Objectives

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1. To setup a DHCP Server.
2. To setup a Web Server.
3. To setup a Mail Server.
4. To setup a DNS Server.

Step 1. Configuring the DHCP Server

- Add a server.
- Global Settings:
  - Change the Display Name to "SCIS DHCP Server"
  - Set the Gateway to 172.16.0.1
- FastEthernet:
  - Set the IP address to 172.16.0.10
  - Set the Subnet Mask to 255.255.0.0
- HTTP:
  - Set HTTP Service and HTTPS Service to Off
- DHCP:
  - Set the Default Gateway to 172.16.0.1
  - Set the DNS Server to 172.16.0.11
  - Set the Start IP Address to 172.16.0.100
  - Set the Subnet Mask to 255.255.0.0
  - Click Save
- DNS:
  - Set the Service to Off
- Email:
  - Set the SMTP Service and POP3 Service to Off

Step 2. Configuring the www.slu.edu.ph Web Server

- Add a server.
- Global Settings:
  - Change the Display Name to "Web Server: www.slu.edu.ph"
  - Set the Gateway to 172.16.0.1
- FastEthernet:
  - Set the IP address to 172.16.0.20
  - Set the Subnet Mask to 255.255.0.0

- DHCP:
  - Set the Service to Off
- DNS:
  - Set the Service to Off
- HTTP
  - Set the both the HTTP and HTTPS Service to On
  - Change the sentence, "<hr> Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open." to "<hr> Welcome to Saint Louis University – "The Light of the North".
  - Format and add the following message : "You are logging in to a secure server of Saint Louis University.

- Email:
  - Set the SMTP Service and POP3 Service to Off

Step 3. Configuring the www.SCISintranet.com Web Server

- Add a server.
- Global Settings:
  - Change the Display Name to "Web Server: www.SCISintranet.com"
  - Set the Gateway to 172.16.0.1
- FastEthernet:
  - Set the IP address to 172.16.0.30
  - Set the Subnet Mask to 255.255.0.0
- DHCP:
  - Set the Service to Off
- DNS:
  - Set the Service to Off
- HTTP:
  - Change the sentence, "<hr> Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open." to "<hr> This an internal server – SCIS Intranet"
  - Format and add the following message : "You are logging in to a secure server of Saint Louis University.

Step 4. Configuring the mail.slu.edu.ph Email Server

- Add a server.
- Global Settings:
  - Change the Display Name to "Email Server: mail.slu.edu.ph"
  - Set the Gateway to 172.16.0.1
- FastEthernet:
  - Set the IP address to 172.16.0.40
  - Set the Subnet Mask to 255.255.0.0
- DHCP:
  - Set the Service to Off
- DNS:
  - Set the Service to Off
- HTTP:
  - Set HTTP Service and HTTPS Service to Off
- Email:
  - Set SMTP and POP3 Service to On.
  - Set the domain name to mail.slu.edu.ph
  - Setup three user accounts as follows:

Users	Password
user1	SCIS322a
user2	SCIS322b
user3	SCIS322c

Step 5. Configuring the DNS Server

- Add a server.
- Global Settings:
  - Change the Display Name to "SCIS DNS Server"
  - Set the Gateway to 172.16.0.1
- FastEthernet:
  - Set the IP address to 172.16.0.11
  - Set the Subnet Mask to 255.255.0.0

- HTTP:
  - Set HTTP Service and HTTPS Service to Off
- DHCP:
  - Set the Service to Off
- DNS:
  - Enter the Name – www.slu.edu.ph
  - Enter IP Address 172.16.0.20
  - Click Add
  - Enter the Name – www.SCISintranet.com
  - Enter IP Address 172.16.0.30
  - Click Add
  - Enter the Name – mail.slu.edu.ph
  - Enter IP Address 172.16.0.40
  - Click Add
- Email:
  - Set the SMTP Service and POP3 Service to Off

