

Controlling the Isco CombiFlash[®] Companion[™] without Wires

Introduction

The Isco CombiFlash Companion is controlled through an industry standard interface, 10/100 base T Ethernet. This standard allows the Companion to be used with a wide range of easily available commercial accessories. This technical note discusses some of the considerations necessary to use the Companion with wireless communication products.

Before adding network or communication accessories, be sure to contact your facility's Information Technology (IT) department. There may already be a number of wireless components in use at your facility. It is important that any solutions used for the Companion do not conflict with existing networks. This is true, even if you do not plan on connecting the Companion with your existing networks.

Wireless Communication Considerations

Wireless Technology Compatibility

There are different types of wireless technology available. When selecting a wireless system, all components need to use the compatible technologies. For example, it would be possible to develop a network using 802.11a devices, but an 802.11a network will not allow 802.11b or 802.11g devices to be added later. Carefully plan and select a technology that will support all of the devices that you intend to add.

Interference

Some wireless technologies can be affected by the environment in which it is installed. For example, 802.11b technology shares its 2.4 GHz bandwidth with microwave ovens and cordless telephones. Interference from nearby radio frequency (RF) devices may cause problems for a wireless network.

Range

Wireless technologies also have a range limit, some greater than others. Range can be affected by room layout and building materials. Often this limitation can be overcome by adjusting the placement of the devices, or adding wireless repeaters to extend the usable range.

IP Addresses

The Companion uses TCP/IP to communicate with any networked device. This protocol uses a number sequence called an "IP address" to identify itself in a network. The Companion is shipped with a default IP address of 192.168.1.51. It is important that any Companion placed on a company network or used in a wireless setup has a unique IP address. Your IT department should provide this address.

When connecting the Companion to a nearby PC using wireless technology but not integrating it into any network, it is still important to assign a unique IP address. Likewise, your wireless access point needs a unique IP address. Coordinating with your IT department ensures that the wireless connection will not interfere with an existing or future network in the same area.

Wireless Communication Example

A simple installation demonstrated wireless control of the Companion using a wireless access point and a correctly equipped PC. This installation did not use an existing network. This configuration provided instrument control from anywhere in the lab within 100 to 150 feet from the Companion (see figure 1).

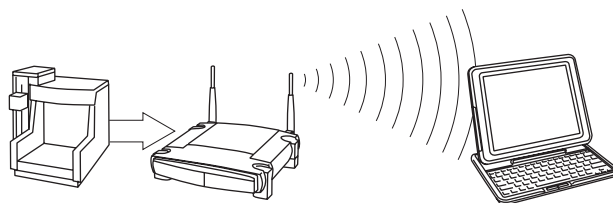


Figure 1: Wireless Communication

For this example the following items were used:

- CombiFlash Companion
- Crossover cable (blue), Isco P/N 480-6545-02
- Wireless Access Point, Linksys WAP11 (802.11b)
- Compaq Tablet PC, TC1000 (with 802.11b)

The Companion and the Tablet PC were configured according to the Direct Connection instructions in the *CombiFlash Companion Installation Guide*. The crossover cable connected the Companion's Ethernet port and the Wireless Access Point's LAN port.

The Wireless Access Point was configured for "ad-hoc mode" according to the manufacturer's instructions. In this demonstration, the WAP11 was shipped with a default IP address of 192.168.1.251. This address is on the same subdomain as the Companion and Tablet PC. Although the WAP11 did not need its IP address changed, Isco recommends that you verify the address using the manufacturer's software before attempting to establish communications.

Note

For this wireless demonstration, data encryption was not used.

After installation, the Companion could be controlled as if it was directly connected to the computer.

Wireless Corporate Networks

The same concepts can be used to connect the Companion to a corporate wireless network. Again, assistance from your IT department is required for this task.

To add the Companion to a wireless corporate network, configure it according to the Network instructions in the *CombiFlash Companion Installation Guide*. If a Linksys WAP11 is selected as the wireless access point, configure it for "infrastructure mode." ⓘ

Last modified May 18, 2004

Isco, Inc.

www.isco.com