Microsoft Remote Access Help Contents

All help topics available for the Microsoft Windows for Workgroups Remote Access Phone Book Help are listed below.

For information on how to use Help, press F1, or choose How to Use Help from the help menu.

Working with Remote Access

Overview
Getting Started
Connecting to the Network
Setting Up Your Modem
Browsing Domains
Connecting Through Switches and Security Hosts
Setting X.25 Parameters
Configuring for ISDN
Special Dialing Options
Changing Your Password
Reconfiguring Remote Access

Reference

All About Modems
Cabling Requirements
Serial Ports
Error Messages
Answers to Common Questions

Overview

Microsoft Remote Access Service for Windows for Workgroups lets you connect to your office network from a remote site, such as your home, a hotel, or anywhere there is an outlet for your computer and phone jack for your modem. Once you have connected, Remote Access lets you work with all your applications as though you were physically in the office, directly connected to the network or local database.

For example, you can:
- Access remote databases through the Windows for Workgroups File Manager.
- Send and receive electronic mail.
- Print files on the office printer.

From the client workstation, you can call the Remote Access server and connect to the network through the phone line, as shown in the following illustration:
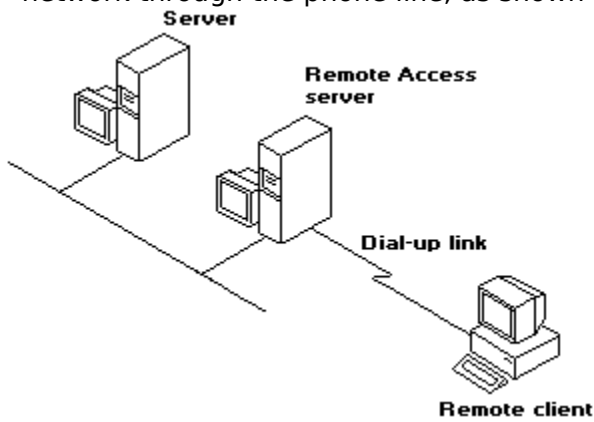
After connecting, the telephone link is transparent. That is, you can access and view network resources in the same way as your office colleagues who are working on computers physically connected to the LAN.
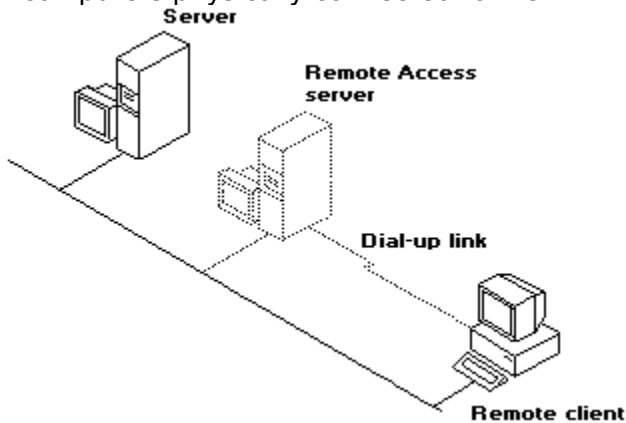
Getting Started

1. Click Add, and create an entry in the Add Phone Book Entry dialog box.
2. Double-click the entry to dial.

See Also
Adding/Editing/Cloning an Entry
Connecting to the Network
Setting Options

Setting Options

Through the Options Menu, you can tailor Remote Access to your convenience.

Redial Settings

Sets the number of redial attempts, seconds between attempts, and whether to redial if you get disconnected for any reason. For details, see Redialing.

Minimize On Dial

Reduces the Phone Book to an icon as soon as you connect.

Minimize On Hang Up

Reduces the Phone Book to an icon as soon as you hang up.

Disable Modem Speaker

Turns off all modem sounds, so that the modem operates silently.

Disable Software Compression

Turns off software compression. In most cases, you'll get better results with software compression enabled. However, you should disable software compression if your modem gets better results without it.

Note: Disabling software compression may marginally lower the load on the client's and server's processors and may also lower the net data throughput.

Operator Assisted or Manual Dialing

Overrides automatic dialing. Enable this option when intervention is required, for example, when calling through a human-operated switchboard.

Launch Monitor at Start Up

Starts the Remote Access Monitor whenever Remote Access is started. Through its lights and sound, the Remote Access Monitor informs you when your computer is sending information to and receiving information from the server. It also informs you when a connection has been made or broken.

Connecting to the Network

To connect to the network

1. Double-click the entry to dial.
2. Type your user name, your password, and the domain of the Remote Access server you're dialing into.

   If you're unsure about your user name, your password, or the domain name, ask your system administrator.

Once connected to the network, you can minimize the Remote Access Phone Book and work with your computer as though it were connected to the LAN directly. In other words, you can send and receive e-mail, access servers, copy files through File Manager, and so on as though you were in the office.

Using the Network

Although you can access data files across the telephone line, do not run programs remotely. Running a program across a telephone wire is unacceptably slow for most applications. For the best performance, install licensed copies of the applications you need on your local computer.

See Also

Special Dialing Options

Adding/Editing/Cloning an Entry

Browsing Domains

Browsing Domains

Browsing a domain over a remote connection takes a long time, depending on the number of servers in your domain. Often, it's more convenient to turn browsing off by default.

To turn off domain browsing from File Manager

1. From the Main group, double-click File Manager.
2. From the Disk menu, choose Connect Network Drive.
3. In the Connect Network Drive dialog box, clear the Always Browse check box.
4. Click OK.

To turn off domain browsing from Print Manager

1. From the Main group, double-click Print Manager.
2. From the Printer menu, choose Connect Network Printer.
3. In the Connect Network Printer dialog box, clear the Always Browse check box.
4. Click OK.

Adding/Editing/Cloning an Entry

On the toolbar of the Phone Book:

To	Click
Create a new entry	Add
Modify an existing entry	Edit
Create a new entry from a copy of an existing entry	Clone

The fields in the Phone Book Entry dialog box are described below.

Note   If adding an entry, all fields are initially blank.

Entry Name

Type the name of the Phone Book entry (company name or server name). Choose any name you like, from 1 to 20 characters with no commas or periods.

Phone Number

Type the phone number for the entry. See Phone Number Modifiers for special command sequences.

Description

Type a descriptive comment (optional).

If using a modem listed in the Remote Access Setup dialog box, you need to fill in only the first three fields and dial the entry to connect. To reconfigure your modem, use an X.25 or ISDN network, or connect through a third-party switch. Click the Advanced button to see the following fields:

Port

Shows the port from which your computer dials out when connecting to a Remote Access server. Only ports configured for Remote Access are listed, but you can configure more ports through the Remote Access Setup menu. (For details, see Reconfiguring Remote Access.)

In addition to the specific ports, there are several "any port" listings. These settings open each port of the specified type in sequential order until one succeeds.

Device

Shows the device chosen in the Remote Access Setup dialog box when you were configuring a port. You can configure the port for a different device through the Remote Access Setup menu. (For details, see Reconfiguring Remote Access.)

Modem

Accesses the Modem Settings dialog box, where you can change the initial modem speed and set modem features.

X.25

Accesses the X.25 Settings dialog box, where you can set X.25 parameters.

Switch

Accesses the Switch Settings dialog box, where you can set pre-connect and post-connect scripts or interactive terminal mode for modem-pool switches, security hosts, and other third-party devices.

ISDN

Accesses the ISDN Settings dialog box, where you can set parameters for an integrated services digital network (ISDN).

Basic

Displays only the first three fields of this dialog box.

ISDN Phone Numbers

To connect through ISDN, specify a phone number for each channel you request when requesting more than two. If you request three channels, you must specify three phone numbers (separated by colons, no spaces). Insert the phone numbers in the Phone Number field of the Phone Book Entry dialog box, as you would when adding, editing, or cloning any other entry. For example:

555-1234:555-1234:555-5678

If you request four channels, specify four phone numbers. For example:

555-1234:555-1234:555-5678:555-5678

Note   If there are more channels specified than phone numbers given, the extra channels will attempt to use the last phone number. For this reason you can use one number for a two-channel call since ISDN lines normally support two channels each. However, some ISDN phone companies require a unique number for each channel. Check with your ISDN provider.

See Also

Phone Number Modifiers

Removing an Entry

Setting Modem Features

Setting X.25 Parameters

Configuring for Switches and Hosts

Configuring for ISDN

Removing an Entry

To delete an entry from the Phone Book

1. From the Remote Access Phone Book, select the entry you want to delete, and click Remove.
2. Click Yes to confirm.

Checking Connection Status

The Port Status dialog box displays information about a connection. Use this information to troubleshoot errors.

- When you have finished checking status, click OK to close the dialog box.
- To clear statistical values, click Reset.

The fields for the Port Status dialog box are described below.

Port

The COM port the current connection is using.

Condition

Either Active or Inactive. Active means that the entry was used to establish a current connection. Inactive means that there are no current connections based on the entry.

Port Speed (bps)

The speed in bits per second (bps) at which data is being transferred from the port to the modem.

Connect Response

The text sent from the local modem to the computer when the modems have finished negotiating. The text usually begins with the word CONNECT, often followed by the status of negotiated features and line speed. For example, the text might show that V.42bis is in use. Refer to your modem documentation for a specific interpretation of the response.

Incoming:

Bytes

The number of characters sent from the Remote Access server to your computer since you connected or since you clicked the Reset button.

Frames

The number of logical network frames received from the server. The format of the frame depends on the network protocol in use. The maximum size of a frame is 1514 bytes. Well-written client/server applications transmit a small number of full or almost full frames. If you observe large numbers of small frames, the application you are running was probably not designed to run efficiently across slow links.

Compression

The ratio of compression achieved on received data, where higher is better. For example, if 400 incoming bytes decompress into 1,000 bytes, the compression ratio is 60 percent. This value refers to software compression only. The compression ratio depends on the amount of redundancy in the data received. For example, text and bitmaps compress well, but executable files and previously compressed data do not.

Note   Software compression is not attempted on some frames, for example, multicast datagrams or very small frames. Such frames are not included in the compression computation.

