

**Product  
Installer's  
Guide**

for

**Wanware<sup>®</sup> NT 1.4.2**

for

**Windows<sup>®</sup> NT 4.0**

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# Table of Contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2</b>	<b>PREPARATION .....</b>	<b>3</b>
<b>3</b>	<b>UPGRADES AND RE-INSTALLS.....</b>	<b>5</b>
3.1	REVIEW CURRENT CONFIGURATION .....	5
3.2	SOFTWARE REMOVAL .....	6
<b>4</b>	<b>PRODUCT INSTALLATION .....</b>	<b>7</b>
4.1	ADAPTER INSTALLATION .....	7
4.2	ADAPTER CONFIGURATION.....	8
4.3	PROTOCOL SOFTWARE INSTALLATION.....	11
4.4	DRIVER STARTUP.....	17
4.5	REGISTRATION.....	19
<b>5</b>	<b>UNINSTALL WANWARE NT.....</b>	<b>21</b>
<b>6</b>	<b>NOTES AND LIMITATIONS .....</b>	<b>22</b>
<b>7</b>	<b>SUPPORT.....</b>	<b>23</b>
<b>APPENDIX A:</b>	<b>CONFIGURATION RECORDER .....</b>	<b>24</b>

## List of Figures

FIGURE 1	ADAPTER CONFIGURATION .....	9
FIGURE 2	INSTALLATION DIRECTORY.....	11
FIGURE 3	COMPONENT SELECTION.....	12
FIGURE 4	WAN PROTOCOL SELECTION .....	13
FIGURE 5	SERIALIZATION .....	14
FIGURE 6	TCP/IP CONFIGURATION .....	15
FIGURE 7	WANWIZARD.....	16
FIGURE 8	WANCONFIG.....	17

## List of Tables

TABLE 1	HARDWARE CONFIGURATION .....	24
TABLE 2	SERIALIZATION .....	24
TABLE 3	PROTOCOL SELECTION.....	24
TABLE 4	IP ADDRESS CONFIGURATION.....	26



# 1 INTRODUCTION

## Features

Wanware NT is a complete WAN subsystem for Windows NT computers. In addition to linking Windows NT computers with other RFC-compliant routers over Frame Relay or X.25 links, it provides the programmer with the ability to write custom networking applications using an extensive protocol API library.

## Components

This manual covers the installation of the components listed below:

- Adapter Card (SGP, SGX or Sync/570 (PCI or ISA))
- Adapter Driver - (Wanware NT Hardware Disk #1 of 3)
- Wanware NT installation disks (Wanware NT Disks #2 of 3 and #3 of 3)

The minimum computer requirements are those required by Windows NT 4.0 installation with the exception that The Software Group Ltd. recommends a minimum of 32 MB of memory.

The on-line documentation is in HTML format. An application such as Netscape Navigator or Microsoft ® Internet Explorer is required to view these files. No HTML viewer is supplied with Wanware NT.

## How to Use This Guide

This guide is used to get your Wanware NT product installed and operating. Full details of its configuration, troubleshooting and operation are in the help files sent as part of the product.

Chapter 2      **Preparation** - describes the pre-installation procedures required to prepare your computer.

- Chapter 3     **Upgrades and Re-install** - reviews the configuration of the current installation in preparation for a new installation.
- Chapter 4     **Product Installation** - provides the step-by-step instructions for the installation and configuration of Wanware NT.
- Chapter 5     **Uninstall Wanware NT** - lists the procedure for uninstalling Wanware NT.
- Chapter 6     **Notes and Limitations** - supplies additional information on non-standard functions of Wanware NT.
- Chapter 7     **Support** - describes how to reach The Software Group Ltd.
- APPENDIX A: **Configuration Report** - is a table that can be used to record the installed configuration of your Wanware NT product.

