



FriendlyNET[®] GX5-2400W

24-Port Smart Gigabit Ethernet Switch

User's Manual



FriendlyNET® GX5-2400W 24-Port Smart Gigabit Ethernet Switch

User's Manual

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-

Switch DEFAULTS

IP address: 192.168.1.1

User Name: admin

Password: (no password)

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1 Introduction

Congratulations on becoming the owner of the ASANTE smart switch! You may now manage your LAN (local area network) through a friendly and powerful user interface.

This user guide tells you how to set up the smart switch, and how to customize its configuration to get the most out of this product.

1.1 L2 smart managed features

- 24 10/100/1000BASE-TX auto-sensing Fast Ethernet ports
- four small form factor (SFP) Gigabit interface converter (GBIC) slots
- 802.1D transparent bridge/spanning tree protocol
- 8K MAC address cache with hardware-assisted aging
- 802.3x flow control
- 802.1Q-based tagged VLAN, up to 255 VLANs
- 802.1p class of service, 4 queues per port
- 802.3ad link aggregation (manual), up to 7 trunk groups
- Port Mirroring
- 802.1x and RADIUS
- Telnet remote login
- FTP for firmware update and configuration backup
- Web GUI
- LEDs for port link status
- LEDs system,

1.2 Conventions used in this document

1.2.1 Notations

- Acronyms are defined the first time they appear in text and in the glossary.
- For brevity, the smart switch is referred to as “the switch.”
- The terms *LAN* and *network* are used interchangeably to refer to a group of Ethernet-connected computers at one site.

1.2.2 Typography

- *Italics* are used to present the parameters for the command line interpreter.
- **Boldface** type text is used for items you select from menus and drop-down lists, and text strings you type when prompted by the program.

1.2.3 Symbols

This document uses the following icons to call your attention to specific instructions or explanations.



Note

Provides clarification or additional information on the current topic.



Definition

Explains terms or acronyms that may be unfamiliar to many readers. These terms are also included in the Glossary.



WARNING

Provides messages of high importance, including messages relating to personal safety or system integrity.

2 Getting to know the Smart Switch

2.1 Package contents

The switch package comes with the following items:

- GX5-2400WI (24-port) L2 smart managed switch
- AC Power cord
- Null modem cable for console interface (DB9)
- Rack installation kit (two brackets with six #6-32 screws)
- Installation CD-ROM
- Quick installation guide

2.2 Front Panel

The front panel includes LED indicators that show the system, RPS, fan, and port status.



Table 1. Front panel labels and LEDs

Label	Color	Status	Description
SYSTEM	Green	On	Unit is powered on
		Flashing	Self-test, INIT, or downloading
	Amber	On	Abnormal temperature or voltage
	Off		No power
10/100/1000 port status	Green	On	Link (RJ-45 or SFP) is present; port is enabled
		Flashing	Data is being transmitted/received
	Off		No Ethernet link
10/100/1000 port speed	Green	On	1000Mbps
	Amber	On	100Mbps
	Off		10Mbps or link is not present
10/100/1000 port duplex	Green	On	full duplex
	Amber	On	half duplex
	Off		link is not present

2.3 Rear Panel

The switch rear panel contains the ports for the data and power connections.

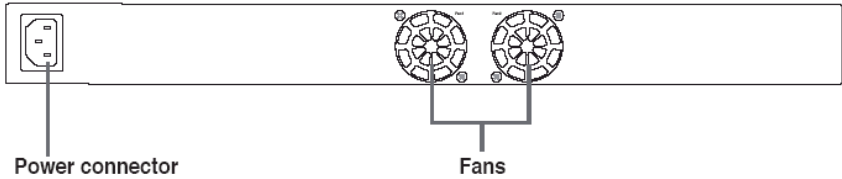


Figure 1. Rear panel

Table 2. Rear panel labels

No.	Label	Description
1	Power Connector	Connects to the supplied power cord
2	FAN1 – FAN2	System fans

2.4 Technical specifications

Table 3. Technical specifications

Physical Dimensions	43.5mm(H) X 444 mm(W) X 265mm(D)		
Power	Input	Consumption	
	100-240V AC/2.5A 50-60Hz	< 90 watts	
Environmental Ranges		Operating	Storage
	Temperature	-10 to 50°C (14 to 122°F)	-40 - 70°C (-40 to 158°F)
	Humidity	15 to 90%	0 to 95%
	Altitude	up to 10,000 ft (3,000m)	40,000 ft (12,000m)
Fans	Dimensions	Voltage and Current	Speed:
	40 x 40 x 20 mm	12VDC, 0.13A	8200RPM

3 Quick start guide

This section provides the basic instructions to set up the switch environment.

Part 1 shows you how to install the switch on a flat surface or on a rack.

Part 2 provides instructions to set up the hardware.

Part 3 shows you how to configure basic settings on the switch.

Obtain the following information from your network administrator before proceeding:

IP address for the switch

Default gateway for the network

Network mask for this network

3.1 Part 1 — Installing the hardware

Connect the device to the power outlet, and your computer or network.

Figure 5 illustrates the hardware connections.

3.1.1 Installing the switch on a flat surface

The switch should be installed on a level surface that can support the weight of the switches and their accessories. Attach four rubber pads on the marked location on the bottom of the switch.

3.1.2 Mounting the switch on a rack

5. Attach brackets to each side of the switch and make the posts insert to the switch.
6. Insert and tighten two screws to securely attach the bracket to the rack on each side.

3.2 Part 2 — Setting up the switch

Connect the device to the power outlet, and your computer or network. See Figure 5.

3.2.1 Connect the console port

For console management, use an RS232 (DB9) to connect the switch. If you want to use WEB interface, connect your PC to the switch using the Ethernet cable.

3.2.2 Connect to the computers or a LAN

You can use Ethernet cable to connect computers directly to the switch ports. You can also connect hubs/switches to the switch ports by Ethernet cables. You can use either the crossover or straight-through Ethernet cable to connect computers, hubs, or switches.



Use a twisted-pair Category 5 Ethernet cable to connect the 1000BASE-T port. Otherwise, the link speed can not reach 1Gbps.

3.2.3 Attach the power adapter

1. Connect the AC power cord to the POWER receptacle on the back of the switch and plug the other end of the power cord into a wall outlet or a power strip.
2. Check the front LED indicators with the description in Table 4. If the LEDs light up as described, the switch hardware is working properly.

No.	LED	Description
1	System	Solid green indicates that the device is turned on. If this light is off, check if the power adapter if attached to the switch and plugged into a power source.
2	Switch ports [1] to [24]	Solid green indicates that the device can communicate with the LAN, or flashing when the device is sending or receiving data from your LAN computer.

3.3 Part 3 — Basic switch setting for management

After completing the hardware connections, configure the basic settings for your switch. You can manage the switch using the following methods:

- Web interface: the switch has a set of pages to allow to you manage it using Java[®]-enabled IE5.0 or higher version.

- Command Line Interface: use console port to manage the switch.

3.3.1 Setting up through the console port

1. Use the supplied crossover RS-232 cable to connect to the console port on the back of the switch. This port is a male DB-9 connector, implemented as a data terminal equipment (DTE) connection. Tighten the retaining screws on the cable to secure it on the connector. Connect the other end of the cable to a PC running terminal emulation software. e.g Hyper Terminal.
2. Make sure the settings of your terminal emulation software as follows:
 - a) Choose the appropriate serial port number
 - b) Set the data baud rate to 9600
 - c) Set the data format to no parity, 8 data bits and 1 stop bit
 - d) No flow control
 - e) Set VT1000 for emulation mode

3.3.2 Setting up through the Web interface

To successfully connect your PC to the switch, your PC must have a valid IP in your network. Contact your network administrator to obtain a valid IP for the switch. If you wish to change the default IP address of the switch, follow section 3.3.1 to change the IP address. Since the switch does not support DHCP client function, a valid static IP for the switch is necessary to use Web interface.

1. It is not necessary to login Web interface at the first time to use Web interface because the default configuration for Web access authentication is disabled. To secure the system configuration, please enable the authentication function at the “**Administration**” page under “**System**” category. Skip step 2 if the authentication is disabled.
2. At any PC connected to the network that the switch can access, open your Web browser (Internet Explorer), and type the following URL in the address/location box, and press **<Enter>**:

http://192.168.1.1

This is the factory default IP address of the switch.

A login screen appears, as shown in Figure 2.



