Chapter 1: Configure the ControlSpace Designer network

This chapter covers how to configure the network connections to establish your ControlSpace Designer network, and how to update the firmware for the ESP-88, CC-64, and CC-16. A ControlSpace ESP-88 system always includes at least one ESP-88 Engineered Sound Processor, and may include one or more CC-64 Control Centers, and CC-16 Zone Controllers. You will need a computer running ControlSpace Designer software to connect to and configure the ControlSpace Designer network.

Ethernet connections

The method of communication between the ESP-88, CC-64, and your computer is 10Base-T Ethernet. You can connect your computer directly to a single ESP-88, or you can set up a network between your computer, the ESP-88 and the CC-64 using an Ethernet hub.

Connect to one ESP-88

To connect your computer directly to a single ESP-88, use the included Ethernet crossover cable to connect the Ethernet port on your computer to the LAN port on the back of the ESP-88. This crossover cable is only used when connecting your computer *directly* to the ESP-88, without using an Ethernet hub. The crossover cable has a “crossover” label near the connector end. You should see the **Ethernet** LED on the front panel of the ESP-88 turn green. If it does not, check to make sure your cable connections are secure, and that you are using a crossover type cable.

Connect to multiple ESP-88s and CC-64s using an Ethernet hub

To connect your computer to two or more ESP-88s, or to an ESP-88 and one or more CC-64s, you will need to use an Ethernet hub. The hub can be either a switch or repeater-type hub. Using standard straight-through CAT-5 cables, connect your computer, ESP-88s, and CC-64s to the Ethernet hub.

Tip: Some Ethernet hubs support Auto-MDX specifications, which allows the use of either crossover or straight-through cables.

Change your computer's network settings

Follow these steps to configure the TCP/IP network settings on your computer for the local network (the steps are shown in Windows XP):

1. Go to **Start** > **Control Panel.**
2. Open the **Network Connections** control panel.

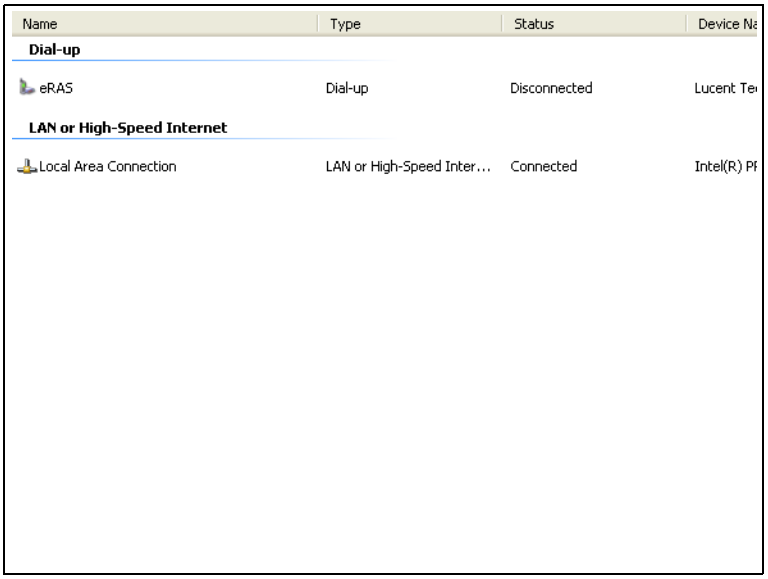


Figure 1.1 - ***Network Connections*** *control panel*

3. Right click on **Local Area Connection** and choose **Properties.**

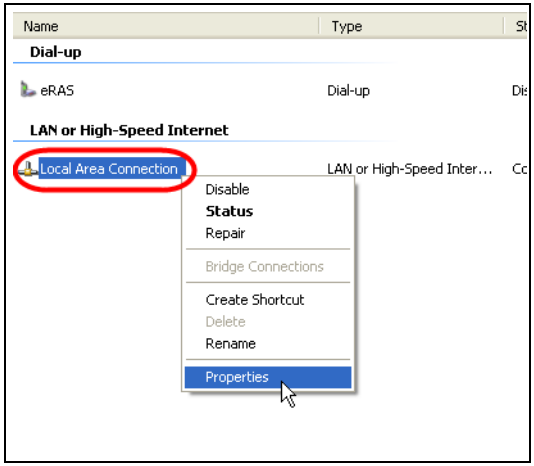


Figure 1.2 - Choose Local Area Connection Properties

The **Local Area Connection Properties** window opens:

