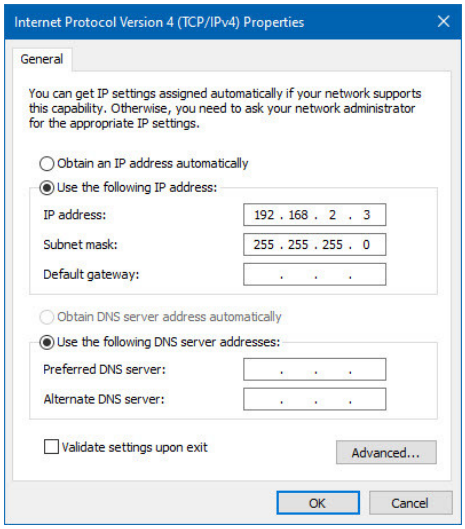
Switch Configuration Example for **Dante**

Niveo NGSM/NGSME Series

Items Covered:

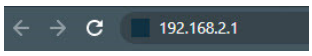
- QOS
- VLAN
- Link Aggregation
- Multicast
- DHCP Server

1. Assign Static IP Address to your Nework Card



Assign static IP address to your network card.
The IP address of your computer must belong to the same subnet as the switch, i.e 192.168.2.x with a mask of 255.255.255.0

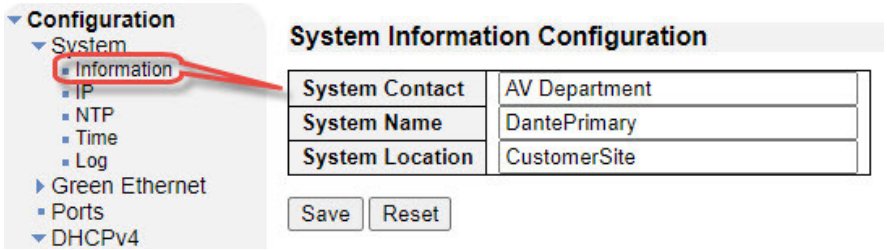
2. Connect to the Switch Via Its default IP



3. Log in with
Username: admin
Password: admin

4. Switch Information

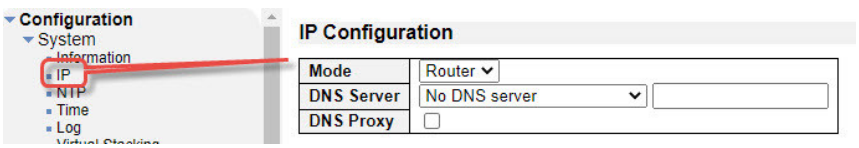
To be able to differentiate between your switches, edit the system information



Second switch could be **DanteSecondary**
Third switch could be **DanteControl**

5. Switch IP Configuration

Click on Configuration>System>IP



Set the Switch mode to **Router**
If the Switch is not connected to the outside world, then set DNS Server to **No DNS Server**

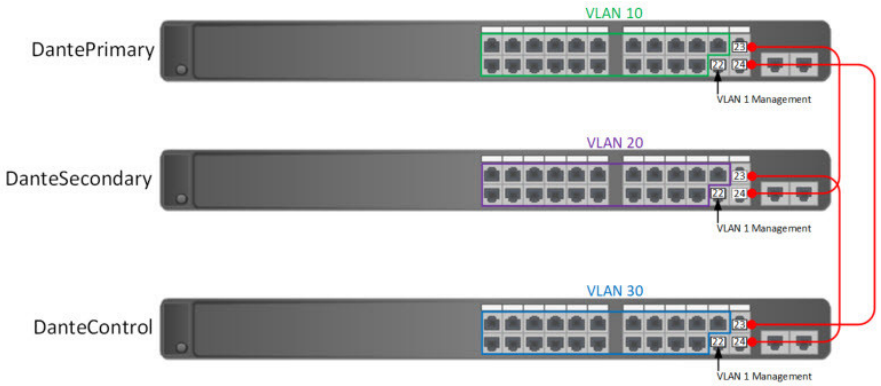
5. Switch IP Configuration (Continued)