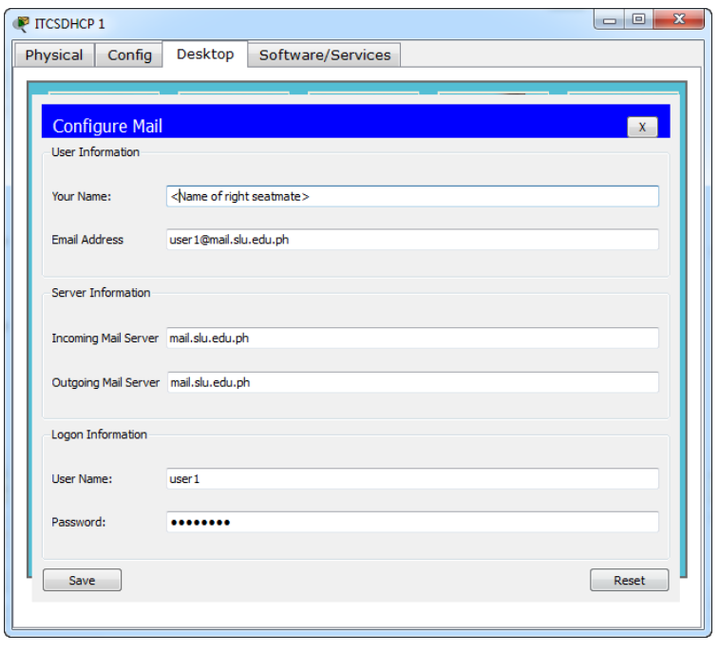
Step 6. Configure Two Client Computers using DHCP

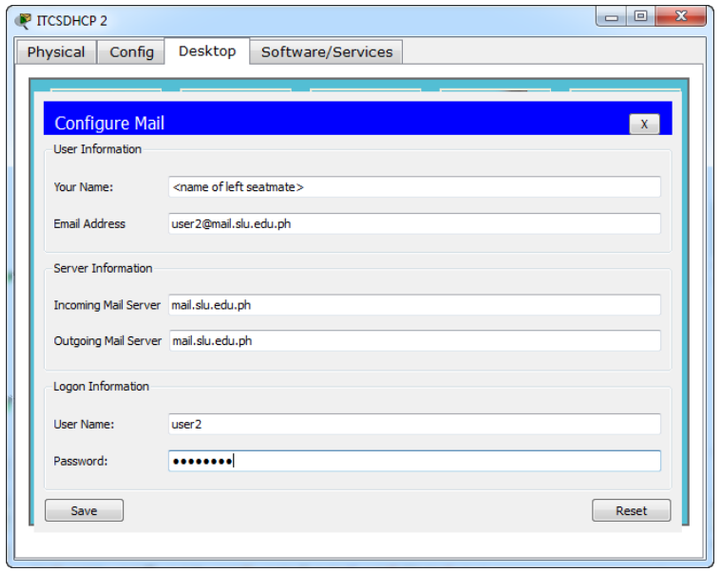
- Add two client computers.
- Global Settings:
  - Change the Display Names to "SCISDHCP 1" and to "SCISDHCP 2" respectively
  - Set the Gateway/DNS to DHCP
- FastEthernet:
  - Set the IP Configuration to DHCP

Step 7. Configure a Client Computer using Static IP Addressing

- Add a client computer.
- Global Settings:
  - Change the Display Name to "SCISStatic"
  - Set the Gateway/DNS to Static
  - Set Gateway to 172.16.0.1
  - Set the DNS Server to 172.16.0.11
- FastEthernet:
  - Be sure the configuration is set to Static
  - Set the IP address to 172.16.0.90
  - Set the Subnet Mask to 255.255.0.0

