رواد مصر الرقمية

وزارة الاتصــــــالات
وتكنولوجيا المعلومات

Project Title: Fortinet Device Management Using FortiManager

Course:

Fortinet Cyber Security

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INTRODUCTION

This project focuses on building, configuring, and managing a multi-branch Fortinet security infrastructure using **FortiManager** and **FortiGate firewalls** within a simulated GNS3 environment.
The goal of the project is to understand centralized firewall management, policy deployment, troubleshooting connectivity issues, and ensuring proper communication between FortiManager and distributed FortiGate devices.

Throughout this project, we created a complete topology consisting of:

- One FortiManager appliance
- Three FortiGate devices (HQ, Branch 1, Branch 2)
- A cloud network acting as the WAN/Internet
- LAN segments for each branch

We configured addressing, routing, policies, and management settings to enable:

- Device registration on FortiManager
- Policy installation
- Device reachability
- Centralized monitoring and administration

This documentation explains all steps taken across four weeks, problems encountered, troubleshooting methods used, and the final functional setup.

PROJECT OBJECTIVES:

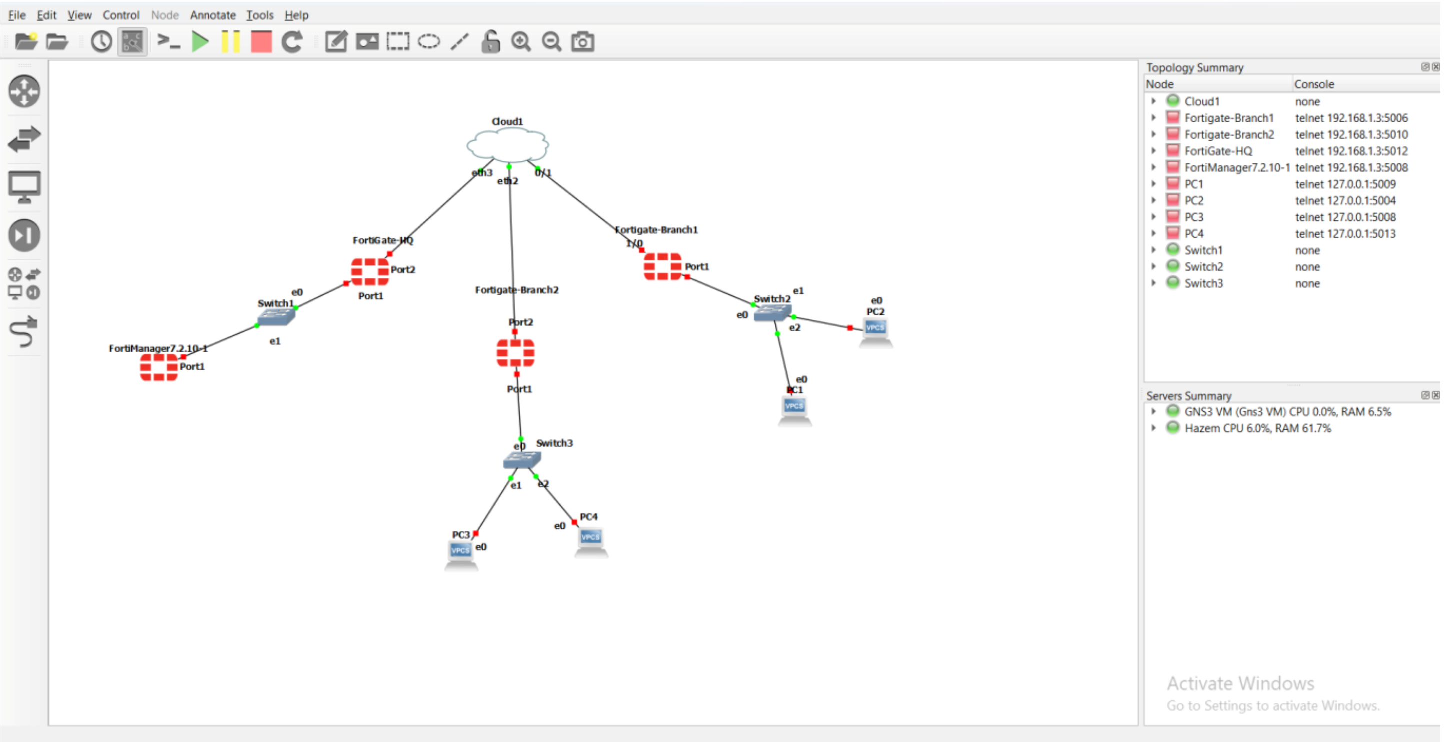
- Build a functional Fortinet environment using GNS3
- Configure FortiManager for centralized device control
- Register and manage multiple FortiGate devices
- Apply and install firewall policies
- Troubleshoot connectivity and version compatibility issues
- Understand FGFM protocol and ADOM versions
- Document all steps, findings, and results

1. OVERVIEW

During Week 1, the main objective was to set up the complete Fortinet environment inside **GNS3**, deploy all virtual devices, configure basic connectivity, and ensure communication between FortiManager and the different FortiGate firewalls.

The work consisted of importing appliance images, building the topology, assigning IP addressing, configuring policies, and preparing the infrastructure for centralized management.

NETWORK TOPOLOGY



Topology Summary

Node	Console
Cloud1	none
Fortigate-Branch1	telnet 192.168.1.3:5006
Fortigate-Branch2	telnet 192.168.1.3:5010
FortiGate-HQ	telnet 192.168.1.3:5012
FortiManager7.2.10-1	telnet 192.168.1.3:5008
PC1	telnet 127.0.0.1:5009
PC2	telnet 127.0.0.1:5004
PC3	telnet 127.0.0.1:5008
PC4	telnet 127.0.0.1:5013
Switch1	none
Switch2	none
Switch3	none

Servers Summary

- GNS3 VM (Gns3 VM) CPU 0.0%, RAM 6.5%
- Hazem CPU 6.0%, RAM 61.7%

Figure 1 — Project Topology in GNS3

Lab Setup in GNS3

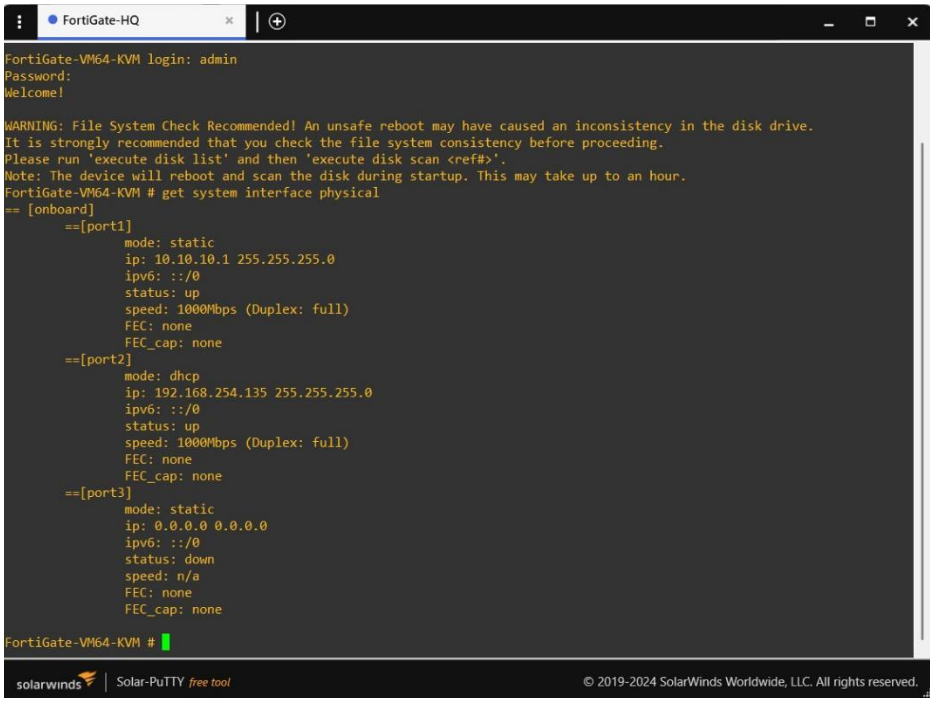
We used **GNS3** to emulate the full network.
The following virtual appliances were added:

- **FortiManager** version **7.2.10**
- **FortiGate HQ** – version **7.0.9**
- **FortiGate Branch 1** – version **7.0.9**
- **FortiGate Branch 2** – version **7.0.9**

4. DEVICE IP CONFIGURATION

FORTIGATE HQ

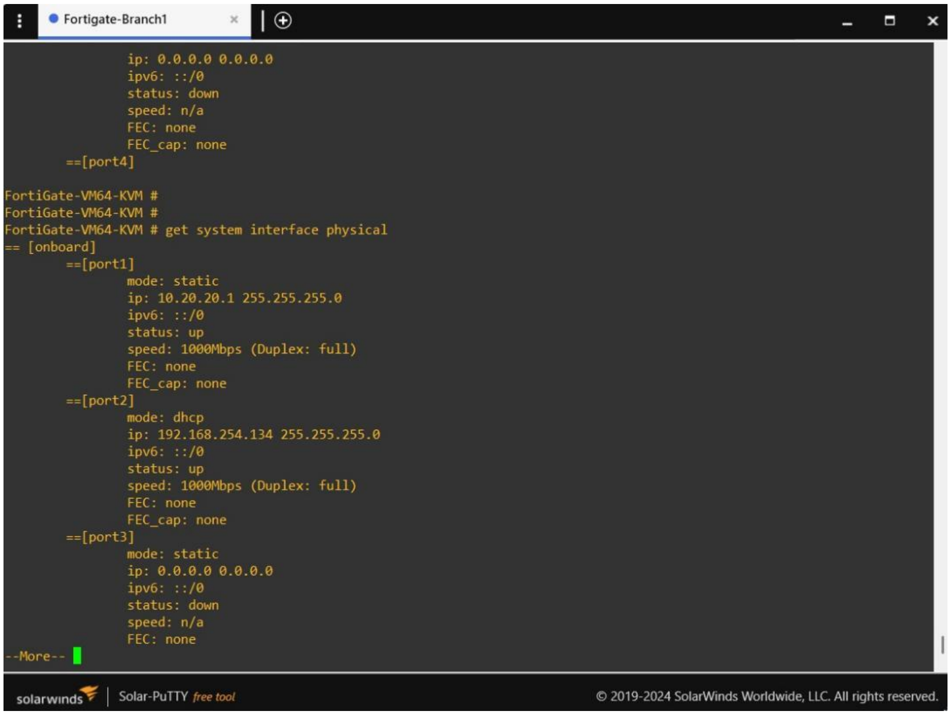
- **WAN (port2):** 192.168.254.135 (DHCP)
- **LAN (port1):** 10.10.10.1



```
FortiGate-VM64-KVM login: admin
Password:
Welcome!

WARNING: File System Check Recommended! An unsafe reboot may have caused an inconsistency in the disk drive.
It is strongly recommended that you check the file system consistency before proceeding.
Please run 'execute disk list' and then 'execute disk scan <ref#>'.
Note: The device will reboot and scan the disk during startup. This may take up to an hour.
FortiGate-VM64-KVM # get system interface physical
== [onboard]
        ==[port1]
                mode: static
                ip: 10.10.10.1 255.255.255.0
                ipv6: ::/0
                status: up
                speed: 1000Mbps (Duplex: full)
                FEC: none
                FEC_cap: none
        ==[port2]
                mode: dhcp
                ip: 192.168.254.135 255.255.255.0
                ipv6: ::/0
                status: up
                speed: 1000Mbps (Duplex: full)
                FEC: none
                FEC_cap: none
        ==[port3]
                mode: static
                ip: 0.0.0.0 0.0.0.0
                ipv6: ::/0
                status: down
                speed: n/a
                FEC: none
                FEC_cap: none

FortiGate-VM64-KVM #
```

