC, Low Voltage Directive 73/23/EEC

Manufacturer's Name: Bay Networks, Inc.

Manufacturer's Address: 1100 Technology Park Drive
Billerica, MA 01821

declares, that the product,

Product Name: Baystack 350T

S/N Range:

Model Number: AL2012A01 AL2012B01 AL2012C01
AL2012D01 AL2012E01 AL2012F01

Product Options:

conforms to the following Standards:

Safety: EN60950

EMC: EN50081-1 EN55022 (CISPR 22, Class A) EN50082-1
IEC 801-2:1984 IEC 801-3:1984 IEC 801-4:1988

The type as described in EC Type-Examination Certificate Number _____ and (or BASEC Approval Number, as applicable)

The following Common Technical Regulations and/or normative documents: (or the relevant Standards where National Approvals apply)

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Place: Billerica, Massachusetts, USA
(Signature)

Date: 20 February, 1997

Garrett Durling
(Full name)

Regulatory Group Manager
(Position)

Bay Networks

CE

GMF-1SE-C

Appendix B
Connectors and Pin Assignments

This appendix describes the BayStack Model 350T 10/100 Autosense Switch port connectors.

RJ-45 (10BASE-T/100BASE-TX Port) Connector

The RJ-45 port connectors (see Figure B-1) are wired as MDI-X ports to connect end stations without using crossover cables. (Refer to "MDI and MDI-X Devices" on page B-2 for information about MDI-X ports.) For 10BASE-T connections, use Category 3 or better UTP cable. For 100BASE-TX connections, use only Category 5 UTP cable.

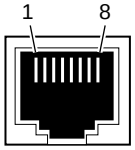


Figure B-1. RJ-45 (8-pin modular) port connector

Table B-1 shows the RJ-45 (8-pin modular) port connector pin assignments.

Table B-1. RJ-45 port connector pin assignments

Pin	Signal	Description
1	RX+	Receive Data +
2	RX–	Receive Data –
3	TX+	Transmit Data +
4	Not applicable	Terminated
5	Not applicable	Terminated
6	TX–	Transmit Data –
7	Not applicable	Terminated
8	Not applicable	Terminated

MDI and MDI-X Devices

Media Dependent Interface (MDI) is the IEEE standard for the interface to unshielded twisted pair (UTP) cable.

For communications to take place between two devices, the transmitter of one device must connect to the receiver of the other device. The connection must be achieved through a crossover function, which could be a crossover cable or a port that implements the crossover function internally.

Ports that implement the crossover function internally are known as MDI-X ports (where “X” refers to the crossover function).

Note: For the transmitter of one device to connect to the receiver of another device, the sum of crossovers must always be an odd number.

The following sections describe the use of straight-through and crossover cables for connecting MDI and MDI-X type devices.

MDI-X to MDI Connections

BayStack Model 350T switches use MDI-X ports that allow you to connect directly to end stations without using crossover cables (see Figure B-2).

