24+2 Gigabit SNMP Switch with Integrated Router

USER'S MANUAL

COMPEX MANAGED SWITCH SERIES

CGX3224

CGX3224
CGX3224
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Manual number : U-0355-V1.4C

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FCC NOTICE

This device 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 in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- Increase the separation between the computer and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC Compliance Statement: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

Compex, Inc. declares the following:
Product Name: Compex 24-port 10/100 Mbps Managed Switch with 2 Optional Modules
Model No: CGX3224 conforms to the following Product Standards:
This device complies with the Electromagnetic Compatibility Directive (89/336/EEC) issued by the Commission of the European Community.
Electromagnetic Interference (Conduction and Radiation): EN 55022 (CISPR 22)
Electromagnetic Immunity: EN 55024 (IEC61000-4-2,3,4,5,6,8,11)
Power Line Harmonics: EN 61000-3-2 (IEC610000-3-2)
Power Line Flicker: EN 61000-3-3 (IEC610000-3-3)
Product Safety: EN 60950 (IEC60950)

Therefore, this product is in conformity with the following regional standards: FCC Class A — following the provisions of FCC Part 15 directive; CE Mark — following the provisions of the EC directive.

This Class A digital apparatus complies with Canadian ICES-003.

Technical Support Information

The warranty information and registration form are found in the Quick Install Guide.

For technical support, you may contact Compex or its subsidiaries. For your convenience, you may also seek technical assistance from the local distributor, or from the authorized dealer/reseller that you have purchased this product from. For technical support by email, write to support@compex.com.sg.

Refer to the table below for the nearest Technical Support Centers:

Technical Support Centers	
Contact the technical support center that services your location.	
U.S.A., Canada, Latin America and South America	
✉ Write	**Compex, Inc.** 4051 E. La Palma, Unit A Anaheim, CA 92807, USA
☎ Call 📠 Fax	Tel: +1 (714) 630-7302 (8 a.m.-5 p.m. Pacific time) Tel: +1 (800) 279-8891 (Ext.122 Technical Support) Fax: +1 (714) 630-6521 BBS: +1 (714) 630-2570 (24-hour access)
Europe	
✉ Write	**ReadyLINK Networktechnology Gmbh** Albert Einstein Straβe 34/M21 63322 Rödermark, Germany
☎ Call 📠 Fax	Tel: +49 (0) 6074 - 98017 (8 a.m.-5 p.m. local time) Fax: +49 (0) 6074 - 90668 BBS: +49 (0) 6074 - 93974 (24-hour access) Support Email: readylink@compex.com.sg
Asia, Australia, New Zealand, Middle East and the rest of the World	
✉ Write	**Compex Systems Pte Ltd** 135, Joo Seng Road #08-01, PM Industrial Building Singapore 368363
☎ Call 📠 Fax	Tel: (65) 6286-1805 (8 a.m.-5 p.m. local time) Tel: (65) 6286-2086 (Ext.199 Technical Support) Fax: (65) 6283-8337 BBS: (65) 6282-8854 (24-hour access)
Internet access/	E-mail: support@compex.com.sg FTPsite: ftp.compex.com.sg
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About This Document

The product described in this document, Compex Web Management Switch Series, Compex CGX3224 is a licensed product of Compex Systems Pte Ltd. This document contains instructions for installing, configuring and using Compex CGX3224. It also gives an overview of the key applications and the networking concepts with respect to the product.

This documentation is for both Network Administrators and the end user who possesses some basic knowledge in the networking structure and protocols.

It makes a few assumptions that the host computer has already been installed with TCP/IP and already up & running and accessing the Internet. Procedures for Windows 98/2000/XP operating systems are included in this document. However, for other operating system, you may need to refer to your operating system's documentation for networking.

How to Use this Document

The document is written in such a way that you as a user will find it convenient to find specific information pertaining to the product. It comprises of chapters that explain in details on the installation and configuration of Compex CGX3224.

Firmware

This manual is written based on Firmware version 1.80 build 040730.

Conventions

In this document, special conventions are used to help and present the information clearly. The Compex 24-port 10/100Mbps Managed Switch with 2 Optional Modules CGX3224 is often referred to as Compex CGX3224 in this document. Below is a list of conventions used throughout.

	NOTE
NOTE	This section will consist of important features or instructions

	CAUTION
⚠	This section concerns risk of injury, system damage or loss of data

	WARNING
⚡	This section concerns risk of severe injury

References on Menu Command, Push Button, Radio Button, LED and Label appear in **Bold**. For example, "Click on the **Ok** button"

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Chapter 1   Product Overview

1.1   Introduction

Compex CGX3224 is a SNMP Managed Switch with 24 10/100Mbps Fast Ethernet ports capable of full or half duplex transmission with flow control. CGX3224 has N-Way Auto-Negotiation capability, thus allowing the ports to be automatically configured for the highest possible operation mode between two network nodes. It comes with 2 slots that allow insertions of 2 modular Gigabit modules or Fiber Optics modules. Compex CGX3224 is integrated with an Aggregating Router supporting up to 4 broadband channels for Internet sharing and providing Load Balancing and Fail-Over Redundancy to the Internet. Compex CGX3224 supports Port-based VLAN and Tagged VLAN, improving network performance by reducing the broadcast traffic. It also supports up to 8-level Priority Queuing, improving the performance of bandwidth-demanding applications. Compex CGX3224 is integrated with an embedded HTTP server, providing a user-friendly web-based management interface. Compex CGX3224 is the complete solution for corporate network installation.

1.2   Features and Benefits

Compex CGX3224 is specially designed for building switched network system for large enterprise and medium to small size workgroup. Enhanced features are introduced to Compex CGX3224, making it a perfectly high-performance backbone switch for today's corporate network.

- **Fast Ethernet Switching**
  Compex CGX3224 comes with 24 10/100 Mbps Fast Ethernet auto-sensing ports supporting full and half duplex transmission on its 12Gbps switching bus.

- **SNMP Management Functions**
  Compex CGX3224 has been designed with SNMP management functions, which has the capability to support 4 groups of RMONS: Ethernet Statistic, History, Alarm and Event.

- **Aggregated Router Capability**
  Compex CGX3224 also has the ability to support Broadband Internet sharing. Up to 4 ports may be connected to external Cable/ADSL modems, delivering aggregated bandwidth to the Internet while providing fail-over redundancy.

Chapter 1   Product Overview

- **Port Trunking**
  Up to 4 ports may be defined for Port Trunking, delivering up to 800 Mbps cascading bandwidth between two switches.

- **VLAN Support and Tagging**
  Compex CGX3224 can support up to 32 port-based VLANs and static configuration of 802.1Q VLAN tagging. It allows the network administrator to separate the network into a few segments by defining which port belongs to which VLAN segment. This can effectively control broadcast and multi-cast packets flooding the network. This not only improves the network performance, but also provides security between workgroups.

- **Optional Modules**
  Compex CGX3224 is designed with 2 expansion slots to support 3 types of optional modules, 1000 Base-T Gigabit Fiber module, 1000 Base-SX Gigabit Fiber module and 100 Base-FX Fast Ethernet Fiber module.

  Please note that 1000 Base-LX and 100 Base-FX Single Mode modules are also available upon request.

- **Management Interface and Capabilities**
  Compex CGX3224 allows you to manage the switch through common management software. Web based management is also provided so that you do not need to purchase expensive management software in order to manage your Ethernet switch. You can use any popular Web browser software to browse the HTTP server inside Compex CGX3224. From the Web page, you can do any configuration and statistic inquiry on the switch. FreedomView Pro SNMP application is also bundled together in the package.

  Through the management interface, you can also change the transmission mode of all ports on Compex CGX3224 switch. This means that you can change the operating mode of any port to 10 Base-T half duplex, 10 Base-T full duplex, 100 Base-TX half duplex, 100 Base-TX full duplex or N-way Auto-negotiation at any time. It also means that you can change the transmission mode through the Web browser interface, FreedomView Pro SNMP Manager Software, console port or even Telnet interface.

- **Spanning Tree Protocol**
  Provides redundant links while preventing network loops.

1.3   Packaging Content

Thank you for purchasing the Compex Web Managed Switch CGX3224. You will find the following items in the package:

Please note that the actual product appearance may slightly differ depending on the hardware version.

1 x Compex CGX3224 unit   2 x brackets

6 x screws   1 x RS232 straight cable

1x Quick Install Guide with   1 x CD-ROM   1 x Power Cord
    warranty card

1.4   Overall Setup Procedure

1. Hardware Installation of Compex CGX3224.
   Refer to **Chapter 2 "Hardware Installation" on Page 7**

2. Set IP address to Static (Since the DHCP default setting for Compex CGX3224 is disabled)
   Refer to **Appendix III "TCP/IP Configuration" on Page 79**

3. Configure Compex CGX3224
   Refer to **Chapter 3 "Hyper Terminal Configuration" on Page 9** or **Chapter 4 "Access to Web-based Interface" on Page 11**

1.5   Network Applications

Compex CGX3224 may be used in the Backbone with an ADSL broadband internet connection as shown in Figure 1.5a. Virtual LAN may be defined on Compex CGX3224 to logically segmentize your LAN into multiple broadcast domains with workgroup classifications.
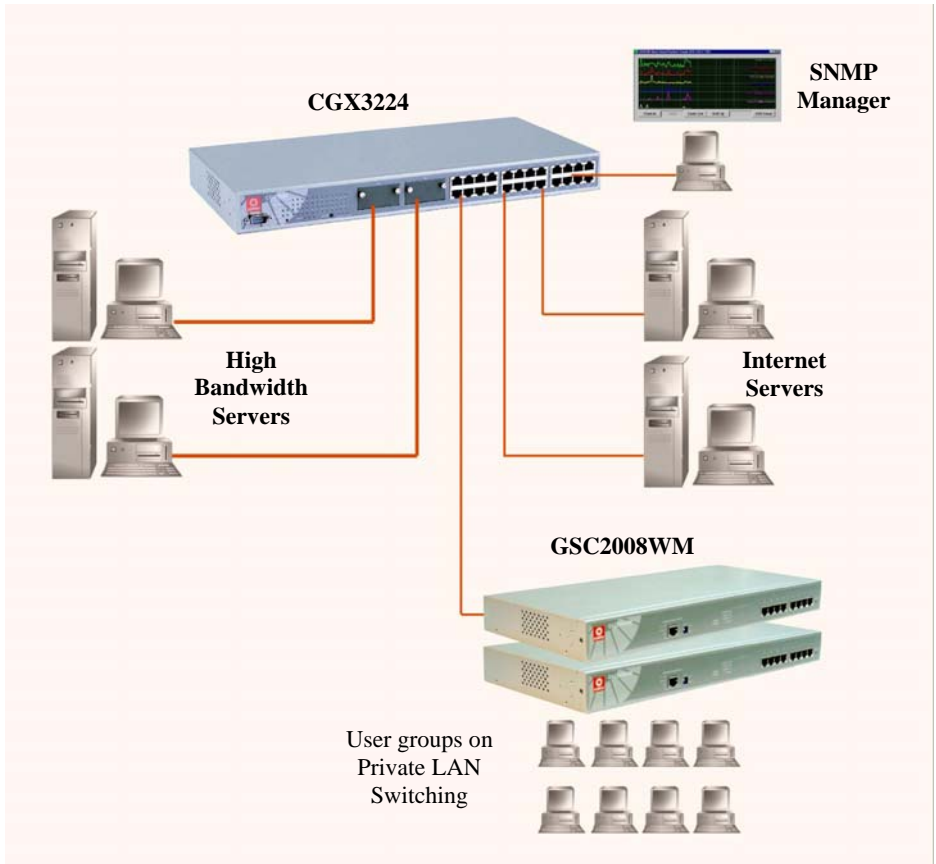
Figure 1.5a   Compex CGX3224 in the Backbone

You can connect Compex CGX3224 via the optional modules to an external Ethernet Hub/Switch to increase the number of users for Internet access. Using a UTP network cable, connect one end to Compex CGX3224 and the other to the network switch.

