Administrator's Guide

Citrix ICA DOS Clients

16-Bit DOS Client Version 4.00
32-Bit DOS Client Version 4.21

Citrix Systems, Inc.

Contents

Before you Begin

Who Should Use This Manual

This manual is for system administrators responsible for installing, configuring, deploying, and maintaining Citrix ICA Clients for DOS (also called Citrix ICA DOS Clients). This manual assumes knowledge of:

- Citrix MetaFrame Application Server for Windows or Citrix *WINFRAME*
- The operating system on the client computer (DOS Version 3.3 or higher)
- Installation, operation, and maintenance of network and asynchronous communication hardware, including serial ports, modems, and device adapters

How to Use this Guide

To get the most out of the *Citrix ICA Client Administrator's Guide*, review the table of contents to familiarize yourself with the topics discussed.

This guide contains the following sections:

Chapter	Contents
Chapter 1, "Introduction to the Citrix ICA DOS Client"	Gives a detailed list of features.
Chapter 2, "Deploying the Citrix ICA DOS Client"	Describes how to install and update the Citrix ICA DOS Client.
Chapter 3, "Configuring the Citrix ICA DOS Client"	Describes how to configure connection properties and device mappings for the Citrix ICA DOS Client.

Conventions

The following conventional terms, text formats, and symbols are used throughout the printed documentation:

Convention	Meaning
Bold	Indicates boxes and buttons, column headings, command-line commands and options, icons, dialog box titles, lists, menu names, tabs, and menu commands.
Italic	Indicates a placeholder for information or parameters that you must provide. For example, if the procedure asks you to type *filename*, you must type the actual name of a file. Italic also indicates new terms and the titles of other books.

Convention	Meaning
ALL UPPERCASE	Represents keyboard keys (for example, CTRL, ENTER, F2).
[brackets]	Encloses optional items in syntax statements. For example, [*password*] indicates that you can choose to type a *password* with the command. Type only the information within the brackets, not the brackets themselves.
...(ellipsis)	Indicates a command element can be repeated.
Monospace	Represents examples of screen text or entries that you can type at the command line or initialization files.
▶	Indicates a procedure with sequential steps.
•	Indicates a procedure with only one step.
▪	Indicates a list of related information, not procedural steps.

The Citrix ICA Clients allow users to connect to MetaFrame servers and *WINFRAME* servers. When describing a feature or procedure common to MetaFrame and *WINFRAME* servers, this manual uses the term *Citrix server.* When describing a feature unique to a MetaFrame or *WINFRAME* server, this manual specifies either a MetaFrame or *WINFRAME* server.

Finding More Information

This manual contains conceptual information and installation and configuration steps for the Citrix ICA Win16 Client. For additional information, consult the following manuals:

- ▪ The *Citrix ICA Client Quick Reference Cards* give users step-by-step instructions for using the Citrix ICA Clients to connect to Citrix servers and run published applications.
- ▪ The *Citrix ICA Client Administrator's Guides* for the ICA Win32, Win16, Java, Web, Macintosh, and UNIX Clients.
- ▪ For instructions on installing, configuring, and maintaining your Citrix servers, see the documentation included in your MetaFrame or *WINFRAME* package.

This book and other Citrix documentation is available in Adobe PDF format in the documentation directory of your MetaFrame or *WINFRAME* CD-ROM. Using the Adobe Acrobat Reader, you can view and search the documentation electronically or print it for easy reference. To download the Adobe Acrobat Reader for free, please go to Adobe's Web site at http:\\www.adobe.com.

Important Always consult the Readme.txt files for MetaFrame, *WINFRAME*, and the Citrix ICA Clients for any last-minute updates, installation instructions, and corrections to the documentation.

Citrix on the World Wide Web

Citrix offers online Technical Support Services at http://www.citrix.com that include the following:

- Downloadable Citrix ICA Clients, available at http://download.citrix.com
- A Frequently Asked Questions page with answers to the most common technical issues
- An FTP server containing the latest service packs and hotfixes for download
- An Online Knowledge Base containing an extensive collection of technical articles, troubleshooting tips, and white papers
- Interactive online support forums

Year 2000 Readiness

For a detailed description of the Year 2000 Readiness of Citrix products, see our Web site at http://www.citrix.com/misc/y2000.htm.

C H A P T E R   1

Introduction to the Citrix
ICA DOS Client

Overview

The Citrix ICA Client for DOS allows you to use a computer running DOS to connect to a Citrix server. There are two versions of the ICA DOS Client, 16-bit and 32-bit. The 32-bit version provides more features than the 16-bit version, while requiring less conventional memory. The Citrix ICA DOS Client has the following features:

- Client device mapping
- Sound support
- Dialing prefixes
- Encryption
- Client Auto Update
- Low bandwidth requirements
- Disk Caching and Data Compression
- Application publishing support

Client Device Mapping

The Citrix ICA Clients support client device mapping. *Client device mapping* allows a remote application running on the Citrix server to access printers, disk drives, and COM port devices attached to the local client computer.

- Client drive mapping
- Client printer mapping
- Client COM port mapping

Client Drive Mapping

Client drive mapping allows drive letters on the Citrix server to be redirected to drives that exist on the client computer; for example, drive H in a Citrix user session can be mapped to drive C of the local computer running the Citrix ICA Client. These mappings can be used by the File Manager or Explorer and your applications just like any other network mappings.

Client Printer Mapping

Client printer mapping lets the user access printers attached to the client device during ICA sessions. When a Citrix server is configured to allow client printer mapping, applications running remotely on the Citrix server can print to local printers. With the ICA DOS Client, you can manually map local client printers during your ICA sessions. Once you have manually mapped a client printer during an ICA session on a specific Citrix server, the printer becomes available for use during that and all subsequent ICA sessions on that server.

Client COM Port Mapping

The ICA Client COM port redirector gives Citrix ICA Client users access to virtually any peripheral that requires a COM port for operations. COM port mapping is similar to printer and drive mapping, and allows users to access a COM port on the client computer as if it were connected to the Citrix server.

Sound Support

The Citrix ICA Clients include sound support. ICA Client sound support allows a client computer with a Sound Blaster 16-compatible sound card to play sound files on the server and present them on the local client computer's sound system. Client computers can play 8- or 16-bit mono or stereo Windows .wav files at 8, 11.025, 2.25, and 44.1 KHz. Audio support can be configured to use one of three different sound compression schemes. Each scheme provides different sound quality and bandwidth usage.

Dialing Prefixes

The Citrix ICA Clients support *dialing prefixes.* Dialing prefixes allow a user to easily add special dialing codes as required by different telephone systems for dialing out and accessing a remote Citrix server.

The most common use of dialing prefixes is defining different dialing methods for different telephone systems. For example, a user with a laptop computer may need to dial 9 to get an outside line at the office and need to dial 1 plus the area code when working on the road or at home. In this case, the user may want to define a dialing prefix named Office for use when dialing out from the office and a prefix called Remote for use when dialing in from the road or at home.

Encryption

The Citrix ICA Clients support encryption using Citrix SecureICA Services. This server extension (available in North American and Global versions) adds advanced RSA RC5 encryption to the Citrix server and clients. See the SecureICA Services documentation for more information.

Client Auto Update

The Client Auto Update feature allows administrators to update ICA Client installations from a central location instead of having to manually install new client versions on each client computer. New versions of Citrix ICA Clients are stored in a central *Client Update Database.* The latest versions of the ICA Client software are downloaded to ICA Client devices when users connect to the Citrix server.

ICA Client Auto Update works with all transport types supported by ICA (TCP/IP, IPX, NetBIOS, and serial).

ICA Client Auto Update supports the following features:

- Automatically detects older client files
- Transparently copies new files over any ICA connection
- Provides full administrative control of client update options for each client
- Updates clients from a single database on a network share point
- Safely restores older client versions when needed

Application Publishing Support

You can create a remote application entry to connect to a Citrix server or to a published application that contains all of the information necessary to launch a user session or an application. All the user needs to do is double-click on the application entry's icon on the desktop.