By default each switch is set to the same IP of 192.168.2.1/24 on VLAN 1. To avoid a network conflict, each switch should be set to a unique IP. It's also good practice to leave VLAN 1 as a backup management VLAN and dedicate 1 switch port for it. Another good practice is to match the 3rd Octet to the VLAN ID

Example for a 3 switches Dante System;

Switch	IP Address	System Name	VLAN ID	Port
1	192.168.1.252	DantePrimary	1	22
2	192.168.1.253	DanteSecondary	1	22
3	192.168.1.254	DanteControl	1	22

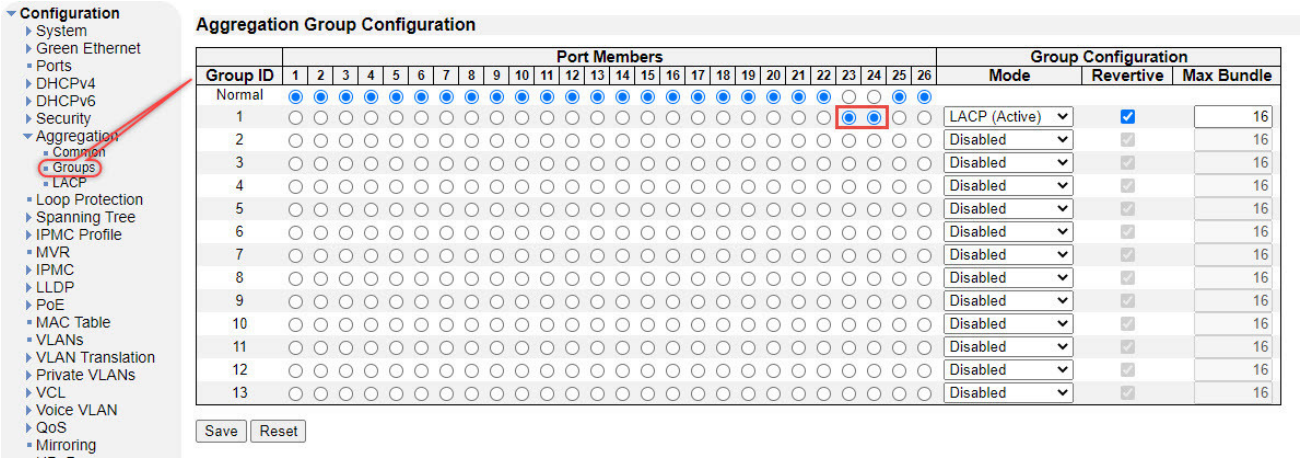
6. Switch Connection

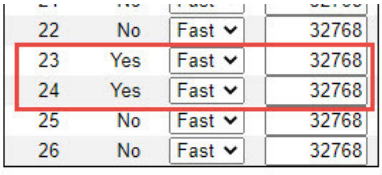


7. Aggregation

Go to **Configuration>Aggregation>Groups** for each switch

On Group ID 1, check Port 23 & 24





To verify that Link Aggregation has been turned on for port 23 & 24

Go to **Configuration>Aggregation>LACP**

8. VLAN Configuration

On each switch, go to **Configuration>VLANs**

Under **Allowed Access VLANs**, simply type in the VLAN you would like to add after the comma

Under * **Port VLAN**, enter 10 and click on any other part of the screen. Each port should be set to 10

Under port 22, change the VLAN ID to 1

Change Port 23 & 24 mode to Trunk and set **Egress Tagging** to **Tag All**

Global VLAN Configuration

Allowed Access VLANs	1,10
Ethertype for Custom S-ports	88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
*	<>	10	<>	☑	<>	<>	2	
1	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
2	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
3	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
4	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
5	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
6	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
7	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
8	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
9	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
10	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
11	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
12	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
13	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
14	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
15	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
16	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
17	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
18	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
19	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
20	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
21	Access	10	C-Port	☑	Tagged and Untagged	Untag All	2	
22	Access	1	C-Port	☑	Tagged and Untagged	Untag All	1	
23	Trunk	1	C-Port	☑	Tagged Only	Tag All	1-4095	
24	Trunk	1	C-Port	☑	Tagged Only	Tag All	1-4095	
25	Access	1	C-Port	☑	Tagged and Untagged	Untag All	1	
26	Access	1	C-Port	☑	Tagged and Untagged	Untag All	1	

Save Reset

9. Add Interfaces for new VLANs

Taking the primary switch as an example (DantePrimary) which serves VLAN 10, let's add an IP Interface to it.

