Web Cruiser

User's Guide

TW200

TW400

P/N 9560660037

Sensitive Information

This page contains a security password. If the device password is lost or forgotten, this meta-password will allow access to the device configuration. This meta password will function only in Terminal Configuration mode.

[+-*/]

Please remove this page and treat it with the same discretion you would treat your regular password. Carelessness in password policy may lead to serious compromises in system security.

FCC Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that my cause undesired operation.

CE Marking Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Document Version: 1.0

TABLE OF CONTENTS

1 Introduction

Congratulations on the purchase of your new **Error! Reference source not found.** Internet Access device The **Error! Reference source not found.** will allow multiple SOHO (Small Office Home Office) users to share Internet user accounts. It provides a low-cost method of giving users of your network access to the vast resources available on the Internet. Once the **Error! Reference source not found.** is installed and configured, the Internet is just a click away.

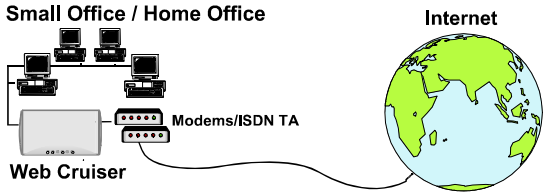

Figure 1: Office to Internet

Error! Reference source not found. Features

Once configured, the **Error! Reference source not found.** is able to use your modem(s) to connect to your ISP (Internet Service Provider). The **Error! Reference source not found.** will provide the log-in information required by the ISP. You

can seamlessly connect to the Internet as if you had a permanent connection. This sophisticated, yet easy-to-use device incorporates the following features.

- ***Dial-On-Demand.*** A connection is established to the Internet as required.
- ***User-Configurable Bandwidth Utilization.*** When using multiple modems or ISDN TAs, users can choose between "Time Saving Mode" (use all bandwidth) or "Money Saving Mode" (maximize bandwidth utilization).
- ***Inactivity Time Out.*** The modem will be disconnected if no line activity is detected. The time-out period ("Idle Time") is user-adjustable.
- ***PPP Authentication.*** This is used to validate the log-on to your Internet Service Provider.
- ***DHCP Server Support.*** **D**ynamic **H**ost **C**onfiguration **P**rotocol provides a dynamic IP address to PCs and other devices upon request.
  The **Error! Reference source not found.** can act as a **DHCP Server**.
- ***Easy Setup.*** Either a communications program and direct cable connection; or a WEB browser, can be used.
- ***Configuration Security Features***. Optional password protection is provided to prevent unauthorized users from modifying the configuration.
- ***Hassle-free LAN Installation.*** An auto-sensing LAN connection eliminates the need for configuration during installation in a 10Base2/10BaseT network.
- ***Multi Segment LAN Support.*** If you have a Router, PCs on other LAN segments can use the **Error! Reference source not found.** to access the Internet.

- ***Remote Management.*** The **Error! Reference source not found.** can be managed from a workstation anywhere on the LAN, using a WEB browser.
- ***E-Mail Gateway.*** The **Error! Reference source not found.** can act as a Gateway for incoming E-Mail, allowing LAN users to share E-Mail accounts. Up to 4 accounts and 50 users are supported.
- ***Firewall Protection.*** All incoming data packets are monitored and all incoming server requests are filtered, thus protecting your network from malicious attacks from external sources.

Firewall Protection

The firewall protection provided by the **Error! Reference source not found.** is an intrinsic side effect of IP sharing. All users on the LAN share a single external IP address. From the external viewpoint, there is no network, only a single device.

For internal users, the **Error! Reference source not found.** acts as a "transparent proxy server", translating the multiple internal IP addresses into a single external IP address.

For external requests, any attempt to connect to local resources are blocked. The **Error! Reference source not found.** will not "reverse translate" from a global IP address to a local IP address.

This type of "natural" firewall provides an impregnable barrier against malicious attacks.

Package Contents

The following items should be included:

- The **Error! Reference source not found.**
- Power Adapter
- Serial Cable (for configuration ONLY)
- This User's Manual

If any of the above items are damaged or missing, please contact your dealer as soon as possible.

Meta Password

Please remove the *Sensitive Information* page at the front of this manual and store it in safe place. It contains the important Meta Password which can be used if the regular password is lost or forgotten. (Note: This Meta Password can only be used with the Terminal Configuration mode.)

Description

This section describes the different models. Please take a few minutes to familiarize yourself with your new **Error! Reference source not found.**.

The **Error! Reference source not found.** and **Error! Reference source not found.** have identical cases. The following pages show details of each model.

Error! Reference source not found.

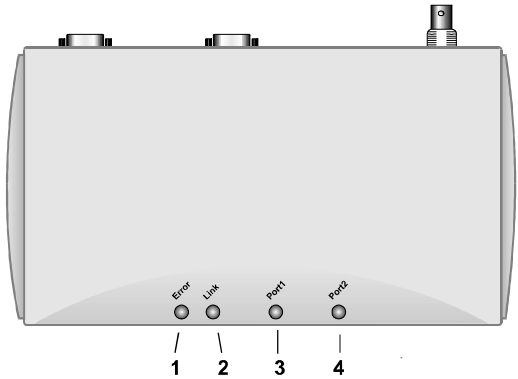

Figure 2: Error! Reference source not found.

LED Indicators

1	**Error LED**	This LED is used to indicate an error, but it will normally light up during power On. See the following *LED Status Table* for more details.
2	**Link LED**	This LED should be on during normal operation. For more information, see the following *LED Status Table* .
3, 4	**Serial Port Indicators**	These LEDs flash when the relevant port is in use.

See *Figure 4: Back Panel* on page 7 for connector details.

Error! Reference source not found.

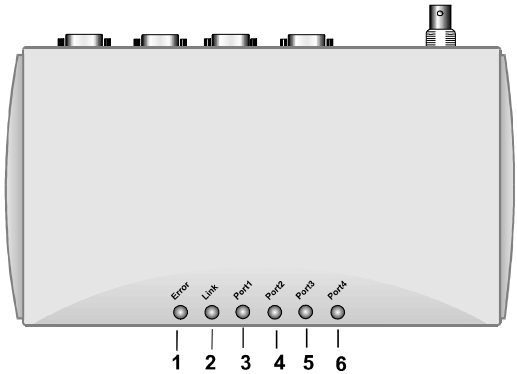

Figure 3: Error! Reference source not found.

LED Indicators

1	**Error LED**	This LED is used to indicate an error, but it will normally light up during power On. For more information, see the following *LED Status Table*.
2	**Link LED**	This LED should be on during normal operation. For more information, see the following *LED Status Table*.
3, 4 5, 6	**Serial Port Indicators**	These LEDs flash when the relevant port is in use.

See the following *Back Panel* diagram for connector details.

Back Panel

The following diagram shows the back panel of the **Error! Reference source not found.**. The **Error! Reference source not found.** is identical except for having 2 serial ports rather than 4.

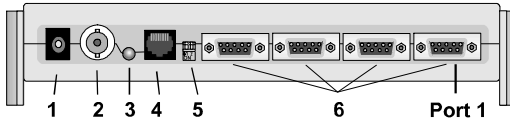

Figure 4: Back Panel (Error! Reference source not found.**)**

1	**Power port**	Connect the power adapter here.
2	**10Base2 port**	Connect 10Base2 cabling here.
3	**10BaseT LED indicator.**	This will light when the 10BaseT connector is in use.
4	**10BaseT port**	Connect 10BaseT cabling here.
5	**DIP switches**	Set Normal or Configuration mode. See the following *Dip Switches Table* for details.
6	**Serial Ports**	Connect the modems to these ports. The **Error! Reference source not found.** has 2 ports; the **Error! Reference source not found.** has 4 ports. Port 1, used for configuration, is closest to the side of the device.

