asynchronous communication

A form of data transmission in which information is sent and received at irregular intervals, one character at a time. Because data is received at irregular intervals, the receiving modem must be signaled to let it know when the data bits of a character begin and end. This is done by means of start and stop bits.

backup domain controller

A server in a domain that keeps and uses a copy of the domain's user accounts database to validate logon requests.

baud rate

The speed at which a modem communicates. The term *baud rate* often refers to bits per second, but that definition is not completely accurate. Baud rate refers to the number of times the condition of the line changes. This is equal to bits per second only if each signal corresponds to one bit of transmitted data.

Modems must operate at the same baud rate in order to communicate with each other. If the baud rate of one modem is set higher than that of the other, the faster modem usually alters its baud rate to match that of the slower modem.

bits per second (bps)

The number of bits transmitted every second. A character is made up of 8 bits. In asynchronous communication, each character is preceded by a start bit and terminates with a stop bit. So for each character, 10 bits are transmitted. For example, if a modem communicates at 2400 bits per second (bps), then 240 characters are sent every second.

bytes received

The number of characters received since the connection was established.

bytes transmitted

The number of characters transmitted since the connection was established.

callback number

The number that a RAS server uses to call back a user. This number can be preset by the administrator or specified by the user at the time of each call, depending on how the administrator configured the user's callback status. The callback number should be the number of the phone line to which the user's modem is connected.

callback security

A form of network security in which a RAS server calls a user back at a preset number after the user has made an initial connection and has been authenticated.

calling back

The RAS server has determined that the user has a valid Windows NT user account, remote access permission, and callback permission. The RAS server is now calling the user back.

CCITT

The Consultative Committee on Telephone and Telegraph, which created a set of recommendations for standardizing modem design and operations.

communication port

A port on computer equipment that enables asynchronous communication of one byte at a time. Also called a serial port.

communication settings

Operating parameters, such as bps and modem type, that apply to serial ports on the computer.

connected, user authenticated

A telephone connection has been established and the user has entered a correct user name and password. If the user has callback permission and has requested callback, the connection is followed by the calling-back phase.

If the calling-back phase is followed by a waiting-for-call phase, then the server was unable to reach the user at the specified number. The user may have supplied an inaccurate callback number (in the case of set-by-caller callback), or an unauthorized attempt to access the network may be underway (in the case of preset-to callback).

connected, authenticating user

A telephone connection has been established. The user may be trying to prove security clearance, or may be idle. If you get this condition followed by the waiting-for-call phase, then the user was unable to provide a correct username and/or password. If this phase is repeated, followed by the waiting-for-call phase, an unauthorized attempt to access the network may be underway.

CRC errors

Errors caused by the failure of a cyclic redundancy check. A CRC error indicates that one or more characters in the data packet received were found garbled on arrival.

data-overrun error

The sending computer is transmitting characters faster than the receiving computer can accommodate. If this problem persists, reduce the bps rate.

DCE

Data communications equipment (for example, a modem).

device driver

A program that enables a computer system to communicate with a device, such as a modem, network interface card, or printer. Device drivers normally load automatically when a computer is started, and thereafter run invisibly. Without serial port drivers, Dial-Up Networking cannot use a modem to connect to a network.

DTE

Data terminal equipment or microcomputer port.

error detection

A technique for detecting when data is lost during transmission. This enables the software to recover lost data by asking the transmitting computer to retransmit the data.

framing error

A framing error is said to have occurred when an asynchronous character is received with an invalid start or stop bit.

hardware failure

An unknown error has occurred. The modem or serial port may be damaged.

incorrect modem response

The modem has responded with an unknown error. You may be using a modem that is not supported by Dial-Up Networking, or your modem configuration file may be corrupted. If you are using an unsupported modem type, see Dial-Up Networking online help, and contact your modem manufacturer for further help. If you are using a supported modem, re-install Dial-Up Networking.

interactive dialog

A dialog requiring a response from the user. Intermediary device such as a security host require such a dialog as an added layer of security between the client and the remote access server. Such dialogs expect the user to type an access code or a username and password on the remote access Terminal screen.

intermediary device

A hardware device other than a modem or X.25 PAD, located between a client and the remote access server. This device is typically a switch or security host and requires either a static or interactive dialog between the client and itself.

internal error

An internal software error has occurred. Restart Dial-Up Networking or restart your computer.

IPX

A network protocol native to NetWare.

ISDN network

An integrated services digital network (ISDN) offering a much faster communication speed than the telephone line. While a phone line typically communicates at 9600 bits per second, an ISDN communicates at 64 or 128 kilobits per second.

line nonoperational

The modem and/or serial port is not working. Make sure your modem has been turned on and is properly connected to the serial port.

local computer

Your computer. For example, running a program locally means running the program on your computer, as opposed to running it from a network server.

member server

A server that has a copy of the Windows NT user accounts database. When users try to access its resources, the member server will use its copy of the database to verify user privileges. However, a member server does not validate logon requests.

modem

A device that allows computer information to be transmitted and received over a telephone line. The transmitting modem translates digital computer data into analog signals that can be carried on a phone line. The receiving modem translates the analog signals back to digital form.

modem compression

A technique used to reduce the number of characters transmitted without losing data content. The transmitting modem compresses the data and the receiving computer or modem decompresses the data back to its original state.

modem not responding

The modem is not responding. Make sure that the modem has been turned on and is properly connected to the serial port.

MNP4

Microcom Networking Protocol. MNP4 (levels 2 and 3 are inclusive) allows modems to automatically retransmit corrupted data, assuring 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 software compression at the same time.

