What Is the Remote Access Service?

The Remote Access Service (RAS) lets workstations at remote sites access network servers transparently, as though they were physically connected to the network. Dial-Up Networking is the client version of Windows NT RAS. Remote access connections can be established over public telephone lines, X.25 networks, ISDN networks, or PPTP connections.

Remote Access Setup

The Remote Access Setup program lets you install the RAS drivers, select ports for RAS to use, and select how each port will be used (for dialing out, receiving calls, or both). If you choose to receive calls, you may choose to give callers access to the entire network or restrict access to the RAS server.

If Windows NT RAS is upgraded to version 4.0, then the modems that are already installed and configured are treated as modem.inf modems, as indicated in the **Remote Access Setup** dialog box as **Type Modem (modem.inf)**. Any new modems installed after an upgrade or on a new Windows NT installation are added as **Type Modem (unimodem)**. To add a new modem port to RAS configuration, the modem must first be added by clicking **Add** and then clicking **Install Modem**.

Click this	To do this
Add	Make a port available to RAS and install a modem or X.25 PAD for the port.
Remove	Make a port unavailable to RAS.
Configure	Change the RAS settings for the port, such as the attached device or the intended usage (dialing out only, receiving calls only, or both).
Clone	Copy the same modem setup from one port to another.
Network	Configure RAS server-wide settings. Set network access to entire network or RAS computer only. Select and configure network protocols the RAS server will support. Select network protocols the computer will use for dial out (client) connections. Set authentication and data encryption options.
Continue	Proceed to the next step in Setup when you have finished with this dialog.
Cancel	Leave the Setup program.

Add RAS Device

- To add a port for RAS, select a port from the list box, and click **OK**.

  Ports not in the list cannot be installed with Remote Access Setup. You must install them before running Remote Access Setup, using the manufacturer's installation program. For further information, see the manufacturer's documentation.
- To have RAS setup automatically detect your modem on the specified port, click **Install Modem**.
- To install an X.25 PAD for the specified port, click **Install X.25 PAD.**

RAS Server NetBEUI Configuration

Specify the level of access you want to grant all users who dial in to this computer using the NetBEUI protocol.

Allow remote NetBEUI clients to access

Entire network	Grants users permission to access resources on the network.
This computer only	Grants users permission to access only the resources on this computer.

Configure Port Usage

Configure the specified port to be used as a client (dial out), as a server (receive calls), or both.

To configure a port

1 For the specified port and device, in the **Port Usage** box, specify how the port is to be used: dial out only, receive calls only, or both. RAS must be started before calls can be received on a port.

2 Click **OK** when you are finished configuring the port.

Modem Settings

These options apply when the port is being used for receiving calls. For dialing out, set these parameters for each entry using Dial-Up Networking.

Setting	Function
Enable modem speaker	Turns on phone sounds when dialing in.
Enable hardware flow control	Enables RTS/CTS handshaking between the modem and computer. This feature increases the speed and reliability of operations because the receiver can stop data flow if it falls too far behind. When hardware flow control is not enabled, you run the risk of an overrun error.
Enable error control	Enables error checking on blocks of data through cyclic redundancy checks (CRCs). Modem error control increases efficiency by eliminating start and stop bits.
Enable modem compression	Compresses the modem-to-modem data stream, reducing the number of bytes transmitted and therefore reduces the transmission time. The reduction achieved depends on the amount of redundancy in the transmitted data.

Network Configuration

Select and configure the protocols to use on the LAN. Network protocol configuration applies to all RAS operations for all RAS-enabled ports.

The RAS computer may access a LAN as a client or as a server. You must select the LAN protocols RAS will use in each role. A RAS computer's role is determined when you specify how RAS-enabled ports will be used.

Dial out Protocols

Select the protocols to use when dialing out to a remote access server. If you do not select a protocol in the Dial Out Protocols box, you will be unable to select that protocol later when you configure a phone book entry for dialing out.

If no ports are configured for dial out, the **Dial out Protocols** box appears dimmed.

Server Settings

Select the protocols the RAS computer can use for servicing remote clients.

You must also configure parameters for each protocol the RAS server will support. See Help in each configuration dialog box for more information.