LED Status Table (All Models)

Link	Error	Description
On	On	During power On, both LEDs should light then the Red LED should go off. If both LEDs stay on, there is a hardware problem.
On	Off	Normal Operation (Power On Self Test OK)
Flashing	Off	Normal Operation (Receiving Packets from LAN)
Steady flashing of both LEDs		Terminal configuration mode. (Both DIP switches ON.)
Rapid intermittent flashing of each LED		If the device is not in the configuration mode, there is a hardware error. Contact your dealer for technical support.

DIP Switch Table (All Models)

DIP Switch Setting	Descriptior
 1=off 2=off	Normal Operation
 1=off 2=on	Normal Operation
 1=on 2=off	Normal Operation
 1=on 2=on	Terminal Configuration Mode

2 Installation

Requirements

- Ethernet Network employing 10BaseT or 10Base2 cable and the TCP/IP protocol.
- An external modem or ISDN TA (Terminal Adapter).
- Configuration serial cable for Terminal mode configuration (supplied).
- Single user account with a local ISP.

Procedure

The installation choices are as follows.

Configure, then Install

Configuration is done using a serial cable connection and a VT100 terminal compatible program, before installation. The only advantage of this method is that you can change the default IP Address (192.168.0.1) before connection to your LAN.

Install, then Configure

Here, you connect the **Error! Reference source not found.** to your network and then configure it using your WEB Browser. If the default IP Address (192.168.0.1) is already used by another device, the other device must be turned OFF until the

Error! Reference source not found. is allocated a new IP Address during configuration.

LAN Installation

Installing your new **Error! Reference source not found.** in your existing Ethernet LAN is quick and easy. Simply follow the instructions below:

1. Choose an Installation Site

Select a place on the network to install the **Error! Reference source not found.**. Remember that you need phone jacks and power outlets near your chosen location.

2. Connect Network Cable

The **Error! Reference source not found.** supports two types of network cables: Thin Ethernet (10Base2, BNC connector) and Twisted Pair Ethernet (10BaseT, RJ-45 connector). During power up, the unit automatically detects the type of network cable and adjusts to that environment.

10Base2 Cabling:

If your network uses 10Base2 cable, insert a BNC "T" connector into the **Error! Reference source not found.**'s BNC port. Connect the cable to one end of the "T" connector and connect the outgoing cable to the other end. If the **Error! Reference source not found.** is at the end of the network, then cap off the other end of "T" connector with a 50-ohm terminator. Also, keep in mind that the maximum effective length between the ends of a 10Base2 network is 185 meters.

10BaseT Cabling:

If your network uses 10BaseT cable, insert one end into the **Error! Reference source not found.**'s RJ-45 jack and the other end into the 10BaseT hub. Keep in mind that the maximum effective length from the hub to the device is 100 meters.

Warning: *Do not attempt to connect more than one type of cable at the same time or change the network cable while the Error! Reference source not found. is powered On.*

3. Connect Modem & Phone Line

Connect the modem, using a standard serial cable, to the **Error! Reference source not found.**'s serial port. Next, connect a telephone line from an RJ-11 style phone jack to the modem.

4. Connect Power Adapter

Connect the modem's power adapter to the modem and the **Error! Reference source not found.**'s power adapter to the **Error! Reference source not found.**. Power both devices On.

Only use the power adapter provided with your unit. Using a different one may cause hardware damage.

5. Check the LEDs

When the **Error! Reference source not found.** is powered On, both LEDs should light, then the Error LED should go off. If the Error LED stays on, there is a hard-

ware problem. For more information on the LEDs, refer to the *LED Status* table in Chapter 1.

This page was deliberately left blank.

3 Configuration Settings

Regardless of the configuration method used, you will be required to enter the following information.

Port Configuration

Internet Connection

User Name	Enter the account name provided by your ISP. This name will be used to log in to the ISP's server.
Password	Enter the current password for the above account.
Verify Password	Re-enter the password to ensure it is correct.
Telephone	Up to 3 telephone numbers can be entered; only 1 is required. Use the format described in your modem's user manual.
Connection Type	Select **Leased Line(Null modem)** if you have a continuous connection, and ignore all modem settings. Otherwise select **Dial up line**.

IP Address	Enter the IP address assigned to you by your ISP. If the ISP issues dynamic IP addresses, leave this field as 0.0.0.0. (With dynamic IP addresses, a valid address is provided upon connection.)
DNS IP Address	The DNS (Domain Name Server) translates names (e.g. microsoft.com) to IP Addresses. Enter the DNS IP address supplied or recommended by your ISP.

Modem/ISDN Configuration

Model	• If your model is listed, simply select it and you are finished. • If your model is not on the list, try "Hayes compatible". • If this does not work, select "Other". You will then have to enter the "Initial String" (AT commands), as described below.
Initial String	This is a series of AT commands (on 1 line) used to configure your modem or ISDN TA correctly. See *Required Settings* in *Appendix C AT Commands* for more information.

Advanced Port Settings

Most users should not have to change these settings.

Port Settings

Enable/Disable	If Enabled, a connection will be made as needed. Use "Disable" to temporarily disable the port when required.
Hang up after Idle Time	If a connection remains inactive, it is terminated after this time period. Allowable range is 0-99 minutes. For a leased line, set this value to 0.
Serial Line Speed	Select the speed which is equal to or below the fastest SERIAL line speed (NOT phone line speed) of your modem. Available speeds range from 4.8K to 230.4.K (bps).

Modem/ISDN Settings

Dial Type	Select "Tone", "Pulse" or "Other" to match your system. For "Other", you must provide the ***Dial String*** below.
Dial String	Only required if you are NOT using Tone or Pulse dialing. Enter the command (sometimes called the "Dial Prefix String") your modem requires to precede the phone number..

Auto Answer Off Command	Enter the command string which instructs your modem or ISDN TA not to answer incoming calls.
Script File	If your ISP uses a standard PPP connection and authentication, you do NOT need a script file. Script files are used to automate the log-in process when connecting with ISPs that use non-standard log-ins or proprietary security measures. For example, if you connect to the Internet via CompuServe, you DO need a script file. Script files are detailed in *Appendix D Script files* An example for connecting to CompuServe is included.

Advanced Setup

LAN Settings

Device IP Address	IP address for the **Error! Reference source not found.**. Use the default value unless the address is already in use.
Router IP Address	If you have a router, enter its IP Address. Otherwise, leave this at the default value.
Network Mask	The default value 255.255.255.0 is OK for small networks. For larger networks, ask the LAN administrator.

Bandwidth Utilization

This feature (on multi-port models only) determines how multiple serial port connections are handled. The options are *Money Saving Mode* (the default) and *Time Saving Mode*.
In ***Money Saving Mode***, additional serial ports will only be connected when bandwidth utilization is high.
In ***Time Saving Mode***, whenever a connection is required, all serial ports will always be used, even for a single user.

Change Device Password

Once a password is entered, it is required in order to change the device configuration. The password can be up to 8 alpha-numeric characters and is case sensitive.

The Meta Password (see the *Sensitive Information* page at the front of this booklet) can be used if the password is lost. This meta password works only in Terminal Mode configuration.

DHCP Server

A DHCP server provides a valid IP address (and the Gateway and DNS addresses) to a DHCP client (PC or device) upon request. The **Error! Reference source not found.** can act as a **DHCP server**.

Enable/Disable	If Enabled, the **Error! Reference source not found.** will function as a DHCP server. The default value is Disabled.
Start IP Address **Finish IP Address**	The *I.P. Start Address* and *I.P. Finish Address* fields set the values used by the DHCP server. This range also determines the number of DHCP clients supported. (Maximum number of clients is 50.)
DNS IP Address	If you have any DNS (Domain Name Server) system(s) on your LAN, enter their IP Addresses here. Otherwise, enter the IP Address(es) provided by your ISP. Multiple entries should be entered in the order you want them accessed. (The first available DNS will be used.) If the only DNS you use is the one provided by your ISP AND you **don't** use the E-Mail feature, then you can leave these fields blank.

