



Integration Note

Manufacturer:	Niles
Model Number(s):	GXR2 (ICS)
Supported Core Module Versions:	g! version 5.3 build 175 through g! Version 6.x g! Mobile5 iOS App version 5.3.168 NOTE: The GXR2 is not supported on the gSC/g1 controllers.
Comments:	IntelliFile3 Configurator Software Build 143
Document Revision Date:	07/27/2015

OVERVIEW AND SUPPORTED FEATURES

THE FOLLOWING FEATURES ARE SUPPORTED:

Traditional Whole-House Audio & Video: The Niles GXR2 has six internal Expansion Slots which can be populated with a wide variety of cards, providing up to six audio sources. Source cards include multiple Tuner modules, an iPod interface, an Internet music server, and the IM-Audio module, which allows a standard audio source to be added. Each source input can be selected for any of its six zones (per chassis). Niles ICS has customizable keypads for each zone that can control the volume and source for that zone. See **Niles Programming** below for more details.

Multiple Controllers: Up to five Niles GXR2 units can be daisy-chained together for a total of 30 zones.

iPod/Internet Radio/Music Server Interface: The use of the Niles iPod and Music Server (IM-NET) interfaces is supported. Bear in mind, as with all iPod docks, there may be some hesitation beyond our control due to the slow port speed of the iPod.

Auto Discovery of Sources and Zone Names: When the Niles GXR2 is added into the Configurator and the Discover Devices button is pressed, the g! system will read the zone names assigned in the GXR2 and populate them in the interface. The Source cards will also be enumerated and populated in the correct source locations.

Ethernet Control: Using a managed switch and the configuration described below, reliable, 2-way communication is established between the Controller and the GXR2. **Note: ONLY the equipment and setup described below is supported for Niles Integration.**

IMPORTANT! The g! system network must be changed to an alternate IP range for integration with the Niles ICS system. See Network Configuration for details below.

THE FOLLOWING FEATURES ARE NOT SUPPORTED:

Settings Pages: While a settings page may be assigned to a zone and manually populated with controls, the g! system will not automatically generate a settings page for a GXR2 zone.

Party Mode: Party Mode is not currently implemented through g!Controllers.

OSD/HR2/TS2 Controllers: The g! software On-Screen Display, HR2 and the TS2 **WILL NOT FUNCTION CORRECTLY** with a GXR2 and are specifically **NOT** supported on the Niles ICS system.

Non-Niles Sources on the Niles Zone Controller: All sources to be used with the Niles Zone Controller must be properly configured in the Niles IntelliFile software and controlled through Niles. Additional sources that are NOT controlled from the Niles Keypads are not supported.

g! Internal Player: The g! Internal Player is not supported as a source on the GXR2.

Niles IM-Server and IM-iPod Source Cards: The IM-Server and IM-iPod cards are not supported.

Source button icons: Un-named icons in IntelliFile can show as icons on the Niles keypads – these icons will NOT show in the **g!** interface.

RS232G: The RS232G adapter is not supported. The Niles ICS is controlled via Ethernet ONLY. Sources integrated using the RS232G are also not supported.

Any feature not specifically noted as “supported” is not supported.

INSTALLATION OVERVIEW

CHECK SOFTWARE AND FIRMWARE:

The tested firmware and software versions are listed in the table below. Confirm that the system to be integrated is using a version at least as new as the ones in the table. See additional notes in **Niles Programming** below.

1. Connect the IntelliFile3 Infrared Capture Station to your PC and the GXR2 in accordance with the Niles instructions.
2. To see information (firmware version, IP and mac address, etc.) of all components connected to the ICS network, select “Tools-View Current System”. The IntelliFile3 should discover all devices.

IntelliFile3 Configurator:	Build 143
GXR2 Chassis Firmware	Network:2.0.25.1 Control: 2.0.40.1 Bridge: 2.0.6.1 Zone: 2.0.12.1 CP2NP CPLD: 3.3.0.0 Bridge CPLD: 0.10.0.0
IM-Audio	2.0.10.1
IM-iCard2	2.1.0.1
IM-NET	1.0.28.2
TM-Sirius	2.0.5.1
TM-XM	2.0.5.1
TM-HD	2.0.12.1

