

FastLink II Client Pack



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Table of Contents

I-1 Introducing the FastLink II Client Pack

Overview	5
System Requirements/Compatibility	7
About The Documentation	8
Technical Support	9
FastLink II Client Pack Diskettes and Licensing	10

I-2 Installing the FastLink II Client Pack

Overview	11
Windows Installation.....	12
DOS Installation.....	21

II-1 FastLink II Concepts

Clients and Servers.....	23
The Remote Access Administrator	24
Serial Ports	25
The FastLink II ODI Driver	26

II-2 The FastLink II User Interface

Overview	27
The Connections Dialog.....	29
The Setup Dialog.....	40
The Modems Dialog.....	44
The Scripts Dialog.....	47
Displaying Port Statistics	51
Housekeeping	54
FLINK.EXE Command Line Options.....	56
FLINKW.EXE Command Line Options.....	57

II-3 Connecting from DOS

Overview	61
Before you Connect	61
Making a Connection Manually	62
Making and Breaking Connections with Batch Files	66
Using FLCACHE Launch Protection and File Caching	66

II-4 Connecting from Windows

Overview	69
Before You Connect	70
Before Running Windows	70
Connecting to the Remote Access Server	71
Connecting to NetWare File Servers	71
Using Custom Windows Icons	72

II-A FastLink II Connection Errors

Connection Error Messages	77
---------------------------------	----

III-1 Supported IP Stacks

Introduction	81
Beame & Whiteside (BW-TCP 3.2)	82
Frontier (SuperTCP for Windows)	86
FTP (OnNet v2.1 for Windows)	90
Microsoft TCP/IP-32 3.11 (WFW 3.11)	93
NetManage (Chameleon 4.01)	96
Novell (LAN Workplace for DOS/Windows 4.2, 5.1)	99
Installation Directions	99
Wall Data (Rumba for Internet 1.0)	102
Wollongong (Pathway Access 3.1)	106
WRQ (Reflection 2, 4.01)	110

I-1 Introducing the FastLink II Client Pack

Overview

Welcome to the world of remote network access. With the FastLink II Client Pack, you'll be able to reach your network from anywhere via modem, and connect to all its resources just as if you were on premises — so you can do your work without being at work.

The FastLink II Client Pack includes two major components: the FastLink II Client and Proxy Remote Control.

The FastLink II Client

The FastLink II Client lets you dial in over a standard telephone line to a Bay Networks' remote access server running Point-to-Point Protocol (PPP) protocol. Once connected, you become a full-fledged node on the network with IPX and IP access to all of its resources; you can log in to file servers, print to network printers, send and receive e-mail, and use any other network service that would normally be available to you when directly connected.

FastLink II has powerful features that make remote access easier and more productive than you might expect:

- ◆ **Dual DOS and Windows interfaces** make it easy to make and break connections any time.
- ◆ **Iconized connections** from Windows let you create icons that dial, log in to servers, and run remote control sessions automatically.
- ◆ **Connection scripting** allows you to easily automate connections to a Bay Networks' remote access server with front-end security.

Proxy Remote Control

One of the most important things that your FastLink II connection allows you to do is run the powerful Proxy Remote Control software included in this package.

By installing the Proxy Master on your remote PC and the Proxy Host on your PC at work, you can take over and operate your PC at work from your home or from the road.

Proxy runs in Windows, and can take over any PC whether it is running DOS or Windows. Proxy can even take over more than one machine at a time; each remotely-controlled PC is displayed in a separate window.

Proxy has been optimized extensively to be *super-fast* over a dial-up connection!

Remote Node and Remote Control

Remote Node and Remote Control are two distinct methods of remotely accessing a network. They each have their advantages for different types of network operations:

- ◆ **Remote Node** means you become a node on the network, log in to file servers, and perform other operations just as if you were directly connected.

Use remote node when you'd like fast keyboard response, and when the amount of data passing over the phone line is modest. For example, reading e-mail or editing documents on the network are tasks well suited to remote node.

- ◆ **Remote Control** means you use a program like Proxy to control a PC that is directly connected to the network. By using a PC on the network to do your work, you reduce the amount of data that must be transmitted over the phone line.

Use remote control when your task would involve moving large amounts of data over the network. For example, performing a database search or running a program that's not on your PC are tasks that are well suited to remote control.

Of course, remote node and remote control are not mutually exclusive. When you work in Windows, you can use both at once, each for the task it does best. For example, you might use Proxy to take over a PC at work to perform a database search, while you load a document from the file server into your word processor for editing.

System Requirements/Compatibility

FastLink II Client System Requirements

To run FastLink II you'll need the following:

- ◆ A 386 or higher PC.
- ◆ A high-speed serial port using a 16550A UART. For best results, we recommend that you purchase a 16550A-based serial COM port add-in card that contains a co-processor such as a Hayes ESP card.

For a discussion of the different types of serial ports, see the “FastLink II Concepts” chapter. To determine which type you have, use the Comm Port Test feature described in the “FastLink II User Interface” chapter.
- ◆ A modem, preferably capable of 14,400 bits/second or higher over a phone line. For best results, we recommend the use of a 28,800 bits/second (v.34) modem.
- ◆ MS-DOS version 3.3 or higher.

If you'd like to run FastLink II with Windows, you'll also need:

- ◆ Windows 3.1 or higher or Windows for Workgroups 3.11 or higher.

FastLink II supports both standard and enhanced mode, though enhanced mode is recommended.

Proxy System Requirements

The **Proxy Master** software runs as a Windows or Windows 95 application, and requires a 386 or higher PC with at least 4 MB of RAM.

The **Proxy Host** software runs as a Windows or Windows 95 application, and requires a 386 or higher PC with at least 4 MB of RAM.

The **DOS Proxy Host** software runs as a memory resident program, and requires DOS version 5.0 or higher; it uses approximately 9K of conventional memory when loaded with the DPMS memory manager.

Proxy has been optimized extensively to be *super-fast* over a dial-up connection!

You can use Proxy over your FastLink II dial-up connection using either one of the following standard protocols:

- ◆ **IPX** — usually run on networks using Novell NetWare. It is not necessary for either the master or host workstation to be logged in to a server, nor is it necessary to run a network client.

For Windows 3.x you need the Novell 16-bit (VLM) or 32-bit Client IPX protocol support.

- ◆ **IP** — a general purpose protocol supported on a wide variety of networks and servers.

For Windows 3.x you need to use a Winsock 1.1-compliant IP stack.

About The Documentation

This manual is in three parts:

- ◆ Part I includes this introductory material plus instructions on installing the FastLink II Client Pack.
- ◆ Part II describes how to use the FastLink II Client to establish a connection to a network over a phone line.
- ◆ Part III documents the IP Stacks.

Be sure to check each of your diskettes for a text file called README.TXT. This file contains late-breaking information not available in this manual.

Proxy Remote Control is covered in a separate manual.

Technical Support

If you have any problems installing or using the FastLink II Client or Proxy, there are various resources available to help you:

- ◆ This manual and the README.TXT files on your diskettes may contain the information you need to solve the problem you are having
- ◆ Your network administrator can probably answer many of your questions and give you valuable assistance in installing and using the product.
- ◆ Technical Support Internet address is support@xylogics.com (Burlington, MA) and int-support@xylint.co.uk (UK). Most on-line services, such as CompuServe, America On Line, Delphi, and Prodigy offer an Internet e-mail gateway.
- ◆ Contact our electronic bulletin board that can be reached at (617)273-1499, modem settings: 14,400, 8, 1, N, or FTP to bbs.xylogics.com.
- ◆ Visit our world wide web server via the Internet, which can be reached at <http://www.baynetworks.com>.
- ◆ Technical support representatives may be reached by calling 1-800-2LANWAN (800-252-6926). When prompted you should enter an ERC of 170.

For international support, call +44 1908 222112 (Milton Keynes, UK)

FastLink II Client Pack Diskettes and Licensing

You are entitled to use the programs on the diskettes according to the enclosed license agreements. Here, briefly, is a description of the contents of the diskettes and how the licensing of the various components works.

Remote PC diskettes

You are provided with a master copy of the following two diskettes used to install FastLink II on the remote PC. You may freely distribute and copy either of these diskettes for use in connecting to Bay Networks' remote access server:

- ◆ The **FastLink II Client & Proxy diskette** contains the install program (SETUP.EXE) and the software necessary to run the FastLink II Client. This diskette also contains the Proxy Master, which may be used with the FastLink II Client on the remote (dial-in) PC.
- ◆ The **Novell NetWare Files diskette** contains the latest Novell client, including the NetWare VLM redirector and NetWare utilities including LOGIN.EXE (for NetWare 3.x or 4.x), LOGOUT.EXE, MAP.EXE, ATTACH.EXE, and SLIST.EXE.

Network PC installation diskettes

The **Proxy Host diskette** contains the install program (SETUP.EXE) and the software necessary to run the Proxy Host. The Proxy Host is the machine you would like to view and operate from the remote PC.

You are provided with one or more licensed copies of a diskette used to install the Proxy remote control Host on a network PC. Each diskette contains a Proxy Host license which may only be installed on a single PC on the network.

***NOTE:** You may install no more than the number of Proxy Hosts for which you have licenses; any additional Proxy Hosts licenses must be purchased.*

I-2 Installing the FastLink II Client Pack

Overview

These instructions describe how to install the FastLink II Client Pack on your PC. You can install either from DOS or from Windows:

- ◆ The Windows installation process installs all the software you need to run FastLink II with either DOS or Windows.
- ◆ The DOS installation process only installs FastLink II for use with DOS.

The Windows installation creates a group with two types of icons:

- ◆ An icon that invokes the FastLink II Client software
- ◆ Custom icons that dial a remote access server, map drives, and establish Proxy sessions

During FastLink II installation, you are asked to designate directories into which the program files should be copied. You can change the proposed directories to any directories you want. If a directory does not exist, the install program automatically creates it.

Windows Installation

This section describes how to install the FastLink II Client Pack on your PC using Windows. Once installed, the FastLink II software can be used from *either* DOS or Windows.

Installing on the remote PC

To install the FastLink II Client and the Proxy remote control Master:

- 1 Run SETUP.EXE from the FastLink II Client diskette.

To do so, insert the FastLink II Client diskette in drive A or B, issue the **File Run** command from Program Manager, then enter:

A:\SETUP ↵ (from A:) *or* **B:\SETUP** ↵ (from B:)

The following dialog appears:

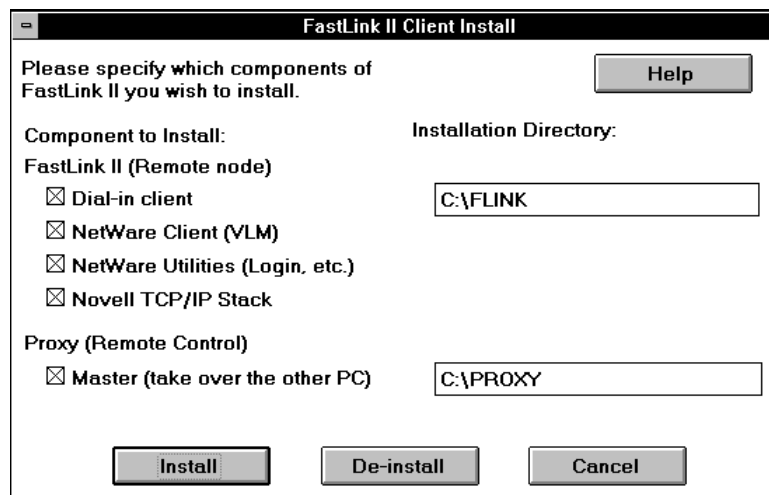


Figure 1: Windows Client Install Dialog

The Install dialog lets you check which components of the FastLink II Client Pack you'd like to install, and into which directories.

The following table describes the available options:

Option	Description
FastLink II (Remote Node)	
Dial-in client	Installs the FastLink client
NetWare Client	Installs the Novell NetWare client with VLM support
NetWare Utilities	Installs NetWare Utilities, including LOGIN.EXE
Novell TCP/IP stack	Installs the Novell LAN Workplace TCP/IP stack, PING.EXE, and TRACERT.EXE (trace route)
Installation Directory	Directory for FastLink II client and NetWare files
Proxy (Remote Control)	
Master	Installs the Proxy Master
Installation Directory	Directory for Proxy Master files

The default is to install the FastLink II Dial-in Client, the Novell NetWare Files, Novell TCP/IP Stack and the Proxy Master — these are the modules you'll want to have on the PC that you'll be using remotely.

NOTE: To install the Proxy Host, run the *SETUP* program from the Proxy Host diskette on the machine you want to take over.

Press **[Install]** to proceed with installation.

- 2 If you selected **NetWare Client**, and already have installed VLM support on your PC, you will be prompted to either use the VLMs you have installed, or install newer ones.

A dialog similar to the following will appear if VLMs are detected:



Figure 2: VLM Already Installed Dialog

Click **[Use Current VLM]** to use the existing VLMs from the installed directory, or **[Install New VLM]** to install VLM 1.20B from the FastLink II diskettes.

- 3 If you selected **Novell TCP/IP Stack**, this will install Novell's LAN Workplace TCP/IP stack which lets you run IP-based applications.

Note: IP applications such as a Web Browser, FTP client, email client, etc., are not included with this package.

To use TCP/IP effectively you need to refer to a DNS (Domain Name System) server. DNS lets you use symbolic names (such as *xyz.company.com*) instead of specific IP addresses.

A dialog similar to the following will now appear:

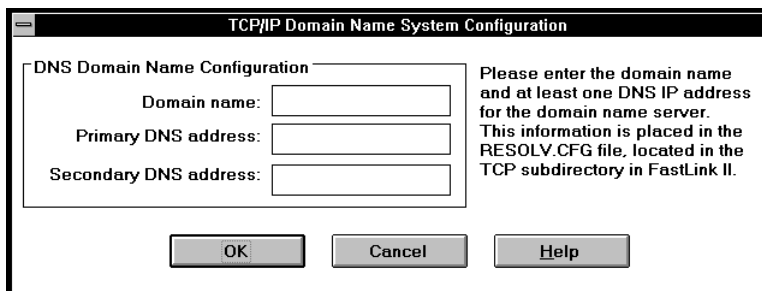


Figure 3: TCP/IP Domain Name System Configuration Dialog

You should now enter the following information:

Domain Name — the DNS domain name; each network uses a top-level domain name such as *company.com*.

Primary DNS address — the IP address of the DNS name server that will be tried first to resolve symbolic names; if this server is not available, then the secondary DNS address will be tried instead.

Secondary DNS address — the IP address of the DNS name server that will be tried if the primary DNS address cannot be reached; if this server is not available, then the attempt to resolve the symbolic name will fail. This parameter is optional, but it is strongly recommended.

- 4 You may be prompted to overwrite files such as NET.CFG and FLINK.INI that may have been previously installed. For each of these prompts, answer **[Yes]** to overwrite the existing file, or **[No]** to keep the previous version. If you answer **[Yes]**, the file will be backed up.

The FastLink II files will now be copied to the destination directories.

A file copy progress indicator will now appear:

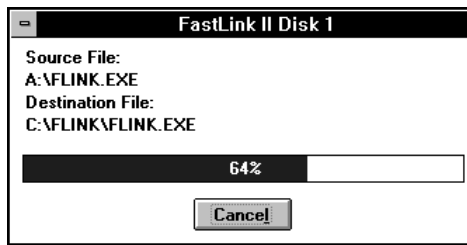


Figure 4: Copy Progress Dialog

To cancel the copy operation hit the **[Cancel]** key; this will prompt you to abort the installation operation.

- 5 After the file copy, you will be asked to select one of the two supported connection types for your Remote Annex Software.

