

Local Logging:

- o Everything happens on Cisco Router or Cisco Switch can be logged.
- o By default, syslog messages are only displayed to the console of devices.
- o Because the **logging console** command is enabled by default in Cisco.
- o By default, the Cisco Router sends all log messages to its console port.
- o Only users physically connected to Router console port can view messages.
- o This can be turned off with the **no logging** command type in config mode.
- o For local logging, Cisco IOS can save syslog messages to the internal buffer.
- o Syslog messages can be output to the console or a remote syslog server.
- o The logging is basically the process that generated the syslog message.

Terminal Logging:

- o It is like console logging, but it displays log messages to the router's VTY lines instead.
- o This is not enabled by default. To enable it to use this command: **R1# terminal monitor**

Buffered Logging:

- o This type of logging uses Cisco Router's & Switches RAM for storing log messages.
- o Buffer has fixed size to ensure that the log will not deplete valuable system memory.
- o Router accomplishes this by deleting old messages as new messages are added.
- o To enable it to use the configuration mode command: **R1 (config)# logging buffered**

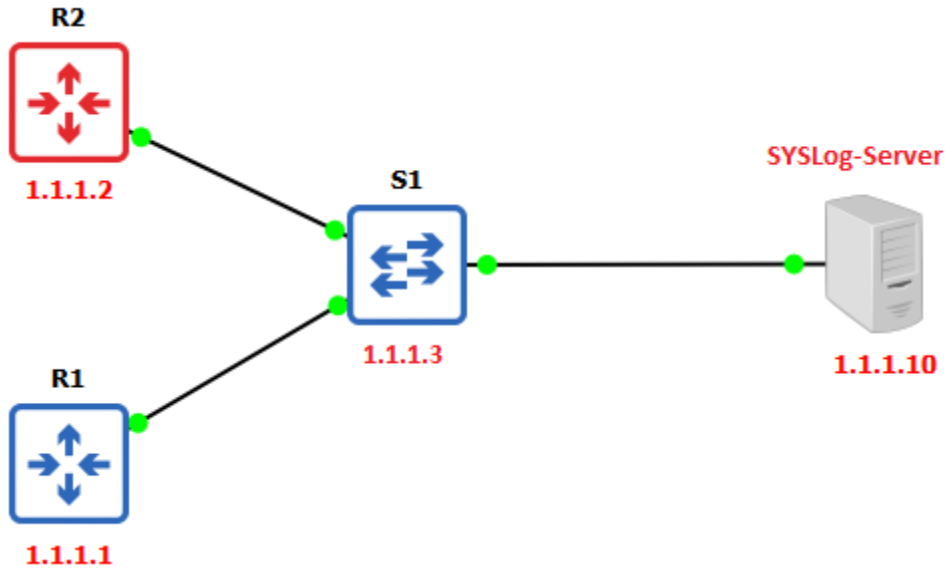
Syslog Server Logging:

- o Router can use syslog to forward log messages to external syslog servers for storage.
- o Syslog Server Logging method of type of logging is not enabled by default in devices.

SNMP Trap Logging:

- o The Router can use SNMP traps to send log messages to an external SNMP server.

Lab Time:



Devices Basic Configuration	
R1(config)#interface ethernet 0/0 R1(config-if)#ip address 1.1.1.1 255.0.0.0 R1(config-if)#no shutdown	
R2(config)#interface ethernet 0/0 R2(config-if)#ip address 1.1.1.2 255.0.0.0 R2(config-if)#no shutdown	
S1(config)#interface vlan 1 S1(config-if)#ip address 1.1.1.3 255.0.0.0 S1(config-if)#no shutdown	

Logging Configuration	
R1 (config)# logging 1.1.1.10	R1(config)# logging buffered informational
R1 (config)# logging host 1.1.1.10	R1(config)# logging buffered 64000
R1 (config)# logging buffered	R1(config)# no service timestamps
R1 (config)# logging trap <1-7> R1 (config)# logging trap notifications R1 (config)# logging traps 5	R1(config)# service sequence-number
R1 (config)# no logging console	R1# terminal monitor
R1 (config)# logging console <Level>	R1# terminal no monitor
R1# clear logging	R1# show logging

External Syslog Server show up R1 logs.

Time	IP A...	Msg Type	Message
Mar 24 11:01:52	1.1.1.1	local7.notice	16: *Mar 1 00:02:50.823: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to down
Mar 24 11:01:52	1.1.1.1	local7.notice	15: *Mar 1 00:02:49.823: %LINK-5-CHANGED: Interface Loopback1, changed state to administratively down
Mar 24 11:01:07	1.1.1.1	local7.notice	14: *Mar 1 00:02:08.879: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to up

Logs with Timestamp

```
R1(config-if)#
00:09:07: %LINK-3-UPDOWN: Interface Loopback1, changed state to up
00:09:08: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to up
```

Logs without Timestamp.

```
R1(config-if)#
%LINK-5-CHANGED: Interface Loopback1, changed state to administratively down
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to down
```

Logs with sequence number after enable service sequence-number.

```
R1(config-if)#
000048: 00:23:42: %LINK-5-CHANGED: Interface Loopback1, changed state to administratively down
000049: 00:23:43: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to down
```

```
R1(config)#line vty 0 4
R1(config-line)#password 123
R1(config-line)#login
R1(config)#enable password 123
R1#terminal monitor
```

After enable, terminal monitor logs show up on remote telnet screen.

```
R1(config-if)#
00:14:27: %LINK-3-UPDOWN: Interface Loopback1, changed state to up
00:14:28: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to up
```

By default, syslog messages are only displayed to the console.

Below is local logging in console.

```
R2#show logging
Syslog logging: enabled (11 messages dropped, 1 messages rate-limited,
0 flushes, 0 overruns, xml disabled, filtering disabled)
  Console logging: level debugging, 21 messages logged, xml disabled,
filtering disabled
  Monitor logging: level debugging, 0 messages logged, xml disabled,
filtering disabled
  Buffer logging: level informational, 4 messages logged, xml disabled,
filtering disabled
Logging Exception size (4096 bytes)
Count and timestamp logging messages: disabled
Trap logging: level informational, 24 message lines logged

Log Buffer (4096 bytes):
*Mar 1 00:10:41.543: %SYS-5-CONFIG_I: Configured from console by console
*Mar 1 00:11:14.211: %LINK-5-CHANGED: Interface Loopback1, changed state to administratively down
*Mar 1 00:11:15.211: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to down
*Mar 1 00:11:19.431: %SYS-5-CONFIG_I: Configured from console by console
```