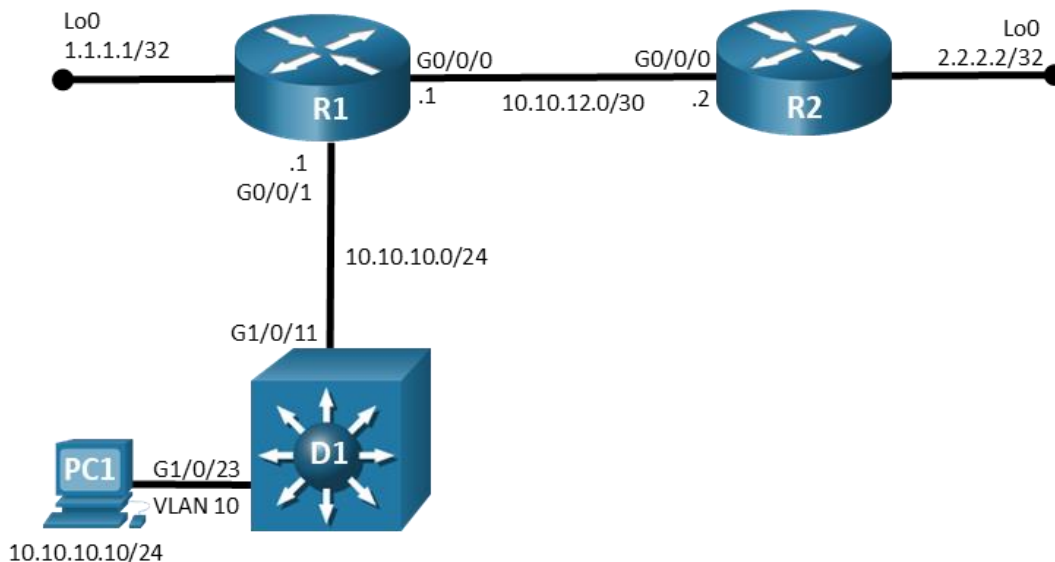


## Lab - Troubleshoot SNMP and Logging Issues

### Topology



### Addressing Table

Device	Interface	IP Address	Subnet Mask
R1	G0/0/0	10.10.12.1	255.255.255.0
	G0/0/1	10.10.10.1	255.255.255.0
R2	G0/0/0	10.10.12.2	255.255.255.0
D1	VLAN 10	10.10.10.2	255.255.255.0
PC1	NIC	10.10.10.10	255.255.255.0

### Objectives

Troubleshoot the logging issues for the devices in the topology and make the necessary corrections.

### Background / Scenario

In this topology, routers R1, R2, and switch D1 are configured with logging and SNMP. You will be loading configurations with intentional errors onto the network. Your tasks are to FIND the error(s), document your findings and the command(s) or method(s) used to fix them, FIX the issue(s) presented here, and then test the network to ensure both of the following conditions are met:

- 1) the complaint received in the ticket is resolved
- 2) full functionality is restored

**Note:** The routers used with CCNP hands-on labs are Cisco 4221 with Cisco IOS XE Release 16.9.4 (universalk9 image). The switches used in the labs are Cisco Catalyst 3650 with Cisco IOS XE Release

16.9.4 (universalk9 image). Other routers, switches, and Cisco IOS versions can be used. Depending on the model and Cisco IOS version, the commands available and the output produced might vary from what is shown in the labs. Refer to the Router Interface Summary Table at the end of the lab for the correct interface identifiers.

**Note:** Make sure that the devices have been erased and have no startup configurations. If you are unsure, contact your instructor.

### Required Resources

- 2 Routers (Cisco 4221 with Cisco IOS XE Release 16.9.4 universal image or comparable)
- 1 Switch (Cisco 3560 with Cisco IOS XE Release 16.9.4 universal image or comparable)
- 1 PC (Choice of operating system with terminal emulation and syslog programs installed)
- Console cables to configure the Cisco IOS devices via the console ports
- Ethernet cables as shown in the topology

### Part 1: Trouble Ticket 23.1.3.1

#### Scenario:

SNMP messages should be coming from router R1 and switch D1. To avoid service interruption, loopback interfaces have been configured on those devices to test SNMP operation. Disabling and enabling the loopback interface should generate an SNMP trap that is displayed on the Syslog server log screen. Correct any necessary configuration issues and verify traps are being logged from both devices.