Outgoing:

Bytes

The number of characters sent from your computer to the Remote Access server since you connected or since you clicked the Reset button.

Frames

The number of logical network frames sent to the server. The format of the frame depends on the network protocol in use. The maximum size of a frame is 1514 bytes.

Well-written client/server applications transmit a small number of full or almost full frames. If you observe large numbers of small frames, the application you are running was probably not designed to run efficiently across slow links.

Compression

The ratio of compression achieved on transmitted data, where higher is better. For example, if 1,000 bytes are compressed into 400 bytes before transmission, the compression ratio is 60 percent. This value refers to software compression only. The compression ratio depends on the amount of redundancy in the data being transmitted. For example, text and bitmaps compress well, but executable files and previously compressed data do not.

Note Software compression is not attempted on some frames, for example, multicast datagrams or very small frames. Such frames are not included in the compression computation.

Errors:

CRC

Errors caused by the failure of a cyclic redundancy check (CRC). A CRC error indicates that one or more characters in the data packet arrived garbled from the server.

Timeouts

An expected character was not received in time. When this happens, the software assumes that the data has been lost and asks for it to be resent.

Alignment

A condition in which a character received is not the one expected. An alignment error usually happens when a character is lost or when a timeout error occurs.

Framing

An error in which an asynchronous character is received with an invalid start or stop bit. If this error occurs and the computer is unable to establish a Remote Access connection, the computer-to-modem (DTE-to-DCE) bps rate may be incorrect. This problem suggests that the modem configured for Remote Access may not be the correct one for the modem you're using. Changing the bps rate or the hardware flow control setting may alleviate the problem. If this error occurs continually and if you are unable to connect through Remote Access, contact your system administrator.

Serial Overrun

The number of times the sending computer has transmitted characters faster than the receiving computer can process at the hardware level. If this problem persists, reduce the bps rate.

Buffer Overrun

The number of times the sending computer has transmitted characters faster than the receiving computer can process at the software level. If this problem persists, reduce the bps rate, or lower the CPU load on the computer.

Setting Up Your Modem

Overview of Modem Setup

The Remote Access Service supports many features that can take full advantage of your modem:

- Hardware flow control
- Modem error control
- Modem compression
- Ability to enter modem commands manually
- Speeds up to 14,400 and 19,200 bits per second

If possible, choose a supported modem from the list of modems in the Remote Access Setup dialog box. Microsoft has tested these modems with the Remote Access software.

Note   For the best compatibility, choose the same brand of modem for the client as the one connected to the Remote Access server, select the same initial speed, and enable the same features. If you don't choose the same brand, at least choose a modem with the same CCITT standard as the server's modem.

For information about dialing in through an unsupported modem, see <u>Modem Script File</u>.

Testing Your Modem

If you are having trouble connecting through your modem, test the modem's compatibility through Windows for Workgroups Terminal.

To test a modem with Windows for Workgroups Terminal

1. From the Accessories group, double-click the Terminal icon.
2. From the Settings menu, choose Communications.
3. In the Communications dialog box, select the bps at which your modem sends and receives data, and select the COM port your modem is connected to. Click OK.
4. In the Terminal dialog box, type **at** and press ENTER.

   Your modem should return OK or 0.
5. If your modem won't work through Terminal, call the modem's manufacturer.

Setting Modem Features

To set modem features

1. On the toolbar of the Phone Book:

To	Click
Create a new entry	Add
Modify an existing entry	Edit
Create a new entry from a copy of an existing entry	Clone

2. In the Phone Book Entry dialog box, click Advanced.

3. At the bottom of the Advanced Phone Book Entry dialog box, click Modem.

The fields in the Modem Settings dialog box are described below.

Note   Selecting a feature box not supported by your modem has no effect on performance.

Modem

Displays the modem for which you've configured Remote Access.

Initial speed (bps)

Changes the speed at which your modem begins to negotiate with the Remote Access server's modem. The speed, in bits per second (bps), may increase or decrease during negotiation.

Hardware Flow Control

Enables hardware handshaking. This feature allows the modem to tell Remote Access software when the line is congested or clear, so that the Remote Access software can temporarily stop transmitting data when necessary. This handshaking streamlines data transmission, prevents overrun errors, and thus improves overall data throughput.

Modem Error Control

Checks errors on blocks of data through cyclic redundancy checks (CRCs). Modem error control causes the modem to retransmit garbled data, ensuring that only error-free data passes through the modem.

Modem Compression

Compresses the modem-to-modem data stream, reducing the number of bytes transmitted and therefore reducing the transmission time. The reduction achieved depends on the amount of redundancy in the transmitted data.

Note   Software compression is more effective than hardware compression because a much larger pattern buffer is available on the computer than on the modem. In addition, modem compression delays the first transmission while the modem's pattern buffer is filled at computer-to-modem speed. Software compression accomplishes this task at the much faster memory speed and transmits compressed data over the entire computer-to-computer link rather than just the modem-to-modem segment.

In general, you should not enable modem compression and software compression at the same time, because no benefit is gained from compressing precompressed data. In fact, enabling modem compression and software compression at the same time may actually increase the size of the transmitted data, depending on the algorithm used by the modem.

Enter modem commands manually

Lets you enter AT commands to the modem manually when dialing rather than executing

the scripted commands. Enable this feature when testing modem strings for new entries in the modem script file (MODEM.INF) and for unusual situations where interaction is required midway through the dialing sequence.

In general, do not enable this feature when dialing with the telephone keypad (to connect through a switch controlled by a human operator, for example).

Connecting Through Switches and Security Hosts

Overview of Intermediary Devices

Remote Access supports various kinds of intermediary devices (usually switches and hosts) between the client and server. An intermediary device is an instrument, other than a modem, between a client and the server. It may be on the server side (as with a security host), on the client side, or on both sides (as with a switch). The most common intermediary devices are modem-pool switches and security hosts.

The following illustration shows how the Remote Access Service can incorporate a security host.
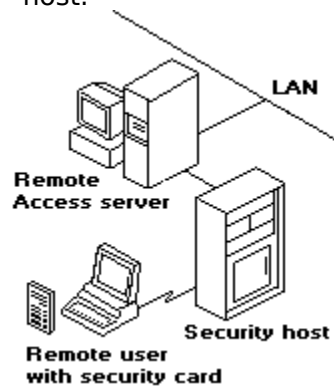
See Also

Configuring for Switches and Hosts
Connecting Through Terminal

Configuring for Switches and Hosts

To configure your computer for an intermediary device, you must know whether the device:
- Is on the client side (pre-connect) or the server side (post-connect).
- Requires a static dialog (a script) or an interactive one (Terminal).

To set pre-connect and post-connect scripts

1. On the toolbar of the Phone Book:

To	Click
Create a new entry	Add
Modify an existing entry	Edit
Create a new entry from a copy of an existing entry	Clone

2. In the Phone Book Entry dialog box, click Advanced.

3. At the bottom of the Advanced Phone Book Entry dialog box, click Switch.

The fields in the Switch Settings dialog box are described below.

Pre-connect Script

Displays a list of scripts and Terminal for an intermediary device on the client side.

Post-connect Script

Displays a list of scripts and Terminal for an intermediary device on the server side.
- Select the appropriate script(s) or Terminal, and click OK.

If unsure what to select, ask your system administrator.

To write a script

To write a script for a static dialog, such as a dialog between your computer and a modem-pool switch, add an entry to the SWITCH.INF file.

1. In your SWITCH.INF file, type the name of the device within brackets.

2. Add one or more commands followed by zero or more responses.

The syntax for SWITCH.INF is the same as the syntax for MODEM.INF, but in copying information from MODEM.INF, apply the syntax specifically to SWITCH.INF. For information about commands and syntax, see Syntax for MODEM.INF.

As with PAD.INF, responses immediately follow their commands. To add an entry to your SWITCH.INF file, create a sequence of commands and responses in the order shown in the following hypothetical sample entry from a SWITCH.INF file:

```
[Teleswitch]

COMMAND=<cr><cr>

OK=Ready<cr>

Error=Failure<cr>
```

See Also
Overview of Intermediary Devices

Connecting Through Terminal

To set up Terminal

Follow the instructions for setting up pre-connect and post-connect scripts. See <u>Configuring for Switches and Hosts</u>

To connect through Terminal

1. In the Remote Access Phone Book, select the entry you want to connect through.
2. Click Dial.
3. When the Terminal dialog box appears, press ENTER.
4. Type your code, press ENTER, and click Done.

Setting X.25 Parameters

1. On the toolbar of the Phone Book:

To	Click
Create a new entry	Add
Modify an existing entry	Edit
Create a new entry from a copy of an existing entry	Clone

2. In the Phone Book Entry dialog box, click Advanced.

3. At the bottom of the Advanced Phone Book Entry dialog box, click X.25.

The fields in the X.25 Settings dialog box are described below.

PAD Type

Select the type of X.25 packet assembler/disassembler (PAD) you will be using. For dial-up PADs, select the name of the X.25 provider.

X.121 Address

Enter the X.121 address (the X.25 equivalent of a phone number) for the Remote Access server you want to call.

User Data

Enter additional connection information required by the X.25 host computer. Typically, you will leave this field blank unless your system administrator advises otherwise.

Facilities

Enter additional facility parameters you want to request from your X.25 provider. For example, some providers support /R to specify reverse charging. For details, consult your X.25 documentation or provider.

See Also

X.25 Troubleshooting

X.25 Troubleshooting

1. After connecting through a dial-up PAD, the server consistently fails to authenticate the client. <u>Solution</u>
2. A connection has been established, but network drives are disconnecting, and you are dropping sessions or getting network errors. <u>Solution</u>
3. While transferring files, you frequently get the error message "Network drive disconnected" or "Network drive no longer exists." <u>Solution</u>
4. Newly created entries in MODEM.INF and PAD.INF do not work. <u>Solution</u>
5. A modem connected to a dial-up PAD connects at a lower speed than it should. <u>Solution</u>

Problem: After connecting through a dial-up PAD, the server consistently fails to authenticate the client.