The following dialog will now appear:

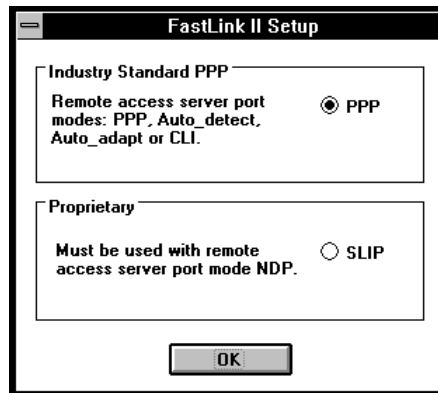


Figure 5: PPP or SLIP Selection Dialog

Click on the connection type you wish to use:

PPP — Choose this if you are running Remote Annex Software Release 10.1 or higher. This selection enables IPX and IP remote access over PPP.

SLIP — Choose this if you are running a Remote Annex Software release that is earlier than Release 10.1. This selection enables IPX remote access over SLIP.

6 You will now be asked if you wish to configure the FastLink II client settings. The following prompt will now appear:

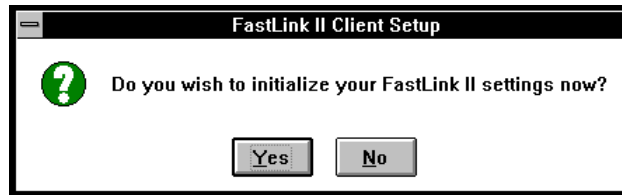


Figure 5: Initialization Confirmation Prompt

If you answer **[Yes]** to configure the settings now, the FastLink II client will be started with the **Setup** dialog chosen for you.

The following dialog will now appear:

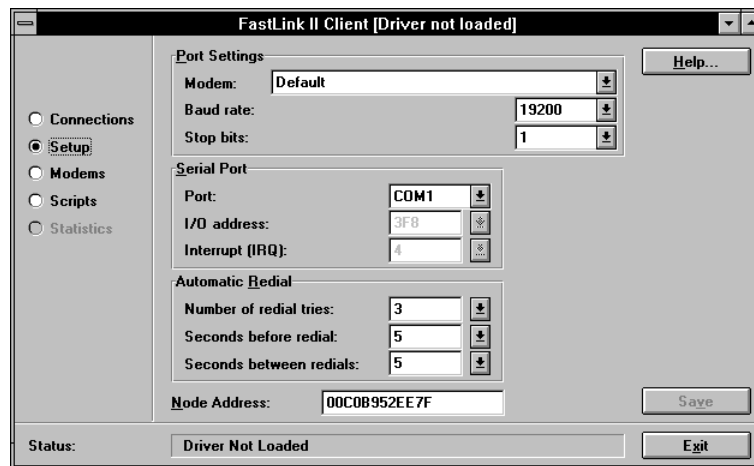


Figure 6: FastLink II Setup Dialog

You can now enter the following configuration information required by FastLink II:

Serial Port — Set the Serial Port to the port to which your modem is connected. Normally, this will be either COM1 or COM2.

Modem — Select a Modem from the list of preconfigured modems. Select **Default** if your modem does not appear on the list.

Baud Rate — Select the baud rate at which your serial port and modem will communicate.

When you are done entering settings, press **[Save]**, then press **[Exit]**.

NOTE: Any settings you enter here can always be changed by invoking this same dialog from the FastLink II user interface. Refer to the chapters "FastLink II

Concepts” and “The FastLink II User Interface” for more information on configuring FastLink II.

- 7 If you installed the **NetWare Client** you will get a message stating that VLMS are installed on your system. This screen includes information on the batch files to load your dial-up stack for NetWare and/or TCP/IP.

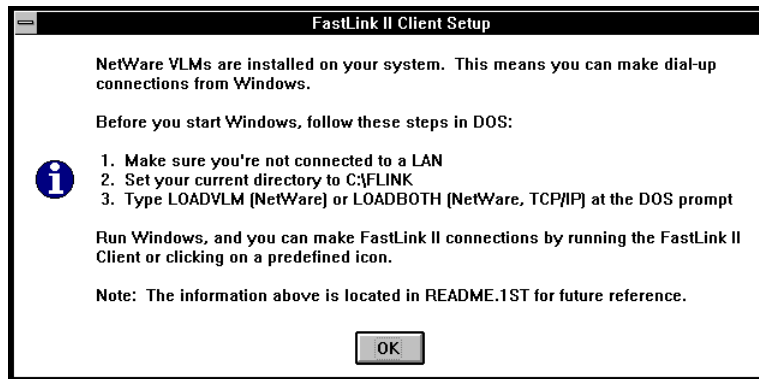


Figure 7: NetWare Information Dialog

Click **[OK]** to continue.

- 8 A final screen appears with a message stating that the software has been successfully installed. In addition, you will be asked to reboot your PC so that any changes to your system files can take place.

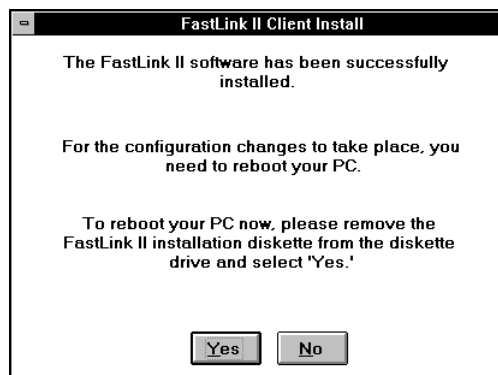


Figure 8: Final Install Dialog

Click **[Yes]** to reboot now.

Installing Proxy Host on the network PC

The Proxy Host can be installed from Windows or Windows 95. There are some differences between the Windows and Windows 95 installation; however, the installation steps are identical. Before installing the Proxy Host, make sure that you close all other applications that you have running.

To install the Proxy Host from Windows or Windows 95:

- 1 Use the Windows 95 **Start Run** or Windows Program Manager **File Run** command, and run SETUP.EXE. For example, to install from the diskette in drive A or B you would enter:
A:\SETUP ↵ (from A:) or **B:\SETUP** ↵ (from B:)
- 2 You will be presented with the introductory “Welcome” dialog. Click **Next** to continue.
- 3 You will be presented with the “Software License Agreement” dialog. Before proceeding, make sure that you read and agree with the terms of the license agreement. Click **Yes** to accept the license agreement terms and continue.
- 4 You will be presented with the “Choose Destination Location” dialog. You may either use the default destination directory, enter a new one, or click **Browse** to search for a directory. Click **Next** to use this installation location and continue.
- 5 You will be presented with the “Select Program Folder” dialog. You may use the default folder name **Proxy**, enter a new one, or choose from an existing folder. Click **Next** to use this installation location and continue.
- 6 You will be presented with the “Proxy Host Setup” dialog. Set the Proxy Host station **Name** and **Password** that will be used to identify your PC to Proxy Masters as follows:

- ♦ **Name** is a unique host station name that identifies the PC to a Proxy Master that may want to connect to this host. You should make sure that the name you assign is different from that of other host PCs, or Proxy will not be able to tell them apart.

You will probably want to assign a station name that makes it easy to identify the PC. Combining the name of the person who uses the PC with the PC’s brand or type is usually a good practice; for example, “Jean’s P200” or “Gracie’s Model 60.”

- ♦ **Password** lets you restrict access to your PC to only certain Proxy Master users. Whenever a Proxy Master tries to connect to your PC, that password will have to be supplied before the connection is accepted.

The password can be any sequence of up to 16 characters. The password is never displayed on screen; as you edit it, asterisks appear in place of the characters you type. You can change the password at any time.

If you do not want to require a password for access, you should leave this field completely blank.

After entering the **Name** and **Password**, Click **Next** to continue.

- 7 You will be presented with the "Start Copying Files" dialog prior to actual file copying. At this point, you can go back to any previous dialog and change your answers by pressing **Back**. Click **Next** to start copying the Proxy files and continue.
- 8 Setup is now finished copying files to your PC. Click **Finish** with **Restart Windows now** checked to restart Windows and complete the installation process.
- 9 You will receive a final message box requesting that Windows be restarted. Click **Restart Windows**. Your PC will now be available as a Proxy Host whenever you start Windows.

System File Modifications During Installation

During installation from Windows, certain modifications will be made to your system files:

- ◆ When the FastLink II Client is installed, a line is added to your AUTOEXEC.BAT that loads a Novell program called DPMS.EXE, if it is not there already.

DPMS is an extended memory driver that allows the FastLink II driver to reduce its DOS footprint dramatically.
- ◆ When the Novell NetWare files are installed, the following changes are made to accommodate VLM installations:
 - In CONFIG.SYS, **lastdrive=z** is inserted, or existing **lastdrive** settings are modified to **lastdrive=z**.
 - In WIN.INI, **nwpopup.exe** is inserted in the [Windows] section
 - In SYSTEM.INI, various items are inserted for the VLM client
- ◆ When the Proxy Master is installed, no changes will be made to your system files.
- ◆ When the Proxy Host is installed, your SYSTEM.INI file is modified as follows:
 - In the **[boot]** section — **user.exe=user.exe** changes to **user.exe=phostusr.exe**. This allows Proxy to control your display, keyboard, and mouse when Windows starts, and launches **PHOSTWIN**.
 - In the **[386enh]** section — **device=prxv.vxd** is added for Windows 3.x.
 - A **[Proxy Host]** section is added to record settings for Proxy.

In Windows 95, *Proxy Host* is added to the *Add/Remove Programs* area in your Control Panel; if selected, this will remove the Proxy Host from your PC.

NOTE: Modified system files such as WIN.INI, SYSTEM.INI, AUTOEXEC.BAT, and CONFIG.SYS will be backed up with numbered extensions (e.g., AUTOEXEC.BAT renamed to AUTOEXEC.000).

DOS Installation

This section describes how to install the FastLink II Client on your PC in DOS.

To install the FastLink II Client, start from the DOS prompt and:

- 1 Insert the FastLink II Client diskette in drive A or B, then make that drive current by typing either **A:** or **B:**, then pressing ↵.

- 2 Enter the following command:

FINSTALL ↵

Follow the directions on the screen. The FINSTALL program copies the FastLink II Client software into the directory of your choice.

- 3 Select the PPP or SLIP version of the FastLink II Client.

PPP - Choose this if you are running Remote Annex Software

Release 10.1 or higher. This selection enables IPX and IP remote access over PPP.

SLIP - Choose this if you are running a Remote Annex Software Release that is earlier than Release 10.1. This selection enables IPX remote access over SLIP.

- 3 Make the FLINK directory current and type:

FLINK ↵

The FastLink II main menu will appear.

- 4 Select **Setup**. The Setup dialog will appear.

You can now enter configuration information required by FastLink II to operate your system:

Serial Port — Set the Serial Port to the port to which your modem is connected. Normally, this will be either COM1 or COM2.

Modem — Select a Modem from the list of preconfigured modems. Select **Default** if your modem does not appear on the list.

Baud Rate — Select the baud rate at which your serial port and modem will communicate.

When you are done entering settings, press **[Save]**. Then press **[Done]** to return to the main menu, then select **Exit** to return to DOS.

NOTE: Any settings you enter here can always be changed by invoking this same dialog again.

- 5 Edit your AUTOEXEC.BAT file and add a command to run DPMS.EXE, preferably as the first line of the file:

C:\FLINK\DPMS.EXE

NOTE: DPMS is a Novell extended memory driver that allows the FastLink II ODI driver to reduce its DOS footprint dramatically.

6 Before running FastLink II, reboot your PC.

II-1 FastLink II Concepts

Clients and Servers

In the world of remote access, you're either a client or a server.

- ◆ A **remote access client** is a PC that can connect to a remote access server over a telephone or other remote link, and thereby get a connection to the network. Your PC becomes a remote access client when you use the FastLink II Client software to connect to a remote access server.
- ◆ A **remote access server** is a piece of hardware and/or software that is connected to a network and can accept calls from clients who want access to that network. The job of the remote access server is to connect clients to the network.

A **Bay Networks' Remote Annex server** is an example of such a server. The Remote Annex server accepts calls from the FastLink II Client.

The FastLink II client and Remote Annex server communicate using a standard protocol called Point to Point Protocol (PPP). Most modern remote access systems use PPP as the underlying basis for communication.

The Remote Access Administrator

The Remote Annex Administrator is the person in charge of maintaining your remote access server and making sure that people are able to connect to it.

Your administrator should provide you with:

- ◆ A **user name** that identifies you to the Remote Annex server.
- ◆ A **password** to allow the Remote Annex server to authenticate your identity.
- ◆ The **phone number** of the Remote Annex server.

Your Administrator can also help you configure the FastLink II Client software, make sure your modem works correctly, and provide you with ongoing support as you need it.

Serial Ports

Your PC and modem communicate with each other over a serial port. The type of serial port you have and the speed (baud rate) you set it to affect the performance of your FastLink II connection.

The most common type of serial port is based on the 8250 and, more recently, the 16450 Universal Asynchronous Receiver Transmitter (UART). This type of serial port handles a single character at a time in either direction.

An enhanced serial port, called the 16550 UART, is now used in many high-end workstations and laptops. The 16550 can buffer up to 16 characters at a time in either direction. Because it can buffer so many characters, the risk of losing data is minimized and the serial port can operate at a higher baud rate and at a lower error rate.

NOTE: You can find out which type of serial port(s) you have by using FastLink II's Comm Port Test option. For more information, refer to the section "Housekeeping."

All this leads up to the \$64 question: What baud rate should you set the serial port to?

First, you need to know what baud rate your modem requires. It's possible that your modem requires a specific baud rate and you'll have to set your serial port to that.

But most modern modems automatically adjust to any baud rate you set. So here are some rules of thumb:

- ◆ Set the highest baud rate possible to get the most benefit out of the compression in your modem. Experiment with different baud rates, checking Port Statistics to make sure that the error rate isn't too high. (The ratio between **Rx Total** and **Rx Errors** should be about 10,000 to 1 or better.)
- ◆ If you have a fast PC (for example, a 50 MHz 486) and a 16550 UART, you can probably set the baud rate as high as you like and not worry about it too much.

The FastLink II ODI Driver

ODI (Open Data-link Interface) is the Novell standard upon which network communications is based. The ODI standard describes the different layers required for network communications and how they should interact. FastLink II is fully compliant with this standard, and allows you to operate standard Novell networking software transparently.

You may already be familiar with other ODI drivers. NE2000.COM, for example, is an ODI driver that operates an Ethernet card, just as the FastLink II ODI driver operates a modem or other communications device.

The FastLink II ODI driver (FLODI.COM) is the main component of FastLink II. It allows communication with a Remote Annex server that uses Point-to-Point protocol (PPP), a standard data-link level protocol.

The FastLink II ODI driver allows both IPX and IP protocols to run over the PPP connection. FastLink II includes Novell's IPX and LAN Workplace IP stack. There are also numerous vendors that supply IP stacks which are also compatible with FastLink II.

These are the various components that must be loaded to establish an IPX connection and attach to NetWare servers. These are, in order of loading:

LSL.COM — The Link Support Layer. This is the “traffic cop” that manages the communication between ODI drivers and protocols such as IPX and IP.

FLODI.COM — The FastLink II ODI driver. This module sends and receives packets of data over the phone line on behalf of IPXODI or an IP ODI driver.

IPXODI.COM — The IPX protocol. IPXODI finds the FastLink II ODI driver and uses it for all packet communications over the network.

VLM.EXE or **NETX.EXE** — One of these must be loaded before you can attach to NetWare file servers. Both use IPX to communicate with file servers. NETX is the older NetWare shell technology. VLM is the newer NetWare redirector and provides improved performance (burst mode) and additional features that are useful for remote access.