Low Bandwidth Requirements

The highly efficient Citrix ICA protocol typically uses 20K of bandwidth for each session.

Disk Caching and Data Compression

Disk caching and data compression can increase performance over low speed asynchronous and WAN connections. *Disk caching* stores commonly used portions of your screen (such as icons and bitmaps) locally, increasing performance by avoiding retransmission of locally cached data. *Data compression* reduces the amount of data sent over the communications link to the client computer.

C H A P T E R   2

Deploying the Citrix ICA DOS Client

Overview

This chapter explains how to install and update the Citrix ICA DOS Client. Topics covered in this chapter include:

- System requirements
- Installation methods
- Creating client installation diskettes
- Installing the Citrix ICA DOS Client
- Understanding Client Auto Update
- Configuring the Client Update Database

System Requirements

Computers running the ICA DOS Client should meet the following requirements:

- Standard PC architecture, 80286 processor or greater (80386 or greater for use with Citrix SecureICA Services) (16-bit DOS Client).
- Standard PC architecture, 80386 processor or greater (32-bit DOS Client).
- 2MB RAM or greater (16- and 32-bit DOS Clients).
- Extended (XMS) memory required; place a `DEVICE=HIMEM.SYS` statement in Config.sys (16-bit DOS Client).
- Microsoft mouse or 100% compatible mouse and installed mouse driver (16- and 32-bit DOS Client).
- Sound Blaster 16-compatible sound card for sound support. The BLASTER environment variable must be set to the proper values (16- and 32-bit DOS Client).
- High-density 3.5-inch diskette drive and available hard disk space (16- and 32-bit DOS Client).

- VGA or SVGA video adapter with color monitor (16- and 32-bit DOS Client).

- DOS Version 4.0 or higher (16- and 32-bit DOS Client).

- For serial connections to the Citrix server, an internal modem or serial port and external modem using a 16550 Universal Asynchronous Receiver/Transmitter (UART) is recommended. An intelligent async adapter using BIOS INT 14H, Digi International INT 14H, or Equinox SuperSerial INT 14H support is recommended for baud rates over 19,200 bps (16- and 32-bit DOS Client).

- For network connections to the Citrix server, a network interface card (NIC) and the appropriate network transport software are required. (16- and 32-bit DOS Client) Supported network transports are:

  - NetBIOS

  - IPX

  - SPX

  - TCP/IP

TCP/IP Support

The following TCP/IP stacks are supported directly by the ICA 16-bit DOS Client:

- FTP Software DOS TCP/IP Stack

- Novell LAN Workplace for DOS TCP/IP Stack

- Microsoft LAN Manager 2.1 DOS TCP/IP Stack

The following TCP/IP stacks are supported directly by the ICA 32-bit DOS Client:

- FTP Software DOS TCP/IP Stack

Support for the Microsoft LAN Manager 2.1 DOS TCP/IP Stack and the Novell LAN Workplace for DOS TCP/IP Stack is now provided by a Virtual Socket Library TSR. The 32-bit DOS Client automatically loads the appropriate VSL component prior to installation.

Use a native stack whenever possible to reduce memory overhead. Vsl.com is not required for native stacks. The following DOS Client stacks are supported by the Vsl.com TSR in the both the 16-bit and 32-bit DOS Clients:

- Beame and Whiteside TCP/IP
- FTP PC/TCP OnNet Version 1.1
- FTP PC/TCP for DOS Versions 2.3 and 3.0
- Microsoft LAN Manager TCP/IP Versions 2.1 and 2.2
- Novell LAN Workplace for DOS Version 4.1
- Sun Microsystems PC-NFS for DOS Version 5.1
- WRQ Reflection TCP/IP for DOS Version 2.20

Installation Methods

You can install the Citrix ICA DOS Client from:

- The %SystemRoot%\System32\Clients\Ica directory on your Citrix server machine
- The MetaFrame or *WINFRAME* CD-ROM
- Client installation diskettes created with the ICA Client Creator utility

For more information, see the "Creating Client Installation Diskettes" and "Installing the Citrix ICA DOS Client" sections later in this chapter.

Creating Client Installation Diskettes

Use the ICA Client Creator to create client installation disks.

▶ **To create Citrix ICA Client installation disks**

1. Have the required number of 3.5-inch disks on hand. On the **Start** menu, point to **Program**, then point to **MetaFrame Tools**. Click **ICA Client Creator**. The **Make Installation Disk Set** dialog box appears.

2. In the **Network Client or Server** list, click the desired Citrix ICA Client. Select the **Format Disks** check box to format the disks when creating the installation media. Click **OK**.

3. Follow the directions on screen.

Installing the Citrix ICA DOS Client

▶ **To install the Citrix ICA Client for DOS**

1. Make sure the client computer is properly configured and cabled. Make sure any previous installations of the Citrix ICA Client are not running.

2. If you are installing from diskette, insert the ICA DOS Client diskette in drive A (or other appropriate drive) of the client machine. Type **a:install** and press ENTER. You are prompted for a destination directory (the default value is C:\Wfclient). Specify the directory where you want to install the Citrix ICA Client for DOS or press ENTER to select the default directory. The installation procedure copies the ICA DOS Client program and data files to the specified directory.

   If you are installing from the CD-ROM, insert the CD-ROM into the client's CD-ROM drive. From the command line, and type d:\icaclnt\icados\disk1 for the 16-bit DOS Client, or d:\icaclnt\icados32\disk1 for the 32-bit DOS Client. Run **install.exe**.

   If you are installing from a Citrix server, go to %SystemRoot%\System32\Clients\Ica\Icados\disks\disk1, and run**install.exe**. Specify the directory where you want to install the Citrix ICA Client for DOS or press ENTER to select the default directory. The installation procedure copies the ICA DOS Client program and data files to the specified directory.

3. Before using the ICA DOS Client, make sure your mouse driver is loaded and active.

4. If you are using a LAN, WAN, or remote node connection to the server, make sure your client PC is properly configured and cabled. If the client computer is already usable as a network workstation and can access network resources, all the required hardware and software components are present and operational.

   If you are using a serial connection to the server, make sure that the cable you use is a null modem cable.

   If you are using a Dial-In connection to the Citrix server, make sure that the modems at each location are supported modems and that the cables used are modem cables. Citrix servers support any modem supported by the Windows NT Remote Access Service. The most current list of modems supported can be found in the pull-down modem list in the ICA Client for DOS **Device Setup** menu.

5. Change to the directory containing the ICA DOS Client (for example, **cd \wfclient**) and type **wfclient** to start the ICA Client for DOS program.

Understanding Client Auto Update

Use the Client Auto Update feature to store new versions of Citrix ICA Clients. The ICA Client software is stored in a client update database and downloaded to ICA Client devices when users connect to the Citrix server.

ICA Client Auto Update works with all transport types supported by ICA (TCP/IP, IPX, NetBIOS, and serial).

ICA Client Auto Update supports the following features:

- Automatically detects older client files
- Transparently copies new files over any ICA connection
- Provides full administrative control of client update options for each client
- Updates clients from a single database on a network share point
- Safely restores older client versions when needed

Note Client Auto Update can update client files to newer versions of the same product and model. For example, it can be used to update the Citrix ICA Win32 Client. It cannot be used to update a Citrix ICA Win16 Client to the Citrix ICA Win32 Client.

The Citrix ICA Client Update Process

Each Citrix ICA Client has a product number, model number, and version number. The ICA Client product and model numbers uniquely identify the Citrix ICA Client.

Product/Model number	Platform
1/1	Citrix ICA Client for DOS
1/2	Citrix ICA Client for Win16
1/3	Citrix ICA Client for Win32

The version number is the release number of the Citrix ICA Client.

