

Verified Network Switches for use with Key Digital AV over IP Systems

Supported Models:

4K Systems:

KD-IP922ENC, KD-IP922DEC
KD-IP822ENC, KD-IP822DEC
KD-IP1022ENC, KD-IP1022DEC

1080p Systems:

KD-IP1080Tx, KD-IP1080Rx
KD-IP120Tx, KD-IP120Rx, KD-IP120POETx, KD-IP120POERx

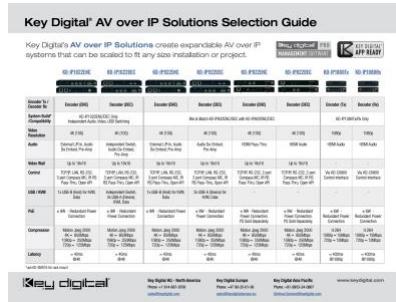
Important Note:

Setup is different for 4K (KD-IP922, KD-IP822, KD-IP1022) and 1080p (KD-IP1080, KD-IP120) systems.
There are separate setup instructions for each where applicable.

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Supported Models:

Key Digital AV over IP product family consists of many different models. Not all models are compatible together
 See [Key Digital AV over IP Solutions Selection Guide](#) for more info



System Facts

4K Systems: KD-IP822, KD-IP922, KD-IP1022 models

- Video Compression Standard: Motion JPEG 2000
- Data Stream Bandwidth: < 900 Mbps

Stream Resolution	Bandwidth
4K @ 60Hz/30Hz	≤ 850 Mbps
1080p @ 60Hz	≤ 250 Mbps
1080i / 720p @ 60Hz	≤ 125 Mbps

- Latency: ≈ 40ms @4K. Less at lower resolutions.
- PoE Power Consumption: ≤ 9 Watts per unit
- Required network cabling: CAT6 UTP/STP, CAT6A, CAT7

1080p Systems: KD-IP1080, KD-IP120 models

- Video Compression Standard: H.264
- Data Stream Bandwidth: < 15 Mbps

Stream Resolution	Bandwidth
1080p @ 60Hz	≤ 15 Mbps
1080i / 720p @ 60Hz	≤ 12 Mbps
480p @ 60Hz	≤ 4 Mbps

- Latency: ≈ 400ms @1080p. Less at lower resolutions.
- PoE Power Consumption: ≤ 6 Watts per unit
- Required network cabling: CAT5e UTP/STP, CAT6 UTP/STP, CAT6A, CAT7

Network switch Requirements for Key Digital AV over IP Systems

Key Digital's AV over IP systems utilizes multicasting technology to broadcast streams throughout the network.

Key Digital's AV over IP systems require a network switch with IGMP (Internet Group Management Protocol) support in order to direct traffic of the broadcasted streams, ensuring that only the desired decoders receive the stream from the selected encoder.

If the system spans multiple network switches, it is required for the switches to be connected via 10G fiber cabling for the purpose of stacking. It is recommended to use two of the same model of network switch in these scenarios for best compatibility.

For 1080p systems (KD-IP1080, KDIP120 models) that plan to use the video preview feature of the [Key Digital App](#), IGMP v3 must be enabled. For 1080p or 4K systems that will not use the video preview feature, IGMP v2 is enabled.

KD-IP822, 922, 1022 systems require the following IP addresses to be reserved. They cannot be assigned to KD-IP822, 922, or 1022 units: 192.168.1.1, 192.168.1.50, 192.168.1.90, 192.168.1.100, 192.168.1.150, 192.168.1.200

Feature	4K System (KD-IP822, KD-IP922, KD-IP1022 models)	1080p System (KD-IP1080, KD-IP120 models)
IGMP v2	X	X (for non-video preview systems)
IGMP v3		X (for video preview systems)
Bandwidth	1Gbps	100BaseT
8K Jumbo Frame	X	
PoE	Optional	Optional (excl KD-IP120PoE models)

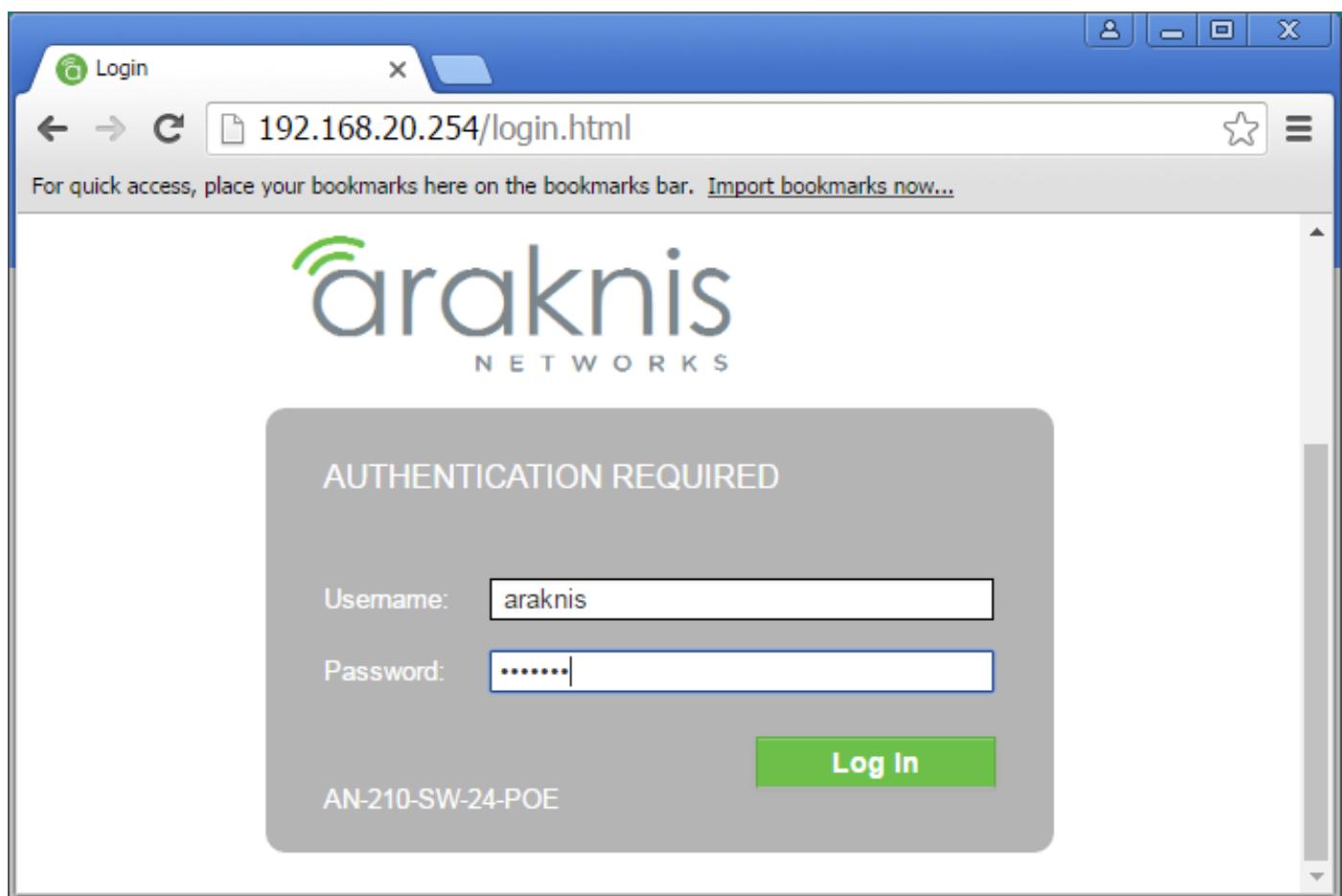
Verified Network Switches						
Brand	Model	Port Number	PoE	10G Fiber Stacking	Approved for KD-IP1080/120	Approved for KD-IP822/922/1022
Araknis	AN-210-SW-R-8-POE	8	YES		YES	YES
	AN-210-SW-F-8-POE	8	YES		YES	YES
	AN-210-SW-R-16-POE	16	YES		YES	YES
	AN-210-SW-F-16-POE	16	YES		YES	YES
	AN-210-SW-R-24-POE	24	YES		YES	YES
	AN-210-SW-F-24-POE	24	YES		YES	YES
	AN-210-SW-F-48-POE	48	YES		YES	YES
	AN-310-SW-R-8	8			YES	YES
	AN-310-SW-F-8	8			YES	YES
	AN-310-SW-R-16	16			YES	YES
Araknis	AN-310-SW-F-16	16			YES	YES
	AN-310-SW-R-24	24			YES	YES
	AN-310-SW-F-24	24			YES	YES
	AN-310-SW-R-8-POE	8	YES		YES	YES
	AN-310-SW-F-8-POE	8	YES		YES	YES
	AN-310-SW-R-16-POE	16	YES		YES	YES
	AN-310-SW-F-16-POE	16	YES		YES	YES
	AN-310-SW-R-24-POE	24	YES		YES	YES
	AN-310-SW-F-24-POE	24	YES		YES	YES
	AN-310-SW-F-48-POE	48	YES		YES	YES

Brand	Model	Port Number	PoE	10G Fiber Stacking	Approved for KD-IP1080	Approved for KD-IP822/922/1022
Cisco	SF500-48	48			YES	NO
	SG300-28				YES	YES
	Catalyst 3850 Series		YES		YES	YES
D-Link	DGS-3630-52PC	52	YES	YES	YES	YES
	DGS-3630-52TC	52		YES	YES	YES
	DGS-3630-28PC	28	YES	YES	YES	YES
	DGS-3630-28SC	28		YES	YES	YES
	DGS-3630-28TC	28		YES	YES	YES
	DGS-3130-54PS	54	YES		YES	YES
Engenius	EGS5212P	8	YES		YES	NO
	EGS7228FP	24	YES		YES	NO
	EGS7252FP	24	YES		YES	NO
	EWS1200D-10T	10			YES	NO
	EWS1200D-28T	24			YES	NO
	EWS1200D-52T	48			YES	NO
	EWS5912FP	8	YES		YES	NO
	EWS7928P	24	YES		YES	NO
	EWS7928FP	24	YES		YES	NO
	EWS7952FP	48	YES		YES	NO
Niveo	NGSME24TH-AV	24	YES		YES	YES

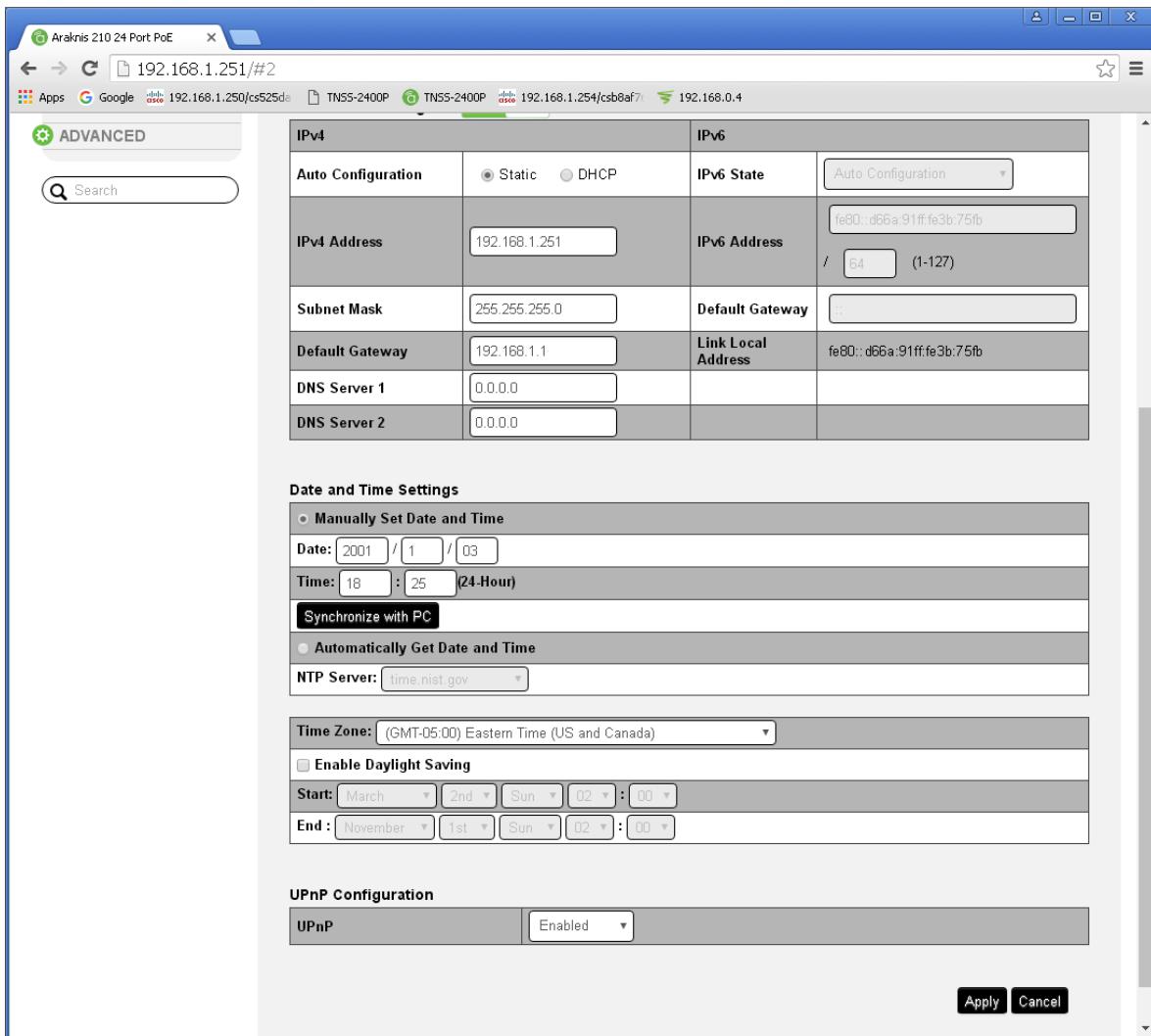
Brand	Model	Port Number	PoE	10G Fiber Stacking	Approved for KD-IP1080/120	Approved for KD-IP822/922/1022
Linksys	LGS552P	52	YES	YES	YES	YES
	LGS528P	28	YES	YES	YES	YES
	LGS326P	26	YES		YES	YES
	LGS318P	18	YES		YES	YES
	LGS326MP	26	YES		YES	YES
	LGS326P	26	YES		YES	YES
	LGS326	26			YES	YES
	LGS318P	18	YES		YES	YES
	LGS318	18			YES	YES
	LGS308MP	8	YES		YES	YES
Luxul	LGS308P	8	YES		YES	YES
	LGS308	8			YES	YES
	AMS-4424P	24	YES	YES	YES	YES
	GS716T	16			YES	YES
	GS724T	24			YES	YES
	GS748T	48			YES	YES
	GS752TP	48	YES		YES	YES
	GS728TP	28	YES		YES	YES
Pakedge	S3L-24P	24	YES		YES	NO
	SX-8EP	8			YES	YES
	SX-8P	8	YES		YES	YES
	SX-24	24			YES	YES
	SX-24P8	24	YES (8)		YES	YES
	SX-24P16	24	YES (16)		YES	YES
	SX-24P	24	YES (24)		YES	YES
Titan Networkx	TNSS2400P	24	YES		YES	NO

**IGMP Setup Guide: Araknis
1080p Systems (KD-IP1080, KD-IP120)**

1. Before Araknis network switch is configured Key Digital KD-IP120/KD-IP1080 HDMI switch set must be connected to all HDMI sources/displays/network switches, and configured using Key Digital KD-IP120 Key Digital Management Software latest version; refer to Key Digital KD-IP120/KD-IP1080 configuration manual.
2. Power-up all the system components. Using Key Digital KD-IP120 Key Digital Management Software, switch **All Outputs -> Through** at switching page.
3. **IMPORTANT:** Disconnect all the DHCP devices like routers, servers from the Araknis network switch.
4. Locate a pinhole “RESET” button at the front panel left bottom corner of your Araknis network switch. Using a paper clip press and hold a reset button for more than 10 seconds and then release. Wait while the device is restarted and ready to use (about 5min).
5. **IMPORTANT:** At this point all the displays should be displaying distorted randomly flashing video images.
6. Connect your PC to the Araknis network switch directly using a network cable.
7. If you have not done yet, configure your PC’s IP address to the same range as the switch (default **192.168.20.xxx**).
8. Enter the switch’s IP address (default is **192.168.20.254**) in your browser and press ENTER.
9. Enter user name and password (default is “**araknis**” for both). Then click **Log In**.

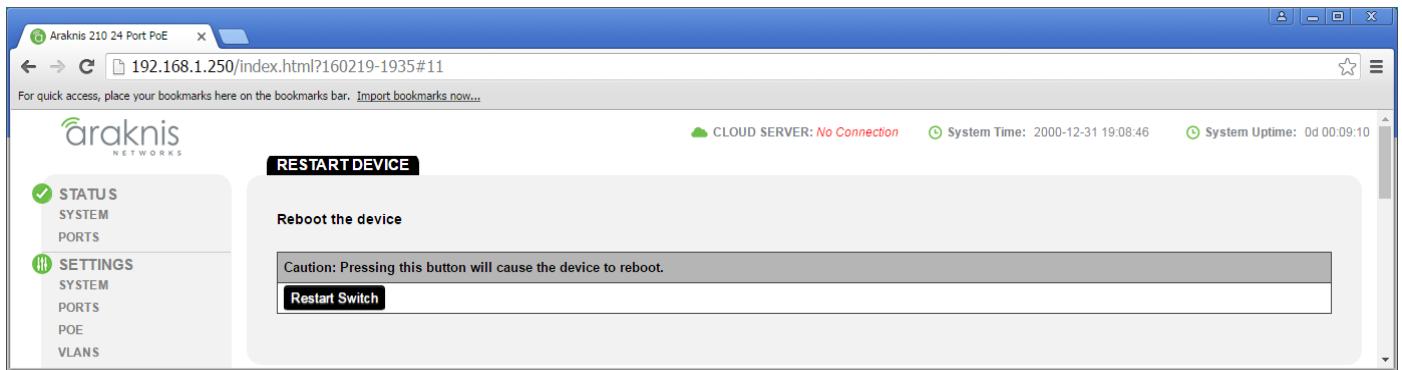


10. Navigate to **Settings -> System**. Under **IP Address Settings** elect **Static**. Change an IP address to **192.168.1.251**, Subnet Mask to **255.255.255.0**, Default Gateway to **192.168.1.1** (in this case), and at the bottom click **Apply**. If you are setting up multiple network switches it is recommended to set first one to **192.168.1.251**, second to **192.168.1.252**, and so on, and each switch must be set individually same way as described below.



11. Page will refresh. Configure your PC's IP address to the same range as the switch (default **192.168.1.xxx**). Enter the switch's IP address (default is **192.168.1.251**) in your browser and press ENTER.
12. Make sure the settings remain as above.
13. Navigate to **Advanced -> Multicast -> IGMP Snooping**. Under **Settings** select **Enable** for **Status**, **V3** for **Version**, and **Enable** for **Report Suppression**. Under **VLAN Settings / VLAN ID 1** select **Enable** for **IGMP Snooping Status** and **Enable** for **Fast Leave**. Under **Querier Settings / VLAN ID 1** select **Enable** for **Querier State**, **V3** for **Querier Version** and make sure all other setting are exactly as shown below. Click **Apply**.

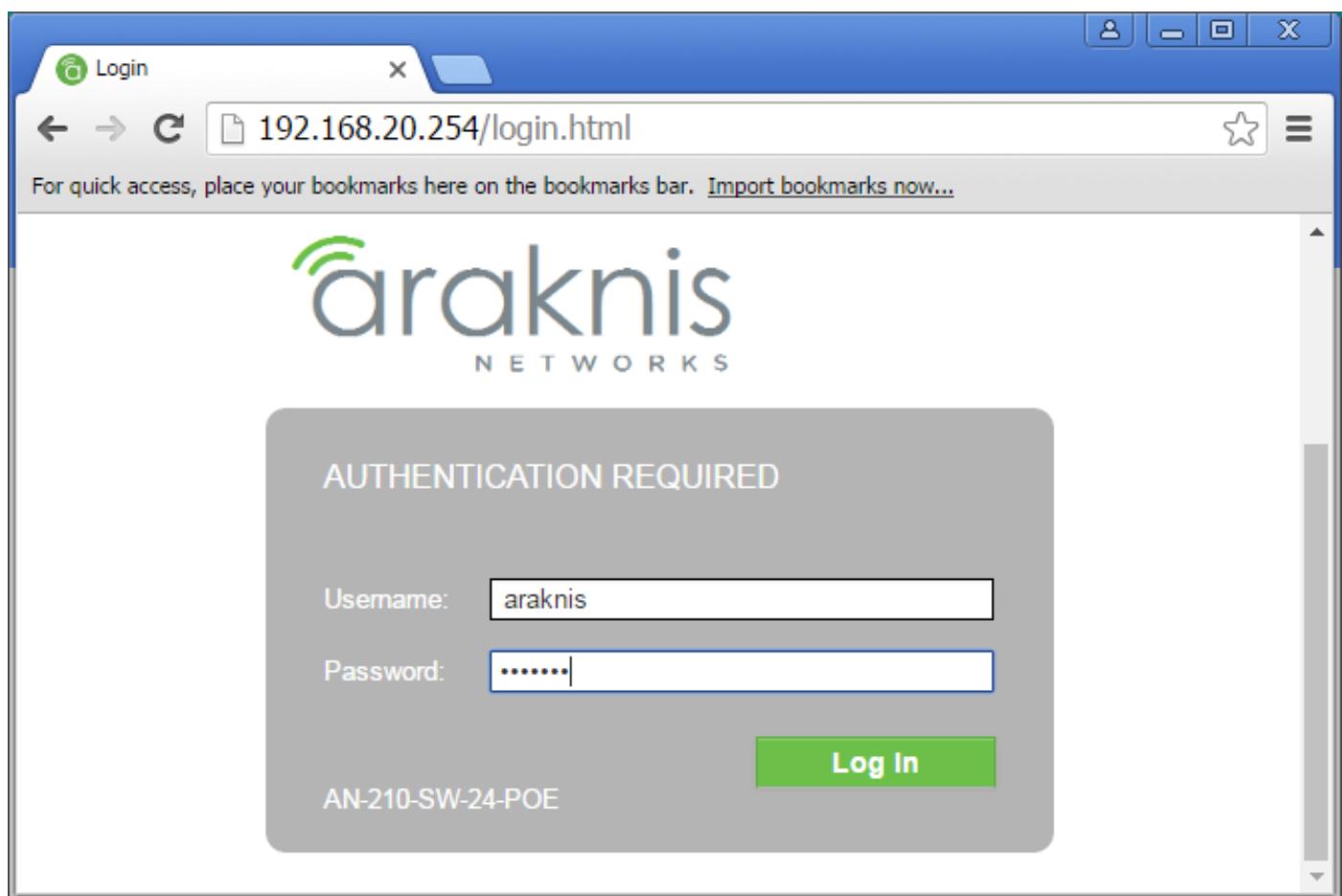
14. **IMPORTANT:** At this point all the displays should be displaying stable running video from the selected sources. If you do not have them displaying properly, than network switch is configured incorrectly.
15. Navigate to **Maintenance -> Restart Device** and click Restart Switch. After switch is rebooted and back to normal log in again, check all the settings again.



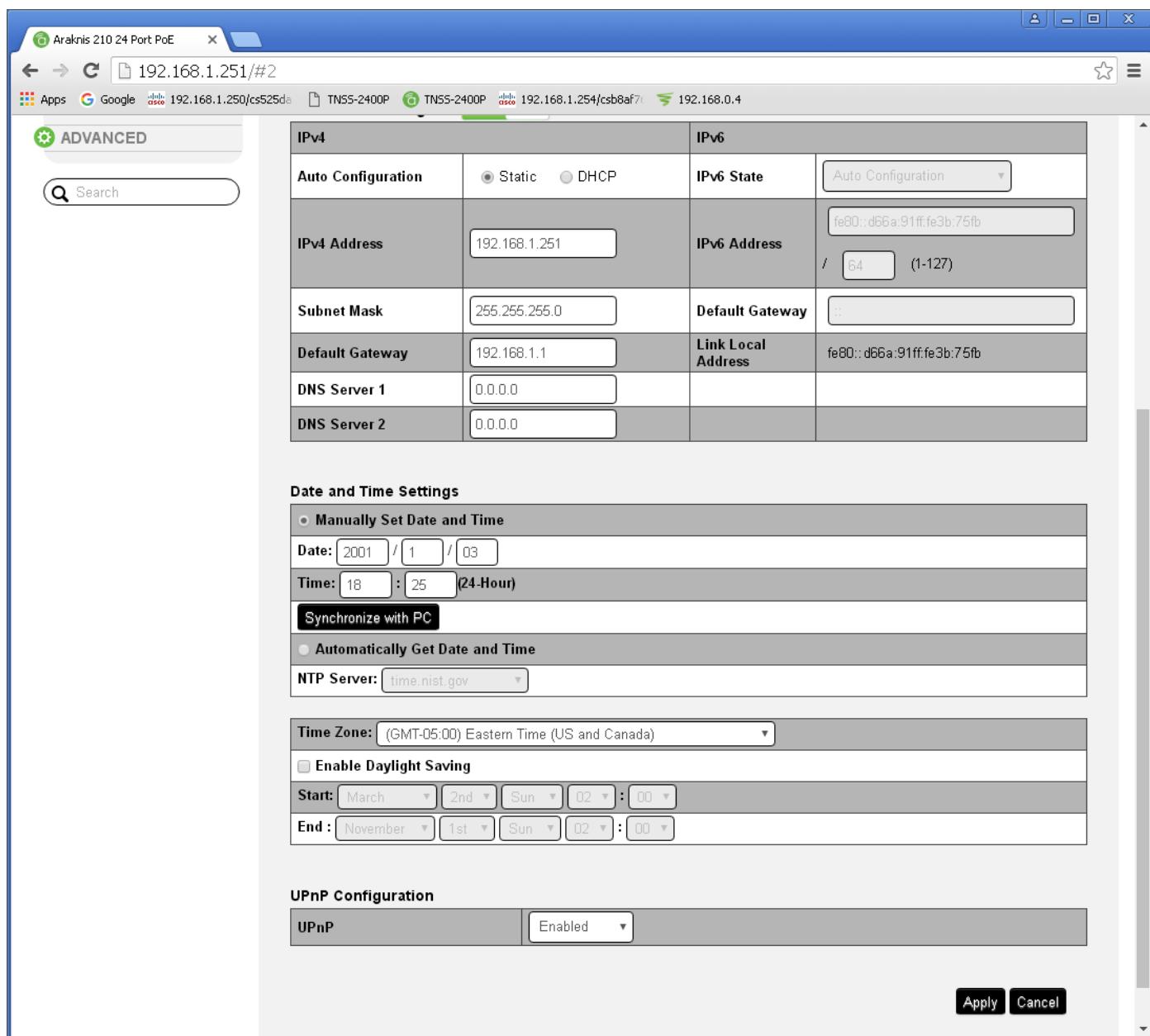
16. **IMPORTANT:** Now you can connect back your DHCP equipment (routers, servers and so on).
17. Power down Araknis network switch and power it up back again. Wait for the whole system to start and until you can see video on your displays.
18. Log in to your Araknis network switch again and make sure that IGMP settings are intact.
19. Rescan your components with Key Digital KD-IP120 Key Digital Management Software and make sure HDMI video switch is functional.
20. At this point your Araknis network switch is set and ready to use.

**IGMP Setup Guide: Araknis
4K Systems (KD-IP822/922/1022)**

1. Before Araknis network switch is configured Key Digital KD-IP120/KD-IP1080 HDMI switch set must be connected to all HDMI sources/displays/network switches, and configured using Key Digital KD-IP120 Key Digital Management Software latest version; refer to Key Digital KD-IP120/KD-IP1080 configuration manual.
2. Power-up all the system components. Using Key Digital KD-IP120 Key Digital Management Software, switch **All Outputs -> Through** at switching page.
3. **IMPORTANT:** Disconnect all the DHCP devices like routers, servers from the Araknis network switch.
4. Locate a pinhole “RESET” button at the front panel left bottom corner of your Araknis network switch. Using a paper clip press and hold a reset button for more than 10 seconds and then release. Wait while the device is restarted and ready to use (about 5min).
5. **IMPORTANT:** At this point all the displays should be displaying distorted randomly flashing video images.
6. Connect your PC to the Araknis network switch directly using a network cable.
7. If you have not done yet, configure your PC’s IP address to the same range as the switch (default **192.168.20.xxx**).
8. Enter the switch’s IP address (default is **192.168.20.254**) in your browser and press ENTER.
9. Enter user name and password (default is “**araknis**” for both). Then click **Log In**.



10. Navigate to **Settings** -> **System**. Under **IP Address Settings** elect **Static**. Change an IP address to **192.168.1.251**, Subnet Mask to **255.255.255.0**, Default Gateway to **192.168.1.1** (in this case), and at the bottom click **Apply**. If you are setting up multiple network switches it is recommended to set first one to **192.168.1.251**, second to **192.168.1.252**, and so on, and each switch must be set individually same way as described below.



11. Page will refresh. Configure your PC's IP address to the same range as the switch (default **192.168.1.xxx**). Enter the switch's IP address (default is **192.168.1.251**) in your browser and press ENTER.
12. Make sure the settings remain as above.
13. Navigate to **Advanced -> Multicast -> IGMP Snooping**. Under **Settings** select **Enable** for **Status**, **V2** for **Version**, and **Enable for Report Suppression**. Under **VLAN Settings / VLAN ID 1** select **Enable** for **IGMP Snooping Status** and **Enable for Fast Leave**. Under **Querier Settings / VLAN ID 1** select **Enable** for **Querier State**, **V2** for **Querier Version** and make sure all other setting are exactly as shown below. Click **Apply**.

14. Enter **Settings -> Ports** and set Jumbo Frame size to 9216 bytes, enabling the required 8K jumbo frame support feature.

15. **IMPORTANT:** At this point all the displays should be displaying stable running video from the selected sources. If you do not have them displaying properly, then network switch is configured incorrectly.
16. Navigate to **Maintenance -> Restart Device** and click Restart Switch. After switch is rebooted and back to normal log in again, check all the settings again.

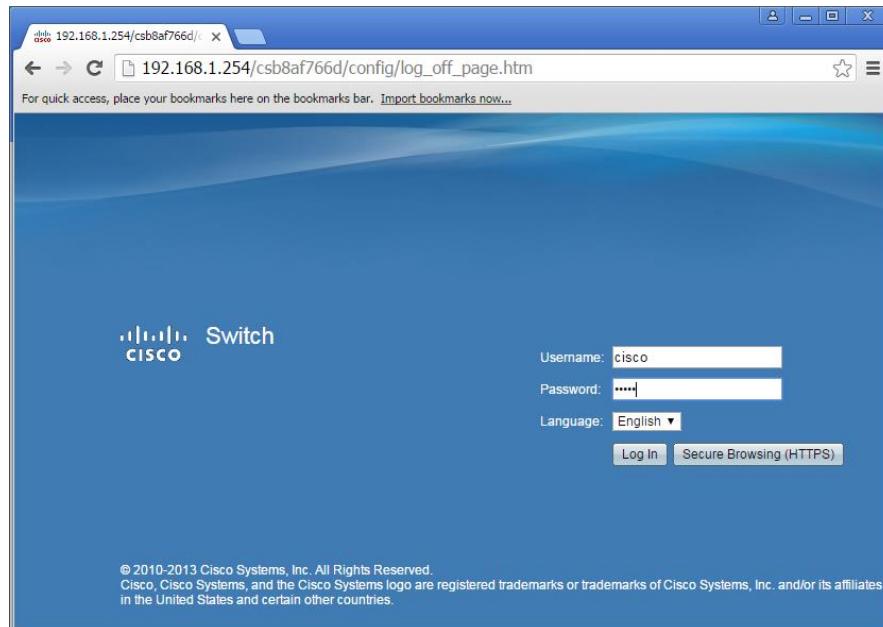


17. **IMPORTANT:** Now you can connect back your DHCP equipment (routers, servers and so on).
18. Power down Araknis network switch and power it up back again. Wait for the whole system to start and until you can see video on your displays.
19. Log in to your Araknis network switch again and make sure that IGMP settings are intact.
20. Rescan your components with Key Digital KD-IP120 Key Digital Management Software and make sure HDMI video switch is functional.
21. At this point your Araknis network switch is set and ready to use.