If no ports are configured to receive calls, the **Server Settings** box will not appear in the **Network**

Configuration dialog box.

Encryption Settings

Select the **Allow any authentication including clear text** option to permit connection using any authentication requested by the client (MS-CHAP, SPAP, PAP). This option is useful if you have RAS clients using different client software.

Select the **Require encrypted authentication** option to permit connection using any authentication requested by the client except PAP. This option requires encrypted passwords from all clients.

Select the **Require Microsoft encrypted authentication** option to permit connection using MS-CHAP authentication only. You can also select the **Require data encryption** check box to ensure that all data sent over the wire is encrypted. Windows NT RAS provides data encryption using the RSA Data Security Incorporated RC4 algorithm.

Enable Multilink

Dial-Up Networking Multilink combines multiple physical links into a logical "bundle." This aggregate link increases your bandwidth. The most common use is bundling ISDN channels, but you can also bundle two or more modems or a modem and an ISDN line. To use Multilink, both the clients and servers must have Multilink enabled.

Select the **Enable Multilink** check box to use Multilink functionality.

Note: This check box only applies to Windows NT Server computers.

RAS Server TCP/IP Configuration

Use this dialog to specify the level of access for RAS TCP/IP clients and to specify the IP addresses for assignment to RAS clients.

Allow remote TCP/IP clients to access

Entire network	Grants users permission to access resources on the network.
This computer only	Grants users permission to access only the resources on this computer.

Use DHCP to assign remote TCP/IP client addresses

RAS servers can obtain IP addresses for remote clients from a dynamic host configuration protocol (DHCP) server. DHCP servers provide static and dynamic IP address allocation on a large network. You should select this option if a DHCP server is available.

Use static address pool

If a DHCP server is not available, a range of IP addresses can be given to a RAS server for assignment to clients. The range must be valid for the subnet the RAS server is in. Type the beginning and ending addresses of the range in the appropriate box. You must assign at least two IP addresses--one address is for a remote client and one address is assigned to the network adapter on the RAS server.

You can exclude addresses within the range given to the RAS server by completing the **From** and **To** addresses and then clicking **Add**. Remove excluded ranges by selecting the range to exclude and then clicking **Remove**.

Allow remote clients to request a predetermined IP address

RAS servers can allow clients to request a specific address. Clients specify the address by entry in Dial-Up Networking.

RAS Server IPX Configuration

Use this dialog to specify the level of access for RAS IPX clients and to specify an IPX network number assignment method for RAS clients.

The RAS server provides clients connecting to an IPX network with an IPX network number and must act as their SAP agent. Use this dialog box to specify how the RAS server provides IPX net numbers to clients and whether the RAS server should also provide access to the network (act as an IPX router for RAS clients only).

Allow remote IPX clients to access

Entire network	Grants users permission to access resources on the network.
This computer only	Grants users permission to access only the resources on this computer.

Allocate network numbers automatically

An IPX network number not currently in use is determined by the RAS server and assigned to the RAS client.

Allocate network numbers

Ranges of IPX network numbers can be given to a RAS server for assignment to clients. Allocated IPX address pools are useful if you want to identify RAS clients on the network by number.

Provide the beginning network number in the **From** box. RAS automatically determines the number of available ports and calculates the end number.

Assign same network number to all IPX clients

Select this check box to assign the same network number to all IPX clients. This will reduce the size of RIP announcements on the network. If this box is selected, only one network number is added to your routing table for all active RAS clients. If this box is not selected, a network number is added to your routing table for each active RAS client.

Allow remote clients to request IPX node number

Select this check box to allow the remote client to request its own IPX node number rather than use the node number provided by the RAS server. Allowing remote clients to specify their own node number is a potential security threat to your network. Choosing their own node number allows a client to impersonate a previously connected client and access network resources accessed by the other client.

Install X.25 PAD

Use this dialog box to add an X.25 port to RAS.
- Specify a port name.
- Specify an X.25 PAD and click **OK**.

If you do not see the PAD name you want in the **Choose X.25 PAD Name** box, you can edit the PAD names in PAD.INF. For more information, see the section on X.25 PAD Support in the *Windows NT Server Networking Supplement*..

Detect Modem

RAS detected more than one modem.   Please select the correct modem from the list.