The process of updating Citrix ICA Clients with new versions uses the standard ICA protocol.

- The Citrix server queries the ICA Client when the user logs on. If the Citrix server detects that the ICA Client is up-to-date, it continues the log on transparently.

- If an update is needed, by default, the Citrix server informs the user of the new client and asks to perform the update. You can specify that the update occurs without informing the user and without allowing the user to cancel the update.

- By default, the user can choose to wait for the client files to finish downloading or to download the files in the background and continue working. Users connecting to the Citrix server with a modem get better performance waiting for the client update to complete. You can force the client update to complete before allowing the user to continue.

- During the client update, new Citrix ICA Client files are copied to the ICA Client device. The administrator can force the user to disconnect and complete the update before continuing the session. The user must log on to the Citrix server again to continue working.

- After disconnecting from the server, the Citrix ICA Client completes the update. All client programs must be closed before the Citrix ICA Client can be updated.

- If the user does not close all client programs before clicking **OK**, a message appears informing the user of the open program. When all programs are closed, the Citrix ICA Client can complete the update.

- In case of a problem, the existing ICA Client files are saved to a folder called Backup in the Citrix ICA Client directory.

Configuring the Client Update Database

During Citrix server setup, a client update database is created that contains the Citrix ICA Win32, Win16, and DOS Clients. By default, the update database is configured to update older client versions.

You can configure a client update database on each Citrix server in a server farm, or a single client update database on a central network share. With a single database, you can configure updates once for all Citrix servers.

Use the ICA Client Update Configuration utility to:

- Create a new client update database
- Set a default client update database
- Configure database properties
- Add Citrix ICA Clients to the update database
- Remove Citrix ICA Clients from the update database
- Configure client update options

▶ **To start the ICA Client Update Configuration utility**

1. From a MetaFrame server: Click the **Start** button, point to **Programs**, and then point to **MetaFrame Tools**. Click **ICA Client Update Conifguration.**

   From a *WINFRAME* server: In the **Administrative Tools** folder, double-click **ICA Client Update Conifguration.**

2. The ICA Client Update Configuration window appears:
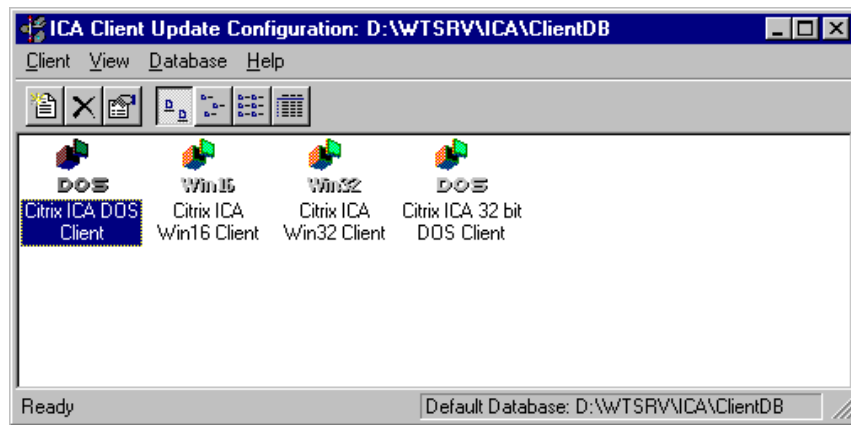
The location of the current client update database is shown in the status bar. This is the database the Citrix server uses to update Citrix ICA Clients. The main window shows the ICA Clients currently configured in the database.

Creating a New Client Update Database

The default location of the client update database is %SystemRoot%\Ica\Clientdb. A new database can be created on the local server hard drive or on a shared network drive. Multiple Citrix servers can be configured to use one shared client update database.

▶ **To create a new client update database**

1. From the **Database** menu, click **New**. The **Path for the new Client Update Database** dialog box appears:
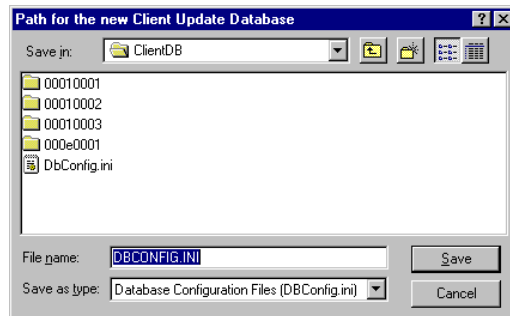
2. Enter a path for the new client update database and click **OK**.

   A new client update database is created in the specified folder and the new database is opened.

Setting a Default Database

An existing client update database can be used by multiple Citrix servers. If the client update database is on a shared network drive, use the ICA Client Update Configuration utility to configure all Citrix servers to use the shared database.

▶ **To specify a new default database for one or more Citrix servers**

1. From the **Database** menu, click **Open**. The **Open Existing Database** dialog box appears:
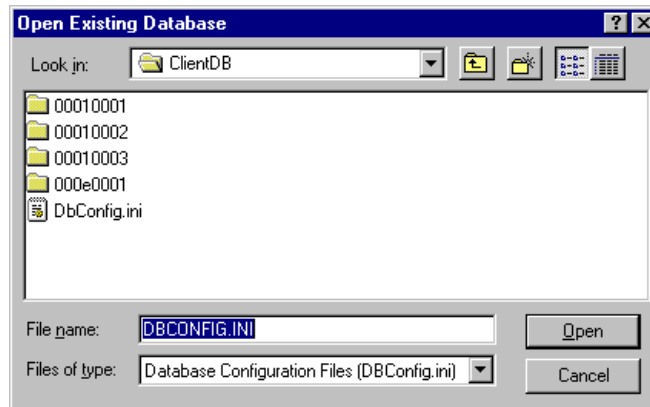
2. Specify the path to the database that will be used as the default.

3. Click **OK**.

4. From the **Database** menu, click **Set Default**. The **Set Default Database** dialog box appears:
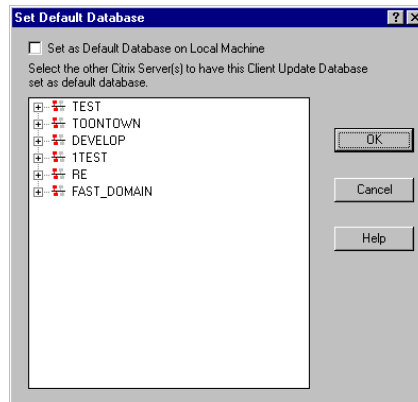
Select the **Set as Default Database on Local Machine** check box to make the currently opened database the default database.

Tip You can also set other Citrix servers to use the currently open database as the default database. Double-click on a domain name to view the servers in that domain. Click on a server to set its default database to the currently open database. You can select multiple servers by holding down the CTRL key.

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5. Click **OK**.

Configuring the Properties of the Client Update Database

Use the **Database Properties** dialog box to configure the current client update database.

▶ **To configure the properties of the Client Update Database**

- On the **Database** menu, click **Properties**. The **Database Properties** dialog box appears:
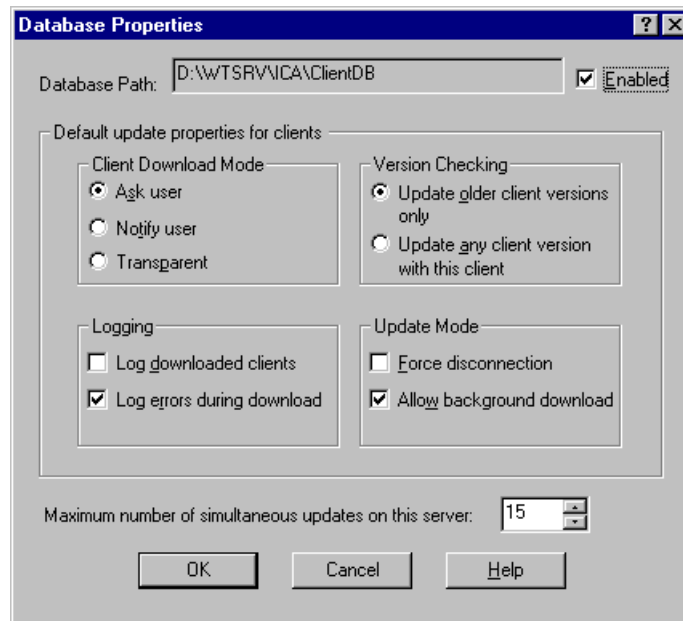
Clear the **Enabled** check box to disable this client update database. Citrix ICA Clients are not updated if the database is not enabled.

