# Microsoft® Windows™ 95
# Infrared Communications Driver
# Version 2.0
# Release Notes
# 10 May 1996



**Contents**



# Infrared Communications Driver, Version 2.0

The Infrared Communications Driver, Version 2.0, is an optional component of the Windows 95 operating system. The Infrared Communications Driver supports hardware devices which enable networking and communications over the infrared media. The hardware device can be either an infrared port built into the platform or an infrared adapter connected to one of the platform's serial or parallel ports.

User motivations for installing the infrared hardware device and the Version 2.0 Infrared communications driver are:

- The user can use wireless IR links instead of serial and parallel cables. For example, files can be exchanged wirelessly between two computers that have an IR device and the Version 2.0 driver installed, instead of using a serial or parallel cable. Files can also be printed wirelessly on IR-capable printers.
- The user can use wireless IR links instead of LAN cabling, if the user has an IR-capable LAN access point product connected to the network (see "Using the IR Communications Driver" for a list of LAN access point products the Version 2.0 IR driver has been tested with).

The Version 2.0 IR communications driver supports IR communications links running at speeds up to 115.2 kbps.

# Using the IR Communications Driver

This section of the Release Notes lists the hardware and software components on which the Version 2.0 IR communications driver has been tested.

## Notebook Computers

The Version 2.0 IR communications driver has been successfully tested on the following Windows 95 notebook computers that have built-in IR ports:

- Gateway® 2000 Liberty
- HP®Omnibook™ 600CT
- HP Omnibook 4000C
- IBM® ThinkPad® 701C (Butterfly)
- Sharp® PC 3050
- TI® TravelMate™5000

Some testing of the Version 2.0 IR driver was also done on these Windows 95 notebooks:

- Digital® HiNote Ultra CT475
- TI® TravelMate™5000

## IR Adapters

The Version 2.0 IR driver has been successfully tested on Windows 95 platforms with the following IR adapters connected to serial ports:

- ACTiSYS ACT-200L Infrared Wireless Interface
- ACTiSYS ACT-220L Infrared Wireless Interface
- Adaptec™ AIRport APA-9320 External Infrared Adapter (this adapter is also called the Adaptec AIRport 2000)
- AMP PhasIR Serial Adapter
- Extended Systems JetEye PC Infrared PC Interface (ESI-9680)
- Parallax IR Adapter LiteLink PRA9500A

To obtain any of the IR adapters listed above, contact the adapter manufacturer. The addresses of these manufacturers are listed in "IR Adapter Manufacturer Names and Addresses" at the end of this document.

## Applications

The following applications have been run successfully over an IR communications link, using the IR communications driver and the hardware listed above:

- Windows 95 Direct Cable Connection (DCC).
- Various Windows communications applications, including HyperTerminal and DynaComm.

Because the IR link simulates a serial communications link, some communications applications may not perform as expected after they connect over the IR link. See "Troubleshooting" for more information. For instructions on running DCC over an IR link, see "Notes on Running the Direct Cable Connection Application Over an IR Link" later in this document.

## Printers

Numerous Windows 95 applications have successfully printed over an IR link to an HP Laserjet 5P or 5MP printer, which have built-in IR ports. Numerous Windows 95 applications have also printed

successfully over an IR link to other printers with an Extended Systems JetEye Infrared Printer Port ESI-9580 infrared adapter connected to the printer parallel port.

## IrLan Access Points

Local area network access over an IR link has been tested with the following IrLan access point devices:

Extended Systems ESI-9910 JetEye Net Plus.
Hewlett-Packard NetBeam IR Infrared LAN Adapter.

# Troubleshooting

Some general troubleshooting tips are:

- A user must always remove any previously installed version of the IR communications driver *every* time the driver is installed. If Version 1.0 of the driver is installed, it must be removed before installing Version 2.0. If an early Beta release of the Version 2.0 driver is installed, it must be removed before installing the current Version 2.0 release. Instructions for removing the IR communications driver are in "An Optional Step: Removing the IR Communications Driver."