Go to **Configuration>IP**

-Under IP Interfaces, click on Add Interface

-Change VLAN ID to 10

-Under IPv4, enter 192.168.10.1. Enter 24 for Mask length

- Click Save

Follow the same steps and add VLAN 20 on the DanteSecondary switch & VLAN 30 on the DanteControl switch.

Port 23 & 24 on each switch need to be in Trunk mode while ports 22 need to be on VLAN 1.

9. Add Interfaces for new VLANs Continued

After you are done adding the interfaces, your screen should look like this

IP Interfaces

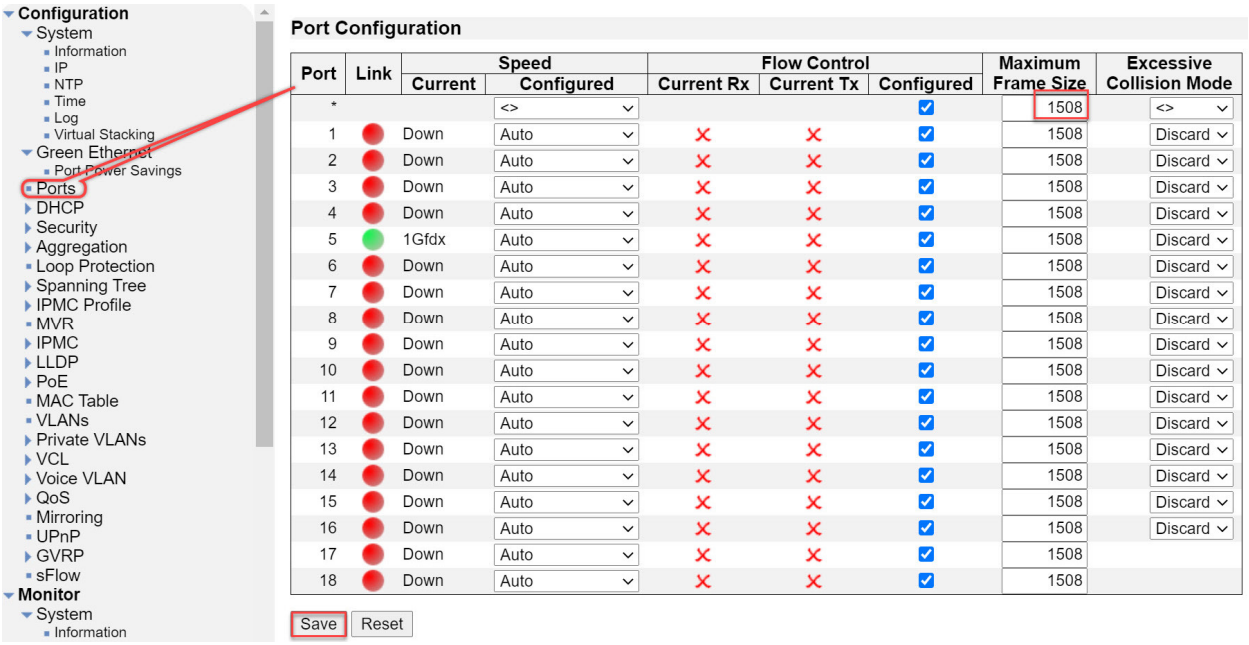
Delete	VLAN	IPv4 DHCP			IPv4		IPv6	
		Enable	Fallback	Current Lease	Address	Mask Length	Address	Mask Length
☐	1	☐	0		192.168.1.253	24		
☐	10	☐	0		192.168.10.1	24		
☐	20	☐	0		192.168.20.1	24		
☐	30	☐	0		192.168.30.1	24		

Add Interface

For the DanteSecondary switch, set VLAN 1 IPv4 to 192.168.1.253
For the DanteControl switch, set VLAN 1 IPv4 to 192.168.1.254
All 3 switches should have the same interfaces for VLAN 10, 20 & 30

