



Nurse Call and Emergency System

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1.0 Overview of the MiCare Nurse Call System

The MiCare Nurse Call System is an advanced nurse call solution that couples wireless mesh networking technology with ultrasonic signalling to accurately identify and respond to emergency events. To achieve this, the Nurse Call System uses the highly reliable mesh wireless network. This technology provides a self-forming and self-healing mesh network to route messages to and from the Nurse Call System Central Server.

There are 4 types of devices that make up the Nurse Call System: Coordinator Bundles, Routers, End Devices, and the Central Server. In addition, there is a Web site called the Dashboard.

1.1 Coordinator Bundles

Coordinator bundles connect to the Nurse Call System Central server through a USB connection or through a USB to Ethernet converter. They transport messages between the Central server and the routers on the wireless network. Coordinator Bundles and the Central Server are usually installed in a server room.



Figure 1 NC-2100K (1U version)

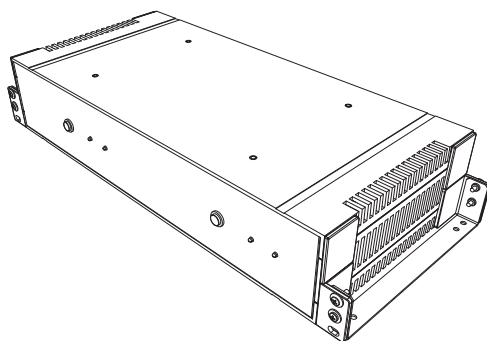


Figure 2 NC-2100K (2U version)

1.2 Routers

Routers communicate with the Central server through the coordinators on the Nurse Call System. Routers also listen for messages from end devices on the system, which they then pass on to the Central server. Finally, routers come with ultrasound transmitters that are used to locate portable MiCare end devices.



Figure 3 NC-2000 Coordinator



Figure 4 NC-210 Beacon

1.3 End Devices

End devices send messages about their status wirelessly to the mesh network. They do not communicate directly with the Central server. Their messages are instead passed on to the Central server through a router on the network.



Figure 5 NC-500 Pendant



Figure 6 NC-103 Pull Station



Figure 7 NC-220 ZF3

1.4 Central Server

The Central Server is a computer running Windows Server 2012 or 2016 that is used to configure and manage the MiCare system. It provides notifications, global and customizable rules, and reporting. Coordinator Bundles and the Central Server are usually installed in a server room.

1.5 Dashboard

The Central Server runs a web enabled application called the Dashboard. Any web enabled device, mobile or fixed, can interact with the Dashboard to display alerts and manage any part of the system. The Dashboard has easy to read audible and visual indicators for every alert type. Speakers **must** be installed on all computers running the Dashboard.

