



VIP-NET-2804PP-1G

VIP-NET-4804PP-1G

VIP-NET-0424-1G

Multicast Configuration Guide

L2+

'Media Hub' Managed

Switch

Note: There may be slight variations of web user interface between the network switch models listed above. If you have any questions, please contact support@purelinkav.com.

IGMP Overview

Internet Group Management Protocol (IGMP) allows devices to establish multicast group memberships. The routes between transmitters (sources) and receivers (outputs) is maintained by a table on each switch or router on the multicast network. The master route table is maintained by an IGMP Querier that is either statically or dynamically assigned (*Querier Election). An IGMP aware switch is crucial in sending large amounts of data through a network for time sensitive data like video or audio. IGMP aware switches are capable of treating multicast data packets as directed traffic rather than blindly broadcasting the data packets to every port of the switch. Only devices that have elected to join a multicast group will receive multicast data packets allowing for more efficient network routing.

With Querier Election, each switch starts off assuming it is the IGMP Querier and builds a table of all locally connected multicast devices. After it has identified each multicast device, and the associated groups, it looks for a Router Port (switch-to-switch interconnect). An IGMP Query is sent out each Router Port and the switches begin to elect a single switch as the IGMP Querier (the switch responsible for building the master route table between transmitters and receivers). This is repeated until the switch with the lowest management IP address is located and selected as the IGMP Querier.

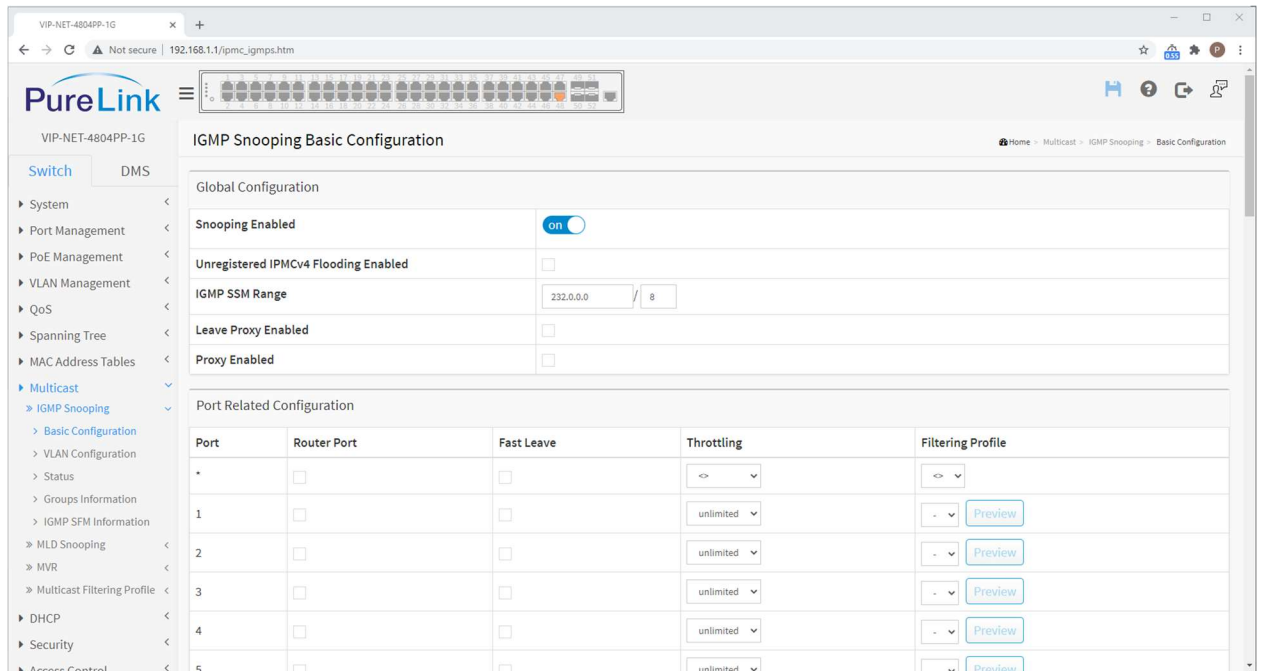
Proper configuration allows this process to complete the routing table necessary for connecting transmitters and receivers across VIP-NET.