***Note**: To use DHCP, you must also configure your PCs to act as DHCP clients. Client support for DHCP*

is provided in Win 95's TCP/IP stack. See ***IP Address Configuration*** *on page 41 for details.*

E-Mail Accounts

The **Error! Reference source not found.** allows many users to share the E-Mail Account(s) provided by your ISP. Up to 4 E-Mail accounts and 50 users are supported. The E-mail address is formed by combining the *User id* and the *Account name*, as shown by the following example (Note: The "" and < > form part of the address, and must be included):

"user_id"<mail_account@mail_address>

To use this feature:

- The following data must be entered. (Leave these fields blank if you do not require this feature.)
- A *DNS IP Address* must be entered on the *DHCP Server* fields on the *Advanced* screen.
- Users must configure their E-Mail program as described in *E-Mail Configuration* on page 46. (This section also contains an example of how to use account sharing.)

Account Information

Account No.	No data required. (Reference only)
Enable Sharing	If ON (Yes), then this account can be shared.
POP3 Mail Server Address	Enter the address of the POP3 Mail Server, as provided by your ISP.
POP3 Mail Server Account Name	The name of the account on the POP3 Mail Server, as provided by your ISP. Using a Department name (e.g. Sales) is recommended.
Password	The password for the above account.

User Information

User ID	In your Browser, existing users are shown in a drop-down list. You can select a user from this list to change their details. When adding a new user, the drop-down list is ignored; just enter the details for the new user. **Note:** • Multiple words are NOT allowed in user IDs. • Punctuation and special characters should NOT be used in User IDs. • User IDs are case insensitive.
Password	The password for the current user. This password will be entered into their E-Mail program. Passwords are case sensitive.
Mail Account	Select the E-Mail account that this user is going to share. Account information should have been previously entered.
Set as Recipient for Unrouted Mail	If this setting is ON (Yes), then when this user retrieves their E-mail, they will also receive all E-mail sent to this mail account when there is no user name, or the user name is invalid. More than one user can be set.

4 Configuration Programs

There are 2 methods of configuration:

- Terminal Mode, using the supplied serial cable and a communications program.
- Browser mode, which requires the use of your existing WEB browser. This uses the LAN connection, so the device must be installed on the LAN first.

Terminal Mode Configuration

Procedure

1. With the power Off, use the supplied serial cable to connect your PC to the serial port on the **Error! Reference source not found.**.
   For multi-port models, you MUST use Port 1.
2. Set both of the **Error! Reference source not found.**'s dip switches to the Configuration mode (both Switches ON).
3. Configure your communications program as shown in the following table.

   Details on configuring and using common communications programs are contained in *Appendix E - Terminal Programs.*

Setting	Value
Terminal Emulation	VT100 mode
Baud Rate	19200bps
Data Bits	8-bit
Parity	no parity
Stop Bits	1 stop bit
Flow Control	Xon/Xoff OR None

4. Start the configuration program by connecting the power to the **Error! Reference source not found.**. If nothing appears on your screen, press ESC.
5. Configure the **Error! Reference source not found.** as described in the following section. Save the configuration data before exiting.
6. Turn the power OFF and set the dip switches to their normal (Off) positions. You are now ready to install the **Error! Reference source not found.** in your LAN.

Navigation & Data Input

Once the **Error! Reference source not found.** is powered On, the configuration program will automatically start. If nothing appears on your screen, press ESC.

Use the TAB or cursor keys to move to the desired field and press ENTER. You can then input a value directly, or select from a predefined list of values. Note that those options contained in brackets [ ] have submenus.

The following table lists all available keystrokes.

Keystroke	Description
ESC	Used to escape the input fields or return to the previous menu. Pressing ESC while at the first panel will refresh the first panel.
TAB or → or ↓	Moves to the cursor to the next option in descending order. If the selected option is the last option, pressing anyone of these keys will return you to the first option.
← or ↑	Moves the cursor to the next option in ascending order. If the selected option is the first option, either of these keys will return you to the last option.
ENTER	Used to select the current option for configuration.
CTRL+D	Used to restore the factory default settings to the active screen. Submenus will not be affected.
CTRL+R	Refresh screen.

Terminal Configuration Screens

Once the device is powered on, the configuration program will start. If nothing appears on your screen, press the ESC key.

The first screen will have a menu selection for each port. The 4-port model looks as follows:

```
          [ Basic configuration ]          Version 5.0
Local LAN:
   >Device IP address: 192.168.0.1
    Network mask: 255.255.255.0

WAN port settings:
    [Port 1]
    [Port 2]
    [Port 3]

    [Port 4]

[Advanced Settings]
[Change console password]
Clear all settings and restore factory defaults

Save and reset device
-----------------------------------------------------
```

See *LAN Settings* on page 17 for details of the "Device IP Address" and "Network Mask". (Note: The "Router IP Address" is on the *Advanced* screen.)

To configure a port, select it, and then press [Enter]. A screen like the following will be shown.

```
                    [ WAN port Settings ]
  >Port 1

Single user account:
    IP address: 0.0.0.0
    User Name: GUEST
    Password:
    DNS IP address: 0.0.0.0

Line type: Dial up line
```

```
Phone number: 117
Serial line speed:  19200 bps
Hang up after idle time more than 15 minutes
Port enable: Yes

[Modem AT Commands]
[Script File]
```

Refer to *Port Configuration* on page 13 and *Advanced Port Settings* on page 15 for details of the port settings, including the *Modem AT Commands* and *Script File*.

Advanced Settings

Selecting the Advanced Settings option will cause the following screen to appear.

```
                  [ Advanced settings ]

>DHCP Server enable: No
     I.P. Start Address: 192.168.0.1
     Number of Users (10..50): 50
     I.P. Finish Address: 192.168.0.50
     The 1st DNS IP address: 0.0.0.0
     The 2nd DNS IP address: 0.0.0.0
     The 3rd DNS IP address: 0.0.0.0

Bandwidth Utilization: Money Saving Mode
                    (Maximise bandwidth utilization)

   Router IP Address: 0.0.0.0

   [E-mail gateway]
-------------------------------------------------------
```

See *LAN Settings* on page 17 for details of the "Router IP Address" and *Advanced Setup* on page 17 for details of the other settings.

E-Mail Configuration

Selecting *E-Mail Gateway* from the *Advanced* screen will reveal the following screen.

```
[ E-mail Account ]

  >[Account 1]
   [Account 2]
   [Account 3]
   [Account 4]

    [User Information]
```

Selecting *Account 1* will reveal the following

```
[ E-mail gateway ]

  >Account 1
       Enable: Yes
       POP3 Mail Server Address:
       POP3 Mail Server Account name:
       Password:
```

See *Account Information* on page 19 for details of these settings.

Selecting *User Information* will reveal the following screen, which can be used to enter shared users.

Note that although the device supports up to 50 shared users, only 18 can be entered here.

```
[ E-mail gateway User Information ]

  User name   Password  Mail account    Unrouted Mail
1)>                          1                 No
2)                           1                 No
3)                           1                 No
4)                           1                 No
5)                           1                 No
6)                           1                 No
7)                           1                 No
8)                           1                 No
9)                           1                 No
10)                          1                 No
11)                          1                 No
12)                          1                 No
13)                          1                 No
14)                          1                 No
15)                          1                 No
16)                          1                 No
17)                          1                 No
18)                          1                 No
-----------------------------------------------------
```

See *User Information* on page 20 for information on these fields.