FORTIGATE BRANCH 1

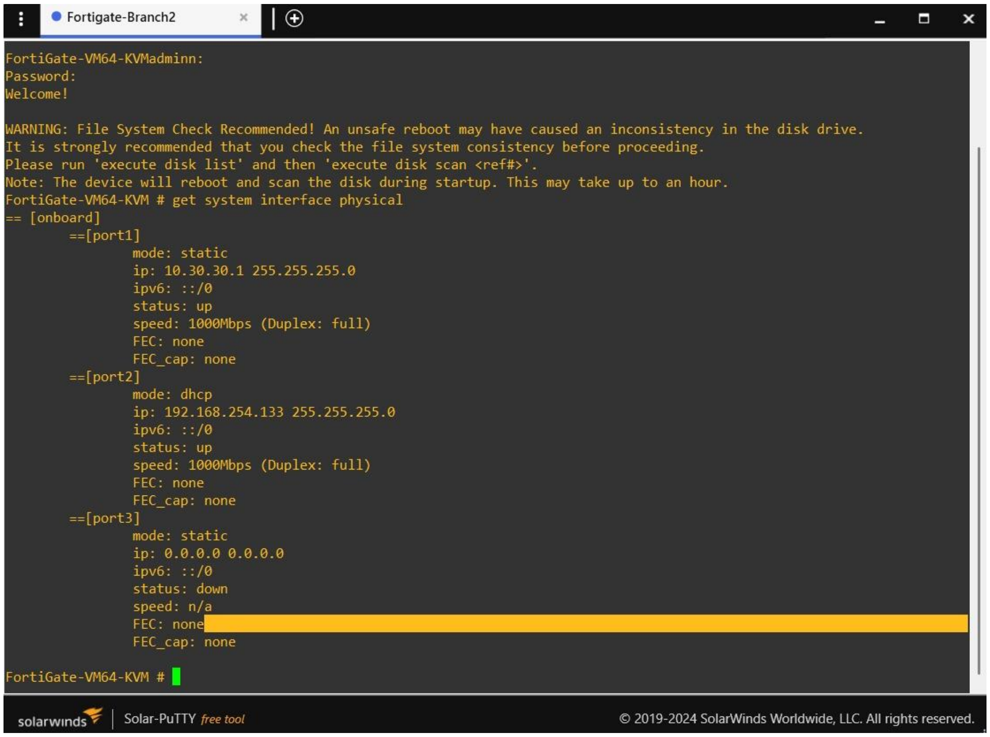
- **WAN (port2):** 192.168.254.133 (DHCP)
- **LAN (port1):** 10.20.20.1



```
                ip: 0.0.0.0 0.0.0.0
                ipv6: ::/0
                status: down
                speed: n/a
                FEC: none
                FEC_cap: none
        ==[port4]

FortiGate-VM64-KVM #
FortiGate-VM64-KVM #
FortiGate-VM64-KVM # get system interface physical
== [onboard]
        ==[port1]
                mode: static
                ip: 10.20.20.1 255.255.255.0
                ipv6: ::/0
                status: up
                speed: 1000Mbps (Duplex: full)
                FEC: none
                FEC_cap: none
        ==[port2]
                mode: dhcp
                ip: 192.168.254.134 255.255.255.0
                ipv6: ::/0
                status: up
                speed: 1000Mbps (Duplex: full)
                FEC: none
                FEC_cap: none
        ==[port3]
                mode: static
                ip: 0.0.0.0 0.0.0.0
                ipv6: ::/0
                status: down
                speed: n/a
                FEC: none
--More--
```

FORTIGATE BRANCH 2

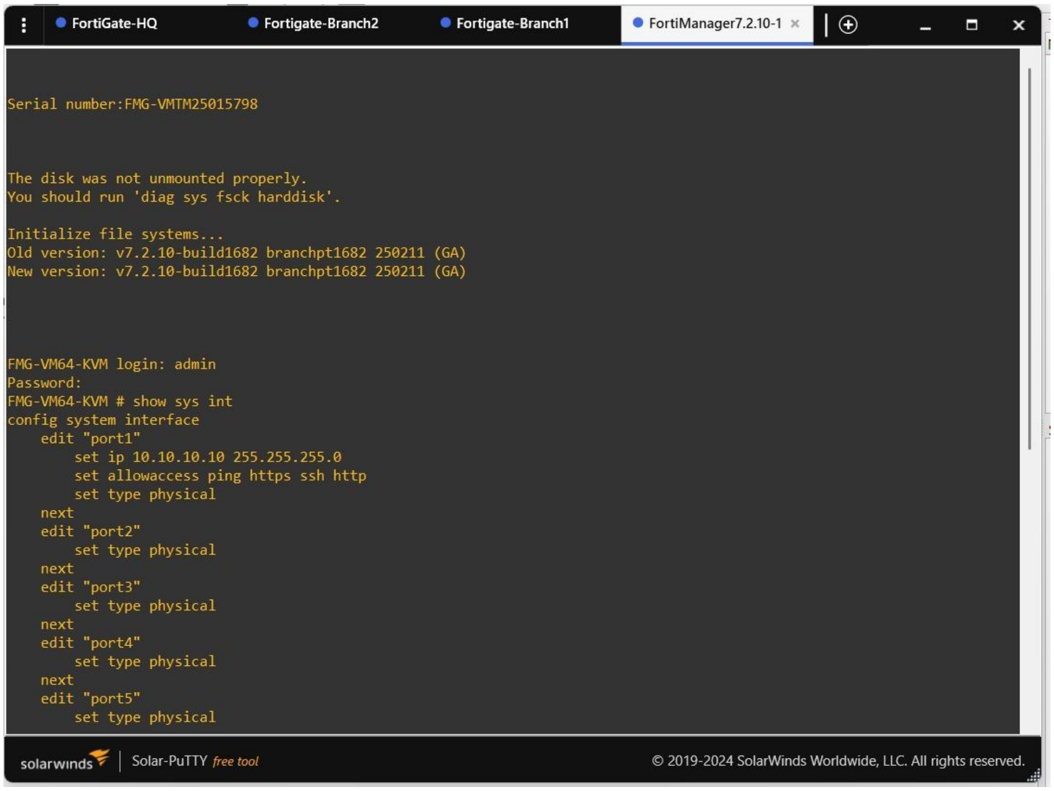
- **WAN (port2):** 192.168.254.134 (DHCP)
- **LAN (port1):** 10.30.30.1



```
FortiGate-VM64-KVMadminn:
Password:
Welcome!

WARNING: File System Check Recommended! An unsafe reboot may have caused an inconsistency in the disk drive.
It is strongly recommended that you check the file system consistency before proceeding.
Please run 'execute disk list' and then 'execute disk scan <ref#>'.
Note: The device will reboot and scan the disk during startup. This may take up to an hour.
FortiGate-VM64-KVM # get system interface physical
== [onboard]
        ==[port1]
                mode: static
                ip: 10.30.30.1 255.255.255.0
                ipv6: ::/0
                status: up
                speed: 1000Mbps (Duplex: full)
                FEC: none
                FEC_cap: none
        ==[port2]
                mode: dhcp
                ip: 192.168.254.133 255.255.255.0
                ipv6: ::/0
                status: up
                speed: 1000Mbps (Duplex: full)
                FEC: none
                FEC_cap: none
        ==[port3]
                mode: static
                ip: 0.0.0.0 0.0.0.0
                ipv6: ::/0
                status: down
                speed: n/a
                FEC: none
                FEC_cap: none

FortiGate-VM64-KVM #
```

FORTIMANAGER

- **port1:** 10.10.10.10



```
Serial number:FMG-VMTM25015798


The disk was not unmounted properly.
You should run 'diag sys fsck harddisk'.

Initialize file systems...
Old version: v7.2.10-build1682 branchpt1682 250211 (GA)
New version: v7.2.10-build1682 branchpt1682 250211 (GA)




FMG-VM64-KVM login: admin
Password:
FMG-VM64-KVM # show sys int
config system interface
    edit "port1"
        set ip 10.10.10.10 255.255.255.0
        set allowaccess ping https ssh http
        set type physical
    next
    edit "port2"
        set type physical
    next
    edit "port3"
        set type physical
    next
    edit "port4"
        set type physical
    next
    edit "port5"
        set type physical
```

FIREWALL POLICIES CONFIGURED

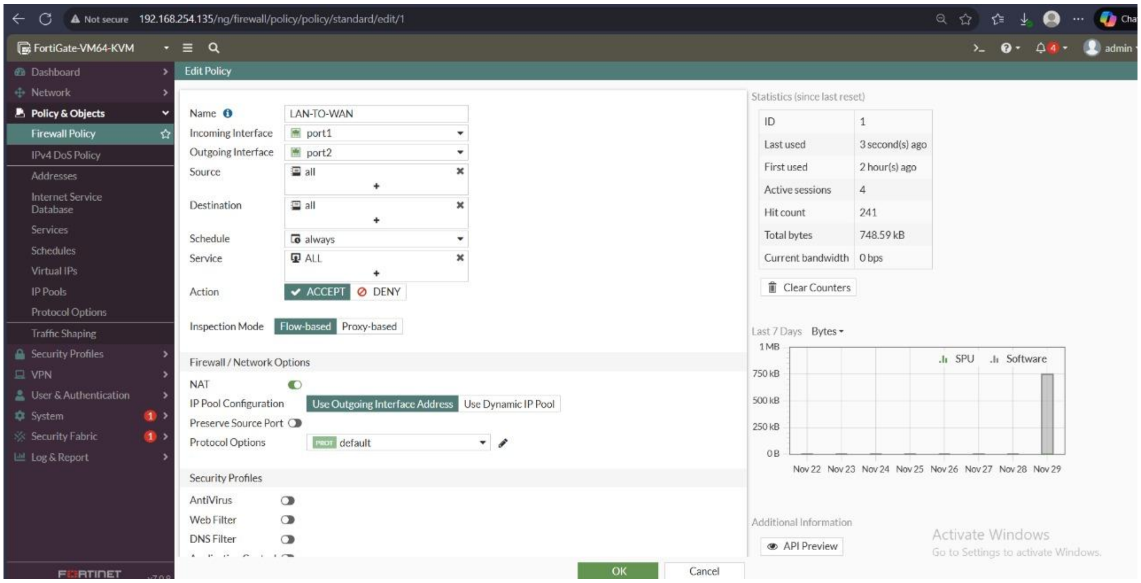
firewall policies were created on each FortiGate device to ensure basic communication between LAN networks, the cloud network, and FortiManager.

Below are the policies **for each device separately**.

5.1 FORTIGATE HQ – FIREWALL POLICIES

POLICY 1 – LAN → WAN

Allows internal HQ users to access the Internet.