The **Default update properties for clients** options specify the default behavior for Citrix ICA Clients added to the update database. If you change the properties of an individual client in the database, those properties will override the default properties.

- In **Client Download Mode**, click **Ask user** to allow the user to choose to accept or postpone the client update. Click **Notify user** to notify the user of the client update and require the update. Click **Transparent** to update the user's ICA Client without notifying the user.

- In **Version Checking**, click **Update older client versions only** to update client versions that are older than the new client. Click **Update any client version** to update all client versions to this version of the client. Use this option to force an older client to replace a newer client.

- In **Update Mode**, select the **Force Disconnection** check box to require users to disconnect and complete the update. By default, users can choose whether to disconnect and complete the client update after the new client files are downloaded. Clear the **Allow background download** check box to force users to wait for all client files to download before continuing. By default, users can choose whether to download new client files in the background and continue working.

- Select the **Log Downloaded Clients** check box to write an event in the event log when a Citrix ICA Client is updated.

  By default, errors that occur during a client update are written to the event log. Clear the **Log Errors During Download** check box to turn off error logging.

- Specify the maximum number of simultaneous updates per Citrix server. When the specified number of client updates are occurring, new client connections are not updated. When the number of client updates drops below the specified maximum, new client connections are updated.

Adding and Removing Citrix ICA Clients

Use the ICA Client Update Configuration utility to add Citrix ICA Clients to and remove them from the database.

▶ **To add a new Citrix ICA Client to the client update database**

1. From the **Client** menu, click **New**. The **Description** dialog box appears:

   Enter the path to the client installation file in **Client Installation File** or click **Browse**.

   The client installation file, Update.ini, is located in %SystemRoot%\System32\Clients\Ica\Ica32\disks\disk1.

2. After you specify the client installation file, the **Client Name**, **Product**, **Model**, **Version**, and icon of the selected client appear.

   You can also modify the **Comment** used for this client. After making any changes, click **Next** to continue.

3. The **Update Options** dialog box appears.

   The **Update Options** dialog box controls how the client update occurs. These options for each client override the settings specified for the database as a whole on the **Database Properties** dialog box.

   In **Client Download Mode**, click **Ask user** to give the user the option to accept or postpone the client update. Click **Notify user** to notify the user of the client update and require the update. Click **Transparent** to update the user's ICA Client without notifying the user.

In **Version Checking**, click **Update older client versions only** to update client versions that are older than the new client. Click **Update any client version** to update all client versions to this version of the client. Use this option to force an older client to replace a newer client.

By default, users can choose to disconnect and complete the client update after the new client files are downloaded. Select the **Force Disconnection** check box to require users to disconnect and complete the update.

By default, users can choose to download new client files in the background and continue working. Clear the **Allow Background Download** check box to force users to wait for all client files to download before continuing.

You can optionally enter a message in **Display this message on the user terminal**. The user can view this message at the start of the client update by clicking **More Info** in the dialog box that appears.

Click **Next** to continue.

4. The **Event Logging** dialog box appears.

   Auto Client Update uses the Windows NT event log to report status messages and update errors.

   - Select the **Log Downloaded Clients** check box to write an event in the event log when a Citrix ICA Client is updated.

   - By default, errors that occur during a client update are written to the event log. Clear the **Log Errors During Download** check box to turn off error logging.

   Click **Next** to continue.

5. The **Enable Client** dialog box appears.

   The client update database can contain multiple clients with the same product, model, and version information. However, only one client of each product, model, and version can be enabled. The enabled client is the one used for the auto client update.

   Select the **Enable** check box to update Citrix ICA Clients to this client. All other clients of the same product, model, and version are disabled.

6. Click **Finish** to copy the Citrix ICA Client installation files into the client update database.

▶ **To remove a Citrix ICA Client from the database**

1. In **Client Update Configuration**, click on the Citrix ICA Client to remove.

2. From the **Client** menu, click **Delete**. A dialog box displays the selected client information and asks for confirmation. Click **OK** to remove the client.

   The Citrix ICA Client is removed from the database.

Changing the Properties of a Citrix ICA Client in the Database

Use the **Properties** dialog box to maintain the configuration of a Citrix ICA Client in the client update database. The **Properties** dialog box contains four tabs: the **Description** tab, the **Update Options** tab, the **Event Log** tab, and the **Client Files** tab.

▶ **To modify the properties of a Citrix ICA Client in the database**

1. In **ICA Client Update Configuration,** click on the Citrix ICA Client to modify.

2. From the **Client** menu, click **Properties**. The **Properties** dialog box appears.

   - The **Description** tab displays information about the selected client. The **Product**, **Model**, **Version**, and **Client Name** are display-only fields.

     Type a new description of the client in **Comment**.

     Select the **Enabled** check box to update Citrix ICA Clients to this client. All other clients of the same product, model, and version are disabled.

     The client update database can contain multiple clients with the same product, model, and version information. However, only one client of each product, model, and version can be enabled. The enabled client is the one used for the auto client update.

   - The **Update Options** tab configures how the client is updated.

     In **Client Download Mode**, click **Ask user** to give the user the option to accept or postpone the client update. Click **Notify user** to notify the user of the client update and require the update. Click **Transparent** to update the user's ICA Client without notifying the user.

     In **Version Checking**, click **Update older client versions only** to update client versions that are older than the new client. Click **Update any client version with this client** to update all client versions to this version of the client. Use this option to force an older client to replace a newer client.

     By default, users can choose whether to disconnect and complete the client update after the new client files are downloaded. Select the **Force Disconnection** check box to require users to disconnect and complete the update.

     By default, users can choose to whether to download new client files in the background and continue working. Clear the **Allow Background Download** check box to force users to wait for all client files to download before continuing.

     You can optionally enter a message in **Display this message on the user terminal**. The user can view this message at the start of the client update by clicking **More Info** in the dialog box that appears.

- The **Event Logging** tab configures the events to log for the client update.

  Auto Client Update uses the Windows NT event log to report status messages and update errors.

  Select the **Log Downloaded Clients** check box to write an event in the event log when a Citrix ICA Client is updated.

  By default, errors that occur during a client update are written to the event log. Clear the **Log Errors During Download** check box to turn off error logging.

- The **Client Files** tab displays the individual files for the ICA Client.

  The client update database stores the **File Name**, **Group**, **Flags**, **FileSize**, and **File CRC** for each file of a Citrix ICA Client.

C H A P T E R   3

Configuring the Citrix ICA DOS Client

Overview

This chapter describes how to configure the ICA DOS Client. Topics in this chapter include:

- Mapping client devices
- Mapping client drives
- Mapping client printers
- Mapping client COM ports
- Mapping client audio
- Connection types
- Configuring connections to Citrix servers and published applications

Mapping Client Devices

The Citrix ICA Client supports mapping devices on client computers so they are available to the user from within an ICA session. You do not need a network or RAS connection to use ICA client device mapping. Users can:

- Transparently access local drives, printers, and COM ports
- Hear audio (system sounds and .wav files) played from the ICA session

During logon, the ICA Client informs the Citrix server of the available client drives, COM ports, and LPT ports. By default, client drives are mapped to server drive letters and server print queues are created for Windows ICA Client printers so they appear to be directly connected to the Citrix server. These mappings are available only for the current user during the current session. They are deleted when the user logs off and recreated the next time the user logs on.

