

SNMP

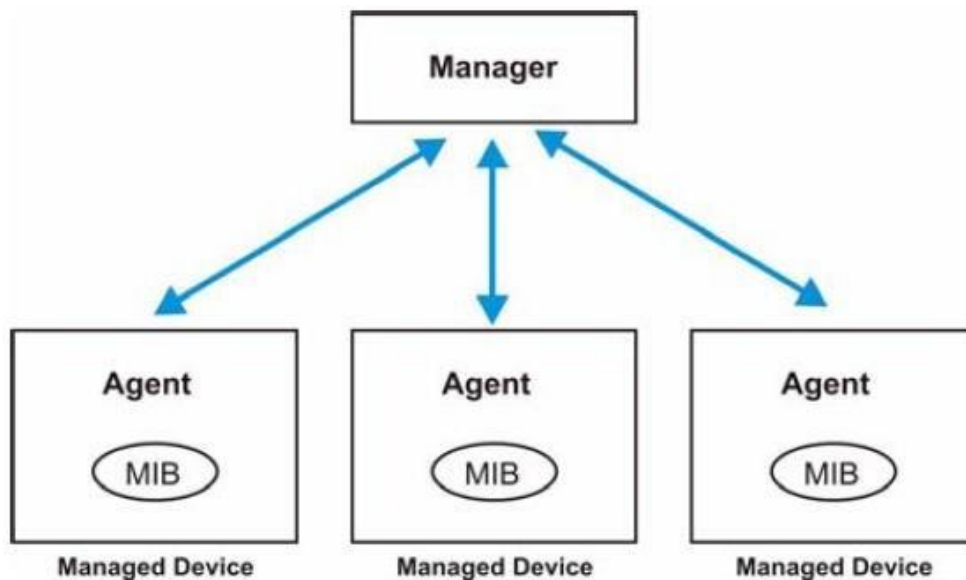
GS1900 Series

Support Note

Version 2.00 Nov. 2022

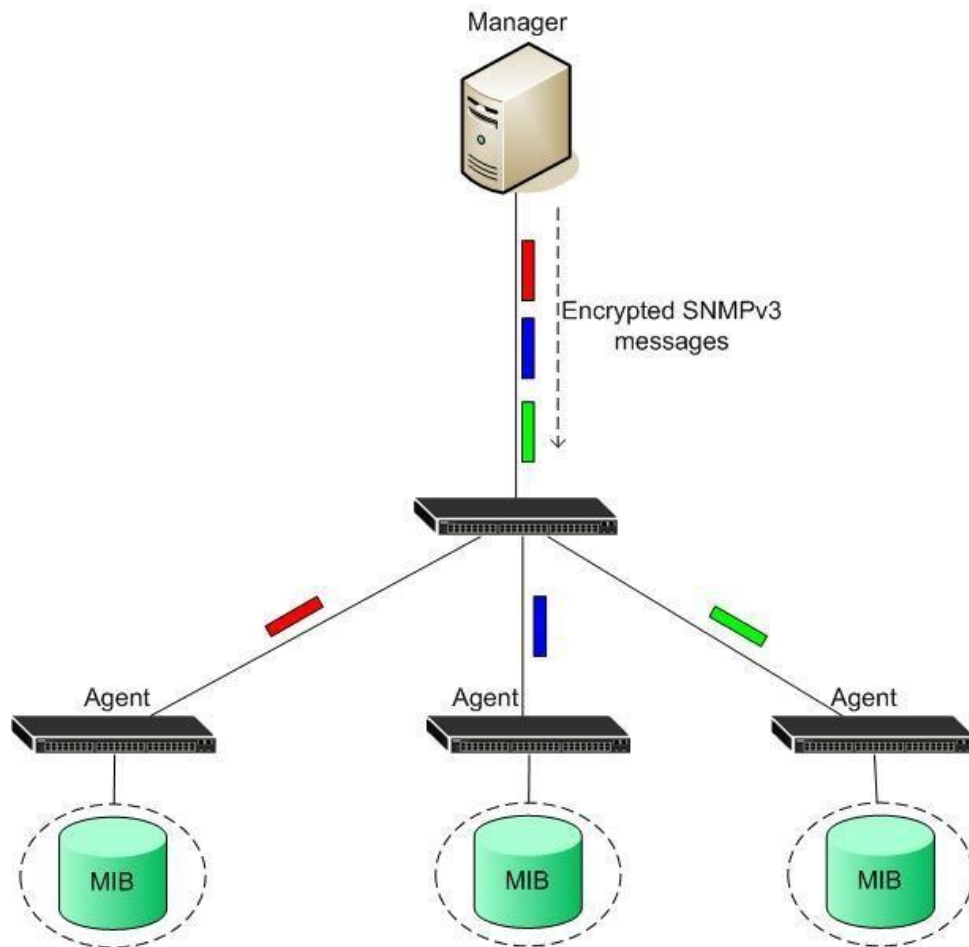
Introduction to SNMP

SNMP is a set of operations that allow the administrator to change the state of the SNMP based devices, such as UNIX systems, Windows systems, Switches, and Routers, etc. The SNMP system consists of three parts: SNMP manager, SNMP agent, and MIB. SNMP agents are the controlled devices where the SNMP manager is playing the role of the managing device. The MIB (Management Information Base) is a database of the managed devices that will be tracked.



Difference between SNMPv3 and others (SNMPv1 and SNMPv2c)

SNMPv3 (Simple Network Management Protocol version 3) can be thought of as SNMPv2 with additional security and administration capabilities. In SNMPv1 and SNMPv2, the authentication method amounts to nothing more than a password (the community string), which was sent in plain text. In SNMPv3, Security can be enhanced by encrypting the SNMP messages, only the authenticated receivers can decrypt the message.



The ZYXEL switches offer three levels of security:

1. **noauth:** To use the username as the password string to send to the SNMP manager.
2. **auth:** To implement an authentication algorithm for SNMP messages sent by this user.
3. **priv:** To implement authentication and encryption for SNMP messages sent by this user.

There are two authentication methods implemented on ZYXEL switches: MD5 and SHA.

Configure the ZYXEL Switch using the Web GUI

1. Connect the MGMT port to a PC or notebook computer with an RJ-45 cable.
2. By default, the MGMT IP address is 192.168.1.1/24.
3. Set the IP address of the NIC to 192.168.1.100/24.
4. Open an Internet browser (e.g. IE) and enter <http://192.168.1.1> into the URL field.
5. By default, the username for the administrator is "admin" and the password is "1234".
6. After successfully logging in you will see a screen similar to the one below.

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Refresh Save Status Logout Help

Refresh Interval: 5 seconds

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- Monitor
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Virtual Device

