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Mon December 2nd 2024

Lab 5.5.4: Configuring a VPN Server on a pfSense Security Appliance using OpenVPN Tunneling

From TestOut CompTIA Security+ Course

In this lab I will be setting up a VPN Server within the pfSense environment as well as creating a Certificate Authority to use with clients.

The scenario for this lab is as follows:

You work as the IT security administrator for a small corporate network. Occasionally, you and your co-administrators need to access internal resources when you are away from the office. You would like to set up a Remote Access VPN using pfSense to allow secure access.

In this lab, your task is to use the pfSense wizard to create and configure an OpenVPN Remote Access server using the following guidelines:

- **Sign in to pfSense using:**
  - **Username: admin**
  - **Password: P@ssw0rd (zero)**
- **Create a new certificate authority certificate using the following settings:**
  - **Name: CorpNet-CA**
  - **Country Code: GB**
  - **State: Cambridgeshire**
  - **City: Woodwalton**
  - **Organization: CorpNet**
- **Create a new server certificate using the following settings:**
  - **Name: CorpNet**
  - **Country Code: GB**
  - **State: Cambridgeshire**
  - **City: Woodwalton**
- **Configure the VPN server using the following settings:**
  - **Interface: WAN**
  - **Protocol: UDP on IPv4 only**
  - **Description: CorpNet-VPN**

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- **Tunnel network IP: 198.28.20.0/24**
- **Local network IP: 198.28.56.18/24**
- **Concurrent Connections: 4**
- **DNS Server 1: 198.28.56.1**

- **Configure the following:**
  - **A firewall rule**
  - **An OpenVPN rule**
- **Set the OpenVPN server just created to Remote Access (User Auth).**
- **Create and configure the following standard remote VPN users:**

Username	Password	Full Name
blindley	L3tM31nNow	Brian Lindley
jphillips	L3tM31nToo	Jacob Phillips

Looks like we have a lot to do in this lab! Since we are going to be configuring everything within pfSense's GUI environment I'll need to login first.

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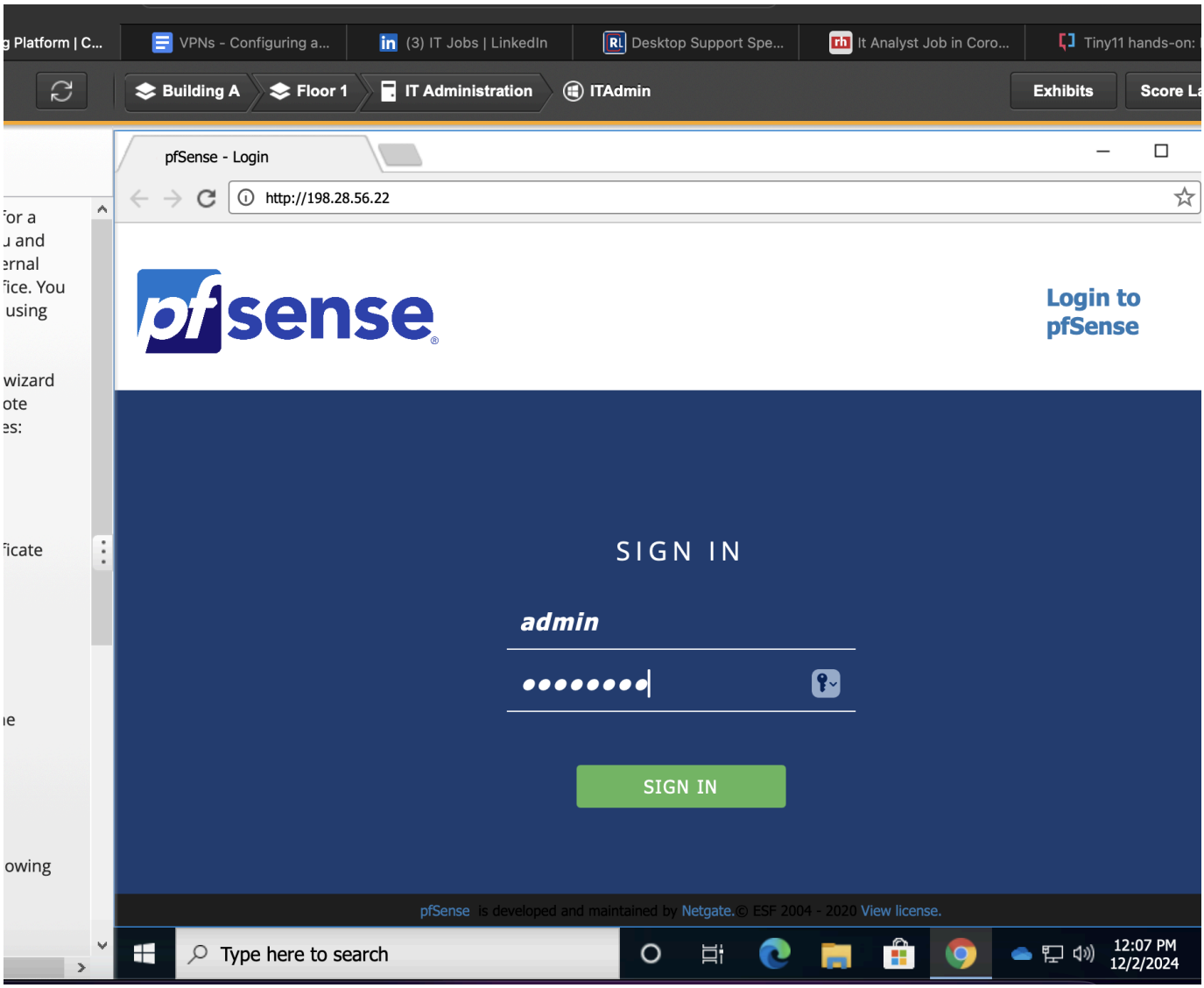