Solution: If the Remote Access server is running and clients cannot connect to it directly, through an X.25 smart card, or through an external PAD, the dial-up PAD may have the wrong X.3 parameters or serial settings. Ask your administrator for the correct settings, or contact your X.25 provider.

Problem: A connection has been established, but network drives are disconnecting, and you are dropping sessions or getting network errors.

Solution: Congestion on the Remote Access server's leased line can cause this problem. The administrator should make sure that the speed of the leased line can support all the communications (COM) ports at all speeds clients use to dial in.

For example, four clients connecting at 9600 bps (through dial-up PADs) require a 38,400-bps (four times 9600) leased line on the server end. If the leased line does not have adequate bandwidth, it can cause timeouts and degrade performance for connected clients. This example assumes the Remote Access Service is using all the bandwidth. If it is sharing the bandwidth, fewer connections can be made.

Problem: While transferring files, you frequently get the error message "Network drive disconnected" or "Network drive no longer exists."

Solution: On X.25 smart cards, change the Negotiate network parameters option in the X.25 settings to Yes. This problem arises when X.25 parameters, such as the size of the send and receive window, are set differently for the server, network, and client X.25 software.

By enabling the Negotiate network parameters option on the client's software (if using the direct X.25 connection) and the server's X.25 software, you let the server, network, and client use commonly negotiated X.25 network parameters.

Problem: Newly created entries in MODEM.INF and PAD.INF do not work.

Solution: In MODEM.INF, check other entries for direct connections and external PADs, and see the comments that go with them. You may need a line analyzer or a terminal program to see the response for the PAD. For dial-up PAD entries, use an entry in PAD.INF as an example, paying attention to the comments that go with it.

Problem: A modem connected to a dial-up PAD connects at a lower speed than it should.

Solution: Replace the modem with a compatible one from the list in the Setup program.

Configuring for ISDN

Overview of ISDN

An integrated services digital network (ISDN) offers a much faster communication speed than a telephone line. The phone line communicates typically at 9600 bits per second (bps), whereas ISDN communicates at speeds of 64 or 128 kilobits per second. Businesses that need this kind of speed usually have a large telecommuting work force or need to do extensive administrative tasks remotely, such as install software on off-site workstations.

Installing Your ISDN Card

1. Install an integrated services digital network (ISDN) card, and start your computer.
2. Reconfigure the Remote Access Service for ISDN. See Reconfiguring Remote Access.

See Also
Setting ISDN Features

Setting ISDN Features

To configure ISDN parameters

1. On the toolbar of the Phone Book:

To	Click
Create a new entry	Add
Modify an existing entry	Edit
Create a new entry from a copy of an existing entry	Clone

2. In the Phone Book Entry dialog box, click Advanced.
3. In the Port field of the Advanced Phone Book Entry dialog box, select Any ISDN port.
4. Click ISDN.

   The ISDN Settings dialog box appears.

The fields in the ISDN Settings dialog box are described below.

Line type

Sets the type of ISDN connection. The choices are in order from the highest quality (64K Digital) to the lowest (56K Voice).

Negotiate line type

Starts at the selected line type and negotiates to a lower quality line type, depending on the line's condition.

Note   Some ISDN cards negotiate both the line type and the number of channels if Negotiate line type is selected. In other words, not only will the card start negotiating at highest quality line type (64K digital) and fall back to lowest quality (56K voice), but in many cases it will also, if necessary, connect through fewer channels than the selected number.

Enable hardware compression

Compresses data before transmitting it. If you enable hardware compression, turn off software compression. To disable software compression, see Setting Options.

Note   Not all ISDN cards offer hardware compression. If this feature is turned on and your card doesn't offer compression, your data throughput will not improve. If you don't know whether your card offers compression, check with the card's manufacturer.

Channels to use

If your card allows you to aggregate more than one ISDN channel, and the Remote Access server's ISDN card is configured to allow channel aggregation, you can select more than one channel to improve throughput. See the "ISDN Phone Numbers" section in Adding/Editing/Cloning an Entry.

Not all ISDN drivers let you restrict channel aggregation. If you have a nonrestricting driver and your computer is configured to receive calls, ask clients dialing in to specify only one or two channels. Otherwise, one user with several ISDN cards could monopolize all channels on the server.

Note   You cannot connect through more channels than the number available on your ISDN card(s). In fact, selecting more than the maximum available may prevent you from connecting.

Line Negotiation

You can select a line type and disable line negotiation, depending on your ISDN tariff rates and the capability of the ISDN line between your computer and the Remote Access server.

For example:

- If you have only Voice grade lines in your area, you can select a line type of 56K Voice and disable line negotiation. This configuration speeds up the connection.
- If 64K Digital connections are affordable in your area, you can select 64K Digital and disable line negotiation. This configuration prevents your ISDN card from occasionally negotiating a 56K Voice line type, thus saving you from unknowingly incurring higher costs.

Channel Negotiation

Channel negotiation takes place only if the ISDN card supports it and if you enable Negotiate line type. For example, if you choose to connect with two channels and enable Negotiate line type, ISDN tries to connect with two channels. If that fails, it tries to connect with one channel. If you do not enable channel negotiation or if your card does not support negotiation, ISDN does not connect at all when it fails to connect with two channels.

Contact your provider to find out if your ISDN card supports channel negotiation.

See Also

Adding/Editing/Cloning an Entry

Overview of ISDN

Checking ISDN Port Status

The Port Status dialog box displays information about an ISDN connection. Use this information to troubleshoot errors.

- When you have finished, click OK to close the dialog box.
- To clear statistical values, click Reset.

The fields in the ISDN Port Status dialog box are described below.

Port

The ISDN port that the current connection is using.

Condition

Either Active or Inactive. Active means that the entry was used to establish a current connection. Inactive means that there are no current connections based on the entry.

Channels in Use

The number of channels your ISDN connection is using. The number of channels shown in this field may be fewer than the number you requested if you selected Negotiate line type in the ISDN Settings dialog box.

Bytes Transmitted

The number of characters sent from your computer to the Remote Access server since you connected or since you clicked the Reset button.

Frames Transmitted

The number of logical network frames sent to the server. The format of the frame depends on the network protocol in use. The maximum size of a frame is 1514 bytes. Well-written client/server applications transmit a small number of full or almost full frames. If you observe large numbers of small frames, the application you are running was probably not designed to run efficiently across slow links.

Bytes Received

The number of characters sent from the Remote Access server to your computer since you connected or since you clicked the Reset button.

Frames Received

The number of logical network frames received from the server. The format of the frame depends on the network protocol in use. The maximum size of a frame is 1514 bytes. Well-written client-server applications transmit a small number of full or almost full frames. If you observe large numbers of small frames, the application you are running was probably not designed to run efficiently across slow links.

Special Dialing Options

[Pulse/Rotary Dialing](#)
[Touch-Tone Dialing](#)
[Phone Number Modifiers](#)
[Operator Assisted Calls or Manual Dialing](#)
[Redialing](#)

Pulse/Rotary Dialing

To use pulse/rotary dialing instead of touch-tone dialing, insert a "P" at the point in the phone number where you want pulse/rotary dialing to begin.

For example, if you use the following phone number:

555-5678P555-1234

Remote Access will dial 555-5678, and then dial 555-1234 using pulse/rotary dialing.

See Also

Touch-Tone Dialing

Touch-Tone Dialing

To use touch-tone dialing instead of pulse/rotary dialing, insert a "T" at the point in the phone number where you want touch-tone dialing to begin.

For example, if you use the following phone number:

555-5678T555-1234

Remote Access will dial 555-5678, and then dial 555-1234 using touch-tone dialing.

See Also

Pulse/Rotary Dialing

Phone Number Modifiers

The following table lists the phone number modifiers and tells what each one does.

Character	Function
, (comma)	Pauses briefly (two seconds for most modems) before continuing.
@	Waits for extended silence before continuing.
P	Switches from touch-tone to pulse/rotary dialing.
T	Switches from pulse/rotary to touch-tone dialing.
W	Waits for a dial tone before continuing (for modems with 2400 baud rate or greater).

For example, when dialing in from a hotel room, you may have to add 9 to the number you're calling to get an outside line. For example:

9,555-2390

The comma after the 9 pauses long enough to get the outside line before continuing with the full number.

Operator Assisted Calls or Manual Dialing

This feature lets you override automatic dialing in situations where intervention is required, for example, when calling through a manually operated switchboard.

To dial through an operator or to dial manually

1. From the Options menu, click Operator Assisted or Manual Dialing.
2. Select an entry, and click Dial.

   The Operator Assisted or Manual Dial dialog box appears only if the Operator Assisted or Manual Dialing option is checked on the Options menu.
3. Pick up the telephone handset, and dial the number or ask the operator to dial it for you.

   The number assigned to the entry is displayed in the dialog box for easy reference.
4. Click OK immediately after you have finished dialing.
5. Hang up the handset only after the modem takes control of the line, typically signaled by a click followed by silence.

   It is always safe to replace the handset once Remote Access begins verifying your user name and password. The status dialog will remind you of this.

Redialing

This feature lets you determine the number of times the Phone Book automatically redials when you fail to connect to the selected entry. You can also set this feature to reconnect you automatically when the link is dropped because of inactivity.

To turn on automatic redialing

▪ From the Options menu, select Redial.

The fields in the Redial Settings dialog box are described below.

Number of attempts

The number of times the selected entry is automatically redialed if the first attempt to connect fails. Note that the number of attempts includes the initial dial, so the default of 1 is the first try. To get 3 automatic redials in addition to the first try, set this number to 4.

Range: 1-999,999,999 attempts.

Seconds between attempts

The pause between the end of one attempt and the beginning of another. This pause lets the device reset itself before redialing. The default is 15. If that isn't enough time, increase this setting. You can also experiment with shorter times, but if you make the pause too short, the device will not have time to reset itself.

Range: 1-999,999,999 seconds.

Redial on link failure

Select this box to redial your entry automatically after your connection has been dropped.

Note If you select this feature, be careful about leaving long-distance connections running because the link will be reestablished whenever it's dropped for any reason, including inactivity.