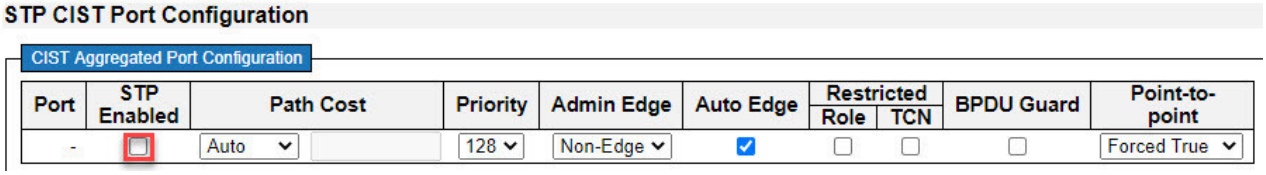
10. Go to Configuration>Ports. In the row **Port*** of the **Port Configuration** table, select **Flow Control>Configured** and enter **1518** at **Maximum Frame Size**

This should automatically select **Configured** and enter 1518 at the **Maximum Frame Size** on all the ports. Click **Save**



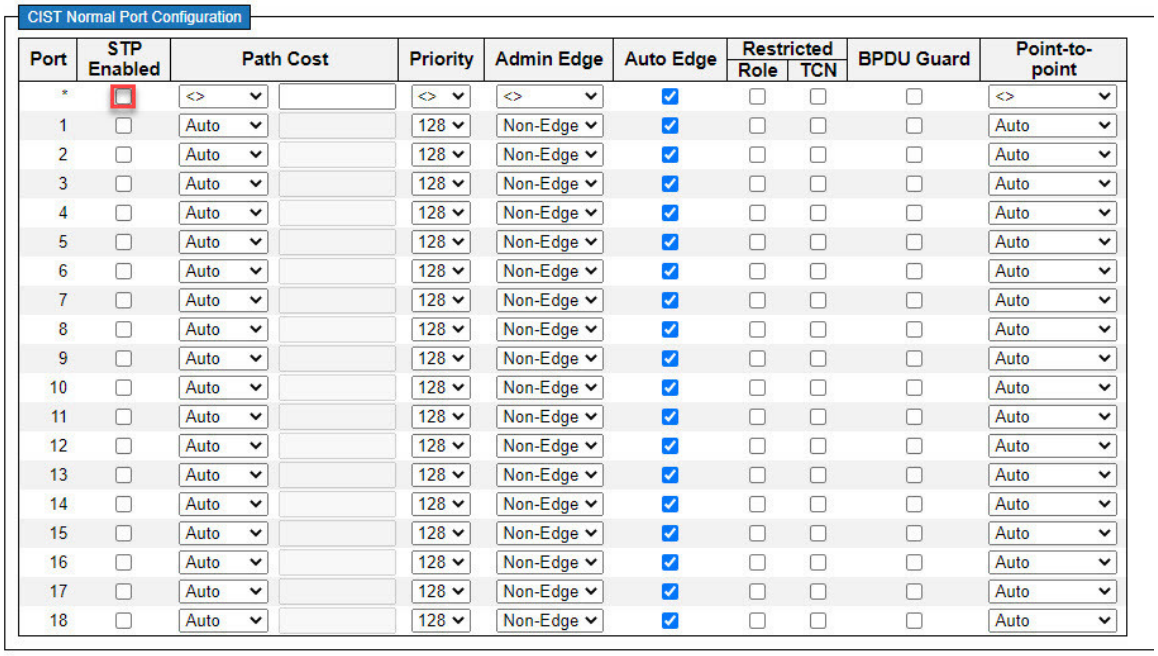
11. Go to **Configuration>Spanning Tree>CIST Ports**

In the **CIST Aggregated Port Configuration** table, clear the **STP Enabled** check box.



