

## Module 10 – Network Management Study Guide

**Tips for success:** While answering the questions read Module 8, review the summary, and complete the practice Quiz.

**After completion of this chapter, you should be able to:**

- Use CDP and LLDP to map a network topology.
- Implement NTP between an NTP client and NTP server.
- Explain how SNMP operates.
- Explain syslog operation.
- Use commands to back up and restore an IOS configuration file.
- Implement protocols to manage the network.

### 10.1 Device Discovery with CDP

#### 10.1.1 CDP Overview

1. What does CDP do?
  
2. What layer does CDP operate??
  
3. What is discovered by the CDP advertisements?
  
4. What specifically can CDP help you do as a network administrator?

#### 10.1.2 Configure and Verify CDP

5. Is CDP enabled by default? Yes or no:
  
6. May it be desirable to disable CDP? Why?
  
7. What IOS command is used to display CDP status information?
  
8. What IOS command is used to shut down CDP on the device and all interfaces?

9. What IOS command is used to shut down CDP on a particular interface?
10. What IOS command is used to see the information collected by the CDP advertisements?
11. What IOS command is used to show the interfaces enabled for CDP?

### **10.1.3 Discover Devices by Using CDP**

12. What are the 4 types of information displayed by the show cdp neighbors command and a definition of each:
  1. \_\_\_\_\_ -
  2. \_\_\_\_\_ -
  3. \_\_\_\_\_ -
  4. \_\_\_\_\_ -
13. What is different between the show cdp neighbors and show cdp neighbors detail output?

### **10.1.4 Syntax Checker - Configure and Verify CDP**

### **10.1.5 Packet Tracer - Use CDP to Map a Network**

### **10.2 1 Device Discovery with LLDP**

14. What is the difference between CDP and LLDP?

### **10.2.2 Configure and Verify LLDP**

15. Is LLDP enabled by default?
16. What IOS command is used to shut down LLDP on the device and all interfaces?

17. What IOS command is used to display LLDP status information?

### **10.2.3 Discover Devices by Using LLDP**

18. What two IOS command that can be used to see the information collected by the LLDP advertisements?

- a.
- b.

### **10.2.4 Syntax Checker - Configure and Verify LLDP**

### **10.2.5 Check Your Understanding - Compare CDP and LLDP**

### **10.2.6 Packet Tracer - Use LLDP to Map a Network**

## **10.3 NTP**

### **10.3.1 Time and Calendar Services**

19. What is meant by the term “timestamping”?

20. Why is timestamping important?

21. What two ways can be used to set the calendar and clock on a Cisco device?

- a.
- b.

22. What two ways can NTP synchronize its clock and calendar?

- a.
- b.

23. What port number is reserved for NTP?

### 10.3.2 NTP Operation

24. What are the three primary NTP stratum? What is the significance of each?

a. \_\_\_\_\_ -

b. \_\_\_\_\_ -

c. \_\_\_\_\_ -

### 10.3.3 Configure and Verify NTP

25. What is the IOS command to set the system clock?

26. What is the command to verify the system clock information?

27. What is the command to learn how the device's clock was configured?

28. What is the command to assign an NTP server device?

29. What is shown by the **show ntp associations** command?

### 10.3.4 Packet Tracer - Configure and Verify NTP

## 10.4 SNMP

### 10.4.1 Introduction to SNMP

30. What is the purpose of Simple Network Management Protocol (SNMP):

31. Fill in the table with the definitions of the SNMP terms:

Element	Definition
SNMP manager	
SNMP agent	
SNMP manager gets	
SNMP agent traps	
MIBs	

32. What's the difference between the "get" and "set" action by the SNMP manager?

33. What port numbers are reserved for SNMP? (Don't forget this)

#### 10.4.2 SNMP Operation

Operation	Description
get-request	
get-next-request	
get-bulk-request	
get-response	
set-request	

#### 10.4.3 SNMP Agent Traps

34. What is the advantage to using traps vs. polling?

35. What are a couple examples of SNMP traps?

a. \_\_\_\_\_

b. \_\_\_\_\_

#### 10.4.4 SNMP Versions

36. What are the three versions of SNMP?

1.	
2.	
3.	

#### 10.4.5 Check Your Understanding - SNMP Versions

#### 10.4.6 Community Strings

37. What are community strings?

38. What is the purpose of using community strings?

#### 10.4.7 MIB Object ID

39. What is meant by the MIB variable object ID?

#### 10.4.8 SNMP Polling Scenario

40. In the example scenario shown, when is the notification sent to the SNMP manager software?

41. What is an OID?

#### 10.4.9 SNMP Object Navigator

42. What is the purpose of an Object Navigator?

## 10.4.10 Lab - Research Network Monitoring Software

### 10.5 Syslog

#### 10.5.1 Introduction to Syslog

43. What is the syslog protocol?

44. What are syslog's three primary functions:

a.

b.

c.

