



Fortigate

Firewall Config & Rules

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Abstract

In network security, there is no middle ground—you are either secure or vulnerable. Any computer connected to the Internet is at risk of online attacks, though some are more susceptible than others. Whether for personal use or large enterprises, security should always be the top priority.

A firewall acts as a barrier, protecting computers from harmful forces and preventing unauthorized access to a network. Among firewall options, NAT (Network Address Translation) firewalls are considered one of the safest choices.

This report focuses on the configuration and installation of the FortiGate virtual firewall. It also covers the process of creating FortiGate policies and explores different FortiGate firewall policy recipes.

Disclaimer: This report is provided for educational and informational purpose only (Penetration Testing). Penetration Testing refers to legal intrusion tests that aim to identify vulnerabilities and improve cybersecurity, rather than for malicious purposes.



Firewall Lab Setup: FortiGate

Prerequisites

To configure the virtual FortiGate Firewall on your system there are some prerequisites required for installation

- VMWare Workstation
- FortiGate Firewall VM Image
- 3 or more NIC (Network interface cards) E1000 compatible network cards
- Root privileges

What is Firewall

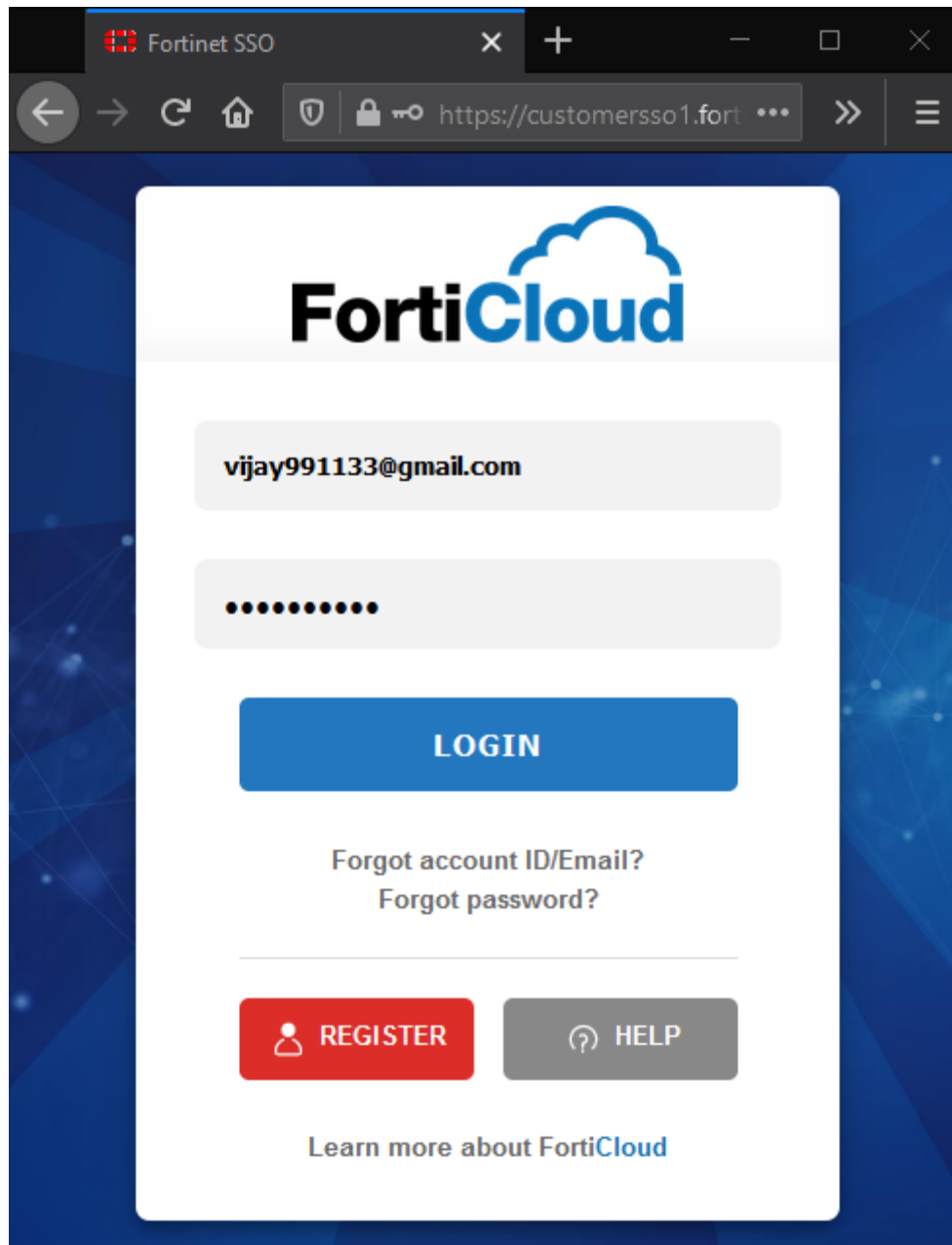
In the computing language, a firewall is a security software or hardware that can monitor and control network traffic, both incoming and outgoing. It establishes a kind of barrier between reliable internal and unknown external networks.

Therefore, a firewall, also known as a network firewall, is capable of preventing unauthorized access to/from private networks.

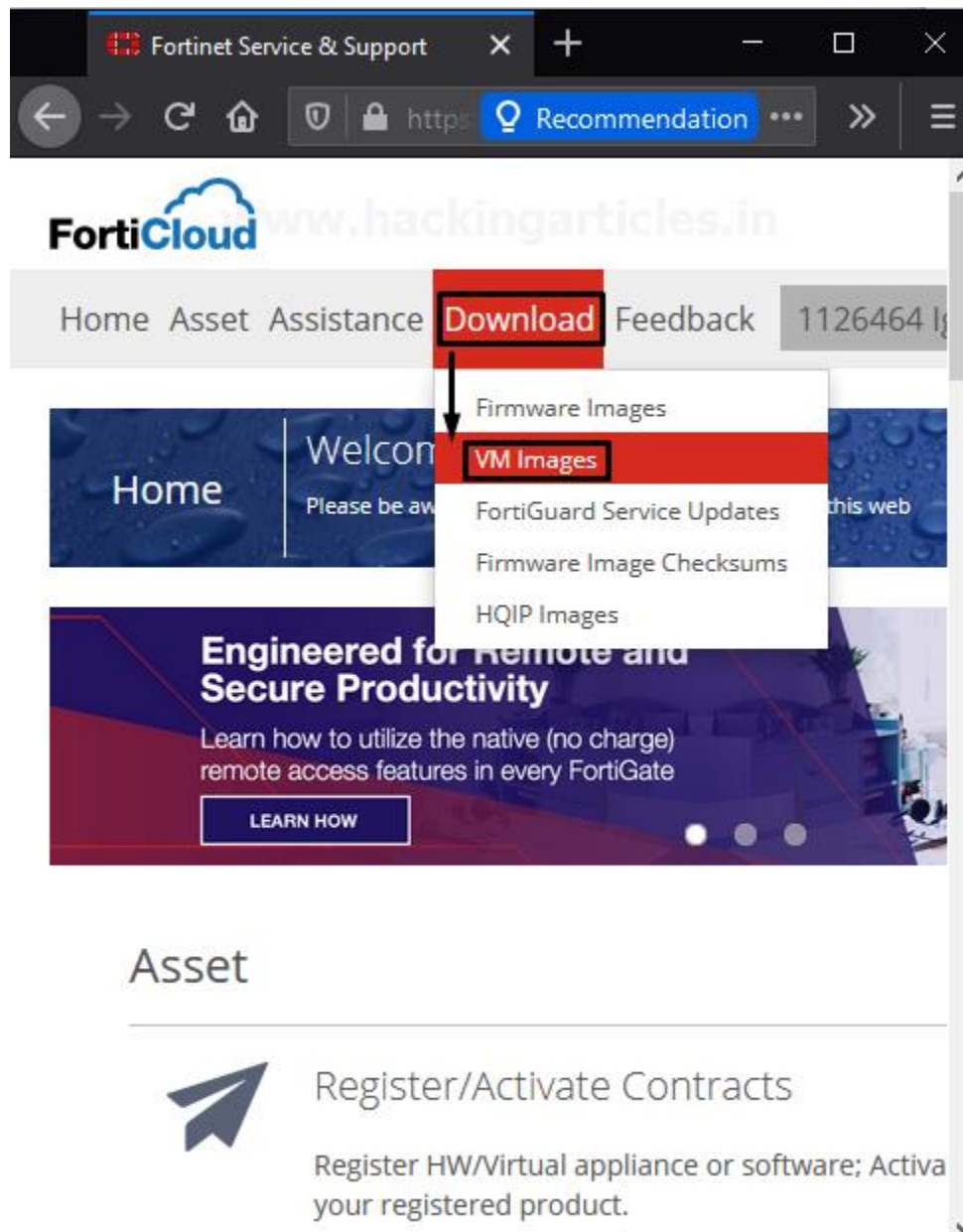
A network firewall is based on security rules to **accept**, **reject**, or **drop** specific traffic. The firewall aims to allow or deny the connection or request, depending on implemented rules.

Download FortiGate Virtual firewall

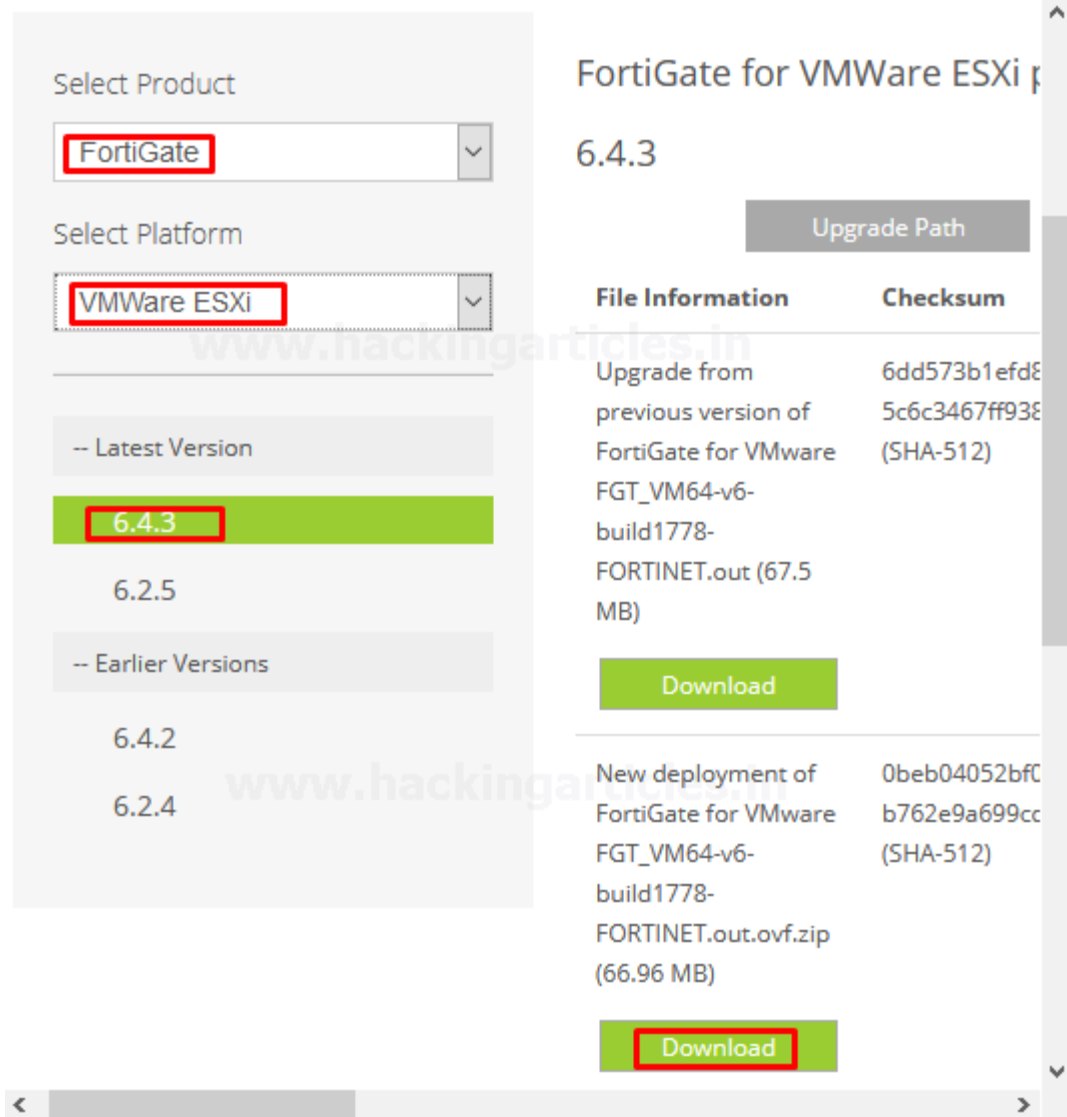
First, we need to download the virtual FortiGate Firewall from the official FortiGate portal.



By creating an account or log in to the account go to **Download > VM Images** as shown in the image below.



Further then Select Product: **FortiGate** > Select Platform: **VMWare ESXi** as shown in the image below. By default, you don't have any license associated with your virtual image so, you can go with the trial version or you can buy the license as per your requirement.



Select Product

FortiGate

Select Platform

VMWare ESXi

-- Latest Version

6.4.3

6.2.5

-- Earlier Versions

6.4.2

6.2.4

FortiGate for VMWare ESXi 6.4.3

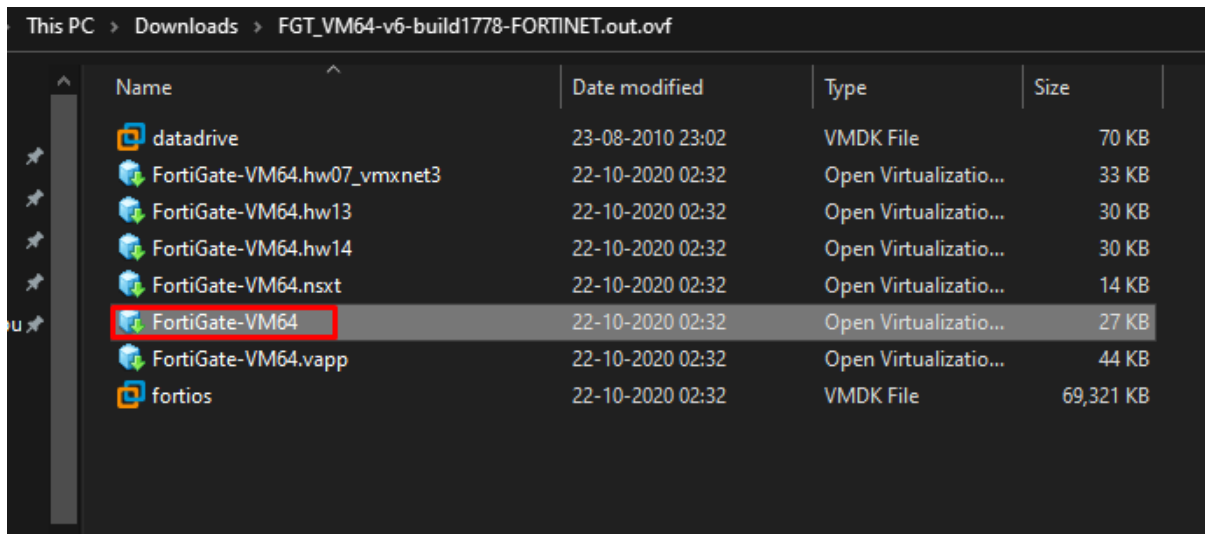
Upgrade Path

File Information	Checksum
Upgrade from previous version of FortiGate for VMware FGT_VM64-v6-build1778-FORTINET.out (67.5 MB)	6dd573b1efd85c6c3467ff938 (SHA-512)
New deployment of FortiGate for VMware FGT_VM64-v6-build1778-FORTINET.out.ovf.zip (66.96 MB)	0beb04052bf0b762e9a699cc (SHA-512)

Download

Download

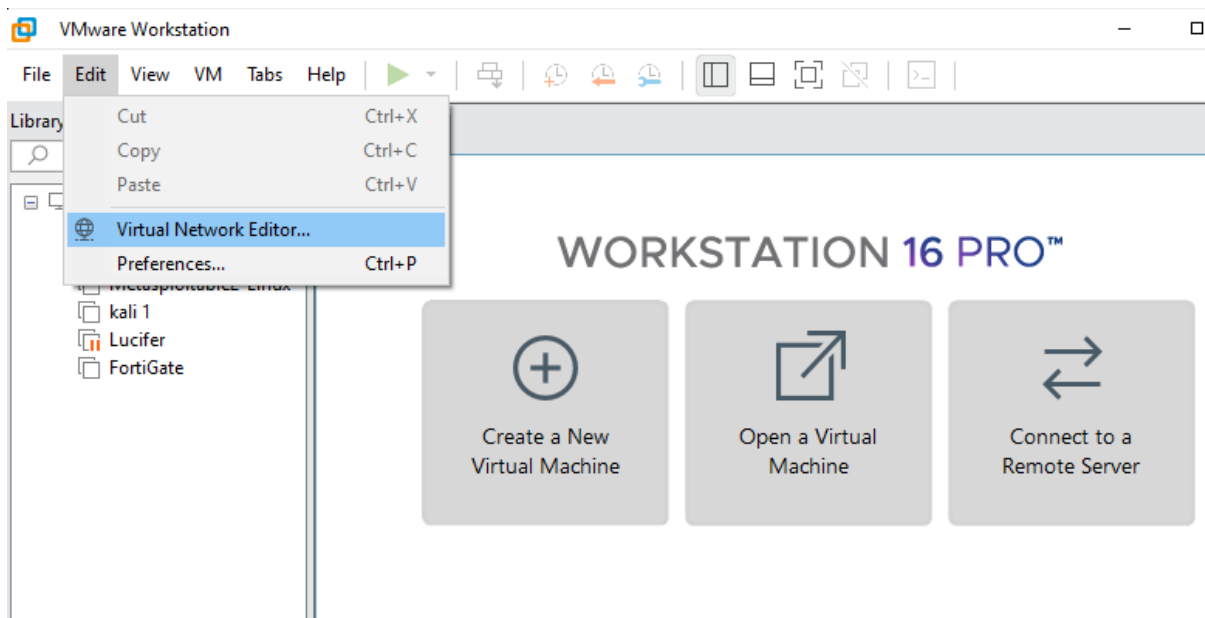
After downloading the compressed FortiGate VM file you need to extract the compressed Zip file by using your favourite extractor and the extracted Zip file similarly looks like the below image.



Configure Virtual network interfaces

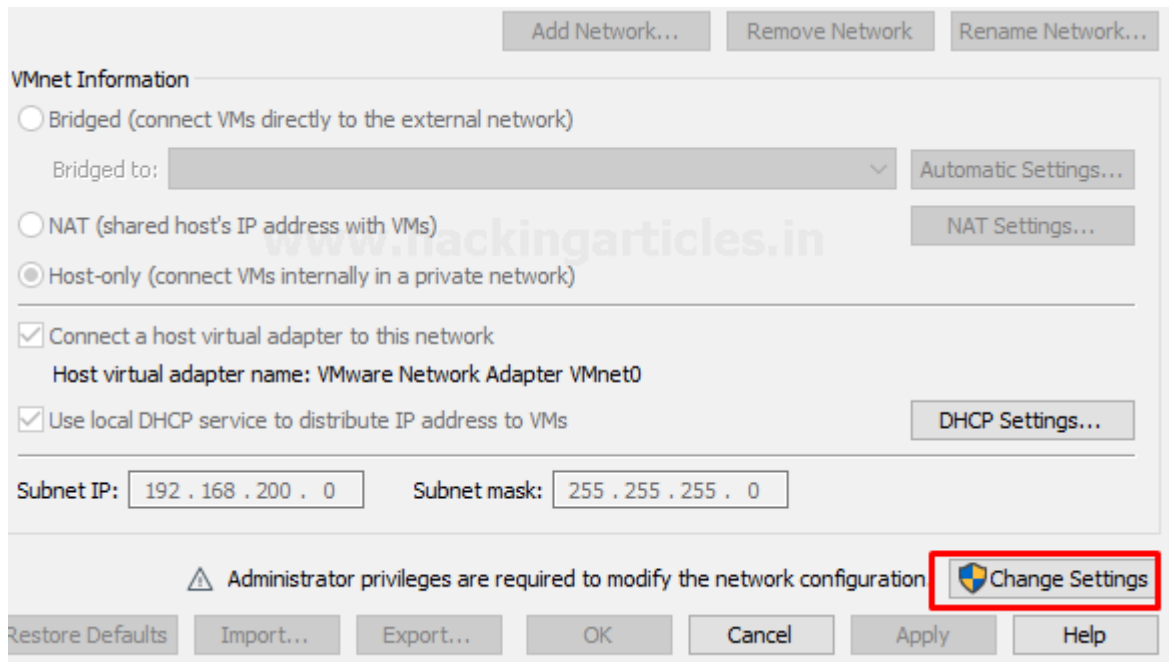
Let's configure Virtual Network Adaptors as per your requirements.