- If the user changes the IR adapter model that is connected to the computer, the user must remove the installed IR communications driver and reinstall it, specifying the new IR adapter type. Instructions for removing the IR communications driver are in "An Optional Step: Removing the IR Communications Driver."

- During installation of the IR communications driver, a user may select the wrong port when the Add Infrared Device Wizard prompts for the physical COM port to which the IR device is connected. If the user selects the wrong COM port, the IR device will be unable to discover another IR device within range. Reasons why the user may select the wrong COM port vary, ranging from reasoning such as "there is only one physical COM port for the IR adapter to be connected to so it must be COM1" to mislabeled COM ports on the computer case to the simple fact that the user doesn't know which COM port to select and doesn't know how to find out. A troubleshooting procedure is:
  1. Put an actively searching IR device close to the computer's IR device.
  2. Click the Infrared Monitor Options tab and then choose a different communications port (for example, COM1 instead of COM2).
  3. Continue selecting different COM ports in this way until the IR device on the computer discovers the nearby IR device.

  Note that the alternatives displayed in the IrMon Options tab are always based on the internal wiring of the computer platform:
  -- COM1 always means a COM port wired to IRQ 4 and I/O address range 0x3F8 to 0x3FF.
  -- COM2 always means wired to IRQ 3 and 0x2F8 to 0x2FF.
  -- Physical COM3 always means IRQ 4 and 0x3E8 and 0x3EF.
  -- Physical COM4 always means IRQ5 and 0x2E8 and 0x2EF.

- To get two IR devices to discover each other, the user may have to realign the IR devices so they point right at each other, move them closer together, and/or change the batteries in an IR adapter or plug the AC power into an IR adapter. The devices must be three feet apart, or less, and the angle of the cone of IR transmission is 30 degrees. Some devices work best if kept at least six inches apart.
- If an IR adapter is attached to a COM port that is using an 8250 UART instead of a 16550 UART, or if an IR adapter is connected to a relatively slow computer (such as a 386 running at 20

MHz), the user might need to use the Limit Connection Speed To option in the Infrared Monitor Options tab to limit the connection speed to 19.2 kbps. After establishing a successful IR connection at this speed, the user can use the Limit Connection Speed To option to experiment with establishing a connection at a higher speed on their particular computer.

- If the IR Monitor Options tab is used to change the port the IR adapter is attached to while IR communications are in progress, the IR connection is lost without prompting the user to verify that it is OK to disconnect.
- Communication over a virtual COM port link between two computers may not be reliable if a printer's IR adapter is also within range. The user should move the printer's IR adapter out of range.
- A user should not suspend a Windows 95 computer while an IR connection is established. Wait until the IR link is disconnected or force a disconnection before putting the computer in suspend mode. For example, if an IrLan connection is established on a laptop, the user must always move the laptop out of range of the IrLan access point before suspending the system or closing the laptop lid. Otherwise, the connection remains active and over time can drain the battery.
- Connecting and disconnecting over a low-speed IR link or over a poor-quality link can take a long period of time (a few seconds), during which time the screen will appear to be frozen. To work around this, the user should use a higher-speed connection and/or take steps to improve the quality of the connection by, for example, realigning the IR devices so they point right at each other, moving the devices closer together, changing the batteries in an IR adapter, or plugging the AC power into an IR adapter.

Troubleshooting tips specific to using IrLan access point devices are:

