Dynamode

VLAN Ethernet Switch

User's Manual

Ver. 9.0

Dynamode Ltd

Table of Contents

7-6 Save configuration ----------

1. Brief Introduction of the product

This is a 24 x 10/100Mbps + 2 x 10/100/1000Mbps managed fast switch. This switch supports many advanced features like supporting 10/100Mbps half/full duplexe auto negotiation, MD/MDI-X auto sense, Port-VLAN and Tag-VLAN, bandwidth control management ect.. It is an ideal choice for users who are seeking for a higher standard networking connection with a reasonable price.

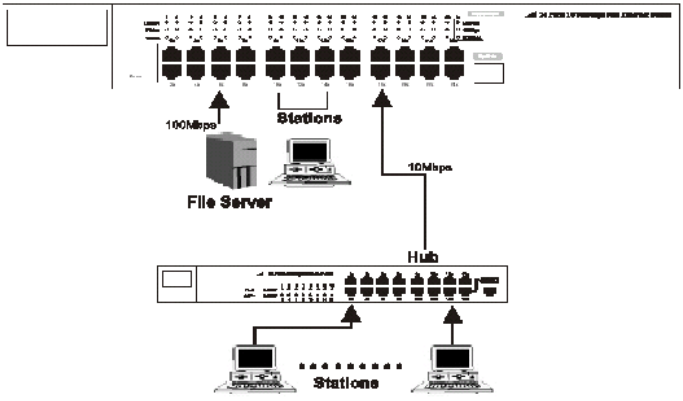
2. Networking connection

Connect a device to the switch

When the switch is connected with a 10-base Tx device , pls use UTP Cat 3 or 5 cable

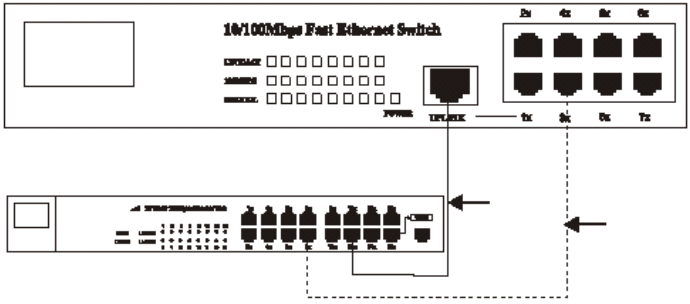
The length of the cable should comply with the IEEE standards and max. 100 meters (328ft)

If the switch has a Tx fibre port, you can use long range fibre to connect the switch. The switch supports MD/MDI-X auto sense, so you can use straight cable to connect the workstation or another switch/hub.



3. Connect with other Switch/Hub

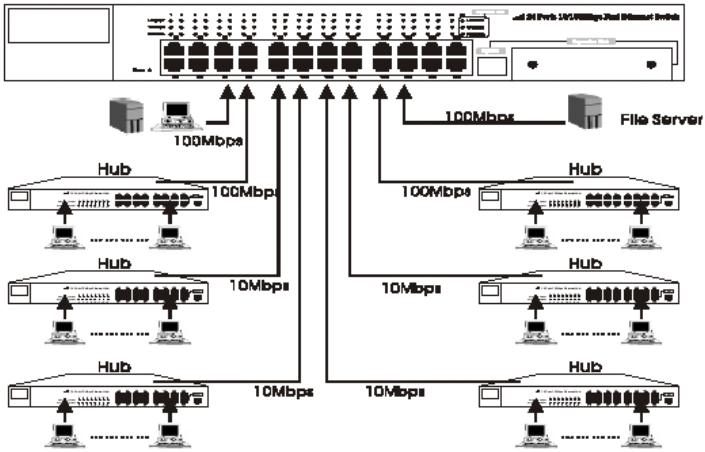
The switch can connect with any 10Mbps or 100Mbps switch/hub. Since all ports support MD/MDI-X auto sense, so you can use straight cable or UTP cable to uplink the switch through any port with other switch/hub.



4. Application

The switch can overcome the restriction of hub for uplink, and improve the overall capacity and performance of the networking. It can analyse the target address of the dada packet to decide the forwarding destination of each packet. So the switch can significately reduce the data flow in the networking.

Below figure shows the segmentation ability of the switch. The channel dispute of each node is reduced to the minimum, and the usability of each port is efficiently improved.



5. LED introduction

LED indicator

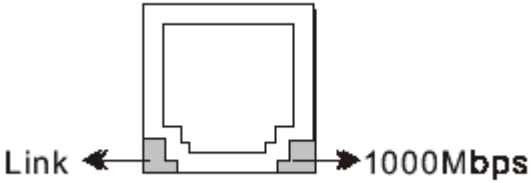
LED indicators provide some useful information like status of the switch and each port.