To enter data:

- TAB to the desired field
- press ENTER
- type the data
- press ENTER.

Repeat for the next field.

Browser Mode Configuration

Overview

This method uses your existing WEB browser. Most WEB browsers should work, provided they support tables and forms. The **Error! Reference source not found.** must be installed on your LAN first.

Connection

To establish a connection from your PC to the device:

- Start your WEB browser
- In the *Address* box, enter "HTTP://" and the IP Address of the **Error! Reference source not found.**, as in the following example:

  HTTP://192.168.0.1

Password

You should then see the first screen, which will prompt you for a password. If no password has been set, just click *OK* to continue to the ***Start*** screen. The ***Start*** screen contains helpful information for first-time users.

Navigation & Data Input

Most screens contain a navigation bar on the left of the screen allows you to move about. You can also use the "Back" button on your Browser.

Remember that changing to another screen without clicking "OK" does NOT save any changes you may have made. HTML uses "forms based input" which means you must send (submit) the form (by clicking a button) or your data will be ignored.

Port Configuration

Selecting the ***Ports*** hyperlink will display a screen like the following.

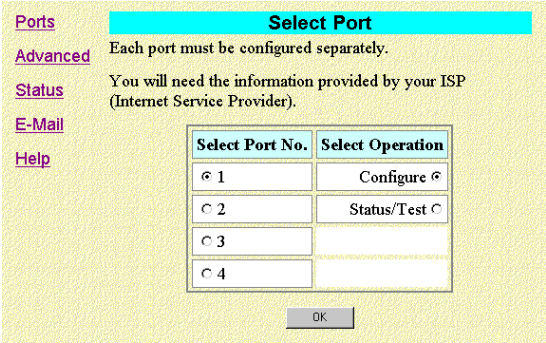

Figure 5: Select Port

Select the port and the required operation, and click *OK* to move to the ***Port Configuration*** screen.

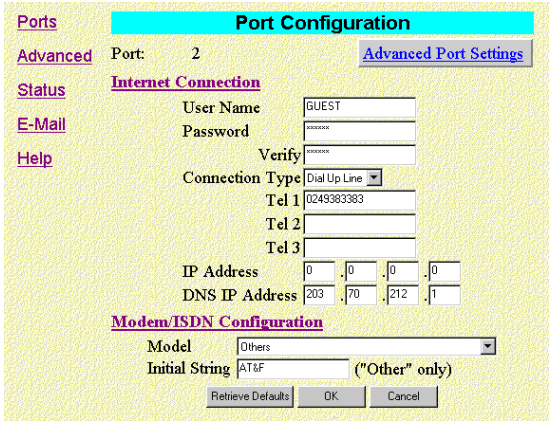

Figure 6: Port Configuration

Refer to page 13 for details of these settings.

Advanced Port Settings

Clicking the *Advanced Port Settings* hyperlink at the top of the screen will take you to the following screen.

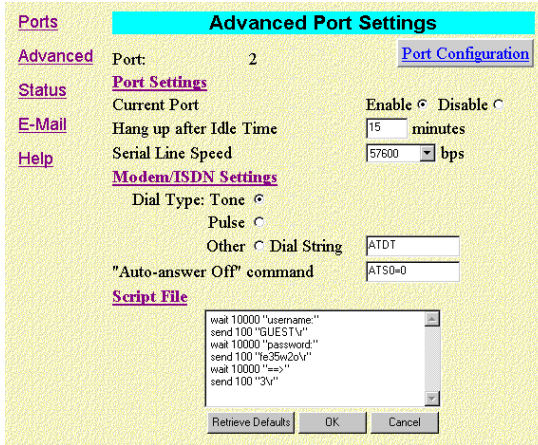

Figure 7: Advanced Port Settings

Refer to page 15 for details of these settings.

Port Status Screen

The ***Port Status*** screen is reached by selecting *Status/Test* on the ***Select Port*** screen shown in Figure 5.

An example *Port Status & Test* screen is shown below.

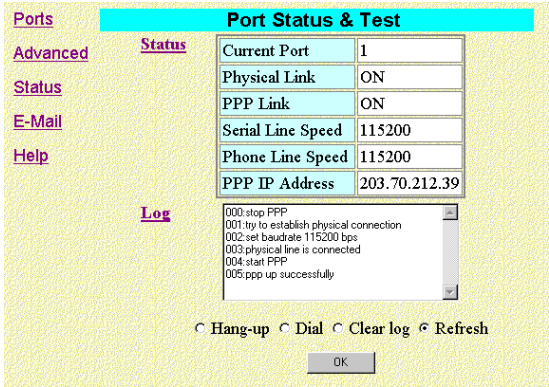

Figure 8: Port Status &Test

Current Port	Displays the current port. On single-port models, this is always "1".
Physical Link	If operating, the link will show ON. This means the modem was able to connect to the number dialed.
PPP Link	If ON, a PPP connection was successfully negotiated.
Serial Line Speed	The connection speed between this device and the modem.
Phone Line Speed	The connection speed over the phone line, between your modem and the number dialed.

PPP IP Address	The IP Address at the other end of the PPP connection, if one has been established.
Modem Log	This shows the commands sent to the modem, and any status messages returned by the modem. Note that this is not "live"; you must select *Refresh* and then click *OK* to update the information.
Operations	• **Hang Up** will hang up the modem, breaking an existing connection. • **Dial** will establish a connection to the ISP, if no connection currently exists. • **Clear Log** will remove any data shown in the *Log* window. • **Refresh** will update the information shown on screen. You must click *OK* to have the operation performed

Advanced Setup

Selecting the ***Advanced*** hyperlink from the navigation bar will reveal a screen like the following.

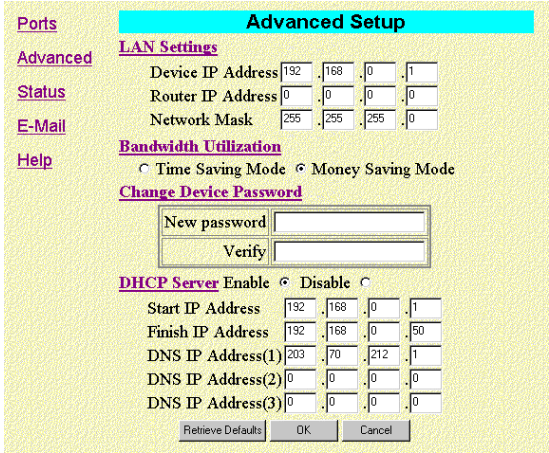

Figure 9: Advanced Settings

See page 17 for details of these settings.

Status Screen

The ***Status*** screen can be reached with the hyperlink on the navigation bar. The following example is for the 4-port model.

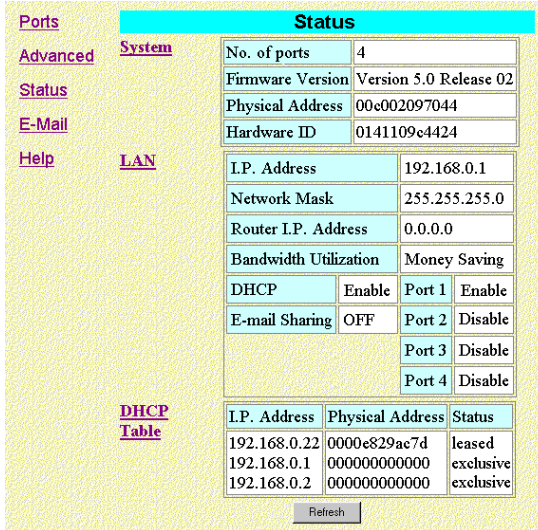

Figure 10: Status Screen

No. of Ports	The number of serial ports on this device.
Firmware Version	Version of the firmware (embedded software, including this program) which is currently installed. Techni-

	cal support staff may ask for this information.
Physical Address	The hardware address of this device.
Hardware ID	The hardware ID of this device, used by the manufacturer for identification.
IP Address	The IP Address of this device.
Network Mask	The Network Mask value stored in this device. This must match the Network Mask for the LAN segment to which this device is connected.
Router IP Address	The IP Address (for this LAN segment) of the router. If there is no router, this should be 0.0.0.0
Bandwidth Utilization	This will show "Time Saving Mode" or "Money Saving Mode". In *Time Saving Mode*, all ports are ALWAYS used, even for a single user. In *Money Saving Mode*, additional ports are only used when the connected port(s) are being heavily used (i.e. Bandwidth Utilization is high).
DHCP	This shows the status of the DHCP Server function. The value will be "Enabled" or "Disabled".
E-Mail Sharing	If E-mail sharing is used on any E-mail account, this will display "ON". Otherwise, the status will be "OFF".

