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Web Programming - CSci130

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Goals: The goal of this assignment is to install test, and validate XAMPP in such a way that you can access your webpages on any device remotely from your desktop or laptop at home. It is actually how webpages are hosted and accessed.

Learning outcomes: Local server, IP address, Port Forwarding.

Step 1: Install XAMPP https://www.apachefriends.org/index.html

Step 2: Run Apache

Create a folder "mysite" in c:/xampp/htdocs/

In this folder, put the HTML, CSS, and Javascript files that you did in the last lab sessions.

Verify that you can access the webpages by typing in the browser: localhost/mysite/index.html where index.html in the name of one of your HTML pages.

Step 3: Retrieve the local IP of the machine running Apache.

In order to get your IP address you can type ipconfig in the command line of the console. It works for both MS Windows and Mac OS.

Ipconfig:

https://docs.microsoft.com/en-us/windows-server/administration/windows-commands/ipconfig

Used without parameters, **ipconfig** displays Internet Protocol version 4 (IPv4) and IPv6 addresses, subnet mask, and default gateway for all adapters.

Port forwarding

This stage depends on your router, your provider. There are therefore multiple options. In order to change the parameters, you should be able to log in as an admin in order to change the options. It is typically the place where you can change the SSID and the wifi password.

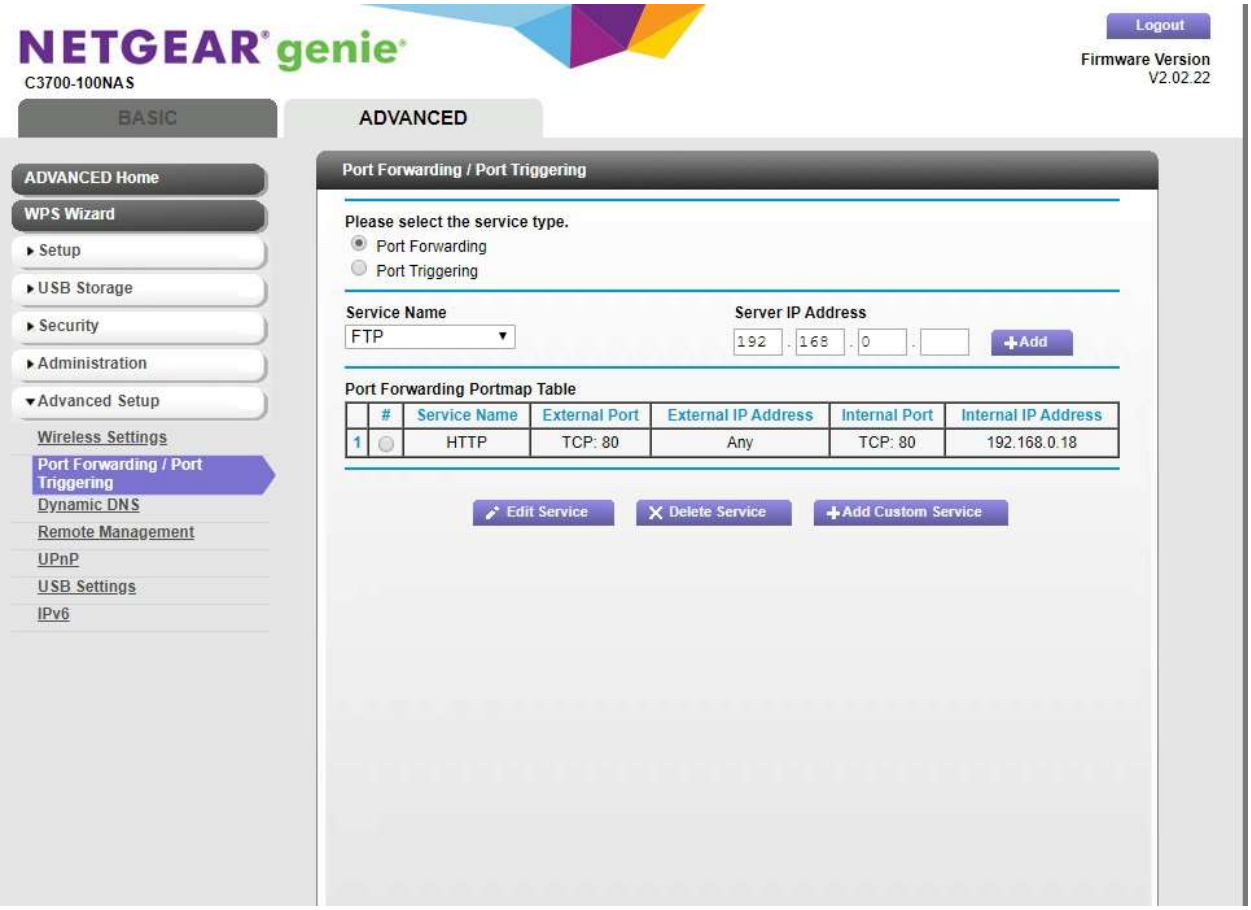
The SSID stands for "Service Set Identifier". Under the IEEE 802.11 wireless networking standard, a "service set" refers to a collection of wireless networking devices with the same parameters. The SSID is the identifier (name) that tells you, which service set (or network) to join. It corresponds to the name of the network you wish to access. At home, it is the name of the network that gives you access to the Wi-Fi and other services.