To do this open VMware then go to Edit > Virtual Network Editor as shown in the image below



Further, then it will open another prompt that allows you to modify the network configuration.

To make changes in network configuration it needs the Administrator privileges to provide Admin privileges click on change settings as shown below



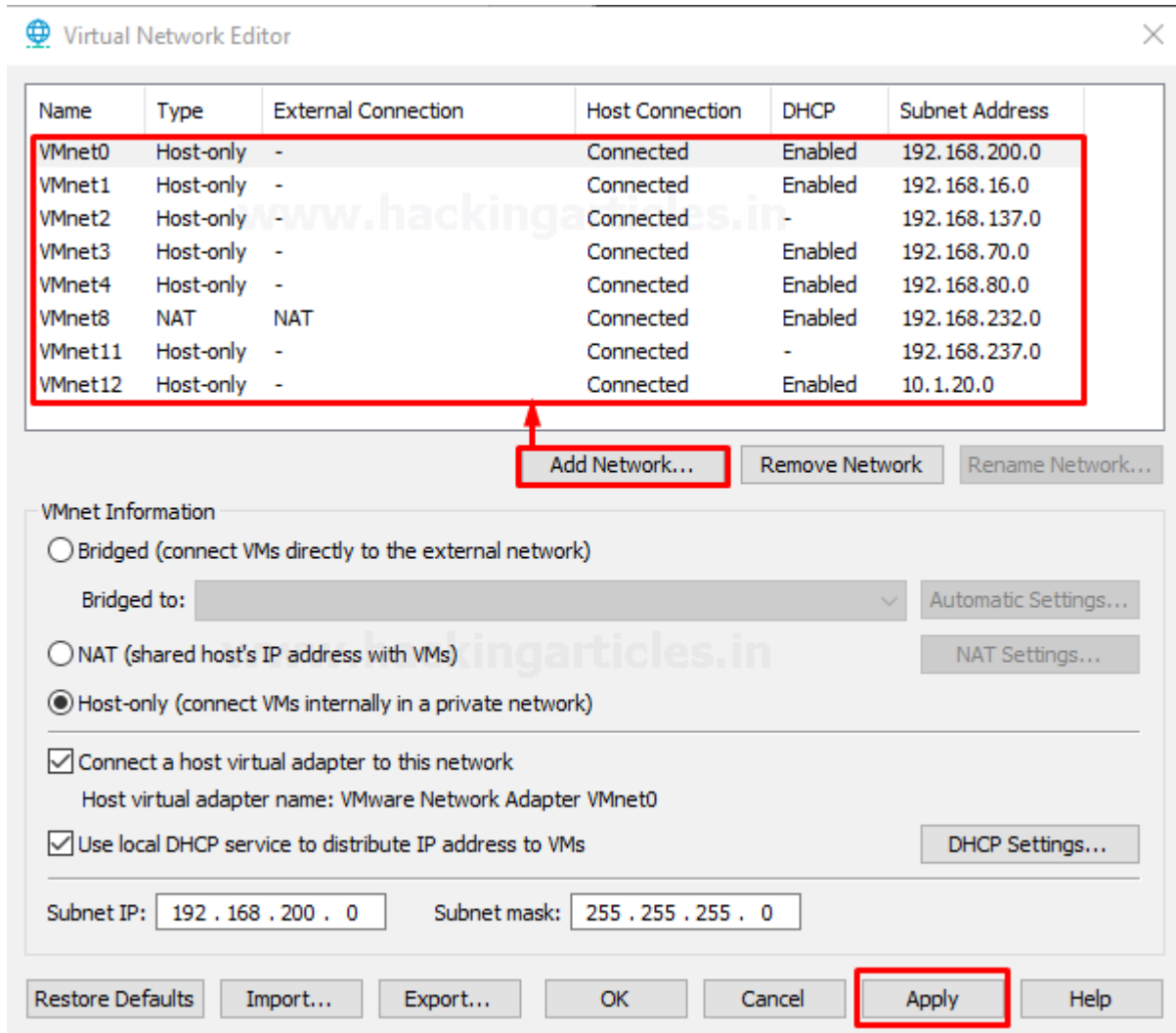
Or also you can directly access the Virtual network editor app by click on Windows Start Button and search for Virtual Network Editor. If you are using Linux (i.e. Ubuntu) you can type the below command to open Virtual Network Editor.

```
sudo vmware-netcfg
```

By default, there are only two virtual network interfaces, i.e., *VMNet1* and *VMNet8*. So, click on the Add Network and make your virtual interface host only. After that, you have to provide a unique IP address of network devices to each network interface.

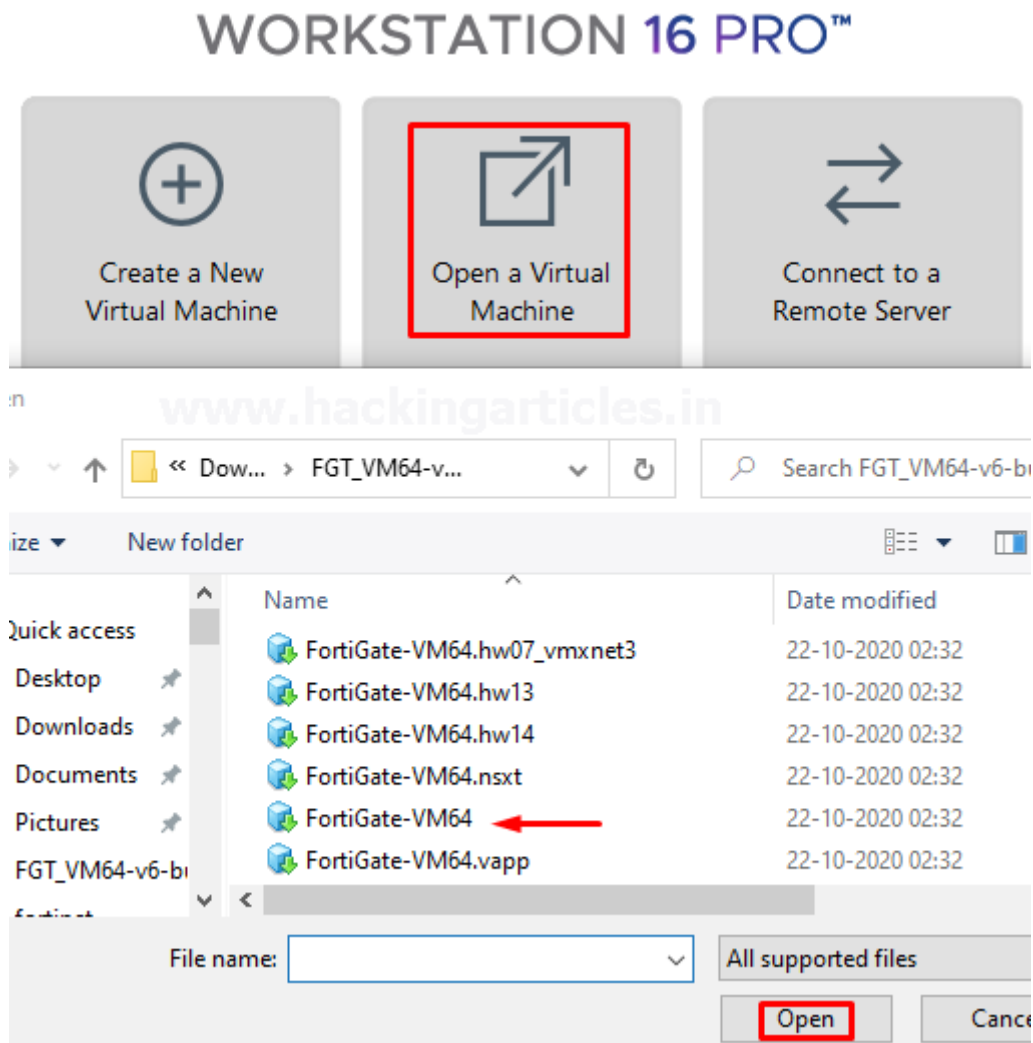
For example, I am going to use 192.168.200.0/24 for the vmnet0 interface and so on...

Use Ip of your network devices or whatever as per your requirement. Similarly, you can add as much as network interfaces as you want but remember one thing all network configuration should be configured to Host-only and you can enable or disable DHCP service as per you system requirement

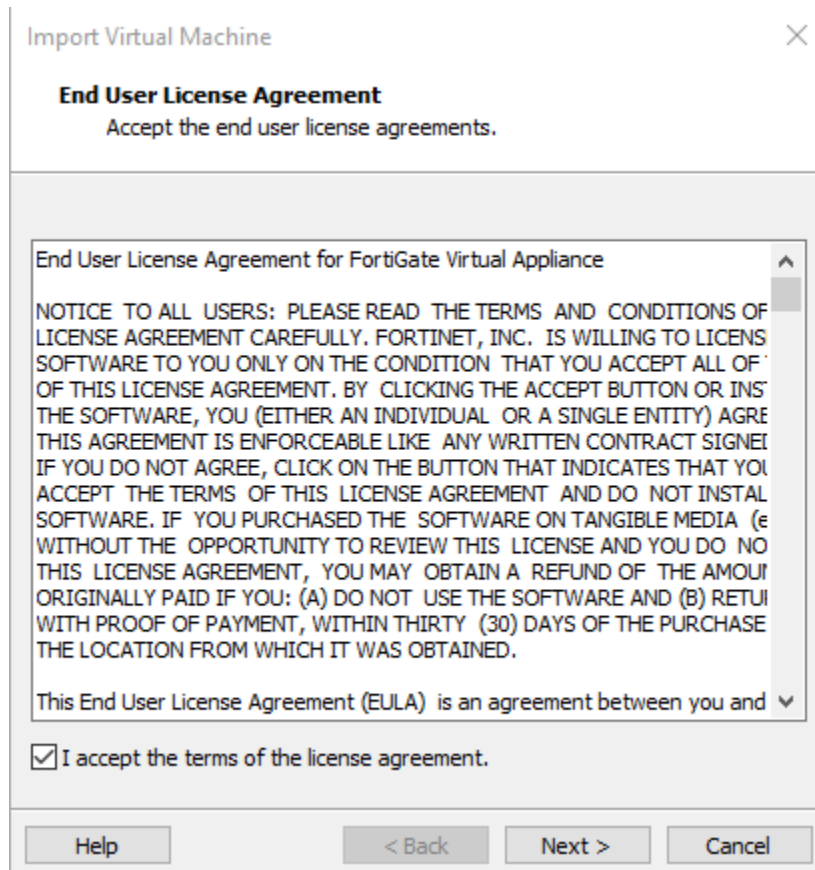


Deployment of FortiGate VM image in VMWare

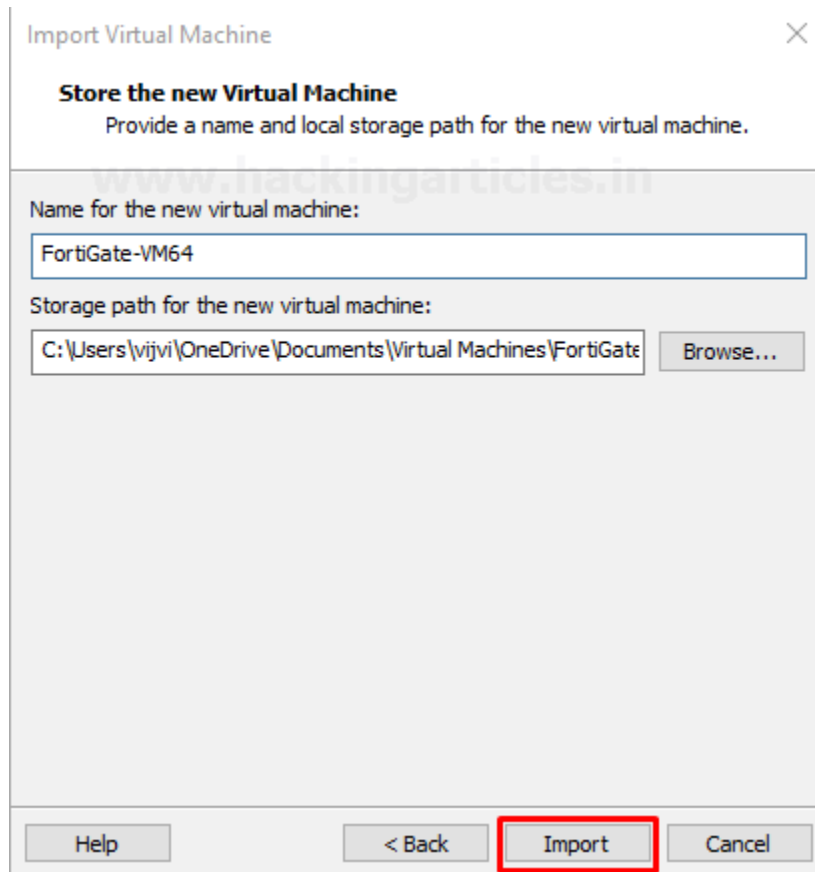
Now it's time to deploy the FortiGate virtual firewall in VMWare Workstation. Just open the VMWare Workstation and go to **Files >> Open** (Ctrl+O) or go to the Home tab and select open a virtual Machine. Select the FortiGate-VM64.ovf file that you have downloaded from the official Website of FortiGate as shown below



Then after it will open another prompt of End User License Agreement accept it and move to next

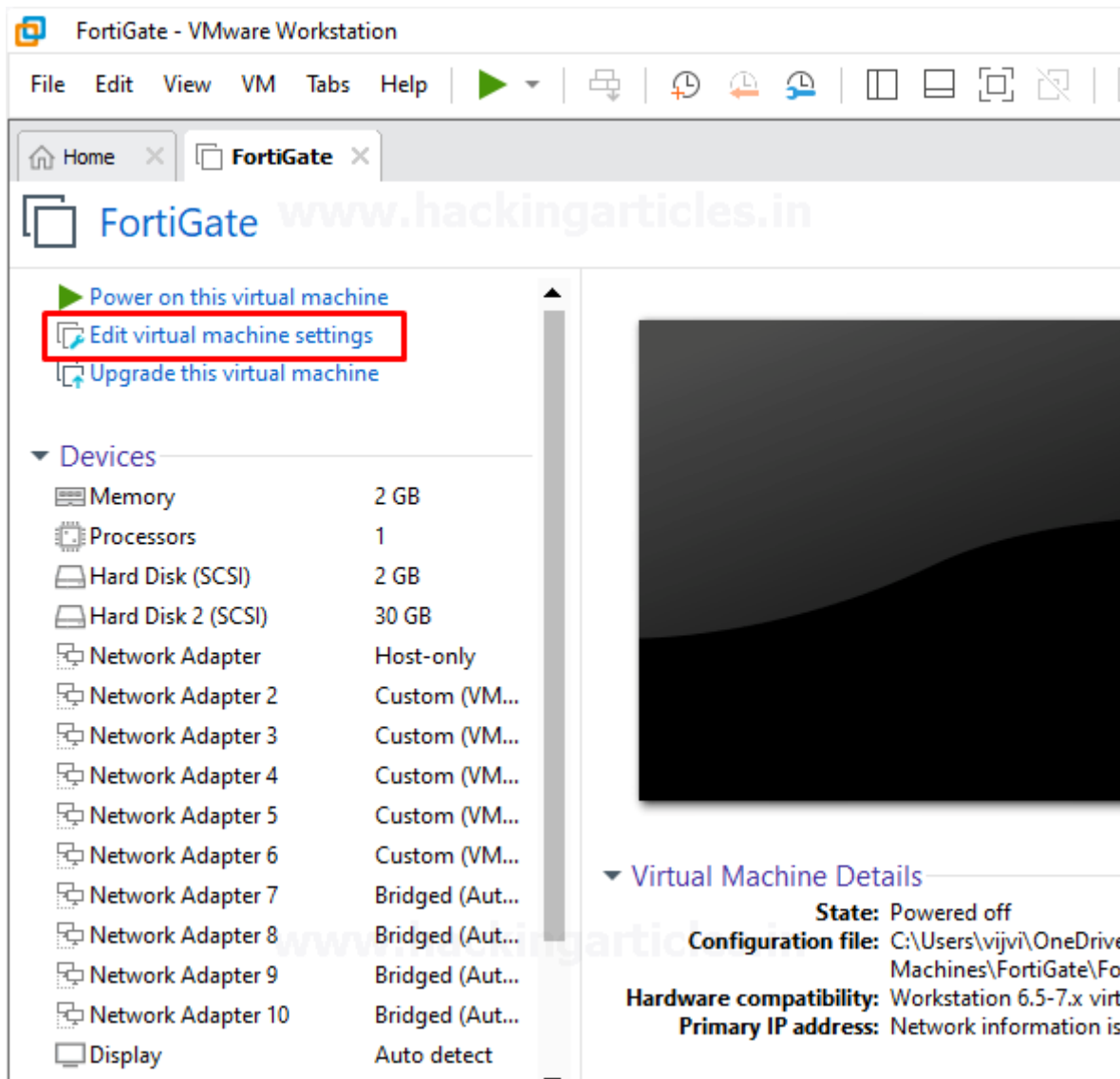


On the next prompt Assign a Name for the new Virtual machine and a Storage Path then after select import as shown below



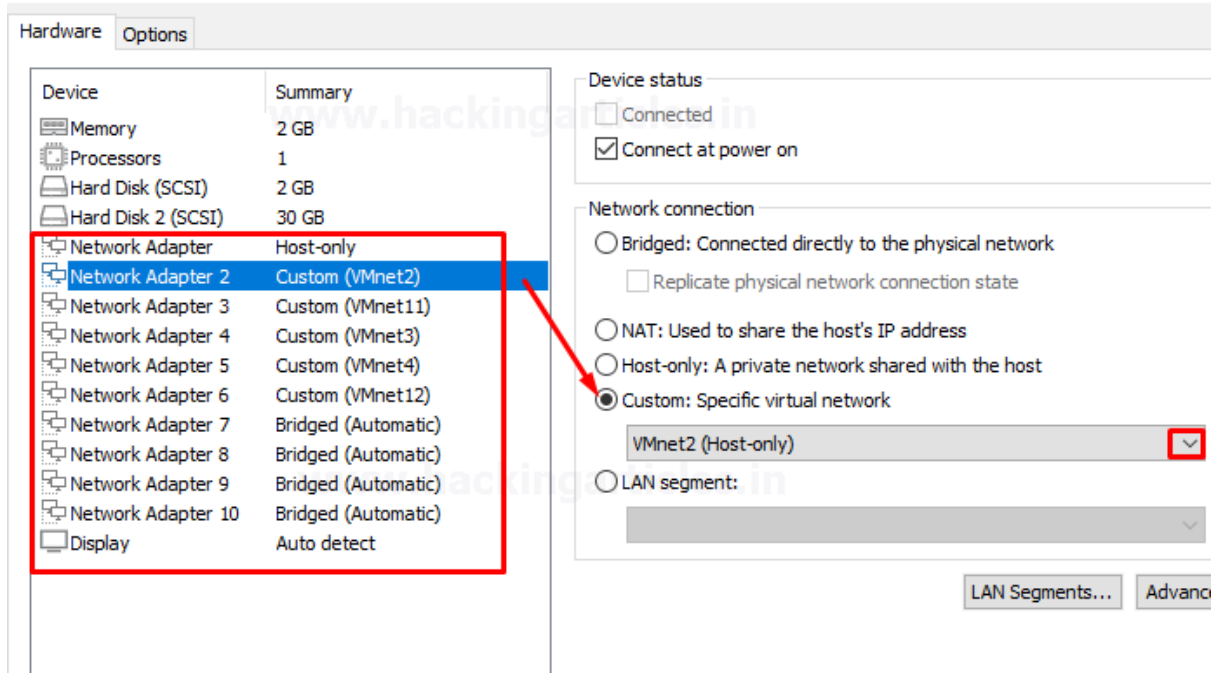
This process going to take some time, so have *patience*. After the successful completion of this process,

Now it's time to configure the Virtual Firewall resources by clicking on Edit virtual machine settings. just modify the assigned virtual network interfaces, memory, and processor by going to Edit virtual machine.



In my case, I'm giving 2GB RAM, 30 GB of Hard Disk, 1 Processor, and 6 different virtual network interfaces (VMNet2, VMNet3, VMNet4, VMNet11, VMnet11, VMnet12 to different network adaptors. Check the below image for reference.