Once, I'll go to the **VPN > OpenVPN** menu. Notice how other VPN protocols are listed in this menu. For our implementation we would like to use the OpenVPN protocol but keep in mind there are others like Wireguard Ipsec and so on!

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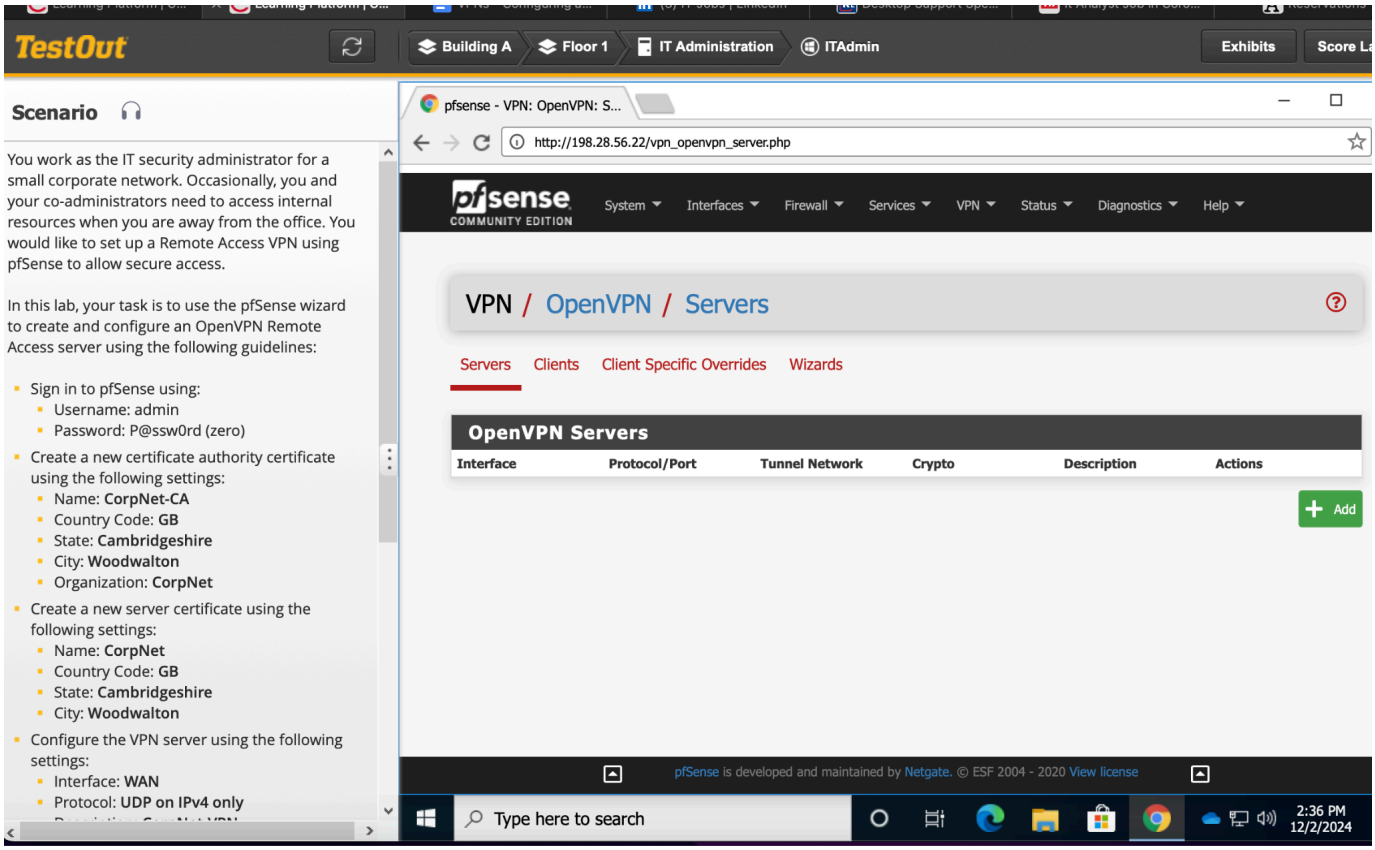
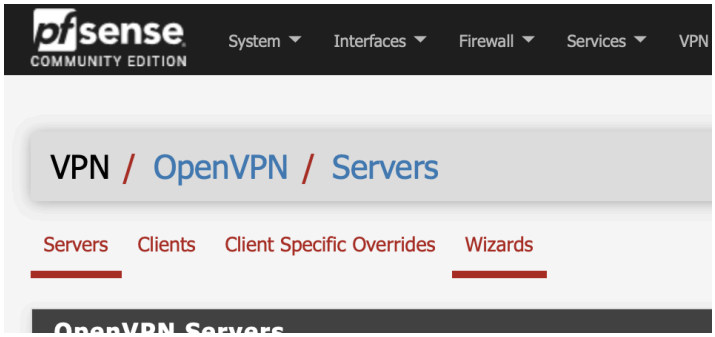