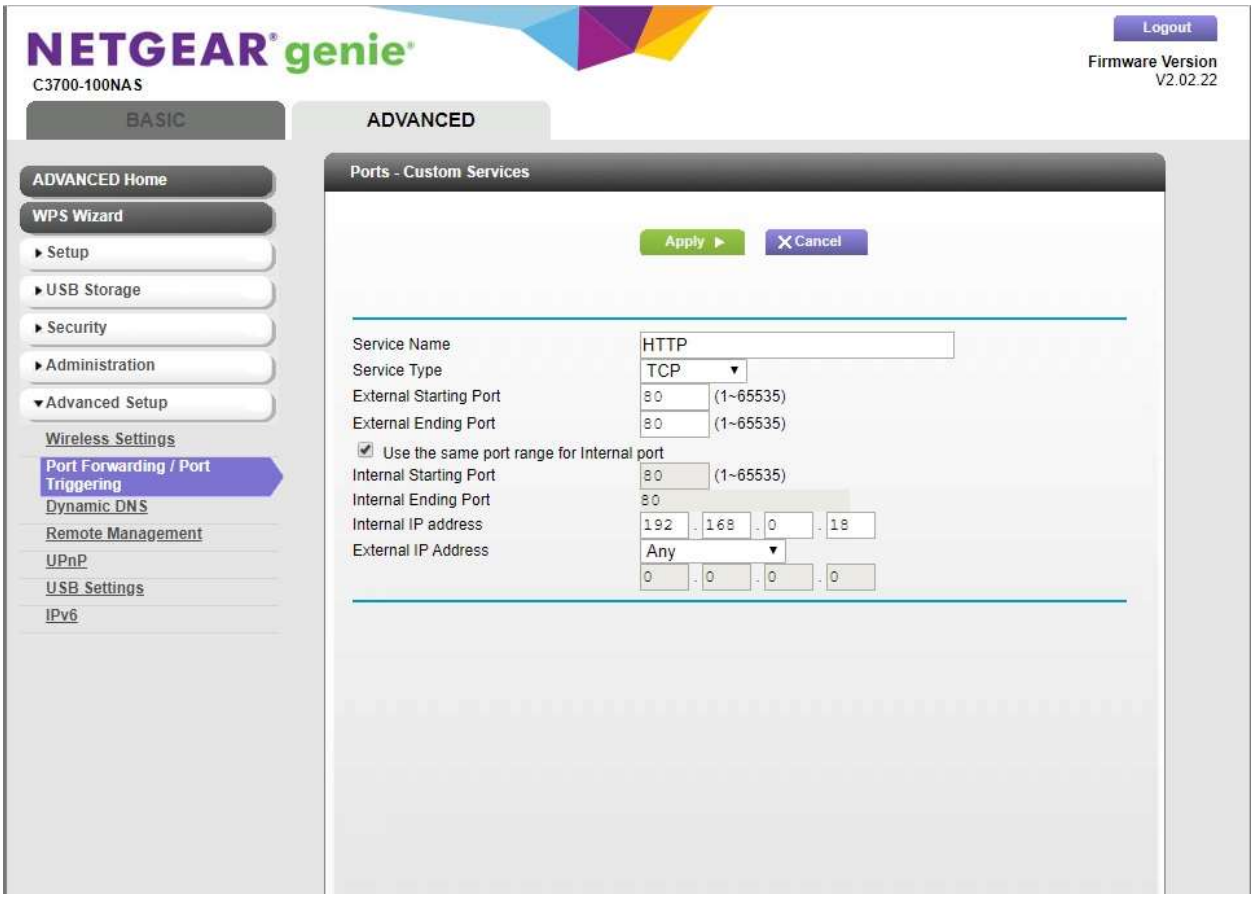
Example for NETGEAR (C3700-100NAS). It is a very common router.