You can use the **net use** and **change client** commands to map client devices not automatically mapped at logon. See the *MetaFrame Administrator's Guide* or the *WINFRAME System Guide* for information about the **change client** command.

Turning Off Client Device Mappings

On a MetaFrame server, specify client device mapping options in the **Client Settings** dialog box in **Terminal Server Connection Configuration**. On a *WINFRAME* server, specify client device mapping options in the **Client Settings** dialog box in **Citrix Connection Configuration**.
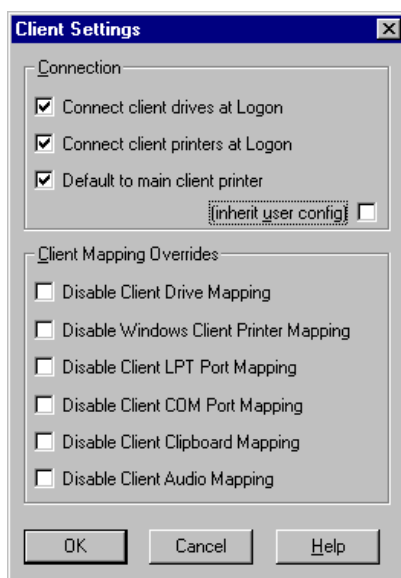
The **Connection** options control whether drives and printers are mapped to client drives and printers. If these options are cleared, the devices are still available but must be mapped to drive letters and port names manually.

Use the **Client Mapping Overrides** to disable client device connections.

Option	Description
Connect client drives at Logon	If this option is checked, the client computer's drives are automatically mapped at logon.
Connect client printers at Logon	If this option is checked, the client computer's printers are automatically mapped at logon. This option applies only to Windows clients and maps only printers already configured in Print Manager on the client computer. DOS printers must be manually mapped.

Option	Description
Default to main client printer	If this option is checked, the user's default client printer is configured as the default printer for the ICA session.
(inherit user config)	If this option is checked, the per-user settings in User Manager override these settings.

Mapping Client Drives

Client drive mapping allows drive letters on the Citrix server to be redirected to drives that exist on the client computer; for example: drive H in a Citrix user session can be mapped to drive C of the local computer running the Citrix ICA Client.

Client drive mapping is transparently built into the standard Citrix device redirection facilities. These mappings can be used by the File Manager or Explorer and your applications just like any other network mappings.

The Citrix server can be configured during installation to automatically map client drives to a given set of drive letters. The default installation mapping maps drive letters assigned to client drives starting with V and works backwards, assigning a drive letter to each fixed disk and CD-ROM. (Floppy drives are assigned their existing drive letters.) This method yields the following drive mappings in a client session:

Client drive letter	Is accessed by the Citrix server as:
A	A
B	B
C	V
D	U

The Citrix server can be configured so that the server drive letters do not conflict with the client drive letters; in this case the Citrix server drive letters are changed to higher drive letters. For example, changing Citrix server drives C to M and D to N allows client computers to access their C and D drives directly. This method yields the following drive mappings in a client session:

Client drive letter	Is accessed by the Citrix server as:
A	A
B	B
C	C
D	D

The drive letter used to replace the Citrix server drive C is defined during Setup. All other fixed disk and CD-ROM drive letters are replaced with sequential drive letters (for example; C->M, D->N, E->O). These drive letters must not conflict with any existing network drive mappings. If a network drive is mapped to the same drive letter as a Citrix server drive letter, the network drive mapping is not valid.

When an ICA Client computer connects to a Citrix server, client mappings are re-established unless automatic client device mapping is disabled. Automatic client device mapping can be configured for ICA connections and users. In the **Client Settings** dialog box, you can enable or disable automatic client device mapping for an ICA connection. The **User Configuration** dialog box in User Manager for Domains allows you to enable or disable automatic client device mapping for a user.

Mapping Client Printers

Client printer mapping lets you access printers attached to your client device during ICA sessions. When a Citrix server is configured to allow client printer mapping, applications running remotely on the Citrix server can print to local printers. With the ICA DOS Client, you can manually map local client printers during your ICA sessions. Once you have manually mapped a client printer during an ICA session on a specific Citrix server, the printer becomes available for use during that and all subsequent ICA sessions on that server.

After connecting to a Citrix server, you can manually map your local client printers using the following procedures.

16-bit DOS Client Printer Mapping

▶ **To map a client printer on a MetaFrame 1.0 server**

1. Start the ICA DOS Client and log on to the Citrix server.
2. In the remote session window, double-click **My Computer** and then double-click **Printers**.
3. Double-click **Add Printer**. Select **Network printer server** and click **Next**.
4. In the **Shared Printers** field, double-click **Client Network** and then double-click **Client**.
5. Double-click the LPT port to which the local printer is attached.
6. If the server does not have a suitable printer driver installed, you are prompted to install the driver on the client device. Click **OK**.

7. In the **Manufacturer** field, select your printer's manufacturer. In the **Printers** field, select the model of your printer. Click **OK**.

8. If you are prompted for the location of the printer driver, click **OK** and enter the location of the files in the **Copy files from** field. Click **OK**.

9. Click **Finish**.

Tip In order for the client printer to be available to other users on the client device who log on to the server under different user names, the printer permissions must be set to allow the other users access. Use the **Printer Permissions** dialog box under the **Security** menu in Print Manager to set printer permissions.

▶ **To map a client printer on a *WINFRAME* 1.7 server**

1. Start the ICA DOS Client and log on to the Citrix server.

2. In the remote session window, double-click **Print Manager** in the **Main** program group.

3. From the **Printer** menu, click **Create Printer**. The **Create Printer** dialog box appears.

4. Enter the name of your printer in the **Printer Name** field. The name should be in the format *clientname*#LPT*x*, where *clientname* is the name of your ICA client device and *x* is the client device LPT port to which the printer is attached. In the **Driver** field, select the printer driver. In the **Print to** field, select the client device's LPT port (for example CLIENT\LPT1:). Click **OK**.

5. Depending upon the type of printer, a series of dialog boxes may appear to configure the printer. After you enter the information, the printer appears as an entry in **Print Manager**.

32-bit DOS Client Printer Mapping

▶ **To map a client printer on a MetaFrame 1.8 or *WINFRAME* 1.8 server**

If you are using the 32-bit DOS Client to connect to a MetaFrame 1.8 or *WINFRAME* 1.8 server, you can create a new client printer during your ICA session using **ICA Client Printer Configuration**.

1. Start the ICA Client and log on to the Citrix server.

   On a MetaFrame server, click **Start** on the taskbar, point to **Programs**, then **MetaFrame Tools**. Click **ICA Client Printer Configuration**.

   On a *WINFRAME* server, double-click the **Administrative Tools** folder, then double-click **ICA Client Printer Configuration**.

2. From the **Printer** menu, click **New**. Follow the steps in the **Add a new printer wizard** to add a new client printer.

To manually add a client printer using the **Add Printer** wizard, you must first enable printer port mapping.

1. From the **Options** menu in the ICA 32-bit DOS Client **Main** menu screen, select **Preferences**.

2. In the **Preferences** dialog box, de-select the **Allow printer queue mapping** checkbox, and select the **Allow printer port mapping** checkbox.

    You can now use the **Add printer** wizard when connected to a MetaFrame 1.8 or *WINFRAME* 1.8 server.

Important If you are using the 32-bit DOS Client to connect to an earlier version of MetaFrame you must use **Add Printer** to manually map a client printer. If you are using the 32-bit DOS Client to connect to an earlier version of *WINFRAME*, you must use **Create Printer** to manually map a client printer.

Viewing Mapped Client Printers

▶ **To view mapped client printers when connected to a MetaFrame server**

*   While connected to the MetaFrame server, double-click **My Computer** on the remote desktop and then double-click **Printers** to display the **Printers** screen.

