Establishing a VEXnet Link Setup Guide

In this document, you will learn how to pair a VEX Cortex Microcontroller to a VEXnet Remote Control, allowing them to communicate over VEXnet. This document assumes that you have already updated the master firmware on the VEX Cortex and VEXnet Remote Control.

VEXnet is an 802.11 WiFi communication system between the VEX Cortex and VEXnet Remote Control.

VEXnet features include:
- Easy to connect (No IP addresses, MAC addresses, passwords, or special security modes)
- Multiple layers of security built-in and always on
- No wireless access point needed; each VEXnet pair makes its own private network
- Hundreds of robots can operate at once; every VEXnet robot has a hidden unique ID
- Optional tether for wired communication
- Optional 9V battery backup to maintain wireless link during a main 7.2V power loss
- LED scheme displays the status of the Robot, VEXnet link, and Game (Competition Mode)

1. Begin by connecting both the Cortex and VEXnet Remote Control to charged batteries.
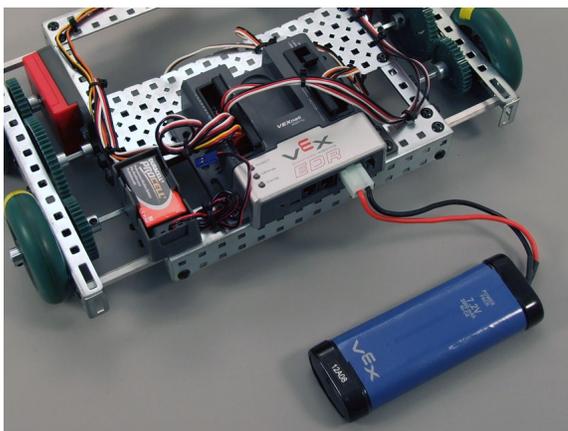
1a. Connect a Battery to the Cortex
Connect a 7.2V robot battery to the Cortex, but do not power it ON.

1b. Install Batteries in the VEXnet Remote Control
Remove the battery cover plate on the remote control. Install 6 AAA batteries, and replace the battery cover plate. Do not power the remote control ON.

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2. Tether the USB port on the VEXnet Remote Control to the USB port on the Cortex using a USB A-to-A cable.

2a. VEXnet Remote Control USB Port
Plug one end of the USB A-to-A cable into the USB port on the VEXnet Remote Control.

2b. VEX Cortex USB Port
Plug the other end of the USB A-to-A cable into the USB port on the VEX Cortex.

3. Power the Cortex ON. After a few seconds, ROBOT and VEXnet LEDs will blink green, indicating that the Cortex and VEXnet Remote Control have successfully paired.

3a. Turn the Cortex ON

3b. Status LEDs
The ROBOT and VEXnet LEDs will blink green once the Cortex and VEXnet Remote Control have successfully paired.

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4. Turn the Cortex OFF.

5. Remove the USB A-to-A cable from the VEXnet Remote Control and Cortex.
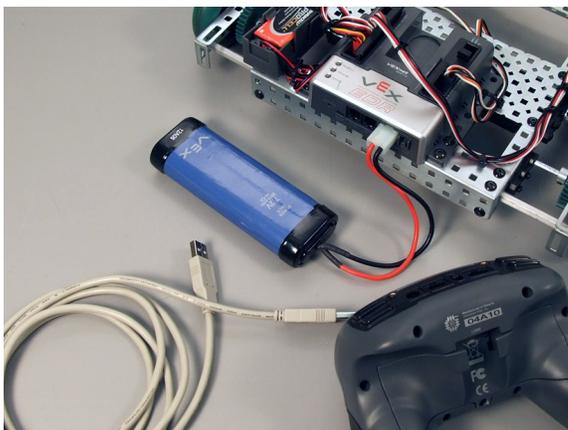
6. Insert VEXnet USB Keys into both the VEXnet Remote Control and Cortex.
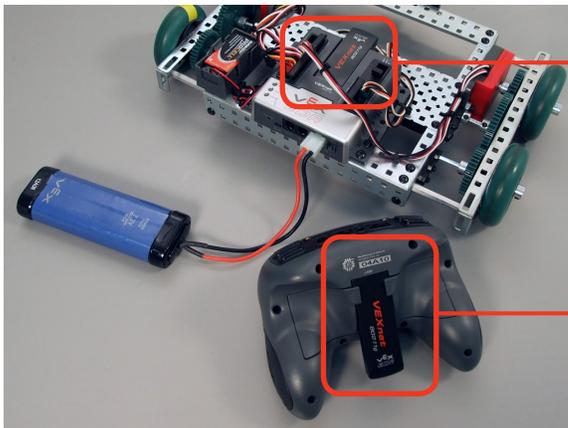
6. *VEXnet USB Keys*
Insert VEXnet USB Keys into the
VEXnet Remote Control and Cortex.

Note:
It does not matter which VEXnet USB Key you insert into the Cortex versus the VEXnet Remote Control. Pairing the Cortex and VEXnet Remote Control establishes the link; the VEXnet USB Keys act as antennas for the link.

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7. Power the Cortex and Remote Control ON. After roughly 15 seconds, the ROBOT and VEXnet LED's will blink green, indicating that the VEXnet communication link has been established.

7a. Turn the Cortex ON

7b. Turn the VEXnet Remote Control ON

7c. Status LEDs
After roughly 10 seconds, the ROBOT and VEXnet status LEDs will start blinking green. With the VEXnet link established, you should power OFF your Cortex and VEXnet Remote Control to preserve battery.

Establishing a VEXnet Link Setup Guide *(cont.)*

> ⚠️ **Troubleshooting**
>
> **Issue:** Slow blinking green ROBOT light on the Cortex
> **Solution:** Download the Cortex Master Firmware using ROBOTC.
>
> **Issue:** Slow blinking ROBOT green light on the VEXnet Remote Control
> **Solution:** Push and hold CONFIG button for about 5 seconds, until the status LEDs starts blinking green. Release it, wait for another 5 seconds, and then turn the VEXnet Remote Control OFF and then back ON. If that fails, download the VEXnet Joystick Firmware using ROBOTC.
>
> **Issue:** Yellow or red ROBOT light on the Cortex
> **Solution:** Make sure you are using fully charged Robot battery.
>
> **Issue:** Yellow or red ROBOT light on the VEXnet Remote Control, even though they are both green on the Cortex.
> **Solution:** Power cycle both the VEXnet Remote Control and CORTEX.