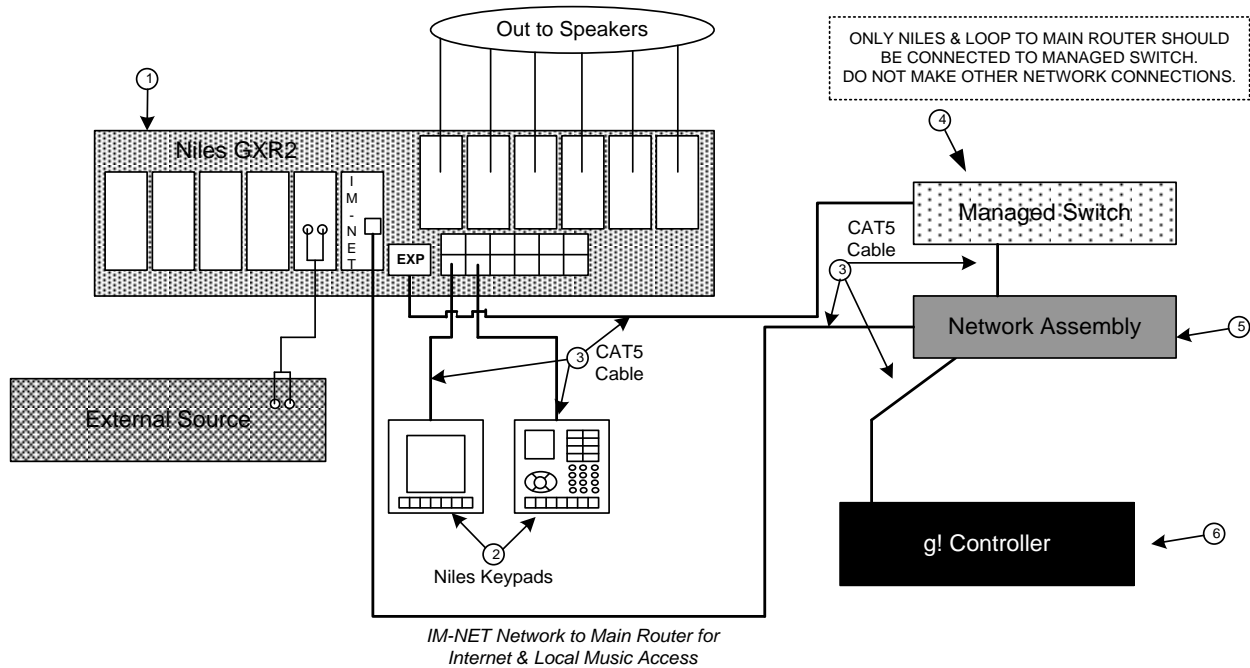
INSTALL SYSTEM:

1. During the rough-in phase, install speaker wire for the speakers and cable for keypads, in each zone.
2. Also during the rough-in phase, run a Cat5 wire from the location of the Zone Controller to the Managed Switch, and a Cat5 from the Managed Switch location to the Network Assembly as needed.
3. Mount the speakers and keypads in each zone, and install the Zone Controller and the sources.
4. Setup the Niles. This consists of configuring the keypads, zones and sources using the **IntelliFile3** software as explained in the Niles documentation.
5. Test the entire Niles system for proper standalone operation, and ensure that all the sources play correctly in every zone, and that the keypad buttons behave correctly from the keypads.
6. Configure the Managed Switch, Router, **g!** Controller and other IP devices to work with the Niles Network. See Network Configuration Below.

7. Connect the **g!** system to the Niles system electrically. See the Wiring Diagrams for more information.
8. Configure the **g!** system for the Niles and confirm communication between it and the **g! Controller**. See **g! Configuration** details below.
9. Test the system by changing sources in a zone to confirm the correct source plays, and by testing the **g!** interface transport controls.

Note: Due to some functionality not present in the **g!** Viewer, it is highly recommended that AT LEAST one Niles keypad be installed in the system to provide access to unsupported features.

CONNECTION DIAGRAM



BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Niles GXR2	Niles	FG01174	Analog/IP	RJ45 Female, RCA Female, Terminal	
2	Niles Keypads	Niles	Various	TCP/IP	RJ45 Female	
3	Cat5 Cable Assy.	Installer	N/A	TCP/IP	RJ-45 Male X RJ-45 Male	Must connect all 8 wires
4	Managed Switch	Netgear	GS108T-200NAS	TCP/IP	RJ-45 Female	(GS108Tv2)
5	Network Assembly	ELAN	NWA 8	TCP/IP	RJ-45 Female	or router/switch
6	g! Controller	ELAN	Various (Ex. HC-2)	TCP/IP	RJ45 Female	

IMPORTANT: When connecting CAT-5 to loop to Netgear GS108T-200NAS Managed Switch from the GXR2 chassis, use the “Out to Master/Expansion” port on the GXR2 chassis. The other RJ45 ports supply power to the Contact keypads which may damage your network equipment (router, etc.).

