System Log

System Log Overview

Syslog is the system information center, to complete the unified processing and output of information.

The other modules in the system will send the output information to Syslog. Syslog determines the output format of the information according to the configuration of the user and outputs the information to the specified display device according to the information switching and filtering rules of each output direction configured by the user.

With the Syslog information producer, which is each module of output information, you do not need to export information to the console, Telnet terminal, or log host (Syslog server). You only need to output the information to Syslog. By configuring the appropriate filtering rules, information consumers, which are console, Telnet terminal, history buffer, log host and SNMP agent, a user can choose the desired information and discard unwanted information.

System Log Configuration

Enabling Syslog

Note The logging function is enabled by default and stored in the buffer.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **logging**

4. **show logging**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**logging** **Example:** `Device(config)# logging`	Enables log function.
Step 4	**show logging** **Example:** `Device(config)# show logging`	(Optional) Displays the configuration information.
Step 5	**end** **Example:** `Device(config)# end`	(Optional) Exits the global configuration mode and returns to privileged EXEC mode.

Configuring the Log Serial Number

Note The logging function is enabled by default.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **logging sequence-numbers**
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. Enter your password if prompted.

	Command or Action	Purpose
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**logging sequence-numbers** **Example:** `Device(config)# logging sequence-numbers`	Enables the log serial number.
Step 4	**end** **Example:** `Device(config)# end`	(Optional) Exits the global configuration mode and returns to privileged EXEC mode.

Configuring the Timestamp

Note There is no separate timestamp switch. There are three timestamp types:

- notime: do not show the time
- uptime: show the boot time
- datetime: show the date and time

The default is uptime.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **logging timestamps** {**notime** | **uptime** | **datetime**}
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.

	Command or Action	Purpose
Step 3	**logging timestamps** {**notime** | **uptime** | **datetime**} **Example:** `Device(config)# logging timestamps datetime`	Configures the timestamp type.
Step 4	**end** **Example:** `Device(config)# end`	(Optional) Exits the global configuration mode and returns to privileged EXEC mode.

Configuring the Log to Output to the Terminal

In privileged EXEC mode, configure the log to output to the terminal device. In global configuration mode, you can configure information display and filtering rules. By default, the device logs do not output to the terminal, but output to the buffer. There is a slight difference between the command for the serial terminal and the Telnet or SSH terminal.

Note

- Log output to the terminal: In the serial console, the default configuration is terminal monitor; in other terminal console, the default is no terminal monitor.
- Log information display: In the non-console terminal configuration, only affect this landing of the current terminal, the other terminals, the next landing of the current terminal is invalid.
- *monitor-num* is 0 for the console, and 1 to 5 for Telnet and SSH terminals.
- Output log default rule: All modules, log level 0-5,7. Deleting the filtering rule restores the default rule.

SUMMARY STEPS

1. **enable**
2. **terminal monitor**
3. **configure terminal**
4. **logging monitor** {**all** | *monitor-num*} [*level_value* | **level-list** *level_value* | **none**]
5. **show logging filter monitor** *monitor-num*
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**terminal monitor** **Example:**	Enables output to the terminal.

	Command or Action	Purpose
	`Device# terminal monitor`	
Step 3	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 4	**logging monitor** {**all** | *monitor-num*} [*level_value* | **level-list** *level_value* | **none**] **Example:** `Device(config)# logging monitor all 3`	(Optional) Enables log display and configures the filtering rules.
Step 5	**show logging filter monitor** *monitor-num* **Example:** `Device(config)# show logging filter monitor 3`	(Optional) Displays the filtering rules.
Step 6	**end** **Example:** `Device(config)# end`	(Optional) Exits the global configuration mode and returns to privileged EXEC mode.

Configuring the Log to Output to the Buffer

Note The default is log output to buffer. The default rule is to output all modules and logs at the level 0-6. Deleting the filtering rule restores the default rule.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **logging buffered** [*level_value* | **level-list** *level_value* | **none**]
4. **show logging filter buffered**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.

	Command or Action	Purpose
Step 3	**logging buffered** [*level_value* | **level-list** *level_value* | **none**] **Example:** `Device(config)# logging buffered 3`	Enables output to buffer and configures the filtering rules.
Step 4	**show logging filter buffered** **Example:** `Device(config)# show logging filter buffered`	(Optional) Displays the filtering rules.
Step 5	**end** **Example:** `Device(config)# end`	(Optional) Exits the global configuration mode and returns to privileged EXEC mode.

Configuring the Log to Output to the Flash

In global configuration mode, you can configure Syslog to save to Flash, which is not saved in flash memory by default.

Note

- When the log is output to flash, the default rule is to output all modules and the log level is 0-5. Deleting the filtering rule restores the default rules.
- When the log is output to flash, the default cycle is 30M. By default, 100 logs are saved at one time.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **logging flash** [*level_value* | **interval** *interval-value* | **level-list** *level_value* | **msg-number** *msg-num-value* | **none**]
4. **show logging filter flash**
5. **show logging flash**[[*level_value* | **count** | **level-list** *level_value*] **module** *module-name*]
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.