Once I'm here I'll click the Add button and click the Wizard option from the Breadcrumb menu.



After clicking it, I'll begin to enter the information provided to me by the Lab. On the first screen it asks what kind of **Authentication , if any,** we would like to use. We have the option to use LDAP as a backend authentication. For our purpose , we'll follow the instructions on screen which states to simply use **Local User Access** if we're unsure.

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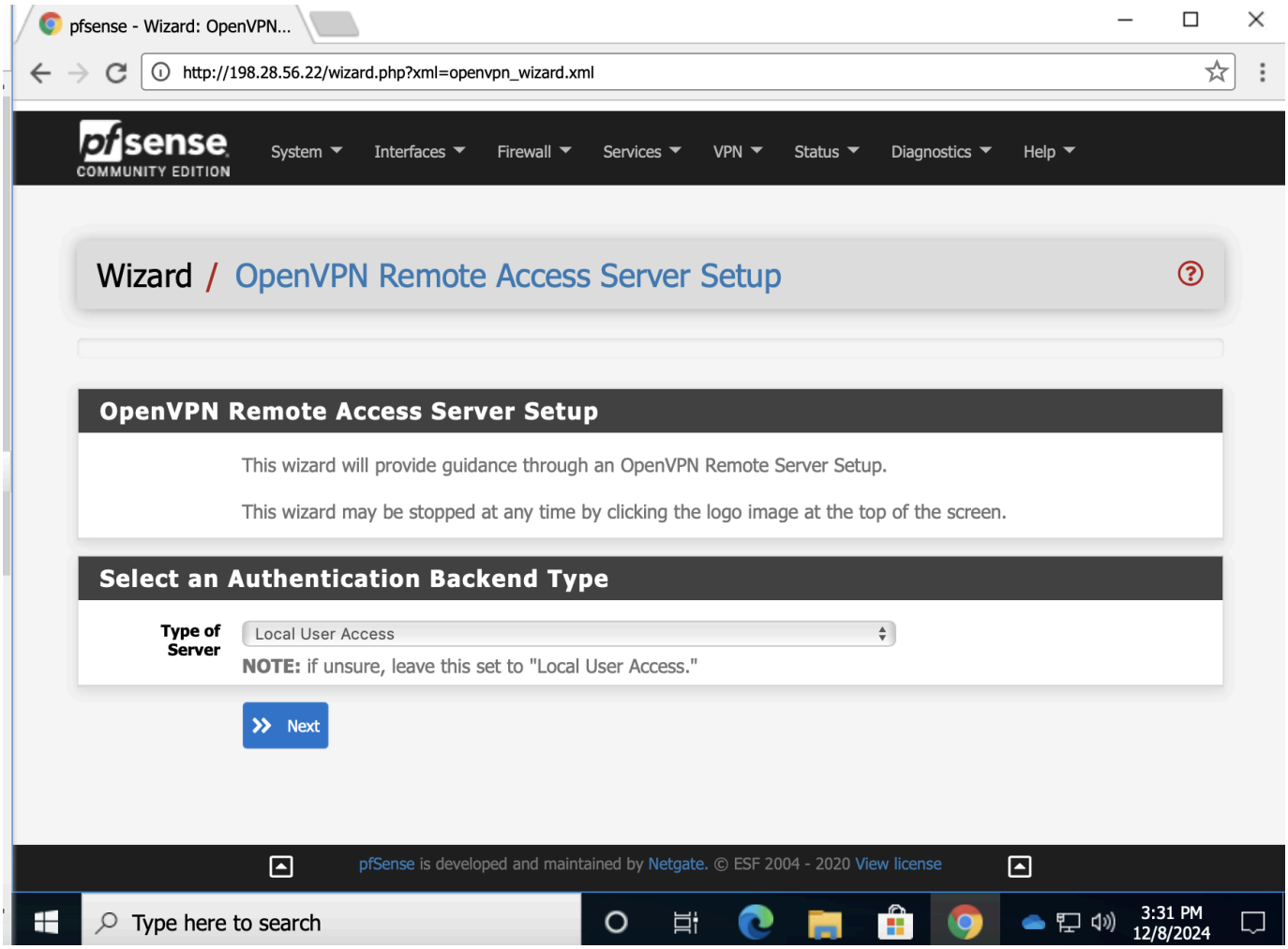

After, I'll click next. The wizard now prompts us to create a Certificate Authority to use for VPN encryption.