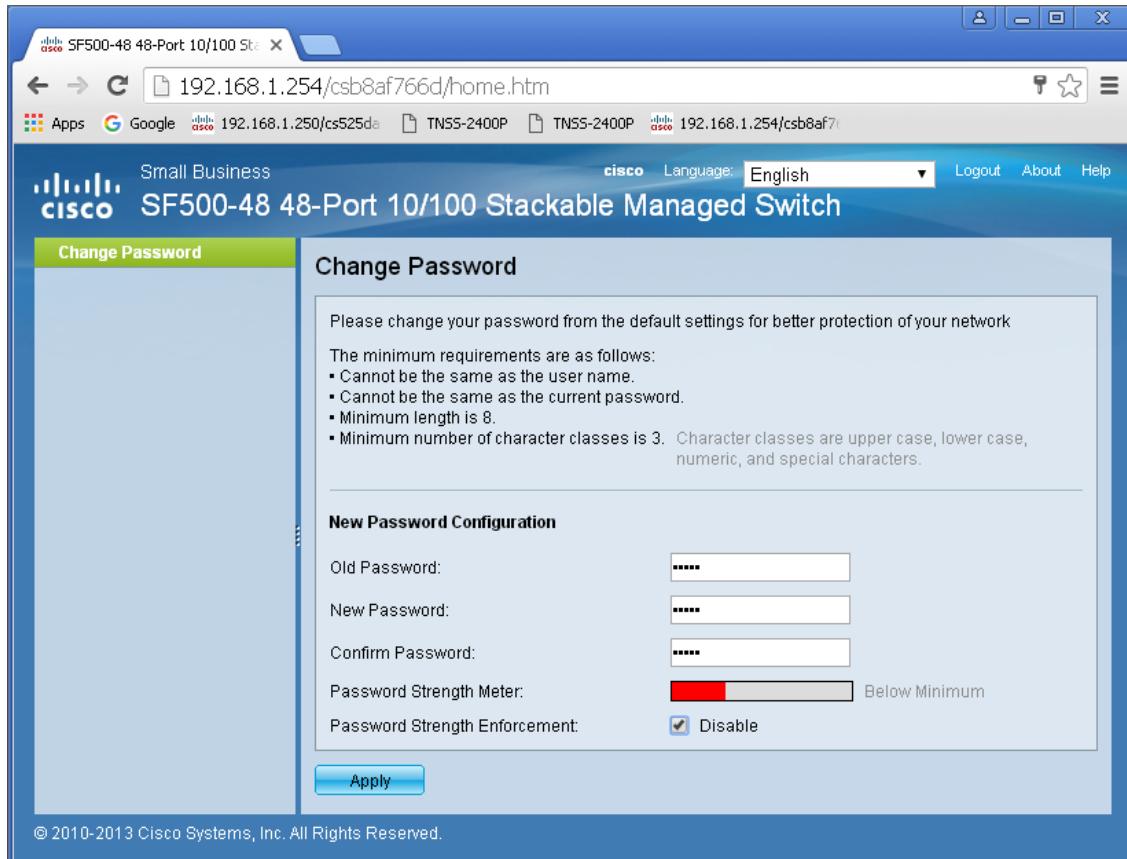
IGMP Setup Guide: Cisco SF500-48, SG300 1080p Systems (KD-IP1080, KD-IP120)

Note: Compatible with KD-IP1080, KD-IP120 Enterprise AV Systems Only

1. Before Cisco network switch is configured Key Digital KD-IP120/KD-IP1080 HDMI switch set must be connected to all HDMI sources/displays/network switches, and configured using Key Digital KD-IP120 Key Digital Management Software latest version.
2. Power-up all the system components. Using Key Digital KD-IP120 Key Digital Management Software, switch **All Outputs -> Through** at switching page.
3. **IMPORTANT:** Disconnect all the DHCP devices like routers, servers from the Cisco network switch.
4. Locate a pinhole “RESET” button at the front panel left bottom corner of your Cisco network switch. Using a paper clip press and hold a reset button for more than 10 seconds and then release. Wait while the device is restarted and ready to use (about 5min).
5. **IMPORTANT:** Make sure the green “SYSTEM”LED next to the pinhole “RESET” button is flashing.
6. **IMPORTANT:** At this point all the displays should be displaying distorted randomly flashing video images.
7. Connect your PC to the Cisco network switch directly using a network cable.
8. If you have not done yet, configure your PC’s IP address to the same range as the switch (default **192.168.1.xxx**).
9. Enter the switch’s IP address in your browser and press ENTER (check the user manual for a default IP address - it is usually **192.168.1.254**).
10. Enter user name and password (check the user manual for a default user name and password; it is usually “**cisco**” for both). Then click **Log In**.



11. **Change Password** screen will appear. Enter old and then new password two times as at the picture below and click **Apply**.

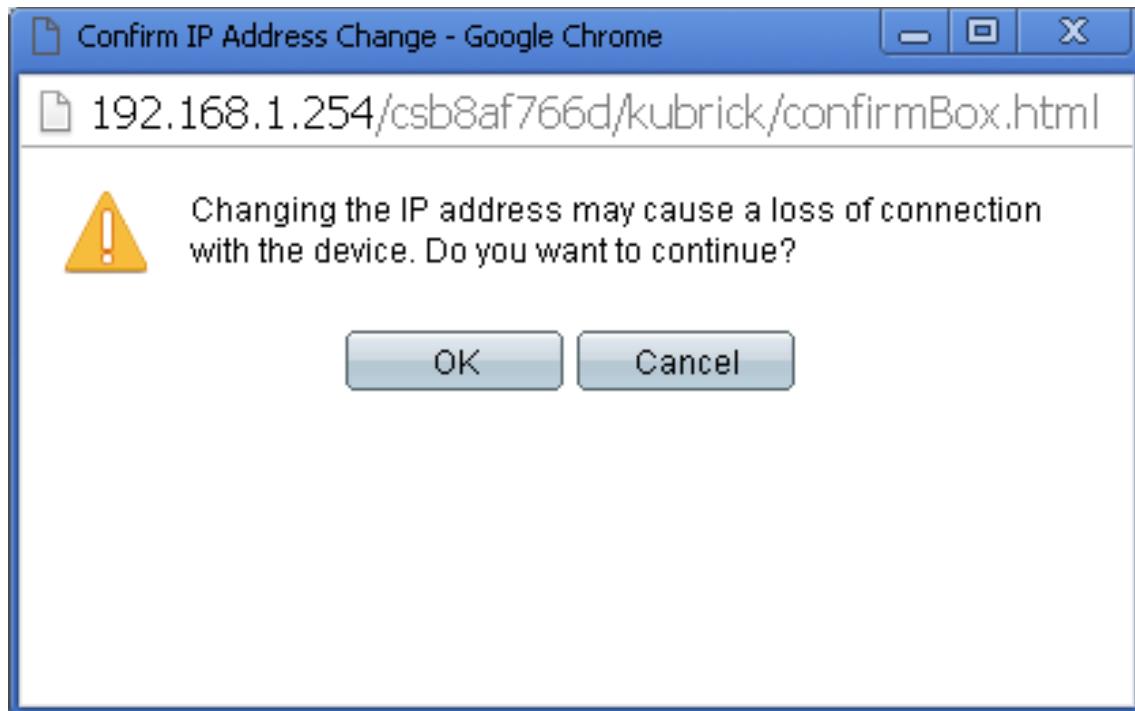


12. **Getting Started** screen will appear.

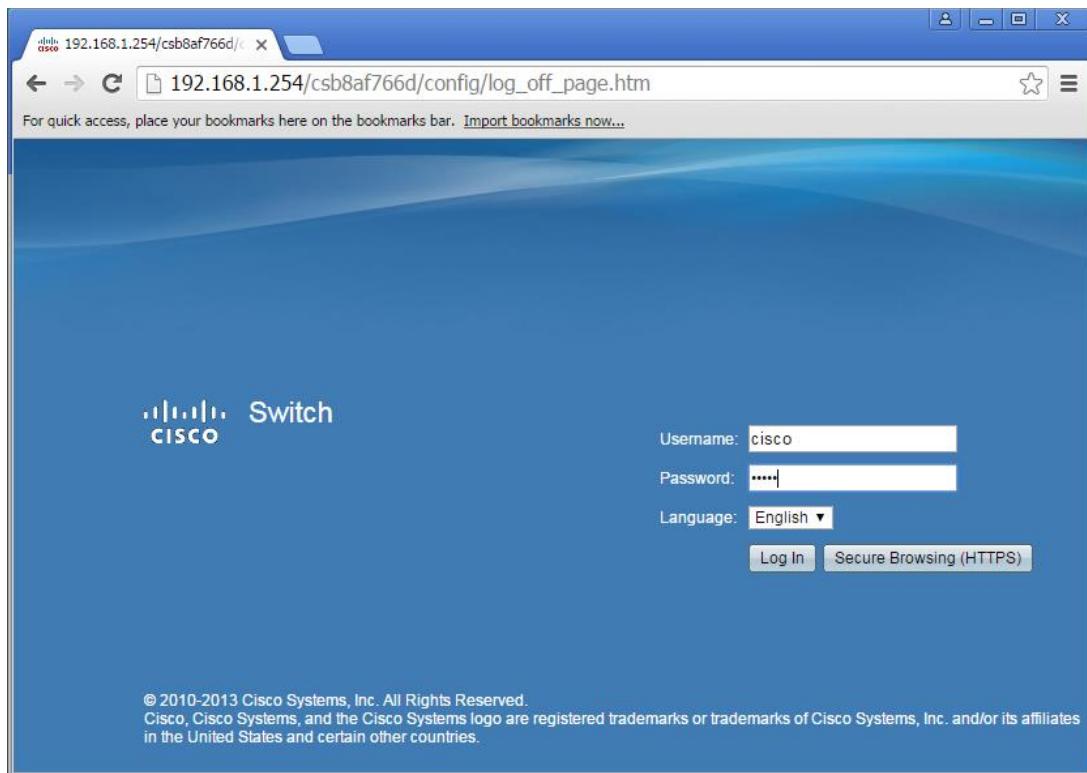
The screenshot shows a web browser window for the Cisco SF500-48 48-Port 10/100 Stackable Managed Switch. The URL in the address bar is 192.168.1.254/csb8af766d/home.htm. The page title is "SF500-48 48-Port 10/100 Stackable Managed Switch". The left sidebar has a "Getting Started" menu with the following items: Status and Statistics, Administration, Port Management, Smartport, VLAN Management, Spanning Tree, MAC Address Tables, Multicast, IP Configuration, Security, Access Control, Quality of Service, and SNMP. The main content area is titled "Getting Started" and contains the following text: "This page provides easy steps to configure your device". It lists several configuration options: Initial Setup (Change System Mode and Stack Management, Change Management Applications and Services, Change Device IP Address, Create VLAN, Configure Port Settings), Device Status (System Summary, Port Statistics, RMON Statistics, View Log), and Quick Access (Change Device Password, Upgrade Device Software, Backup Device Configuration, Create MAC-Based ACL, Create IP-Based ACL, Configure QoS, Configure Port Mirroring). At the bottom of the page, there is a link to "Support | Forums" and a checkbox for "Do not show this page on startup". The footer of the page includes the text "© 2010-2013 Cisco Systems, Inc. All Rights Reserved."

13. Navigate to **Administration** -> **Management Interface** -> **IPv4 Interface**. Select “1” under **Management VLAN**. Select **Static** for **IP Address Type**. Change an IP address to **192.168.1.251**. If you are using multiple network switches it is recommended to set first one to **192.168.1.251**, second to **192.168.1.252**, and so on. Leave **Network Mask** as **255.255.255.0**, set **Administrative Default Gateway** as **User Defined** and enter your router IP address (in this case: **192.168.1.1**), then click **Apply**.

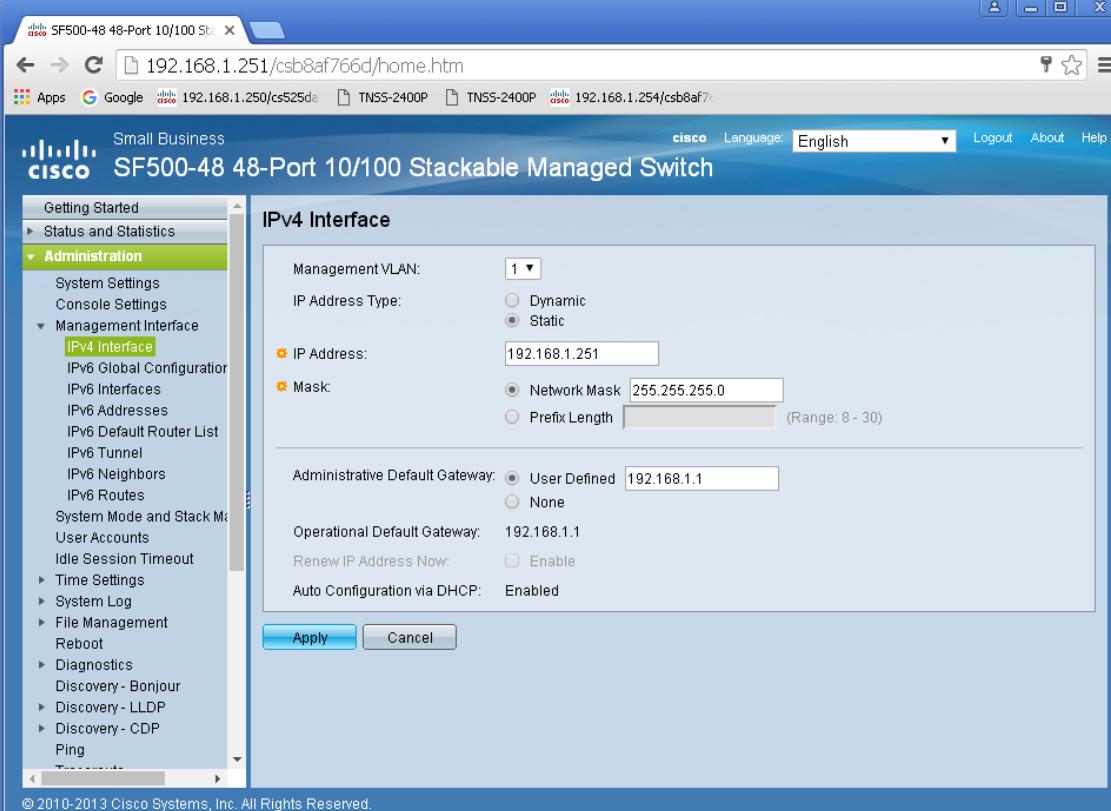
14. Click **OK** to confirm.



15. Log in again using new password and new IP address.



16. Confirm all the administration page settings as at the picture below.

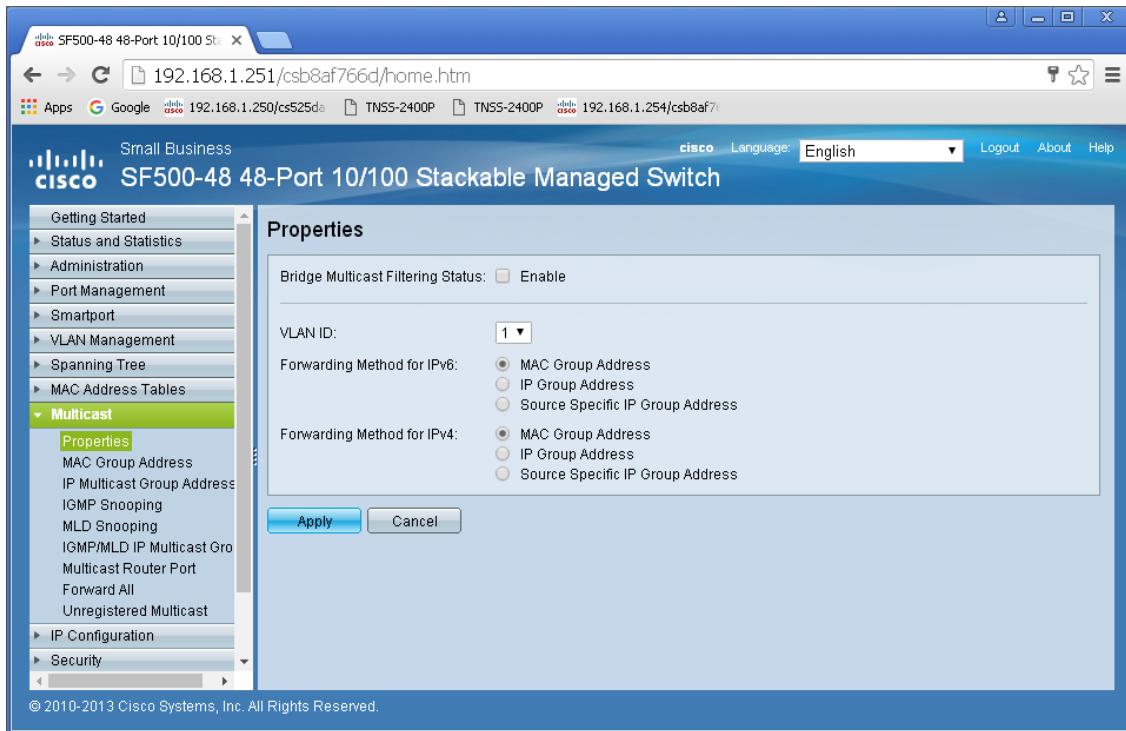


The screenshot shows the Cisco SF500-48 48-Port 10/100 Stackable Managed Switch administration interface. The URL in the browser is 192.168.1.251/csb8af766d/home.htm. The left sidebar menu is expanded, showing the 'Administration' section with 'IPv4 Interface' selected. The main content area is titled 'IPv4 Interface' and contains the following configuration:

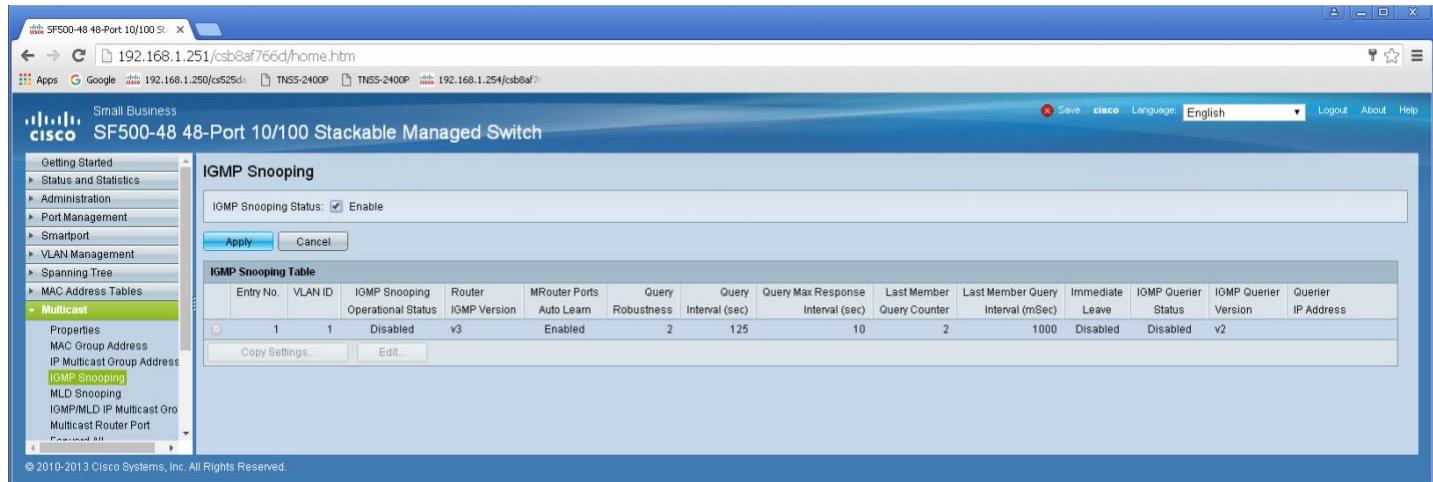
- Management VLAN: 1
- IP Address Type: Static
- IP Address: 192.168.1.251
- Mask: 255.255.255.0
- Administrative Default Gateway: User Defined (192.168.1.1)
- Operational Default Gateway: 192.168.1.1
- Renew IP Address Now: Enabled
- Auto Configuration via DHCP: Enabled

At the bottom of the interface are 'Apply' and 'Cancel' buttons.

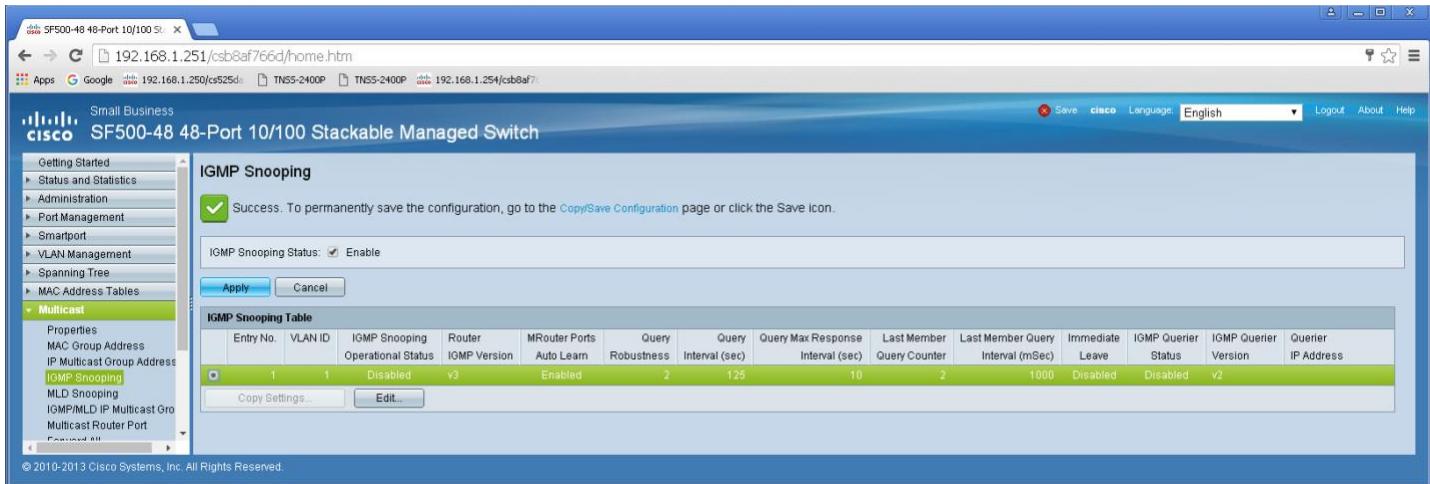
17. Navigate to **Multicast -> Properties**. Check **Enable** box next to the **Bridge Multicast Filtering Status** box. Make sure the other settings are exactly as shown below. Then click **Apply**.



18. Navigate to **Multicast -> IGMP Snooping**. Check the **IGMP Snooping Status: Enable** box and click **Apply**.



19. Click on a radio button on the left and then click **Edit**. New window will appear.



The screenshot shows the 'IGMP Snooping' configuration page. The 'Edit...' button in the 'IGMP Snooping Table' section is highlighted. The table shows one entry:

Entry No.	VLAN ID	IGMP Snooping Operational Status	Router IOMP Version	MRouter Ports	Query Auto Learn	Robustness	Query Interval (sec)	Query Max Response Interval (sec)	Last Member Query Counter	Last Member Query Interval (mSec)	Immediate Leave	IGMP Querier Status	IGMP Querier Version	Querier IP Address
1	1	Disabled	v3	Enabled	2	125	10	2	1000	Disabled	Disabled	v2		

20. Click on a radio button on the left and then click **Edit**. New window will appear. Select “1” for **VLAN ID**.

Check **Enable** box under **IGMP Snooping Status**. Check **Enable** box under **Immediate Leave**. Check **Enable** box under **IGMP Querier Status**. Select **User Defined** next to **Administrative Querier Source IP Address**: and select **192.168.1.1**. For **IGMP Querier Version**: select **IGMPV3**. Then click **Apply** and **Close**. Make sure all the setting are exactly as shown at the picture below.

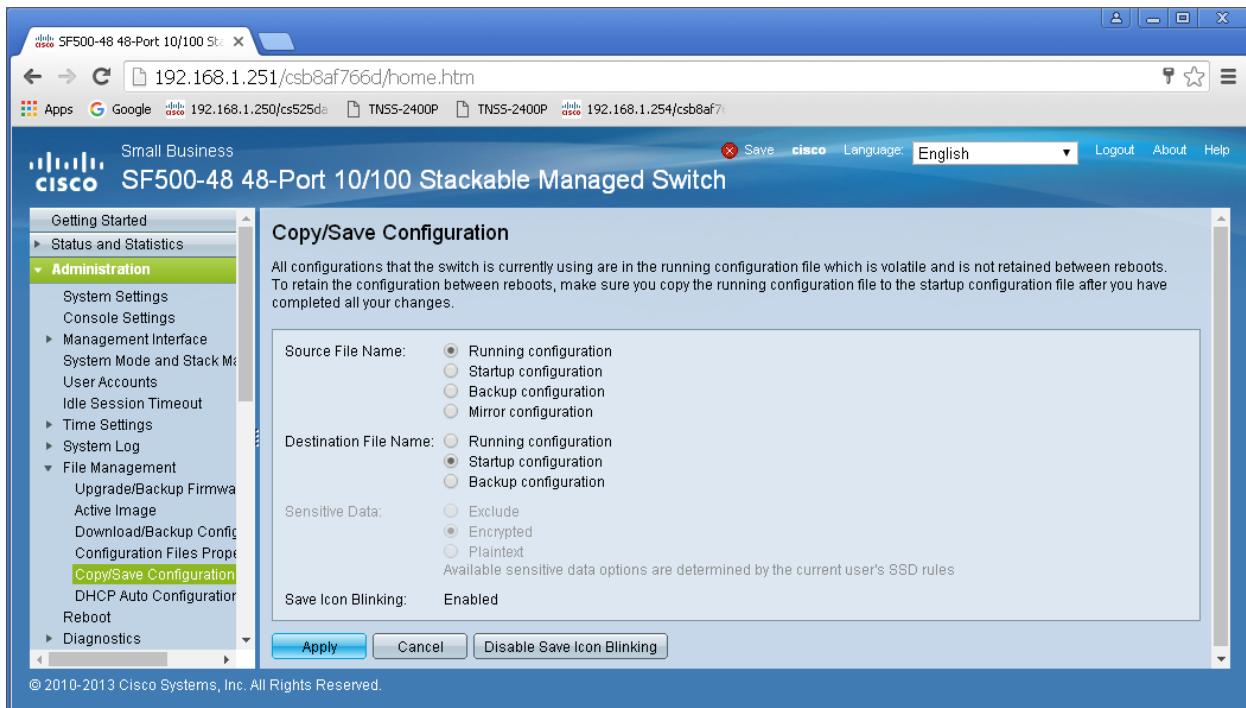


The screenshot shows the 'IGMP Snooping' configuration page. The 'Edit...' button in the 'IGMP Snooping Table' section is highlighted. The table shows one entry:

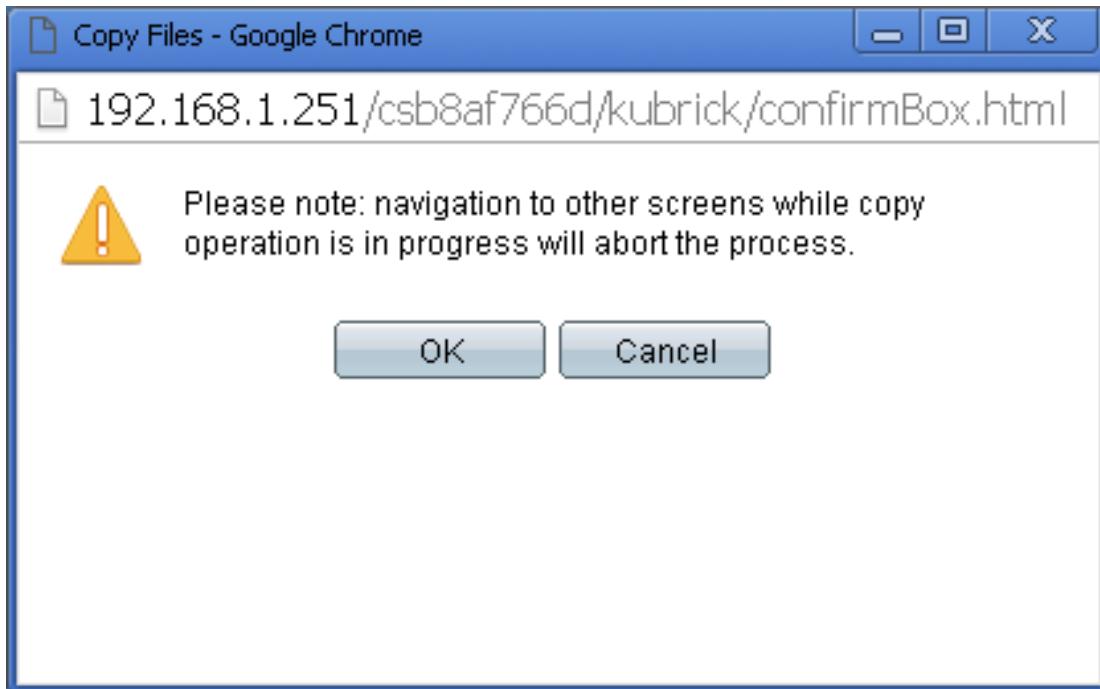
Entry No.	VLAN ID	IGMP Snooping Operational Status	Router IOMP Version	MRouter Ports	Query Auto Learn	Robustness	Query Interval (sec)	Query Max Response Interval (sec)	Last Member Query Counter	Last Member Query Interval (mSec)	Immediate Leave	IGMP Querier Status	IGMP Querier Version	Querier IP Address
1	1	Enabled	v3	Enabled	2	125	10	2	1000	Enabled	Enabled	v3		

21. **IMPORTANT:** At this point all the displays should be displaying stable running video from the selected sources. If you do not have them displaying properly, than network switch is configured incorrectly.

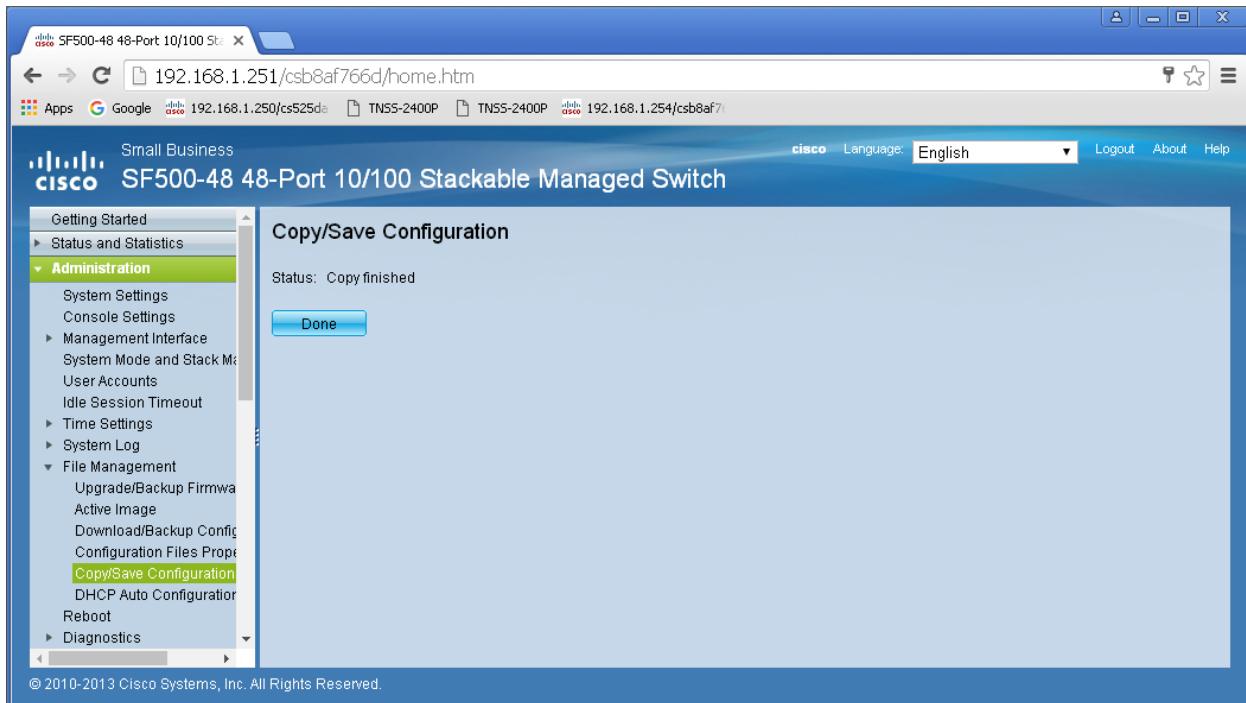
22. On the top of the page click on flashing “x Save”. For **Source File Name**: select **Running configuration**. For **Destination File Name**: select **Startup configuration**. Check the selections and make sure they are exactly as shown below. Click **Apply**.



23. Click **Apply** to confirm.



24. Click **Done**.



25. **IMPORTANT:** Now you can connect back your DHCP equipment (routers, servers and so on).
26. Power down Cisco network switch and power it up back again. Wait for the whole system to start and until you can see video on your displays.
27. Log in to your Cisco network switch again and make sure that IGMP settings are intact:



28. Rescan your components with Key Digital KD-IP120 Key Digital Management Software and make sure HDMI video switch is functional.
29. At this point your Linksys network switch is set and ready to use.

IGMP Setup Guide: Cisco C3850 Series 4K Systems (KD-IP822/922/1022)

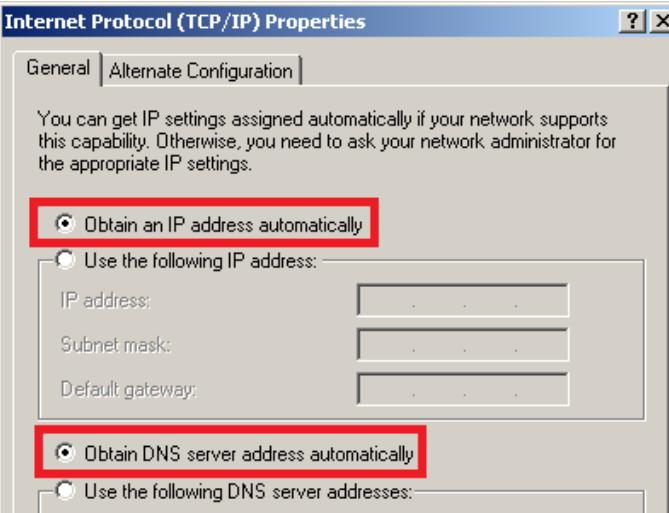
Cisco Catalyst 3850 series

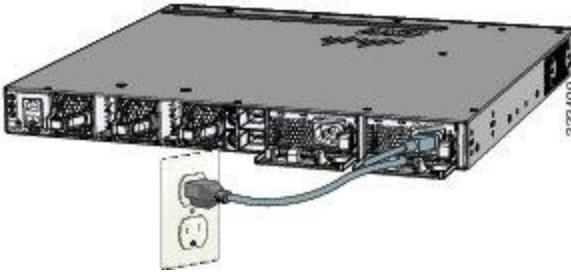
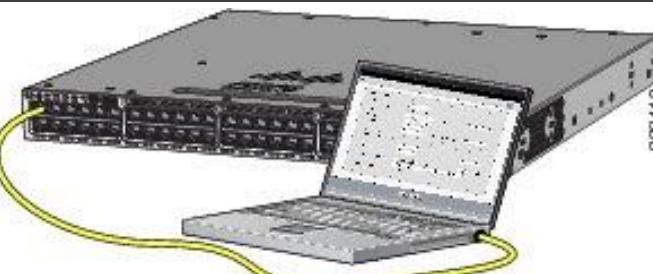
This guide describes how to use **Express Setup** to initially configure your Catalyst 3850 switch. We have modified original Express Setup guide from Cisco to help out you install it easily. For more installation and configuration information, see the Catalyst 3850 documentation on Cisco.com.