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## 2 PREPARATION

If Microsoft RAS (Remote Access Service) is installed before Wanware NT then the *Bindings* settings defined in the *Network Control Panel* may need to be rearranged. The RAS bindings for all protocols must appear after Wanware NT X.25 or Frame Relay pseudo adapter bindings.

SNA Server 3.0 should be installed before Wanware NT if SNA support is required.

Depending on the BIOS, manual mapping of an IRQ to the PCI bus may be required. Check the motherboard documentation supplied with your computer for information on BIOS configuration.

Identify the adapter you will be installing and read the appropriate requirements below.

### **SGX ISA Adapter**

Installing an **SGX ISA** adapter requires the following system resources:

- an IRQ (Interrupt Vector)
- 8 bytes of continuous I/O Port Address space
- 4KB memory space between 640KB and 1MB

This adapter will not work unless these three resources are unused by all other components in the computer.

### **Sync/570 ISA Adapter**

Installing a **Sync/570 ISA** adapter requires the following system resources:

- an IRQ (Interrupt Vector)
- 16 bytes of continuous I/O Port Address space

- 16KB memory space between 640KB and 1MB

This adapter will not work unless these three resources are unused by all other components in the computer.

### **Sync/570 PCI Adapter**

Installing a **Sync/570 PCI** adapter requires:

- Jumper J1, located at the top of the card, to be positioned on the right-most pins (2 & 3).
- The BIOS to automatically select available interrupt, I/O and memory addresses to use. (Depending on the BIOS, manual mapping of an IRQ to the PCI bus may be required.)
- (Recommended) The PCI adapter in the system to be installed before the software is installed. This will allow the software installation to complete the hardware configuration. However, if this is not possible, the hardware configuration can be modified later.

### **SGP PCI and SG4C compact PCI Adapters**

Installing an **SGP** or **SG4C** adapter requires:

- The BIOS to automatically select available interrupt, I/O and memory addresses to use. (Depending on the BIOS, manual mapping of an IRQ to the PCI bus may be required.)
- (Recommended) The PCI adapter in the system to be installed before the software is installed. This will allow the software installation to complete the hardware configuration. However, if this is not possible, the hardware configuration can be modified later.

### 3 UPGRADES AND RE-INSTALLS

Wanware NT drivers and services must first be removed before upgrading or re-installing the product. During removal of the components the adapter configuration and the TCP/IP host configuration will be deleted. WAN link configuration and remote host information will be maintained unless Wanware NT software is completely uninstalled.

#### 3.1 Review Current Configuration

To verify the adapter and protocol information recorded during installation on page 1 of this guide is still accurate, it is suggested that the current configuration be viewed. Update all configuration changes in the tables on page 1.

Using **WANWizard**, it is possible to display the configuration necessary to rebuild your system. **WANWizard** is located in the Wanware NT program group. From within **WANWizard** perform the following operations:

- Click **Hardware Options**. The hardware adapter settings will be displayed. For each adapter, record the number of ports, IRQ, Memory Window Address and I/O Port Address (if applicable) in Table 1.

**Note: The number to the left of the adapter name in square brackets is assigned by NT and is not necessarily sequential. When complete click Cancel.**

- Click **Register**. Record the serial number in Table 2. When complete click **Cancel**.
- Click **Protocols**. For each link, record the protocol setting in Table 2. When complete click **Cancel**. **WANWizard** will ask if you would like to start all necessary devices and services automatically. Click **Cancel**.

- If TCP/IP is being used over Wanware NT then click ***IP Config***. The TCP/IP configuration dialogue will be presented. For each WAN Pseudo Adapter, record the IP Address, Subnet Mask, Default Gateway and Primary/Secondary WINS Server addresses into Table 4.

### **3.2 Software Removal**

To remove the drivers and services follow the instructions in Chapter 5 "Uninstall Wanware NT", on page 1. Once the machine has rebooted, proceed to Chapter 4 "Product Installation".