We want to configure the following as given to us by the lab:

- Name: **CorpNet-CA**
- Country Code: **GB**
- State: **Cambridgeshire**
- City: **Woodwalton**
- Organization: **CorpNet**

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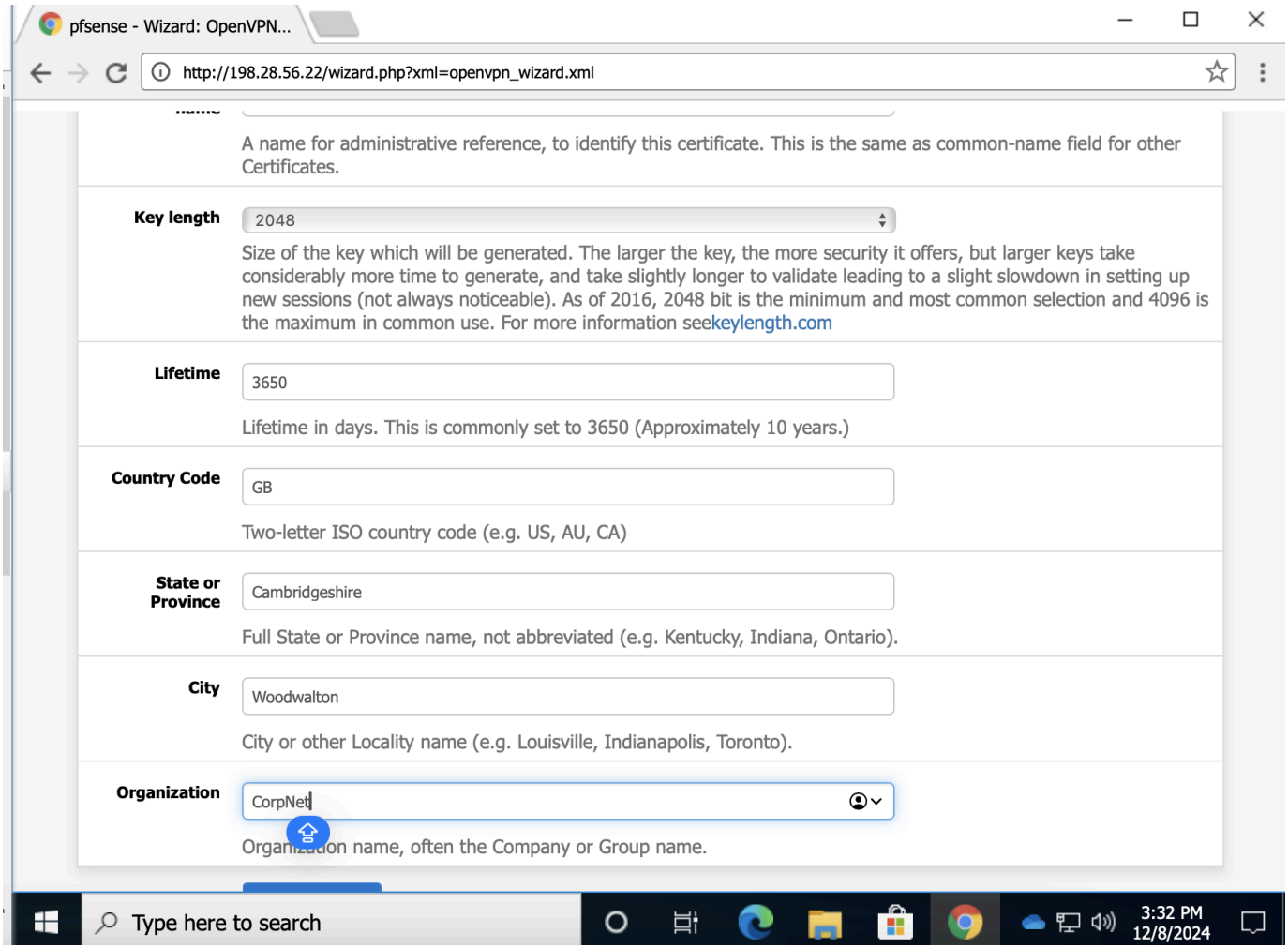

On the next screen, we are prompted to create a certificate for the Server to use. We'll enter the information given to us by the lab:

- Name: **CorpNet**
- Country Code: **GB**
- State: **Cambridgeshire**
- City: **Woodwalton**