Step 8. Configure Email Configuration for Clients



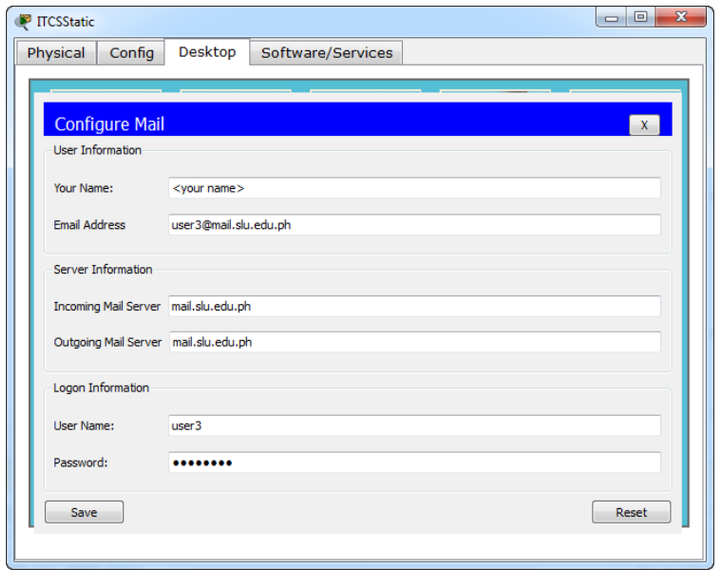


Step 9. Adding switches

- Add two switches.
- Connect the servers to one switch using a straight-through cable.
- Connect the client computers to the other switch using a straight-through cable.
- Interconnect the two switches using a crossover cable.

Step 10. Verify connectivity

- Ping (ICMP)
  - From a client computer, use the Desktop Command prompt to ping the other client computers and the servers. Example: From the SCISDHCP 1 client, C> ping 172.16.0.20
- Web Browser (HTTP)
  - On the client's computer, use the Desktop Web Browser, enter the URLs of the Web Servers www.slu.edu.ph and www.SCISintranet.com.
  - You should see the web pages that you created on these servers.
- Email (SMTP)
  - From client computer (SCISDHCP 1), compose an email (from Desktop tab) to another client computer (SCISStatic)- To:user3@mail.slu.edu.ph
  - Upon sending the email, check if an email was received by SCISStatic PC by clicking the email icon (Desktop tab), and clicking the Receive button after.
  - Repeat exercise for SCISDHCP 2 sending messages to SCISStatic .
  - Repeat exercise for SCISDHCP 1 sending messages to SCISDHCP 2.



Step 11. Using Simulation Mode

- Click on Simulation. Note: To reset a simulation, click on "Reset Simulation"
- Click on Edit Filters
  - Choose Show All/None so that all the boxes (protocols) are unchecked.
  - Select (check) the following protocols: DHCP, ICMP, HTTP, DNS, HTTPS, SMTP
- Web Browser (HTTP)
  - On the client computer, use the Desktop Web Browser, enter the URLs of the Web Servers www.slu.edu.ph and www.SCISintranet.com.
  - Click on Auto Capture/Play (automatically forwards the packets) or Capture Forward (must keep clicking to advance the packets)
- DHCP
  - Reset the simulation by clicking on "Reset Simulation"
  - To view DHCP on one of the "DHCP "client computers using DHCP, go to the Desktop Command prompt.
  - To have the client computer ask for a new IP address and other information from the DHCP server, enter the command: C> ipconfig /renew
- Email
  - Reset the simulation by clicking on "Reset Simulation"
  - To view email, click on one of the client computers sending emails to another client computer.
  - Click on Auto Capture/Play (automatically forwards the packets) or Capture Forward (must keep clicking to advance the packets)

Step 12. Save the Topology

- Format : <Lastname_Class code>_Laboratory 12
- *Make sure to strictly follow the naming convention*
- *For students with the same Lastname, kindly use the format: <LastnameInitial_Class code>_Laboratory 12*

Step 13: Upload your exercise file.

- Use a cloud storage service, upload your file. We will be collecting activity files per Term.

Step 15. Answer the following questions related to the laboratory activity.

- With the activity conducted, briefly describe the function of the following application layer protocols:

1. HTTP

2. HTTPS

3. DHCP

4. DNS

5. SMTP

- Under Simulation mode, click SCISDHCP 1, then Command Prompt, then execute ipconfig /release, then ipconfig /renew. Click Auto Capture/Play (automatically forwards the packets) or Capture Forward (must keep clicking to advance the packets) until Packet Tracer finishes simulation (or reach Buffer Full Status). On the simulation panel, look for the frame DHCP 172.16.0.10/16 (Last Device column) and Switch1 (At Device column). Click the Info square-colored area on the Info column. Click Outbound PDU details at the PDU information.

	Answer
Preamble	
Source MAC address	
Destination MAC address	
Type field value	
Source IP address	
Destination IP address	