LED status introduction:

LED Name	Status	Description
Power	Off	No power
	On	Power on
Link/Act	On	There is a device linked to the corresponding port but no activity
	Flash	There is an active device linked to the corresponding port
100M bps	On	The device in 100Mbps
	Off	The device in 10Mbps

Duplex	On	Transfer in full duplex
	Off	Transfer in half duplex

Giga port LED status introduction



6. Product Specification

-STANDARDS:IEEE802.3 10BASE-TxIEEE802.3u 100BASE-Tx, IEEE802.3ab 1000BASE-Tx, IEEE802.1p, IEEE802.1Q
-RATE: 10/100/1000Mbps RJ-45
-MODE: full/half duplex
-MEDIA: 10BASE-Tx UTP Cat 3,4,5; 100BASE-Tx UTP Cat 5; 1000BASE-Tx UPT Cat 5e.
-PANEL LED: Power, Link/Act, 100Mbps, Duplex
-PORTS: 24 ports 10BASE-Tx/100BASE-Tx RJ45, 2 1000BASE-Tx RJ45
MDI-X/MDI: Auto sense
VLAN: Yes
QoS: Yes
TRUNK: Yes
Bandwidth Control: Yes

7. Management and software introduction

This switch support VLAN, Trunk, QoS, Ports configuration (enable/disable, auto negotiation, half/full duplex, flow control) ect. networking management functions. It can be managed by management software through serial port(RS-232) or browser.

Management through console port

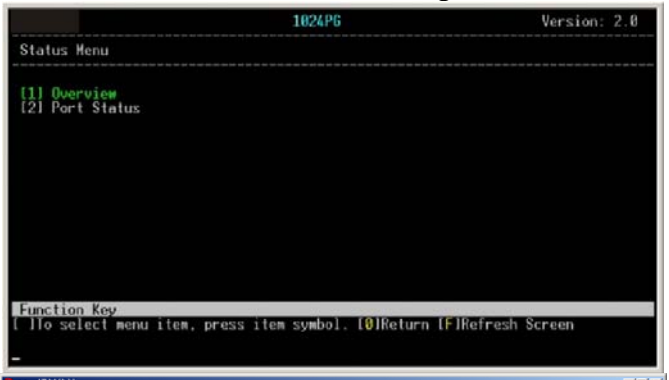
Before the management, pls follow below steps:

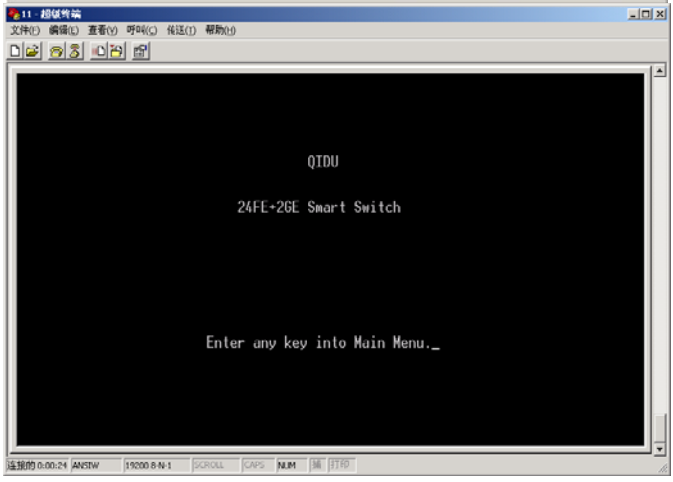
1. Connet the switch console port with the PC serial port (RS-232) through the cable enclosed.
2. Run the hyper terminal software of the windows. If your PC hasn't installed the hyper terminal software, pls install it under " control panel ----> add/delete software ---> Windows installation software ----> Communication ---> Hyper terminal" (Windows 98). For Windows 2000 the hyper terminal is intalled by default.
3. Input the name for the connection in the new link dialogue.

4. Set the COM port according to the PC main board (usually COM1).

5. Serial port settings:
   Bit rate: 19200bps
   Data location: 8
   Parity check: None
   Stop bit: 1
   Flow control: None

After setting, switch on the power of the switch. The software starts and enter into the log interface below:

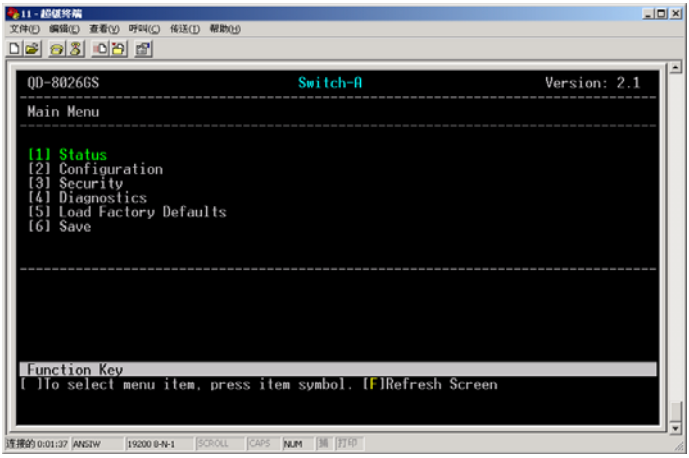




Note:

If the hyper terminal interface has disorder words or no reaction, pls check the serial port property settings, and if the serial port is correctly connected or if the power of the switch is on.