Changing Your Password

To change your Remote Access password
1. Connect to the network through Remote Access.
2. In the Main group, click Control Panel.
3. Double-click Network.
4. In the Microsoft Windows Network dialog box, click Startup.
5. In the Options for Enterprise Networking window, select Log On to Windows NT or LAN Manager Domain.
6. If necessary, fill in the Domain Name field, and click Set Password.

   If you're unsure about your domain name, ask your system administrator.
7. Fill in the three password fields and click OK.

Reconfiguring Remote Access

If you change modems, add devices, or make another serial port available to Remote Access, you need to reconfigure the Remote Access Service.

To reconfigure Remote Access

1. After installing the new device, restart your computer.

2. From the Remote Access Phone Book, select Setup.

3. From the Setup menu, choose Configure.

The Remote Access Setup dialog box shows the port configured for the Remote Access Service and the device attached to it. The fields are described below.

Port

Select the port you want to configure for dialing out through Remote Access.

Device

Select your device (modem, X.25 PAD, null modem, ISDN card, or other) from the list.

All About Modems

Overview of Modems

This section contains information on unsupported modems and tells how to edit your modem script file, MODEM.INF. This file stores information for each modem type supported by the Remote Access Service. Do not change this file except for the following reasons:

- To add sections for modems that are not already supported.
- To enhance existing entries, such as increasing the maximum modem speed to 19200 bps.

For information about editing MODEM.INF for an unsupported modem, see Modem Script File.

For recommendations about getting the most out of compression, see Compression Recommendations.

Compression Recommendations

Modem Compression
Software Compression

Modem Compression

When modem compression is enabled, set the port speed to 19200.

Hardware Requirements

To take advantage of modem compression, you need equipment that can handle a high interrupt rate without generating overrun errors:

- 16550 serial port or better
- 386/33 or faster processor

Note   Because throughput ultimately depends on the data compression ratio, running at a port speed of 19200 bits per second (bps) does not necessarily mean that throughput will approach 19200 bps.

Example

Suppose you are connecting with:

- A V.32bis modem with a modem-to-modem speed of 14400 bps.
- Modem compression enabled.
- The port speed set at 19200 bps.

But because the transferred data is being compressed at a ratio of 2:1, your average throughput is actually 28800 bps. You can approach 57600 bps only if transferring highly compressible data (such as a file consisting of zeros or a black bitmap), which is unlikely.

Maximum Speed

In MODEM.INF, maximum speed has been set to 19200 bps because typical hardware cannot handle higher port speeds without risking overruns.

See Also

Setting Modem Features

Software Compression

The software data compression offered by the Remote Access Service lets you benefit from a faster throughput without turning on modem compression.

Example

If you have a V.32bis modem, you can set the speed to 14400 bps, enable software compression, and experience an average throughput of 28800 bps.

Benefits

There are two main benefits to software compression:
- Better throughput than modem compression.
- Lower interrupt rate and less risk of overruns.

Tip: For best results, enable modem error control, turn off modem compression, and enable software compression.

See Also

Setting Modem Features

Understanding Industry Standards

Most manufacturers use CCITT standards because all modems signal one another at different speeds. Some of these standards, primarily modulation, cover some of the higher layers (such as negotiation) as well. Multispeed modems may use several of these standards, which are:

V.21	V.32bis
V.22	MNP4
V.22bis	MNP5
V.23	V.42
V.29	V.42bis
V.32	

Be sure to choose modems that conform to industry standards, as shown in the following table:

Speed in bps	CCITT standard
1200	V.22 or Bell 212A
2400	V.22bis
9600	V.32
14,400	V.32bis

Error Control and Data Compression

For any error correction or data compression protocol to work, modems on both ends of the connection must support it. Once two modems are connected, they automatically negotiate to determine the best mutual protocols.

Protocols

The following list shows protocols for error control and data compression.

- **MNP4**

  Microcom Networking Protocol. MNP4 (levels 2 and 3 are inclusive) allows modems to automatically retransmit corrupted data, ensuring that only error-free data passes through the modem.

- **MNP5**

  Microcom Networking Protocol. MNP5 is a data compression standard that allows modems to increase throughput by compressing data before transmission. Data can be compressed with a ratio of up to 2:1.

  MNP5 sometimes expands data that has already been compressed, resulting in poorer performance in those cases. If you have an MNP5 modem, do not enable modem compression and Remote Access software compression at the same time.

  To enable MNP5 compression, you must also enable MNP4 error control.

International Standards

The following list shows international standards for error control and data compression.

- **V.42**

  International standard for data error control. Enables modems to automatically retransmit corrupted data, assuring that only error-free data passes through the modem. The standard uses LAP-M as the primary error control protocol and uses MNP4 as a backup error control protocol.

- **V.42bis**

  International standard for data compression. Enables modems to increase throughput by compressing data prior to transmission. Data can be compressed with a ratio of up to 4:1, although on the average, data is compressed at a ratio of 2:1.

  Unlike MNP5, V.42bis is more efficient at dealing with precompressed data and will typically not expand precompressed data. Any expansion, if at all, is negligible.

  To enable V.42bis compression, V.42 error control must also be enabled.

Modem Idiosyncrasies

This section describes idiosyncrasies of modems supported by the Remote Access Service. For a list of supported modems, see the Remote Access Setup dialog box. See Reconfiguring Remote Access.

To troubleshoot a supported modem

If you are using one of the modems listed in Remote Access Setup and cannot connect, follow these steps:

1. Make sure your cabling is correct. See Cabling Requirements.

2. If your cabling satisfies the requirements of the Remote Access Service, but you still cannot connect, check the modem's documentation to make sure you have correctly installed the modem.

3. If the modem has been installed correctly, use a terminal emulator program, such as Windows for Workgroups Terminal, to see if you can issue commands to the modem. See Testing Your Modem.

4. If the modem still does not work with the Remote Access Service, contact your system administrator.

See Also

General Idiosyncrasies

Codex 326x Series

Hayes V-Series 9600

PDI-1000/S Intelligent Data Adapter

US Robotics HST

VenTel 14400

General Idiosyncrasies

Modems that Remote Access supports do not necessarily work in all modes with other modems listed in the Remote Access Setup dialog box.

Example

Some V.32bis modems do not work with port speeds of 14,400 bps, although they communicate at a modem-to-modem speed of 14,400 bps. If your V.32bis modem does not work at an initial speed of 14,400 bps, change the speed to 19,200 bps. For information about changing initial modem speed, see Setting Modem Features.

Codex 326x Series

If you are connecting through a Codex 3260, 3261, 3262, 3263, 3264, or 3265, turn off flow control if:

- You're connecting at 2400 or 9600 bps.
- The modem negotiates down to 9600 or 2400 bps from an initial speed of 19,200 or 38,400 bps.

If you are connecting with a Codex V.FAST (3260, 3261, 3262, 3263, 3264, or 3265) to a Remote Access server that also has a Codex V.FAST, make sure that hardware flow control is enabled. Otherwise, you will not connect, and the following error message will appear: "The device has switched to an unsupported baud rate."

Hayes V-Series 9600

The Hayes V-Series 9600 modem connects at 9600 bps only with another Hayes V-Series 9600 modem.

So, before you install this modem on your computer, make sure that the Remote Access server also has a Hayes V-Series 9600 modem. Otherwise, connections will probably be made at 2400 bps.

PDI-1000/S Intelligent Data Adapter

The PDI-1000/S is a digital device that connects to a dial-out modem or modem pool through an IBX digital phone line. Although not a modem, a PDI performs like one when connected to a modem pool.

If you're experiencing trouble connecting to the Remote Access server through a PDI-1000/S, follow these steps:

1. Make sure your IBX provider configures the system to expect a PDI at a certain number. If the IBX is not configured for a PDI on that line, it will drop the line during a call. Dial-in and dial-out lines must be configured independently.

2. In the Modem Settings dialog box, set the Initial speed (bps) field to correspond to the speed of the server's modem. To reset this field, see Setting Modem Features. If you don't know the speed of the server's modem, ask your system administrator.

US Robotics HST

US Robotics HST modems use a proprietary protocol that cannot negotiate connection speeds greater than 2400 bps with modems that do not support this protocol.

Even if you have HST-compatible modems on both the remote client and server, Microsoft does not recommend connecting at 14,400 bps with these modems. The HST protocol is not a full-duplex 14,400 bps protocol. In other words, data transmitted in one direction travels at 14,400 bps while data traveling in the opposite direction travels at a much slower rate. This results in a low throughput, because the Remote Access Service depends on the same speed for transferring data in both directions.

VenTel 14400

Because the VenTel 14400 fax modem does not detect when a client hangs up, it will tie up a line until the timeout period has expired. Therefore, you should not use this modem as a server modem unless you don't mind having the lines tied up for long periods.

This modem works fine as a client.

Cabling Requirements

The Remote Access Service requires the following pins on the RS-232 cable:

Rx   Receive

Tx   Transmit

CTS   Clear to Send

RTS   Request to Send

DTR   Data Terminal Ready

DSR   Data Set Ready

DCD   Data Carrier
            Detected

Caution: All the pins listed above must be present. The Remote Access Service does not work if any of the seven pins is missing. If any pins are not present or not working, the Remote Access Service reports a hardware error.

Most ISA and EISA computers have one of the following serial port connectors:
- 25-pin male "D-shell" connectors
- 9-pin male connectors

Most off-the-shelf cables will work with your modems, but not all. Some cables do not have all the pins connected as shown in the tables for 25-pin, 9-pin, and NULL modem cabling. So when buying cables, tell your dealer exactly what you need, and give him the information in these tables to be sure you have the correct match.

Note Do not use the 9-to-25-pin converters that come with most mouse hardware, because some of them do not carry modem signals.

See Also

25-Pin Cabling

9-Pin Cabling

NULL Modem Cabling

25-Pin Cabling

As the following table shows, pins 1 through 8 on the serial port connector are wired to their counterparts on the modem connector. Ribbon cables usually have all 25 pins wired straight across, but they can cause interference with TVs, radios, and VCRs. Shielded RS-232 cable normally corrects this problem.