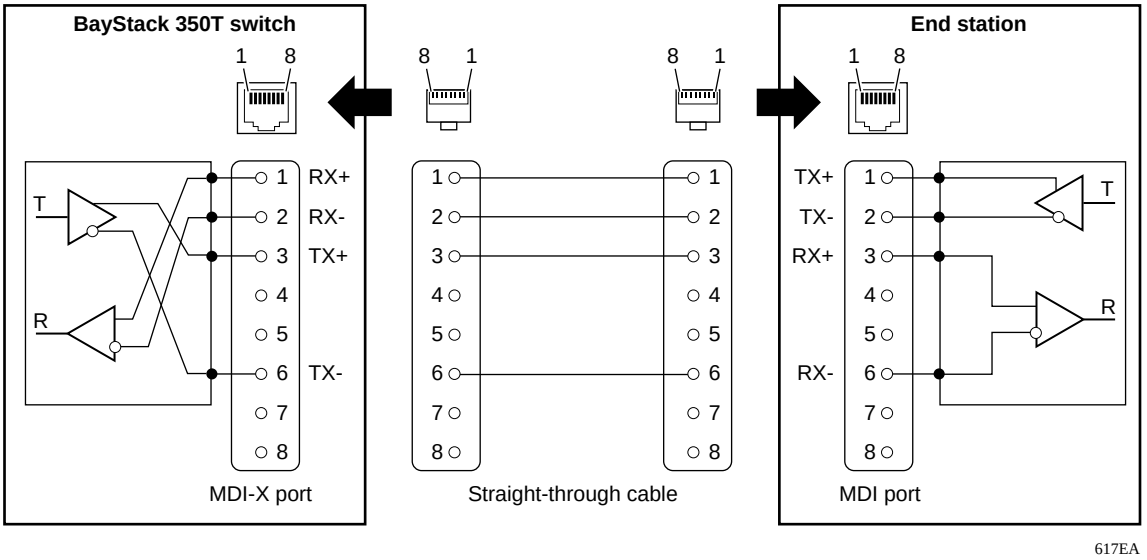


Figure B-2. MDI-X to MDI cable connections

MDI-X to MDI-X Connections

If you are connecting a device to the BayStack 350T switch that also implements MDI-X ports (see Figure B-3), use a crossover cable.

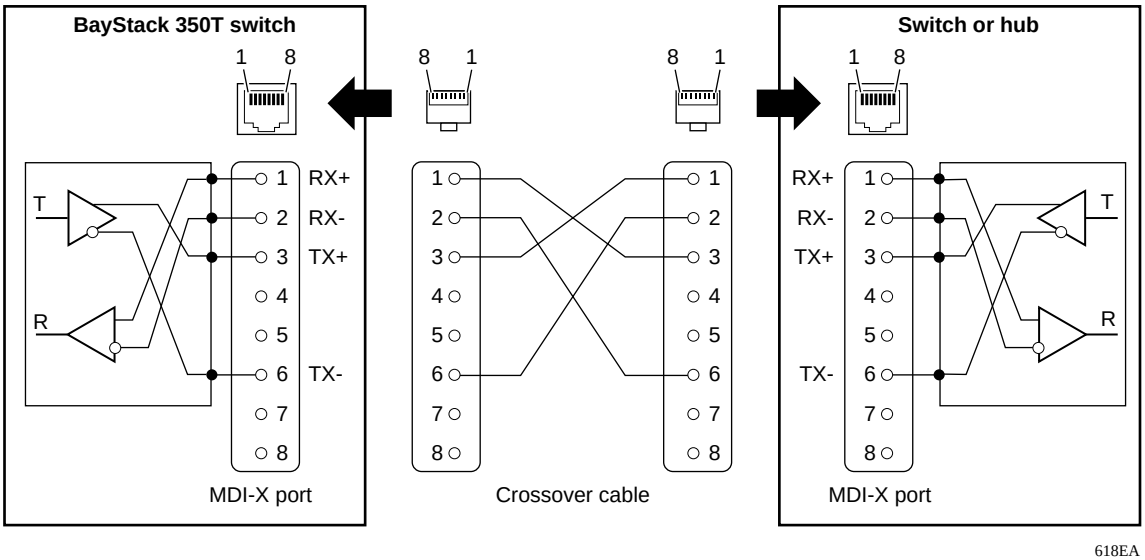


Figure B-3. MDI-X to MDI-X cable connections

DB-9 (RS-232-D) Service Port Connector

The DB-9 service port connector (see Figure B-4) is configured as a data communications equipment (DCE) device connector. The DSR and CTS signal outputs are always asserted. The CD, DTR, RTS, and RI signal inputs are not used. This arrangement allows a management station (a PC or terminal) to directly connect to the switch using a straight-through cable.

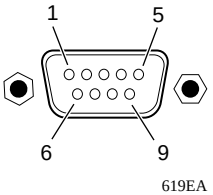


Figure B-4. DB-9 service port connector

Table B-2 shows the service port connector pin assignments.

Table B-2. Service port connector pin assignments

Pin	Signal	Description
1	CD	Carrier detect (not used)
2	TXD	Transmit data (output)
3	RXD	Receive data (input)
4	DTR	Data terminal ready (not used)
5	GND	Signal ground
6	DSR	Data set ready (output always asserted)
7	RTS	Request to send (not used)
8	CTS	Clear to send (output always asserted)
9	RI	Ring indicator (not used)
Shell	–	Chassis ground

Appendix C
Switch Default Settings

This appendix lists the factory default settings for the BayStack 350T switch (see Table C-1).

