Retail Management Hero Network Best Practices Guide

Contact Information

Retail Management Hero

454 West Napa Street, Unit B

Sonoma, CA 95476

documentation@rhmpos.com

For more information or support, contact your RMH Partner.

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Introduction

RMH is an on-premises retail point-of-sale (POS) system that requires a robust, appropriately configured, and secure network to function properly.

This guide identifies best practices that partners should follow when setting up a store's network to optimize RMH app performance and reduce the risk of service interruptions.
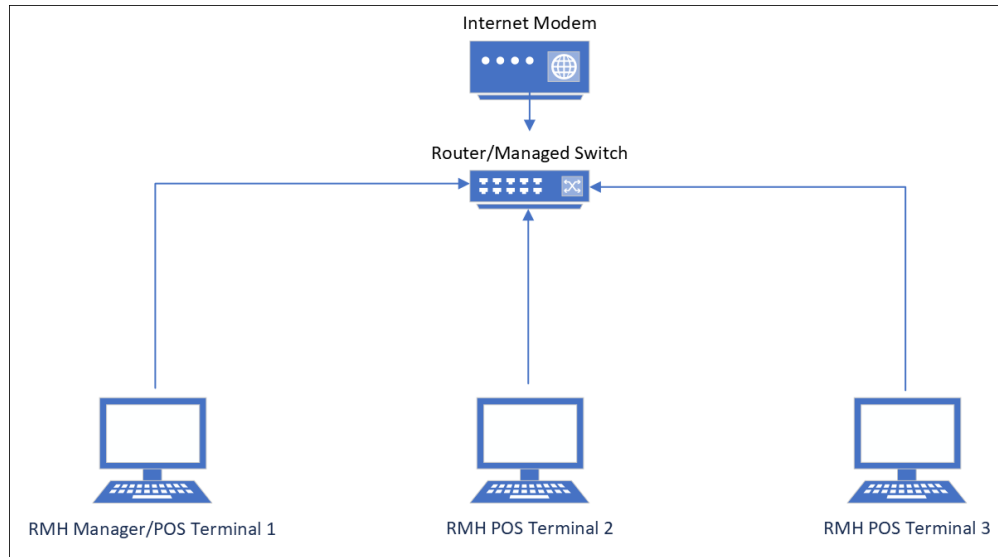
Poorly designed and improperly configured networks are the primary source of technical issues that stores experience with their POS system, such as loss of POS lane connectivity, issues with peripheral connectivity and payment processing, and exposure to computer viruses and malware.

There are many ways to set up a store's network. This guide focuses on the most common store network configurations.

Deployment options

The most common RMH app deployments are:

- An "all-in-one" deployment where Store Manager and POS are installed on a single store computer that acts as both the management computer and sales terminal. The store has the option of installing POS at additional sales terminals or checkout lanes as the store expands.

Internet Modem

Router/Managed Switch

RMH Manager/POS Terminal 1   RMH POS Terminal 2   RMH POS Terminal 3

- A traditional back office and store floor deployment where Store Manager is installed on a management computer in the back office and POS is installed at sales terminals or checkout lanes on the store floor.

Internet Modem

Router/Managed Switch

RMH Manager Server   RMH POS Terminal 1   RMH POS Terminal 2
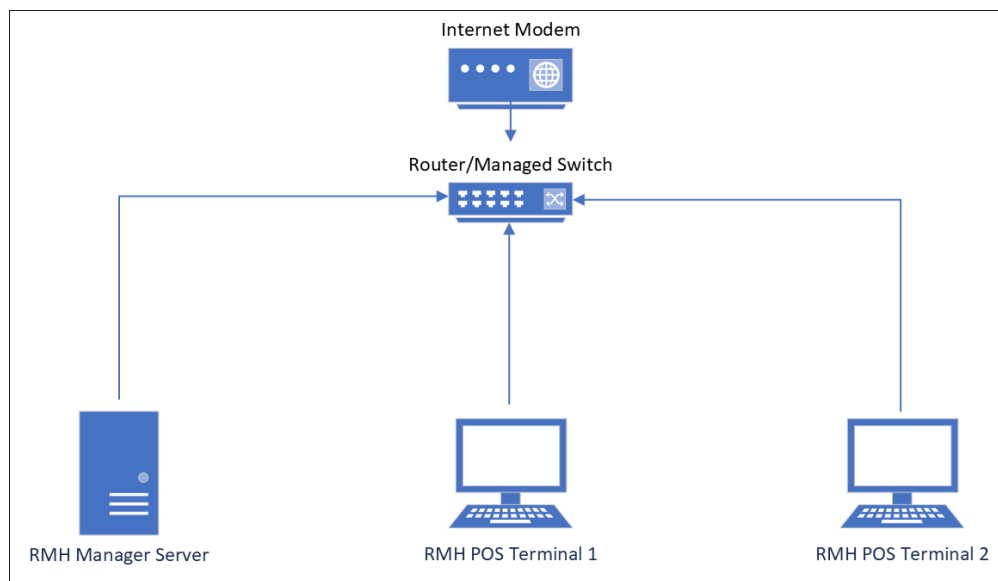
To set up the physical store network, you will typically install an internet modem and then connect it to a router or managed switch. The store computers connect to each other and to the internet via the router or managed switch.

