



# Configuring Multiple VLANs and VLAN Routing

How to configure multiple VLANs with Internet access.

# Configuring Multiple VLANs with Internet Access

In this guide we will be going over how to configure multiple VLANs with routing so that each VLAN has Internet access.

We will be using a M4300-8X8F as the core switch with two M4250-8G2FX-PoE+ switches.

In this configuration we are using the router to provide DHCP for VLAN 1. We will be creating two VLANs with IP addresses and DHCP pools, then creating the routes on the firewall for each one of the subnets.

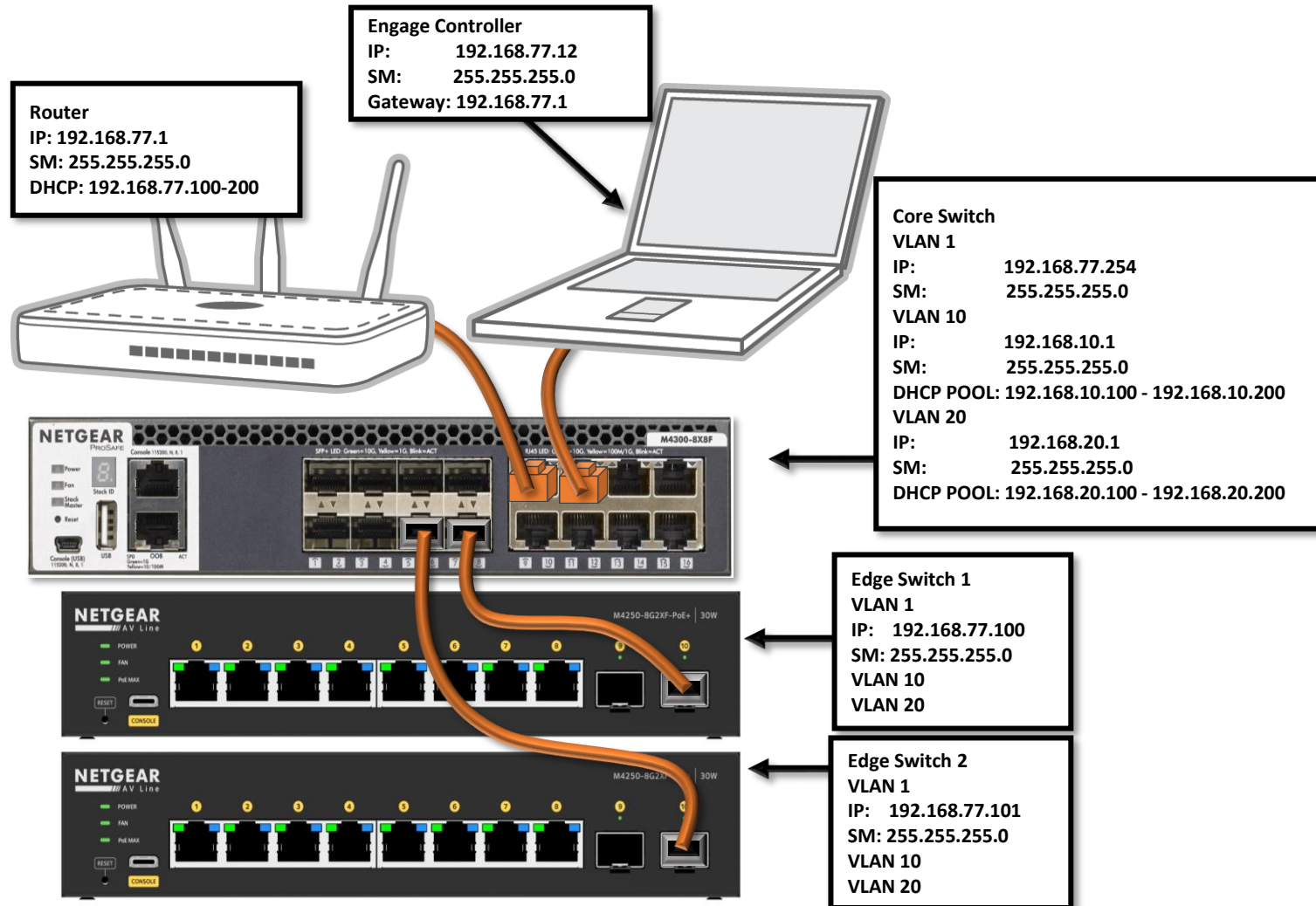
We will be following the topology shown here on the right.

We will also go over some optional configuration that will make it easier for you to manage the network, such as naming the switches instead of going by the serial numbers.

## Configuration:

- Create VLAN 10
  - IP Address
  - DHCP Pool
- Create VLAN 20
  - IP Address
  - DHCP Pool
- Configure Static IP address for VLAN 1 on Core switch
- Configure Static Routes on Router for each VLAN subnet










**NOTE:** Though VLANs 10 & 20 will exist throughout all the switches in the network you will only need to assign an IP address for these VLANs on the core switch.



The first thing that we are going to do is to name our switches, this will make them easier to identify when we are going through the configuration. If you do not name the switches, they will be identified by the serial number.

## Managed Devices

[Add Device](#)

Switch Model	System Name	Serial Number	IP Address	FW Version	AV Version	Status	
 M4300-8X8F XSM4316S		4G3N2971D00AF	192.168.77.104	12.3.17.13	2.2.4.12	Online	<a href="#">Configure</a> 
 M4250-8G2XF-PoE+ GSM4210PX		6YX1245HF0018	192.168.77.107	13.1.4.14	2.2.4.12	Online	<a href="#">Configure</a> 
 M4250-8G2XF-PoE+ GSM4210PX		6YX32A5NA0109	192.168.77.106	13.1.4.14	2.2.4.12	Online	<a href="#">Configure</a> 

Total 3

10/page

&lt; 1 &gt;

Go to 1

## Discovered Devices

Switch Model	System Name	Serial Number	MAC Address	IP Address	FW Version	AV Version
--------------	-------------	---------------	-------------	------------	------------	------------



You do not have any discovered devices

Total 0

10/page

&lt; 1 &gt;

Go to 1

Devices Topology Site Settings Support Controller Management

Site

HQ

Save

## Edit System Name

New System Name

Core

Cancel

Apply

We are going to name this switch  
"Core" and then click on "Apply."