NILES PROGRAMMING

The Niles must be properly programmed using the IntelliFile3 prior to connection to **g!**. Connect the IntelliFile3 Infrared Capture Station to your PC (USB) and the GXR2 in accordance with the Niles instructions – IntelliFile software will not function without this attached. Connect the LAN jack of your PC to the programming port (RJ45) on the back of the GXR2.

Note: You must make your PC a part of the Niles network by assigning it the following IP Address and Subnet Mask: IP: 10.100.0.250, Mask: 255.255.0.0. This can be managed automatically through the Niles IntelliFile software.

SETTING UP SOURCES AND ZONES:

The GXR2 provides a modular approach to setting up your audio system. The chassis has six slots for expansion cards, providing the installer with many customization options. A number of modules are available from Niles to plug into these slots, including various tuners, iPod interconnects, Audio Servers, and straight audio input modules- see the table below for a complete list.

Module Type:	Part Number:
iPod Connection Module	IM-iCard2
XM Tuner Module	TM-XM
Sirius Tuner Module	TM-SIRIUS
AM/FM Tuner Module	TM-AM/FM
Audio Input Module	IM-AUDIO
HD Radio Tuner Module	TM-HD/R
Streaming Internet Content	IM-NET

Using the IntelliFile3 software, configure each of the sources. Assign the Zone names as well, and configure the zone keypads.

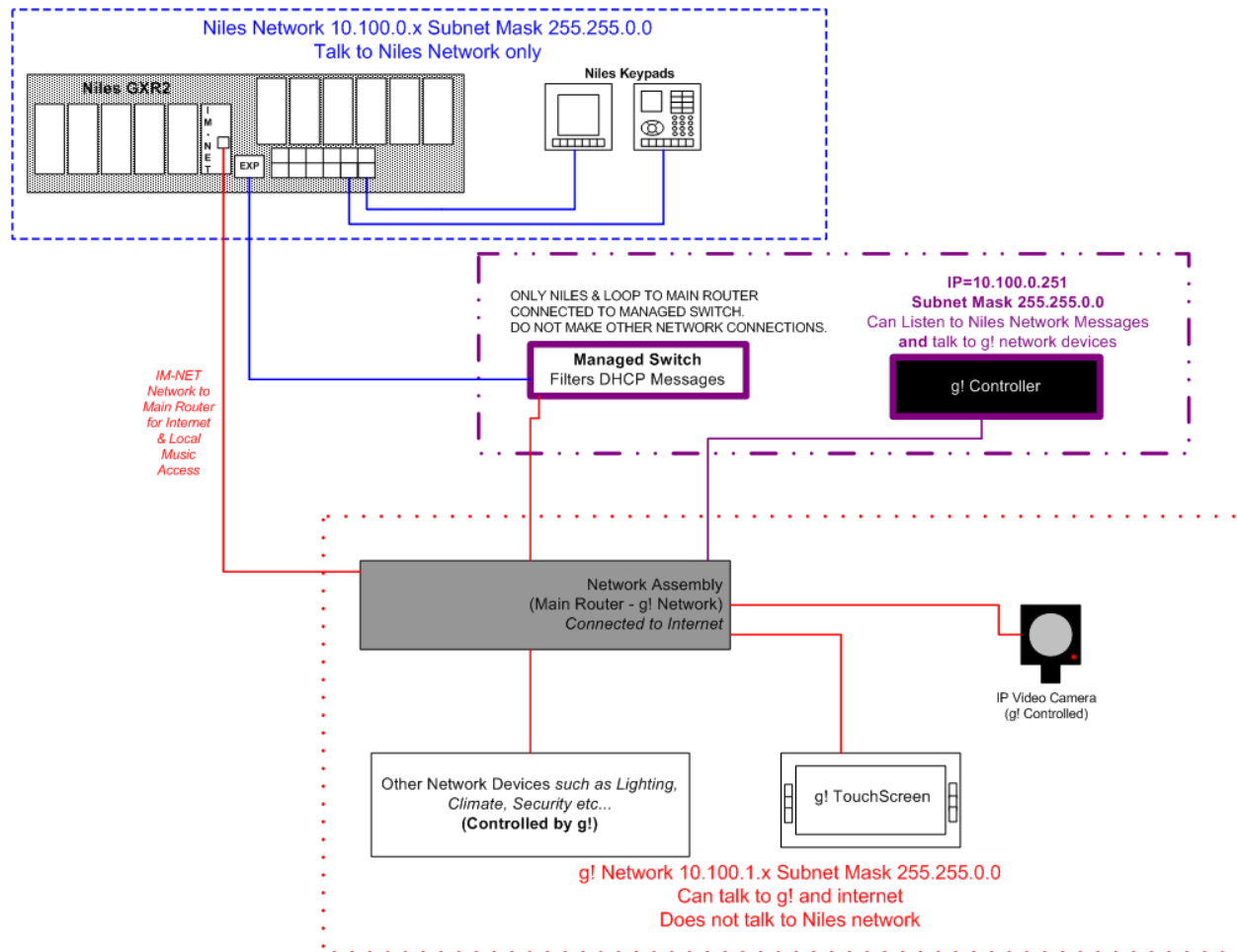
Setup sources in the Niles for full control from Niles Keypads. All buttons and commands must be setup for proper control from Niles keypads. Note that buttons and commands created here will automatically populate in the **g!** system, and are required for control of sources from the **g!** system. Buttons on the Audio card must be named for proper display in the **g!** interface. Un-named buttons do not show as icons in the **g!** interface.