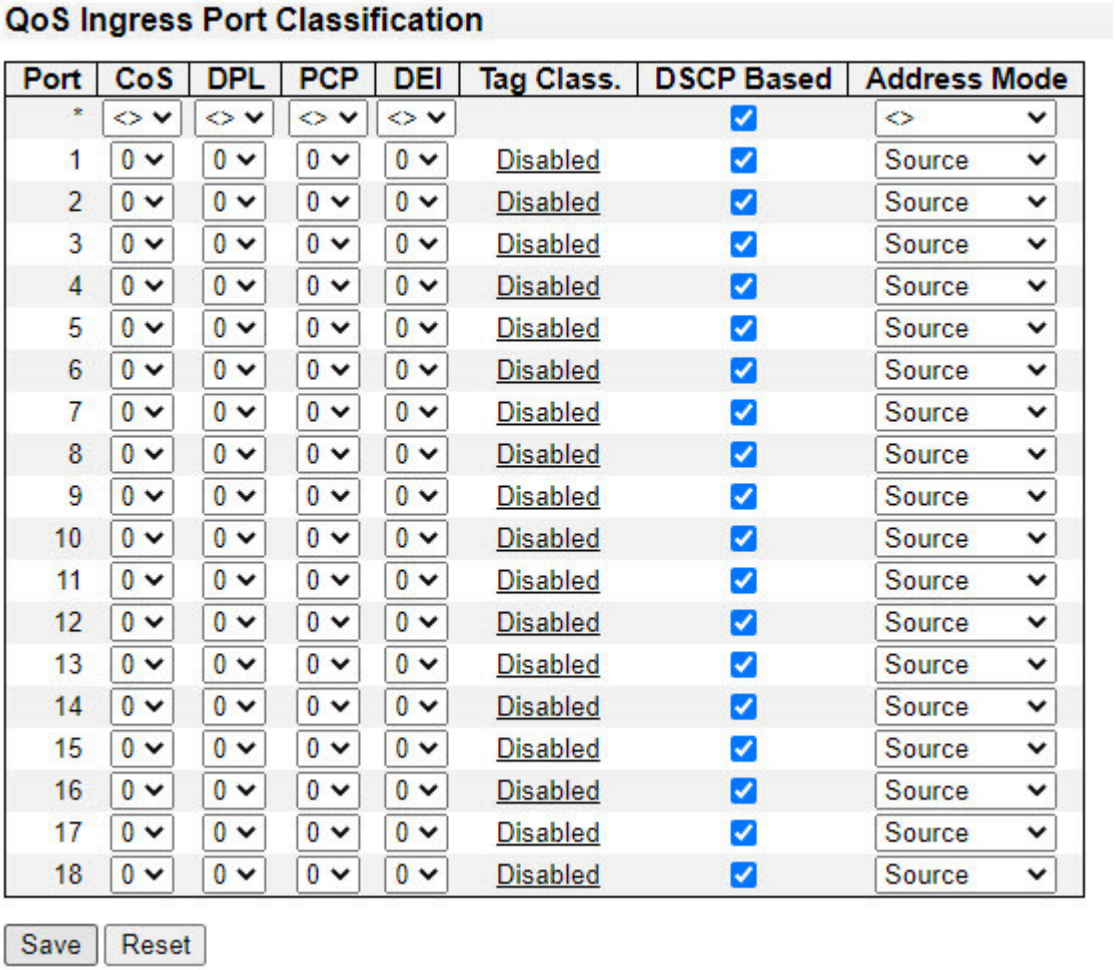
In the **CIST Normal Port Configuration** table, clear the STP Enabled check box at the **Port***. The check box should automatically clear on all the ports in the table.

Click **Save**.



12. Go to **Configuration>QOS>Port Classification**. At the **Port*** row in the **QOS Ingress Port Classification** table, select **DSCP Based.**

This should automatically select DSCP based on all the ports in the table.



13. Go to **Configuration>QOS>DSCP Based QOS**
At the **Port*** row of the **DSCP-Based QoS Ingress Classification** table, select **Trust**
At DSCO **8 (CS1)**, select QoS Class **5**
At DSCO **26 (AF31)**, select QoS Class **5**
At DSCO **46 (EF)**, select QoS Class **6**
At DSCO **56 (CS7)**, select QoS Class **7**
All other QoS class values should be **0.**
Click **Save.**