Configure the network

After you install and physically connect the internet modem, router (or managed switch), and store computers, you will need to configure the store network.

The exact procedure for configuring the network will vary depending on the type of router you have installed in the store. Follow the configuration instructions provided by the manufacturer of the router that you are using.

> **Tip:** The HighSpeed.Tips (https://highspeed.tips/) web site provides links to demo web clients (emulators) for a variety of modems and network routers. You can use the emulators to familiarize yourself with the web client configuration options for devices from a range of hardware manufacturers.

The procedure below is provided as an example. It is based on Netgear's Genie router.

1. Open a web browser on one of the store computers (or your own laptop) and log in to the router's web interface.

   > **Tip:** The login URL, user name, and password are typically printed on a label on the bottom or back of the router. You can also access the router's web interface by typing its local IP address into the browser, e.g., 192.168.1.1.
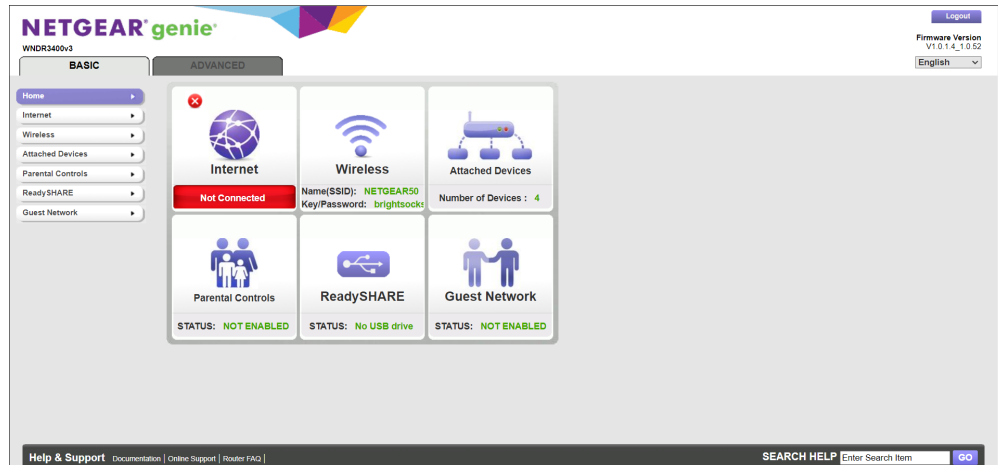
2. Update the router's firmware so that is it running the latest version. Reboot the router and log in to the router's web interface again.

3. Change the router's default password to a password that is only known by the network administrator. If prompted, log in to the router's web interface using the new password.

   a. On the **Advanced** tab, expand **Administration**.

   b. Click **Set Password**.

   c. Enter the **Old Password**.

   d. Enter a new password.