- Do not assume that because an IR device on a PC communicates with an IR device on another PC at 115.2 kbps that the IR device will also communicate with an IrLan access point device at that speed. For example, suppose a user has two PC-based IR devices that have negotiated a link speed of 115.2 kbps. Then if the user points one of the devices at an IrLan access point device, these two devices can negotiate a link speed of 115.2 kbps but no subsequent communication takes place (the PC has no access to the network through the IR link). No error message is displayed in this case.
- Extended Systems ESI-9910 JetEye Net Plus users utilizing NETBEUI may receive an error message when copying large files (for example, 5 MB files) to a network drive. If this happens, call Extended Systems, Inc. product support for NETBEUI configuration changes. For Extended Systems, Inc. contact information, see the topic "IR Adapter Manufacturer Names and Addresses."
- If there is a problem establishing an IR link to an IrLan access point device when the network is also connected to a network interface card in the computer, try disconnecting the LAN from the network interface card. Restart the computer and mThe IPX protocol may not communicate over an IrLan access point. This can be caused by the Dial-Up Adapter becoming the primary IPX adapter and no other adapter, such as the IrLan adapter, can take over. To get around this problem, the user can create a profile that does not contain the dial-up adapter and use it when accessing the net through IrLan.
- During a file copy to a NetWare server running burst mode, if the IR connection between the computer and the IrLan access point is disconnected (for example, the IR beam is blocked), the file transfer cannot recover and the computer screen will stay the same indefinitely. If this happens often, turn off burst mode to enable recovery from a disconnection. There will be performance degradation with burst mode off.
- Using the virtual parallel port connection to an Extended Systems ESI-9910 JetEye Net Plus IrLan access point to send data to a printer may result in a program fault. To get around this, use the virtual serial port on the IrLan access point to reach the printer.

Troubleshooting tips related to using particular applications over IR links are:

- If the Windows 95 application HyperTerminal is used to transfer files, there may be trouble doing file transfers successfully over an IR link. If the Zmodem protocol fails with a link speed of 115.2 kbps, use the IR Monitor Limit Connection Speed To tab to limit the link speed to 19.2 kbps and then retry the Zmodem file transfer.
- When the Windows 95 application Direct Cable Connection (DCC) is run to establish the connection between the host and guest computers, the guest computer may display the message "Direct Cable Connection was unable to display shared folders of the host computer" and prompt the user to enter the computer name of the host computer. A convenient way to find the computer name of the host computer is on the Status tab of the Infrared Monitor interface screen.
- When the Windows 95 application Direct Cable Connection (DCC) is run to establish an IR connection between the host and guest computers, DCC prompts the user to select a communications port (this procedure is described in the topic "Establishing and Using the DCC IR Link Between Host and Guest"). Selecting the virtual Infrared port in this step will fail (DCC announces the virtual port is not available) in the rare case that the user has suspended the Windows 95 operating system before invoking DCC in a session. Restart Windows 95 to begin a new session and DCC will work over an IR link.

A troubleshooting tip related to developing an IrDA standard IrCOMM component for an IR communications driver is:

- The IrCOMM implementation in the IR communications driver that runs on Windows 95 supports full emulation of 9-wire connections, but does not support emulation of 3-wire cooked connections. A specific example of this is the inability to print over an IR virtual COM port from the MS-DOS prompt, which uses a 3-wire cooked connection. IrDA drivers developed for platforms designed to communicate with Windows 95 platforms over IR links must implement full emulation of 9-wire connections (as specified in the IrDA IrCOMM specification). For example, a pair of handheld computer platforms may communicate with each other over IR links using 3-wire cooked emulation. However, if the user also expects to use one of the handhelds to communicate with a Windows 95 computer then the handheld IR driver must implement 9-wire connections.

Troubleshooting tips related to specific infrared hardware are:

- The Adaptec AIRport 2000 infrared adapter can be powered by either the serial port, installed AA batteries, or an external power supply. In some cases, the serial port may not provide sufficient power for the operation of the adapter. This can cause reduced operating range and/or a failure to find another IR device which is nearby and aligned correctly. If such a problem is suspected, connect an AC adapter or add four AA batteries to the battery compartment in the infrared adapter. This will assure sufficient power. In some instances, the user may need to separate the adapter by at least six inches from the other IR device.
- If an ActiSys 220L IR adapter is attached to a computer and used to print to a printer that is using an Extended Systems ESI-9580 printer IR adapter, or for printing to an HP DeskJet 340, the Options tab in the Infrared Monitor must be used to limit the connection speed to 19.2 kbps to print successfully. If the IR devices are allowed to automatically negotiate the connection speed without setting this limit, they will negotiate a higher connection speed and an application will not be able to print.
- The TI TravelMate 5000 may communicate over an IR link only at very low speeds (9600 bps).
- The Sharp PC 3050 may communicate over an IR link only at speeds between 9600 bps and 19.2 kbps.
- For the HP Omnibook 4000C or an HP Omnibook 600CT, which have built-in infrared ports, a special echo-canceling serial driver must be installed in addition to the components that make up the IR communications driver. The echo-canceling driver, along with instructions on how to install it, are available from Hewlett-Packard.