1.6 Sample Wiring Diagrams

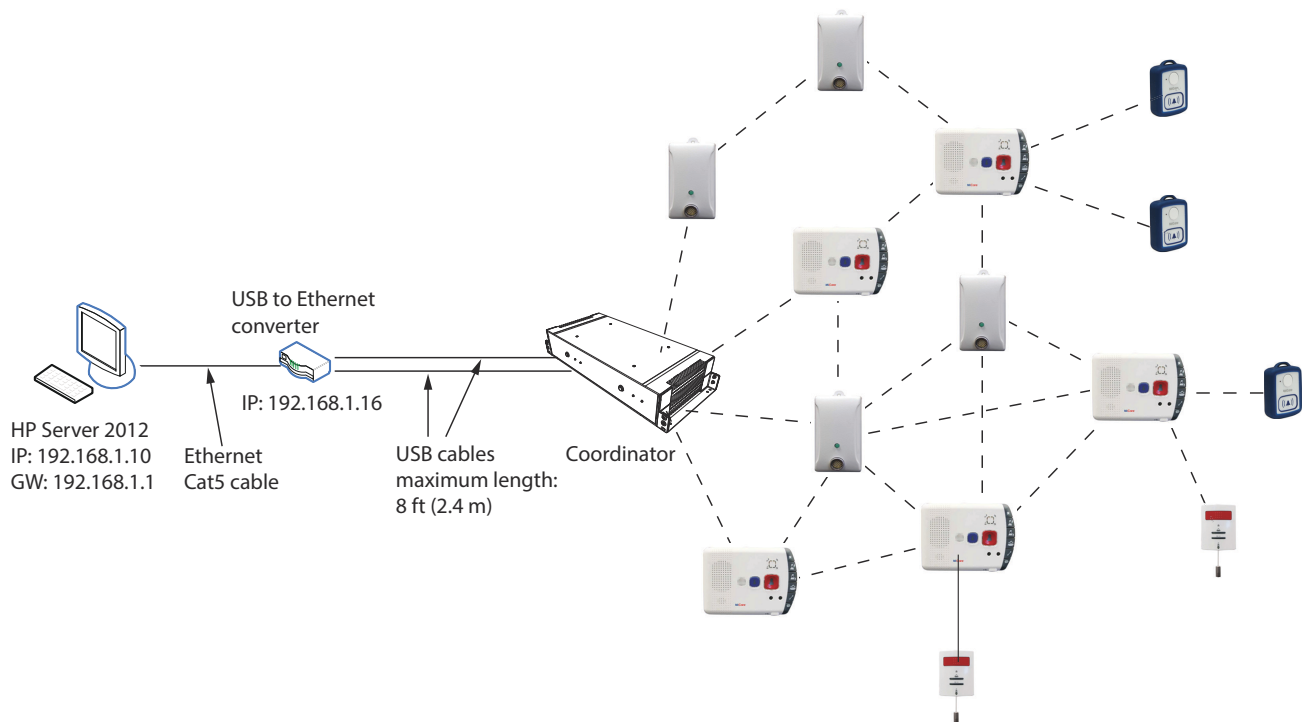


Figure 8 Example Wiring Diagram

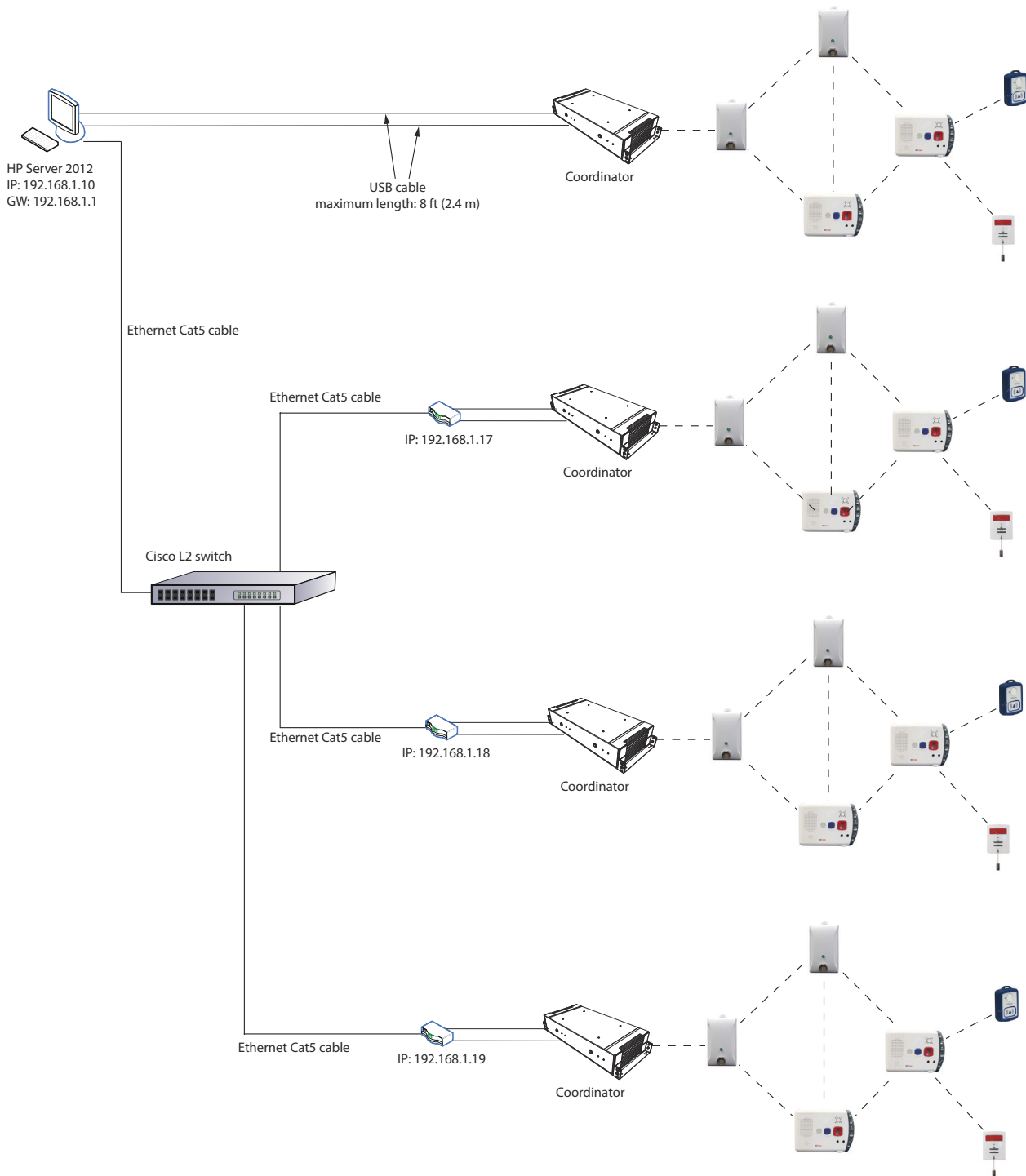


Figure 9 Example Wiring Diagram showing an NC-2100K on each floor

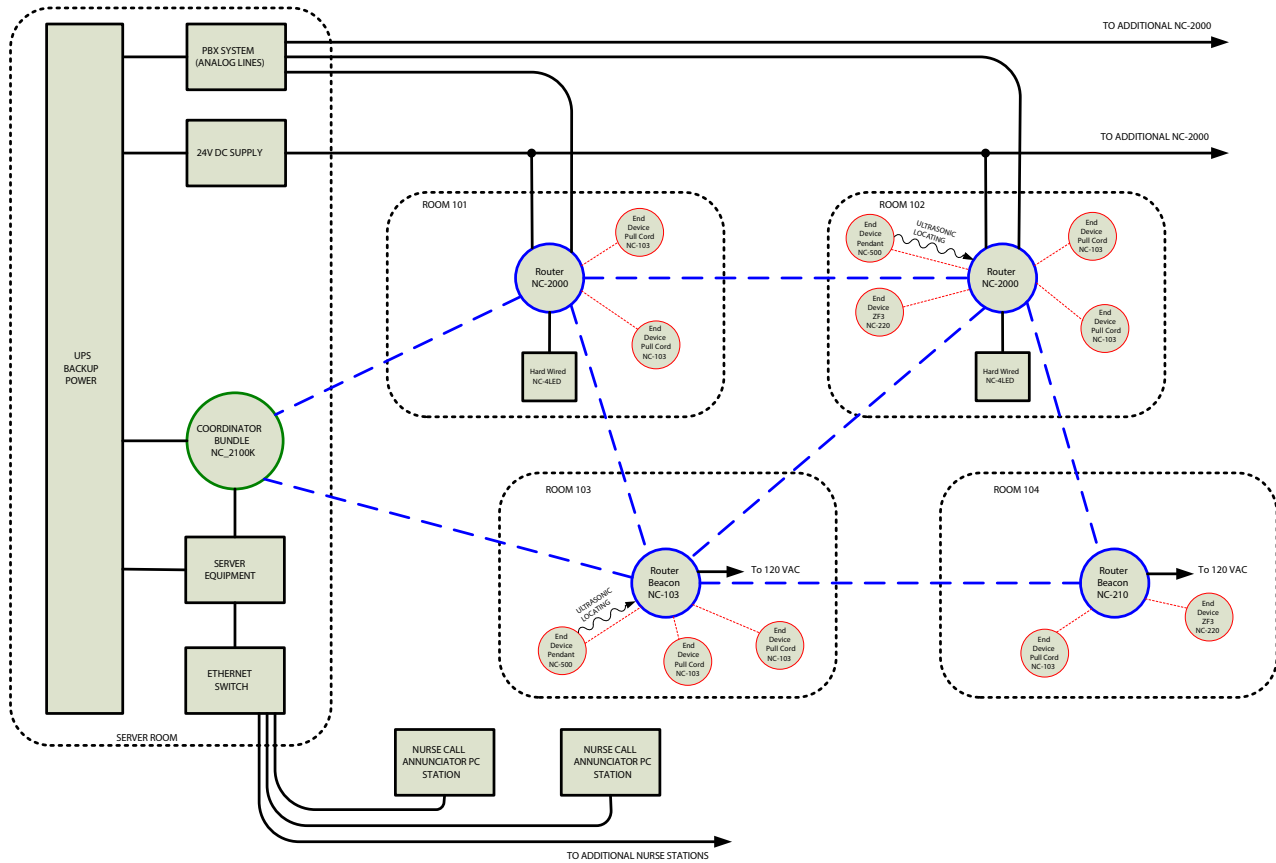


Figure 10 Functional Block Diagram of MiCare System

2.0 Cable and Placing Requirements

2.1 Maximum Power Supply Wire Distances

Do not exceed the maximum distances from the MiCare device to the power supply as indicated in Table 1.

Table 1 Maximum Power Supply Wire Distances

Gauge	Distance
16	38.1 m (125 ft)
14	60.96 m (200 ft)
12	97.536 m (320 ft)
10	152.4 m (500 ft)



Note: Run power and phone lines separately. Do not put the wires for power and phone in the same cable jacket.

2.2 Phone Lines

Use shielded Category 5e cable for phone lines. Terminate with RJ-11 connectors.

2.3 Recommended Mounting Heights for Wireless Devices

