



Home Network Installation Instructions



Installation Instructions

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Overview

These instructions guide you through connecting compatible DISH Network satellite receivers to a broadband home network to use the receiver's Internet connectivity for additional features.

Installation Considerations

- To access expanded capabilities and features of the DISH Network receiver, you must have broadband Internet service, not telephone-based dial-up Internet service. Contact your Internet service provider to verify if you have broadband Internet.
- The satellite receiver is connected to the Internet using the existing home network.
- The satellite receiver currently only functions with routers that provide IP addresses using DHCP (Dynamic Host Configuration Protocol). It does not function with a static IP address.
- Most Internet Service Providers have a "Fair Access Policy" which sets usage limits on the amount of data that can be downloaded in a given time period. Contact your Internet Service Provider to find out more about their Fair Access Policy.

Quick Installation Instructions

1. Determine if there is broadband Internet service (page 3, steps 1-3).
2. Determine the best method to connect the satellite receiver to the home network (page 3, steps 1-3).
3. Identify the existing home network equipment that is already installed, such as routers, gateways, or Ethernet switches (page 4, steps 1-4).
4. If it is necessary to install an Ethernet switch to create an available Ethernet port, install it now (page 8, steps 1-6).
5. Connect the satellite receiver to the home network using the appropriate steps for the connection method.
 - To connect the satellite receiver directly using an Ethernet cable, see page 5.
 - To connect the satellite receiver using a HomePlug-to-Ethernet adapter, see page 6.
6. Verify the receiver has an IP address and the connection status is Connected Online (page 9, steps 1-3).
7. Verify the receiver can connect using the Internet connection (page 10, steps 4-5).

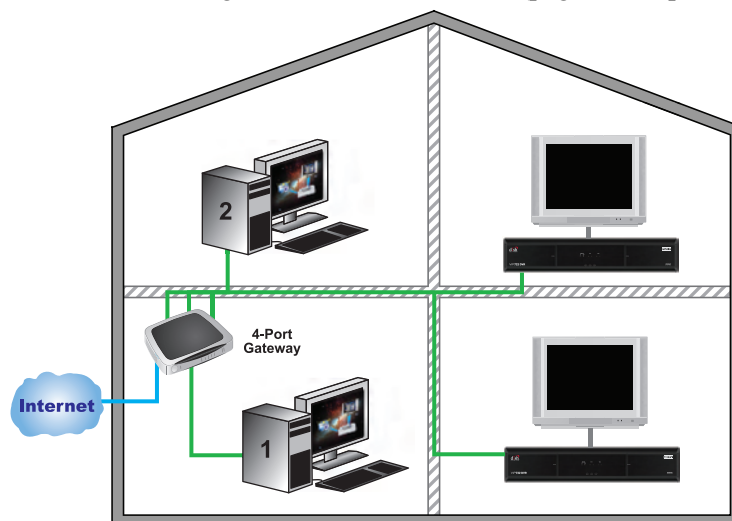


Figure 1. Example of Connecting the Receiver to the Home Network Using Ethernet Cable

Identifying the Home Network

Determining if there is Broadband Internet Service

In addition to these steps, you can contact your Internet service provider to verify if you have broadband Internet service.

- 1 Can calls be made using the home phone while using the Internet?
 - Yes. Go to step 2.
 - No. You have dial-up Internet and it must be upgraded to a broadband Internet service before using the receiver's Internet-based features.
- 2 When connecting to the Internet, can dial-up modem noises be heard?
 - Yes. You have dial-up Internet service and it must be upgraded to a broadband Internet service before using the receiver's Internet-based features.
 - No. Go to the next step.
- 3 Is the Internet connection always-on, or is it necessary to log in and connect each time the Internet connection is used?
 - Always-on: the Internet service is most likely broadband. Go to *Identifying Existing Home Networking Equipment*, below, to determine how to connect the satellite receiver to the Internet.
 - Log in and connect each time the Internet service is used: you most likely have dial-up Internet. It must be upgraded to a broadband Internet service before using the receiver's Internet-based features.