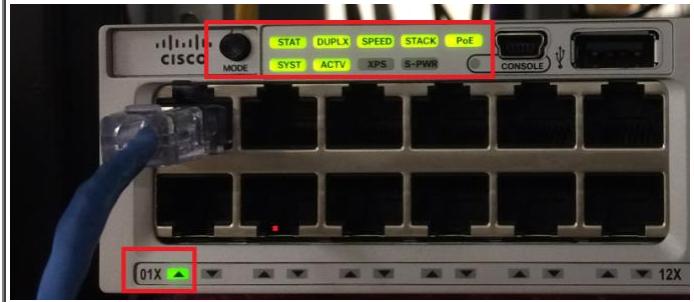
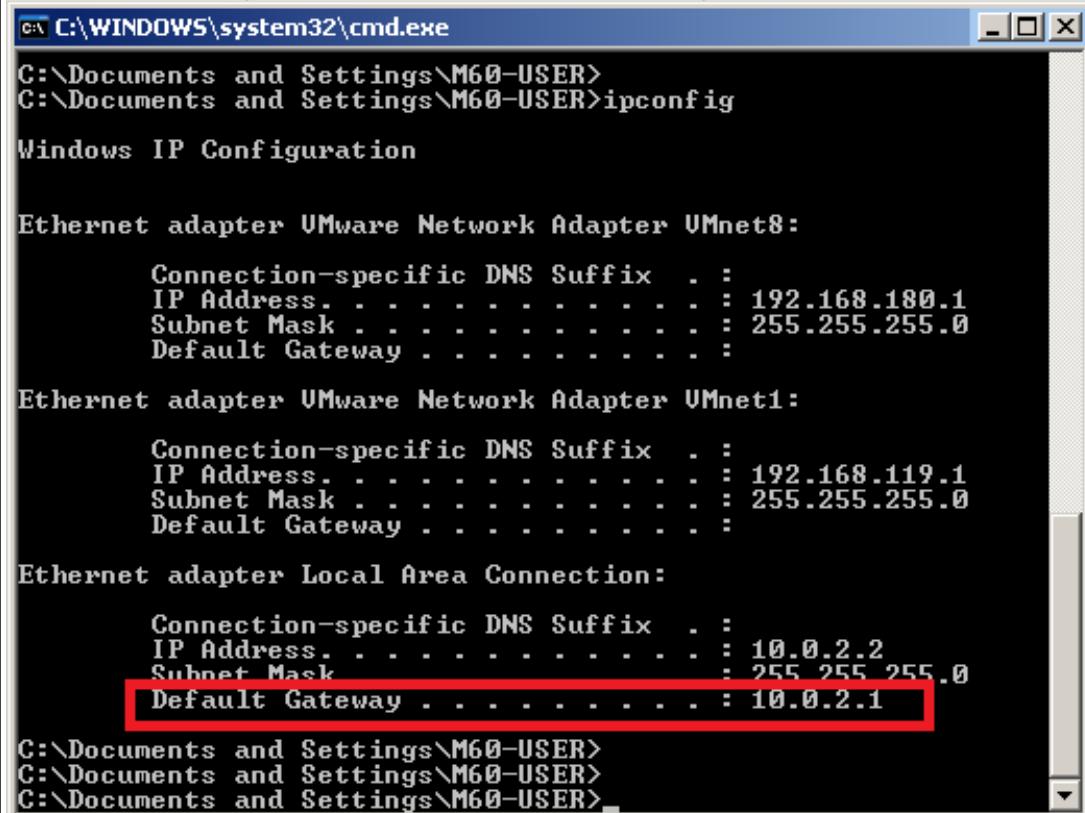
Running Express Setup & Configuration Setup for KD-IP822, KD-IP922, KD-IP1022

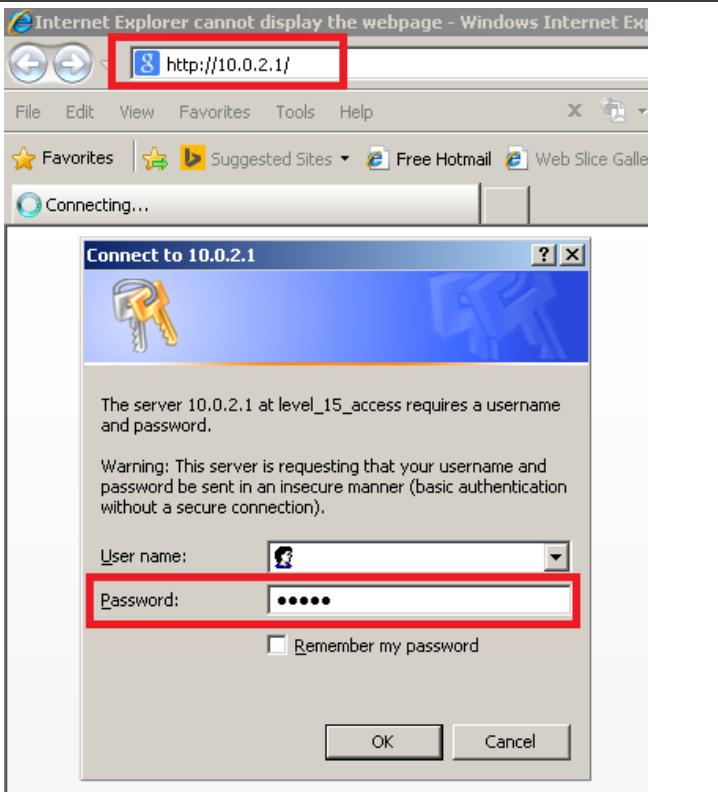
Use Express Setup to enter the initial IP information. This action enables the switch to connect to local routers and the Internet. You can access the switch through the IP address for further configuration.

Note : Even you already finish Express Setup on your switch, please check every step one by one.

Step 1	Make sure that nothing is connected to the switch.	
Step 2	<p>During Express Setup, the switch acts as a DHCP server. If your PC or laptop has a static IP address, temporarily change your PC or laptop settings to DHCP.</p> <p>Note. Do not connect LAN cable from your PC or laptop to Cisco's switch until Step 7.</p>	
Step 3	Install the power supply modules. See the "Power Supply Installation" chapter in the <i>Catalyst 3850 Switch Hardware Installation Guide</i> for instructions. http://www.cisco.com/go/cat3850_hw	

Step 4	<p>Power the switch. AC power switches: Plug the AC power cord into the switch power supply and into a grounded AC outlet. DC power switches: See the wiring instructions in Step3</p>	 A photograph of a Cisco switch with its AC power cord connected to a wall outlet. The switch is a grey metal device with multiple ports and a power supply unit. The image is labeled with the number 333409 in the top right corner.
Step 5	<p>Observe the POST results. Approximately 30 seconds after the switch powers on, it begins the power-on self-test (POST), which can take up to 5 minutes to complete. During POST, the SYSTEM LED blinks green. When POST is complete, the SYSTEM LED turns solid green. The ACTV LED is green if the switch is acting as the active switch. Note Before going to the next step, wait until POST is complete. Troubleshooting: If the SYST LED does not turn solid green, or turns amber, the switch failed the POST. Contact your Cisco representative or reseller.</p>	
Step 6	<p>Press and hold the Mode button until all the LEDs next to the Mode button turn green. You might need to hold the button for more than 3 seconds. The switch is now in Express Setup mode.</p>	 A photograph of a Cisco switch with a circular callout highlighting the Mode button on the front panel. The image is labeled with the number 333408 in the top right corner.
	<p>Troubleshooting: If the LEDs next to the Mode button blink when you press the button, release it. Blinking LEDs mean that the switch is already configured and cannot go into Express Setup mode. For more information, see the "Resetting the Switch" section.</p>	
Step 7	<p>Connect a Category 5e/6 Ethernet cable to first port on the front panel of Cisco Switch. Connect the other end of the cable to the Ethernet port on your PC or laptop. Wait until the port LEDs on the switch and your PC or laptop or laptop are green or blinking green. Green LEDs indicate a successful connection. Troubleshooting: If the port LEDs do not turn green after about 30 seconds, make sure that: You are using an undamaged Category 5 or 6 Ethernet cable (Do not connect console ports)</p>	 A photograph of a Cisco switch connected to a laptop via an Ethernet cable. The image is labeled with the number 333410 in the top right corner.

		
Step 8	<p>Run command shell on your PC or laptop and enter “ipconfig” on the command line. You will get Windows IP configuration and find IP address of Default Gateway.</p> <p>Note. According to Express Setup from Cisco, it said “10.0.01” is default IP address. But it's not correct for all Cisco Catalyst 3850 series. It looks default IP address will be varied depend on Cisco Switches.</p> 	

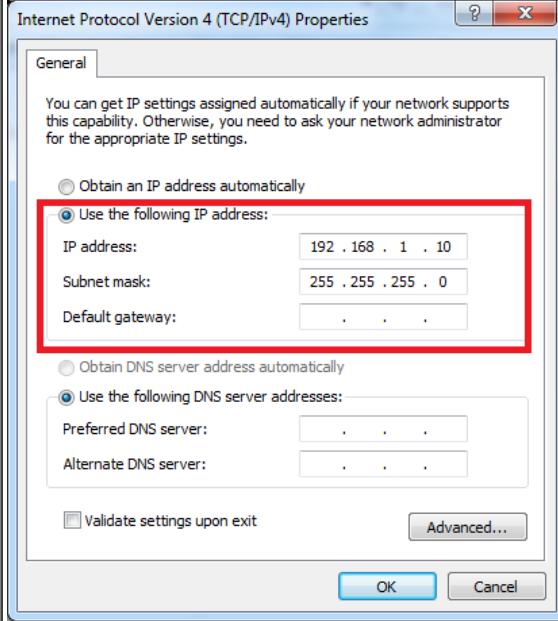
Step 9	<p>Start a browser session on the PC or laptop, and enter the IP address of your Default Gateway.</p> <p>Note: As I mentioned on Step8, your IP address of Default Gateway may differ with our IP address.</p> <p>When a pop-up dialog window “Connect to 10.0.2.1” appear, skip the User name and enter the default password, “cisco”</p> <p>Troubleshooting: If the Express Setup window does not appear, make sure that any browser pop-up blockers or proxy settings are disabled and that any wireless client is disabled on your PC or laptop.</p>	
Step 10	Click “Continue” button on Startup Report page.	
Step 11	Select the Basic Settings on the Express Setup window and change the network settings as you like, then go Step12.	

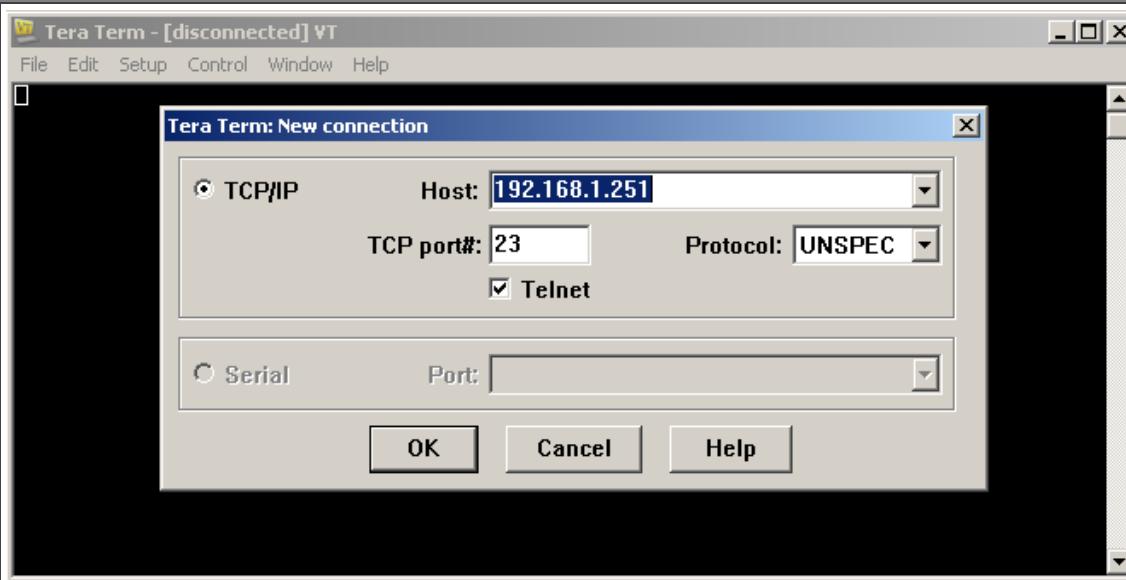
Note. Please do not click "Submit" button in this step.

Step 12 Select the **Advanced Settings** tab on the Express Setup window

- In the Telnet Access field, click **Enable** to use Telnet to manage the switch by using the command-line interface (CLI). If you enable Telnet access, you must enter a Telnet password.
- In the Telnet Password field, enter a password. The Telnet password can be from 1 to 25 alphanumeric characters, is case sensitive, allows embedded spaces, but does not allow spaces at the beginning or end. In the Confirm Telnet Password field, reenter the Telnet password.

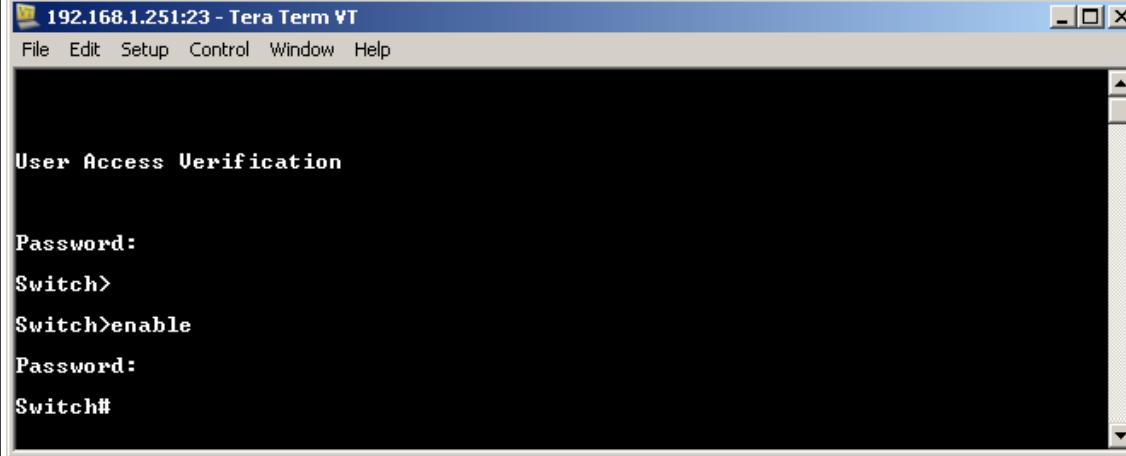
And click **Submit** to save your changes and to complete the initial setup.

Step 13	<p>After you click Submit :</p> <ul style="list-style-type: none"> The switch is configured and exits Express Setup mode. The browser displays a warning message and tries to connect with the earlier switch IP address. Typically, connectivity between the PC or laptop and the switch is lost because the configured switch IP address is in a different subnet from the IP address on the PC or laptop. <p>Now, change IP address of your PC or laptop to static IP address in same subnet of the Switch.</p>	
Step 14	<p>To configuring Multicast IGMP Snooping and Jumbo Frame setting at the switch for KD-IP922 devices, you have to connect to the Switch via Telnet.</p> <p>Note. To access Telnet, you can use PuTTY or Tera Term software. We recommend to use Tera Term software and you can download it as below link.</p> <p>https://osdn.net/projects/ttssh2/downloads/68252/teraterm-4.96.exe/</p> <p>Run Tera Term software, and press Alt + N keys to open new connection.</p> <p>14-1. Select “TCP/IP” on Tera Term:New Connection Window.</p> <p>14-2. Type the IP address of the Switch at the field of Host: Ex) 192.168.1.251</p> <p>14-3. Type 23 at the field of TCP Port# and select “Telnet”.</p> <p>14-4. Then click OK button.</p>	

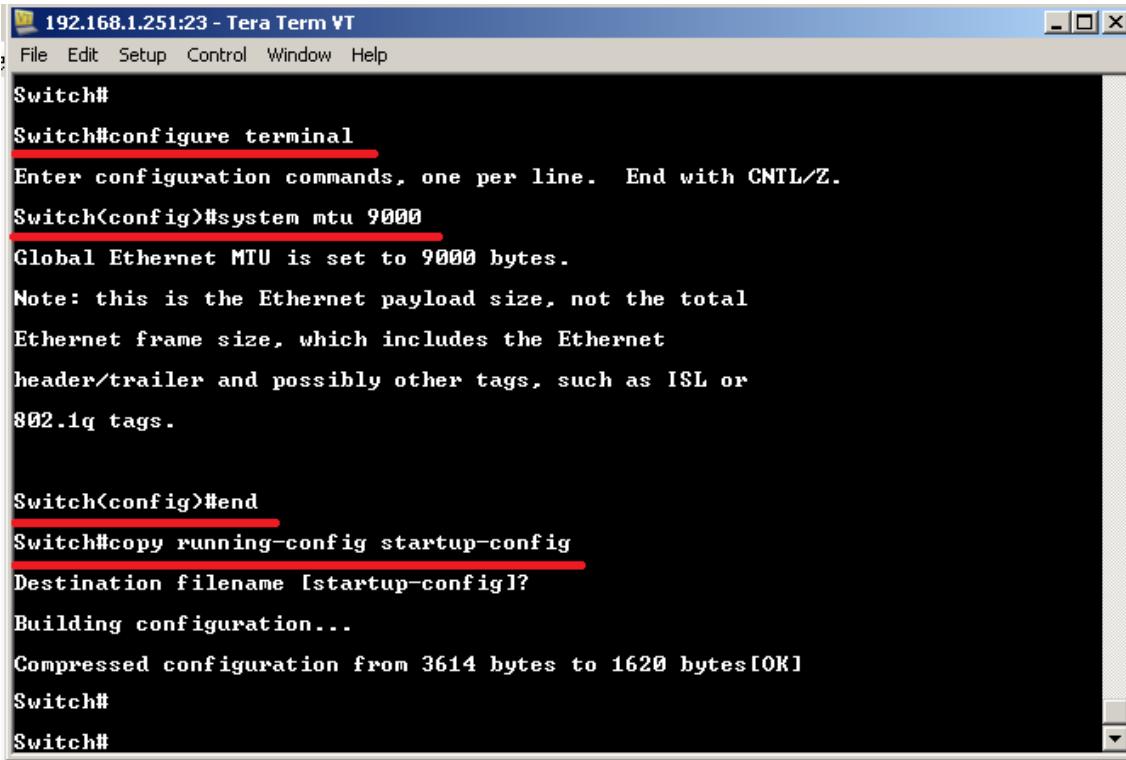


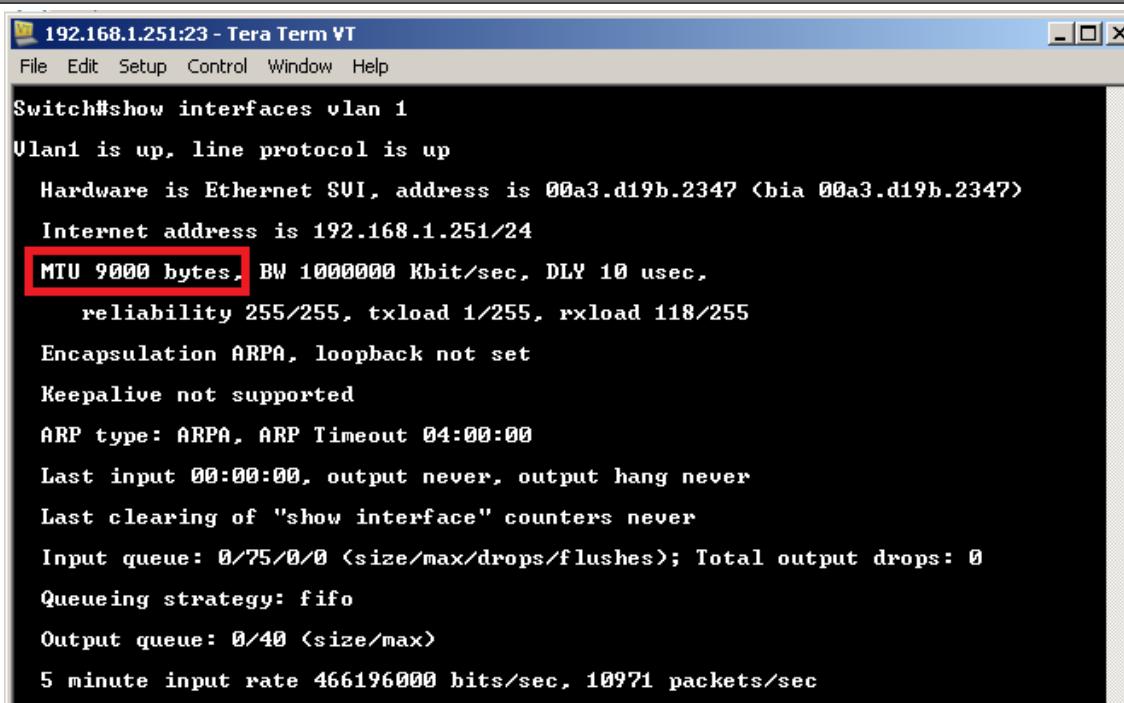
Step 15 When you connect to the switch via Telnet successfully, you have to log in to Telnet server of the switch.
15-1. Enter your Telnet password you assigned at Step12 if prompted.
15-2. Enter "enable" on Switch> prompt to enable privileged EXEC mode
15-3. Enter your Telnet password once again.

Then 'Switch>' prompt will turn into 'Switch#' prompt as below.



Step 16 **To Enable Jumbo Frame for IP922.**
Note: IP922 requires Jumbo Frame(8K) for video/audio transmission via 1G-BaseT with the Switch.
16-1. Enter "configure terminal" on Switch# prompt
16-2. Enter "system mtu 9000" on Switch(config)# prompt
16-3. Enter "end" on Switch(config)# prompt
16-4. Enter "copy running-config startup-config" on Switch# prompt
16-5. Press Enter key on the question of "Destination filename [startup-config]?"

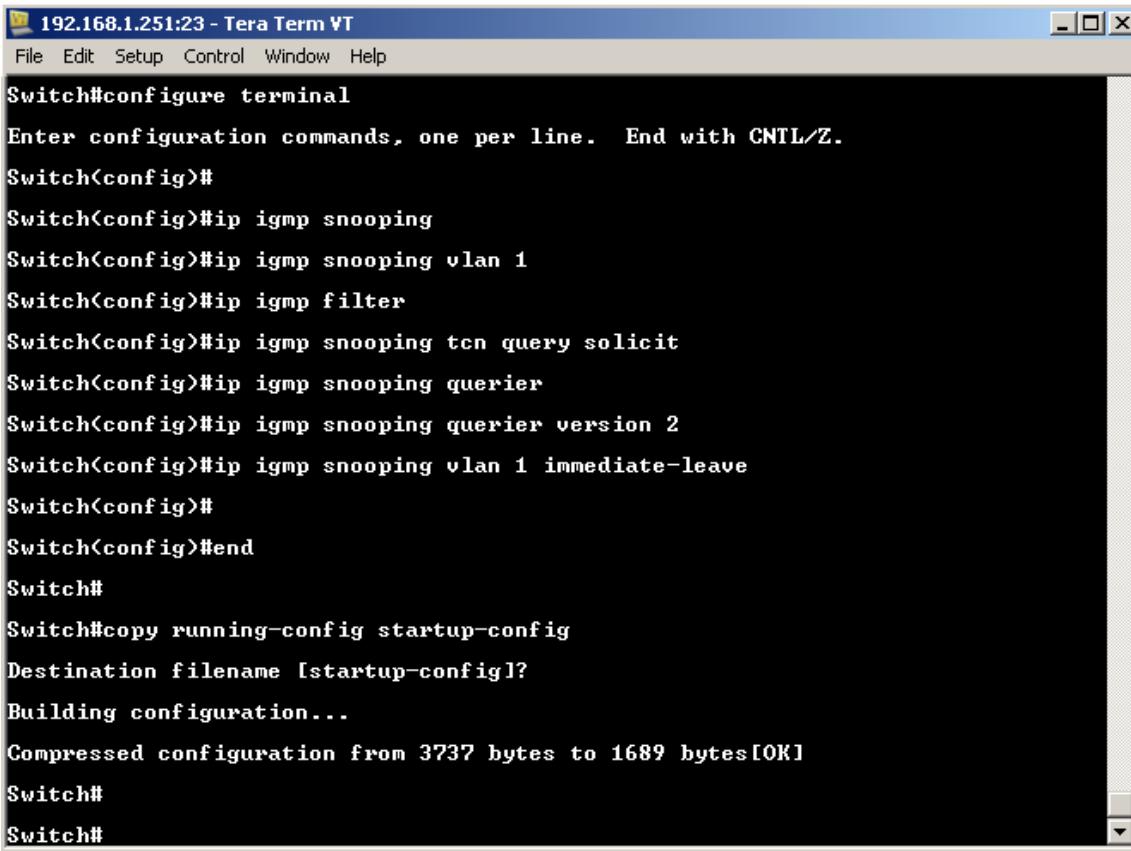
	 A screenshot of a Windows terminal window titled "192.168.1.251:23 - Tera Term VT". The window shows the following configuration steps: <pre>Switch# Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#system mtu 9000 Global Ethernet MTU is set to 9000 bytes. Note: this is the Ethernet payload size, not the total Ethernet frame size, which includes the Ethernet header/trailer and possibly other tags, such as ISL or 802.1q tags. Switch(config)#end Switch#copy running-config startup-config Destination filename [startup-config]? Building configuration... Compressed configuration from 3614 bytes to 1620 bytes[OK] Switch# Switch#</pre>
Step 17	<p>To confirm Jumbo Frame setting on the switch.</p> <p>17-1. Enter “show interfaces vlan 1” on Switch# prompt You can check MTU 9000 bytes in the status of Vlan1 interface</p>



```
192.168.1.251:23 - Tera Term VT
File Edit Setup Control Window Help

Switch#show interfaces vlan 1
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is 00a3.d19b.2347 (bia 00a3.d19b.2347)
  Internet address is 192.168.1.251/24
  MTU 9000 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 118/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:00, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 <size/max/drops/flushes>; Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 <size/max>
  5 minute input rate 466196000 bits/sec, 10971 packets/sec
```

Step 18	<p>To Enable Multicast IGMP Snooping for IP922. Note: IP922 requires Multicast IGMP Snooping for matrix switch configuration.</p> <p>18-1. Enter “configure terminal” on Switch# prompt 18-2. Enter “ip igmp snooping” on Switch(config)# prompt 18-3. Enter “ip igmp snooping vlan 1” on Switch(config)# prompt 18-4. Enter “ip igmp filter” on Switch(config)# prompt 18-5. Enter “ip igmp snooping tcn query solicit” on Switch(config)# prompt 18-6. Enter “ip igmp snooping querier” on Switch(config)# prompt 18-7. Enter “ip igmp snooping querier version 2” on Switch(config)# prompt 18-8. Enter “ip igmp snooping vlan 1 immediate-leave” on Switch(config)# prompt 18-9. Enter “end” on Switch(config)# prompt 18-10. Enter “copy running-config startup-config” on Switch# prompt 18-11. Press Enter key on the question of “Destination filename [startup-config]?” Now, we are all set.</p>
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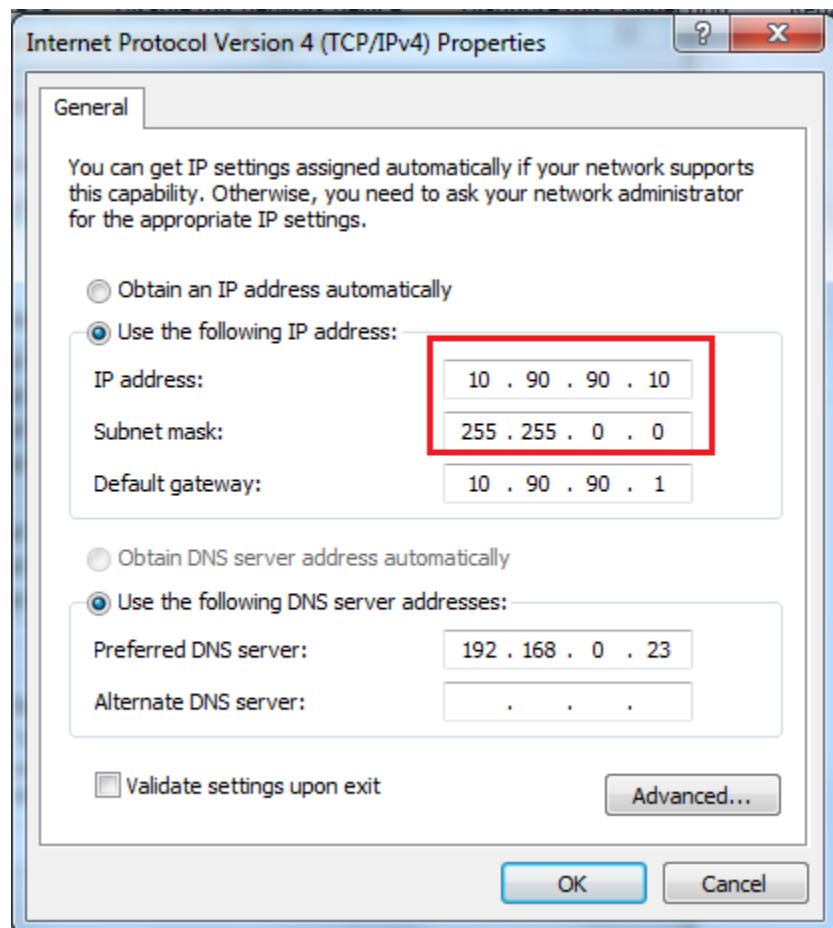
 A screenshot of a terminal window titled "192.168.1.251:23 - Tera Term VT". The window shows the following configuration commands being entered: <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)# Switch(config)#ip igmp snooping Switch(config)#ip igmp snooping vlan 1 Switch(config)#ip igmp filter Switch(config)#ip igmp snooping tcn query solicit Switch(config)#ip igmp snooping querier Switch(config)#ip igmp snooping querier version 2 Switch(config)#ip igmp snooping vlan 1 immediate-leave Switch(config)# Switch(config)#end Switch# Switch#copy running-config startup-config Destination filename [startup-config]? Building configuration... Compressed configuration from 3737 bytes to 1689 bytes[OK] Switch# Switch#</pre>	
Step 19	To confirm multicast IGMP Snooping setting on the switch. 19-1. Enter "show ip igmp snooping detail" on Switch# prompt You can check global IGMP Snooping configuration on the switch.

```
192.168.1.251:23 - Tera Term VT
File Edit Setup Control Window Help
Switch#
Switch#show ip igmp snooping detail
Global IGMP Snooping configuration:
-----
IGMP snooping : Enabled
IGMPv3 snooping (minimal) : Enabled
Report suppression : Enabled
TCN solicit query : Enabled
TCN flood query count : 2
Robustness variable : 2
Last member query count : 2
Last member query interval : 1000

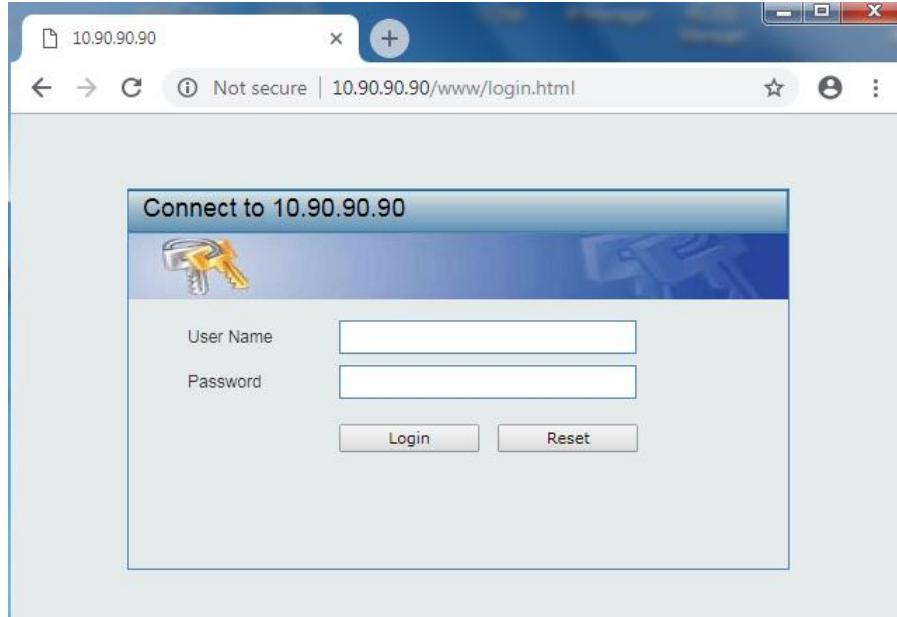
Vlan 1:
-----
IGMP snooping : Enabled
IGMPv2 immediate leave : Enabled
Multicast router learning mode : pim-dvmrp
CGMP interoperability mode : IGMP_ONLY
Robustness variable : 2
Last member query count : 2
Last member query interval : 1000
Topology change : No
Switch#
Switch#
```

**D-Link DGS-3630 Series
Network Setup Guide****Login to the switch:**

- 1.** Plug an Ethernet cable into any of the ports of the switch
- 2.** Plug the other end into the Ethernet port of your computer
- 3.** Power on the switch
- 4.** Check to see that the IP address of the computer is within this network
Subnet: 10.90.90.xxx ("xxx" ranges 1~254). For example, 10.90.90.10



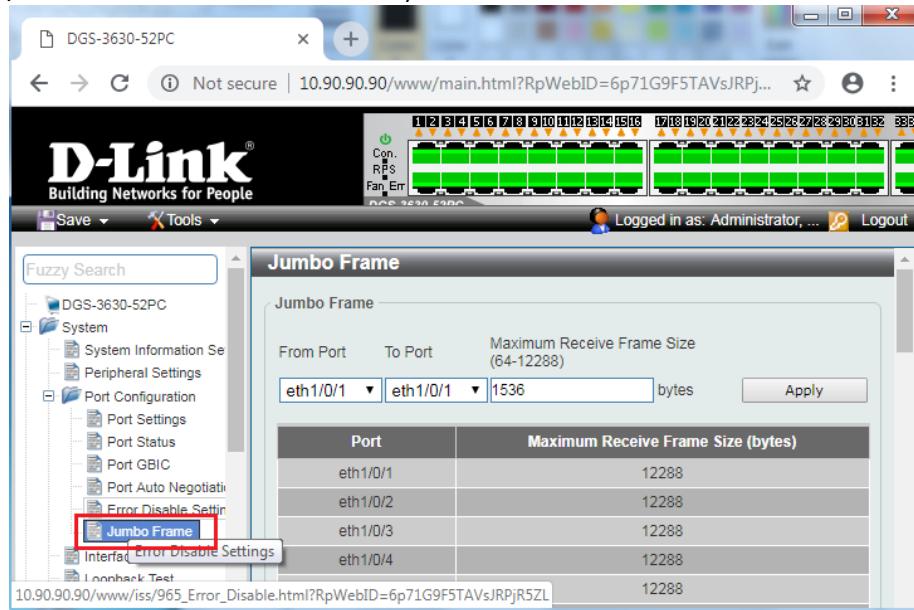
5. Open the Web browser and enter **10.90.90.90** (default IP address of D-Link DGS-3630-52PC). The login window appears as below.