ZYXEL GS1900-8HP

RESTORE PWR SYS

1 2 3 4 5 6 7 8

Port 1: 10/100/1000Base-T Port 1: 4G

LAN LED: LINK/ACT 10/100/1000

Right: SFP+ Module

Wizard

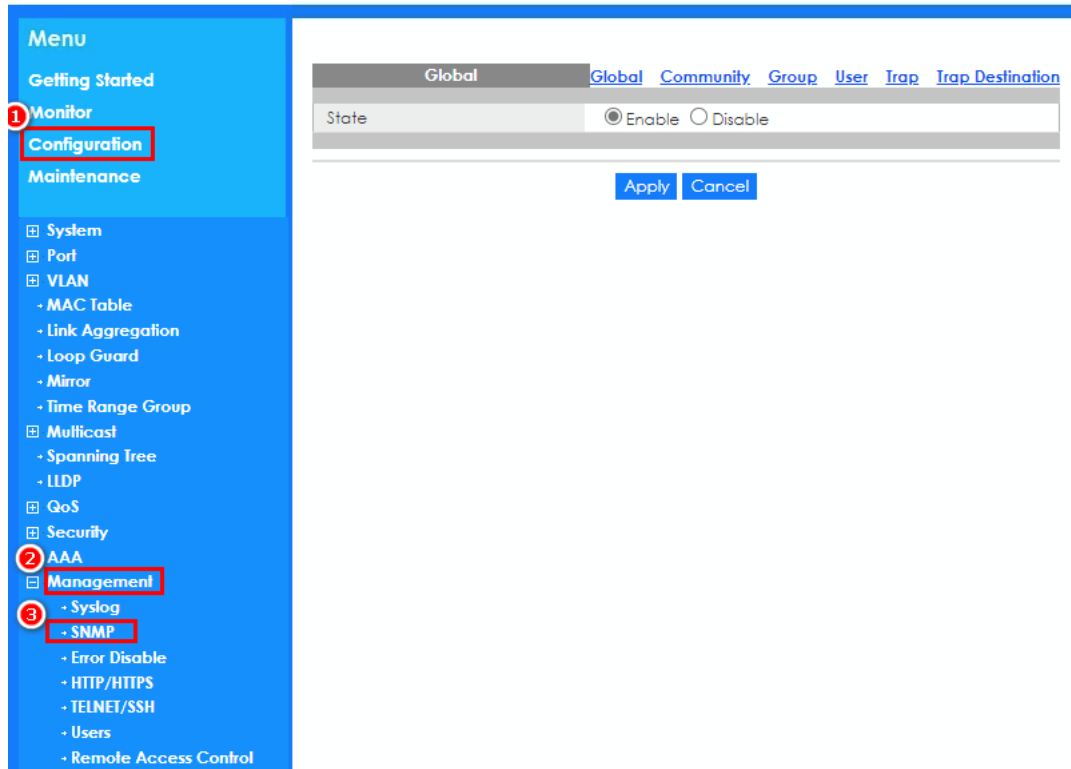
Start up VLAN QoS Link aggregation

Device Information

System Name:	GS1900
Model Name:	GS1900-8HP
Revision:	B2
Serial Number:	S212L32095023
MAC Address Range:	BC:CF:4F:FF:BA:31 - BC:CF:4F:FF:BA:39
Firmware Version:	V2.70(AAHL3) 07/26/2022
System Up Time:	0 days, 0 hours, 15 mins, 17 secs
Current Date/Time:	00:15:17 UTC+0 Jan 01 2022
CPU Usage:	12.9%
Memory Usage:	69.4%

7. To enter the "SNMP" page, click "**Configuration**" → "**Management**" → "**SNMP**".

ZYXEL GS1900-8HP



8. In the "SNMP" page, we can setup Community, Group, User, Trap/Trap destination.

9. In the "Community" page, we can create a "**Community Name**" and add "**Access Right**" for SNMP.

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Community Global Community Group User Trap Trap Destination
 Community Name
 Access Right ☒ Read-Only ☐ Read-Write
 Apply Cancel

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Community Global Community Group User Trap Trap Destination

Community Name	Access Right	Action
Read	Read-Only	
public	Read-Write	

 Add

10. In "Group" page, we can add Groups and choose the security level & Access mode ("ro" is Read-only; "rw" is Read-write).

The ZYXEL switches offer three levels of security:

- noauth**: To use the username as the password string to send to the SNMP manager.
- auth**: To implement an authentication algorithm for SNMP messages sent by this user.
- priv**: To implement authentication and encryption for SNMP messages sent by this user.

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SNMPv3 Group Global Community **Group** User Trap Trap Destination

Group Name	Security Model	Security Level	Access Right	Action
Add				

11. Configure the “**User information**”. Here we can choose the Security Level, Authentication methods, and encryption methods. Here we use “**noauth**” for no authentication. Click on the “**Apply**” button to save the changes.

