

## EasyIP Multicast and Dante configuration for Luxul SW series switches

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### Introduction

This step-by-step guide will walk you through setting up your Luxul switch correctly when using EasyIP Multicast and Dante available on Vaddio's EasyIP devices running firmware 2.0.0 or later.

The steps described in this guide assume the switch is in an out-of-the-box state. If you have made any changes to the multicast configuration of your switch, for example, to handle Dante multicast streaming, your setup might already match the settings described in this document.

- EasyIP video consumes considerably more bandwidth than Dante audio. Where misconfiguration using Dante audio will not immediately be obvious on your AV network performance, an error in your IGMP multicast settings is much more likely to create issues when streaming high bandwidth EasyIP Multicast video.
- If your EasyIP switch is connected to a wider corporate network, do NOT enable Multicast in your EasyIP product without consulting the IT department managing the network. A single EasyIP Camera or Transmitter (like EasyIP Tx/Rx) in Multicast mode has the power to bring down large parts of a corporate network if the network is not properly configured for IGMP multicast. Don't underestimate the Force.

### Supported switches in this guide

The following products are covered in this guide:

- Luxul SW-505-8P-F
- Luxul SW-505-8P-R
- Luxul SW-505-16P-R
- Luxul SW-505-24P-F
- Luxul SW-505-24P-R
- Luxul SW-615-24P-R
- Luxul SW-515-48P-F
- Luxul SW-615-48P-F

Steps in this manual assume the latest firmware available for these products. Please make sure your switch firmware is up to date by checking the Luxul firmware update page at <https://legrandav.com/firmware/>

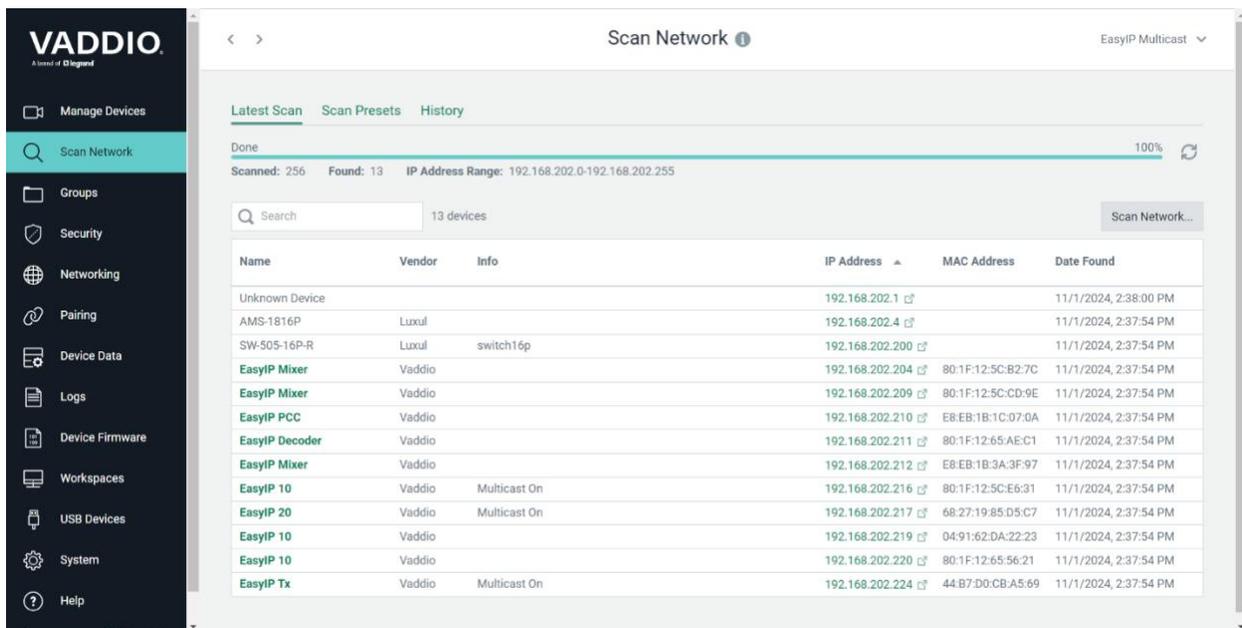
If you own a different model Luxul switch or the Vaddio EasyIP switch, check out the configuration documentation for the AMS/XMS series of switches in the Resources section here: [https://www.legrandav.com/resources/360\\_product\\_overviews/easyip\\_ecosystem](https://www.legrandav.com/resources/360_product_overviews/easyip_ecosystem)

## Connecting to the admin interface of your switch:

Start by logging into your network switch using a web browser with the admin credentials you have set up earlier.