# Product Support

Microsoft's end-user support offerings for the IR Communications driver range from no-cost and low-cost electronic information services (available 24 hours a day, 7 days a week) to annual support plans and CD-ROM subscription programs. Please check the SUPPORT.TXT on-line documentation that comes with Windows 95 for detailed information.

Note that Microsoft support services are subject to Microsoft's then-current prices, terms, and conditions, which are subject to change without notice.

In the United States, no-charge support from Microsoft support engineers is available via a toll call between 6:00 A.M. and 6:00 P.M. Pacific time, Monday through Friday, excluding holidays. For all issues except networking issues, this support is available for 90 days after the first call to a support engineer. Networking issues are defined as server-based setup, network administration, dialing into a computer, or connecting to the Internet via a service provider, and using e-mail and fax from within Windows 95. For fee-based support for these networking issues, see the information in SUPPORT.TXT.
For technical support for Windows 95, call (206) 635-7122.

In Canada, support engineers are available via a toll call between 8:00 A.M. and 8:00 P.M.Eastern time, Monday through Friday, excluding holidays. Call (905) 568-4494. This support is available for 90 days after the first call to a support engineer.

When calling a support engineer, be at the computer and have the appropriate product documentation at hand. Be prepared to give the following information:

- The version number of the Microsoft product being used.
- The type of hardware being used.
- The exact wording of any messages that appeared on the screen.
- A description of what happened and what was being done when the problem occurred.
- A description of attempts to solve the problem.

# Installing and Using the IR Communications Driver

A recommended three-step process for installing and using the IR communications driver is:

1. Install the Windows 95 IR Communications driver.
2. Validate the installation by printing over the IR link, using an application to transfer data over the IR link, and/or using a local area network (LAN) over the IR link.
3. Start using the IR link on a daily basis.

After a user installs the driver, it can be removed at any time (for more information, see "An Optional Step: Removing the IR Communications Driver").

Procedures for carrying out each of the recommended steps, including the driver removal step, are presented in detail below.

# Step 1. Installing the IR Communications Driver

### Note

A user must always remove any previously installed version of the IR communications driver every time the driver is installed. If Version 1.0 of the driver is installed, it must be removed before

installing Version 2.0. If an early Beta release of the Version 2.0 driver is installed, it must be removed before installing the current Version 2.0 release. Instructions for removing an IR device and driver installation are documented in "An Optional Step: Removing the IR Communications Driver."

1. For first-time installation of the IR communications driver, run Setup.exe as downloaded from the Microsoft web-site.
2. When the Add Infrared Device Wizard prompts to choose a manufacturer's name for the IR device, choose "(Standard Infrared Devices)" if the computer has a built-in device, or choose the name of the manufacturer and the model of the adapter if an IR adapter is attached to the computer. Then click the Next button.
3. When the Add Infrared Device Wizard prompts to choose the communications port that the IR device is physically connected to, click the port from the list. If uncertain which physical communications port the IR device is using, select the first COM port in the list (for example, COM1). Then click the Next button.
4. When the Add Infrared Device Wizard prompts to select the virtual COM and LPT ports, accept the default values by clicking the Next button. After the wizard copies the IR communications driver files to the hard disk, watch for the wizard to display two New Hardware Found messages.
5. When prompted by the Add Infrared Device Wizard, click the Finish button to complete the IR device installation. If the wizard did not display New Hardware Found messages as it carried out step 4, then restart the computer. (If the New Hardware Found messages were displayed, there is no need to restart the computer).
6. Activate the IR device by double-clicking the Infrared icon in the Control Panel. If there is no Infrared icon in the Control Panel, then either select the Refresh option from the Control Panel View menu or press the F5 function key to make the Infrared icon appear.