Edit Policy

Name: LAN-TO-WAN
Incoming Interface: port1
Outgoing Interface: port2
Source: all
Destination: all
Schedule: always
Service: ALL
Action: ✓ ACCEPT | DENY
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

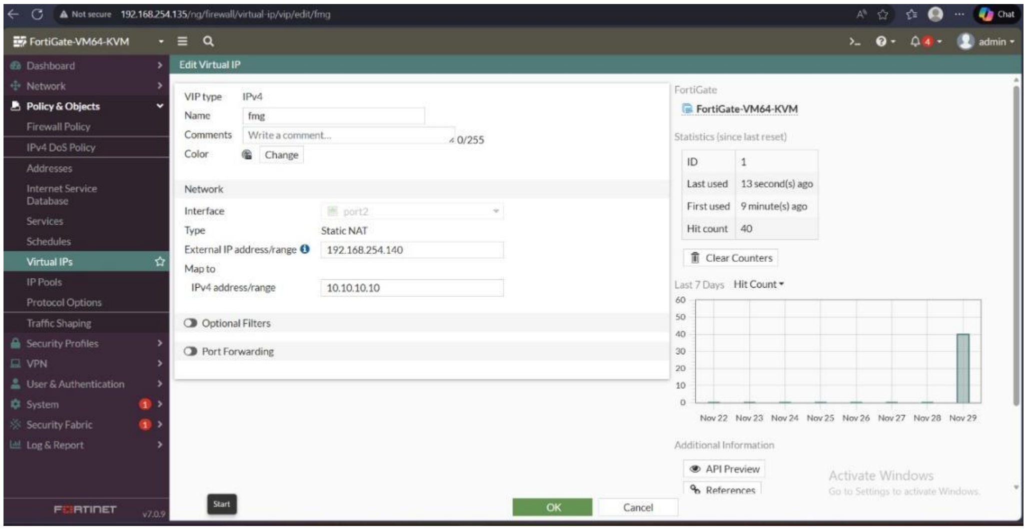
Security Profiles
AntiVirus: ○
Web Filter: ○
DNS Filter: ○

Statistics (since last reset)

ID	1
Last used	3 second(s) ago
First used	2 hour(s) ago
Active sessions	4
Hit count	241
Total bytes	748.59 kB
Current bandwidth	0 bps

VIP FOR FORTIMANAGER ACCESS

To allow access to the FortiManager GUI from the WAN/Cloud network, we created a VIP:



Edit Virtual IP

VIP type: IPv4
Name: fmg
Comments: Write a comment... 0/255
Color: Change

Network
Interface: port2
Type: Static NAT
External IP address/range: 192.168.254.140
Map to
IPv4 address/range: 10.10.10.10

○ Optional Filters
○ Port Forwarding

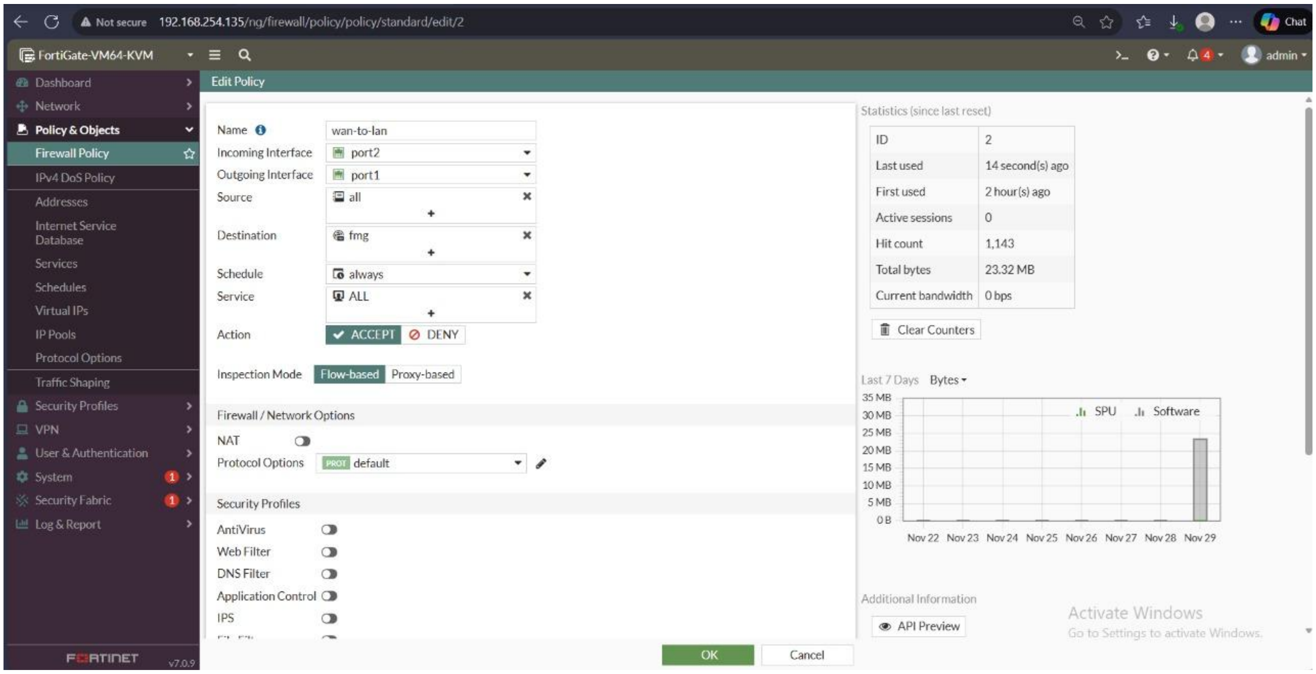
FortiGate
FortiGate-VM64-KVM

Statistics (since last reset)

ID	1
Last used	13 second(s) ago
First used	9 minute(s) ago
Hit count	40

POLICY 2 — WAN → LAN (FOR VIP ACCESS)

PURPOSE: ALLOW FORTIMANAGER MANAGEMENT GUI ACCESS THROUGH VIP.



192.168.254.135/ng/firewall/policy/policy/standard/edit/2

FortiGate-VM64-KVM

Edit Policy

Name: wan-to-lan
Incoming Interface: port2
Outgoing Interface: port1
Source: all
Destination: fmg
Schedule: always
Service: ALL
Action: ✓ ACCEPT | ⊘ DENY
Inspection Mode: Flow-based | Proxy-based

Firewall / Network Options
NAT ○
Protocol Options: PROT default

Security Profiles
AntiVirus ○
Web Filter ○
DNS Filter ○
Application Control ○
IPS ○

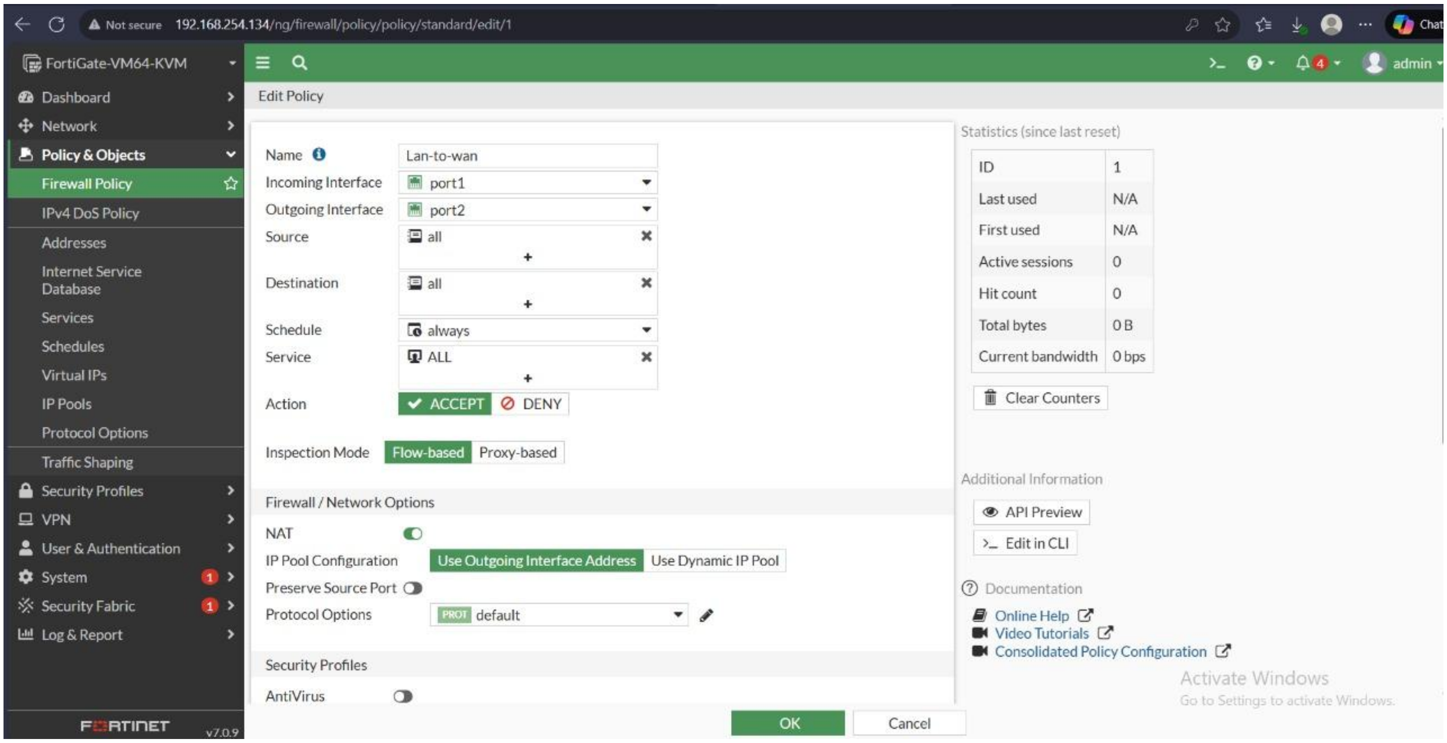
Statistics (since last reset)

ID	2
Last used	14 second(s) ago
First used	2 hour(s) ago
Active sessions	0
Hit count	1,143
Total bytes	23.32 MB
Current bandwidth	0 bps

5.2 FORTIGATE BRANCH 1 – FIREWALL POLICIES

POLICY 1 — LAN → WAN

PURPOSE: ALLOWS BRANCH1 LAN TO ACCESS THE INTERNET.



192.168.254.134/ng/firewall/policy/policy/standard/edit/1

FortiGate-VM64-KVM

Edit Policy

Name: Lan-to-wan
Incoming Interface: port1
Outgoing Interface: port2
Source: all
Destination: all
Schedule: always
Service: ALL
Action: ✓ ACCEPT | ⊘ DENY
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

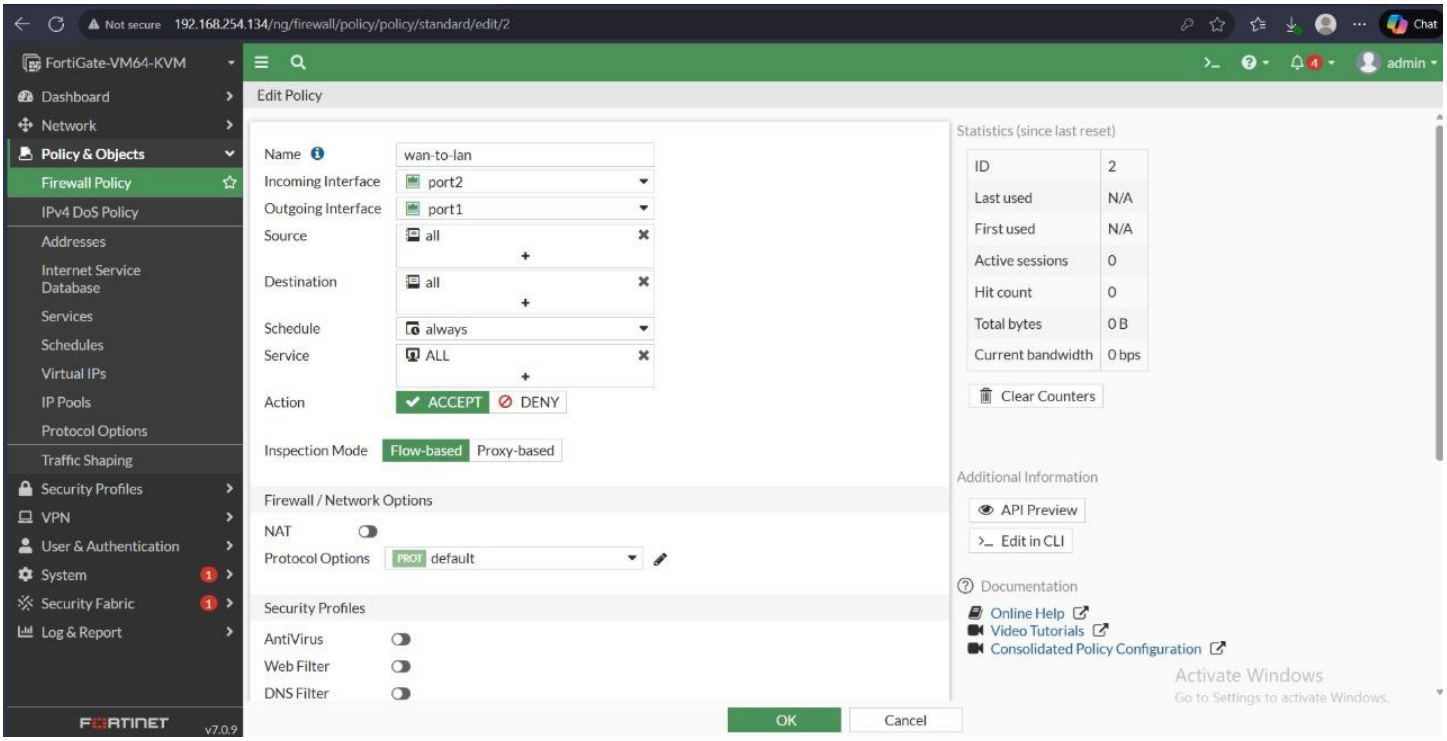
Security Profiles
AntiVirus ○

Statistics (since last reset)

ID	1
Last used	N/A
First used	N/A
Active sessions	0
Hit count	0
Total bytes	0 B
Current bandwidth	0 bps

POLICY 2 — WAN → LAN

PURPOSE: ALLOWS FORTIMANAGER TO REACH BRANCH1/2.