Port	For each port, the possible status values are "Enabled" or "Disabled". Ports are initially Disabled, but are automatically Enabled when data is entered. This setting is on the *Advanced Port Settings* screen.
DHCP Table	This table will be empty unless DHCP has been "Enabled". If DHCP is being used, this table lists the devices which have been allocated IP Addresses by the DHCP server function. Only IP Addresses in use will be listed. • **I.P. Address.** The IP Address which has been allocated by the DHCP server to the other device. • **Physical Address**. The Physical Address (Hardware Address) of the device which has been allocated a IP Address. • **Status**. Possible Status values are "Leased" (the IP Address is allocated to the device shown) or "Exclusive" (the IP Address is not available). ***Note**: The device will reserve one address for future device enhancements. This address will be shown as "Exclusive".*

E-Mail Configuration

This screen, reached by selecting the ***E-Mail*** hyperlink on the navigation bar, is only needed if you wish to share E-Mail Accounts.

It allows to choose an operation for an E-Mail Account or the User List (Shared users).

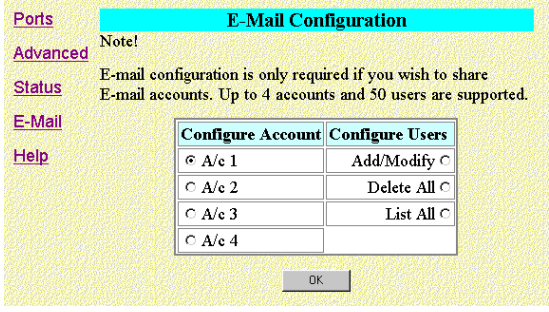

Figure 11: E-Mail Configuration

E-Mail Accounts

This screen is reached by selecting *Configure Account* from the ***E-Mail Configuration*** screen above.

Figure 12: E-Mail Accounts

See page 19 for details of these settings.

E-Mail Users

This screen is reached by selecting *Configure Users - Add/Modify* from the ***E-Mail Configuration*** screen. See page 20 for more details on these fields.

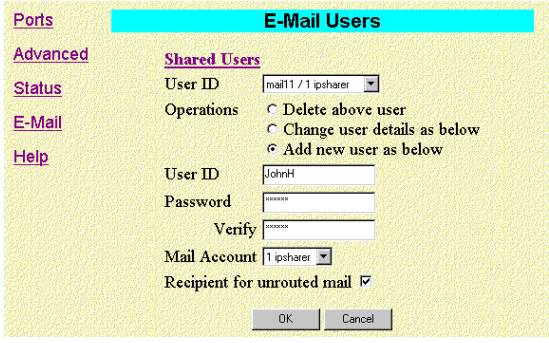

Figure 13: E-Mail Users

- **To Delete an Existing User:**
  Select the user from the drop-down box, check the *Delete above user* radio button, and click *OK*.
- **To Change an Existing User's Details**:
  Select the user from the drop-down box, check the *Change user details as below* radio button, and change any fields you wish. Click *OK* when finished.
  If the *Name* or *Password* fields are left blank, they are NOT cleared, but left unchanged.
- **To Add a New User**:
  Ignore the drop-down box, check the *Add New User as below* radio button, and enter the user details in the fields provided. Click *OK* when finished.

5 Operation

IP Address Configuration

Once the **Error! Reference source not found.** has been configured and installed in your network, it is ready for use. However, the PCs on your network must be configured correctly. If you have a router, it also needs to be configured correctly.

PC Address Configuration

The following TCP/IP settings should be checked.

- IP Address
- Default Gateway Address
- DNS (Domain Name Server) Address

The correct settings will depend upon whether or not you have enabled the DHCP server in the **Error! Reference source not found.**.

If DHCP is Enabled

IP Address

If the DHCP function in the **Error! Reference source not found.** is enabled, then your PCs should be set to obtain an IP address automatically. In Windows 95, this is done by setting the *Properties* for the TCP/IP protocol. This proce-

dure is described in the following section. For operating systems other than Win 95, check your system documentation.

1. Select the *Control Panel - Network* option on the Start Menu. You should see a screen like the one following.

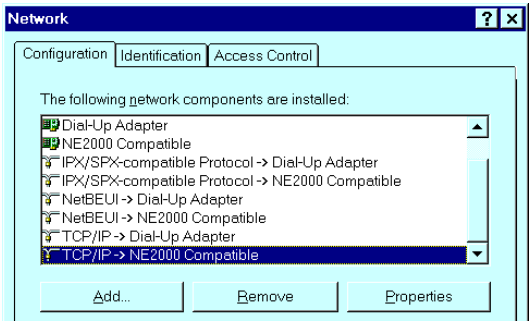

Figure 14: Network Configuration

2. Select the TCP/IP protocol for your network card. Then click on the *Properties* button. You should then see a screen like the following.

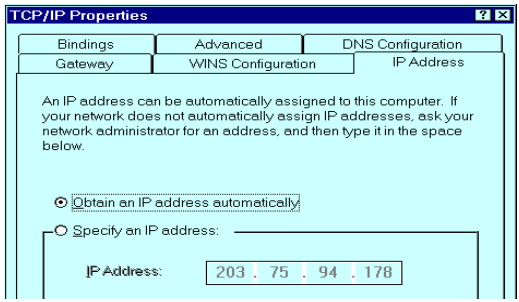

Figure 15: IP Address (Win 95)

3. Click on the radio button to obtain an IP address automatically, as shown above.

Default Gateway Address

This should be left blank. The DHCP server will provide this information.

DNS (Domain Name Server)

This should be "**Enabled**" but the fields can be left blank. The DHCP server will provide this information also.

If DHCP is Disabled

IP Address

Each workstation must have a unique IP address. There should be no need to change any existing addresses.

Default Gateway Address

This value will depend on whether or not you have a router installed on your LAN.

NO Router

Set the *Default Gateway Address* to the IP address (*Device IP Address*) assigned to the **Error! Reference source not found.** during configuration.

Router

Leave this at the current setting (the address of the router).

DNS (Domain Name Server)

Enter the DNS address provided or recommended by your ISP. This is the same value that was entered into the *DNS IP Address* field in the **Error! Reference source not found.** during configuration.

Router Address Configuration

If you have a router, you must enter the IP Address (*Device IP Address*) of the **Error! Reference source not found.** as the *Default Gateway* in the router. Check the documentation for your router to see how this is done.

If your LAN contains multiple routers, ask your LAN administrator to perform the necessary router configuration.

It is essential that the router pass all IP packets for devices not on the local LAN to the **Error! Reference source not found.**, so that they can be forwarded to the Internet.

Internet Access

No action is required to gain Internet access. Simply use your Browser as if you had a permanent connection.

If no connection currently exists, there will be a short delay while the modem connects to your ISP.