	Command or Action	Purpose
Step 3	**logging flash** [*level_value* | **interval** *interval-value* | **level-list** *level_value* | **msg-number** *msg-num-value* | **none**] **Example:** `Device(config)# logging flash msg-number 220`	Enables output to flash and configures the filtering rules.
Step 4	**show logging filter flash** **Example:** `Device(config)# show logging filter flash`	(Optional) Displays the filtering rules.
Step 5	**show logging flash**[[*level_value* | **count** | **level-list** *level_value*] **module** *module-name*] **Example:** `Device(config)# show logging flash`	(Optional) Displays the log information in the flash.
Step 6	**end** **Example:** `Device(config)# end`	(Optional) Exits the global configuration mode and returns to privileged EXEC mode.

Configuring the Log to Output to the External Server

Configure the specified server address for log output, information output switch, filtering rule, and logging tool and source address in global configuration mode.

Note

- The sip of log messages must be the interface of the device. The Layer 3 device uses the IP address of the corresponding interface of the log server by default. The Layer 2 device automatically uses the system IP and does not need to be configured.
- The default logging tool name uses localuse7.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **logging** *ip-address*
4. **logging host** {*ip-address* | **all**} [*level_value* | **level-list** *level_value* | **none**]
5. **logging facility** {**clock1** | **clock2** | **ftp** | **kernel** | **lineprinter** | **localuse0** | **localuse1** | **localuse2** | **localuse3** | **localuse4** | **localuse5** | **localuse6** | **localuse7** | **logalert** | **logaudit** | **mail** | **networknews** | **ntp** | **security1** | **security2** | **syslogd** | **system** | **userlevel** | **uucp**}
6. **logging source** *ip-address*
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**logging** *ip-address* **Example:** `Device(config)# logging 10.1.1.10`	Configures the log server.
Step 4	**logging host** {*ip-address* | **all**} [*level_value* | **level-list** *level_value* | **none**] **Example:** `Device(config)# logging host all`	Enables the log server and configures the filtering rules.
Step 5	**logging facility** {**clock1** | **clock2** | **ftp** | **kernel** | **lineprinter** | **localuse0** | **localuse1** | **localuse2** | **localuse3** | **localuse4** | **localuse5** | **localuse6** | **localuse7** | **logalert** | **logaudit** | **mail** | **networknews** | **ntp** | **security1** | **security2** | **syslogd** | **system** | **userlevel** | **uucp**} **Example:** `Device(config)# logging facility log1`	(Optional) Configures the logging tool name.
Step 6	**logging source** *ip-address* **Example:** `Device(config)# logging source 10.1.1.11`	(Optional) Configures the sip for log packet.
Step 7	**end** **Example:** `Device(config)# end`	(Optional) Exits the global configuration mode and returns to privileged EXEC mode.

Configuring the Log to Output to the SNMP Agent

Configure Syslog output to the SNMP agent in global configuration mode. To send Syslog messages to SNMP Workstation in trap messages, you must also configure the Trap host address. Refer to the SNMP configuration instructions.

By default, logs are not set to output to the SNMP agent.

SUMMARY STEPS

1. **enable**

2. **configure terminal**
3. **logging snmp-agent**
4. **logging snmp-agent** {*level_value* | **level-list** *level_value* | **none**]
5. **show logging filter snmp-agent**
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**logging snmp-agent** **Example:** `Device(config)# logging 10.1.1.10`	Enables log output to the SNMP agent.
Step 4	**logging snmp-agent** {*level_value* | **level-list** *level_value* | **none**] **Example:** `Device(config)# logging snmp-agent none`	(Optional) Configures the filtering rules.
Step 5	**show logging filter snmp-agent** **Example:** `Device(config)# show logging filter snmp-agent`	(Optional) Displays the filtering rules.
Step 6	**end** **Example:** `Device(config)# end`	(Optional) Exits the global configuration mode and returns to privileged EXEC mode.

Monitoring the System Log

In the global configuration mode, you can configure the debugging function to print the debugging information of the corresponding module. By default, debugging information of all modules is disabled.

Command	Purpose
debug {**all** | *module_name*}	Enables debugging function.
show debug	Displays the configuration information.

Example: Syslog Configuration

This example shows how to output the logs of the STP module and the device module at levels 0-4 to the console terminal: turn on the serial number display, use timestamp datetime, log output to the flash memory, log information of level 3 and 4 to output to buffer, output logs to external server 10.1.1.3, and open ARP debugging information.

The following example shows the system log configuration.

```
Device> enable
Device# terminal monitor
Device# configure terminal
Device(config)# logging
Device(config)# logging monitor all
Device(config)# logging monitor all level-list 0 to 4 module stp device
Device(config)# logging sequence-numbers
Device(config)# logging timestamps datetime
Device(config)# logging flash
Device(config)# logging buffered level-list 3 4
Device(config)# logging 10.1.1.3
Device(config)# logging host 10.1.1.3
Device(config)# logging facility ftp
Device(config)# debug ARP
Device(config)# logging flash
```

The following example shows the logging configuration information.

```
Device> enable
Device# configure terminal
Device(config)# show logging

state: on;
logging sequence-numbers: on;
logging timestamps: datetime;
logging language: english
logging monitor:
Console:   state: on;  display: off;  96 logged;  0 lost;  0 overflow.
logging buffered:  state: on;  249 logged;    0 lost;     0 overflow.
logging flash:  state: on;  37 logged;     0 lost;     0 overflow.
logging loghost:
logging facility: ftp;logging source: off
10.1.1.3:     state: on;  23 logged;     0 lost;     0 overflow.
logging SNMP Agent:  state: off;  0 logged;      0 lost;     0 overflow.
```