6. Leave the user name and password fields empty. They are NOT required. Click “**Login**” to login to the switch configuration window.

Enable Jumbo Frame:

7. Find **System -> Port Configuration -> Jumbo Frame** in the menu on left side of the window. (IP922 requires Jumbo Frame(8K) for video/audio transmission via 1G-BaseT).



8. Select the last 52 port “eth 1/0/52” in the menu on To Port, then enter “12288” in Maximum Frame Size on the right side of the Jumbo Frame window as below. And then click “Apply” button.

From Port	To Port	Maximum Receive Frame Size (64-12288)
eth1/0/1	eth1/0/13	12288
	eth1/0/33	
	eth1/0/34	
	eth1/0/35	
	eth1/0/36	
	eth1/0/37	
	eth1/0/38	
	eth1/0/39	
	eth1/0/40	
	eth1/0/41	
	eth1/0/42	
	eth1/0/43	
	eth1/0/44	
	eth1/0/45	
	eth1/0/46	
	eth1/0/47	
	eth1/0/48	
	eth1/0/49	
	eth1/0/50	
	eth1/0/51	
	eth1/0/52	

10.90.90.90 says
Success.

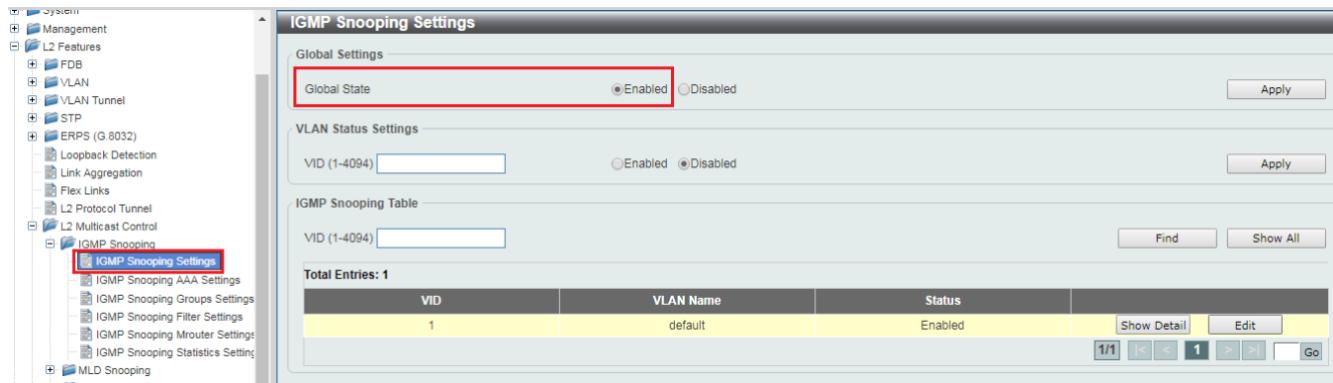
OK

9. After applying, you should see Maximum Receive Frame Size **12288** for all ports as below.

Jumbo Frame		
Jumbo Frame		Maximum Receive Frame Size (64-12288)
From Port	To Port	Maximum Receive Frame Size (bytes)
eth1/0/1	eth1/0/52	12288
eth1/0/1	eth1/0/2	12288
eth1/0/1	eth1/0/3	12288
eth1/0/1	eth1/0/4	12288
eth1/0/1	eth1/0/5	12288
eth1/0/1	eth1/0/6	12288
eth1/0/1	eth1/0/7	12288
eth1/0/1	eth1/0/8	12288

Enable IGMP Snooping:

10. Find **L2 Features** -> **L2 Multicast Control** -> **IGMP Snooping** -> **IGMP Snooping Settings** in the menu on left side of the window. (KD-IP922 requires IGMP Snooping for multicasting video/audio transmission via 1G-BaseT). Check the **Global State Enabled** box of Global Settings in IGMP Snooping Settings window as below. Click “**Apply**” button on the right side of IGMP Snooping Settings window.



The screenshot shows the navigation tree on the left with 'IGMP Snooping' selected. The main window displays 'IGMP Snooping Settings' with 'Global Settings' and 'VLAN Status Settings' sections. In 'Global Settings', the 'Global State' radio button is selected (Enabled). In 'VLAN Status Settings', the 'VID (1-4094)' field is set to '1' and the 'Enabled' radio button is selected. The 'Apply' button is highlighted with a red box.

11. To add VLAN of the IGMP Snooping at the switch, enter “**1**” in VID of VLAN Status Settings. (VLAN must be added in IGMP Snooping). Then select “**Enabled**” and click “**Apply**” button.



The screenshot shows the 'IGMP Snooping Settings' page with the 'VLAN Status Settings' section highlighted. The 'VID (1-4094)' field is set to '1' and the 'Enabled' radio button is selected. The 'Apply' button is highlighted with a red box.

12. Click “Edit” button in IGMP Snooping Settings window.

IGMP Snooping Settings

Global Settings

Global State Enabled Disabled Apply

VLAN Status Settings

VID (1-4094) Enabled Disabled Apply

IGMP Snooping Table

VID (1-4094) Find Show All

Total Entries: 1

VID	VLAN Name	Status	Actions
1	default	Enabled	Show Detail Edit

1/1 < < 1 > > Go

13. In the IGMP Snooping VLAN Settings window, select below options as depicted below in red and then click “Apply” button:

- *Minimum Version: 2*
- *Fast Leave: Enabled*
- *Report Suppression: Enabled*
- *Querier State: Enabled*
- *Query Version: 2*
- *Ignore Topology Change: Enabled*

IGMP Snooping VLAN Settings

IGMP Snooping VLAN Settings

VID (1-4094) Status Enabled Disabled

Minimum Version Fast Leave Enabled Disabled Report Suppression Enabled Disabled

Suppression Time (1-300) Querier State Enabled Disabled Query Version

Query Interval (1-31744) sec Max Response Time (1-25) sec Robustness Value (1-7) Last Member Query Interval (1-25) sec Proxy Reporting Enabled Disabled Source Address Rate Limit (1-1000) No Limit Ignore Topology Change Enabled Disabled Apply

Network IP Settings:

14. Find L3 Features -> Interface -> IPv4 Interface. Select “Edit” button.

This D-Link switch series can be set to IP address range 10.x.x.x. ONLY.

If you use a single network switch, you may not need to change network IP settings. But if you are stacking network switches (connecting multiple network switches through D-Link 10G fiber cables), it is recommended to set first one to 10.90.90.91, second to 10.90.90.92, and so on.

Set Get IP From “**Static**”, set **Subnet Mask** to **255.0.0.0** and click **Apply**.

If you change an IP address, the page will be refreshed and you will need to log in again using new IP address, same user name and password. If you did not change IP address just continue to the next step. Make sure your screen looks exactly like pictured below.

IPv4 Interface

Interface	State	IP Address	Secondary	Link Status
vian1	Enabled	10.90.90.90/255.0.0.0 Manual	No	Up

IPv4 Interface Configure

IPv4 Interface Settings

Interface	vian1	Back
Settings		
State	Enabled	
IP MTU (512-16383)	1500	bytes
IP Directed Broadcast	Disabled	
Description	64 chars	
Apply		

IP Settings

Get IP From	Static
IP Address	10.90.90.91
Mask	255.0.0.0
Secondary	<input type="checkbox"/>
Apply	

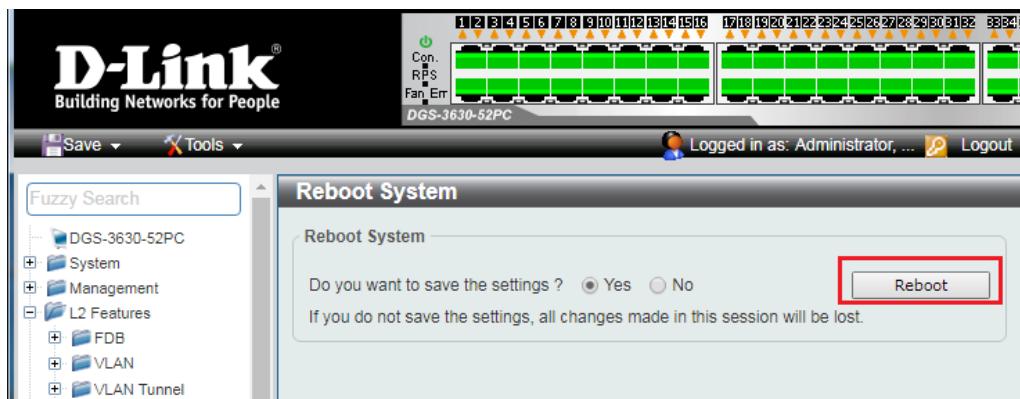
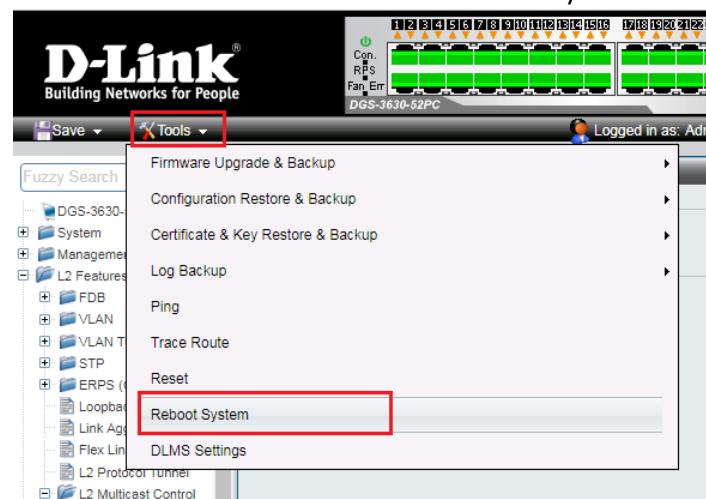
Secondary IP Entry

Total Entries: 0			
IP Address	Mask	Boot Mode	Secondary

15. To save all Running Configurations to Startup-Configuration, Find **Save** → **Save Configuration** in the menu on top of the window. Then click “**Apply**” button in Save Running Configuration to startup-config window.

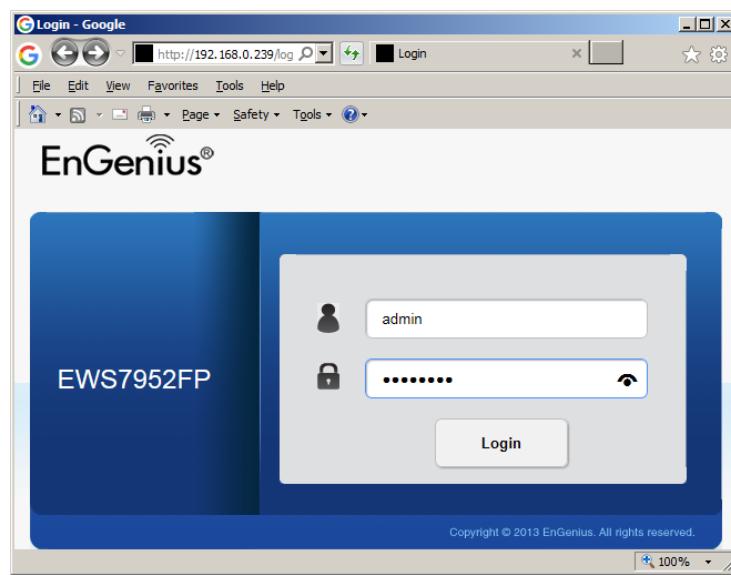


16. To reboot the switch, Find **Tool** → **Reboot System** in the menu on top of the window. Then click “**Reboot**” button in Reboot System window. The switch will be rebooted automatically.

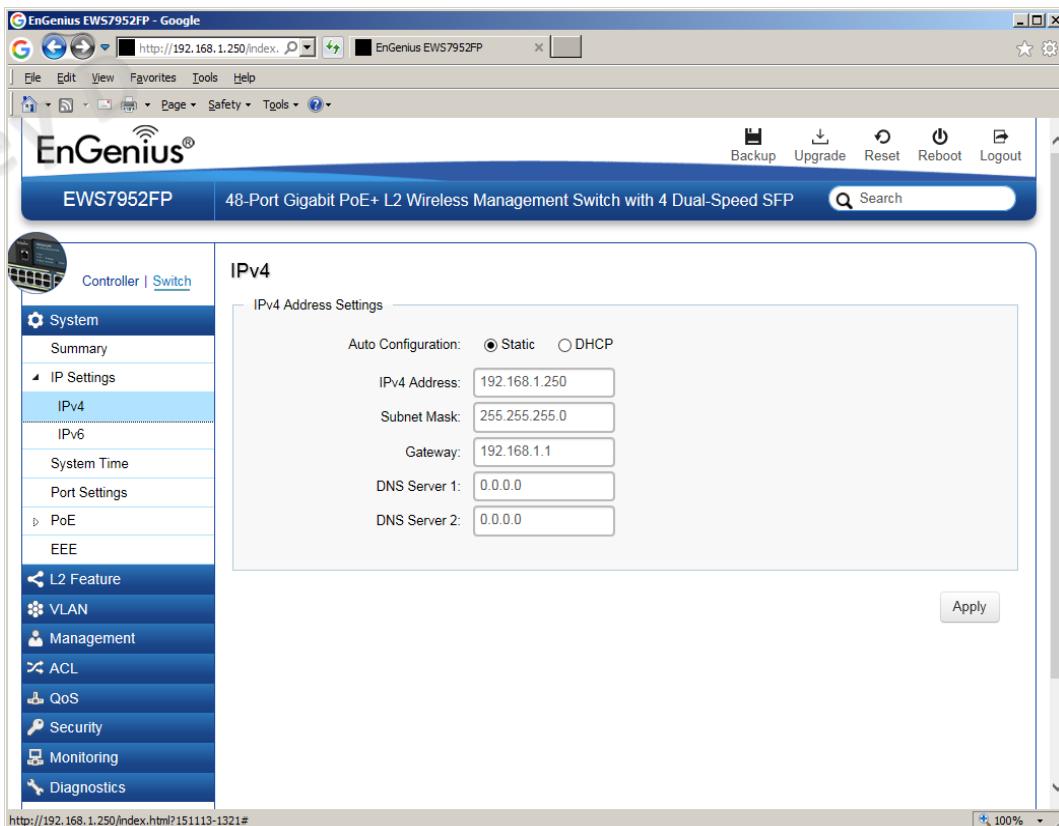


**IGMP Setup Guide: Engenius
1080p Systems (KD-IP1080, KD-IP120)**

1. It is recommended to reset the switch to factory defaults before configuring for multicast operation. Power up the device, wait for about 2 minutes, using a paper clip press and hold a reset button for more than 10 seconds and then release. After device is rebooted power down and then power up the device. Wait while the device is restarted and ready to use.
2. Connect your PC to the switch directly using a network cable.
3. Configure your PC's IP address to the same range as the switch (default **192.168.0.xxx**).
4. Enter the switch's IP address (default is **192.168.0.239**) in your browser and press ENTER.
5. Enter user name and password (default is “**admin**” and “**password**”). Then click **Log In**.



6. On the left select **Switch**. Navigate to **System -> IP Settings -> IPv4**. Under **Auto Configuration** select **Static**. Change an IP address to **192.168.1.250**, Subnet Mask to **255.255.255.0**, Default Gateway to **192.168.1.1** (in this case), and at the bottom click **Apply**.

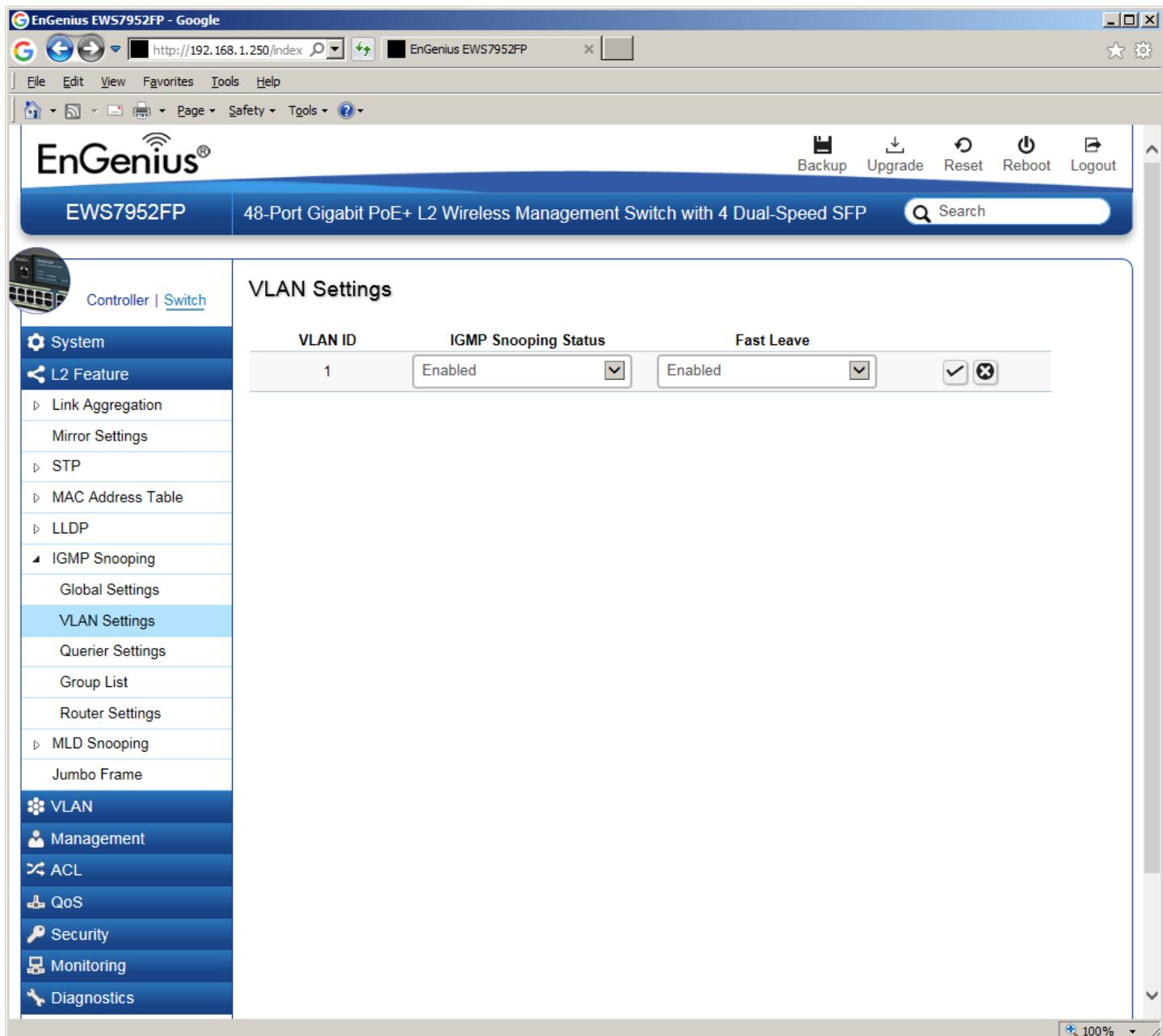


7. Page will refresh. Configure your PC's IP address to the same range as the switch (default **192.168.1.xxx**). Enter the switch's IP address (default is **192.168.1.250**) in your browser and press ENTER. Log in again with the same user name /password.

8. On the left select **Switch**. Navigate to **L2 Feature -> IGMP Snooping -> Global Settings**. Under **Status** select **Enabled**, under **Version: V2** and under **Report Suppression: Enabled**. Click **Apply**.

The screenshot shows the EnGenius EWS7952FP web interface. The left sidebar has a 'Controller | Switch' icon and a list of navigation items: System, L2 Feature (selected), Link Aggregation, Mirror Settings, STP, MAC Address Table, LLDP, IGMP Snooping (selected), Global Settings (selected), VLAN Settings, Querier Settings, Group List, Router Settings, MLD Snooping, Jumbo Frame, VLAN, Management, ACL, QoS, Security, Monitoring, and Diagnostics. The main content area is titled 'Global Settings' under 'IGMP Snooping'. It contains three sections: 'Settings' (Status: Enabled, Version: V2, Report Suppression: Enabled), 'Advanced' (disabled), and 'Statistics' (disabled). At the bottom right is an 'Apply' button. The top right of the interface includes 'Backup', 'Upgrade', 'Reset', 'Reboot', and 'Logout' buttons. The top left shows the browser title 'EnGenius EWS7952FP - Google' and the URL 'http://192.168.1.250/index'. The top right shows a search bar and a gear icon.

9. Navigate to **L2 Feature -> IGMP Snooping -> VLAN Settings**. Click on Edit button on the right in the **VLAN ID** 1 line. Under **IGMP Snooping Status** select **Enabled**, under **Fast Leave** select **Enabled**. Click check mark button to apply settings.

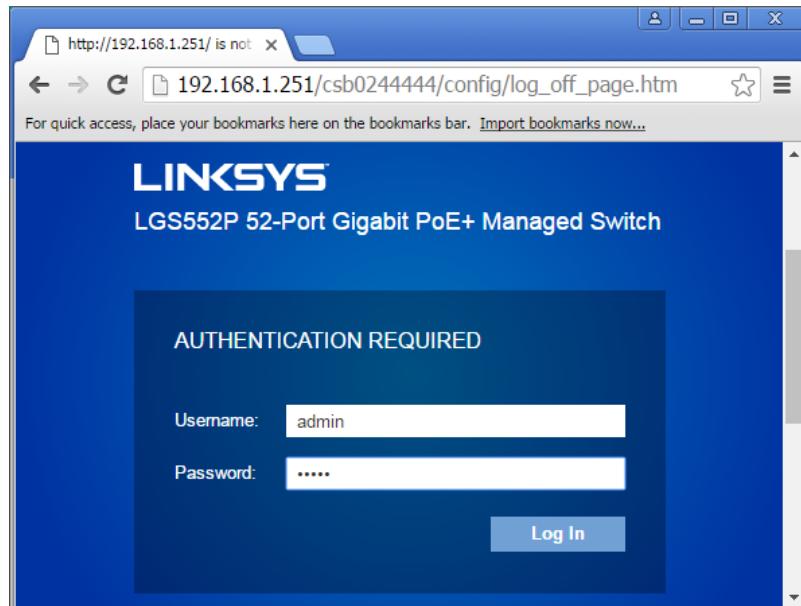


VLAN ID	IGMP Snooping Status	Fast Leave
1	Enabled	<input checked="" type="checkbox"/> <input type="checkbox"/>

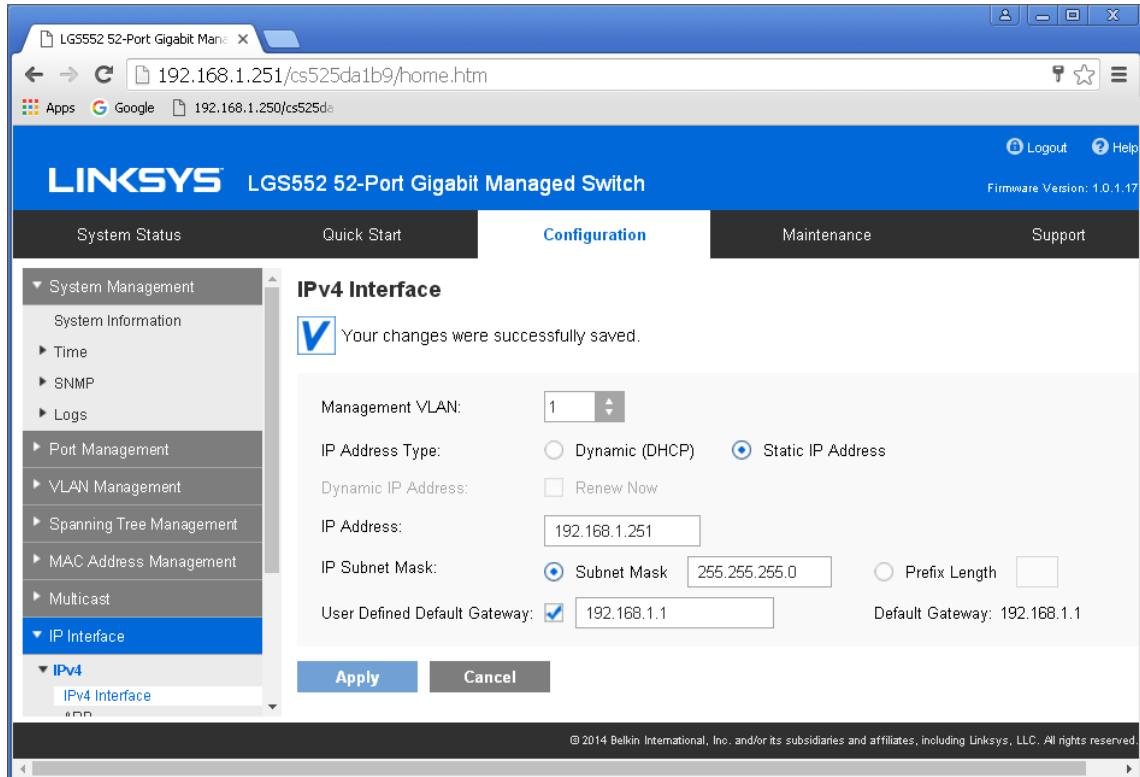
10. Now the switch should work properly with IP audio/video equipment.

IGMP Setup Guide: Linksys 1080p Systems (KD-IP1080, KD-IP120)

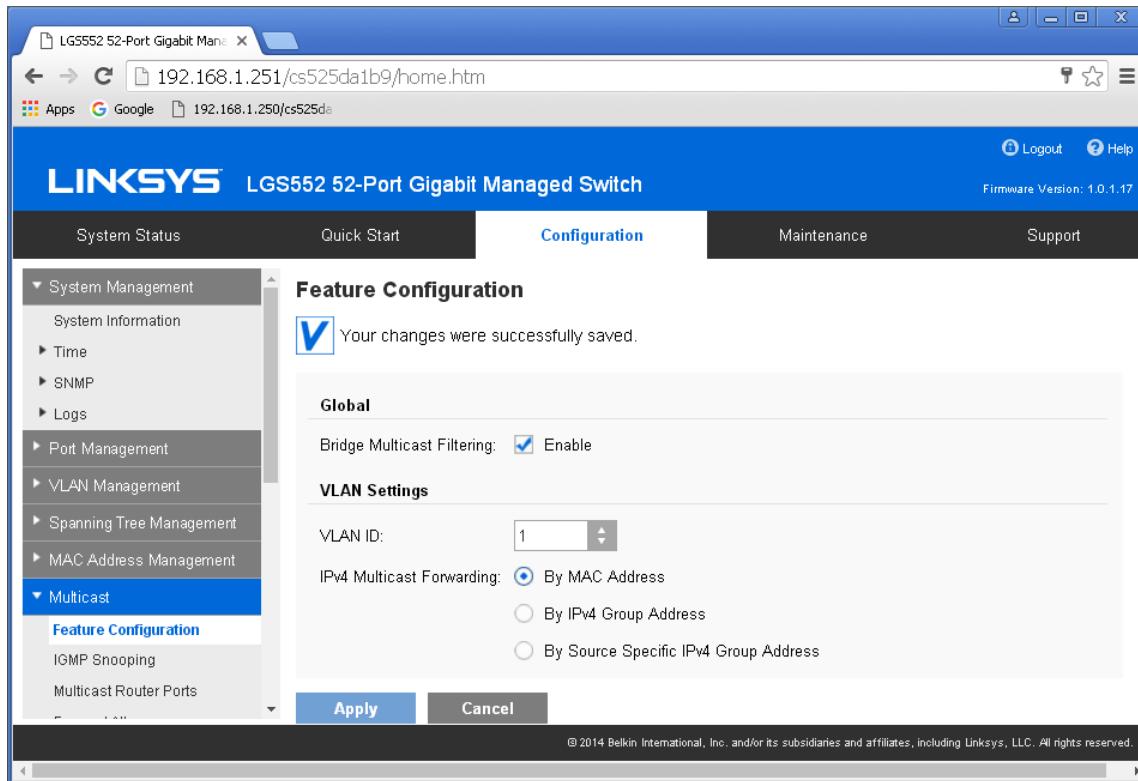
1. Before Linksys network switch is configured Key Digital KD-IP120/KD-IP1080 HDMI switch set must be connected to all HDMI sources/displays/network switches, and configured using Key Digital KD-IP120 Key Digital Management Software latest version.
2. Power-up all the system components. Using Key Digital KD-IP120 Key Digital Management Software, switch **All Outputs -> Through** at switching page.
3. **IMPORTANT:** Disconnect all the DHCP devices like routers, servers from the Linksys network switch.
4. Locate a pinhole “RESET” button at the front panel left bottom corner of your Linksys network switch. Using a paper clip press and hold a reset button for more than 10 seconds and then release. Wait while the device is restarted and ready to use (about 5min).
5. **IMPORTANT:** Make sure the blue “SYSTEM”LED next to the pinhole “RESET” button is flashing.
6. **IMPORTANT:** At this point all the displays should be displaying distorted randomly flashing video images.
7. Connect your PC to the Linksys network switch directly using a network cable.
8. If you have not done yet, configure your PC’s IP address to the same range as the switch (default **192.168.1.xxx**).
9. Enter the switch’s IP address in your browser and press ENTER (check the user manual for a default IP address - it is usually **192.168.1.251**).
10. Enter user name and password (check the user manual for a default user name and password; it is usually “**admin**” for both). Then click **Log In**.



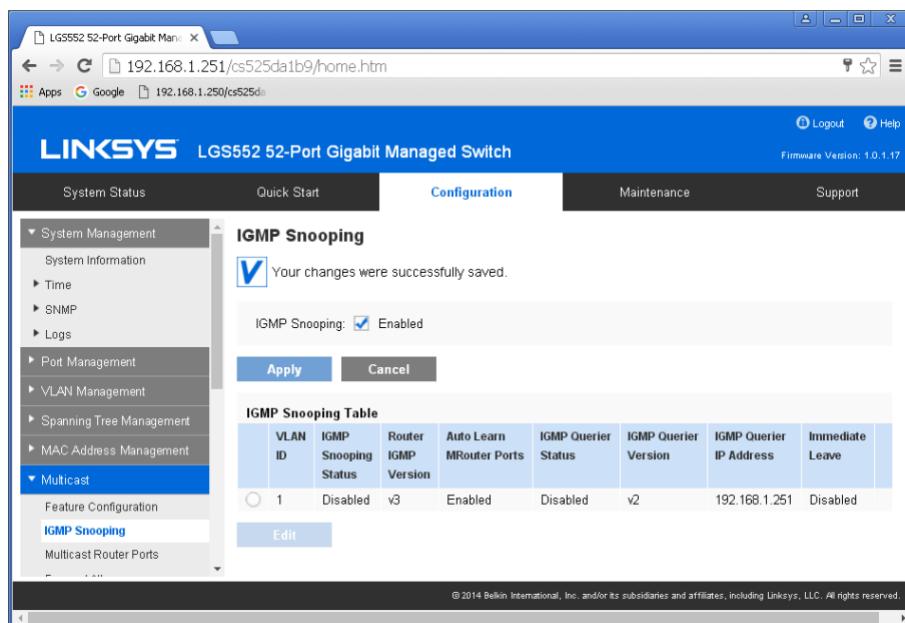
11. Navigate to **Configuration -> IP Interface -> IPv4-> IPv4 Interface**. Select **Static IP Address**. IP address can be changed by the administrator depending on the network configuration. If you are using multiple network switches it is recommended to set first one to **192.168.1.251**, second to **192.168.1.252**, and so on (we will leave the IP address unchanged). Set **Subnet Mask** to **255.255.255.0**, set **User Defined Default Gateway** to **192.168.1.1** (in this case), make sure that Management VLAN is set to "1" and click **Apply**. If you changed an IP address page will refresh and you will need to log in again using new IP address, same user name and password. If you did not change IP address just continue to the next step.
12. Make sure your screen looks exactly like pictured below.