## 4 PRODUCT INSTALLATION

The following section takes you through the five steps of the Wanware NT product installation:

- 4.1 Adapter Driver Installation
- 4.2 Adapter Configuration
- 4.3 Protocol Software Installation
- 4.4 Driver Startup
- 4.5 Registration

### 4.1 Adapter Driver Installation

 **NOTE:** *If re-installing or upgrading an existing Wanware NT product perform the instructions in Chapter 3 on page 1 before beginning this chapter.*

*Ensure that your adapter card is installed and the requirements for that card have been observed. See Chapter 2, "Preparation", for the card installation requirements.*

To install the adapter driver, perform the following steps:

1. Open *Control Panel*.
2. Double-click the **Network** icon to select the "Network" dialogue box.
3. Select the *Adapters* tab and click **Add..** to add an adapter.
4. In the *Select Network Adapter* dialogue click **Have Disk...**
5. Insert the Disk labelled "Wanware NT Hardware Diskette", Disk 1 of 3.
6. Enter the location of your floppy drive (usually **a:**) and click **OK**.

7. A list of supported adapters will be presented in a *Select OEM Option* dialogue box. The list will consist of one or more of the following:

- SGX Adapter
- SGP Adapter
- SG4C Adapter
- Sync/570 Adapter
- Sync/570 Adapter PCI

8. Select the appropriate adapter from the list and click **OK**.

Once the system finishes transferring the files from the floppy drive, the adapter configuration dialogue (Figure 1) is presented.

9. Proceed to 4.2.2 on page 1.

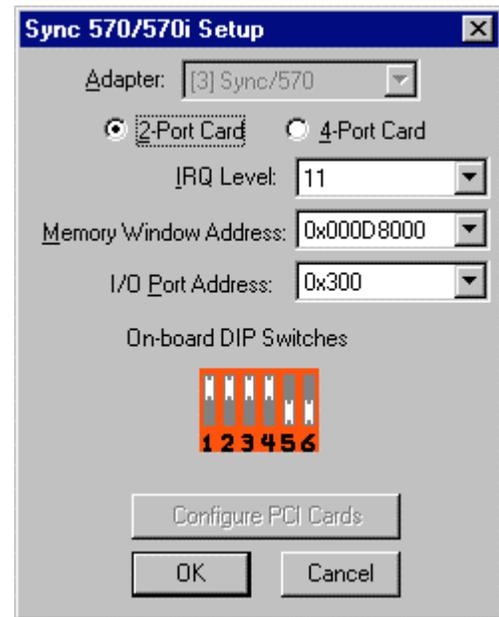
## **4.2 Adapter Configuration**

### *4.2.1 Opening the Adapter Setup Dialogue*

If the Setup dialogue box (Figure 1) is still open from the last step in the installation then proceed to 4.2.2 "Device Configuration".

To reopen the Setup dialogue box:

1. Open Control Panel.
2. Select the Network dialogue by double-clicking on the Network icon.
3. Select the Adapters tab, highlight the appropriate adapter and click Properties....



**Figure 1 Adapter Setup Dialogue**

***During Adapter Configuration, record the settings using Table 1 on Page 1 for possible future re-installation or upgrade. You can also record the Dip Switch configuration in Table 6 on page 1.***

#### 4.2.2 Device Configuration

1. Follow the instructions for the appropriate device below.

##### **SGX ISA Adapter**

Configure the following three items displayed in the Adapter Setup Dialogue box (refer to Figure 1). Highlight the desired values and then select **OK**.

- i) IRQ Level - the interrupt vector that will be used by the adapter and which must be unused by any other adapter in the system.

- ii) *Memory Window Base Address* - a 4KB memory window within 640KB to 1MB which must be unused by any other adapter in the system.
- iii) *I/O Port Base Address* - the base of an 8 byte range of I/O Port addresses which must be unused by any other adapter in the system.

### **Sync/570 ISA Adapter**

Configure the following three items displayed in the Adapter Setup Dialogue box (refer to Figure 1). Highlight the desired values and then select **OK**.