You can establish an IP connection at the same time that you run IPX. Depending on the IP stack you are using, you may need to load additional TSRs, or make changes to your system files.

***NOTE:** Refer to your IP stack vendor's documentation for how to load TSRs and modify your system files. See the FastLink II IPSTACKS.HLP help file for the latest information on IP stack configuration with FastLink II.*

II-2 The FastLink II User Interface

Overview

The FastLink II User Interface can be run from DOS or Windows:

- ◆ **FLINK.EXE** is the DOS version of the user interface.
- ◆ **FLINKW.EXE** is the Windows version of the user interface.

FLINK.EXE and FLINKW.EXE perform mostly the same functions and operate the same way. You can use one or the other as the need arises.

The sections that follow describe the dialogs that allow you to control FastLink II. In most cases, the documentation refers to Windows dialogs as examples, but since these dialogs contain the same options as the DOS dialogs, you can use them as reference whether you are running FastLink II from DOS or Windows.

At the end of this chapter, you'll find information on running FLINK.EXE and FLINKW.EXE with command line parameters. Command line operation of FastLink II lets you use batch files in DOS or icons in Windows to automate connecting and disconnecting.

While this chapter describes how to connect to a Remote Annex server from the Connections dialog, before you actually attempt a connection you should read one of the chapters that follow: either "Connecting From DOS" or "Connecting From Windows". Those chapters will give you more complete information on how to set up your system in general prior to connecting.

The FastLink II User Interface runs whether or not the FastLink II ODI driver has been loaded; if it is not loaded you won't be able to connect to a server, though you will be able to change settings.

Running the FastLink II User Interface from DOS

To run the FastLink II User Interface from the DOS command line, type:

FLINK ↵

The FastLink II main menu appears.

Operating the FastLink II User Interface dialogs is fairly intuitive and similar to operating dialogs in Windows. You can use either the keyboard or the mouse. If you are using the keyboard, consult the following table for the basic operations that operate the menus and dialogs.

Operation	Instruction
To select a menu item	Use the up and down arrows to select the item you want, then press [Return] .
To move the highlight from one item to another	Use [Tab] and [BackTab] .
To use a drop-down box	Highlight the box and press [Return] , use the up and down arrows to select the item you want, then press [Return] .
To use a checkbox	Highlight the item and press [Space] to check or uncheck the box.
To select a radio-button	Highlight the selected item, then use the up and down arrows to change the selection.
To modify an edit field	Highlight the field and use left and right arrow, [Del] , [Backspace] , and standard text keys to edit the data.
To press a command button	Press the function key ([F1] , [F2] , etc.) shown on the button.
To return to the previous screen	Press [Esc] .
To return to DOS from any dialog	Press [Alt-F10] .

Running the FastLink II User Interface from Windows

To run the FastLink II User Interface from Windows, use the **File Run** command and type the following:

C:\FLINK\FLINKW

You can also double-click the FastLink II Client icon in your *FastLink II* Windows group. Either way, the FastLink II User Interface appears with the Connections dialog displayed.

The radio buttons at the left of the screen let you select which dialog to display. Just click the dialog you want, and it will appear in the window.

The Connections Dialog

The Connections dialog is the focal point of activity in FastLink II. It is from this dialog that you connect and disconnect from servers, and save the characteristics of connections for future use. Specifically, you can:

- ◆ Connect to a server
- ◆ Disconnect from a server
- ◆ Create and remove named connections
- ◆ Edit the settings for any connection
- ◆ Enter terminal mode to view modem activity, operate the modem directly if necessary, or communicate with security devices at the server

A *connection* is a named collection of settings that describe how to dial up a server.

If you always connect to the same server, you may need only one connection. If you call different servers, or need to use different settings for different purposes, you can create a named connection for each.

Connection settings include:

- ◆ Your user name and password, to allow the server to authenticate your identity
- ◆ The phone number of the server
- ◆ An option to request that the server dial you back at a specified phone number
- ◆ An option to use a predefined dialing script when connecting
- ◆ An option to pop up Terminal mode when connecting
- ◆ Settings for the IPX protocol
- ◆ Settings for the IP protocol

To display the Connections dialog, check the **Connections** button at the left of the screen. A dialog similar to the following appears:

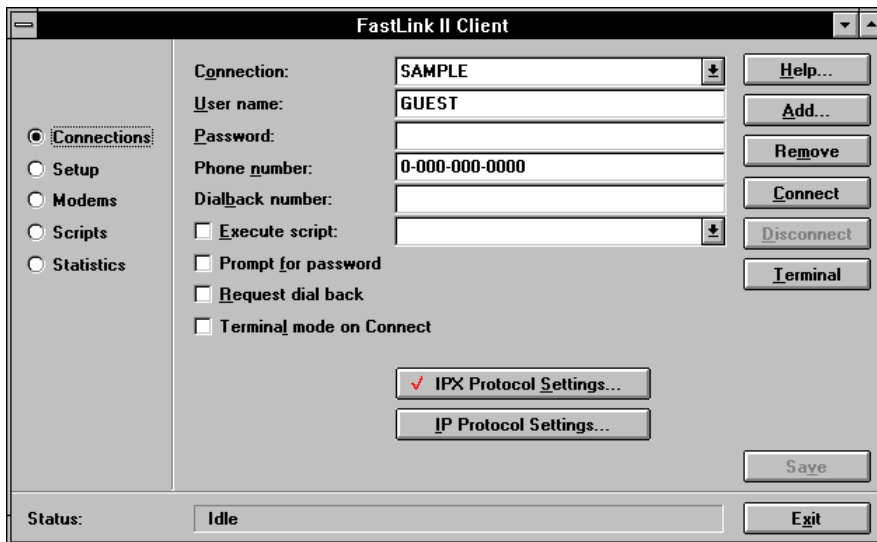


Figure 2: Connections Dialog

Editing Connection Settings

To edit the settings for a connection:

- 1 Highlight the **Connection** drop-down box, and select the connection whose settings you want to edit.
- 2 Edit any of the individual settings, as described in the sections below.
- 3 Press **[Save]** to make your changes permanent.

User name

Your Administrator will assign you a user name. Your user name identifies you to the Remote Access server. To enter your user name, highlight the **User name** field and enter the name your Administrator assigned you.

Password

Your Administrator will assign you a password. This password allows the Remote Annex server to authenticate your identity.

You can save your password as part of the connection settings. Your password will be provided to the server automatically each time you connect. To specify your password:

1 Highlight the **Password** field and enter your assigned password.

The password appears as asterisks as you type, so be careful to enter it correctly.

2 If the **Prompt for password** box is checked, uncheck it.

You can also specify that your password is required each time you connect.

1 If the **Password** field is not blank, highlight it and press **[Del]** to remove any password you may have previously entered.

2 Check the **Prompt for password** box.

Phone number

This is the phone number of the server. Your Administrator can supply you with this number. Your modem uses this number to gain access to the network.

To specify the phone number, highlight the **Phone number** field and enter the phone number of your server. If any special access codes or modem controls (such as pauses) are required, be sure to include them.

Dialback

Dialback is a two-step process. First, your PC dials the server, and, after exchanging some information such as your phone number, both sides hang up. Then the server dials your PC and establishes a connection.

If you want to use dialback:

1 Check the **Request dialback** box.

2 Highlight the **Dialback number** field and enter the phone number of your modem.

If you don't want dialback, uncheck the **Request dialback** box.

*You can also leave it up to the server as to whether to use dialback. Just uncheck the **Request dialback** box, but enter a phone number in the **Dialback number** field in case the server elects to use dialback.*

NOTE: Your Administrator may have set up special rules for dialback. For security purposes, you may be required to use dialback, and only from particular phone numbers known to the server. It's also possible that you are precluded from using dialback. Your Administrator can help you set up the proper dialback options.

Execute Script

You can execute a script which allow you to easily automate connections to a Remote Annex server with front-end security.

To specify a script to use, highlight the **Execute Script** drop-down box and select a script from the list.

*NOTE: If you plan to connect to a terminal server that prompts with "Login:" and "Password:", choose **Standard**, or use the Scripts dialog to create a new script for your Remote Annex server.*

Terminal Mode on Connect

Terminal mode on connect is useful if you need to communicate with a communications server or security device that requires you to enter information before connecting to the Remote Annex server. Checking this box will automatically start **Terminal Mode** in the following situations:

- ◆ When you click **Connect**, FastLink II will pop up the Terminal Mode screen, which is equivalent to pressing **[Terminal]**.
- ◆ If you run FastLink II from the command line with a connection name, the **Terminal Mode** screen will automatically pop up.
- ◆ In Windows, if the connection is broken, when redial begins the **Terminal Mode** screen will pop up.

IPX Protocol Settings

The IPX Protocol Settings dialog lets you configure the use of IPX over the connection. When you click the [IPX Protocol Settings] button, a dialog similar to the following appears:

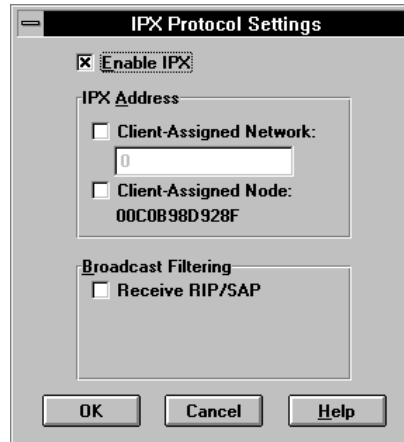


Figure 3: IPX Protocol Settings Dialog

If you'd like to use IPX, check the **Enable IPX** box.

*NOTE: Novell NetWare uses IPX for all its communications. Be sure to check **Enable IPX** if you plan to log into NetWare file servers or use other programs that rely on IPX, such as Proxy.*

Network and Node Address

When you connect, you will be assigned an IPX address that combines the Remote Annex server's network number with a node address. FastLink II gives you a choice as to how your network and/or node address gets assigned:

- ◆ You can use your FastLink II-assigned network and node address by checking one or both of the **Client Assigned** checkboxes.
- ◆ You can let the Remote Annex server assign a new, unique network and/or node address to your PC each time you connect by unchecking one or both of the **Client Assigned** checkboxes.

Duplicate IPX Addresses

Your Remote Annex server does not let two users with the same IPX address connect simultaneously. If someone else with your IPX address has already dialed in, you will get an error when you try to connect.

If you use FastLink II's node address that was generated at installation, the odds of this happening are very small. If it does happen to you, go to the **Setup Dialog** and generate a new random node address to resolve the conflict.

Your node address is saved in FastLink II's configuration file, FLINK.INI. The most likely way for two people to get the same node address is by copying FLINK.INI. This might be done as a shortcut to configuring several similar machines. If you think your FLINK.INI may be a copy of someone else's, just regenerate a new node address to be sure of avoiding conflicts.

Broadcast Filtering

The **Broadcast Filtering** settings let you suppress various types of broadcast packets from the network to reduce unnecessary traffic.

A broadcast packet is one which is not directed to one particular node, but to every node on a network. Networks are normally buzzing with broadcast traffic. File servers and other network services advertise their presence using broadcasts, routers keep each other up-to-date using broadcasts, client workstations search for servers to connect to using broadcasts, and so on.

The problem with broadcasts is that they get sent to everyone, even nodes that will ignore them. A large network with many servers and routers can generate levels of broadcast traffic that, though easily accommodated on a local cable, can flood a modem connection.

FastLink II lets you decide which types of broadcasts from the network your PC will receive. Check **Receive RIP/SAP** to receive RIP and SAP broadcasts, uncheck it to suppress these broadcasts.

RIP/SAP broadcasts are the most common type. These are the broadcasts that servers and routers use to communicate with each other. In general, you'll want to suppress RIP/SAP broadcasts.

IP Protocol Settings

The IP Protocol Settings dialog lets you configure the use of IP over the connection. When you click on the [IP Protocol Settings] button, a dialog similar to the following appears:

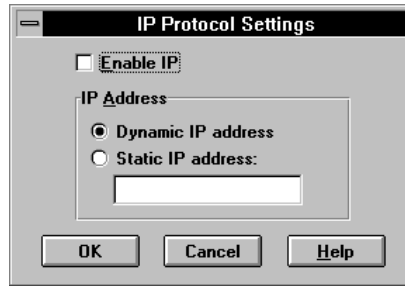


Figure 4: IP Protocol Settings Dialog

FastLink II gives you two choices as to how your IP address gets assigned:

- ◆ You can request a dynamic IP address for your PC each time you connect. This IP address will be based on how the Remote Annex server is configured.
- ◆ You can specify a static IP address. This IP address will be used each time you connect.

To request that a dynamic IP address be assigned to you when you connect:

- 1 Check the **Enable IP** box.
- 2 Check the **Dynamic IP address** button.

To request to use a static IP address when you connect:

- 1 Check the **Enable IP** box.
- 2 Check the **Static IP address** button.
- 3 Highlight the Address field and enter a valid IP address in the format xxx.xxx.xxx.xxx, where xxx is a value between 0 and 255.

NOTE: An invalid static IP address may be rejected by the server when you connect. If this happens, you may receive a dynamically-assigned IP address, or your request for IP will be rejected. Check with your system administrator to make sure that you are using a valid IP address.

Static IP Address

To configure your IP stack with a static IP address, you also need to provide the Remote Annex server's IP address (as a gateway) and the IP subnet mask. When configuring FastLink II's **IP Protocol Settings**, enter the same static IP address in the **Static IP address** field.

Dynamic IP Address

To configure your IP stack to use a dynamic IP address, you need to specify RARP (Reverse Address Resolution Protocol), BOOTP, or DHCP (Dynamic Host Configuration Protocol). FastLink II will automatically provide the negotiated IP address to the IP stack when a RARP or BOOTP request is made. When configuring FastLink II's **IP Protocol Settings**, select **Dynamic IP address**.

NOTE: If you use DHCP, ensure that you have a DHCP server on your network.

IP Stack Configuration

FastLink II uses ETHERNET_II for its default frame type. Do not change this frame type in the NET.CFG file or FastLink II will not work with IP.

There are numerous interfaces available to communicate between TCP/IP stacks and the ODI driver. Some stacks use the ODI interface directly, while others require a "shim" which converts calls from another interface, such as a packet driver, to the ODI driver.

NOTE: Refer to your IP stack vendor's documentation for how to load TSRs and modify your system files. See the FastLink II IPSTACKS.HLP help file for the latest information on IP stack configuration with FastLink II.

Adding a Connection

To add a new connection:

- 1 Press **[Add]** and enter a name for the new connection when prompted.
The new connection is displayed, and its settings are initialized based on the previously-selected connection.
- 2 Edit any of the individual settings.
- 3 Press **[Save]** to make your changes permanent.

Removing a Connection

To remove a connection from the list:

- 1 Highlight the **Connection** drop-down box, and select the connection you'd like to remove.
- 2 Press [**Remove**] to remove the connection from the list.

Connecting to a Server

Before you connect, be sure that:

- ◆ You have set the connection settings correctly for dialing the Remote Annex server.
- ◆ You have set the correct configuration and preferences in the Setup dialog.
- ◆ You have loaded all the required drivers, such as LSL.COM and FLODI.COM.

Refer to either of the chapters "Connecting From DOS" or "Connecting From Windows" below for complete information on how to set up your system in general prior to connecting.

To make the connection:

- 1 Be sure the **Connection Status** line at the bottom of the screen indicates "Idle." If not, Press [**Disconnect**] to cancel any previous connection or connection-in-progress.
- 2 Highlight the **Connection** drop-down box, and select the appropriate connection.
- 3 Press [**Connect**].

