VEX Tournament Manager
Raspberry Pi WiFi Support Beta

Setup Instructions

Using WiFi on a Raspberry Pi running Tournament Manager is considered to be **a beta-quality feature at this time**. By choosing to enable WiFi on your Raspberry Pi you recognize that this is not an officially supported feature. Ensure that any Raspberry Pis that you plan to use wirelessly have sufficient signal strength. We still recommend using a hard-wired ethernet cable when possible.

If you encounter questions or issues, please post a thread in the Tournament Manager section of VEXForum.com. Do not contact your REC Foundation Regional Support Manager for assistance.

Please do not use this feature at an official event unless you are comfortable with the risks and tradeoffs.

NOTE:	The Raspberry Pi 3B+ is the only supported model at this time. Running the Pi wirelessly requires a 5GHz WiFi network and older Pi models do not support 5GHz. Also, the new 3A+ is not supported at this time but may be in a future update. This configuration will not permit a Raspberry Pi to connect to a 2.4GHz wireless network - the network must support 5GHz.

Step 1:   Establish an ethernet connection to the Raspberry Pi

In order to configure wireless support on the Raspberry Pi Tournament Manager image at this time, you must first connect the Pi using an ethernet connection so that it can be accessed by a computer. This can be done by plugging your Raspberry Pi into an ethernet network that your computer has access to. Alternately, you can connect an ethernet cable directly between a computer and the Raspberry Pi device.

NOTE:	We plan to implement configuration options in the future such that an ethernet connection will not be required to configure wireless support on the Pi.

Step 2:   Open the WiFi configuration page

Connect power and an HDMI display to your Raspberry Pi if you haven't already done so. Wait until the Pi has completely started. The Pi will display an IP address on its screen below the VEX Robotics logo.

Using a web browser on your computer, type in the following web address:

```
http://<Raspberry Pi IP Address>/wifi
```

For example, if your Raspberry Pi is displaying an address of 192.168.1.5, you would enter this address in your browser:

> http://192.168.1.5/wifi

The following configuration page will appear:

WiFi Configuration

WiFi SSID   [WiFi SSID]

WiFi
Passphrase   [WiFi Passphrase]

[Save]

WiFi Status

```
wlan0     IEEE 802.11  ESSID:off/any
          Mode:Managed  Access Point: Not-Associated
          Retry short limit:7    RTS thr:off    Fragment thr:off
          Encryption key:off
          Power Management:on

3: wlan0: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN group default qlen 1000
    link/ether b8:27:eb:1b:dc:09 brd ff:ff:ff:ff:ff:ff
```

Step 3:   Enter WiFi credentials

Enter your WiFi SSID and passphrase into the configuration page and click "Save." Note that this feature will only work with pre-shared passwords. WPA Enterprise/WPA2 Enterprise mode is not supported at this time.

Your WiFi configuration will be saved even if the Raspberry Pi is powered off. Thus, you can configure your Pis before deploying them around the venue if you choose.

Step 4: Verify configuration and signal strength

The Pi will attempt to connect to your wireless network as soon as you click Save. The WiFi configuration page will refresh periodically to show updated status. You can look in the Status area for the "Link Quality" parameter to get an understanding of your signal strength.

> **NOTE:** The Pi will only show one IP address on the HDMI screen. If an ethernet connection is present and the Pi has received an IP address on that connection, it will be shown by default. The WIFI IP address will be shown only if an IP address is not available on the ethernet connection.

WiFi Configuration

WiFi SSID	pier13
WiFi Passphrase	WiFi Passphrase

Save

WiFi Status

```
wlan0     IEEE 802.11  ESSID:"pier13"
          Mode:Managed  Frequency:5.18 GHz  Access Point: 82:2A:A8:95:9C:5F
          Bit Rate=200 Mb/s   Tx-Power=31 dBm
          Retry short limit:7   RTS thr:off    Fragment thr:off
          Encryption key:off
          Power Management:on
          Link Quality=70/70  Signal level=-27 dBm
          Rx invalid nwid:0  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

3: wlan0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qle
    link/ether b8:27:eb:cd:bc:31 brd ff:ff:ff:ff:ff:ff
    inet 10.5.60.100/24 brd 10.5.60.255 scope global wlan0
       valid_lft forever preferred_lft forever
    inet6 2601:246:4902:d910:ba27:ebff:fecd:bc31/64 scope global mngtmpaddr dynamic
       valid_lft 2591975sec preferred_lft 604775sec
    inet6 fe80::ba27:ebff:fecd:bc31/64 scope link
       valid_lft forever preferred_lft forever
```