Figure 1.5b shows how Compex CGX3224 can be connected to an existing switch to increase the Internet access for the LAN users from just one dedicated Internet access to multiple accesses.
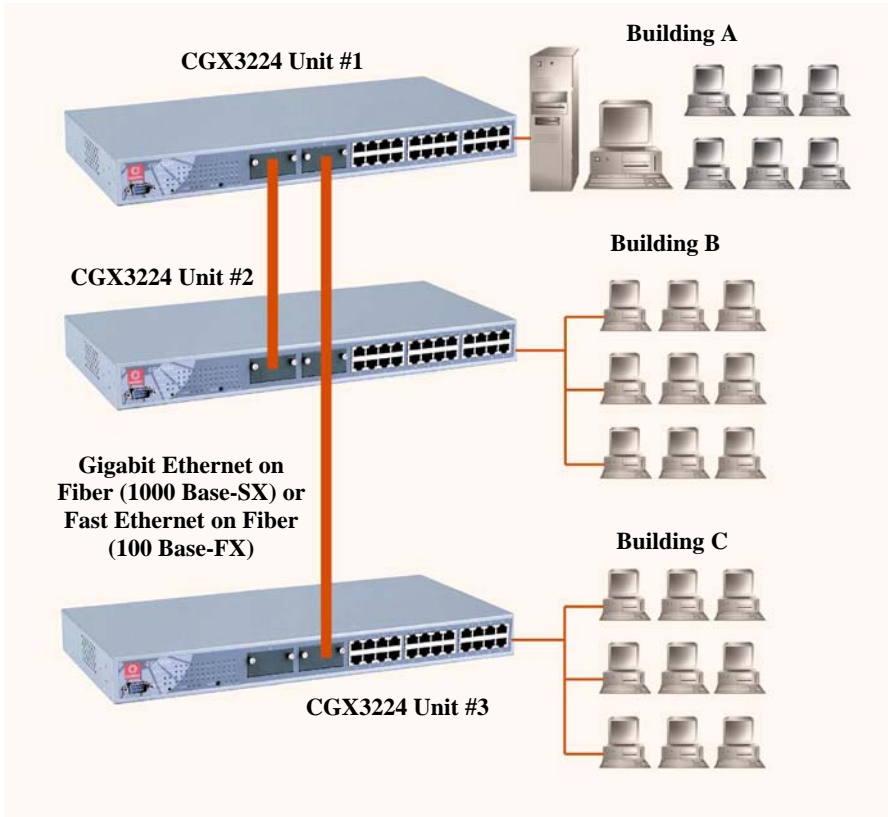
Figure 1.5b   Compex CGX3224 installed with optional fiber optic module

Chapter 1   Product Overview

Compex CGX3224 allows a maximum of up to four modem connections. With Compex CGX3224 and any of the four modems power off, connect one end of the Ethernet cable to any port of Compex CGX3224. The other end of the Ethernet cable is to be connected to your own ADSL/Cable modem. (You may need to refer to your respective Modem's manual for the set up.)
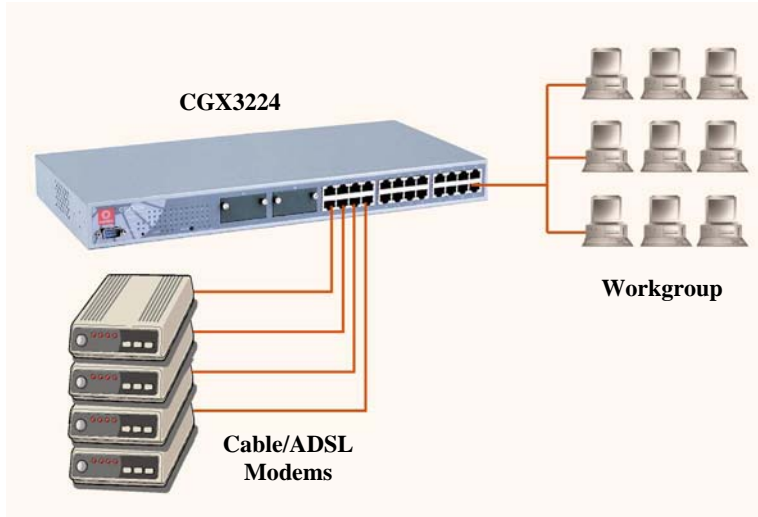
Figure 1.5c   Connecting four cable/ADSL modems to Compex CGX3224

NOTE
Connect Compex CGX3224 using one modem first. Once you have established an Internet connection, then add additional modems as needed.

This chapter gives an overview on the hardware installation, from installing the physical cables to resetting the device.

2.1   Physical Setup for Compex CGX3224

Compex CGX3224 is ideally suitable for office environment usage, which can be either installed on a flat surface or mounted on a 19-inch rack. The following steps illustrate how a proper installation is done.

2.1.1   Desktop Installation

1. Unpack Compex CGX3224.

2. Remove the backing strip from the 4 rubber feet and attach to the underside of the switch chassis firmly.

3. Place it near a power outlet. Please put the device in the position that would allow sufficient space for heat ventilation.

4. The surface to place Compex CGX3224 should be clean, smooth, level and sturdy.

5. Ensure there is enough space around the unit to allow the attachment of network cables.

6. Connect the power cord to the power socket on the rear panel of Compex CGX3224.

2.1.2   Rack-Mounted Installation

1. Position one bracket to align with the holes on one side of Compex CGX3224 and secure it with the smaller bracket screws (1/8-inch diameter). Then attach the other bracket to another side of it.

2. After attaching both mounting brackets, position the device in the rack by lining up the holes in the brackets with the appropriate holes on the rack. Secure it to the rack using the rack-mounting screws (5/16 inches diameters) and a screwdriver.

3. Connect the power cord to the power socket on the rear panel of Compex CGX3224.

NOTE	**NOTE** For proper ventilation, do allow about 4 inches of clearance on the front and back of the switch. This is especially important in an enclosed rack.

2.1.3   Expansion Module Installation

A series of optional expansion modules are available for Compex CGX3224 to upgrades its features. Please note that Compex CGX3224 is not shipped with the Gigabit modules.

1. Power off the switch. Insert the module carefully into the expansion module window and push it along the module rail until it stops. Ensure that there is a secure connection to the PCB Board of Compex CGX3224.

2. Tighten the screws on the module.

2.1.4   Removing the Expansion Module

1. Power off the switch.

2. Disconnect any cable from the module.

3. Unscrew and pull out the module slowly from the expansion module slot.

4. Slide the module completely out of the chassis and cover the window with the cover plates, fasten back using the original screws.

Chapter 3   Hyper Terminal Configuration

This chapter explains the basic setup procedures of configuring Compex CGX3224. For more detailed information about Compex CGX3224, please refer to **Chapter 8 "Advanced Configuration for Compex CGX3224"** on **Page 39**.

We can configure Compex CGX3224 through Hyper Terminal. Please follow the procedures stated below:

1.   Go to control panel and double click **Hyper Terminal** icon.

2.   Type the name in the space provided.
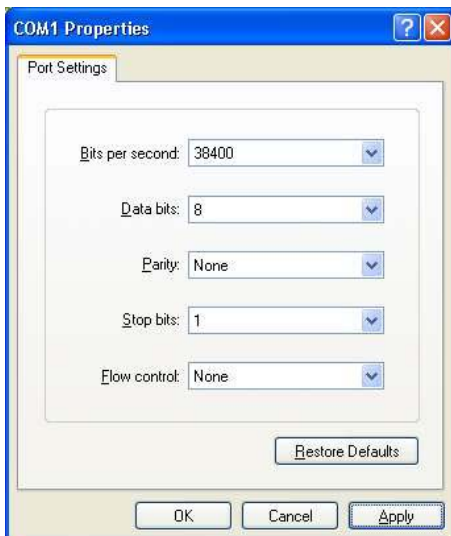
Choose the COM Port which you have selected from your PC.

3.   Adjust the Port setting from the COM1 Properties screen. This will depend on the console port that you are using.

Chapter 3   Hyper Terminal Configuration

After setting all configurations, reset the power supply of Compex CGX3224. A Hyper Terminal screen will appear to list out all configurations.
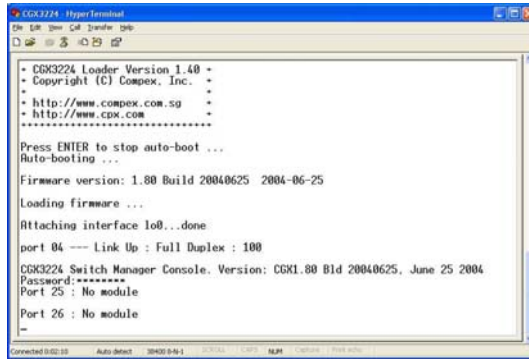
You can modify the configuration on the screen itself, such as changing the IP Address after you have upgrade the firmware.

Chapter 4   Access to Web-based Interface

After setting up Compex CGX3224, install a browser on the PC or workstation. Make sure that TCP/IP protocol is installed and configured. Configuration will be much simpler if you decided to obtain IP address dynamically and use the gateway default IP addresses. Compex CGX3224 is designed with a built-in DHCP server. When WAN setup has done, the system will automatically assigns IP addresses, DNS and Gateway information to the computers connected in the same network. It has been pre-configured with IP address and Subnet Mask of 192.168.100.128 and 255.255.255.0 respectively.

An Internet browser would be used to configure Compex CGX3224. The most commonly used browsers include Netscape Navigator, Netscape Communicator and Microsoft Internet Explorer browsers as they support frames and Java. We recommend you to use the Netscape Communicator V4.06 and higher, or Microsoft Internet Explorer 4.0 and higher.

Start by running your browser on a workstation connected onto the same network as Compex CGX3224. Enter URL Address, http://192.168.100.128.

4.1   Login to Web Browser Interface

The following is a list of the various ways different browsers access a website. Follow the instructions for the browser that you use.

In Netscape Navigator

1. Select the File menu, then select **Open Location**.

2. In the **Open Location** dialog box, enter the IP address of the Gateway. The default address is http://192.168.100.128.

3. Click on the **Open** button.

In Netscape Communicator

1. Select the File menu, and then press **Open Page**.

2. In the **Open Page** dialog box, enter the IP address of the Gateway. The default address is http://192.168.100.128.

3. Make sure the Navigator radio button is selected then click the **Open** button.

In Internet Explorer

1. Select the File menu, then select **Open**.

2. In the **Open** dialog box, enter the IP address of the Gateway. The default address is http://192.168.100.128.

3. Click on the **OK** button.

You will see the following screen appears on the Web browser program. Type in the password and click **Log On!** button. The default password is "*password*".

After logging in to the Management system, the Main Page will display as shown below. The image of Compex CGX3224 is shown on the upper right window. The status of each switch port (i.e. link, speed and duplex mode) can be seen clearly from the LED displays on the image. The lower right window is used to display the web pages of versatile configuration and operation.
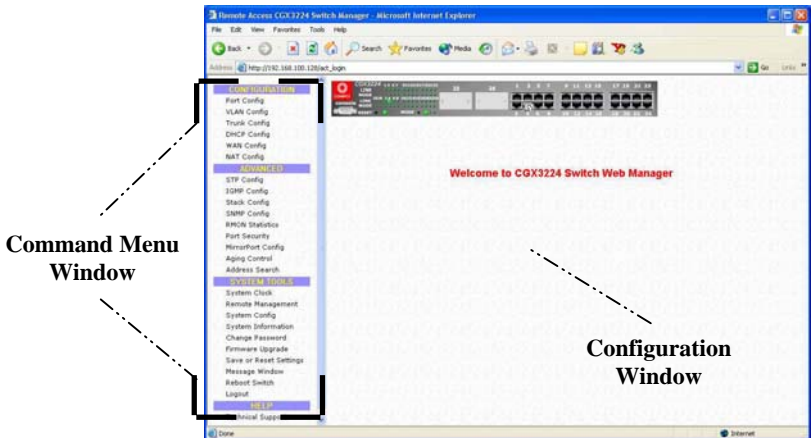
Chapter 4   Access to Web-based Interface

The Main menu includes four sections in the Command Menu Window, namely **CONFIGURATION**, **ADVANCED**, **SYSTEM TOOLS** and **HELP**. The overall descriptions for individual sub-functions are listed as shown:

CONFIGURATION menu

- **Port Configuration** – configuration for communications via network
  Please refer to **Section 5.1 Port Configuration** on Page 16

- **VLAN Configuration** – setup Virtual LAN, whether in tagged or untagged-based
  Please refer to **Section 5.2 Virtual LAN Configuration** on Page 18

- **Trunking Configuration** – Extend the limitation of bandwidth
  Please refer to **Section 5.3 Trunk Configuration** on Page 19

- **DHCP Configuration** – setup, reserve or activate DHCP
  Please refer to **Section 5.4 DHCP Configuration** on Page 21

- **WAN Configuration** – support Static, Dynamic and PPP over Ethernet services
  Please refer to **Section 5.5 WAN Configuration** on Page 25

- **NAT Configuration** – increase security by preventing unauthorized access through WAN
  Please refer to **Chapter 6 NAT Configuration** on Page 27

ADVANCED menu

- **STP Configuration** - discovers and eliminates redundant paths in the network topology
  Please refer to **Section 8.1 STP Configuration** on Page 39

- **IGMP Configuration** - allows the device to forward multicast traffic intelligently
  Please refer to **Section 8.2 IGMP Configuration** on Page 44

- **Stack Configuration** – allows user to enable the stacking function of the switches
  Please refer to **Section 8.3 Stack Configuration** on Page 47

- **SNMP Configuration** – monitors and oversees network
  Please refer to **Section 8.4 SNMP Configuration** on Page 51

- **RMON Statistic** – enables various network monitors and console systems to exchange network-monitoring data
  Please refer to **Section 8.5 RMON Statistic** on Page 52

- **Port Security** – secures/reserves certain port/s from other user's access
  Please refer to **Section 8.6 Port Security** on Page 53

- **Mirror Port Configuration** – duplicates a port's traffic on a port
  Please refer to **Section 8.7 MirrorPort Configuration** on Page 54

- **Aging Control** – limits the resource in the forwarding table
  Please refer to **Section 8.8 Aging Control** on Page 56

- **Address Search** – searches for Host and MAC address of the connected device in the network
  Please refer to **Section 8.9 Address Search** on Page 57

SYSTEM TOOLS menu

- **System Clock** – manages and utilizes timing based function
  Please refer to **Section 9.1 Set System Clock** on Page 59

- **Remote Management -** access your Compex CGX3224 through Internet (WAN) or Local Area Network.
  Please refer to **Section 9.2 Remote Management** on Page 60

- **System Configuration** – allows change of IP Address, Subnet Mask or Gateway
  Please refer to **Section 9.3 System Configuration** on Page 62

- **System Information** – indicates essential information of Compex CGX3224
  Please refer to **Section 9.4 System Information** on Page 63

- **Change Password** – amends system administrator's password
  Please refer to **Section 9.5 Change Password** on Page 64

- **Firmware Upgrade** – uploading latest firmware to Compex CGX3224
  Please refer to **Section 9.6 Upgrading Compex CGX3224 Firmware** on Page 65

- **Save or Reset Settings** – saves or resets all settings
  Please refer to **Section 9.7 Save or Reset Settings** on Page 66

- **Message Window** – various actions which is taken previously while configuring can be seen in this window
  Please refer to **Section 9.8 Message Window** on Page 68

- **Reboot Switch** – restarts the device
  Please refer to **Section 9.9 Reboot Switch** on Page 68

- **Logout** – exit
 Please refer to **Section 9.10 Logout** on Page 69

HELP menu

- **Technical Support** – make enquiries when you encounter problems while setting up the device
  Please refer to **Chapter 10 Technical Support** on Page 70

## Chapter 5   Configure Compex CGX3224 using Web Interface

This chapter explains the configuration menu tool that comes with Compex CGX3224 when you use the web-based configuration interface. Here, we will briefly discuss each Menu components and its functions.

An interactive image is located at the main page of Compex CGX3224. It allows you to view the real time situation in the network. In addition, you may click on any of the ports, including the expansion module, to view the port status.