FastLink II activates the modem and dials the server. Once the phone link is created between the two modems, FastLink II and the server exchange the information necessary to establish the connection.

If all goes well, after a few seconds the connection is established.

The **Connection Status** line at the bottom of the screen lets you monitor the progress of the connection.

Once the connection is established, a message box appears showing that the operation was successful, and also details features of the connection.

The following table describes the information returned in the message box:

Item	Description
Modem reports ...	If your modem returned a CONNECT string, it will be displayed along with the speed of the modem-to-modem connection over the telephone line in bits/second. <i>(NOTE: some modems may only display the baud rate between the PC and modem.)</i>
Baud rate ...	Displays the baud rate between your PC and modem. This is the same baud rate entered in the Setup dialog.
Connected to...	Displays the name of the server to which you are connected, and your authenticated user name.
IPX Address:	If a valid IPX connection has been established, this message will display the connection's IPX address.
Local IP Address:	If a valid IP connection has been established, this message displays the connection's IP address. <i>(NOTE: if you have requested a client-assigned IP address, make sure that the reported address matches it or your IP connection may not work.)</i>
Remote IP Address:	If a valid IP connection has been established, this message displays the IP address of the remote server (or gateway) to which you are connected.
Maximum connect time	If the server limits your connect time, this message displays the maximum period of time that the server will permit you to stay connected.

The Connection Information File

If you need to refer to the information displayed in the message box at a later time, simply view the CONNECT.TXT file in the FastLink II directory.

This file is created each time you make a new connection and contains a copy of the message box strings. You can also view the date and time of the CONNECT.TXT file to determine when the connection was started.

The Connection Failure Message

If your attempt to connect to the server was unsuccessful, an error message appears, indicating the reason that the connection couldn't be established. For example, the server's phone number might have been busy, or you may have entered the wrong user name or password and failed authentication.

The following shows a typical error message:



Figure 5: Connection Failure Message Box

If you have repeated or unexplained connection failures, see Appendix A "FastLink II Connection Errors" for recommended actions.

Disconnecting

Once you've completed your work, press **[Disconnect]** to terminate your connection with the server. Before disconnecting, make sure you've logged out of any file servers you might have been attached to, and you've disabled any other software that might rely on a valid connection to the network.

You can also use **[Disconnect]** if you change your mind after choosing **[Connect]**. This aborts the connection in progress.

NOTE: If you have connected from Windows and then disconnect before logging out of all servers you may receive network error messages. If you are asked to "Retry or Cancel", simply answer "Cancel" and continue.

Terminal Mode

Terminal Mode provides a full-screen display that permits you to monitor FastLink II's interaction with the modem, and lets you type directly into the modem as well. You might use Terminal Mode for the following reasons:

- ◆ To view modem result strings
- ◆ To diagnose modem problems
- ◆ To operate the modem directly if necessary
- ◆ To communicate with a communications server or security device that requires you to enter information before allowing a connection.

You enter Terminal Mode from the Connections dialog by choosing **[Terminal]**. Once in Terminal Mode, any text you type on the keyboard is sent directly to the modem, and any text returned or echoed from the modem appears on the terminal display.

While in Terminal Mode you can:

- ◆ Press **[Connect]** to dial the server and make a connection.
- ◆ Press **[Disconnect]** to break the current connection.
- ◆ Press **[Close]** to return to the Connections dialog.

*NOTE: You cannot use **[Esc]** to return from Terminal Mode. **[Esc]** is treated as a text character and is sent to the modem.*

The Setup Dialog

The Setup dialog lets you specify configuration information and preferences. The Setup dialog lets you:

- ◆ Specify your modem brand, baud rate, and number of stop bits
- ◆ Specify the serial (COM) port to which the modem is attached
- ◆ Edit settings for automatic redial in case of a dropped phone connection
- ◆ Create a specific node address or generate a new random node address

To display the Setup dialog, check the **Setup** button at the left of the screen. A dialog similar to the following appears:

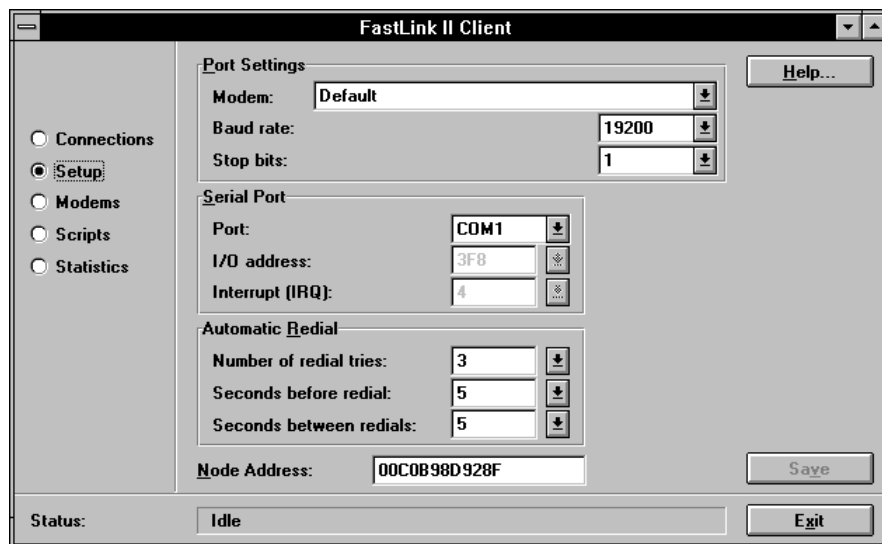


Figure 6: Windows Client Setup Dialog

You can now edit any of the items shown. When you are through editing, press [**Save**] to make your changes permanent.

Port Settings

The Port Settings let you specify the brand of modem you are using and the settings for the serial connection between the PC and modem.

To specify the port settings:

- 1 Highlight the **Modem** drop-down box and select a modem from the list.

*NOTE: If you don't see your modem brand on the list, you can either choose an equivalent modem, choose **Default** which works with most modems, or use the *Modems dialog* to create an entry for your modem.*

- 2 Highlight the **Baud rate** drop-down box and select a baud rate.
- 3 Highlight the **Stop bits** drop-down box and select either 1 or 2 stop bits. (In almost all cases, you should set this value to 1.)

Serial Port

Your PC and modem communicate with each other over a serial port. A PC may have up to four serial ports, labeled COM1 through COM4. Either your modem is connected to one of these ports by cable, or you have an internal modem with a built-in serial port. In either case, you need to select the correct serial port for FastLink II to operate.

For the Serial Port, you may choose any of the available COM ports on your PC, or you may choose Custom. If you select one of the standard COM ports, FastLink II automatically enters information in the **Port address** and **Interrupt (IRQ)** fields. However, if your serial port has a non-standard configuration, you should select Custom and set **Port address** and **Interrupt (IRQ)** to the correct values for your serial port.

To specify the serial port to which your modem is attached:

- 1 Highlight the **Serial Port** drop-down box, and select a serial port from the list. You can choose any available COM port, or you can select Custom.
- 2 If you selected Custom, highlight the **Port address** field and enter the correct value.
- 3 If you selected Custom, highlight the **Interrupt (IRQ)** field and enter the correct value.

Automatic Redial

Every once in a while, the connection between your modem and the server's modem may break. This could be because the phone line goes down, or it could be the result of modem errors.

FastLink II can automatically detect the dropped line, redial the server, and re-establish the broken connection. Usually, once a connection is re-established you should be able to use the network as before — any interrupted operation will usually just pick up where it left off.

Three parameters control how FastLink II tries to re-establish a broken connection:

Number of redial tries — The maximum number of redial attempts FastLink II will make in case it gets a Busy signal. You can set this value to 0 to turn off redial entirely.

Seconds to wait before redial — The time to wait before the first redial. This gives the server time to realize that the connection is broken and hang up its phone.

Seconds between redials — Determines the frequency of redial attempts after getting busy signals.

To configure FastLink II's automatic redial settings:

- 1 Highlight the **Number of redial tries** field and enter the desired value. Enter 0 if you do not want FastLink II to redial at all.
- 2 Highlight the **Seconds to wait before redial** field and enter the desired value.
- 3 Highlight the **Seconds between redials** field and enter the desired value.

Node Address

Every workstation on the network has a unique node address (also known as the MAC or Media Access Control address). This node address is used as your IPX node address if you selected client-assigned IPX address.

When you first install FastLink II, it will automatically generate a random node address for you. *We recommend that you use the node address that you get upon installation.* However, you can change the value if you like.

To specify a node address directly:

- ◆ Enter the new address into the Node Address field. This address is entered as 12 hexadecimal characters (0 through 9, A through F) to represent the 48-bit node address.

To generate a random node address:

- ◆ Clear the Node Address field of all text by choosing **[Del]** or **[Backspace]**, then press **[Tab]**.

The Modems Dialog

The Modems dialog lets you maintain FastLink II's list of available modems and edit their settings. From the Modems dialog you can:

- ◆ Add a modem to the list of available modems
- ◆ Remove a modem from the list of available modems
- ◆ Edit the settings for any modem

FastLink II comes preconfigured with a list of the modems you are most likely to encounter. The settings for each modem consist of a set of strings that FastLink II will use to operate that modem.

In most cases, you will not need to use the Modems dialog. All you'll need to do is select the appropriate modem in the Setup dialog and you'll be up and running without any trouble. Even if your modem does not appear in the list, there is likely to be another modem in the list that works the same way as yours.

To display the Modems dialog, check the **Modems** button at the left of the screen. A dialog similar to the following appears:

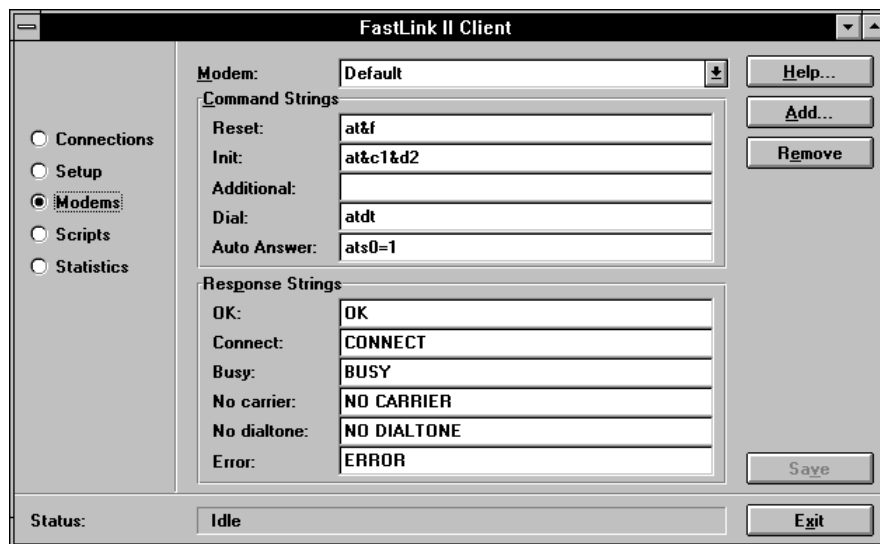


Figure 7: Modems Dialog

How FastLink II Operates the Modem

FastLink II operates a modem based on the command string and result string settings for that modem:

- ◆ A command string is a string sent to the modem to cause it to perform an operation, such as to reset itself, dial a number, or wait for a call.
- ◆ A result string is a string sent back from the modem to indicate the result of an operation.

When FastLink II initiates a call to a server, it first sends three command strings in succession: Reset, Init, and Additional. It then sends the Dial string, followed by the phone number.

The Auto-answer string is only used for dialback. After making the initial connection, FastLink II hangs up, sends the Reset, Init, and Additional strings, then sends the Auto-answer string to await the return phone call from the server.

Command Strings

The modem command strings should perform functions as follows:

- ◆ The **Reset** string resets the modem to the factory defaults.
- ◆ The **Init** string should:
 - Configure error-correction and compression
 - Enable hardware flow control
 - Enable CD (Carrier Detect) high on connection
 - Enable hang-up on DTR (Data Terminal Ready) low.
 - Set the CONNECT report string to the modem's DCE speed. This will show the true speed of the connection.
- ◆ The **Additional** string contains any additional initialization you'd like.
- ◆ The **Dial** string contains the dial prefix sent before the phone number.
- ◆ The **Auto-answer** string should put the modem in auto-answer mode.

Response Strings

The modem response strings have the following meanings:

- ◆ The **OK** string is returned by the modem to indicate success. Ordinarily, this string is set to OK.
- ◆ The **Connect** string is returned by the modem to indicate a successful connection. Ordinarily, this string is set to CONNECT.
- ◆ The **Busy** string is returned by the modem to indicate a busy phone line. Ordinarily, this string is set to BUSY.
- ◆ The **No carrier** string is returned by the modem to indicate it did not get an answer. Ordinarily, this string is set to NO CARRIER.
- ◆ The **No dialtone** string is returned by the modem to indicate it did not get a dialtone. Ordinarily, this string is set to NO DIALTONE.
- ◆ The **Error** string is returned by the modem to indicate some other error occurred. Ordinarily, this string is set to ERROR.

Adding a Modem

When adding a modem to the list, you can save yourself a little time by first selecting a modem similar to the one you want to add. The strings for your new modem will be initialized from the currently displayed strings, and you'll have less editing to do.

To add a modem to the list of modems:

- 1 Press **[Add]** and enter a name for the new modem when prompted.

The new modem will be added to the list, and its settings (based on the previously selected modem) are displayed.
- 2 Highlight each of the strings you'd like to change, and edit them to your liking.
- 3 Press **[Save]** to make your changes permanent.

The modem you added will now be available for selection in the Setup dialog.

Removing a Modem

To remove a modem from the list:

- 1 Highlight the **Modem name** drop-down box, and select the modem you'd like to remove.
- 2 Press [**Remove**] to remove the modem from the list.

Editing Modem Settings

To edit a modem's command or result strings:

- 1 Highlight the **Modem name** drop-down box, and select the modem whose settings you'd like to edit.
- 2 Highlight each of the strings you'd like to change, and edit it to your liking.
- 3 Press [**Save**] to make your changes permanent.

The Scripts Dialog

The Scripts dialog lets you create and edit scripts, which are used when you create FastLink II connections in the Connections dialog. Scripts allow you to easily automate connections to a Remote Annex server with front-end security.

NOTE: The Scripts dialog must be created from the Windows version of the FastLink II interface; that is, from FLINKW.EXE run in Windows. In addition, scripting will only work while you are running in Windows.

From the Scripts dialog you can:

- ◆ Add a script to the list of available scripts
- ◆ Remove a script from the list of available scripts
- ◆ Edit existing scripts by inserting, deleting, or rearranging the order of any of the script command lines

FastLink II comes preconfigured with a **Standard** script, which works for many terminal servers and Internet access providers.

To display the Scripts dialog, check the **Scripts** button at the left of the screen. A dialog similar to the following appears:



Figure 8: Scripts Dialog

Adding a Script

To add a new script:

- 1 Press **[Add]** and enter a name for the new script when prompted.
The new script will be added to the list, and the **Script** window will display the **---end of script ---** line
- 2 Create a new script by adding script commands. See the section “Editing Scripts” below for a description of how script commands work.
- 3 Press **[Save]** to make your changes permanent.

The script you added will now be available for selection in the Connections dialog.

Removing a Script

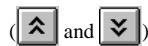
To remove a script from the list:

- 1 Highlight the **Script Name** drop-down box, and select the script you'd like to remove.
- 2 Press **[Remove]** to remove the script from the list.