## Managed Devices

Add Device

Switch Model	System Name	Serial Number	MAC Address	IP Address	AV Version	Status	
M4300-8X8F XSM4316S		4G			2.2.4.12	Online	Configure
M4250-8G2XF-PoE+ GSM4210PX		6YX1245HF0018	192.168.77.107	13.1.4.14	2.2.4.12	Online	Configure
M4250-8G2XF-PoE+ GSM4210PX		6YX32A5NA0109			2.2.4.12	Online	Configure

Total 3 10/page < 1 > Go to 1

## Discovered Devices

Switch Model	System Name	Serial Number	MAC Address	IP Address	FW Version	AV Version
You do not have any discovered devices						

Total 0 10/page < 1 > Go to 1

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HQ

Save

## Managed Devices

[Add Device](#)

Switch Model	System Name	Serial Number	IP Address	FW Version	AV Version	Status	
M4300-8X8F XSM4316S	Core	4G3N2971D00AF	192.168.77.104	12.3.17.13	2.2.4.12	Online	<a href="#">Configure</a>
M4250-8G2XF-PoE+ GSM4210PX		6YX1245HF0018	192.168.77.107	13.1.4.14	2.2.4.12	Online	<a href="#">Configure</a>
M4250-8G2XF-PoE+ GSM4210PX		6YX32A5NA0109	192.168.77.106	13.1.4.14	2.2.4.12	Online	<a href="#">Configure</a>

Total 3

10/page

&lt; 1 &gt;

Go to 1

## Discovered Devices

Switch Model	System Name	Serial Number	MAC Address	IP Address	FW Version	AV Version
--------------	-------------	---------------	-------------	------------	------------	------------



You do not have any discovered devices

Total 0

10/page

&lt; 1 &gt;

Go to 1

Click on the edit icon under "System Name" for the next switch.

## Edit System Name

New System Name

Conference Room

Cancel

Apply

We are going to name this switch "Conference Room" and then click on "Apply."

## Managed Devices

Add Device

Switch Model	System Name	Serial Number	MAC Address	IP Address	AV Version	Status	Configure
M4300-8X8F XSM4316S	Core	4G			2.2.4.12	Online	Configure
M4250-8G2XF-PoE+ GSM4210PX		6YX1245HF0018	192.168.77.107	13.1.4.14	2.2.4.12	Online	Configure
M4250-8G2XF-PoE+ GSM4210PX		6YX32A5NA0109				Online	Configure

Total 3 10/page < 1 > Go to 1

## Discovered Devices

Switch Model	System Name	Serial Number	MAC Address	IP Address	FW Version	AV Version
You do not have any discovered devices						

Total 0 10/page < 1 > Go to 1

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## Managed Devices

[Add Device](#)

Switch Model	System Name	Serial Number	IP Address	FW Version	AV Version	Status	
M4300-8X8F XSM4316S	Core	4G3N2971D00AF	192.168.77.104	12.3.17.13	2.2.4.12	Online	<a href="#">Configure</a>
M4250-8G2XF-PoE+ GSM4210PX	Conference Room	6YX1245HF0018	192.168.77.107	13.1.4.14	2.2.4.12	Online	<a href="#">Configure</a>
M4250-8G2XF-PoE+ GSM4210PX		6YX32A5NA0109	192.168.77.106	13.1.4.14	2.2.4.12	Online	<a href="#">Configure</a>

Click on the edit icon under "System Name" for the next switch.



Total 3

10/page

&lt;

1

&gt;

Go to

1

## Discovered Devices

Switch Model	System Name	Serial Number	MAC Address	IP Address	FW Version	AV Version
--------------	-------------	---------------	-------------	------------	------------	------------



You do not have any discovered devices

Total 0

10/page

&lt;

1

&gt;

Go to

1

### Edit System Name

New System Name

Managed Devices

Switch Model	System Name	Serial Number	MAC Address	IP Address	AV Version	Status	
M4300-8X8F XSM4316S	Core	4G			2.2.4.12	Online	
M4250-8G2XF-PoE+ GSM4210PX	Conference Room	6YX1245HF0018	192.168.77.107	13.1.4.14	2.2.4.12	Online	
M4250-8G2XF-PoE+ GSM4210PX		6YX32A5NA0109			2.2.4.12	Online	

Total 3 10/page Go to 1

We are going to name this switch "Lobby" and then click on "Apply."

Discovered Devices

Switch Model	System Name	Serial Number	MAC Address	IP Address	FW Version	AV Version
You do not have any discovered devices						

Total 0 10/page Go to 1



Now that we have named our switches we are going to go to "Site Settings" to configure the network profiles.

[Devices](#)[Topology](#)[Site Settings](#)[Support](#)[Controller Management](#)

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HQ

Save

## Managed Devices

[+ Add Device](#)

Switch Model	System Name	Serial Number	IP Address	FW Version	AV Version	Status	
M4300-8X8F XSM4316S	Core	4G3N2971D00AF	192.168.77.104	12.3.17.13	2.2.4.12	Online	<a href="#">Configure</a>
M4250-8G2XF-PoE+ GSM4210PX	Conference Room	6YX1245HF0018	192.168.77.107	13.1.4.14	2.2.4.12	Online	<a href="#">Configure</a>
M4250-8G2XF-PoE+ GSM4210PX	Lobby	6YX32A5NA0109	192.168.77.106	13.1.4.14	2.2.4.12	Online	<a href="#">Configure</a>

Total 3

10/page

&lt; 1 &gt;

Go to 1

## Discovered Devices

Switch Model	System Name	Serial Number	MAC Address	IP Address	FW Version	AV Version
--------------	-------------	---------------	-------------	------------	------------	------------



You do not have any discovered devices

Total 0

10/page

&lt; 1 &gt;

Go to 1

## Network Profiles

[Export Worksheet](#)[Create New Profile](#)

Profile Name	Profile Template	VLAN ID	Management VLAN	
Default	Data	1		

Total 1

10/page



1



Go to

1

Click on "Create New Profile."

## Global Settings

These setting will be applied to all switches on this site.