Figure 2. Login Screen

Enter your user name and password, and then click to enter the Configuration Manager. Use the following defaults the first time you log into this interface:

Default User Name: admin
Default Password: (no password)

- To setup a new IP address, click “**System**”, then “**IP Setup**” (see Figure 8). Fill in the IP address, network mask and default gateway, then click .
- If your new address is different from the default, the browser can not update the switch status window or retrieve any page. This is normal. You have to retype the new IP address in the address/location box, and press **<Enter>**. The WEB link returns.
- To enable authentication for Web access, click “**Administration**” on the menu list, then select “**Enabled**” to start the protection.

A login window appears immediately after you click . See the figures on the next page.

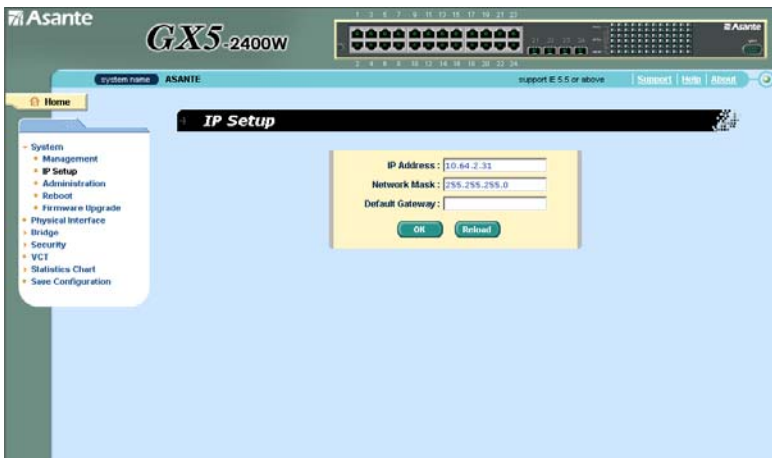


Figure 3. IP Setup

4 Management with the Web Interface

The switch provides Web pages that allow switch management through the Internet. The program is designed to work best with Microsoft Internet Explorer® 5.5, or later versions.

4.1 Log into Web user interface


1. From a PC, open your web browser, type the following in the web address (or location) box, and press **<Enter>**:

http://192.168.1.1

This is the factory default IP address for the switch. A login screen displays, as shown in Figure 4.



Figure 4. Configuration manager login screen

2. Enter your user name and password, then click .

Default User Name: admin
Default Password: <no password>

The home page appears each time you log into the program. See Figures 11 and 12).

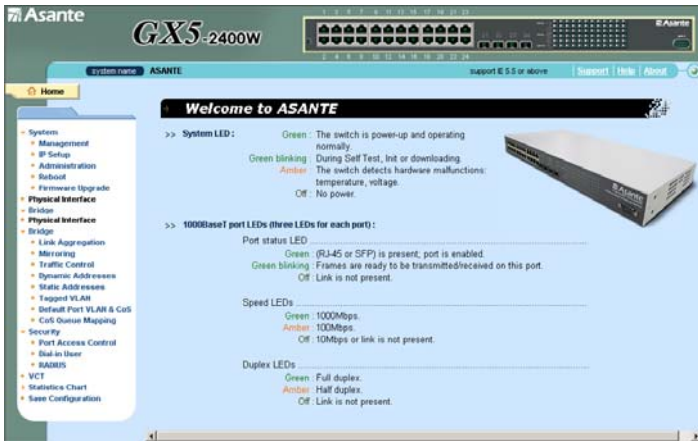


Figure 5. Home page

4.2 Functional layout

Typical web page consists of three separate frames. The top frame has a switch logo and front panel as shown in Figures 13 and 14. This frame remains on the top of the browser window all the times and updates the LED status periodically. See Table 4 for the LED definitions. See Table 5 for the color status description.

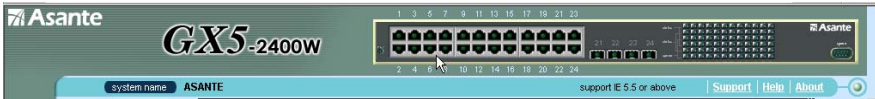


Figure 6. Top frame

Table 4. Port color description

Port Color	Description
Green port	Ethernet link is established
Black	No Ethernet link
Amber port	Link is present but port is disabled manually or by spanning tree

Clicking on the port icon of the switch displays the port configuration in the lower right frame.

The left frame, a menu frame as shown in Figure 7, contains all the features available for switch configuration. These features are grouped into categories, e.g. System, Bridge, etc. You can click on any of these to display a specific configuration page.

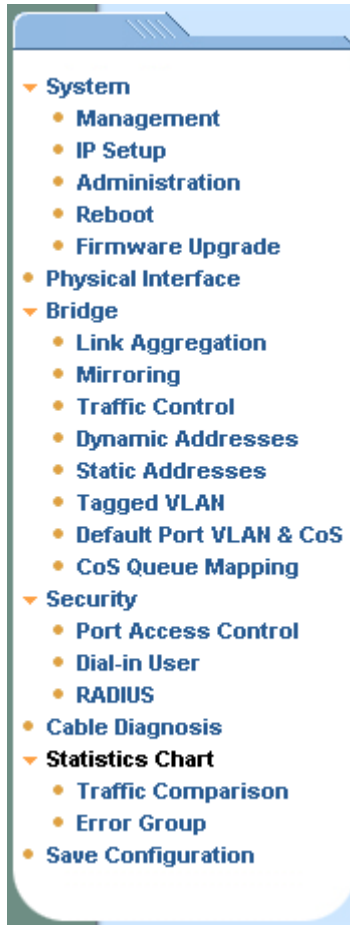


Figure 7. Expanded Menu List

The right frame displays configuration pages or graphics for the statistics. See section 4.3 for details.

4.2.1 Menu navigation tips







- To expand a group of related menus, click on the corresponding group name. The ► sign will change to ▼ after expansion.

-
- To contract a group of related menus: click on the corresponding group name. The ▶ sign will appear next to the group name.
 - To open a specific configuration page, click on the desired menu item.

4.2.2 Commonly used buttons and icons

The following table describes the function for each button and icon used in the application.

Table 5. Commonly used buttons and icons

Button/Icon	Function
	Stores any changes you have made on the current page.
	Adds the existing configuration to the system, e.g. a static MAC address or a firewall ACL rule and etc.
	Modifies an existing entry
	Modifies the existing configuration in the system, e.g. a static route or a filter ACL rule and etc.
	Deletes the selected item, e.g. a static route or a filter ACL rule and etc.
	Re-displays the current page with updated statistics or settings.

4.3 System Pages

System pages include management, IP setup, administration, reboot, and firmware update function.

4.3.1 Management

The **Management** page contains the following information:

Model Name: product name

MAC Address: switch MAC address

System Name: user assigned name to identify the system (editable)

System Contact (editable)

System Location (editable)

To save any changes and make it effective immediately, click . Use

 to refresh the setting, as shown in Figure 8.



Figure 8. Management



4.3.2 IP Setup

The switch supports dynamic IP and static IP assignment. The dynamic IP is get from a DHCP server within the same VLAN. The **IP Setup** page contains the following editable information:

IP Address: assign a static IP address to the switch management interface.

Network Mask

Default Gateway

To save any changes and make it effective immediately, click . Use  to refresh the setting, as shown in Figure 17.

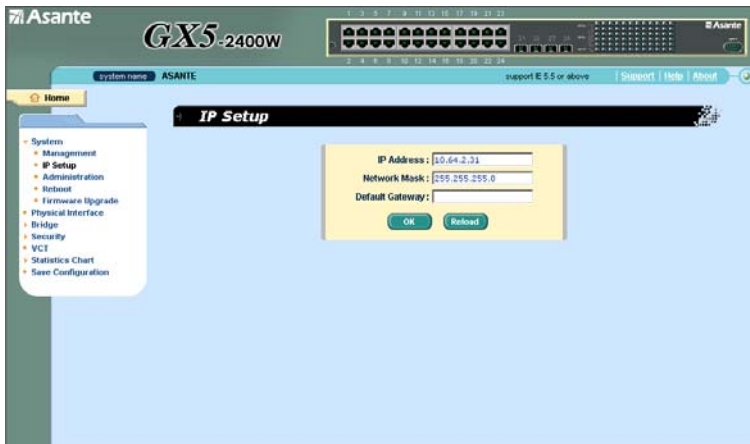
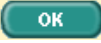



Figure 9. IP Setup

4.3.3 Administration

The **Administration** page allows you enable or disable the authentication for web user by *password protection*. The default setting for web access does not require any authentication. It also allow you to change the password.