#### 10.5.2 Syslog Operation

45. When are syslog messages sent?

46. Device syslog messages can be sent to where?

a.

b.

c.

d.

### 10.5.3 Syslog Message Format

47. Syslog messages are ranked by severity level, what are the severity levels? (know this)

Severity Name	Severity Level	Explanation

### 10.5.4 Syslog Facilities

48. What are syslog facilities?

49. What are the five facility codes in the text used as an example

- a.                    b.                    c.                    d.                    e.

### 10.5.5 Configure Syslog Timestamp

50. What command must be used to allow timestamping of syslog messages?

### 10.5.6 Check Your Understanding - Syslog Operation

#### 10.6 Router and Switch File Maintenance

##### 10.6.1 Router File Systems

51. What command lists all of the available file systems on a Cisco router?



52. Define the following permission flags:

- a. ro –
- b. wo –
- c. rw –

53. What does the **dir** command allow us to do?

54. What does the **cd** command allow us to do?

55. What does the **pwd** command allow us to do?

### 10.6.2 Switch File Systems

56. What command lists all of the available file systems on a Cisco switch?

### 10.6.3 Use a Text File to Back Up a Configuration

57. What are the steps for backing up a configuration file to a text file?

- 1.
- 2.
- 3.
- 4.
- 5.

### 10.6.4 Use a Text File to Restore a Configuration

58. What are the steps for restoring a configuration file to a device

- 1.
- 2.
- 3.

### **10.6.5 Use TFTP to Back Up and Restore a Configuration**

59. What are the steps to saving a configuration file to a TFTP server?

- 1.
- 2.
- 3.
- 4.

60. What are the steps to restore a configuration to a device from a TFTP server?

- 1.
- 2.
- 3.
- 4.

### **10.6.6 USB Ports on a Cisco Router**

61. What type of files can be saved on a removable USB flash?

### **10.6.7 Use USB to Back Up and Restore a Configuration**

62. What command would you use to copy the running-configuration file to the USB flash drive?

63. What command would you use to copy the running-configuration file back to the device?

### **10.6.8 Password Recovery Procedures**

64. What are the steps to perform a password recovery on a Cisco device?

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

65. What are the terminal emulator settings on a PC to communicate with a Cisco device through the console connection?

- a.
- b.
- c.
- d.
- e.

### **10.6.9 Password Recovery Example**

66. What does the prompt look like when you are successfully in ROMMON mode?

67. What is ROMMON mode? Research the answer elsewhere.

68. What is the break sequence for most Cisco devices?

69. What is the command used to change the configuration register in ROMMON mode?

70. What do you have to do to enable your configure register changes

71. How does configuration register value 0x2142 change the behavior of the device?

72. What does the device configure registration value need to be turned back to for normal operation?

### **10.6.10 Packet Tracer - Back Up Configuration Files**

### **10.6.11 Lab - Use Tera Term to Manage Router Configuration Files**

### **10.6.12 Lab - Use TFTP, Flash, and USB to Manage Configuration Files**

### **10.6.13 Lab - Research Password Recovery Procedures**

## **10.7 IOS Image Management**

### **10.7.1 Video - Managing Cisco IOS Images**

### **10.7.2 TFTP Servers as a Backup Location**

73. What types of devices can be used as a TFTP server?

### **10.7.3 Backup IOS Image to TFTP Server Example**

74. What are the three steps to backup IOS images to an TFTP server?

- 1.
- 2.
- 3.

### **10.7.4 Copy an IOS Image to a Device Example**

75. What are the steps to copy an IOS image to a device from a TFTP server?

- 1.
- 2.
- 3.

### **10.7.5 The boot system Command**

76. How can you ensure a device boots the IOS image that you want used when more than one IOS image file is stored in flash memory?

77. If the boot variable hasn't been set, how does the device know which image to use at boot?

### **10.7.6 Packet Tracer - Use a TFTP Server to Upgrade a Cisco IOS Image**

## **10.8 Module Practice and Quiz**

### **10.8.1 Packet Tracer - Configure CDP, LLDP, and NTP**

### **10.8.2 Lab - Configure CDP, LLDP, and NTP**

### **10.8.3 What did I learn in this module?**

### **10.8.4 Module Quiz - Network Management**