Virtual Machine Settings



Configuring the Management Interface

We've just finished the deployment process of the FortiGate Firewall in the VMWare workstation.

Let's configure an IP Address to the management interface. In manner to assign an IP Address to management interface firstly, we need login to the system with default credentials

Login User: – Admin

Login Password: – In this circumstance, we don't know the default password, Hit enter and change the password as shown below



```

Loading flatkc... ok
Loading /rootfs.gz...ok

Decompressing Linux... Parsing ELF... done.
Booting the kernel.

System is starting...
Serial number is FGUMEU9T3UJPII0A

FortiGate-UM64 login: admin
Password:
You are forced to change your password. Please input a new password.
New Password:
Confirm Password:
Welcome!

FortiGate-UM64 #

```

Let's check the system interfaces by running the following command

```
show system interface
```

```

FortiGate-UM64 # show system interface
name      Name.
fortilink  static  0.0.0.0 0.0.0.0 169.254.1.1 255.255.255.0 up  disable
aggregate enable
port1     dhcp  0.0.0.0 0.0.0.0 192.168.200.128 255.255.255.0 up  disable  ph
ysical enable
port2     static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical enab
le
port3     static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical enab
le
port4     static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical enab
le
port5     static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical enab
le
port6     static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical enab
le
port7     static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical enab
le
port8     static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical enab
le
port9     static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical enab
le
port10    static 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 up  disable  physical ena
ble
--More--

```

Port 1 will be for the management interface so, assign a unique IP address to the management port and set to mode static. In this example our IP Address will 192.168.200.128/24 so, the default gateway will be 192.168.200.1. To assign IP Address to management port run the following command as shown below


```
config system interface
edit port1
set mode static
set ip 192.168.200.128 255.255.255.0
set allowaccess http https telnet ssh ping
end
```

```
FortiGate-VM64 # config system interface
FortiGate-VM64 (interface) # edit port1
FortiGate-VM64 (port1) # set mode static
FortiGate-VM64 (port1) # set ip 192.168.200.128 255.255.255.0
FortiGate-VM64 (port1) # set allowaccess http https telnet ssh ping
FortiGate-VM64 (port1) # end
FortiGate-VM64 # _
```

Also, we can verify the make changes of system interfaces by running the following command

```
show system interface
```

```
FortiGate-VM64 # show system interface ←
config system interface
  edit "port1"
    set vdom "root"
    set ip 192.168.200.128 255.255.255.0
    set allowaccess ping https ssh http telnet
    set type physical
    set snmp-index 1
  next
  edit "port2"
    set vdom "root"
    set type physical
    set snmp-index 2
  next
  edit "port3"
    set vdom "root"
    set type physical
    set snmp-index 3
  next
  edit "port4"
    set vdom "root"
    set type physical
    set snmp-index 4
  next
--More-- _
```

Accessing FortiGate Firewall GUI

Let's check our firewall configuration by accessing the FortiGate Firewall GUI. Before accessing the GUI first, we will check the connectivity to our Firewall using the ping utility by running the following command

```
execute ping 192.268.200.128
```

```
FortiGate-UM64 # execute ping 192.168.200.128
PING 192.168.200.128 (192.168.200.128): 56 data bytes
64 bytes from 192.168.200.128: icmp_seq=0 ttl=255 time=0.0 ms
64 bytes from 192.168.200.128: icmp_seq=1 ttl=255 time=0.0 ms
64 bytes from 192.168.200.128: icmp_seq=2 ttl=255 time=0.0 ms
64 bytes from 192.168.200.128: icmp_seq=3 ttl=255 time=0.0 ms
64 bytes from 192.168.200.128: icmp_seq=4 ttl=255 time=0.0 ms

--- 192.168.200.128 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.0/0.0/0.0 ms

FortiGate-UM64 #
```

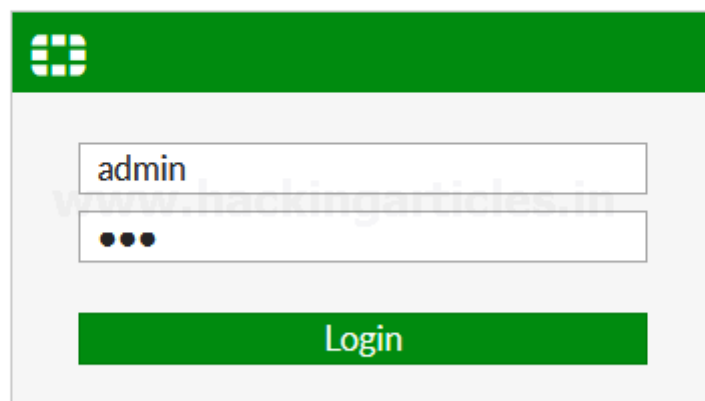
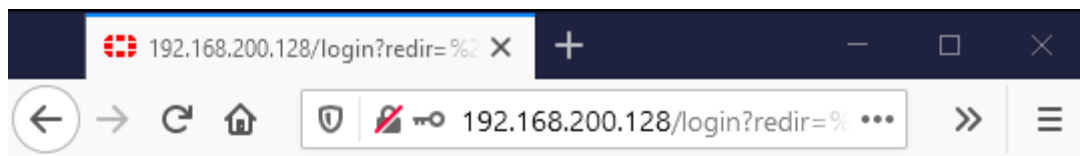
As we can see the IP Address is reachable which means it is working properly now, we will access the FortiGate Firewall GUI using its management interface IP address.

https://192.168.200.128

use the same login credential that we have set up on CLI

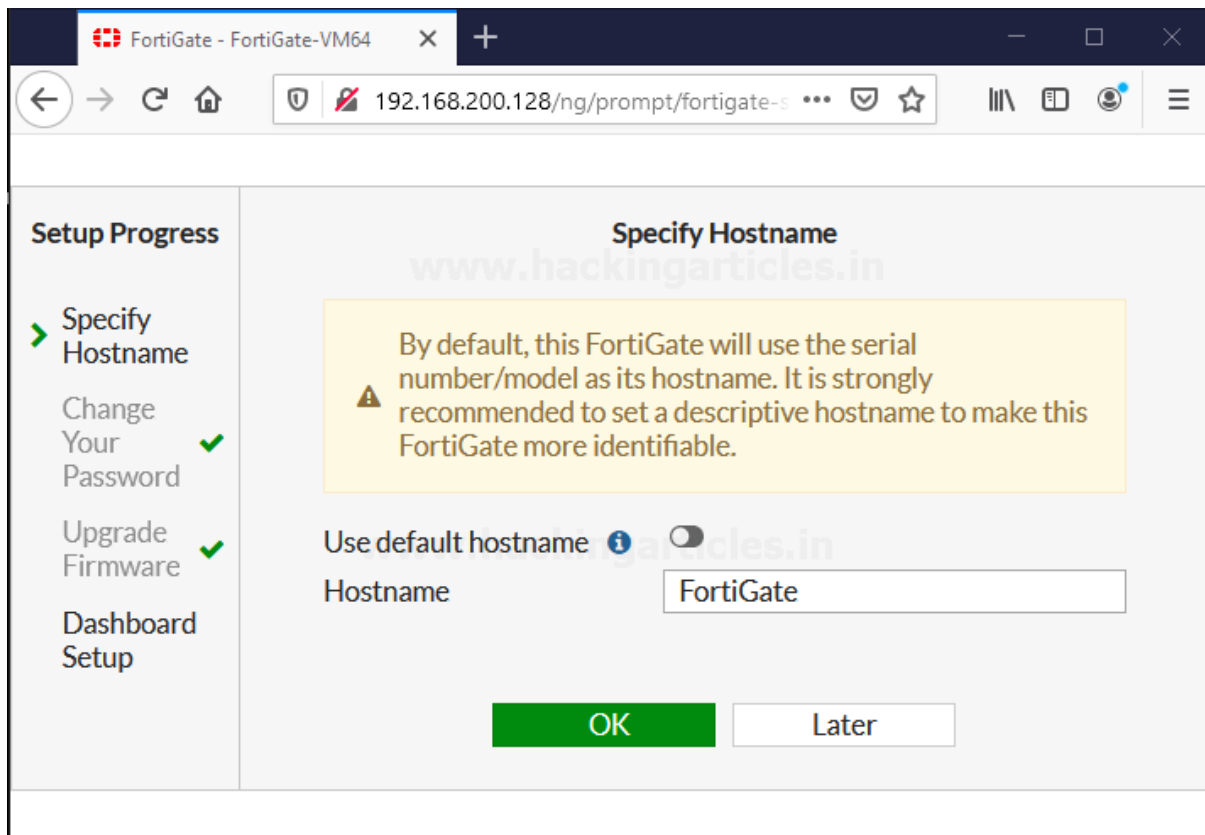
Username: – admin

Password: – 123

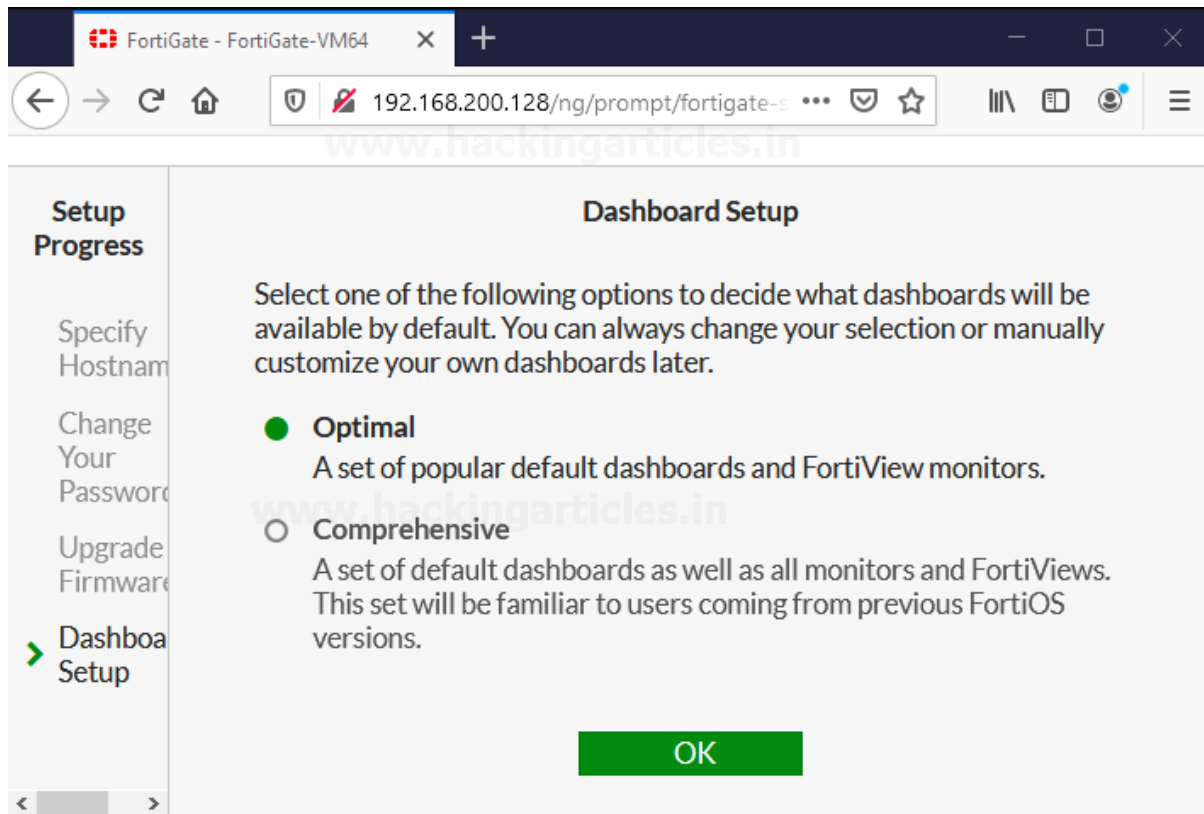


By logging in to the firewall it will open a setup Prompt where we need to specify the Hostname, change password upgrade firmware, and Dashboard setup

By default, this FortiGate will use the serial number/model as its hostname. To make it more identifiable set a descriptive hostname as shown below



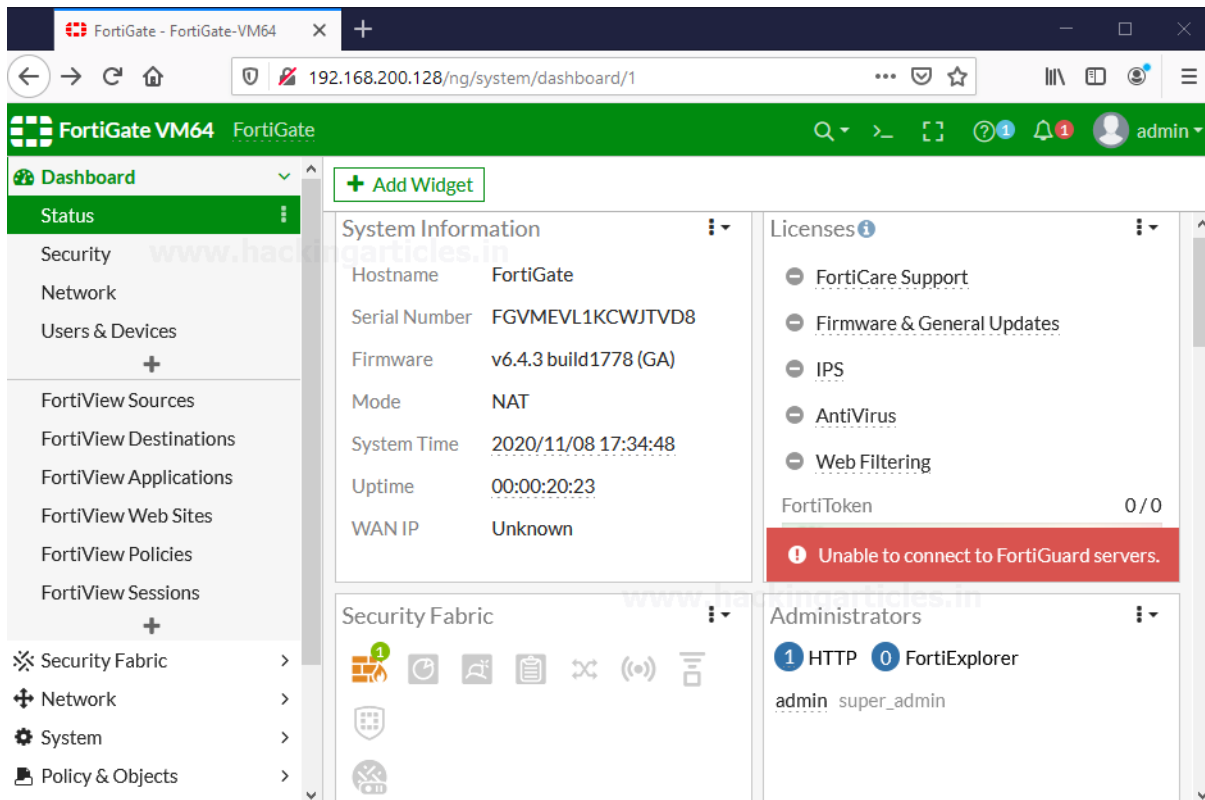
Already we have changed the password in Firewall CLI and also, we have already downloaded the latest version of the firewall, so it automatically skips you to the last step to Dashboard setup. Select it to Optimal or Comprehensive as per your requirements



After selecting the type of Dashboard hit ok and finish the setup.

GUI Demonstration

The GUI contains the following main menus, which provide access to configuration options for most FortiOS features:



Dashboard: – The dashboard displays various widgets that display important system information and allow you to configure some system options.

Security Fabric: – Access the physical topology, logical topology, audit, and settings of the Fortinet Security Fabric.

FortiView: – A collection of dashboards and logs that give insight into network traffic, showing which users are creating the most traffic, what sort of traffic it is, when the traffic occurs, and what kind of threat the traffic may pose to the network.

Network: – Options for networking, including configuring system interfaces and routing options.

System: – Configure system settings, such as administrators, FortiGuard, and certificates.

Policy & Objects: – Configure firewall policies, protocol options, and supporting content for policies, including schedules, firewall addresses, and traffic shapers.

Security Profiles: – Configure your FortiGate's security features, including Antivirus, Web Filter, and Application Control.

VPN: – Configure options for IPsec and SSL virtual private networks (VPNs).

User & Device: – Configure user accounts, groups, and authentication methods, including external authentication and single sign-on (SSO).



WiFi & Switch Controller: – Configure the unit to act as a wireless network controller, managing the wireless Access Point (AP) functionality of FortiWiFi and FortiAP units. On certain FortiGate models, this menu has additional features allowing for FortiSwitch units to be managed by the FortiGate.

Log & Report: – Configure logging and alert email as well as reports.

Monitor: – View a variety of monitors, including the Routing Monitor, VPN monitors for both IPsec and SSL, monitors relating to wireless networking, and more.

Dashboard Demonstration

FortiGate dashboards can have a Network Operations Centre (NOC) or responsive layout.

- On a responsive dashboard, the number of columns is determined by the size of the screen. Widgets can only be resized horizontally, but the dashboard will fit on all screen sizes.
- On a NOC dashboard, the number of columns is explicitly set. Widgets can be resized both vertically and horizontally, but the dashboard will look best on the screen size that it is configured for.

Multiple dashboards of both types can be created, for both individual VDOMs and globally.

- Widgets are interactive; clicking or hovering over most widgets shows additional information or links to relevant pages.
- Widgets can be reorganized by clicking and dragging them around the screen.

Four dashboards are available by default: Status, Network, Security, and System Events

The Status dashboard includes the following widgets by default:

System Information: – The System Information widget lists information relevant to the FortiGate system, including hostname, serial number, and firmware. Clicking on the widget provides links to configure system settings and update the device firmware.

Licenses: – The License widget lists the status of various licenses, such as FortiCare Support and IPS. The number of used and available FortiTokens is also shown. Clicking on the widget provides a link to the FortiGuard settings page.

Virtual Machine: – The VM widget (shown by default in the dashboard of a FortiOS VM device) includes:

- License status and type
- vCPU allocation and usage
- RAM allocation and usage
- VMX license information (if the VM supports VMX)

Clicking on an item in the widget provides a link to the FortiGate VM License page, where license files can be uploaded.



FortiGate Cloud: – This widget displays the FortiGate Cloud and FortiSandbox Cloud status.

Security Fabric: – The Security Fabric widget displays a visual summary of the devices in the Fortinet Security Fabric.

Clicking on a product icon provides a link to a page relevancy to that product. For example, clicking the FortiAnalyzer shows a link to log settings.

Security Rating: – The Security Rating widget shows the security rating for your Security Fabric. It can show the current rating percentile, or historical security rating score or percentile charts.

Administrators: – This widget allows you to see logged-in administrators, connected administrators, and the protocols used by each. Clicking in the widget provides links to view active administrator sessions, and to open the FortiExplorer page on the App Store.

CPU: – This widget shows real-time CPU usage over the selected time frame. Hovering over any point on the graph displays the percentage of CPU power used at that specific time. It can be expanded to occupy the entire dashboard.

Memory: – This widget shows real-time memory usage over the selected time frame. Hovering over any point on the graph displays the percentage of the memory used at that specific time. It can be expanded to occupy the entire dashboard.

Sessions: – This widget shows the current number of sessions over the selected time frame. Hovering over any point on the graph displays the number of sessions at that specific time. It can be expanded to occupy the entire dashboard.

The Security dashboard includes the following widgets by default:

- **Top Compromised Hosts by Verdict:** – This widget lists the compromised hosts by verdict. A FortiAnalyzer is required. It can be expanded to occupy the entire dashboard.
- **Top Threats by Threat Level:** – This widget lists the top threats by threat level, from FortiView. It can be expanded to occupy the entire dashboard.
- **FortiClient Detected Vulnerabilities:** – This widget shows the number of vulnerabilities detected by FortiClient. FortiClient must be enabled. Clicking on the widget provides a link to view the information in FortiView.
- **Host Scan Summary:** – This widget lists the total number of hosts. Clicking on the widget provides links to view vulnerable devices in FortiView, FortiClient monitor, and the device inventory.
- **Top Vulnerable Endpoint Devices by Detected Vulnerabilities:** – This widget lists the top vulnerable endpoints by the detected vulnerabilities, from FortiView. It can be expanded to occupy the entire dashboard.

The System Events dashboard includes the following widgets by default:

- **Top System Events by Events:** – This widget lists the top system events, sorted by the number of events. It can be expanded to occupy the entire dashboard. Double click on an event to view the specific event log.