***Note:** Querier Election is not supported by IGMPv1 devices.

IGMP Snooping

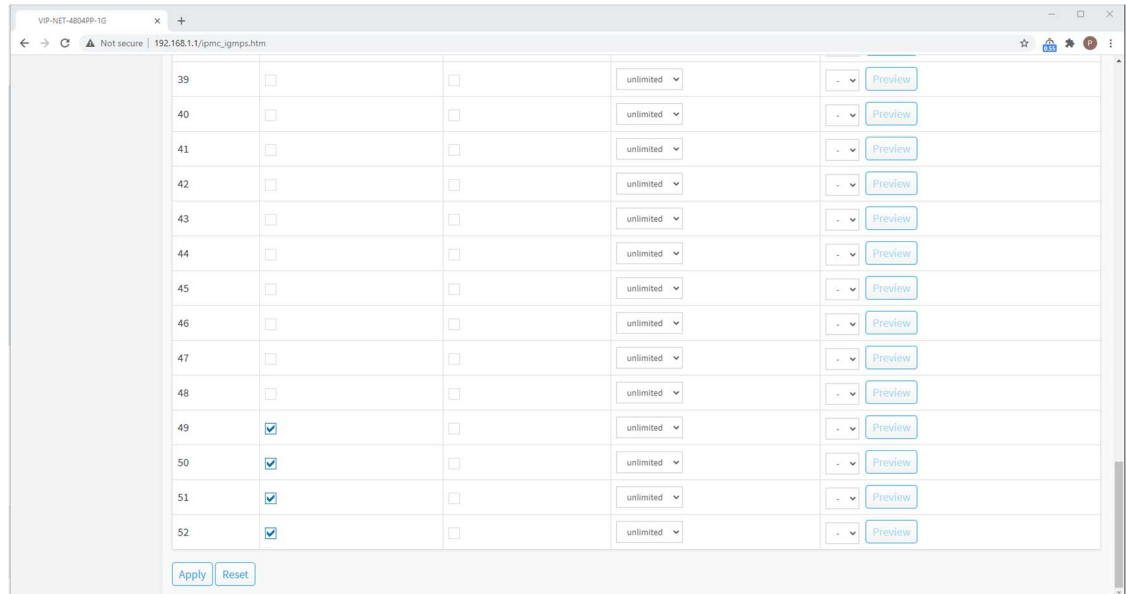
IGMP Snooping is passive and can take 1-2 minutes to build out the routing table when switches are first started up, particularly with a large deployment of multicast devices.

1. Login to the VIP-NET switch
2. On the left-hand menu, select Multicast → IGMP Snooping → Basic Configuration



- a. Global Configuration
 - i. Snooping Enabled → Checked
 - ii. Unregistered IPMcV4 Flooding Enabled → Unchecked
 - iii. IGMP SSM Range → Default Value
 - iv. Leave Proxy Enabled → Unchecked
 - v. Proxy Enabled → Unchecked
- b. Port Related Configuration
 - i. Any port that has an Encoder (Transmitter) connected needs to have the Fast Leave box checked.