Determining the Best Method to Connect the Satellite Receiver

- 1 Verify there is broadband Internet service in the home. Broadband Internet service is required to use the receiver's Internet-based features. If there is broadband Internet service, continue to the next step. If needed, go to *Determining if there is Broadband Internet Service*, above.
- 2 What type of home networking equipment is currently installed?
 - Router or gateway: go to step 3, below.
 - Modem with no routing capabilities: the home network must be upgraded to include a router and an unused **ETHERNET** port before the satellite receiver can be connected to the home network.
 - If needed, go to *Identifying Existing Home Networking Equipment* on page 4 to determine the type of home networking equipment available.

3

Does the router or gateway have an unused Ethernet port?

- No. Refer to *Adding an Ethernet Switch* on page 8 to add an Ethernet switch to the existing router.
- Yes. If the router or gateway is located close to the satellite receiver's location, refer to *Connecting the Satellite Receiver Using Ethernet Cable* on page 5. If the router or gateway is located farther away from the receiver, or it is not possible to connect with a physical cable, refer to *Connecting the Satellite Receiver Using a HomePlug-to-Ethernet Adapter* on page 6.

Identifying Existing Home Networking Equipment

1

Does the Internet connection go directly to the computer or to another device?

- The Internet connection goes directly to the computer: the computer most likely has an internal modem. The Internet service provider should be contacted to get an external modem to use the receiver's Internet-based features.
- The Internet connection goes to another device: go to the next step.

2

How many Ethernet ports are on the device?

- One Ethernet port. Go to step 3, below.
- More than one Ethernet port. Go to step 4, below.

3

Does the device have wireless antennas or labeling indicating it is a router or gateway?

- No wireless antennas and no labeling indicating it is a router or gateway: the home network must be upgraded to include a router and an unused Ethernet port before the satellite receiver can be connected to the home network.
- Has labeling indicating it is a router or gateway, or has wireless antennas (indicating it has routing capabilities): refer to *Adding an Ethernet Switch* on page 8.

4

Does the router or gateway have an unused Ethernet port available?

- No. Refer to *Adding an Ethernet Switch* on page 8.
- Yes. If the router or gateway is located close to the satellite receiver's location, refer to *Connecting the Satellite Receiver Using Ethernet Cable* on page 5. If the router or gateway is located farther away from the receiver, or it is not possible to connect with a physical cable, refer to *Connecting the Satellite Receiver Using a HomePlug-to-Ethernet Adapter* on page 6.

Installation and Setup

Use these instructions to connect the satellite receiver to the home network, to add an Ethernet switch to the home network for additional Ethernet ports, and to setup the receiver once it is connected to the home network.

Connecting the Satellite Receiver Using Ethernet Cable

Refer to Diagrams 1 and 2 and the instructions below if the existing gateway (or router) has an unused **ETHERNET** (or **LAN**) port, or if an unused **ETHERNET** (or **LAN**) port has been made available using the instructions in *Adding an Ethernet Switch*.