Input any key to enter into the main menu. See below figure:



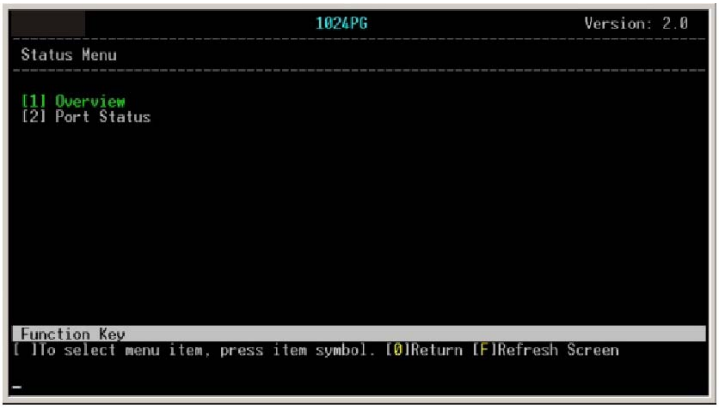
Note:
When you finished the settings/configuration, pls choose “save” to save them. After finishing all settings, restart the switch to effect the settings.

Key explanation:
Digital keys: choose the relative option;
F : Refresh the current page;

There are 6 options on the main menu, for details pls see below:

7-1 Status Menu

See figure below:



Explanation:

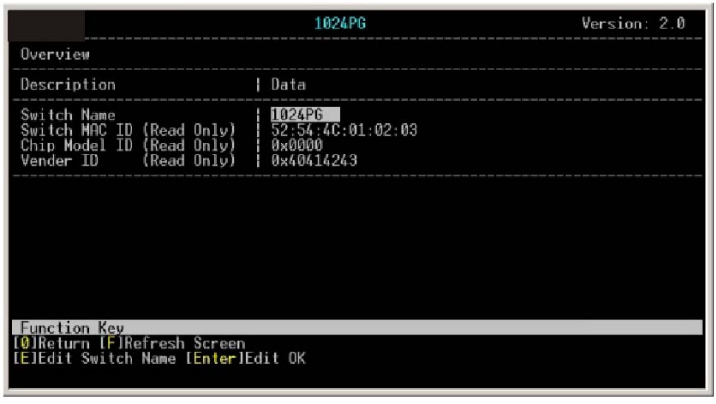
Overview: Overview the status of the switch

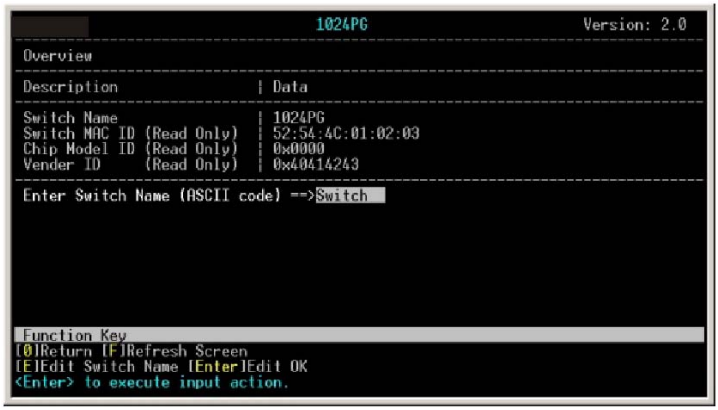
Port Status: Show status of the ports

Key “0”: return to the previous page

7-1-1 Overview

See figure below:



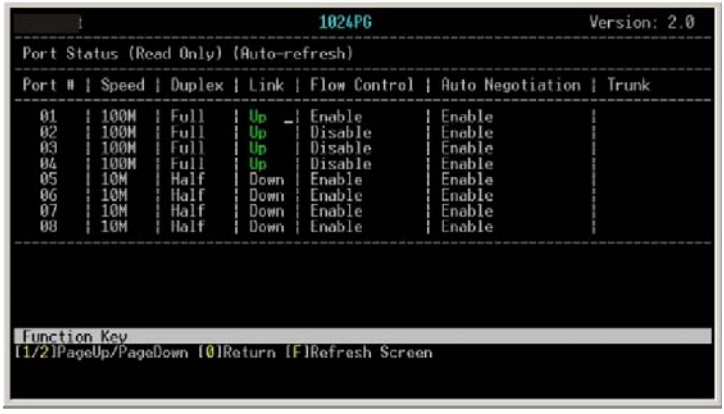


Explanation:

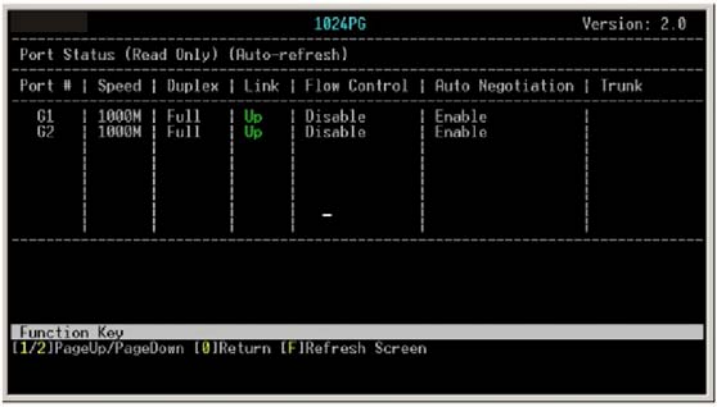
1. Input “E”, enter into switch name change
2. after change, press “enter” key to confirm

7-1-2 Port Status

100M ports:



1000M ports:



Explanation:

Digital key “1”: PageUP

Digital key “2”: PageDown

“Speed”: Show the ports speed

“Duplex”: Show status of half/full duplex of the port

“Link”: Show Link status of the port. Up means link, Down means not link.