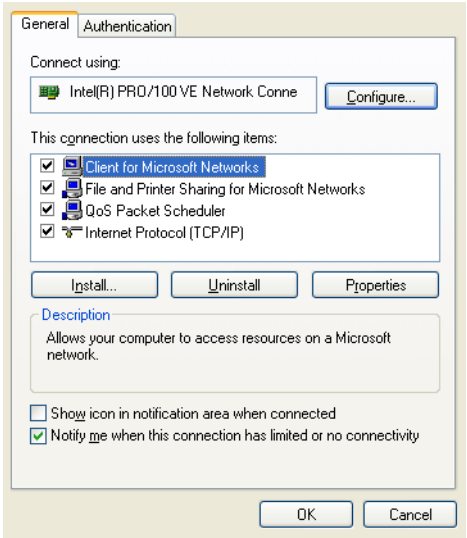


*Figure 1.3 - **Local Area Connection Properties** window*

4. Select **Internet Protocol (TCP/IP)** and press the **Properties** button.

   The **Internet Protocol (TCP/IP) Properties** window opens.

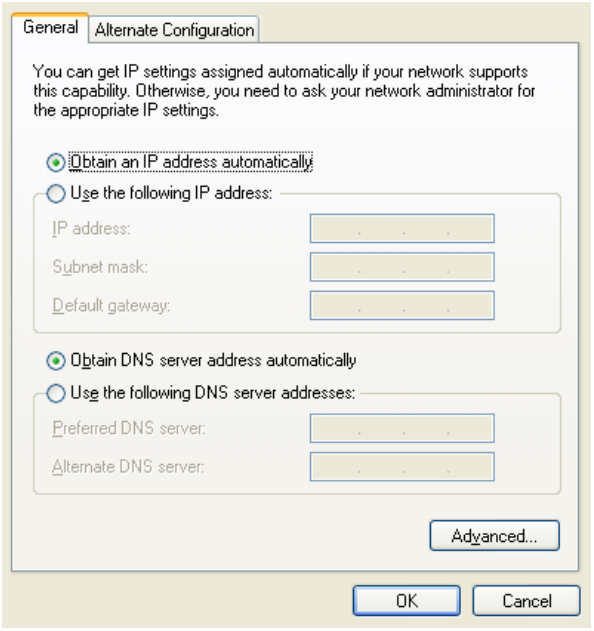


*Figure 1.4 - **TCP/IP Properties** window*

5. Click on the **Use the following IP address** button to specify an IP address for your network adapter. In the IP address field, type in the following IP address: **192.168.0.88**

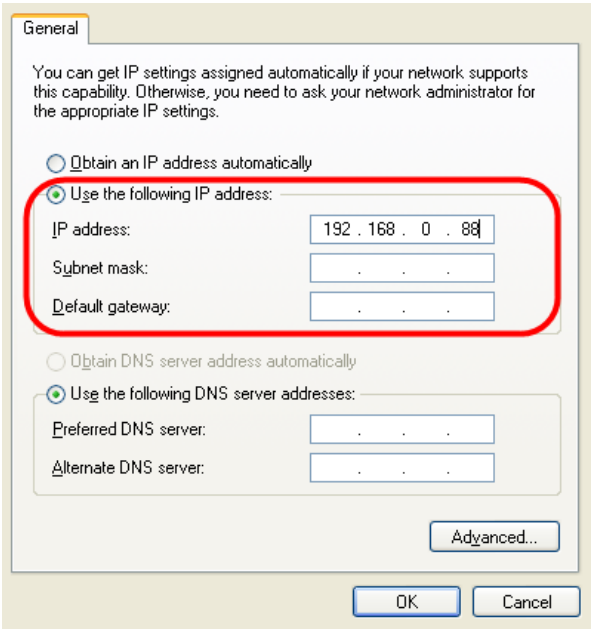


Figure 1.5 - Type in the IP address

Note: **We recommend using the IP address 192.168.0.88 for your computer to avoid conflicts with other network devices such as Ethernet routers. Do not use 192.168.0.160 through .255 for your computer's IP address as these addresses are reserved for ControlSpace devices.**

