WAN Links
for Windows NT
Frame Relay

Version 1.0.1
Copyright 1996 Digi International, Inc.

This document describes the installation, configuration and features of the Digi WAN Links Frame Relay package.

Contents

1 Introduction

WAN Links Frame Relay brings internetworking support over Frame Relay to Microsoft Windows NT. WAN Links leverages RFC 1490 Frame Relay Multiprotocol Encapsulation to support IP, IPX and 802.3 protocols over Frame Relay. This allows WAN Links to support routing of IP and IPX, and bridging of any protocol supported by Windows NT over Frame Relay. Once connected, clients on remote networks can work as if they were directly connected via a local area network.

WAN Links supports up to 64 virtual circuits or DLCIs per adapter and multiple adapters per system. The maximum number of adapters and circuits that can be installed is limited by your system's resources.

2 Installation

Installing WAN Links Frame Relay is a two step process. First you'll need to prepare the adapter, and then install the software.

Prepare the adapter

Prepare the SyncPort adapter by selecting the I/O Port Address and Electrical interfaces for the adapter. Note: if you are using a SyncPort PCI adapter, these resources are set in software, so skip to **Setup the WAN Links Frame Relay Software.**

- *Set the I/O port address.* The default I/O address is 328h. You will only need to change this if it conflicts with another adapter installed in your PC. See **Set the I/O Address** below.
- *Set the Electrical interfaces.* Each line on the SyncPort may be configured for any of three electrical interfaces: V.11, V.24, V.35 or V.36. Set the interface to match the equipment to which the SyncPort will be connected. See **Set the Electrical Interface** below.
- *Install the adapter in an available slot in your PC.*

Set the I/O Address

A bank of four DIP switches (SW1) is used to select the I/O address. These switches are visible through the mounting bracket.

Seven I/O address settings are available. These settings (shown in hex) and the corresponding DIP switch setting are shown in the following table.

I/O Address	Switch 1	Switch 2	Switch 3	Switch 4
108	Off	Off	On	On
118	Off	On	Off	On
128	Off	On	On	On
208	On	Off	Off	On
228	On	Off	On	On
308	On	On	Off	On
328	On	On	On	On

Set the Electrical Interface

Jumpers are used to set the physical interfaces for the SyncPort ISA adapters. Both ports can individually be set for any of three electrical interfaces: V.11, V.24 or V.35. Note: V.11 is equivalent to RS-422 and X.21; V.24 is equivalent to RS-232 and V.28.

Jumper	Line	V.11	V.24	V.35/V.36
J1	2	1-2	2-3	1-2
J2	2	1-2	2-3	2-3
J3	RSVD	1-2	1-2	1-2
J4	1	1-2	2-3	2-3
J5	1	1-2	2-3	1-2
J6	2	1-2	2-3	2-3
J7	1	1-2	2-3	2-3
J8	2	1-2	2-3	1-2
J9	1	1-2	2-3	1-2
J10	2	1-2	2-3	2-3
J11	1	1-2	2-3	2-3
J12	2	1-2	2-3	2-3
J13	1	1-2	2-3	2-3
J14	1	1-2	2-3	1-2
J15	2	1-2	2-3	1-2
J16	1	1-2	2-3	1-2
J17	2	1-2	2-3	1-2

| J18 | 2 | 1-2 | 2-3 | 2-3 |
| J19 | 1 | 1-2 | 2-3 | 2-3 |

Setup the WAN Links Frame Relay Software

Setup Frame Relay on your PC by installing and configuring the WAN Links Frame Relay software.
- *Install WAN Links Frame Relay.* WAN Links software is installed via Control Panel | Network | Add Adapter. See ***Install WAN Links Frame Relay*** below.
- *Configure WAN Links Frame Relay.* WAN Links software is configured via Control Panel | Network | Configure Adapter. See ***Configure WAN Links Frame Relay*** below.

Install WAN Links Frame Relay
- Run Control Panel | Network.
- Choose the <u>Add Adapter</u> button.
- Select "*<Other> Requires disk from manufacturer*" from the list of adapters.
- From the list of drivers, select "Digi SyncPort Frame Relay Adapter". Files will be copied onto your system and the WAN Links configuration program will start.

Configure WAN Links Frame Relay
To configure WAN Links, use the left panel of the configuration program (the Contents pane) to navigate through various property pages displayed on the right (the Properties pane). Pay special attention to the following pages:
- *Adapter - Properties*. For PCI adapters, these parameters are automatically set by the system, skip this page. For ISA adapters, set the I/O address, Memory address and IRQ parameters. The I/O address must match the I/O address you set previously with the DIP switches on the adapter. The SyncPort adapter will operate without an IRQ (by setting the IRQ value to None) however, optimum performance will be obtained by selecting an IRQ.
- *Line - Properties.* Set the *Electrical Interface.* For ISA adapters, the electrical interface must match the jumper settings on the adapter. Set the line speed and select internal or external clocking.
- *Frame Relay - Properties.* Set the Maximum Frame Size to match your service provider.
- *Frame Relay - Line Management.* Select the appropriate LMI revision. If you will be connecting this SyncPort directly to another machine (i.e. not via a Frame Relay Network), select Disabled.
- *Frame Relay - Virtual Circuits.* Choose <u>Add</u> to add PVCs (i.e. DLCIs). Configure them either through the <u>Configure</u> button, or through their entries on the Contents pane (the left panel). Select which protocols (TCP/IP, IPX, Other) you would like to enable on that PVC.

Configure TCP/IP
You will need to assign IP addresses to each PVC (DLCI) on which you've enabled TCP/IP. ***Important: The IP addresses for each PVC*** *must* *be on unique subnetworks (different from each other, and different from any local networks) to allow Windows NT to route IP traffic properly. Otherwise, you'll need to add static routes (via the command line* ***Route*** *utility) for each host located on the remote network with which you'd like to communicate.*

If you want Windows NT to route traffic between Frame Relay connections, and/or the local network, be sure to select the IP Routing checkbox in the TCP/IP | Advanced configuration screen. This feature allows remote machines (on one Frame Relay connection) to access machines on the local network as well as machines on other Frame Relay connections.

3 If You Have Problems...

1. Note exact wording of error messages you receive.
2. Try to reproduce the problem, if possible.
3. Contact Digi Technical Support via:
Phone:	612-912-3456
FAX:	612-912-4958
BBS:	612-912-4800
Email:	support@dgii.com

4 Removing the WAN Links Software

1. Run <u>Control Panel</u> | <u>Network</u>
2. Select the SyncPort adapter from the *Installed Adapter Cards* list.
3. Choose <u>Remove.</u>

5 Release History

Version 1.00
June 28, 1996 - Initial release.

Version 1.01
July 15, 1996 - Fixed problem with PCI SyncPort running in a multi-processor system which could cause the system to bugcheck. Eliminated error accessing SpyGlass help with F1 key. Config now correctly stays displayed on top of control panel. Fixed compatibility problem with tabbing between fields in config on Windows NT 4.0.