Auto-Trunk



Auto-LAG



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Topology

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Create New Profile

[Back to Network Profiles](#)

1 Profile Template

2 Profile Settings

3 Port Assignment

## Profile Template

Select the profile overview template to provide your AV profile template options

Profile Template

Select

Click on the drop-down for **“Profile Template.”**

Use As Default VLAN Profile



Next

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Save

Create New Profile

[Back to Network Profiles](#)

1 Profile Template

2 Profile Settings

3 Port Assignment

## Profile Template

Select the profile overview template to provide your AV profile template options

Profile Template

Select

Lighting

Shure Converged Audio and Control Network

Shure Split Audio and Control Network

Sonos

Video

Video NDI4

Video NDI5 with Dante, Q-Sys or AES67 audio

Next

For our first VLAN we are going to select the "Video" template.

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HQ ▾

**Save**

Create New Profile

[Back to Network Profiles](#)**1 Profile Template**

2 Profile Settings

3 Port Assignment

### Profile Template

Select the profile overview template to provide your AV profile template options

Profile Template

Video ▾

### Profile Description

To connect IP Video devices and their controller. Audio can be sent and received using another VLAN tag in another profile simultaneously. Supported devices include NVX, AMX, ZeeVee, Aurora, Kramer, Atlona, ATEN, LibAV, Visionary, Wyrestorm, Extron NAV, Dante AV, SDVoE & etc.

Use As Default VLAN Profile

**Next****Click on "Next."**

Create New Profile

[Back to Network Profiles](#)

- 1 Profile Template
- 2 Profile Settings**
- 3 Port Assignment

Profile Settings

Configure your profile settings and and preferences

Profile Name Video	Profile Template Video
VLAN ID 10	Color #1A33ED

We are going to name this VLAN "Video" and give it a VLAN ID of 10, then select the color.

Previous

Cancel **Next**

Click on "Next."

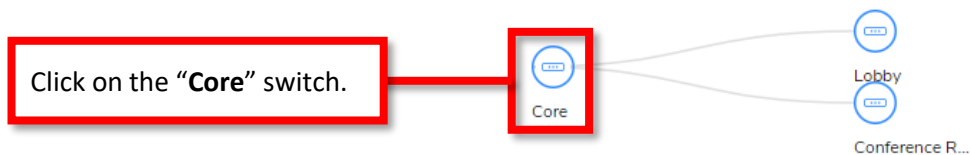
Create New Profile

[Back to Network Profiles](#)

1 Profile Template

2 Profile Settings

3 Port Assignment

Profile Name: **Video** | VLAN ID: **10** | Profile Template: **Video**[Show Legends](#) [Refresh](#)

Total Number of Configured Switches: 0

Switch Name ▾

Model ▾

Configured Number of Ports ▾

Configured Ports



You have no configured switches for this network profile.

Please assign ports for this network profile by clicking on the Switch from the above section.

[Previous](#)[Cancel](#)[Apply](#)

Create New Profile

[Back to Network Profiles](#)

- 1 Profile Template
- 2 Profile Settings
- 3 Port Assignment

Profile Name: Video | VLAN ID: 10 | Profile Template: Video



After selecting the ports click on the next switch.

Core

Untag all

We are going to select ports 14 and 16.

Total Number of Configured Switches: 1

Search for Switch

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configured Ports	
Core	M4300-8X8F	2	M4300-8X8F 14 16	

Previous

Cancel Apply



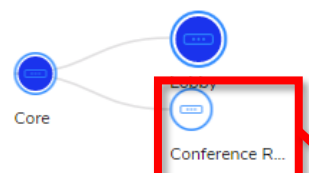
Create New Profile

[Back to Network Profiles](#)

**1** Profile Template **2** Profile Settings **3** Port Assignment

Profile Name: **Video** | VLAN ID: **10** | Profile Template: **Video**

[Show Legends](#) [Refresh](#)



Lobby ×

1  2  3 4 5 6 7 8 9 10

We are going to select ports 1 and 2.

After selecting the ports click on the next switch.

Total Number of Configured Switches: 2

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configured Ports	
Lobby	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ <input type="text" value="1"/> <input type="text" value="2"/>	
Core	M4300-8X8F	2	M4300-8X8F <input type="text" value="14"/> <input type="text" value="16"/>	

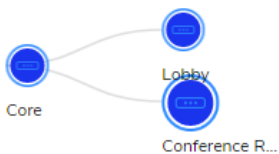
Create New Profile

[Back to Network Profiles](#)

1 Profile Template 2 Profile Settings 3 Port Assignment

Profile Name: Video | VLAN ID: 10 | Profile Template: Video

[Show Legends](#) [Refresh](#)



Conference Room

1 2 3 4 5 6 7 8 9 10

We are going to select ports 1 and 2.

Untag all

Total Number of Configured Switches: 3

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configured Ports	
Lobby	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 1 2	
Core	M4300-8X8F	2	M4300-8X8F 14 16	
Conference Room	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 1 2	

After selecting the ports click on "Apply."

Previous

Cancel Apply

Create New Profile

Back to Network Profiles

- 1 Profile Template
- 2 Profile Settings
- 3 Port Assignment

Profile Name: Video | VLAN ID: 10 | Profile Template: Video

Show Legends Refresh

Conference Room

Create New Profile

Are you sure you want to apply network port assignments to all the switches on the site?

Cancel Confirm

Total Number of Configured Switches: 3

Search for Switch

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configuration	
Lobby	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 1 2	
Core	M4300-8X8F	2	M4300-8X8F 14 16	
Conference Room	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 1 2	

Click on "Confirm."

Previous

Cancel Apply

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Create New Profile

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1 Profile Template

2 Profile Settings

3 Port Assignment

Profile Name: Video | VLAN ID: 10 | Profile Template: Video

[Show Legends](#) [Refresh](#)

Conference Room

## VLAN Routing Planner

Do you want to continue with VLAN Routing Planning?

Cancel

Confirm

Click on "Confirm."

Total Number of Configured Switches: 3

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configured Ports ↓	
Lobby	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 1 2	
Core	M4300-8X8F	2	M4300-8X8F 14 16	
Conference Room	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 1 2	

[Previous](#)

Cancel

Apply

Another pop-up will come up to ask you if you want to continue configuration for VLAN routing.

At this point, the VLAN created is a layer 2 VLAN.

You can enable VLAN routing at any time, not just when creating the VLAN.



From here we are selecting the switch that will be doing the routing, the edge switches do not need to be configured to route traffic, we just need to configure the "Core" switch.

