The R25 Robot Series

Network Setup Guide

Contents

Overview

This guide will walk you through connecting the R25 robot to your network. If you have any questions, please contact Technical Support at *support@robokind.com* or **call us at 1-800-494-1206**, Option 4.

The R25 robot only connects to 2.4 GHz Spectrum WiFi.

The R25 can connect to several different network types, including:

1. LAN (Wired network)

2. None (No Password)

3. WEP (Password required)

4. WPA/WPA2-Personal (Password required)

5. Advanced WPA2-Personal (Password required)

6. WPA/WPA2-Enterprise (Username & Password required)

7. WPA2-Enterprise with Certificates (Requires installing private key files)

FAQ

Q: What connection should I choose if I have an 802.1x network type?
A: 802.1x refers to a family of networks, but this typically means that you will have a WPA/WPA2-Enterprise network and will need to use the USB Advanced Configuration.

Q: When should I update the robot?
A: RoboKind® will send you an email notifying you when the latest version is available. Also, technical support may ask you to update. Please only update when asked.

Q: Do I have to connect the robot to Wi-Fi for lessons?
A: You can use Ethernet if you can connect the tablets to the same network.

Q: My Wi-Fi network requires a username and a password. How can I connect the robot to Wi-Fi using a username and a password?
A: You will need to set him up via the Simple or Advanced Configuration.

Q: How do I connect the robot if we have a hidden SSID?
A: Currently, the robot does not support hidden SSID's at this time.

Q: What is the VPN connection for?
A: This is for RoboKind® to have remote access to the robot for troubleshooting and diagnostics.

There are four methods for configuring the R25's network connection:

1. **LAN**

   ↳ Users connecting the robot via LAN will not need to use the configuration. The R25 will speak its wired IP address once connected. You will want to connect the tablets to the same network as the LAN or Ethernet.

2. **On-Screen Menu Configuration**

   ↳ Users connecting to a home or small office network secured with WEP or WPA/WPA2-personal can use the On-Screen Menu or the USB Simple Configuration methods to connect.

3. **USB Simple Configuration**

   ↳ Users connecting to a WPA/WPA2-enterprise network requiring a username and password, but no certificates can use the USB Simple Configuration method to connect.

4. **USB Advanced Configuration**

   ↳ Users connecting to a WPA/WPA2-enterprise network requiring you to manually install a private key or certificates or users connecting to networks with advanced settings can use the USB Advanced Configuration method to connect.
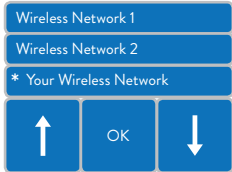
On-Screen Menu Configuration

1. Saving a Network
   a. Gather the Connection Information
      i. Network Name (SSID) and Network Password

2. Connecting to WiFi

1. For WiFi setup, on the chest screen press "Utilities," "Network," and then "Setup WiFi."

2. Using the ↑ and ↓ arrows, select the network all devices will connect to and press "OK."

3. Enter your WiFi credentials using the chest screen keyboard and press "OK."

NOTE: If you can't connect your robot to Wi-Fi via the On-Screen Menu, we strongly recommend you try the USB Simple Configuration method first before proceeding to the Advanced Configuration.

3. Connecting to a Previously Saved Network

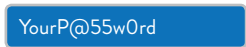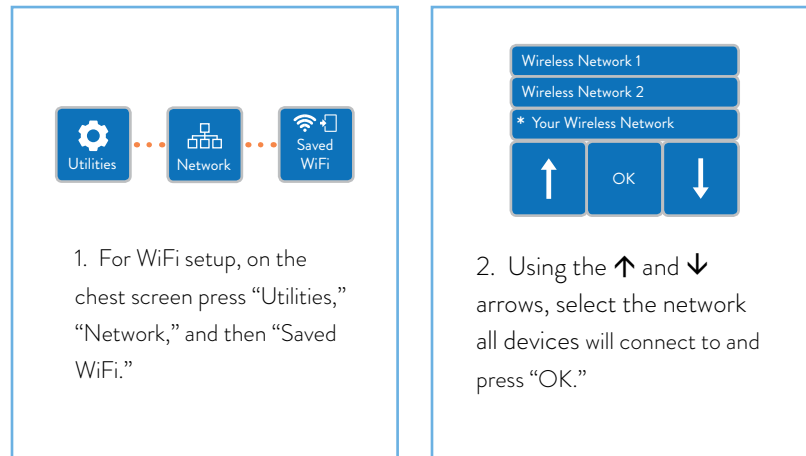|	
⚙ Utilities ···· 🔲 Network ···· 📶 Saved WiFi	Wireless Network 1 Wireless Network 2 * Your Wireless Network ↑ OK ↓
1. For WiFi setup, on the chest screen press "Utilities," "Network," and then "Saved WiFi."	2. Using the ↑ and ↓ arrows, select the network all devices will connect to and press "OK."