E-Mail Configuration

IF you are using the **Error! Reference source not found.** to share E-Mail accounts, then each user sharing an account must configure their E-Mail program with the following data.

Name	The *User ID* entered in the *E-Mail User* Screen of the **Error! Reference source not found.**. Note the following limitations on User Ids: • Multiple words are NOT allowed • Punctuation and special characters should NOT be used. • User Ids are case insensitive.
E-Mail Address	The full name of the E-Mail account which is being shared, as provided by your ISP. e.g. sales@provider.com
SMTP Server (Outgoing Mail)	The SMTP Server address as provided by your ISP
POP3 Server (Incoming Mail)	Set this to the IP Address of the **Error! Reference source not found.**
POP3 Account	The *User ID* entered in the *E-Mail User* Screen of the **Error! Reference source not found.**.
Password	The user password entered in the *E-Mail User* screen of the **Error! Reference source not found.**.

- Note that outgoing E-mail is sent normally; only incoming E-mail is processed by the **Error! Reference source not found.**.
- If you find that some of your incoming E-mail does not include your name, and is therefore considered "Unrouted Mail", ask those senders to record your E-Mail Address in the following format.

  "user_id"<mail_account@mail_address>

- Your printed E-Mail Address (e.g. on your business card) should also show your E-Mail address in the format above.

Sharing E-Mail Example

Say your name was B. Jones, the **Error! Reference source not found.** uses its default IP Address (192.168.0.1) and the other information was as follows:

E-Mail Address as provided by your ISP	greatco@ms02.com
SMTP Server as provided by your ISP	smpt09.com
POP3 Server as provided by your ISP	ms02.com
POP3 Account Name as provided by your ISP	greatco
POP3 Account password as provided by your ISP	9087654

To share this E Mail Account, the entries on the following page would have to be made. Your E-Mail Address would become:

"bjones"<greatco@ms02.com>

Error! Reference source not found. **"Mail Account"**

Account No.	1
Enable Sharing	ON (Yes)
POP3 Mail Server Address	ms02.com
POP3 Mail Server Account Name	greatco
Password	9087654

Error! Reference source not found. **"Mail User"**

User ID	bjones
Password	Secret064
Mail Account	1
Set as Recipient for Unrouted Mail	ON (Yes)

E-Mail Program

Name	bjones
E-Mail Address	greatco@ms02.com
SMTP Server (Outgoing Mail)	smpt09.com
POP3 Server (Incoming Mail)	192.168.0.1
POP3 Account	bjones
Password	Secret064

A Troubleshooting

This chapter covers some common problems that may be encountered while using the **Error! Reference source not found.** and some possible solutions to them. If you follow the suggested steps and the **Error! Reference source not found.** still does not function properly, contact your dealer for further advice.

Problem 1: I configured and installed the **Error! Reference source not found.** in the network, but I can't get it to respond.

Solution 1: If the configuration settings are correct, then you probably forgot to set the dip switches back to their Off positions after configuration. Power Off the **Error! Reference source not found.** and ensure that the dip switches are in their Off positions.

Problem 2: When I enter a URL or IP address I get a time out error.

Solution 2: Any number of things could be causing this. Try the following troubleshooting steps.

1. If this is first time you have used your browser, ensure that your workstations IP settings are correct, including IP address, default gateway and DNS.
2. Ping the **Error! Reference source not**

found.. Use the “Run” command to enter the following command:
Ping xxx.xxx.xxx.xxx
where xxx.xxx.xxx.xxx is the IP address assigned to the **Error! Reference source not found.**’s LAN interface.

3. If the ping command fails, check that the **Error! Reference source not found.** is connected and ON. If it is connected and on, there is a problem with your LAN.
4. Check that the Port is "Enabled" (Advanced Port Settings). If it is not, you need to use the HTML program to establish a connection.
5. Run your Browser and connect to the **Error! Reference source not found.**.

   Switch to the “Status” screen, and examine the Log. Details of the Log messages, and the possible causes of any errors, are shown in *Appendix B - Log Messages*.

Problem 3: My Modem/ISDN TA is working fine with a direct connection. How do I find what "Initial String" it is using?

Solution 3: Use the procedure described in *Finding the current Initial String* on page 60.

Problem 4: Data Transmissions are very slow.

Solution 4: Check and ensure that the Initial String is

configured to **RTS/CTS flow control**.

Problem 5: Some applications do not run properly when using the **Error! Reference source not found.**.

Solution 5: The **Error! Reference source not found.** processes the data passing through it, so it is not transparent. Some programs may have limited functionality when used with the **Error! Reference source not found.**.

The number of supported applications is being expanded as rapidly as possible. The following applications and protocols are supported by firmware V5.0:

Telnet, FTP, HTTP, ping

POP/SMTP, Archie, NNTP

TFTP, IRC, Gopher

DNS, SNMP, Real Audio

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B Log Messages

This section lists the most common messages which may appear in the *Log* window of the HTML application. More information on error messages is contained after the table.

Message	Description
Dial on demand	Dialing the ISP (“Dial on demand” setting is ON).
Try to establish physical connection.	The device is trying to connect with the ISP, using the modem.
Busy error	The number dialed was busy.
Physical line is connected	Physical connection to ISP has been established.
CONNECT *nnnnnn*	Physical connection was successful; *nnnnnn* indicates the speed of the serial link as currently configured.
Max phone line speed *nnnnnn* bps	*nnnnnn* is the maximum speed of the modem, according to the current configuration.
DCD low, DSR low	Physical line break, connection lost.
send “-----“ wait “-----“	“AT” commands sent to the modem are displayed as they are sent. Commands in the Script file are also displayed as they are executed.

Start PPP	Having established a physical connection, a PPP connection is now being established.
PPP up fail	The PPP connection could not be established.
PPP up successfully	The PPP connection was established successfully.
Stop PPP	The PPP connection was terminated. This will occur at the end of a session, or an error condition.
Try to hang up	Attempting to get the modem to hang up.
Hang up line manually	You have hang up the modem by pressing the “Hang Up” button.
Time out	There was no response from the modem
No carrier No answer	The number dialed did not answer.
Idle timer expires	The time period (in the configuration) to disconnect if the link is not used is up.
No dial tone	The modem could not obtain a dial tone.
Set baudrate nnnn	The serial line speed is being set to the speed set in the configuration.

Normal Operation

The following sequence of messages is typical of normal operation.

```
send “ATDT 0123456789”
CONNECT 115200
max phone line speed 28800 bps
physical line is connected
start PPP
ppp up successfully
```

Error Conditions

The following messages indicate an error condition.

No dial tone

The modem could not obtain a dial tone. Check your connections on the phone line and the modem.

Busy error

The number dialed was busy. Check that the number is correct. If it is, try dialing later. If this occurs regularly, check with your ISP.

DCD low, DSR low

The connection was lost. This could indicate a bad line or poor connection. Normally, if a connection is lost, it will automatically be re-established, unless the “Dial on demand” setting is OFF.

PPP up fail

The ISP rejected the attempt at connection. Check that your username and password is correct. If it is, check with your ISP to see why the connection is being rejected.

Time out

No response. Check that the modem is ON and properly connected to the **Error! Reference source not found.**.

No carrier, no answer

There was no response from the phone number dialed. Check that the phone number is correct, and the modem is working. If both of these are OK, check with your ISP.

C AT Commands

Required Settings

For the **Error! Reference source not found.** to function correctly, the modem must be set as follows.