To save any changes and make it effective immediately, click . Use  to refresh the setting, as shown in Figure 18. When you enable the password protection, you have to login again immediately.



You can change the password at any time through the CLI interface.

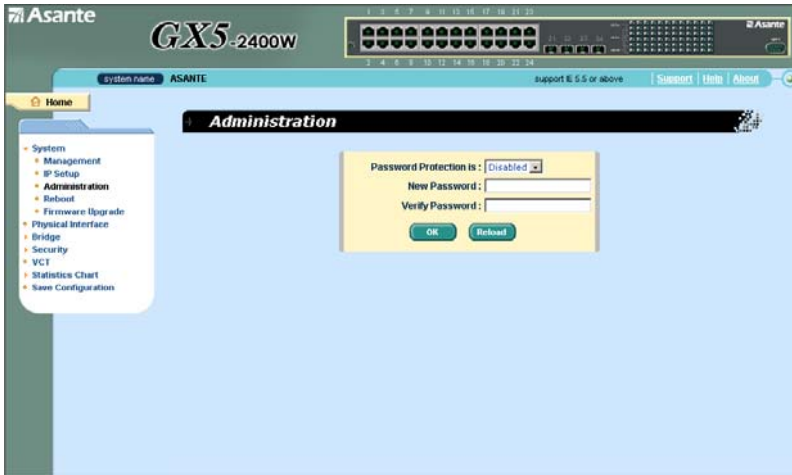


Figure 10. Administration

4.3.4 Reboot

The **Reboot** page contains a  button. Clicking the button reboots the system.



Rebooting the system stops the network traffic and terminates the Web interface connection.



4.3.5 Firmware Upgrade

The **Firmware** page contains the following information:

Hardware Version: shows the hardware revision number.

Boot ROM Version: shows the version of the boot code

Firmware Version: shows the current running firmware version. This number will be updated after the firmware update.

Enter the firmware location into the firmware space directly, or click  to choose the file name of the firmware from prompt window. Click  to update the switch firmware. See Figure 11 for reference.



Clicking the upload button loads the assigned firmware to the switch, then reboot system after a successful firmware update. You have to re-login to Web interface again

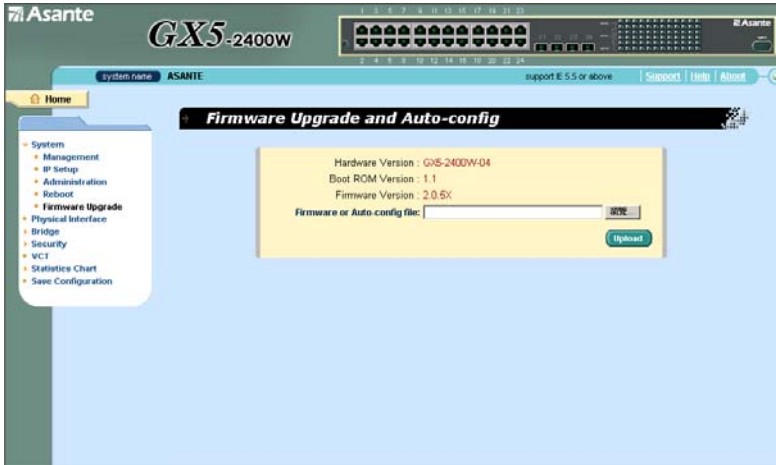


Figure 11. Firmware Upgrade

4.4 Physical Interface

The **Physical Interface** displays the Ethernet port status in real time. You can configure the port in following fields:

Port: select the port to configure


Admin: disable/enable the port

Mode: set the speed and duplex mode

Flow Control: enable/disable 802.3x flow control mechanism

Port Status Window: displays the following information for each port

- a) Link status: the link speed and duplex for an existing link, otherwise link is down
- b) State: the STP state
- c) Admin: the setting value to disable or enable the port
- d) Mode: the setting value for link speed and duplex mode
- e) Flow Control: the setting value to enable or disable 802.3x flow control mechanism

Select the corresponding port number and configure the port setting, then click on the  button. The field you change will update the content of the display window. However, the new settings do not take effect until the “*Save Configuration*” is executed.

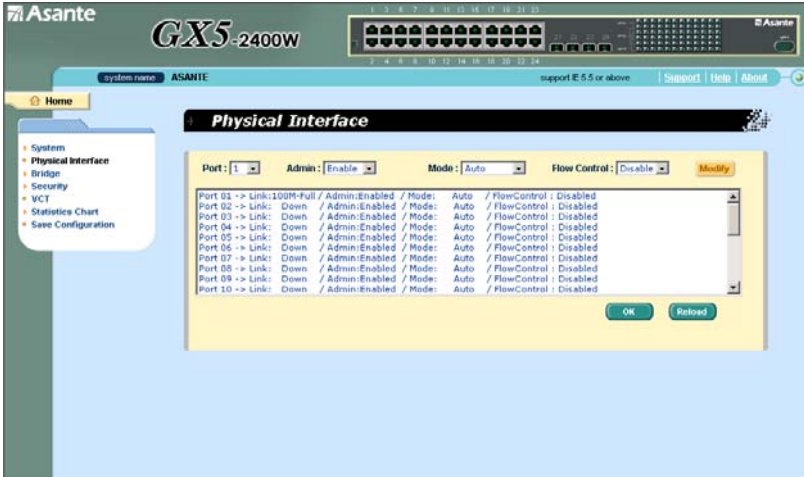



Figure 12. Physical Interface

4.5 Bridge

The **Bridge** page group contains most layer 2 configurations, like link aggregation,...etc.. To make the configuration effective, go to “*Save Configuration*” page, then click .

4.5.1 Link Aggregation

The page configures the link aggregation group (port trunking). The switch can have 7 link aggregation groups.

Show Trunk: Select “Add a new Trunk” for a new created group. Or select an existed group to display on the following fields and port icons.




Port Selection Criterion: the algorithm to distribute packets among the ports of the link aggregation group according to source MAC address, destination MAC address, source and destination MAC address, source IP address, destination IP address, or source and destination IP address.

Name: the group name.

Trunk ID: a number to identify the trunk group besides the group name.

Remove Trunk: Remove the selected trunk.

Port Icons: these port icons are listed in a way like the front panel. You have to click on the icon the select the group members. The port can be removed from the group by clicking the selected port again.

Click  to make the setting send to the switch (HTTP server). Click  to refresh the settings to current value. To make the configuration effective, go to “*Save Configuration*” page, then click .

You have to check the runtime link speed and duplex mode to make sure the trunk is physically active. Go to *Physical Interface* and check the link mode in the runtime status window for the trunk ports. If all the trunk members are in the same speed and full duplex mode, then the trunk group is set up successfully. If one of the members is not in the same speed or full duplex mode, the trunk is not set correctly. Check the link partner and change the settings to have the same speed and full duplex mode for all the members of your trunk group.

3 trunk methods are used. It is for per-system, not per-port

- All the ports in the link aggregation group MUST operate in full-duplex mode at the same speed.
- All the ports in the link aggregation group MUST be configured in auto-negotiation mode or full duplex mode. This configuration will make the full duplex link possible. If you set the ports in full duplex force mode, then the link partner MUST have the same setting. Otherwise the link aggregation could operate abnormally.
- All the ports in the link aggregation group MUST have the same VLAN setting.
- All the ports in the link aggregation group are treated as a single logical link. That is, if any member changes an attribute, the others will change too. For example, a trunk group consists of port 1 and 2. If the VLAN of port 1 changes, the VLAN of port 2 also changes with port 1.

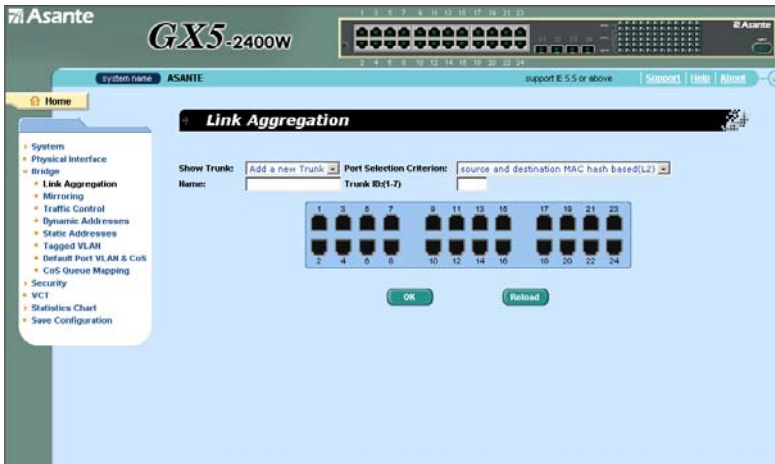


Figure 13. Link aggregation

4.5.2 Mirroring

Mirroring, together with a network traffic analyzer, helps you monitor network traffics. You can monitor the selected ports for egress or ingress packets.