For general information about how to use the Infrared Monitor, click the Help button in the lower-right corner of the Infrared Monitor interface screen. To get information about individual items in the Infrared Monitor interface, such as check boxes, move the mouse cursor over the on-screen interface item and click the right-button on the mouse.

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The Options tab of the Infrared Monitor interface contains the following two particularly useful items:

- The Enable Infrared Communication On check box, which enables and disables the IR device.
- The Limit Connection Speed To option, which limits the link speed the IR device can negotiate.

The Limit Connection Speed To option might be used if an adapter is attached to a COM port that is using an 8250 UART instead of a 16550 UART, or if an adapter is connected to a relatively slow computer (such as a 386 running at 20 MHz). In these cases, this option can be used to limit the connection speed to 19.2 kbps.

# Step 2. Validating the IR Communications Driver Installation

To validate the IR communications driver installation, either:

- Print from an application over an IR link to the printer (if an IR-capable printer is available).
- Exchange data between two IR-capable computers over an IR link, using a communications application.
- View the computer's Network Neighborhood over an IR link (if an IrLan access point device is available).

## Printing to an IR-Capable Printer

To test the printing capability of a Windows 95 application over an IR link to an IrDA-compliant printer such as the HP 5P, carry out the installation step for the IR communications driver on one computer and then try the Print option in an application.

Printers without built-in IR ports can be made IR-capable by connecting an IR adapter made for printers into the printer's parallel port. An example of an IR adapter for printers is the Extended Systems JetEye Infrared Printer Port ESI-9580. If a parallel cable is also used to connect the PC to the IR printer adapter, a user can use either the IR link or the parallel cable to print. The IR link is used when the user selects the virtual parallel port and the cable is used when the user selects the physical parallel port.

To validate the IR link to the printer, make sure the correct printer driver is installed for the IR-capable printer (most printers with built-in IR ports are Plug and Play devices and the installation for these devices will be automatically carried out). Then use an application to print over the IR link.

If the application prints on the IR-capable printer, the IR driver installation is validated. If there is trouble printing, see "Troubleshooting" for more information.

## Exchanging Data Between Two Computers

To validate a link between two computers running Windows 95, install the IR communications driver on both computers. To do this, carry out the procedure in "Step 1. Installing the IR Communications Driver" earlier in this document.

Note that the IR devices on the two computers do not have to be made by the same manufacturer as long as both devices are IrDA-compliant. For example, the IR link will work with a JetEye PC Infrared PC Interface (ESI-9680) attached to one desktop computer and an Adaptec AIRport APA-9320 External Infrared Adapter attached to the other desktop.

One way to validate an IR link is to run the HyperTerminal application on both computers and send characters from the keyboard of each computer over the IR link. HyperTerminal is installed on a Windows 95 computer as part of the typical installation that is recommended for most computers. To validate the IR driver installation of the IR driver on both computers, carry out the following procedure:

1. On both computers, click the Start button, point to Settings, and then click the Control Panel. Double-click the Infrared icon. Then move the IR devices within 3 feet of each other, and make sure they're pointing at each other. When the two IR devices discover each other, the message "Available infrared devices in range" will appear on the Status tab of the Infrared Monitor interface screen. Make sure Infrared Monitor reports both IR devices have the appropriate infrared device within range before proceeding. It might be necessary to realign the IR devices so they point right at each other, move them closer together, and/or change the batteries in an IR adapter or plug the AC power into an IR adapter. For more information, see "Troubleshooting" earlier in the document.
2. On one of the computers, click the Options tab in the Infrared Monitor interface and find the information that starts with "Providing application support on ...". Write down the name of the COM port found there. This is the name of the virtual serial port that the IR link using. The name of this virtual serial port might be COM4 or COM5 and it will differ from the name of the physical communications port the IR device is running on (which is typically named COM1 or COM2).
3. Run HyperTerminal on the computer with the virtual serial port name by clicking the Start button, pointing to Programs, pointing to Accessories, and then clicking the HyperTerminal folder. In the window that appears, double-click the Hypertrm.exe icon.