## VLAN Routing Planner

[Back to Network Profiles](#)Profile Name: **Video** | VLAN ID: **10** | Profile Template: **Video**[Refresh](#)**Note:** Click on the switches to start network routing planning Enable Routing on all Switches

Click on the "Core" switch.

## Legends

 Core Switch DHCP Server Enable Routing IGMP Querier

Total Number of Configured Switches: 0

### VLAN Routing Planner

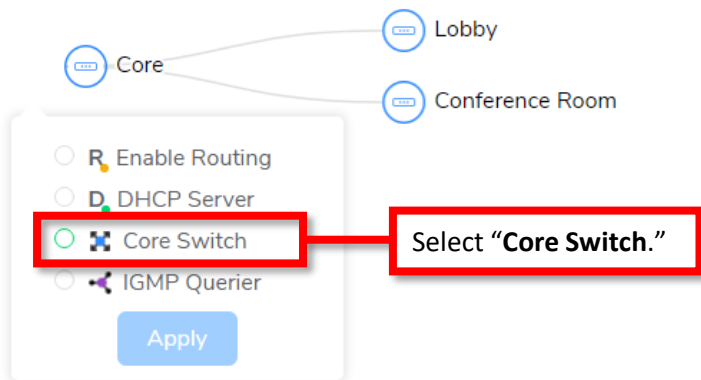
[Back to Network Profiles](#)

Profile Name: **Video** | VLAN ID: **10** | Profile Template: **Video**

[Refresh](#)

**Note:** Click on the switches to start network routing planning

Enable Routing on all Switches



### Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 0

Search for switch

Devices

Topology

**Site Settings**

Support

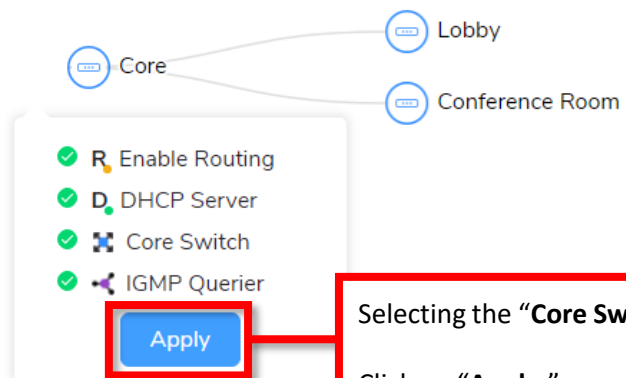
Controller Management

Site

HQ ▾

**Save**

## VLAN Routing Planner

[Back to Network Profiles](#)Profile Name: **Video** | VLAN ID: **10** | Profile Template: **Video**[Refresh](#)**Note:** Click on the switches to start network routing planning Enable Routing on all SwitchesSelecting the **“Core Switch”** will enable all fields.Click on **“Apply.”**

## Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 0

### VLAN Routing Planner

[Back to Network Profiles](#)

Profile Name: **Video** | VLAN ID: **10** | Profile Template: **Video**

[Refresh](#)

**Note:** Click on the switches to start network routing planning

Enable Routing on all Switches



Scroll down.

### Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 1



Site  
HQ



Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 1

Switch Name ↓	Model ↓	Core Switch	Enable Routing	IGMP Querier	DHCP	
Core	M4300-8X8F	✓	✓	✓	✓	

Previous

Cancel

**Apply**

Click on "Apply."

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Save



Core

Lobby

Conferen

## VLAN Routing Planner



Engage has saved your VLAN Routing Planning.

Go to VLAN Routing

Click on "Go to VLAN Routing."

## Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 1

Search for switch

Switch Name ↓

Model ↓

Core Switch

Enable Routing

IGMP Querier

DHCP



Core

M4300-8X8F



Previous

Cancel

Apply

Network Profiles

Basic

Advanced

Information

Basic Configuration

Search for switch

Refresh

Vlan Routing

Profile Name: Video

VLAN ID: 10

Add Switch

Enable New VLAN Routing

DHCP Server	Switch Name ↓	MAC Address	<input type="checkbox"/> DHCP Client	<input checked="" type="checkbox"/> Static	IP Address	Subnet Mask
<input checked="" type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.1.0	255.255.255.0

Total 3

10/page

<

1

>

Go to

1

DHCP Server

Default Router

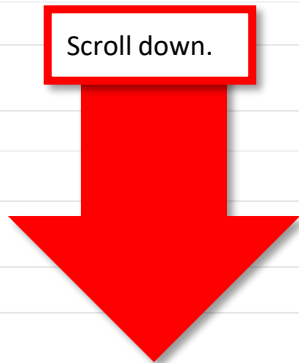
Scroll down.

DHCP Server Pool Start

DHCP Server Pool End

DNS Server 1

DNS Server 2



Devices Topology **Site Settings** Support Controller Management

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HQ

Save

DHCP Server	Switch Name ↓	MAC Address	<input type="checkbox"/> DHCP Client	<input checked="" type="checkbox"/> Static	IP Address	Subnet Mask
<input checked="" type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.10.1	255.255.255.0

The IP address for this VLAN is going to be "192.168.10.1" with a subnet mask of "255.255.255.0."

We are also going to configure the DHCP server for this VLAN.

The "Default Router" is the IP address of the VLAN.

The DHCP server pool will be between 192.168.10.100 to 192.168.10.200. This will give us 100 addresses.

For the DNS addresses we are going to use "8.8.8.8" and "8.8.4.4."

The "Search Domain" can be left blank.

The default "Lease Time" is set to 240 minutes, this can be changed, we are going to leave it at the default setting.

## DHCP Server

Default Router

192.168.10.1

DHCP Server Pool Start

192.168.10.100

DHCP Server Pool End

192.168.10.200

DNS Server 1

8.8.8.8

DNS Server 2

8.8.4.4

Search Domain

Lease Time (minute)

240

Cancel

Apply

Click on "Apply."

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Information

DHCP Server

Warning

We recommend configuring at least one DNS server when configuring a static IP address. Without a DNS server and router, Internet services cannot work.

No

Yes

 Static

IP Address

Subnet Mask

192.168.10.1

255.255.255.0

Go to 1

DHCP Server

Default Router

192.168.10.1

DHCP Server Pool Start

192.168.10.100

192.168.10.200

DNS Server 1

8.8.8.8

DNS Server 2

8.8.4.4

Search Domain

Lease Time (minute)

240

Cancel

Apply

A pop-up will come up to inform you that if the DNS is not configured the devices receiving DHCP will not be able to resolve addresses.

