Chapter 17: SNMP

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Chapter 17 SNMP

17.1 SNMP Overview

SNMP (Simple Network Management Protocol) is an important network management protocolon TCP / IP networks, implementing network management by exchanging packets on the network. The SNMP protocol provides the possibility of centralized management of large networks. Its goal is to ensure the management information is transmitted between any two points. SNMP is convenient for the network administrator to retrieve information from any nodeon the network, make modifications, find faults, and complete fault diagnosis, capacity planning and report generation.

SNMP structure is divided into two parts: NMS and Agent. NMS (Network Management Station)is a workstation that runs client programs while Agent is a server-side software running on a network device. The NMS can forward GetRequest, GetNextRequest, and SetRequest packets to the Agent. Upon receiving the NMS request message, the agent performs Read or Write operations according to the packet type and generates a Response packet to return to the NMS. On the other hand, when the device encounters an abnormal event such as hot / cold start, the agent will forward a trap packet to NMS to report the events.

The system supports SNMP v1, SNMP v2c and SNMP v3. SNMP V1 provides a simple authentication mechanism, does not support the administrator-to-manager communications, and v1 Trap has no confirmation mechanism. V2c enhanced v1 management model (on

security), management information structure, protocol operation, manager and communicationability between managers to increase the creation and deletion of the table, the communicationability between managers, reducing the storage side of the agent. V3 implements the user authentication mechanism and packet encryption mechanism, which greatly improves the security of the SNMP protocol.

This function cooperates with the network management software to log on to the GPON and manage the GPON.

17.2 Configure SNMP-Agent

17.2.1 SNMP-Agent Configuration List

Configuration Task	Description	Detailed Configuration
Configure the Basic Parameters	Required	17.2.2
Configure the Community Name	Required	17.2.3
Configure the Views	Optional	17.2.4
Configure the Group	Optional	17.2.5
Configure the User	Optional	17.2.6
Display SNMP Configuration	Optional	17.2.7

17.2.2 Configure the Basic Parameters

Operation	Command	Remarks
Enter the global configuration mode.	**system-view**	
Enable/disable SNMP Traps/informs	[**undo**] **snmp-agent enable** { **informs** | **traps** } [*notificationtype-list*]	
Configure sysContact	[**undo**] **snmp-agent scontact** *syscontact*	
Configure sysLocation	[**undo**] **snmp-agent location** *syslocation*	
Configure sysName	[**undo**] **snmp-agent name** *sysname*	
Configure maximum length of snmp protocol packets	[**undo**] **snmp-agent max-packet-length** *length*	
Configure host	[**undo**] **snmp-agent host** *host-addr* [**version** { **1** | **2c** | **3** [**auth** | **noauth** | **priv**] }] *community-string* [**udp-port** *port*] [**notify-type** [*notifytype-list*]]	
Configure snmp trap-source	[**undo**] **snmp-agent trap-source** *ipaddress*	
Configure snmp-agent engineoid	[**undo**] **snmp-agent engineoid** { **local** *engineid-string* | **remote** *ip-address*	

	[*udp-port port-number*] *engineid-string* }	

17.2.3 Configure the Community Name

SNMP adopts the community name authentication scheme. SNMP packets that do not match the community name will be discarded. SNMP community is named by a string, known as the community name. Different communities can have read-only or read-write access permission. A community with read-only access can only query system information. However, in addition toquery the system information, the community with read-write access permission can perform the system configurations. It defaults to no community name.

Operation	Command	Remarks
Enter the global configuration mode.	**system-view**	
Configure the community name	**snmp-agent community** *community-name* { **ro** | **rw** } { **deny** | **permit** } [**view** *view-name*]	
Display the community name	**display snmp-agent community**	
Remove the community name	**undo snmp-agent community** *community-name*	

17.2.4 Configure the Views

It is used to configure the views available to access control and the subtrees that they contain.The iso, internet, and sysview exist by default. Delete and modify the internet is not supported.

Operation	Command	Remarks
Enter the global configuration mode.	**system-view**	
Configure the views	**snmp-agent view** *view-name oid-tree* { **included** | **excluded** }	
Delete the views	**undo snmp-agent view** *view-name* [**oid-tree**]	

17.2.5 Configure the Group

This configuration task can be used to configure an access control group. By default, there aretwo snmpv3 groups: (1) The initial group with the security level of auth; (2) The initial group with the security level of noauthpriv(No authentication is required and no encryption is required).

Operation	Command	Remarks
Enter the global configuration mode.	**system-view**	
Configure the group	**snmp-agent group** *groupname* { **1** | **2c** | **3** [**auth** | **noauth** | **priv**] [**context** *context-name*] } [**read** *readview*] [**write** *writeview*] [**notify** *notifyview*]	
Delete the group	**undo snmp-agent group** *groupname* { **1** | **2c** | **3** [**auth** | **noauth** | **priv**] [**context** *context-name*] }	

17.2.6 Configure the User

It is used to configure the user for the local engine or for the remote engine that can be identified. By default, the following users exist: (1)initialmd5, (2) initialsha, (3) initialnone.

The above three users are reserved for the system and cannot be used by the user. When Configure a user, you need to ensure that the engine to which this user belongs is identifiable. When an identifiable engine is deleted, the users it contains are also deleted.

Operation	Command	Remarks
Enter the global configuration mode.	**system-view**	
Configure the user	**snmp-agent user** *username groupname* [**remote** *host* [**udp-port** *port*]] [**auth** { **md5** | **sha** } { **authpassword** { **encrypt-auth password** *authpassword* | *authpassword* } | **authkey** { **encrypt-authkey** *authkey* | *authkey* } } [**priv des** { **privpassword** { **encrypt-privpassword** *privpassword* | *privpassword* } | **privkey** { **encrypt-privkey** *privkey* | *privkey* } }]	
Delete the user	**undo snmp-agent user** *username* [**remote** *host* [**udp-port** *port*]]	

17.2.7 Display SNMP-Agent Configuration

Operation	Command	Remarks
display snmp community configuration	**display snmp community**	
display snmp contact configuration	**display snmp contact**	
display snmp engineid configuration	**display snmp engineid** { **local** | **remote** }	
display snmp group configuration	**display snmp group**	
display snmp host configuration	**display snmp host**	
display snmp location configuration	**display snmp location**	
display snmpmax-packet-length configuration	**display snmp max-packet-length**	
display snmp name configuration	**display snmp name**	
display snmp notify configuration	**display snmp notify**	
display snmp user configuration	**display snmp user**	
display snmp view configuration	**display snmp view**	