    A printer created using **ICA Client Printer Configuration** appears as follows:

The **Printers** screen displays the local printers mapped to the ICA session. The name of the printer takes the form *clientname#printername,* where *clientname* is the unique name given to the client computer during ICA Client setup and *printername* is the name you gave the printer in **ICA Client Printer Configuration**. In this example ICA session, a client machine called "Snoop40" has access to its local printer named "Laser." This name cannot be changed and is used to locate the specific printer. Because the Windows printer name is used and not the port name, printers can share a printer port without conflict.

A printer mapped using the **Add printer** wizard appear as follows:

The **Printers** screen displays the local printers you have mapped to the ICA session. The name of the printer takes the form *clientname*#LPT*x*:, where *clientname* is the unique name given to the client device during ICA Client setup and *x* is the number of the LPT port on the client device to which the printer is connected. In this example, a client device called ICA3 has access to its local printer named ICA3#LPT1:.

▶ **To view mapped client printers when connected to a *WINFRAME* server**

- While connected to the *WINFRAME* server, double-click **Print Manager** in the **Main** program group to display **Print Manager**.

  A printer created using **ICA Client Printer Configuration** appears as follows:

Print Manager displays the local printers mapped to the ICA session. The name of the printer takes the form *clientname#printername,* where *clientname* is the unique name given to the client computer during ICA Client setup and *printername* is the name you gave the printer in **ICA Client Printer Configuration**. In this example ICA session, a client machine called "Snoop40" has access to its local printer named "Laser." This name cannot be changed and is used to locate the specific printer. Because the Windows printer name is used and not the port name, printers can share a printer port without conflict.
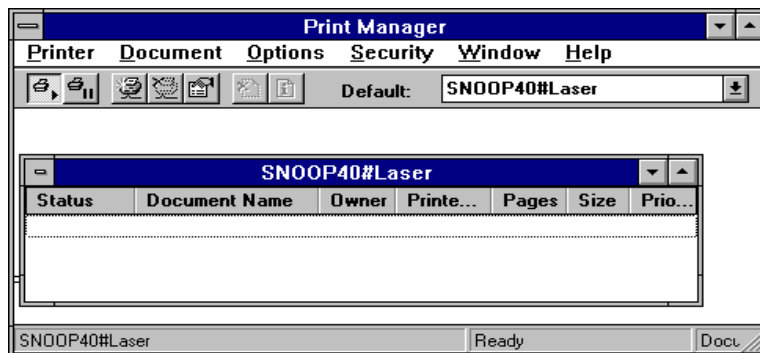
A printer mapped using the **Add printer** wizard appear as follows:

The **Printers** screen displays the local printers you have mapped to the ICA session. The name of the printer takes the form *clientname*#LPT*x*:, where *clientname* is the unique name given to the client device during ICA Client setup and *x* is the number of the LPT port on the client device to which the printer is connected. In this example, a client device called ICA3 has access to its local printer named ICA3#LPT1:.
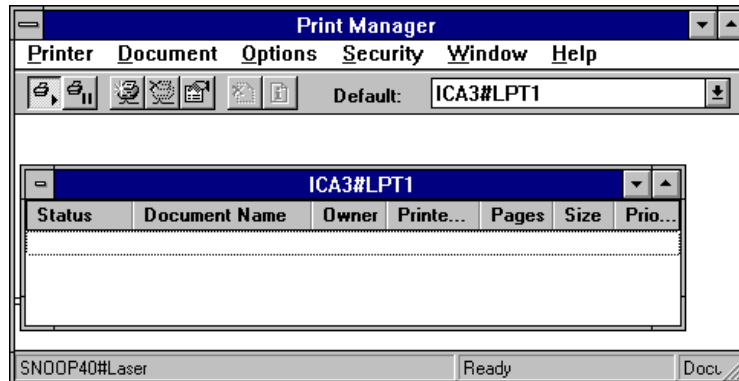
Mapping Client COM Ports

Client COM port mapping allows devices attached to the client computer's COM ports to be used during ICA sessions on a Citrix server. These mappings can be used just like any other network mappings.

▶ **To map a client COM port**

1. Start the ICA Client and log on to the Citrix server.

2. Start a DOS command prompt: on *WINFRAME*, double-click **Command Prompt** in the **Main** program group. On MetaFrame, click **Start** and then click **Programs**, then click **Command Prompt**.

3. At the prompt, type **net use com*x*: \\client\com*z*:** where *x* is the number of the COM port on the server (ports 1 through 9 are available for mapping) and *z* is the number of the client COM port you want to map. Press ENTER.

4. To confirm the operation, type **net use** at the prompt. The list that appears contains mapped drives, LPT ports, and mapped COM ports.

   To use this COM port in a session on a Citrix server, install your device to the mapped name. For example, if you map COM1 on the client to COM5 on the server, install your COM port device on COM5 during the session on the server. Use this mapped COM port as you would a COM port on the client computer.

Mapping Client Audio

Client audio mapping enables applications running on the Citrix server to play sounds through a Sound Blaster Pro-compatible sound device installed on the client computer. The Citrix server can control the amount of bandwidth used by client audio mapping.

Client Audio Mapping can cause excessive load on the Citrix server and network. The higher the audio quality, the more bandwidth is required to transfer the audio data. Higher quality audio also uses more server CPU to process. Three different audio quality settings are available, or client audio mapping can be disabled completely.

Important Audio quality is set on a per-connection basis, but users can also set it on the client computer. If the client and server audio quality settings are different, the lower of the two settings is used.

▶ **To configure ICA Client audio on a MetaFrame server**

1. Click **ICA Settings** in Terminal Server Connection Configuration.
2. Select an option from the **Client Audio Quality** drop-down list.

▶ **To configure ICA Client audio on a *WINFRAME* server**

1. Click **ICA Settings** in Citrix Connection Configuration.
2. Select an option from the **Client Audio Quality** drop-down list.

   The **Client Audio Quality** options are:

   - **High**. This setting is recommended only for connections where bandwidth is plentiful and sound quality is important. This setting allows clients to play a sound file at its native data rate. Sounds at the highest quality level require about 1.3Mbps of bandwidth to play clearly. Transmitting this amount of data can result in increased CPU utilization and network congestion.

   - **Medium**. This setting is recommended for most LAN-based connections. This setting causes any sounds sent to the client to be compressed to a maximum of 64Kbps. This compression results in a moderate decrease in the quality of the sound played on the client computer. The host CPU utilization will decrease compared with the uncompressed version due to the reduction in the amount of data being sent across the wire.

Connection Types

Using the Citrix ICA DOS Client, users can connect to a Citrix server in the following ways:

- By dialing into a Citrix server using the modem installed on the client PC. This method uses a serial connection to a Citrix server.
- Over a direct serial cable connection to a Citrix server. This method uses a serial connection to a Citrix server.
- Over the local or wide-area network connection between the client PC and the Citrix server. This method uses one of the following network protocols:
  - TCP/IP
  - IPX
  - SPX
  - NetBIOS

Configuring Connections to Citrix Servers and Published Applications

This section describes how to configure connections to Citrix server and published applications.