- **Top System Events by Level:** – This widget lists the top system events, sorted by the events' levels. It can be expanded to occupy the entire dashboard. Double click on an event to view the specific event log.

Implementation of Firewall Policies: FortiGate

Prerequisites

- Strong Knowledge of Networking
- Attacker Machine Kali Linux

How do firewall Works?

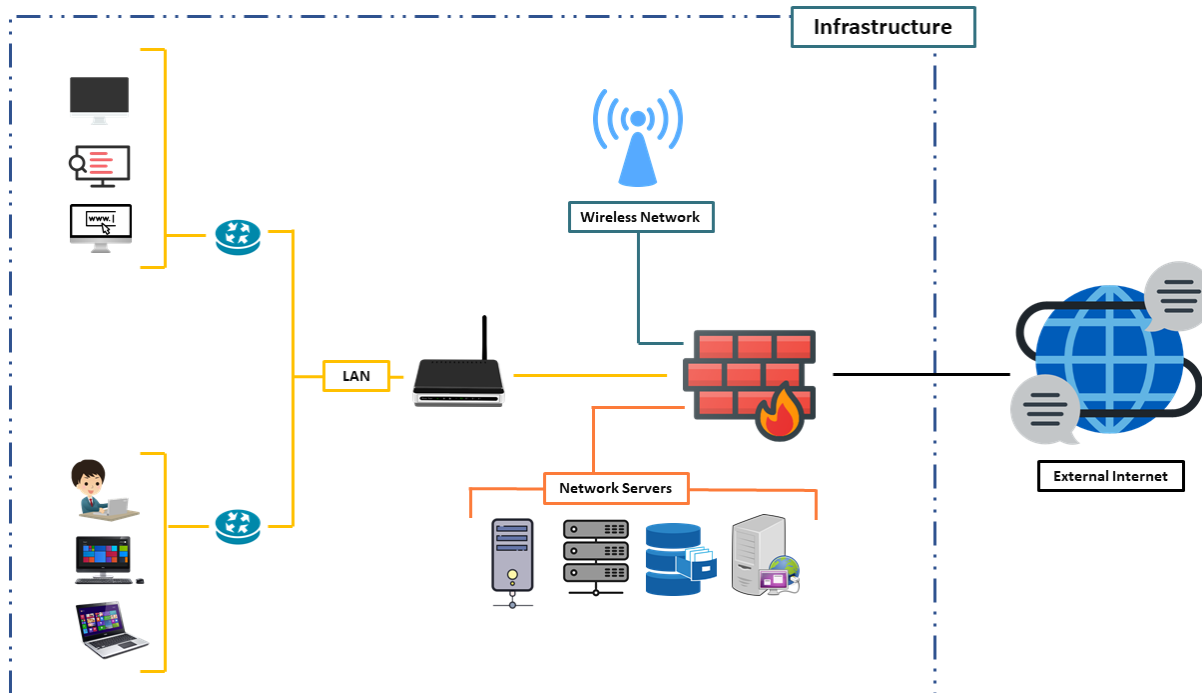
Basically, firewalls are divided into two parts

- **Stateful:** – Stateful firewalls are capable of monitoring whole network traffic, including their communication channels. These firewalls are also referred as dynamic packet filter as they filter traffic packets based on the context (it involves metadata of packets including ports and IP address belonging to that Endpoint) and state.
- **Proxy:** – Proxy Firewall can be Defined as, A firewall that can monitor and filter communication at the application level and protect the resources from unwanted dangerous traffic. A proxy firewall also is known as Application layer Firewall.

After some time in an inspection stateful firewall become more sophisticated and proxy Firewalls become too slow.

Today nearly all Firewalls are stateful and they are divided into two General Types.

- Host-based Firewalls
- Network Firewalls



In this article, you will learn how to connect and configure a new FortiGate unit in NAT route mode to securely connect a private network to the internet.

In NAT route mode a FortiGate unit is installed as a gateway or router between two networks. In most cases it is used between private networks and the internet, this allows the Firewall to hide the IP addresses of the private network using Network Address Translation (NAT) and the various firewall Policy of FortiGate firewall as a Firewall Recipe.

As you guys have one question here why we are calling it as Recipe... answer is quite simple without using the Recipe we can't cook a tasty food Wait for what... a tasty food... 🤖 we can't even cook the food... 😊 similarly without proper firewall policy (recipe), we can't protect our network from dangerous network traffics.

Connect Network Devices

First, you need to connect a physical firewall or FortiGate into your network setup. On the place of a physical firewall, we are using a Virtual FortiGate Firewall to get hands-on.

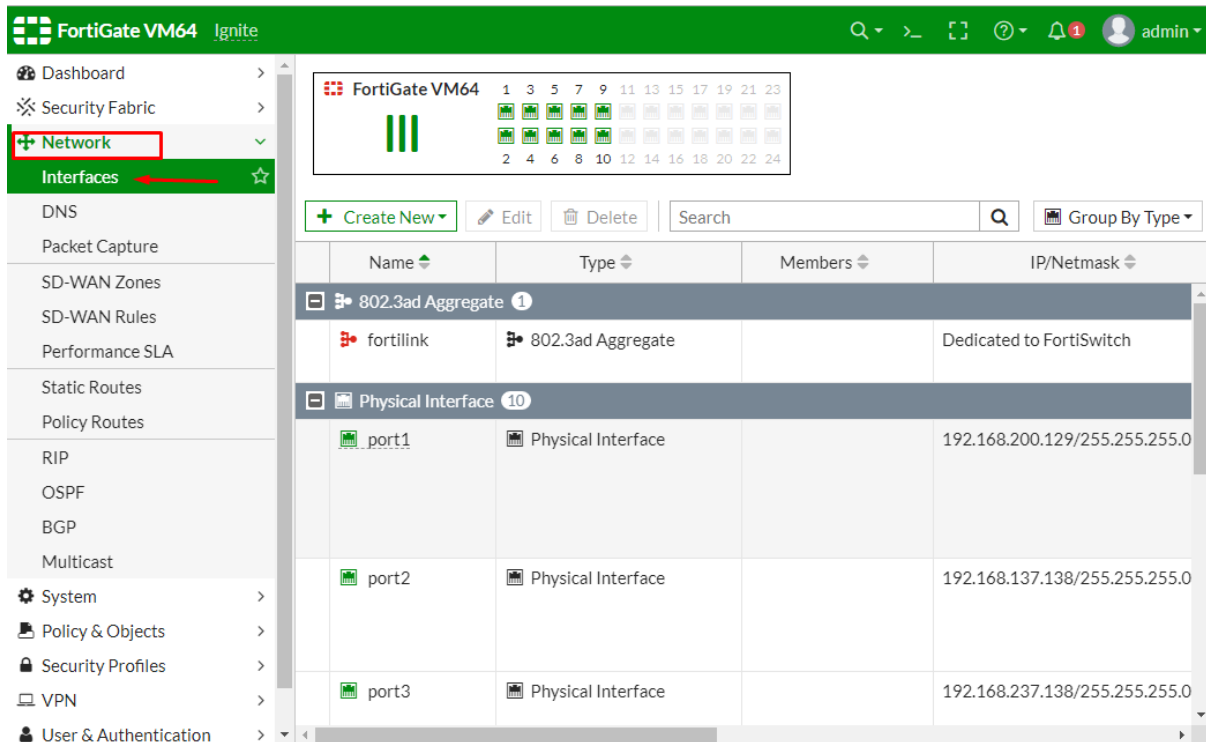
Connect the FortiGate internet facing interface usually WAN1 to your ISP supplied equipment and connect the PC to FortiGate using an internal port usually port 1 or as per your requirement.

Power on ISP equipment, firewall and the PC and they are now in the internal network.

Configure Network Interfaces

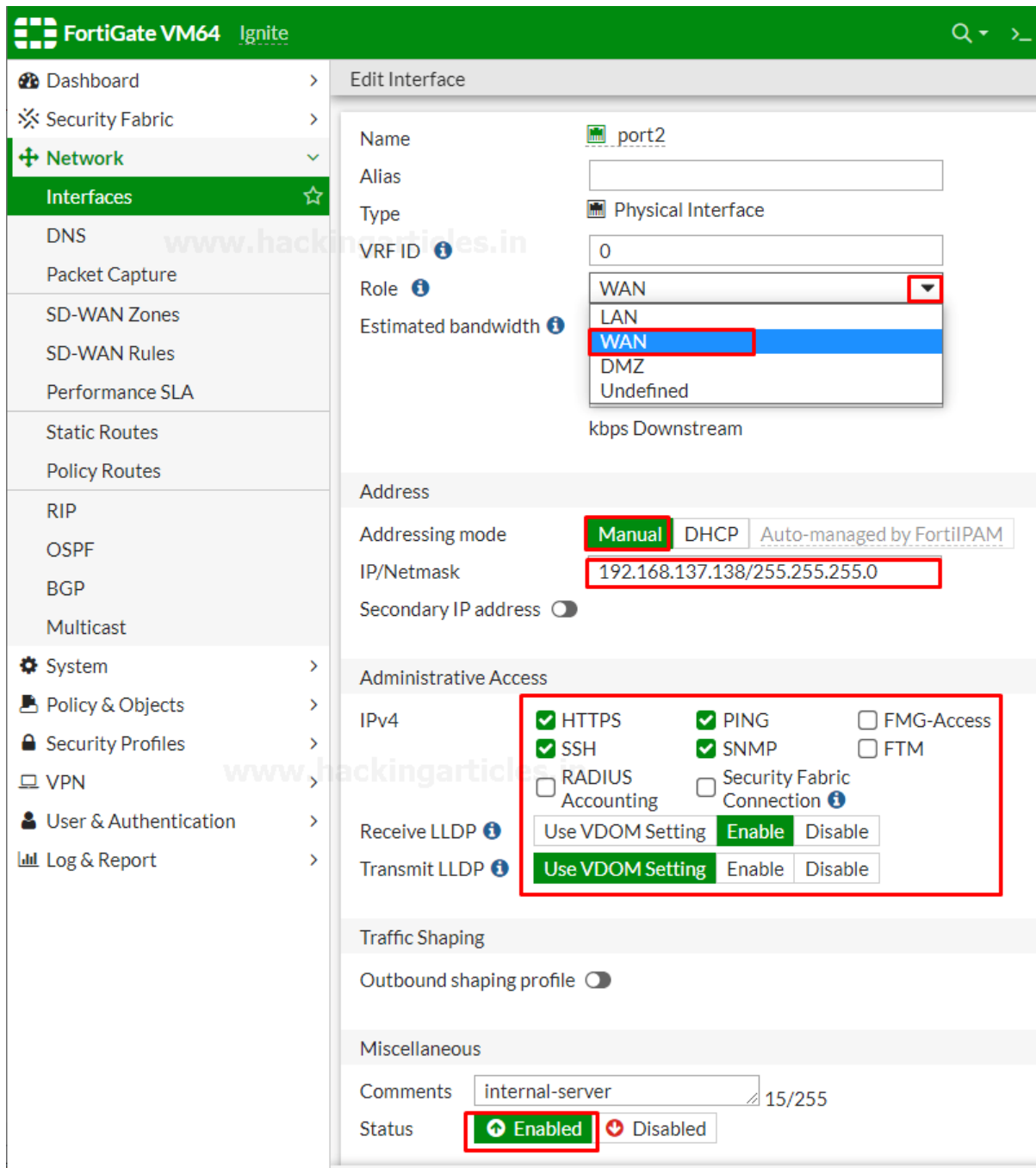
Now you need to configure the FortiGate's Network interfaces.

Go to network > Interfaces



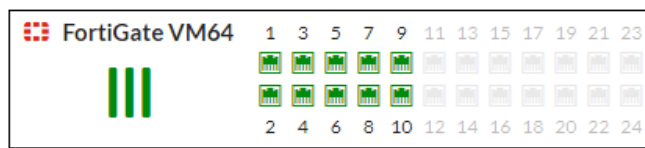
Name	Type	Members	IP/Netmask
802.3ad Aggregate 1			
fortilink	802.3ad Aggregate		Dedicated to FortiSwitch
Physical Interface 10			
port1	Physical Interface		192.168.200.129/255.255.255.0
port2	Physical Interface		192.168.137.138/255.255.255.0
port3	Physical Interface		192.168.237.138/255.255.255.0

and edit the internet-facing interface set the addressing mode to manual and the IP/Netmask to the public IP address provided by your ISP. Here in my case, I'm considering port2 as an internet-facing interface. Provide Administrative access as per your requirement to the network



The screenshot shows the FortiGate VM64 Ignite web interface. The left sidebar contains a navigation menu with categories like Dashboard, Security Fabric, Network, System, Policy & Objects, Security Profiles, VPN, User & Authentication, and Log & Report. The 'Network' category is expanded, and 'Interfaces' is selected. The main panel is titled 'Edit Interface' and shows configuration for 'port2'. The 'Role' dropdown is set to 'WAN'. The 'Addressing mode' is set to 'Manual', and the 'IP/Netmask' is '192.168.137.138/255.255.255.0'. The 'Administrative Access' section shows 'IPv4' settings with checkboxes for HTTPS, SSH, PING, SNMP, FMG-Access, and FTM, all of which are checked. The 'Receive LLDP' and 'Transmit LLDP' sections both have 'Use VDOM Setting' selected and 'Enable' chosen. The 'Status' at the bottom is set to 'Enabled'.

Then save the configuration and then similarly edit the LAN interface which may be called internal network. Set the interfaces Role to the LAN or WAN and then set the addressing mode to manual and set the IP/Netmask to the private IP address that you want to assign to the FortiGate



+ Create New Edit Delete Search Group By Type				
Name	Type	Members	IP/Netmask	Administrative Access
port2	Physical Interface		192.168.137.138/255.255.255.0	TELNET PING HTTPS SSH SNMP
port3	Physical Interface		192.168.237.138/255.255.255.0	PING HTTPS SSH SNMP
port4	Physical Interface		192.168.70.138/255.255.255.0	PING HTTPS SSH SNMP
port5	Physical Interface		192.168.80.138/255.255.255.0	PING HTTPS SSH SNMP HTTP
port6	Physical Interface		10.1.20.138/255.255.255.0	PING HTTPS SSH SNMP HTTP
port7	Physical Interface		0.0.0.0/0.0.0.0	
port8	Physical Interface		0.0.0.0/0.0.0.0	
port9	Physical Interface		0.0.0.0/0.0.0.0	

If you need your FortiGate to provide IP addresses to devices connected to internal network enable the DHCP server and then save the configuration as shown below.



Security Fabric >

Network >

Interfaces ☆

DNS

Packet Capture

SD-WAN Zones

SD-WAN Rules

Performance SLA

Static Routes

Policy Routes

RIP

OSPF

BGP

Multicast

System >

Policy & Objects >

Security Profiles >

VPN >

User & Authentication >

Log & Report >

SSH ☒

RADIUS Accounting ☐

SNMP ☒

Security Fabric Connection ☐

Receive LLDP ☒ Use VDOM Setting Enable Disable

Transmit LLDP ☒ Use VDOM Setting Enable Disable

DHCP Server

Address range 192.168.70.1-192.168.70.137 X

192.168.70.139-192.168.70.254 X

Netmask 255.255.255.0

Default gateway Same as Interface IP Specify

DNS server Same as System DNS Same as Interface IP Specify

Lease time ☒ 604800 second(s)

Advanced

Network

Device detection ☒

Security mode ☐

Traffic Shaping

Outbound shaping profile ☐

Miscellaneous

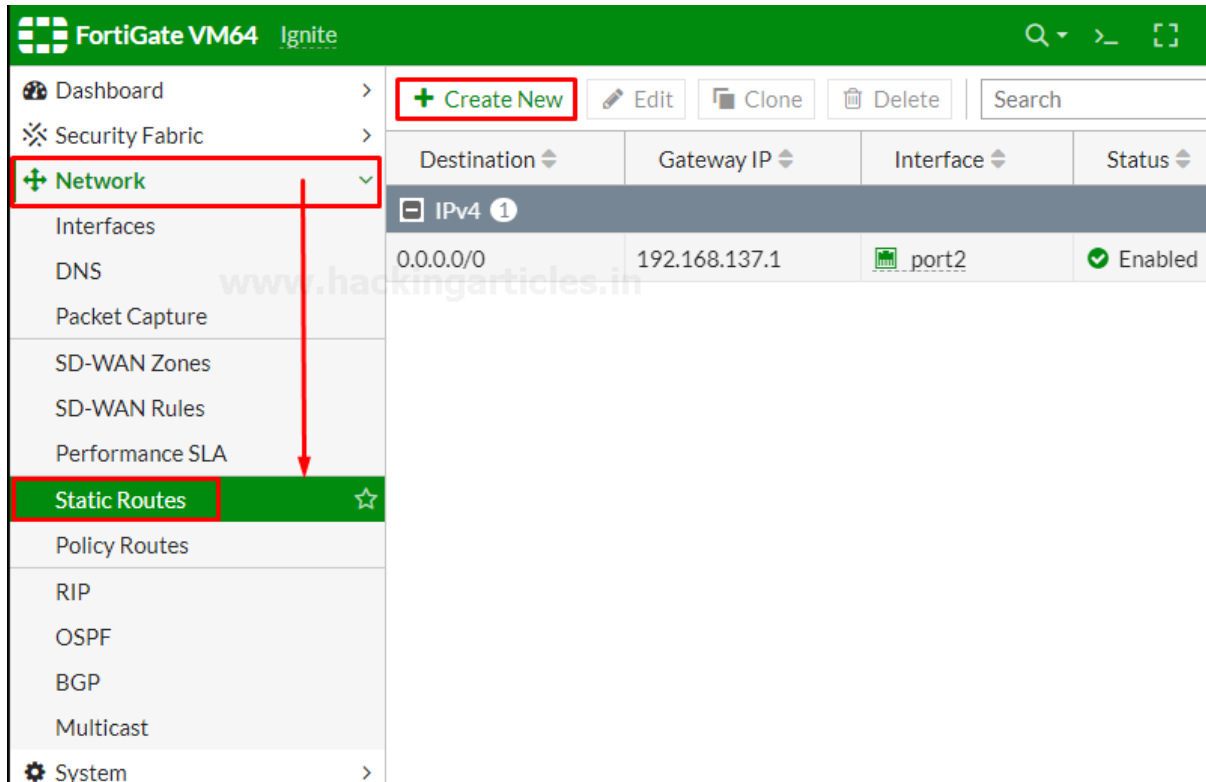
Comments INSIDE Vlan 11/255

Status ☒ Enabled ☐ Disabled

Changing the default IP of your interfaces is recommended for the security measures. But you are connected to the FortiGate through that interface the FortiGate will log you out and you must navigate to the new IP address assigned to the interface and login again.

Add a Default Route

Now Go to Network > Static Routes and create a new Route to allow your FortiGate to reach the internet



The screenshot shows the FortiGate VM64 Ignite interface. In the left sidebar, the 'Network' menu is expanded, and 'Static Routes' is highlighted. A red arrow points from 'Static Routes' to the 'Create New' button in the top right. The main table displays a single IPv4 route with the following details:

Destination	Gateway IP	Interface	Status
0.0.0.0/0	192.168.137.1	port2	Enabled

Set destination to subnet and enter IP/Netmask of Eight Zeros. Set the Gateway to the Gateway IP provided by your ISP and the interfaces to the internet-facing interface then save the Route.