In a default standalone setup, the IP address of the switch would be 192.168.0.4.

Alternatively, you can use the latest version of the [Vaddio Deployment Tool](#) to scan your network and discover the IP address of your Luxul switch. Click the link in the IP Address column to connect your web browser to the admin interface of your Luxul switch:

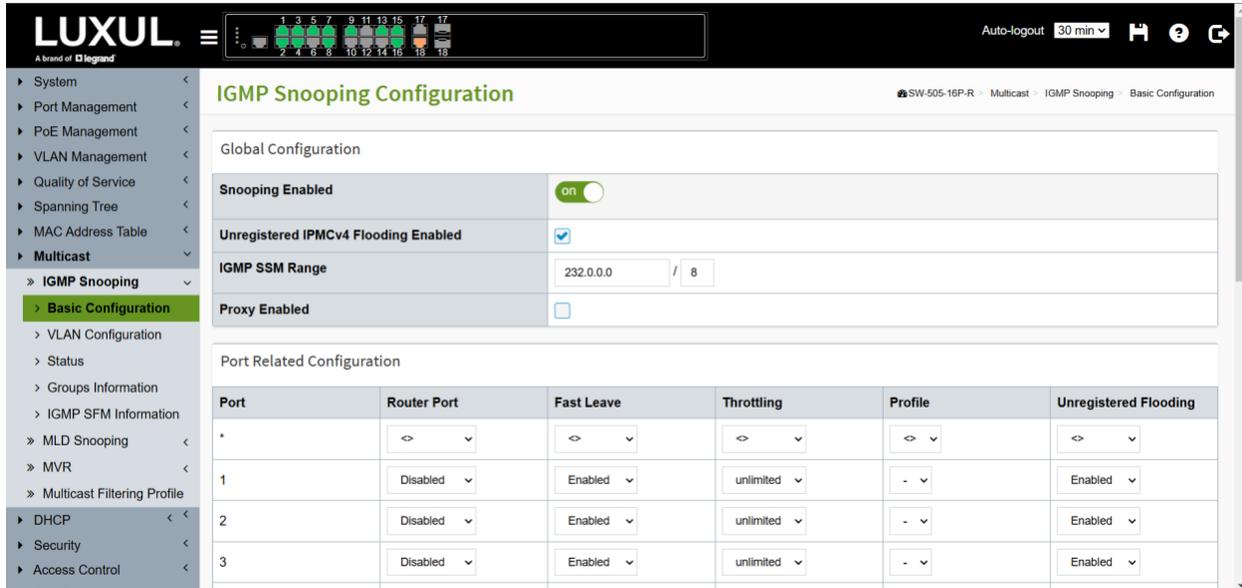


The screenshot displays the Vaddio Scan Network interface. The left sidebar contains navigation options: Manage Devices, Scan Network (selected), Groups, Security, Networking, Pairing, Device Data, Logs, Device Firmware, Workspaces, USB Devices, System, and Help. The main content area shows a progress bar for 'Done' at 100% completion. Below the progress bar, it indicates 'Scanned: 256', 'Found: 13', and 'IP Address Range: 192.168.202.0-192.168.202.255'. A search bar shows '13 devices'. A table lists the discovered devices with columns for Name, Vendor, Info, IP Address, MAC Address, and Date Found.

Name	Vendor	Info	IP Address	MAC Address	Date Found
Unknown Device			192.168.202.1		11/1/2024, 2:38:00 PM
AMS-1816P	Luxul		192.168.202.4		11/1/2024, 2:37:54 PM
SW-505-16P-R	Luxul	switch16p	192.168.202.200		11/1/2024, 2:37:54 PM
EasyIP Mixer	Vaddio		192.168.202.204	80:1F:12:5C:B2:7C	11/1/2024, 2:37:54 PM
EasyIP Mixer	Vaddio		192.168.202.209	80:1F:12:5C:CD:9E	11/1/2024, 2:37:54 PM
EasyIP PCC	Vaddio		192.168.202.210	E8:EB:1B:1C:07:0A	11/1/2024, 2:37:54 PM
EasyIP Decoder	Vaddio		192.168.202.211	80:1F:12:65:AE:C1	11/1/2024, 2:37:54 PM
EasyIP Mixer	Vaddio		192.168.202.212	E8:EB:1B:3A:3F:97	11/1/2024, 2:37:54 PM
EasyIP 10	Vaddio	Multicast On	192.168.202.216	80:1F:12:5C:E6:31	11/1/2024, 2:37:54 PM
EasyIP 20	Vaddio	Multicast On	192.168.202.217	68:27:19:85:D5:C7	11/1/2024, 2:37:54 PM
EasyIP 10	Vaddio		192.168.202.219	04:91:62:DA:22:23	11/1/2024, 2:37:54 PM
EasyIP 10	Vaddio		192.168.202.220	80:1F:12:65:56:21	11/1/2024, 2:37:54 PM
EasyIP Tx	Vaddio	Multicast On	192.168.202.224	44:B7:D0:CB:A5:69	11/1/2024, 2:37:54 PM