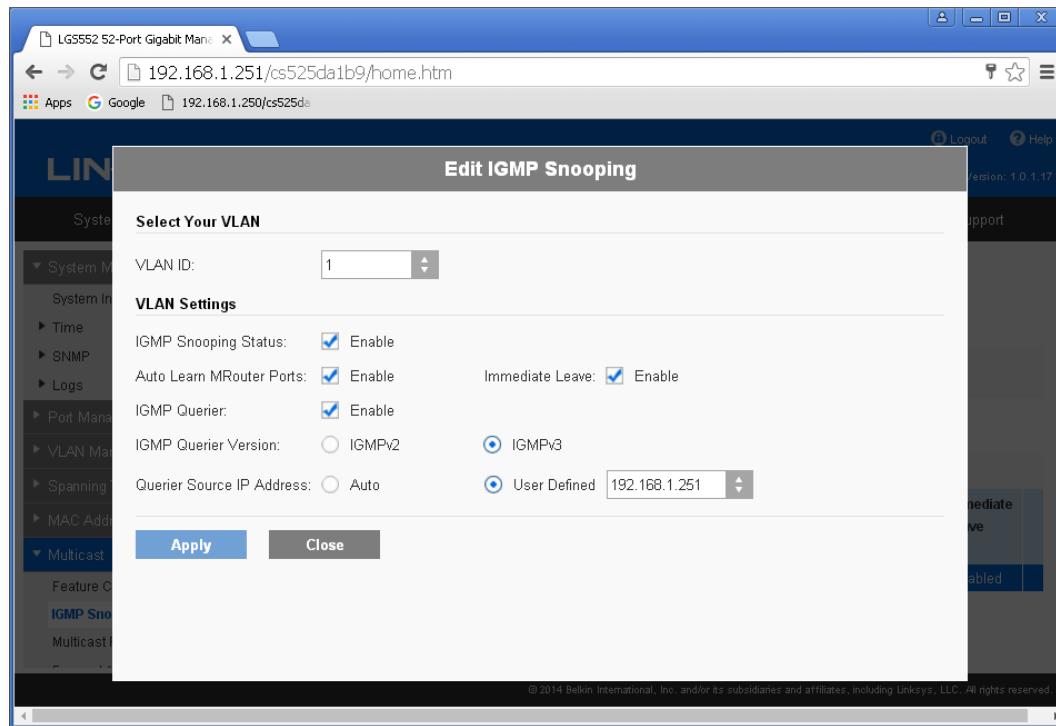
13. Navigate to **Multicast -> Future Configuration**. Select **Enable** under **Bridge Multicasting Filtering** and click **Apply**.



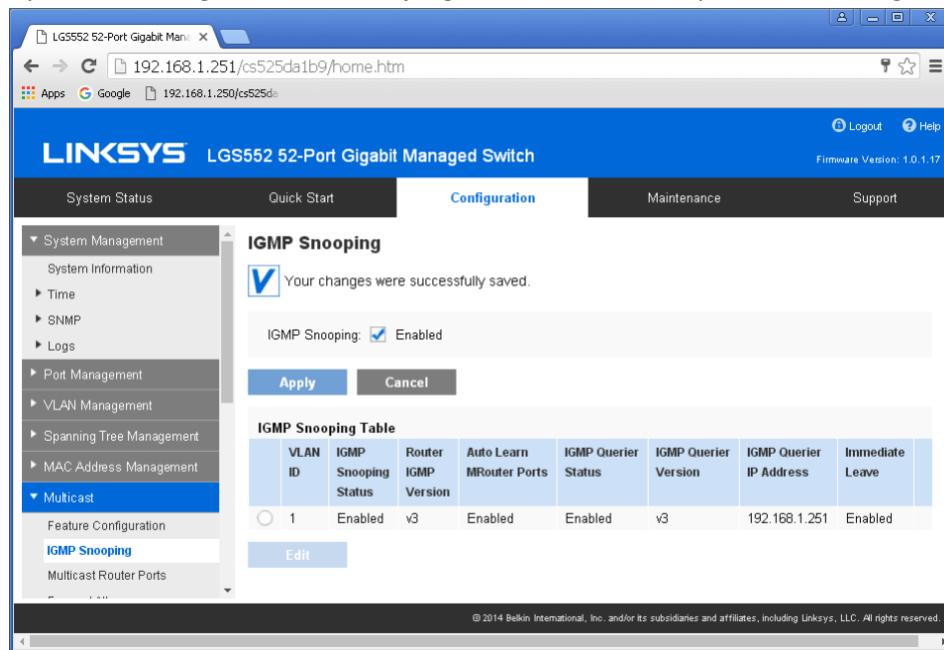
14. Navigate to **Multicast -> IGMP Snooping**. Select **Enable** under **IGMP Snooping**, click **Apply**.



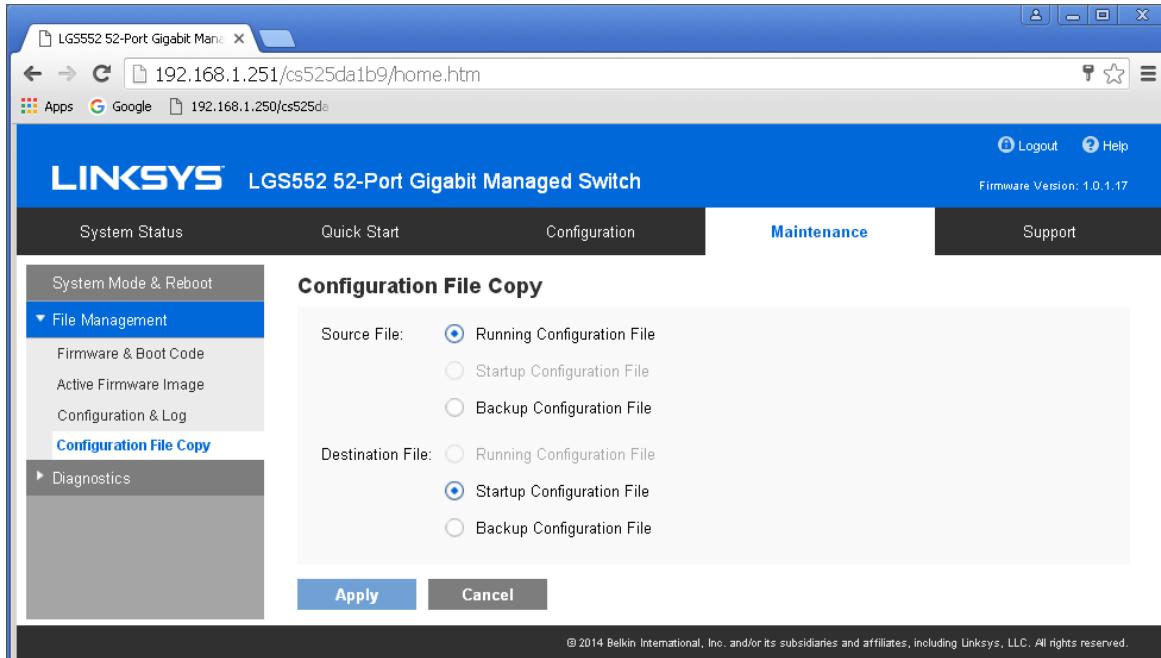
15. Click on radio button and click **Edit**. **Edit IGMP Snooping** window will appear. Make sure **VLAN ID <1>** is selected. Enable all the settings as shown below. Select **IGMP v3** as **IGMP Querier Version**, Click **Apply** and then **Close**.



16. Refresh your browser, go to **IGMP Snooping** tab and make sure you have an image as below:



17. **IMPORTANT:** At this point all the displays should be displaying stable running video from the selected sources. If you do not have them displaying properly, than network switch is configured incorrectly.
18. Navigate to **Maintenance -> File Management -> Configuration File Copy**. Select radio buttons as shown below, click **Apply**. This will save current configuration and will apply this configuration every time switch is powered up.



19. **IMPORTANT:** Now you can connect back you DHCP equipment (routers, servers and so on).
20. Power down Linksys network switch and power it up back again. Wait for the whole system to start and until you can see video on your displays.

21. Log in to your Linksys network switch again and make sure that IGMP settings are intact:

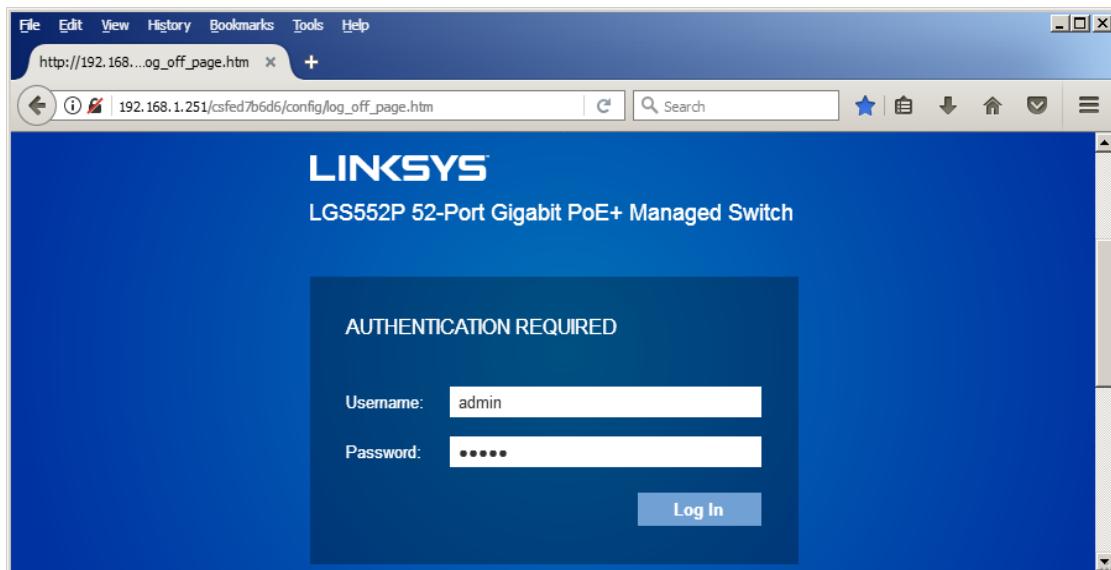
VLAN ID	IGMP Snooping Status	Router IGMP Version	Auto Learn MRouter Ports	IGMP Querier Status	IGMP Querier Version	IGMP Querier IP Address	Immediate Leave
1	Enabled	v3	Enabled	Enabled	v3	192.168.1.251	Enabled

22. Rescan your components with Key Digital KD-IP120 Key Digital Management Software and make sure HDMI video switch is functional.

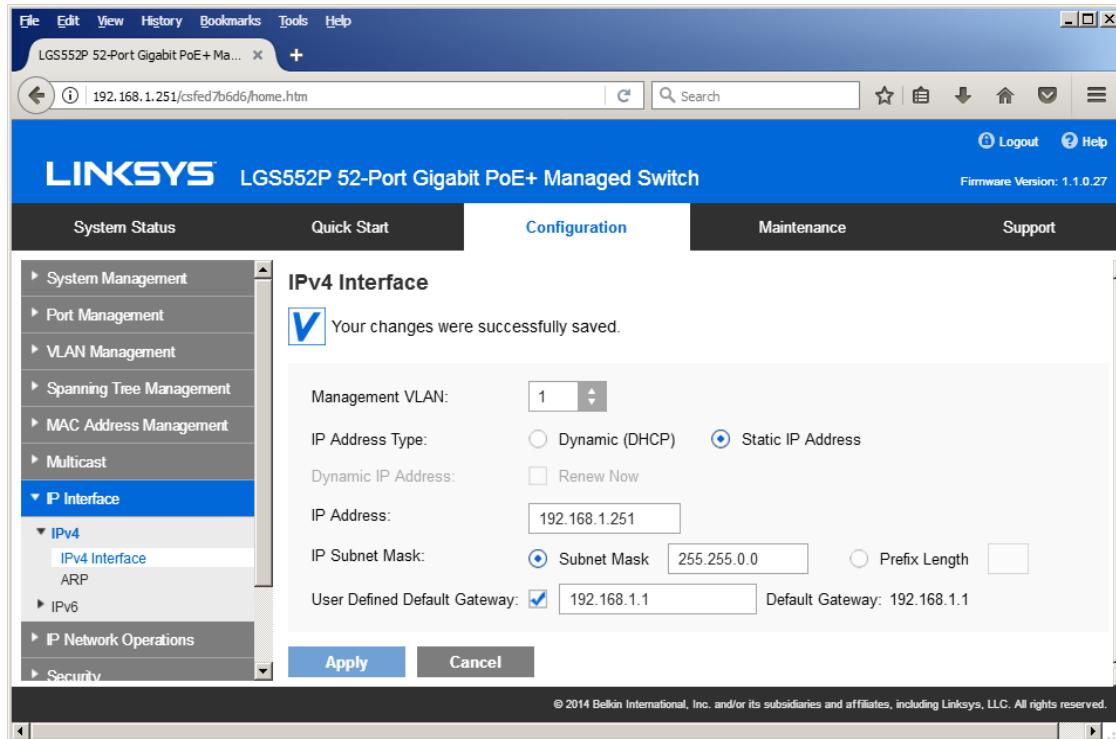
23. At this point your Linksys network switch is set and ready to use.

IGMP Setup Guide: Linksys
4K Systems (KD-IP822, KD-IP922, KD-IP1022)

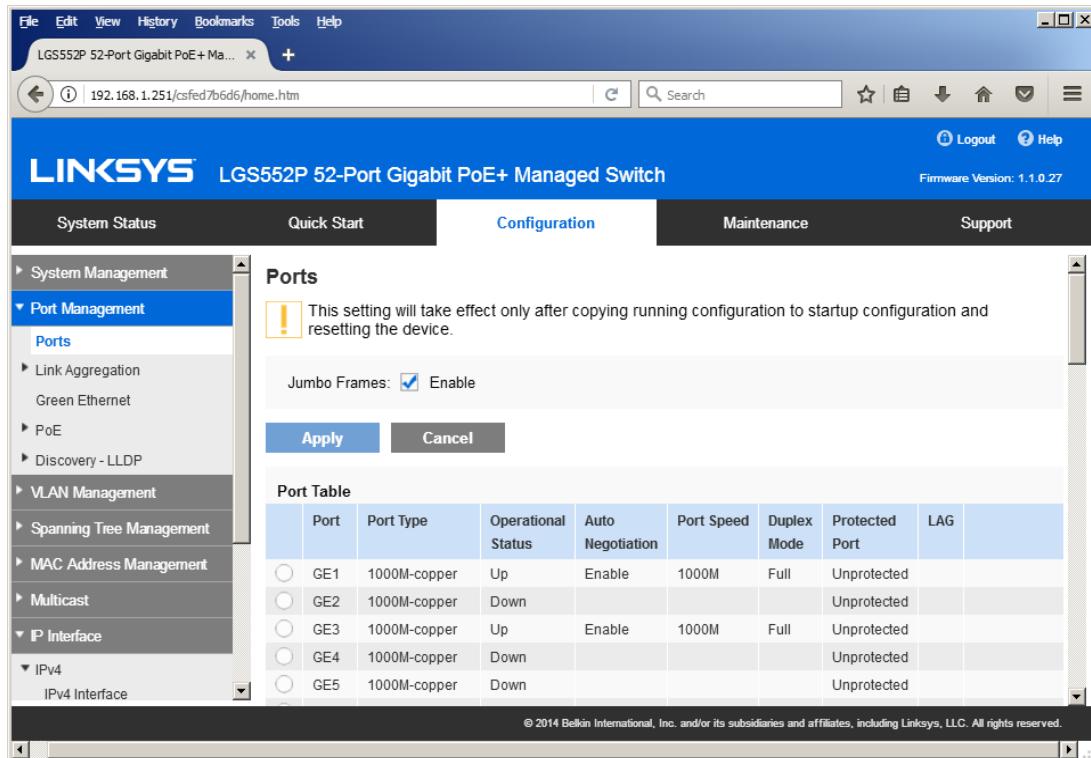
1. Before Linksys network switch is configured Key Digital KD-IP922 HDMI switch set must be connected to all HDMI sources/displays/network switches, and configured using Key Digital Management Software latest version.
2. Power-up all the system components. Using Key Digital Management Software, switch **All Outputs -> Through** at switching page.
3. **IMPORTANT:** Disconnect all the DHCP devices like routers, servers from the Linksys network switch.
4. Locate a pinhole “RESET” button at the front panel left bottom corner of your Linksys network switch. Using a paper clip press and hold a reset button for more than 10 seconds and then release. Wait while the device is restarted and ready to use (about 5min).
5. **IMPORTANT:** Make sure the blue “SYSTEM”LED next to the pinhole “RESET” button is flashing.
6. **IMPORTANT:** At this point all the displays should be displaying or flashing Key Digital logo with information stamp.
7. Connect your PC to the Linksys network switch directly using a network cable.
8. If you have not done yet, configure your PC’s IP address to the same range as the switch (default **192.168.1.xxx**).
9. Enter the switch’s IP address in your browser and press ENTER (check the user manual for a default IP address - it is usually **192.168.1.251**).
10. Enter user name and password (check the user manual for a default user name and password; it is usually “**admin**” for both). Then click **Log In**.



11. Navigate to **Configuration -> IP Interface -> IPv4-> IPv4 Interface**. Select **Static IP Address**. IP address can be changed by the administrator depending on the network configuration. If you are using multiple network switches it is recommended to set first one to **192.168.1.251**, second to **192.168.1.252**, and so on (we will leave the IP address unchanged). Set **Subnet Mask** to **255.255.0.0**, set **User Defined Default Gateway** to **192.168.1.1** (in this case), make sure that Management VLAN is set to "1" and click **Apply**. If you changed an IP address page will refresh and you will need to log in again using new IP address, same user name and password. If you did not change IP address just continue to the next step.
12. Make sure your screen looks exactly like pictured below.



13. Navigate to **Port Management -> Ports**. Select **Enable** under **Jumbo Frames** and click **Apply**.

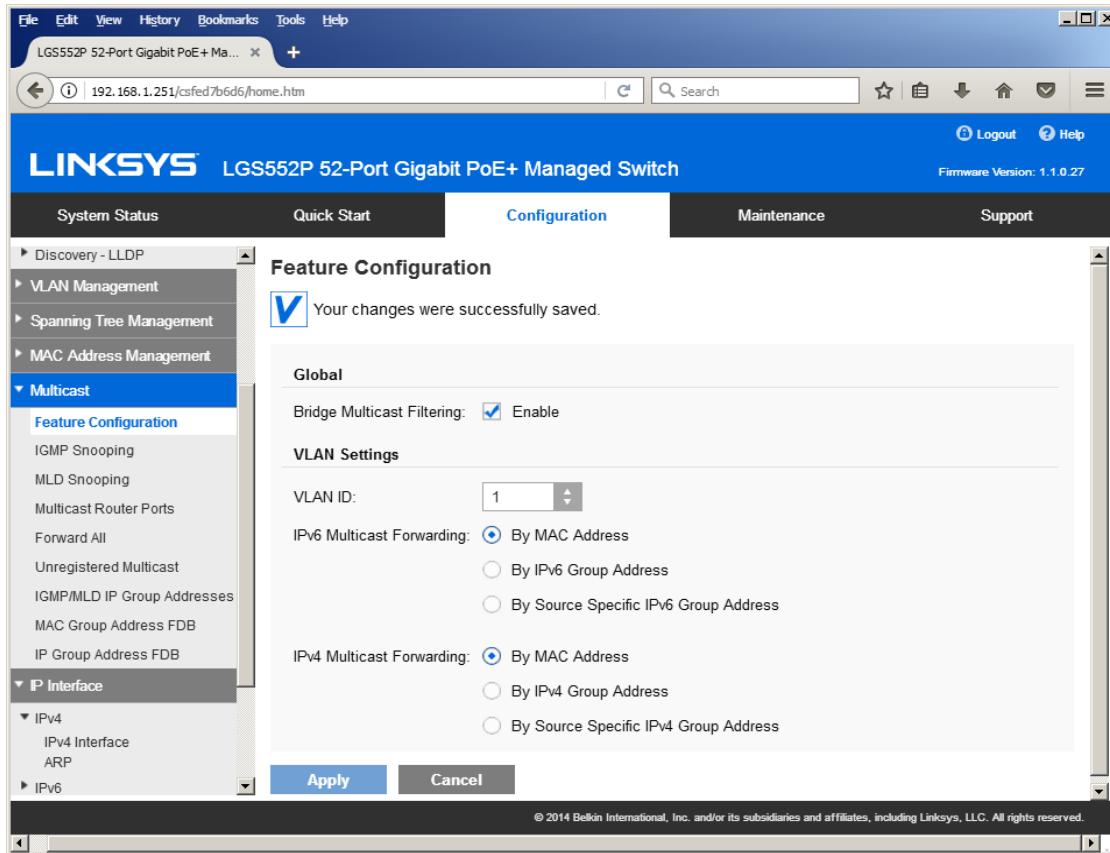


The screenshot shows the configuration interface for a Linksys LGS552P 52-Port Gigabit PoE+ Managed Switch. The left sidebar menu is expanded to show 'Port Management' and its sub-options: Ports, Link Aggregation, Green Ethernet, PoE, and Discovery - LLDP. The 'Ports' option is selected. The main content area is titled 'Ports' and contains a note: 'This setting will take effect only after copying running configuration to startup configuration and resetting the device.' Below this, the 'Jumbo Frames' setting is shown as 'Enable' with a checked checkbox. At the bottom of this section are 'Apply' and 'Cancel' buttons. Below this is a 'Port Table' with the following data:

	Port	Port Type	Operational Status	Auto Negotiation	Port Speed	Duplex Mode	Protected Port	LAG	
1	GE1	1000M-copper	Up	Enable	1000M	Full	Unprotected		
2	GE2	1000M-copper	Down				Unprotected		
3	GE3	1000M-copper	Up	Enable	1000M	Full	Unprotected		
4	GE4	1000M-copper	Down				Unprotected		
5	GE5	1000M-copper	Down				Unprotected		

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14. Navigate to **Multicast -> Future Configuration**. Select **Enable** under **Bridge Multicasting Filtering** and click **Apply**.



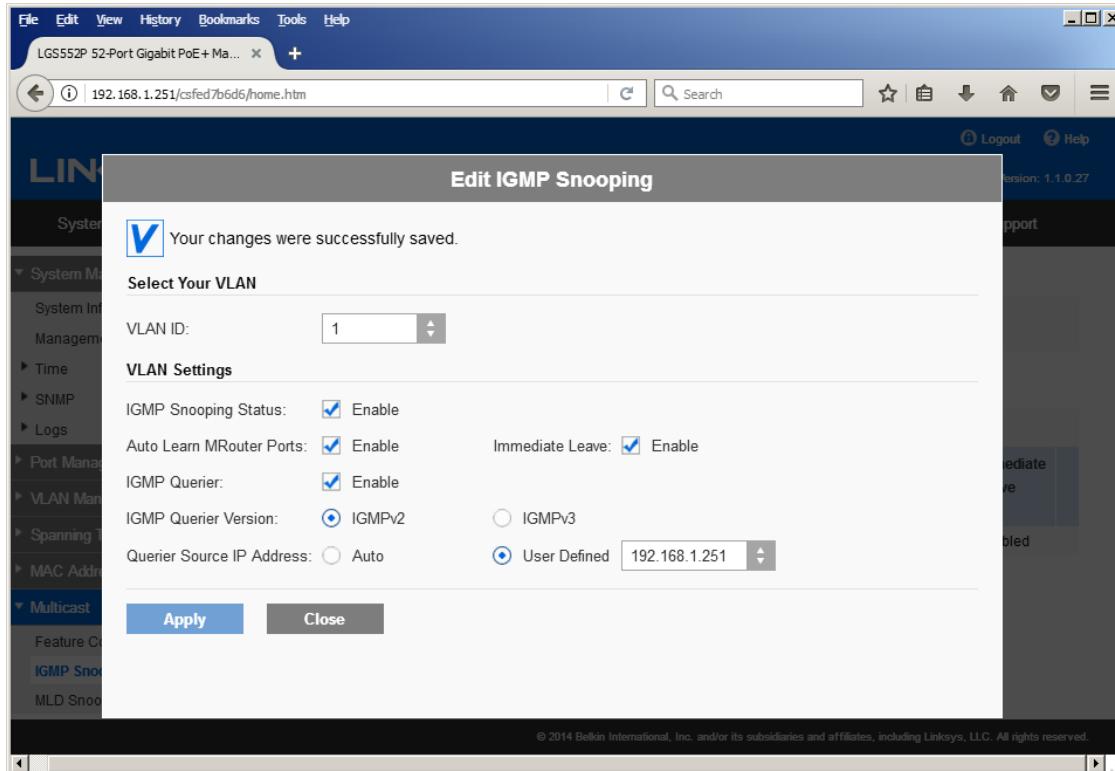
15. Navigate to **Multicast** -> **IGMP Snooping**. Select **Enable** under **IGMP Snooping**, click **Apply**.

The screenshot shows the configuration interface for a Linksys LGS552P switch. The left sidebar has a 'Multicast' section expanded, with 'IGMP Snooping' selected. The main content area is titled 'IGMP Snooping' and shows a success message: 'Your changes were successfully saved.' Below this, the 'IGMP Snooping' status is set to 'Enable'. There are 'Apply' and 'Cancel' buttons. A table titled 'IGMP Snooping Table' is displayed, showing one entry:

	VLAN ID	IGMP Snooping Status	Router IGMP Version	Auto Learn MRouter Ports	IGMP Querier Status	IGMP Querier Version	IGMP Querier IP Address	Immediate Leave
1	Disabled	v3	Enabled	Disabled	v2	192.168.1.251	Disabled	

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16. Click on radio button and click **Edit**. **Edit IGMP Snooping** window will appear. Make sure **VLAN ID <1>** is selected. Enable all the settings as shown below. Select **IGMP v2** as **IGMP Querier Version**, Click **Apply** and then **Close**.



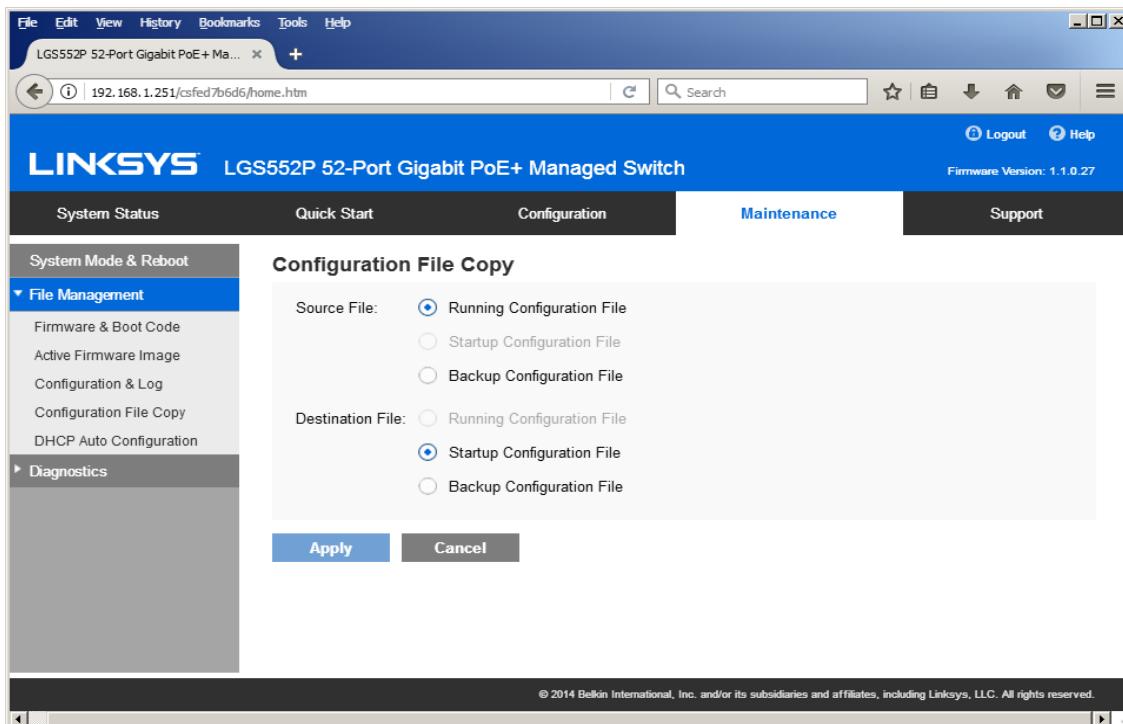
17. Refresh your browser, go to **IGMP Snooping** tab and make sure you have an image as below:

The screenshot shows a web browser window for the Linksys LGS552P 52-Port Gigabit PoE+ Managed Switch. The URL is 192.168.1.251/csfed7b6d6/home.htm. The main menu includes File, Edit, View, History, Bookmarks, Tools, and Help. The title bar says "LINKSYS LGS552P 52-Port Gigabit PoE+ Managed Switch" and "Firmware Version: 1.1.0.27". The top navigation bar has tabs for System Status, Quick Start, Configuration (which is selected), Maintenance, and Support. The left sidebar has a tree view with "Multicast" selected, showing "IGMP Snooping" as a child node. The main content area is titled "IGMP Snooping" and shows the configuration for VLAN 1. The "IGMP Snooping" checkbox is checked and labeled "Enable". Below this is an "Apply" button and a "Cancel" button. A table titled "IGMP Snooping Table" is displayed, showing the following data:

	VLAN ID	IGMP Snooping Status	Router IGMP Version	Auto Learn MRouter Ports	IGMP Querier Status	IGMP Querier Version	IGMP Querier IP Address	Immediate Leave
1	Enabled	v2	Enabled	Enabled	v2	192.168.1.251	Enabled	

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18. Navigate to **Maintenance** -> **File Management** -> **Configuration File Copy**. Select radio buttons as shown below, click **Apply**. This will save current configuration and will apply this configuration every time switch is powered up.



19. **IMPORTANT:** Now you can connect back your DHCP equipment (routers, servers and so on).
20. Power down Linksys network switch and power it up back again. Wait for the whole system to start and until you can see video on your displays.

21. Log in to your Linksys network switch again and make sure that IGMP settings are intact:

Feature Configuration

Global

Bridge Multicast Filtering: Enable

VLAN Settings

VLAN ID: 1

IPv6 Multicast Forwarding: By MAC Address
 By IPv6 Group Address
 By Source Specific IPv6 Group Address

IPv4 Multicast Forwarding: By MAC Address
 By IPv4 Group Address
 By Source Specific IPv4 Group Address

IGMP Snooping

IGMP Snooping: Enable

IGMP Snooping Table

	VLAN ID	IGMP Snooping Status	Router IGMP Version	Auto Learn MRouter Ports	IGMP Querier Status	IGMP Querier Version	IGMP Querier IP Address	Immediate Leave
1	Enabled	v2	Enabled	Enabled	v2		192.168.1.251	Enabled

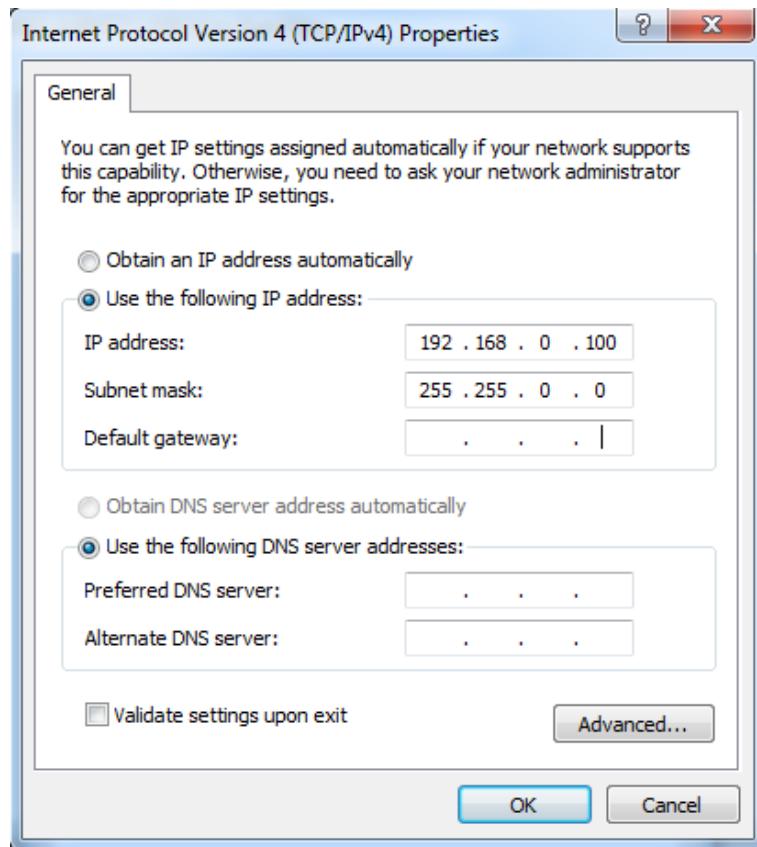
22. **IMPORTANT:** At this point all the displays should be displaying stable running video from the selected sources. If you do not have them displaying properly, than network switch is configured incorrectly
23. Rescan your components with Key Digital KD-IP922 Management Software and make sure HDMI video switch is functional.
24. At this point your Linksys network switch is set and ready to use.