Setting	AT Command
Fixed baud rate setting	AT&B1
RTS/CTS flow control	AT&K3
DCD to track the presence of a carrier	AT&C1
DTR off to hang-up modem	AT&D2
DSR always on	AT&S0
Modem to return modem-to-modem data link speed	ATX4 (see Note below)

Note: ***Modem-to-modem data link speed****. Multi-port models requires this information for the* ***Bandwidth Utilization*** *feature (in the* ***Advanced*** *menu options) to function correctly. For some Mircocom and other modems, the "ATX4" command above is not sufficient, and a non-standard "W2" command (no "AT") must be used as well.*

For a modem which uses the standard AT commands shown above, the *Initial String* would look like the following:

```
AT&F&B1&K3&C1&D2&S0X4
```

The first command (AT&F) sets the modem to the factory defaults, to ensure a consistent starting point.

This command string (AT&F) is also the default value. It will work if the modem's factory defaults match the required settings.

Finding the current Initial String

If your modem is already working correctly, but you don't know what the modem initialization string is, you can use the following procedure to find out.

1. Select *My Computer*, then *Dial-Up Networking*.
2. Select the icon for your connection, then *Properties*.
3. Click the *Configure* button, then the *Connection* tab, as shown below.

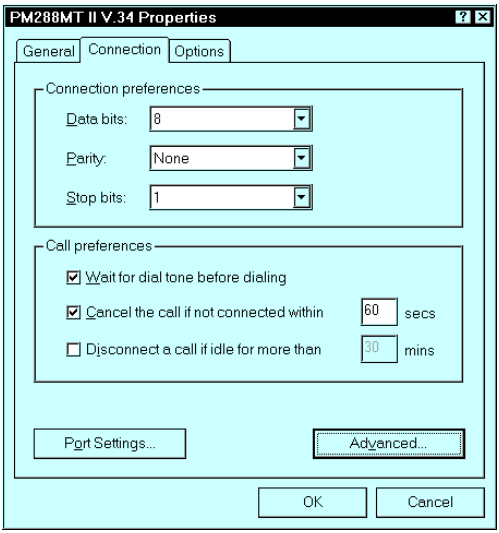

Figure 16:- Connection Properties (W95)

4. Select *Advanced* to see the screen below.

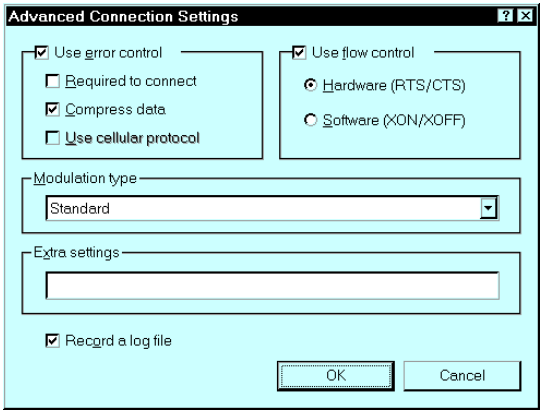

Figure 17:- Advanced Connection (W95)

5. Check the option *Record a log file*. Then click *OK* and exit.
6. Use Dial-up Networking to make your on-line connection normally. A log file MODEMLOG.TXT will be created in your Windows directory.
7. Use Notepad or another editor to read and print the file MODEMLOG.TXT.
8. Examine the file to determine the *Initial String* and also if any *Script* commands are being used. See *Appendix D - Script Files* for information on script files. (Note: The Win 95 Dial-up Networking scripting language is more complex than that of the **Error! Reference source not found.**.)

AT Commands

Most modems use the standard AT commands, as shown in the following tables. Consult the manual for your modem to set what AT commands it supports.

Basic AT Command Set

Command		Description
<any key>		Terminate current connection attempt
+++		Escape sequence code, entered in data state, wait for modem to return to command state
ATA		Force answer mode on-line
ATBn		Handshake operation
	B0	Select ITU-T V.22 for 1200 bps communication
	B1	Select Bell 212A for 1200 bps communication
ATD		Dial number and options that follow
	P	Pulse dial
	T	Tone dial
	,	Pause for a specified time
	;	Return to command state after dialing
	!	Hook flash, call transfer
	W	Wait for second dial tone

	@	Wait for 5-second silence before proceeding, otherwise return O ANSWER”
	R	Reverse Dial (Originate a call in answer mode)
ATDL		Dial last number
ATDSn		Dial number stored in NVRAM at position ***n.*** n=0-9
ATEn		Command mode local echo of keyboard commands
	E0	Echo off
	E1	Echo on
ATHn		On/Off hook control
	H	Hang up modem
	H0	Hang up (on hook), same as ATH
	H1	Get off hook
ATIn		Display inquired information
	I0	Display product code
	I1	Display product information and ROM checksum
	I2	Link status report
ATLn		Speaker volume control. n=0-7
ATMn		Speaker control
	M0	Speaker always off

	M1	Speaker on until carrier is detected
	M2	Speaker always on
	M3	Speaker on after last digit dialed, off at carrier detect
ATNn		Ring volume control, ***n***=0 disables ring function. n=0-7
ATO		Return to on-line state
ATP		Pulse dial
ATQn		Result code displayed
	Q0	Modem returns result code
	Q1	Modem does not return result code
	Q2	Return result code but quiet in answer mode (will not show in AT&V*n*)
ATS0=n		Number of rings required before modem answers. n=0 disables auto-answer.
ATSr.b=n		Set bit ***b*** of S-register ***r*** to ***n***. (0 or 1)
ATSr.b?		Inquiry bit ***b*** of S-register ***r***
ATSr=n		Set S-register ***r*** to value ***n***, where ***n*** is a decimal number between 0-255
ATSr?		Display value stored in S-register ***r***
ATT		Tone dial
ATVn		Verbal/Numeric result codes
	V0	Display result codes in numeric form

	V1	Display result codes in verbose form
ATXn		Result code options. n=0-7
ATZn		Reset the modem and set power-on profile. n=0-4
	Zn	Reset modem and load user profile ***n*** (0-3)
	Z4	Reset modem and load factory settings
AT$		Help, Basic command summary
AT&$		Help, Extended AT& command summary
AT*$		Help, Extended AT* command summary

Extended "AT&" Commands

(Includes RTS/CTS Flow Control Commands)

Command		Description
&Bn		Data rate, terminal-to-modem
	&B1	DTE/DCE rate fixed at DTE setting
&Cn		Carrier Detect operations
	&C1	Carrier Detect tracks presence of carrier
&Dn		Data Terminal Ready (DTR) operations
	&D2	DTR off causes modem to hang up
&F		Load the default factory settings,
&Kn		Data flow control, DTE/DCE, n=0,3,4
	&K0	Flow control disabled
	&K3	Hardware (RTS/CTS) flow control
	&K4	Software (XON/XOFF) flow control
&Sn		Data Set Ready (DSR)
	&S0	DSR overridden, DSR always on

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D Script files

This section describes the script file commands and syntax to be used when creating script files.

Script files are only required if your ISP does not use a standard PPP connection and authentication.

Commands

Three commands can be used to automate a proprietary negotiation process. The commands are as follows:

Send	Send [msec] <string>
	Send a data string, with a. *[msec]* (milliseconds) delay between the sending of each character.
Wait	Wait [msec]
	Wait for the specified time (milliseconds) to elapse before executing the next script line.
Wait	Wait [msec] <string>
	Wait for the specified time (milliseconds) to receive the string. If the string is not received within the specified time, the connection is reset. An error conditions arises if [msec] is not specified and the string is not received immediately.