DSCP-Based QoS Ingress Classification

DSCP	Trust	QoS Class	DPL
*	☑	<>	<>
0 (BE)	☑	0	0
1	☑	0	0
2	☑	0	0
3	☑	0	0
4	☑	0	0
5	☑	0	0
6	☑	0	0
7	☑	0	0
8 (CS1)	☑	5	0
9	☑	0	0
10 (AF11)	☑	0	0
11	☑	0	0
12 (AF12)	☑	0	0
13	☑	0	0
14 (AF13)	☑	0	0
15	☑	0	0
16 (CS2)	☑	0	0
17	☑	0	0
18 (AF21)	☑	0	0
19	☑	0	0
20 (AF22)	☑	0	0
21	☑	0	0
22 (AF23)	☑	0	0
23	☑	0	0
24 (CS3)	☑	0	0
25	☑	0	0
26 (AF31)	☑	5	0
27	☑	0	0
28 (AF32)	☑	0	0
29	☑	0	0
30 (AF33)	☑	0	0
31	☑	0	0
32 (CS4)	☑	0	0
33	☑	0	0
34 (AF41)	☑	0	0
35	☑	0	0
36 (AF42)	☑	0	0
37	☑	0	0
38 (AF43)	☑	0	0
39	☑	0	0
40 (CS5)	☑	0	0
41	☑	0	0
42	☑	0	0
43	☑	0	0
44	☑	0	0
45	☑	0	0
46 (EF)	☑	6	0
47	☑	0	0
48 (CS6)	☑	0	0
49	☑	0	0
50	☑	0	0
51	☑	0	0
52	☑	0	0
53	☑	0	0
54	☑	0	0
55	☑	0	0
56 (CS7)	☑	7	0
57	☑	0	0
58	☑	0	0
59	☑	0	0
60	☑	0	0
61	☑	0	0
62	☑	0	0
63	☑	0	0

Save Reset

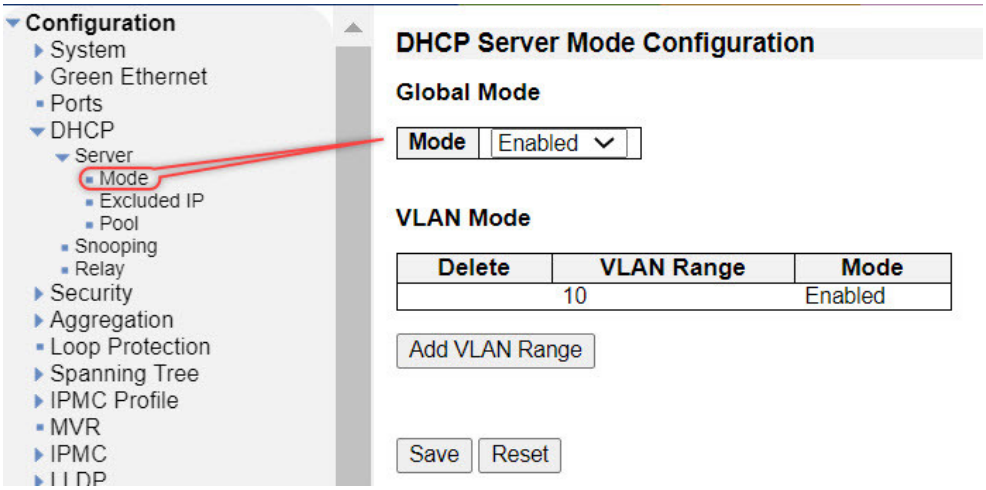
12. DHCP Server Configuration

Each switch can be turned into a DHCP server. Switch 1 can serve VLAN10 and provide IP addresses 192.168.10.X Switch 2 can serve VLAN20 and provide IP addresses 192.168.20.X. Switch 3 can serve VLAN30 and provide IP addresses 192.168.30.X

Go to **Configuration>DHCP>Mode**

Turn **Mode** to Enabled

Click on Add VLAN Range and enter 10. Enter 20 for switch 2 and 30 for switch 3.