Editing Scripts

You can edit the selected script using the buttons to the right of the Script Window:

- ◆ To insert a new script command, highlight the line at which you'd like to insert the new command, then press **[Ins]**.
- ◆ To append a command to the end of the list, position the highlight to the **---end of script ---** line, then press **[Ins]**.
- ◆ To modify an existing script command, highlight the command and press **[Edit]**, or double-click the command line.
- ◆ To remove a command from the script, highlight the command line and press **[Del]**
- ◆ To move a command up or down in the script's execution order, highlight the command and click the up or down arrow buttons



When you press **[Ins]** or **[Edit]** to insert or edit a command, the Script Command dialog will appear. This dialog allows you to select a command and enter additional information required by the command, such as an argument and options settings.

You'll notice that the Script Command dialog is an "active" one; the dialog controls automatically adapt to your selection, and the Description box contains an explanation of the command you selected.

For example, if you selected **expect**, entered “Login:” as the String, and checked the **nocase** option, you would see the following display:



Figure 9: Script Command Dialog

When you press [OK], the command, argument, and option settings are formulated into a single script line and placed in the script.

Script Commands

The following script commands can be inserted into your list:

Script Command	Description
expect [-nocase] <i>string</i>	Wait until <i>string</i> appears in the receive stream, then proceed. If -nocase is specified, then upper and lower case letters are treated equally when scanning for <i>string</i> ; otherwise, an exact match to <i>string</i> is required.
prompt [-secret] <i>string</i>	Display a message with <i>string</i> as a prompt, and wait for a reply. Your input will be stored as response (see senditem below). If -secret is specified, asterisks are echoed. NOTE: If you press [Cancel] during your input, the script is aborted.
send [-noreturn] <i>string</i>	Transmit <i>string</i> over the transmit stream. A carriage return is automatically appended to <i>string</i> , unless -noreturn is specified.

senditem [-noreturn] <i>item</i>	<p>Transmit <i>item</i> over the channel. A carriage return is automatically appended to <i>string</i>, unless -noreturn is specified.</p> <p>The <i>item</i> can be any of the following:</p> <p>response: the last response to a prompt</p> <p>username: the username field from the current connection</p> <p>password: the password field from the current connection, or the response to a password prompt (if you selected Prompt for Password)</p>
wait <i>time</i>	<p>Wait until the specified <i>time</i> has elapsed. The <i>time</i> argument is entered as seconds, up to 3 decimal places.</p>
timeout <i>time</i>	<p>Sets the script to fail with a timeout message if <i>time</i> elapses from the point at which this command is encountered. The <i>time</i> argument is entered as seconds, up to 3 decimal places.</p> <p>When the script first starts, a timeout of 120 seconds (2 minutes) is used. The timeout command overrides any previous timeout.</p> <p>The time during which a PROMPT command is waiting for input is not included in the timeout period.</p>

Displaying Port Statistics

FastLink II's Port Statistics display provides statistics on data traffic to help diagnose any problems that you may have. Note that the statistics are cleared each time you reload the FastLink II ODI driver, and they are cumulative over all connection sessions.

Two types of statistic are shown: Packet Statistics and Character Driver Statistics.

- ◆ **Packet Statistics** show success and error counts based on entire packets of data.
- ◆ **Character Driver Statistics** show success and error counts on a per-character basis for the low-level driver that operates the serial port.

To view the Port Statistics display, check the **Port Statistics** button at the left of the screen. A display similar to the following appears:

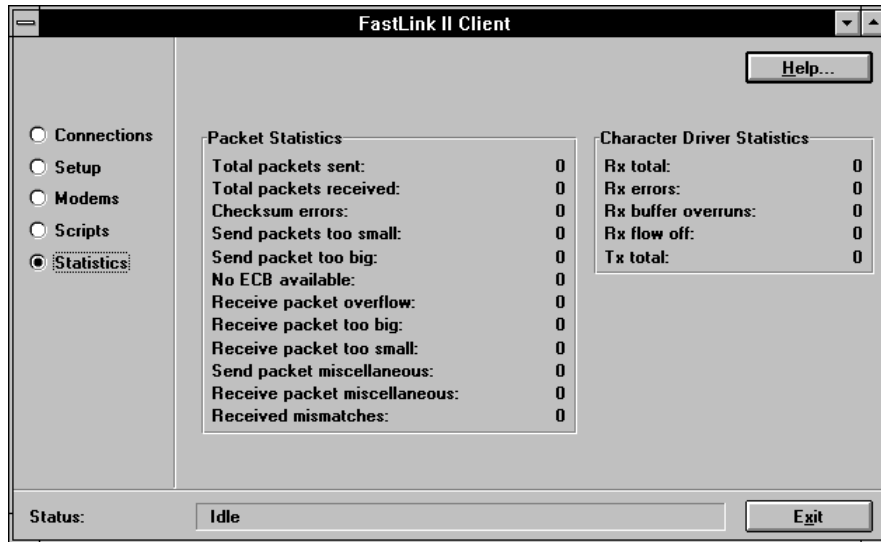


Figure 10: FastLink II Statistics Screen

The following table describe these statistics.

Statistic	Meaning
<i>Character Driver Statistics</i>	
Rx total	Total number of characters received
Rx errors	Number of hardware receive errors (UART overrun or framing error). If the ratio of Rx errors to Rx total is worse than 1 in 10,000, consider reducing your baud rate.
Rx buffer overruns	The number of times the receive buffer could not accept additional data. Indicates a cabling problem or modem not responding to hardware flow control.
Rx flow off	The number of times that hardware flow control was used to throttle receive data from the modem.
Tx total	Total number of characters transmitted
<i>Packet Statistics</i>	
Total packets sent	Total number of packets sent.
Total packets received	Total number of packets received.
Checksum errors	The number of packets with invalid checksum, indicating a data error.
Send packet too small	The number of send packets smaller than the minimum size.
Send packet too big	The number of send packets larger than the maximum size.
No ECB available	The number of packets received for which no application was listening. (This is not necessarily an error condition.)
Receive packet overflow	The number of packets received for which no internal buffer is available.
Receive packet too big	The number of received packets larger than the maximum size.
Receive packet too small	The number of received packets smaller than the minimum size.
Send packet miscellaneous	The number of send packets with hardware errors.
Receive packet miscellaneous	The number of receive packets with hardware errors.
Received mismatches	The number of packets with invalid media headers. (This should never happen.)

Housekeeping

The Housekeeping dialog has additional functionality that you can use.

- ◆ The **Comm Port Test** option displays a list of available serial ports and determines the UART type for each.

*NOTE: The **Comm Port Test** must be performed from the DOS version of the FastLink II interface; that is, from FLINK.EXE run from the DOS command line. This is because this test must access hardware directly; this is best done when Windows is not running.*

To bring up the Housekeeping menu, select Housekeeping from the FastLink II User Interface main menu.

The resulting display will look like this:



Figure 11: FastLink II Housekeeping Dialog

The Comm Port Test

The **Comm Port Test** displays information about the serial ports that are available on your PC. To display this information:

- 1 From the main menu, select **Housekeeping**.
- 2 From the Housekeeping menu, select **Comm Port Test**.

FastLink II surveys your serial ports and display the following information about each:

- ◆ The COM port number
- ◆ The port's I/O address
- ◆ The type of UART (Universal Asynchronous Receiver-Transmitter) used.

The resulting display will look like this:

```
FastLink II Client v2.13          Monday July 1, 1996  6:39 pm
Comm Port Test

                                     F1 Help...

Start Test
=====
Serial Ports:
COM1 at 0x3F8 16450 (Type 1 standard UART)
COM2 at 0x2F8 16450 (Type 1 standard UART)
=====
End Test

                                     F10 Done

Connection Status: Idle
F1 = Help  <Esc> = Previous Menu  Alt+F10 = Exit
```

Figure 12: FastLink II Comm Port Test Screen

FLINK.EXE Command Line Options

The FLINK.EXE command (the FastLink II DOS User Interface) offers several command line options that let you:

- ◆ Connect and disconnect without running the full-screen interface.
- ◆ Run the Comm Port Test option without running the full-screen interface.
- ◆ Specify monochrome rather than color operation, to improve the appearance of the full-screen interface on certain gray-scale displays.

Connecting from the DOS Command Line

To connect without running the full-screen interface, just specify the name of the connection right on the command line:

```
FLINK connectionname ↵
```

For example, if you've created a connection called BRANCHOFFICE, you can connect to it by typing:

```
FLINK BRANCHOFFICE ↵
```

Once the connection is established, information such as connection speed, data handling options, server name, and the like will be displayed on screen.

Disconnecting from the Command Line

To disconnect without running the full-screen interface use the /D switch:

```
FLINK /D ↵
```

Running the Comm Port Test

To run the Comm Port Test from the command line, use the `/T` switch:

```
FLINK /T ↵
```

Information about your serial ports will be displayed on screen.

Displaying Port Statistics from the Command Line

To display FastLink II statistics from the DOS command line, use the `/S` switch:

```
FLINK /S ↵
```

Complete Port Statistics information will be dumped to your screen, one line at a time. If you want to capture statistics to a file, you can direct the FLINK output to a file. For example, to write your statistics to file `STATS.TXT` you would type:

```
FLINK /S > STATS.TXT ↵
```

Using Monochrome Mode

The FastLink II User Interface automatically adjusts to whether your display adapter is color or monochrome. However, many laptops have gray-scale displays that represent different colors with various shades of gray. Sometimes the result is that some have inadequate contrast or are indistinguishable from each other.

If you find such problems when you run the FastLink II User Interface, try specifying monochrome mode using the `/M` switch:

```
FLINK /M ↵
```

FLINKW.EXE Command Line Options

The FLINKW.EXE command (the FastLink II Windows User Interface) offers several command line options that let you:

- ◆ Connect and disconnect without running the full interface.
- ◆ Automatically launch other programs or batch files after a connection has been established. For example, you could automatically start a Proxy remote control session, or automatically log in to file servers and map drives.

The real power of the FLINKW.EXE command line is that you can create Windows icons that automate your connections. The “Connecting From Windows” chapter discusses the types of procedures you might want to automate and provides useful examples.

Connecting from the Windows Command Line

To connect from Windows without running the full interface, just specify the name of the connection right on the command line:

```
FLINKW connectionname
```

For example, if you've created a connection called BRANCHOFFICE, you can connect to it as follows:

```
FLINKW BRANCHOFFICE
```

Disconnecting from the Command Line

To disconnect without running the full interface, just specify the /D switch:

```
FLINKW /D ↵
```

Automatic Program or Batch File Launch

When you run the FastLink II User Interface with a connection name on the command line, you can also specify one or more programs to launch once the connection has been established.

The program or programs you wish to launch must be separated by the vertical bar character ("|"). Following each vertical bar you may have a command line to launch a Windows or DOS program:

```
FLINKW connectionname | command1 [ | command2 ... ]
```

For example, to make a connection using connection name MYOFFICE, and then to run PROXY to remotely control a PC called MYPC:

```
FLINKW MYOFFICE | PROXY MYPC
```

Macros for automatic program launch

Since you can string several command lines together to perform multiple operations from the FLINKW.EXE command line, it is possible for the FLINKW.EXE command line to become too long. The macro capability provides a way around this problem.

Macros are defined in the [AppNames] section of FLINK.INI. To create a macro, you must edit this file to add an entry in the form:

```
macro=commandline
```

For example, to create a macro called RC to run PROXY to remotely control a PC named MYPC, you would include the following within the [AppNames] section of FLINK.INI:

```
RC=C:\PROXY\PROXY.EXE MYPC
```

Then, you can use the macro rather than the PROXY command line after the vertical bar in the FLINKW command line:

```
FLINKW MYOFFICE | RC
```

FLINK.INI Settings

The FLINK.INI file contains a [Settings] section with parameters that affect the programs' operation. The following table explains these parameters:

Parameter	Meaning
ConnectNotify	<p>For command line connections only. Set to 0 (disable) or 1 (enable). If enabled, displays a message box with the full connection information (name, connection speed, whether compression or encryption were used, etc.). If disabled, no message is displayed and no confirmation is necessary.</p>
DisconnectNotify	<p>For command line connections only. Set to 0 (disable) or 1 (enable). If enabled, displays a message box when FastLink II is disconnected with the /D option. If disabled, no message box is displayed.</p>
SuccessAction	<p>Determines what to do with the FastLink II client if a successful connection is made from the user interface or the command line. The default (0) is to have FLINKW remain active in both cases.</p> <p>For command line connections, set SuccessAction to:</p> <ul style="list-style-type: none"> 1 FLINKW is minimized as an icon 2 FLINKW will terminate <p>For user interface connections, add to SuccessAction:</p> <ul style="list-style-type: none"> 10 FLINKW is minimized as an icon 20 FLINKW will terminate <p>Note that the command line and user interface options are additive, e.g., if you set SuccessAction=21 then FLINKW will terminate after a successful UI connection, and minimize after a successful command line connection.</p> <p>SuccessAction operations occur after any application launching and message box displays (e.g., if ConnectNotify=1).</p>
ConnectText	<p>For all connections. Determines whether the CONNECT.TXT file is created when a connection is made. Set to 0 to not create the file, or 1 to create the file.</p>

II-3 Connecting from DOS

Overview

This chapter describes how to connect to the network from the DOS environment. It covers not only FastLink II, but also the other TSRs and programs you need to build an IPX stack and login to NetWare file servers. You'll find out:

- ◆ How to issue a series of commands at the DOS prompt to build an IPX stack, connect to a Remote Annex server, then login to file servers.
- ◆ How to automate the above sequence using a batch file.
- ◆ How to use a local login script to speed up the login process.
- ◆ How to tear down your remote connection, either by issuing commands from the DOS prompt or by running a batch file.
- ◆ How to use the optional FLCACHE TSR to guard against accidentally running DOS programs from the network when you'd prefer to run them from your local hard disk.

Before you Connect

Before you connect make sure that:

- ◆ You are not already connected to a LAN through a direct Ethernet or Token Ring connection.
- ◆ You have the latest version of either NETX or VLM.
NOTE: If you use VLM, be sure you have at least version 1.11. Check README.TXT for information on the latest versions of VLM and NETX.
- ◆ You have local copies of Novell programs such as LOGIN, ATTACH, MAP and any other programs that you may need.
- ◆ You've used the FastLink II User Interface Setup dialog to configure COM port settings, modem information, and the like.
- ◆ You've used the FastLink II User Interface Connections dialog to create a named connection with the correct phone number to dial and other settings.

FastLink II comes pre-configured with a connection named SAMPLE that dials a Remote Access server. If you'd like, you can edit the SAMPLE connection to make a connection to a Remote Annex server for testing.

Making a Connection Manually

What follows is a step-by-step procedure that loads all the modules necessary to establish an IPX connection to the network and then login to NetWare file servers.

If this is your first time connecting, it's a good idea to go through this manual procedure to understand how it works. In practice, you'll want to use batch files to automate this process, as described in the next section.

Making an IPX Connection

To make the connection, perform the following from the DOS command prompt:

- 1 Load LSL (the Link Support Layer):

LSL ↵

- 2 Load the FastLink II ODI driver:

FLODI ↵

- 3 Run the FastLink II User Interface with the connection name on the command line:

FLINK connectionname ↵

For example, to make connect to a remote access server, type:

FLINK SAMPLE ↵

FastLink II initiates the connection, and notifies you when your PC is connected.

- 4 Load the IPX protocol:

IPXODI ↵

You now have an IPX connection to the network.

Loading the NetWare Shell

Before logging in to a NetWare server, you need to load either VLM or NETX, depending on which shell you have installed on your PC.

The preferred shell to use is Novell's VLM (Virtual Loadable Module manager). This shell provides improved performance by transferring data in *burst mode*. NETX is Novell's older shell program. While it works fine over FastLink II, it lacks some of the features that the VLM shell has that are useful for remote access.