Mirror Mode: Enables or disables the mirror function for the selected group.



Monitor Port: Receives the copies of all the traffics in the selected mirrored ports.

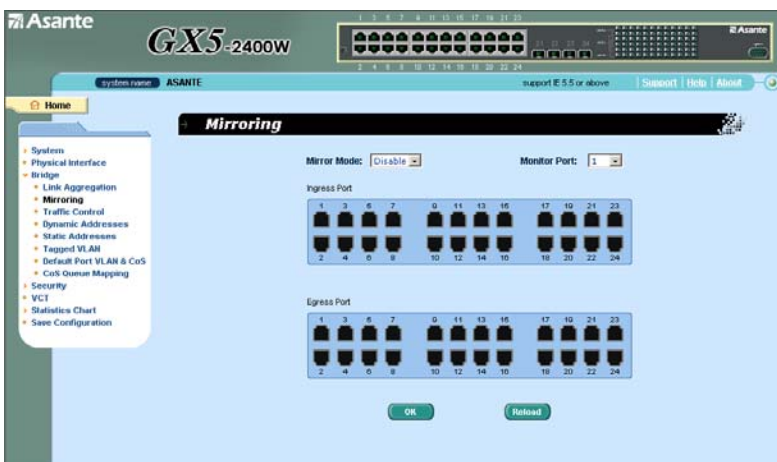
The monitor port can not belong to any link aggregation group.



The monitor port can not operate as a normal switch port. It does not switch packets or do address learning.

4 ports are only supported for mirror egress port.

Click  to make the setting send to the switch (HTTP server). Click  to refresh the settings to current value.



The screenshot shows the web interface for the Asante GX5-2400W switch. The main heading is "Mirroring". Under "Mirror Mode", there is a dropdown menu currently set to "Disable". To the right, "Monitor Port" is set to "1". Below these are two sections: "Ingress Port" and "Egress Port". Each section contains a grid of 24 ports, arranged in two rows of 12. Each port has a "Mirror" checkbox. At the bottom of the page, there are two buttons: "OK" and "Reload".

Figure 14. Mirroring page

4.5.3 Traffic Control

Traffic control prevents the switch bandwidth from flooding packets including broadcast packets, multicast packets. The limit number is a threshold to limit the total number of the checked type packets. For example, if broadcast and multicast are enabled, the total traffic amount for those two types will not

exceed the limit value. Click **OK** to save the new configuration. To make the configuration effective, go to “*Save Configuration*” page, then click

Save

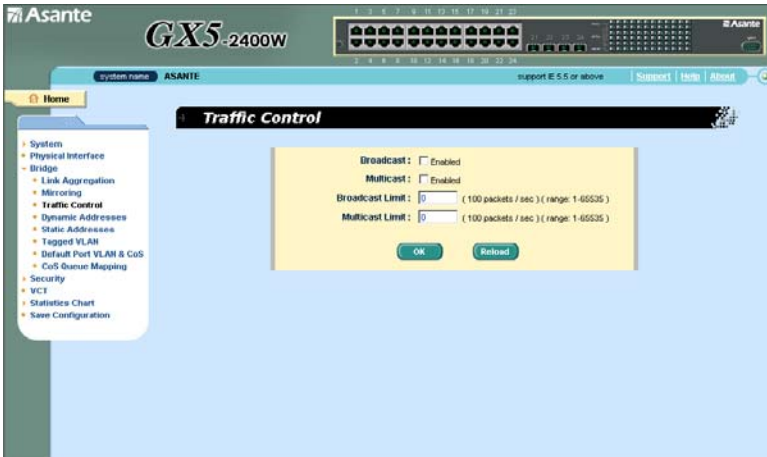


Figure 15. Traffic Control

4.5.4 Dynamic Addresses

This page displays the result of dynamic MAC address lookup by port, VLAN ID, or specified MAC address. The dynamic address is the MAC address learned by switch, it will age out from the address table if the address is not learned again during the age time. User can set the age time by entering a valid number from 10 to 600 in seconds. Then click on **OK** to save the new age value. To make the configuration effective, please go to “Save Configuration” page, then click on **Save**.

You can look up MAC addresses by checking the port, VLAN ID, or/and MAC address, then click on the **Query**. The address window will display the result of the query.

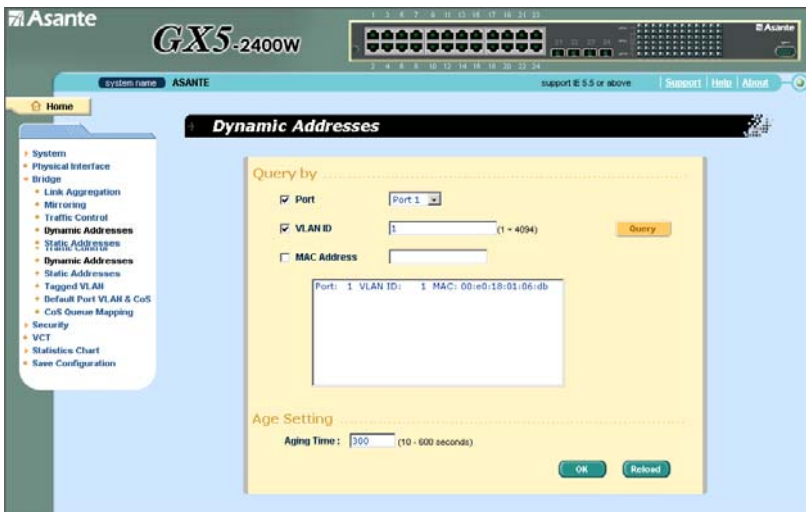


Figure 16. Dynamic Address

4.5.5 Static Addresses

You can add a MAC address into the switch address table. The MAC address added by this way will not age out from the address table. We call it static address.

MAC Address: enter the MAC address

VLAN ID: enter the VLAN ID that the MAC belongs

Port Selection: select the port which the MAC belongs

Discard: you can do packet filtering when the MAC address appears in the packets as destination address, source address, or either of them.

Click on the **Add** when you create a new static MAC address by the above information. Then you will see the new added entry shows in the address window. You can remove the existed address by selecting the entry with the mouse, then clicking on **Remove**. The **Modify** button updates the existed MAC address entries. Click **OK** to save effective. Click **Reload** to refresh the settings to current value. To make the configuration effective, please go to “save configuration” page, then click **Save**.

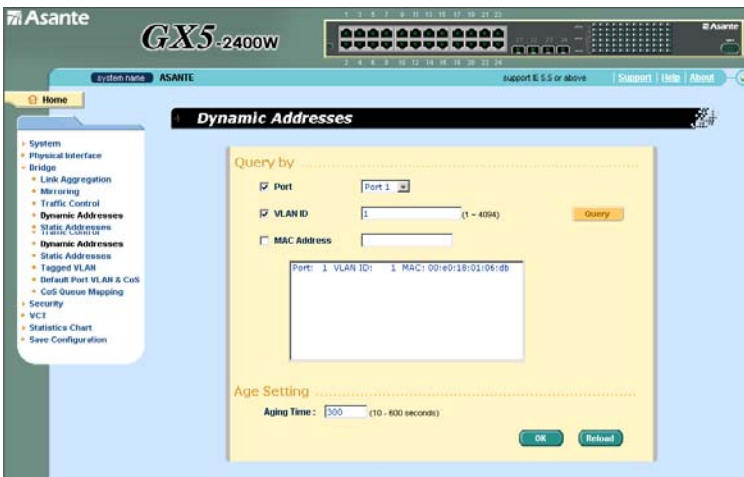


Figure 17. Static Address

4.5.6 Tagged VLAN

You can set up to 255 VLAN groups and show VLAN group in this page. There is a default VLAN created by the switch. It cannot be modify at all. This feature prevents the switch from malfunctions. You can remove any existed VLAN except the default VLAN.

You can assign the port to be a tagged port or an untagged port by toggling the port button. There are three types of button displays:

“U” type: untagged port that will remove VLAN tags from the transmitted packets.

