IT 3850 Computer System Administration  
Spring 2022

**Laboratory # 6 - Web Server and DNS**

*Dr. Ronny Bazan (Contact: bazanantequerar@umsystem.edu)*



1. **Objectives**
2. Explain how to enable a virtual host to host websites.
3. Explain how to enable authentication for accessing a website.
4. Explain how to open DNS and HTTP ports in the RHEL firewall.
5. Explain how to add CNAME registers to the DNS configuration.
6. Install and configure a Web Server with a Virtual Host.
7. **Material Required**

A RHEL VM and Microsoft Windows 10 VM.

1. **Activity**
2. Go through the Web Server and DNS Module on Canvas.
3. Configure your server0 network by using the 3rd subnet of 192.168.100.0/27, assign the IP 192.168.100.65 and Mask 255.255.255.224 to your network adapter connected to the vSwitch VMnet2 or ‘Private to my Mac’ (for MacOS users).
4. a) Configure your server0 as a Web server using a Virtual Host with a static web site.

b) enable password authentication (a user name and a password should be required to display the web site). Replace the “Restricted Content” message like the example from the videos with your pawprint. i.e. the authentication popup should display “The site says: ‘<your pawprint>’”.

c) modify the ‘forward.zone’ configuration file to allow DNS requests that include www in the domain name. In other words, the website should be also displayed by typing by using the www subdomain i.e. [**www**.infotc3850.com](http://www.infotc3850.com)

1. **Review Questions**

**\*Important\*. For each question where you are required for a screenshot, include the screenshot that clearly demonstrates you completed that step successfully.** Include any commands you executed for each step as well, if applicable**. All the screenshots for this lab and future labs must include your pawprint in the command prompt or have other information visible that identifies you (i.e. type/draw your pawprint).** This is to ensure that you are submitting your own work.

Answer the following questions and perform the following tasks. Construct your report in a document to submit on Canvas. Make sure to read the directions and the rubric carefully!

1. Explain the steps you need to execute to open ports for DNS and HTTP in the Red Hat firewall **permanently**. Include every command you need to execute.

In order to open the upd and tcp ports in Red hat permenantly you need to execute

Sudo firewall-cmd –permanent –add-port=54/tcp

Sudo firewall-cmd –permanent –add-port=54/udp

Then reload firewall Sudo firewall-cmd –reload

Sudo firewall-cmd –permanent –add-port=80/tcp

Sudo firewall-cmd –permanent –add-port=443/tcp

Then reload firewall Sudo firewall-cmd –reload

1. Take a screenshot of the content of the configuration file created to enable the Virtual Host (we used /etc/httpd/sites-available/infotc3850.com.conf file in our example). Display the content with the cat command and include your pawprint in the screenshot

A picture containing text

Description automatically generateddisplaying the configuration file with cat.

1. In your **server0**, open a Web browser and input infotc3850.com as the URL to display the user authentication pop-up message. Take a screenshot of the web browser with the authentication pop-up. If you followed the instructions in Activity 3b, the popup should display your pawprint.

The pop up window and the htaccess file.

Unable to display pawprint

Graphical user interface

Description automatically generatedGraphical user interface, text, application, Teams

Description automatically generatedText

Description automatically generated with low confidence

1. a) In your **Windows Virtual Machine** open a browser and input **www**.infotc3850.com to display the user authentication pop-up message, take a screenshot of the web browser showing the popup message (again with your pawprint).

Authentication method on Windows11Graphical user interface, application, Word

Description automatically generated

b) Enter the correct credentials to display the web site and take a second screenshot of the page content. You can either specify some basic html content or download an online template.

The text I created on RHEL is displayed

**Graphical user interface, application, Word

Description automatically generated**

**Troubleshooting (common issues)**

If you are having issues getting a specific part of the lab to work, try the following:

1. Make sure to review the slides/videos in the Module for a step-by-step walkthrough of the configuration process. Missing even one step could cause the system to not work.

2. If before starting with the Web server configuration your DNS is not working, then make sure that the network adapter to NAT has an IP address (execute sudo dhclient) and revise if the /etc/resolv.conf file has the local IP address configured.

1. If you can’t ping between server0 and Windows, and the network configuration looks correct otherwise, make sure to allow ICMP traffic in Windows Firewall. Your Windows VM may be blocking ICMP traffic (what ping uses). You can find it as a default rule or create your own:   
    <https://docs.microsoft.com/en-us/windows/security/threat-protection/windows-firewall/create-an-inbound-icmp-rule>
2. If you can’t access the website from server0 by typing infotc3850.com, try typing in localhost or the IP of the server (195.168.100.65). If this works, that means you have a problem with your DNS, not the httpd service itself.
3. If in MS Windows command prompt you are not getting expected results with the nslookup command, then add the DNS IP to the network configuration.