## Step-by-Step instructions for enabling IGMP Multicast:

Navigate using the menu on the left to **Multicast** → **IGMP Snooping** → **Basic Configuration**



The screenshot displays the LUXUL web interface for IGMP Snooping Configuration. The left sidebar shows the navigation menu with 'Multicast' > 'IGMP Snooping' > 'Basic Configuration' selected. The main content area is titled 'IGMP Snooping Configuration' and is divided into two sections: 'Global Configuration' and 'Port Related Configuration'.

**Global Configuration**

Snooping Enabled	<input checked="" type="checkbox"/>
Unregistered IPv4 Flooding Enabled	<input checked="" type="checkbox"/>
IGMP SSM Range	232.0.0.0 / 8
Proxy Enabled	<input type="checkbox"/>

**Port Related Configuration**

Port	Router Port	Fast Leave	Throttling	Profile	Unregistered Flooding
*	<>	<>	<>	<>	<>
1	Disabled	Enabled	unlimited	-	Enabled
2	Disabled	Enabled	unlimited	-	Enabled
3	Disabled	Enabled	unlimited	-	Enabled

Set the option **Snooping Enabled** to **On** in the Global Configuration section. Verify that other settings in this window reflects the setup on your switch.

Scroll down and select **Apply** to save your changes.

Navigate using the menu on the left to **Multicast** → **IGMP Snooping** → **VLAN Configuration**

The screenshot shows the LUXUL web interface for IGMP Snooping VLAN Configuration. The left navigation menu is expanded to show 'Multicast' > 'IGMP Snooping' > 'VLAN Configuration'. The main content area displays a table with the following data:

Delete	VLAN ID	Snooping Enabled	IGMP Querier	Querier Address	Compatibility	PRI	RV	QI(sec)	QRI(0.1 sec)
<input type="checkbox"/>	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.202.200	Forced IGMPv2	0	2	30	100

Below the table, there is a green button labeled 'Add New IGMP VLAN', and two buttons labeled 'Apply' and 'Reset'.

Make these adjustments:

- Enable **IGMP Querier**
- In the **Querier Address** field either keep the default 0.0.0.0 address for auto-configuration or change it to the fixed IP address of your switch. If your setup has multiple connected switches, define one as the Querier for your network and use its IP address in all switches in your network.
- Select **Compatibility**: Forced IGMPv2
- Change **QI (sec)** to: 30
- Confirm your changes by selecting **Apply**

# Your almost done, just a few more settings for Dante operation

Navigate using the menu on the left to **Quality of Service** → **Port Settings**