NETWORK CONFIGURATION

Integration with the Niles ICS system is completed via Ethernet, and requires the standard **g!** network be configured specifically to work with the Niles equipment. Niles ICS uses Ethernet internally to communicate with all its keypads, and the HC Controller must be able to communicate on this same network with the Niles for proper control and feedback. However, it is also important to keep the **g!** touch screens, and other network devices separated from the Niles network to prevent any interactions and allow appropriate network range and function for all devices. To accomplish this, the HC Controller and its network of devices are changed to a network adjacent to the Niles internal network, and a Managed Switch is placed between the networks to filter certain network messages and prevent cross talk. **The **g!** and Niles network must be configured in this specific manner for proper function.**

The following steps detail configuring the Netgear ProSafe SmartSwitch GS108T-200NAS (GS108Tv2) (Managed Switch), the Network Assembly/**g!** Router (DIR-628), and the HC Controller to the correct network configuration for integration of the Niles ICS system. These steps are intended as a general guide, and may vary somewhat if you are using alternate network gear. *Note that ELAN Support is only available with the network gear described below.*

NETWORK DIAGRAM



Note you may have additional static addressed network gear that must also be changed to work with the new network setup—see the appropriate Integration Notes or manufacturer documentation for instructions on how to alter the IP of all your network devices.

To recap, below is a list of the important details of the Niles and g! network setup:

- Niles network utilizes a 10.100.0.x subnet and DHCP for all its keypad devices by default.
- Niles network utilizes a 255.255.0.0 subnet mask by default.
- Niles ICS network configuration is hardcoded and may not be changed.
- The **g!** controller must be able to communicate with the Niles network for proper control and feedback, and should be configured to a static IP of 10.100.0.251
- The **g!** controller may be configured to use the Niles network and its devices to use an adjacent network, 10.100.1.x. Using proper subnet mask settings of 255.255.0.0, the **g!** controller is able to communicate with both **g!** devices, and the Niles ICS.
- A Managed Switch must be installed between the Niles and Elan networks and configured to filter certain network messages (DHCP) and prevent interaction. **IMPORTANT: Only the Niles and loop to main network should be connected to the Managed Switch.**
- The **g!** network router is configured to the 10.100.1.x network instead of the default 192.168.0.x network, and otherwise performs normally.
- ELAN **g!** DHCP network devices should change automatically with the **g!** router and require no further special configuration.
- Other Static addressed network items used by **g!** must be manually changed to the 10.100.1.x network to work with the **g!** controller.

NETWORK CONNECTIONS AND PROGRAMMING:

1. Prior to completing the below steps, the **g!** controller, **g!** router/ network assembly, Netgear managed switch and Niles should all be powered up and functioning.
 - a) The Niles should not be connected to any **g!** networking gear at this time.
 - b) The Netgear managed switch should be connected **ONLY** to the **g!** router at this time.
 - c) These steps assume your computer is connected and receiving its address dynamically (DHCP) from the **g!** router.
2. Configure the Netgear managed switch:

Note: The steps below expect a fresh out of the box unit, and all steps listed below are for the following device/firmware, as listed on the System Information section of the Netgear GS108T's web GUI.