Luxul AMS-4424P
Network Setup Guide for KD-IP822, KD-IP922, KD-IP1022, KD-IP1080

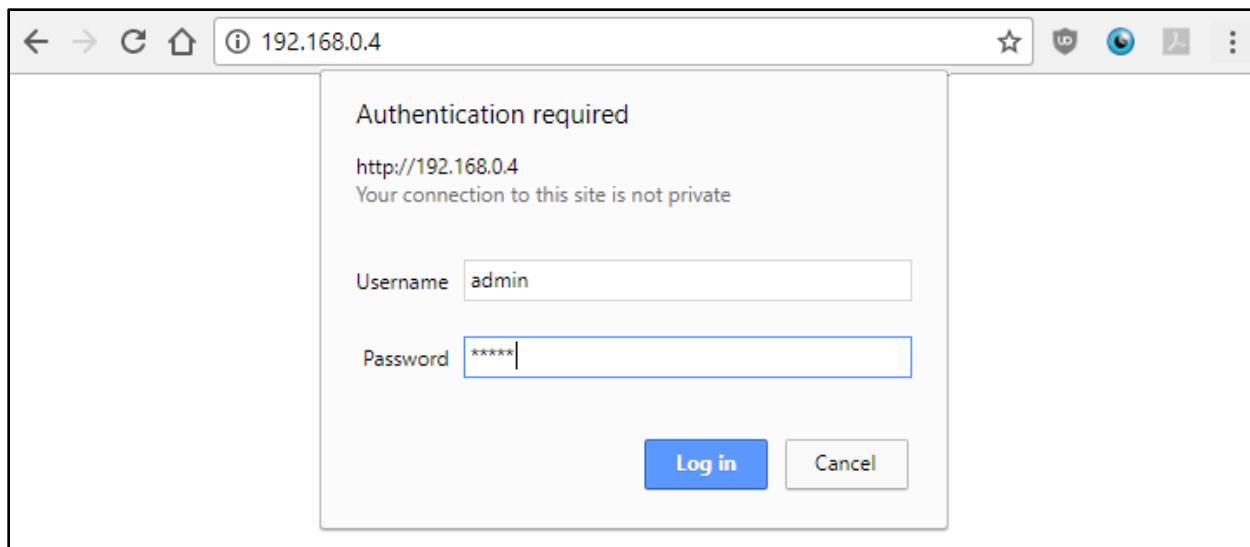
Important Notes:

- Please use firmware v.4.0.8.1. Other firmware versions are not compatible.
- Verified for single switch use only. Stacking switches may cause compatibility issues.

1. Login to the switch:
 - a. Plug an Ethernet cable into any of the ports of the switch
 - b. Plug the other end into the Ethernet port of your computer
 - c. Power on the Switch
 - d. Check to see that the IP address of the computer is within this network Subnet : **192.168.0.xxx** ("xxx" ranges 1~254). For example, 192.168.0.100



2. Open the Web browser, and enter **192.168.0.4** (default IP address of Luxul AMS-4424P). The login window appears as below:



3. Enter the user name and password. (default user name and password are both set as “admin”), then click “OK” to login to the switch configuration window.
4. Ensure all ports have Maximum Frame Size of 10056 entered as below. To check it, find Configuration → Ports → Ports in the menu on left side of the window. (KD-IP922 requires Jumbo Frame(8K) for video/audio transmission via 1G-BaseT).

Port	Link	Speed		Adv Duplex		Adv speed		Flow Control		Maximum Frame Size	Excessive Collision Mode	
		Current	Configured	Fdx	Hdx	10M	100M	1G	Enable	Curr Rx	Curr Tx	
*		<>	<>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
1	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
2	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
3	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
4	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
5	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
6	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
7	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
8	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
9	✓	1Gfdx	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				
10	✓	10G	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10056				

5. To enable **IGMP Snooping** of the switch, Find Configuration → IPMC → IGMP Snooping → Basic Configuration in the menu on left side of the window. (KD-IP922 requires IGMP Snooping for multicasting video/audio transmission via 1G-BaseT), then **check the box of Snooping Enabled** of Global Configuration in

IGMP Snooping Configuration window. And **check the Fast Leave box for all Ports** related Configuration in the same window as below.

IGMP Snooping Configuration

Stack Global Settings

Global Configuration	
Snooping Enabled	<input checked="" type="checkbox"/> Enabled
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 for Switch 3

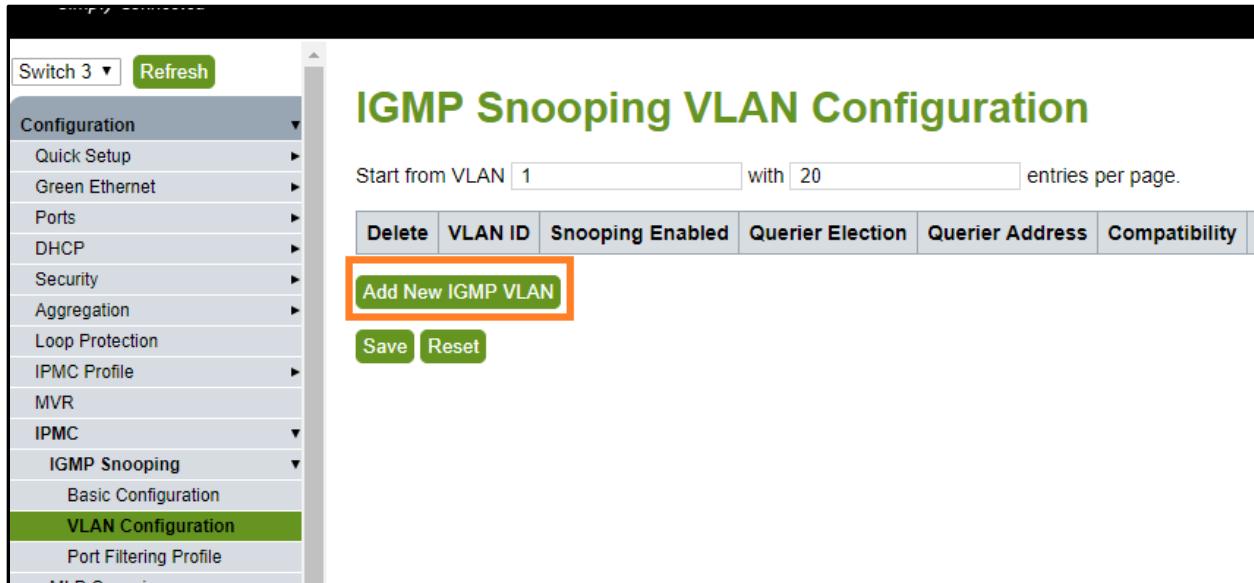
Port	Router Port	Fast Leave	Throttling
*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<>
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited

6. Click “Save” button on the bottom of IGMP Snooping Configuration window

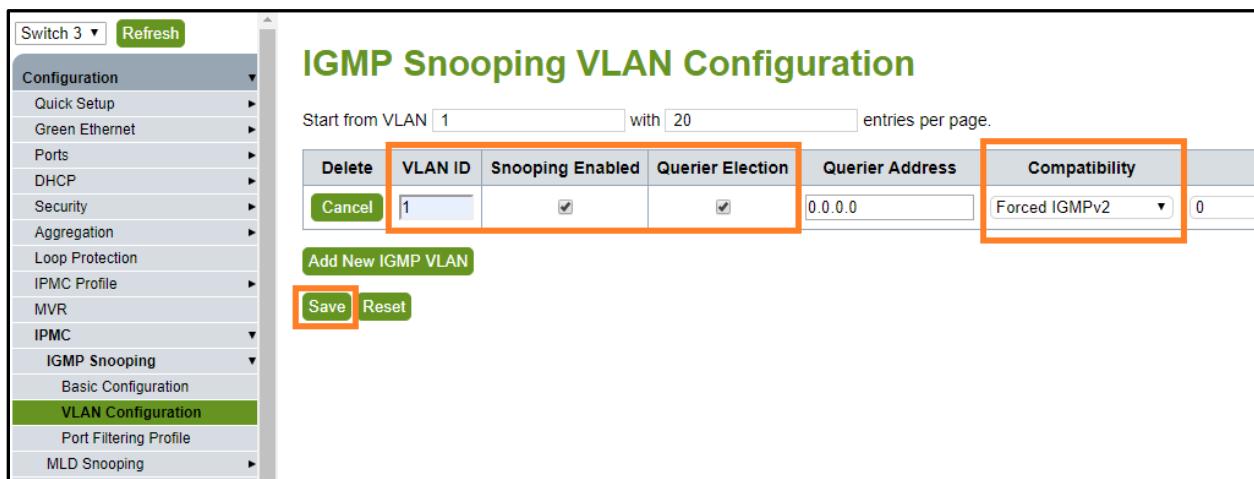
Port	Router Port	Fast Leave	Throttling
22	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited
23	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited
24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	unlimited

Save **Reset**

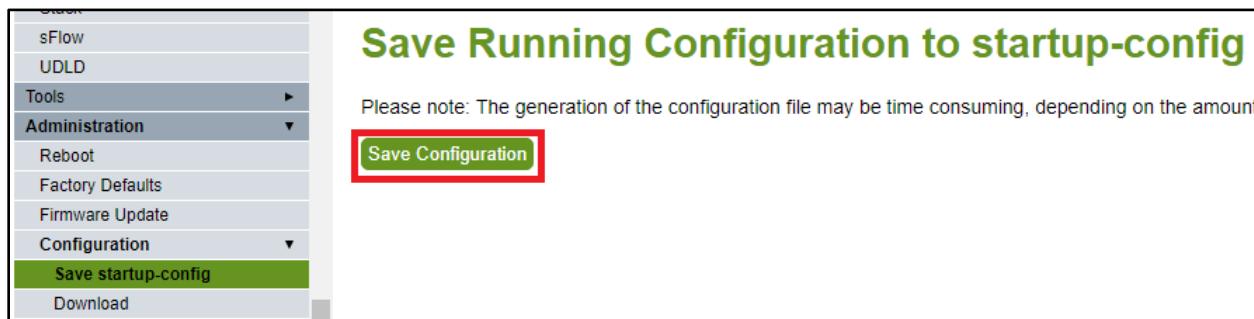
7. To add VLAN of the IGMP Snooping at the switch, Find Configuration → IPMC → IGMP Snooping → VLAN Configuration in the menu on left side of the window. (VLAN must be added in IGMP Snooping), then click “Add New IGMP VLAN” if there is not any specified VLAN in IGMP Snooping VLAN Configuration window.



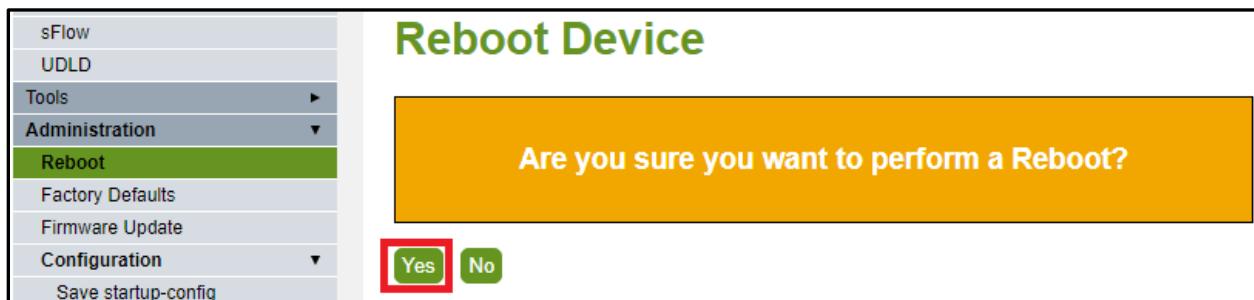
Step 11. Then enter “1” in VLAN ID, check the box of Snooping Enabled and Querier Election in new VLAN. And select “Forced IGMPv2” in the list box of Compatibility in IGMP Snooping VLAN Configuration window. Then click “Save” button on the bottom of IGMP Snooping VLAN Configuration window.



Step 12. To save all Running Configurations to Startup-Configuration, Find **Administration → Configuration → Save startup-config** in the menu on left side of the window. Then click “**Save Configuration**” button in Save Running Configuration to startup-config window.



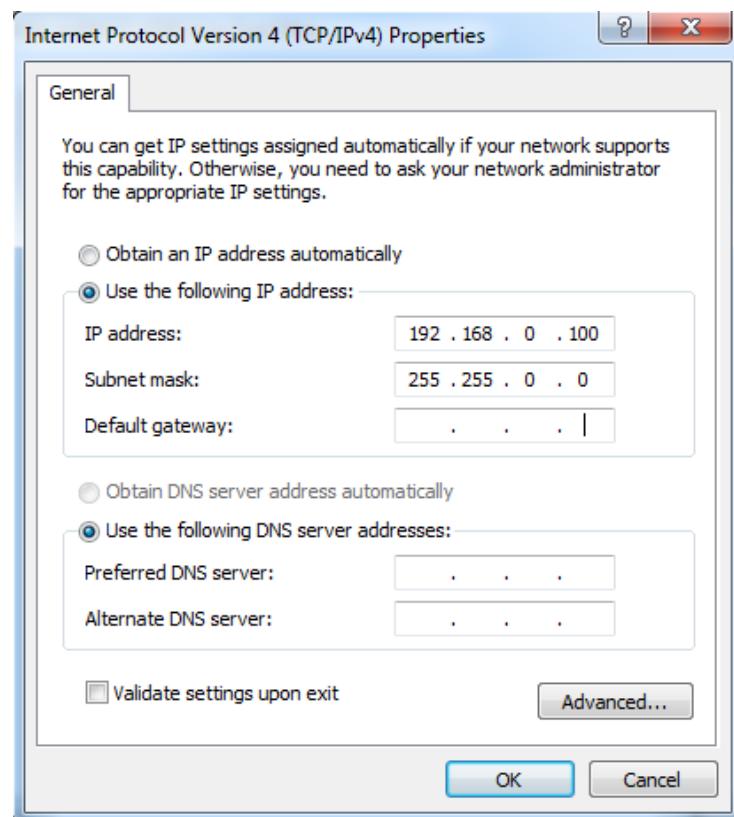
Step 13. To reboot the switch, Find **Administration → Reboot** in the menu on left side of the window. Then click “**Yes**” button in Reboot Device window. The switch will be rebooted automatically.



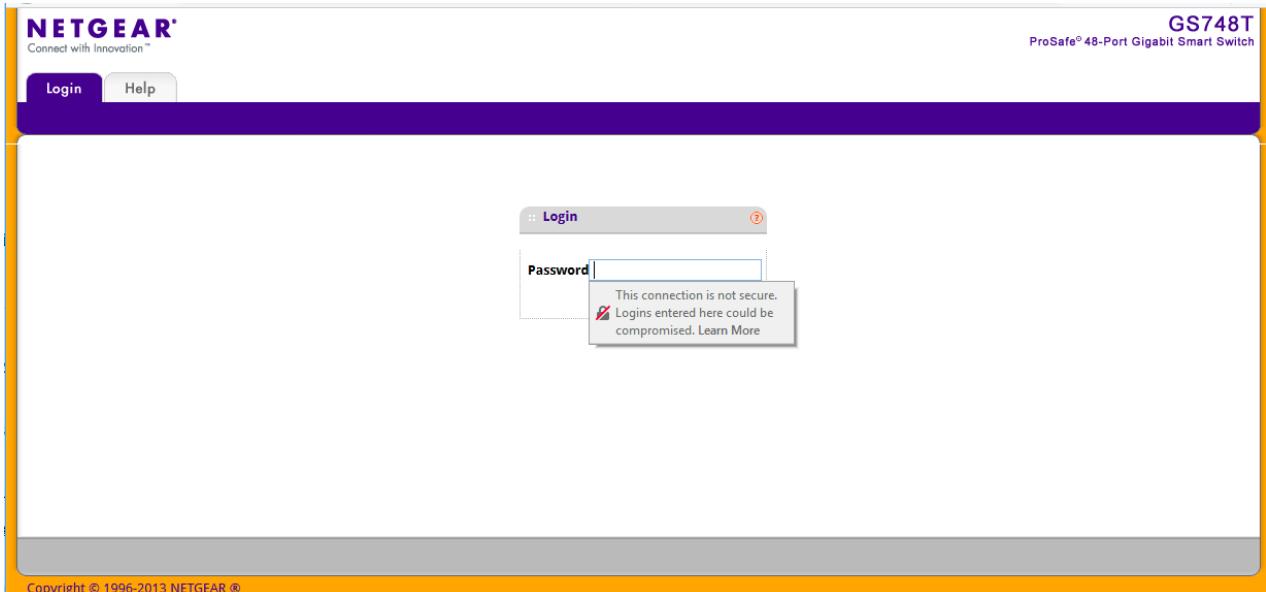
Netgear GS Series
Network Setup Guide for KD-IP822, KD-IP922, KD-IP1022, KD-IP1080

Login to the switch with the following steps:

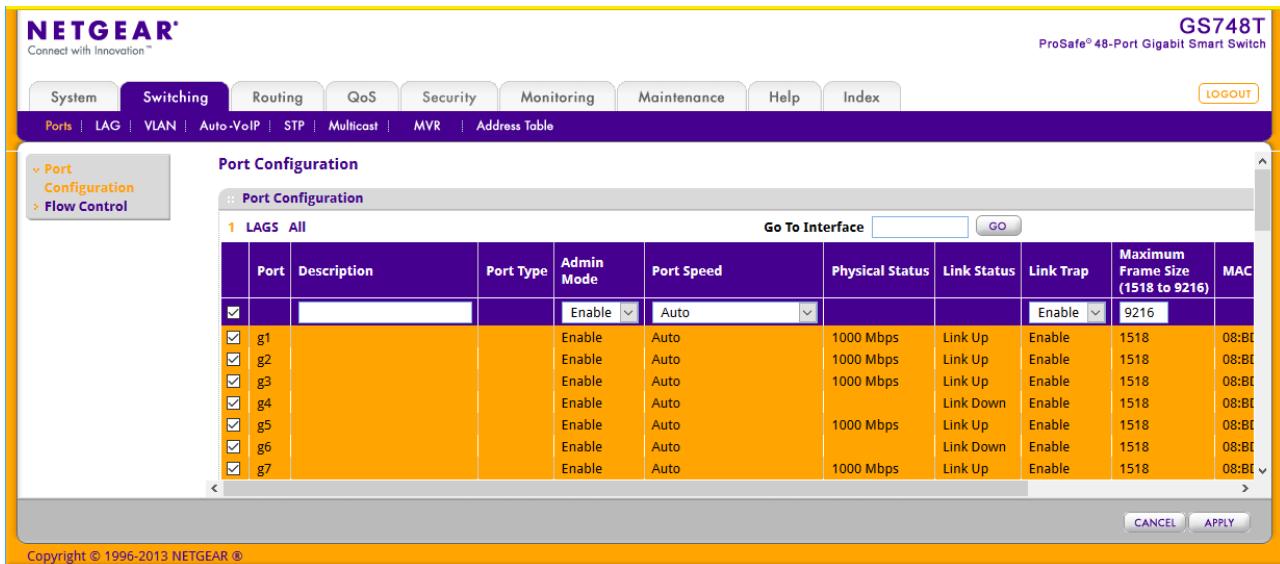
1. Plug an Ethernet cable into any of the ports of the switch
2. Plug the other end into the Ethernet port of your computer
3. Power on the Switch
4. Check to see that the IP address of the computer is within this network, 192.168.0.xxx ("xxx" ranges 1~254).
For example, 192.168.0.100



5. Open the Web browser, and enter 192.168.0.239 (default IP address of Netgear GS). The login window appears as below:



- 6.
7. Enter the password (default password is “password”). And then click ‘OK’ to login to the switch configuration window
8. To enable Jumbo Frame of the switch, go to Switching -> Ports -> Port Configuration. (IP922 requires Jumbo Frame(8K) for video/audio transmission via 1G-BaseT). Select the empty checkbox that is above the checkbox beside g1 Port in the table to select all the ports. All selected ports highlight to yellow color. Then enter “9216” in Maximum Frame Size field as shown below and press Apply button



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GS748T
ProSafe® 48-Port Gigabit Smart Switch

System | Switching | Routing | QoS | Security | Monitoring | Maintenance | Help | Index | [LOGOUT](#)

Ports | LAG | VLAN | Auto-VoIP | STP | Multicast | MVR | Address Table

Port Configuration

Port Configuration

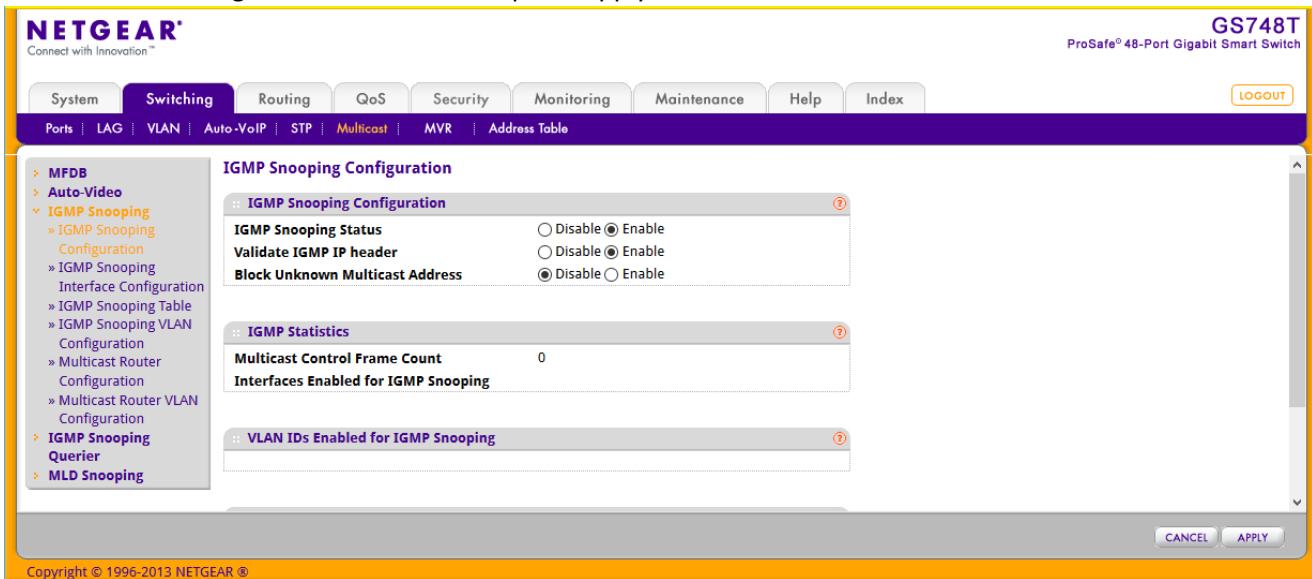
1 LAGS All [Go To Interface](#) [GO](#)

	Port	Description	Port Type	Admin Mode	Port Speed	Physical Status	Link Status	Link Trap	Maximum Frame Size (1518 to 9216)	MAC
<input checked="" type="checkbox"/>	g1			Enable	Auto	1000 Mbps	Link Up	Enable	1518	08:00:00:00:00:00
<input checked="" type="checkbox"/>	g2			Enable	Auto	1000 Mbps	Link Up	Enable	1518	08:00:00:00:00:00
<input checked="" type="checkbox"/>	g3			Enable	Auto	1000 Mbps	Link Up	Enable	1518	08:00:00:00:00:00
<input checked="" type="checkbox"/>	g4			Enable	Auto		Link Down	Enable	1518	08:00:00:00:00:00
<input checked="" type="checkbox"/>	g5			Enable	Auto	1000 Mbps	Link Up	Enable	1518	08:00:00:00:00:00
<input checked="" type="checkbox"/>	g6			Enable	Auto		Link Down	Enable	1518	08:00:00:00:00:00
<input checked="" type="checkbox"/>	g7			Enable	Auto	1000 Mbps	Link Up	Enable	1518	08:00:00:00:00:00

[CANCEL](#) [APPLY](#)

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9. To enable IGMP Snooping of the switch, go to Switching -> Multicast -> IGMP Snooping -> IGMP Snooping Configuration. (IP922 requires IGMP Snooping for multicasting video/audio transmission via 1G-BaseT), Enable IGMP settings as shown below and press Apply button



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System | Switching | Routing | QoS | Security | Monitoring | Maintenance | Help | Index | [LOGOUT](#)

Ports | LAG | VLAN | Auto-VoIP | STP | **Multicast** | MVR | Address Table

IGMP Snooping Configuration

IGMP Snooping Configuration

IGMP Snooping Status Enable Disable
Validate IGMP IP header Disable Enable
Block Unknown Multicast Address Disable Enable

IGMP Statistics

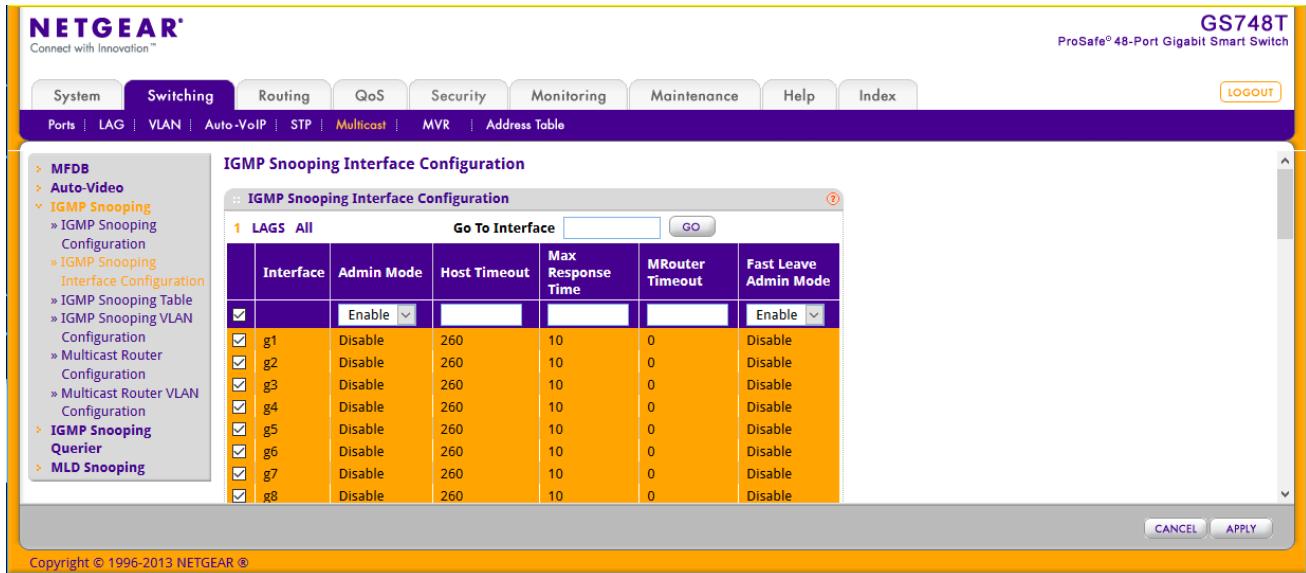
Multicast Control Frame Count 0
Interfaces Enabled for IGMP Snooping

VLAN IDs Enabled for IGMP Snooping

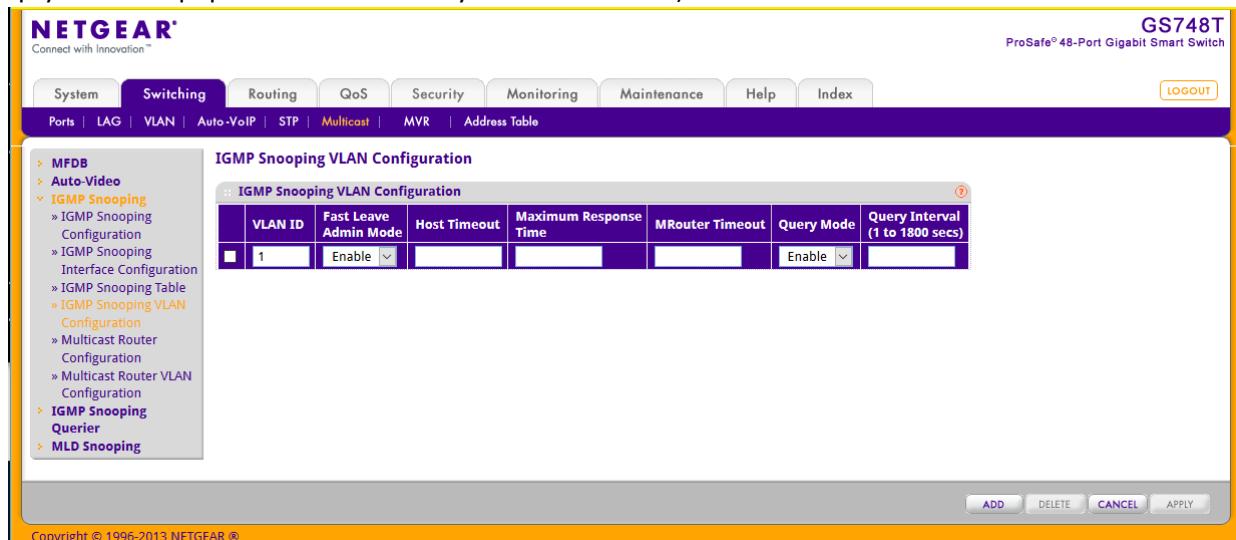
[CANCEL](#) [APPLY](#)

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10. Go to Switching -> Multicast -> IGMP Snooping -> IGMP Snooping Interface Configuration. Select the empty checkbox that is above the checkbox beside g1 Port in the table to select all the ports. All selected ports highlight to yellow color. Enable Admin Mode and Fast Leave Admin Mode as shown below and press Apply button



11. Go to Switching -> Multicast -> IGMP Snooping -> IGMP Snooping VLAN Configuration. Add VLAN ID=1, Fast Leave Admin Mode=Enable and Query Mode=Enable as shown below and press Add button. (Note: the empty fields are populated automatically to default values)



12. Go to Switching -> Multicast > IGMP Snooping Querier -> Querier Configuration. Enable Querier Admin Mode as shown below and press Apply button

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System Switching Routing QoS Security Monitoring Maintenance Help Index LOGOUT

Ports | LAG | VLAN | Auto-VoIP | STP | Multicast | MVR | Address Table

Querier Configuration

Querier Configuration

Querier Admin Mode Disable Enable
Snooping Querier Address 192.168.0.239
IGMP Version 2 (1 to 2)
Query Interval(secs) 60 (1 to 1800)
Querier Expiry Interval(secs) 125 (60 to 300)

REFRESH CANCEL APPLY

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13. Finally, go to Maintenance -> Device Reboot. Enable checkbox for device reboot as shown below and press Apply button. It takes approximately 2 minutes to power cycle the switch and an additional 2 min for IP922 to start showing video.