   e. Click **Apply**.
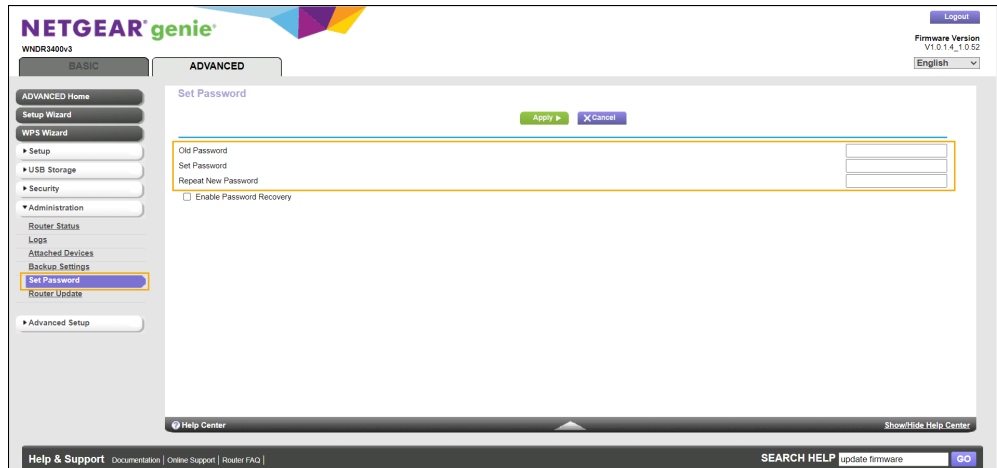
> **Warning!** If you do not change the router's default password, anyone who can physically access the router can use the login URL, user name, and default password printed on the label on the bottom or back of the router to log in and edit the router's configuration settings.

4. Disable wireless network connectivity (Wi-Fi) for the computers on the store's network.

    a. On the **Advanced** tab, expand **Advanced Setup**.

    b. Click Wireless Settings.

    c. Under **Wireless Advanced Settings (2.4 GHz b/g/n)**, clear the check marks beside the following options:

        ○ **Enable Wireless Router Radio**

        ○ **Enable 20/40 MHz Coexistence**

    d. Under **Wireless Advanced Settings 5GHz a/n)**, clear the check marks beside the **Enable Wireless Router Radio** option.

    e. Click **Apply**.
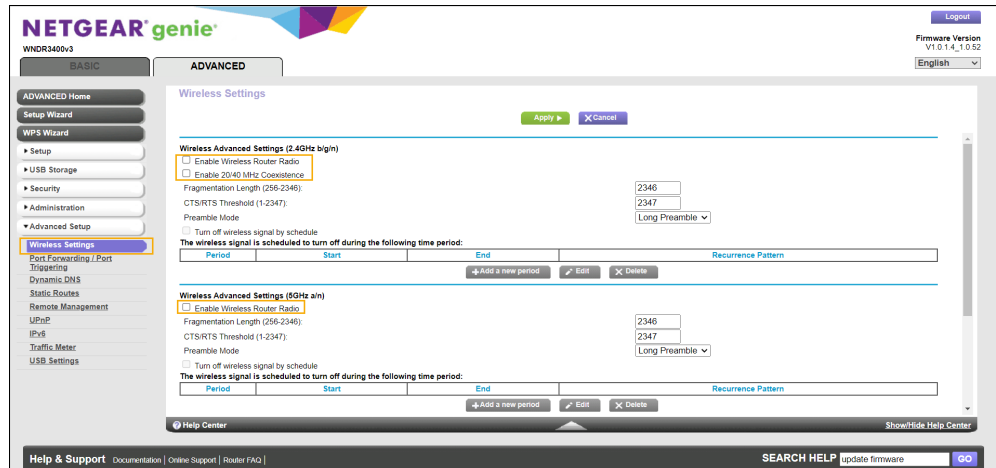
> **Note:** Disable both the 2.4GHz and 5GHz channels if applicable.

It is a best practice to connect all store computers to the network using a physical cable. Using Wi-Fi to connect computers to the store's network can expose the network to unwanted connections or signal/channel disruption, which can impact network performance and negatively affect the customer experience.

Secure and isolate the network

We recommend that you secure and isolate the network used by the RMH apps by:

- Creating a separate subnet for RMH;

- Disabling DHCP; and

- Requiring a static IP address for all computers or devices connected to the network.

Create a subnet for RMH

Most networked devices use **.1** as their default subnet. For example, if the IP address for a device is 192.168**.1**.1, the number highlighted in **red** is the subnet configured for the device. If you are implementing RMH at a store than has multiple local networks,

ensure the number assigned to the RMH subnet is unique and that the store computers running the RMH apps are only connected to the RMH subnet.

In the following example, there are 4 networks that all share a single internet connection. However, each network is completely isolated from the other networks because the networks use different subnets. Data is not shared across the subnets unless specifically configured to do so.

| Device	Subnet
Internet Modem	192.168.**0**.1
Personal Network Router/Guest Wi-Fi	192.168.**1**.1
Isolated Security Camera Network	192.168.**2**.1
RMH Network	192.168.**9**.1

We recommend that you use **.9** for the RMH subnet in all of your RMH store network implementations. This will allow you to standardize the network topology for the stores that you manage and support. Most importantly, however, the **.9** subnet is not a subnet that is typically used for other networks.