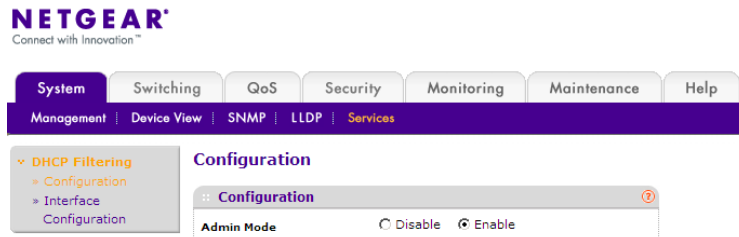


Versions		
Model Name	Boot Version	Software Version
GS108Tv2	B5.1.0.2	5.0.2.22

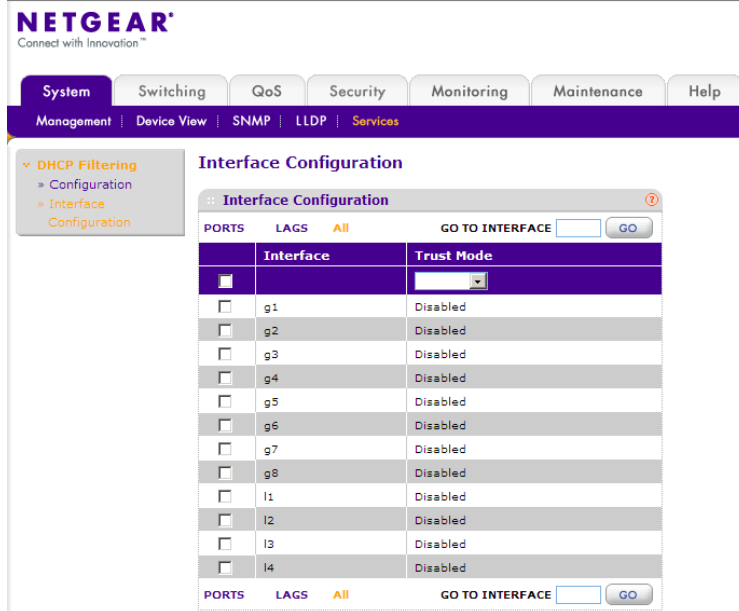
If you are not using a fresh out-of-the-box unit, you may need to factory default the unit according to Netgear manufacturer instructions. Contact Netgear for details.

- a) Login to its default IP of 192.168.0.239, by typing http:// 192.168.0.239 into your web browser. The default password is "password" (without the quotes). Click "Login" to enter the web configuration.

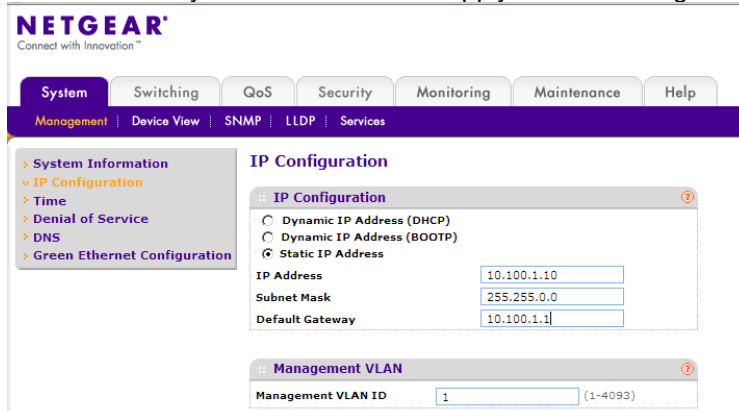
- b) Enable DHCP Filtering by Choosing System > Services> DHCP Filtering>Configuration. In the Admin Mode field, select ENABLE, and then click Apply to save the changes.



- c) Configure DHCP Filtering by clicking Interface Configuration on left sidebar. Select the “All” section from the Ports – LAGS – ALL section. Verify the trust mode is DISABLED for all ports. If needed, set all ports to Disabled and then click Apply to save the changes.