25-pin serial port connector	25-pin modem connector	Signal
1	1	Chassis Ground
2	2	Transmit Data
3	3	Receive Data
4	4	Request to Send
5	5	Clear to Send
6	6	Data Set Ready
7	7	Signal Ground
8	8	Data Carrier Detected
20	20	Data Terminal Ready

9-Pin Cabling

The following table shows how to connect a 9-pin serial port connector on a computer to a 25-pin connector on a modem. Again, if you buy an off-the-shelf cable, be sure all pins are connected as shown in the following table.

9-pin serial port connector	25-pin modem connector	Signal
1	8	Data Carrier Detected
2	3	Receive Data
3	2	Transmit Data
4	20	Data Terminal Ready
5	7	Signal Ground
6	6	Data Set Ready
7	4	Request to Send
8	5	Clear to Send
9	22	Ring Indicator (optional)

Note Some modems have the Data Set Ready (DSR) signal physically tied to the Data Carrier Detect (DCD) signal. Some 1200-bps modems and other 2400-bps modems have DIP switches default to this setting as well. As a result, if such a modem loses power while listening for a call, the Remote Access server cannot detect the condition because the DSR will not change, as it does with other modems.

NULL Modem Cabling

If you are using a NULL modem to make a direct serial connection between two computers, your cable must be wired as shown in the following tables.

9-Pin NULL Modem Cabling

Remote host	Calling system	
serial port connector	**serial port connector**	**Signal**
3	2	Transmit Data
2	3	Receive Data
7	8	Request to Send
8	7	Clear to Send
6, 1	4	Data Set Ready and Data Carrier Detected
5	5	Signal Ground
4	6, 1	Data Terminal Ready

25-Pin NULL Modem Cabling

Remote host	Calling system	
serial port connector	**serial port connector**	**Signal**
2	3	Transmit Data
3	2	Receive Data
4	5	Request to Send
5	4	Clear to Send
6, 8	20	Data Set Ready and Data Carrier Detected
7	7	Signal Ground
20	6, 8	Data Terminal Ready

Off-the-shelf NULL modem cables might not be wired properly. Be sure to tell your dealer that your NULL modem cables must be wired as shown in the 25-pin NULL modem table.

Modem Script File

Overview of Modem Script File

The MODEM.INF file lists all the modems supported by the Remote Access Service, along with the command and response strings each modem needs for correct operation. When you select a modem during Remote Access installation, the Setup program associates the selected modem with the specified communications port. Remote Access connection utilities read MODEM.INF to obtain the command strings for the modem associated with each communications port.

Location

You can find the MODEM.INF file in the \WINDOWS\SYSTEM directory.

General Structure

The MODEM.INF file consists of two main parts:

- A global [Responses] section. Example Global Responses

    This section contains common result strings that a variety of modems return.
- Individual sections for each supported modem, such as [AT&T Comsphere 3820]. Example Modem Section

    Modem sections contain the following command strings:

- Initialization
- Dial
- Listen

To connect through an unsupported modem, you will need to modify the MODEM.INF file. For detailed information, see Modifying MODEM.INF.

Example Global Responses

The following example shows a typical entry in the global responses section of a MODEM.INF file.

```
[Responses]

OK=<cr><lf>OK<cr><lf>
OK=<hFF><cr><lf>OK<cr><lf>
LOOP=<cr><lf>RING<cr><lf>
LOOP=<cr><lf>RRING<cr><lf>
LOOP=<cr><lf>RINGING<cr><lf>
LOOP=<cr><lf>DIALING<cr><lf>
ERROR=<cr><lf>ERROR<cr><lf>
ERROR=<cr><lf>ABORTED<cr><lf>
ERROR_NO_CARRIER=<cr><lf>NO CARRIER<cr><lf>
ERROR_VOICE=<cr><lf>VOICE<cr><lf>
ERROR_NO_DIALTONE=<cr><lf>NO DIALTONE<cr><lf>
ERROR_NO_DIALTONE=<cr><lf>NO DIAL TONE<cr><lf>
ERROR_BUSY=<cr><lf>BUSY<cr><lf>
ERROR_NO_ANSWER=<cr><lf>NO ANSWER<cr><lf>
ERROR_NO_PROMPTTONE=<cr><lf>NO PROMPTTONE<cr><lf>

CONNECT_EC=\
<cr><lf>CARRIER <carrierbps><cr><lf><append>\
<cr><lf>PROTOCOL: V.42/LAPM<cr><lf>\
<cr><lf>COMPRESSION: V.42BIS<cr><lf>\
<cr><lf>CONNECT <connectbps><cr><lf>
```

LOOP

The only information contained by LOOP is that another response is coming. Remote Access then waits for that response before moving on. Any response keyword beginning with LOOP or LOOP_ acts this way.

ERROR

The modem reported an error as soon as a command was sent to the modem. This response often means that the command string sent to the modem is incorrect. Make sure you have the correct modem strings by testing your modem through Windows for Workgroups Terminal to help find exactly which command causes the error. See "Testing Your Modem" in online help.

Try using the AT command without any additional commands. If this returns an error, the modem has probably encountered a hardware problem. Try turning off the modem for about 20 seconds, restarting it, and seeing whether that solves the problem. If this doesn't solve the problem, contact your modem's manufacturer.

CONNECT

Indicates a connection has been established.

OK
The modem has received and successfully processed the command.

CONNECT_EC

Indicates a connection with modem error control or compression enabled.

Example Modem Section

The following example shows a typical modem section in the MODEM.INF file.

```
;-------------------
[AT&T Comsphere 3820]
<speaker_on>=M1
<speaker_off>=M0
<hwflowcontrol_on>=\\Q3
<hwflowcontrol_off>=\\Q0
<compression_on>=%C1"H3
<compression_off>=%C0"H0
<protocol_on>=\\N5
<protocol_off>=\\N0

CALLBACKTIME=10
DEFAULTOFF=compression
MAXCARRIERBPS=14400
MAXCONNECTBPS=19200
COMMAND_INIT=AT&F&C1&D2 V1 X7 S0=0 S2=128 S7=55<cr>
COMMAND_INIT=AT<hwflowcontrol><compression><protocol><speaker><cr>
COMMAND_LISTEN=ATS0=1<cr>
COMMAND_DIAL=ATDT<phonenumber><cr>
```

CALLBACKTIME

The time in seconds that the server waits before calling the client back. This delay allows the client's modem to reset itself. Start with 10 seconds, and increase this number if there are problems.

DEFAULTOFF

A list of all the on/off macros that you want turned off by default, until RASPHONE.EXE turns them on.

MAXCARRIERBPS

The maximum speed the client's modem and the Remote Access server's modem exchange data (bps rate on the telephone line). This speed is always equal to or less than MAXCONNECTBPS.

MAXCONNECTBPS

The maximum speed at which a modem talks to the computer (DTE-to-DCE bps transfer rate). Set this value to the maximum serial port bps that the modem can support.

speaker
Turns the modem speaker on or off.

protocol
Turns the error control on or off.

compression
Turns modem compression on or off.

hwflowcontrol

Tells the modem whether to use hardware flow control between the COM port and modem.

cr
Inserts a carriage return.

If
Inserts a linefeed.

match

Reports a match if the string enclosed in quotation marks is found in the device response.
For example, <match>"Smith" matches "Jane Smith" and "John Smith III".

?

Inserts a wildcard character. For example, CO<?><?>2 matches COOL2 or COAT2, but not COOL3.

phonenumber
Dials the phone number entered in the Phone Book.

carrierbps

The speed at which the client's modem and the Remote Access server's modem exchange data (bps rate on the telephone line).

connectbps
The speed at which a modem talks to the computer (DTE-to-DCE bps transfer rate).

append

Breaks information into segments and receives from the modem one segment at a time. The client expects delays between the segments and waits until all the information has arrived.

ignore

Ignores the rest of a response from the macro on. For example, <cr><lf>CONNECT<ignore> reads the following responses as the same: "crlfCONNECTV-1.1" and "crlfCONNECTV-2.3".

hXX (XX are hexadecimal digits.)
Allows any hexadecimal character to appear in a string including the zero byte, <h00>.

diagnostics

Diagnostic information returned from the PAD when an attempted connection through an X.25 network fails. The **diagnostics** macro collects and displays this information to help identify the problem. This reserved word appears in the PAD.INF file.

facilities

Facility parameters such as **/R** to specify reverse charging.

x25address

The X.121 address (the X.25 equivalent of a phone number) for the Remote Access server to be called.

x25pad

The type of X.25 packet assembler/disassembler (PAD) to be used. For dial-up PADs, it's the name of the X.25 provider.

userdata

Additional connection information required by the X.25 host computer.

message

Raw information from a device, such as a modem. When an error occurs, this information is displayed to help troubleshoot the problem. This reserved word does not appear in any .INF file.

Modifying MODEM.INF

To connect through a modem that is not supported by the Remote Access Service, you must modify your MODEM.INF file. Follow these steps:

1. Back up your existing MODEM.INF file.

2. Copy an existing section to the end of MODEM.INF and rename the section header of the copy to the name of your modem. You will create a new entry by editing this copy.

   Note: Make sure that the section header with your new modem name does not exceed 33 characters, including the square brackets, otherwise an error will occur.

3. Provide the following strings:
   - Initialization string
   - Dial string
   - Listen string

   Requirements for the initialization string:
   - Recall factory settings.
   - Track the presence of data-carrier-detect (DCD) (high when a carrier is detected).
   - Hang up and disable auto-answer when data terminal ready (DTR) goes from ON to OFF (high to low).
   - Return result codes.
   - Return verbose codes.
   - Enable character echo in command state.
   - Wait about 55 seconds for a carrier.
   - Disable the +++ escape sequence.

   Requirements for the dial string:
   - Go off hook and dial.

   Requirements for the listen string:
   - Answer after one ring.

   For further information about command strings, see Commands.

4. Check your modem's documentation to see if the modem responses (result strings) are already included in the global section of MODEM.INF. If they are, you don't need to make any changes for the responses. If they are not, you can create private responses in your modem's section. For further information about responses, see Responses.

   Caution: To avoid unexpected consequences, do not add responses to or delete any of them from the global response section in MODEM.INF.