To use VLM, type:

```
VLM ↵
```

To use NETX, type:

```
NETX ↵
```

Logging In

Once you've loaded VLM or NETX, you can use the LOGIN command to login to a file server. From the DOS prompt, type:

```
LOGIN servername/username ↵
```

Then enter your password when prompted.

For example, to login to server BIGSERVER as user ALICE:

```
LOGIN BIGSERVER/ALICE ↵
```

Your PC is connected to the server and you are now able to use all network services.

While connected, you can minimize delays by running programs from your local drive rather than from the file server. It's a good idea, for example, to ensure that your PATH environment setting lists local directories prior to network directories.

Using a Local Login Script

When you use the LOGIN command to login to a NetWare file server, a login script is run. The login script may attach to additional file servers, map drives and printers, and perform other functions that set up your networking environment.

When using FastLink II, you may want to override your standard login script with a *local login script*. Your standard login script might take a long time to run over a dial-up line; a short, well-designed local login script can usually speed up the process considerably:

- ◆ You can avoid the delay of transferring the server's login script over the dial-up line.

- ◆ You can eliminate functions you may not need. For example, there may be drives you don't need to map, file servers you don't need to attach to, or printer ports you don't need to capture.
- ◆ You can save time by running programs such as CAPTURE.EXE from your local hard disk rather than from the file server.

To login using a local login script, use the following form of the LOGIN command:

```
LOGIN /S scriptpath servername/username ↵
```

The /S switch indicates that the item that follows is the pathname of a login script. For example, to log in to server BIGSERVER as user ALICE, using local login script LOGIN.DAT:

```
LOGIN /S C:\FLINK\LOGIN.DAT BIGSERVER/ALICE ↵
```

Be sure to include the drive and full pathname of the local login script.

Creating a Local Login Script

Your FastLink II Administrator can help you set up a local login script.

Most login scripts consist primarily of ATTACH commands to connect to additional file servers, MAP commands to create network drives, and CAPTURE commands to redirect printer ports to network printers.

Here's an example of a simple login script:

```
ATTACH SERVER2/GEORGE  
MAP J:=SERVER2/SYS:PUBLIC  
#C:\FLINK\CAPTURE Q=PRINT_QUEUE NB TI=10 NFF
```

Note in the example above that ATTACH and MAP are script commands that are directly interpreted by the LOGIN program. There is no directly interpreted CAPTURE command however, so CAPTURE.EXE must be run as a DOS program by using the # prefix. Note also that the drive and full pathname of the CAPTURE program are supplied, to ensure that the program is run from the local hard disk.

Breaking the Connection

To break your connection, do the following from the DOS prompt:

- 1 Log out from any NetWare file servers you are attached to:

LOGOUT ↵

- 2 Break the FastLink II connection to the Remote Annex server:

FLINK /D ↵

You've now disconnected, but all modules are still loaded. If you'd like to reconnect, just re-establish your FastLink II connection and log in again.

If you are done with remote access and you'd like to unload the NetWare shell and the IPX stack, continue as follows:

- 3 Unload the NetWare shell by typing either:

VLM /U ↵

or

NETX /U ↵

- 4 Unload the IPX protocol:

IPXODI /U ↵

- 5 Unload the FastLink II ODI driver:

FLODI /U ↵

- 6 Unload LSL:

LSL /U ↵

Making and Breaking Connections with Batch Files

The procedures described above can easily be automated using batch files. For example, you could have a batch file called DIALUP.BAT to automatically dial a Remote Annex server and login as GUEST:

```
C:
CD \FLINK
LSL
FLODI
FLINK SAMPLE
IPXODI
VLM
LOGIN /S C:\FLINK\DIALUP.DAT SERVER/GUEST
```

Similarly, you might have a batch file called HANGUP.BAT to tear down the connection:

```
C:
CD \FLINK
VLM /U
IPXODI /U
FLINK /D
FLODI /U
LSL /U
```

Using FLCACHE Launch Protection and File Caching

FLCACHE is a small TSR that provides two benefits during your remote session:

- ◆ It protects you against accidentally launching programs from the network, which take longer to load over dial-in lines.
- ◆ It lets you keep local copies of programs you normally run from the network, and automatically runs the local copy even when the remote copy of the program is called for. You might use FLCACHE for NetWare utilities such as LOGIN, LOGOUT, MAP, etc.

How FLCACHE Works

FLCACHE intercepts requests to run DOS programs from network drives, and prompts you either to run the program, to download it, or to cancel the operation. By intercepting these requests, FLCACHE provides a warning that you may be accidentally running a program over a relatively slow dial-up connection.

FLCACHE also allows you to specify a special cache directory on your local drive in which you can place commonly run programs that normally reside on the network. You don't have to change your AUTOEXEC.BAT file's PATH statement as a remote user; the cache directory is always checked first whenever there's an attempt to run a program from a network drive.

Sample FLCACHE Session

The following example explains how FLCACHE operates.

1 You enter this command to run Novell's WHOAMI utility:

WHOAMI ↵

2 FLCACHE responds with this message.

File W:\PUBLIC\WHOAMI.EXE is 26 KB. Continue? Y)es N)o
D)ownload

This message means that FLCACHE detected that WHOAMI.EXE is located on the network drive. It then prompts you whether you want to run or download the program.

3 You then respond by entering this command to download WHOAMI.EXE to your file cache directory on your local drive:

D ↵

From now on, whenever you run WHOAMI, it automatically runs from the cache directory on your local drive.

Configuring FLCACHE

FLCACHE has command-line options to allow you to customize its operation. This command follows this syntax.

FLCACHE <option list>

The following table explains these options.

Option	Meaning
/L	Specifies the directory containing local copies of remote programs. The default is the FLCACHE directory off the current directory
/U	Unloads FLCACHE from memory
/S	Sets the file size threshold in kilobytes. Smaller files will be loaded normally over the network. Default: /S=5
/D	Disables FLCACHE notification
/E	Enables FLCACHE notification after using /D
/W	Provides the warning only. No caching is done. Reduces TSR overhead somewhat. '/L' option not allowed
/?	Displays available options

II-4 Connecting from Windows

Overview

This chapter describes how to connect to the network from the Windows environment. It covers not only FastLink II, but also the other TSRs and programs you need to build an IPX stack and login to NetWare file servers. You'll find out:

- ◆ How to issue a series of commands in DOS to load the proper drivers prior to running Windows.
- ◆ How to use the FastLink II User Interface from Windows to make and break connections to a Remote Annex server.
- ◆ How to use Novell's NetWare User Tools program to log in and out of file servers, map drives, and capture printers.
- ◆ How to create powerful Windows icons that automate the process of connecting to a Remote Annex server and setting up your networking environment.

Before You Connect

Before proceeding make sure that:

- ◆ You are not already connected to a LAN through a direct Ethernet or Token Ring connection.
- ◆ You've installed the VLM version of the Novell's NetWare Client. If you requested **Novell NetWare Files** during installation, this will be done for you automatically.
- ◆ You've used FastLink II's Setup dialog to configure COM port settings, modem information, and the like.
- ◆ You've used FastLink II's Connections dialog to create a named connection with the correct phone number to dial and other settings.

Note that FastLink II comes pre-configured with a connection named SAMPLE that dials a remote access server. If you'd like, you can connect to that server as a test. Check the FastLink II User Interface Connections dialog in case you need to make changes to the SAMPLE connection. For example, you might need to include a PBX prefix or international country code in the phone number.

Before Running Windows

If you requested **Novell NetWare Files** installation, then the last line of your AUTOEXEC.BAT should be:

```
CALL C:\FLINK\LOADVLM
```

This will load all the required drivers you need to run FastLink II from Windows. If you don't have this line in your AUTOEXEC.BAT, you can invoke LOADVLM.BAT with the following command:

```
LOADVLM ↵
```

Alternatively, you can load each driver manually. For information on doing this, refer to the next section "Loading the NetWare VLM Stack."

Loading the NetWare VLM Stack

To load the NetWare stack, type the following from the DOS command prompt:

- 1 Load LSL (the Link Support Layer):

```
LSL ↵
```

- 2 Load the FastLink II ODI driver:

```
FLODI ↵
```

- 3 Load the IPX protocol:
IPXODI ↵
- 4 Load VLM (the Virtual Loadable Module manager):
VLM ↵

Now, you can start Windows and use FastLink II to make connections.

Connecting to the Remote Access Server

To connect to a Remote Annex server from Windows:

- 1 Run the FastLink II User Interface (FLINKW.EXE) by double-clicking the FastLink II Client icon.
The FastLink II Connection dialog appears.
- 2 Select a connection from the Connection drop-down box.
- 3 Press **[Connect]**. FastLink II will establish a connection to the Remote Access server.

To disconnect from the Remote Annex server, just press **[Disconnect]** from the Connection dialog.

Connecting to NetWare File Servers

Once you have made a FastLink II connection, you can log into NetWare file servers, map drives, capture printers, then log out when you're done. All these operations can be performed from Novell's NetWare User Tools (NWUSER.EXE).

To log into a NetWare file server:

- 1 From NetWare User Tools, click the NetWare Connections icon or press **[Alt-C]**. The NetWare Connections dialog will appear.
- 2 Under the Resources column, select the NetWare file server you want to access, then press **[Login]**.
- 3 Enter your NetWare user name and password.

To map drives:

- 1 From NetWare User Tools, click the Drive Connections icon or press **[Alt-D]**. The Drive Connections dialog will appear.

- 2 Select a drive from the Drives column and a file server from the Resources column, then press **[Map]**.

To capture printers:

- 1 From NetWare User Tools, click the Printer Connections icon or press **[Alt-P]**. The Printer Connections dialog will appear.
- 2 Select a printer port from the Ports column and a print queue from the Resources column, then press **[Capture]**.

To log out of a NetWare file server:

- 1 From NetWare User Tools, click the NetWare Connections icon or press **[Alt-C]**. The NetWare Connections dialog will appear.
- 2 Under the Connections column, select the currently attached NetWare file server you want to log out of, then press **[Logout]**.

Using Custom Windows Icons

This section describes several types of icons that you can create to automate the process of connecting and establishing a networking environment.

These icons use the FLINKW.EXE command line for connecting to a Remote Annex server and launching programs or batch files once connected. See the section “FLINKW Command Line Options” in the “FastLink II User Interface” chapter for a description of how these options work.

FastLink II’s Windows installation creates a Software group with several samples of such icons:

Dial Sample — Dials a Remote Annex server using the SAMPLE connection.

Dial Sample & Guest Login — Dials Remote Annex server, logs in to the network, and maps drives.

Dial & Proxy — Connects to a Remote Annex server and starts a Proxy Remote Control session.

The following sections show how to create your own icons, using these samples as guides.

Creating an Icon that Establishes a Connection

The following procedure shows how to create an icon similar to the Dial icon in your Software program group. This icon automatically connects to a FastLink II server using a connection name.

Follow these steps:

- 1 Use Program Manager's **File New** command to create a new Program Item in the group of your choice.
- 2 Set the Command Line field to run the FastLink II User Interface and specify a connection name as an argument. For example, to create a FastLink II icon that uses the DIAL connection, you would enter:
C:\FLINK\FLINKW.EXE SAMPLE
- 3 Click **[OK]** and the new icon is ready for use.

Creating an Icon that Connects and Logs In

The following procedure shows how to create an icon similar to the Dial & Guest Login icon in your Software program group. This icon automatically connects to a Remote Annex server using the connection name, then runs a batch file in a DOS box to log in to a NetWare file server.

In order for this to work, your system must be set up so that when you log in or map a drive in a DOS box, you do so "globally" and affect the entire system, not just the one DOS box. To make sure that this is the case, run NetWare User Tools (NWUSER.EXE), click the NetWare Settings icon or press **[Alt-S]**, and make sure the **Global Drives & Path** box is checked. If not, check it and restart Windows so this change will take effect.

To create the icon, follow these steps:

- 1 If you don't already have one, create a local login script that attaches to servers, maps drives, and otherwise sets up your networking environment.

NOTE: Local login scripts are discussed in the chapter "Connecting From DOS."

- 2 Create a DOS Batch (.BAT) file that logs you into the network and give it a descriptive name (such as MYLOGIN.BAT).

The first line must make your first network drive the current drive. (Check the FIRST NETWORK DRIVE setting of your NET.CFG file for the appropriate drive letter.) This is really just a trick to "wake up" VLM and let it make its initial attachment to the first server it sees.

The second line should contain the LOGIN command you require, which would include the name of a local login script, the name of a file server, and your user name.

The following is an example of a batch file that logs in to server TEST as user GUEST and uses a local login script GUEST.DAT:

```
F:  
C:LOGIN /S C:\FLINK\GUEST.DAT TEST/GUEST
```


- 3 Using the PIF Editor, create a .PIF file to execute the DOS batch file you just created. Use the same name as your batch file; for example, if your batch file is MYLOGIN.BAT you could call your .PIF file MYLOGIN.PIF. Set the following options:

PIF Editor Option	Setting
Program Filename	The name of your batch file (e.g., MYLOGIN.BAT)
Display Usage	Windowed
Execution	Background
Close Window on Exit	Checked

- 4 Use Program Manager's **File New** command to create a new Program Item in the group of your choice.
- 5 Set the Command Line field to run the FastLink II User Interface with a connection name as an argument, followed by a vertical bar and the name of the .PIF file you just created.

For example, to create a FastLink II icon that uses the DIAL connection and then runs a batch file specified in MYLOGIN.PIF, enter the following in the Command Line field:

C:\FLINK\FLINKW.EXE SAMPLE | C:\FLINK\MYLOGIN.PIF

6 Click **OK** and the new icon is ready for use.

Creating an Icon that Runs Proxy

The following procedure shows how to create an icon similar to the Dial Sample and Proxy icon included in your *FastLink II* program group. This icon connects to a Remote Annex server, then launches a Proxy Remote Control session.

To create this icon:

- 1 Use Program Manager's **File New** command to create a new Program Item in the group of your choice.
- 2 Set the Command Line field to run the FastLink II Windows User Interface with a connection name as an argument, followed by a vertical bar and a PROXY command line to run after successful connection.

For example, to create a FastLink II icon that uses the SAMPLE connection and begins a Proxy session with a host named DEMO, enter the following in the Command Line field:

C:\FLINK\FLINKW.EXE SAMPLE | PROXY DEMO

3 Click **OK** and the new icon is ready for use.

II-A FastLink II Connection Errors

Connection Error Messages

The following messages may appear on screen when your system encounters an error, either while trying to establish a connection, or while connected.

Error Message	Meaning	Action
Modem error: Busy	The line is busy.	Try the call again.
Disconnected	The modem disconnected before completing PPP negotiation.	Check the modem configuration and try the call again. If the error persists, contact the system administrator.
Modem error: invalid command	The modem returned an error message.	Check the modem configuration and try the call again. If the error persists, contact the system administrator.
Error: Crossed connection	The hardware is echoing data sent by the client.	Check the hardware and modem configuration.
Error: No FastLink II Server License Available	All available licenses on the server are in use.	Try the call again later.
Error: Not Universal FastLink II Client	You are not authorized to connect to a non-Bay Networks server.	Are you running the PPP Client, instead of the FastLink II Client?
Error: Unable to access Remote Access Server Database	There has been an error accessing the server database.	Contact the system administrator.
Forced by administrator	The system administrator forced a termination of the connection.	Contact the system administrator.
Invalid configuration	The client and server failed to agree on PPP negotiation parameters.	Contact the system administrator.