The exact procedure for creating a subnet will vary depending on the type of router you have installed in the store. Follow the instructions provided by the manufacturer of the router that you are using.

> **Tip:** The HighSpeed.Tips (https://highspeed.tips/) web site provides links to demo web clients (emulators) for a variety of modems and network routers. You can use the emulators to familiarize yourself with the web client configuration options for devices from a range of hardware manufacturers.

The procedure below is provided as an example. It is based on Netgear's Genie router.

1. On the **Advanced** tab, expand **Setup**.

2. Click **LAN Setup**.

3. For **IP Address**, change the subnet number from **1** to **9**, e.g., 192.168.9.1.
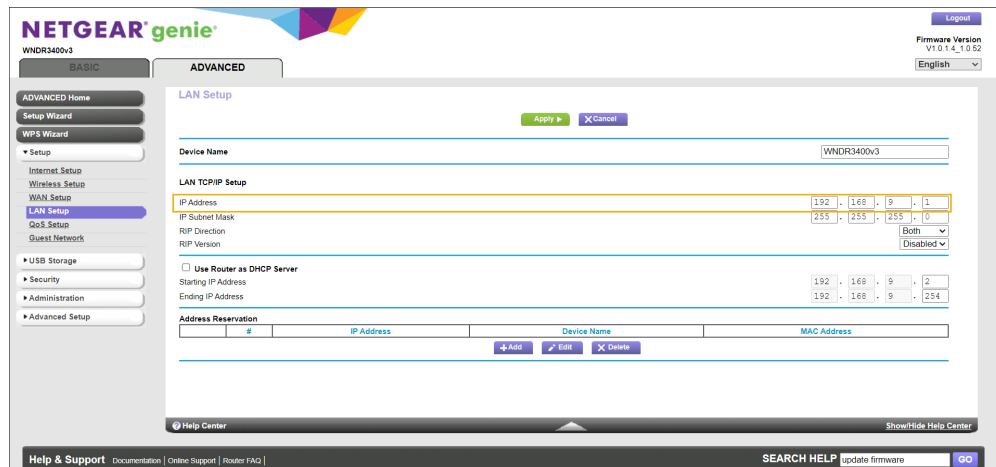
4. Click **Apply**. The router will reboot.

> **Note:** The router's IP address is now 192.168.9.1. To access the router's web interface, you will need type this IP address into a web browser.

Disable DHCP

Disabling DHCP (Dynamic Host Configuration Protocol) prevents the router from automatically assigning IP addresses to devices that connect to the network. Disabling DHCP secures the network by preventing merchants or unknown third parties from plugging unauthorized computers or devices into the network.

> **Note:** Disabling DHCP will disconnect all store computers and peripheral devices from the network. You will need to assign static IP addresses to these computer or device to reconnect them to the network.

The exact procedure for disabling DHCP will vary depending on the type of router you have installed in the store. Follow the configuration instructions provided by the manufacturer of the router that you are using.

> **Tip:** The HighSpeed.Tips (https://highspeed.tips/) web site provides links to demo web clients (emulators) for a variety of modems and network routers. You can use the emulators to familiarize yourself with the web client configuration options for devices from a range of hardware manufacturers.

The procedure below is provided as an example. It is based on Netgear's Genie router.