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SNMPv3 Group

Global Community Group User Trap Trap Destination

Group Name: Test_Group

Security Level: noauth

Access Mode: ☒ Read-Only ☐ Read-Write

Apply Cancel

12. In this “User” part, we can define the Group, Auth Protocol, Encryption Protocol, Access Right, and Action for specific users. There are two authentication methods implemented on ZYXEL switches: MD5 and SHA.

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SNMP User

Global Community Group User Trap Trap Destination

User Name Group Privilege Mode Authentication Protocol Encryption Protocol Access Right Action

Add

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SNMP User

Global Community Group User Trap Trap Destination

User Name: Zyxel

Group Name: Test_Group

Auth Protocol: ☒ MD5 ☐ SHA

Auth Password

Priv Password

Apply Cancel

13. In the "Trap" section, we have 4 options to trigger SNMP trap. We can configure which kind of events should trigger the SNMP trap message.

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SNMP Trap	Global	Community	Group	User	Trap	Trap Destination
SNMP Authfailure Trap State	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable				
SNMP LinkupDown Trap State	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable				
SNMP Warm-Start Trap State	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable				
SNMP Cold-Start Trap State	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable				

Apply Cancel

ZYXEL GS1900-8HP

Server	Version	Community/User Name	UDP Port	Action
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Add

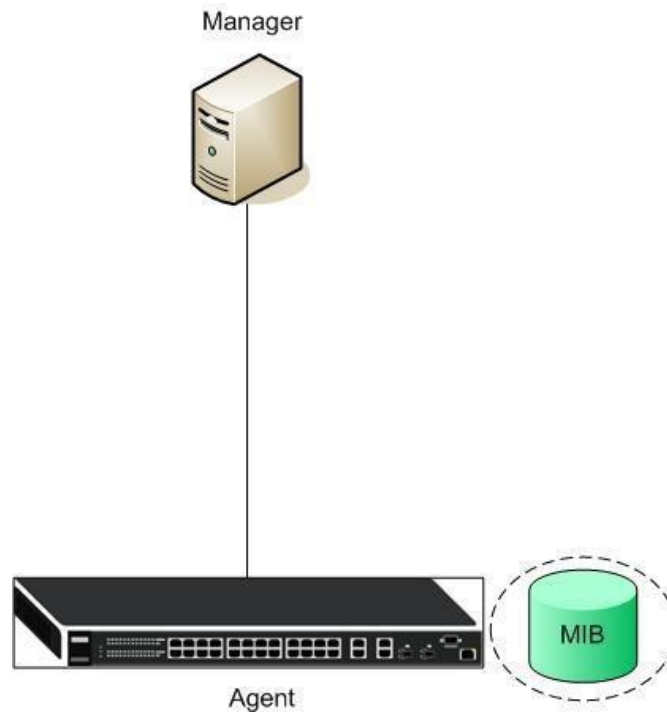
14. In the "Trap Destination" section, we can choose the SNMP version of the trap message, the destination we want to trigger to, destination port, and the username.

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Trap Destination
Server: 192.168.1.200 (X.X.X.X or Hostname)
Version: <input type="radio"/> v1 <input checked="" type="radio"/> v2c <input type="radio"/> v3
Community Name: Read
User Name:
UDP Port: 162 (1 - 65535)

Apply Cancel

Scenario



There are three SNMP components in this topology: Manager, Agent, and MIB. In this sample, we use iReasoning as the MIB browser, which can be installed on a Windows system.

Web GUI configuration

Step 1. Click on “Configuration” and go to “**Management**” → “**SNMP**”, and then enable “SNMP”.

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- Loop Guard
- Mirror
- Time Range Group

Multicast

- Spanning Tree
- LLDP

QoS

Security

2 AAA

3 Management

- Syslog
- SNMP**
 - Error Disable
 - HTTP/HTTPS
 - TELNET/SSH
 - Users
 - Remote Access Control

Global

Global

Community

Group

User

Trap

Trap Destination

State

4 ☒ Enable ☐ Disable

5 Apply Cancel

Step 2. Add a “Community” and choose “Access Right”.