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

NetBEUI

NetBEUI is network protocol native to Microsoft Networking. This protocol is the Microsoft implementation of the NetBIOS standard.

no modem errors

No errors have been detected on the modem. The modem is operating normally.

null modem

Special cabling that eliminates the modem's need for asynchronous communications between two computers over short distances. A null modem cable emulates modem communication.

Phonebook

A file that associates names with telephone numbers, COM ports, and bps rates. The main Dial-Up Networking screen, through which you connect to the network.

Phonebook entry

A record in the Dial-Up Networking Phonebook that associates a name with a telephone number, COM port, and bps.

port

A physical device for passing data in and out of a computer. A modem is connected to one of a computer's serial ports. Serial communication ports are known as COM ports because they are distinguished by the logical device names COM1, COM2, and so on.

PPP

The Point to Point Protocol (PPP) is a standard set of protocols for wide-area network links. PPP is independent of the LAN protocols used.

preset-to callback

A form of security in which a RAS server verifies users by calling them back at numbers supplied by the network administrator at the time user privileges are granted. A preset callback number can only be changed by the network administrator. This ensures that no one can borrow a user's password and connect to the server from a location other than the user's normal one.

primary domain controller

A server at which the master copy of the domain's user accounts database is maintained. The primary domain controller also validates logon requests.

PSTN

Public Switched Telephone Network. This refers to standard analog telephone lines, available worldwide.

pulse dialing

A form of dialing that enters a phone number by means of pulse frequencies. The user usually hears a series of clicking sounds when dialing. Old-fashioned rotary dial phones use pulse dialing.

quiet answer

A telephone-answering protocol in which incoming calls are answered with silence instead of a tone signal. Some telephone-switching systems use quiet answering. These switching systems expect the caller to provide another phone number, code, or extension after the quiet answer.

Dial-Up Networking

The client side of Remote Access Service (RAS). A Microsoft Windows NT product that connects to Windows NT networks from long or short distances, using modems and telephone lines, X.25 networks, or ISDN networks instead of direct network-cable connections.

RAS server

Any Windows NT-based server configured to run the Remote Access Service.

Remote Access Service

A Microsoft service that connects to Windows NT networks from long or short distances, using modems and telephone lines, X.25 networks, or ISDN networks instead of direct network cable connections.

remote LAN

The local area network that you connect to through a telephone line.

result strings

Modem responses. The MODEM.INF file can have two types of responses, global and private.

rotary dialing

A form of dialing that enters a phone number by means of pulse frequencies. The user hears a series of clicking sounds when dialing. Older rotary dial phones use pulse dialing.

RS-232 cable

A cable that complies with the Electronic Industry Association (EIA) standard for wires that connect a modem to a computer communications interface.

serial port

A computer port that enables asynchronous transmission of data characters one bit at a time. Also called a communication or COM port.

set-by-caller callback

A form of callback in which the user supplies the telephone number that the server uses for callback. This setting spares the user any long-distance telephone charges.

SLIP

Serial Line Internet Protocol (SLIP) is a protocol for wide-area network links. This is an older standard; the Windows NT RAS server does not support SLIP clients.

static dialog

A scripted dialog between the client computer and an intermediary device. This kind of dialog requires no response from the user.

TCP/IP

The Transmission Control Protocol/Internet Protocol (TCP/IP) is a networking protocol that provides communication across interconnected networks.

time-out error

A condition where an expected character is not received in time. When this condition occurs, the software assumes that the data has been lost and requests that it be resent.

touch-tone dialing

A form of dialing that uses multiple-tone signaling. The user hears a series of tones (beeps) when dialing. Push-button telephones usually use touch-tone dialing.

UART

Universal asynchronous receiver transmitter. A UART is an integrated circuit (silicon chip) that is commonly used in microcomputers to provide asynchronous communications. The UART does parallel-to-serial conversion of data to be transmitted and serial-to-parallel conversion of data received.

V.21

Data transmission standard at 300 bps. This standard is used primarily outside of the United States. (Transmissions at 300 bps within the United States primarily use the BELL 103 standard).

V.22

Data transmission standard at 1200 bps. This standard is also used primarily outside of the United States. (Transmissions at 1200 bps within the United States primarily use the BELL 212A standard).

V.22bis

Data transmission standard at 2400 bps. V.22bis is the international standard for 2400 bps, and is used both inside and outside the United States.

V.23

Split data transmission standard, operating at 1200 bps in one direction and 75 bps in the reverse direction.

V.29

Data transmission standard at 9600 bps that defines a half-duplex (one-way) modulation technique.

V.32

Data transmission standard for 9600 bps communications today, but V.32 defines a full-duplex (two-way) modulation technique. It is a full modem standard, and also includes forward error correcting and negotiation standards. This is generally considered *the* standard for high-speed modems today.

Some manufacturers have created modems that can use both their own proprietary high speed standard and the V.32 standard, for compatibility with their older non-V.32 modems. These modems are referred to as *dual personality* modems. The Hayes Ultra and U. S. Robotics HST Dual Standard are examples.

V.32bis

High speed standard. V.32bis operates at 14,400 bps and, like V.32, is a full-duplex method.

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, though on the average, data is compressed at a ratio of 2:1.

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

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

Waiting for Call

Dial-Up Networking has put the modem in Listen mode and is waiting for incoming calls. The modem is operating normally.

Workstation service

A program that Windows NT must run to allow a computer to access the network.

X.25 Smart card

A hardware card with a PAD embedded in it. To the personal computer, a smart card looks like several communications ports, but it acts like a modem.