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System Switching Routing QoS Security Monitoring Maintenance Help Index LOGOUT

Reset | Upload | Download | File Management | Troubleshooting | User Banner

Device Reboot

Device Reboot

Check this box and click APPLY below to reboot

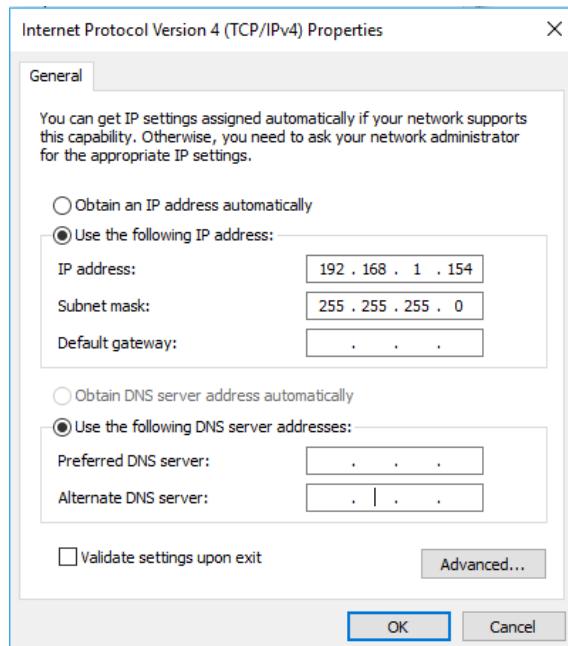
CANCEL APPLY

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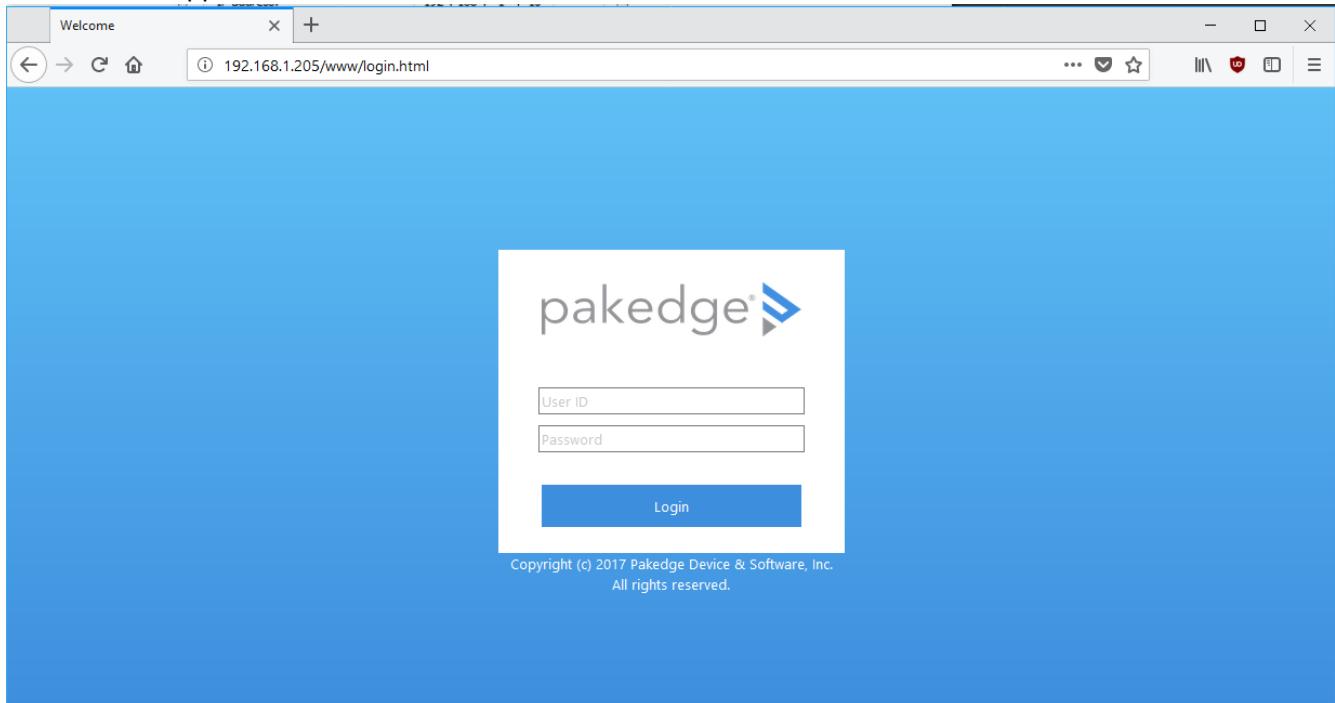
Pakedge S3L
Network Setup Guide for KD-IP822, KD-IP922, KD-IP1022, KD-IP1080

Login to the switch with the following steps:

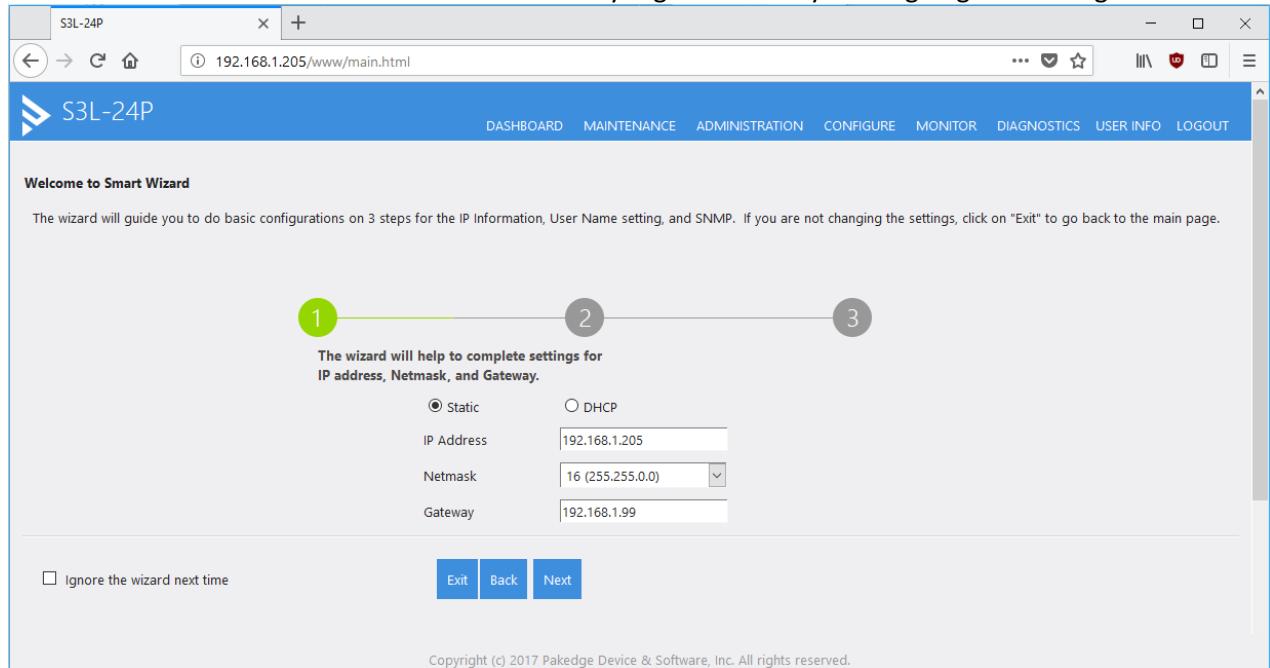
1. Plug an Ethernet cable into any of the ports of the switch
2. Plug the other end into the Ethernet port of your computer
3. Power on the Switch
4. Check to see that the IP address of the computer is within this network, 192.168.1.xxx ("xxx" ranges 1~254).
For example, 192.168.1.154



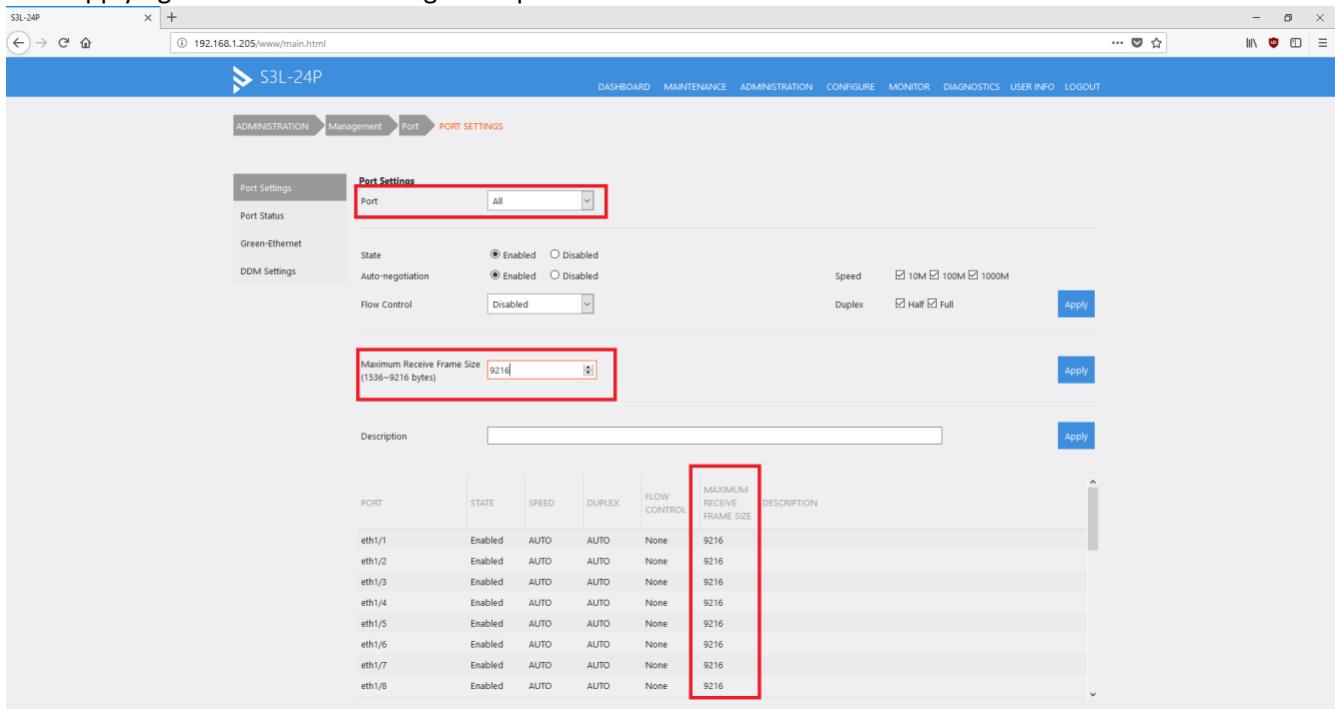
5. Open the Web browser, and enter 192.168.1.205 (default IP address of Pakedge S3L). Then the login window appears as below.



6. Enter the User ID (default user id is "pakedge") and password (default password is "pakedges"). And then click 'OK' to login to the switch configuration window. Make sure to set appropriate IP address and netmask to make the switch to be in same network as the Key Digital Devices you are going to be using.



7. To enable Jumbo Frame of the switch, go to Administration -> Management -> Port. (IP922 requires Jumbo Frame(8K) for video/audio transmission via 1G-BaseT). Make sure under Port Settings, Port field is set to All. Then enter “9216” in Maximum Receive Frame Size field as shown below and press Apply button. After applying check that the settings are updated in the table below.



The screenshot shows the S3L-24P switch management interface. The URL in the address bar is 192.168.1.205/www/main.html. The page title is S3L-24P. The navigation menu includes DASHBOARD, MAINTENANCE, ADMINISTRATION, CONFIGURE, MONITOR, DIAGNOSTICS, USER INFO, and LOGOUT. The current page is PORT SETTINGS, with sub-navigations for ADMINISTRATION, MANAGEMENT, and PORT. The Port Settings tab is active. The Port Status dropdown is set to 'All'. Under Green-Ethernet, State is 'Enabled' and Auto-negotiation is 'Enabled'. Under DDM Settings, Flow Control is 'Disabled'. Under Port Settings, Speed is 100M, Duplex is Half, and the 'Apply' button is visible. The Maximum Receive Frame Size field is highlighted with a red box and contains the value '9216'. Below this, a table lists port settings for eth1/1 through eth1/8, showing that all ports have a maximum receive frame size of 9216 bytes. The 'MAXIMUM RECEIVE FRAME SIZE' column is also highlighted with a red box.

PORT	STATE	SPEED	DUPLEX	FLOW CONTROL	MAXIMUM RECEIVE FRAME SIZE	DESCRIPTION
eth1/1	Enabled	AUTO	AUTO	None	9216	
eth1/2	Enabled	AUTO	AUTO	None	9216	
eth1/3	Enabled	AUTO	AUTO	None	9216	
eth1/4	Enabled	AUTO	AUTO	None	9216	
eth1/5	Enabled	AUTO	AUTO	None	9216	
eth1/6	Enabled	AUTO	AUTO	None	9216	
eth1/7	Enabled	AUTO	AUTO	None	9216	
eth1/8	Enabled	AUTO	AUTO	None	9216	

8. To enable IGMP Snooping of the switch, go to Configure -> Application -> IGMP Snooping. (IP922 requires IGMP Snooping for multicasting video/audio transmission via 1G-BaseT), Enable IGMP settings as shown below and press Apply button. You should see a new entry in the table below.

S3L-24P

DASHBOARD MAINTENANCE ADMINISTRATION CONFIGURE MONITOR DIAGNOSTICS USER INFO LOGOUT

CONFIGURE Application IGMP Snooping GLOBAL SETTING

Global Setting

IGMP Snooping Proxy Enabled Disabled

VLAN ID (1-4094) Status Enabled Disabled

IGMP Snooping Querier Enabled Disabled Report Suppression

Suppress time (0-300 sec) Immediate Leave Enabled Disabled

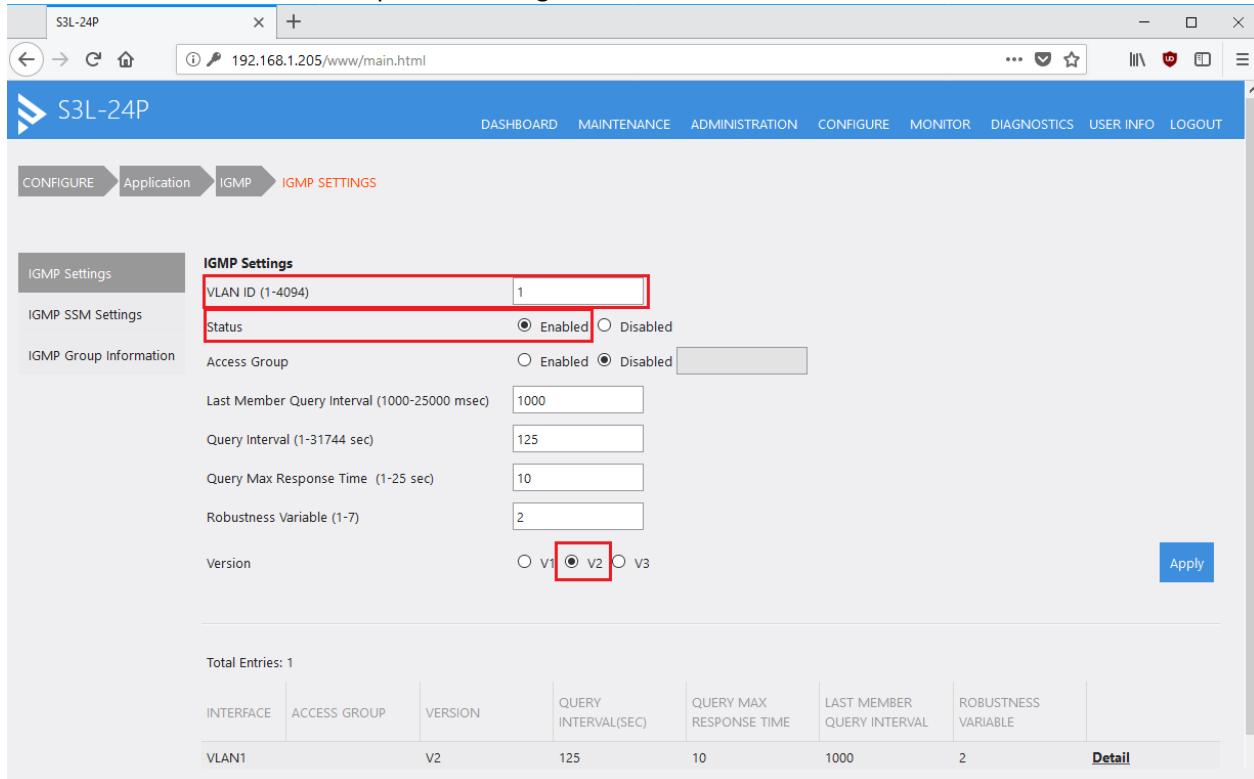
Global Setting

Total Entries: 0

<input type="checkbox"/> VLAN ID	STATUS	IGMP SNOOPING QUERIER	REPORT SUPPRESSION	SUPPRESS TIME	IMMEDIATE LEAVE
			<input checked="" type="radio"/> Enabled		<input checked="" type="radio"/> Enabled

Apply Delete

9. Go to Configure -> Application -> IGMP. Enter the settings as shown in the picture below and press Apply button. You should see the updated settings in the entries table below.



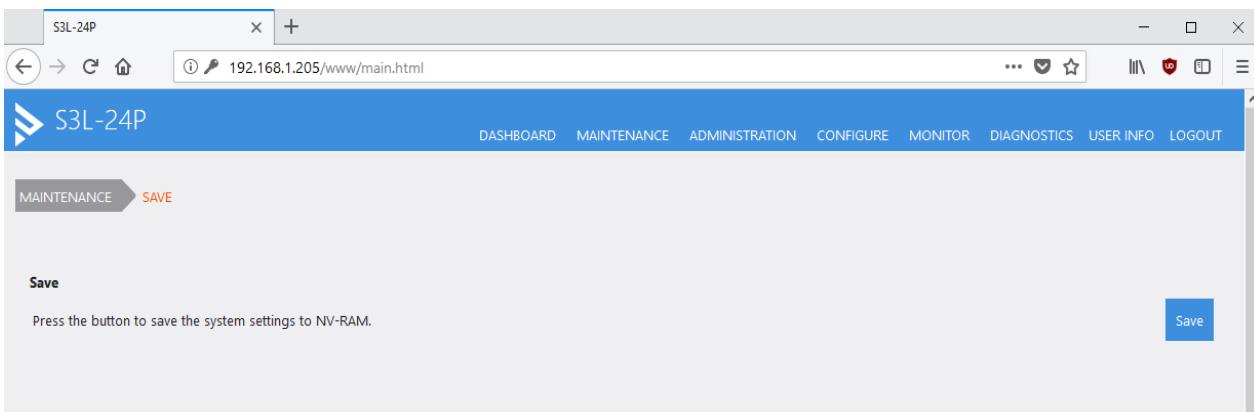
IGMP Settings

VLAN ID (1-4094)	1
Status	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Access Group	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Last Member Query Interval (1000-25000 msec)	1000
Query Interval (1-31744 sec)	125
Query Max Response Time (1-25 sec)	10
Robustness Variable (1-7)	2
Version	<input type="radio"/> v1 <input checked="" type="radio"/> v2 <input type="radio"/> v3

Apply

Total Entries: 1

INTERFACE	ACCESS GROUP	VERSION	QUERY INTERVAL(SEC)	QUERY MAX RESPONSE TIME	LAST MEMBER QUERY INTERVAL	ROBUSTNESS VARIABLE
VLAN1	V2	125	10	1000	2	Detail



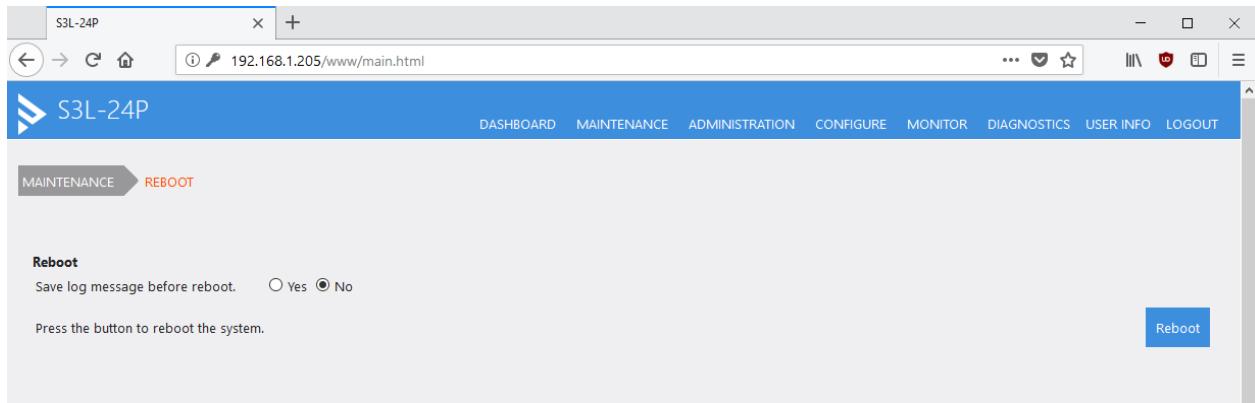
MAINTENANCE **SAVE**

Save

Press the button to save the system settings to NV-RAM.

Save

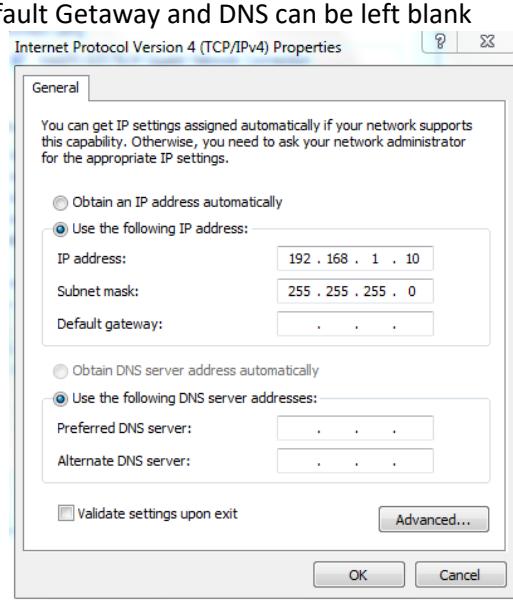
10. Go to Maintenance -> Save. Click on Save button.
11. Go to Maintenance -> Reboot. Click on Reboot button. It takes approximately 30 seconds for the switch to reboot and an additional 30 sec for IP922 to start showing video.



Pakedge SX Series
IGMP Setup Guide for KD-IP822, KD-IP922, KD-IP1022, KD-IP1080

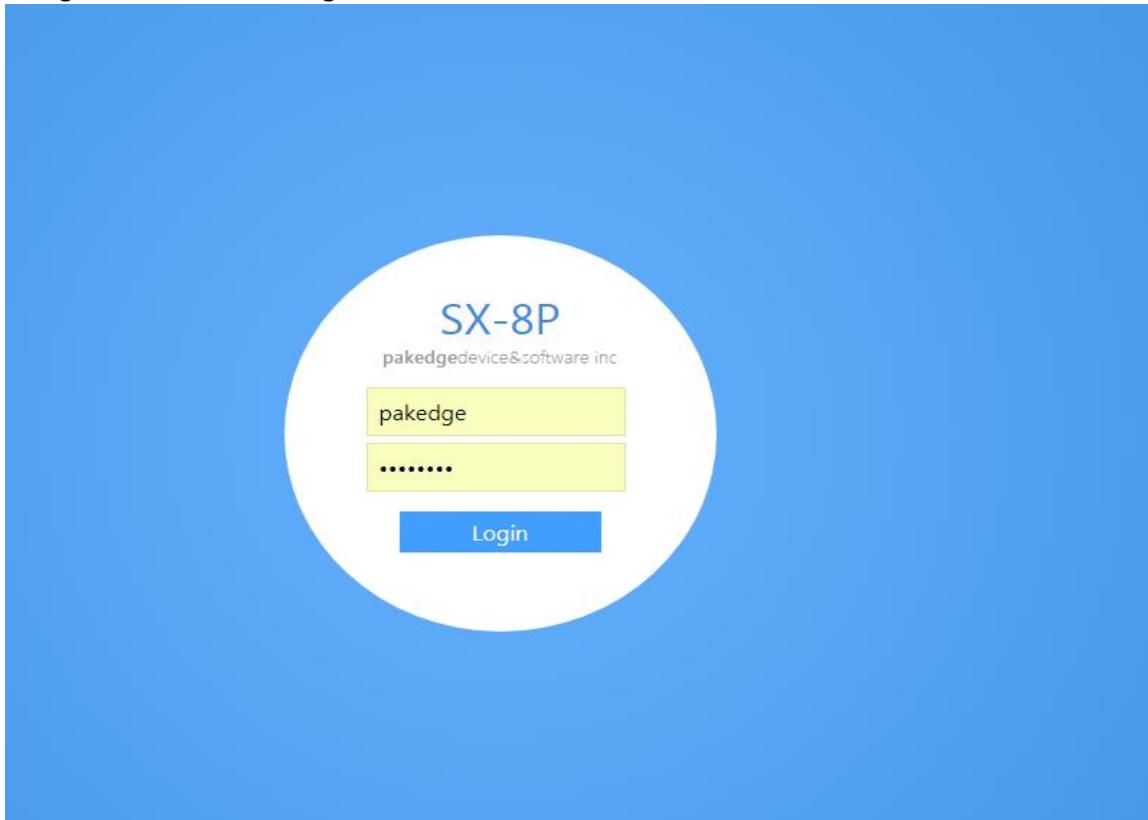
1. Connect to the network switch

- a. Plug an Ethernet cable into any of the ports of the switch
- b. Plug the other end into the Ethernet port of your computer
- c. Power on the Switch
- d. Configure the PC with static IP address of 192.168.1.10 and the subnet mask of 255.255.255.0 to be within range of Pakedge's default settings (IP address 192.168.1.205 subnet mask 255.255.255.0). Default Getaway and DNS can be left blank

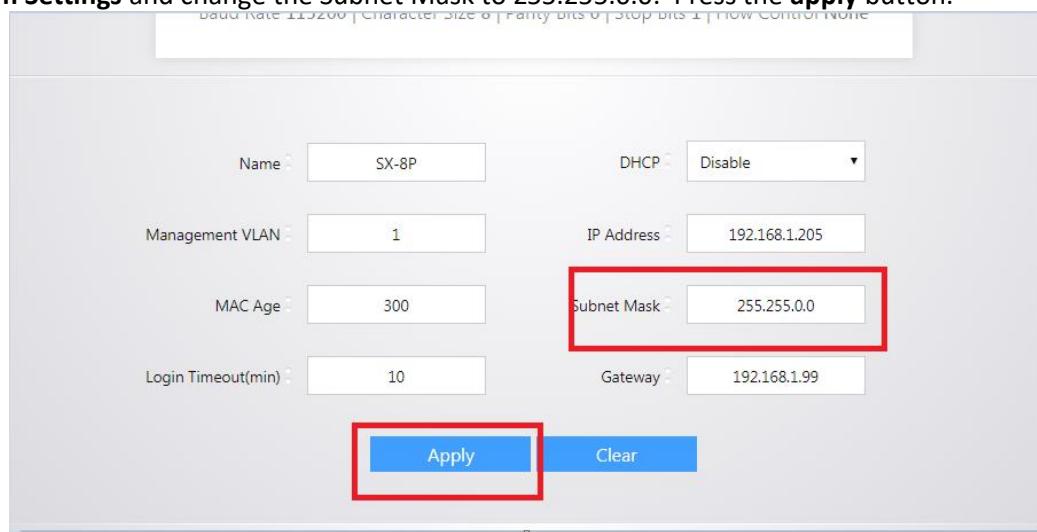


2. Open a web browser, and enter **192.168.1.205** (default IP address of Pakedge) to enter the login window

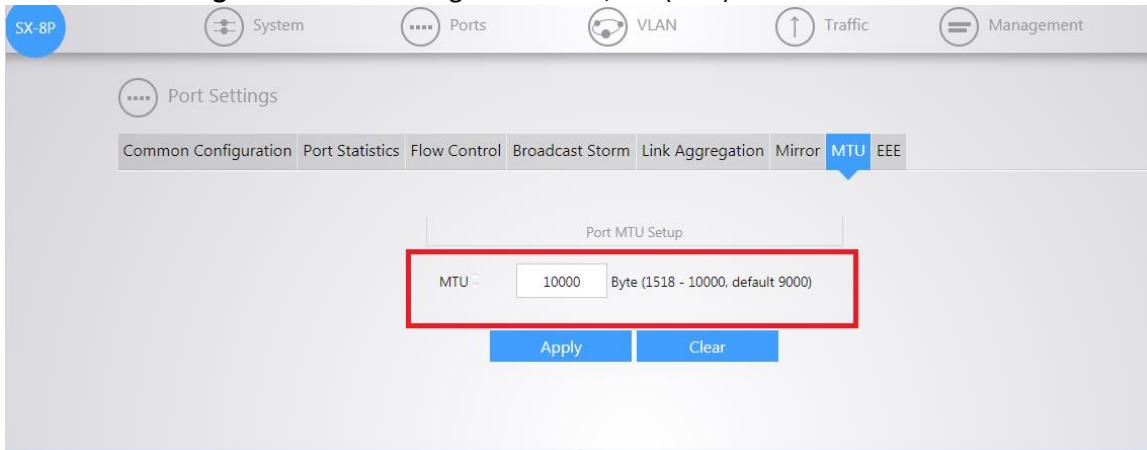
3. Enter the user name and password (default user name is **pakedge** and password is **pakedges**) and then click **Login** to login to the switch configuration window.



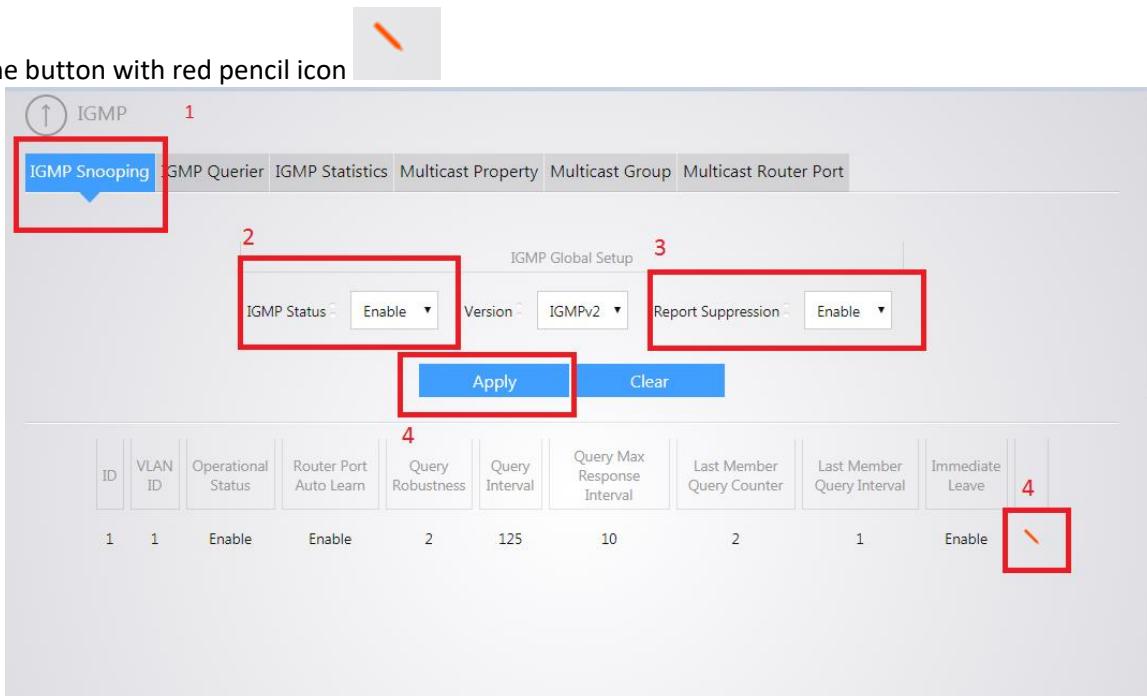
4. Go to **System Settings** and change the Subnet Mask to 255.255.0.0. Press the **apply** button.



5. Go to **Port → Port Settings → MTU** and change MTU to 10,000 (max)



6. Go to **TRAFCI → IGMP → IGMP Snooping** and Enable **IGMP Status**, and **Report Suppression**. Press the **Apply** button.



8. Enable State and Immediate Leave

IGMP Status: Enable Version: IGMPv2 Report Suppression: Enable

Apply Clear

IGMP VLAN Setup

VLAN ID: 1 State: **Enable** Immediate leave: **Enable**

Router Port Auto Learn: Enable

Query Robustness: 2 Query Interval: 125

Query Max Response Interval: 10

Last Member Query Counter: 2 Last Member Query Interval: 1

9. Go to TRAFIC → IPMC →IGMP Querier and press the button with red pencil icon

IGMP

IGMP Snooping **IGMP Querier** IGMP Statistics Multicast Property Multicast Group Multicast Router Port

ID: 1 VLAN ID: 1 Status: Enable Operational Status: Enable Version: IGMPv2 Querier Address: 192.168.1.205 **✎**

10. Enable State and choose IGMPv2 version. Click Apply button

IGMP

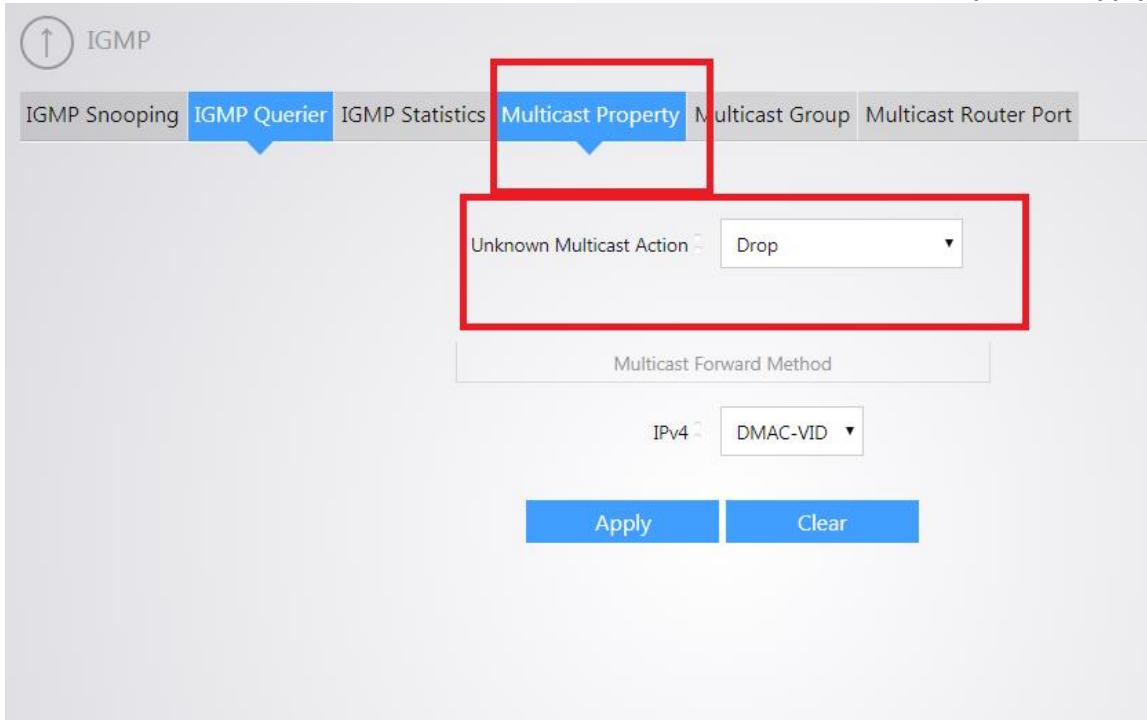
IGMP Snooping **IGMP Querier** IGMP Statistics Multicast Property Multicast Group Multicast Router Port

Edit Querier Setup

VLAN ID: 1 State: **Enable** Version: **IGMPv2**

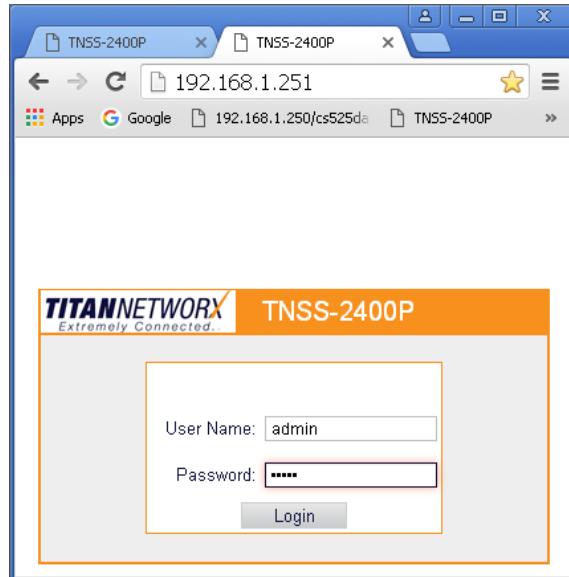
Apply Clear Back

10. Go to **TRAFIC**→**IPMC**→**MULTICAST PROPERTY** and set Unknown Multicast Action to **Drop**. Press **Apply**



IGMP Setup Guide: Titan Networx 1080p Systems (KD-IP1080, KD-IP120)

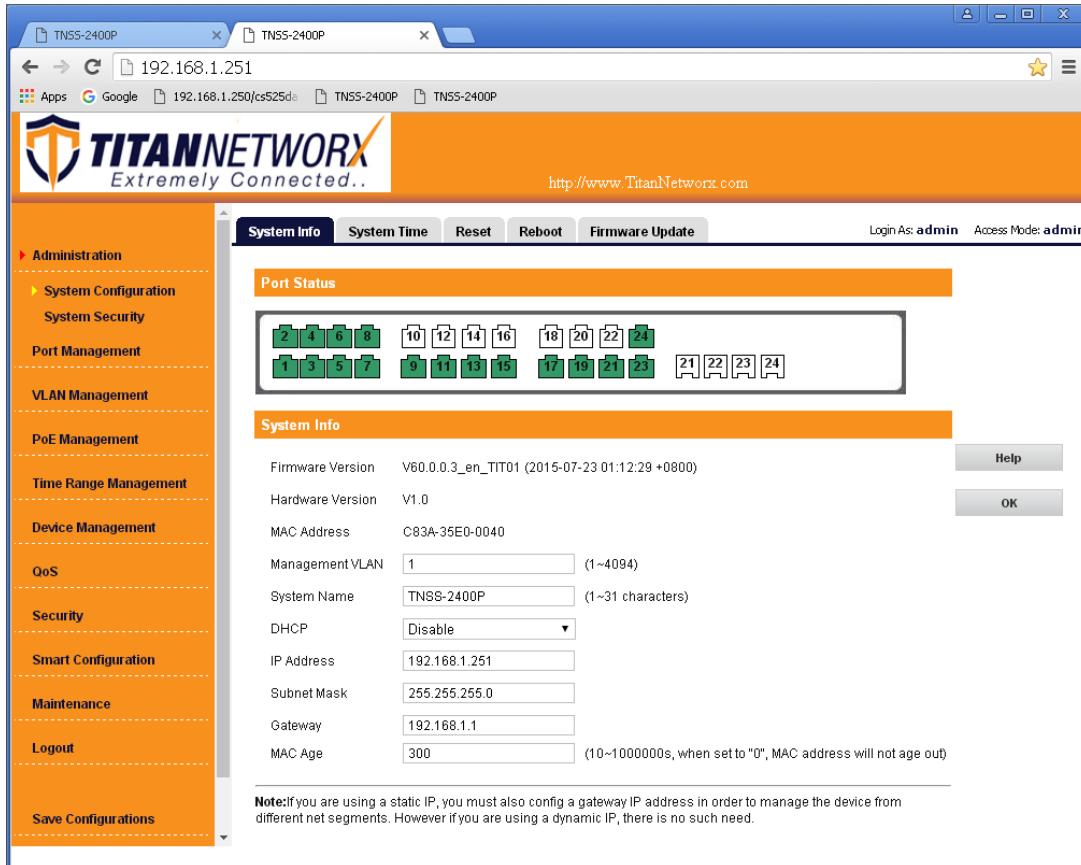
1. Before Titan Networx network switch is configured Key Digital KD-IP120/KD-IP1080 HDMI switch set must be connected to all HDMI sources/displays/network switches, and configured using Key Digital KD-IP120 Key Digital Management Software latest version.
2. Power-up all the system components. Using Key Digital KD-IP120 Key Digital Management Software, switch **All Outputs -> Through** at switching page.
3. **IMPORTANT:** Disconnect all the DHCP devices like routers, servers from the Linksys network switch.
4. Locate a pinhole “RESET” button at the front panel left bottom corner of your Titan Networx network switch. Using a paper clip press and hold a reset button for more than 10 seconds and then release. Wait while the device is restarted and ready to use (about 5min).
5. **IMPORTANT:** At this point all the displays should be displaying distorted randomly flashing video images.
6. Connect your PC to the Titan Networx network switch directly using a network cable.
7. If you have not done yet, configure your PC’s IP address to the same range as the switch (default **192.168.1.xxx**).
8. Enter the switch’s IP address in your browser and press ENTER (check the user manual for a default IP address – usually, it is: **192.168.1.30**).
9. Enter user name and password (check the user manual for a default user name and password; it is usually “**admin**” for both). Then click **Log In**.