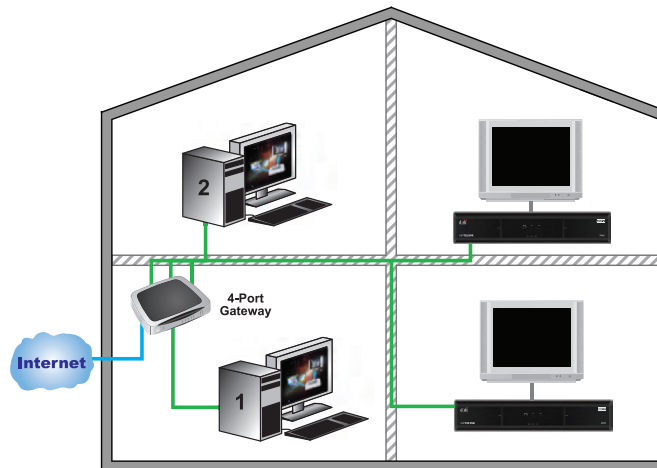


Diagram 1. Overview of Home Network with Receiver Connected by Ethernet Cable

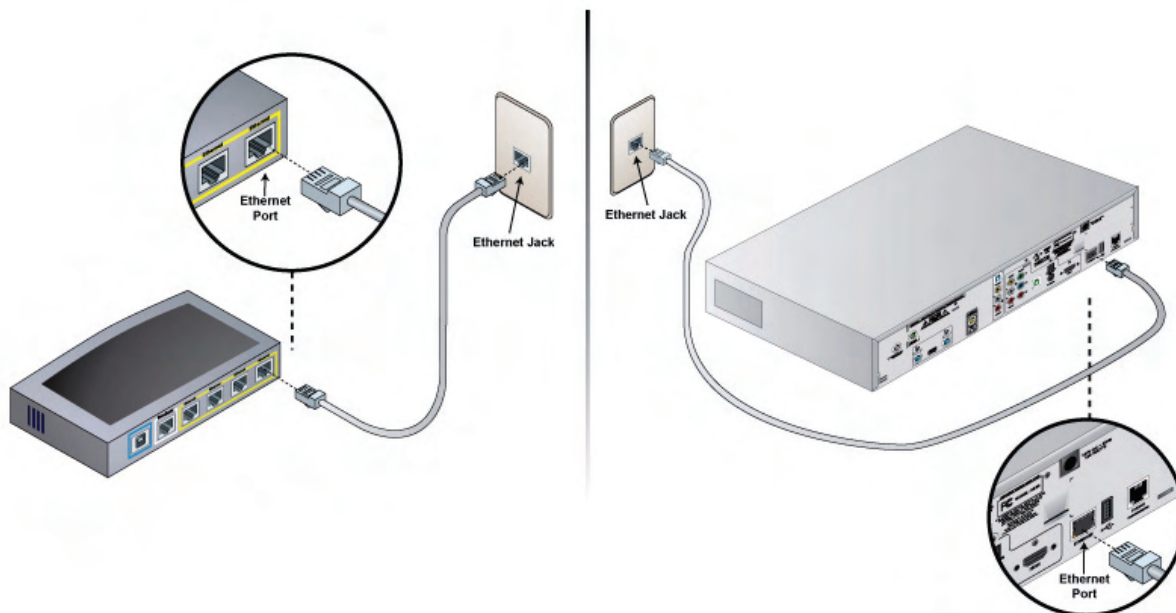


Diagram 2. Connecting the Receiver to the Router Using Ethernet Cable

1

Connect one end of the Ethernet cable to an unused **ETHERNET** (**LAN**) port on the router, gateway, or Ethernet switch.

- 2 Connect the other end of the Ethernet cable to the **ETHERNET** port on the back of the satellite receiver, verifying the cable “clicks” into place. Check the lights on the receiver’s **ETHERNET** port. The green light should lit indicating the **ETHERNET** port is enabled and connected to an active port on the router/switch. The yellow light flashes whenever data is being received over the connected Ethernet cable.
- 3 Refer to *Setting up the Receiver* on page 9 to complete the installation and verify the receiver’s Internet connection.

Connecting the Satellite Receiver Using a HomePlug-to-Ethernet Adapter

Refer to Diagrams 3 and 4 and the instructions below if the existing gateway (or router) has an unused **ETHERNET** (or **LAN**) port, or if an unused **ETHERNET** (or **LAN**) port has been made available using the instructions in *Adding an Ethernet Switch*.