6. After entering the IP address, press the **Tab** key, and the **Subnet mask** is automatically filled in:

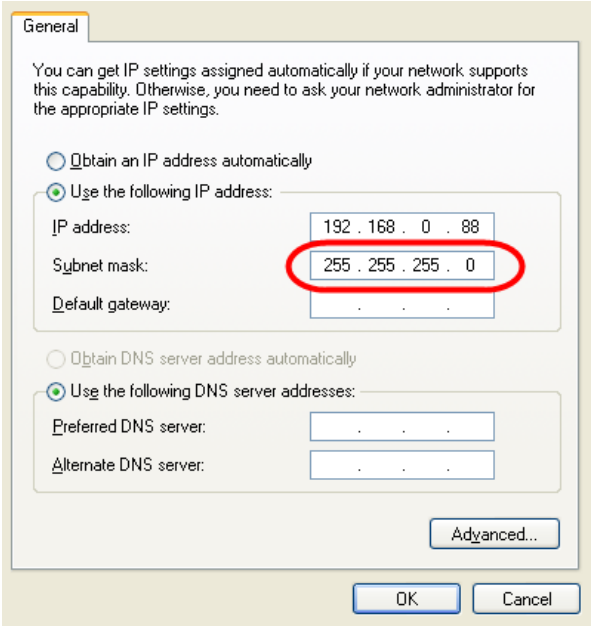


Figure 1.6 - Subnet mask is filled in

7. Press **OK** in the **TCP/IP Properties** window, then press **OK** again in the **Local Area Connection Properties** window to effect the change to your network settings.

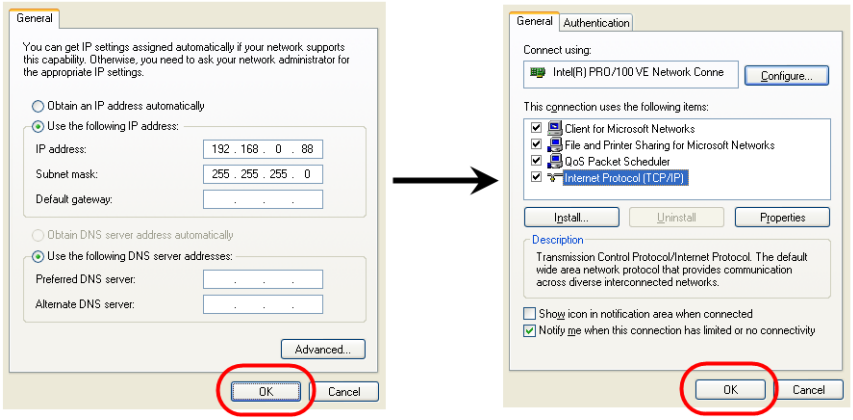


Figure 1.7 - Press OK in both windows to effect changes

Note: You must press OK in both the TCP/IP Properties window AND the Local Area Connection Properties window to effect your IP address change.

If you are using at most one ESP-88 and one CC-64, you can now plug the ControlSpace hardware devices and your computer into the Ethernet hub to create your local network. If you are using more than one ESP-88 or more than one CC-64, you must properly set the hardware IP addresses before plugging all the ControlSpace hardware devices into the Ethernet hub to prevent a conflict. See *Using more than one ESP-88* in the next section for more information.

IP addresses

ControlSpace Designer software uses Internet Protocol (IP) addresses to identify the ESP-88s and CC-64s in your network. Each computer, ESP-88 and CC-64 must have a unique IP address in your ControlSpace Designer network.