4. In the Connection Description dialog box, type a descriptive name (such as "Direct IR") for the new connection, and then click OK.
5. In the Phone Number dialog box, use the Connect Using drop-down list to click the "Direct to Com*x*" entry, where *x* is the number of the virtual COM port written down in step 2. Then click OK. It is now possible to start using HyperTerminal on one of the computers.
6. Repeat steps 2. through 5. for the other computer.
7. In HyperTerminal on either computer, type any characters at the keyboard. If the typed characters appear in the HyperTerminal window on the other computer, then it is confirmed that the IR link works in that direction. Repeat this step on the other computer. If the IR link works in both directions using HyperTerminal, the successful installation of the IR communications driver on the two computers has been confirmed.

   **Note**
   The changes in status are displayed in the Status tab of the Infrared Monitor interface while typing characters in HyperTerminal.

8. Disconnect the HyperTerminal direct IR connection by exiting the HyperTerminal application on both computers. When prompted to save the session, click Yes. This saves the direct IR connection setup information as an icon in the HyperTerminal main folder, enabling a user to double-click this icon to restart one side of the HyperTerminal direct IR connection.

## Viewing the Network Neighborhood Over an IR Link

The Version 2.0 IR communications driver enables a computer with an IR device (either a built-in device or an adapter) to connect to a local area network (LAN) through an IrLan access point device acting as the network adapter for the computer. An IrLan access point device is hardware that supports both a LAN network interface controller (NIC) and an infrared transceiver. Local area network access over an IR link has been tested with the following IrLan access point devices: the Extended Systems ESI-9910 JetEye Net Plus and the Hewlett-Packard NetBeam IR Infrared LAN Adapter.

To test a computer's ability to use a local area network (LAN) over an IR link, first install the IR communications driver on the computer. Then do the following:

1. Run IR Monitor.
2. Power on the IrLan access point device, such as the Extended Systems ESI-9910 JetEye Net Plus, and place the infrared receiver/transmitter of the IrLan access point device within range of the computer's infrared device.
3. When the computer infrared device and the IrLan access point infrared device discover each other, the Infrared Monitor interface indicates "Infrared communication in progress."
4. When the Infrared Monitor interface shows that the IR link has been established, click on the Network Neighborhood icon to display the icons of the remote machines that can be accessed through the IrLan access point device. There can be a delay of some seconds before the remote machine icons are displayed.

If there is trouble accessing the LAN, see "Troubleshooting" for more information.

# Step 3. Running Other IR-Capable Applications

Most applications that can communicate over a null modem cable that connects serial ports on two Windows 95 computers should also be able to communicate over an IR link. The procedure for setting up and using the IR link with these other communicating applications will probably be similar

to the procedure used in "Exchanging Data Between Two Computers," which uses the HyperTerminal application to validate the installation of the IR communications driver. The procedure for running the Windows 95 Direct Cable Connection application is given in detail in "Notes on Running the Direct Cable Connection Application Over an IR Link."

# An Optional Step: Removing the IR Communications Driver

The IR communications driver can be removed either by using Add/Remove Programs in the Control Panel or by using the Device Manager. Both methods are documented in these Release Notes, but using Add/Remove Programs is the preferred method.

## Using Add/Remove Programs in the Control Panel

To carry out the preferred way of removing the IR communications driver, do the following:

1. Click the Start button and select the Settings option. Then select the Control Panel option.
2. Double-click Add/Remove Programs in the Control panel.
3. When a list of software components is displayed, select the Infrared Support for Windows 95 entry and click the Add/Remove button.
4. When the system prompts you to restart, do so.