See Also

Requirements for Advanced Modem Features

Requirements for Advanced Modem Features

In creating a new modem section for an unsupported modem, be sure to set the following requirements in the MODEM.INF file to enable the advanced modem features.

- Hardware (CTS/RTS) flow control ON
- Hardware (CTS/RTS) flow control OFF
- Error Control Protocol ON

   Autoreliable negotiation starting with V.42 (LAP-M). Fall back to MNP4 or no error control. If your modem does not support V.42, start negotiating with MNP4.

- Error Control Protocol OFF
- Compression ON

   Autoreliable negotiation starting with V.42bis. Fall back to MNP5 or no compression. If your modem does not support V.42bis, start negotiating with MNP5.

- Compression OFF

See Also

Setting Modem Features

Syntax for MODEM.INF

A typical modem entry in the MODEM.INF file contains the following components. The first four appear in the order given. Comment lines can appear anywhere.

- Section header
- Configuration parameters
- Substitution macros
- Commands
- Comment lines

See Also

Responses

Line Continuation

Assigning an Alias

Section Header

Identifies the specific device to which the section applies. In MODEM.INF it is normally a name that identifies the modem make and model. A section header is a string of up to 32 characters between square brackets, and it occupies the first line in each section, for example, [AT&T Comsphere].

Configuration Parameters

Remote Access works with the modem through these parameters. They take the following form:

parameter_name=value_string

For example:

```
MAXCARRIERBPS=9600
CALLBACKTIME=8
```

Substitution Macros

Substitution macros are placeholders that are replaced by their values in command strings. Macros follow these rules:

- In the MODEM.INF file, macros must come before the first command, and by convention, after the configuration parameters.
- Macro names must be enclosed in angle brackets (< >).

For example:

```
<reset>=&F
```

```
<speaker_on>=M1
```

```
<speaker_off>=M0
```

Commands

Commands are strings of characters sent to the modem. These strings can contain macros and take the following form:

command_keyword=value_string

For further information, see "Commands" in online help.

Comment Lines

Comment lines begin with a semicolon (;) and can appear anywhere in the file. Comment lines convey important information to those who maintain the .INF files. For example:

```
; Explanation of modem commands

; &F Reset modem to factory default settings

; &C1 DCD tracks presence of modem carrier

; &D2 Hangup & disable autoanswer when DTR goes from ON TO OFF
```

Substitution Macros

There are two types of substitution macros:

Macro type	Form
Unary	*<macro_name>=value_string*
Binary	*<macro_name_ON>=value_string*
	<macro_name_OFF>=value_string

Note Nested macros are not allowed. Two adjacent left brackets are always interpreted as a greater-than sign, and two adjacent right brackets are always interpreted as a less-than sign. Interpreting angle brackets this way allows greater-than and less-than symbols in a command string, when required.

Binary Macros

The command AT<reset><cr> would be sent as AT&F0D. Binary macro placeholders are replaced according to your instructions. For example, if you disable the speaker, the command AT<speaker><cr> is sent as ATM00D. If you enable the speaker, it is sent as ATM10D.

Define binary macros, such as **speaker**, **protocol**, **compression**, and **hwflowcontrol**, as follows:

```
<speaker_on>=M1
```

```
<speaker_off>M0
```

As values, use them as shown in the following example:

```
COMMAND_INIT=AT<speaker><cr>
```

Macros in Responses

Some responses can also use macros. Most macros in response strings behave the same way as in commands. However, certain macros, such as **carrierbps** and **x25address**, capture information such as baud rate from the device response string.

The Remote Access Service uses **match**, **?**, **append**, **hXX**, and **ignore** in response strings to recognize responses from a modem or another device.

Reserved Words

The macros in the following list are reserved words, which means you cannot use them in MODEM.INF when creating a new entry. Reserved words are case insensitive.

- **carrierbps**
- **connectbps**
- **message**
- **phonenumber**
- **cr**
- **lf**
- **match**
- **?**
- **append**
- **ignore**
- **hXX**

The PAD.INF file uses the following as reserved words:

- **diagnostics**
- **facilities**

- **x25address**
- **x25pad**
- **userdata**

Note   Using reserved words as macro names could result in unpredictable behavior of the Remote Access software.

Commands

The set of command keywords (or types) is:
- <u>COMMAND_INIT</u>
- <u>COMMAND_DIAL</u>
- <u>COMMAND_LISTEN</u>

Commands of a given type are executed in the order found in the MODEM.INF file. By convention, commands of the same type are grouped together, as shown in the following example from MODEM.INF:

```
COMMAND_INIT=AT&F&C1&D2 V1 S0=0 S2=128 S7=55 W0 \
    S95=44<speaker><protocol><compression><hwflowcontrol><cr>

COMMAND_LISTEN=ATS0=1<cr>

COMMAND_DIAL=ATDT<phonenumber><cr>
```

Multiple Command Strings

Because most modems accept strings of about 50 characters, Remote Access supports multiple command strings, which let you break up long commands into shorter strings that the modem can accept.

Using multiple command strings, the first line in the previous example from MODEM.INF could be rewritten as follows:

```
COMMAND_INIT=AT&F&C1&D2 V1 S0=0 S2=128 S7=55 W0 S95=44<cr>

COMMAND_INIT=AT<speaker><protocol><compression><hwflowcontrol><cr>
```

Notice that each string:
- Is a command in its own right.
- Begins with AT and ends with a carriage return (<cr>).
- Gets a response before going to the next string.

COMMAND_INIT

Initializes the modem.

COMMAND_DIAL
Dials the phone number and connects.

COMMAND_LISTEN

Sets the modem to autoanswer mode. Check your modem documentation for the code that makes the modem answer after the first ring.

Responses

A command-response set consists of one command followed by zero or more responses. Responses are strings that are expected to be received from the device and can contain macros. Responses take the form:

keyword=value_string

The MODEM.INF file contains two types of responses:

Type of response	Location
Global	In the [Responses] section.
Private	Immediately following the command line that is expected to produce the response, and before the next command line.

Global Responses

Responses used by most modems are in the global [Responses] section of MODEM.INF. For an example, see Example Global Responses.

Private Responses

Individual modem sections can contain private response strings in MODEM.INF. Remote Access checks for private responses first. If it doesn't find a response string to match the actual string returned by the modem, it continues checking in the global response section.

There is one exception, however. If the first part of a string containing an <**append**> macro is matched in the private section, the global section will not be searched. Instead, Remote Access waits a few seconds for the rest of the string to arrive from the modem.

For an example, see Example Private Responses.

Example Private Responses

The following example from MODEM.INF shows a section with private responses. Microsoft encourages you to use this method of inserting responses for any section you add.

```
COMMAND_LISTEN=ATS0=1<cr>

CONNECT=<cr><lf>CONNECT <carrierbps><cr><lf>

CONNECT_EC=<cr><lf>CONNECT <carrierbps>/MNP<cr><lf>

CONNECT_EC=<cr><lf>CONNECT <carrierbps>/MNP/COMPRESSED<cr><lf>

CONNECT_EC=<cr><lf>CONNECT <carrierbps>/MNP COMPRESSED<cr><lf>

CONNECT_EC=<cr><lf>CONNECT <carrierbps>/V42<cr><lf>

CONNECT_EC=<cr><lf>CONNECT <carrierbps>/V42BIS<cr><lf>
```

Line Continuation

A backslash (\) signals a line continuation. This mark indicates commands or responses are continued on the next line, making files more legible.

For example:

```
CONNECT_V42=\

<cr><lf>CARRIER <carrierbps><cr><lf><append>\

<cr><lf>PROTOCOL: V.42/LAPM<cr><lf>\

<cr><lf>COMPRESSION: NONE<cr><lf>\

<cr><lf>CONNECT <connectbps><cr><lf>
```

Note The backslash (\) character is interpreted as a line continuation except when preceded by another backslash. If your modem uses commands that include a backslash, be sure to use double backslashes (\\) when entering these commands.

For example, the AT&T Comsphere 3820 modem enables error control with the \N5 command. Be sure to enter \\N5 in the initialization string for this modem instead of \N5. Otherwise, Remote Access will report a hardware error when trying to dial.

Assigning an Alias

If a modem's command strings are identical to those already listed for another modem, the name of the latter modem can be used as an alias for the former.

For example:

```
;----------------------
[AT&T Comsphere 3810]
ALIAS=AT&T Comsphere 3820
```

In this example, the AT&T Comsphere 3810 uses the command strings of the AT&T Comsphere 3820.

Note   Aliases cannot be nested. Therefore, in addition to the previous example, you could have:

```
[AT&T Comsphere 3811]
ALIAS=AT&T Comsphere 3820
```

But **not**:

```
[AT&T Comsphere 3811]
ALIAS=AT&T Comsphere 3810
```

Answers to Common Questions

1. Why doesn't my modem work with Remote Access? <u>Answer</u>
2. Why can't I connect to the server? <u>Answer</u>
3. Why does my modem always connect at a lower bits-per-second (bps) rate than specified? <u>Answer</u>
4. The sessions to a server on the network keep getting dropped. How can this be corrected? <u>Answer</u>
5. What should I do when I encounter an abnormal disconnection? <u>Answer</u>
6. When I try to connect, a message says the server is not responding. What causes this? <u>Answer</u>
7. Why am I getting a hardware error when I try to connect? <u>Answer</u>
8. Recently, I installed a printer (or a serial card), and now, when connecting, Remote Access freezes my screen. When that happens, I have to restart my computer. How can I fix this? <u>Answer</u>

Q: Why doesn't my modem work with Remote Access?

A: Check the list of compatible modems in the Remote Access Setup dialog box. To access this dialog box, see <u>Reconfiguring Remote Access</u>.

If your modem appears on the list, make sure the modem is connected properly to the correct port on your computer.

If your modem isn't on the list, you must add a section for it in the MODEM.INF file.

To add a new section to MODEM.INF

1. Back up MODEM.INF.
2. Copy one of the sections already in the file, and put the copy at the end.
3. Change the section name to the name of your modem.
4. Make modifications according to the modem's documentation.
5. If you have problems, call the modem's manufacturer.

Q: Why can't I connect to the server?