1. On the **Advanced** tab, expand **Setup**.

2. Click **LAN Setup**.

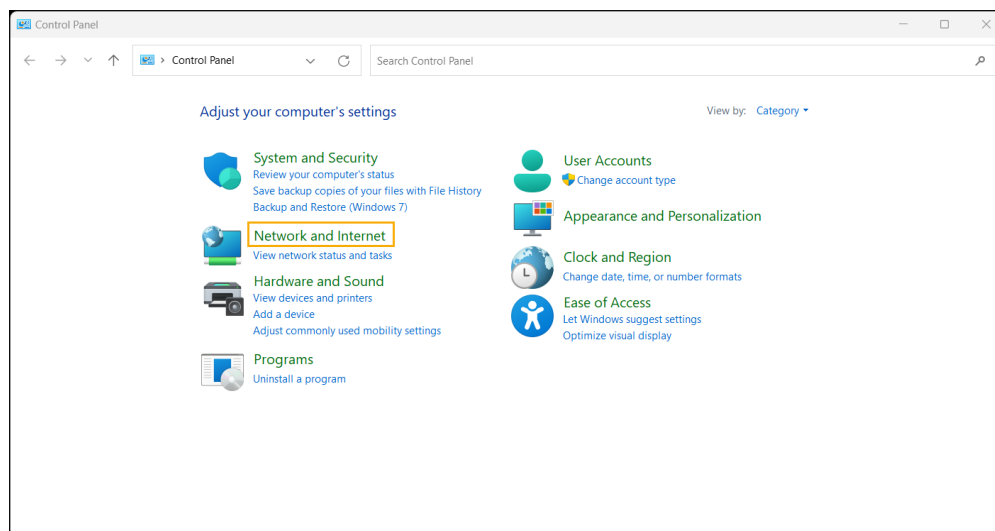3. Clear the check mark beside **Use Router as DHCP Server**.
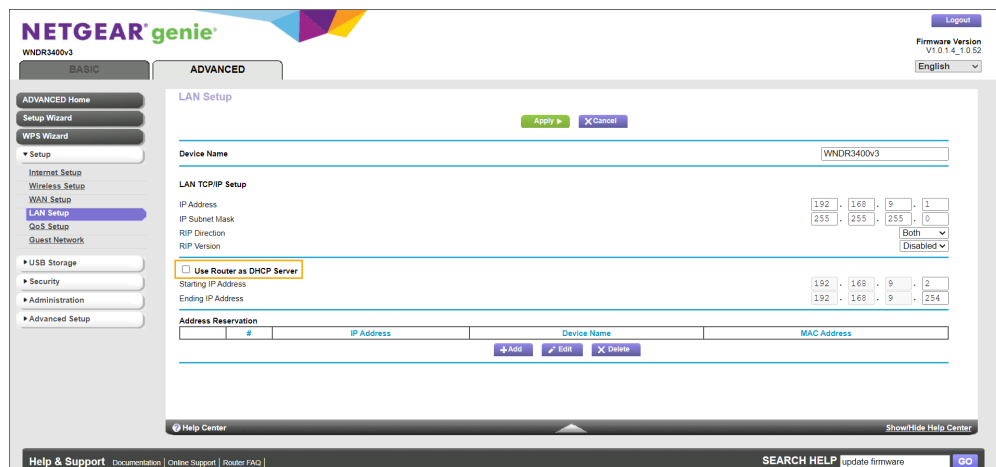