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Community

Global

1 Community

Group

User

Trap

Trap Destination

Community Name

2 Read

Access Right

☒ Read-Only ☐ Read-Write

3 Apply Cancel

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Community		Global	Community	Group	User	Trap	Trap Destination
Community Name	Access Right						
Read	Read-Only						
public	Read-Write						

[Add](#)

Step 3. Add SNMP trap destination when device reboots. The switch will then send an SNMP trap to the host.

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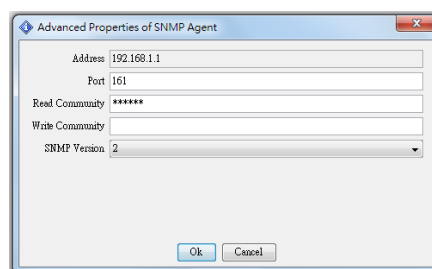
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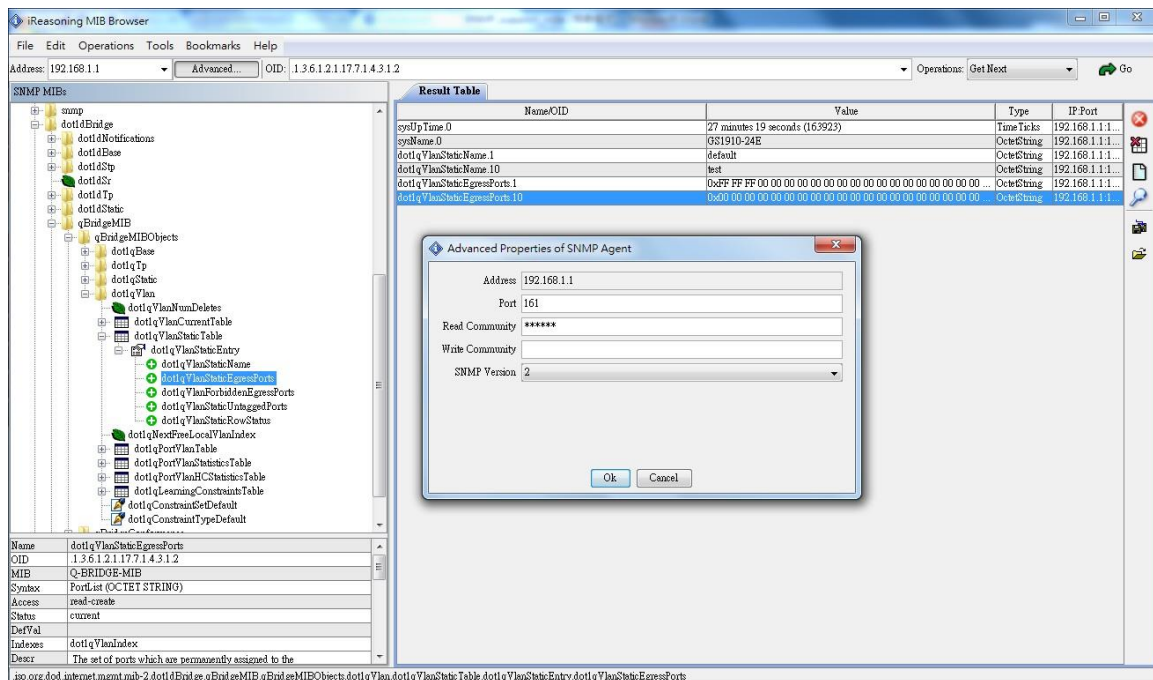
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SNMP Trap Host		Global	Community	Group	User	Trap	Trap Destination
Server	Version	Community/User Name	UDP Port	Action			
192.168.1.200	v2c	Read	162				

[Add](#)

Step 4. To read the VLAN status we need to install iReasoning MIB browser and enter the community and SNMP version as well as the port number, and then load "Q-Bridge" MIB to the polling VLAN status as shown below.





Step 5. After rebooting switch, then SNMP traps will be received as shown in the packet packets.