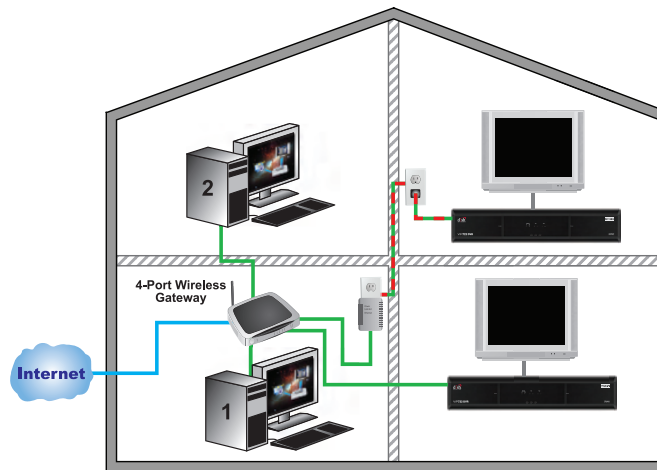


Diagram 3. Overview of Home Network with Receiver Connected by HomePlug-to-Ethernet Adapter

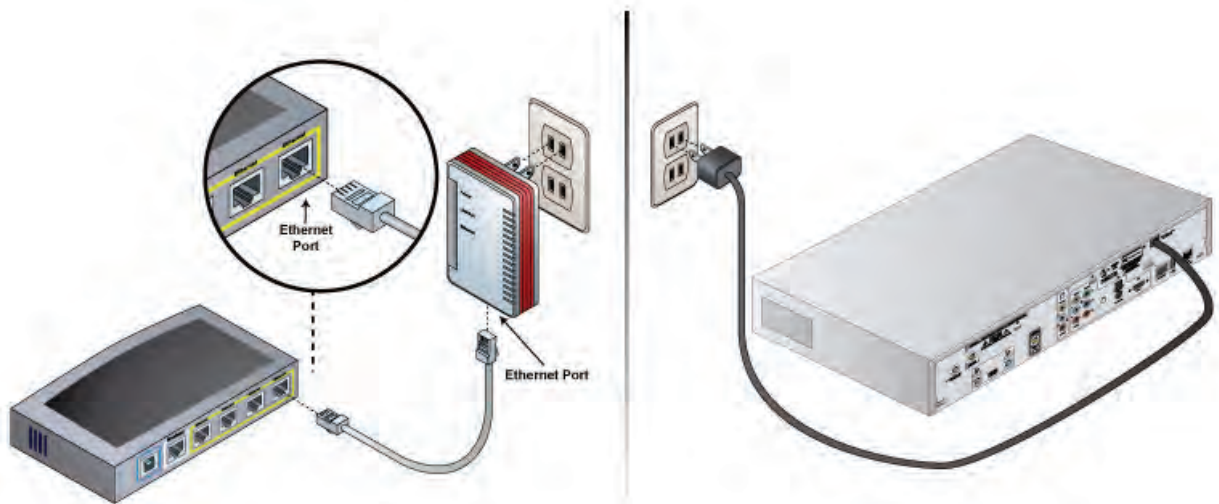


Diagram 4. Connecting the Receiver to the Router Using a HomePlug-to-Ethernet adapter

- 1 One HomePlug-to-Ethernet adapter must be obtained for use at the location of the router, gateway, or Ethernet switch. The ViP-series of DISH Network receivers include HomePlug 1.0 support. These adapters may also be referred to as “HomePlug-to-Ethernet Bridge”, “Powerline Ethernet Adapter”, or “Powerline Network Adapter”. To identify adapters that are compatible with HomePlug 1.0, look for either of the logos below, and a speed rating of 14 Mbps.



- 2 Connect one end of an Ethernet cable to an unused **ETHERNET (LAN)** port on the router, gateway, or Ethernet switch.
- 3 Connect the other end of the Ethernet cable to the **ETHERNET** port on the HomePlug-to-Ethernet adapter.
- 4 Plug the HomePlug-to-Ethernet adapter into an electrical outlet located near the router.
Note: The HomePlug-to-Ethernet adapter and the DISH Network satellite receiver’s power cord should both be plugged directly into an electrical wall outlet. If a surge protector is used, it must be approved for use with HomePlug devices, and the adapter or satellite receiver must be plugged into the HomePlug outlet of the surge protector. Do not plug the adapter or satellite receiver into an outlet that is controlled by a wall switch or into GFI electrical outlets.
- 5 HomePlug-to-Ethernet adapters typically have lights to indicate they are functioning. Refer to the adapter’s installation instructions for details, or see *Troubleshooting* on page 11 if the lights are not on.
- 6 Refer to *Setting up the Receiver* on page 9 to complete the installation and verify the receiver’s Internet connection.