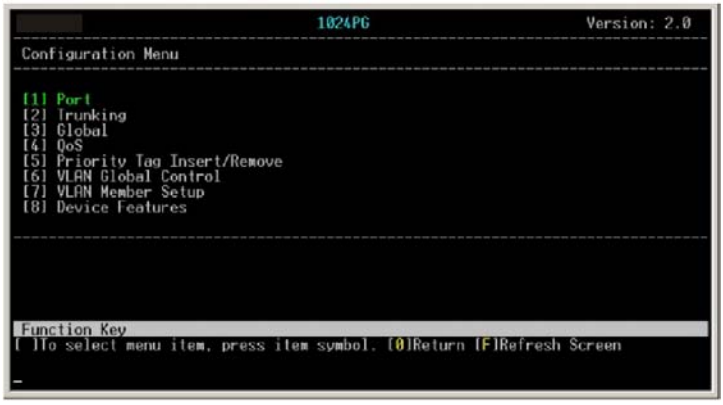
“Flow Control”: Port flow control status. Enable means open, Disable means close.

“Auto Negotiation”: Port auto negotiation status. “Enable” means open, Disable means close

“Trunk”: Shows if the port is in any Trunk group

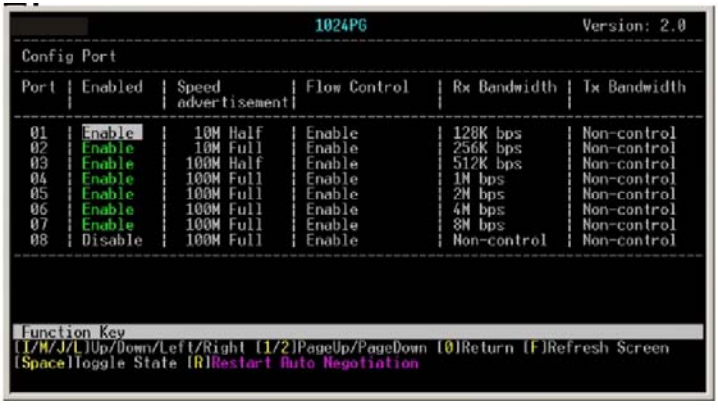
7-2 Configuration Menu

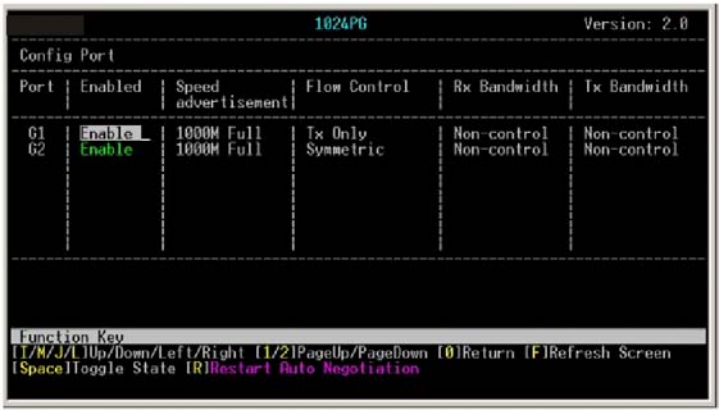
See figure below:



7-2-1 Port setting

See figure below:





Explanation:

“I/M/J/L”: Up/Down/Left/Right seperately

“Space”: Change the chosen option

“R” Key: Restart and set to auto negotiation mode

“Enable”: Port Enable/Disable setting. “Enable” is open, “Disable” is close.

“Speed advertisement”: Port connection speed and full/half duplex settings.