New Static Route

Destination 

Subnet Internet Service

0.0.0.0/0.0.0.0

Gateway Address

192.168.80.1

Interface

 port5 

Administrative Distance 

10

Comments

internal network 16/255

Status

 Enabled  Disabled

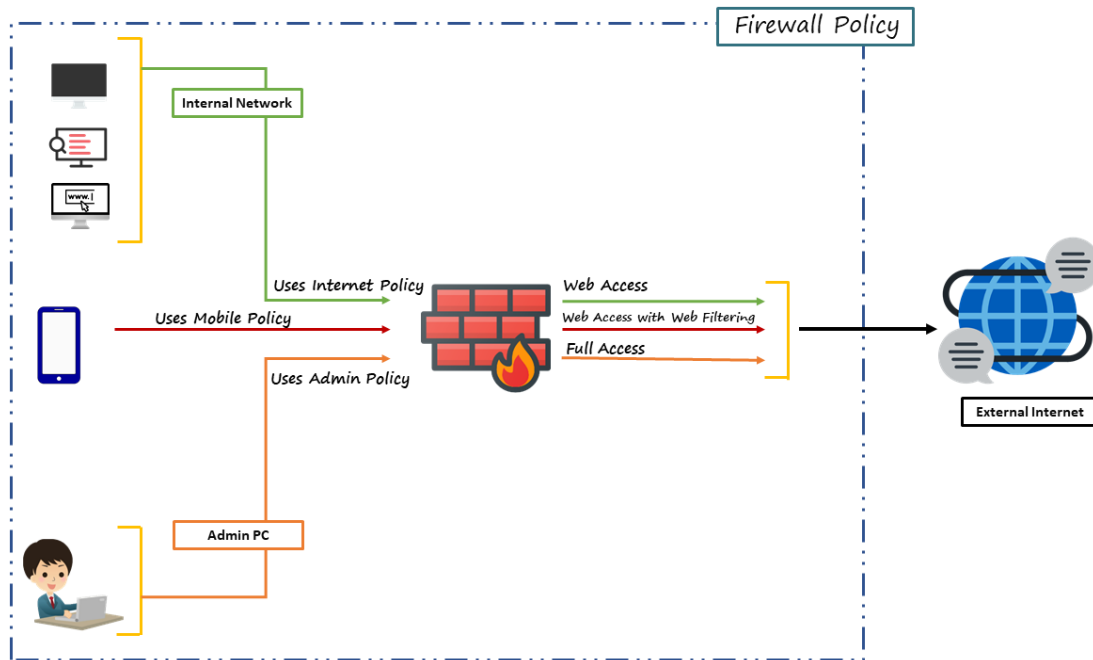
 Advanced Options

OK

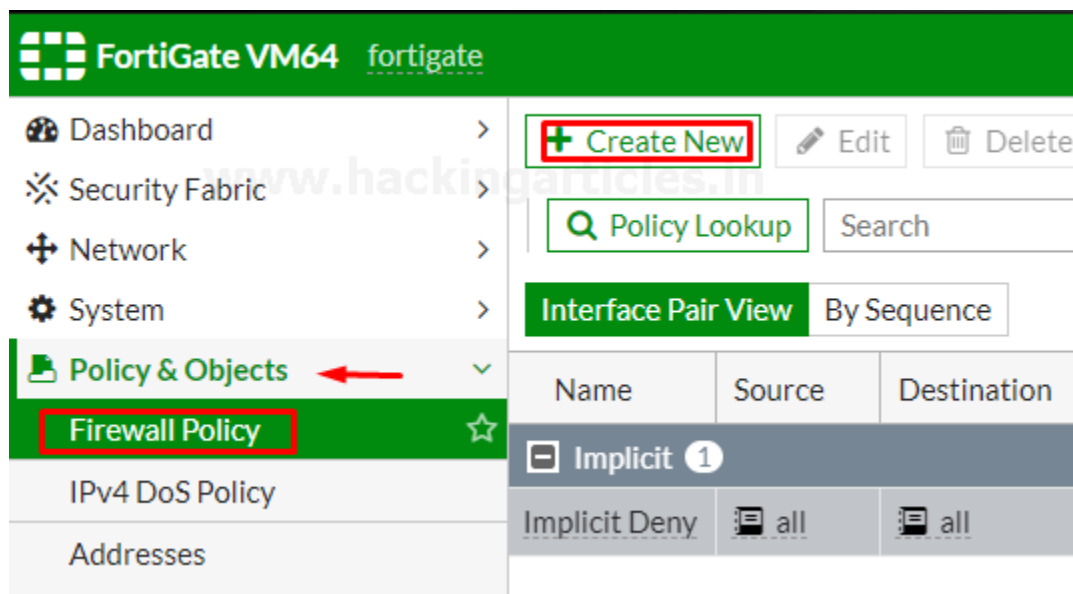
Cancel

Create an IPV4 Firewall Policy

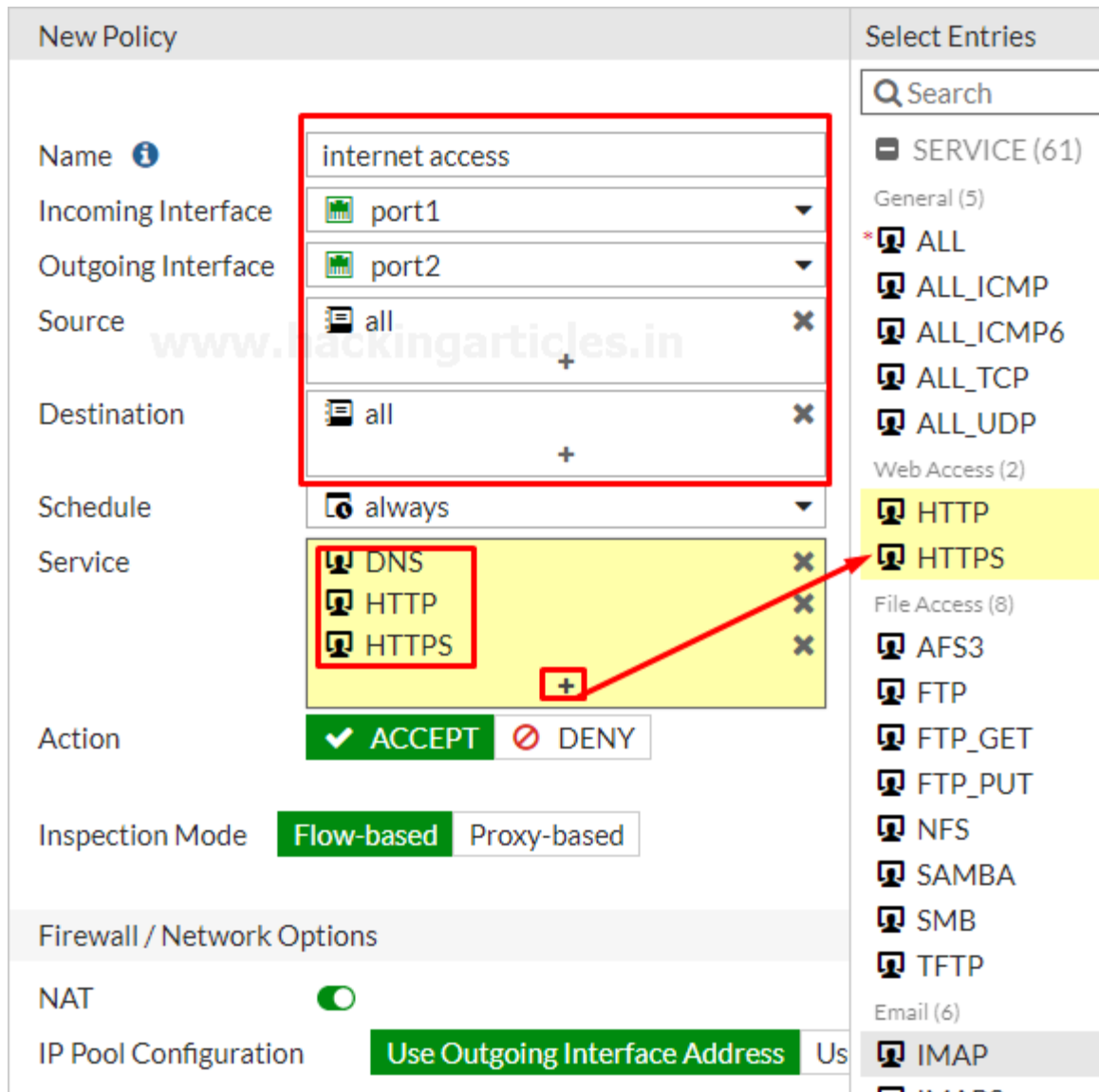
Firewall policy designed in a manner to examine Network Traffic using policy statements to block unauthorized access while permitting authorized communication.



Go to **Policy & Objects > Firewall Policy** and **create** a new policy which allow internet traffic through the FortiGate.



Name the policy as **“Internet-Traffic”** or whatever you want. Set the incoming interface to the **“Internal interface”** and outgoing interface to the internet facing interface. Set the rest to allow **“ALL”** Traffic or you can select multiple rules by selecting **the + icon** and the action to **“Accept”** enable the **“NAT”** and make sure **“Use Outgoing Interface Address is enabled”**



New Policy

Name  internet access

Incoming Interface  port1

Outgoing Interface  port2

Source  all 

Destination  all 

Schedule  always

Service  DNS 
 HTTP 
 HTTPS 


Action  ACCEPT  DENY

Inspection Mode **Flow-based** Proxy-based

Firewall / Network Options

NAT 

IP Pool Configuration **Use Outgoing Interface Address** Us

Select Entries

 Search

 SERVICE (61)

General (5)

-  ALL
-  ALL_ICMP
-  ALL_ICMP6
-  ALL_TCP
-  ALL_UDP

Web Access (2)

-  HTTP
-  HTTPS

File Access (8)

-  AFS3
-  FTP
-  FTP_GET
-  FTP_PUT
-  NFS
-  SAMBA
-  SMB
-  TFTP

Email (6)

-  IMAP

Scroll down to view the logging options to Log and track internet traffic “enable Log Allowed Traffic and select All session”

Logging Options

Log Allowed Traffic ☒ Security Events **All Sessions**

Generate Logs when Session Starts ☒

Capture Packets ☐

Comments 0/1023

Enable this policy ☒

OK Cancel

After saving it you can check your saved policy is going back to a firewall policy

+ Create New Edit Delete Policy Lookup Search Interface Pair View By Sequence									
Name	Source	Destination	Schedule	Service	Action	NAT	Security Profiles	Log	
port1 → port2									
internet-traffic	all	all	always	ALL	ACCEPT	Enabled	SSL no-inspection	All	
Implicit									
Implicit Deny	all	all	always	ALL	DENY			Enabled	

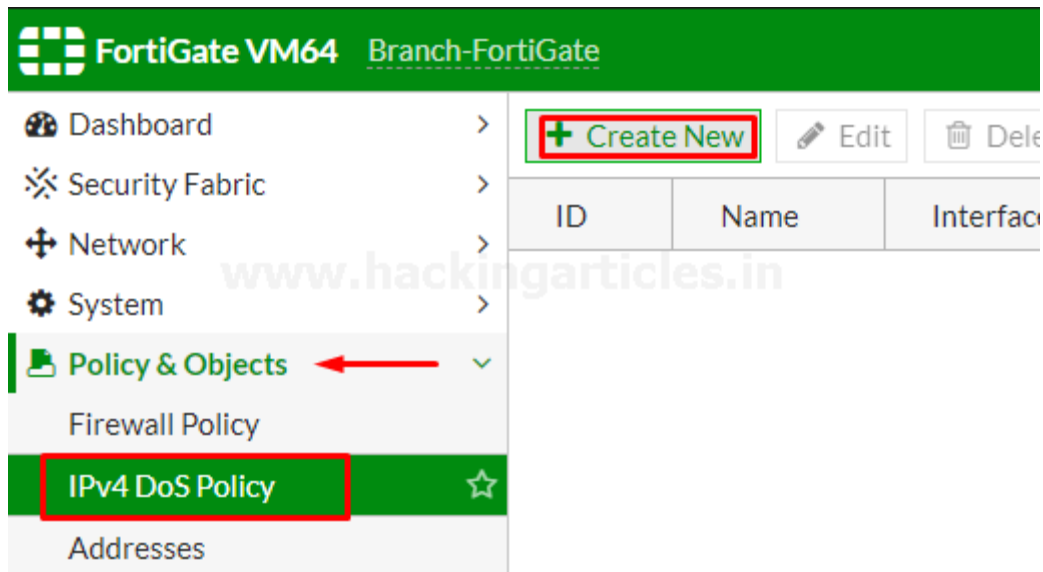
As you can see the policy successfully enabled.

Create an IPv4 Dos Policy

Dos policy is a traffic anomaly detection feature to identify network traffic that does not fit known or common traffic patterns. Dos policies are used to apply Dos anomaly checks to network traffic based on the FortiGate interface. A common example of anomalous traffic is the Dos (Denial of Service) Attack. A denial of service occurs when an attacking system starts an abnormally large number of sessions with the target system and resultant a large number of sessions slow down or disables the target system.

To configure IPV4 policy

- Go to Policy & Objects > IPv4 Dos Policy
- To create a new policy, select the Create New icon in the top left side of the right window.



Set the incoming interface parameter by using drop-down menu to select a single interface.

Set the Source Address, Destination Address, and Service to “ALL”. Single or multiple options can be selected as per your requirement.

Set the parameters for various type of Traffic Anomalies.

The breakup of traffic anomalies table is divided into 2 parts.

- L3 Anomalies
- L4 Anomalies

Here is the list of Anomaly profile that includes:

L3 Anomalies

- Ip_src_session
- Ip_dst_session

New Policy

Name ⓘ

Dos-protection-policy

Incoming Interface

port1

Source Address

all

+

Destination Address

all

+

Service

ALL

+

L3 Anomalies

Name	☒ Logging	Action Disable Block Monitor	Threshold
ip_src_session	☒	Disable Block Monitor	5000
ip_dst_session	☒	Disable Block Monitor	5000

L4 Anomalies

- tcp_syn_flood
- tcp_port_scan
- tcp_src_session
- tcp_dst_session
- udp_flood
- udp_scan
- udp_src_session
- udp_dst_session
- icmp_flood
- icmp_sweep
- icmp_src_session
- sctp_flood
- sctp_scan
- sctp_src_session
- sctp_dst_session

Name	Logging	Action			Threshold
		Disable	Block	Monitor	
tcp_syn_flood	☒	Disable	Block	Monitor	2000
tcp_port_scan	☒	Disable	Block	Monitor	1000
tcp_src_session	☐	Disable	Block	Monitor	5000
tcp_dst_session	☐	Disable	Block	Monitor	5000
udp_flood	☒	Disable	Block	Monitor	2000
udp_scan	☒	Disable	Block	Monitor	2000
udp_src_session	☐	Disable	Block	Monitor	5000
udp_dst_session	☐	Disable	Block	Monitor	5000
icmp_flood	☒	Disable	Block	Monitor	250
icmp_sweep	☐	Disable	Block	Monitor	100
icmp_src_session	☐	Disable	Block	Monitor	300
icmp_dst_session	☐	Disable	Block	Monitor	1000

It all your choice whether or not to enable this policy and default is enabled. Here in our case, we have blocked some of the actions with the limited threshold values to check whether these policies working or not.

All Anomalies have the following parameters that can be set on Per Anomaly or Per Column Basis

- Status: – from this menu you can enable or disable the indicated profile.
- Logging: – Enable or Disable tracking and logging of the indicated profile being triggered.
- Action: – choices yours whether to pass or block traffic when it reaches the threshold limit.
- Threshold: – It is the number of anomalous packets detected before triggering the action.

And at last, select the ok button and save the policy.

+ Create New Edit Delete Search					
ID	Name	Interface	Source Address	Destination Address	Service
1	Dos-protection-policy	port1	all	all	ALL

As we can see Dos-protection-Policy is successfully deployed.

Let's check these policies are truly protect the network from Dos attacks or not.

Hmm, exited

Let's do it

Fire up the Attacker Machine kali Linux and run the following command

```
hping -c 15000 -d 120 -S -w 64 -p 80 -flood -rand-source 192.168.200.128
```

where 192.168.200.128 is the management IP of FortiGate

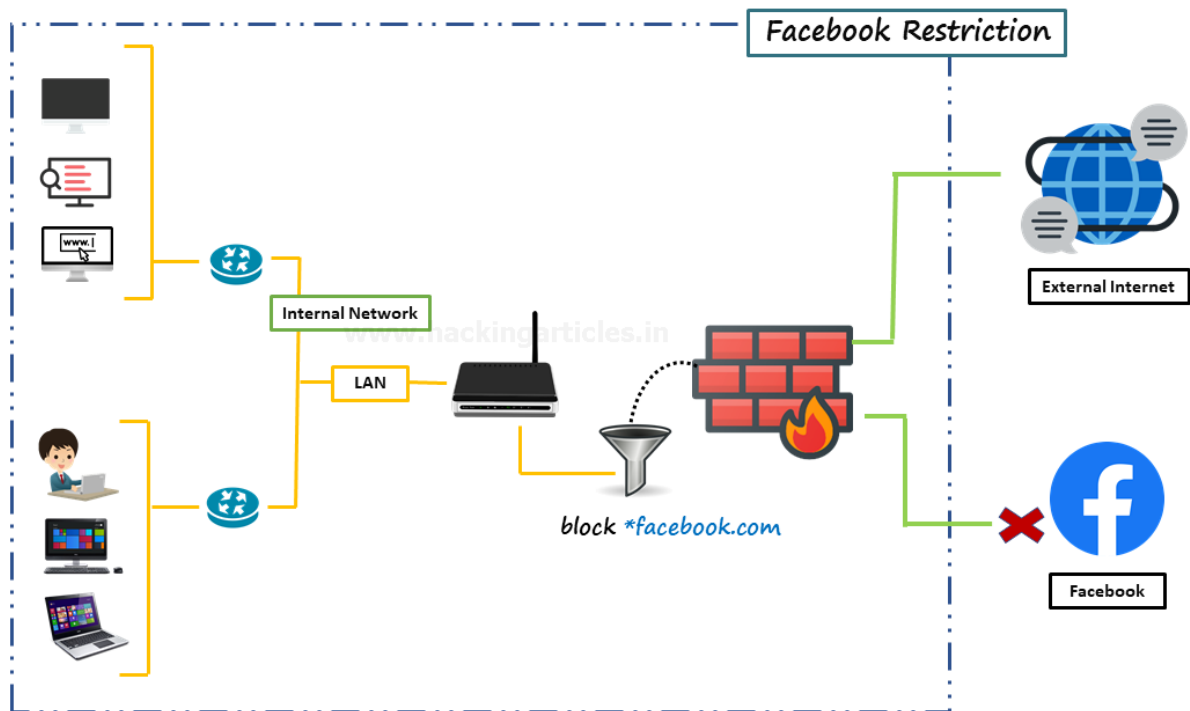
```
(root@kali)~[/home/lucifer]
# hping3 -c 15000 -d 120 -S -w 64 -p 80 --flood --rand-source 192.168.200.128
HPING 192.168.200.128 (eth0 192.168.200.128): S set, 40 headers + 120 data bytes
hping in flood mode, no replies will be shown
^C
--- 192.168.200.128 hping statistic ---
10816342 packets transmitted, 0 packets received, 100% packet loss
round-trip min/avg/max = 0.0/0.0/0.0 ms
(root@kali)~[/home/lucifer]
#
```

As we can see it blocks whole traffic that means it works properly.

Blocking Facebook with Web filter

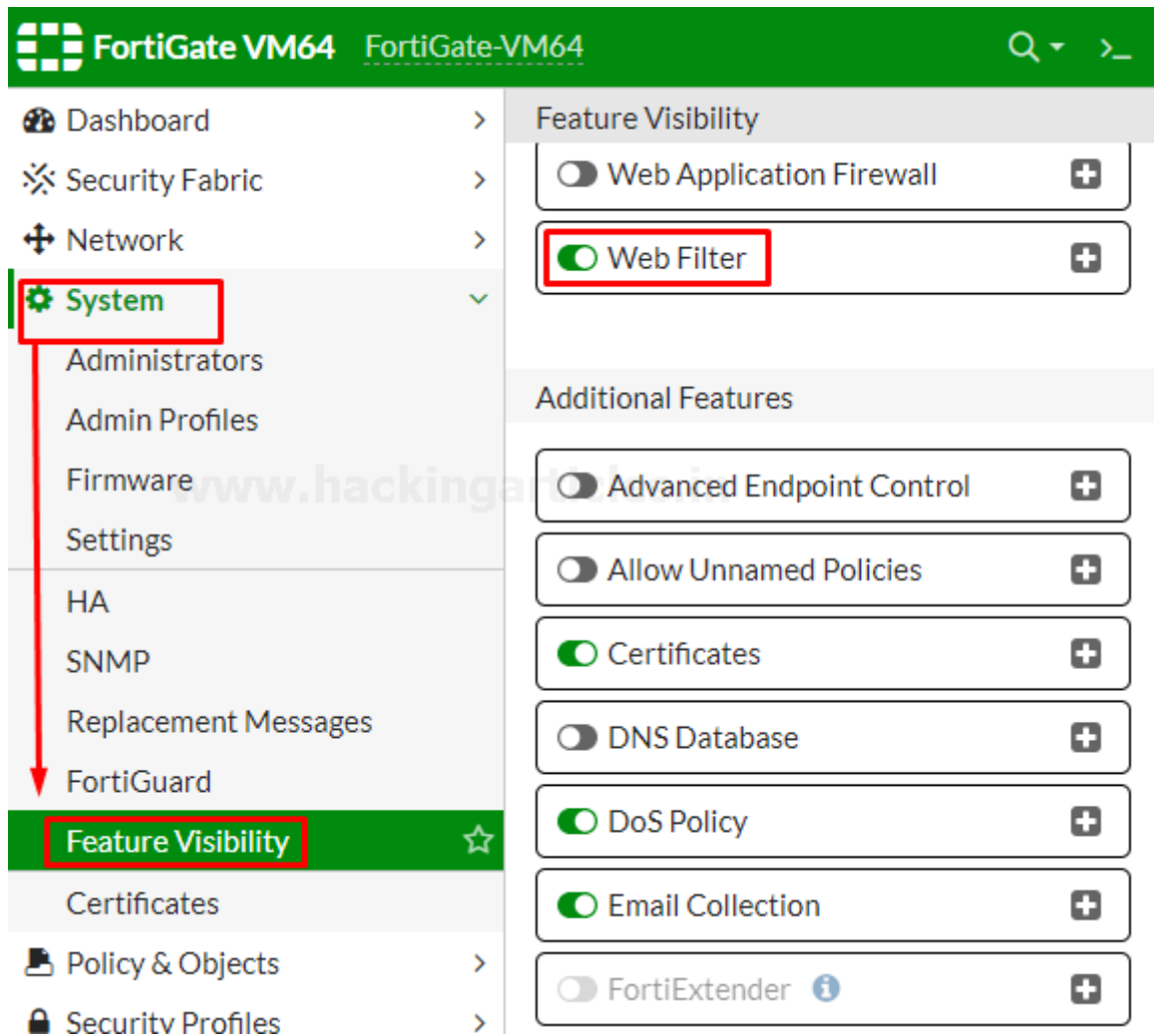
In this part, we are going to explain how to use a static URL filter to block access to Facebook and its subdomain in our network.