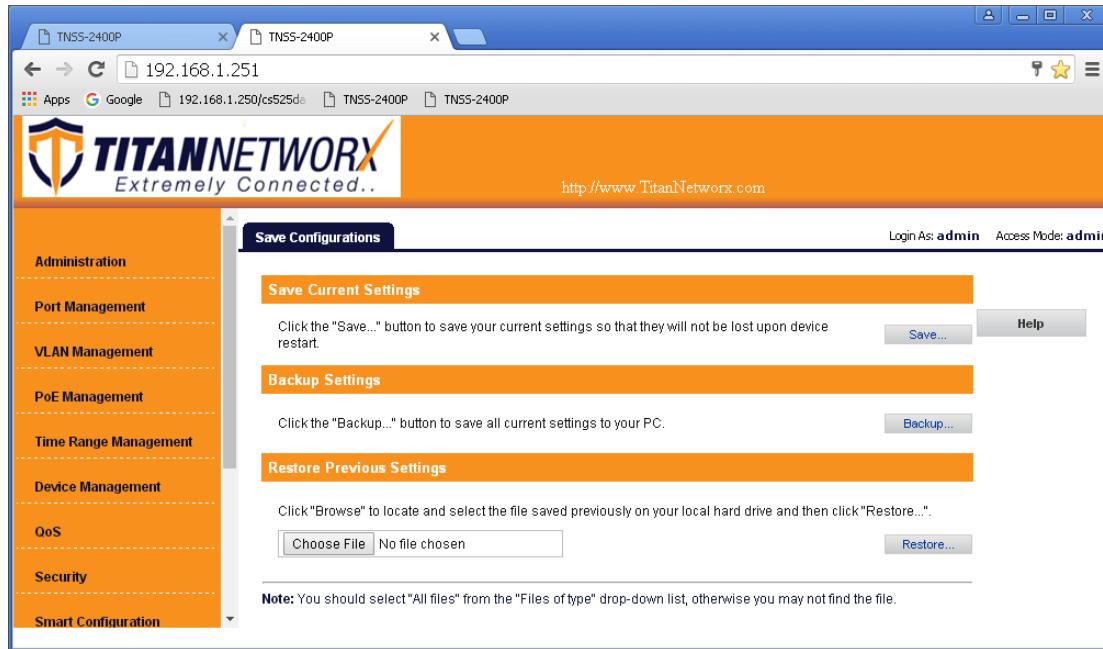
10. Navigate to **Administration -> System Configuration**. Select **IP Address** box. IP address can be changed by the administrator depending on the network configuration. If you are using multiple network switches it is recommended to set first one to **192.168.1.251**, second to **192.168.1.252**, and so on (we will change an IP

address to **192.168.1.251**). Set **Subnet Mask** to **255.255.255.0**, set **Gateway** to **192.168.1.1** (in this case), make sure that Management VLAN is set to "1", DHCP is set to "Disable" and click **OK**. Page will refresh with the new IP address. If it is timed out than log in again using the new IP address.

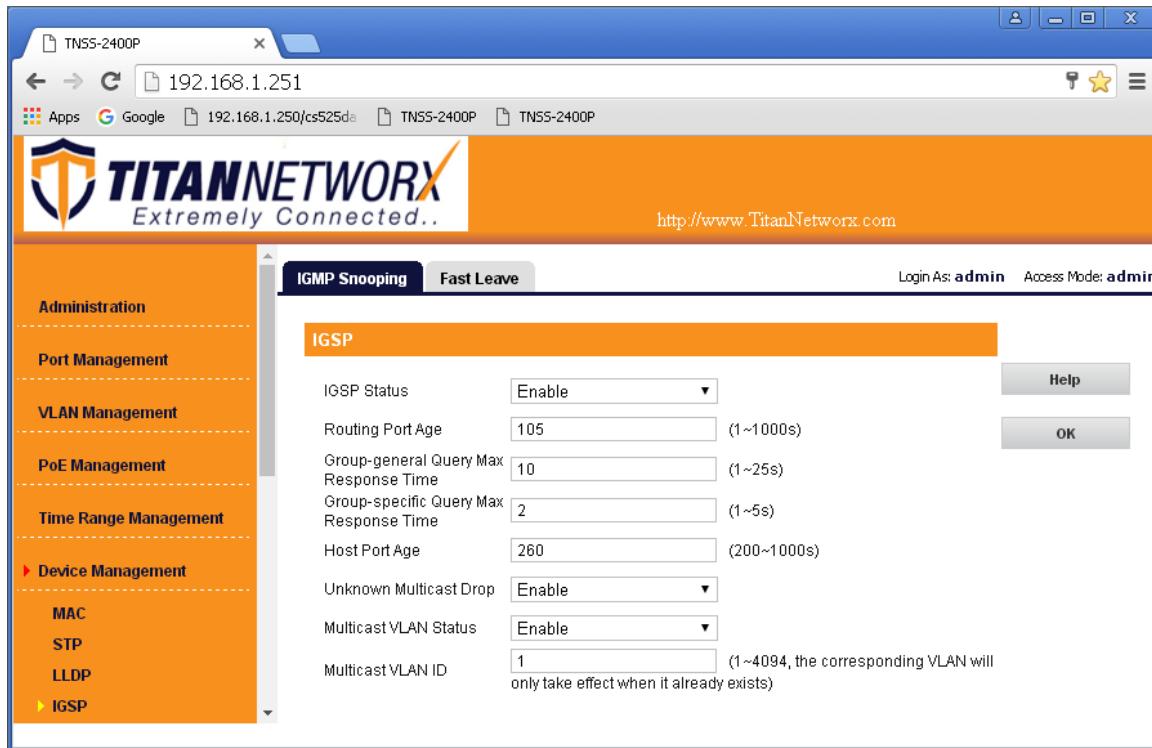
11. Make sure your screen looks exactly like pictured below.



12. Click **Save Configurations** on the left bottom corner. New screen will appear. Click **Save** under **Save Current Settings**, then **OK** and **OK** again.



13. Navigate to **Device Management-> IGSP**, Select **IGMP Snooping** tab. Set **IGSP Status** to **Enable**, set **Unknown Multicast Drop** to **Enable**, set **Multicast VLAN Status** to **Enable**, set **Multicast VLAN ID** to “1”, and leave all other settings as indicated below. Click **OK**, and **OK** again.



14. Select **Fast Leave** tab. Click **Config** button.

Port	Fast Leave	Port	Fast Leave
1	Enable	13	Enable
2	Enable	14	Enable
3	Enable	15	Enable
4	Enable	16	Enable
5	Enable	17	Enable
6	Enable	18	Enable
7	Enable	19	Enable
8	Enable	20	Enable
9	Enable	21	Enable
10	Enable	22	Enable
11	Enable	23	Enable
12	Enable	24	Enable

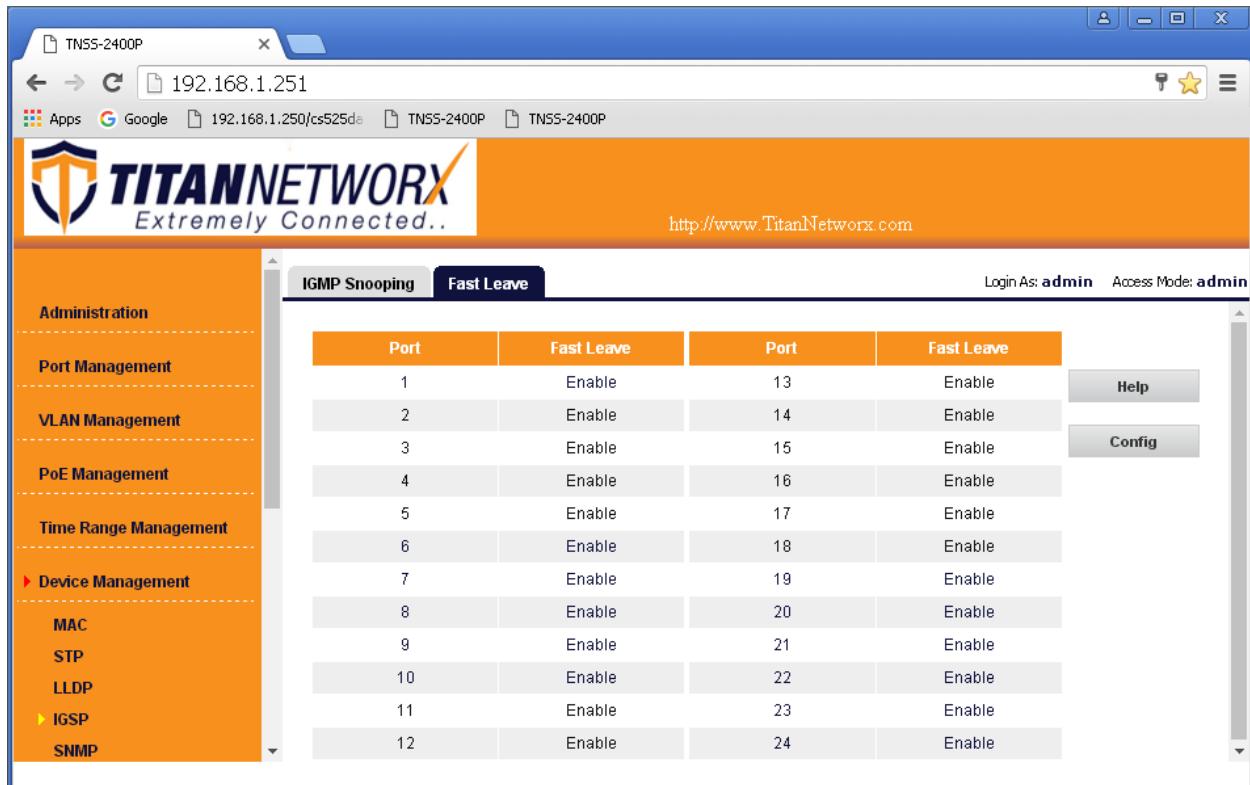
15. Set **Fast Leave** to **Enable**, click **Select All**. Click **OK**, and **OK** again.

Port Setup

Fast Leave:

Port Select

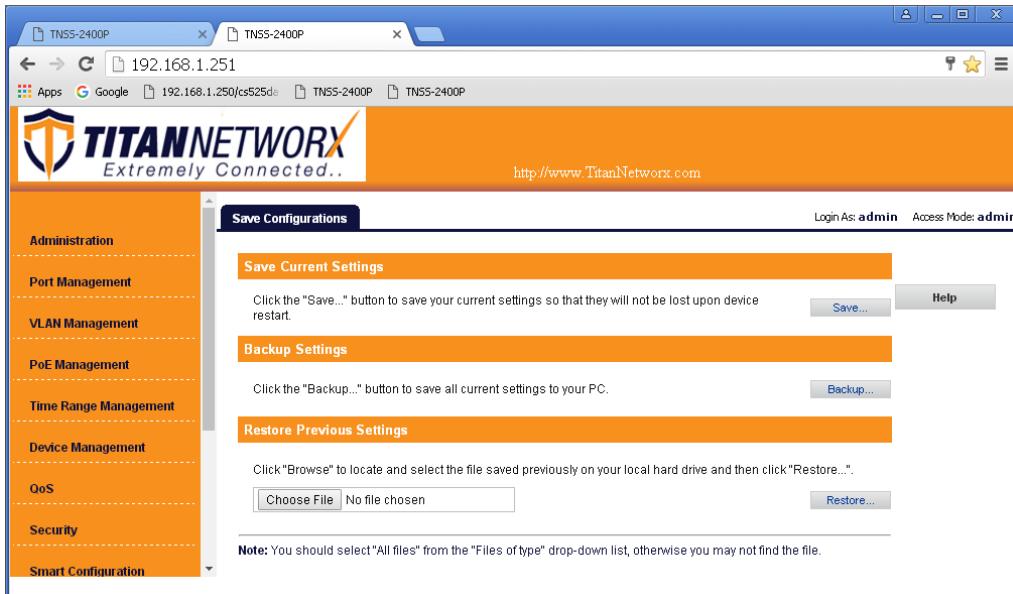
16. Make sure all the ports are set to **Enable**.



Port	Fast Leave	Port	Fast Leave
1	Enable	13	Enable
2	Enable	14	Enable
3	Enable	15	Enable
4	Enable	16	Enable
5	Enable	17	Enable
6	Enable	18	Enable
7	Enable	19	Enable
8	Enable	20	Enable
9	Enable	21	Enable
10	Enable	22	Enable
11	Enable	23	Enable
12	Enable	24	Enable

17. **IMPORTANT:** At this point all the displays should be displaying stable running video from the selected sources. If you do not have them displaying properly, than network switch is configured incorrectly.

18. Click **Save Configurations** on the left bottom corner. New screen will appear. Click **Save** under **Save Current Settings**, than **OK** and **OK** again.



19. **IMPORTANT:** Now you can connect back you DHCP equipment (routers, servers and so on).
20. Power down Titan Networkx network switch and power it up back again. Wait for the whole system to start and until you can see video on your displays.

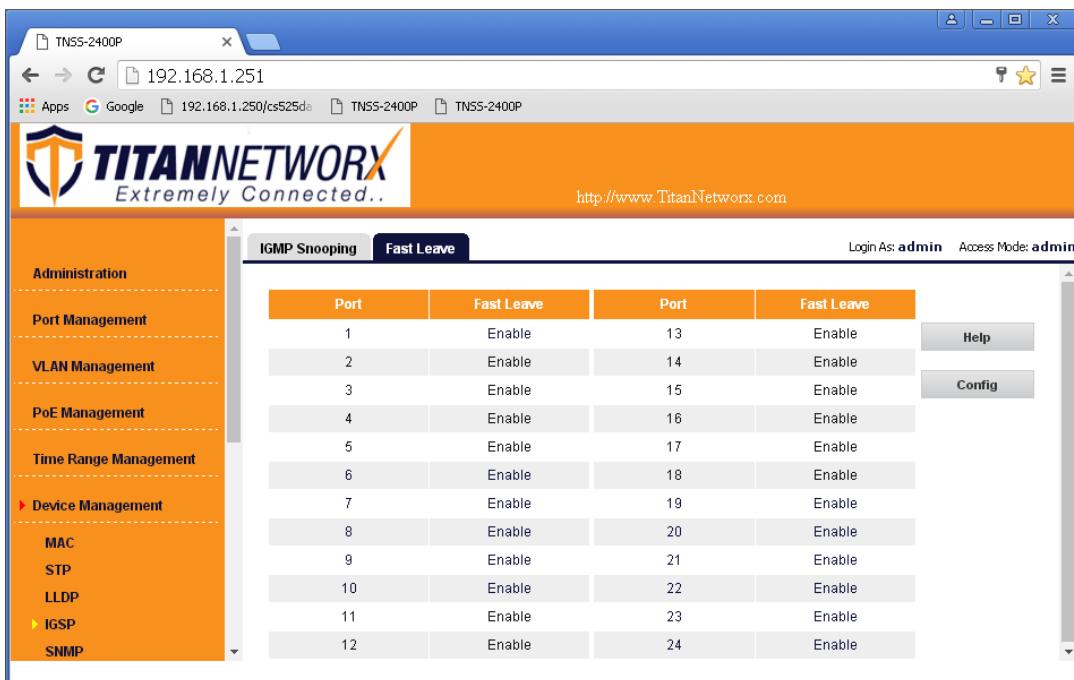
21. Log in to your Titan Networx network switch again and make sure that IGMP settings are intact:

System Info Page (Top Screenshot):

- Port Status:** Shows 24 ports, with ports 1-8 in green and 9-24 in grey.
- System Info:**
 - Firmware Version: V60.0.0.3_en_TIT01 (2015-07-23 01:12:29 +0800)
 - Hardware Version: V1.0
 - MAC Address: C83A-35E0-0040
 - Management VLAN: 1 (1-4094)
 - System Name: TNSS-2400P (1-31 characters)
 - DHCP: Disable
 - IP Address: 192.168.1.251
 - Subnet Mask: 255.255.255.0
 - Gateway: 192.168.1.1
 - MAC Age: 300 (10~1000000s, when set to "0", MAC address will not age out)
- Note:** If you are using a static IP, you must also config a gateway IP address in order to manage the device from different net segments. However if you are using a dynamic IP, there is no such need.

IGSP Page (Bottom Screenshot):

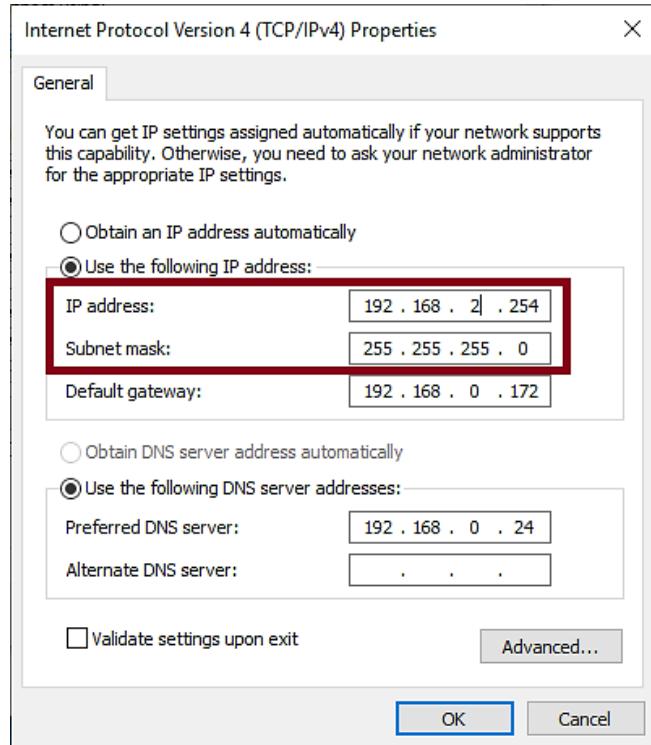
- IGSP:**
 - IGSP Status: Enable
 - Routing Port Age: 105 (1~1000s)
 - Group-general Query Max: 10 (1~25s)
 - Group-specific Query Max: 2 (1~5s)
 - Host Port Age: 260 (200~1000s)
 - Unknown Multicast Drop: Enable
 - Multicast VLAN Status: Enable
 - Multicast VLAN ID: 1 (1~4094, the corresponding VLAN will only take effect when it already exists)



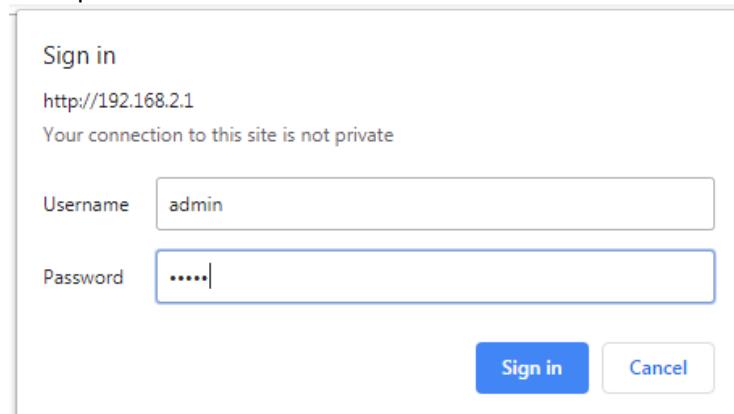
22. Rescan your components with Key Digital KD-IP120 Key Digital Management Software and make sure HDMI video switch is functional.
23. At this point your Titan Networkx network switch is set and ready to use.

Niveo NGSME24TH-AV
Network Setup Guide for KD-IP822, KD-IP922, KD-IP1022, KD-IP1080

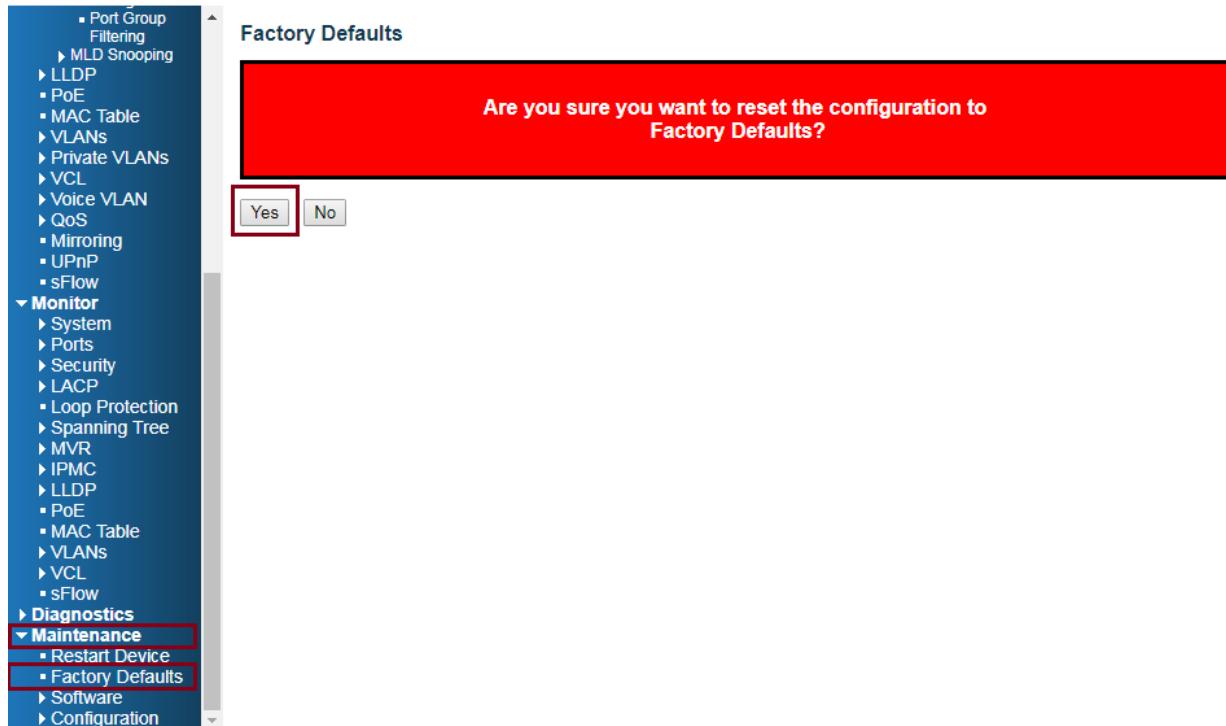
1. Set up the computer to connect to the switch. The best method is to set a static IP address for the computer's ethernet adapter and directly wire into the switch. The Default IP address of this switch is **192.168.2.1**



2. Once wired in, connect to the network switch via web browser. When prompted, log in with the default credentials.
 - a. The username and password are both “admin”.



3. After connecting to the switch, it is recommended to reset it to factory defaults.
 - a. The path for this is **Maintenance -> Factory Defaults**.
 - b. Note that resetting the switch to Factory Defaults does not change the IP settings of the switch.



4. After setting factory defaults, adjust the switch to use the desired subnet. In our case we use the IP address **192.168.1.251** – as this fits the default subnet of the KD-IP922 system. Ensure the DHCP client is disabled as well. Set the Router IR address to that of the router in the network.
 - a. The path is: **Configuration -> System -> IP**
 - b. After making the adjustment, the switch will automatically move to the new IP address. The computer may lose connection to the switch at this time. Adjusting the static IP to be in the new subnet will allow for connection to be reestablished on the new IP address.

	Configured	Current
DHCP Client	<input type="checkbox"/>	<input type="button" value="Renew"/>
IP Address	192.168.1.251	192.168.2.1
IP Mask	255.255.255.0	255.255.255.0
IP Router	192.168.1.1	0.0.0.0
VLAN ID	1	1
DNS Server	0.0.0.0	0.0.0.0

IP DNS Proxy Configuration

DNS Proxy

Save **Reset**

5. By default, Jumbo frames are enabled on this network switch. Verify that the maximum frame size is 9600 (the maximum value for this switch)
 - a. The path is: **Configuration -> Ports**

Port	Link	Speed		Flow Control			Maximum Frame Size	Excessive Collision Mode	Power Control
		Current	Configured	Current Rx	Current Tx	Configured			
*		<>	<>				9600	<>	<>
1	1Gfdx	Auto	Auto	X	X		9600	Discard	Disabled
2	1Gfdx	Auto	Auto	X	X		9600	Discard	Disabled
3	1Gfdx	Auto	Auto	X	X		9600	Discard	Disabled
4	1Gfdx	Auto	Auto	X	X		9600	Discard	Disabled
5	1Gfdx	Auto	Auto	X	X		9600	Discard	Disabled

6. Enable IGMP Snooping. Check “Snooping Enabled” and verify that “Fast Leave” is also enabled. Uncheck “Unregister IPMCv4 Flooding enabled”

a. The path is: Configuration -> IPMC -> IGMP -> Basic Configuration

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	
*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="unlimited"/>	<input type="button" value="▼"/>
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="unlimited"/>	<input type="button" value="▼"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="unlimited"/>	<input type="button" value="▼"/>
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="unlimited"/>	<input type="button" value="▼"/>
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="unlimited"/>	<input type="button" value="▼"/>
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="unlimited"/>	<input type="button" value="▼"/>
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="unlimited"/>	<input type="button" value="▼"/>
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="unlimited"/>	<input type="button" value="▼"/>

7. Create an IGMP VLAN. The ID should be set to 1. Force IGMPV2 compatibility for this VLAN. Ensure the configuration is as below:

a. The path is: Configuration -> IPMC -> IGMP -> VLAN Configuration

IGMP Snooping VLAN Configuration									
Start from VLAN <input type="text" value="1"/> with <input type="text" value="20"/> entries per page.									
Delete	VLAN ID	Snooping Enabled	IGMP Querier	Compatibility	RV	QI (sec)	QRI (0.1 sec)	LLQI (0.1 sec)	URI (sec)
<input type="checkbox"/>	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Forced IGMPv2	2	125	100	10	1

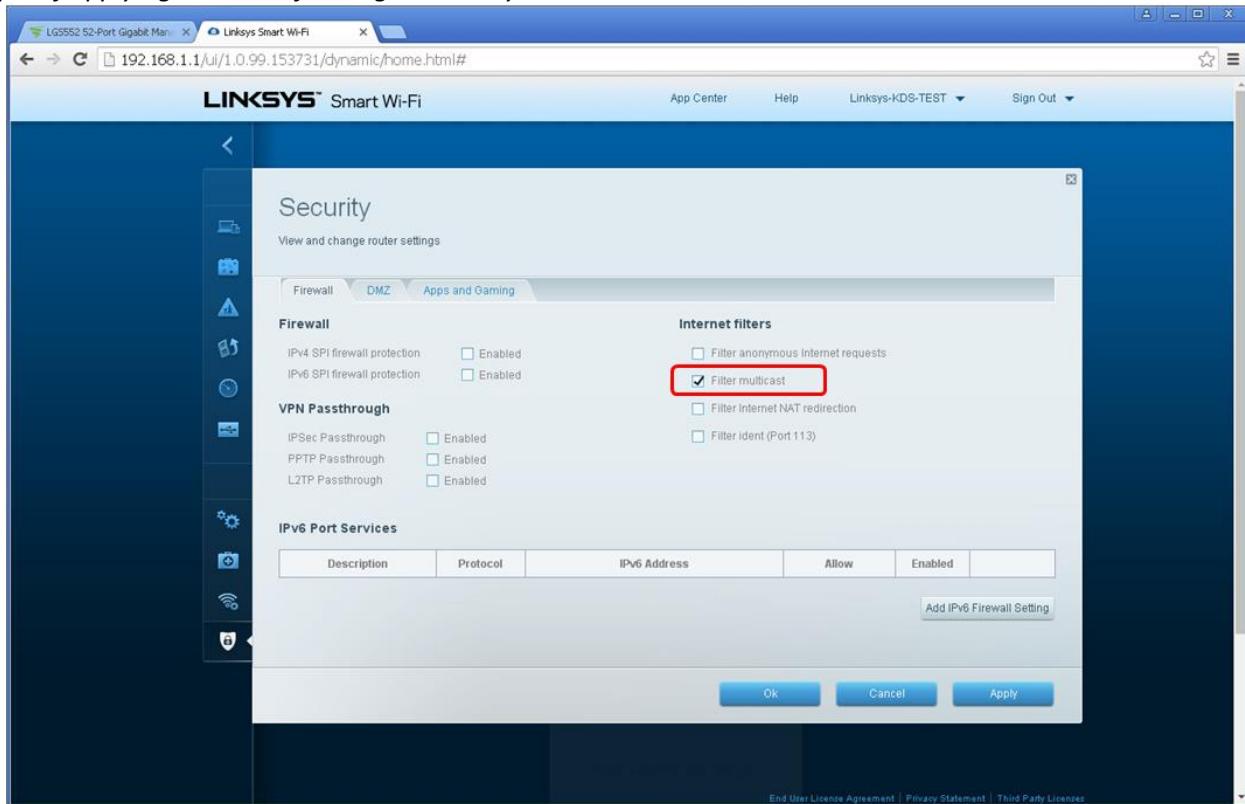
8. Reboot the network switch and verify that the settings are correct. The switch is now ready for the KD-IP922 system.

a. There is no need to save the running configuration of this network switch. The settings will persist on system reboot.

WiFi Router Setup

It is required to set your WiFi router to **filter multicast (aka filter broadcast)** to ensure that your router is not overwhelmed by the data broadcast from Enterprise AV units on the network.

Example of applying multicast filtering in a Linksys router:



*The following requirements must be met in order to support the live streaming feature of the Key Digital app (1080p systems, KD-IP1080/KD-IP120 only):

- Verified model = Cisco/Linksys EA6700 router
- Network switch must support IGMP v3 and configured to enable IGMP v3.
- Wifi Router
 - Must be configured so that multicast filtering is enabled. See above example
 - Must support 50Mbps bandwidth per iOS that will be streaming video
 - It is recommended that only 1 iOS be in the Live Stream page at a time
- iOS Device
 - Best performance is with iPad4, iPad Air, iPad Mini. More powerful processing will always benefit.
 - Should have Static IP with Router IP corresponding to master network switch