Edit Policy

Name: wan-to-lan
Incoming Interface: port2
Outgoing Interface: port1
Source: all
Destination: all
Schedule: always
Service: ALL
Action: ✓ ACCEPT | DENY
Inspection Mode: Flow-based | Proxy-based

Firewall / Network Options

NAT: ○
Protocol Options: PROT default

Security Profiles

AntiVirus: ○
Web Filter: ○
DNS Filter: ○

Statistics (since last reset)

ID	2
Last used	N/A
First used	N/A
Active sessions	0
Hit count	0
Total bytes	0 B
Current bandwidth	0 bps

Additional Information

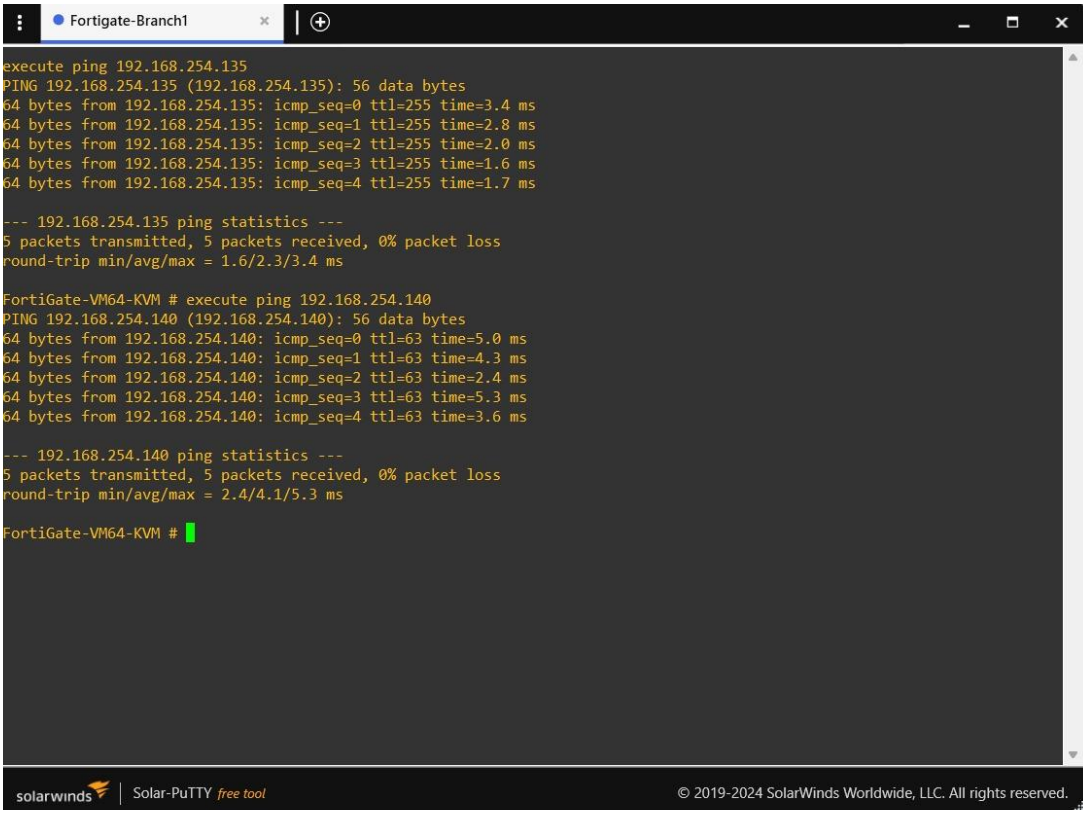
5.3 FORTIGATE BRANCH 2 – FIREWALL POLICIES THE SAME AS BRANCH 1

6 CONNECTIVITY & REACHABILITY VERIFICATION

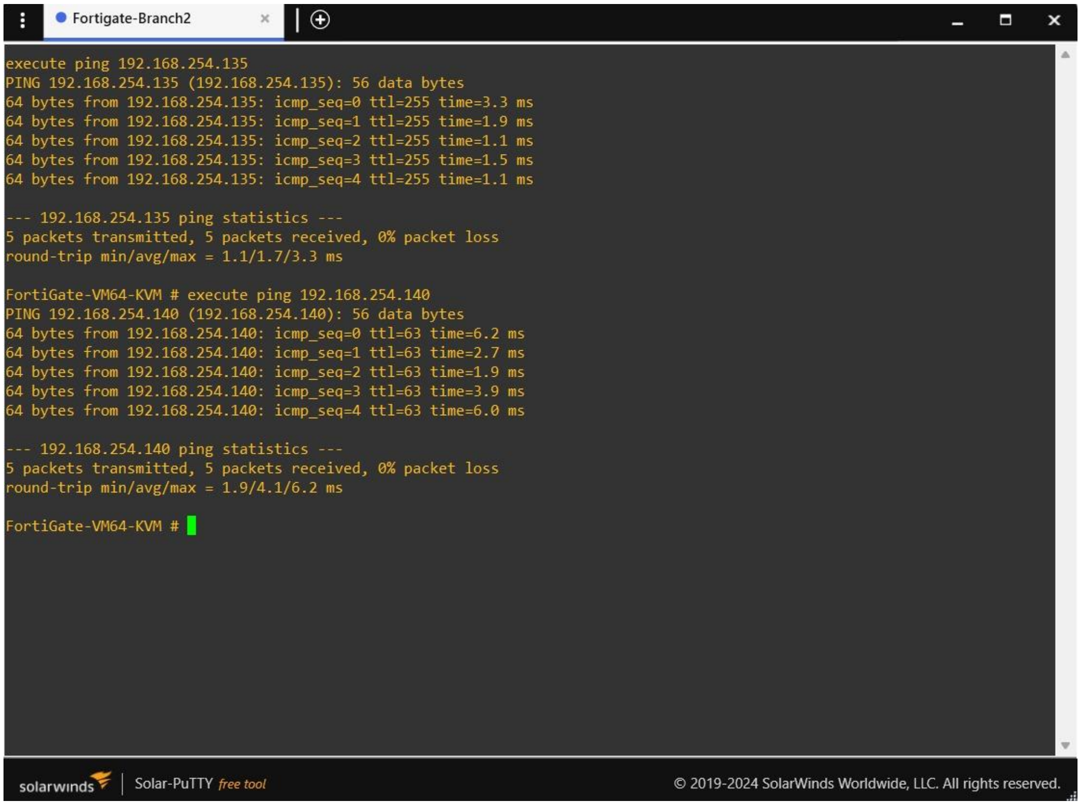
Before connecting the FortiGate devices to FortiManager, we verified the reachability between all sites to ensure that communication works properly.

1. BRANCHES → HQ AND FORTI MANAGER CONNECTIVITY

WE TESTED THAT BRANCH1 AND BRANCH2 CAN REACH THE HQ FIREWALL AND FORTI MANAGER :



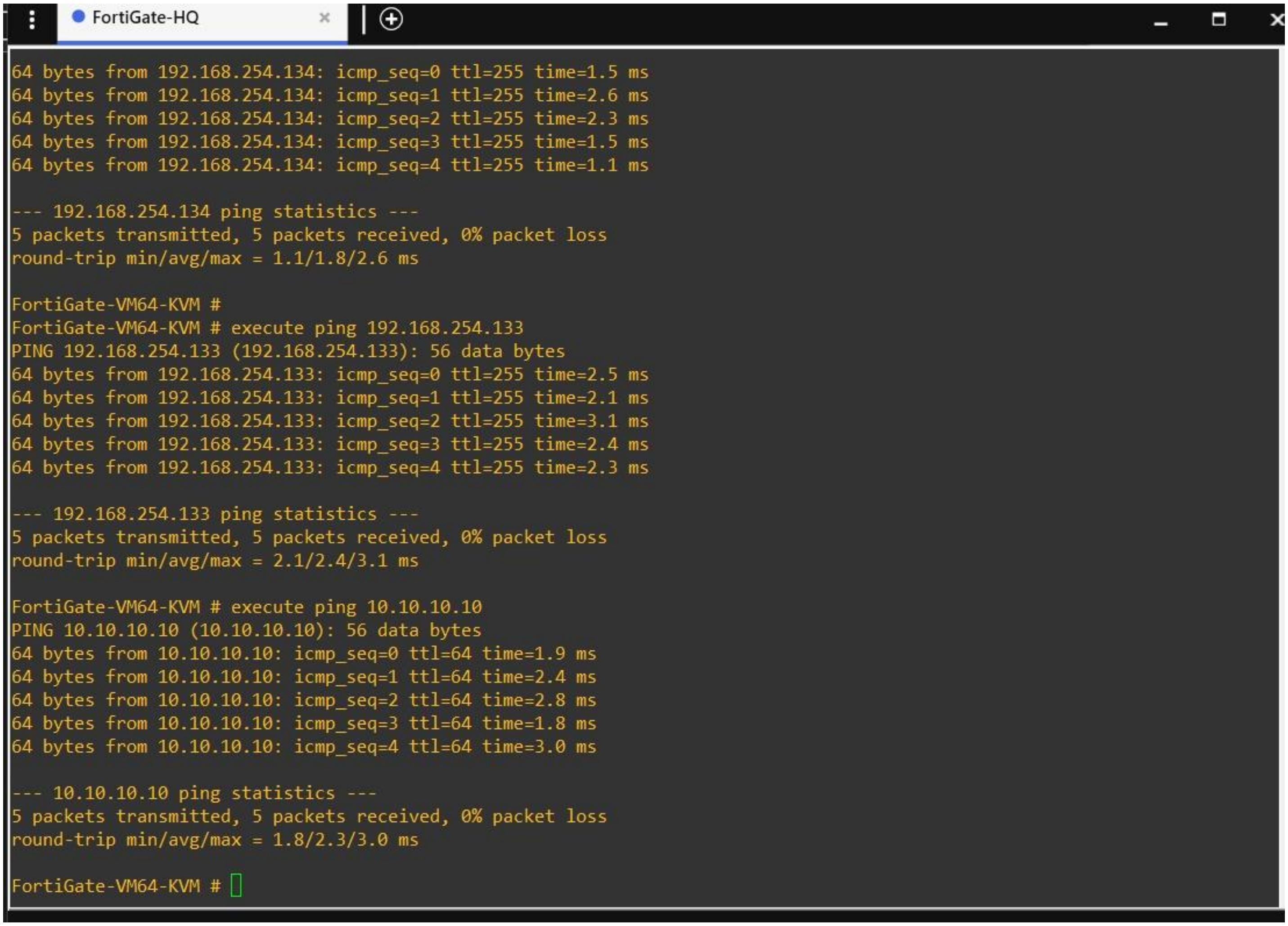
```
execute ping 192.168.254.135
PING 192.168.254.135 (192.168.254.135): 56 data bytes
64 bytes from 192.168.254.135: icmp_seq=0 ttl=255 time=3.4 ms
64 bytes from 192.168.254.135: icmp_seq=1 ttl=255 time=2.8 ms
64 bytes from 192.168.254.135: icmp_seq=2 ttl=255 time=2.0 ms
64 bytes from 192.168.254.135: icmp_seq=3 ttl=255 time=1.6 ms
64 bytes from 192.168.254.135: icmp_seq=4 ttl=255 time=1.7 ms

--- 192.168.254.135 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 1.6/2.3/3.4 ms

FortiGate-VM64-KVM # execute ping 192.168.254.140
PING 192.168.254.140 (192.168.254.140): 56 data bytes
64 bytes from 192.168.254.140: icmp_seq=0 ttl=63 time=5.0 ms
64 bytes from 192.168.254.140: icmp_seq=1 ttl=63 time=4.3 ms
64 bytes from 192.168.254.140: icmp_seq=2 ttl=63 time=2.4 ms
64 bytes from 192.168.254.140: icmp_seq=3 ttl=63 time=5.3 ms
64 bytes from 192.168.254.140: icmp_seq=4 ttl=63 time=3.6 ms

--- 192.168.254.140 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 2.4/4.1/5.3 ms

FortiGate-VM64-KVM #
```



```
execute ping 192.168.254.135
PING 192.168.254.135 (192.168.254.135): 56 data bytes
64 bytes from 192.168.254.135: icmp_seq=0 ttl=255 time=3.3 ms
64 bytes from 192.168.254.135: icmp_seq=1 ttl=255 time=1.9 ms
64 bytes from 192.168.254.135: icmp_seq=2 ttl=255 time=1.1 ms
64 bytes from 192.168.254.135: icmp_seq=3 ttl=255 time=1.5 ms
64 bytes from 192.168.254.135: icmp_seq=4 ttl=255 time=1.1 ms

--- 192.168.254.135 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 1.1/1.7/3.3 ms

FortiGate-VM64-KVM # execute ping 192.168.254.140
PING 192.168.254.140 (192.168.254.140): 56 data bytes
64 bytes from 192.168.254.140: icmp_seq=0 ttl=63 time=6.2 ms
64 bytes from 192.168.254.140: icmp_seq=1 ttl=63 time=2.7 ms
64 bytes from 192.168.254.140: icmp_seq=2 ttl=63 time=1.9 ms
64 bytes from 192.168.254.140: icmp_seq=3 ttl=63 time=3.9 ms
64 bytes from 192.168.254.140: icmp_seq=4 ttl=63 time=6.0 ms

--- 192.168.254.140 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 1.9/4.1/6.2 ms

FortiGate-VM64-KVM #
```