- NC-2000 and NC-103: Mount so that the center of the unit is 1219 mm - 1372 mm (48" - 54") from the finished floor.
- NC-103: Mount so that the bottom of pull cord is 153 mm - 305 mm (6" - 12") from the finished floor.
- NC-210: It is preferable to mount beacons at least 1 m (3 ft) above the finished floor.

2.4 Positioning Considerations for Wireless Devices

- Orient each device so that its front is facing the devices that it is communicating with and so that it has line of sight with those devices. For example, orient the Coordinator Bundle so that its front (the side with the LEDs) is facing the other devices in its network.
- Do not install devices close to metal ducts or conduits. Do not install devices near large metal objects like refrigerators.
- Install Coordinators and Coordinator Bundles at least 1 m (3 ft) away from Wi-Fi routers.
- The technician should conduct a site survey to determine the distance between the devices before commissioning.

3.0 Digi AnywhereUSB/2 for Remote NC-2100K Coordinator Bundles

The AnywhereUSB/2 is a USB hub that connects the NC-2100K Coordinator Bundle to the MiCare Server over a local area network.

This chapter explains:

- Connecting AnywhereUSB/2 devices
- Troubleshooting AnywhereUSB/2 devices

3.1 Connecting AnywhereUSB/2 devices

3.1.1 Wire the Devices

1. Connect one end of a standard Ethernet cable to the Ethernet port on the back of the AnywhereUSB/2.
2. Connect the other end to the Ethernet port on a switch.
3. Connect the 2 USB ports on the AnywhereUSB/2 to the USB ports on the NC-2100K with the USB A to B male cables included with the NC-2100K.
4. Connect the power cord for the AnywhereUSB/2 to the power connector on the back of the AnywhereUSB/2.
5. Connect the other end of the power cord to the UPS outlet.