Adding an Ethernet Switch

Refer to Diagram 5 and 6 and the instructions below to connect an Ethernet switch to the router or gateway for additional unused Ethernet ports.

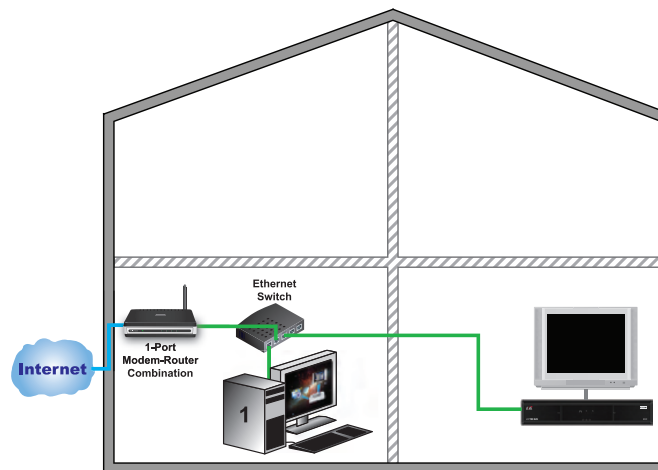


Diagram 5. Overview of Home Network with Ethernet Switch Connected for Additional Unused Ethernet Ports