Use the commands listed below to load the configuration files for this trouble ticket:

Device	Command
R1	<code>copy flash:/enarsi/23.1.3.1-r1-config.txt run</code>
R2	<code>copy flash:/enarsi/23.1.3.1-r2-config.txt run</code>
D1	<code>copy flash:/enarsi/23.1.3.1-d1-config.txt run</code>

- PC1 should be manually configured and able to ping its default gateway, as shown in the Addressing Table.
- PC1 needs to have syslog software running. In this example, the Kiwi Syslog Server software is used and the following settings is used for all the trouble tickets in this lab.

#### Kiwi Syslog Server Settings:

**File->Setup->Inputs** – Add addresses 10.10.10.1, 10.10.10.2, and 10.10.12.2

**File->Setup->Inputs->UDP** – Checkbox for Listen for UDP messages checked

**File->Setup->Inputs->SNMP** – Checkbox for Listen for SNMP Traps checked

**File->Setup->Inputs->SNMP** – Add/Remove SNMP v3 Credentials dialog

**User Name** – USER1

**Authentication Password** – cisco12345

**Algorithm** - SHA

**Private Password** – cisco54321

**Algorithm** - AES

**Security Level** - Authentication & Privacy dropdown selected

Click **Add User**

Close the **Setup** dialog box.

- Passwords on all devices are **cisco12345**. If a username is required, use **admin**.
- After you have fixed the ticket, change the MOTD on EACH DEVICE using the following command:  
**banner motd # This is \$(hostname) FIXED from ticket <ticket number> #**
- Then save the configuration by issuing the **wri** command (on each device).
- Inform your instructor that you are ready for the next ticket.
- After the instructor approves your solution for this ticket, issue the **reset.now** privileged EXEC command on each device. This script will clear your configurations and reload the devices.
- Clear the log messages on PC1 to prepare for the next ticket.

### Part 2: Trouble Ticket 23.1.3.2

#### Scenario:

A network technician notices that logging messages from the routers are not consistent. All messages should record the time the event occurs. Both routers should record when changes are made to the devices. Use the loopback interfaces on the routers to determine if messages are being recorded correctly.

Use the commands listed below to load the configuration files for this trouble ticket:

Device	Command
R1	<b>copy flash:/enarsi/23.1.3.2-r1-config.txt run</b>
R2	<b>copy flash:/enarsi/23.1.3.2-r2-config.txt run</b>
D1	<b>copy flash:/enarsi/23.1.3.2-d1-config.txt run</b>

- PC1 should be manually configured and able to ping its default gateway, as shown in the Addressing Table.
- PC1 needs to have the Kiwi Syslog Server software running with the same setting used in Trouble Ticket 23.1.3.1.
- Passwords on all devices are **cisco12345**. If a username is required, use **admin**.
- After you have fixed the ticket, change the MOTD on EACH DEVICE using the following command:  
**banner motd # This is \$(hostname) FIXED from ticket <ticket number> #**
- Then save the configuration by issuing the **wri** command (on each device).
- Inform your instructor that you are ready for the next ticket.
- After the instructor approves your solution for this ticket, issue the **reset.now** privileged EXEC command. This script will clear your configurations and reload the devices.

### Router Interface Summary Table

Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2
1800	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)

Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2
1900	Gigabit Ethernet 0/0 (G0/0)	Gigabit Ethernet 0/1 (G0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2801	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)
2811	Fast Ethernet 0/0 (F0/0)	Fast Ethernet 0/1 (F0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2900	Gigabit Ethernet 0/0 (G0/0)	Gigabit Ethernet 0/1 (G0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
4221	Gigabit Ethernet 0/0/0 (G0/0/0)	Gigabit Ethernet 0/0/1 (G0/0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)
4300	Gigabit Ethernet 0/0/0 (G0/0/0)	Gigabit Ethernet 0/0/1 (G0/0/1)	Serial 0/1/0 (S0/1/0)	Serial 0/1/1 (S0/1/1)

**Note:** To find out how the router is configured, look at the interfaces to identify the type of router and how many interfaces the router has. There is no way to effectively list all the combinations of configurations for each router class. This table includes identifiers for the possible combinations of Ethernet and Serial interfaces in the device. The table does not include any other type of interface, even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in Cisco IOS commands to represent the interface.