“T” type: All packets transmitted from this port will be tagged.

“blank” type: This port is not a member of the VLAN group.

If one untagged port belongs to two or more VLAN groups at the same time, it will confuse the switch and cause flooding traffics. To prevent it, the switch only allow one untagged port belongs to one VLAN at the same time. That is, the untagged port belongs to the VLAN group which is called “PVID” and configured in the “Default Port VLAN & CoS” page. If you want to assign an untagged port from one VLAN to another, you have to remove it from the original VLAN, or change it to be tagged in the original VLAN first.

Show VLAN: select the existed VLAN to display or select “Add a new VLAN” to create a new VLAN group

Name: the VLAN name

VLAN ID: this field requires user to enter the VLAN ID when a new VLAN is created

Remove VLAN: Remove a existed VLAN. This field disappears in VLAN creation page.



Click on  to save the configuration. To make the configuration effective, go to “Save Configuration” page, then click on .



Figure 18. Tagged VLAN

4.5.7 Default Port VLAN and CoS

Some VLAN tag related field settings for each port are included in this page. It includes:

Port: select the port to configure

PVID: port-based VLAN ID. Every untagged packet received from this port will be tagged with this VLAN group ID

CoS (Class of Service) value: every untagged packet received from this port will be assigned to this CoS in the VLAN tagged. Due to 4 internal traffic class mapping to 8 priority, Only CoS value 0,2,5,7 are valid according to Cos Queue Mapping

Click on **Modify** to change the content in the port list window. Click on **OK** to save the configuration. To make the configuration effective, go to “Save Configuration” page, then click **Save**.

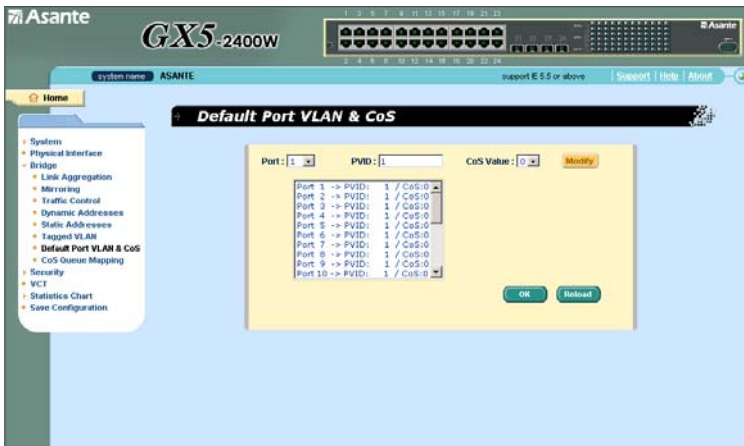


Figure 19. Default Port VLAN and CoS

4.5.8 CoS Queue Mapping

The switch supports 4 egress queues for each port with a strict priority scheduler. That is, each CoS value can map into one of the four queues. The queue 4 has the highest priority to transmit the packets. Click **OK** to save the configuration. To make the configuration effective, go to “Save Configuration” page, then click **Save**

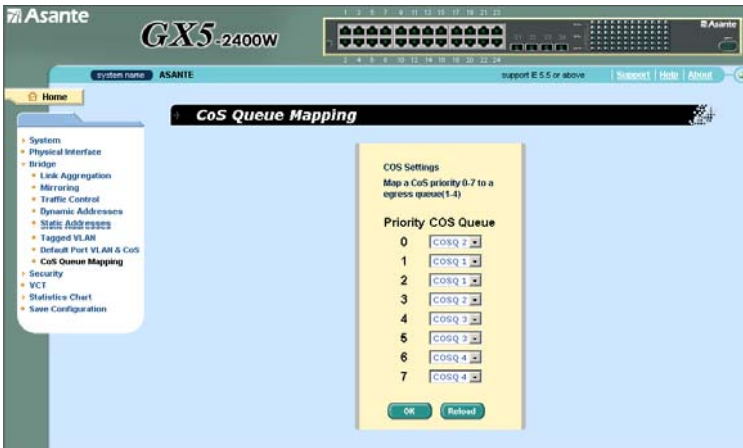


Figure 20. CoS Queue Mapping

4.6 Security

The switch has the 802.1x port-based security feature. Only authorized hosts are allowed to access the switch port. Traffic is blocked for hosts failed to authenticate themselves. The authentication service is provided by a RADIUS server or the local database in the switch.


The switch also support dynamic VLAN assignment through 802.1x authentication process. The VLAN information for the users/ports should be configured in the authentication server properly before enabling this feature.

4.6.1 Port Access Control



Port Access Control is used to configure various 802.1x parameters. 802.1x uses either RADIUS server or local database to authenticate port users.

The first part is the Bridge(Global) settings:

- Reauthentication: Once enabled, The switch will try to authenticate the port user again when the re-authentication time is up.
- Reauthentication Time: If 'Reauthentication' is enabled, this is the time period the switch uses to re-send authentication request to the port user.(see above)
- Authentication Method: RADIUS or Local database can be used to authenticate the port user.
- Quiet Period: If authentication failed either from RADIUS or local database, the switch waits upon this time period before sending another authentication request to the port user.
- Retransmission Time: If the port user failed to respond to authentication request from the switch, the switch waits upon this time period before sending another authentication request to the port user.
- Max Reauthentication Attempts: Retry count if the port user failed to respond to authentication requests from the switch.

The second part is the port settings. Please click  when you're done with the modifications.

- Port: Specify which port to configure.
- Multi-host: If enabled, ALL hosts connected to the selected port are allowed to use the port if ONE of the hosts passed the authentication. If disabled, only ONE host among other hosts passed the authentication is allowed to use the port.
- Authentication Control: If 'force_authorized' is selected, the selected port is forced authorized. Thus, traffic from all hosts is allowed to pass. Otherwise, if 'force_unauthorized' is selected, the selected port is blocked and no traffic can go through. If 'Auto' is selected, the behavior of the selected port is controlled by 802.1x protocol. All ports should be set to 'Auto' under normal conditions.

Click  to make the settings permanent. Click  to refresh the settings to current value.

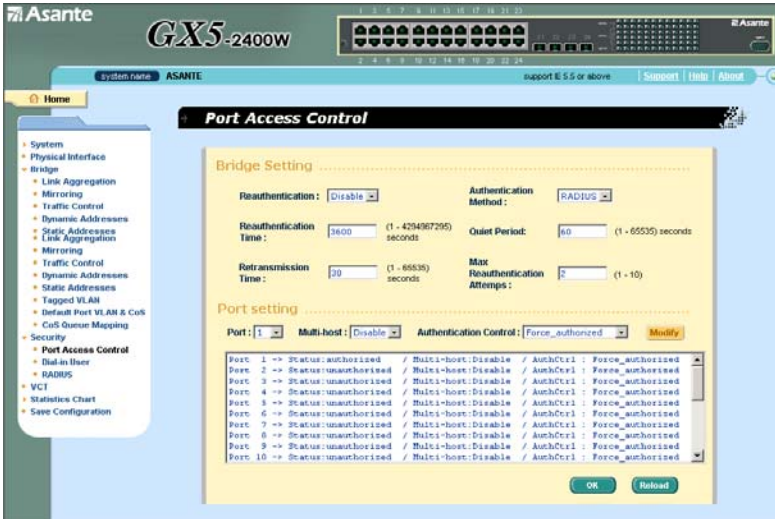


Figure 21. Port Access Control

4.6.2 Dial-In User

Dial-in User is used to define users in the local database of the switch.

- User Name: New user name.
- Password: Password for the new user.
- Confirm Password: Enter the password again.

Please click **Add** to add the new user. Click **Modify** when you're done with the modifications. Click **Remove** when you want to remove the selected user. Click **OK** to make the settings permanent. Click **Reload** to refresh the settings to current value.



Figure 22. Dial-In user

4.6.3 RADIUS

In order to use external RADIUS server, the following parameters are required to be setup:

- Authentication Server IP: The IP address of the RADIUS server.
- Authentication Server Port: The port number for the RADIUS server is listening to.
- Authentication Server Key: The key is used for communications between GigaX and the RADIUS server.
- Confirm Authentication Key: Re-type the key entered above.



The VLAN of the RADIUS server connected to the switch must be the same as the VLAN of the system management interface.



Please click  to make the settings permanent. Click  to refresh the settings to current value.



