

Retail Management Hero Network Best Practices Guide

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Contents

Introduction	1
Deployment options	1
Configure the network	3
Secure and isolate the network	6
Create a subnet for RMH	6
Disable DHCP	8
Assign a static IP address1	0
Implement an Internet failover solution1	4
Conclusion and example1	5

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.



 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.



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 (<u>https://highspeed.tips/</u>) 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.

 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**.

ETGEAR R3400v3	genie [,]		Firmware Version V1.0.1.4_1.0.5
BASIC	ADVANCED		English v
NCED Home	Set Password		
Wizard		Apply Cancel	
Wizard			
P	Old Password		
Storage	Set Password		
rity	Repeat New Password		
inistration	 Enable Password Recovery 		
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hed Devices			
up Settings			
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anced Setup			
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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.

NETGEAR [®] g	aprie advanced	Logout ^
ADVANCED Home Setup Wizard WPS Wizard	Wireless Settings	
Setup USB Storage Security Administration Advisored Seture	Winkess Advanced Settings (2.40/t 2.50/n) Enable Writeless Router Routon Enable 2014 Mic Consistence Fragmentation Length (256-2346); CTSIRTS Triveshold (1-247); Preamble Mode Long Preamble Mode	Î
Wireless Settings Port Forwarding / Port Triggering Dynamic DNS	To und firteless signal by schedule The wireless signal schedule to turn off during the following time period: The wireless signal schedule to turn off during the following time period: Period Start End Recurrence Pattern 4.464 a new period F Edit Delete	
Static Routes Remote Management UPnP IPx6 Traffic Meter	Winkss Advanced Setting (80Hz win) 2 Exable Weekss Router Ratio 2346 Fragmentation Longin (265-249) 2347 C1Str1S1 Invested (1:347) 2347 Preamble Mode Long Preamble V	
USB.Settings	The Writels spit by schedule following time period: Period Start Period Start Period Start Period Peri	- Help Genter
Help & Support Documentation	I Online Support Router FAQ SEARCH HELP update firmware	60

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 (<u>https://highspeed.tips/</u>) 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.

NETGEAR' g WNDR3400v3 BASIC	ADVANCED			Firmanr Version V10.14_10.52 English v
ADVANCED Home Setup Wizard WPS Wizard	LAN Setup		Apply > XCancel	
▼ Setup	Device Name			WNDR3400v3
Internet Setup Wireless Setup	LAN TCP/IP Setup			
WAN Setup	IP Address			192 . 168 . 9 . 1
QoS Setup Guest Network	IP Subnet Mask RIP Direction RIP Version			255 . 255 . 0 Both v Disabled v
USB Storage Security Administration	Use Router as DHCP Serv Starting IP Address Ending IP Address	er		152 . 168 . 9 . 2 192 . 168 . 9 . 254
Advanced Setup	Address Reservation			
	#	IP Address	Device Name	MAC Address
	Help Center			Showfilde Help Center
Help & Support Documentation	Online Support Router FAQ			SEARCH HELP update firmware GO

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 (<u>https://highspeed.tips/</u>) 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.

NETGEAD	remiet			Logout
NEIGEAK	genie 🔰			Firmware Version
WNDR3400v3				V1.0.1.4_1.0.52
BASIC	ADVANCED			English 🗸
ADVANCED Home	LAN Setup			
Setup Wizard			Apply > X Cancel	
WPS Wizard				
▼ Setup	Device Name			WNDR3400v3
Internet Setup				
Wireless Setup	LAN TCP/IP Setup			
WAN Setup	IP Address			192 . 168 . 9 . 1
LAN Setup	IP Subnet Mask			255 , 255 , 255 , 0
QoS Setup	RIP Direction			Both
Guest Network	RIP Version			Disabled V
► USB Storage	Use Router as DHCP Server			
Security	Starting IP Address			192 . 168 . 9 . 2
Administration	Ending IP Address			192 . 168 . 9 . 254
Advanced Setup	Address Reservation			
	#	IP Address	Device Name	MAC Address
			+Add 🖍 Edit 🗙 Delete	
	Help Center			Show/Hide Help Center
Help & Support Documentati	on Online Support Router FAQ			SEARCH HELP update firmware GO

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.

- 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.

> -> 🔨 🂐 « Ne	et > Networ	nel		1
Control Panel Home	View your basic network information and	set up connections		
Change adapter settings	View your active networks			
Change advanced sharing settings	SHAW-692F3B Private network	Access type: Internet Connections: WI-Fi (SHAW-692F3B)		
Media streaming options				
	Change your networking settings			
	Set up a new connection or network			
	Set up a broadband, dial-up, or VPN connec	ction; or set up a router or access point.		
	Iroubleshoot problems			
	Diagnose and repair network problems, or g	jet troubleshooting information.		
See also				
See also				

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

Vetwork Connections	-		×
$\leftarrow \rightarrow \checkmark \uparrow$ 💘 « Net > Net > \checkmark C Search Network Connections			ņ
Organize • Disable this network device Diagnose this connection Rename this connection View status of this connection Change settings of this connection	n 🗄 🕶		3
Bluetooth Network Connection Ethernet CLAN COTED		×	
Realtek PCIe GbE Family Controller Private Adapter V9 General			
Connection			
IFv4 Connectivity:	Internet		
IPv6 Connectivity: No Mode State:) network access		
ureuro state. Duration:	00:02:55		
Speed:	1.0 Gbps		
Details			
Activity			
Sent — 💐	Received		
Bytes: 306,947	473,622		
Properties Disple Disple)Se		
	Close		
4 items 1 item selected			≡ (

- 6. Click Properties.
- On the Networking tab, ensure that Internet Protocol Version 4 (TCP/IPv4) is selected.

Ethernet Properties	×
Networking Sharing	
Connect using:	
Realtek PCIe GbE Family Controller	
Configure	
This connection uses the following items:	
 Client for Microsoft Networks Client for Microsoft Networks Cost Packet Scheduler QoS Packet Scheduler Internet Protocol Version 4 (TCP/IPv4) Microsoft Network Adapter Multiplexor Protocol Microsoft LLDP Protocol Driver Internet Protocol Version 6 (TCP/IPv6) 	
Install Uninstall Properties	
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	
OK Cance	

8. Click **Properties**.

Ethernet Properties	×
Networking Sharing	
Connect using:	
💭 Realtek PCIe GbE Family Controller	
Configure	
This connection uses the following items:	
Install Uninstall Properties	
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	
OK Cancel	

- 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.

Internet Protocol Version 4 (TCP/IPv4)) Properties	×
General		
You can get IP settings assigned autor this capability. Otherwise, you need to for the appropriate IP settings.	natically if your network supports ask your network administrator	
Obtain an IP address automatical	ly	
 Use the following IP address: 		- 1
IP address:	192.168.9.151	
Subnet mask:	255 . 255 . 255 . 0	
Default gateway:	192.168.9.1	
Obtain DNS server address auton	natically	
 Use the following DNS server add 	resses:	
Preferred DNS server:	192.168.9.1	
Alternate DNS server:	8.8.8.8	
Ualidate settings upon exit	Advanced	
	OK Cance	

- 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 <u>article</u>.

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.



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