Use more than one ESP-88

Each ESP-88 is shipped with the IP address set to 192.168.0.160. If you are using more than one ESP-88 you will need to change the IP address of the additional ESP-88s to avoid a conflict (for example, to 192.168.0.161). Follow these steps to set IP addresses when connecting multiple ESP-88s to your local network:

1. Connect the first ESP-88 to the Ethernet hub.
2. Launch ControlSpace Designer software and choose **System** > **Network Setup** to open the **Network Setup** window.

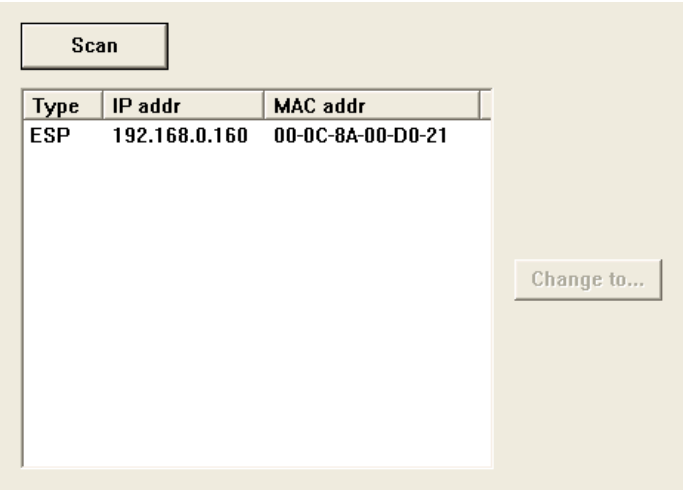


*Figure 1.8 - **Network Setup** window*

   If your ESP-88 does not appear in the **Network Setup** window, check the cable connection and press the **Scan** button.

3. Select the ESP-88 and press the **Change to...** button to change the IP address of the connected ESP-88. The **Address setting** window opens. Each ESP-88 must have a unique IP address in your local network. You must change the IP address of this first ESP-88 so there are no conflicts when you connect the next ESP-88 (which also has a default IP address of 192.168.0.160).

Note: **When using two ESP-88s, you must change the IP address of the first ESP-88 that you connect so that there are no conflicts when you connect the next ESP-88 (each ESP-88 is shipped with the same default IP address).**

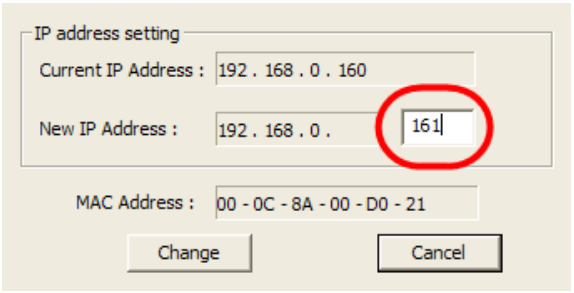


*Figure 1.9 - Change IP address in the **Address setting** window*

Type 161 for the last three digits of the **New IP Address**, and press **Change**.

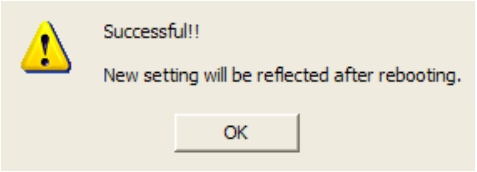


Figure 1.10 - Successful IP address change dialog

You will see a dialog indicating a successful IP address change.

4. Power cycle the ESP-88 for the setting to take effect.
5. Connect the second ESP-88 to your Ethernet hub. This ESP-88 has an IP address ending in 160, so it will not conflict with the first ESP-88 that you connected, which now has an IP address ending in 161.