Click on "Yes."

We are now going to add the second VLAN.  
Click on "Site Settings."

Site: HQ

Network Profiles

Basic

Advanced

Information

Basic Configuration

Search for switch Refresh

Vlan Routing  
Profile Name: Video | VLAN ID: 10

Enable New VLAN Routing

DHCP Server	Switch Name ↓	MAC Address	<input type="checkbox"/> DHCP Client	<input checked="" type="checkbox"/> Static	IP Address	Subnet Mask
<input checked="" type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.10.1	255.255.255.0

Total 3 10/page < 1 > Go to 1

DHCP Server

Default Router  
192.168.10.1

DHCP Server Pool Start  
192.168.10.100

DHCP Server Pool End  
192.168.10.200

DNS Server 1  
8.8.8.8

DNS Server 2  
8.8.4.4

## Network Profiles

[Export Worksheet](#)[Create New Profile](#)

Profile Name	Profile Template	VLAN ID	Management VLAN	
Default	Data	1		
Video	Video	10		

Total 2

10/page ▾



1



Go to

1

Click on "Create New Profile."

## Global Settings

These setting will be applied to all switches on this site.

Auto-Trunk



Auto-LAG



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**Site Settings**

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Save

Create New Profile

[Back to Network Profiles](#)**1 Profile Template**

2 Profile Settings

3 Port Assignment

### Profile Template

Select the profile overview template to provide your AV profile template options

Profile Template

Select

**Click on the drop-down for "Profile Template."**

Use As Default VLAN Profile



Next



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**Save**

Create New Profile

[Back to Network Profiles](#)**1 Profile Template**

2 Profile Settings

3 Port Assignment

Profile Template

Select the profile overview template to provide your AV profile template options

Profile Template

Select

Hybrid

Audio AES67

**Audio Dante**

Audio Q-SYS

Audio Video AVB

Data

Lighting

For our second VLAN we are going to select the "Audio Dante" template.

Create New Profile

[Back to Network Profiles](#)

1 Profile Template

2 Profile Settings

3 Port Assignment

Profile Template

Select the profile overview template to provide your AV profile template options

Profile Template  
Audio Dante

Profile Description

To connect IP Audio Dante devices and their controller

Use As Default VLAN Profile

Next

Click on "Next."

Devices

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**Save**

Create New Profile

[Back to Network Profiles](#)**1** Profile Template**2** Profile Settings**3** Port Assignment

Profile Settings

Configure your profile settings and preferences

Profile Name

Audio

Profile Template

Audio Dante ▾

VLAN ID

20

Color

 #0BCDE3

We are going to name this VLAN **"Audio"** and give it a VLAN ID of 20, then select the color.

[Previous](#)[Cancel](#)**Next**

Click on **"Next."**

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**Save**

Create New Profile

[Back to Network Profiles](#)**1** Profile Template**2** Profile Settings**3** Port AssignmentProfile Name: **Audio** | VLAN ID: **20** | Profile Template: **Audio Dante**[Show Legends](#) [Refresh](#)

Click on the "Core" switch.



Total Number of Configured Switches: 0

Switch Name ▾

Model ▾

Configured Number of Ports ▾

Configured Ports



You have no configured switches for this network profile.

Please assign ports for this network profile by clicking on the Switch from the above section.

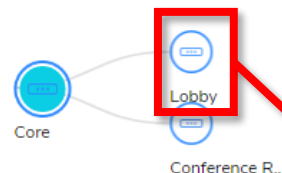
[Previous](#)[Cancel](#)[Apply](#)

Create New Profile

[Back to Network Profiles](#)

1 Profile Template 2 Profile Settings 3 Port Assignment

Profile Name: Audio | VLAN ID: 20 | Profile Template: Audio Dante



After selecting the ports click on the next switch.

We are going to select ports 10 and 12.

Core

Untag all

Total Number of Configured Switches: 1

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configured Ports	
Core	M4300-8X8F	2	M4300-8X8F 10 12	

Previous

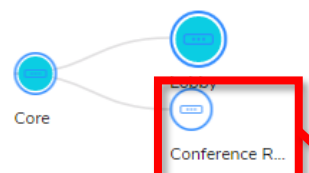
Cancel Apply

Create New Profile

[Back to Network Profiles](#)

1 Profile Template | 2 Profile Settings | 3 Port Assignment

Profile Name: **Audio** | VLAN ID: **20** | Profile Template: **Audio Dante**



We are going to select ports 3 and 4.

After selecting the ports click on the next switch.

Total Number of Configured Switches: 2

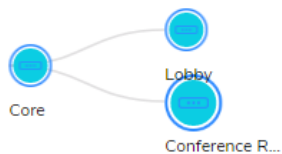
Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configured Ports	
Lobby	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ <input type="text" value="3"/> <input type="text" value="4"/>	
Core	M4300-8X8F	2	M4300-8X8F <input type="text" value="10"/> <input type="text" value="12"/>	

Create New Profile

[Back to Network Profiles](#)

1 Profile Template 2 Profile Settings 3 Port Assignment

Profile Name: Audio | VLAN ID: 20 | Profile Template: Audio Dante



Conference Room

1 2 3 ✓ 4 ✓ 5 6 7 8 9 10

We are going to select ports 3 and 4.

Untag all

Total Number of Configured Switches: 3

Search for Switch

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configured Ports	
Lobby	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 3 4	
Core	M4300-8X8F	2	M4300-8X8F 10 12	
Conference Room	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 3 4	

After selecting the ports click on "Apply."

Previous

Cancel Apply

Create New Profile

[Back to Network Profiles](#)

1 Profile Template 2 Profile Settings 3 Port Assignment

Profile Name: **Audio** | VLAN ID: **20** | Profile Template: **Audio Dante**

[Show Legends](#) Refresh

Conference Room

Create New Profile

Are you sure you want to apply network port assignments to all the switches on the site?

**Cancel** **Confirm**

Total Number of Configured Switches: 3

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configuration	
Lobby	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ <input type="checkbox"/> 3 <input type="checkbox"/> 4	
Core	M4300-8X8F	2	M4300-8X8F <input type="checkbox"/> 10 <input type="checkbox"/> 12	
Conference Room	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ <input type="checkbox"/> 3 <input type="checkbox"/> 4	

Click on "Confirm."