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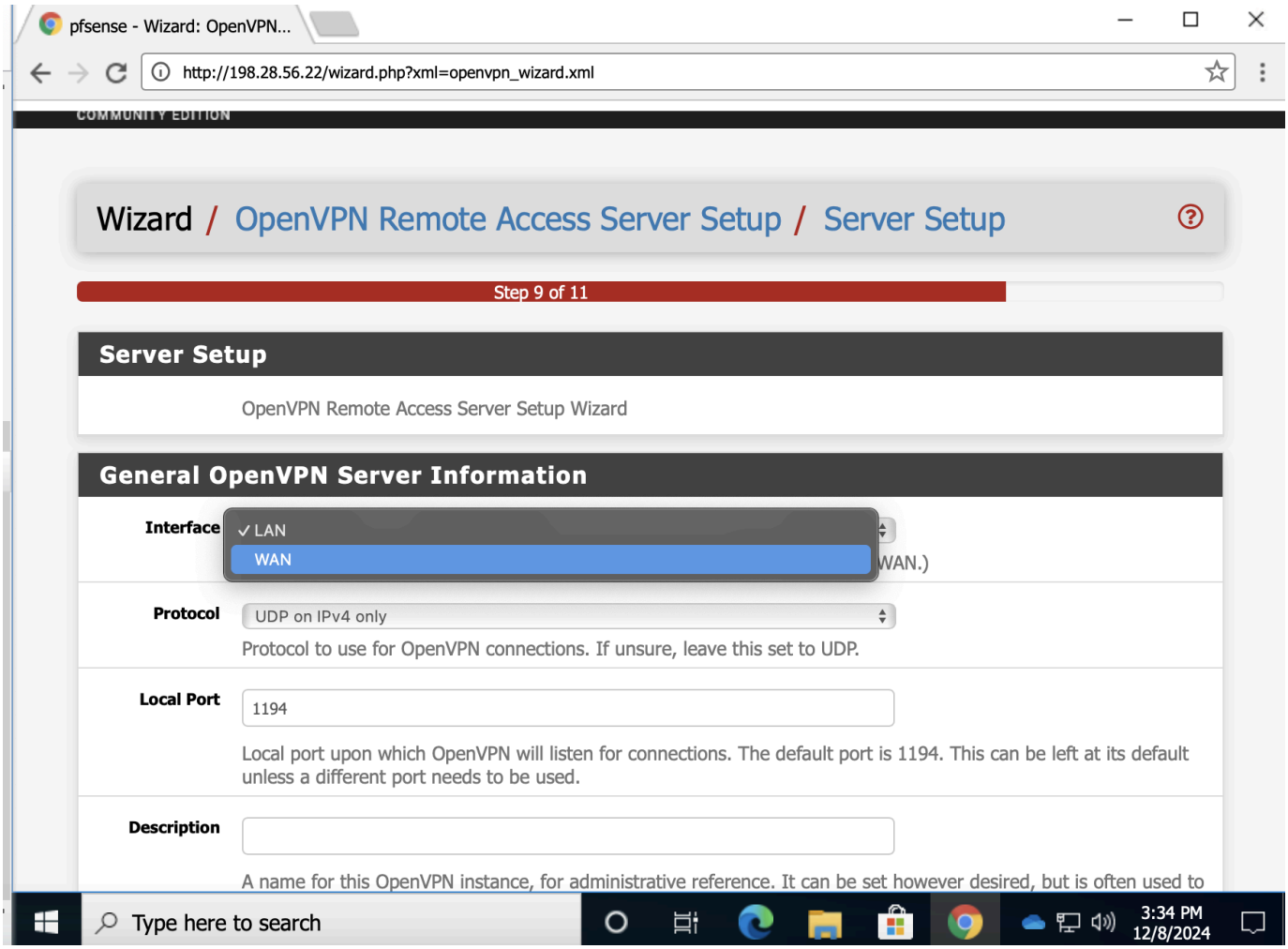