2. HQ → BRANCHES CONNECTIVITY AND FORTIMANAGER REACHABILITY

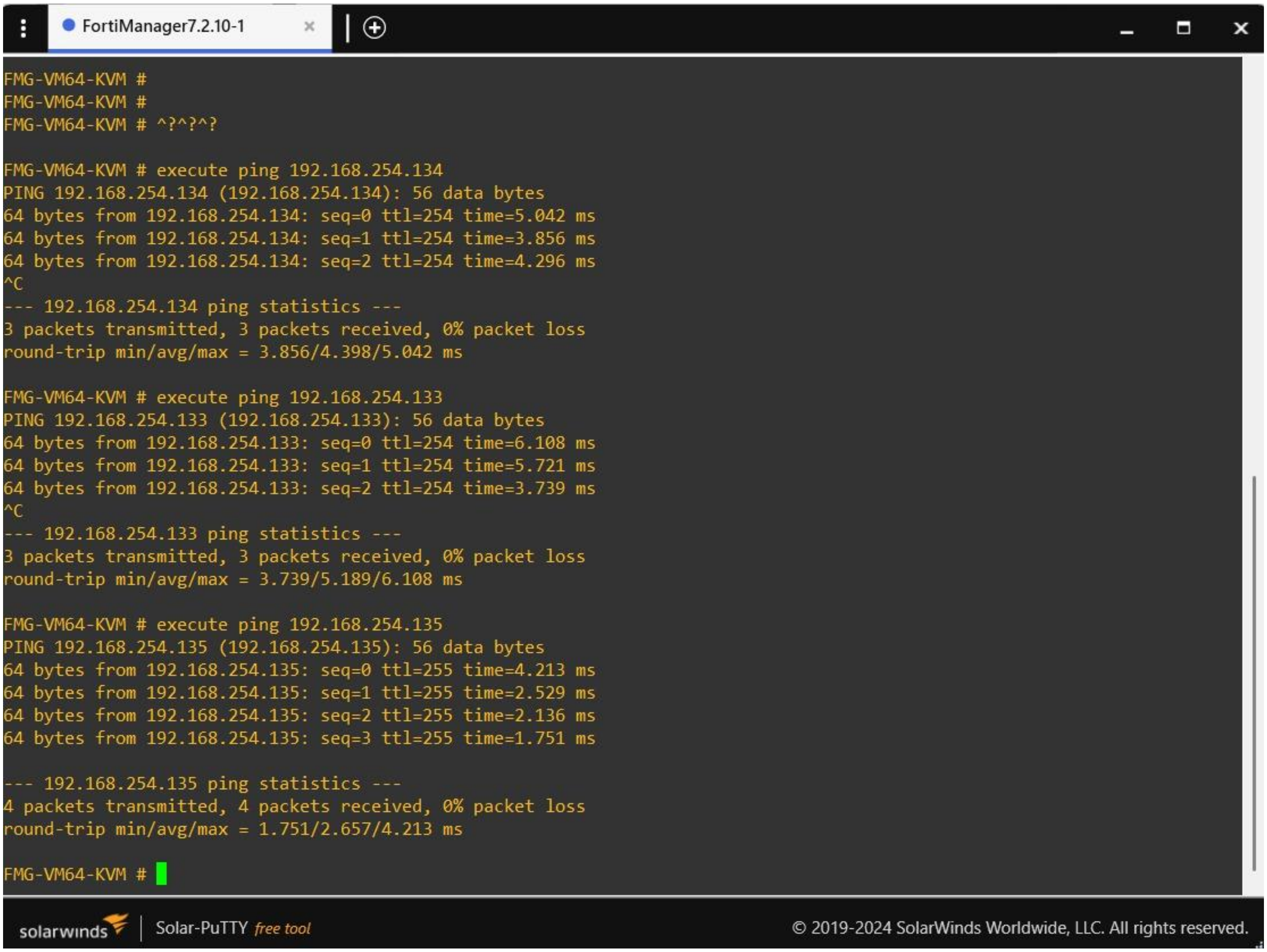
WE ALSO ENSURED THAT HQ CAN REACH THE PUBLIC IPS OF BRANCH1 , BRANCH2 AND FORTI MANAGER :



```
64 bytes from 192.168.254.134: icmp_seq=0 ttl=255 time=1.5 ms
64 bytes from 192.168.254.134: icmp_seq=1 ttl=255 time=2.6 ms
64 bytes from 192.168.254.134: icmp_seq=2 ttl=255 time=2.3 ms
64 bytes from 192.168.254.134: icmp_seq=3 ttl=255 time=1.5 ms
64 bytes from 192.168.254.134: icmp_seq=4 ttl=255 time=1.1 ms

--- 192.168.254.134 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 1.1/1.8/2.6 ms

FortiGate-VM64-KVM #
FortiGate-VM64-KVM # execute ping 192.168.254.133
PING 192.168.254.133 (192.168.254.133): 56 data bytes
64 bytes from 192.168.254.133: icmp_seq=0 ttl=255 time=2.5 ms
64 bytes from 192.168.254.133: icmp_seq=1 ttl=255 time=2.1 ms
64 bytes from 192.168.254.133: icmp_seq=2 ttl=255 time=3.1 ms
64 bytes from 192.168.254.133: icmp_seq=3 ttl=255 time=2.4 ms
64 bytes from 192.168.254.133: icmp_seq=4 ttl=255 time=2.3 ms

--- 192.168.254.133 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 2.1/2.4/3.1 ms

FortiGate-VM64-KVM # execute ping 10.10.10.10
PING 10.10.10.10 (10.10.10.10): 56 data bytes
64 bytes from 10.10.10.10: icmp_seq=0 ttl=64 time=1.9 ms
64 bytes from 10.10.10.10: icmp_seq=1 ttl=64 time=2.4 ms
64 bytes from 10.10.10.10: icmp_seq=2 ttl=64 time=2.8 ms
64 bytes from 10.10.10.10: icmp_seq=3 ttl=64 time=1.8 ms
64 bytes from 10.10.10.10: icmp_seq=4 ttl=64 time=3.0 ms

--- 10.10.10.10 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 1.8/2.3/3.0 ms

FortiGate-VM64-KVM #
```

3. FORTIMANAGER → FORTIGATE DEVICES REACHABILITY

After confirming that all FortiGate devices can reach each other, we verified that **FortiManager can also reach the HQ and Branch firewalls** .



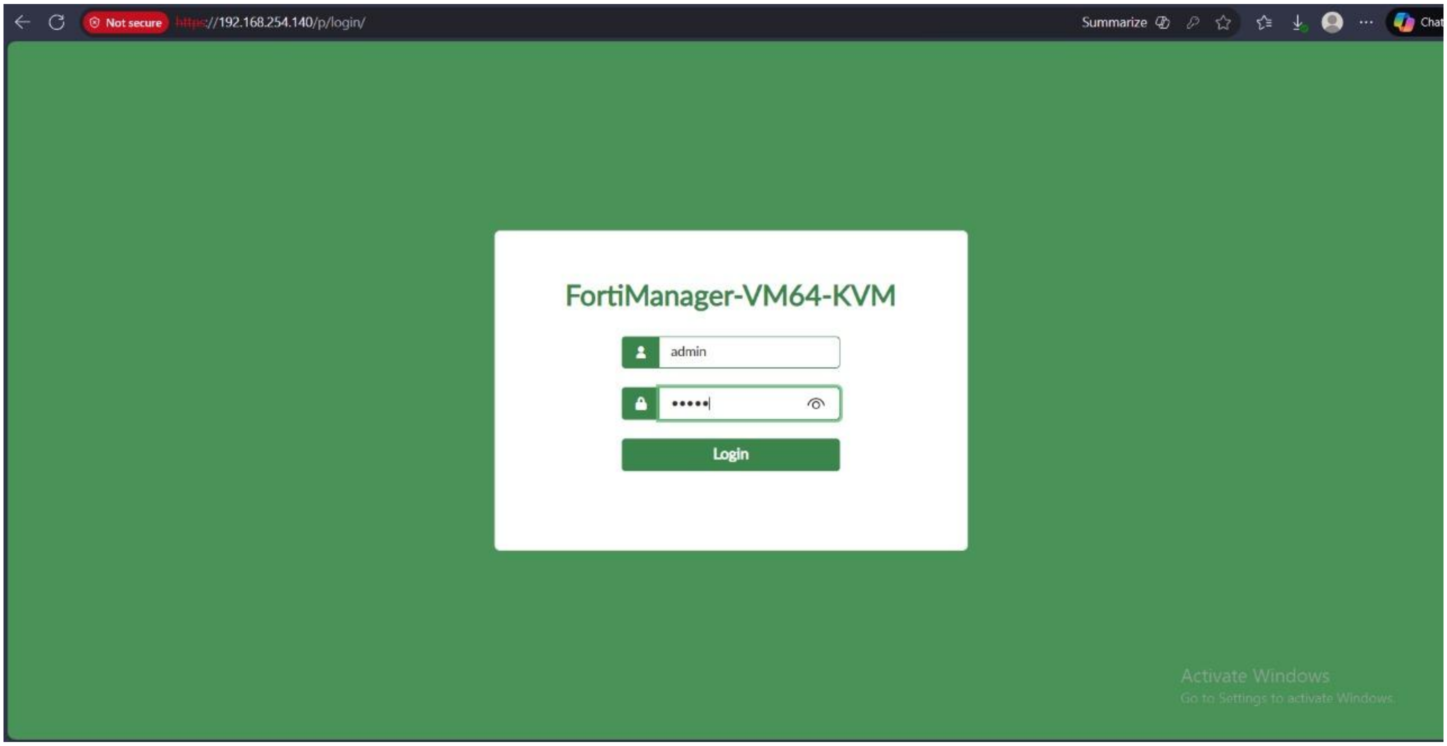
```
FMG-VM64-KVM #
FMG-VM64-KVM #
FMG-VM64-KVM # ^?^?^?

FMG-VM64-KVM # execute ping 192.168.254.134
PING 192.168.254.134 (192.168.254.134): 56 data bytes
64 bytes from 192.168.254.134: seq=0 ttl=254 time=5.042 ms
64 bytes from 192.168.254.134: seq=1 ttl=254 time=3.856 ms
64 bytes from 192.168.254.134: seq=2 ttl=254 time=4.296 ms
^C
--- 192.168.254.134 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 3.856/4.398/5.042 ms

FMG-VM64-KVM # execute ping 192.168.254.133
PING 192.168.254.133 (192.168.254.133): 56 data bytes
64 bytes from 192.168.254.133: seq=0 ttl=254 time=6.108 ms
64 bytes from 192.168.254.133: seq=1 ttl=254 time=5.721 ms
64 bytes from 192.168.254.133: seq=2 ttl=254 time=3.739 ms
^C
--- 192.168.254.133 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 3.739/5.189/6.108 ms

FMG-VM64-KVM # execute ping 192.168.254.135
PING 192.168.254.135 (192.168.254.135): 56 data bytes
64 bytes from 192.168.254.135: seq=0 ttl=255 time=4.213 ms
64 bytes from 192.168.254.135: seq=1 ttl=255 time=2.529 ms
64 bytes from 192.168.254.135: seq=2 ttl=255 time=2.136 ms
64 bytes from 192.168.254.135: seq=3 ttl=255 time=1.751 ms

--- 192.168.254.135 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 1.751/2.657/4.213 ms

FMG-VM64-KVM #
```

5. OPENING FORTIMANAGER & CREATING ADOM

After ensuring full connectivity between FortiGate devices and the FortiManager server, we proceeded to access the FortiManager Web GUI and prepare the management environment.