## Using the Device Manager

To remove the IR communications driver using the Device Manager, do the following:

1. To run the Device Manager, right-click on the My Computer icon, select the Properties option from the popup menu, and then click the Device Manager tab in the System Properties dialog.
2. To display the name of the infrared device installed on the computer, in the System Properties dialog, make sure the View devices by type option is selected. Then click the plus sign to the left of the Infrared device class label. Select the infrared device name and click the Remove button.
3. When prompted, click OK to confirm the device removal. After the Device Manager has successfully removed the infrared device installation information from the computer, the Infrared device class label will disappear from the System Properties dialog. Click the Close button.

**Note**

The Infrared Monitor icon may still be displayed in the Windows 95 status bar, even after the infrared device is removed. Ignore it; the Infrared Monitor cannot be used to establish an IR link after the infrared device is removed.

# Notes on Running the Direct Cable Connection Application Over an IR Link

With Direct Cable Connection (DCC), a direct serial or parallel cable connection can be established between two computers to share the resources of the computer designated as the host. DCC can also be used over an IR link connecting the host and a guest computer. If the host is connected to a LAN, the host can also be used as a gateway to the LAN for the guest.

# Preparing to Use DCC

The computer that contains the folder to be shared is the host, and the other computer is the guest. Share a folder on the host, granting access rights to anyone using the guest computer, by carrying out the procedure given below.

**Note**

The following procedure is just one of many that could be used to share files in a folder on the host computer. For example, there is user-level access control as well as share-level access control. The following procedure is one of the simplest access control procedures, which is all that is needed to get started using DCC. To get information about all the ways files, folders, and printers can be shared, use the Windows 95 Help.

1. Double-click on the My Computer icon.
2. Double-click on the icon of the drive that contains the folder to share (for example, double-click on the icon for the C: drive).
3. Right-click on the icon of the folder to share and then select Properties.
4. In the folder properties dialog, select the Sharing tab and then select the Shared As option, enter a share name, enter a comment, and add user access rights (Full or Read-Only).
5. The picture of a hand is added to the folder icon to indicate the selected folder is now a shared resource.

## Making Sure DCC Is Installed on Both Computers

DCC is not installed with the typical Windows 95 installation recommended for most computers. Check whether DCC is installed on both of the two computers that will be using the IR link. To do this, click the Start button, point to Programs, and then point to Accessories. Direct Cable Connection appears in this menu of it is installed on the computer being checked.

If DCC is installed on the host and DCC is installed on the guest, then skip the next step.

## An Optional Step: Installing DCC

Before establishing a DCC connection, DCC must be installed on both the host and guest. The procedure for installing DCC on either the host or the guest is given below. If DCC is not installed on the host and is also not installed on the guest, the following procedure must be run on each machine.

1. Click the Start button, point to Settings, and then click the Control Panel. Double-click the Add/Remove Programs icon.
2. In the Add/Remove Program Properties, click the Windows Setup tab.
3. In the Components list, click Communications, and then click the Details button.
4. In the Communications dialog box, make sure Direct Cable Connection is checked and then click OK.

## Establishing and Using the DCC IR Link Between Host and Guest

To run DCC over an IR link, carry out the following procedure:

1. Make sure the IR communications driver is properly installed and the IR devices are enabled by carrying out the procedures in "Step 1. Installing the IR Communications Driver" and "Step 2. Validating the IR Communications Driver Installation" earlier in this document.

   **Note**

   To increase the likelihood of success with DCC over an IR link, use the Limit Connection Speed To option on the Infrared Monitor Options tab to limit the IR connection speed to 9600 bps for the first test of DCC over the IR link (and then increase the speed later).

2. On the host computer, click the Start button, point to Accessories, and then click Direct Cable Connection.
3. Follow the steps in the Direct Cable Connection Wizard to set up the host computer. When the wizard prompts for it, select the Host option. When the wizard prompts to choose a port, use the same virtual port used in the procedure "Step 2. Validating the IR Communications Driver

Installation" earlier in this document. The wizard will also offer password protection. It is not necessary to establish password protection on the host for this test of the IR link. When done with the wizard, click the Finish button. DCC will start running on the IR link and display the message "Status: Waiting to connect via Serial cable on Com*x*," where Com*x* is the name of the virtual port the IR link is using.