Table C-1. Factory default settings for the BayStack 350T switch

Field	Default Setting	Used in CI Screen:
BootP Request Mode:	BootP When Needed	IP Configuration
In-Band IP Address:	0.0.0.0 (no IP address assigned)	
In-Band Subnet Mask:	0.0.0.0 (no subnet mask assigned)	
Default Gateway:	0.0.0.0 (no IP address assigned)	
Read-Only Community String:	public	SNMP Configuration
Read-Write Community String:	private	
Trap IP Address:	0.0.0.0 (no IP address assigned)	
Community String:	Zero-length string	
Authentication Trap:	Enabled	
sysContact:	Zero-length string	System Characteristics
sysName:	Zero-length string	
sysLocation:	Zero-length string	
Aging Time:	300 seconds	MAC Address Table
Find an Address:	00-00-00-00-00-00 (no MAC address assigned)	
V1 through V8	All ports configured in VLAN V1	VLAN Configuration
Status	Enabled for all ports	Port Configuration
Auto Negotiation	Enabled for all ports	
Port:	1	Port Statistics

Table C-1. Factory default settings for the BayStack 350T switch (continued)

Field	Default Setting	Used in CI Screen:
Clear Statistics for Port	1	Clear Port Statistics
Console Port Speed:	9600 Baud	Service Port Configuration
Console Password:	Not Required	
Console Read-Only Password:	user	
Console Read-Write Password:	secure	
Participation	Enabled	Spanning Tree Port Configuration
TELNET Access:	Enabled	TELNET
Login Timeout:	1 minute	
Login Retries:	3	
Inactivity Timeout:	15 minutes	
Event Logging:	All	
Allowed Source IP Addresses (10 configurable fields)	First field: 0.0.0.0 (no IP address assigned).	
	Remaining nine fields: 255.255.255.255 (any address is allowed).	
Allowed Source Mask (10 configurable fields)	First field: 0.0.0.0 (no IP address assigned).	
	Remaining nine fields: 255.255.255.255 (any address is allowed).	
Image Filename:	Zero-length string	Software Download
TFTP Server IP Address:	0.0.0.0 (no IP address assigned)	
Start TFTP Load of New Image:	No	

Appendix D
Sample BootP Configuration File

This appendix provides an example of a BootP configuration file. The BootP server searches for this file, called bootptab (or BOOTPTAB.TXT, depending on your operating system), that contains the site-dependent information needed to perform the software download and configuration, including IP addresses. You can modify this sample BootP configuration file or create one of your own.

The following listing is a sample BootP configuration file:

```
# The following is a sample of a BootP configuration file that was extracted from
# a Bay Networks EZ LAN network management application.  Note that other BootP daemons
# can use a configuration file with a different format.
#
# Before using your switch BootP facility, you must customize your BootP configuration
# file with the appropriate data.
#
# Blank lines and lines beginning with '#' are ignored.
#
# Legend:
#
#       first field -- hostname
#                ht -- hardware type
#                ha -- host hardware address
#                tc -- template host (points to similar host entry)
#                ip -- host IP address
#                hd -- bootfile home directory
#                bf -- bootfile
# EZ             dt -- device type
# EZ             fv -- firmware version
# EZ             av -- agent version
#
# Fields are separated with a pipe (|) symbol. Forward slashes (/) are required
# to indicate that an entry is continued to the next line.
#
```

```
# Caution
#
#       Omitting a Forward slash (/) when the entry is continued to the next line,
#       can cause the interruption of the booting process or the incorrect image file
#       to download.  Always include forward slashes where needed.
#
# Important Note:
#
#       If a leading zero (0) is used in the IP address it is calculated
#       as an octal number. If the leading character is "x" (upper- or lower-case),
#       it is calculated as a hexadecimal number.  For example, if an IP address
#       with a base 10 number of 45 is written as .045 in the BOOTPTAB.TXT file, the
#       Bootp protocol assigns .037 to the client.

#
# Global entries are defined that specify the parameters used by every device.
# Note that hardware type (ht) is specified first in the global entry.
#
# The following global entry is defined for an Ethernet device.  Note that this is where
# a client's subnet mask (sm) and default gateway (gw) are defined.
#
global1|/
        |ht=ethernet|/
        |hd=c:\opt\images|/
        |sm=255.255.255.0|/
        |gw=192.0.1.0|
#
# The following sample entry describes a BootP client:

bay1|ht=ethernet|ha=0060fd000000|ip=192.0.0.1|hd=c:\ezlan\images|bf=b350_100.img

# Where:
#    host name:                    bay1
#    hardware type:                Ethernet
#    MAC address:                  00-60-FD-00-00-00
#    IP address:                   192.0.0.1
#    home directory of boot file:  c:\ezlan\images
#    boot file:                    b350_100.img
```

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