Error Message	Meaning	Action
Invalid or duplicate node address	Someone has called in with a duplicate node address.	Generate a new Client random node address. If this fails, contact the system administrator.
Invalid or missing IP Address	You have requested a dynamic IP address which the server is unable to provide	Contact the system administrator to provide additional IP addresses
Modem Error: No carrier	The modem is unable to connect, or unable to negotiate with the answering modem's protocols.	Check the modem configuration and try the call again. If the error persists, contact the system administrator.
Modem Error: No dialtone	There is no dialtone; there may be a problem with your local connection.	Check your modem and your telephone line.
No network protocols enabled	You have not connected with either an IPX or an IP protocol	Check your IPX and IP protocol settings. If you have requested IPX and/or IP, the remote access server may not be properly configured for the requested protocol.
Not a dial-in port	The server terminated the connection attempt because it is not configured to allow dial-in at this port.	Contact your system administrator.
Timeout	The client timed out waiting for the modem to connect.	Possible modem problem. Check your modem configuration.
Unable to negotiate data link	The client timed out during PPP negotiation.	Ask the administrator to check your configuration
Unknown	There was an unknown error on the line.	Try the call again.
User request	You explicitly disconnected.	

III-1 Supported IP Stacks

Introduction

FastLink II supports the following IP stacks:

Beame & Whiteside (BW-TCP 3.2)

Frontier (Super/TCP 4.0 R2)

FTP (OnNet v2.1 for Windows)

Microsoft (Windows for Workgroups 3.11)

NetManage (Chameleon 4.01)

Novell (LAN Workplace for DOS/Windows 4.2, 5.1)

Wall Data (Rumba for Internet 1.0)

Wollongong (Pathway Access 3.1)

WRQ (Reflection 2, 4.01)

Information on installation and configuration of these stacks with FastLink II is provided in this document.

Beame & Whiteside (BW-TCP 3.2)

Product	BW-TCP 3.2
Company	Beame & Whiteside
Address	706 Hillsborough St. Raleigh, NC 27063
Telephone	+1 919 831 8989
Technical Support Telephone	+1 919 831 8975

Installation Directions

Beame & Whiteside (BW-TCP 3.2)

To configure SuperTCP do the following:

- 1 Run the standard BW-TCP installation. Follow the standard installation instructions.
- 2 When asked to supply **Driver Type**, respond **ODI**.
- 3 Now, configure your stack based on whether you want a static or dynamic IP address. Follow the instructions for "Static IP Address Configuration" or "Dynamic IP Address Configuration" below.

Static IP Address Configuration

Configuring BW-TCP for a static IP address requires configuring both BW-TCP and FastLink II for the same static IP address.

To configure BW-TCP for a static IP address:

- 1 Run the BW-TCP configuration utility by clicking on the **Customize** icon in the BW-Apps Windows group.
- 2 Click **[OK]** in the **BW Customization Program** dialog box.
- 3 In the dialog box entitled BW-TCP Customization Menu, enter the IP address of your gateway in the **Default Gateway** field.
- 4 Set the **Netmask** field to your IP subnet mask.
- 5 Enter your static IP address in the **IP Address** field.
- 6 After you make your changes press **[Save]**.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

Dynamic IP Address Configuration

Configuring BW-TCP for a dynamic IP address requires BOOTP or RARP protocol; for this stack, we recommend RARP. FastLink II should be configured for dynamic IP address.

To configure BW-TCP for RARP:

- 1 Run the BW-TCP configuration utility by clicking on the **Customize** icon in the BW-Apps Windows group.
- 2 Click [**OK**] in the **BW Customization Program** dialog box.
- 3 In the dialog box entitled BW-TCP Customization Menu, delete any value in the **Default Gateway** field.
- 4 Set the **Netmask** field to 0.0.0.0.
- 5 Use the Arrow Box in the **IP Address** field to select the value: RARP.
- 6 After you make your changes press [**Save**].
- 7 After making your changes, you must reboot your machine for them to take effect. First, however, you may wish to do the FastLink II configuration for dynamic addressing.

To configure FastLink II for a dynamic IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the [**IP Protocol Settings**] button, and check the **Dynamic IP address** button.

To use RARP and dynamic addressing, you must connect in DOS (not in Windows) prior to running STARTNET, which the stack install will have placed in your AUTOEXEC. See "System File Requirements" for more information.

System File Requirements

Your AUTOEXEC.BAT (or the file you use to load your network stack) should contain lines like these:

```
C:\FLINK\LSL
```

```
C:\FLINK\FLODI
```

```
C:\BEAME\STARTNET
```

However, if you are going to use dynamic addressing (and RARP protocol), you must defer execution of STARTNET until you have connected. So the necessary sequence is to execute LSL and FLODI, then use FLINK to connect. Once you are connected, you may then execute STARTNET prior to invoking Windows.

In addition, verify that the SET DOMAIN statement in the AUTOEXEC.BAT is correctly pointing to your domain. If your domain were XYZ.COM, this statement should read

```
SET DOMAIN XYZ.COM
```

Frontier (SuperTCP for Windows)

Product	SuperTCP for Windows, version 4.0 R2
Company	Frontier Technologies, Inc.
Address	10201 N. Port Washington Road Mequon , WI 53092
Telephone	+1 414 241 4555
Technical Support Telephone	+1 414 241 4555

Installation Directions

Frontier Technologies Corporation. - SuperTCP for Windows version 4.00

To configure SuperTCP do the following:

- 1 Run the standard SuperTCP installation. Follow the standard installation instructions.
- 2 Configure your stack based on whether you want a static or dynamic IP address (see instructions below).
- 3 When asked to supply **Driver Type**, respond **ODI**.
- 4 At the end of the install, the **SetupTCP** configuration utility will be launched. You will be prompted for configuration information, however, you must manually select **Next Hop Always** and the **Default Gateway**. Follow the instructions for "Static IP Address Configuration" or "Dynamic IP Address Configuration" below.

NOTE: If you have a version of SuperTCP prior to March 1995, you need to apply the WINSOCK9.ZIP patch release (dated 2/2/95) available from Frontier Technologies. This patch fixes RARP functionality, along with a number of other improvements. It also removes the need to run the ODIPKT driver, thus simplifying the running of the stack.

Static IP Address Configuration

Configuring SuperTCP for a static IP address requires configuring both SuperTCP and FastLink II for the same static IP address.

To configure SuperTCP for a static IP address:

- 1 Run the SuperTCP configuration utility by clicking on the **SetupTCP** icon in the SuperTCP Windows group
- 2 Select the **Interfaces** icon in the left-hand side list box.
- 3 Set the **IP Address Type** by selecting the **Fixed** radio button.
- 4 Enter your static IP address in the **IP Address** field.
- 5 Enter your IP subnet mask in the **IP Address Mask** field.
- 6 Select the **IP Setup** icon in the left-hand side list box.
- 7 Enter your remote access server gateway address in the **Default Gateway** field.
- 8 Check the box labeled Always Use Default Gateway As Next Hop.
- 9 After you make your changes press **[Close]**.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

Dynamic IP Address Configuration

Configuring SuperTCP for a dynamic IP address requires BOOTP or RARP protocol; BOOTP provides you with the most flexibility and is what we recommend. FastLink II should be configured for dynamic IP address.

To configure SuperTCP for BOOTP:

- 1 Run the SuperTCP configuration utility by clicking on the **SetupTCP** icon in the SuperTCP Windows group.
- 2 Select the **Interfaces** icon in the left-hand side list box.
- 3 Set the **IP Address Type** by selecting the **BOOTP** radio button. The **BOOTP Server Address** field will display 255.255.255.255, and the **Subnet Mask** field will display 255.255.255.0.
- 4 After you make your changes press **[Setup]**, then press **[Close]**.

***NOTE:** If you previously configured SuperTCP for a Fixed IP Address, you need to remove its matching Hosts Table entry. Select the **Hosts Table** icon in the left-hand side list box, select the **Fixed IP** entry, and press the **[Cut]** button.*

To configure FastLink II for a dynamic IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Dynamic IP address** button.

System File Requirements

Make sure that your NET.CFG file contains the following **Link Driver FLODI** section lines:

```
Link Driver FLODI
    Frame Ethernet_II
    Protocol IP 800 Ethernet_II
    Protocol ARP 806 Ethernet_II
    Protocol RARP 8035 Ethernet_II
```

Make sure that your AUTOEXEC.BAT (or the file you use to load your network stack) contains lines similar to this:

```
SET TZ=est5edt
SET SUPERTCP=C:\WINDOWS\SUPERTCP.INI
C:\FLINK\LSL
C:\FLINK\FLODI
```

FTP (OnNet v2.1 for Windows)

Product	OnNet v2.1 for Windows
Company	FTP Software, Inc.
Address	2 High Street North Andover, MA 01845
Telephone	+1 508 685 4000
Technical Support Telephone	+1 508 685 4000

Installation Directions

FTP Software, Inc. - OnNet v2.1 for Windows

To install OnNet, or configuring an existing installation of OnNet, do the following:

- 1 Make sure that you have loaded the FastLink II driver (FLODI) into memory from the DOS prompt. If you need to load FastLink II, exit Windows, run FLODI from the FastLink II directory, and then run Windows again.
- 2 Run the standard OnNet installation. Follow the standard installation instructions.
- 3 In the **Found existing driver** dialog choose:
ODI, FLODI
- 4 In the **Network Type** dialog chose:
DIX Ethernet
- 5 Setup will then ask for your IP address information.
- 6 Follow the instructions for "Automatic IP Address Configuration" below.

Automatic IP Address Configuration

When using FTP Software OnNet version 1.2 or 2.1, FastLink II will automatically set the workstation IP address, the network mask, and the router address when it connects to the remote access server.

To ensure that this works, you need to configure OnNet for dummy static IP addresses (which will later be updated) as follows:

- 1 Run the OnNet configuration utility.
 - From DOS, run CONFIG.EXE from the PCTCP directory
 - From Windows, click on **Configure** in the OnNet group
- 2 Choose **Internet Addresses**.
- 3 Enter your static IP address in the **IP Address** field.
- 4 Enter your IP subnet mask in the **Subnet Mask** field
- 5 Enter your remote access server gateway address in the **Router** field.

Static IP Address Configuration

Since FastLink II will replace the OnNet IP stack values at connect time, it is not normally required to use a Static IP address.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

Dynamic IP Address Configuration

Since FastLink II will replace the OnNet IP stack values at connect time, you normally will use FastLink II dynamic IP configuration.

To configure FastLink II for a dynamic IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Dynamic IP address** button.

System File Requirement

Make sure that your AUTOEXEC.BAT (or the file you use to load your network stack) contains lines similar to this:

```
SET PCTCP=C:\PCTCP\PCTCP.INI  
  
C:\FLINK\LSL  
  
C:\FLINK\FLODI  
  
C:\PCTCP\ODIPKT  
  
C:\PCTCP\ETHDRV (for DOS applications)
```

or

```
C:\PCTCP\VXDINIT (for Windows applications)
```

Make sure that your NET.CFG contains the statement:

```
Link Driver FLODI
```

Microsoft TCP/IP-32 3.11 (WFW 3.11)

Product	TCP/IP-32 3.11
Company	Microsoft Corporation
Address	One Microsoft Way Redmond, WA 98052
Telephone	+1 206 882 8080
Technical Support Telephone	+1 206 882 8080

Installation Directions

Microsoft Corporation - TCP/IP-32 3.11 (Windows for Workgroups 3.11)

TCP/IP-32 3.11 supports TCP/IP for Windows for Workgroups, version 3.11 only. To install TCP/IP-32 do the following:

- 1 Run **Network Setup** from the Network group in WFW.
- 2 Get to the **Drivers** section and select your network card. Select [**Add Protocol**] to add the **TCP/IP** protocol (which may be obtained from Microsoft).
- 3 Follow the instructions for "Static IP Address Configuration" below.

Windows for Workgroups' TCP/IP-32 supports only static IP addressing.

Static IP Address Configuration

Configuring TCP/IP-32 for a static IP address requires configuring both TCP/IP-32 and FastLink II to use the same static IP address.

NOTE: Before you setup WFW for TCP/IP support, you must already have configured Windows for Workgroups for basic network connectivity. If you have not done this, refer to your WFW documentation, or the README.TXT file supplied with FastLink II.

To configure TCP/IP for a static IP address:

- 1 If TCP/IP-32 has already been installed, run **Network Setup** from the Network group in WFW.
- 2 In the **Network Setup** dialog box, select the **Microsoft TCP/IP-32 3.11** line, and click on the **Drivers** Button.
- 3 In the **Network Drivers** dialog box, select the **Microsoft TCP/IP-32 3.11** line, and click on the **Setup** Button.
- 4 In the **Microsoft TCP/IP** dialog box, enter your static IP address in the **IP Address** field.
- 5 Enter your IP subnet mask in the **Subnet Mask** field
- 6 Enter your remote access server gateway address in the **Default Gateway** field.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

System File Requirements

Make sure your NET.CFG contains these lines:

```
Link Driver FLODI  
Frame Ethernet_II
```

Note that FastLink II will not work properly if any frame statement other than **Frame Ethernet_II** appears after the Link Driver line.

Make sure your AUTOEXEC.BAT (or the file you use to load your network stack) contains lines like these:

```
C:\FLINK\LSL  
C:\FLINK\FLODI
```

Windows for Workgroups is guided by a path statement in PROTOCOL.INI, when it seeks the location of your NET.CFG. If you change the directory in which you place your NET.CFG and execute LSL, you must alter the path in PROTOCOL.INI.

If you execute LSL from C:\FLINK, for example, PROTOCOL.INI would have lines like these:

```
[NET.CFG]  
PATH=C:\FLINK\NET.CFG
```

PROTOCOL.INI should also contain these lines:

```
[LINK DRIVER FLODI]  
data=Frame Ethernet_II  
data=Link Driver FLODI
```

NOTE: Any time you reconfigure using the **Network Setup** icon in Windows for Workgroups, you should check your resulting NET.CFG and PROTOCOL.INI files. Check for new frame statements that may disable FastLink II.

NetManage (Chameleon 4.01)

Product	Chameleon 4.01
Company	NetManage, Inc.
Address	10725 North De Anza Blvd Cupertino, CA 95014
Telephone:	+1 408 973 7171
Technical Support Telephone	+1 408 973 7171

Installation Directions

NetManage, Inc. - ChameleonNFS

To install Chameleon do the following:

- 1 Make sure that you have loaded the FastLink II driver (FLODI) into memory from the DOS prompt. If you need to load FastLink II, exit Windows, run FLODI from the FastLink II directory, and then run Windows again.
- 2 Run the standard Chameleon installation. Following installation, the configuration utility will be launched, which is the equivalent of clicking on "Custom" in the ChameleonNFS Windows group.
- 3 Follow the instructions for "Static IP Address Configuration" or "Dynamic IP Address Configuration" below.

NOTE: When **Custom** is executed in the Install sequence, it brings up a number of dialog box settings for you to fill in. However, it does not prompt for the **Default Gateway** or **Domain Server**. Make sure that you enter information for these fields.

Static IP Address Configuration

Configuring Chameleon for a static IP address requires configuring both Chameleon and FastLink II for the same static IP address.

NOTE: Make sure that you have loaded the FastLink II driver (FLODI) into memory from the DOS prompt before proceeding. Otherwise, you will have to manually configure the driver type to ODI in the **Hardware** pulldown in **Setup**.

To configure Chameleon for a static IP address:

- 1 Click on the "Custom" icon in the ChameleonNFS Windows group.
- 2 Select **Setup**, and then **IP Address** choice from the pulldown menu.
- 3 Enter your static IP address in the **IP Address** field.
- 4 Enter your IP subnet mask in the **Subnet Mask** field
- 5 Enter your remote access server gateway address in the <**Gateway**> field.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the [**IP Protocol Settings**] button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

Dynamic IP Address Configuration

Configuring Chameleon for a dynamic IP address requires configuring BOOTP protocol. FastLink II should be configured for dynamic IP address.