Variables

Eleven special string variables can be used in conjunction with the command strings discussed above. The following string variables are supported:

Variable	Description
\a	alert
\b	backspace
\f	form feed
\n	new line
\r	carriage return
\t	horizontal tab
\v	vertical tab
\?	Literal question mark
\’	literal single quotation mark
\”	literal double quotation mark
\\	literal back slash

Note: The strings and special control variables need to be enclosed in double quotes. Literal variables are used when ?, ‘, “, or \ are part of the string. For example, to send the string “User Name”, the script file entry should be “\”User Name\””. *Also, each script entry command, time and string, must be separated by a space.*

Example Script File

The following is a sample script file with the proper syntax conventions. This script file could be used to log on to Compuserve.

```
wait 3000
send 100 “\r”
wait 3000
send 100 “CIS\r”
wait 3000 “:”
send 100 “user id\r”
wait 3000
send 100 “password\r”
wait 60000 “!”
send 100 “GO PPPCONNECT\r”
```

Command	Explanation
wait 3000	Pause for 3 seconds
send 100 “\r”	Send the carriage return character, pausing for 100 ms between characters.
wait 3000	Pause for 3 seconds
send 100 “CIS\r”	Send the string “CIS”, followed by a carriage return character. Pause for 100 ms between each character.
wait 3000 “:”	Wait for 3 seconds to receive the character “:”. If the character is not received in this time, the connection will be dropped.

send 100 "*user id*\r"	Send the string *user id*, where *user id* is your log-in name, followed by a carriage return. Pause for 100 ms between each character.
wait 3000	Pause for 3 seconds
send 100 "*password*\r"	Send the string *password*, where *password* is your password, followed by a carriage return. Pause for 100 ms between each character.
wait 60000 "!"	Wait for 60 seconds to receive the character "!". If not received in this time, the connection will be dropped.
Send 100 "GO PPPCONNECT\r"	Send the string "GO PPPCONNECT", followed by a carriage return character. Pause for 100 ms between each character.

E Terminal Programs

This section explains how to configure and use a Terminal (Communications) program, as required to perform the *Terminal Mode Configuration* described on page 21.

Windows 95

The terminal communications program provided with Windows 95 is called *HyperTerminal*. To configure it for use with the **Error! Reference source not found.**, the procedure is as follows.

1. Click and follow the selection *Start Menu-Programs-Accessories-HyperTerminal*.
2. Start the HyperTerminal Program.
3. You should now be prompted for *New connection*. Enter *Null Modem* as the name. (A Null Modem is a direct connection using a *Null Modem* cable.)
4. Select an icon to represent the connection, and click *OK*. The screen should now appear like the example shown below.

Figure 18: HyperTerminal

5. Set “Connect using” to “Direct to Com 1” for serial port 1, as shown in the screen above. (If you are using serial port 2, set “Connect using” to “Direct to Com 2”).
6. Click on the “OK” button.
7. You should now see a screen like the following.

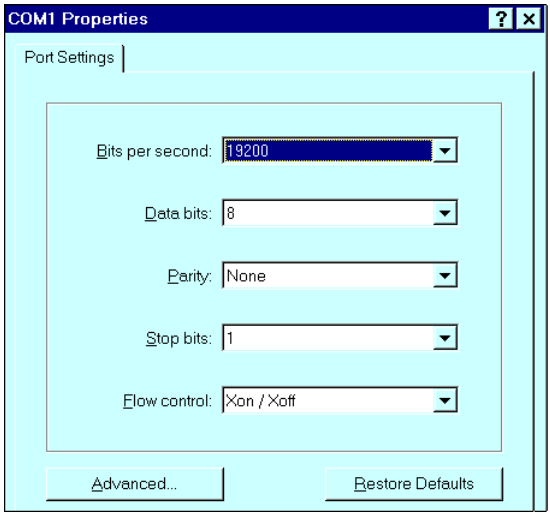

Figure 19: HyperTerminal Configuration

8. Change the settings to match the following table.

Setting	Value
Baud Rate (bits per second)	19200 bps
Data Bits	8-bits
Parity	no parity
Stop Bits	1 stop bit
Flow Control	Xon/Xoff

9. Click on “OK” when finished.
10. From the “File” menu, select “Properties”.

    Select the “Settings” tab, and you should see a screen like the following.

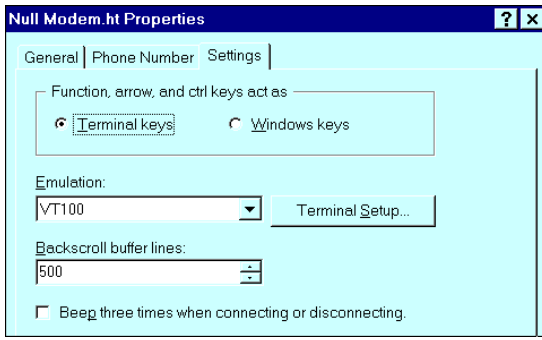

Figure 20: Null Modem Settings

11. Ensure that the “Emulation” is set to “VT100”.
12. There should be no need to use the “Terminal Setup” button - the default settings should be fine.
13. Click “OK” to close the properties box.
14. You can now connect and power up the **Error! Reference source not found.**. If nothing appears on the screen, press ESC.
15. You can now configure the **Error! Reference source not found.**, as described in *Terminal Mode Configuration* on page 21.

16. In future, you can start HyperTerminal by clicking on the "Null Modem" icon you created during this session.

Windows 3.1

The communications program provided with Windows 3.1 is called "Terminal". To use it to configure the **Error! Reference source not found.**, the procedure is as follows.

1. Start the "Terminal" Program. By default, it is in the "Accessories" group.
2. Select the "Settings" menu. All of the necessary settings are on this menu.
3. To prepare for a direct serial cable connection, choose "Modem Commands" and set the modem to "None".
4. Select "Terminal Emulation" and set it to "VT100".
5. Select "Communications" to obtain a dialog box like the one shown below.

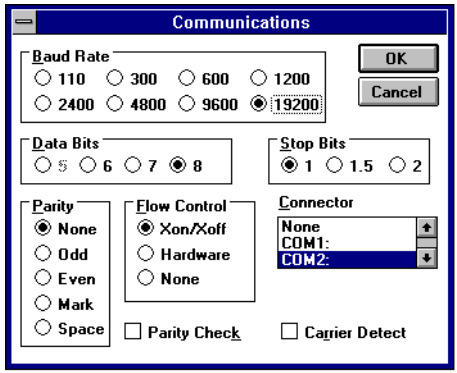

Figure 21: Win 3.1 Communications

6. Ensure that the settings match those shown in the table below.

Setting	Value
Baud Rate (bits per second)	19200 bps
Data Bits	8-bits
Parity	no parity
Stop Bits	1 stop bit
Flow Control	Xon/Xoff

7. Check that the correct communications port is highlighted (COM 1 = Serial Port 1, COM 2 = Serial Port 2).
8. Exit the “Settings” menu.

9. You can now connect and power up the **Error! Reference source not found.**. If nothing appears on the screen, press ESC.

10. You can now configure the **Error! Reference source not found.**, as described in *Terminal Mode Configuration* on page 21.

F Specifications

Error! Reference source not found.

Model N .:	Error! Reference source not found.
Dimensio s	255mm(W) * 140mm(D) * 4 mm(H)
Operating Temperat re	0° C to 40° C
Storage Temperat re	-10° C to 70° C
Protocol:	TCP/IP
Network I nterface:	Ethernet 10Base2(BNC) 10BaseT (UTP)
Serial Por s:	2 male DB-9 connector
Max. Asy . Speed	230.4 Kbps
LEDS	2 general status 1 transmission status for eac serial port
External P ower Adapter	9VDC

Error! Reference source not found.

Model No.:	Error! Reference source not found.
Dimensions	255mm(W) * 140mm(D) * 40mm(H)
Operating Temperature	0° C to 40° C
Storage Temperature	-10° C to 70° C
Protocol:	TCP/IP
Network Interface:	Ethernet 10Base2(BNC) 10BaseT (UTP)
Serial Ports:	**Error! Reference source not found.** - 4 male DB-9 connector
Max. Asy. Speed	230.4 Kbps
LEDS	2 general status 1 transmission status for each serial port
External Power Adapter	9VDC