4. Repeat steps 2 and 3 for the guest computer, except select the Guest option instead of the Host option. When done with the wizard, click the Finish button. The DCC connection is automatically made over the IR link, and all the shared folders on the host are displayed on the guest's screen.
5. Working on the guest computer, to copy a shared folder from the host to the guest over the IR link select the folder's icon in the window that displays all the shared folders that are on the host and drag the icon to the desktop. To work on a shared folder on the host without copying it to the guest, double-click on the folder in the display on the guest. Note that if the host is connected to a network, the guest can reach shared resources on the network through the DCC connection to the host.

# IR Communications Driver Components

The files that make up the IR communications driver are:

| Filename | Description |
|---|---|
| ACT200L.VXD | Support for the ACTiSYS ACT-IR200L IR adapter. |
| ACT220L.VXD | Support for the ACTiSYS ACT-IR220L IR adapter. |
| ADAPTEC.VXD | Support for Adaptec IR adapter. |
| CRYSTAL.VXD | Support for AMP PhasIR Serial Adapter. |
| ESI.VXD | Support for Extended Systems JetEye PC Infrared Interface (ESI9680). |
| INFRARED.CPL | Infrared device in the Windows 95 Control Panel. |
| INFRARED.DLL | Infrared device class installer. |
| INFRARED.INF | IR device information file for Windows 95 Setup. |
| INFRARED.HLP | On-line help topics for Infrared Monitor. |
| IRCOMM.VXD | Top layer of IR communications for Windows 95. |
| IRDALAN.INF | IrLan device information file for Windows 95 Setup. |
| IRDALAN.SYS | IrLan driver. |
| IRENUM.VXD | Enumerator for the "IR bus." |
| IRLAMP.VXD | Generic infrared framer, lower layer of IR communications for Windows 95. |
| IRLAPFRM.VXD | |
| IRMON.EXE | Infrared Monitor. |
| IRMONHLP.EXE | IR Monitor on-line help utility. |
| IR_BEGIN.WAV | Sound for Infrared Monitor user interface. |
| IR_END.WAV | Sound for Infrared Monitor user interface. |
| IR_INTER.WAV | Sound for Infrared Monitor user interface. |
| MSPORTS.INF | IR port information file for Windows 95 Setup. |
| PARALLAX.VXD | Support for Parallax IR Adapter, LiteLink PRA9500A. |
| W_IR.CNT | Table of contents for Infrared Monitor on-line help. |

The documentation files supplied with the IR device driver are:

| Filename | Description |
|---|---|
| RELNOTES.DOC | This document. |

# IR Adapter Manufacturer Names and Addresses

The names and addresses of IR adapter manufacturers that have been successfully tested with the IR driver in the Windows 95 IR Communications DDK are:

ActiSys, Inc.
1507 Fulton Place
Fremont CA 94539
tel: 510-490-8024
fax: 510-623-7268
email: corp@actisys.com

Adaptec, Inc.
691 South Milpitas Blvd,
Milpitas CA 95035
tel: 1-800-959-7274
fax: 1-408-957-7223

AMP Product Information Center
AMP Incorporated
Harrisburg PA 17105
tel: 1-800-522-6752

Extended Systems, Inc.
5777 North Meeker Ave
Boise ID 83704-1520
tel: 208-322-7575
fax: 208-377-1906

The Parallax IR adapter distributor in North America is:
TSC Electronics
1610 Lockness Place
Torrance CA 90501
tel: 310 534 2738
fax: 310 534 3216
email: dtsaitsc@aol.com
contact person: Daniel Tsai

The Parallax IR adapter distributor outside North America is:
Parallax Research
201 Innovation Centre
NTU
Nanyang Drive
Singapore 639798
Republic of Singapore
tel: +65 793 0855
fax: +65 793 0775
email: parallax@technet.sg