- i) Select the number of ports supported by the adapter (2 or 4 ports).
- ii) *IRQ Level* - the interrupt vector that will be used by the adapter and which must be unused by any other adapter in the system.
- iii) *I/O Port Base Address* - the base of a 16 byte range of I/O Port addresses which must be unused by any other adapter in the system.
- iv) *Memory Window Base Address* - a 16KB memory window within 640KB to 1MB which must be unused by any other adapter in the system.

### **Sync/570 PCI Adapter**

Because there is a 1-to-1 mapping between software device name and physical PCI card there is only one item to configure.

- i) Select the number of ports supported by the adapter (2 or 4 ports).

**Note: To view or edit the mapping table click Configure PCI Cards (shown greyed out in Figure 1).**

### **SGP PCI or SG4C compact PCI Adapter**

Because there is a 1-to-1 mapping between software device name and physical PCI card there is only one item to configure.

- i) Select the number of ports supported by the adapter (2 or 4 ports).

 **Note:** To view or edit the mapping table click *Configure PCI Cards (shown greyed out in Figure 1)*.

2. Once configuration is complete select **OK**.
3. Click **OK** to close the Network Setup dialogue.
4. When asked, "Do you wish to restart Windows NT", click **NO**.

### 4.3 Protocol Software Installation

1. Insert the disk labeled "Wanware NT Disk 2 of 3".
2. Click the **Start** button and select **Run**. Type A:\Setup
3. You will be presented with an Installation Directory dialogue.

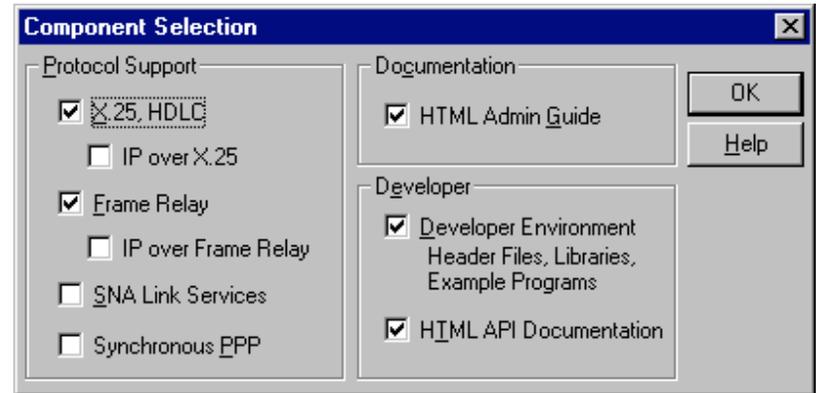


**Figure 2 Installation Directory**

The base directory of the Install Directory (C:\WINNT in the above sample screen) is referred to as %SystemRoot% in this manual.

Edit the directory field if desired, or click **OK** to accept the default [illustrated in Figure 3].

- After being prompted for the third disk, you will be presented with the *Component Selection* screen (Figure 4) that allows you to define the features of Wanware NT that you will use.



**Figure 3 Component Selection**

- Select the components that are required and click **OK**.

### Components Description

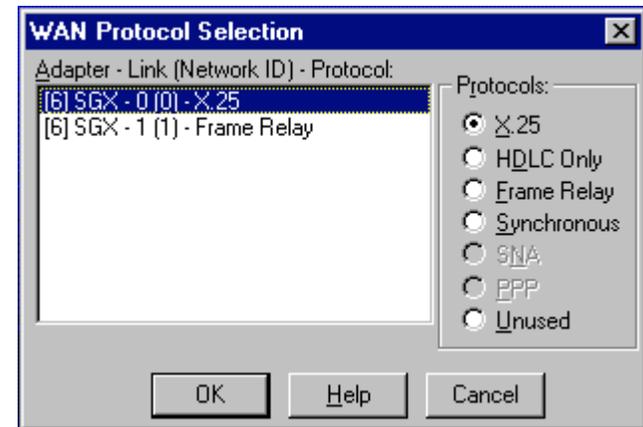
For protocol API operation (X.25, FR, HDLC or synchronous) deselect the **IP over X.25** or **IP over Frame Relay** boxes so they become blank.