4. Click **Apply**.

Assign a static IP address

After you disable DHCP for the RMH subnet, you need to assign a static IP address to all store computers and peripheral devices that need to access the RMH network.
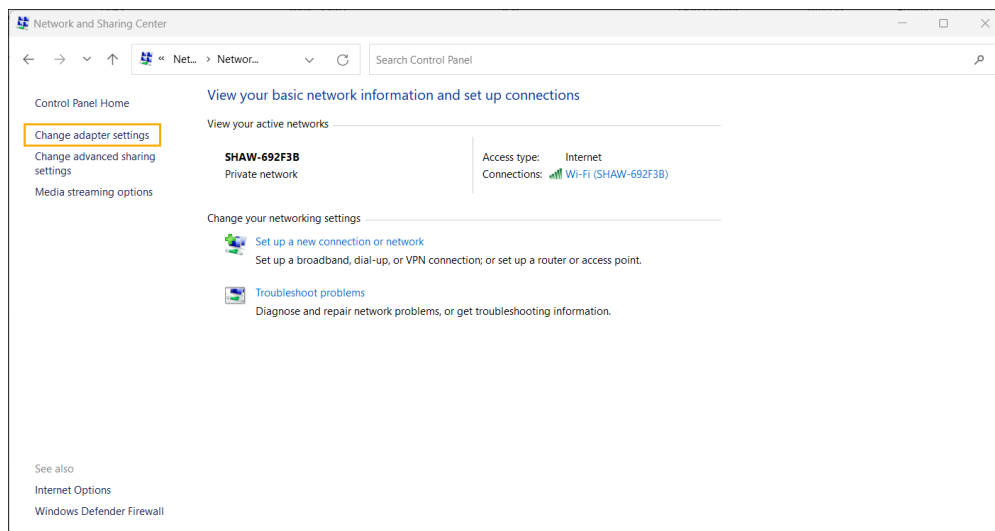
1. Open **Control Panel**. To do this, click **Search**, type **Control Panel**, and press **Enter**.
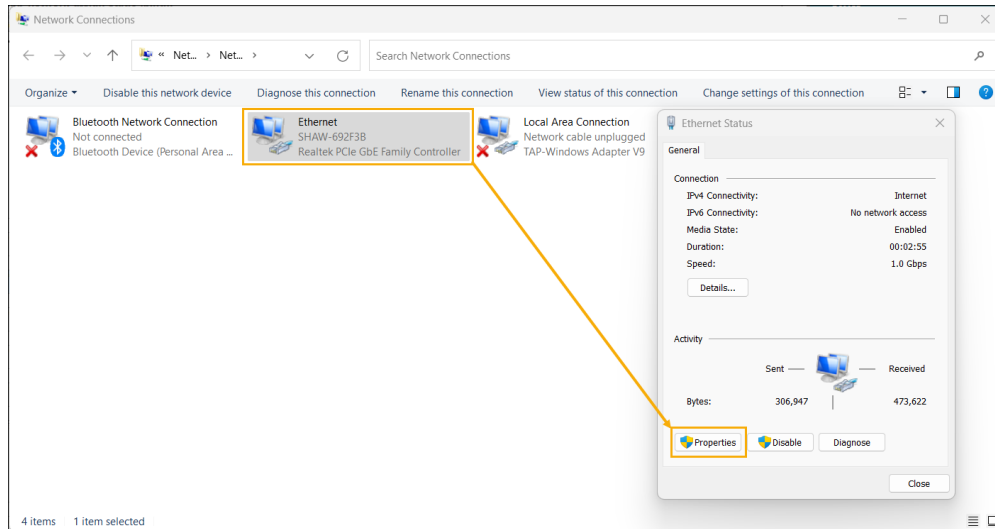
2. Click **Network and Internet**.