Use more than one CC-64

Each CC-64 is shipped with the IP address set to 192.168.0.176. As with the ESP-88, if you are using more than one CC-64 you will need to change the IP address of the additional CC-64s to avoid a conflict (for example, to 192.168.0.177). Follow these steps to set IP addresses when connecting multiple CC-64s to your local network:

1. Connect the first CC-64 to the Ethernet hub.

2. Launch ControlSpace Designer software and choose **System** > **Network Setup** to open the **Network Setup** window.

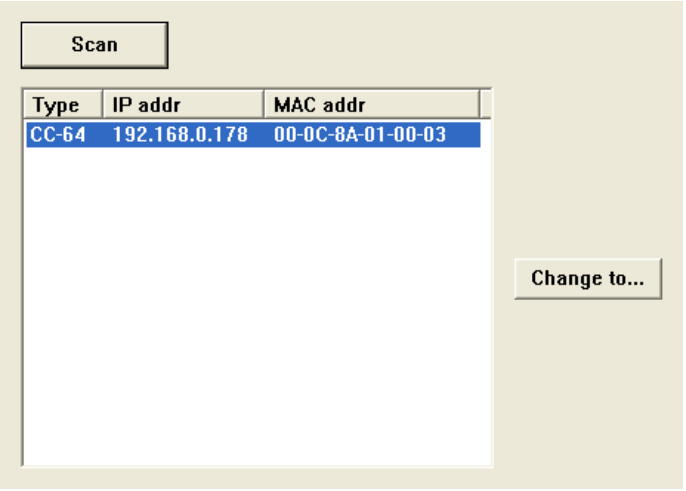


*Figure 1.11 - **Network Setup** window*

3. Select the CC-64 and press the **Change to...** button to change the IP address of the connected CC-64. The **Address setting** window opens. Each CC-64 must have a unique IP address in your local network. You must change the IP address of this first CC-64 so there are no conflicts when you connect the next CC-64 (which also has a default IP address of 192.168.0.176).

Note: **When using two CC-64s, you must change the IP address of the first CC-64 that you connect so that there are no conflicts when you connect the next CC-64 (each CC-64 is shipped with the same default IP address).**

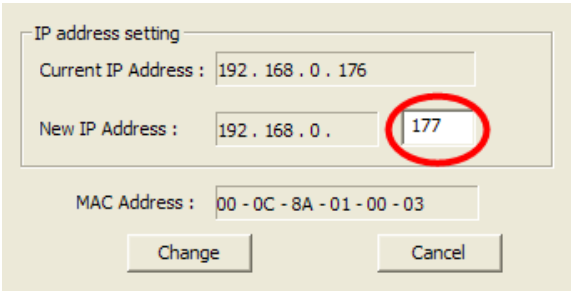


*Figure 1.12 - Change IP address in the **Address setting** window*

Type 177 for the last three digits of the **New IP Address**, and press **Change**.

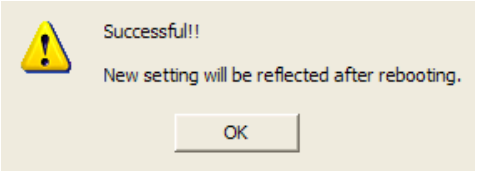


Figure 1.13 - Successful IP address change dialog

You will see a dialog indicating a successful IP address change.

4. Press OK to reboot the CC-64.
5. After reboot, connect the second CC-64 to your Ethernet hub. This CC-64 has an IP address ending in 176, so it will not conflict with the first CC-64 that you connected, which now has an IP address ending in 177.

Use scan

The **Scan** button in ControlSpace Designer software can be used to detect hardware on your local network.

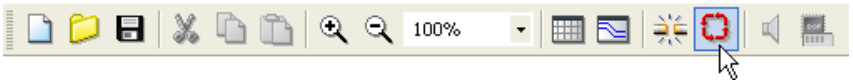


*Figure 1.14 - **Scan** button*

Note: You should open a new project before using the Scan button. If you press the Scan button with an existing project open, you may experience a conflict that could change your system design configuration.

Do not press the **Scan** button while you have an existing project open. This may result in a conflict that can cause a change in your system design configuration. Scan should be used with a blank new project only, as a means to identify what hardware exists on the local network. When ControlSpace Designer software completes the scan, the **Project View** is automatically populated with the ESP-88s, CC-64s, and CC-16s that are properly connected in your local network.