**Previous**

**Cancel** **Apply**



Create New Profile

[Back to Network Profiles](#)

1 Profile Template 2 Profile Settings 3 Port Assignment

Profile Name: **Audio** | VLAN ID: **20** | Profile Template: **Audio Dante**

[Show Legends](#) [Refresh](#)

Conference Room

VLAN Routing Planner

Do you want to continue with VLAN Routing Planning?

Cancel Confirm

Total Number of Configured Switches: 3

Search for Switch

Switch Name ↓	Model ↓	Configured Number of Ports ↓	Configuration	
Lobby	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 3 4	
Core	M4300-8X8F	2	M4300-8X8F 10 12	
Conference Room	M4250-8G2XF-PoE+	2	M4250-8G2XF-PoE+ 3 4	

Click on "Confirm."

Previous

Cancel Apply

Devices

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**Site Settings**

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Save

## VLAN Routing Planner

[Back to Network Profiles](#)Profile Name: **Audio** | VLAN ID: **20** | Profile Template: **Audio Dante**[Refresh](#)**Note:** Click on the switches to start network routing planning Enable Routing on all Switches

Click on the "Core" switch.

## Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 0

### VLAN Routing Planner

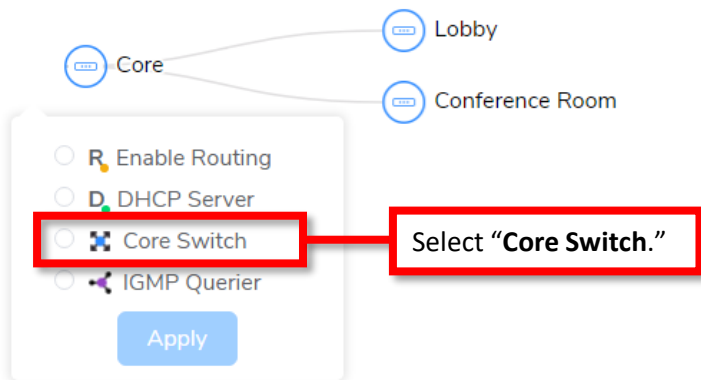
[Back to Network Profiles](#)

Profile Name: **Audio** | VLAN ID: **20** | Profile Template: **Audio Dante**

[Refresh](#)

**Note:** Click on the switches to start network routing planning

Enable Routing on all Switches



### Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 0

Devices

Topology

**Site Settings**

Support

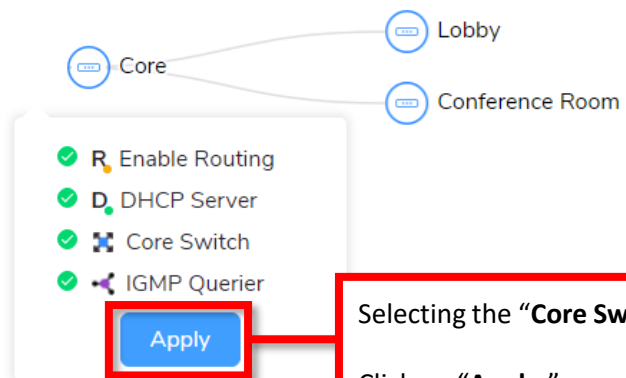
Controller Management

Site

HQ ▾

Save

## VLAN Routing Planner

[Back to Network Profiles](#)Profile Name: **Audio** | VLAN ID: **20** | Profile Template: **Audio Dante**[Refresh](#)**Note:** Click on the switches to start network routing planning Enable Routing on all SwitchesSelecting the **“Core Switch”** will enable all fields.Click on **“Apply.”**

## Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 0

### VLAN Routing Planner

[Back to Network Profiles](#)

Profile Name: **Audio** | VLAN ID: **20** | Profile Template: **Audio Dante**

[Refresh](#)

**Note:** Click on the switches to start network routing planning

Enable Routing on all Switches



Scroll down.



### Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 1

Site  
HQ



Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 1

Switch Name ↓	Model ↓	Core Switch	Enable Routing	IGMP Querier	DHCP	
Core	M4300-8X8F	✓	✓	✓	✓	

Previous

Cancel

Click on "Apply."



**VLAN Routing Planner**

Engage has saved your VLAN Routing Planning.

[Go to VLAN Routing](#)

Click on "Go to VLAN Routing."

Legends

Core Switch

DHCP Server

Enable Routing

IGMP Querier

Total Number of Configured Switches: 1

Search for switch

Switch Name ↓	Model ↓	Core Switch	Enable Routing	IGMP Querier	DHCP	
Core	M4300-8X8F	✓	✓	✓	✓	

Previous

Cancel

Apply

Network Profiles

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### Basic Configuration

Search for switch Refresh

Vlan Routing

Profile Name: Audio | VLAN ID: 20

Add Switch

Enable New VLAN Routing

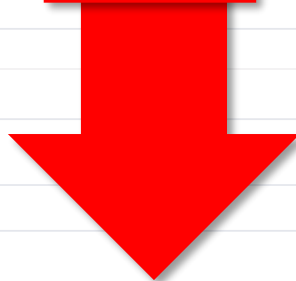
DHCP Server	Switch Name ↓	MAC Address	<input type="checkbox"/> DHCP Client	<input checked="" type="checkbox"/> Static	IP Address	Subnet Mask
<input checked="" type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.1.0	255.255.255.0

Total 3 10/page 1 Go to 1

### DHCP Server

Default Router

Scroll down.



DHCP Server Pool Start

DHCP Server Pool End

DNS Server 1

DNS Server 2



Devices Topology Site Settings Support Controller Management

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Save

Information	HCP Server	Switch Name ↓	MAC Address	<input type="checkbox"/> DHCP Client	<input checked="" type="checkbox"/> Static	IP Address	Subnet Mask
	<input checked="" type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.20.1	255.255.255.0

Total 3 10/page < 1 > Go to 1

The IP address for this VLAN is going to be "192.168.20.1" with a subnet mask of "255.255.255.0."

We are also going to configure the DHCP server for this VLAN.

The "Default Router" is the IP address of the VLAN.

The DHCP server pool will be between 192.168.20.100 to 192.168.20.200. This will give us 100 addresses.

For the DNS addresses we are going to use "8.8.8.8" and "8.8.4.4."

The "Search Domain" can be left blank.