With the help of SSL inspection, you can also ensure that Facebook and its subdomains are also blocked whenever it will be accessed through HTTPS.



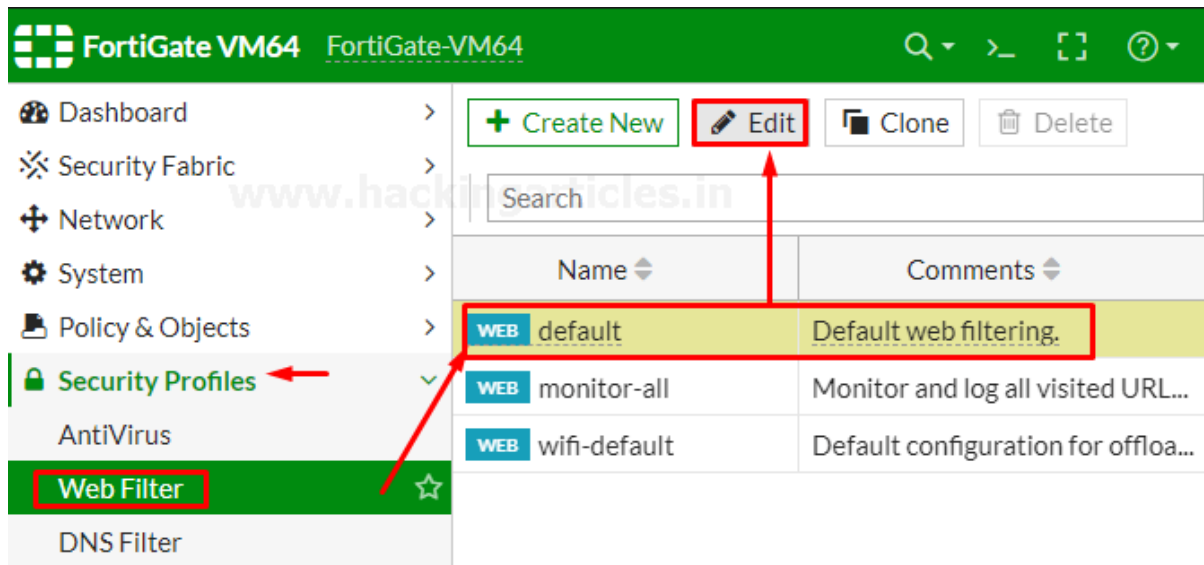
Enable Web filter

Go to **system > feature Visibility** and enable the Web Filter Feature

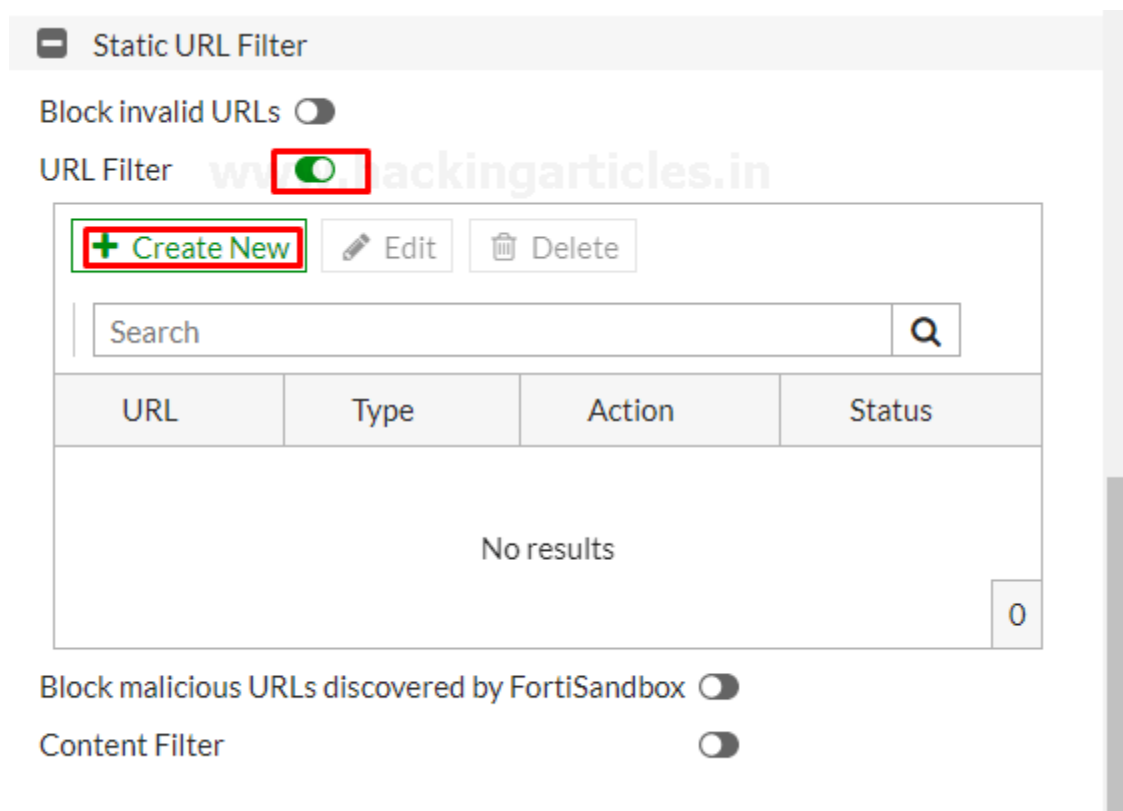


Enable Default Web Filter Profile

Go to **Security profiles > Web filter** and edit the default Web filter profile



Now go to Static URL filter, select the URL filter and then select “create”.



Further then Set **URL** to “facebook.com”, set **Type** to “Wildcard”, set **Action** to “Block” and set **status** to “Enable”.

New URL Filter ✕

URL

Type ☐ Simple ☐ Regular Expression ☒ Wildcard

Action ☐ Exempt ☒ Block ☐ Allow ☐ Monitor

Status ☒ Enable ☐ Disable

save it by selecting OK

URL Filter ☒

URL	Type	Action	Status
*facebook.c...	Wildcard	 Block	 Enable

Block malicious URLs discovered by FortiSandbox ☐

Content Filter ☐

Allow websites when a rating error occurs ☐

Rate URLs by domain and IP Address ☐

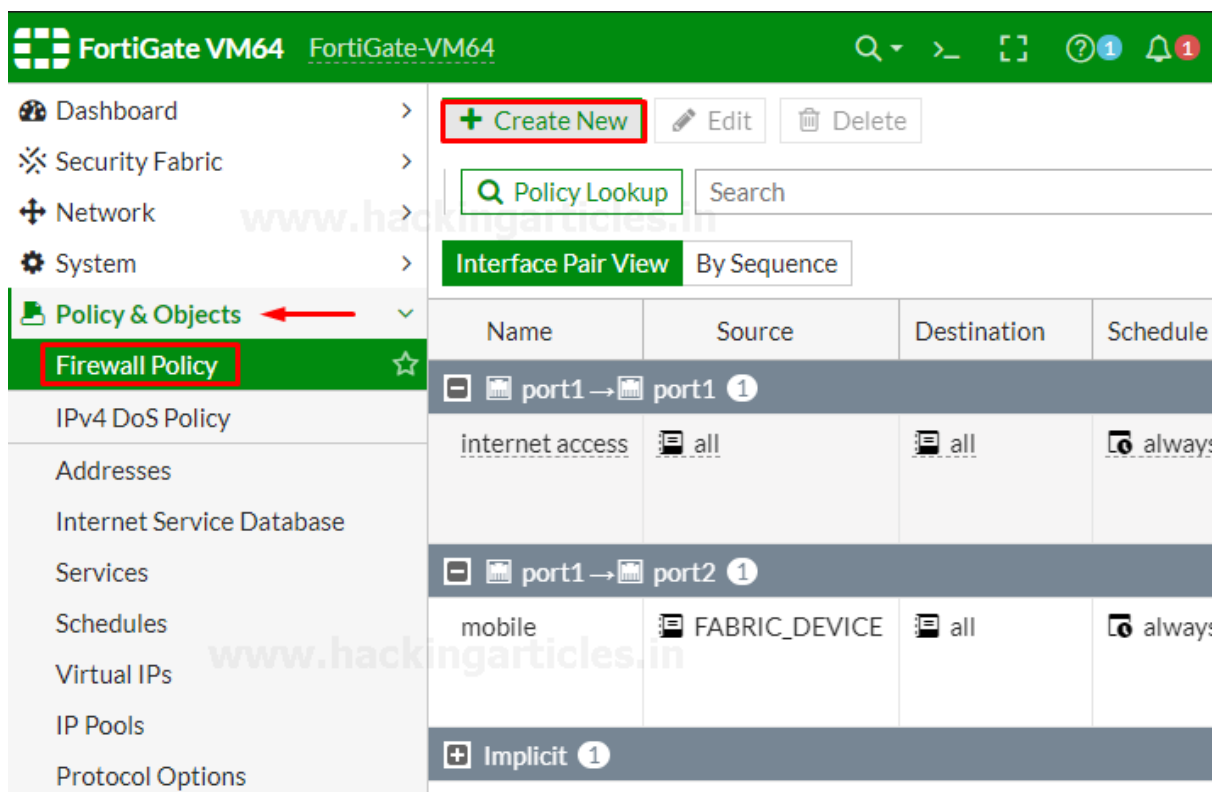
HTTP POST Action

Remove Cookies ☐

Now you have successfully enabled web filter to block Facebook.

Create Web Filter Security Policy

Go to **Policy & Objects > Firewall Policy** and **Create a New policy**.



Give the name to the policy “No-Facebook-Internet-Access” to make it identifiable.

Set **Incoming Interface** to the internal network and set **Outgoing Interface** to the Internet-facing interface. Set the rest to allow “**ALL**” Traffic or you can select multiple rules by selecting the + icon and the action to “**Accept**” enable the “**NAT**” and make sure “**Use Outgoing Interface Address is enabled**”

Under **Security Profiles**, enable “**Web Filter**” and select the default web filter profile.

New Policy

Name ⓘ

No-Facebook-internet-access

Incoming Interface

 port1

Outgoing Interface

 port2

Source

 all

Destination

 all

Schedule

 always

Service

 ALL

Action

 ACCEPT

 DENY

 IPsec

Inspection Mode

Flow-based

Proxy-based

Firewall / Network Options

NAT



IP Pool Configuration

Use Outgoing Interface Address

Use Dynamic IP Pool

Preserve Source Port



Protocol Options

PROT

default

Security Profiles

AntiVirus



Web Filter



WEB

default

OK

Cancel

Now we have successfully deployed the policy that block the user to visit Facebook and its subdomains. But don't forget one important thing this policy won't work until it is on the top of list of deployed policies. Confirm this by viewing policies **"By Sequence"**.

VM64

[+ Create New](#)
[Edit](#)
[Delete](#)
[Policy Lookup](#)

Interface Pair View **By Sequence**

Name	From	To	Source	D...	Schedule	Service	Action	NAT	Secur
internet access	port1	port1	all	all	always	DNS HTTP HTTPS	✓ ACCEPT	✓ Enabled	SSL cert
mobile	port1	port2	FABR...	all	always	DNS HTTP HTTPS	✓ ACCEPT	✓ Enabled	WEB defa SSL cert
No-Facebook-i	port1	port2	all	all	always	ALL	✓ ACCEPT	✓ Enabled	WEB defa SSL cert
Implicit Deny	☐ any	☐ any	all	all	always	ALL	✗ DENY		

To move Policy up or down, select the policy and drag it up or down as per your requirement as shown below

VM64

[+ Create New](#)
[Edit](#)
[Delete](#)
[Policy Lookup](#)

Interface Pair View **By Sequence**

Name	From	To	Source	D...	Schedule	Service	Action	NAT	Sec
No-Facebook-i	port1	port2	all	all	always	ALL	✓ ACCEPT	✓ Enabled	WEB ce SSL ce
internet access	port1	port1	all	all	always	DNS HTTP HTTPS	✓ ACCEPT	✓ Enabled	SSL ce
mobile	port1	port2	FABR...	all	always	DNS HTTP HTTPS	✓ ACCEPT	✓ Enabled	WEB de SSL ce
Implicit Deny	☐ any	☐ any	all	all	always	ALL	✗ DENY		

Now this policy is in effect and successfully enabled.

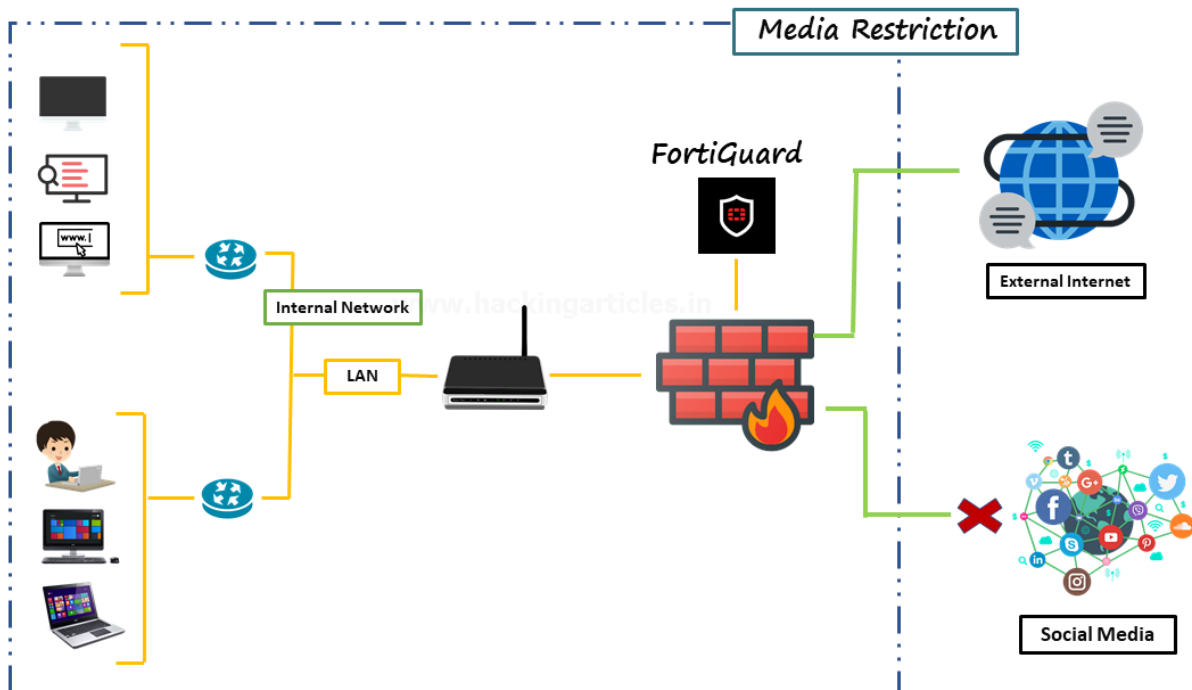
So, in this part, we have covered some basic policies that is much needed to save you network from unauthorized traffic.

Block Whole Social media using FortiGuard categories

In this part, we are going to explain how to block access to social media websites using FortiGuard categories.

Must remind one thing an active license of FortiGuard web filtering service is required for using this type of function.

Web filtration with FortiGuard categories enables you to take action against a group of websites on the other hand a static URL filter is intended to block or monitor specific URL.



Enable web Filter

Go to **system > feature Visibility** and enable the **Web Filter Feature**

Edit Default Web Filter Profile

Go to **Security Profiles > Web Filter** and edit the Default web filter profile and make sure that “**FortiGuard category-based**” filter service is enabled.

Right-click on **General interest** FortiGuard category. scroll down to **Social networking** subcategory and select action to “**Block**” as shown below.

☒ FortiGuard category based filter

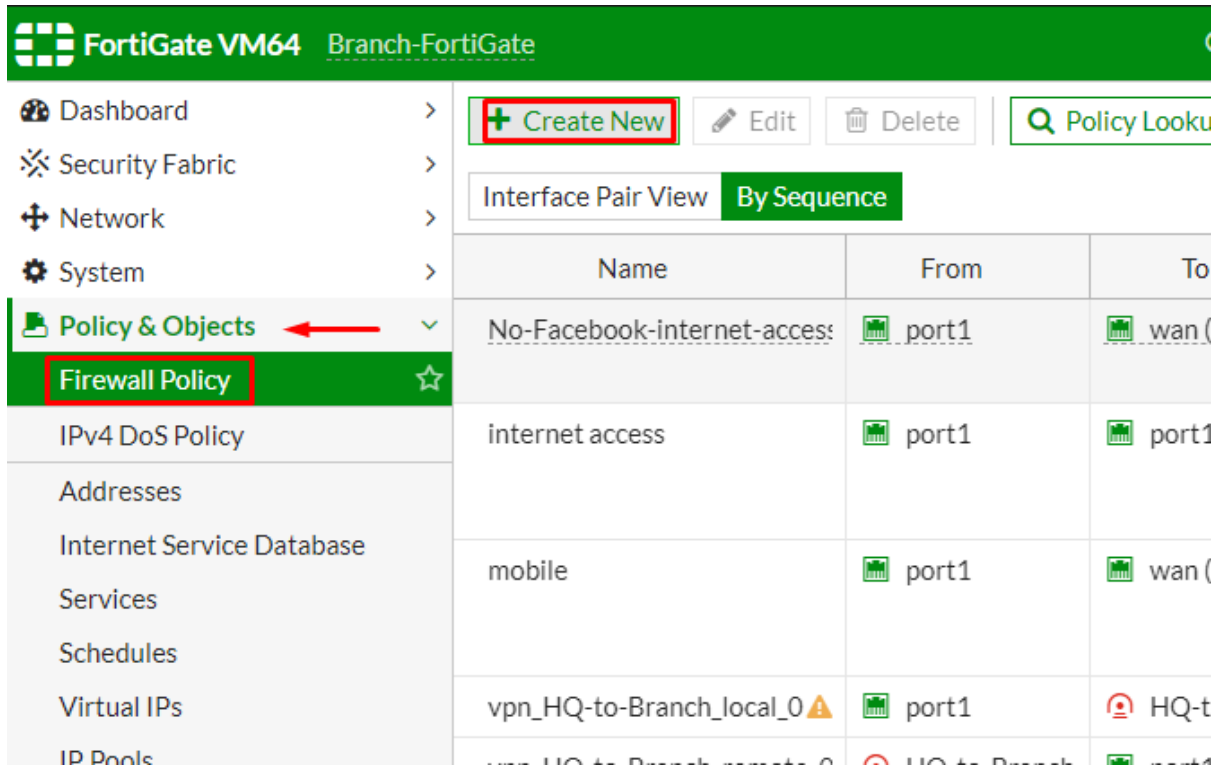
 Warning: This device is not licensed for the FortiGuard web filtering service.

Traffic may be blocked if this option is enabled.