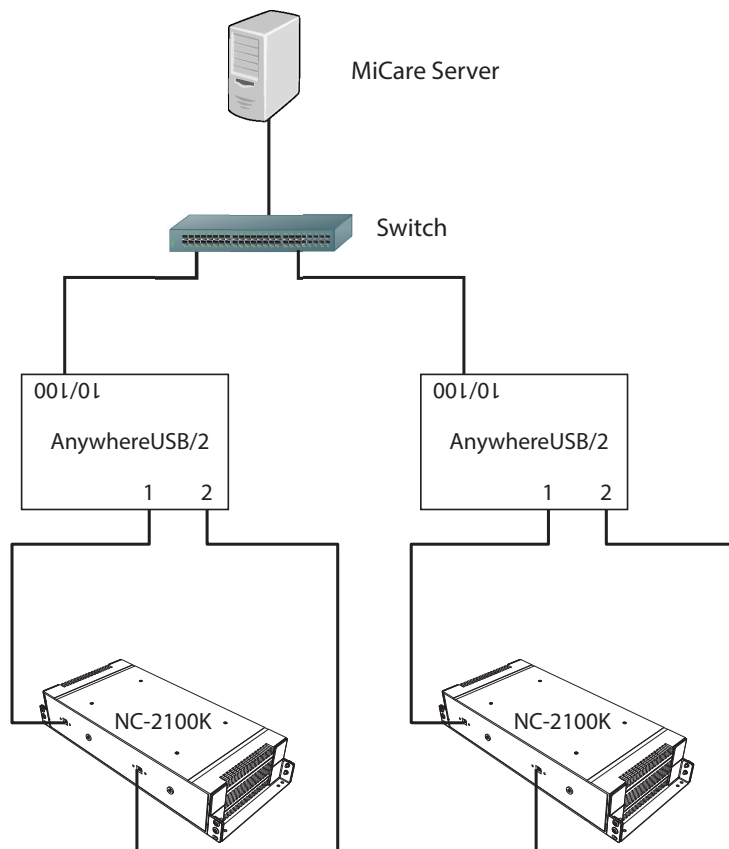


Figure 11 Wiring the AnywhereUSB/2

3.1.2 Download and Install the Software

1. On the MiCare Server, disable unused Ethernet ports in the adapter settings of Network & Internet Setting in the Control Panel.

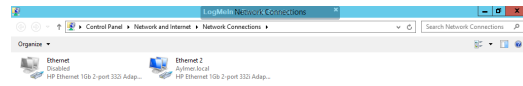


Figure 12 Windows Network Connections

2. Visit this web page:
<http://www.digi.com/support/product-support>
3. Click **Drivers**, and then search for **AnywhereUSB**.
4. Download the **AnywhereUSB/2 driver** software for your operating system.

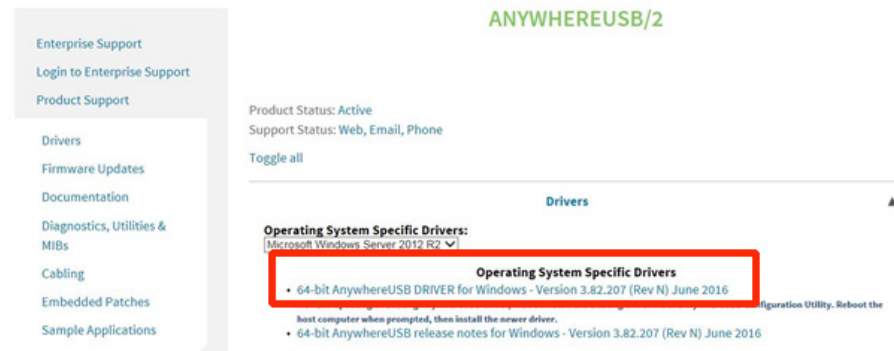


Figure 13 AnywhereUSB/2 Website

5. Run the installer that you downloaded.
6. Follow the instructions to install the AnywhereUSB driver software.

After installation is complete, the **AnywhereUSB Remote Hub Configuration Utility** opens.

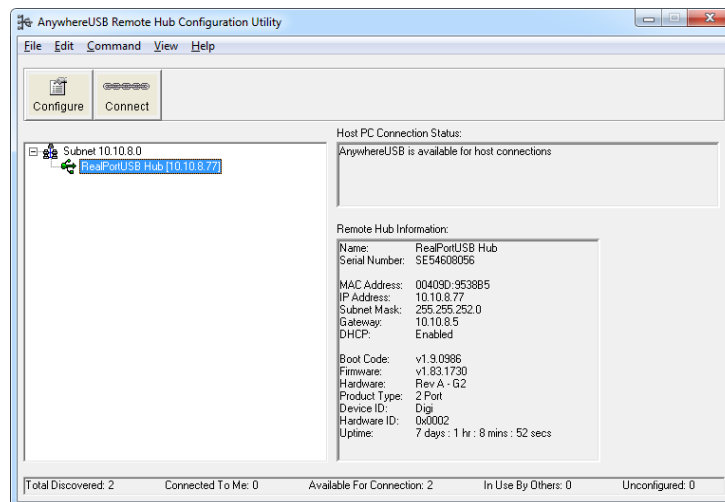


Figure 14 AnywhereUSB Remote Hub Configuration Utility

3.1.3 Assign a Static IP Address

By default, AnywhereUSB/2 devices use DHCP to obtain IP addresses. You should assign a static IP address to each AnywhereUSB/2 device to make sure the MiCare server always remains connected to the devices.