Port Configuration(click)
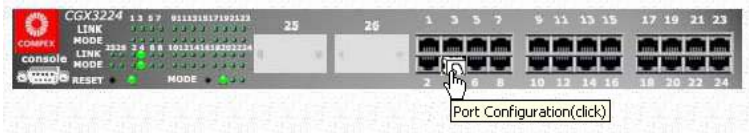
5.1   Port Configuration

This function allows you to have an easy access to the network via the ports of Compex CGX3224. Notice that the "Link state" option indicates 'Up'. This shows that the port is connected to the network. It can either be in "Up" (Connected) or 'Down' (No Connection) state.

16
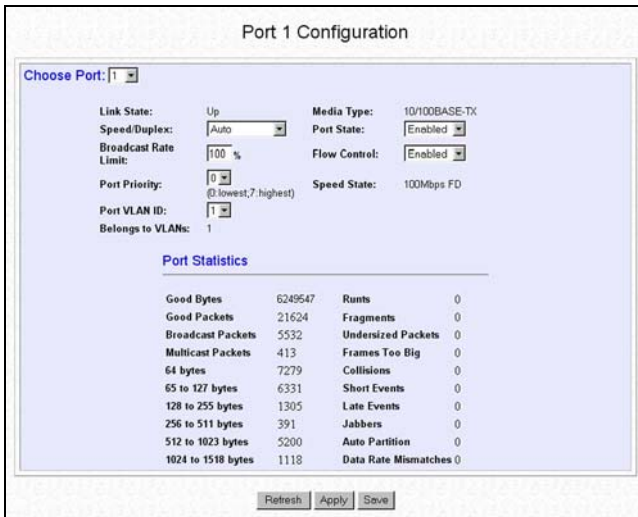
Description of parameters

Broadcast Rate Limit	This function sets broadcast limit to the desired rate for the specified port. It controls the reception of broadcasting packets. The range for Broadcast Rate Limit can be set from 0% to 100%. The higher the rate, the more data can pass through.
Port Priority	Allows you to specify the VLAN priority to expedite the VLAN traffic.
Port VLAN ID	VLAN ID is the sequence number of a VLAN. Compex CGX3224 has 32 VLANs to specify and therefore the VLAN ID is from 1 to 4091.
Port State	Enabling this function allows the chosen port to receive, forward packets, and learn the respective MAC Addresses of the source.
Flow Control	This feature reports the Flow Control setting of the port. Enabling the Flow Control function allows Half and Full Duplex mode.

NOTE

NOTE
If the port (management port) that is connected to your management PC has disabled, the communication link between users and the management system will be severed and the management cannot be proceed further. So, disabling the management port will be rejected automatically by the management system.

Procedures

1. Go to **Port Config** from the Command window.

2. Click on the image to select a port or select from the **'Choose Port'** field.

3. Enter the values in the respective field accordingly and click on the **Apply** button to make the configuration effective.

4. Hit the **Save** button if you are satisfied with the setting.

NOTE

NOTE
The screen is divided into two sections. The Port Statistics page displays detailed information about each port. Click **Refresh** button to view the current port status of Compex CGX3224.

5.2   Virtual Local Area Network (VLAN) Configuration

Compex CGX3224 supports Virtual LAN, which logically groups every connection into VLANs for traffic isolation and security purposes. Both tagged and untagged based VLAN are supported with a total maximum of 32 groups. Each VLAN group only forwards traffic within its member ports. For tagged VLAN, each port can be a member of more than one VLAN group and it also supports eight levels of priority. You can also create a Tagged VLAN and support a connection with a legacy untagged VLAN. The VLAN configuration feature also allows you to build, delete, view tagged/untagged VLAN groups and set priority for tagged VLANs. The range of VID starts from 2 to 4091. VID 001 is the default for Group 1.
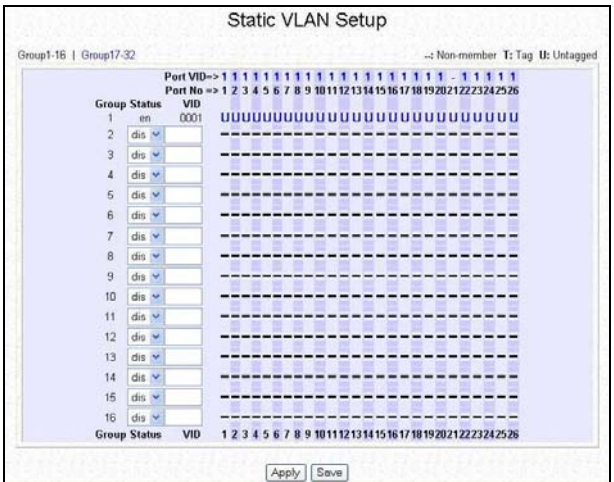
Procedures

1. Go to **VLAN Config** from the Command window.

2. Decide which Group you want to set for monitoring using mirror port. Click status column for that particular group and key in the VLAN ID.

3. Next, click on the dashed line '–' to select either 'T' for Tagged or 'U' for Untagged.

4. Hit on **Apply** button after you are satisfied with the setup. Click **Save** button to update the configuration.

5.2.1   Simple application on VLAN Configuration

Please refer to **"Application on Virtual LAN"** on Page 71.

5.3   Trunk Configuration

Port Trunking is the ability to group together several switch ports to increase the bandwidth between Compex CGX3224 and other switch. This is an inexpensive method to increase throughput between switches.

NOTE

To avoid broadcast storms, or looping in your network while configuring trunks, you need to disable/disconnect all the ports that you wish to add/remove from both sides of the trunk. Once you have finished configuring trunking, enable/re-connect the ports.

Procedures

1. Go to **Trunk Config** from the Command window.

2. You can choose up to 4 ports for trunking by selecting '-' as 'T'.

3. Click on **Apply** button to make the configuration effective and save the latest setting.

NOTE

You may set up to 4 trunking ports for the switch.

5.3.1   Simple application on Port Trunking

From the figure shown below, we are using two Compex CGX3224 to perform Port Trunking. Port #25 and #26 are set as trunking ports for both Unit #1 and #2. After selecting the trunking group (refer to Figure 5.3c), CGX3224 Unit #1 and Unit #2 has created a pipeline with an aggregated bandwidth of Port #25 and Port #26 combined.
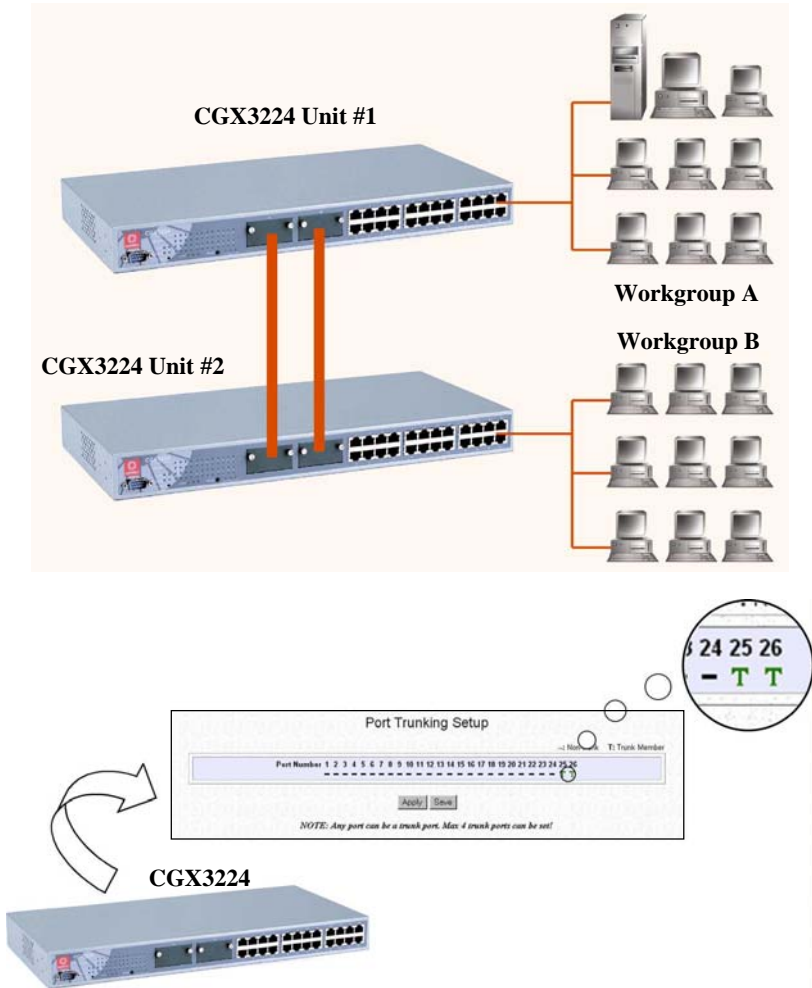

Figure 5.3a   Port 25 and 26 are set as Trunking Ports

5.4   DHCP Configuration

Dynamic Host Configuration Protocol (DHCP) allows a PC to join an IP-based network without the need of configuring the IP Addresses. It assigns a unique IP address to the device. When this device leaves the network, DHCP server will release the IP address, and when it re-joins, the DHCP server will then renew the IP address.

If you have set the TCP/IP protocol of your PC to dynamic IP address, the built-in DHCP server will automatically assign the IP address/es within the range of **DHCP Start IP Address** and **DHCP End IP Address** to the PCs connected in the same network. For dynamic WAN IP, the **DNS IP address** is obtained automatically from the ISP.

NOTE	**NOTE**
	If you are running different DHCP servers on your network, you will have to enable only one DHCP server to prevent any conflict in the network addressing.

DHCP Setup

DHCP Setup | DHCP Active Leases | DHCP Server Reservations

IP Address	192 168 88 128
Subnet Mask	255 255 255 0
DHCP Start IP Address	192 168 100 100
DHCP End IP Address	192 168 100 254
☑ Always use these DNS servers:	
Primary DNS IP Address	203 120 90 90
Secondary DNS IP Address	192 168 33 3
☐ Always use default Gateway:	
Default Gateway	192.168.88.128
DHCP Server	○ Enable ○ Disable

Apply   Save

Description of parameters

IP Address   IP (Internet Protocol) address uniquely identifies the Gateway in the network. This is the IP address that users should point to as their Internet gateway if fixed IP addresses are configured on the computers in the network. However, the DHCP Server will assign this information if the computers are configured to dynamically obtain IP addresses.
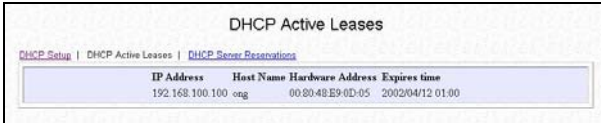
Subnet Mask	This is the Subnet Mask to identify the class of the Gateway's IP address. By default, Class C Subnet Mask 255.255.255.0 is set. The users may configure the network with Class A (255.0.0.0) and Class B (255.255.0.0) Subnet Mask as well. In addition, Compex CGX3224 can be configured for Classless Subnet to support certain applications.
DHCP Start IP Address & DHCP End IP Address	These parameters specify the range of the IP addresses of which the DHCP Server will assign.
Primary DNS IP Address & Secondary DNS IP Address	DNS is an Internet service that translates domain names into IP addresses. If your WAN connection uses Static IP, you should configure the primary and secondary DNS IP addresses with the DNS information provided by your Broadband Internet Service Provider. For other WAN connection types, the DNS IP addresses are automatically obtained from the ISP. The "Always use these DNS servers:" checkbox can be used to disable the automatic process, and your preferred DNS IP addresses can be used.
DHCP Server	DHCP server dynamically assigns IP addresses to the PCs connected in the same network. DHCP comes with a built-in DHCP server that automatically assigns IP addresses, DNS and Gateway information to the computers connected in the same network. It has been pre-configured with IP address and Subnet Mask of 192.168.100.128 and 255.255.255.0 respectively.

Procedures

1. Go to **DHCP Config** from the Command window.

2. Enter the values for **IP Address**, **Subnet Mask**, **DHCP Start** and **End IP Addresses** to individual fields.

3. You can check on **Always use these DNS servers:** to disable the function of retrieving DNS IP Address automatically, so that you can enter your preferred DNS IP Address in the Primary and Secondary DNS IP Address field.

4. Next, you can set DHCP Server to **Enable** if you wish to use the built-in DHCP server of Compex CGX3224.

5. Click on **Save** button to save your configuration.

5.4.1   DHCP Active Leases

This section indicates the information of the PC whereby the IP addresses are dynamically assigned to it in the same network. The Expire Time indicates the time when the system needs to update the IP Address of that particular PC.
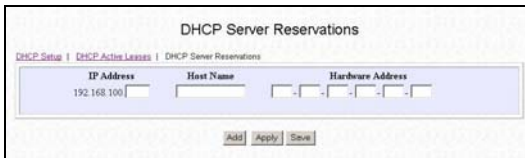

5.4.2   DHCP Server Reservations

DHCP Server can also be configured to reserve specific IP addresses for specific host or Mac address.

CAUTION
The reserved IP address to be assigned should NOT have the same Dynamic IP address range as the DHCP Start and End IP address.

Procedures

To reserve certain IP addresses for the specific workstation,

1. Enter the values and name in the respective fields provided.

NOTE
The DHCP server will ignore the Host Name if it finds a match in the Hardware Address. It checks the Hardware Address first, so you need only to enter either the Host Name or Hardware Address.

2. Click **Add** button to create an entry into the DHCP Server Reservations.

3. After the address is entered, click on **Save** button to save your setting. Keep on adding the IP Address onto it by repeating the procedures as mentioned previously if you need to reserve more IP Addresses.


5.4.3   Delete IP Address in Server Reservations

Procedures

1. If you wish to delete any of the IP Addresses stated on the screen.

2. Highlight that particular IP Address.

3. Click on **Delete** button and the IP Address will be deleted instantly!

5.5   WAN Configuration

Compex CGX3224 is pre-configured as WAN disabled. It can support Static IP, Dynamic IP and also PPP Over Ethernet.