**LUXUL** A brand of Legrand

Auto-logout 30 min

SW-505-24P-R > Quality of Service > Port Settings

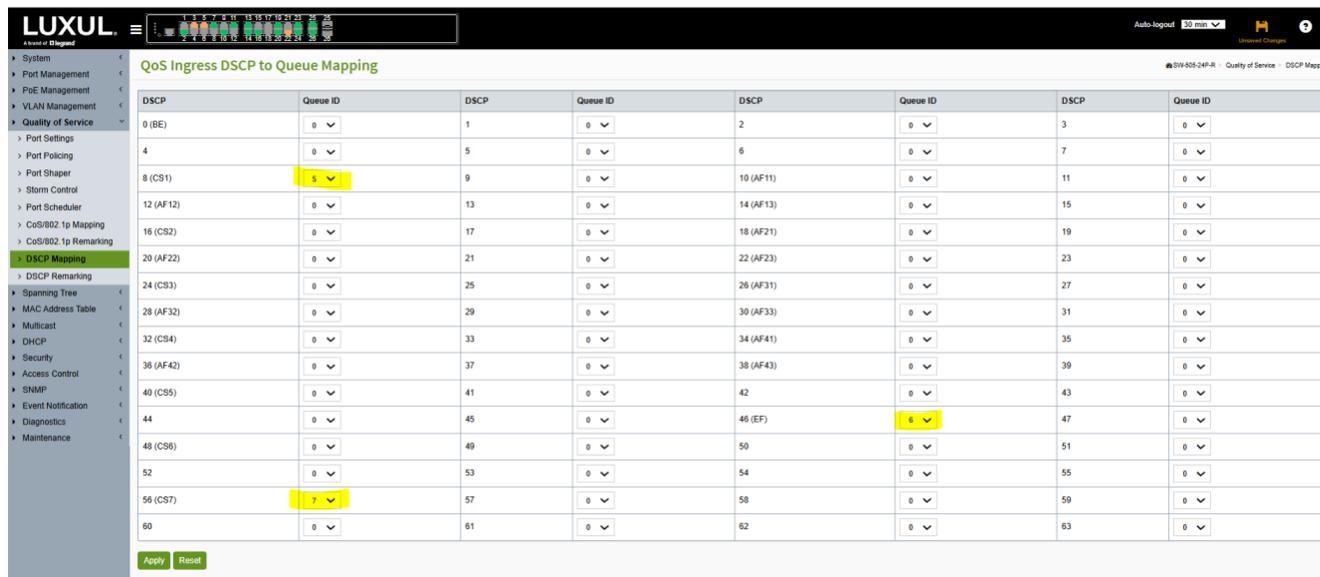
### QoS Port Settings

Port	Mode	Default CoS	Remark CoS	Remark DSCP
*	DSCP	<>	<input type="checkbox"/>	<input type="checkbox"/>
1	DSCP	0	<input type="checkbox"/>	<input type="checkbox"/>
2	DSCP	0	<input type="checkbox"/>	<input type="checkbox"/>
3	DSCP	0	<input type="checkbox"/>	<input type="checkbox"/>
4	DSCP	0	<input type="checkbox"/>	<input type="checkbox"/>
5	DSCP	0	<input type="checkbox"/>	<input type="checkbox"/>
6	DSCP	0	<input type="checkbox"/>	<input type="checkbox"/>
7	DSCP	0	<input type="checkbox"/>	<input type="checkbox"/>

Go to the Asterix in the port column and under the **Mode** setting, change it from Untrusted to **DSCP (it will change all the ports)**

Scroll down and select **Apply** to save your changes.

Navigate using the menu on the left to **Quality of Service** → **DSCP Mapping**



Set the QoS Class priority as follows:

- Set Class 0 to priority 0
- Set Class 8 to priority 5
- Set Class 46 to priority 6
- Set Class 56 to priority 7

Scroll down and select **Apply** to save your changes.

Priority	Usage	DSCP Label	Hex	Decimal	Binary
High	Time critical PTP events	CS7	0x38	56	111000
Medium	Audio, PTP	EF	0x2E	46	101110
Low	(reserved)	CS1	0x08	8	001000
None	Other traffic	BestEffort	0x00	0	000000

Class info can be found at <https://www.audinate.com/faq/how-does-dante-use-dscp-diffserv-priority-values-when-configuring-qos>

This completes your switch configuration for EasyIP Multicast. You can now enable EasyIP Multicast on your Vaddio EasyIP device.

Test your setup to see if it behaves as expected. When everything is in working order, don't forget to save the configuration:

In the top right of your screen, click the orange **Unsaved Changes** button and confirm saving the startup-config in the switch:



- If you skip this step all changes will be lost upon a reboot of the switch!

On the following pages we show a few ways you can verify if IGMP multicast is working correctly.

# Verify your IGMP Multicast setup: IGMP Snooping Status

Apart from monitoring the video output on your EasyIP receiver, there are also tools available in the Luxul switches to verify if IGMP multicast on your switch is working correctly.

Navigate using the menu on the left to **Multicast** → **IGMP Snooping** → **Status**

Verify that the **Querier Status** is **ACTIVE**, and (when you have connected your EasyIP Multicast devices) that the **Queries Transmitted** and **Received** increase over the space of a few minutes by refreshing this page.

This indicates that the IGMP Querier is successfully communicating with devices on the network.