*NOTE: Make sure that you have loaded the FastLink II driver (FLODI) into memory from the DOS prompt before proceeding. Otherwise, you will have to manually configure the driver type to ODI in the **Hardware** pulldown in **Setup**.*

To configure Chameleon for BOOTP:

- 1 Click on the "Custom" icon in the ChameleonNFS Windows group.
- 2 Click on the BOOTP on the Setup pulldown menu. Leave the address 0, and check the "Use BOOTP" box.

To configure FastLink II for a dynamic IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Dynamic IP address** button.

System File Requirements

Make sure that your NET.CFG file contains the following **Link Driver FLODI** section lines:

```
Link Driver FLODI
    frame ethernet_ii
    Protocol RARP 8035 ethernet_ii
    Protocol ARP 806 ethernet_ii
    Protocol IP 800 ethernet_ii
```

Make sure that your AUTOEXEC.BAT (or the file you use to load your network stack) contains lines similar to this:

```
C:\FLINK\LSL
C:\FLINK\FLODI
C:\NETMANAG\NMODI
```

Novell (LAN Workplace for DOS/Windows 4.2, 5.1)

Product	LAN Workplace 4.2 and 5.1
Company	Novell, Inc.
Address	122 East 1700 South Provo, UT 84606
Telephone	+1 800 NETWARE
Technical Support Telephone	+1 800 NETWARE

Installation Directions

Novell, Inc. - LAN Workplace Version 4.2 and 5.1

To install the LAN Workplace stack you can use the FastLink II client install and select the **Novell TCP/IP Stack** option.

If you install the LAN Workplace product (which includes TCP/IP applications), or to configure an existing installation of LAN Workplace, do the following:

- 1 Run the standard LAN Workplace installation. Follow the standard installation instructions.
- 2 When asked to identify the IPX Frame Format, respond **Ethernet_II**. This is the frame FastLink requires.
- 3 Install creates an initializing batch file called LANWP.BAT, which it runs from your AUTOEXEC.BAT. See the instructions under **System File Requirements**, below, for needed modifications to that file.
- 4 To customize the installation, you will need to edit the NET.CFG file to configure the stack for static or dynamic IP address (see instructions below).

Automatic IP Address Configuration

FastLink II will automatically set the workstation IP address, the network mask, and the router address when it connects to the remote access server.

To ensure that this works, you need to configure LAN Workplace for dummy addresses (which will later be updated) as follows:

- 1 Look for the "Protocol TCPIP" section in the NET.CFG:

Protocol TCPIP

```
PATH TCP_CFG C:\NET\TCP
```

```
ip_router 127.0.0.1
```

```
ip_netmask 255.255.255.0
```

```
ip_address 127.0.0.1
```

- 2 Edit any existing configuration lines for **ip_router**, **ip_netmask**, and **ip_address** from the TCPIP section to contain any values (use the values above to show dummy values); make sure that the values are **not** 0.0.0.0.

Static IP Address Configuration

Since FastLink II will replace the LAN Workplace IP stack values at connect time, it is not normally required to use a Static IP address.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

Dynamic IP Address Configuration

Since FastLink II will replace the LAN Workplace IP stack values at connect time, you normally will use FastLink II dynamic IP configuration.

To configure FastLink II for a dynamic IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Dynamic IP address** button.

System File Requirements

Make sure LANWP.BAT contains lines like these (FLODI must be loaded prior to TCPIP):

C:\FLINK\LSL

C:\FLINK\FLODI

C:\LANWP\BIN\TCPIP.EXE

The directory where LSL is executed must be the same directory where your NET.CFG is located. The NET.CFG built by the stack install program is sometimes placed in an NWCLIENT subdirectory underneath the stack root directory. Move the NET.CFG to the FastLink II directory.

Make sure your NET.CFG contains the following lines (in addition to the Protocol TCPIP lines generated by the stack install):

Link Driver FLODI

Frame Ethernet_II

After configuring LAN Workplace, make sure you reference the correct NET.CFG file (i.e., use the version in the FastLink II directory).

Wall Data (Rumba for Internet 1.0)

Product	Rumba for Internet 1.0
Company	Wall Data
Address	11332 N.E. 122nd Way Kirkland, WA 98034
Telephone	+1 800 927 8622
Technical Support Telephone	+1 800 927 8622

Installation Directions

Wall Data (Rumba for Internet 1.0)

To configure RUMBA do the following:

- 1 Run the RUMBA installation, and follow the standard installation instructions.
- 2 When prompted for your **adapter driver** enter the name of the FastLink II ODI driver using the whole path as in the following line:

C:\FLINK\FLODI.COM

NOTE: Make sure you provide the full path name, or the installation will not work properly.

- 3 Configure your stack based on whether you want a static or dynamic IP address (see instructions below).

Static IP Address Configuration

Configuring RUMBA for a static IP address requires configuring both RUMBA and FastLink II for the same static IP address.

To configure RUMBA for a static IP address:

- 1 Run the RUMBA configuration utility by clicking on the **TCP/IP Configuration** icon in the RUMBA Windows group.
- 2 Click on **[Stack]** in the **TCP/IP Configuration** dialog box.
- 3 In the dialog box entitled **MultiNet Configuration** click on **[Modify]**.
- 4 Set the **Subnet Mask** field to your IP subnet mask.
- 5 Enter your static IP address in the **IP Address** field.
- 6 Make sure the **Enable Interface** box is checked, and that your **Driver Choice** is set to ODI.
- 7 Make sure your Gateway is addressed by clicking on the **Routing** tab in the **MultiNet Configuration** dialog box. Enter the gateway address in the **Default Route** field.
- 8 After you make your changes press **[Done]**.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

Dynamic IP Address Configuration

You cannot configure RUMBA for RARP or BOOTP. However, if you need to connect to a server that requires the use of a dynamic IP address, you can manually set the address in RUMBA following the FastLink II connection.

First, configure FastLink II for a dynamic IP address and make a FastLink II connection.

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Dynamic IP address** button.
- 3 Make a FastLink II connection to a remote access server.

To configure RUMBA with the dynamic address received by FastLink II:

- 1 Run the RUMBA configuration utility by clicking on the **TCP/IP Configuration** icon in the RUMBA Windows group.
- 2 Click **[OK]** in the RUMBA **Customization Program** dialog box.
- 3 In the **MultiNet Configuration** dialog box click on **[Modify]** to bring up the **Modify Interface Screen**.
- 4 Find the **IP Address** field. Enter the dynamic IP address just recently returned (as your **Local IP Address** in the FastLink II **Successfully Connected** dialog box).
- 5 Make sure the **Enable Interface** box is checked, and the Driver Choice should be set to ODI.
- 6 When you click on **[OK]** you are returned to the **MultiNet Configuration** dialog box. Note that the **Broadcast** field has been filled in for you by the Configuration Software.
- 7 After you make your changes press **[Done]**.
- 8 You will be asked to reboot. Answer **[No]** Button. Your changes for this session are in place and you may proceed.

System File Requirements

The AUTOEXEC.BAT (or the file you use to load your network stack) should contain lines like these:

```
C:\FLINK\LSL.COM
```

```
C:\FLINK\FLODI.COM
```

```
PATH C:\RUMBA\TCPIP;%PATH%
```

Check to see that FLODI.COM is executed in the FastLink II directory. The stack install program may generate a reference to FLODI.COM in a RUMBA subdirectory. **You cannot correct this by simply moving FLODI.COM to the referenced directory. Instead, you should change the directory reference, as in the lines above.**

Make sure your NET.CFG contains lines like these:

```
Link Driver FLODI
```

```
FRAME ETHERNET_II
```

```
PROTOCOL ARP 806 ETHERNET_II
```

```
PROTOCOL RARP 8035 ETHERNET_II
```

```
PROTOCOL IP 800 ETHERNET_II
```

Wollongong (Pathway Access 3.1)

Product	Pathway Access 3.1
Company	Wollongong
Address	1129 San Antonio Road Palo Alto, CA 94303
Telephone	+1 415 962 7100
Technical Support Telephone	+1 415 962 7100

Installation Directions

Wollongong (Pathway Access 3.1)

To install PathWay Access do the following:

- 1 Make sure that you have loaded the FastLink II driver (FLODI) into memory from the DOS prompt. If you need to load FastLink II, exit Windows, run FLODI from the FastLink II directory, and then run Windows again.
- 2 Run the PathWay Access installation, and follow the standard installation instructions.
- 3 When prompted for **Driver Type**, respond **ODI**.
- 4 Configure your stack based on whether you want a static or dynamic IP address (see instructions below).

Static IP Address Configuration

Configuring PathWay Access for a static IP address requires configuring both PathWay Access and FastLink II for the same static IP address.

To configure PathWay Access for a static IP address:

- 1 Run the PathWay Access setup utility **PWSETUP.EXE** in DOS or in a DOS box from Windows.
- 2 Choose **Configuration** from the utility menu bar, and then select **Modify Site Parameters**.
- 3 In the dialog box entitled **Configuration Setup for Site Parameters**, enter your static IP address in the **IP Address** field.
- 4 Enter your gateway IP address in the **Default Gateway Address** field.
- 5 Set the **Number of subnet mask bits** field to the number required for your IP subnet mask. (For example, 27 bits would support the mask 225.225.225.224.)
- 6 Enter your static IP address in the **IP Address** field.
- 7 Type **[Ctrl]-[Enter]** followed by **Y** to overwrite the previous settings.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

Dynamic IP Address Configuration

Configuring PathWay Access for a dynamic IP address requires BOOTP. FastLink II should also be configured for a dynamic IP address.

To configure PathWay Access for a static IP address:

- 1 Run the PathWay Access setup utility **PWSETUP.EXE** in DOS or in a DOS box from Windows.
- 2 Choose **Configuration** from the utility menu bar, and then select **Advanced Configuration Setup**.
- 3 In the dialog box entitled **Advanced Configuration Setup**, find the question that asks **Do you want to use the BOOTP service? (y/n)**. Enter **Y**.
- 4 Type **[Ctrl]-[Enter]**, followed by **Y** to overwrite the previous settings.

To configure FastLink II for a dynamic IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Dynamic IP address** button.

System File Requirements

The NET.CFG file used for PathWay Access should contain the following lines:

```
Protocol IP
    Bind FLODI
Protocol ARP
    Bind FLODI
Link Driver FLODI
    Frame ETHERNET_II
    Protocol IP 00000000800 ETHERNET_II
    Protocol ARP 00000000806 ETHERNET_II
```

Your AUTOEXEC.BAT (or the file you use to load your network stack) should contain lines like these:

```
C:\FLINK\LSL
C:\FLINK\FLODI
```

PWCONFIG -N:65

ODI -I:3 *Note: this interrupt setting may be different*

PWTCP

NOTE: *Be sure that the NET.CFG is moved to the same directory where you are executing LSL.*

WRQ (Reflection 2, 4.01)

Product	Reflection 2, 4.01
Company	Walker Richer & Quinn, Inc.
Address	1500 Dexter Avenue North Seattle, WA 98109
Telephone	+1 206 217 7100 +1 800 872 2829
Technical Support Telephone	+1 206 217 7100

Installation Directions

[Walker Richer & Quinn, Inc. - Reflection Version 2, 4.01](#)

To install WRQ Reflection, or configuring an existing installation of Reflection, do the following:

- 1 Run the standard Reflection installation. Follow the standard installation instructions.
- 2 Configure your stack based on whether you want a static or dynamic IP address (see instructions below).

Static IP Address Configuration

Configuring Reflection for a static IP address requires configuring both Reflection and FastLink II for the same static IP address.

To configure Reflection for a static IP address:

- 1 Click on the **Network Configuration** icon in the TCP/IP Windows group. Select the **TCP/IP** category button on the left-hand side.
- 2 To configure a static IP address you need to edit the **IP Address** field. If the **IP Address** field is greyed out (not editable), press the **[Remote]** button, and then turn off the **Enable Remote Configuration** checkbox.
- 3 Enter your static address into the **IP Address** field.
- 4 Edit the **Subnet Mask** field to match your local mask.
- 5 If your gateway is not yet present in the **Gateways** list box, click on **[Add]**, and enter the address of your gateway.

To configure FastLink II for a static IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the **[IP Protocol Settings]** button, and check the **Static IP address** button.
- 3 Highlight the Address field and enter your static IP address.

Dynamic IP Address Configuration

Configuring Reflection for a dynamic IP address requires configuring Reflection for BOOTP or RARP protocol; we recommend BOOTP, since it provides for a simpler configuration. Configure FastLink II for a dynamic IP address.

To configure Reflection for BOOTP:

- 1 Click on the **Network Configuration** icon in the TCP/IP Windows group. Select the **TCP/IP** category button on the left-hand side.
- 2 Press the [**Remote**] button, and then turn on the **Enable Remote Configuration** checkbox.
- 3 In the **Protocol** group box, select **BOOTP**.
- 4 In the **Server** group box, check **Use Broadcast Method**.
- 5 In the **Data to Obtain** group box, check **Local IP Address**. The checkboxes marked **Local Host & Domain Name** (and) **Domain Name Servers** must be disabled (left blank) for FastLink II to work properly.

To configure FastLink II for a dynamic IP address:

- 1 Run FastLink II, and select the **Connections** button at the left of the screen. Highlight the **Connect** drop-down box, and select the connection whose settings you want to set for your IP connection.
- 2 Click on the [**IP Protocol Settings**] button, and check the **Dynamic IP address** button.

You must already have an active FastLink II connection before running any Reflection applications. This allows Reflection to use the BOOTP protocol to obtain its address.

System File Requirements

Make sure that your AUTOEXEC.BAT (or the file you use to load your network stack) contains lines similar to this:

```
C:\FLINK\LSL
C:\FLINK\FLODI
C:\WRQNET\RODI /STACKS=8
```

Make sure that your NET.CFG file contains the following lines:

```
Link Driver FLODI
    FRAME Ethernet_II
    :
    other lines
    :
Protocol RODI
    Bind FLODI
```

		how it works, 67	
		options of, 68	
		syntax, 68	
		FLODI.COM, 26	
	—A—		—I—
Additional string, 45			
Auto-answer string, 45			
automated login scripts			
creating, 73			
	—B—		
		Init string, 45	
		installation	
		for DOS, 21	
		for Windows, 12	
		IPXODI.COM, 26	
			—L—
BOOTP, 36			
Busy string, 46			
	—C—		
		login script	
		advantages of, 63	
COM ports		login scripts	
displaying information about, 55		creating, 63, 73	
command line options		LSL.COM, 26	
FLINKW, 68			—M—
Connect string, 46			
connection		modem	
re-establishing a broken, 42		command strings, 46	
	—D—	deleting, 47	
			—N—
DHCP, 36			
Dial string, 45		NETX.EXE, 26	
DPMS.EXE, 22		No carrier string, 46	
drives		No dialtone string, 46	
mapping, 72		Number of redial tries, 42	
Dynamic Host Configuration Protocol, 36		NWUSER.EXE, 71	
	—E—		—O—
Error string, 46		OK string, 46	
	—F—	options	
		FLINKW, 68	
FLCACHE program			
example, 67			

—R—

RARP, 36
Receive RIP/SAP, 34
Request dialback, 31
Reset string, 45
Reverse Address Resolution Protocol, 36
RIP/SAP broadcast, 34

—S—

Seconds between redials, 43
Seconds to wait before redial, 43
serial port
 specifying for DOS and Windows, 42
software requirements
 FastLink, 7
 Proxy, 7

—T—

technical support, 10

—U—

UART
 displaying type of, 55

—V—

VLM.EXE, 26