- Configuring ICA DOS Client preferences
- Configuring Server location
- Configuring Hotkeys, keyboard layout, and client identification
- Configuring Event logging
- Configuring Entry properties

Configuring ICA DOS Client Preferences

▶ **To set the ICA DOS Client preferences**

● From the **Options** menu on the ICA DOS Client Main menu screen , click **Preferences**. The **Preferences** menu appears:
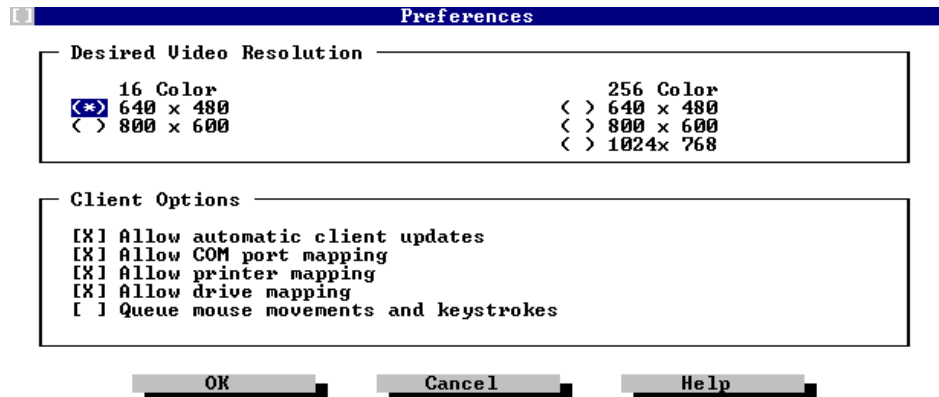
The settings on this menu are:

▪ **Desired Video Resolution**. Use these settings to specify what video resolution to use when connected to the Citrix server. Select the desired screen resolution in either 16 or 256 color mode.

> **Note** The screen resolution you select must be compatible with the display hardware of the client computer and must be less than or equal to the screen resolution of the client computer. If you specify 256 colors, your display adapter must support 256 colors at the specified screen resolution. You may need to install a device driver for your display adapter or increase video memory on your display adapter to properly support 256 colors. The video device driver must be VESA 1.0-compatible in order to support 256 colors.

▪ **Client Options**. This group of settings allows you to selectively load ICA DOS Client services. Loading only those services that you need lowers the memory required to run the ICA DOS Client. Deselect those services that you will not use:

  ▪ **Allow automatic client updates**. Check this box to allow the Citrix server to update your Citrix ICA DOS Client when newer versions become available. When the Citrix server detects an outdated client version, it notifies the user that a newer version is available and replaces the ICA DOS Client files.

  ▪ **Allow COM port mapping**. Client COM port mapping allows devices attached to the client computer's COM ports to be used during ICA sessions on a Citrix server.

- **Allow printer mapping**. Client printer mapping provides users with the ability to access printers attached to their client computers during ICA sessions. When a Citrix server is configured to allow client printer mapping, applications running remotely on the Citrix server can print to local printers. If you are using the 32-bit DOS Client, there are two additional settings: **Allow printer queue mapping** and **Allow printer port mapping**. See the section "32-bit DOS Client Printer Mapping" for more information on how to use these settings.

- **Allow drive mapping**. Client drive mapping makes the local disk drives of client computers available to users when they connect to the Citrix server. Accessing a local drive on a client computer requires no manual configuration by the user of the client computer. When a Citrix server is configured to allow client drive mapping, applications running remotely on the Citrix server can access disk drives on the client computer. Users can access their locally stored files, work with them during their ICA sessions, and then save them again either on a local drive or on a drive on the Citrix server.

- **Queue mouse movements and keystrokes**. Queuing causes the client to send mouse and keyboard updates less frequently to the Citrix server. Check this option to reduce the number of network packets sent from the ICA DOS Client to the Citrix server. Leaving this option unchecked makes the session more responsive to keyboard and mouse movements.

Configuring Server Location

▶ **To configure server location**

- From the **Options** menu on the ICA DOS Client Main menu screen, click **Server Location**. The **Server Location Options** dialog box appears:
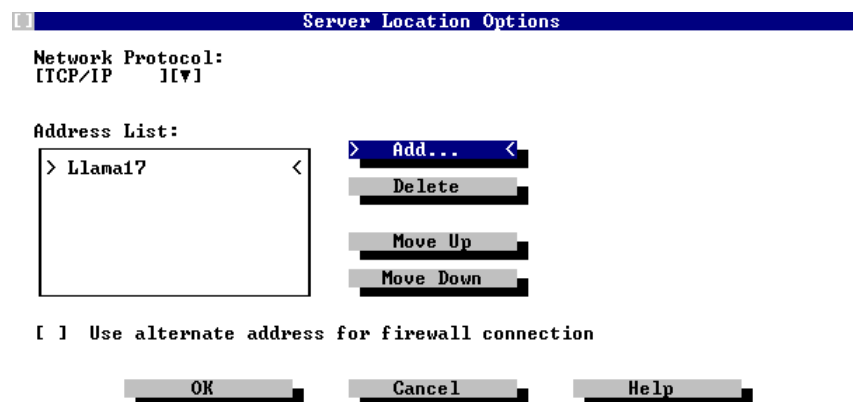
Server location (also called the *ICA Browser* or server browsing) provides a method for a user at a network-connected Citrix ICA Client computer to view a list of all Citrix servers on the network that have ICA connections configured for that network protocol (IPX/SPX, TCP/IP, or NetBIOS) and a list of all published applications. Each network protocol maintains a separate and independent Master ICA browser.

Tip Set a specific server address for the Citrix server that functions as the Master ICA Browser when your network configuration uses routers or gateways, or to eliminate broadcasts on your network.

The settings on this dialog box are:

- **Network Protocol**. Specify the network protocol for which you want to configure server location.
- **Address List**. Displays the list of Citrix servers used in server location for the selected protocol, or **Auto-Locate** if the list server is located automatically.
- **Add**. Adds a Citrix server to the address list for the selected protocol. A dialog box appears prompting for the address of the Citrix server. Enter the server address and click **OK**.
- **Delete**. Deletes the selected Citrix server from the address list.
- **Move Up**. Moves the selected Citrix server higher in the address list. This makes that server more available for server location.
- **Move Down**. Moves the selected Citrix server lower in the address list. This makes that server less available for server location.
- **Use alternate address for firewall connection**. This checkbox only appears if **TCP/IP** is specified in the **Network Protocol** field and a Citrix server address is entered in the **Address List**. Use this feature to browse for Citrix servers or published applications that are inside a firewall from a client machine that is outside the firewall. The firewall and the Citrix servers must be configured to map the internal network addresses of Citrix servers to external Internet addresses. Enter the external Internet address in the **Address List**.

Configuring Disk Caching

Disk caching stores commonly used graphical objects such as icons in a local disk cache on the client computer to reduce the amount of data sent over the connection. Caching commonly used bitmaps tends to increase performance, especially for bandwidth-limited connections.

▶ **To configure disk caching**

- From the **Options** menu, click **Disk Cache**. The **Disk Cache** dialog box appears.

The settings on the **Disk Cache** dialog box are:

- **Disk cache directory**. Specifies the directory to use for the cached image data
- **Amount of disk space to use**. Configures the maximum amount of disk space to use for caching
- **The minimum size bitmap that will be cached**. The size of the smallest bitmap that will be cached to disk
- **Clear Cache Now.** Click this button to remove all cached data from the directory

> **Tip** Do not clear the cache if there are any ICA connections open. Verfiy that all ICA connections are closed before clearing the cache.

Configuring Hotkeys, Keyboard Layout, and Client Identification

▶ **To configure hotkeys, keyboard layout, and client identification**

- From the **Options** menu, click **Miscellaneous**. The **Miscellaneous Options** dialog box appears:

```
                        Miscellaneous Options
 ┌─ Hotkeys ────────────────────────────────────────────────┐
 │                                                           │
 │  Main Menu:     [Shift  ][▼] [F1     ][▼]                 │
 │  Exit Program:  [Shift  ][▼] [F3     ][▼]                 │
 └───────────────────────────────────────────────────────────┘

 ┌─ Keyboard ───────────────────────────────────────────────┐
 │                                                           │
 │  Layout:     [<User Profile>          ][▼]                │
 │  Type:       [<DEFAULT>               ][▼]                │
 └───────────────────────────────────────────────────────────┘

 ┌─ Client Identification ──────────────────────────────────┐
 │                                                           │
 │  Client Name:    [Snoop40            ]                    │
 │  Client Serial#: [                   ]                    │
 └───────────────────────────────────────────────────────────┘

          ▄▄▄ OK ▄▄▄         ▄▄▄ Cancel ▄▄▄        ▄▄▄ Help ▄▄▄
```

The settings on this menu are:

- **Hotkeys**. This selection box allows you to change the hotkeys used by the ICA Client for DOS. Each hotkey is composed of a shift state and a key value. You can disable a hotkey by selecting (none) for the key value.
    - The **Main Menu** hotkey is used to switch to the **Main** menu from an active session. The default value for the **Main Menu** hotkey is SHIFT+F1.
    - The **Exit Program** hotkey is used to close the ICA DOS Client from an active session and to place the session in the disconnected state. The default value for the **Exit Program** hotkey is SHIFT+F3.