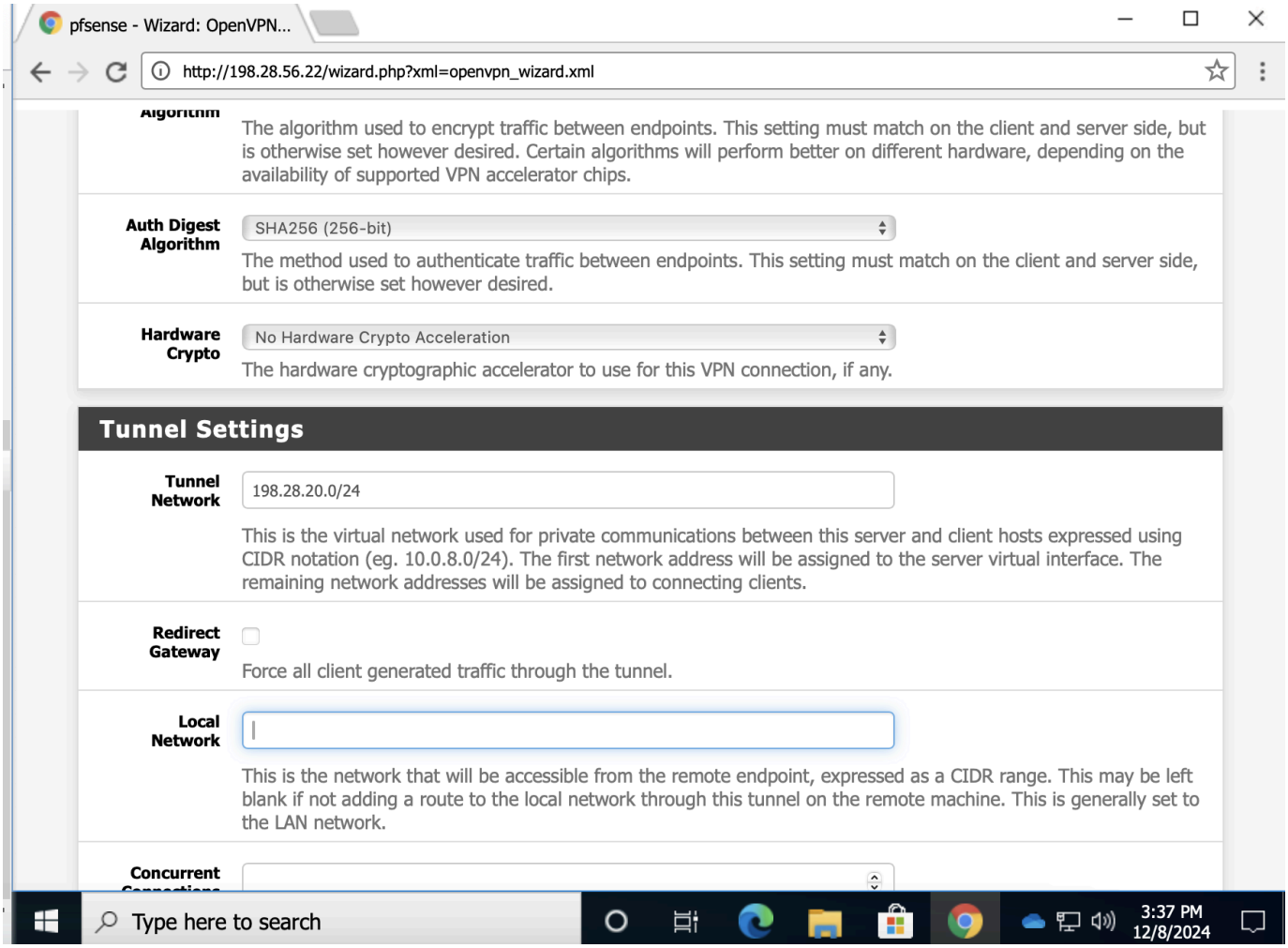
Now, we will set up the config for the OpenVPN server. We want the Server to listen in on the WAN interface because this server is for our remote users who are not in the scope of the LAN.

The Lab requires us to set the following:

- Interface: **WAN**
- Protocol: **UDP on IPv4 only**
- Description: **CorpNet-VPN**
- Tunnel network IP: **198.28.20.0/24**
- Local network IP: **198.28.56.18/24**
- Concurrent Connections: **4**
- DNS Server 1: **198.28.56.1**

Notice the Tunnel Network is different from the Local IP. The Tunnel Network is expressed as an IP address followed by /24 which states that the first 3 octets are

the Network portion. All users who connect to the VPN server will be put on a VLAN within the server within the **198.28.20.1 - 192.28.20.255**



After setting the VLAN for our VPN Users, we will need to direct them to our actual internal LAN. The Lab says for us to point our users to the **198.28.56.18/24** network. I'll enter that now.

After doing so we need to add a Firewall rule to allow users to connect. Luckily the Wizard on pfSense can do this for us.

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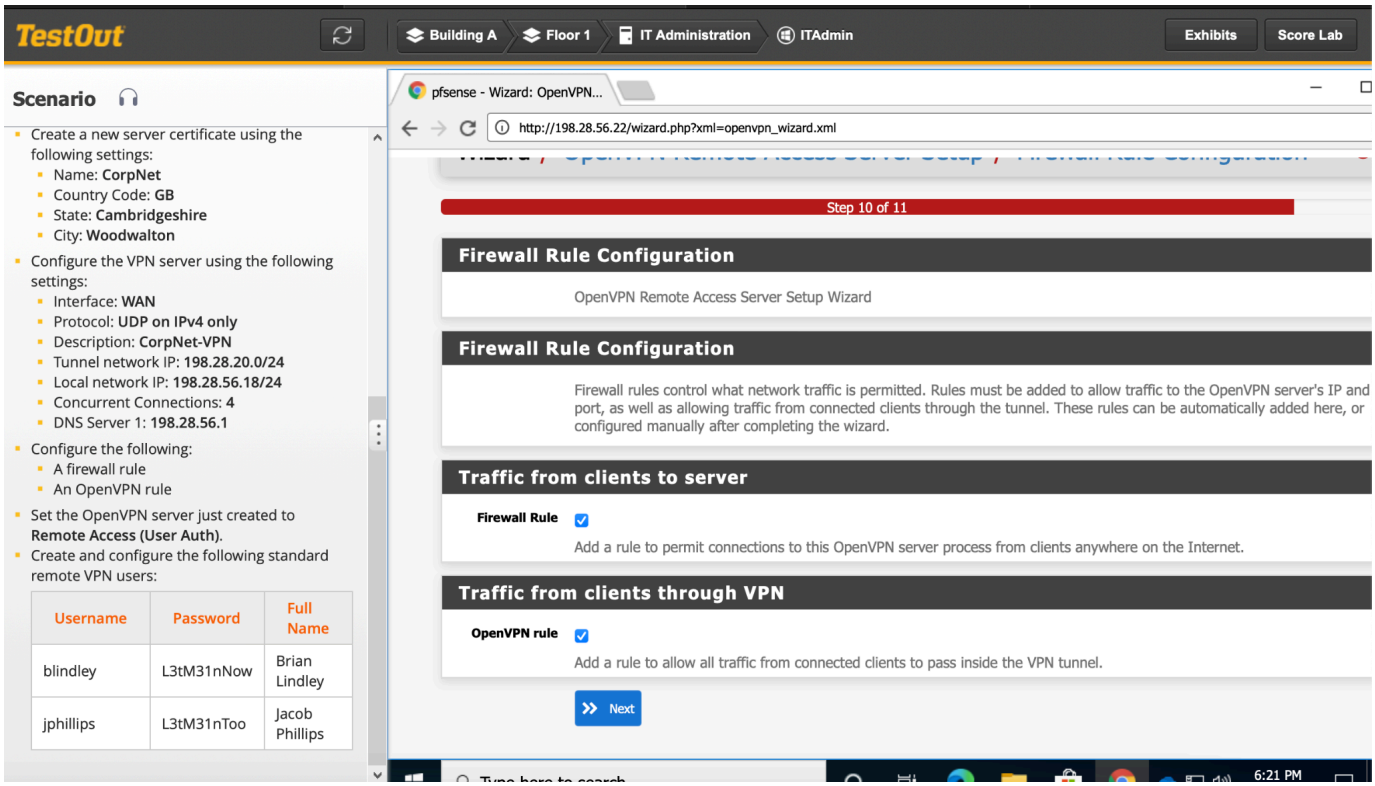