☒ Allow	☐ Monitor	☐ Block	☐ Warning	☐ Authenticate
Name	Action			
Education	☒ Allow			
Health and Wellness	☒ Allow			
Job Search	☒ Allow			
Medicine	☒ Allow			
News and Media	☒ Allow			
Social Networking	☒ Block	☒ Allow ☐ Monitor ☒ Block ☐ Warning ☐ Authenticate		
Political Organizations	☒ Allow			
Reference	☒ Allow			
Global Religion	☒ Allow			

Add Web Filter Profile to Internet Access Policy

Go to Policy & objects > Firewall Policy and create a new policy



Name	From	To
No-Facebook-internet-access	port1	wan (
internet access	port1	port1
mobile	port1	wan (
vpn_HQ-to-Branch_local_0	port1	HQ-t

Give the name to the policy “Blocking-social-media” to make it identifiable. Set incoming interface to internal network and outgoing interface to internet facing interface. Set the rest to allow “**ALL**” Traffic or you can select multiple rules by selecting the + icon and the action to “**Accept**” enable the “**NAT**” and make sure “**Use Outgoing Interface Address is enabled**”.

Scroll down to **Security profiles** enable **Web Filter** and select **default web filter** profile and save the configuration.

New Policy

Name ⓘ

Incoming Interface

Outgoing Interface

Source

Destination

Schedule

Service

Action

Blocking-social-media

port1

wan (port2)

all

all

always

ALL

✓ ACCEPT

✗ DENY

IPsec

Inspection Mode

Flow-based

Proxy-based

Firewall / Network Options

NAT

IP Pool Configuration

Preserve Source Port

Protocol Options

☒

Use Outgoing Interface Address

Use Dynamic IP Poo

☐

PROT default

Security Profiles

AntiVirus

Web Filter

DNS Filter

☐

☒

☐

WEB default

OK

Cancel

Now you have successfully enabled the social media blocking policy to move this policy to Top of the list to make it effective.



+ Create New

Edit

Delete

Policy Lookup

Search

Interface Pair View

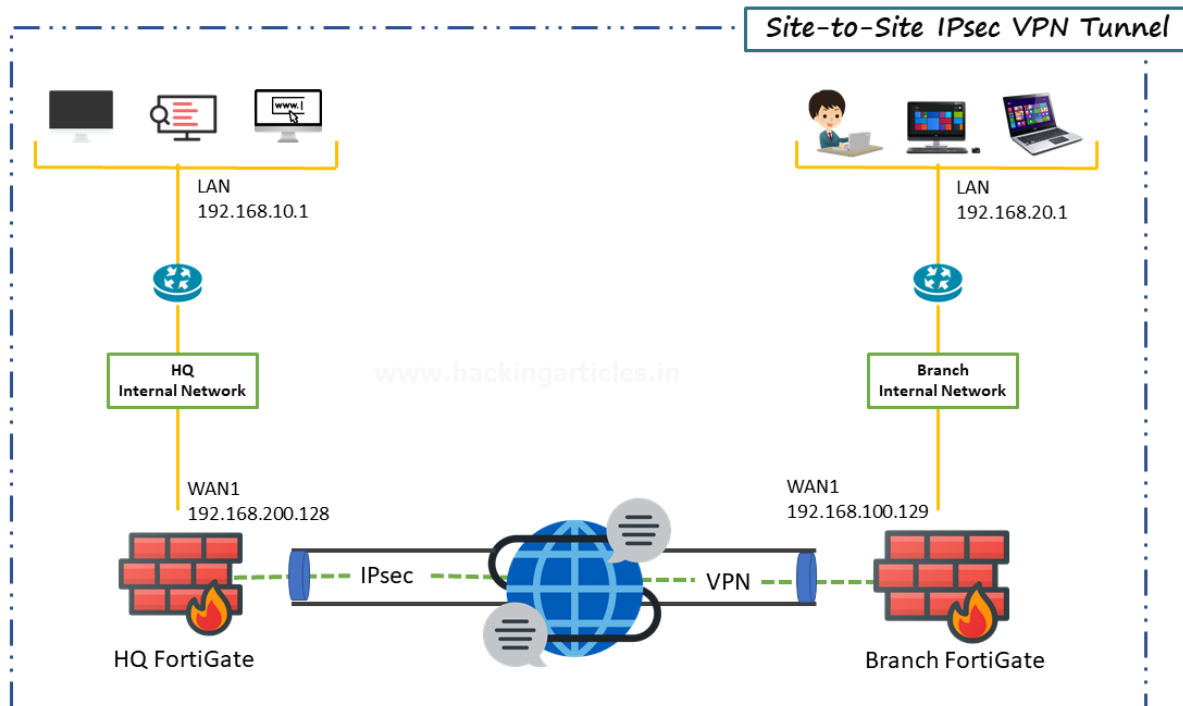
By Sequence

Name	From	To	Source
Blocking-social-media	port1	wan (port2)	all
No-Facebook-internet-acc	port1	wan (port2)	all
internet access	port1	port1	all
mobile	port1	wan (port2)	FABRIC_DEVICE
vpn_HQ-to-Branch_local_0	port1	HQ-to-Branch	HQ-to-Branch_local
vpn_HQ-to-Branch_remote_0	HQ-to-Branch	port1	HQ-to-Branch_remote
vpn_Branch-to-HQ_local_0	wan (port2)	Branch-to-HQ	Branch-to-HQ_local
vpn_Branch-to-HQ_remote_0	Branch-to-HQ	wan (port2)	Branch-to-HQ_remote
Implicit Deny	☐ any	☐ any	all

Site-to-Site IPsec VPN Tunnel with 2 FortiGates

In this part, we are going to configure a site-to-site IPsec VPN tunnel to allow communication between two networks that are situated behind different FortiGates.

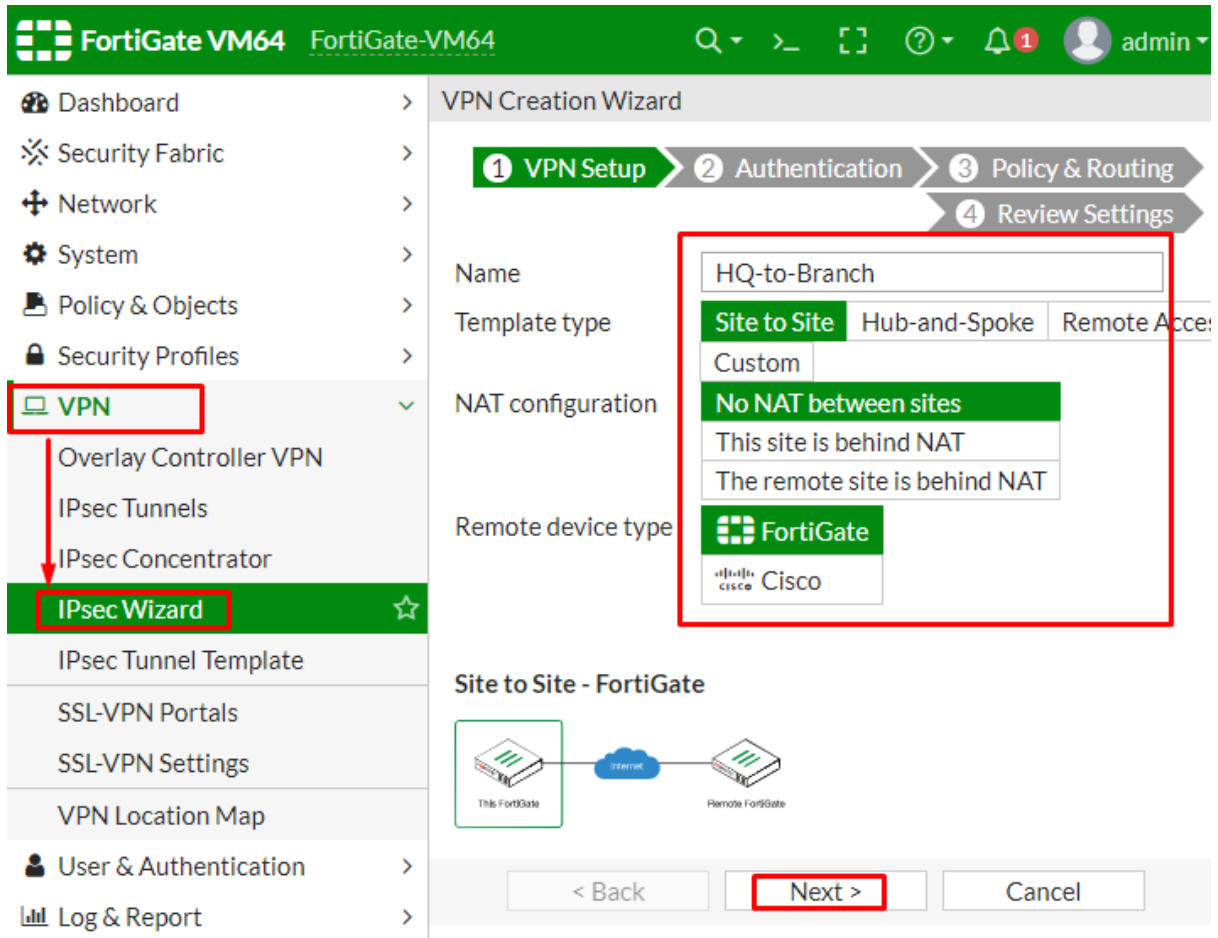
We are going to create an IPsec VPN tunnel between two FortiGates one is called HQ (Headquarter) another is called Branch.



Configure IPsec VPN on HQ

On HQ FortiGate, GO to VPN > IPsec wizard and create a new tunnel.

In the section, VPN setup describe a VPN name to make it identifiable, set Template type to Site-to-Site, set NAT configuration to NO NAT between sites and set Remote Device type to FortiGate.



FortiGate VM64 FortiGate-VM64

VPN Creation Wizard

1 VPN Setup 2 Authentication 3 Policy & Routing 4 Review Settings

Name: HQ-to-Branch

Template type: Site to Site Hub-and-Spoke Remote Access

NAT configuration: No NAT between sites This site is behind NAT The remote site is behind NAT

Remote device type: FortiGate Cisco

Site to Site - FortiGate

This FortiGate Internet Remote FortiGate

< Back Next > Cancel

In the Authentication Section, set IP address to Public IP address of the Branch FortiGate.

After entering the IP address an interface is assigned to the outgoing interface. You can change the interface by the drop-down menu as per your requirement.

Set a secure **Pre-shared** key that is used to connect and verification for both FortiGates.

VPN Creation Wizard

✓ VPN Setup ➔ 2 Authentication ➔ 3 Policy & Routing ➔ 4 Review Settings

Remote device: **IP Address** Dynamic DNS

Remote IP address: 192.168.100.129

Outgoing Interface:  port2

Authentication method: **Pre-shared Key** Signature

Pre-shared key: ●●●●●●●● 

Site to Site - FortiGate



< Back Next > Cancel

In the section of **Policy and Routing** set Local interface to “**LAN**” in my case “**Port1**” is dedicated to the LAN and local subnets will add automatically further then set “**Remote Subnets**” to the Branch network and set internet access to “**None**” as shown below

VPN Creation Wizard

✓ VPN Setup > ✓ Authentication > **3 Policy & Routing** > 4 Review Settings

Local interface: 

Local subnets: 

Remote Subnets: 

Internet Access:  **None** Share Local Use Remote

Site to Site - FortiGate



< Back **Next >** Cancel

Review the configuration summary that you configured that shows the interfaces, firewall addresses, routes, and policies after verifying it select create an icon

VPN Creation Wizard

✓ VPN Setup > ✓ Authentication > ✓ Policy & Routing > **4 Review Settings**

i The following settings should be reviewed prior to creating the VPN.

Object Summary

Phase 1 interface	HQ-to-Branch
Local address group	HQ-to-Branch_local
Remote address group	HQ-to-Branch_remote
Phase 2 interface	HQ-to-Branch
Static route	static
Blackhole route	static
Local to remote policies	vpn_HQ-to-Branch_local
Remote to local policies	vpn_HQ-to-Branch_remote

< Back **Create** Cancel

After creating the VPN, you can verify the details as shown below.

VPN Creation Wizard

✓ VPN Setup > ✓ Authentication > ✓ Policy & Routing > ✓ Review Settings

✓ The VPN has been set up

Object Summary

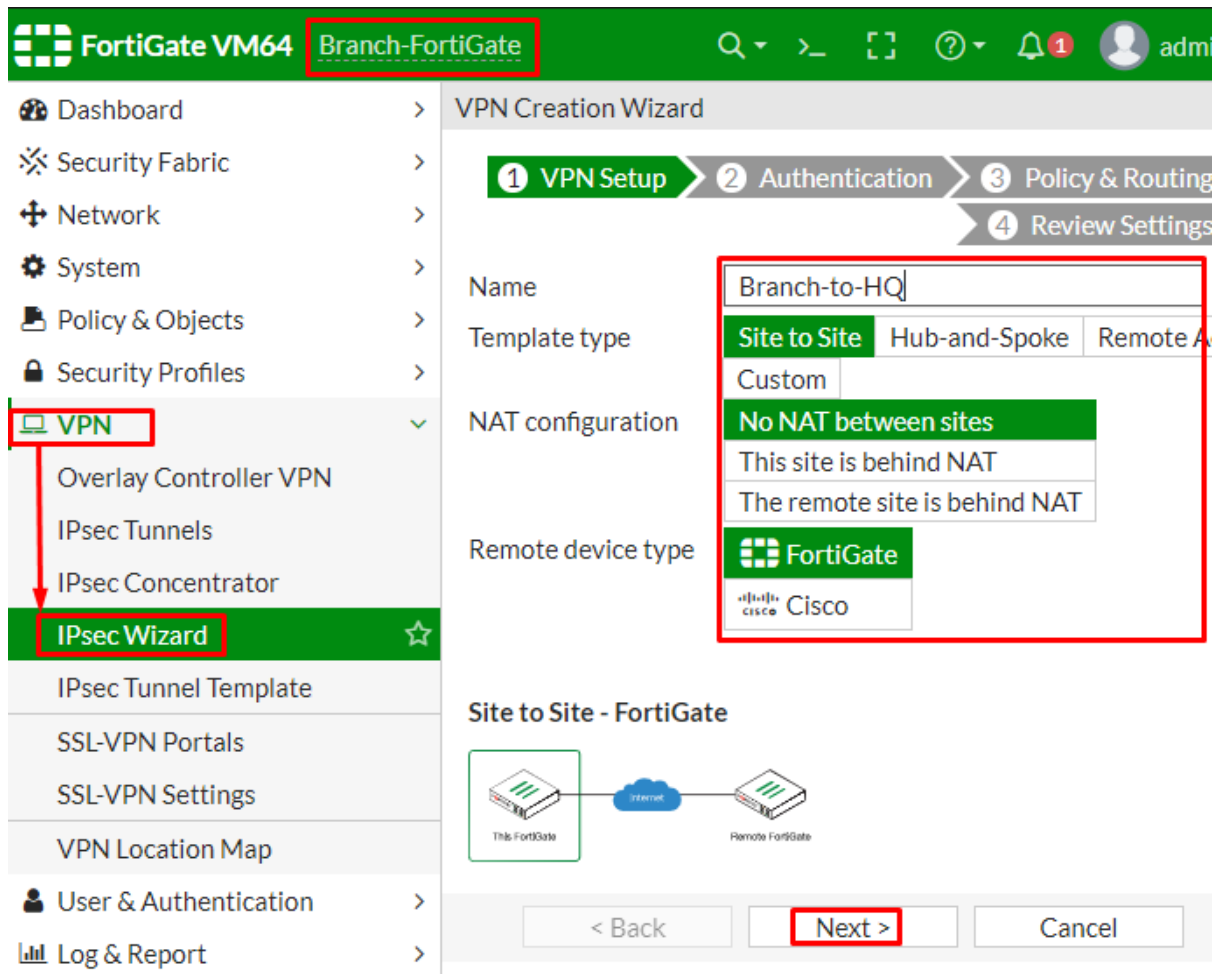
Phase 1 interface	✓ HQ-to-Branch	
Local address group	✓ HQ-to-Branch_local	 Edit
Remote address group	✓ HQ-to-Branch_remote	 Edit
Phase 2 interface	✓ HQ-to-Branch	
Static route	✓ 1	 Edit
Blackhole route	✓ 2	 Edit
Local to remote policies	✓ vpn_HQ-to-Branch_local_0 (4)	
Remote to local policies	✓ vpn_HQ-to-Branch_remote_0 (5)	

Add Another Show Tunnel List

Configure IPsec VPN on a branch

On Branch FortiGate, GO to VPN > IPsec wizard and create a new tunnel.

In the section, VPN setup describes a VPN name to make it identifiable, set Template type to Site-to-Site, set NAT configuration to “NO NAT” between sites and set Remote Device type to FortiGate.



In the Authentication Section, set IP address to Public IP address of the Branch FortiGate.

After entering the IP address an interface is assigned to the outgoing interface. You can change the interface by the drop-down menu as per your requirement.

Set a secure **Pre-shared** key that was used on the VPN of HQ FortiGate.

VPN Creation Wizard

1 VPN Setup 2 Authentication 3 Policy & Routing 4 Review Settings

Remote device

Remote IP address

Outgoing Interface

Authentication method

Pre-shared key

IP Address Dynamic DNS

192.168.200.128

port1

Pre-shared Key Signature

Site to Site - FortiGate

This FortiGate Remote FortiGate

< Back Next > Cancel

In the section of **Policy and Routing** set Local interface to “LAN” in my case “Port2” is dedicated to the LAN and local subnets will add automatically further then set “Remote Subnets” to the HQ (Headquarter) network and set internet access to “None” as shown below

VPN Creation Wizard

✓ VPN Setup > ✓ Authentication > **3 Policy & Routing** > 4 Review Settings

Local interface:

Local subnets:

Remote Subnets:

Internet Access: **None** | Share Local | Use Remote

Site to Site - FortiGate



< Back | **Next >** | Cancel

Review the configuration summary that you configured that shows the interfaces, firewall addresses, routes, and policies after verifying it select create icon

VPN Creation Wizard

✓ VPN Setup

✓ Authentication

✓ Policy & Routing

4 Review Settings

i The following settings should be reviewed prior to creating the VPN.

Object Summary

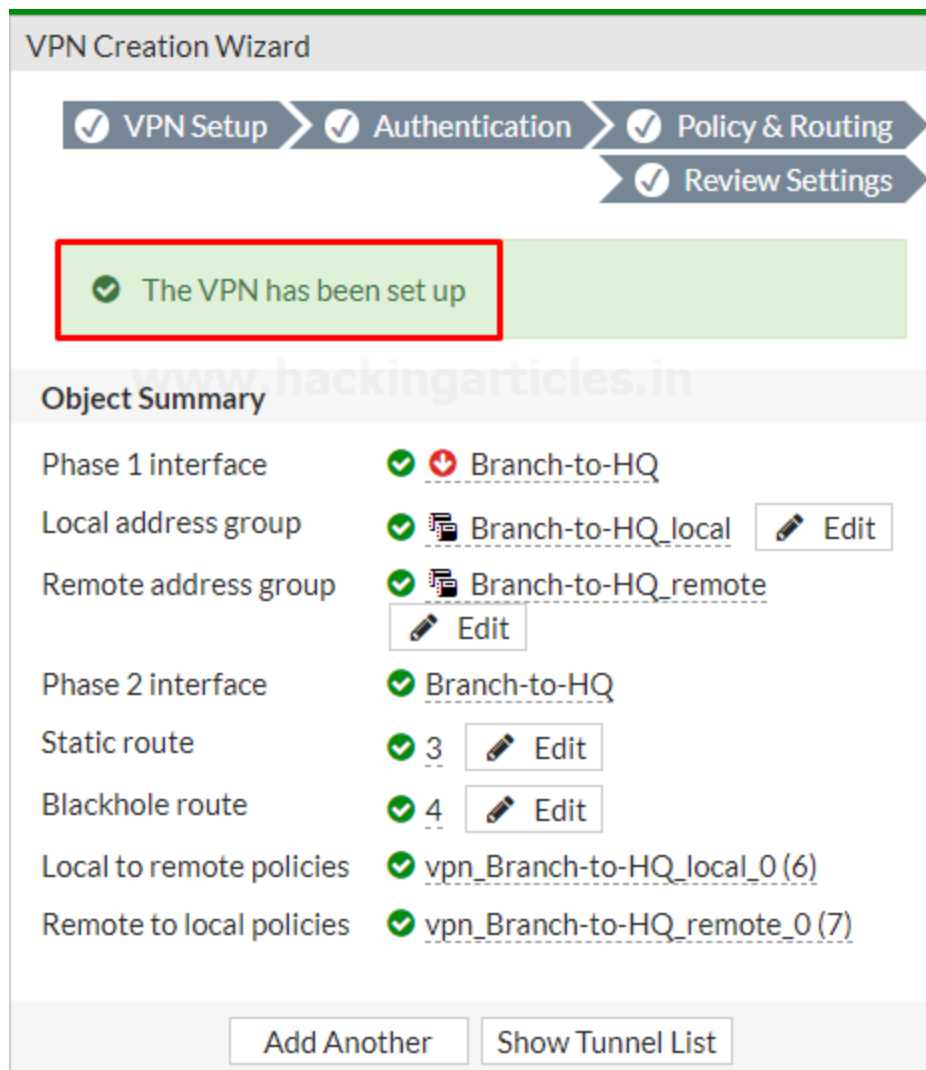
Phase 1 interface	Branch-to-HQ
Local address group	Branch-to-HQ_local
Remote address group	Branch-to-HQ_remote
Phase 2 interface	Branch-to-HQ
Static route	static
Blackhole route	static
Local to remote policies	vpn_Branch-to-HQ_local
Remote to local policies	vpn_Branch-to-HQ_remote

< Back

Create

Cancel

After creating the VPN, you can verify the details as shown below.