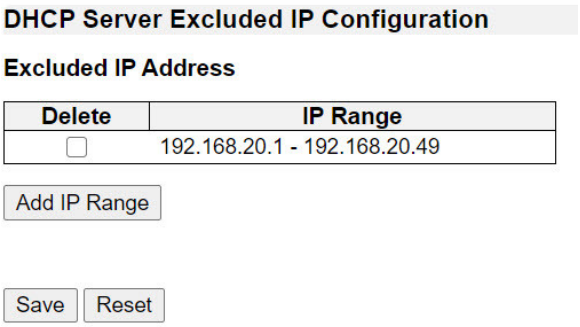
Go to **Excluded IP**

Since this is for switch 1 VLAN10, we can exclude IP 192.168.10.1 to 192.168.10.49.

Click on Add IP Range to enter the above range.

Everything else will be reserved for the DHCP pool

Click **Save**



Click on **DHCP>Pool**
Click on **Add New Pool**
Enter VLAN10 for the name
Over over VLAN10 and click to edit

DHCP Server Pool Configuration

Pool Setting

Delete	Name	Type	IP	Subnet Mask	Lease Time
☐	VLAN10	Network	192.168.10.50	255.255.255.0	1 days 0 hours 0 minutes

Add New Pool

Save Reset

Change **Type** to Network
Change IP to 192.168.1.50. This is where your DHCP pool starts
Enter 255.255.255.0 for the Subnet Mask
Enter 192.168.10.1 for the Default Router
You don't need to enter a DNS server if the switch is isolated

DHCP Pool Configuration

Pool

Name VLAN10

Setting

Pool Name	VLAN10
Type	Network
IP	192.168.10.50
Subnet Mask	255.255.255.0
Lease Time	1 days (0-365) 0 hours (0-23) 0 minutes (0-59)
Domain Name	
Broadcast Address	
Default Router	192.168.10.1
DNS Server	8.8.4.4
NTP Server	
NetBIOS Node Type	None
NetBIOS Scope	
NetBIOS Name Server	
NIS Domain Name	