Note: The facility's IT administrator should provide the IP addresses, subnet mask, and default gateway that you can assign to the AnywhereUSB/2 devices.

1. From the MiCare server, start the **AnywhereUSB Remote Hub Configuration Utility**.
2. Right-click your AnywhereUSB device in the list and select **Web UI** (or click **Command > Web UI**).
A web browser opens.
3. Select **Network** in the left column.

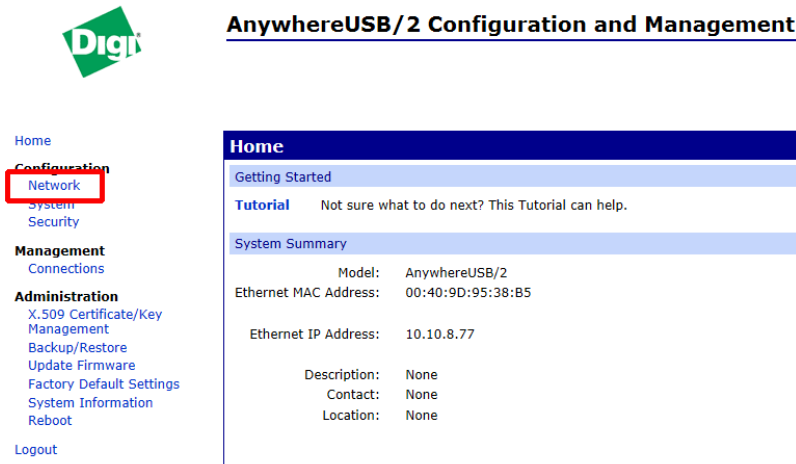


Figure 15 Web UI

4. Unselect **Enable AutoIP address assignment**.

5. Select **Use the following IP address**, and enter the IP Address, Subnet Mask, and Default Gateway for this AnywhereUSB/2 device.

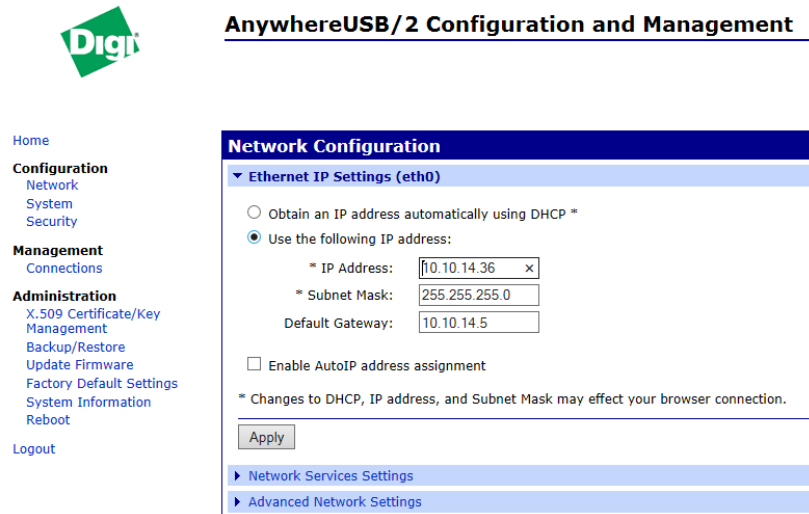


Figure 16 Assign a static IP address

6. Click **Apply**.

3.2 Troubleshooting AnywhereUSB/2 devices

When there is a problem with the Coordinator Bundles, check the Digi AnywhereUSB/2 devices first.

3.2.1 Check the LEDs

The AnywhereUSB/2 device has 3 LEDs. During normal operation, the 2 USB LEDs are solid, and the System Status LED is blinking steadily. If one of the USB LEDs is not on, then the AnywhereUSB/2 has lost contact with the Coordinator Bundle.