Network Test

The Network Test will determine whether your robot can successfully connect to RoboKind's® servers. When you run this test, the robot will attempt to connect to each of the servers it needs and report any problems. After a few moments you will see an "OK" or a "FAIL" next to each of the tests. The first test, "Internet & DNS", tries to establish whether you have a working connection to the Internet.

If this test fails:

1. Ensure your robot is connected to your network.

2. Ensure your signal is strong (if using wireless).

3. Check that your router has an Internet connection.

4. Verify your network settings with your network administrator.

The other tests check access to RoboKind's servers specifically. If any of these tests fail, but the first test succeeds, it most likely indicates that your network has a firewall or web filter that is blocking access. Please consult the **"Network Requirements" on page 10.**

USB Simple Configuration – WEP and WPA/WPA2-Personal

The USB flash drive method will connect to your wireless network automatically without having to manually select a network or enter a password. This method has been useful for many of our WPA/WPA2 Enterprise clients. We strongly recommend you try this method first before proceeding to the Advanced Configuration.

Supported authentication types include:

1. None

2. WEP

3. WPA/WPA2-Personal

4. Some WPA/WPA2-Enterprise

You will need a USB Drive.

1. Create a folder on your desktop to save the files to.

2. Download the **simple-wpa2-personal** zip file.

3. Open the folder.

4. Save the **WiFi** file to the new folder on your desktop by selecting it and dragging it over.

5. Open the **WiFi** file via Microsoft WordPad™ or another text editor.

6. Replace **YOUR_NETWORK_SSID** with your network's SSID.

7. Replace **YOUR_PASSWORD** with the robot's password on this network.

8. If you have a WEP network type, change the encryption from **wpa** to **wep.**

9. Please be sure to leave the quotation marks in the text (").

10. Save the **WiFi** file.

11. Plug in the USB drive.

12. Save the **WiFi** file to the USB drive.

13. Plug in and turn on the robot.

14. When the robot displays the **Main Menu** on his chest screen, insert the USB drive in his rear panel.

15. Wait for the robot to speak his IP address. Remove the USB Drive.

16. The robot will now connect to the network.

17. This should complete the process. If it doesn't work, try the directions on **"USB Advanced Configuration – WPA/WPA2-Personal" on page 7** or give us a call at **1-800-494-1206**, Option 4.

NOTE: The robot must be fully booted before plugging in the USB stick. If the USB stick is plugged in while the robot is powered off or in the process of booting up, the network will not be reconfigured.

USB Simple Configuration – WPA/WPA2-Enterprise

You will need a USB Drive.

1. Create a folder on your desktop to save the files to.

1. Download the **simple-wpa2-enterprise** zip file.

2. Open the folder.

3. Save the **WiFi** file to the new folder on your desktop by selecting it and dragging it over.

4. Open the **WiFi** file via Microsoft WordPad™ or another text editor.

5. Replace **YOUR_NETWORK_SSID** with your network's SSID.

6. Replace **YOUR_USERNAME** with the robot's username on this network.

7. Replace **YOUR_PASSWORD** with the robot's password on this network.

8. Please be sure to leave the quotation marks in the text (").

9. Save the **WiFi** file.

10. Plug in the USB drive.

11. Save the **WiFi** file to the USB drive.

12. Plug in and turn on the robot.

13. When the robot displays the **Main Menu** on his chest screen, insert the USB drive in his rear panel.

14. Wait for the robot to speak his IP address.

15. Remove the USB Drive.

16. The robot will now connect to the network.

17. This should complete the process. If it doesn't work, try the directions on **"USB Advanced Configuration – WPA/WPA2-Enterprise" on page 8** or give us a call at **1-800-494-1206**, Option 4..

NOTE: The robot must be fully booted before plugging in the USB stick. If the USB stick is plugged in while the robot is powered off or in the process of booting up, the network will not be reconfigured.

USB Advanced Configuration – WPA/WPA2-Personal

Advanced Configuration should only be used if the Simple Configuration does not work. Advanced Configuration will support any authentication type.

There are two files that are required to run an auto-run:

1. R25 Script

2. nm_conf file

You will need a USB Drive.

1. Create a folder on your desktop to save the files to.

2. Download the **advanced-wpa2-personal** zip file.

3. Open the folder.

4. Save the **nm_conf** and **autorun-R25** files to the new folder on your desktop by selecting them and dragging them over.

5. Open the **nm_conf** file via Microsoft WordPad™ or another text editor.

6. Replace **YOUR_NETWORK_SSID** with your network's **SSID**.

7. Replace **YOUR_PASSWORD** with the robot's password on this network.

8. Please be sure to leave the quotation marks in the text (").

9. Save the **nm_conf** file.

10. Plug in the USB drive.

11. Save the **nm_conf** and **autorun-25** files to the USB drive.

12. Plug in and turn on the robot.

13. When the robot displays the **Main Menu** on his chest screen, insert the USB drive in his rear panel.

14. Wait for the robot to speak his IP address.

15. Remove the USB Drive.

16. The robot will now connect to the network.

17. This should complete the process. If it doesn't work, please give us a call at **1-800-494-1206**, Option 4.

NOTE: The robot must be fully booted before plugging in the USB stick. If the USB stick is plugged in while the robot is powered off or in the process of booting up, the network will not be reconfigured.