“100M Full” means 100Mbps/Full duplex

“100M Half” means 100Mbps/Half duplex

“10M Full” means 10Mbps/Full duplex

“10M Half” means 10Mbps/Half duplex

“1000M Full” means 1000Mbps/Full duplex

“Flow Control”: Port flow control settings

“Enable” means flow control is enabled

“Disable” means flow control is disabled

“Tx Only” means only enable flow control for

port transmitting package

"Rx Only" means only enable flow control for port receiving package

"Symmetric" means balance flow control for the ports

"Rx Bandwidth": Receiving bandwidth control

"Non-control": no bandwidth control

"128Kbps": the port can only transmission data at 128Kbps bandwith

"256Kbps": the port can only transmission data at 256Kbps bandwith

"512Kbps": the port can only transmission data at 512Kbps bandwith

"1Mbps": the port can only transmission data at 1M bps bandwith

"2Mbps": the port can only transmission data at 2M bps bandwith

"4Mbps": the port can only transmission data at 4M bps bandwith

"8Mbps": the port can only transmission data at 8M bps bandwith

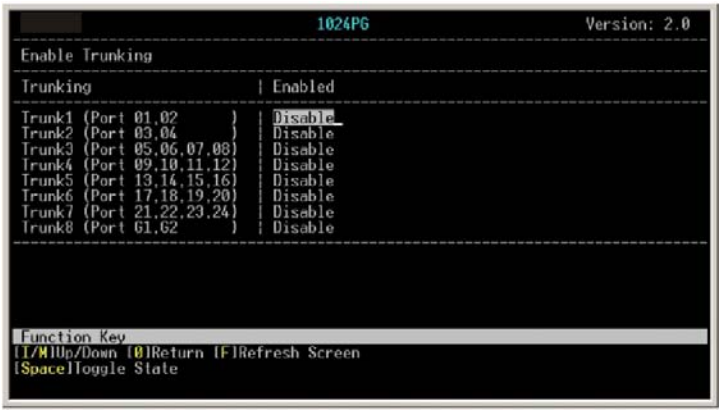
"Tx Bandwidth": Transmisstion bandwidth control (settings same as above)

7-2-2 Port trunking setting

Port trunking is mainly used for improve the uplink

bandwith for two switches connection. The switch support non-dynamic load-balance distribution mode based on port.

Non-dynamic load-balance distribution mode based on port should be assigned each port flow to the appointed trunking port according to the actual port flow in accordance with the principal of average to improve the bandwidth. The assighment principal is according to the sequence of the port number averagely.

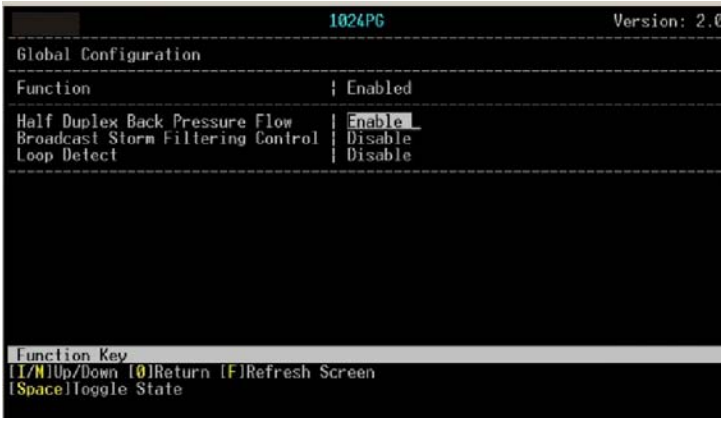


Note:

This switch is already preset 8 trunk group. The user can choose to enable the relative Trunk group according to actual requirement.

7-2-3 Overrall setting

See below figure:



Explanation:

“Half Duplex Back Pressure Flow”

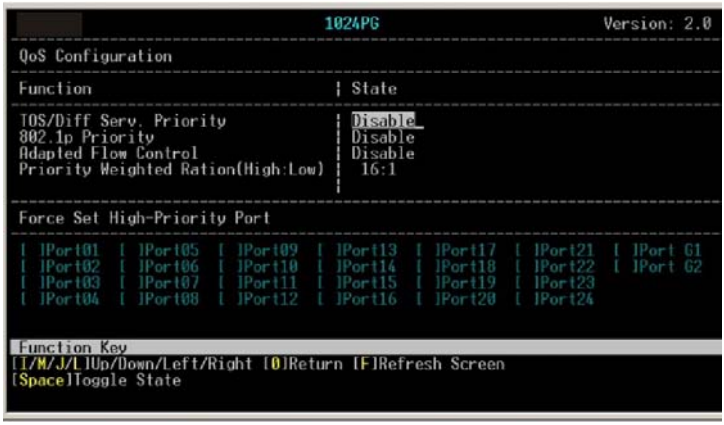
“Broadcast Storm Filtering Control”

“Loop Detect”

7-2-4 QoS setting

QoS function provide two internal sequence system to support two different level of communication. High priority and Low priority. The dada flow with High priority has more short delay with the internal process of the switch, reduce the time waiting maximumly for some delay sensitive communication.

See figure below:



Explanation:

“TOS/Diff Serv. Priority”: Enable/Disable

“802.1p Priority”: 802.1p Enable/Disable

“Adapted Flow Control”: If Enable this function, during data transmission, if the port priority is setted High, the flow control of the port will be disabled automatically; If the port priority is setted Low, the flow control of the port will be Enabled automatically.

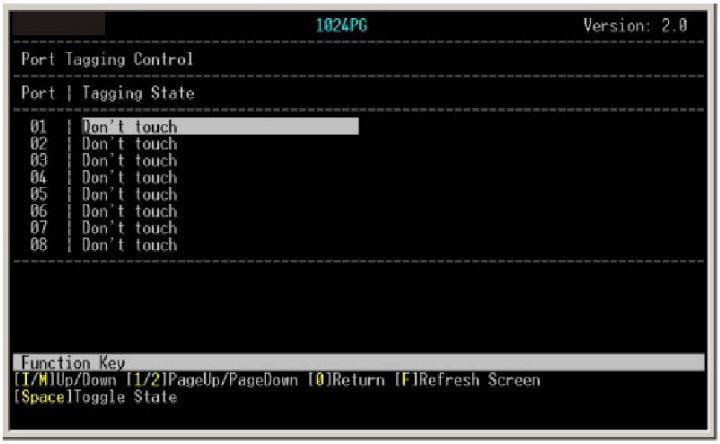
“Priority Weighted Ration (High: Low)”: The firmware preseted 4 kinds of priority, 1:0, 4:1, 8:1, 16:1 seperately. The user can set it according to their requirement.