For NDIS (LAN Emulation) over X.25 and/or Frame Relay, select the appropriate protocol and check the **IP over X.25** and/or **IP over Frame Relay** boxes. Installing IP over X.25 or IP over Frame Relay requires that an IP address be assigned [later in the installation process] for each interface installed.

For WAN NDIS (RAS, RRAS) operation, select **Synchronous PPP**.

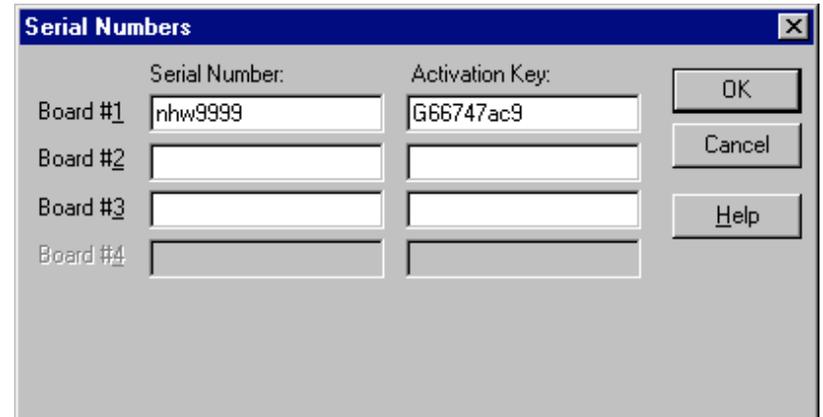
For either SDLC or QLLC/X.25 (for operation with Microsoft's SNA Server or SNA Workstation), select **SNA Link Services**

(Note that this option is grey unless the Microsoft SNA Server was installed).



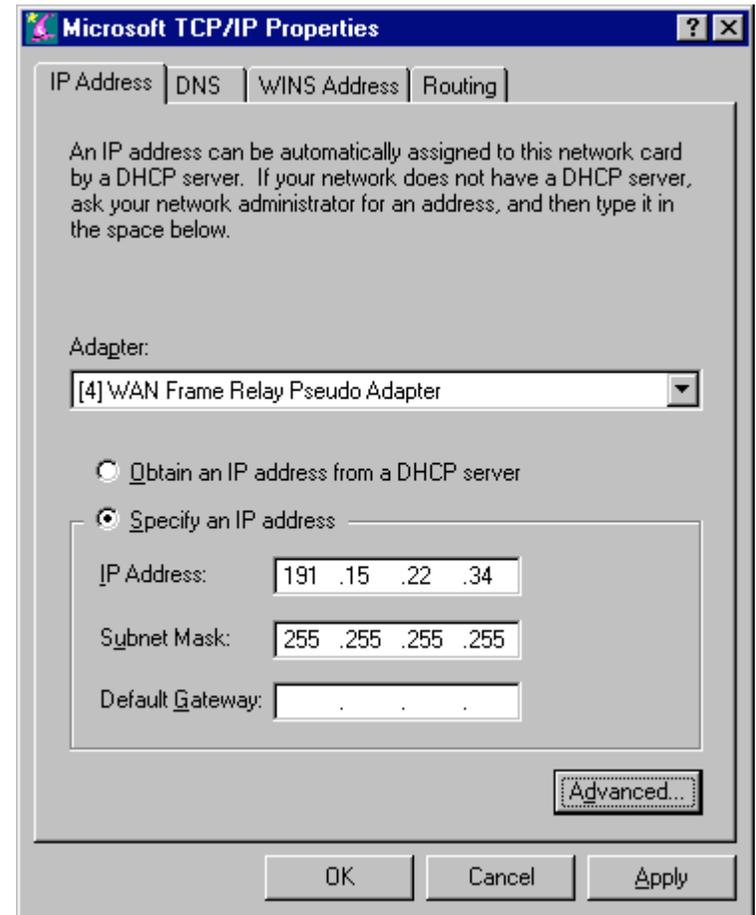
**Figure 4 WAN Protocol Selection**

6. Configure the WAN protocol to use for each adapter link (refer to Figure 5). Record the protocols selected in Table 3 on page 1.
7. Click **OK** to close the *WAN Protocol Selection* dialogue.