Figure 23. RADIUS

4.7 Cable Diagnosis

The major function of Cable Diagnosis is to detect cable fault (open or short) and report the estimated fault location. Moreover, Cable Diagnosis can also detect PHY type (100M, 1000M or 10000M)

Just select a port number and click **GO**. Test result shall be displayed accordingly.

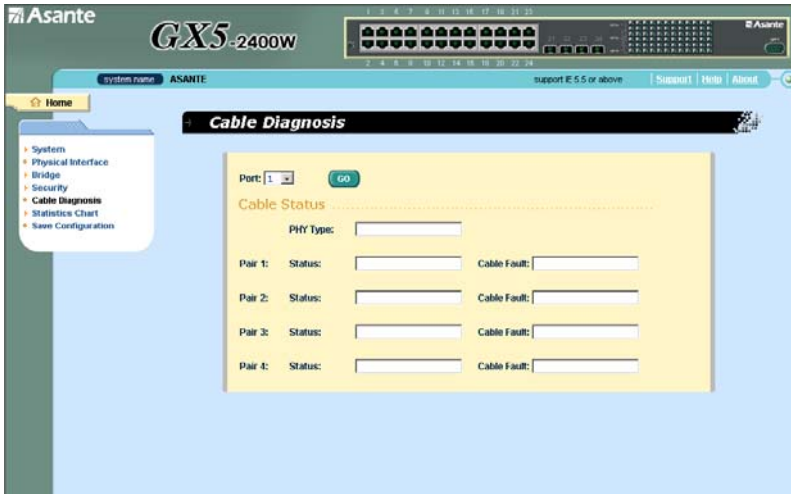


Figure 24. Cable Diagnosis

4.8 Statistics Chart

The **Statistics Chart** pages provide network flow in different charts. You can specify the period time to refresh the chart. You can monitor the network traffic amount in different graphic chart by these pages. Most MIB-II counters are displayed in these charts.

Click **Refresh Rate** to set the period for retrieving new data from the switch. You can differentiate the statistics or ports by selecting **Color**. Finally, click on **Draw** to let the browser to draw the graphic chart. Each new **Draw** will reset the statistics display.

4.8.1 Traffic Comparison

This page shows the one statistics item for all the ports in one graphic chart. Specify the statistics item to display and click the **Draw**, the browser will show you the update data and refresh the graphic periodically.



Macintosh users must use Safari to correctly view Statistics

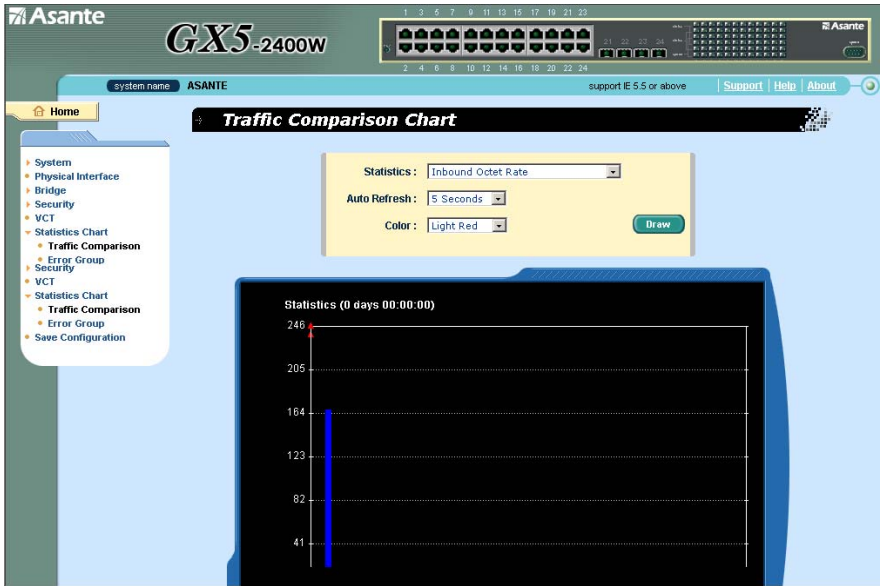


Figure 25. Traffic comparison

4.8.2 Error Group

Selecting the **Port** and display **Color**, then clicking the **Draw**, the statistics window shows you all the discards or error counts for the specified port. The data is updated periodically.

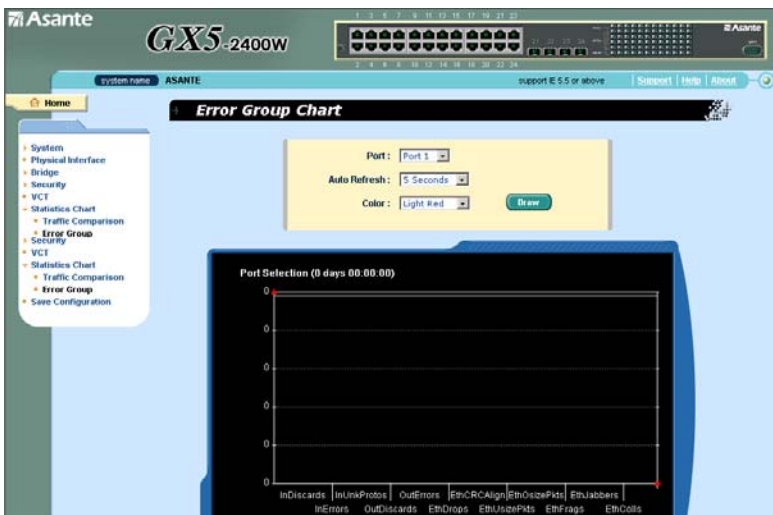




Figure 26. Error group

4.9 Save Configuration

To save configuration permanently, you have to click . The setting also takes effective after a successful save.

Sometimes you may want to reset the switch configuration, you can click on  to reset the configuration file to factory default. Of course, a system reboot will follow this restoration process.



You will lose all the configurations when you choose to restore the factory default configurations.

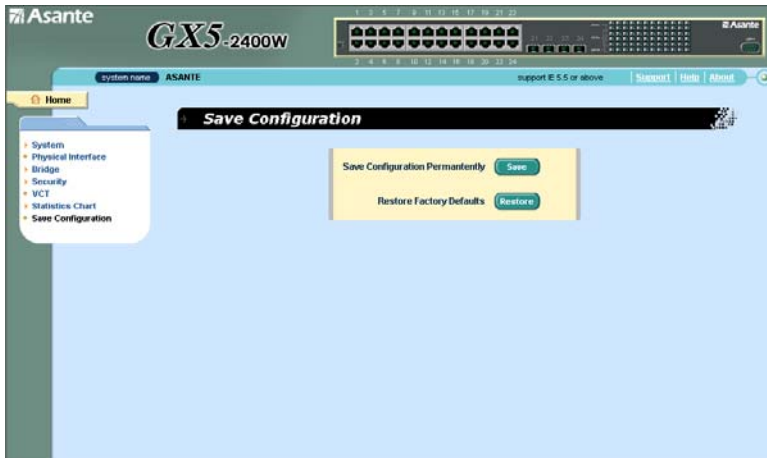


Figure 27. Save Configuration

5 Console Interface

The prompt is shown after reboot is completed. The only command “reset” is used to reset to factory default.

6 Configuration Backup & Restore through FTP

The backup & restore for configuration file can be done through FTP. The commands is shown as below,

backup

- ftp <switch ip address>
- user: admin
- password:
- get backup

restore

- put backup

7 Troubleshooting

This section gives instructions for using several IP utilities to diagnose problems. A list of possible problems with suggestion actions is also provided.

All the known bugs are listed in the release note. Read the release note before you set up the switch. Contact Customer Support if these suggestions do not resolve the problem.


7.1 Diagnosing problems using IP utilities

7.1.1 ping

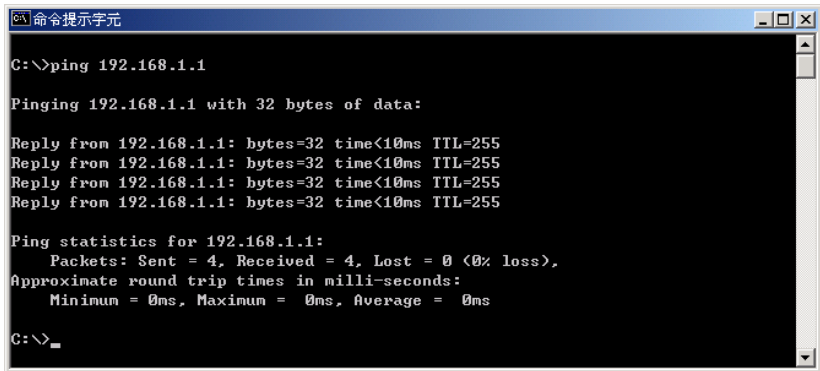
Ping is a command you can use to check whether your PC can recognize other computers on your network and the Internet. A ping command sends a message to the computer you specify. If the computer receives the message, it sends messages in reply. To use it, you must know the IP address of the computer with which you are trying to communicate.