If you have chosen self-installation when you register for the broadband service, you should first test the ADSL modem together with the logon account. Make sure that it can connect successfully before attempting to run it with Compex CGX3224. For purpose of illustration, it is assumed that LAN uses the IP address 192.168.100.xxx and Compex CGX3224 is using the same settings as defaults. However, if you have assigned a different IP address for Compex CGX3224, then use the new settings in the setup procedures.
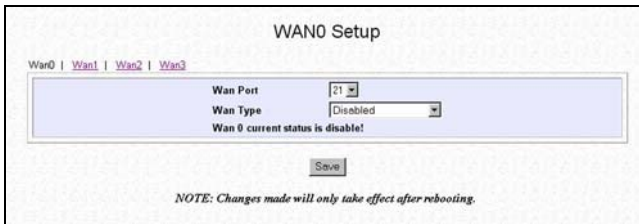
<u>Description of parameters</u>

WAN Port   You may configure any 4 of the 24 ports as WAN port and connect to your ADSL/Cable modem.

WAN Type   <u>Static IP Address:</u>

Select this WAN type if you have subscribed to a specific IP address or to a fixed range of IP addresses from your ISP.

<u>Dynamic IP Address:</u>
This IP address is automatically assigned by your ISP. This type of connection applies to most Cable Internet subscribers such as:
- Singapore Cable Vision subscribers.
- @HOME Cable Service users.

<u>PPPoE:</u>
Select this connection type if you have subscribed to ADSL in a country utilising standard PPPoE for authentication, for instance:
- If you are in Germany which uses T-1 connection.
- If you are a SingNet Broadband or Pacific Internet Broadband user in Singapore.

Chapter 5   Configure Compex CGX3224 using Web Interface

Procedures

1. Go to **WAN Config** from the Command window.

2. Select a WAN port and then a WAN Type. Any one of the 4 WAN Types are eligible to configure, depending on which Internet Service Provider you subscribed.

3. Click **Save** button to update the configuration.

Details on various broadband Internet services can be seen on **"Configuring Your Wide Area Network"** on **Page 31**.

Network Address Translation allows an IP-based network to manage its public (Internet) addresses separately from its private (intranet) addresses. With NAT, each private IP address can be translated to a different public address, or multiple private addresses can be aliases to a single public one. To accomplish this, NAT software snoops both incoming and outgoing packets on the network. It modifies the source or destination address in the IP header to reflect the mapping between internal and external addressing for that network.

NAT functionality appears on Compex CGX3224 with low-level access to packets at the network boundary. Several variations on NAT have also been implemented to provide additional support for application-level protocols.

6.1   Static IP Setting (IP Forwarding)

IP forwarding is used to control access to local area networks from the Internet. It accomplishes this by determining whether or not IP packets (messages) are exchanged between the local network and the Internet.

Procedures

To set a static IP Address,

1. Go to **NAT Config** from the Command window.

2. Enter a private IP Address, such as *192.168.100.20*, in the field provided and click **Save** button.

   Please note that you must enable the **NAT** function in the Configuration window if you are using a single IP address account (fixed static IP) and want to share this connection on your LAN.

6.2   Static Port Setting (Port Forwarding)

Port Forwarding redirects any incoming Internet request on the Public IP, based on its TCP/UDP Port number to another computer in the Private IP. Hence, when a user from WAN sends a request to your network, Compex CGX3224 (based on the Port–Forwarding configurations) will forward these requests to the assigned PC.

When your ISP assign you with only one fixed Public IP address, and you want to define the various servers (such as, FTP, HTTP, Net meeting, Mail server etc) to specific Private IP address in your LAN. You can choose to host the servers by using the port-Forwarding Virtual server.

For example, suppose that you have a FTP Server with an IP address of 192.168.168.41. Your broadband ISP has assigned a Public IP address of 203.120.12.100 to the gateway. To support a Web Server in your Private Network, you need to define an **NAT Static Port-based Entry** to forward **TCP port 21** (used by FTP) to 192.168.168.41. Every http://203.120.12.100 requests will then be forwarded to the FTP Server.

Procedures

Follow the steps shown below to configure Static Port.

1. Go to **NAT** function at the Command Window. Select the type of Server you wish to configure as shown in the figure below:
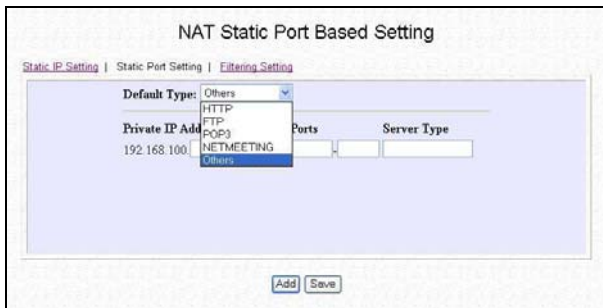
2. Key in the **Private IP Address**.

3. Next, choose a transport protocol, either **TCP** or **UDP**, for the respective IP Address.

Chapter 6　　NAT Configuration

The Internet makes two transport protocols available to its applications, namely TCP and UDP.

Transmission Control Protocol (TCP)	For building a reliable communications stream on top of the unreliable packet Internet Protocol (IP). TCP is the protocol that supports nearly all Internet applications.
User Diagram Protocol (UDP)	A connectionless protocol that runs on top of IP networks. UDP/IP provides very few error recovery services, offering instead a direct way to send and receive datagrams over an IP network. It is used primarily for broadcasting messages over a network.

6.3　Filtering Setting

Compex CGX3224 allows Packet Filtering rules be defined based on three factors, Source IP Address, TCP Port and Time. IP Packet Filtering examines the outgoing packets and decides whether to bypass or to block them. After the Packet Filtering rules have been defined, the users may select to bypass or to block the outgoing packets that do not match the rules.

For example, assume that a rule has been defined as "TCP Port 23 (used by TELNET) from any IP on any day at any time". If the "forwarded" radio button is selected, all outgoing packets will be sent except TELNET session. If the blocked radio button is selected, all outgoing packets will be blocked except TELNET sessions.

Click on **Filtering Setting** at the Configuration window and the GUI will appear as shown:

Procedures

1. Select **Add** button and the screen will facilitate the users to add rules for IP Packet Filtering.

2. Enter the appropriate data in the respective entries for **Rule Name**, **IP Address**, **Destination Port**, **Day of the Week** and **Time of the Day**.

3. Press the **Apply** button to add the new rule.

To delete a rule, select the rule on the **Select to Edit** column and click **Delete** button.

CAUTION
You must synchronize the clock of Compex CGX3224 to your PC's time for the rules to execute accurately. Refer to **"Set System Clock"** on **Page 59** to utilize the timing based function of Compex CGX3224.

Chapter 7   Configuring Your Wide Area Network

This section explains how to configure Compex CGX3224 to distribute Broadband Internet Access to the Wide Area Network.

If you have chosen self-installation when you register for the broadband service, you should first test the ADSL modem together with the logon account. Make sure it can connect successfully before attempting to run it with Compex CGX3224.

For the purpose of illustration, it is assumed that LAN environment uses the IP address 192.168.100.xxx and Compex CGX3224 is using the default settings.

However, if you have assigned a different IP address for Compex CGX3224, then use the new settings in the setup procedures.

7.1   Selecting the right connection for your Broadband Internet Service

Choosing the right connection type on Compex CGX3224 is important to ensure that you are properly connected to your broadband Internet subscription. The following summarizes the type of connection suitable for your broadband Internet subscription.

Static IP
This type of connection should only be used if and only if you have subscribed to fix IP or a range of fix IP address from your service provider for your Cable Internet connection or Direct Ethernet point.

Dynamic IP
This type of connection should be used if you are configuring Compex CGX3224 for your Cable Internet service. Once powered on, Compex CGX3224 will request for an IP address, which will be assigned by your service provider. Certain Cable Internet Service Providers require DHCP Client ID to be passed in before an IP address is released. For such cases, you must configure the **System Config** with a **System Name** equivalent to the DHCP Client ID. The configuration of **System Config** may be found in **"System Configuration"** on **Page 62**.

PPP Over Ethernet (PPPoE)
This type of connection should be chosen for ADSL services that use standard PPP Over Ethernet (PPPoE) for authentication.

Chapter 7   Configuring Your Wide Area Network

7.2   Setup on Compex CGX3224 for Broadband Internet Access

For such services, you should have the IP address info ready before proceeding. This is provided by the ISP.

1. Connect a network cable from the Ethernet port of Compex CGX3224 to your workstation.
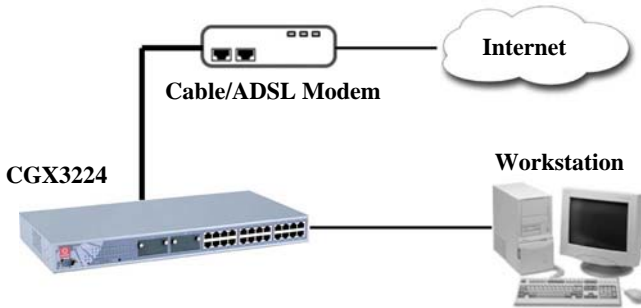
2. Connect an Ethernet cable from Ethernet port of CGX3224 to the ADSL/Cable modem.

3. Power on the broadband modem and wait for broadband modem to complete the initialization process. That may take about 1 minute or more, depending on the brand and design of individual modems.

4. Next, power on both your workstation and Compex CGX3224. The LINK/ACT LED should light up, indicating that the connection has established.

5. You may start to configure Compex CGX3224 before connecting to the Internet. Please refer to **Chapter 5 "Configure Compex CGX3224 using Web-based Interface"** on Page 16.

6. Once everything is checked, you can now access to the Internet.

7.3   Configuring Static IP Connection

Procedures

1. Go to **WAN Config** at Command Window, click on the pull-down menu from the **WAN Port** field.

2. Next, select **Static IP Address** from the pull down menu at **WAN Type** field.

   You may enter your IP Address, Subnet Mask and Gateway IP Address in the individual fields. All these information can be obtained from your ISP/Network Administrator.

3. Click on **Save** button to update the data.

The **WAN Setup** screen shows a **Static IP Configuration** that allows you to configure your Static IP connection to your ISP.

7.4   Configuring Dynamic IP Connection

Compex CGX3224 uses Dynamic IP as the default WAN type. Hence, if you are using Cable Internet, you do not need to configure the WAN connection.

However, if your account requires a **DHCP Client ID** in order to release an IP address, you may need to configure the name of Compex CGX3224 with the DHCP Client ID issued by your ISP.

See the section on "**System Configuration"** on **Page 62**, and remember to enter the DHCP Client ID issued by the ISP into the **System Name** field in the System Identity.

NOTE	**NOTE** If your computer is not able to access any web site, please verify that your DNS entry of the computer has been defined correctly.

7.4.1   How to Configure Singapore Cable Vision (SCV) Service

SCV provides Dynamic IP address connection service. Assume that your CGX3224 is not in the Dynamic IP setting, please follow these procedures to change to the appropriate WAN type.

Procedures

1. Go to **WAN Config**. Click on the pull-down menu from the **WAN Port** field.

2. On the list of other WAN types selection, select **Dynamic IP Address** and hit on the **Save** button.
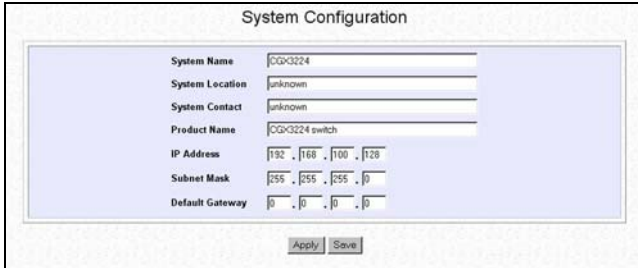
7.4.2   How to Configure @HOME Cable Service

Many broadband services require a simple DHCP request for connection. Two such cable services are Optus@Home and **Roger@Home**.

Description of parameters

System Name	You can obtain this information from your ISP.
System Contact and Location	You may leave it as it is or fill in your ISP contact and location information. They are for your future reference only.

Procedures

To configure @HOME Cable Service,

1. Follow the steps stated in "Configuring for Singapore Cable Vision (SCV) Service" on the previous section.

2. Next, click on **System Config** at the Command window under the **SYSTEM TOOLS** menu and enter the required entry as shown.

3. Click on **Apply** and then **Save** button to set the System Configuration.

4. Reboot your device.

7.5   Configuring PPP over Ethernet Session (PPPoE)

For Broadband service providers such as Pacific Internet Broadband and SingNet Broadband, you have to select the PPPoE WAN configuration. This includes Germany who is using T-1 connection.

NOTE	**NOTE**
	Certain ADSL Internet subscriptions require **Service Name** to be specified in order to establish a PPPoE connection.

7.5.1   How to Configure SingNet, PacNet &QALA DSL Broadband

This procedure assumes your ADSL modem and PC/notebook is operational with the logon account from SingNet, Pacific Internet or QALA DSL broadband service, and necessary hardware connection has been established.

NOTE	**NOTE**
	If you have chosen self-installation when you register for the broadband service, you should first test the ADSL modem together with the logon account on your PC. Make sure it can connect successfully before attempting to run it with Compex CGX3224

Procedures

1. Go to **WAN Config**. Click on the pull-down menu from the **WAN Port** field.

2. Click on **WAN Type** option and select **PPP over Ethernet**.

3. Click **Save** button to update your configuration.

Now, you may activate the Internet Explorer and start surfing the net.

The **WAN Setup** screen below shows **PPPoE** configuration that allows you to configure your ADSL Internet subscription.

Description of parameters

Username and Password	The information is given by the Internet Service Provider.
Service Name	Certain ADSL Internet subscriptions require the user to enter the service name. You may enter the service name for your ADSL Internet subscription.
Idling Timeout	Idle Timeout is the count down time to cut off the broadband connection when there is no traffic passing through the WAN port i.e. when there is no more activity at the WAN port after all your PCs are turn off.

NOTE

NOTE
For Singapore users should follow the format below to enter their usernames:
Pacific Internet Broadband: username@pacific.net.sg
SingNet Broadband: username@singnet
QALA DSL: username@qala.com.sg

To connect to the Internet service, you can easily do so by clicking on the **Connect** button. When the connection is established, the status appeared on the screen will indicated as connected.