Note:

The priority of static port is higher than 802.1p and OS/Diff Serv.

7-2-5 Priority Tag Insert/Remove

See figure below:



802.1Q VLAN tag principle:

Behind the original MAC address, 4 octet tag will be inserted. If the Ether type of data package is 0 x8100, it means this data package include IEEE802.1Q/802.1p tag. In the tag, except for the above mentioned 2 octet, there are 3 bit priority information, 1 bit CFI information (Canonical Format Identifier, used to compress the Token Ring data package, so it can transmission in the Ethernet), 12 bit VLAN ID(VID). 3 bit priority information is for 802.1p, VID is identifier of VLAN for 802.1Q. Since there are 12 bits for VID, so it can set 4094 VLAN.

Insert tag ahead the data package, the data package will increase 4 octet, the information in the original data package will not change.

EtherType and VLAN ID insert behind the MAC address (MAC source address), but ahead the original Ethertype/Length or Logical Link Control. Since the present data package is longer than the original, so the CRC(Cyclic Redundancy Check) should be recount.

Explanation:

"Don't touch": Not control to the 802.1Q VLAN member.

"Remove Tag": After Enable this, Tag information for 802.1Q VLAN member will be removed.

"Insert Tag (high-priority only)": After Enable this, It will insert a tag to the ports with High priority of the 802.1Q VLAN member.

"Insert Tag (all frame)": After enable this, it will insert a tag to all ports of the 802.1Q VLAN member.

7-2-6 VLAN overall setting

See figure below:

Explanation:

"VLAN Function": Enable/Disable VLAN

"Unicast Packet Inter-VLAN Leaky": Enable/Disable

"ARP broadcast Packet Inter-VLAN Leaky": Enable/Disable

"IP Multicast Packet Inter-VLAN Leak": Enable/Disable

"802.1Q VLAN tag aware": Enable/Disable

"Ingress Rule for Acceptable frame types": Clasify rules for received frame within one VLAN

"Admit all Frames"

"Admit only VLAN-Tagged Frames"

"Ingress Rule for Ingress Filtering": Enable/Disable

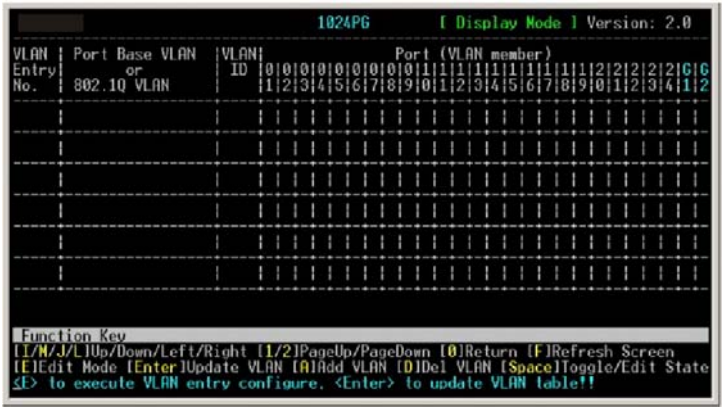
7-2-7 VLAN setting

Virtual Local Area Network (VLAN) is a logical networking toplogical setting and not a physical networking design. VLAN can segment the networking into several broadcasting group logically. In this way, the data packet can only transmission withing the VLAN. You can consider a VLAN as a subnet. VLAN can improve the overall performance and security of data transmission for the networking.

VLAN connects the networking nods logically and not physically. Through VLAN you can segment the networking into several group without change the physical connection of the devices.

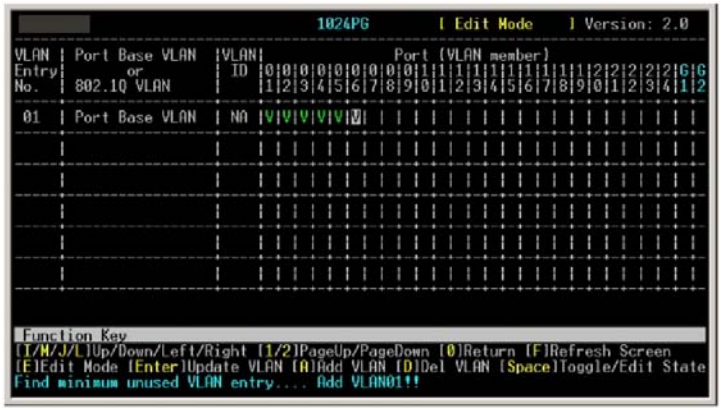
For instance, you can segment the networking according to below method:

- According to department, like one VLAN for Engineering department, one for Accounting department and one for Sales department.
- According to position levels, like one for directors, one for managers and one for other staff.
- According to users, like one for email users and one for multimedia users.