5.1 ACCESSING FORTIMANAGER GUI

We connected to FortiManager using the assigned VIP:

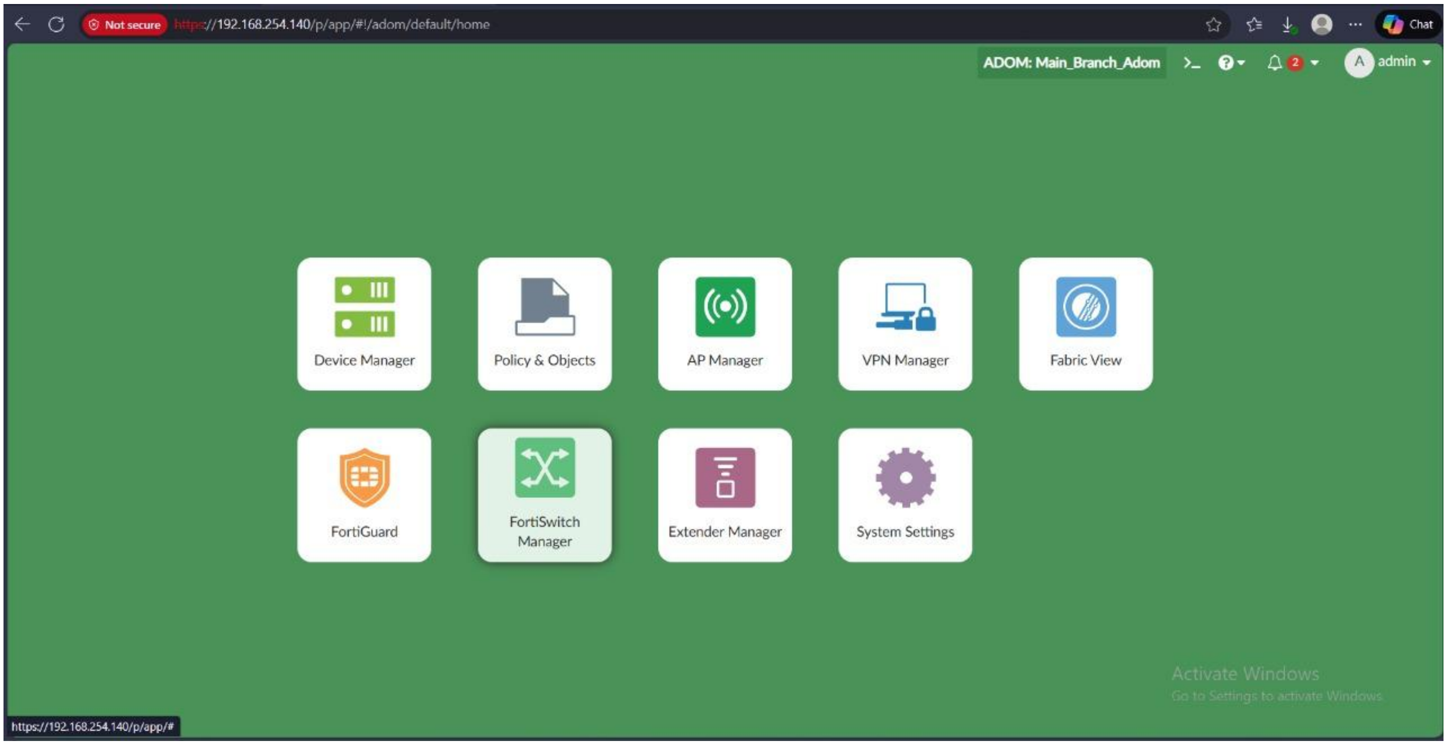


https://192.168.254.140/p/login/

FortiManager-VM64-KVM

admin

A successful login indicated that the VIP, policies, and routing were all correctly configured.

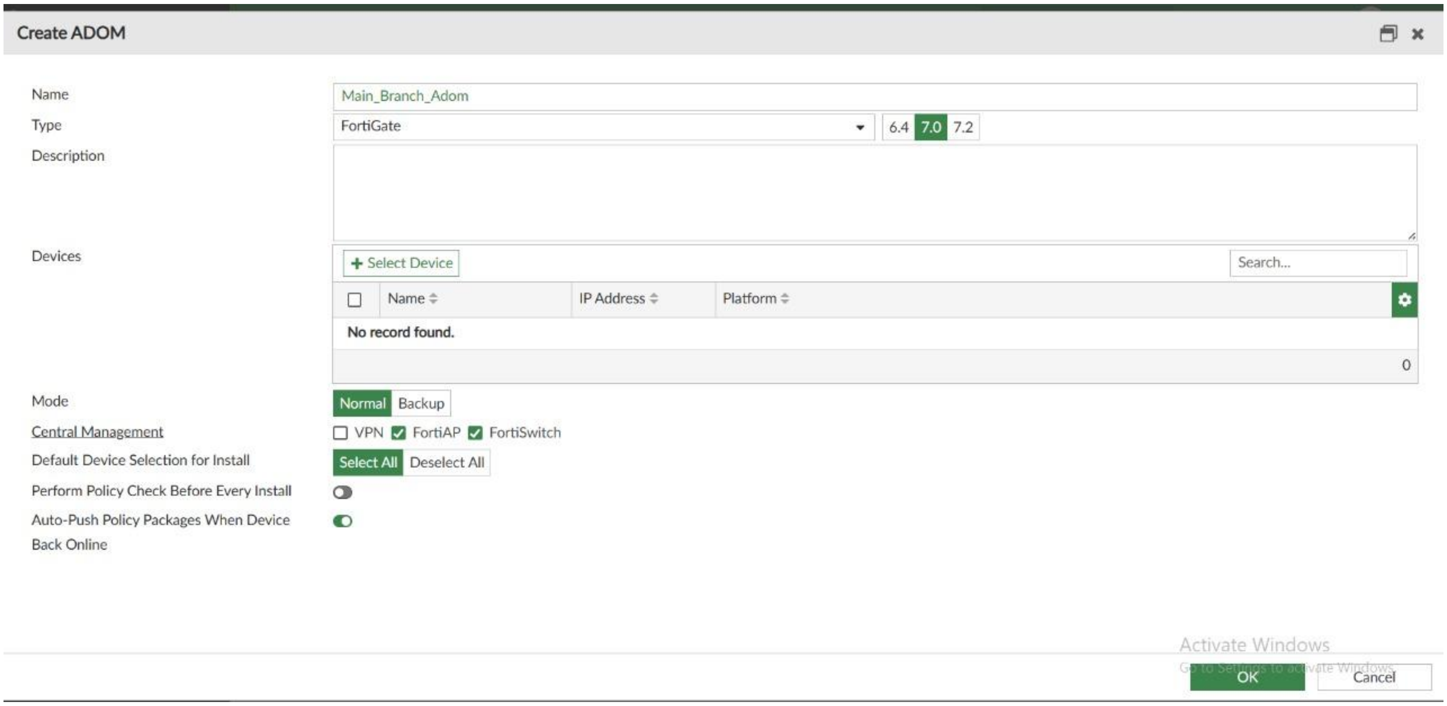


https://192.168.254.140/p/app/#!/adom/default/home

ADOM: Main_Branch_Adom

5.2 CREATING A NEW ADOM

Inside the FortiManager dashboard, we created a new ADOM to logically separate and manage our FortiGate devices.



Create ADOM

Name	Main_Branch_Adom
Type	FortiGate ▾ 6.4 [✓ 7.0] 7.2
Description	
Devices	+ Select Device Search...
	☐ Name ⇕ | IP Address ⇕ | Platform ⇕
	No record found.
	0
Mode	[✓ Normal] Backup
Central Management	☐ VPN ☑ FortiAP ☑ FortiSwitch
Default Device Selection for Install	[✓ Select All] Deselect All
Perform Policy Check Before Every Install	○
Auto-Push Policy Packages When Device Back Online	●

OK Cancel

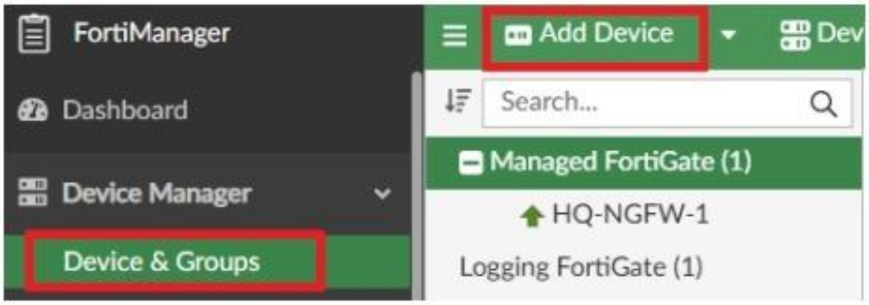
6. ADDING DEVICES INTO FORTIMANAGER

After creating the ADOM, we added the FortiGate devices (HQ, Branch1, Branch2) into FortiManager to begin centralized management.