Please note that before you click on the **Connection** button, make sure you have connected the broadband modem to Compex CGX3224's remote port. The cable connection is good when the indicating light for the LAN on the broadband modem and the remote port on the switch is lighted up.

Click **Disconnect** button to terminate the Internet connection immediately.

Chapter 8   Advanced Configuration for Compex CGX3224

In this chapter, you can understand how the configuration on Spanning Tree Protocol (STP) can be easily done. Compex CGX3224 implements Internet Group Multicast Protocol (IGMP) function which forwards multicast traffic intelligently. Simple Network Management Protocol (SNMP) is also introduced to provide a standard mechanism to monitor and control network devices.

8.1   STP Configuration

Spanning Tree Protocol, designed to run on bridges and switches, is a link management protocol that provides path redundancy while preventing undesirable loops in the network. The main purpose of STP is to ensure that the system do not run in looping situation when it has redundant paths in your network. For an Ethernet network to function properly, only one active path can exist between two stations.

Multiple active paths between stations cause loops in the network. If a loop exists in the network topology, the potential exists for duplication of messages. When loops occur, some switches see stations appear on both sides of the switch. This condition confuses the forwarding algorithm and allows duplicate frames to be forwarded. STP should be used in situation where you want redundant links but not loops. If your primary system fails, the backup links are activated so that users can continue using the network. Without STP on the bridges or switches, such a situation may result in a loop.

The example shown in Figure 8.1a illustrates a redundant link between Compex CGX3224 Unit #1 and #2. The probability of having a bridging loop is quite high. This is because, a broadcast or multicast packets might be circulating repeatedly between CGX3224 Unit #1 and #2.

Before implementing STP

CGX3224 Unit #1

Workstation A

Broadcast

Workstation B

CGX3224 Unit #2
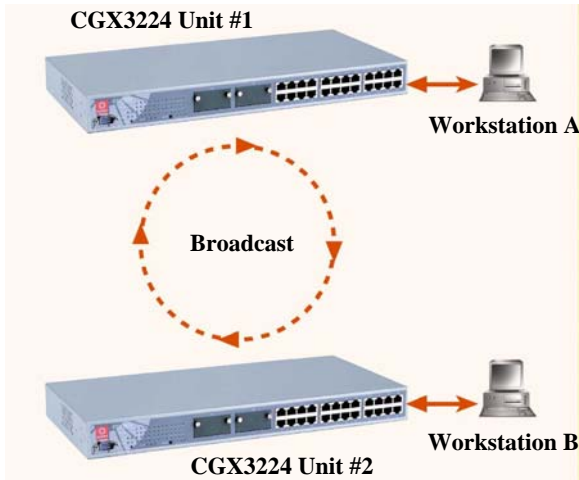
However, if STP is activated on both switches, broadcast and multicast packets would be transmitted as shown in Figure 8.1b. To provide this desired path redundancy, as well as preventing bridging loops, STP defines a tree that spans all switches in an extended network. STP forces certain redundant data paths into a blocked state, leaving others in the forwarding state. If a link in forwarding state becomes unavailable, STP will reconfigure the network and re-route the data paths by activating the appropriate standby paths.

After implementing STP

CGX3224 Unit #1

Workstation A

Broadcast **STOP**

Workstation B

CGX3224 Unit #2
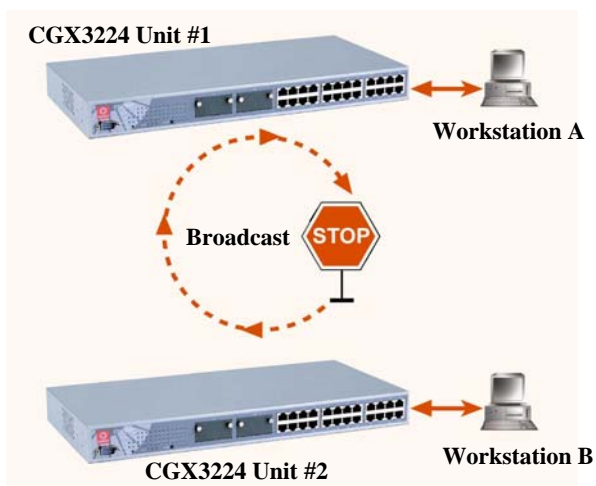
8.1.1   STP Port

When Compex CGX3224 first powers up, all bridges will declare themselves to be the root. The one with the lowest priority will be the root. The bridges will stop advertising themselves and use the Bridge Protocol Data Units (BPDUs) of the root bridge.

During normal operation for Compex CGX3224, the ports are either forwarding or disabling.

Description of parameters

Bridge Port (from Port 1 to 26)	This option shows the port of the bridge that connects to the root bridge.
Path Cost (from 1 to 65535)	This option sets the Spanning Tree path cost for this port. A lower path cost represents higher transmission speed.

Priority (from 0 to 65535)	The lower the number the higher the priority.
Designated Cost	If the designated bridge is the root bridge itself, then the cost is 0. The identity of the designated bridge is shown in the Design Bridge field.
Designated Bridge	IEEE 802.1D specifics 17 multicast addresses, ranging from 0x00180C2000000 to 0x0180C2000010, to be used by different bridge protocols. These addresses are static addresses that cannot be removed.

Regardless of the STP state, the switch receives but does not forward packets destined for addresses between 0x0180C2000010. If STP is disabled, the switch forwards those packets as unknown multicast addresses. |
Designated Port	Active ports which can forward frames on the root bridge
Forwarding State	STP allows the port to send and receive frames.
Disabling State	The port is not participating in STP. This occurs when the port is disconnected or STP is disabled on the port.
Blocking State	STP has blocked Layer 2 traffic on this port to prevent a loop. The switch or VLAN can reach the root bridge using another port, whose state is FORWARDING. When a port is in this state, the port does not transmit or receive user frames, but the port does continue to receive STP BPDUs

Procedures

1. Select **STP Config** from the Command window.

2. Select one port from 1 to 26 to connect to the root bridge.

3. Key in the value for **Path Cost** (from 1-65535) and set the **priority level** (0-255).

8.1.2   STP Bridge

Spanning-Tree Protocol defines a tree that spans all switches in an extended network. It forces certain redundant data paths into a standby (blocked) state. If one network segment in the Spanning-Tree Protocol becomes unreachable, or if Spanning-Tree Protocol costs change, the spanning-tree algorithm reconfigures the spanning-tree topology and reestablishes the link by activating the standby path.

Spanning-Tree Protocol operation is transparent to end stations, which are unaware whether they are connected to a single LAN segment or a switched LAN of multiple segments.

This section shows how configuration is done in Spanning Tree parameters.

Description of parameters

STP State	When STP is enabled, it will dynamically detect network looping owing to mis-configuration of the network topology. The redundant connectors will be disabled to avoid looping of packets. Looping would often result in flooding of broadcast packets, halting the normal traffic.
Root Priority (from 0 to 65535)	The priority of the switch is currently acting as the root. The bridge with the lowest value has the highest Spanning Tree priority level and is related as the root.

Hello Time **(from 1 to 10s)**	Determines how often the switch broadcasts hello messages to other switches.
Forward Delay	Determines how long each of the listening and learning states last before the interface begins forwarding. This wait is necessary so that other switches on the network ensure no loop is formed before they allow the port to forward packets.
Max Age	Determines the amount of time the switch stores protocol information received on an interface.

Procedures

1. Select **Spanning Tree state** option and set **Root Priority** from 0 - 65535 s, and **Hello Time** from 1 - 10 s.

2. Key in the **Forward Delay Time**, **Maximum Age** and **Hold Time**.

3. Click **Apply** and **Save** button to update your configuration.

NOTE	**NOTE** The screen is divided into two sections. Current Spanning Tree Root section displays the read-only Spanning Tree settings for the current root switch and the parameters this switch is to use when it becomes the root switch only when you click on **Apply** button.

8.2   IGMP Configuration

Internet Group Management Protocol (IGMP) is an Internet protocol that provides a way for an Internet computer to report its multicast group membership to adjacent routers. It allows Compex CGX3224 to forward multicast traffic intelligently. The switch "snoops" the IGMP query and report messages and forwards traffic to only the ports that request the multicast traffic. This prevents the switch from broadcasting the traffic to all ports and possibly affecting network performance.

The membership of a host group is dynamic - hosts may join and leave groups at any time. There is no restriction on the location or number of members in a host group. A host may be a member of more than one group at a time. A host need not be a member of a group to send datagrams to it.
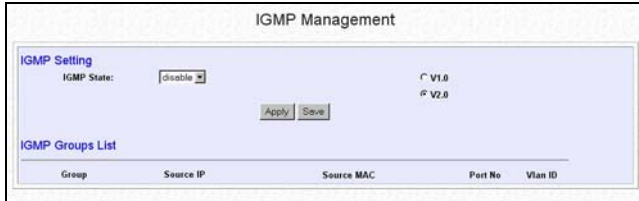
Description of parameters

Host Group Addresses   Host groups are identified by class D IP addresses, i.e., those with "1110" as their high-order four bits. Class E IP addresses, i.e., those with "1111" as their high-order four bits, are reserved for future addressing modes.

In Internet standard "dotted decimal" notation, host group addresses range from 224.0.0.0 to 239.255.255.255. The address 224.0.0.0 is guaranteed not to be assigned to any group, and 224.0.0.1 is assigned to the permanent group of all IP hosts (including gateways). This is used to address all multicast hosts on the directly connected network. There is no multicast address (or any other IP address) for all hosts on the total Internet. The addresses of other well-known, permanent groups are to be published in "Assigned Numbers".

Procedures

1. Select IGMP Config from the Command window.

2. Choose *enabled* in the IGMP state field.

3. Click on the radio button to select the version for IGMP. Refer to the next section for the explanation on IGMP v1.0 and v2.0

4. Hit on the **Apply** button and save your setting.

8.2.1   Definition on IGMP v1.0 and v2.0

For IGMP v1.0,

The Internet Group Management Protocol (IGMP v1.0) is used by IP hosts to report their host group memberships to any immediately neighboring multicast routers. IGMP is an asymmetric protocol and is specified here from the point of view of a host, rather than a multicast router.

NOTE

IGMPv1 has no leave mechanism. If a host no longer wants to receive the traffic, it simply quits. If it is the last, the switch will not have any answers to its query and will delete the Group Destination Addresses (GDA) for that subnet.

For IGMP v2.0,

IGMP v2.0 allows group membership termination to be quickly reported to the routing protocol, which is important for high-bandwidth multicast groups and/or subnets with highly volatile group membership.

Multicast routers use IGMP v2.0 to learn which groups have members on each of their attached physical networks. A multicast router keeps a list of multicast group memberships for each attached network, and a timer for each membership. "Multicast group memberships" means the presence of at least one member of a multicast group on a given attached network, not a list of all of the members.

When a host receives a General Query, it sets delay timers for each group (excluding the all-systems group) of which it is a member on the interface from which it received the query.

When a router receives a Report, it adds the group being reported to the list of multicast group memberships on the network on which it received the Report and sets the timer for the membership to the [Group Membership Interval].

When a host joins a multicast group, it should immediately transmit an unsolicited Version 2 Membership Report for that group, in case it is the first member of that group on the network

When a host leaves a multicast group, if it was the last host to reply to a Query with a Membership Report for that group, it SHOULD send a Leave Group message to the all-routers multicast group.

8.3   Stack Configuration

Stacking Management can be implemented in a multi-storey building or even in a geographically dispersed campus. Upon activating the stacking management functions, the system administrator is able to access to other switches easily.

By selecting the switch from the **Stack Access** field, you can configure any of the switches that are connected to the network.

NOTE	**NOTE**
	A stack can only accepts up to 4 switches, including the master switch. All switches in a particular stack must be in the same IP subnet.

Upon clicking on the **Stack Config** option, the Stack Management GUI will appear. The system will prompt you to manage the network through the master switch after enabling it.

If you select **Auto Select** in the **Stacking State** field, the system will elect the switches in connect in the stack with the smallest MAC address to be the master. The Master switch election will start again when one of the following occurs:
- The master switch is power down.
- The master switch rebooted.
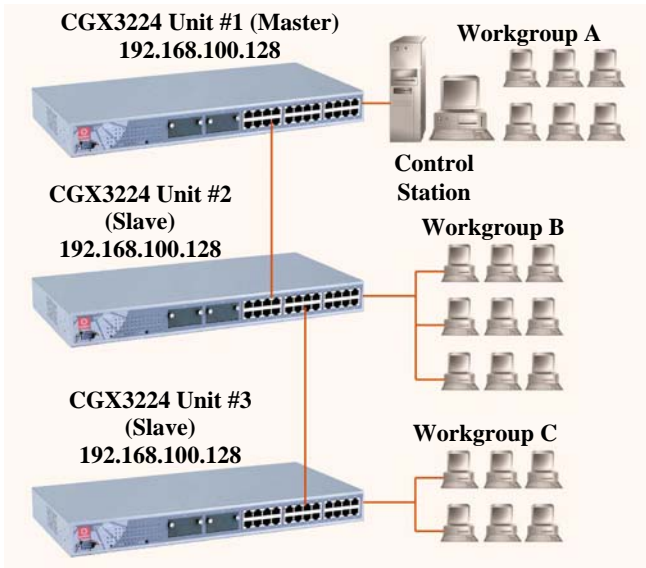- The master switch failed.

However, if you select either **Master** or **Slave**, the connected switch will be set as your choice.

A pull down menu is created under the CGX3224 image. From there, you may select the types of switch you wish to access, and the information will be listed.

Switch selection
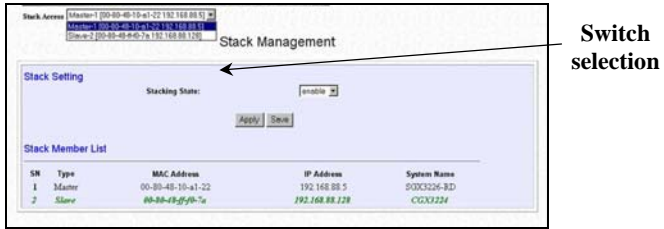
8.3.1   Simple Application on Stack Management

CGX3224 Unit #1, #2 and #3 are stacked accordingly. Individual switches are linked to its respective workgroup, such as Workgroup A, B and C. Enabling the stacking function allows the master switch to do the configuration on Unit #2 or Unit #3.

