1. Install Cisco Packet Tracer

Download the latest version of Cisco Packet Tracer and install the program.

<https://www.netacad.com/portal/resources/packet-tracer>

Then download the ue2.pkt file and open it with the Packet Tracer (login as a Guest)

2. Infrastructure Information

Here you can see a network setup that simulates the real Internet in a simplified form. On the one hand, you have an internal network, as you might find it in a very similar form at your home. On the other hand, you have the web services that a company can provide over the Internet. In this exercise, the Cisco company provides a web server that can be accessed over the Internet.

Ein Bild, das Text, Diagramm, Screenshot, Reihe enthält.

KI-generierte Inhalte können fehlerhaft sein.

3. Basic Router configuration

Make sure that the router distributes IP addresses, netmask and a gateway address to the PC and the home server via DHCP. To do this, click on the PC, then on Desktop and there on "Command Prompt". Now type ipconfig to get the IP address. Check the connectivity between the PC and the home server using the "Command Prompt" and the ping command.

Connect to the admin interface of the router. (Default login: admin admin) The IP address of the router is visible on the devices connected to the router as the default gateway at the ipconfig command. To connect, click on the PC, then on the "Desktop" tab and there on "Web Browser". Enter the IP address of the router here.

Now configure a new IP address for your router. You can enter this in the GUI of the router in the tab "Setup" at "Router IP". Assign the address 192.168.x.1 for your router. As x, enter the consecutive number from your user name (e.g. cc201001 uses 192.168.1.1). After entering the IP address, scroll all the way down and click "Save Settings"! Otherwise, the changes will not be applied.

Then restart the PC and the home server. To do this, open the home server, click on the "Physical" tab and there on the start button on the image of the server (red button under the green status light). Now check again with ipconfig if the correct IP address is assigned on both devices and test the accessibility with ping (if the correct IP address is not displayed, enter ipconfig /renew in the command prompt). As a security for your network, change the password of the admin account of your router (tab "Administration" at "Router Access").

4. Webserver configuration

A web server is already installed on the home server. It delivers a web page by default. You can edit it or try to access the web page of the home server directly from the PC via the web browser by entering the IP address of the home server.

5. Wireless LAN configuration

Configure a WLAN network on the router (settings can be found under the "Wireless" tab). Assign an SSID and make sure that the connection is secured using a WPA2 personal password.

Connect with the smartphone to the WLAN you have configured. To do this, open the smartphone's configuration menu and enter the SSID and password in WPA2-PSK under Interface -> Wireless0.Make sure that the website on the home server (via the internal IP) and the website cisco.at (takes a few seconds the first time it opens) can be accessed from the public server via the device connected to the WLAN.

6. Port Forwarding

To reach your website on the home server also from the Internet, the router must know on which device in your internal network the website can be found. To ensure this, it is necessary that the web server always receives the same IP address. To do this, an IP address must be reserved for the web server (or static configured). You can set this in the settings of the WLAN router under the tab "Setup" at "DHCP Reservation".

Reserve the address 192.168.x.200 for the home server. As x, put the sequence number from your username (e.g. cc201001 uses 192.168.1.200).

You can display the necessary MAC address of the home server with the ipconfig /all command. You can see the MAC address at "Physical Address".

Then restart the home server. Open the home server, click on Physical Tab and there on the start button on the image of the server (red button under the green status light).

Check now whether the IP address you reserved was set. To do this, use the command prompt again and the command ipconfig (takes a few seconds until the correct IP address is taken over).

To forward users' requests from the Internet from the router to the web server, a port forward must be set up.

Forward ports 80 (http) and 443 (https) to the previously reserved internal IP address of the home server. You can configure this in the router's GUI in the "Application & Gaming" tab. Create an entry there for http and an entry for https.

Now try to reach the website, using the public IP address of the router, via the Internet. You can find the public IP in the GUI of the router in the tab "Status" at "Internet IP Address".

Open the desktop of the Cisco server and start the web browser. There you enter the public IP address of your router and should now be able to open the web page on the home server.