A: The Remote Access server may not be running. Ask your system administrator to make sure it is running. If it is down, the administrator should check the error and audit logs to see why the service stopped, and then restart the service. If the service is running, the administrator should see whether some other remote workstations can connect properly. If other clients can connect, the problem may be specific to your workstation.

If the server is running, one or more of the following may be the cause:

- You might not have a valid user account or Remote Access permission.
- You may have dialed the wrong number, or dialed the correct number but forgotten to dial an external line-access number, such as 9.
- Your modem may not be able to negotiate with the server's modem. See if using the same type of modem on the client and server solves the problem.
- The modem cabling is faulty. In particular, do not use one of the 9-to-25-pin converters that come with most mouse hardware because some of them do not carry modem signals. To be safe, use a converter made especially for this purpose. See <u>Cabling Requirements</u>.
- The telephone line (in your hotel room, for example) may not accommodate your modem speed. Select a lower bps rate, or call the hotel manager to request a direct line.
- Most modems work only with analog phone lines. Make sure you have analog phone lines installed or, if you have digital phone lines installed, make sure servers and clients have digital modems.

Q: Why does my modem always connect at a lower bits-per-second (bps) rate than specified?

A: One or more of the following may be the cause of this problem:
- At higher bits-per-second (bps) rates, your modem is incompatible with the server's modem.
- There is a lot of static on the phone line, which prevents modems from connecting at a higher bps rate.
- There is some kind of switching equipment between the client and server that prevents the modems from negotiating at a higher bps rate.

Q: The sessions to a server on the network keep getting dropped. How can this be corrected?

A: To correct this problem:

- Make sure the modem and telephone line are operating correctly. Excessive static on the telephone line causes sessions to be dropped. You can use the Port Status dialog box to confirm whether this is happening. Try to redial.
- Ask your system administrator to make sure the target server is running properly. If other workstations are having the same problem, there may be problems with server applications or hardware. If not, the problem is specific to your workstation.
- Ask your system administrator to check the cabling between the Remote Access server and the target server.

Q: What should I do when I encounter an abnormal disconnection?

A: To correct this problem, take one of the following actions:
- Check whether the phone has call waiting. If so, disable call waiting. For information on how to disable call waiting, contact your local telephone-service provider.
- Try calling again. The Remote Access server might have disconnected you because of inactivity.
- See if someone picked up the phone. Picking up the phone automatically disconnects you.
- Check the modem cable to make sure it's connected properly.

Q: When I try to connect, a message says the server is not responding. What causes this?

A: One or more of the following may be the cause of this problem:

- The Remote Access server may not be running. Ask your system administrator to make sure the server is running.
- Your modem may be unable to negotiate correctly with the Remote Access server's modem. Try a lower speed. See <u>Setting Modem Features</u>.
- Your computer's serial port may not be able to keep up with the speed you have chosen. Try connecting at a lower initial port speed. See <u>Setting Modem Features</u>.

Q: Why am I getting a hardware error when I try to connect?

A: To correct this problem:

- Make sure your modem is turned on. If the modem was turned off, turn it on and redial.
- If your modem was turned on, make sure it's functioning properly by testing it through Windows for Workgroups Terminal. See <u>Testing Your Modem</u>.
- If your modem communicates through Terminal, but not through the Remote Access Service, the cable attaching your modem to the computer is probably incompatible. Install a compatible cable. See <u>Cabling Requirements</u>.

Q: Recently, I installed a printer (or a serial card), and now, when connecting, Remote Access freezes my screen. When that happens, I have to restart my computer. How can I fix this?

A: Your printer or serial card has modified the communications-driver line in your SYSTEM.INI file in the %WINROOT% directory. Edit your SYSTEM.INI file:

1. Search for the line that begins

   ```
   comm.drv=
   ```

2. Edit the line to look like this:

   ```
   comm.drv=comm.drv
   ```

3. For the change to take effect, exit and restart Windows for Workgroups.

Note: If your printer or serial card doesn't work with this change, you may have to hang up any Remote Access connection and restore SYSTEM.INI to the way your printer or serial card modified it. For example:

   ```
   comm.drv=bicomm.drv
   ```

Serial Ports

Note that COM1 and COM3 share interrupt (IRQ) level 4. COM2 and COM4 share interrupt (IRQ) level 3. As a result, you will not be able to use COM1 and COM3 simultaneously, or COM2 and COM4 simultaneously for serial communications, for example, Remote Access on COM1 and Terminal on COM3.

This rule applies if you are using the mouse in addition to other serial communications programs such as Remote Access or the Windows for Workgroups Terminal program.

However, the rule does not apply if you are using intelligent serial adapter cards such as the DigiBoard serial cards.

Callback

Type the number at which you want the Remote Access server to call you back.

Authentication

Type your Remote Access user name (if necessary), password, and domain (if necessary) in the appropriate fields. If inserting a domain, type the one that contains your Remote Access account. If you're unsure about your user name, your password, or the domain name, ask your system administrator.

Similar in concept to a workgroup, a *domain* is a group of servers that share a common user database. For authentication to work, the Remote Access server must be a member of that domain or at least be in a trust relationship with it.

Note   Authentication credentials are typically the same as your network logon credentials. The Remote Access Service uses these credentials to verify that you have the right to physically access the network. Remote Access does not actually log you on, so after your connection is established, you may need to log on (by clicking the Log On/Off icon) to access protected network resources. But you can avoid this step by logging on to your domain account when starting your Windows for Workgroups workstation (before you establish the Remote Access connection). This is the same as logging on with your network cable unhooked and then plugging it in.

Retry Authentication

Verify your user name and password. If they are correct, type your domain name. If you don't know your domain name, ask your system administrator.

Change Your Password

Your password has expired. Please change your password now by filling in the fields on this screen.

Connect Status

This dialog box shows the different phases of the dialing process. Press Cancel to terminate the connect attempt.

Link Failure

The line has been disconnected unexpectedly. Remote Access will try to reestablish the connection. To configure the Remote Access redial feature, see <u>Redialing</u>.

Error Messages

600   An operation is pending.
601   The port handle is invalid.
602   The port is already open.
603   Caller's buffer is too small.
604   Wrong information specified.
605   Cannot set port information.
606   The port is not connected.
607   The event is invalid.
608   The device does not exist.
609   The device type does not exist.
610   The buffer is invalid.
611   The route is not available.
612   The route is not allocated.
613   Invalid compression specified.
614   Out of buffers.
615   The port was not found.
616   An asynchronous request is pending.
617   The port or device is already disconnecting.
618   The port is not open.
619   The port is disconnected.
620   There are no endpoints.
621   Cannot open the phone book file.
622   Cannot load the phone book file.
623   Cannot find the phone book entry.
624   Cannot write the phone book file.
625   Invalid information found in the phone book.
626   Cannot load a string.
627   Cannot find key.
628   The port was disconnected.
629   The port was disconnected by the remote machine.
630   The port was disconnected due to hardware failure.
631   The port was disconnected by the user.
632   The structure size is incorrect.
633   The port is already in use or is not configured for Remote Access dialout.
634   Cannot register your computer on the remote network.
635   Unknown error.
636   The wrong device is attached to the port.
637   The string could not be converted.
638   The request has timed out.
639   No asynchronous net available.
640   A NetBIOS error has occurred.
641   The server cannot allocate NetBIOS resources needed to support the client.

642   One of your NetBIOS names is already registered on the remote network.
643   A network adapter at the server failed.
644   You will not receive network message popups.
645   Internal authentication error.
646   The account is not permitted to log on at this time of day.
647   The account is disabled.
648   The password has expired.
649   The account does not have Remote Access permission.
650   The Remote Access server is not responding.
651   Your modem (or other connecting device) has reported an error.
652   Unrecognized response from the device.
653   A macro required by the device was not found in the device .INF file section.
654   A command or response in the device .INF file section refers to an undefined macro.
655   The <message> macro was not found in the device .INF file section.
656   The <defaultoff> macro in the device .INF file section contains an undefined macro.
657   The device .INF file could not be opened.
658   The device name in the device .INF or media .INI file is too long.
659   The media .INI file refers to an unknown device name.
660   The device .INF file contains no responses for the command.
661   The device .INF file is missing a command.
662   Attempted to set a macro not listed in device .INF file section.
663   The media .INI file refers to an unknown device type.
664   Cannot allocate memory.
665   The port is not configured for Remote Access.
666   Your modem (or other connecting device) is not functioning.
667   Cannot read the media .INI file.
668   The connection dropped.
669   The usage parameter in the media .INI file is invalid.
670   Cannot read the section name from the media .INI file.
671   Cannot read the device type from the media .INI file.
672   Cannot read the device name from the media .INI file.
673   Cannot read the usage from the media .INI file.
674   Cannot read the maximum connection BPS rate from the media .INI file.
675   Cannot read the maximum carrier BPS rate from the media .INI file.
676   The line is busy.
677   A person answered instead of a modem.
678   There is no answer.
679   Cannot detect carrier.
680   There is no dial tone.
681   General error reported by device.
682   ERROR_WRITING_SECTIONNAME
683   ERROR_WRITING_DEVICETYPE
684   ERROR_WRITING_DEVICENAME
685   ERROR_WRITING_MAXCONNECTBPS

This error should not occur under normal circumstances. Restart your computer to make sure that all recent configuration changes have taken effect.

Another application is using the port. Close the application and redial.

The Remote Access Phone Book file and the current Remote Access configuration are probably inconsistent. If you have changed your communications equipment (such as your serial port or modem), be sure to reconfigure Remote Access. See <u>Reconfiguring Remote Access</u>.

The Remote Access Phone Book file and the current Remote Access configuration are probably inconsistent. If you have changed your communications equipment (such as your serial port or modem), be sure to reconfigure Remote Access. See <u>Reconfiguring Remote Access</u>.

If the error persists, remove and recreate the affected Phone Book entry, or reinstall the Remote Access Service.

The Remote Access Phone Book (RASPHONE.PBK) is in the \WINDOWS\SYSTEM directory.

Most likely, your network configuration is wrong. Restart your computer to make sure that all recent configuration changes have taken effect.

