D-Link®

Using Your Internet Server with an ADSL or Cable Modem

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Introduction

ADSL and cable modems are new, high-speed devices for connecting to the Internet and the World Wide Web. If you have an ADSL or cable modem and wish to enjoy the benefits that both your modem and your Internet server can provide, follow the instructions in this booklet carefully.

Overview

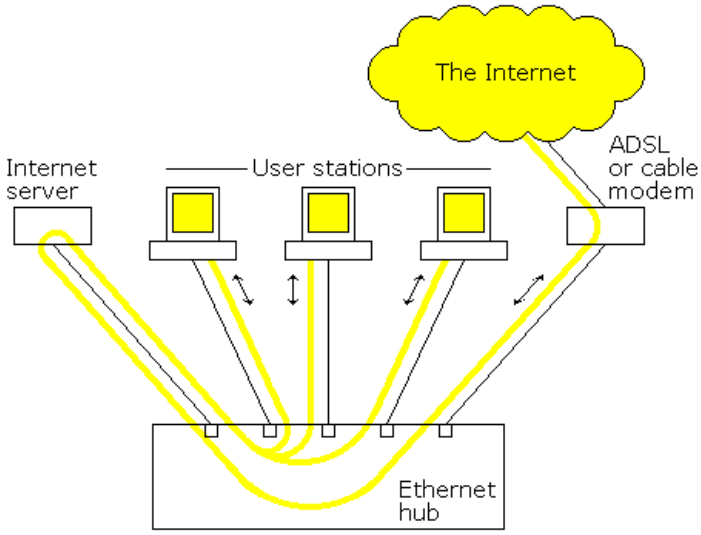
It is assumed here that your ADSL or cable modem has an Ethernet interface and that you have an Ethernet LAN (or an Internet server with a built-in hub that lets you create such a LAN). This booklet describes how to—

1. Connect your ADSL or cable modem to your LAN.

When installing the modem, your Internet service provider (ISP) may have connected the modem directly to a computer's Ethernet interface. To use the modem with your Internet server, you must connect the modem to your LAN instead of directly to a computer.

2. Configure the Internet server to work with your ADSL or cable modem.

Your Internet server is set at the factory to connect to the Internet through its own wide-area network (WAN) port or ports (depending on the server model, such a port may be labeled **COM** or **WAN** with a number after it, just **COM**, or **RJ-11**). You must set the server to use your ADSL or cable modem's Internet connection instead. The Internet server's WAN port(s) will not be used. Communication between the modem and the Internet server, and between the Internet server and user stations, will be carried out entirely through the LAN. Data will flow between user stations and the Internet as shown in the following figure:



3. Check to make sure the settings have been saved on the Internet server.

Before You Start

Before carrying out the instructions in this booklet, you must—

1. Connect your Internet server and at least one Windows-based computer together through your LAN.

See your Internet server user's guide and the manual included with your Ethernet hub for instructions. If your Internet server has a built-in hub, connecting the computer to a network end-node jack on the server is sufficient.

2. Install IS Admin on the networked Windows-based computer.

IS Admin is a Windows-based program included with your Internet server. You must use IS Admin for first-time configuration of your Internet server, and we strongly recommend using IS Admin for all adjustment, monitoring, and management of the server after initial setup. See the installation instructions in the *IS Admin User's Guide*.

3. Gather the information you will need.

To adjust the Internet server correctly, you will need to know if your ADSL or cable modem acts as a "DHCP server," that is, whether or not it is designed to assign an IP address to any device that it is networked with and that requests an IP address. (DHCP stands for Dynamic Host Configuration Protocol.)

If the modem acts as a DHCP server, you will not need any other specialized information (you will, however, have to make sure the Internet server does not act as a DHCP server also; see your Internet server user's guide and the *IS Admin User's Guide* for details). If the modem does *not* act as a DHCP server, you will need to know the IP address that the modem uses on your LAN.

This information is ordinarily provided by your ISP when the modem is installed. You can also obtain this information by checking the TCP/IP configuration of the computer the modem was connected to when first installed. If this computer was configured to get an IP address automatically in order to work with the modem, the modem acts as a DHCP server. If the computer was configured to use a fixed IP address, make a note of the IP address, subnet mask, and default gateway settings.

4. Determine and obtain the cabling you will need to make all connections.

After disconnecting your ADSL or cable modem from the computer it was originally connected to, if you wish to connect that computer to your LAN, you will need an ordinary "straight-through" Ethernet cable for the connection between the computer and your hub. Such a cable can be purchased at any computer supply store.

You will also need cabling suitable for connecting the modem to your hub. *The cable that was originally used to connect the modem to the computer cannot be used by itself to connect the modem to a hub*. Depending on how the modem's Ethernet jack is wired, the original cable will be either "cross-wired" or straight-through. If it is cross-wired, you will need straight-through cabling for the connection between the modem and the hub; if the original cable is straight-through, the connection to the hub will have to be cross-wired. (The connection to the hub *usually* must be straight-through in the case of an ADSL modem and cross-wired in the case of a cable modem.)

One solution is to use a cross-wired Ethernet adapter, available in most computer supply stores. Such an adapter, used together with the original cable supplied with the modem, will provide the right kind of connection between the modem and the hub. Note that the combined length of the adapter and the cable must not exceed 100 meters (328 feet).