**Figure 5 Serial Number Dialogue**

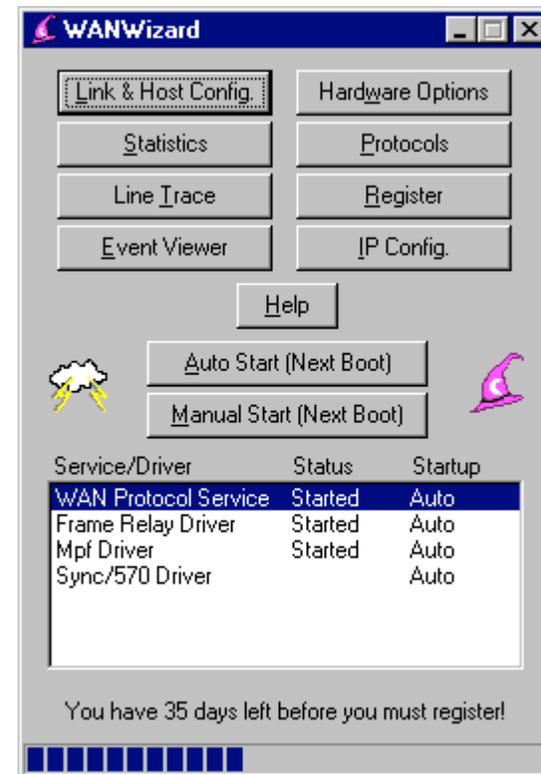
8. When the *Serial Number* dialogue opens (Figure 6), enter the product serial number and activation key from your product package into the dialogue box. If your product package did not include a serial number and activation key, please contact your sales representative. Copy down this information into Table 2 on page 1.
9. Click **OK**.
10. If you have selected TCP/IP over X.25 or TCP/IP over Frame Relay then an IP Configuration screen will appear; otherwise go to step 11.
  - 10.a) Select the appropriate WAN Pseudo Adapter from the Adapter drop-down list and enter the WAN IP address.



**Figure 6 TCP/IP Configuration**

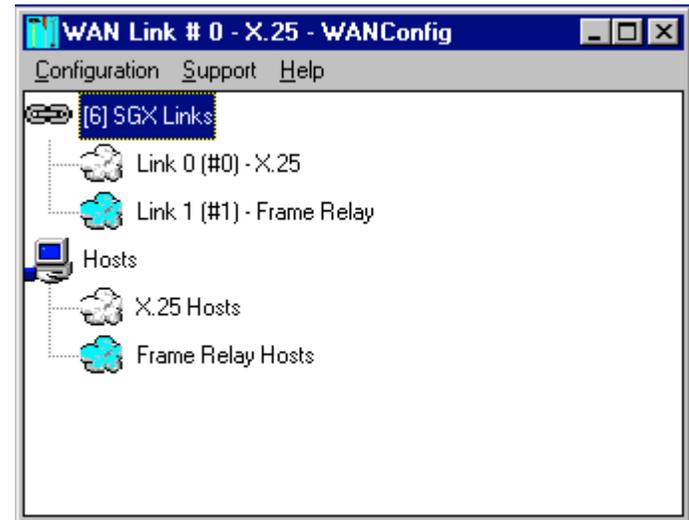
- 10.b) Repeat the above step for each WAN Pseudo Adapter.
- 10.c) If this machine is to act as a router select the **Enable IP Routing** checkbox under the *Routing* tab (under Windows NT 4.0).
- 10.d) Once TCP/IP is configured, click **OK**. Do not restart the operating system.