Wait for Remote Access to finish disconnecting the entry, or close the Remote Access Service.

The Remote Access Service uses the RASPHONE.PBK file in the \WINDOWS\SYSTEM directory. Make sure the file is on this path, and restart Remote Access.

Remote Access has located the Phone Book but cannot find the specified entry. This error should not occur unless you are writing to Remote Access APIs and have specified an incorrect entry name. The Remote Access Service uses the file RASPHONE.PBK, located in the \WINDOWS\SYSTEM directory.

The Remote Access Service uses the RASPHONE.PBK file in the \WINDOWS\SYSTEM directory. Make sure your disk is not full and that you have write access to this file.

The Remote Access Service uses the file RASPHONE.PBK, located in the \WINDOWS\SYSTEM directory. Delete this file, and restart Remote Access.

One of the Remote Access configuration files probably contain invalid information. The easiest way to resolve this problem is to reinstall Remote Access.

If you are using a modem that is not supported by Remote Access, switch to a supported modem.

The Remote Access script files (PAD.INF, MODEM.INF, and SWITCH.INF) are in the \WINDOWS\SYSTEM directory.

Redial the entry. If you continue to get this message, reduce the modem's initial speed, and turn off the advanced modem features. See <u>Setting Modem Features</u>. If the problem persists, contact your system administrator.

The link has been disconnected for one of the following reasons:
- An unrecoverable phone line error
- A noisy line
- Disconnection by the system administrator

To reestablish the link, redial. If you have enabled the Redial on link failure option, the entry is redialed automatically. You can enable automatic redialing through Redial Settings on the Options menu. See Setting Options.

If this error persists, lower the modem's initial speed (bps) setting, and dial again. See Setting Modem Features.

The link has been disconnected for one of the following reasons:
- An unrecoverable error occurred in your modem (or other communications device).
- An unrecoverable error occurred on your communications port.
- Your modem cable has come unplugged.

Possible actions to diagnose and correct the problem:
- Make sure your modem is on and your cable is securely attached.
- Make sure your modem is functioning properly. For instructions on testing your modem through Windows for Workgroups Terminal, see Testing Your Modem.

You have disconnected the line through an action on your computer. Redial.

If the port is already in use by another connection, hang up the connection on this port, or edit the entry to use another communications port.

If the port is not already in use, reconfigure your Remote Access port for dialing out. See Reconfiguring Remote Access.

The Remote Access server was unable to register your computer's name on the network. Contact your system administrator.

Your hardware configuration and the Remote Access setup are probably inconsistent with each other. If you have changed your communications equipment (such as serial port or modem), be sure to reconfigure Remote Access accordingly. See <u>Reconfiguring Remote Access</u>.

Most likely, your network configuration is wrong. Restart your computer to make sure that all recent configuration changes have taken effect.

Record the Fail Code (a NetBIOS error code), and make it available to your technical support staff if you call for help.

Your modem may not have negotiated the connection correctly, or the line may be noisy. Set the modem to a lower initial speed (bps), and dial again. See <u>Setting Modem Features</u>. Record the Fail Code (a NetBIOS error code), and make it available to your technical support staff if you call for help.

Ask your system administrator to increase the resource capacity of the Remote Access server, or on your computer, stop network services, such as messaging and file sharing.

To stop messaging

- Close WinPopup.

To stop file sharing

1. In the Network group, double-click Network Setup.
2. Click Sharing.
3. Clear the check boxes for sharing files and printers, and click OK.

Networking architecture requires each computer on the network to be registered with a unique name. This rule applies to both the LAN and remote workstations.

- If the name shown matches your computer name, change your computer name by double-clicking the Network icon in the Control Panel and editing the Computer Name field.
- If the name shown does not match your computer name, another computer may have registered a computer name matching your LAN Manager or Windows NT domain name (if any), or you may be running a NetBIOS application that has added the conflicting name. Try a different domain and/or stop the NetBIOS application.

Note   Because unique names are required, you cannot have both a Remote Access and a direct connection (such as Ethernet connector) to the same network. If you are evaluating Remote Access in such a situation, you need to unplug the network connector before attempting to connect through Remote Access.

Report this error to your system administrator.

Another computer already connected to the network is using your messaging name. Messages addressed to you will be sent to that computer. If you want to receive messages at your remote workstation, you must remember to log off your office computer before you next dial in to the network.

Note This error does not affect messaging through Microsoft Mail.

This error should not occur under normal circumstances. Restart your computer to make sure that all recent configuration changes have taken effect.

Record the Fail Code (a NetBIOS error code), and make it available to your technical support staff if you call for help.

Your account has been configured for limited access to the network. If you need to access the network at a different time of day than what's presently configured, ask your system administrator to change the configuration.

Ask your system administrator to enable your account.

If you are connecting through the Remote Access Phone Book, you will automatically be prompted to change your password.

You have a valid account on the domain you selected, but your account does not have permission to access the network remotely. Ask your system administrator to give you dial-in permission.

If you have an account with dial-in permission on another domain, do the following to use your account on that domain:

1. Dial the entry you want to connect to.

2. Specify the appropriate user name, password, and domain.

One of the following may have caused this error:

- The Remote Access server is not running. Contact your system administrator to make sure the server is running.
- The line may be too noisy. Lower the modem's initial speed (bps), and dial again. See <u>Setting Modem Features</u>.
- Your modem may have failed to negotiate correctly with the Remote Access server's modem at the selected speed. Lower the modem's initial speed (bps), and dial again.

Make sure the device you selected in Remote Access Setup matches your modem. If you are using a supported modem, turn the modem off and then back on. Close and restart the Remote Access Service, and then redial.

If your modem is not supported by Remote Access, contact your modem's manufacturer. For a list of supported modems, see the Remote Access Setup dialog box.

Make sure you have correctly configured your modem for Remote Access. To check your configuration, see <u>Reconfiguring Remote Access</u>.

Your modem (or other connecting device) has returned a message that is not listed in one or more of your Remote Access script files (PAD.INF, MODEM.INF, or SWITCH.INF). Make sure the device you selected in Remote Access Setup matches your modem.

If you are connecting through a supported modem, turn the modem off and back on. Then redial. If the problem persists, try connecting at a lower initial speed. See Setting Modem Features.

If you are connecting through an unsupported modem, make sure that the indicated response is included in the appropriate script file.

The Remote Access script files are located in the \WINDOWS\SYSTEM directory.

The system has run out of memory. Close some applications, and redial.

If the port is already being used for another connection, hang up that connection, or edit this entry to use another communications port.

If the port is not already in use, reconfigure your Remote Access port for dialing out. For instructions, see Reconfiguring Remote Access.

Your modem (or other connecting device) is not responding for one of the following reasons:

- The modem has been turned off.
- The modem is not securely connected to your computer. Make sure your cable is securely fastened to both the modem and the computer.
- The serial cable does not have the correct specifications required by Remote Access.
- The modem has experienced a hardware problem. Turn off the modem, wait for 20 seconds, and then restart the modem.

Redial the entry. If you continue to get this message, reduce the modem's initial speed, and turn off the advanced modem features. See Setting Modem Features. If the problem persists, contact your system administrator.

If you're dialing manually, make sure you're connected before clicking Done.

Redial the number. To automate redialing, set the Redial Settings feature on the Phone Book's Options menu. See <u>Redialing</u>.

A modem did not pick up the phone. Check the number and dial again.

A modem did not pick up the phone. Please check the number and dial again. To automate redialing, set the Redial Settings option on the Phone Book's Options menu. See <u>Redialing</u>.

Note   Many modems return this error if the remote modem does not pick up the phone.

Make sure the phone line is plugged into the correct socket in the modem. Also, make sure you've added any special access numbers, such as the prefix 9 followed by a comma, to connect to an outside line, for example: 9,555-8181.

Type your user name, password, and domain. If you are unsure of this information, ask your system administrator.

If you do not specify a domain, the Remote Access server attempts to verify your user name and password on the domain of which it is a member.

The limit for commands in the script file is 256 characters. Break up the command into multiple commands.

Your modem tried to connect at a speed that the serial port cannot interpret. Reset your initial speed to the next lowest standard bps rate: 19200, 9600, or 2400.

You can connect to entries that require Terminal mode only through the Remote Access Phone Book. This feature is not supported by the Remote Access APIs.

This error does not occur in Windows for Workgroups. Redial, and type your password when prompted.

Windows is probably very low on resources. Close some applications, and redial.

This error can occur if you have configured Remote Access to use the wrong communications port. If this is the case, reconfigure Remote Access for the correct port. See Reconfiguring Remote Access.

This error can also occur if another application, such as Windows Terminal, is using your Remote Access port. If this is the case, close the application and redial.

Another application, such as Windows Terminal, may using your Remote Access port. Close the application and redial.

If another application is not using your Remote Access port, your computer hardware, such as the serial port card, may have failed. Contact the manufacturer.

Another application, such as Windows Terminal, may be using your Remote Access port. Close the application and redial.

If another application is not using your Remote Access port, your computer hardware, such as the serial port card, may have failed. Contact the manufacturer.

If the error persists, maybe the third-party serial port and COM driver do not support all Remote Access functions. Contact the manufacturer.

Make sure the workstation service is running in Windows for Workgroups, not MS-DOS.
If the problem persists, reinstall the Remote Access Service.

Your X.25 connection has returned an error. Ask your X.25 provider to interpret the diagnostic information provided.

Too many asynchronous errors occurred on your phone line during authentication. Try again. If the problem persists, lower your bps rate, and disable any modem features that may be set. See "Setting Modem Features" and "Modem Idiosyncrasies" in the Phone Book online help.

Lower the modem's initial speed (bits per second), and redial. For instructions about lowering the initial speed, see "Setting Modem Features" in online Help.

Ask your system administrator to reactivate your account.

Try changing your password again. If you still get this message, report it to your system administrator.

Make sure that your ISDN line is plugged in correctly, make sure that the terminating resistors are installed correctly (see the documentation for your ISDN card), and then redial. If you still get this error, contact DigiBoard Customer Service or your ISDN telephone company.

All of the available ISDN channels are busy. Hang up one call and redial.