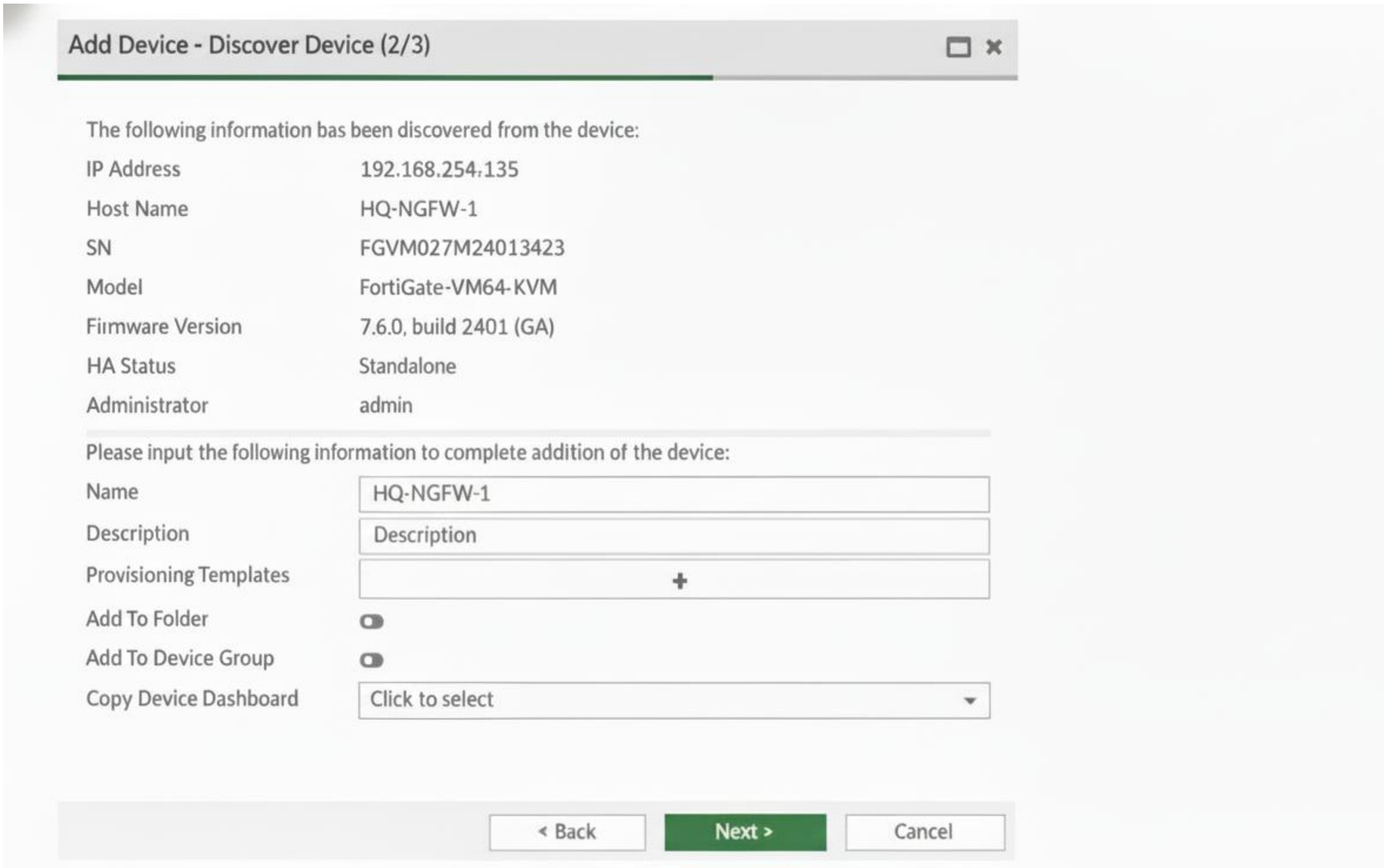
6.1 ADDING A FORTIGATE DEVICE

Inside the newly created ADOM:

- Navigate to **Device Manager**
- Select **Add Device**



- Enter the device information:
  - **Device IP:** (e.g., HQ → 192.168.254.135)
  - **Login Credentials:** admin account



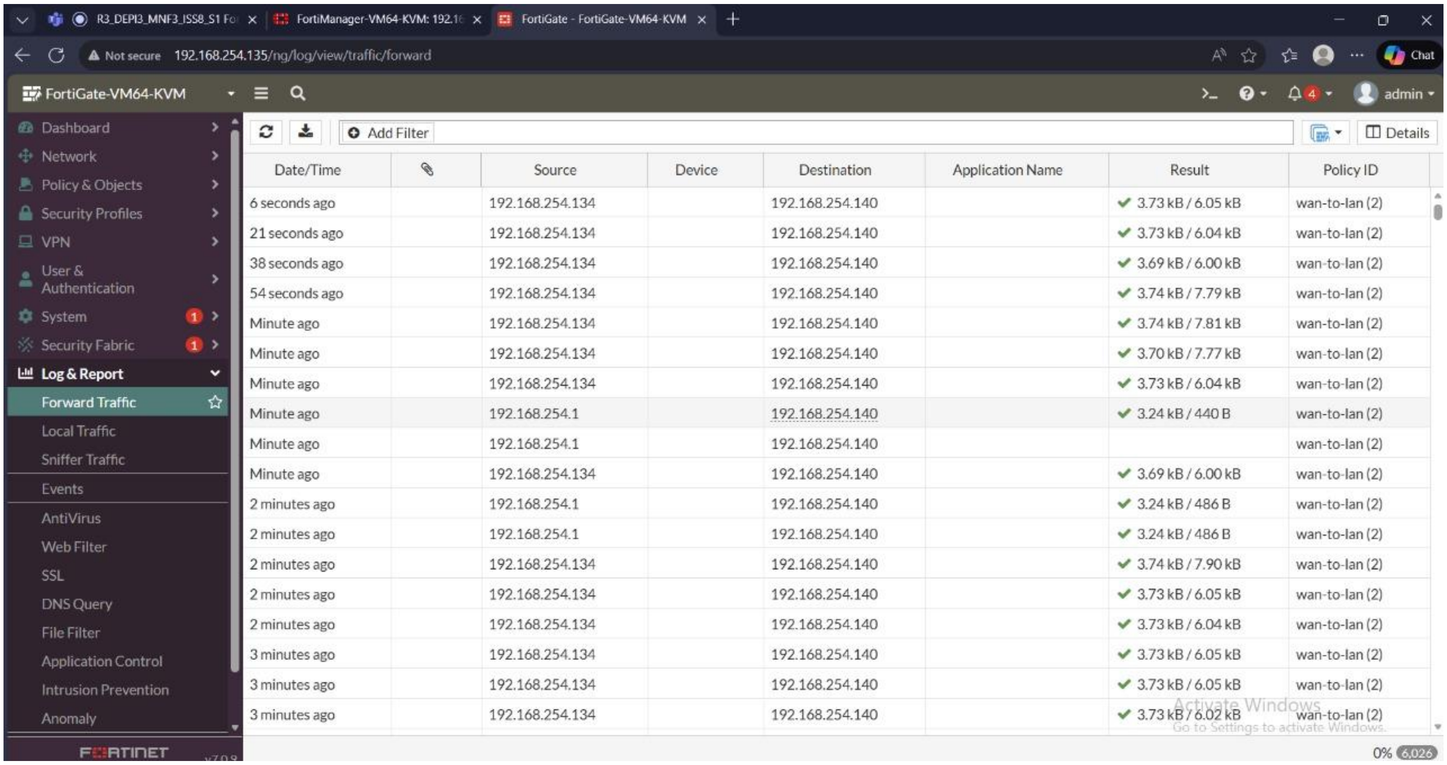
Add Device - Discover Device (2/3)

The following information bas been discovered from the device:

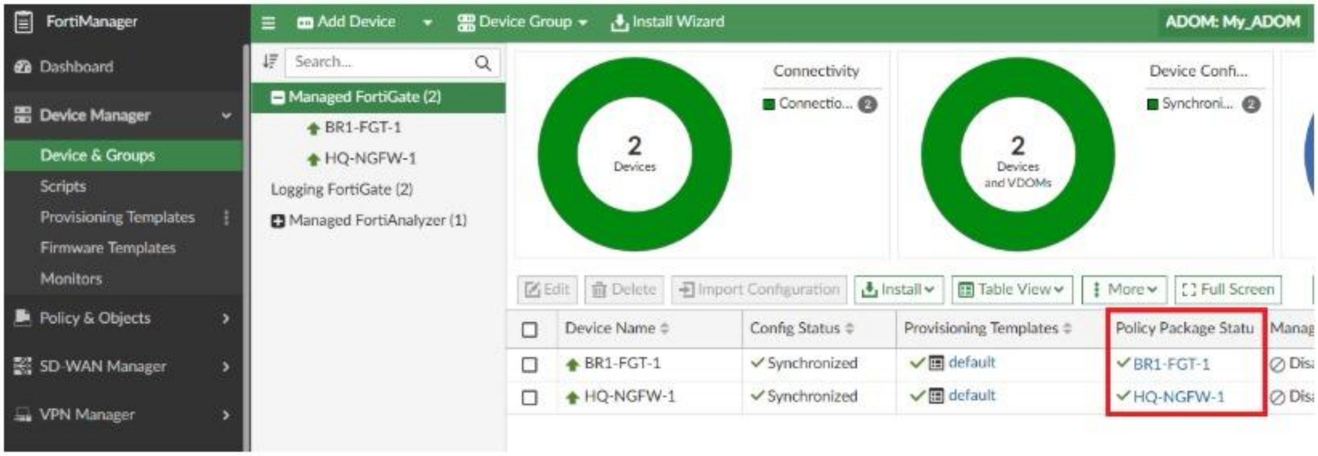
IP Address	192.168.254.135
Host Name	HQ-NGFW-1
SN	FGVM027M24013423
Model	FortiGate-VM64-KVM
Firmware Version	7.6.0, build 2401 (GA)
HA Status	Standalone
Administrator	admin

Please input the following information to complete addition of the device:

Name	HQ-NGFW-1
Description	Description
Provisioning Templates	+
Add To Folder	○
Add To Device Group	○
Copy Device Dashboard	Click to select



Date/Time		Source	Device	Destination	Application Name	Result	Policy ID
6 seconds ago		192.168.254.134		192.168.254.140		✓ 3.73 kB / 6.05 kB	wan-to-lan (2)
21 seconds ago		192.168.254.134		192.168.254.140		✓ 3.73 kB / 6.04 kB	wan-to-lan (2)
38 seconds ago		192.168.254.134		192.168.254.140		✓ 3.69 kB / 6.00 kB	wan-to-lan (2)
54 seconds ago		192.168.254.134		192.168.254.140		✓ 3.74 kB / 7.79 kB	wan-to-lan (2)
Minute ago		192.168.254.134		192.168.254.140		✓ 3.74 kB / 7.81 kB	wan-to-lan (2)
Minute ago		192.168.254.134		192.168.254.140		✓ 3.70 kB / 7.77 kB	wan-to-lan (2)
Minute ago		192.168.254.134		192.168.254.140		✓ 3.73 kB / 6.04 kB	wan-to-lan (2)
Minute ago		192.168.254.1		192.168.254.140		✓ 3.24 kB / 440 B	wan-to-lan (2)
Minute ago		192.168.254.1		192.168.254.140			wan-to-lan (2)
Minute ago		192.168.254.134		192.168.254.140		✓ 3.69 kB / 6.00 kB	wan-to-lan (2)
2 minutes ago		192.168.254.1		192.168.254.140		✓ 3.24 kB / 486 B	wan-to-lan (2)
2 minutes ago		192.168.254.1		192.168.254.140		✓ 3.24 kB / 486 B	wan-to-lan (2)
2 minutes ago		192.168.254.134		192.168.254.140		✓ 3.74 kB / 7.90 kB	wan-to-lan (2)
2 minutes ago		192.168.254.134		192.168.254.140		✓ 3.73 kB / 6.05 kB	wan-to-lan (2)
2 minutes ago		192.168.254.134		192.168.254.140		✓ 3.73 kB / 6.04 kB	wan-to-lan (2)
3 minutes ago		192.168.254.134		192.168.254.140		✓ 3.73 kB / 6.05 kB	wan-to-lan (2)
3 minutes ago		192.168.254.134		192.168.254.140		✓ 3.73 kB / 6.05 kB	wan-to-lan (2)
3 minutes ago		192.168.254.134		192.168.254.140		✓ 3.73 kB / 6.02 kB	wan-to-lan (2)



□	Device Name	Config Status	Provisioning Templates	Policy Package Statu	Manag
□	BR1-FGT-1	✓ Synchronized	✓ default	✓ BR1-FGT-1	Dis
□	HQ-NGFW-1	✓ Synchronized	✓ default	✓ HQ-NGFW-1	Dis

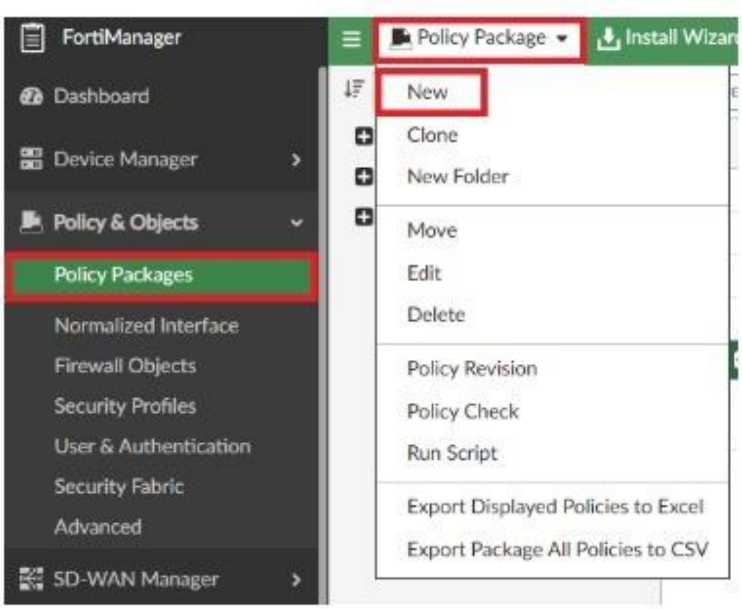
8. CREATING CENTRALIZED POLICIES ON FORTIMANAGER & INSTALLING THEM ON FORTIGATES