In order to control all the slave switches, you need to enable the stacking function for all switches. You may follow the procedures as shown below:

1. Connect a RJ45 MDI straight Ethernet cable from the Control Station to CGX3224 Unit #1. Enter http://192.168.100.128 in the internet browser and select **Master** option in the **Stacking State** field. You may name your switch for identification. Refer to **Section 9.2 "System Configuration"** for details.

2. Next, disconnect one end of the Ethernet cable from CGX3224 Unit #1 and establish a link to Unit #2. Please refer to Figure 8.3a.

3. Go the MS DOS Prompt and enter this command:
   arp –d 192.168.100.128

   This will delete the ARP cache so that you can access to Compex CGX3224 successfully. Please note that adding the IP address in the ARP command allows system to delete the ARP cache which is belonged to that particular device.

4. Enter http://192.168.100.128 in the internet browser to select **Slave** option in the field provided. Give a name to your switch.

NOTE	**NOTE** You may also use the console port to activate the stacking function of all switches.

We are using 3 switches in this example, therefore, please repeat the procedures of Steps 1 and 2 for CGX3224 Unit #3. Select **Slave** option in the **Stacking State** field.
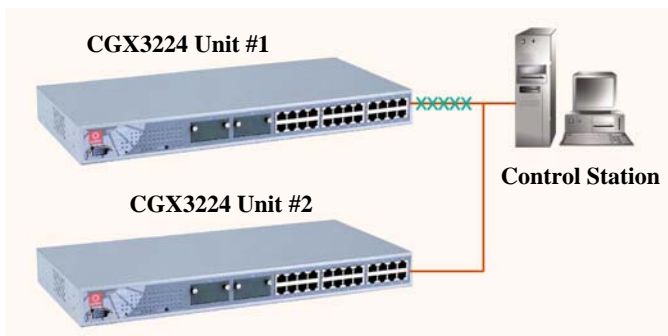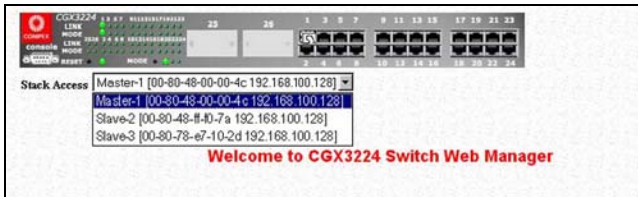

Figure 8.3a   Establish a connection to CGX3224 Unit #2

5. After selecting the options for individual switches, use RJ45 MDI straight Ethernet cables to connect all three switches as shown in Figure 8.3b and power up all switches.

6. Access to the web-based interface again. This time, you will be able to view all switches attached to this stack.

7. Next, after clicking on the selected switch, you will be able to view the necessary information for switches.
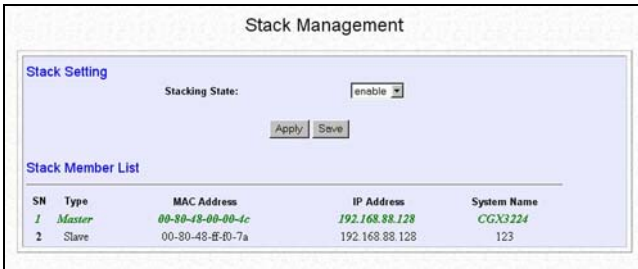
8.4   SNMP Configuration

SNMP is a communication specification that defines how management information is exchanged between network management applications and management agents.

You can manage Compex CGX3224 using an SNMP application if the switch and the application contains the same community string. Use this page to set or modify the SNMP configuration parameters. The Community String settings in this page provide different levels of access for SNMP management applications.

Description of parameters

Read Only Community String	The Read Only Community String is used for in-band read-only SNMP operation.
Read Write Only Community String	The Read Write Only Community String is used for in-band read-write SNMP operations.

Procedures

1. Upon enabling SNMP function, enter all values in the respective fields.

2. After clicking **Apply** button, the changes will appear on that particular data row. To save your configuration, hit **Save** button.

8.5   RMON Statistics

Remote monitoring (RMON) is a standard monitoring specification that enables various network monitors and console systems to exchange network-monitoring data. RMON provides network administrators with more freedom in selecting network-monitoring probes and consoles with features that meet their particular networking needs.

1.   Go to **RMON Statistics** from the Command window.

Port RMON Statistics

Port No	64 byte Frames	65-127 byte Frames	128-255 byte Frames	256-511 byte Frames	512-1023 byte Frames	1024-1518 byte Frames	1519-1522 byte Frames	Symbol Error Frames	CRC Error Frames
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	230	137	79	69	30	101	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0

Refresh

8.6   Port Security

Of all 26 ports, some of the ports may need to be assigned to one specific port. In order to fulfill this act, MAC Address should be added to that particular port. This is to restrict other users from using the static port. A port can accommodate up to 20 MAC Addresses.
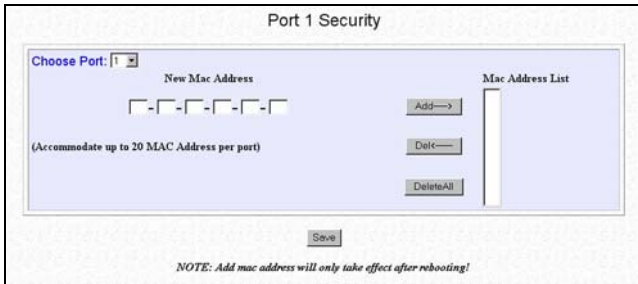
Procedures

1. Go to **Port Security** from the Command window.

2. Select a port and enter the MAC address in the field provided, e.g. *00-80-40-E8-85-12*.

3. Click on the **Add** button and the system will then add in the New MAC Address into the listing on the right side of the screen.

8.6.1   To delete MAC Address/es

If you want to delete MAC Address/es, simply

- Click on **Del →** button for single MAC Address, or

- Hit on **DeleteAll** button to delete all the MAC Addresses.

8.7   MirrorPort Configuration

8.7.1   Using Mirror Port to Monitor Traffic

This function allows you to set up a 'mirror' port of any specified port/s, so you can monitor the traffic of the monitored port/s without intervention. In effect, the traffic on the monitored port/s are replicated on the mirror port, allowing you to use a protocol analyzer to analyze the traffic for a specific problem.
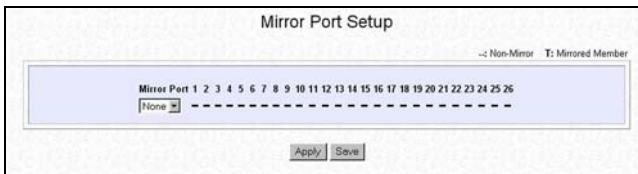
Procedures

1. Go to **MirrorPort Config** from the Command window.

2. Select one Mirror Port.

3. Click on the dashed line '–' on that particular port if you want to select it as a Mirrored Member (T).

4. Hit on **Apply** button after you are satisfied with the setup. Click **Save** button to update the configuration.

8.7.2   Simple Application on Port Mirroring

From the example illustrated in Figure 8.7b, we are using Port 22 to monitor the activities at PC #1 to 3. Notice that Port 22 is set as mirror port, and PC #1 to #3 is connected to Port 6, 12 and 16 respectively. A workstation is connected to Port 2 to monitor the entire network system.

CGX3224

Workstation
Port 2

PC #1   **PC #2**   **PC #3**   **Mirror**
Port 6   **Port 12**   **Port 16**   **Port 22**
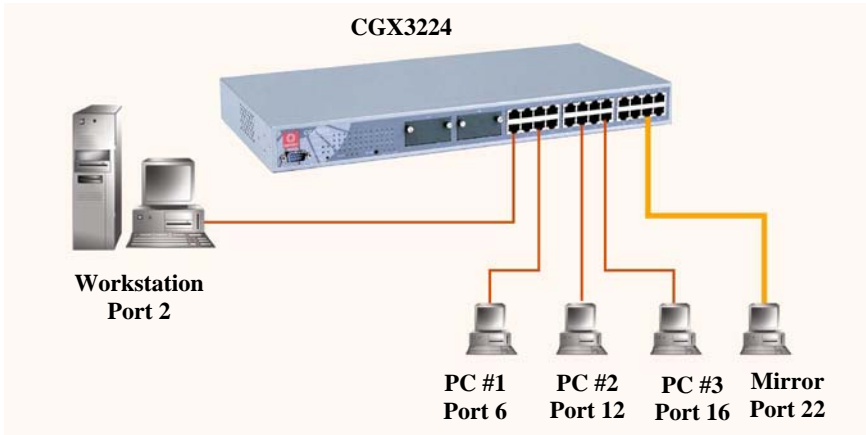
To do the above-mentioned setting, you may simply go to the web interface management and click on **MirrorPort Config** in the command window menu. Next, set the configuration as shown in Figure 8.7c and save it.

Mirror Port Setup

55
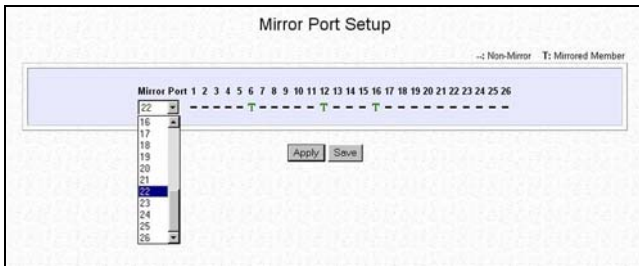
8.8   Aging Control

Aging control is for the aging of address entries in the switch's forwarding table. If the aging control is enabled, a learned address entry (not including the static entry) will be removed from the forwarding table if there is no update within a pre-determined period. It is useful because resources for the forwarding table is limited. Enabling the aging control will not influence packet forwarding. The packet is forwarded to all other ports when the destination MAC address cannot be found in the forwarding table. If the aging control is disabled, all address entries will not be removed.

Procedures

1.   Go to **Aging Control** from the Command window.

2.   Select *Enable* from the **Aging Control** option.

3.   Enter the **Maximum Age of the Address Entries**. If the aging control is enabled, enter an integer from the range of 1 to 128 as the maximum age of address entries. If the aging control is disabled, this step can be skipped.

8.9   Address Search

8.9.1   Host Search

Host Search is used for searching a host by IP address on the network, and getting the port number to which the host is connected. It is useful while configuring the VLAN. With this function, you can easily detect the port at which a host is connected to, and have an idea about which ports should be included in a VLAN.

Procedures

1. Go the **Host Search** from the Command window.

2. Enter the Host IP Address and click on **Search** button

The result will display as shown below.
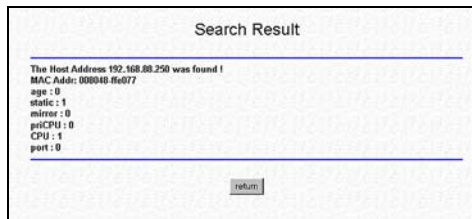
8.9.2   MAC Address Search

This feature helps to look for the particular MAC Address stated in the field, which provides a useful way while configuring the VLAN. The system will search through the device for the port's ownership of that particular PC.

Procedures

1. Enter the **MAC Address** in the field provided and click on the **Search** button.

Chapter 9 Using SYSTEM TOOLS Menu

In this chapter, you will be able to retrieve the system information of Compex CGX3224, to change the administrator's password and also upgrading new downloaded firmware version.

9.1 Set System Clock

It is recommended that you configure Compex CGX3224's timer to synchronize with your PC so that you can utilize the time-based functions.

NOTE	**NOTE** To manage and utilize the timing based functions provided in Compex CGX3224, (such as the Filtering functions), you MUST set its clock to synchronize with your managing workstation.
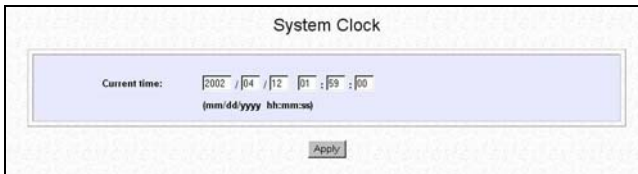
Procedures

1. Go to **System Clock** from the Command window.

2. Access to the **System Clock** function at the Command window.

3. Key in the appropriate time zone and click **Apply** button.

9.2   Remote Management

This function allows you to access your Compex CGX3224 through Internet (WAN) or Local Area Network.

The figure illustrates that you can configure the Compex CGX3224 even when you are at home. This can be done by activating the remote management function from your workplace.

Home

Workplace
WAN IP address:
203.120.12.12
HTTP Port:
50
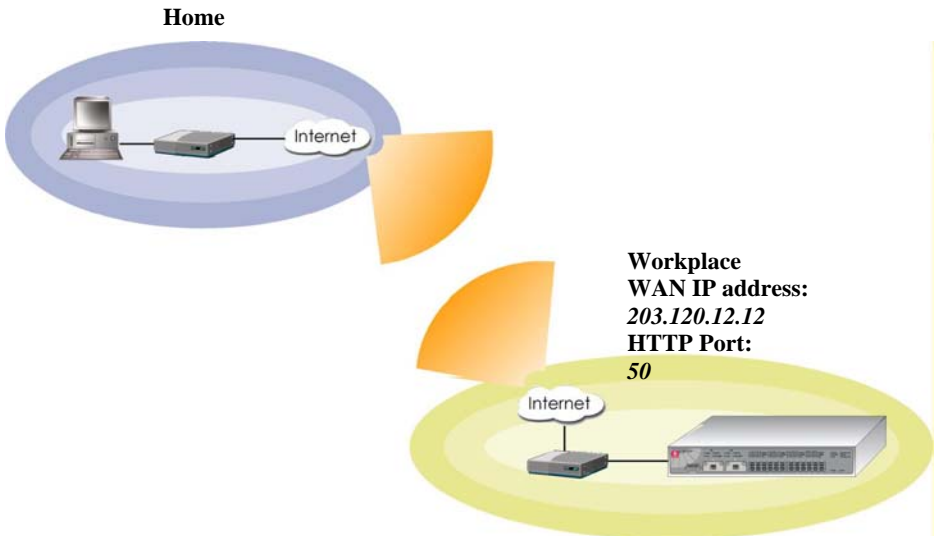
Procedures

1. From your workplace, simply click on Remote Management from the Command window.

2. Enter a HTTP Port in the field provided and click Save button to update the changes.

Remote Management Configuration

HTTP Port   [0]   (Standard=80)
(Enter 0 to disable remote management)

NOTE: port number modified will only take effect after rebooting.