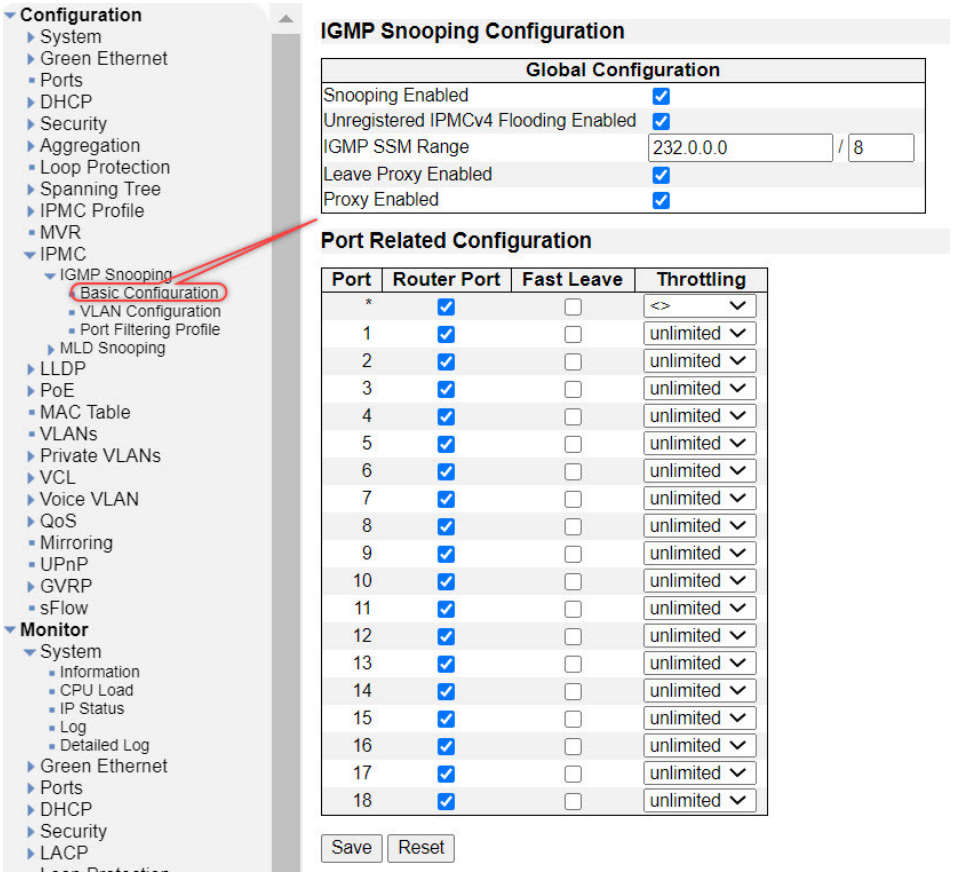
13. IGMP Settings

Go to **Configuration>IPMC>IGMP Snooping>Basic Configuration**

In the **IGMP Snooping Configuration** table, select **Snooping Enabled**. Also select **Unregistered IP-MCv4 Flooding Enabled**, **Leave Proxy Enabled**, and **Proxy Enabled**

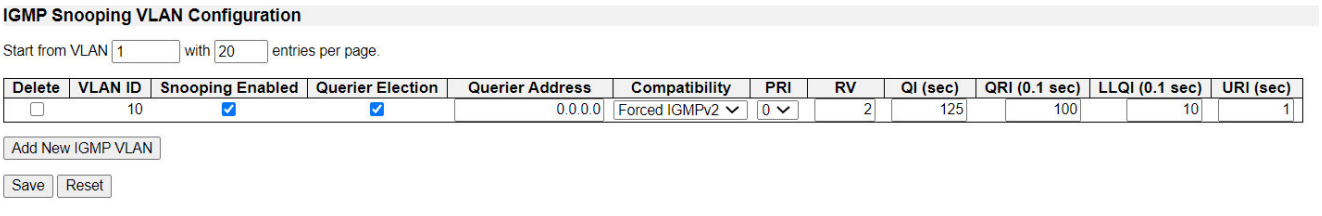
In the **Port *** row of the **Port Related Configuration** table, select **Router Port**. This should automatically select **Router Port** on all ports in the table.

Click **Save.**

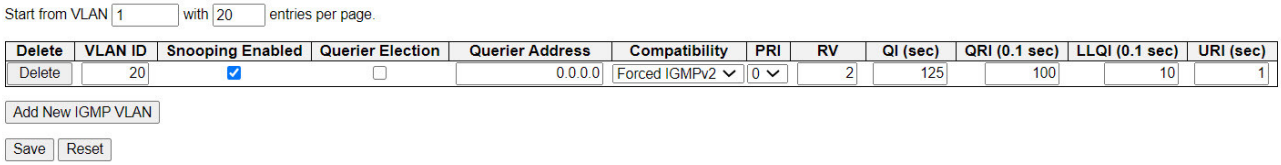


Go to **Configuration>IPMC>IGMP Snooping>VLAN Configuration**

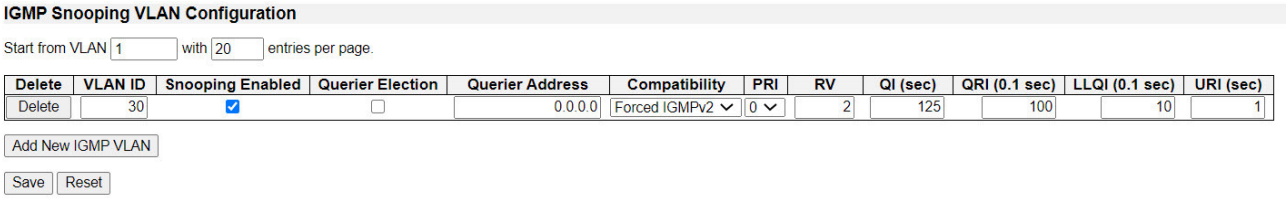
Click **Add New IGMP VLAN**. A new row for VLAN 1 will appear in the **IGMP Snooping VLAN Configuration** table. For VLAN1 select **Snooping Enabled** and **IGMP Querier**.



IGMP Snooping VLAN 20 for switch 2 will look like this



IGMP Snooping for switch 3 VLAN 30 will look like this;



You only need to check Querier Election for 1 switch. In this case we have switch 1 as the main Querier

14. The Switch configuration is ready to be saved. Go to **Maintenance>Configuration>Save**
Click on **Save Startup Config>Save Configuration**. The switch is now ready for use in the network.

Do the same for the 2nd and 3rd switch.