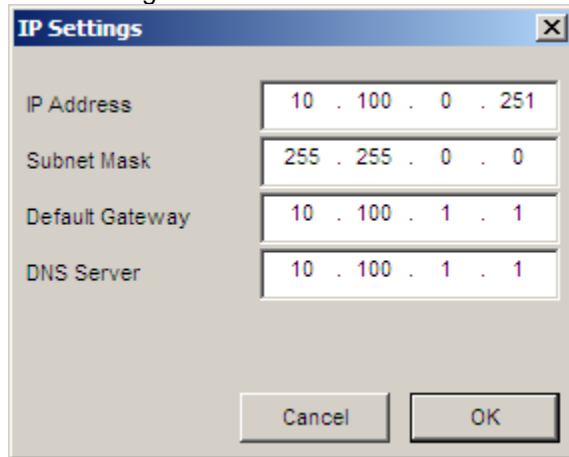
- d) Change its static IP to work on the new network by entering System> Management> IP Configuration. Ensure the “Static IP Address” radio button is selected, then enter in a IP Address of 10.100.1.10 (note—this is the default IP of the first AP in a default g! network configuration. Adjust your AP’s as needed. Enter Subnet mask of 255.255.0.0, and Default Gateway of 10.100.1.1. Click Apply to save settings when finished.



- e) Unit should reboot. Network access may be unavailable until the router has been changed in the next step.

3. Configure the **g!** Controller

- a) Configure IP settings on the **g!** controller to move it to a static IP on the new network. To change the HC Controllers IP, simply click on the System Name in Local Systems in **g!** Connect to highlight it, then click the “Configure IP Info...” button.
- b) Enter settings as shown in the screen shot:



- c) Click OK—the controller will reboot. Network access may be unavailable until the router has been changed in the next step.

4. Configure the **g!** router (DIR-628):

- a) Login to the router. Open a web browser and type in <http://192.168.0.1> to open the D-Link Web GUI. Enter default credentials of Username: Admin and click the **Log In** button. (There is no password by default).
- b) Change the IP and DHCP settings to the new network. Click the **Setup** tab along the top, and then click the **Network Settings** button on the left. Edit the following settings:
 - Under Router Settings, Change the Router IP Address to **10.100.1.1** and the subnet mask to **255.255.0.0**
 - Under DHCP Server Settings, Change the DHCP IP Address Range to **“10.100.1.150 to 10.100.1.250”**

- Scroll to the top and click **Save Settings** when done.

The screenshot shows the configuration interface for a DIR-628 router. The left sidebar contains navigation options: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, and USB SETTINGS. The main content area is divided into three sections:

- NETWORK SETTINGS:** Includes a description and two buttons: "Save Settings" and "Don't Save Settings".
- ROUTER SETTINGS:** Includes a description and the following fields:
 - Router IP Address: 10.100.1.1
 - Subnet Mask: 255.255.0.0
 - Device Name: DIR-628
 - Local Domain Name: ELAN (optional)
 - Enable DNS Relay:
- DHCP SERVER SETTINGS:** Includes a description and the following fields:
 - Enable DHCP Server:
 - DHCP IP Address Range: 10.100.1.150 to 10.100.1.250

- The unit will reboot. After the reboot is complete, log back in by typing the new IP of <http://10.100.1.1> into your web browser. Note you may need to "Repair" the internet connection or restart your computer before you will get a new address and be able to see the router again.
- c) Alter Port Forwarding to work with the new **g!** controller IP address by clicking on the **Advanced** button near the top of the screen, then **Virtual Server**. Typically the port forwards are already present, and you may simply **alter the IP addresses** of the four port forwards as shown (from **192.168.0.2** to **10.100.0.251**), **check the boxes**, and then click **Save Settings**:

The screenshot shows the configuration interface for a DIR-628 router, specifically the **VIRTUAL SERVER** section. The left sidebar contains navigation options: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES, QOS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER, INBOUND FILTER, FIREWALL SETTINGS, ROUTING, ADVANCED WIRELESS, WI-FI PROTECTED SETUP, and ADVANCED NETWORK. The main content area is divided into two sections:

- VIRTUAL SERVER:** Includes a description and two buttons: "Save Settings" and "Don't Save Settings".
- 24-- VIRTUAL SERVERS LIST:** A table listing virtual servers with columns for Name, IP Address, Port, Traffic Type, and Schedule. The table contains five entries, each with a checkbox in the first column:

	Name	IP Address	Port	Traffic Type	Schedule
<input checked="" type="checkbox"/>	HomeLogic Old	10.100.0.251	443	Both	Always
<input checked="" type="checkbox"/>	TermServ Old	10.100.0.251	5001	Both	Always
<input checked="" type="checkbox"/>	OneHome Remote	10.100.0.251	2198	Both	Always
<input checked="" type="checkbox"/>	OneHome Service	10.100.0.251	2199	Both	Always

Ports 2198 and 2199 must be forwarded to 10.100.0.251 and enabled (checkbox). You must click Save Settings before leaving the tab to save changes.