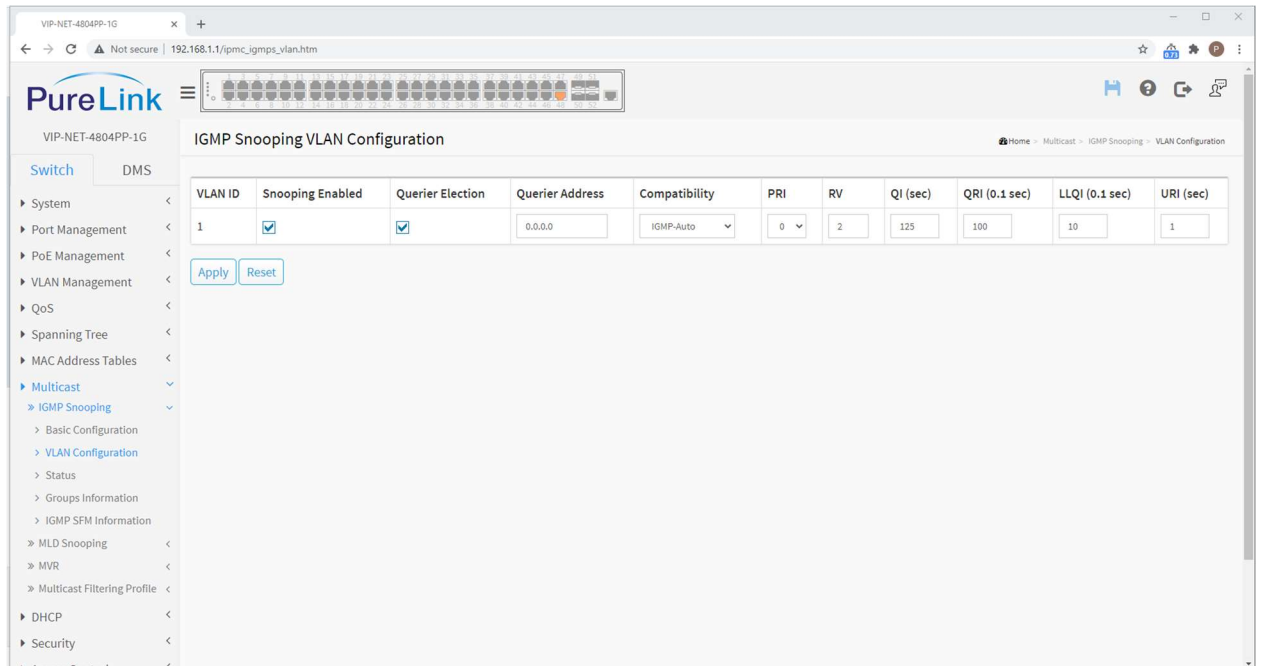
- ii. Ports 49-52 are used for SFP+ 10Gb switch interconnects. Any port that is connected to another switch should have Router Port checked



- iii. All other settings can be left as default values.

- c. After any changes, click Apply at the bottom of the page, then Save to Startup Config in the top Right Corner.

3. On the left hand menu, select Multicast → VLAN Configuration



- a. If there is no VLAN defined, click “Add New IGMP VLAN”
 - i. VLAN ID → 1
 - ii. Snooping Enabled → Checked
 - iii. Querier Election → Checked

- iv. Querier Address → Blank or default
 - v. Compatibility → IGMP-Auto
 - vi. PRI → Default Value
 - vii. RV → Default Value
 - viii. QI (sec) → Default Value
 - ix. QRI (0.1 sec) → Default Value
 - x. LLQI (0.1 sec) → Default Value
 - xi. URI (sec) → Default Value
- b. After any changes, click Apply at the bottom of the page, then Save to Startup Config in the top Right Corner.

Link Aggregation – LACP

Link Aggregation Control Protocol allows for automatic determination, configuration, and monitoring of Link Aggregation Group members. LACP will automatically discover any duplicate routes between any two switches and aggregate them into a single connection so long as LACP is enabled on each port utilized on both switches. Any two switches that are connected via two or more 10G switch-to-switch interconnects should utilize LACP to maximize available bandwidth.

1. Login to the VIP-NET switch
2. On the left hand menu, select Port Management → Link Aggregation → LACP Configuration

VIP-NET-4804PP-1G LACP Port Configuration

Home > Port Management > Link Aggregation > LACP Configuration

Switch DMS

- System
- Port Management
 - Port Configuration
 - Port Statistics
 - SFP Port Info
 - Energy Efficient Ethernet
 - Link Aggregation
 - Static Configuration
 - LACP Configuration
 - System Status
 - Port Status

Port	LACP Enabled	Key	Role	Timeout	Prio
*	<input type="checkbox"/>	<>	<>	<>	32768
1	<input type="checkbox"/>	Auto	Active	Fast	32768
2	<input type="checkbox"/>	Auto	Active	Fast	32768
3	<input type="checkbox"/>	Auto	Active	Fast	32768
4	<input type="checkbox"/>	Auto	Active	Fast	32768
5	<input type="checkbox"/>	Auto	Active	Fast	32768
6	<input type="checkbox"/>	Auto	Active	Fast	32768