You can also verify it by users of the Headquarter (HQ) can access resources on the Branch internal network and so on Vice Versa.

To test the connection, ping HQ LAN interface from the device Branch Internal network.

Or you Can also check the LOG events of VPN by going to Log & Report > Events > VPN Events and where you can see every Single logs of VPN.

FortiGate VM64 Branch-FortiGate

Dashboard Security Fabric Network System Policy & Objects Security Profiles VPN User & Authentication **Log & Report** AntiVirus Web Filter

Forward Traffic Local Traffic Sniffer Traffic **Events**

Date/Ti...	Level	Action	Status	Message	VPN Tunnel
2020/11/2...		negotiate	success	progress IPsec phase 1	HQ-to-Branch
2020/11/2...		negotiate	failure	progress IPsec phase 1	Branch-to-HQ
2020/11/2...		negotiate	negotiat...	IPsec phase 1 error	Branch-to-HQ
2020/11/2...		negotiate	failure	progress IPsec phase 1	Branch-to-HQ
2020/11/2...		negotiate	negotiat...	IPsec phase 1 error	Branch-to-HQ
2020/11/2...		negotiate	failure	progress IPsec phase 1	Branch-to-HQ
2020/11/2...		negotiate	negotiat...	IPsec phase 1 error	Branch-to-HQ
2020/11/2...		negotiate	success	progress IPsec phase 1	Branch-to-HQ
2020/11/2...		negotiate	success	progress IPsec phase 1	Branch-to-HQ
2020/11/2...		negotiate	success	progress IPsec phase 1	Branch-to-HQ
2020/11/2...		negotiate	failure	progress IPsec phase 1	Branch-to-HQ

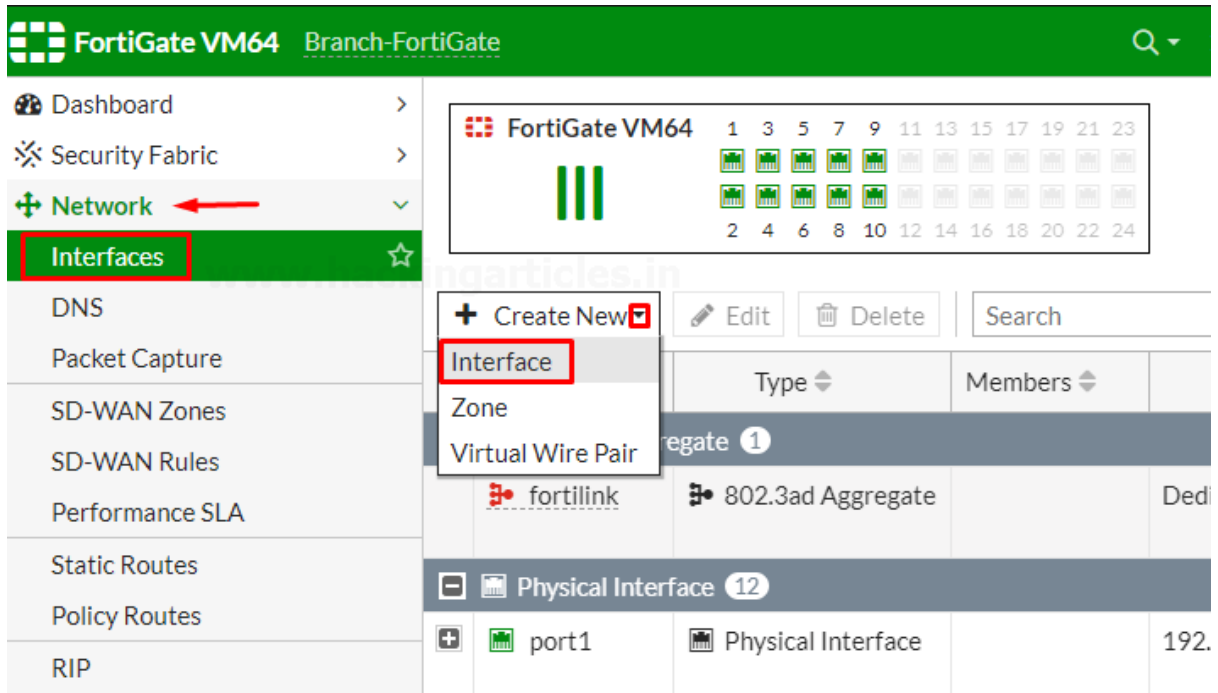
Simplifying Policies with Zone

In this Part, we're Going to Explain how to group multiple interfaces into Zone to simplify Firewall Policies.

By creating multiple VLANs we are going to add them into a zone, so that we can just use the single zone object as a source interface in our firewall policy, rather than having to reference each interface separately.

Create VLAN Interfaces

Go to Network > interfaces and create a new interface



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Dashboard > Security Fabric > **Network** > **Interfaces**

FortiGate VM64

+ Create New Interface Zone Virtual Wire Pair

port1 Physical Interface

Type	Members
Aggregate 1	
802.3ad Aggregate	Dedicated
Physical Interface 12	
port1	Physical Interface

Enter the name for the interface VLAN10 or whatever you want, select the type to VLAN, select Interface to LAN, enter the VLAN ID, enter the VRF Id. assign the Role to LAN, set the Addressing mode to manual, enter the IP/Netmask provided by your ISP and select the Administrative Access to HTTPS, PING

New Interface

Name	VLAN10
Alias	
Type	 VLAN
Interface	 LAN (port4)
VLAN ID	10
VRF ID	10
Role	LAN

Address

Addressing mode	Manual DHCP Auto-managed
IP/Netmask	192.168.10.2/24
Create address object matching subnet	☒
Name	 VLAN10 address
Destination	192.168.10.2/24
Secondary IP address	☐

Administrative Access

IPv4	☒ HTTPS	☒ PING	☐ FMG-Access
	☐ SSH	☐ SNMP	☐ FTM
	☐ RADIUS Accounting	☐ Security Fabric Connection	

Enable the DHCP server and assign the address range further then save the configuration.

☒ DHCP Server

Address range

192.168.10.1-192.168.10.1

×

192.168.10.3-192.168.10.254

×

+

Netmask

255.255.255.0

Default gateway

Same as Interface IP

Specify

DNS server

Same as System DNS

Same as Interface IP

Specify

Lease time ⓘ

☒

604800

second(s)

+

 Advanced

Network

Device detection ⓘ ☒

Security mode ☐

Traffic Shaping

Outbound shaping profile ☐

Miscellaneous

Comments 0/255

Status ☒ Enabled ☐ Disabled

OK

Cancel

Next, create another by making the same selections...

Go to Network > interfaces and create a new interface.

Enter the name for the interface VLAN20 or whatever you want, select the type to VLAN, select Interface to LAN, enter the VLAN ID, enter the VRF Id. assign the Role to LAN, set the Addressing mode to manual, enter the IP/Netmask provided by your ISP and select the Administrative Access to HTTPS, PING

New Interface

Name	VLAN20
Alias	
Type	 VLAN
Interface	 LAN (port4)
VLAN ID	20
VRF ID	10
Role	LAN

Address

Addressing mode	Manual DHCP Auto-managed
IP/Netmask	192.168.20.1/24
Create address object matching subnet	☒
Name	 VLAN20 address
Destination	192.168.20.1/24
Secondary IP address	☐

Administrative Access

IPv4	☒ HTTPS	☒ PING	☐ FMG-Access
	☐ SSH	☐ SNMP	☐ FTM

Enable the DHCP server and assign the address range further then save the configuration.

☒ DHCP Server

Address range

192.168.20.2-192.168.20.254

Netmask

255.255.255.0

Default gateway

Same as Interface IP

Specify

DNS server

Same as System DNS

Same as Interface IP

Specify

Lease time

604800

second(s)

Advanced

Network

Device detection

☒

Security mode

☐

Traffic Shaping

Outbound shaping profile

☐

Miscellaneous

Comments

0/255

Status

Enabled

Disabled

OK

Cancel

Finally, **create a 3rd VLAN** by making the same selection

Go to Network > interfaces and create a new interface.

Enter the name for the interface VLAN30 or whatever you want, select the type to VLAN, select Interface to LAN, enter the VLAN ID, enter the VRF Id. assign the Role to LAN, set the Addressing mode to manual, enter the IP/Netmask provided by your ISP and select the Administrative Access to HTTPS, PING

New Interface

Name	VLAN30
Alias	
Type	VLAN
Interface	LAN (port4)
VLAN ID	30
VRF ID	10
Role	LAN

Address

Addressing mode	Manual DHCP Auto-managed
IP/Netmask	192.168.30.1/24
Create address object matching subnet	☒
Name	VLAN30 address
Destination	192.168.30.1/24
Secondary IP address	☐

Administrative Access

IPv4	☒ HTTPS	☒ PING	☐ FMG-Access
	☐ SSH	☐ SNMP	☐ FTM

Enable the DHCP server and assign the address range further then save the configuration.

☒ DHCP Server

Address range

Netmask

Default gateway

DNS server

Lease time  ☒ second(s)

☒ Advanced

Network

Device detection  ☒

Security mode ☐

Traffic Shaping

Outbound shaping profile ☐

Miscellaneous

Comments 0/255

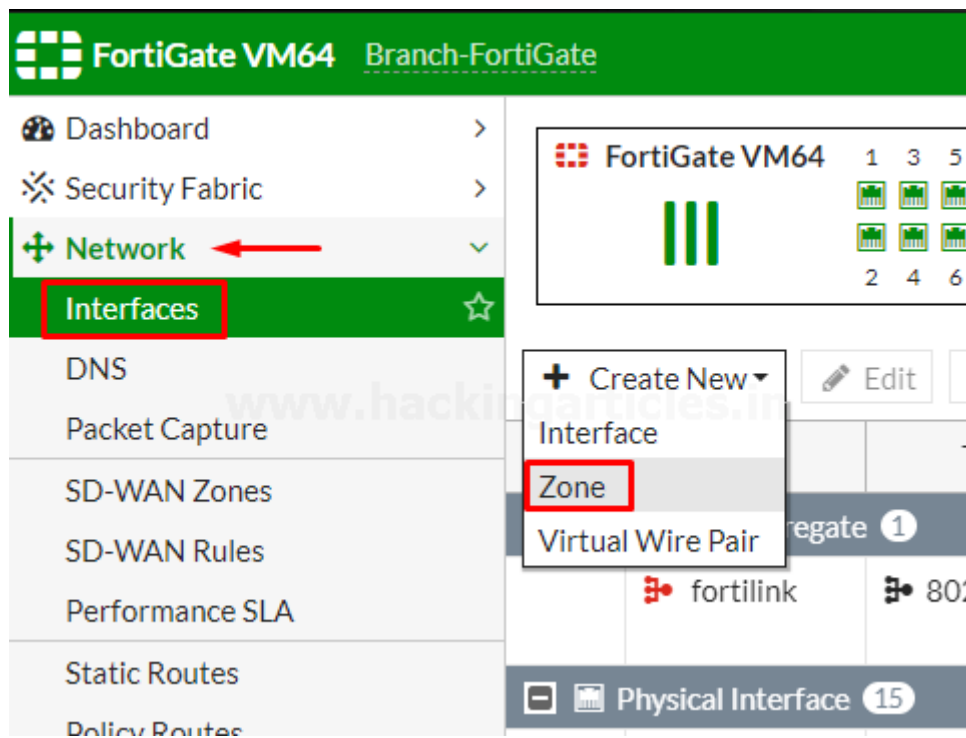
Status

Review the Interface list to see the VLAN's that you have created

802.3ad Aggregate 1					
	fortilink	802.3ad Aggregate	Dedicated to FortiSwitch		PING Security
Physical Interface 15					
	LAN (port4)	Physical Interface	192.168.255.100/255.2...		PING HTTPS SSH SNMP +3
	VLAN10	VLAN	192.168.10.2/255.255.2...		PING HTTPS
	VLAN20	VLAN	192.168.20.1/255.255.2...		PING HTTPS
	VLAN30	VLAN	192.168.30.1/255.255.2...		PING HTTPS

Create an Interface Zone

GO to the **Network > Interfaces** and select **create new Zone**



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- Dashboard
- Security Fabric
- Network**
 - Interfaces**
 - DNS
 - Packet Capture
 - SD-WAN Zones
 - SD-WAN Rules
 - Performance SLA
 - Static Routes
 - Policy Routes

FortiGate VM64 1 3 5
2 4 6

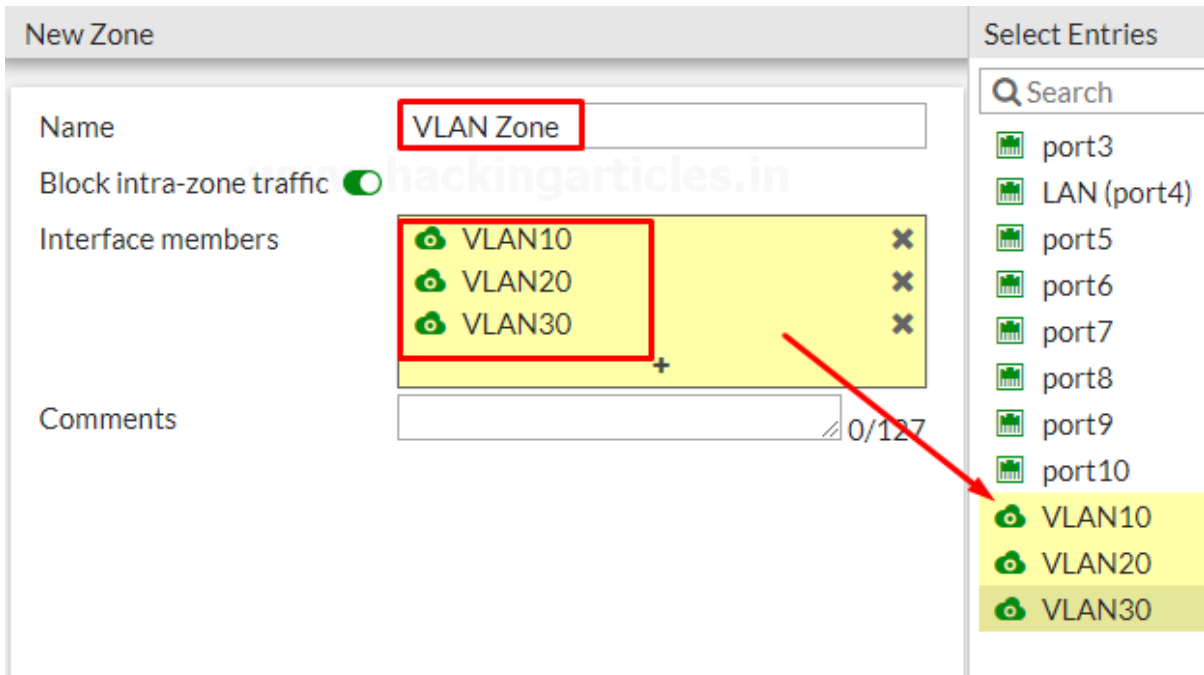
+ Create New
Interface
Zone
Virtual Wire Pair

Aggregate 1

fortilink 802.3ad

Physical Interface 15

Name the zone to “**VLAN Zone**” to make it identifiable and add the newly created VLAN’s to it as shown below.

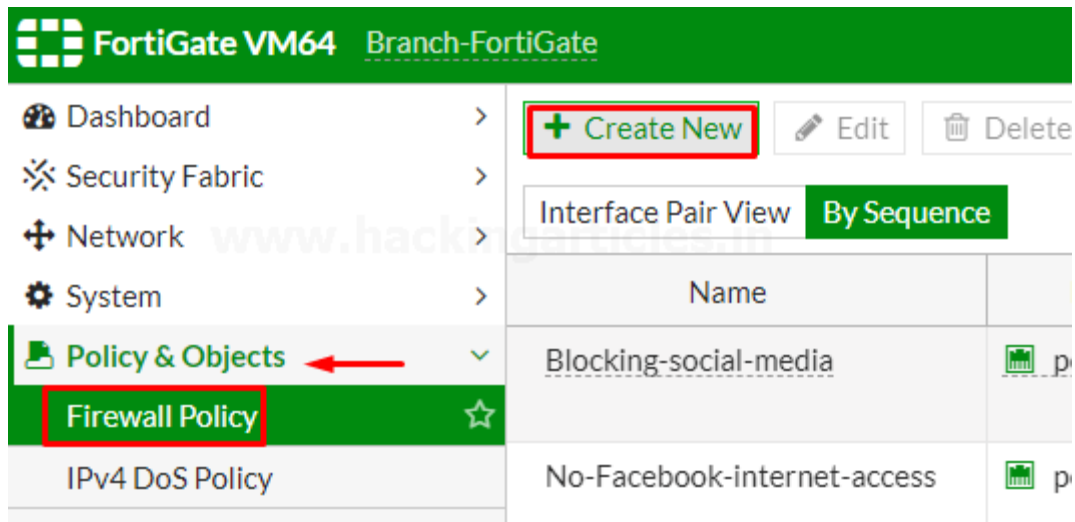


Review the Zone list to see the VLAN’s that you have Added.

Zone 1			
☒	VLAN Zone	☐ Zone	☒ VLAN10 ☒ VLAN20 ☒ VLAN30
			0.0.0.0/0.0.0.0

Create a Zone Firewall Policy

Go to Policy & Objects > Firewall Policy and create a new policy that will allow any VLAN in the Zone that we have created to access the internet.



Assign a name to “VLAN Zone Policy” make it identifiable, set the **Incoming interface to your Zone** and the **outgoing interface to the internet-facing interface**. configure the rest as needed or as per your requirement.

New Policy

Name  VLAN Zone Policy

Incoming Interface  VLAN Zone 

Outgoing Interface  wan (port2) 

Source  all 

Destination  all 

Schedule  always 

Service  ALL 

Action  ACCEPT  DENY  IPsec

Inspection Mode **Flow-based** Proxy-based

Firewall / Network Options

NAT 

IP Pool Configuration **Use Outgoing Interface Address**

Select the Security Profiles as per your requirements and save the configuration by selecting OK.

Security Profiles

AntiVirus	☒	AV default	
Web Filter	☒	WEB default	
DNS Filter	☐		
Application Control	☐		
IPS	☐		
File Filter	☐		
SSL Inspection		SSL certificate-inspection	

Logging Options

Log Allowed Traffic ☒ Security Events All Sessions

Generate Logs when Session Starts ☐

Capture Packets ☐

Comments 0/1023

Enable this policy ☒

OK

Cancel

To make this Policy Effective move this Policy to the TOP of the List as per your environment which policy should be on Top.

Interface Pair View		By Sequence		
Name	From	To	Source	Dest
Blocking-social-media	 port1	 wan (port2)	 all	 all
No-Facebook-internet-access	 port1	 wan (port2)	 all	 all
internet access	 port1	 port1	 all	 all
mobile	 port1	 wan (port2)	 FABRIC_DEVICE	 all
VLAN Zone Policy	☐ VLAN Zone	 wan (port2)	 all	 all
vpn_HQ-to-Branch_local_0 	 port1	 HQ-to-Branch	 HQ-to-Branch_local	 HQ-to
vpn_HQ-to-Branch_remote_0 	 HQ-to-Branch	 port1	 HQ-to-Branch_remote	 HQ-to
vpn_Branch-to-HQ_local_0 	 wan (port2)	 Branch-to-HQ	 Branch-to-HQ_local	 Branch
vpn_Branch-to-HQ_remote_0 	 Branch-to-HQ	 wan (port2)	 Branch-to-HQ_remote	 Branch
Implicit Deny	☐ any	☐ any	 all	 all

Similarly, you can create as much policy as you want.

Conclusion

Hence, one can make use of these commands as a cybersecurity professional to assess vulnerabilities on systems and keep these systems away from threat.

References

- <https://www.hackingarticles.in/firewall-lab-setup-fortigate/>
- <https://www.hackingarticles.in/implementation-of-firewall-policies-fortigate-part-1/>
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