You can access the parameters of the router using the following address:

http://192.168.0.1/index.htm

Then, you have to go in “Advanced setup”, “Port forwarding/Port triggering”. In the following screenshots, you can see the port forwarding has been placed for the http service using the TCP 80 port. The internal address in the following example is 192.168.0.18. It corresponds to the **local** address of the machine running XAMPP.





To get your **public** IP address, you can you various websites such as:

https://whatismyipaddress.com/ or you can just type IP in the search bar of google

An **Internet Protocol address** (**IP address**) is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication. A public IP address is a globally routable unicast IP address. It means that the address is not an address reserved for use in private networks, or the various IPv6 address formats of local scope or site-local scope, for example for link-local addressing. Public IP addresses may be used for communication between hosts on the global Internet.

Step 4 Access webpages remotly

You should verify that you can access your pages by using the following address:

IPpublic/mysite/index.html instead of using localhost/mysite/index.html

Step 5 Some Apache parameters

To read:

- https://httpd.apache.org/docs/current/howto/htaccess.html
- https://httpd.apache.org/docs/2.4/howto/access.html

Apache's configuration system addresses the need to group documents by directory in a straightforward manner. To apply controls to a particular directory tree, for instance, you can use the container directive in the server's configuration files:

```
<Directory "C:/Program Files/Apache Group/Apache/htdocs">
    AllowOverride None
    Options None
</Directory>
```

This has the advantage of keeping control in the Webmaster's hands; there's no need to worry about any of the server's users being able to change the settings, since the server configuration files are generally not modifiable by anyone except the admin. Unfortunately, it has the disadvantages of requiring a restart of Apache any time the config file is changed, and that it can become truly burdensome to add all the containers that might be needed for all the users that have special requirements.

The httpd.conf file is the main configuration file for the Apache web server. A lot options exist, and it's important to read the documentation that comes with Apache for more information on different settings and parameters.

Example 1:

```
# ServerAdmin: Your address, where problems with the server should be
# e-mailed.  This address appears on some server-generated pages, such
# as error documents.  e.g. admin@your-domain.com
ServerAdmin hcecotti@csufresno.edu
```

Example 2:

```
# Deny access to the entirety of your server's filesystem. You must
# explicitly permit access to web content directories in other
# <Directory> blocks below.
#
<Directory />
   AllowOverride All
   Options -Indexes
   Require all denied
</Directory>
```

What is .htaccess

.htaccess is a configuration file for the Apache web server. It is an extremely powerful tool that can be used to modify the Apache configuration without needing to edit the Apache configuration files. The following sections describe how to create this configuration and use it to restrict directory listings and IP addresses, and to handle redirects.

Restrict Directory Listings

By default, someone visiting your website can view the directory and file structure, and gain access to files on the web server. It is best practice to restrict directory access, so that a visitor to example.com would have to be familiar with files on the server in order to see them. One way you can restrict this is through .htaccess.

http://httpd.apache.org/docs/current/mod/core.html#allowoverride

Set the 404 Error Page

When a visitor attempts to access a page or resource that does not exist, the server will respond with a 404 error code. It is important that users receive feedback explaining the error. By default, Apache will display an error page in the event of a 404 error. However, most sites provide a customized error page. You can use .htaccess settings to let Apache know what error page you would like displayed whenever a user attempts to access a nonexistent page.

Example of file for .htaccess

ErrorDocument 404 /page_missing.php

page_missing.php contains

```
<html>
 <head>
  <title>PHP Test</title>
 </head>
 <body>
 <?php echo '<p>Oh no the file is missing</p>'; ?>
 </body>
</html>
```

Step 6

- Verify that the custom 404 page is working.
- Verify that you cannot browse in the files and folders of your server.

Once everything is properly done, you are ready for the second part of the course related to the server side and the exchange of information between the client and the server.