3. Under **Network and Sharing Center**, click **View network status and tasks**.
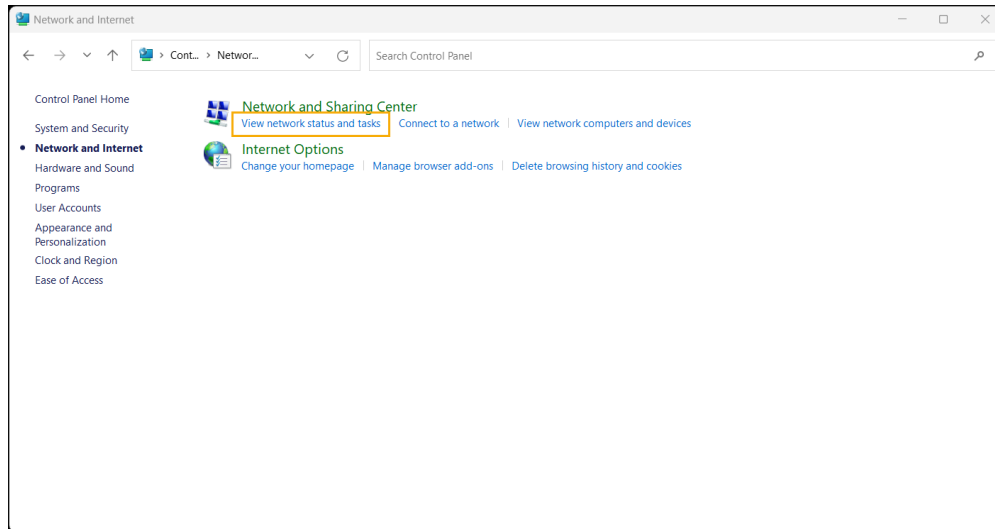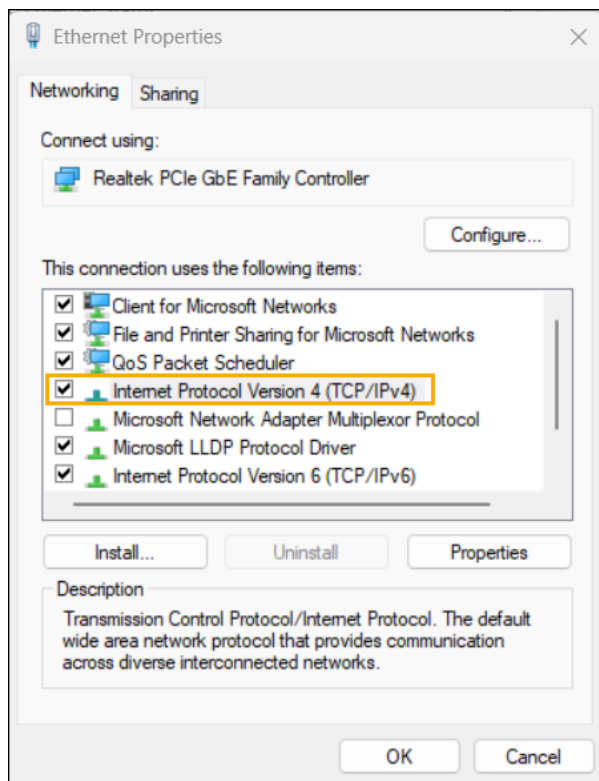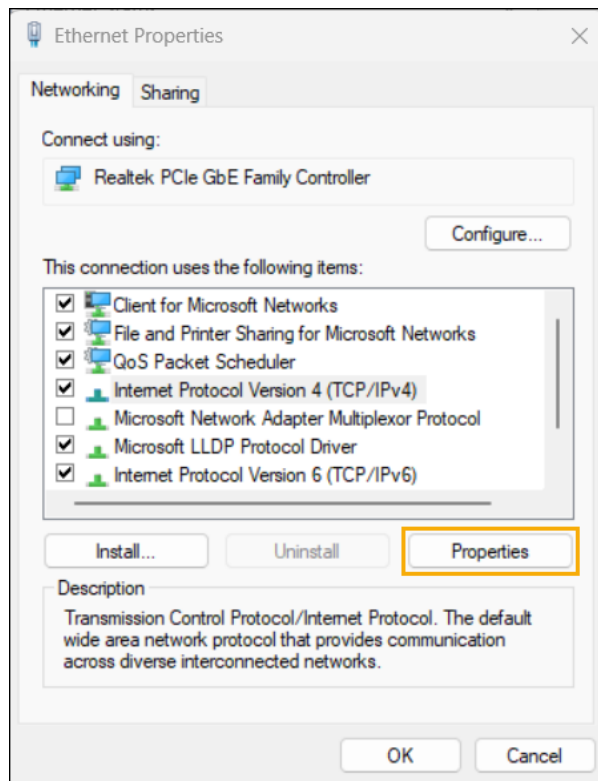
4. Click **Change adapter settings**.

5. Double-click the computer's physical network connection (Ethernet adapter).

6. Click **Properties**.

7. On the **Networking** tab, ensure that **Internet Protocol Version 4 (TCP/IPv4)** is selected.

8. Click **Properties**.

9. Select **Use the following IP address** and enter the following:

-   **IP address:** Enter the IP address for the computer. Each computer connected to the network must have a unique IP address, e.g., 192.168.9.151 (POS lane 1), 192.168.9.152 (POS lane 2), 192.168.9.153 (POS lane 3).

-   **Subnet mask:** Use the same subnet mask for every computer on the network.

-   **Default gateway:** Enter the IP address for the router, e.g., 192.168.9.1.
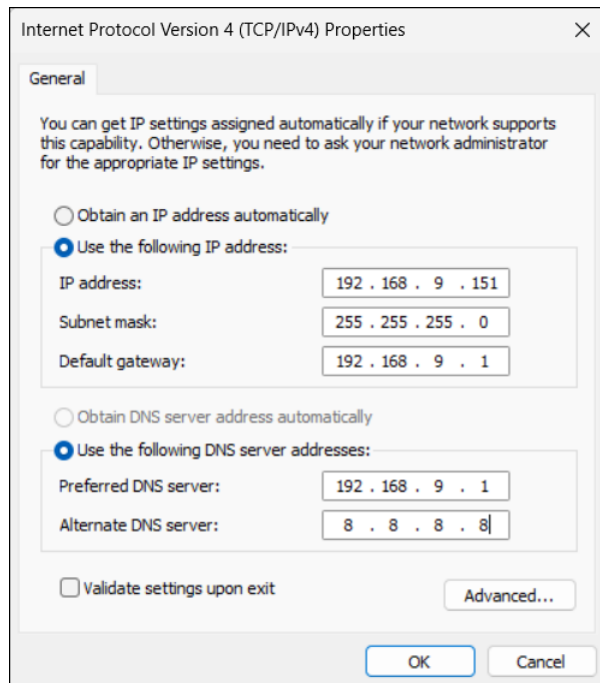
10. Select **Use the following DNS server addresses** and enter the following:

   - **Preferred DNS server:** Enter the IP address for the router, e.g., 192.168.9.1.

