Implement HTTP

Introduction

HTTP (HyperText Transfer Protocol) allows us to view websites on the Internet by using a Web Browser.

Objectives

In this project/lab the student will:

- Install Microsoft Internet Information Services (IIS)
- Edit a Web page and publish it
- View the Web page on a client
- Perform packet analysis

Resources

- VMware Workstation Pro
- Windows 10 ISO
- MyWebSite.zip file downloaded from HERE

Procedure

Create a Web Page

1. Create a new Windows 10 Virtual Machine named Win10Client1 VM in VMware Workstation with default specifications.

2. Create a full clone of the VM you just created and name it Win10Client2.

3. Set the TCP/IP settings as follows for the two machines.
    a. Win10Client1 - IP: 192.168.143.100 Mask: 255.255.255.0
    b. Win10Client2 - IP: 192.168.143.101 Mask: 255.255.255.0

4. On the Windows10ClientVM1 desktop, create an empty folder named MyWebPage.

5. Download the MyWebSite files and extract them.

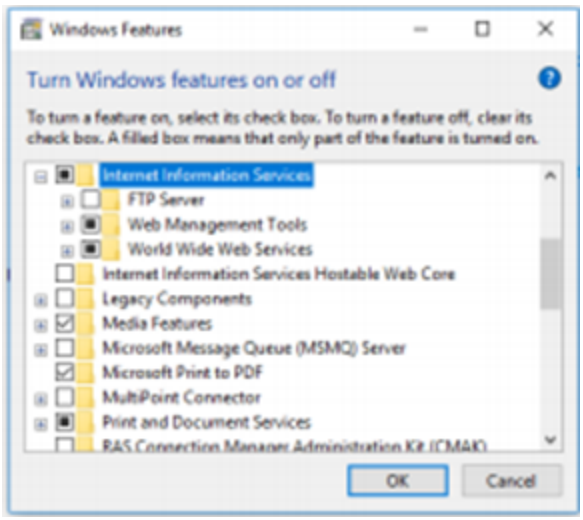
6. Open the file MyWebSite with Microsoft Word and edit the template to include text about you. If you feel like getting creative, edit the images as well. This is the web page you'll be hosting as

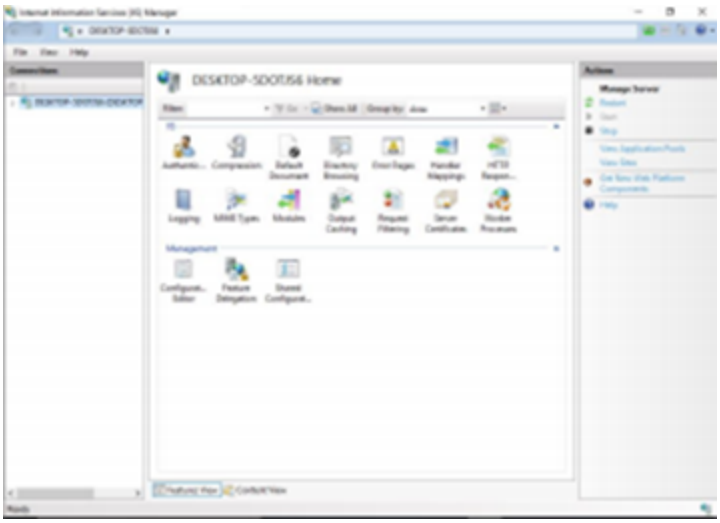
a test between your VMs.

7. After editing the page, place all your files in the MyWebPage folder on your Windows10ClientVM

Implement an HTTP Server

1. On Windows10ClientVM1, open the Control Panel, Programs, then click Turn Windows features on or off.





2. In the Windows Features dialog box, expand the option for Internet Information Services.

3. Select Internet Information Services to choose the default features for installation and click OK.

4. To confirm the installation was successful, open a browser and type in the following URL: http://localhost. The page called “Internet Information Services” will appear.

5. Copy the MyWebPage folder containing your web page file to the C:\inetpub\wwwroot\MyWebPage\MyWebSite folder the setup created on your Virtual Machine’s hard drive.

6. Open IIS Manager via the Start Menu or by typing inetmgr in the search box and pressing Enter. The Internet Information Services (IIS) Manager will open.

7. Expand the connections pane. Right click the Sites node and click Add Website.

8. In the Add Website dialog box, type your name in the Site Name text box.

9. In the Content Directory section, click the Browse button and navigate the file system to find your wwwroot folder.

10. In the Bindings section, for the type select the http protocol. In the IP address text box, type the IP address of your VM. This will be the host for the website we are creating. In the Port text box, type http port number 80.

11. Because DNS is not being used in this exercise a host name will not be defined.

12. Select the Start Web site immediately check box and click OK.

13. In the Connections pane on the left, click yourname and double click Directory Browsing in the Middle pane. In the Actions pane on the right, click Enable.

Test the HTTP Server

1. On the Windows10ClientVM2, open a web browser. Type in the IP address of your web server - 192.168.143.100. Your web page should appear. If you have any issues, check for connectivity between the client and server and ensure network discovery is enabled. Take a screenshot of your webpage appearing in the browser.

Capture HTTP Packets

1. Install Wireshark on Windows10ClientVM2. The simplest way to accomplish this is to download the install file on your host, then drag and drop it to your guest, then initiate the install.

2. Open Microsoft Edge, click the three dots in the top right corner to open Settings, then click Choose what to clear under Clear browsing data. Ensure the first four boxes are checked (Browsing history, Cookies and saved website data, Cached data and files, and Tab's I've set aside or opened recently) and click Clear.

3. Begin a Wireshark capture on Windows10ClientVM2.

4. Access your Website again via the browser, then stop your Wireshark capture. Save the Capture as MyHTTP_Cap.pkt.

5. Select the first HTTP message shown in the packet-listing windows. This should be the HTTP GET message that was sent from your computer to the HTTP server. Use this series of packets to answer the reflection questions.

Reflection

1. Was TCP or UDP used for the connection?

2. Locate and record the source and destination IP addresses.

3. To view the full conversation between the client and the server, right click the highlighted HTTP packet and select Follow then TCP Stream. Observe the actions “behind” your request for a simple web page. Take a screenshot of the quote section of your webpage.

4. What version of HTTP is the server running?

5. What languages does your browser indicate it can accept from the server? This can be found inside the light pink highlighting.

6. When was the HTML file you viewed last modified on the server?

7. How can you verify this webpage was pulled from a server running IIS?

8. Which version of IIS was used?

Rubric

Standards for This Competency	**Point Value**
Screenshot of working webpage	10 points
Submitted Wireshark Packet Capture MyHTTP_Cap.pkt	10 points
Correct answer to Question 1	10 points
Correct answer to Question 2	10 points
Correct answer to Question 3	10 points
Correct answer to Question 4	10 points
Correct answer to Question 5	10 points
Correct answer to Question 6	10 points
Correct answer to Question 7	10 points
Correct answer to Question 8	10 points
Correct answer to Question 9	10 points
Correct answer to Question 10	10 points