3. Locate the 10G ports that are connected switch-to-switch and check the checkbox for **LACP Enabled**

45	<input type="checkbox"/>	Auto	Active	Fast	32768
46	<input type="checkbox"/>	Auto	Active	Fast	32768
47	<input type="checkbox"/>	Auto	Active	Fast	32768
48	<input type="checkbox"/>	Auto	Active	Fast	32768
49	<input checked="" type="checkbox"/>	Auto	Active	Fast	32768
50	<input checked="" type="checkbox"/>	Auto	Active	Fast	32768
51	<input checked="" type="checkbox"/>	Auto	Active	Fast	32768
52	<input checked="" type="checkbox"/>	Auto	Active	Fast	32768

Apply Reset

4. Set the **Key value** to a number e.g. 1 for each port that is connected to a second switch. You will need to follow the same guidelines for the second switch. If there is a third switch, you will

need to set a key value for the aggregated ports interlinked to that switch to a different Key value e.g. 2.

48	<input type="checkbox"/>		Active	Fast	32768
49	<input checked="" type="checkbox"/>	1	Active	Fast	32768
50	<input checked="" type="checkbox"/>	1	Active	Fast	32768
51	<input type="checkbox"/>		Active	Fast	32768
52	<input type="checkbox"/>		Active	Fast	32768

You can check the success of the settings in the Port Management>Internal Status and Port Management>Neighbor Status pages

Port	State	Key	Priority	Activity	Timeout	Aggregation	Synchronization	Collecting	Distributing	Defaulted	Expired
49	Active	1	32768	Active	Fast	Yes	Yes	Yes	Yes	No	No
50	Active	1	32768	Active	Fast	Yes	Yes	Yes	Yes	No	No

Port	State	Aggr ID	Partner Key	Partner Port	Partner Port Prio	Activity	Timeout	Aggregation	Synchronization	Collecting	Distributing	Defaulted	Expired
49	Active	1	1	49	32768	Active	Fast	Yes	Yes	Yes	Yes	No	No
50	Active	1	1	50	32768	Active	Fast	Yes	Yes	Yes	Yes	No	No

5. After any changes, click Apply at the bottom of the page, then Save to Startup Config in the top Right Corner

In a two-switch configuration where switch 1 port 49-50 are connected to switch 2 port 49-50, only ports 49 and 50 on both switches will require the LACP Enabled checkbox to be checked.

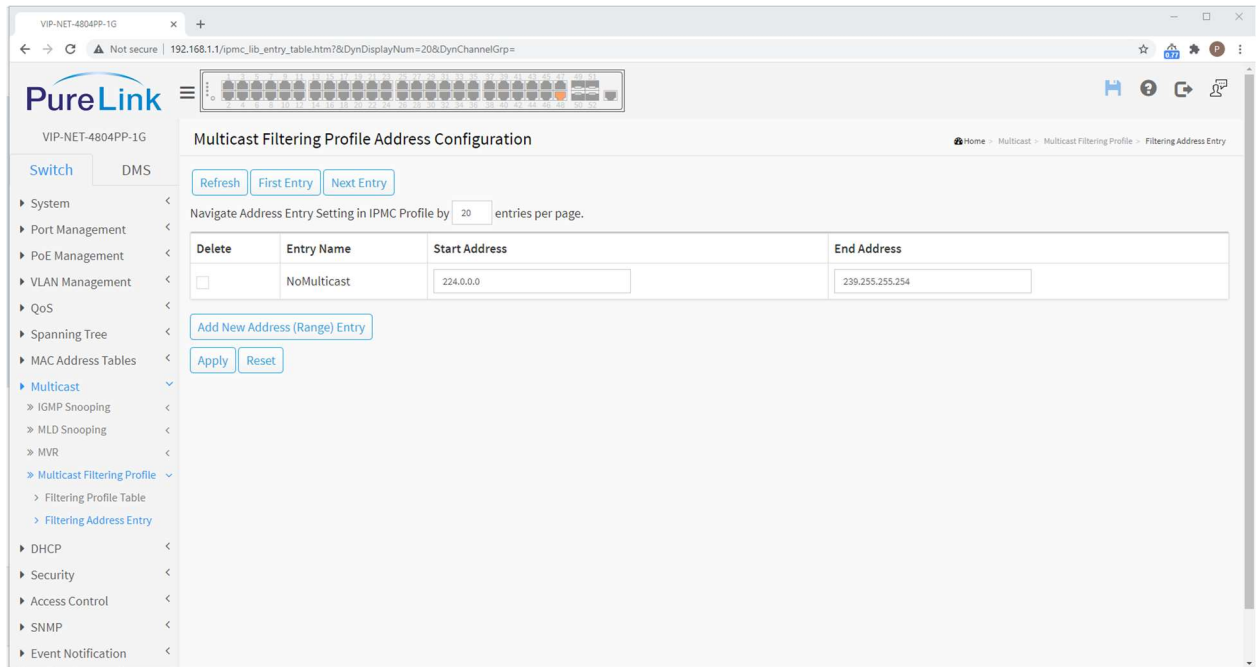
In a configuration containing more than 2 switches connected in a series (S1 ↔ S2 ↔ S3), you may either enable LACP on all interconnect ports (49-52) or enable only ports 49-50 on the first and last switch in the series while enabling ports 49-52 on all intermediary switches between the first and last switch.