11. After installing the *Wanware NT* Software, click **CLOSE** in the Network Settings window.
12. You will notice a new program menu entitled Wanware NT. To run the Wanware wizard (WANWizard) double-click the WANWizard icon in this newly created group or select WANWizard from the Wanware NT program group in the **Start** menu.



**Figure 7** WANWizard

13. Click **Link & Host Config.** This will start the utility WANConfig, for setting link protocol characteristics and the addresses of remote hosts.



**Figure 8 WANConfig**

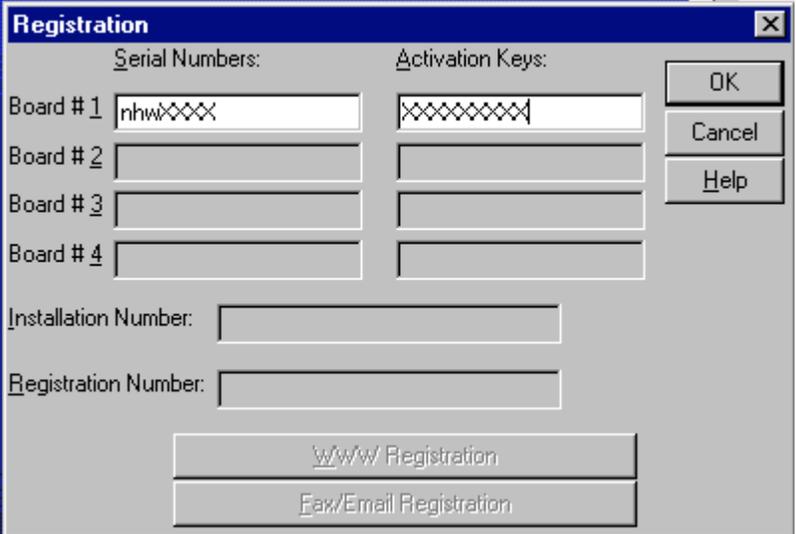
14. Double-click on the WAN link to configure. Double-click either X.25 Hosts or Frame Relay Hosts tabs to add TCP/IP host mappings for use over Wanware TCP/IP interfaces. If re-installing Wanware NT into the same directory, the previous link and remote host configuration will still be there. For more information on link and remote host configuration, view the on-line Wanware NT documentation in the Wanware Help.
15. Once configuration is complete exit both WANConfig and WANWizard.
16. Shutdown and reboot the system. Be sure to remove the Wanware NT installation diskette from the floppy drive before rebooting.

#### **4.4 Driver Startup**

Drivers are not set to automatically start after the installation. Manually starting the drivers and services manually first, before starting them automatically, is recommended.

1. After the system has rebooted, open WANWizard in the Wanware NT program group.
2. Double-click on WAN Protocol Service.
  - i) If an error should occur, examine the system event log for further information.
  - ii) Otherwise, "Started" will appear beside **WAN Protocol** Service and all the Drivers.
3. Exit WANWizard.
4. Test the link using your application or one of the provided sample applications. For TCP/IP over X.25 or Frame Relay test the link using "Ping".

## 4.5 Registration



The image shows a Windows-style dialog box titled "Registration". It has a blue title bar with a close button (X) in the top right corner. The dialog is divided into two main columns: "Serial Numbers:" and "Activation Keys:". Under "Serial Numbers:", there are four input fields labeled "Board # 1", "Board # 2", "Board # 3", and "Board # 4". The "Board # 1" field contains the text "nhw" followed by four diamond-shaped characters. The "Activation Keys:" column has four corresponding input fields, with the top one containing four diamond-shaped characters. To the right of these fields are three buttons: "OK", "Cancel", and "Help". Below the board fields, there are two more input fields: "Installation Number:" and "Registration Number:". At the bottom of the dialog, there are two buttons: "W/W Registration" and "Fax/Email Registration".