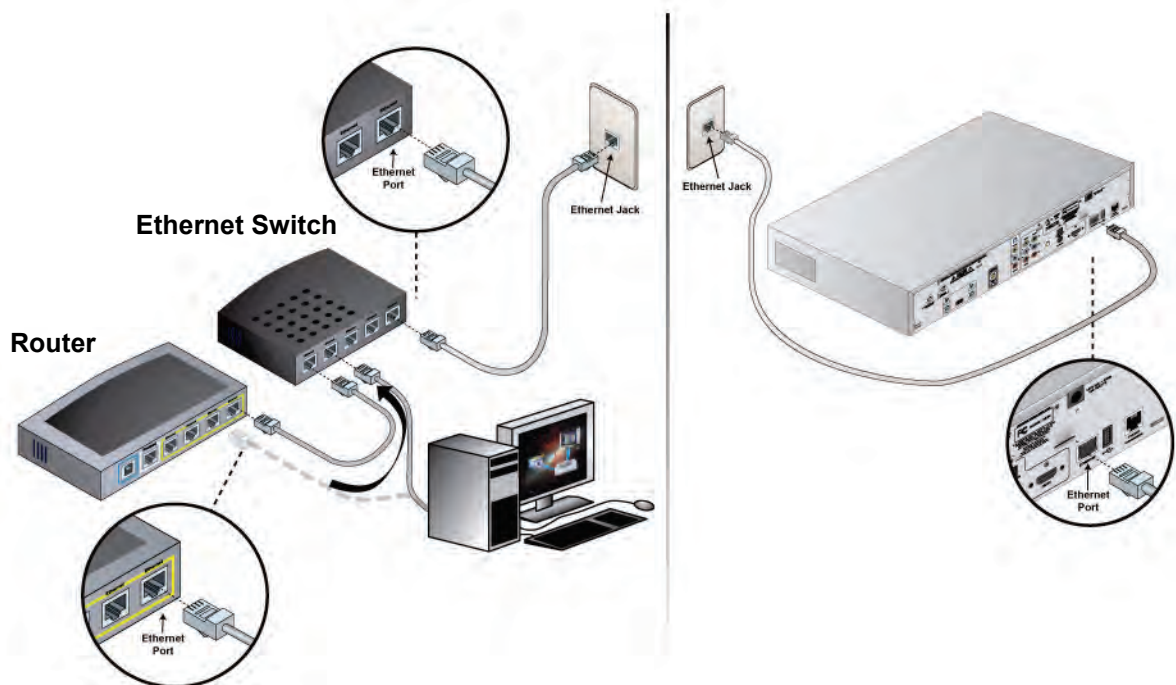


Diagram 6. Connecting an Ethernet switch to the router

- 1 On the existing router or gateway, disconnect the Ethernet cable for an existing piece of equipment connected to an **ETHERNET** (or **LAN**) port. This equipment will be connected to the Ethernet switch in step 2, below.

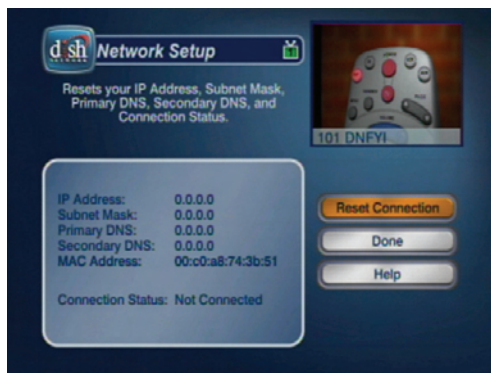
Note: Do not disconnect the cable connected to the router or gateway port labeled **BROADBAND** or **INTERNET**.

- 2 Connect the Ethernet cable that was disconnected in step 1 to an unused **ETHERNET** port on the Ethernet switch. Refer to the Ethernet switch's installation instructions for any additional instructions and special considerations. If the Ethernet switch has a power adapter, connect it and plug it in according to the switch's instructions.
- 3 Connect an Ethernet cable to the **ETHERNET** (or **LAN**) port on the router or gateway that was made available in step 1.
- 4 Connect the other end of the Ethernet cable to an unused **ETHERNET** port on the Ethernet switch.
- 5 Connect the DISH Network satellite receiver to the Ethernet switch using the desired connection method. To connect using an Ethernet cable, refer to *Connecting the Satellite Receiver Using Ethernet Cable* on page 5. To connect using a HomePlug-to-Ethernet adapter, refer to *Connecting the Satellite Receiver Using a HomePlug-to-Ethernet Adapter* on page 6.
- 6 Verify that the personal computer and any other equipment connected to the Internet connection continues to function properly after it has been connected to the Ethernet switch.

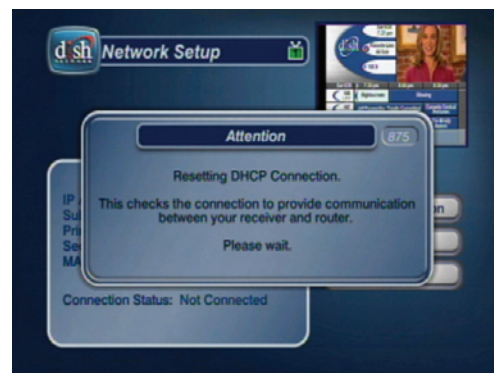
Setting up the Receiver

Once the receiver has been connected to the home network, use these steps to set up and verify the receiver's Internet connection.

- 1 Using the DISH Network remote control for the receiver that is connected to the home network, access the Network Setup screen by pressing **MENU**, selecting **System Setup**, **Installation**, **Broadband Setup**, then **Network Setup**. Select **Reset Connection**. An Attention 875 message will display briefly, then you will return to the Network Setup screen.



Network Setup Screen



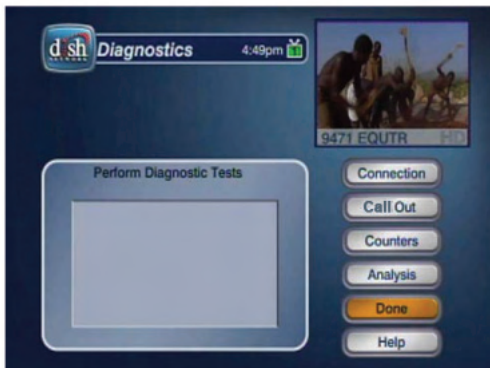
Attention 875 Message

- 2 Verify the Connection Status on the Network Setup screen shows **Connected Online**, and that the IP address does not show all 0s. If the IP address shows all 0s or the Connection Status shows Not Connected, refer to *Troubleshooting* on page 11.