[Save]

3. You may go to **WAN Config** to check for your WAN port's IP address.

NOTE	**NOTE** You need to set the gateway of your Compex CGX3224 to 0.0.0.0 in order to allow WAN access from your home.

4. Go to **System Config** from the Command window. Ensure that your gateway is set to 0.0.0.0.

5. Click **Save** button to update the changes.

6. Next, from your home's PC, open your Internet browser, enter this IP address *203.120.12.12:50* in the address bar, where 203.120.12.12 is WAN port's IP address of Compex CGX3224; and 50 is the http port.

NOTE	**NOTE** At any one time, the switch can be managed by only one user from either LAN or WAN. Concurrent switch management by multiple users is prohibited.

9.3   System Configuration

This helps you configure the system. You can configure IP address, Subnet Mask or Default Gateway of the management board in Compex CGX3224. It is likely that several VLANs are on the single switch, and each VLAN can be regarded as an independent network, so their network addresses may be different.

Description of parameters

System Name	A description on the device for easy identification.
System Location	The location of the device, e.g. in R&D Dept.
System Contact	The Person In Charge of the device.
Product Name	The naming of the device, e.g. Compex CGX3224.
IP Address	This is the IP address of Compex CGX3224. You may change the address and save it.
Subnet Mask	Subnet mask is just like IP addresses which contains four bytes (32 bits). It is often written using the same "dotted-decimal" notation. For example, a very common subnet mask in its binary representation 11111111 11111111 11111111 00000000 is typically shown in the equivalent, more readable form 255.255.255.0.
Default Gateway	The gateway address for the computer when using this switch

Procedures

1. Go to **System Configuration** from the Command window.

2. Enter the information in the respective field and click on the **Apply** button and save the setting.

3. Upon making amendments on this page, the screen will appear a message, **"Reboot the switch?"**. Click on **Yes** button to let the changes take effect.

Click on **Logon** button again if you still wish to access to Compex CGX3224 web page. This cannot apply to the changing of IP Addresses.

CAUTION
After changing the IP Address of Compex CGX3224, the system will not lead you to log in to the web page after you have clicked **Logon** button. Instead, a page error will display on the screen, stating "The page cannot be displayed". Enter your NEW IP Address to login to the web page again.

9.4   System Information

System Information displays the necessary data about the management system.

Procedures

1. Click on **System Information** from the Command window.

System Information		
system information	System name	CGX3224 Switch
	System contact	unknown
	System location	unknown
update information	System Up Time	0 months 0 days 00:57:20
	Firmware Version	CGX1.80 Bld 20040625, June 25 2004
	Console baudrate	38400
Lan information	MAC Address	00-80-48-1e-69-e4
	IP Address	192.168.100.128
	Network Mask	255.255.255.0
	Default Gateway	0.0.0.0

9.5   Change Password

This option allows the System Administrator to amend the current password.

Procedures

1. Go to **Change Password** from the Command window.

2. After entering your new password, click on **Change Password** button to activate the new setting.
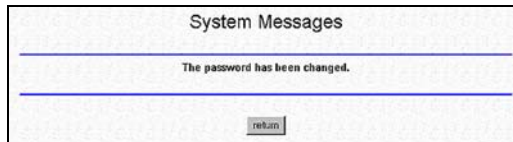

The system will alert you that the password has been changed successfully.

9.5.1   Forget your Password

You can simply reset the password using Hyper Terminal program.

1. In the Hyper Terminal environment, switch OFF and ON Compex SGX3226.

2. When "Press ENTER to stop auto-boot …" message appear on the screen, hit "Enter" key on the keyboard within 5 seconds.

3. Upon seeing the word **Password** appeared on the screen, enter *+=_-)0* and hit the **Enter** key from your keyboard to start resetting.

4. Next, the screen will display " Default password restored successfully".
    This indicates that the system has successfully reset the password to
    default setting.
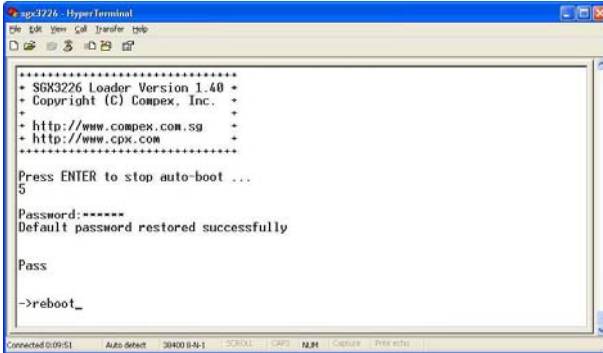
5. Type in *reboot* to switch your Compex SGX3226 to normal mode.
    This time, you can enter the default password, which is *password* to
    login to the configuration page.

You may change your password using Hyper Terminal program by typing the
command, *sys set password* and hit **Enter** key from your keyboard. If you
cannot remember the command, type in *help* and the command listing will be
listed.

9.6   Upgrading Compex CGX3224 Firmware

You can simply download the newer version Firmware from
http://www.compex.com.sg. Here, you will find links that allow easy access for
upgrading of future released updated firmware.

To check your current firmware version, refer to **Section 9.4** on **"System Information"**
on **Page 63**. Once you downloaded the latest firmware, saved it into your hard disk.

Procedures

1. Go to **Firmware Upgrade** from the Command window.

2. Click **Browse button** to select the file where you have just saved.

3. Next, click on the **Upgrade** button to start replacing the latest firmware revision.

The system will prompt you to reboot Compex CGX3224. Click **Yes** button to restart the device.

Log on to the web site after 30 seconds if you still need to do some configuration on Compex CGX3224.

9.7   Save or Reset Settings

The Save and Reset Settings allow you to execute the amendments or reset to the default settings.
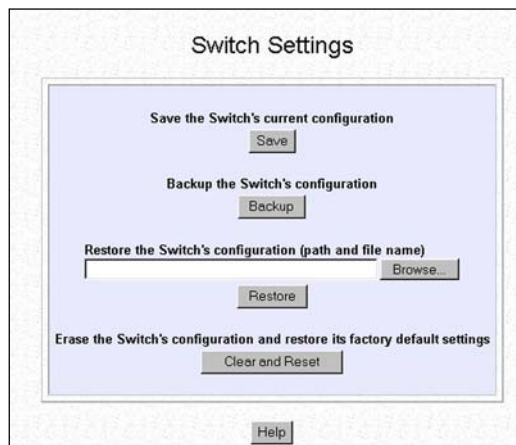
9.7.1   Save

By clicking **Save** button, you will save all the changes made from Compex CGX3224. You need to reboot the switch to ensure that the profile is updated correctly.

9.7.2   Backup

This option allows you to backup the switch's configuration into a file.

1. Click on the **Backup** button and the system will prompt you to either open or save the file.

2. Select **Save** button and go to your preferred folder to save this file. Do remember the location that you intend to save this file. Click **OK** button to proceed.

3. After downloading process has completed, the following message will appear. Click **Close** button if you do not want to view the downloaded file.
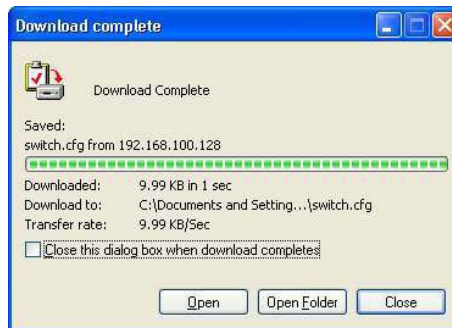
9.7.3   Restore

1. Click **Browse** button and select the file that you want the system to restore back the configuration.

2. Click **Restore** button to start the process.

3. The system will request you to reboot Compex CGX3224. Click **Yes** button to restart the switch.

4. Wait for 60 seconds and the system will automatically return to the Login Web page, prompting you to enter password again.

9.7.4   Clear and Reset

By clicking this option, you will restore Compex CGX3224 to factory defaults. And you will have to re-enter all the configuration information to the network.

1. Click on **Clear and Reset** button. The system will prompt you to choose whether you want to reset the configuration data.

2. Click **Yes** button to proceed and the system will automatically reset the IP address to factory default, which is http://192.168.100.128

3. Click **Logon** button if you want to make some more changes.
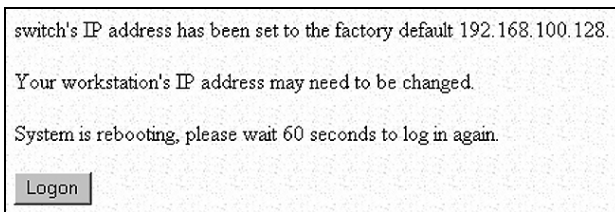
9.8   Message Window

This window will list out the action/s taken while doing configuring. It helps you to dig out the history of various action/s.


To save all your actions, click on **SaveAs** button. The system will prompt you to save your file in your preferred location.

9.9   Reboot Switch

Rebooting of Compex CGX3224 is required after changes are made in the configuration or setting.

1. Click on **Reboot Switch** from the Command window.

2. Click **Yes** to reboot the switch. The system will prompt you to logon again after 30 seconds to see the effect:
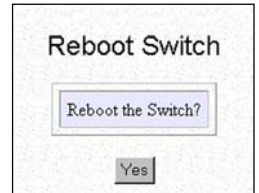
9.10   Logout

By clicking **Logout** button, you will get a logout GUI as shown below. Alternatively, you can log in again into the web-based browser via http://192.168.100.128 or the new IP address, which you have assigned to the switch.

NOTE

NOTE
If you changed a new IP Address for Compex CGX3224, the system will **NOT** automatically changed to the new IP address after you click on the **Logon** button.

Chapter 10   Using HELP Menu

10.1   Technical Support

For more information on technical support, click on "Technical Support" in the HELP menu. Here, you can refer to the respective technical group supported by Compex in the different countries as shown below:

Chapter 11   Application on Virtual LAN

In an untagged VLAN application, you can assign a group of ports within a switch as members of a specific VLAN. Data traffic would be confined within the member ports. In this way, devices connected with the switch can be partitioned into distinct groups each corresponds to a different VLAN. The partition (VLAN) can be expanded when two untagged VLANs are connected together through their member ports. No two VLANs can be overlapped. Each VLAN is separate from the rest. It provides a simple means to implement a secure and managed network.

In a tagged VLAN application, you still can assign specific ports within a switch to be a VLAN group. In addition, the data transferred within the VLAN group is tagged with an ID as specified with the 802.1Q Tagged VLAN standard. It allows the VLAN information to be carried along as the data flow from switch to switch. It also allows a port to carry multiple VLANs data stream. It is more flexible and scalable than the untagged VLAN application. However, all networking devices have to support the 802.1Q Tagged VLAN standard for VLAN Tagging system to work.

11.1   Untagged and Tag Configuration using Web-based Interface

VLAN C, VLAN D and VLAN E are assigned with VID of 02, 03 and 04 respectively. Switch 1 and Switch 2 are interconnected via Port 26, whereby the port are tagged with an ID. Control Station, PC 1, PC 2 and PC 3 are connected to Port 2, 9, 16 and 22 respectively. All Ethernet Ports are configured as untagged. All users are able to communicate with one another within the same VLAN. For example, the control unit is able to communicate with PC 1, but failed to communicate with PC 2 and PC 3. Creating VLAN E allows PC 2 to transmit data from switch 1 to switch 2 via tagged Port 26, without the need to connect another link in VLAN D.

Configuration for Switch 1

VLAN C

1. Open a browser and key in the IP address for Switch 1, such as 192.168.100.128.

2. Select **VLAN Config** from the command window and *enabled* the Status at **Group 2**.

3. Set **VID number** to **2**. (Any number between 2 to 4094.)

4. Click on '**-**' to '**U**' for Port 1 to Port 12 and '**T**' for Port 26. Refer to Figure 10.1.

   Notice that the picture illustrated on Page 71 used only Port 2, we still can allocate the remaining ports to VLAN C for further usage.

VLAN D

5. Next, *enabled* the Status at **Group 3**. Set **VID Number** to **3**.

6. Click on '**-**' to '**U**' for Port 13 to Port 24 and '**T**' for Port 26. Also note that the picture illustrated on Page 71 used only Port 16, we still can allocate the remaining ports to VLAN D for further usage.

7. Click **Save** button upon confirmation.

VLAN E

8. *Enabled* the Status at **Group 4**. Set **VID Number** to **4**.

9. Click on '**-**' to '**U**' for Port 1 to Port 24 and '**T**' for Port 26. Refer to Figure 10.1.

10. Click **Save** button upon confirmation.
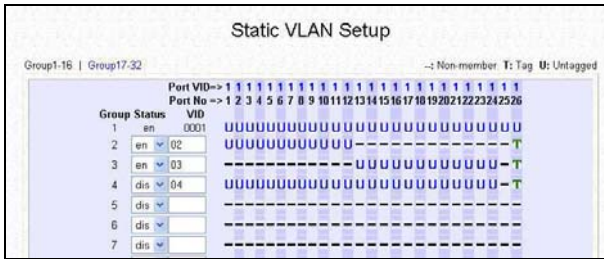
Untagged and Tag VLAN setting for Switch 1

Configuration for Switch 2

Follow the procedures as shown in configuring Switch 1.

Now, users within the same VLAN is able to communicate with one another.

NOTE	**NOTE**
	Please note that for Tagged VLAN, VID number MUST BE the same from Switch 1 and 2.