Now we need to click the edit button after finishing the wizard to change the Local Access type to User Auth.

After that, the lab wants us to add 2 VPN users.

- Create and configure the following standard remote VPN users:

Username	Password	Full Name
blindley	L3tM31nNow	Brian Lindley
jphillips	L3tM31nToo	Jacob Phillips

These users above can be added through **System > User Manager** tab within the top menu bar in pfSense. I'll do that now.

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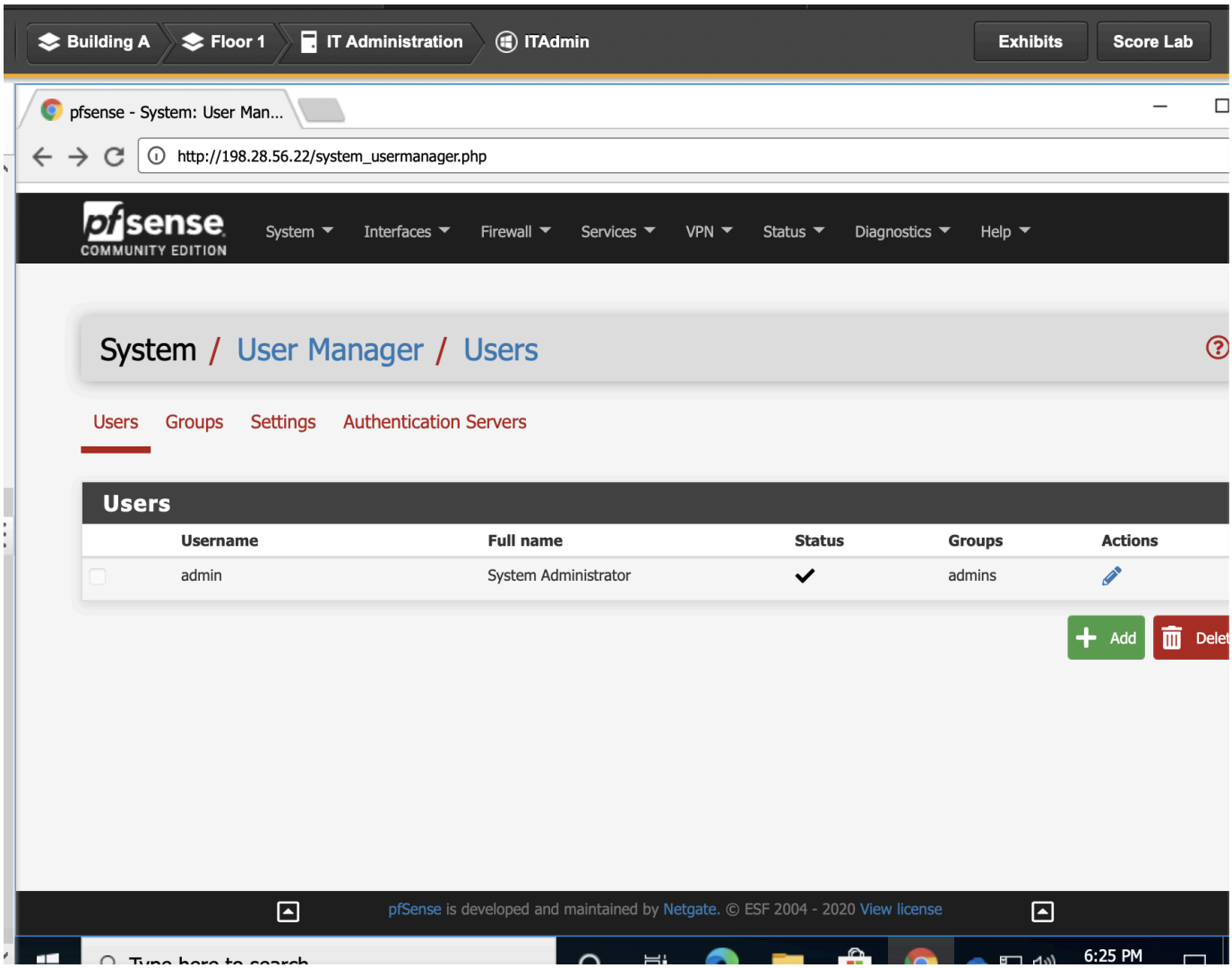