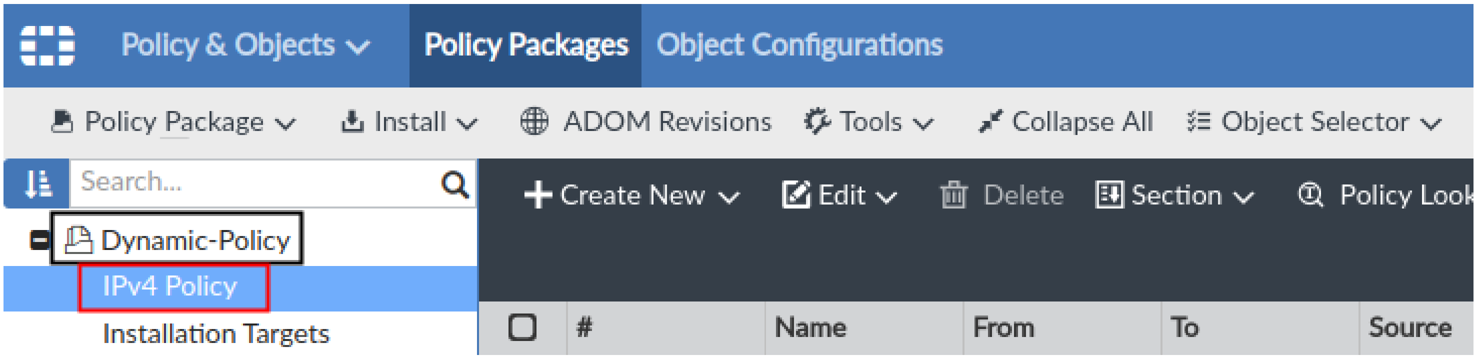
After all FortiGate devices were successfully added and authorized in FortiManager, we proceeded to create centralized policies to manage security rules from a single point. These policies were then installed directly on HQ, Branch1, and Branch2.

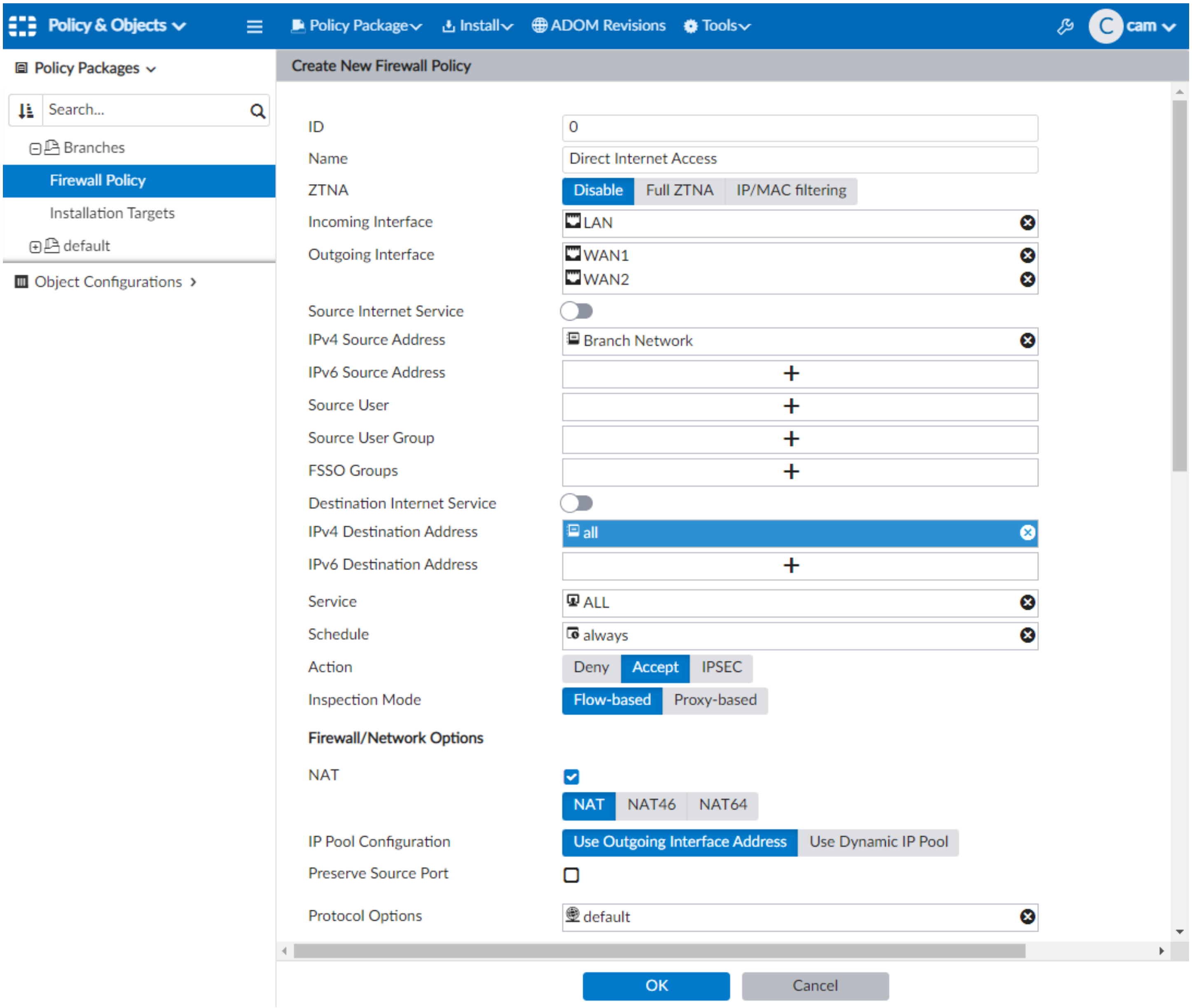
8.1 CREATING A NEW POLICY PACKAGE

Inside the ADOM:

1. Navigate to **Policy & Objects**
2. Select **Policy Packages**
3. Click **Create New**
4. Name:
   - **HQ-Package** for HQ
   - **Branch1-Package** for Branch 1
   - **Branch2-Package** for Branch 2
5. Assign each package to its corresponding FortiGate device.


FortiManager
Dashboard
Device Manager
Policy & Objects
Policy Packages
Normalized Interface
Firewall Objects
Security Profiles
User & Authentication
Security Fabric
Advanced
SD-WAN Manager
Policy Package
Install Wizar
New
Clone
New Folder
Move
Edit
Delete
Policy Revision
Policy Check
Run Script
Export Displayed Policies to Excel
Export Package All Policies to CSV


Policy & Objects
Policy Packages
Object Configurations
Policy Package
Install
ADOM Revisions
Tools
Collapse All
Object Selector
Search...
Dynamic-Policy
IPv4 Policy
Installation Targets
Create New
Edit
Delete
Section
Policy Look
#
Name
From
To
Source

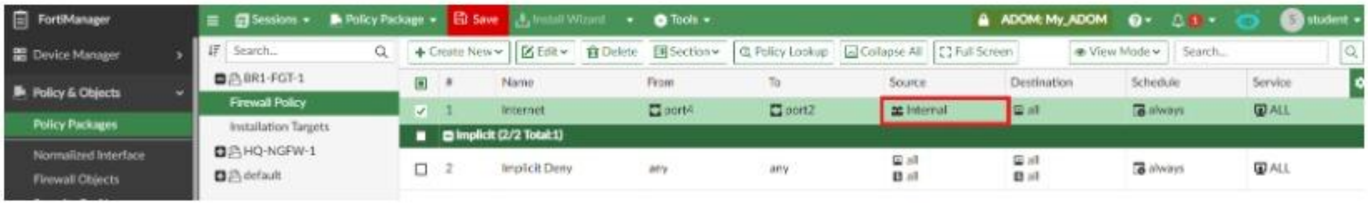


Create New Firewall Policy

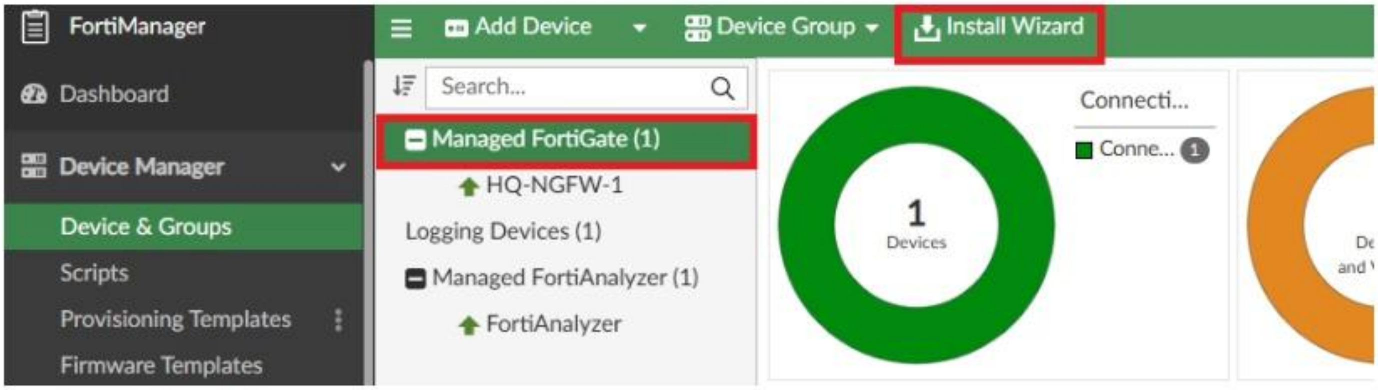
ID	0
Name	Direct Internet Access
ZTNA	[✓ Disable] Full ZTNA IP/MAC filtering
Incoming Interface	LAN
Outgoing Interface	WAN1 WAN2
Source Internet Service	○
IPv4 Source Address	Branch Network
IPv6 Source Address	+
Source User	+
Source User Group	+
FSSO Groups	+
Destination Internet Service	○
IPv4 Destination Address	all
IPv6 Destination Address	+
Service	ALL
Schedule	always
Action	Deny [✓ Accept] IPSEC
Inspection Mode	[✓ Flow-based] Proxy-based

Firewall/Network Options

NAT	☑ [✓ NAT] NAT46 NAT64
IP Pool Configuration	[✓ Use Outgoing Interface Address] Use Dynamic IP Pool
Preserve Source Port	☐
Protocol Options	default



	#	Name	From	To	Source	Destination	Schedule	Service
☑	1	Internet	port4	port2	Internal	all	always	ALL
■	Implicit (2/2 Total:1)							
☐	2	Implicit Deny	any	any	all all	all all	always	ALL



8. CONCLUSION

This project demonstrated the complete process of deploying and managing multiple FortiGate firewalls using FortiManager within a virtual GNS3 environment. Throughout the implementation, we successfully built a full topology consisting of FortiManager, FortiGate HQ, FortiGate Branch 1, and FortiGate Branch 2, all connected through a cloud network using DHCP addressing.

We configured core network components, including interface settings, static policies (LAN → WAN and WAN → LAN), and VIPs to ensure proper reachability between FortiManager and all FortiGate devices. After resolving version compatibility issues and initial connectivity problems, we were able to access the FortiManager GUI, create an ADOM, import device configurations, and centralize firewall management.

By the end of the project, FortiManager was fully integrated with all FortiGate units, allowing centralized monitoring, policy installation, and configuration control across the entire network.

Overall, this project enhanced our understanding of Fortinet technologies, centralized management concepts, troubleshooting techniques, and the importance of version alignment and network reachability in real-world deployments.