Appendix I   Panel Views & Descriptions

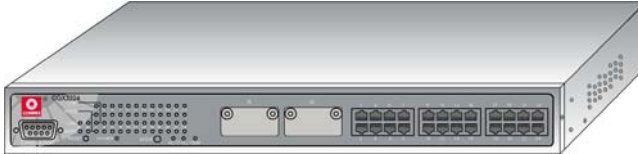Please note that the actual product appearance may slightly differ depending on the hardware version.

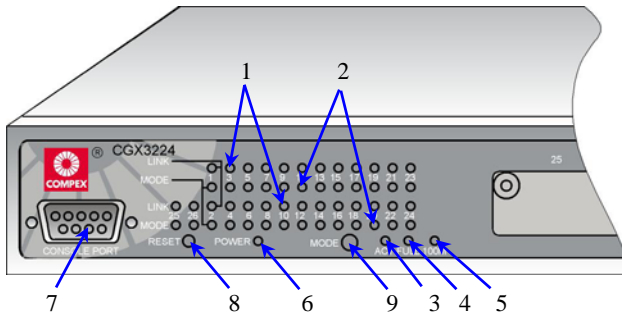**Figure 11.1a   Front Panel View of Compex CGX3224**

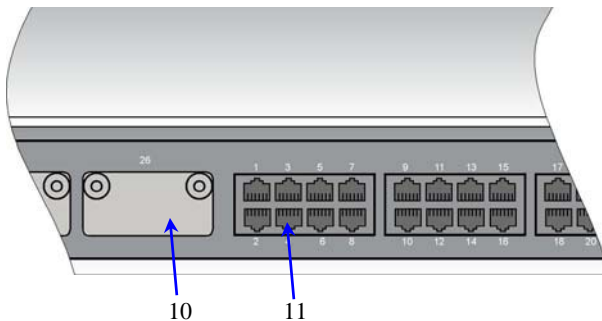**Figure 11.1b   Front Panel View of Compex CGX3224 (Section #1)**

Figure 11.1c   Front Panel View of Compex CGX3224 (Section #2)

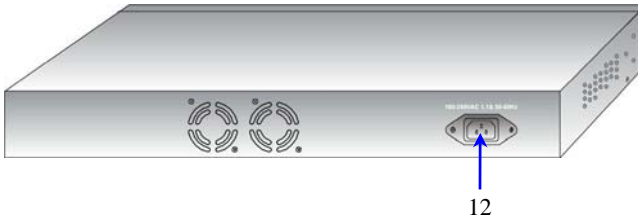# Appendix I   Panel Views & Descriptions

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Figure 11.1d   Back Panel View of Compex CGX3224

	Features	Status and Indication	
1	LINK LEDs	Steady Green	A link has established.
		Off	No connection is detected.
2	MODE LEDs	If the Mode button is in **ACT** mode,	
		Blinking Green	Activity is present in the network.
		Off	No activity is present in the network.
		If the Mode button is in **FULL** mode,	
		Steady Green	The switch is operating in Full Duplex mode.
		Off	The switch is operating in Half Duplex mode.
		If the Mode button is in **100M** mode,	
		Steady Green	The switch is running in 100Mbps.
		Off	The switch is running in 10Mbps.
3	ACT LED	Steady Green	The Mode button is toggled to **ACT** mode.
		Off	The Mode button is either toggled to **FULL** or **100M** mode.
4	FULL LED	Steady Green	The Mode button is toggled to **FULL** mode.
		Off	The Mode button is either toggled to **100M** or **ACT** mode.

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Appendix I   Panel Views & Descriptions

	Features	Status and Indication	
5	100M LED	Steady Green	The Mode button is toggled to **100M** mode.
		Off	The Mode button is either toggled to **ACT** or **FULL** mode.
6	POWER LED	Steady Green	Power supply is in normal condition.
7	Console Port	A serial 9 Pin (DB9) socket is connected to PC COM Port for monitoring the switch.	
8	Reset Button	By pushing the reset button once, • The switch will clear all previous temporary error • Switch would be re-configured with the settings stored in non-volatile flash memory.	
9	Mode Button	By pressing it, you will be able to view the status of the selected mode (Between ACT, FULL and 100M LEDs).	
10	2 Open Expansion Module Slots	Types of Optional Module used: • 1000Base-LX Gigabit on Fiber Module • 1000Base-SX Gigabit on Fiber Module • 100Base-FX Single Mode Fiber Fast Ethernet Module • 100Base-FX Multi-Mode Fiber Fast Ethernet Module • 1000Base-T Copper Module	
11	24 RJ45 10/100Mbps Ports	Use UTP/STP network cables to connect • 10 Base-T • 100 Base-TX All ports will detect and automatically switch to uplink mode when connected to a switch/hub.	
12	Power Socket	Power input at the range of 100V - 240V AC, 50-60Hz.	

Industry Standards	Complies with • IEEE 802.1d: Spanning Tree Protocol • IEEE 802.1Q: Tagged VLAN • IEEE 802.3: 10 Base-T • IEEE 802.3u: 100 Base-TX, 100 Base-FX • IEEE 802.3ab: 1000 Base-T • IEEE 802.3ad: Link Aggregation • IEEE 802.3z: 1000 Base-SX • IEEE 802.3x: Flow Control
Certificate Standards	• FCC Class A • CE Mark • C-Tick • UL
Interface	• 24 RJ45 UTP 10/100 Mbps ports • 2 expandable slots • 1 RS232 serial interface
SNMP Management (4 groups of RMON)	• Group 1-Ethernet Statistic • Group 2-History • Group 3-Alarm • Group 9-Events
Virtual LAN	• Port-based VLAN • Tagged VLAN
Spanning Tree Protocol	Yes
Flash ROM	2 M Bytes
Port Mirroring	Yes
Switching Method	Store-and-Forward
Management Interface	• Web-based Interface • RS232 • Telnet Console • SNMP
Port Trunking	Up to 4 ports/trunk

Appendix II   Specifications

| LED Indicators	- Power - Link - Activity - Mode - Speed (10/100/1000Mbps) - Duplex status
Operation Mode	- N-Way Auto-negotiation - Force Mode
Transmission Mode	- Full Duplex - Half Duplex
Optional Modules	100Base-FX 1000Base-SX
Power Supply	- Internal power supply is provided with voltage ratings of 100 V AC to 240 V AC, 50~60 Hz - Power consumption is 40 W maximum.
Environment Requirements	Operating Temperature: 0°C to 40°C Storage Temperature: -20°C to 70°C Operating Humidity: 10% to 80% RH Storage Humidity: 5% to 90% RH=Relative Humidity
MAC Address Table	4K
Packet Buffer	24Mbytes
Back Plane Capacity	12Gbps
Physical Dimension	440mm x 200mm x 44mm (L x B x H)

Appendix III   TCP/IP Configuration

Compex CGX3224 is pre-configured with a default IP address **192.168.100.128** with a network mask of **255.255.255.0**. By default, the DHCP Server is not activated. You need to set your PC's IP address to static in order to configure Compex CGX3224. kindly follow the procedures as shown below:

AIII-1 For Windows 95/98/98SE/ME/2000

1. Click on **Control Panel** and **Network**. Choose the position where the TCP/IP protocol is directed on your network card.
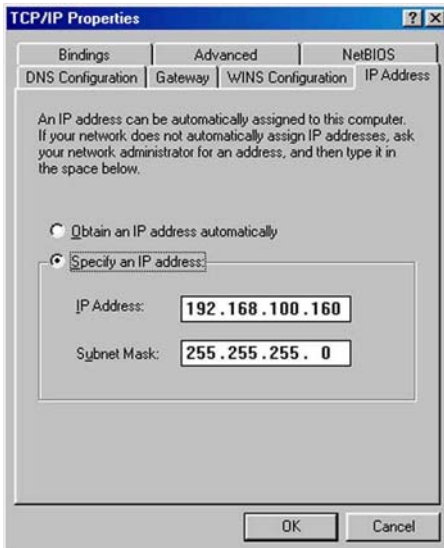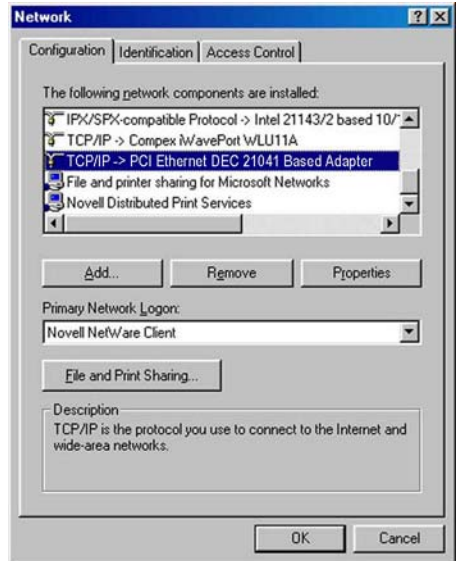
2. Click on **Properties**. Here you have to enter an IP address to your PC.

3. Click on **DNS** Configuration Tab and select **Disable DNS**.

4. From the **WINS** Configuration tab, remember to activate **Use DHCP for WINS Resolution**.

4. Next, from the **Gateway** Configuration tab, type in 192.168.100.1.

   After you had saved the possible necessary changes and had rebooted your computer if required, you should check the IP address assigned by Compex CGX3224 to the PC.
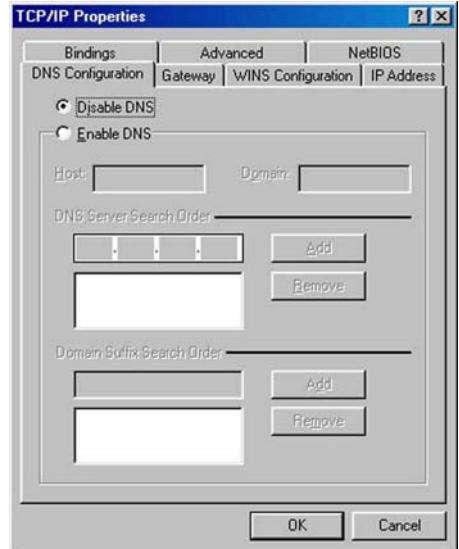
5. From the **Start** menu, select **Run,** enter the command *winipcfg* and click **OK**. The following screenshot will appear. From the list of network adapters availability, select the adapter that you currently are using.
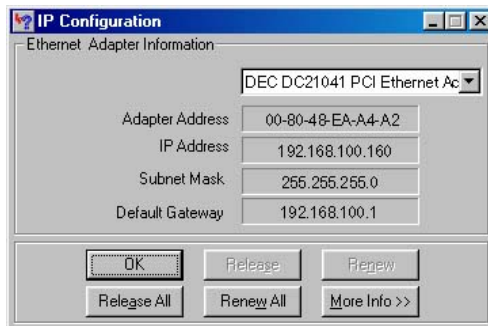
   If the IP address stated is in the same subnet as your Compex CGX3224, you can continue with the configuration under **Chapter 7 "Configure Compex CGX3224 using Web Interface"**.

AIII-2 Windows XP/NT

When using these operation systems, you also need to set your IP addresses to dynamic. For example, under Windows XP,
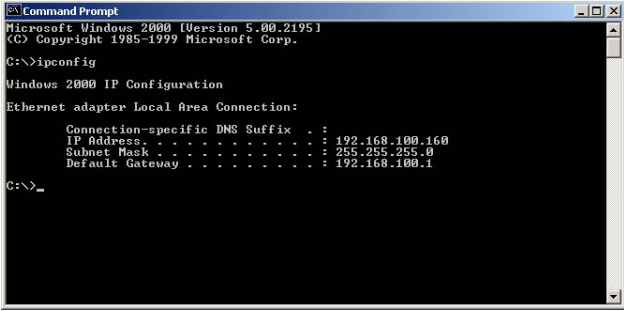
1. Select **View Network Connections** and then click on **LAN Area Connections.** Activate **Properties** with the right mouse key and the following window will appear:
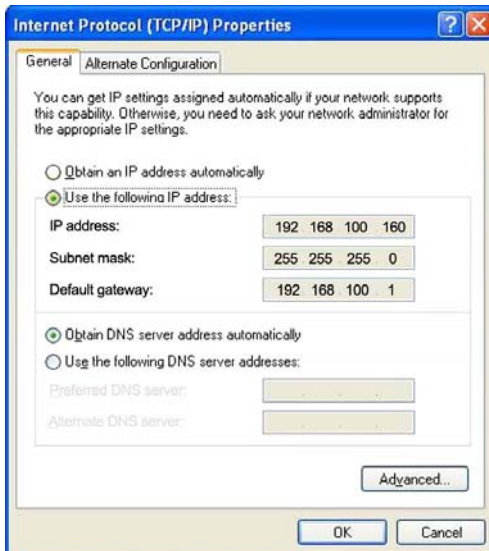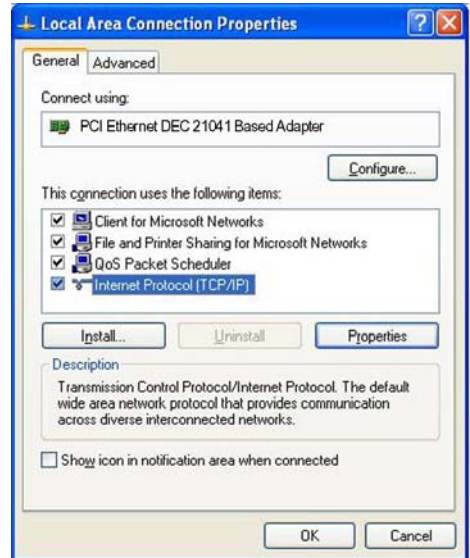
2. Click on the Internet Protocol **Properties**. Enter an IP addresses in the field provided.

3. Press **OK** to make possible changes effective. Now the configuration of the TCP/IP protocol under Windows XP is finished, and is time to check if your computer gets the right IP address.

4. Go to **Start** menu, **Accessories**, select **Command Prompt** and execute the command *ipconfig/all*. The following information will be displayed:

If the IP address stated is in the same subnet as your Compex CGX3224, you can continue with the configuration under **Chapter 7 "Configure Compex CGX3224 using Web Interface"**.