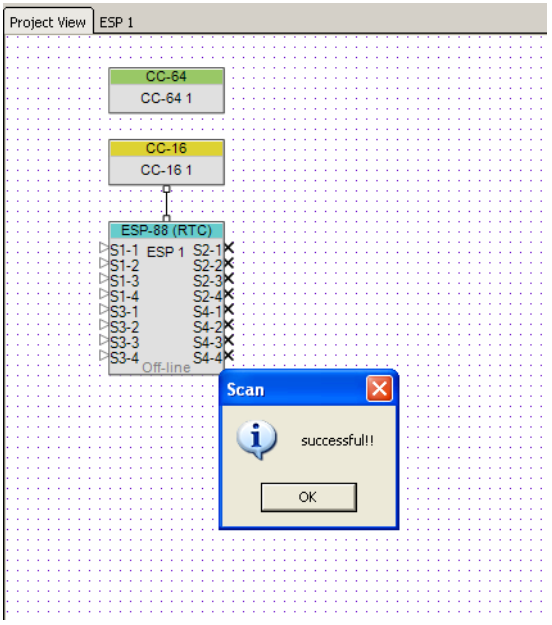


*Figure 1.15 - After a scan, **Project View** shows the connected hardware*

To view the IP address of an ESP-88 or CC-64, simply hold the mouse cursor over the icon in **Project View**.

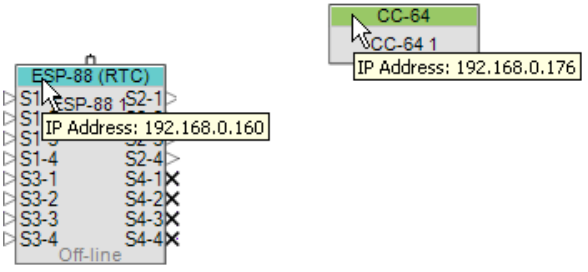


Figure 1.16 - Hold the cursor over an icon to view the IP address

Network setup

To view and change the IP address of a component on your system, choose **System** > **Network Setup** to open the **Network Setup** window.

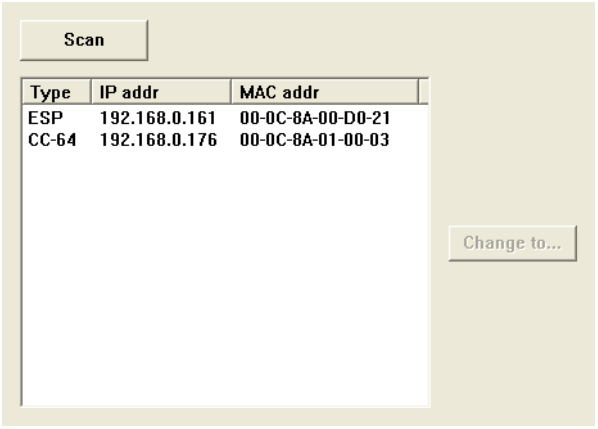


Figure 1.17 - Network Setup window

The network is automatically scanned for all connected hardware. If you change your hardware configuration while the **Network Setup** window is open, press the **Scan** button to refresh the connected components list. Click on a device and press the **Change to...** button to change the IP address of that device. Each ESP-88 and CC-64 in your system must have a unique IP address. Use the following IP addresses for the ESP-88 and CC-64:

- **ESP-88** - 192.168.0.**160** through **.175**
- **CC- 64** - 192.168.0.**176** through **.207**

Note: You must use IP addresses within the above ranges, or the hardware device will not be found on the network.

Device firmware

The ESP-88, CC-64, and CC-16 require firmware to control their operation. Firmware is programming that is stored in Flash memory and is not erased when the power is turned off. On occasion, it is necessary to update this firmware to fix problems or improve features. This section describes how to update the firmware using ControlSpace Designer software.

Update firmware

To update firmware, you will first need to get the new firmware file. Follow these steps to update the firmware:

1. The latest firmware files can be downloaded at http://pro.bose.com.

   Firmware for the ESP-88 is a **.frm** file.

   Firmware for the CC-64 is a **.mot** file.