Network Setup Screen with IP Address

- 3 Select **Done** to exit the Network Setup screen.
- 4 Verify the receiver can successfully connect to DISH Network by pressing MENU on the remote control, selecting **System Setup**, then **Diagnostics**. Select **Connection** to test the Internet connection. The Connection option also tests the phone line, if connected. The results should display **Broadband Connection OK**.



Diagnostics Screen

Note: If a phone line is not also connected to the receiver, Connection results will display **Phone Connection Failure**. This is OK.


- 5 To connect to DISH Network to update Pay-Per-View purchase records and remove the Programming Access Fee, select **Call Out**.
- Note:** If the receiver has already connected to DISH Network, selecting **Call Out** may display **No Call Out Pending**. This is OK.

Troubleshooting.

Description	Procedure
Connection status on Network Setup screen is Not Connected.	<ol style="list-style-type: none"> On the home network, are there other DISH Network satellite receivers or personal computers connected? <ol style="list-style-type: none"> If another receiver is connected to the home network, check to see if its connection status is Not Connected. If a computer is connected to the home network, check to see if the computer is able to access an external website (for example, www.dishnetwork.com). Based on the results: <ol style="list-style-type: none"> If the other receiver also has a connection status of Not Connected, or the computer cannot access an external website, use the troubleshooting steps in <i>Other receivers or computers are affected</i> on page 12. If only this receiver is affected, use the troubleshooting steps in <i>Only one receiver is affected</i> on page 11.
Only one receiver is affected: Not Connected status on Network Setup screen.	<ol style="list-style-type: none"> Go to the Network Setup screen on the satellite receiver by pressing MENU on the DISH Network remote control, selecting System Setup, Installation, Broadband Setup, then Network Setup. Select Reset Connection. If the IP address still shows all 0s or a connection status other than Connected Online displays, continue to step 2. Note: Currently, the receiver will only function with IP addresses assigned by DHCP (Dynamic Host Control Protocol). It will not function with static IP addresses. If you've installed a HomePlug-to-Ethernet adapter to connect the receiver, refer to the <i>HomePlug Troubleshooting</i> section on page 13. Try unplugging the Ethernet cable from the receiver's ETHERNET port and then plugging it back in. Verify the cable "clicks" into the ETHERNET port. Check the lights on the receiver's ETHERNET port. <ul style="list-style-type: none"> A green light indicates the ETHERNET port is enabled and connected to an active port on the router/switch. If the green light is not lit, the Ethernet cable connecting the receiver to the router/switch may be disconnected or damaged, or the ETHERNET port on the router or satellite receiver may not be functioning correctly. A flashing yellow light indicates the port is receiving data over the connected Ethernet cable. If the yellow light does not flash, the Ethernet cable connecting the receiver to the router/switch may be disconnected or damaged, or the ETHERNET port on the router or satellite receiver may not be functioning correctly. At the router/switch, ensure the receiver's Ethernet cable is connected to a working ETHERNET port on the router/switch. Check the lights on the router or switch's ETHERNET port as indicated in step 4. Reset the satellite receiver by pressing and holding the POWER button on the front panel for five seconds. Try connecting the receiver's Ethernet cable to a different ETHERNET port on the router/switch. If there is a reset button on the router/switch, try resetting the router/switch. After resetting the router/switch, use the instructions in step 1 to reset the receiver's IP address. Refer to the router's (or switch's) user guide for additional troubleshooting or refer to the router's (or switch's) manufacturer.