IPMC Profile

Port Filtering Profiles allow you to assign a filtering profile to a port for blocking or accepting traffic for specific multicast groups on a per port basis. IGMP Snooping should block multicast traffic to ports that have not elected to join a multicast group, but here you can define additional rules, or block multicast packets explicitly, rather than implicitly through IGMP Snooping built routing tables.

1. Login to the VIP-NET switch

2. On the left hand menu, select Multicast → Multicast Filtering Profile → Filtering Address Entry



- a. To block all Multicast traffic
 - i. Select "Add New Address (Range) Entry"
 - ii. Entry Name → NoMulticast
 - iii. Start Address → 224.0.0.0
 - iv. End Address → 239.255.255.254
- b. After any changes, click Apply at the bottom of the page, then Save to Startup Config in the top Right Corner

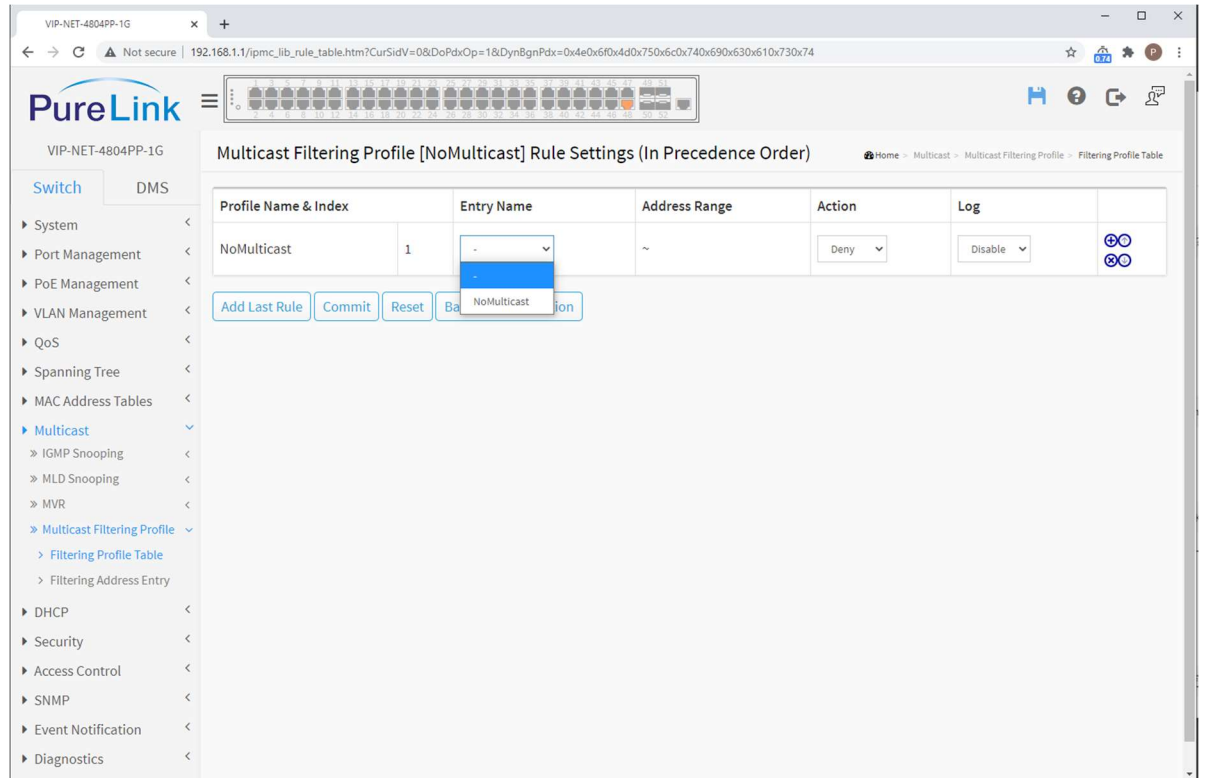
3. On the left-hand menu, select Multicast → Multicast Filtering Profile → Filtering Profile Table