The default "Lease Time" is set to 240 minutes, this can be changed, we are going to leave it at the default setting.

## DHCP Server

Default Router

192.168.20.1

DHCP Server Pool Start

192.168.20.100

DHCP Server Pool End

192.168.20.200

DNS Server 1

8.8.8.8

DNS Server 2

8.8.4.4

Search Domain

Lease Time (minute)

240

Cancel

Apply

Click on "Apply."

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Save

## Warning

We recommend configuring at least one DNS server when configuring a static IP address. Without a DNS server and router, Internet services cannot work.

No

Yes

Click on "Yes."

## HCP Server



## DHCP Server

Default Router

192.168.20.1

DHCP Server Pool Start

192.168.20.100

DHCP Server Pool End

192.168.20.200

DNS Server 1

8.8.8.8

DNS Server 2

8.8.4.4

Search Domain

Lease Time (minute)

240

Cancel

Apply

Next, we are going to assign a static IP address for VLAN 1.

## Basic Configuration

Search for switch

Refresh

## Vlan Routing

Profile Name: Audio

VLAN ID: 20

Add Switch

Enable New VLAN Routing

HCP Server	Switch Name ↓	MAC Address	<input type="checkbox"/> DHCP Client	<input checked="" type="checkbox"/> Static	IP Address	Subnet Mask
<input checked="" type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.20.1	255.255.255.0

Total 3 10/page < 1 > Go to 1

## DHCP Server

Default Router

192.168.20.1

DHCP Server Pool Start

192.168.20.100

DHCP Server Pool End

192.168.20.200

DNS Server 1

8.8.8.8

DNS Server 2

8.8.4.4

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Basic Configuration

Search for switch Refresh

Vlan Routing

Profile Name: Audio | VLAN ID: 20

Add Switch

Enable New VLAN Routing

Default	1
Video	10
Audio	20

Select VLAN 1.

DHCP	MAC Address	DHCP	IP Address	Subnet Mask
<input checked="" type="checkbox"/>	28:80:88:71:49:D7	<input type="checkbox"/>	192.168.20.1	255.255.255.0

Total 3 10/page 1 Go to 1

DHCP Server

Default Router 192.168.20.1

DHCP Server Pool Start 192.168.20.100

DHCP Server Pool End 192.168.20.200

DNS Server 1 8.8.8.8

DNS Server 2 8.8.4.4

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**Basic**

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### Basic Configuration

Vlan Routing

Profile Name: **Default** | VLAN ID: **1**

DHCP Server	Switch Name ↓	MAC Address	<input checked="" type="checkbox"/> DHCP Client	<input type="checkbox"/> Static	IP Address	Subnet Mask
<input type="checkbox"/>	Lobby	94:18:65:7D:5D:70	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.77.107	255.255.255.0
<input type="checkbox"/>	Core	28:80:88:71:49:D7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.77.104	255.255.255.0
<input type="checkbox"/>	Conference Room	34:98:B5:A3:56:89	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.77.107	255.255.255.0

Check the box under "Static" for the "Core" switch.

Total 3 | 10/page |  | Go to

### DHCP Server

Default Router

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HQ Save

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Basic Configuration

Search for switch Refresh

Vlan Routing

Profile Name: Default VLAN ID: 1

Add Switch

Enable New VLAN Routing

DHCP Server	Switch Name ↓	MAC Address	<input type="checkbox"/> DHCP Client	<input type="checkbox"/> Static	IP Address	Subnet Mask
<input type="checkbox"/>	Lobby	94:18:65:7D:5D:70	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.77.106	255.255.255.0
<input type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.77.254	255.255.255.0
<input type="checkbox"/>	Conference Room	34:98:B5:A3:56:89	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.77.107	255.255.255.0

We are going to give VLAN 1 an IP address of "192.168.77.254" and a subnet mask of "255.255.255.0."

Scroll down.



DHCP Server

Default Router

Site  
HQ

<input type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.77.254	255.255.255.0
<input type="checkbox"/>	Conference Room	34:98:B5:A3:56:89	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.77.107	255.255.255.0

Total 3 10/page < 1 > Go to 1

### DHCP Server

Default Router

DHCP Server Pool Start

DHCP Server Pool End

DNS Server 1

DNS Server 2

Search Domain

Lease Time (minute)

Click on "Apply."

This completes the VLAN routing configuration on the switches.

We now have to login to the firewall and configure the static routes.

## Basic Configuration

Search for switch

Refresh

## Vlan Routing

Profile Name: Default

VLAN ID: 1

Add Switch

Enable New VLAN Routing

DHCP Server	Switch Name ↓	MAC Address	<input type="checkbox"/> DHCP Client	<input type="checkbox"/> Static	IP Address	Subnet Mask
<input type="checkbox"/>	Lobby	94:18:65:7D:5D:70	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.77.106	255.255.255.0
<input type="checkbox"/>	Core	28:80:88:71:49:D7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.77.254	255.255.255.0
<input type="checkbox"/>	Conference Room	34:98:B5:A3:56:89	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.77.107	255.255.255.0

Total 3

10/page

&lt;

1

&gt;

Go to

1

## DHCP Server

Default Router



The configuration may vary depending on your firewall.  
For this example, we are using a PfSense firewall.

System /

Gateways

Gateways

Name	Default	Interface	Gateway	Monitor IP	Description	Actions
WAN				0.43	Interface WAN_DHCP Gateway	

- Advanced
- Cert. Manager
- General Setup
- High Avail. Sync
- Logout (admin)
- Package Manager
- Register
- Routing
- Setup Wizard
- Update
- User Manager

Click on "System" and go to "Routing."

Default gateway

Default gateway IPv4 Automatic ▾

Select a gateway or failover gateway group to use as the default gateway.

Default gateway IPv6 Automatic ▾

Select a gateway or failover gateway group to use as the default gateway.

Save



For us to configure the route we first need to create a gateway.

# System / Routing / Gateways

Gateways Static Routes Gateway Groups

Gateways							
Name	Default	Interface	Gateway	Monitor IP	Description	Actions	
WAN_DHCP		WAN	10.20.0.43	10.20.0.43	Interface WAN_DHCP Gateway		

Save + Add

## Default gateway

Default gateway IPv4 Automatic

Select a gateway or failover gateway group to use as the default gateway.

Default gateway IPv6 Automatic

Select a gateway or failover gateway group to use as the default gateway.