(一). Set up a Port Based VLAN group

See figure below:



Set up steps:

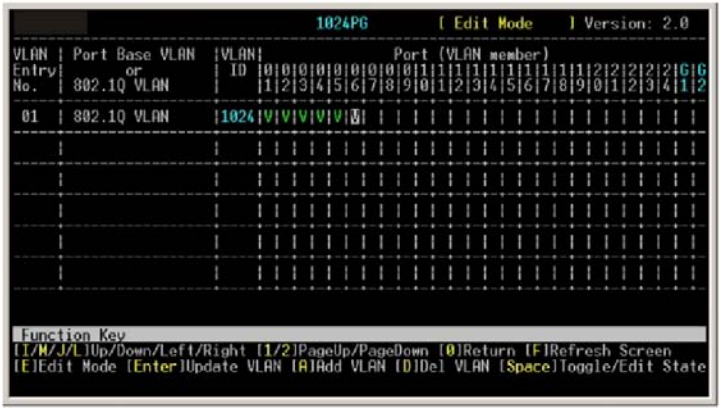
1. “E” to enter into the revise mode
2. “A” to set up a VLAN group
3. After creating a Port Base VLAN, appoint the members belong to the VLAN group
4. Press “Enter” to confirm the set up.

5. “O” to finish and escape the set up

6. Press “Save” to save the settings

（二）Set up a 802.1Q VLAN group

See figure below:



Set up steps:

1. “E” to enter into the revise mode

2. “A” to set up a VLAN group

3. After creating a Port Base VLAN, press “Space” to return to “802.1Q VLAN”

4. Set VLAN ID and VLAN members for the group

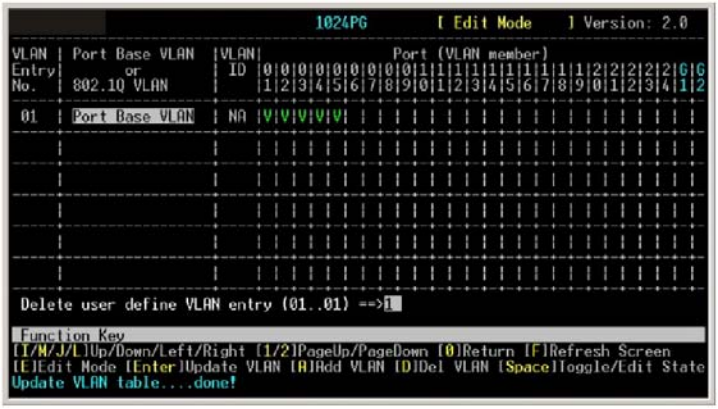
5. Press “Enter” to confirm the settings

6. “O” to finish and escape the set up

7. Press “Save” to save the settings

（三）Delete a VLAN group

See figure below:



Set up steps:

1. “E” to enter into the revise mode
2. “D” to delete a VLAN group
3. Choose the VLAN group you want to delete
4. “Y” to confirm the change
5. Press “Enter” to confirm the settings
6. “O” to finish and escape the set up
7. Press “Save” to save the settings

Note:

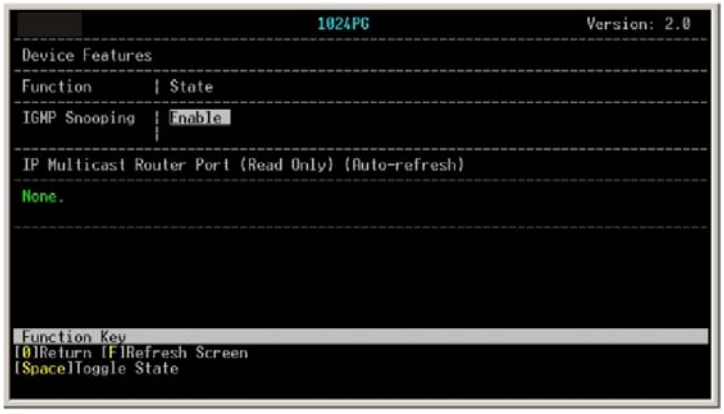
1.When using VLAN, pls Enable the VLAN function under the VLAN overall setting

2.If there is no VLAN setup, all the ports are in the same VLAN group.

Advice: Not use Port Base VLAN and 802.1Q VLAN at the same time.

7-2-8 IGMP snooping

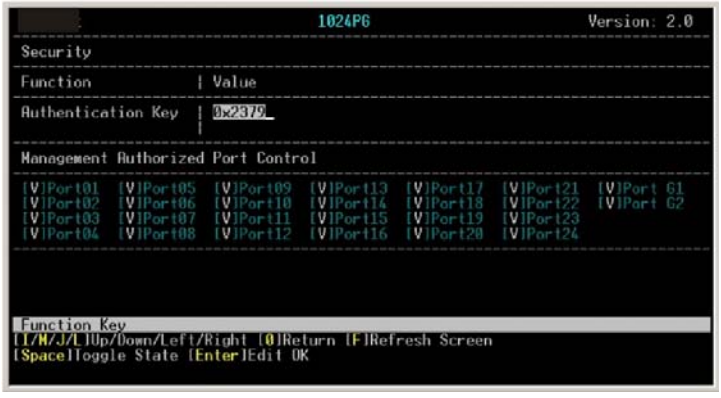
See figure below:

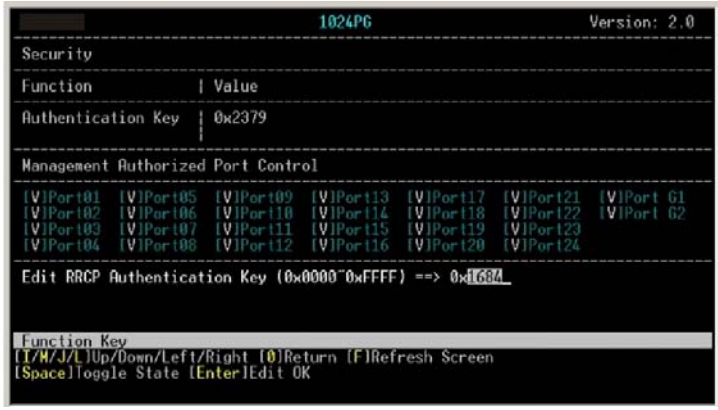


"IGMP snooping": Enable this function, it can snoop the broadcasting informtin through this

7-3 Security setting

See figure below:



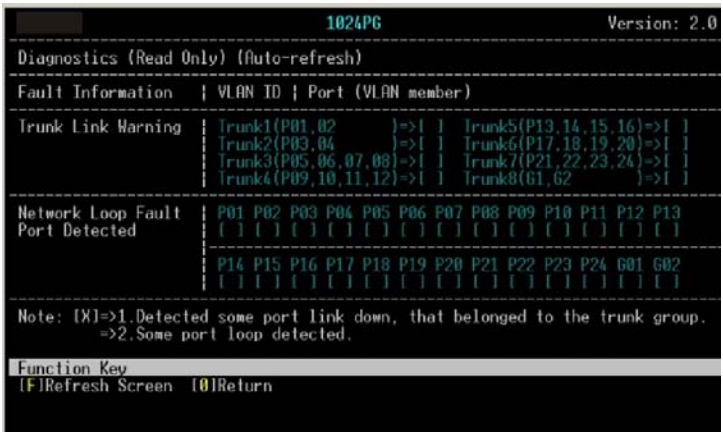


"Authentication Key": In the "Value" volume input 4 keys.

Advice: If not necessary pls don't change this value

7-4 Diagnostic function

See figure below:



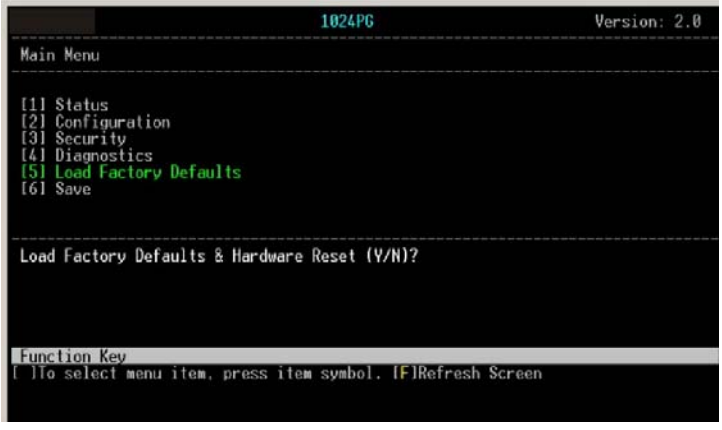
"Diagnostics": 1. To detect if any member within a Trunk

group connect successfully. If not, it will shows “x” in the “[]” within the Trunk group.

2. To detect if the port has any problem. If the port can use properly, it will show “x” in the relative “[]”

7-5 Reset to default configuration

See figure below:

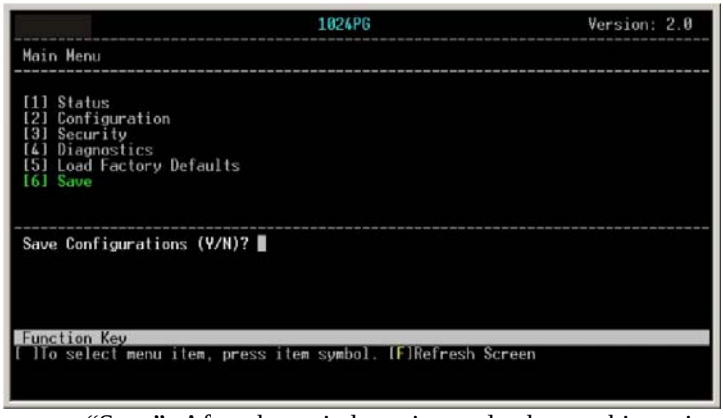


“Load Factory Defaults”: If you choose this, the switch will ask if your confirm the choice. Choose “Y”, the switch will reset all the setting to the factory defaults.

Note: This will delete all the user settings

7-6 Save configuration

See figure below:



"Save": After the switch settings, pls choose this option to save the settings, the switch will ask if confirm the choice, "Y" to confirm, "N" to cancel.