Description	Procedure
<p>Other receivers or computers are affected: Not Connected status on Network Setup screen</p>	<ol style="list-style-type: none"> 1. Ensure the broadband router is plugged in to power. 2. If the installation uses a broadband modem that is separate from the router: <ol style="list-style-type: none"> a. Ensure the modem is plugged in to power. b. Ensure the modem is connected to the router using an Ethernet or USB cable. c. Verify the cable connecting the modem to the Internet is connected to the correct port on the modem. DSL modems use a phone cord that connects to a phone jack on the modem. Cable modems use a coaxial cable coming from outside that connects to the coaxial connector on the modem. d. Try resetting the modem by unplugging it from power, waiting for one minute, and plugging it back in. 3. Check the status lights on the router (and modem, if applicable), and refer to the router or modem's user guide for details and explanations. 4. If the router has a reset button, try resetting the router. 5. If the modem and router are two separate pieces of equipment: <ol style="list-style-type: none"> a. Unplug both the modem and router. b. Plug the modem back in and wait for it to power on. c. Plug the router back in and wait for it to power on. d. Go to the Network Setup screen by pressing MENU on the DISH Network remote control, selecting System Setup, Installation, Broadband Setup, then Network Setup. Select Reset Connection. Verify the IP address does not display all 0s. If it does, refer to <i>The IP address on the receiver's Network Setup screen shows all 0s</i> on page 12. 6. Refer to the router's (or modem's) user guide for additional troubleshooting. Many Internet service providers include troubleshooting tools and software on the home computer that can be used by the customer to further diagnose the issue. 7. Contact the Internet service provider, or the router's (or modem's) manufacturer.
<p>The IP address on the Network Setup screen shows all 0s.</p>	<ol style="list-style-type: none"> 1. Verify the Ethernet cable is connected between the satellite receiver and the router/switch. 2. Go to the Network Setup screen on the satellite receiver by pressing MENU on the DISH Network remote control, selecting System Setup, Installation, Broadband Setup, then Network Setup. Select Reset Connection. 3. If using a HomePlug-to-Ethernet adapter to connect the receiver, refer to the <i>HomePlug Troubleshooting</i> section on page 13. 4. Try connecting the receiver's Ethernet cable to a different ETHERNET port on the router/switch. 5. Reset the satellite receiver by pressing and holding the POWER button on the front panel for five seconds. 6. If the router/switch has a reset button, try resetting it. After resetting the router/switch, use the instructions in step 2 to reset the receiver's IP address. 7. If the IP address still shows all 0s, settings on the router may need to be adjusted. Contact the router's manufacturer for assistance. <ul style="list-style-type: none"> - The receiver will only function with IP addresses assigned by DHCP (Dynamic Host Control Protocol). It will not function with static IP addresses. - The number of IP addresses available for lease (use) may need to be increased. - The router may have MAC filtering turned on, and the receiver's MAC address (listed on the Network Setup screen) may not be in the router's list of allowed MAC addresses. - Review your router's security settings to verify they are appropriate for this installation.

Description	Procedure
HomePlug Troubleshooting	<ol style="list-style-type: none"> 1. Ensure the HomePlug-to-Ethernet adapter is plugged firmly into the electrical outlet. The adapter should not be plugged into a GFI electrical outlet. AFCI (Arc Fault Circuit Interrupter) and GFCI (Ground Fault Circuit Interrupter) circuit breakers can also interfere with HomePlug equipment. 2. Verify the HomePlug-to-Ethernet adapter is not plugged into a switched outlet. 3. If a surge protector is used for either the satellite receiver or the HomePlug-to-Ethernet adapter, a surge protector that is approved for use with HomePlug devices must be used, and the Adapter and receiver must be plugged into the HomePlug outlet. 4. Dimmers for home lighting can interfere with HomePlug. It is not recommended to use dimmers on the same circuit as HomePlug equipment. 5. Verify the Ethernet cable is “clicked in” on the adapter’s ETHERNET port and the ETHERNET port on the router. 6. Try connecting the Ethernet cable to a different ETHERNET port on the router/switch.



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