Another solution is to (**1**) disconnect the original cable at the modem end, (**2**) connect the modem to the hub with a straight-through Ethernet cable (the kind used to connect a computer to a hub), (**3**) power up both the modem and the hub, and (**4**) watch the hub and note the behavior of the link/receive indicator for the port that the modem is connected to. If this indicator shines steadily or flashes, you can connect the modem to the hub with a straight-through Ethernet cable. If the indicator remains dark, you must either use the modem's original cable and an adapter as described above, or obtain a cross-wired Ethernet cable (such cables are less common but can also be purchased in many computer supply stores).

Making Connections

As mentioned above, before carrying out the instructions in this manual you must connect your Internet server and the computer running IS Admin together through your LAN. See your Internet server user's guide for instructions.

When first installed, an ADSL or cable modem is ordinarily connected directly to a single computer. It is assumed here that this is how your modem is connected at the time you begin to carry out the instructions in this booklet. This section describes how to connect the modem (and, if you wish, the computer it was originally used with) to your LAN.

Connect your ADSL or cable modem to your LAN as follows:

1. Power down and unplug both the modem and the computer it is connected to.

2. Unplug both ends of the cable originally used to connect the modem to the computer.

3. Connect the modem to your hub using suitable Ethernet cabling.

   It is assumed here that you have obtained suitable cabling for connecting the modem to the hub (see “Before You Start,” above). Be sure to plug one end into the modem’s Ethernet jack (the jack the computer was originally connected to) and the other end into an end-node jack (as opposed to an “uplink” or “daisy-chain” jack) on the hub.

4. If you wish to access the Internet from the computer that the modem was originally connected to, connect that computer to the hub.

   Use a straight-through twisted-pair Ethernet cable. Plug the cable into the computer’s Ethernet jack (the jack the modem was originally connected to) and an end-node jack on the hub.

5. Power everything up and check the connections.

   The indicators for the jacks being used on the hub and the devices should be shining or flashing.

Adjusting the Internet Server

This section describes how to configure your Internet server to work with your ADSL or cable modem. It is assumed here that your ADSL or cable modem, the computer on which IS Admin is installed, and your Internet server (if it does not have an integrated hub) are connected to your LAN as described above, that they are all turned on, and that all connections are good.

The main difference between using an ordinary modem and an ADSL or cable modem is that the Internet server must be set up to work in “LAN-to-LAN” operation mode. In this mode, the Internet server uses a device on your LAN, instead of its own WAN port or ports, as its “gateway” to the outside. That device is your ADSL or cable modem.

To put the Internet server into LAN-to-LAN mode, click the Configuration button in the Configuration section of IS Admin’s main window (or, alternatively, open IS Admin’s Configuration menu and choose the Configuration command). The Configuration dialog box and its System panel will appear. Note the Operation Mode controls at the bottom of this panel.

Check the information that your ISP has given you about your ADSL or cable modem.

If the modem does not act as a DHCP server, carry out the following steps:

1. Click the **LAN-to-LAN (Specify Global IP Address)** option.

   The **Global IP Address**, **Subnet Mask**, and **Default Gateway** controls will become enabled. (A “global” IP address is the IP address an internetworking device uses on the larger of two networks it is connected to.)

2. Type a suitable IP address and subnet mask into the Global IP Address and Subnet Mask input boxes.

We recommend using the IP address and subnet mask originally assigned to the computer that your ADSL or cable modem was connected to when it was installed. This computer will need to be given a different IP address anyway to work with your Internet server.

3. Type the ADSL or cable modem's local IP address into the Default Gateway input boxes.

This completes the *special* steps you must carry out to make your Internet server work with your ADSL or cable modem *if the modem does not act as a DHCP server*. For complete information on configuring the server, see the server manual and the *IS Admin User's Guide*. Pay special attention to notes concerning LAN-to-LAN operation mode.

If your ADSL or cable modem acts as a DHCP server on your LAN, click **LAN-to-LAN (Obtain Global IP Address Automatically)** in the Operation Mode section of the Configuration dialog box's System panel. No other special steps are needed to enable the server to work with your ADSL or cable modem. For complete information on configuring the server, see the server manual and the *IS Admin User's Guide*. Pay special attention to notes concerning LAN-to-LAN operation mode.

Checking the Configuration

After you save the new configuration on the Internet server, the server will restart itself. Wait twenty seconds or so, then click the IS Admin main window's Discover Server button. Click the server's name when it appears, then carry out the following steps to make sure the new configuration has been saved and is working:

1. Click the Diagnostics button (or, alternatively, open the Information menu and choose the Diagnostics command).

The Diagnostics dialog box and its Configuration panel will appear.

2. Click the Diagnostics dialog box's Status tab.

3. In the Status panel, click the plus-sign button next to System.

System status items and subheadings will appear.

4. Click the plus-sign button next to Operation Mode.

The current settings of the Internet server's operation mode controls will appear. If your ADSL or cable modem acts as a DHCP server on your LAN and you have set the Internet server accordingly, the operation mode will be shown as "LAN-to-LAN (Obtain Global IP Address Automatically)" and settings received from the modem (global IP address, subnet mask, default gateway, DHCP server IP address, and the "lease time" of the global IP address) should appear under the mode setting.