- d) Unit should reboot and Netgear switch and **g!** controller should become visible once the router is back up.
5. Reboot any DHCP network devices on the **g!** network, such as touch screens. This will allow them to get a new address and communicate with the **g!** controller.
 6. Configure any Static IP network devices as per the manufacturers' documentation to work with the **g!** standard network ranges and the new network of 10.100.1.x. See the chart below for reference:

Router	10.100.1.1
Static IPs	10.100.1.100 – 10.100.1.149
DHCP	10.100.1.150 – 10.100.1.250
Controller (e.g.: HC-12)	10.100.0.251
Access Points	Start at 10.100.1.10
Climate – SerialBrick or Ethernet	10.100.1.25
Lighting – SerialBrick or Ethernet	10.100.1.30
SerialBrick - Irrigation	10.100.1.35
SerialBrick - General	10.100.1.40
SerialBrick – Pool / Spa	10.100.1.45
Audio Zone Controllers	Start at 10.100.1.50
MP3 Players	Start at 10.100.1.60
Static IP Tablet / Touch Screen*	Start at 10.100.1.70
Video Cameras	Start at 10.100.1.80

**Note: Typically Touch Screens are configured to DHCP.*

The above range is merely a recommendation if you choose to configure as static.

7. Connect the Niles to the managed switch and proceed with **g!** configuration below.

g! CONFIGURATION

Adding the chassis to **g!** Configurator:

On the Media tab in the Configurator, right click and add a new Audio Zone Controller. Select "Niles GXR2 Ethernet" from the list. (A Communication Device is not required and should not be added)

Once the Zone Controller is added, the HC Controller will poll the chassis and populate the zone names, adding additional zones if appropriate, and will enumerate the card types present in the chassis in the appropriate slot.

A "Keypad Controller" object will be added for each source and linked to the correct slot. It is not necessary to configure these in any way, as they will automatically link to the correct sources and present the controls as displayed on a Niles Keypad in the **g!** Viewer. It is not necessary to add any additional **g!** Viewer interfaces, and custom **g!** interfaces may not be used for Niles sources.

Note: If the zone names and card types are not populated, cycling power on the GXR2 and then pressing the "Discover Devices" button will often resolve the problem.

g! CONFIGURATION DETAILS

The following table provides settings used in the g! Configurator. Please refer to the *g! Configurator Reference Guide* for more details.

In the table below:

- “<Select>” Select the appropriate item from the list (or drop-down) in the Configurator.
- “<User Defined>”, etc. Type in the desired name for the item.

Devices	Variable Name	Setting	Comments
Communication Device		NONE REQUIRED	
Audio Zone Controllers	Name	<User Defined> (Default: Niles GXR2)	
	Device Type	Niles GXR2	
	Location	<User Defined> (Not Required)	
Keypads Controllers	Name	<User Defined> (Auto-Detected)	The name is pulled from the GXR2 programming
	Location	<User Defined> (Not Required)	
Zones	Edit Zone setting such as Name, Show/Hide sources, Universal Receiver, Displays, Slaves and so on as desired. See g! Reference Guide for full details on zone confi		
			Press the "Discover Devices" button on the GXR2 properties page
Interface Tab	Tab Layout	<Select> (Touch Screen)	For each touchscreen: Remove any unused zones into Available Zones to remove from the viewer, then set the preferred tab order

COMMON MISTAKES

1. Improper setup of the Niles. Make sure you complete setup of the Niles equipment, and that it functions properly as a stand-alone system, before attempting to connect and control from the **g!** system.
2. Improper source setup. All sources utilized by the Niles ICS must be configured and controllable from a Niles keypad to be usable when integrated with the **g!** system on the Niles zone controller. Note this limitation should not prevent you from using other **g!** controlled sources with a AVR or other zone controller.
3. Improper network setup. Ensure you have followed the network configuration steps in detail above.
4. Using Unsupported Controller. This device is not supported on the gSC or g1 Controller hardware lines.