The screenshot shows the PureLink web interface for a VIP-NET-4804PP-1G switch. The left-hand menu is expanded to 'Multicast', and 'Filtering Profile Table' is selected. The main content area displays the 'Multicast Filtering Profile Configuration' page. Under 'Multicast Filtering Profile Global Setting', the 'Multicast Filtering Profile Mode' is set to 'on'. Under 'Multicast Filtering Profile Table Setting', there is a table with one entry: 'NoMulticast' with the description 'blocks multicast traffic'. Below the table, there is an 'Add New Filtering Profile' button and 'Apply' and 'Reset' buttons.

Delete	Profile Name	Profile Description	Rule
<input type="checkbox"/>	NoMulticast	blocks multicast traffic	Preview Edit

- a. IPMC Profile Global Setting
 - i. Multicast Filtering Profile Mode → Enabled
- b. IPMC Profile Table Setting
 - i. If no profiles exist, click Add New IPMC Profile
 1. Profile Name → NoMulticast
 2. Profile Description → Blocks multicast traffic

- c. Once a profile exists, click the edit icon under Rule on the right side of the IPMC Profile Table Setting table.



1. Click Add Last Rule
 2. Under Entry Name, select NoMulticast.
 3. Address Range will populate.
 4. Action → Deny
 5. Log → Disable
 6. Click Commit
4. Apply the filtering profile to a specific port.

5. On the left-hand menu, select Multicast → IGMP Snooping → Basic Configuration

PureLink

VIP-NET-4804PP-1G

IGMP Snooping Basic Configuration

Home > Multicast > IGMP Snooping > Basic Configuration

Switch | DMS

- System
- Port Management
- PoE Management
- VLAN Management
- QoS
- Spanning Tree
- MAC Address Tables
- Multicast**
 - IGMP Snooping**
 - Basic Configuration**
 - VLAN Configuration
 - Status
 - Groups Information
 - IGMP SFM Information
 - MLD Snooping
 - MVR
 - Multicast Filtering Profile
- DHCP
- Security
- Access Control
- SNMP
- Event Notification

Global Configuration

Snooping Enabled	<input checked="" type="checkbox"/>
Unregistered IPMCv4 Flooding Enabled	<input type="checkbox"/>
IGMP SSM Range	232.0.0.0 / 8
Leave Proxy Enabled	<input type="checkbox"/>
Proxy Enabled	<input type="checkbox"/>

Port Related Configuration

Port	Router Port	Fast Leave	Throttling	Filtering Profile
*	<input type="checkbox"/>	<input type="checkbox"/>	<>	<>
1	<input type="checkbox"/>	<input type="checkbox"/>	unlimited	- Preview
2	<input type="checkbox"/>	<input type="checkbox"/>	unlimited	NoMulticast Preview
3	<input type="checkbox"/>	<input type="checkbox"/>	unlimited	- Preview
4	<input type="checkbox"/>	<input type="checkbox"/>	unlimited	- Preview
5	<input type="checkbox"/>	<input type="checkbox"/>	unlimited	- Preview
6	<input type="checkbox"/>	<input type="checkbox"/>	unlimited	- Preview

- Locate the port number you would like to assign a filtering profile.
- Using the drop-down menu on the right side of the table, select the IPMC Profile for the port.
- After any changes, click Apply at the bottom of the page, then Save to Startup Config in the top Right Corner.