A close-up of a building

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**Purpose:**

The purpose of this lab is to configure a Site-to-Site VPN using IPSec so that two separate Fortigate firewalls could communicate with each other.

**Background:**

Fortinet is a cybersecurity company that is based in Sunnyvale, California that sells and innovates cybersecurity solutions. It is known for its FortiGate firewalls, which are considered one of the most deployed network firewalls in the world due to its condensed and easy-to-understand interface.

A Virtual Private Network (VPN) is a method of secure connection on the Internet that uses encryption to hide sensitive data from unauthorized users. It is commonly used for remote work and general online privacy.

Internet Protocol Security, or IPSec, is a suite of protocols used to secure IP communications by authenticating and encrypting each IP packet in a communication session. It is widely used in VPNs to ensure data integrity, confidentiality, and authenticity.

Remote Desktop is a technology that allows users to access and control a computer from a different location over a network connection.

**Lab Summary:**

First, we configured IPSec tunnel on internal device connected to our first firewall. Next, we configured the IPSec tunnel in the same way on the remote device. Finally, we set up Remote Desktop so that we were able to establish a connection between our separate devices.

**Lab Procedure:**

1. Go to VPN > IPSec Tunnels. Click “Create New”.

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1. Go to VPN > IPSec Wizard, select “Site to Site” for the Template Type. Keep other settings default.

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1. On Step 2, make sure to set the Outgoing Interface to the WAN port. For remote IP address, set it to the remote device’s WAN IP address. Also set a Pre-Shared Key and make sure to remember it as all devices must have the same PSK.

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1. On Step 3, set the Local Interface as the LAN port of the firewall, and make sure that the Local Subnets match the IP addresses allocated by the LAN port. For Remote Subnets, set it to the remote device’s LAN.

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1. Repeat Steps 1-4 on the remote device’s firewall.
2. By going into VPN > IPSec Tunnels, you can see all the configured settings of the tunnels.

Internal Side:

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A screenshot of a login box

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External Side:

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A screenshot of a computer screen

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1. When you click on our IPSec tunnel, you should see the option “Bring Up”. Click that to activate the tunnel.

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1. In the Windows search bar, type “Remote Desktop Settings”. Make sure that the switch for Remote Desktop is turned on.

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1. On either device, use the keyboard shortcut Windows + R to bring up the run menu. Type “lusrmgr.msc” in the field labeled “Open”.

A screenshot of a computer error

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1. Go to Local Users and Groups (Local) > Users. Then, under the Actions sidebar, hover over Users > New User.

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1. Create a new username with a username and password.

**A screenshot of a computer screen

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1. Once completed, you should see a new user created on the list.

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1. Go to Local Users and Groups (Local) > Groups. Select Remote Desktop Users. On the Actions sidebar, hover over More Actions > Add to Group.

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1. Select the user that you intend to add. Click “Ok” afterwards.

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1. The devices are now ready to perform remote desktop. On the internal device, find its IP using ipconfig command in Command Prompt. Then, on the external device, open up the Remote Desktop Connection application and type that IP into the field.

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1. You should be prompted to sign on using the credentials you just created. Do so and click “Ok”.

A screenshot of a computer screen

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Once you see this, you will know that your remote access was successful.

A screenshot of a computer

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**Problems:**

We did not have many issues with completing this lab. The main issue that we encountered was that our tunnel was not functional the first time around due to us setting different PSKs on accident, which we did not know was mandatory. We solved this through brute forcing through potential problems and redid our passwords, which ended up resolving the issue. This is why we made an emphasis on checking that the PSK is set the same on both ends in our procedure.

**Conclusion:**

In this lab, we successfully configured our Fortigate 40F with IPSec to support a Site-to-Site VPN. After a lot of deliberate research, we were able to figure out how to configure the tunnel on both ends and performed a similar remote desktop skill that we have learned in previous labs. This lab furthered our knowledge and skills in regard to working with VPNs and remote connections and professional, real-world ways to tackle these challenges.

**Sign Off:**

Close-up of a sign

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