I'll need to click that Green add button to configure our 2 users.

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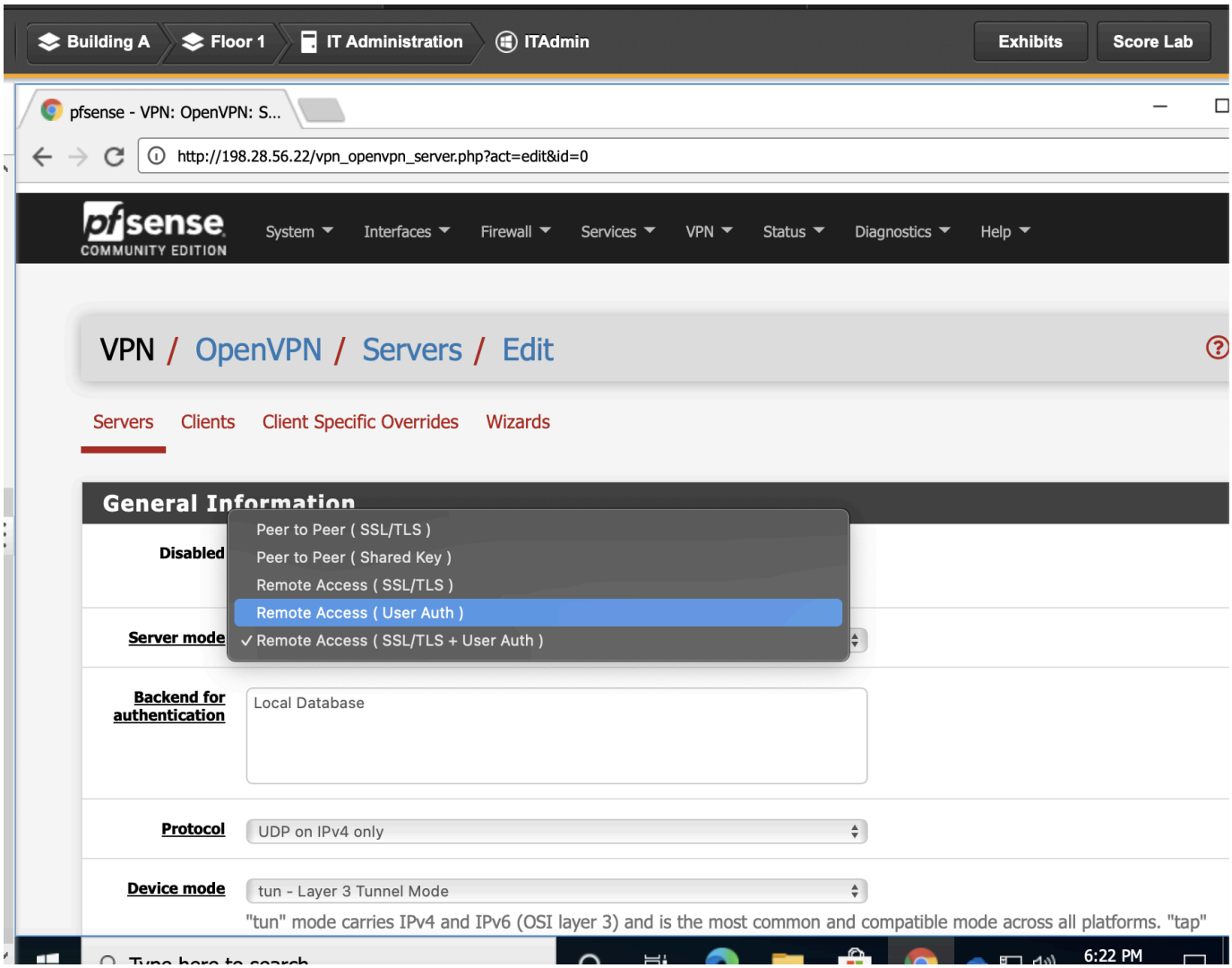

Once that is completed I'll hit the Blue "Save" button towards to bottom.

We are all done! We've completed all the steps! This now concludes this lab.