**Figure 9 Registration Dialogue**

Click Register on the WANWizard window to open the Registration Dialogue (Figure 10).

WANWizard's registration dialogue is used to register the product. When installed, the product is on a 60-day trial license. Before this period expires the product must be registered in order to continue to function correctly.

The minimum registration information you need to supply is your Wanware NT serial number & activation number, the Installation number and a way for us to return the registration number to you. The numbers may be displayed by clicking on the Register button in WANWizard. You may copy them via the NT clipboard by selecting the text and pressing the shortcut keys CTRL-C. Selecting the destination field and pressing the shortcut keys

CTRL-V affects text pasted into your web browser or e-mail application.

When The Software Group returns the Registration number to you (by e-mail, fax, or regular mail), you will have to enter it in the *Register* screen accessible from WANWizard.

You may register by the following means:

- Fax your serial number and installation number to:

1-705-725-9666.

- Register on the World Wide Web at:

<http://www.wanware.com/>.

For Windows NT 4.0 users select the *WWW Registration* button in **WANWizard**'s Register dialogue to navigate directly to this page.

- Send e-mail to [registration@wanware.com](mailto:registration@wanware.com) using the template provided by pressing *Help* in **WANWizard**'s *Register* dialogue.

## 5 UNINSTALL WANWARE NT

To remove a version of Wanware NT prior to 1.3.1 refer to the instructions that were provided for that particular version.

### 5.1 Remove Wanware NT Drivers

To remove the Wanware NT product (version 1.3.1 or later) and drivers follow these steps:

1. Open the Control Panel.
2. Select the Network dialogue by double-clicking on the Network icon.
3. Remove the adapter(s).
  - i) Select the **Adapters** tab.
  - ii) Select *SGX*, *SGP* or *Sync/570 Adapter* and click **Remove...** Repeat if multiple adapters are installed.
  - iii) Confirm you wish to continue with the deletion.
  - iv) Click **OK** or **Close**.

### 5.2 Uninstall Wanware NT Software

1. Select the *Wanware NT* program-group from the *Start* menu then select *Uninstall Wanware NT*. You may also select Wanware NT from the *Add/Remove Programs* Control Panel applet.

**NOTE: If you are upgrading make sure to deselect the check box Remove all files.**

2. If SNA support was installed and a link service still exists under SNA Manager, it must be removed.

## **6 NOTES AND LIMITATIONS**

Network traffic across the WAN link should be monitored closely for activity related to NetBIOS over TCP/IP messages, which tend to occur rather frequently. Disabling the NetBIOS bindings to the WAN X.25 or Frame Relay pseudo adapters will stop these messages.

### **News Updates and Downloads**

See <http://www.wanware.com> for updates. Navigate to the bottom of the "News" tab page to view release notes.

## 7 SUPPORT

Contact *The Software Group's* customer support using one of the following methods:

E-mail: [support@wanware.com](mailto:support@wanware.com)

Phone: (705) 725-9999 ext. 28

Fax: (705) 725-9666

Address: The Software Group Limited

642 Welham Road

Barrie, Ontario, Canada

L4N 9A1

URL: <http://www.wanware.com/>

# APPENDIX A: Configuration Recorder

**Table 1 Hardware Configuration**

	Adapter	# of Ports	IRQ	Memory Address	I/O Address
1					
2					
3					
4					

**Table 2 Serialization (for up to 4 boards)**

	1	2	3	4
Serial Number				
Activation Key				
Installation Number *				
Registration Key *				

\* if applicable

**Table 3 Protocol Selection**

Board	Link 0	Link 1	Link 2	Link 3
0				
1				
2				

3				
---	--	--	--	--

**Table 4 IP Address Configuration**

WAN Pseudo Adapter			
IP Address			
Subnet Mask			
Default Gateway			
Primary WINS Server			
Secondary WINS Server			

**Table 5 Dip Switch Settings for upto 4 Adapters**