On Windows-based computers, you can execute a ping command from the Start menu. Click the Start button, and then click Run. In the Open text box, type a statement such as the following:

ping 192.168.1.1

Click . You can substitute any private IP address on your LAN or a public IP address for an Internet site, if known.

If the target computer receives the message, a Command Prompt window appears as shown in Figure 52.



```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>_
```

Figure 28. Using the ping utility

If the target computer cannot be located, you will receive the message “Request timed out.”

Using the ping command, you can test whether the path to the switch is working (using the pre-configured default LAN IP address 192.168.1.1) or another address you assigned.

You can also test whether access to the Internet is working by typing an external address, such as that for www.yahoo.com (216.115.108.243). If you do not know the IP address of a particular Internet location, you can use the nslookup command, as explained in the following section.

From most other IP-enabled operating systems, you can execute the same command at a command prompt or through a system administration utility.

7.1.2 nslookup

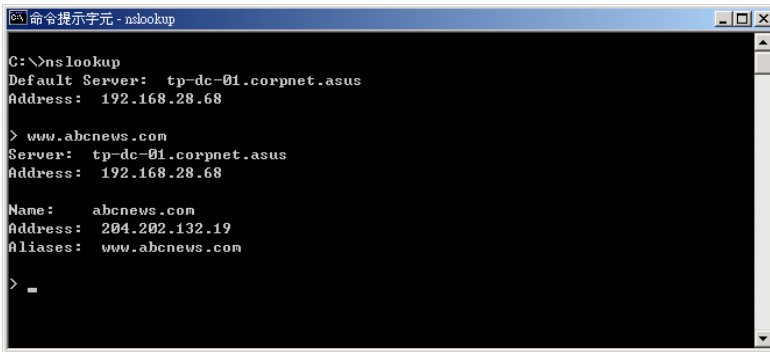
You can use the nslookup command to determine the IP address associated with an Internet site name. You specify the common name, and the nslookup command looks up the name on your DNS server (usually located with your ISP). If that name is not an entry in your ISP's DNS table, the request is then referred to another higher-level server, and so on, until the entry is found. The server then returns the associated IP address.

On Windows-based computers, you can execute the nslookup command from the Start menu. Click the Start button, then click Run. In the Open text box, type the following:

nslookup

Click . A Command Prompt window displays with a bracket prompt (>). At the prompt, type the name of the Internet address you are interested in, such as www.absnews.com.

The window displays the associate IP address, if known. See Figure 29.



```
C:\>nslookup
Default Server:  tp-dc-01.corpnet.asus
Address:  192.168.28.68

> www.absnews.com
Server:  tp-dc-01.corpnet.asus
Address:  192.168.28.68

Name:    abcnews.com
Address:  204.202.132.19
Aliases: www.absnews.com

> -
```

Figure 29. Using the nslookup utility

There may be several addresses associated with an Internet name. This is common for web sites that receive heavy traffic; they use multiple, redundant servers to carry the same information.


To exit from the nslookup utility, type **exit** and press **<Enter>** at the command prompt.

7.2 Simple fixes

The following table lists some common problems that you may encounter when installing or using the switch, and the suggested actions to solve the problems.

Table 6. Troubleshooting

Problem	Suggested Action
LEDs	
SYSTEM LED does not light up after the switch is turned on.	Verify if the power cord is securely connected to the switch and a wall socket/power strip.
RPS LED does not light up after a redundant power supply is attached.	<ol style="list-style-type: none"> 1. Verify if the RPS cable is securely connected to the RPS connector and a wall socket/power strip. 2. Make sure that the RPS meets with the standards provided in the RPS section.
FAN LED is amber blinking	Check the fans on the back of the switch. If any of the fans is defective, refer to section 7.2 to replace the fan.
Fast Ethernet Link LED does not illuminate after an Ethernet cable is attached.	<ol style="list-style-type: none"> 1. Verify if the Ethernet cable is securely connected to your LAN switch/hub/PC and to the switch. Make sure the PC and/or hub/switch is turned on. 2. Verify if your cable is sufficient for your network requirements. A 100 Mbps network (100BaseTx) should use cables labeled Cat 5. 10Mbit/sec cables may tolerate lower quality cables.
Network Access	
PC cannot access another host in the same network	<ol style="list-style-type: none"> 1. Check the Ethernet cabling is good and the LED is green. 2. If the port LED is amber, check if this port is disabled. You may experience a disconnected network in a short period (around 1 minute) if you just turned on the STP.
PCs cannot display web configuration pages.	<ol style="list-style-type: none"> 1. The switch is powered up and the connecting port is enabled. The factory default IP for the switch is 192.168.1.1. 2. Verify your network setup in your PC for this information. If your PC does not have a valid route to access the switch, change the switch IP to an appropriate IP that your PC can access. 3. Ping "switch IP" from the PC, if it still fails, repeat step 2. 4. If ping is successful but the web configuration still fails, connecting PC through the console port by a RS232 or USB, check if any filter rule or static MAC address is set to block the WEB traffics.
Web Configuration Interface	

Problem	Suggested Action
You forgot/lost your WEB Configuration Interface user ID or password.	<ol style="list-style-type: none"> <li data-bbox="322 213 953 261">1. If you have not changed the password from the default, try using "admin" as the user ID and bypassing password. <li data-bbox="322 272 953 320">2. Login to console mode through RS232 or USB, use "sys user show" to display the lost information
Some pages do not display completely	<ol style="list-style-type: none"> <li data-bbox="322 341 953 440">1. Verify that you are using Internet Explorer v5.5 or later. Netscape is not supported. Support for Javascript® must be enabled in your browser. Support for Java® may also be required. <li data-bbox="322 451 953 520">2. Ping the switch IP address to see if the link is stable. If some ping packets fail, check your network setup to make sure a valid setting.
Changes to Configuration are not being retained.	<p data-bbox="322 544 953 603">Be sure to click on  button in the Save Configuration page to save any changes.</p>
Console Interface	
Cannot show the texts on the terminal emulator.	<ol style="list-style-type: none"> <li data-bbox="322 673 953 721">1. The factory default baud rate is 9600, no flow control, 8 bit data, no parity check and stop bit is one. <li data-bbox="322 732 953 754">2. Check if the cable is good.

8 Glossary

10BASE-T	A designation for the type of wiring used by Ethernet networks with a data rate of 10 Mbps. Also known as Category 3 (CAT 3) wiring. <i>See also data rate, Ethernet.</i>
100BASE-T	A designation for the type of wiring used by Ethernet networks with a data rate of 100 Mbps. Also known as Category 5 (CAT 5) wiring. <i>See also data rate, Ethernet.</i>
1000BASE-T	A designation for the type of wiring used by Ethernet networks with a data rate of 1000 Mbps.
binary	The "base two" system of numbers, that uses only two digits, 0 and 1, to represent all numbers. In binary, the number 1 is written as 1, 2 as 10, 3 as 11, 4 as 100, etc. Although expressed as decimal numbers for convenience, IP addresses in actual use are binary numbers; e.g., the IP address 209.191.4.240 is 11010001.10111111.00000100.11110000 in binary. <i>See also bit, IP address, network mask.</i>
bit	Short for "binary digit," a bit is a number that can have two values, 0 or 1. <i>See also binary.</i>
bps	bits per second

CoS	Class of Service. Defined in 802.1Q, the value range is from 0 to 7. Due to 4 internal traffic class mapping to 8 priority, Only Cos value 0,2,5,7 are valid according to Cos Queue Mapping.
broadcast	To send data to all computers on a network.
download	To transfer data in the downstream direction, i.e., from the Internet to the user.
Ethernet	The most commonly installed computer network technology, usually using twisted pair wiring. Ethernet data rates are 10 Mbps and 100 Mbps. <i>See also 10BASE-T, 100BASE-T, twisted pair.</i>
filtering	To screen out selected types of data, based on filtering rules. Filtering can be applied in one direction (ingress or egress), or in both directions.
filtering rule	A rule that specifies what kinds of data the a routing device will accept and/or reject. Filtering rules are defined to operate on an interface (or multiple interfaces) and in a particular direction (upstream, downstream, or both).
FTP	File Transfer Protocol A program used to transfer files between computers connected to the Internet. Common uses include uploading new or updated files to a web server, and downloading files from a web server.
host	A device (usually a computer) connected to a network.