USB Advanced Configuration – WPA/WPA2-Enterprise

This process is for those that have a WPA/WPA2-Enterprise account that doesn't require you to manually install private keys and certificates.

There are two files that are required to run an auto-run:

1. R25 Script

2. nm_conf file

You will need a USB Drive.

1. Create a folder on your desktop to save the files to.

2. Download the **advanced-wpa2-enterprise-no_certs** zip file.

3. Open the folder.

4. Save the **nm_conf** and **autorun-R25** files to the new folder on your desktop by selecting them and dragging them over.

5. Open the **nm_conf** file via Microsoft WordPad™ or another text editor.

6. Replace **YOUR_NETWORK_SSID** with your network's SSID.

7. Replace **YOUR_USERNAME** with the robot's username on this network.

8. Replace **YOUR_PASSWORD** with the robot's password on this network.

9. Please be sure to leave the quotation marks in the text (").

10. Save the **nm_conf** file.

11. Plug in the USB drive.

12. Save the **nm_conf** and **autorun-25** files to the USB drive.

13. Plug in and turn on the robot.

14. When the robot displays the **Main Menu** on his chest screen, insert the USB drive in his rear panel.

15. Wait for the robot to speak his IP address.

16. Remove the USB Drive.

17. The robot will now connect to the network.

18. This should complete the process. If it doesn't work, please give us a call at **1-800-494-1206**, Option 4.

NOTE: The robot must be fully booted before plugging in the USB stick. If the USB stick is plugged in while the robot is powered off or in the process of booting up, the network will not be reconfigured.

WPA/WPA2-Enterprise with Certificates Configuration

Below are the steps to connect to an WPA/WPA2-Enterprise network that requires you to manually install private keys and certificates.

You will need a USB drive.

1. Create a folder on your desktop to save the files to.

2. Download the **advanced-wpa2-enterprise-with_certs** zip file and open it in your browser.

3. Open the folder for **advanced-wpa2-enterprise-with_certs.**

4. Save all of the files to the new folder on your desktop by selecting all and dragging them.

5. Open the **nm_conf** file via Microsoft WordPad™ or another text editor.

6. Replace **YOUR_SSID** with your network's SSID.

7. Replace **YOUR_USERNAME** with the robot's username on this network.

8. Replace **YOUR_PASSWORD** with the robot's password on this network.

9. Replace **EXAMPLE_CA_CERT.crt** with your CA certificate file name (If you do not have a CA certificate, delete this line from the nm_conf file).

10. Replace **EXAMPLE_CLIENT_CERT.crt** with your client certificate file name (If you do not have a client certificate file, delete this line from the nm_conf file).

11. Replace **EXAMPLE_PRIVATE_KEY.key** with your private key file name (If you do not have a private key file, delete this line from the nm_conf file).

12. Save the **nm_conf** file.

13. Plug in the USB drive.

14. Save all of the **nm_conf, autorun-25, certificate files** and **private key** files to the USB drive.

15. Plug in and turn on the robot.

16. When the robot displays the **Main Menu** on his chest screen, insert the USB drive in his rear panel.

17. Wait for the robot to speak his IP address.

18. Remove the USB Drive.

19. The robot will now connect to the network.

20. This should complete the process. If it doesn't work, please give us a call at **1-800-494-1206**, Option 4.

NOTE: The robot must be fully booted before plugging in the USB stick. If the USB stick is plugged in while the robot is powered off or in the process of booting up, the network will not be reconfigured.

Local Network

Some networks block wireless devices from communicating with each other directly, and this feature may need to be turned off.

Required
Protocol: TCP
Ports: 80, 8080

Optional
Protocol: UDP
Port 1900

Remote Network

The robot connects via secure HTTPS to several RoboKind® web sites in normal operation, to receive software updates, and to synchronize student data and lesson progress.

It is recommended to whitelist all robokind.us domains in your web filter. In some cases this is done just by listing "robokind.us", which will apply to all domains ending in .robokind.us; other devices require specifying "*.robokind.us". Consult the documentation for your web filter device.

Where not possible, the current domains can be white-listed separately:

downloads.robokind.us
auth.robokind.us
data.robokind.us
cdn-api.robokind.us
d23kggeguwanja.cloudfront.net

cypress.robokind.us
Protocol: UDP
Port: 1194
IP address: 72.249.182.162

Some of the robot's advanced troubleshooting and support features require the ability to connect to a separate Internet server via a different protocol and port. Allowing this access often requires a change on a router or firewall, which may be a different device than your web filter.

(Blocking this connection may interfere with the operation of the robots4STEM® program as well as hinder our ability to provide support.)

End of Guide