The screenshot shows the Luxul web interface for IGMP Snooping Status. The left navigation menu is expanded to 'Multicast' > 'IGMP Snooping' > 'Status'. The main content area has an 'Auto-refresh on Refresh' button. Below this is a 'Statistics' table with the following data:

VLAN ID	Querier Version	Host Version	Querier Status	Queries Transmitted	Queries Received	V1 Reports Received	V2 Reports Received	V3 Reports Received	V2 Leaves Received
1	v2	v2	ACTIVE	2	0	0	17	0	0

Below the statistics is a 'Router Port' table:

Port	Status
1	-
2	-
3	-
4	-
5	-
6	-
7	-

# Verify your IGMP Multicast setup: IGMP Snooping Group Information

Navigate using the menu on the left to **Multicast** → **IGMP Snooping** → **Groups Information**:

The screenshot shows the LUXUL web interface for IGMP Snooping Groups Information. The left navigation menu is expanded to 'IGMP Snooping' > 'Groups Information'. The main content area displays a table with columns for VLAN ID, Group, and Port Members (ports 1-18). The table shows four entries for VLAN 1, each with a different group ID and IP address. The first entry (224.0.1.129) has checkmarks in ports 1, 3, and 5. The second entry (239.192.202.216) has checkmarks in ports 1, 3, 5, and 7. The third entry (239.254.50.123) has checkmarks in ports 1 and 7. The fourth entry (239.255.255.250) has checkmarks in ports 15, 16, and 18. The interface also includes an 'Auto-refresh' toggle set to 'on' and a 'Refresh' button.

VLAN ID	Group	Port Members																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	224.0.1.129	✓		✓					✓										
1	239.192.202.216	✓		✓		✓		✓											
1	239.254.50.123	✓		✓					✓										
1	239.255.255.250															✓	✓		✓

In the **IGMP Snooping Group Information** table the switch lists all IGMP multicasts groups it is managing, and which switch ports are active members of those groups.

EasyIP Multicast groups show up in this overview with the last two digits of the IP address of the EasyIP transmitter. In the example above, the IP address of the EasyIP 20 Camera is 192.168.202.216. The entry 239.128.202.216 shows all ports that are members of this camera's multicast group.

In the example above an EasyIP 20 Camera is connected to port 7, and there are 3 receivers actively receiving the multicast stream on ports 1, 3 and 5.

If you enable Auto-refresh, and switch one of the EasyIP receivers to another input (therefore stopping the multicast stream to that port), its corresponding checkmark in the Group Information table will also disappear.

## Verify your IGMP Multicast setup: Port Statistics

Navigate using the menu on the left to **Port Management** → **Port Statistics**:

Port Statistics Overview

Auto-refresh  off

Port	Packets		Bytes		Mbps		Errors		Drops	
	Received	Transmitted	Received	Transmitted	Received	Transmitted	Received	Transmitted	Received	Transmitted
1	61	154921	7694	230784336	0.00	130.45	0	0	0	0
2	49	217	3244	26669	0.00	0.01	0	0	0	0
3	232	155909	31244	232349870	0.01	130.48	0	0	0	0
4	121	372	35631	46665	0.01	0.02	0	0	0	0
5	51	156900	3906	233918654	0.00	130.41	0	0	0	0
6	0	0	0	0	0.00	0.00	0	0	0	0
7	157795	323	235521231	35819	130.39	0.02	0	0	0	0
8	110	408	15247	59532	0.00	0.03	0	0	0	0
9	7	262	538	29843	0.00	0.01	0	0	0	0
10	0	0	0	0	0.00	0.00	0	0	0	0
11	0	0	0	0	0.00	0.00	0	0	0	0

This page shows all data that flows through the switch over a period of time.

Like on the previous page, the example above shows an EasyIP 20 Camera connected to port 7, and there are 3 receivers actively receiving the multicast stream on ports 1, 3 and 5.

- When interpreting the data the switch reports, realize that it takes the switch over a second to collect all ports' information in this table, one row at a time. An EasyIP transmitter is sending data at roughly 130Mbps (16.2 million bytes/second). Because of polling time difference, looking at the Bytes Transmitted column, you can notice a difference between each receiving port of about 1 million bytes. This is normal and not a sign your switch is leaking bytes.

To generate the data to analyze, click **Clear**, wait approximately 15 seconds and click **Refresh**. This snapshot of data gives you detailed information on the traffic flowing through your switch during these 15 seconds.

When inspecting the table above, you can notice that the EasyIP 20 Camera on port 7 is sending at the same 130Mbps bitrate to the switch (in the column **Mbps Received** by the switch) as the amount of data which is being sent to all active receivers on ports 1, 3 and 5 (in the column **Mbps Transmitted** from the switch). The other devices on the network are receiving at a substantially lower average bitrate.

This indicates that IGMP is working correctly by only sending the stream data to the ports on the switch that subscribe to receive the data. If IGMP would not work correctly, the multicast stream would be sent as a broadcast stream to all ports on the switch, and all ports' Mbps Transmitted counter would show similar amounts of data being transmitted.

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