   - **Alternate DNS server:** Enter the IP address of a public DNS server, e.g., 8.8.8.8 for Google.

11. Click **OK**.

12. Click **OK**.

13. Click **Close**.

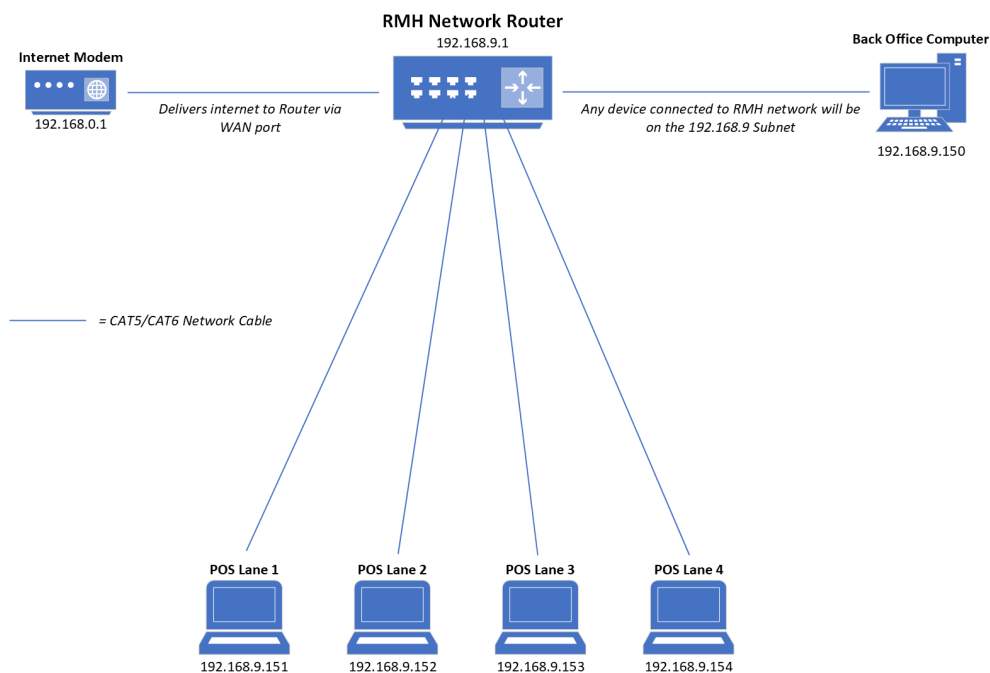## Implement an Internet failover solution

Maintaining a stable and reliable Internet connection is a common challenge for stores. Without an active Internet connection, stores cannot process the most popular methods of payment - debit and credit cards - and losing valuable transactions.

For this reason, we recommend that all stores implement an Internet failover solution, such as 3G/4G cellular technology, that will allow them to continue processing debit and credit cards if their Internet connection is disrupted or fails. Meraki, a cloud networking solution from Cisco, is highly regarded in the industry. You can learn more about Meraki in this article.

Conclusion and example

Setting up a robust and secure store network is a critical part of implementing any retail POS system. If you take the time to plan and configure the RMH network, it will give your retail customers peace of mind about the reliability and security of their POS system and ensure they have a quality experience with the RMH apps.

We encourage partners to map out each store's retail space, and to use the information provided in this guide to design a robust and secure RMH network. The diagram below provides an example of the network configuration and subnet for a four-lane RMH implementation.

RMH Network Router
192.168.9.1

Internet Modem
192.168.0.1

Back Office Computer
192.168.9.150

Delivers internet to Router via WAN port

Any device connected to RMH network will be on the 192.168.9 Subnet

= CAT5/CAT6 Network Cable

POS Lane 1
192.168.9.151

POS Lane 2
192.168.9.152

POS Lane 3
192.168.9.153

POS Lane 4
192.168.9.154

If you have questions about network configuration for a specific customer implementation, please post your question to **RMH Partner Talk** (RMH-Partner-Talk@-googlegroups.com).