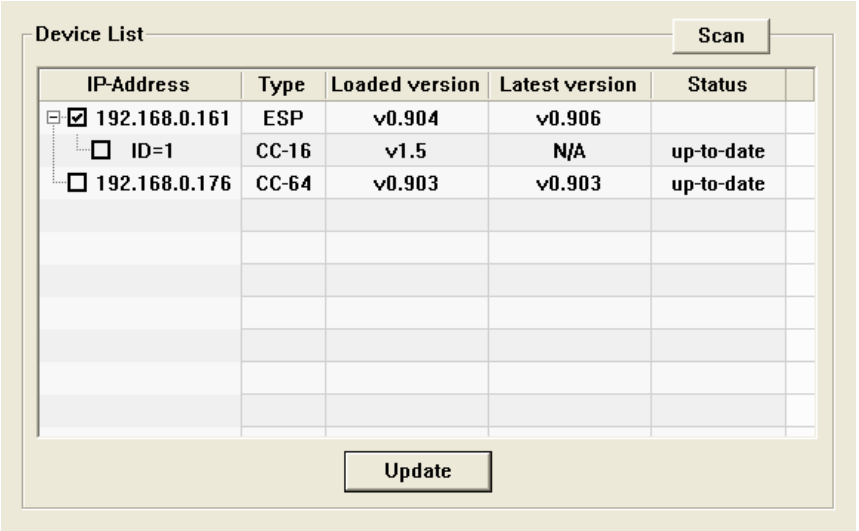
   Firmware for the CC-16 is a **.hex** file.

2. Place the new firmware file into the **bin** folder within the ControlSpace directory on your hard drive. If you installed ControlSpace into the default location, the address for the bin folder is ***C:\Program Files\Bose\ControlSpace\bin***.

3. Launch ControlSpace Designer software and connect any ESP-88s and CC-64s to the local network that your computer is connected to.

4. In ControlSpace Designer software, go to **System** > **Update Firmware**.

   The **Firmware update** window opens.



This window lists all connected ESP-88s, CC-64s, and CC-16s. Press the **Scan** button to refresh the list. The new firmware version number (from the file in the bin folder) will show up in the **Latest version** column, and the current firmware version number is displayed in the **Loaded version** column. If your firmware is up-to-date, the loaded and latest versions will be the same, and the status will be **"up-to-date."**

5. Select the devices to update by placing a checkmark in the box next to the IP address. Press the **Update** button to load the new firmware.

6. After updating is complete, click **OK** when you are prompted to reboot all devices.

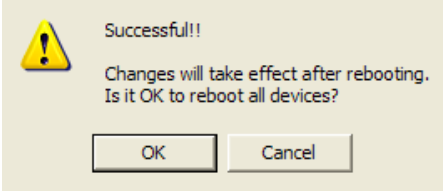


Figure 1.18 - Reboot devices after firmware update

After reboot, the **Firmware Update** window indicates that the update was successful.

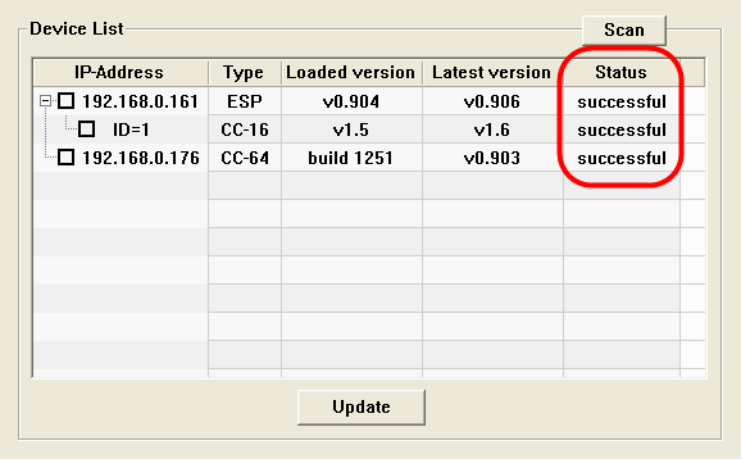


Figure 1.19 - Successful firmware update

Note: **If the ESP-88 does not appear in the Firmware Update window after the firmware update, try power cycling the ESP-88, then press the Scan button in the Firmware Update window.**