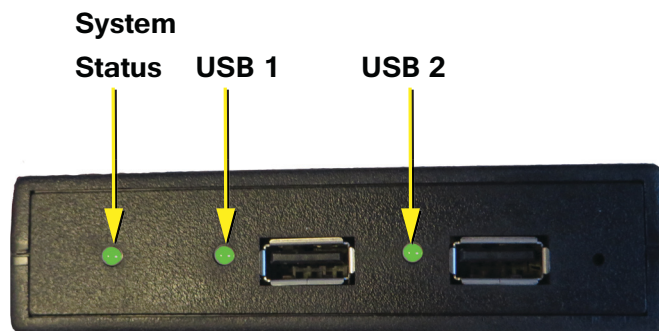


Figure 17 Digi AnywhereUSB/2 LEDs

3.2.2 Find the AnywhereUSB/2 device on the network

Start the AnywhereUSB Remote Hub Configuration Utility to determine whether the AnywhereUSB/2 device is on the network and configured properly.

If the AnywhereUSB Remote Hub Configuration Utility cannot find the device, then the device may have lost its IP address. Follow these instructions to use the Digi Device Discovery application to find and configure the device.

1. On the MiCare Server, visit this web page:
<http://www.digi.com/support/product-support>
2. Click **Diagnostics**, and then search for **Device Discovery**.
3. Download and run the Device Discovery Utility for your operating system.

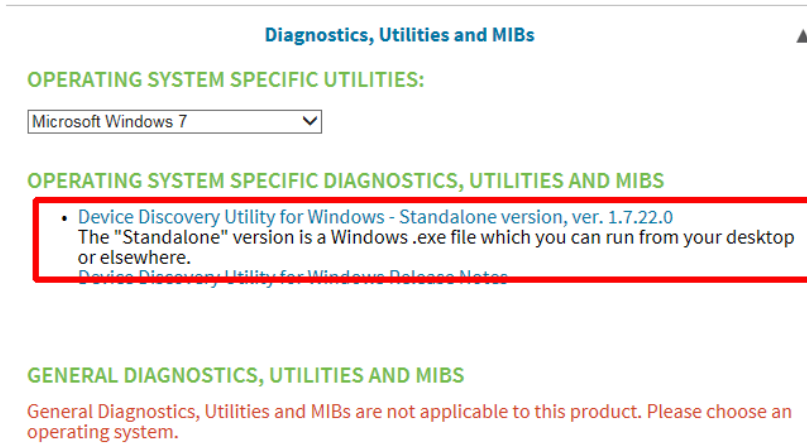


Figure 18 AnywhereUSB/2 Website

4. In the Digi Device Discovery window, locate the AnywhereUSB/2 device's MAC address. The device's MAC address is printed on the device's label.

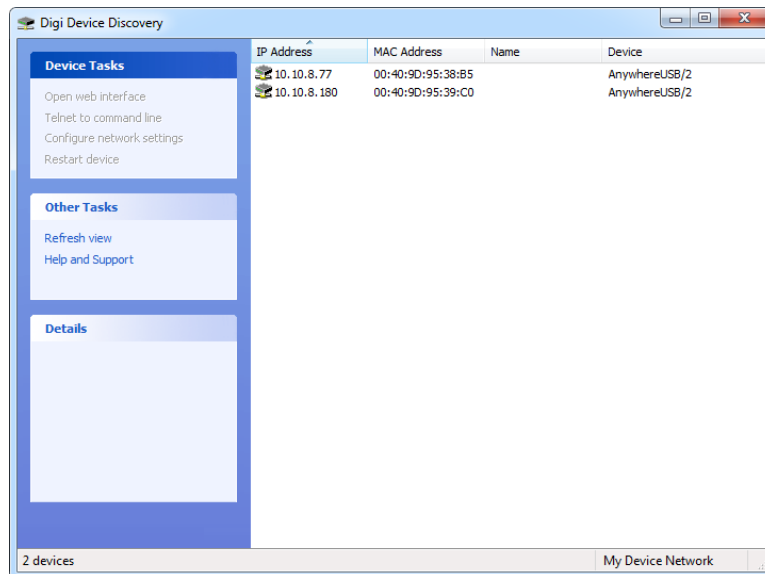


Figure 19 Digi Device Discovery

5. Right-click your AnywhereUSB device in the list and select **Open web interface**.
6. Follow the instructions starting at step 3 on page 14 to assign the correct IP Address, Subnet Mask, and Default Gateway to the device.

4.0 Contact Us

4.1 Customer Service

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Toll Free: 1-888-660-4655

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4.2 Website

www.mircom.com

4.3 Email

mail@mircom.com

4.4 Technical Support

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