Save

Click on "Add."

## System / Routing / Gateways / Edit

### Edit Gateway

**Disabled**  Disable this gateway  
Set this option to disable this gateway without removing it from the list.

**Interface** LAN ▾  
Choose which interface this gateway applies to.

Click the drop-down for "Interface" and select "LAN."

**Address Family** IPv4 ▾  
Choose the Internet Protocol this gateway uses.

**Name** CoreSwitch  
Gateway name

**Gateway** 192.168.77.254  
Gateway IP address

We are going to name this gateway "CoreSwitch" and set the "Gateway" address to the IP address of VLAN 1 on the core switch.

**Gateway Monitoring**  Disable Gateway Monitoring  
This will consider this gateway as always b

Scroll down.

**Gateway Action**  Disable Gateway Monitoring Action  
No action will be taken on gateway events. The gateway is always considered up.

**Monitor IP**

Enter an alternative address here to be used to monitor the link. This is used for the quality RRD graphs as well as the load balancer entries. Use this if the gateway does not respond to ICMP echo requests (pings).

Choose the Internet Protocol this gateway uses.

**Name** CoreSwitch

Gateway name

**Gateway** 192.168.77.254

Gateway IP address

**Gateway Monitoring**  Disable Gateway Monitoring  
This will consider this gateway as always being up.

**Gateway Action**  Disable Gateway Monitoring Action  
No action will be taken on gateway events. The gateway is always considered up.

**Monitor IP**   
Enter an alternative address here to be used to monitor the link. This is used for the quality RRD graphs as well as the load balancer entries. Use this if the gateway does not respond to ICMP echo requests (pings).

**Force state**  Mark Gateway as Down  
This will force this gateway to be considered down.

**Description**   
A description may be entered here for reference (not parsed).

Display Advanced

Save

Click on "Save."



# System / Routing / Gateways



The gateway configuration has been changed.  
The changes must be applied for them to take effect.

✓ Apply Changes

Click on "Apply Changes."

Gateways Static Routes Gateway Groups

## Gateways

	Name	Default	Interface	Gateway	Monitor IP	Description	Actions
<input checked="" type="checkbox"/>	WAN_DHCP		WAN	10.20.0.43	10.20.0.43	Interface WAN_DHCP Gateway	
<input type="checkbox"/>	CoreSwitch		LAN	192.168.77.254	192.168.77.254		

Save + Add

## Default gateway

**Default gateway IPv4**

Select a gateway or failover gateway group to use as the default gateway.

**Default gateway IPv6**

Select a gateway or failover gateway group to use as the default gateway.

Save



# System / Routing / Gateways



The changes have been applied successfully.

Click on "Static Routes."

- Gateways
- Static Routes**
- Gateway Groups

Gateways							
	Name	Default	Interface	Gateway	Monitor IP	Description	Actions
<input checked="" type="checkbox"/>	WAN_DHCP		WAN	10.20.0.43	10.20.0.43	Interface WAN_DHCP Gateway	
<input type="checkbox"/>	CoreSwitch		LAN	192.168.77.254	192.168.77.254		

Save Add

### Default gateway

**Default gateway IPv4**

Select a gateway or failover gateway group to use as the default gateway.

**Default gateway IPv6**

Select a gateway or failover gateway group to use as the default gateway.

Save



System / Routing / Static Routes

Gateways Static Routes Gateway Groups

Static Routes				
Network	Gateway	Interface	Description	Actions

+ Add

Click on "Add."

The "Destination network" for VLAN 10 will be "192.168.10.0."

A 255.255.255.0 subnet mask is "/24."

### Edit Route Entry

**Destination network**

192.168.10.0

Destination network for this static route

/ 24 ▾

**Gateway**

CoreSwitch - 192.168.77.254 ▾

Choose which gateway this route applies to or [add a new one first](#)

Click the drop-down for "Interface" and select "CoreSwitch."

**Disabled**

Disable this static route

Set this option to disable this static route without removing it from the list.

**Description**

A description may be entered here for administrative reference (not parsed).

 Save

Click on "Save."



System / Routing / Static Routes



The static route configuration has been changed.  
The changes must be applied for them to take effect.

✓ Apply Changes

Click on "Apply Changes."

Gateways   Static Routes   Gateway Groups

Static Routes

	Network	Gateway	Interface	Description	Actions
✓	192.168.10.0/24	CoreSwitch - 192.168.77.254	LAN		

+ Add



System / Routing / Static Routes

The changes have been applied successfully.

Gateways Static Routes Gateway Groups

We now have the route for VLAN 10 configured.

Static Routes

	Network	Gateway	Interface	Description	Actions
✓	192.168.10.0/24	CoreSwitch - 192.168.77.254	LAN		

+ Add

Click on "Add."

The "Destination network" for VLAN 10 will be "192.168.20.0."

A 255.255.255.0 subnet mask is "/24."

### Edit Route Entry

**Destination network**

192.168.20.0

Destination network for this static route

/ 24

**Gateway**

CoreSwitch - 192.168.77.254

Choose which gateway this route applies to or [add a new one first](#)

Click the drop-down for "Interface" and select "CoreSwitch."

**Disabled**

Disable this static route

Set this option to disable this static route without removing it from the list.

**Description**

A description may be entered here for administrative reference (not parsed).

Save

Click on "Save."

System / Routing / Static Routes



The static route configuration has been changed.  
The changes must be applied for them to take effect.

✓ Apply Changes

Click on "Apply Changes."

Gateways Static Routes Gateway Groups

Static Routes

	Network	Gateway	Interface	Description	Actions
✓	192.168.10.0/24	CoreSwitch - 192.168.77.254	LAN		
✓	192.168.20.0/24	CoreSwitch - 192.168.77.254	LAN		

+ Add



System / Routing / Static Routes



The changes have been applied successfully.

Gateways Static Routes Gateway Groups

**Static Routes**

	Network	Gateway	Interface	Description	Actions
<input checked="" type="checkbox"/>	192.168.10.0/24	CoreSwitch - 192.168.77.254	LAN		
<input checked="" type="checkbox"/>	192.168.20.0/24	CoreSwitch - 192.168.77.254	LAN		

**+** Add



We now have the routes configured back to the core switch for the two VLANs that we created.

To add another VLAN with Internet access you will follow the same process to add another route for the VLANs subnet.

End