HTTP	<p>Hyper-Text Transfer Protocol</p> <p>HTTP is the main protocol used to transfer data from web sites so that it can be displayed by web browsers. <i>See also web browser, web site.</i></p>
ICMP	<p>Internet Control Message Protocol</p> <p>An Internet protocol used to report errors and other network-related information. The ping command makes use of ICMP.</p>
Internet	<p>The global collection of interconnected networks used for both private and business communications.</p>
intranet	<p>A private, company-internal network that looks like part of the Internet (users access information using web browsers), but is accessible only by employees.</p>
IP	<p><i>See TCP/IP.</i></p>
IP address	<p>Internet Protocol address</p> <p>The address of a host (computer) on the Internet, consisting of four numbers, each from 0 to 255, separated by periods, e.g., 209.191.4.240. An IP address consists of a <i>network ID</i> that identifies the particular network the host belongs to, and a <i>host ID</i> uniquely identifying the host itself on that network. A network mask is used to define the network ID and the host ID. Because IP addresses are difficult to remember, they usually have an associated domain name that can be specified instead. <i>See also domain name, network mask.</i></p>

ISP	Internet Service Provider A company that provides Internet access to its customers, usually for a fee.
LAN	Local Area Network A network limited to a small geographic area, such as a home, office, or small building.
LED	Light Emitting Diode An electronic light-emitting device. The indicator lights on the front of the SL-1000 are LEDs.
MAC address	Media Access Control address The permanent hardware address of a device, assigned by its manufacturer. MAC addresses are expressed as six pairs of characters.
mask	<i>See network mask.</i>
Multicast	To send data to a group of network devices.
Mbps	Abbreviation for Megabits per second, or one million bits per second. Network data rates are often expressed in Mbps.
Monitor	Also called “ <i>Roving Analysis</i> ”, allow you to attach a network analyzer to one port and use it to monitor the traffics of other ports on the switch.

network	A group of computers that are connected together, allowing them to communicate with each other and share resources, such as software, files, etc. A network can be small, such as a <i>LAN</i> , or very large, such as the <i>Internet</i> .
network mask	A network mask is a sequence of bits applied to an IP address to select the network ID while ignoring the host ID. Bits set to 1 mean "select this bit" while bits set to 0 mean "ignore this bit." For example, if the network mask 255.255.255.0 is applied to the IP address 100.10.50.1, the network ID is 100.10.50, and the host ID is 1. <i>See also binary, IP address, subnet, "IP Addresses Explained" section.</i>
NIC	Network Interface Card An adapter card that plugs into your computer and provides the physical interface to your network cabling, which for Ethernet NICs is typically an RJ-45 connector. <i>See Ethernet, RJ-45.</i>
packet	Data transmitted on a network consists of units called packets. Each packet contains a payload (the data), plus overhead information such as where it came from (source address) and where it should go (destination address).
ping	Packet Internet (or Inter-Network) Groper A program used to verify whether the host associated with an IP address is online. It can also be used to reveal the IP address for a given domain name.
port	A physical access point to a device such as a computer or router, through which data flows into and out of the device.

protocol	A set of rules governing the transmission of data. In order for a data transmission to work, both ends of the connection have to follow the rules of the protocol.
remote	In a physically separate location. For example, an employee away on travel who logs in to the company's intranet is a remote user.
RJ-45	Registered Jack Standard-45 The 8-pin plug used in transmitting data over phone lines. Ethernet cabling usually uses this type of connector.
routing	Forwarding data between your network and the Internet on the most efficient route, based on the data's destination IP address and current network conditions. A device that performs routing is called a router.
subnet	A subnet is a portion of a network. The subnet is distinguished from the larger network by a <i>subnet mask</i> which selects some of the computers of the network and excludes all others. The subnet's computers remain physically connected to the rest of the parent network, but they are treated as though they were on a separate network. <i>See also network mask.</i>
subnet mask	A mask that defines a subnet. <i>See also network mask.</i>
TCP	<i>See TCP/IP.</i>

TCP/IP	<p>Transmission Control Protocol/Internet Protocol</p> <p>The basic protocols used on the Internet. TCP is responsible for dividing data up into packets for delivery and reassembling them at the destination, while IP is responsible for delivering the packets from source to destination. When TCP and IP are bundled with higher-level applications such as HTTP, FTP, Telnet, etc., TCP/IP refers to this whole suite of protocols.</p>
Telnet	<p>An interactive, character-based program used to access a remote computer. While HTTP (the web protocol) and FTP only allow you to download files from a remote computer, Telnet / allows you to log into and use a computer from a remote location.</p>
TFTP	<p>Trivial File Transfer Protocol</p> <p>A protocol for file transfers, TFTP is easier to use than File Transfer Protocol (FTP) but not as capable or secure.</p>
Trunk	<p>Two or more ports are combined as one virtual port, also called as Link Aggregation.</p>
TTL	<p>Time To Live</p> <p>A field in an IP packet that limits the life span of that packet. Originally meant as a time duration, the TTL is usually represented instead as a maximum hop count; each router that receives a packet decrements this field by one. When the TTL reaches zero, the packet is discarded.</p>

twisted pair	The ordinary copper telephone wiring long used by telephone companies. It contains one or more wire pairs twisted together to reduce inductance and noise. Each telephone line uses one pair. In homes, it is most often installed with two pairs. For Ethernet LANs, a higher grade called Category 3 (CAT 3) is used for 10BASE-T networks, and an even higher grade called Category 5 (CAT 5) is used for 100BASE-T networks. <i>See also 10BASE-T, 100BASE-T, Ethernet.</i>
upstream	The direction of data transmission from the user to the Internet.
VLAN	Virtual Local Area Network
WAN	Wide Area Network Any network spread over a large geographical area, such as a country or continent. With respect to the SL-1000, WAN refers to the Internet.
Web browser	A software program that uses Hyper-Text Transfer Protocol (HTTP) to download information from (and upload to) web sites, and displays the information, which may consist of text, graphic images, audio, or video, to the user. Web browsers use Hyper-Text Transfer Protocol (HTTP). Popular web browsers include Netscape Navigator and Microsoft Internet Explorer. <i>See also HTTP, web site, WWW.</i>

- Web page** A web site file typically containing text, graphics and hyperlinks (cross-references) to the other pages on that web site, as well as to pages on other web sites. When a user accesses a web site, the first page that is displayed is called the *home page*. See also *hyperlink*, *web site*.
- Web site** A computer on the Internet that distributes information to (and gets information from) remote users through web browsers. A web site typically consists of web pages that contain text, graphics, and hyperlinks. See also *hyperlink*, *web page*.
- WWW** World Wide Web
Also called *(the) Web*. Collective term for all web sites anywhere in the world that can be accessed via the Internet

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Appendix A

A.1 FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

A.2 Important Safety Instructions

Caution: Do not use an RJ-11 (telephone) cable to connect network equipment.

1. Read all of these instructions.
2. Save these instructions for later use.
3. Follow all warnings and instructions marked on the product.
4. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not use this product near water.

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6. Do not place this product on an unstable cart or stand. The product may fall, causing serious damage to the product.
 7. The air vent should never be blocked (such as by placing the product on a bed, sofa or rug). This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
 8. This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
 9. This product is equipped with a three-wire grounding type plug, which is a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your outlet. Do not defeat the purpose of the grounding type plug.
 10. Do not allow anything to rest on the power cord. Do not place this product where people will walk on the cord.
 11. If an extension cord is used with this product, make sure that the total ampere ratings on the products into the extension cord do not exceed the extension cord ampere rating. Also make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
 12. Never push objects of any kind into this product through air ventilation slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.

13. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to service personnel.

A.3 : Online Warranty Registration

Please register this product online at

<http://www.asante.com/support/supRegistration.asp> or by filling out and mailing the card below.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 4195 SAN JOSE CA

POSTAGE WILL BE PAID BY ADDRESSEE

REGISTRATION CARDS
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2223 Old Oakland Road
SAN JOSE CA 95131-1402



Fold at line and tape closed. Do not staple. No postage required.

Asante Product Registration Card

Name
Title
Company
Address 1
Address 2
City
State
Zip/Postal
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Date of Purchase
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To register your Asante product online, please visit:
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