- **Keyboard**. This selection box allows you to supply the Citrix server with information about the client computer's keyboard. Specify values for the following fields:

  - **Layout**. This field allows you to specify the keyboard layout of your client computer. The Citrix server uses the keyboard layout information to configure your user session for your keyboard layout. The default value of **User Profile** uses the keyboard layout specified in your user profile. If the keyboard layout of your client computer does not match the one specified in your user profile, select a keyboard layout from the list.

  - **Type**. This field allows you to specify the keyboard type of your client computer. The Citrix server uses the keyboard type information to configure your user session for your keyboard type. Use **Default** for most English and European keyboards. When used with a Japanese keyboard, **Default** auto-detects the keyboard type.

- **Client Identification**. The settings in this selection box help to identify your client computer to Citrix servers. Specify values for the following fields:

  - **Client Name**. This text box lets you change the client name of your client computer. The Citrix server uses the client name to uniquely identify resources (such as mapped printers, disk drives, and COM ports) associated with a given client computer.

Important   The client name should be unique for each computer running a copy of the Citrix ICA Client. If you do not use unique client names, device mapping and application publishing may not operate correctly.

  - **Client Serial #**. This is the serial number of your ICA Client software. This field is necessary only when you are using the Citrix ICA Client with a product such as *WINFRAME* Host/Terminal, which requires each client to have a Citrix *PC Client Pack* serial number in order to connect to the server. If a serial number is required, you must enter it exactly as it appears on the Serial Number card. The **Client Serial #** field is not used by MetaFrame servers.

Configuring Dialing Prefixes

The most common use of dialing prefixes is defining different dialing methods for different telephone systems. For example, a user with a laptop computer may need to dial 9 to get an outside line at the office but need no prefix when working on the road or at home. In this case, a dialing prefix named Office is defined for dialing out from the office.

> **Important** Dialing prefixes are global - that is, they affect all remote applications that dial out. To use a dialing prefix, you must apply it, which enables it for all subsequent remote connections until you apply another one or disable dialing prefixes.

▶ **To configure dialing prefixes**

- From the **Options** menu on the ICA DOS Client Main menu screen, click **Dialing Prefixes** to display the **Dialing Prefixes** dialog box.

    Use the **Dialing Prefixes** dialog box to create, modify, and delete dialing prefixes. Each prefix has a name used to access the prefix. The text of the currently selected dialing prefix appears in the **Prefix Name** text box, or **No Prefix** if no dialing prefix is active.

    For more information on modifying dialing prefixes, see the online help for this client.

Configuring Event Logging

▶ **To configure event logging**

- From the **Options** menu on the ICA DOS Client Main menu screen, select **Event Logging**. The **Event Logging** page appears.

    From the **Event Logging** page, you can configure the following settings:

    - **Event Log File**: Enter the name of the file to log Citrix ICA Client events to in the **Name** field. The default value is Wfcwin.log in the directory containing the Win16 Client.

    - Select the **Overwrite existing event log** button to cause the event log file to be overwritten with new events when a published application is run.

    - Select the **Append to existing event log** button to keep old events and add new ones to the end of the file.

    - **Log Events**. Use these buttons to select the event categories that you want to log. If no events are selected, no logging takes place.

    Five event categories can be selected for logging:

    - **Connections and Disconnections**. Logs an event whenever the Citrix ICA Client connects and disconnects from a Citrix Server. This category is selected by default.

    - **Errors**. Logs an event whenever an error is encountered by the Citrix ICA Client. This category is selected by default.

    - **Data Transmitted**. Logs an event for each packet of information sent by the Citrix ICA Client to the Citrix server. This is intended primarily for technical support purposes.

- **Data Received**. Logs an event for each packet of information received by the Citrix ICA Client from the Citrix server. This category is intended primarily for technical support purposes.

- **Keyboard and Mouse Data**. Logs an event whenever you press a key on the keyboard or move the mouse. This category is intended for technical support purposes.

Configuring Entry Properties

▶ **To configure entry properties**

- From the **Entry** menu, click **Properties**. The **Entry Properties** dialog box appears

The **Entry Properties** menu is used to maintain information associated with a server entry. There are two versions of the **Entry Properties** menu; one for network connections and one for serial (dial-in async or direct serial) connections.

Network Entry Properties

```
┌──────────────────────── Entry Properties ─────────────────────────┐
│▢                                                                   │
│ Description: [Remote Email                              ]          │
│ Transport:   [TCP/IP - Microsoft                 ][▼]             │
│                                                                    │
│ (*) Server ( ) Published Application:                              │
│  [Phoenix                                                     ]    │
│                                                                    │
│ Username:    [                   ]                                 │
│ Password:    [                   ]                                 │
│ Domain:      [                   ]                                 │
│ Command Line:      [                                    ]          │
│ Working Directory: [                                    ]          │
│                                                                    │
│ [ ]  Use data compression                                         │
│ [X]  Enable Sound                                                 │
│      Quality: [Medium        ][▼]                                 │
│                                                                    │
│ Encryption Level: [Basic                      ][▼]               │
│     ┌─────────────┐    ┌─────────────┐    ┌─────────────┐         │
│     ›     OK     ‹    │   Cancel    │    │    Help     │          │
│     └─────────────┘    └─────────────┘    └─────────────┘         │
└────────────────────────────────────────────────────────────────────┘
```

The fields in the network **Entry Properties** dialog box are:

- **Description**. A description of the server entry that appears in the server list on the **Main** menu. This description can be used on the command line to cause ICA Client for DOS to bypass the **Main** menu and connect to the named entry.

- **Transport**. The transport method used to connect to the server. Press the UP or DOWN keys to display a list of available transport types. The additional setup fields in the lower portion of the screen change depending on the selected transport type.

   The transport types include (network transport types only):

   - IPX. This uses the Novell NetWare IPX LAN protocol. You must have a properly configured NIC and the DOS IPX Workstation support from

Novell installed and active on your client computer. Specify the network address of the NIC in the Citrix server in the **Server** field, or press the DOWN key and select the server or published application from the displayed selection list.

- SPX. This uses the Novell NetWare SPX LAN protocol. You must have a properly configured NIC and the DOS SPX Workstation support from Novell installed and active on your client computer. Specify the network address of the NIC in the Citrix server in the **Server** field, or press the DOWN ARROW key and select the server or published application from the displayed selection list.

Note   If you need to obtain the NIC network address for a Citrix server, log on to the Citrix server as an administrator. Double-click the **Diagnostics** icon in the **Administrative Tools (Common)** group or run Winmsd.exe. Click **Network**. The NIC address appears in the **Address** field of the **Transports** window.

- NETBIOS. This uses the standard NetBIOS LAN interface. You must have a properly configured network interface card (NIC) and load the appropriate NetBIOS drivers to use this transport type. Specify the network name of the Citrix server in the **Server** field, or press the DOWN ARROW key and select the server or published application from the displayed selection list.

- TCP/IP - FTP. This uses the FTP Software, Inc. DOS TCP/IP stack. You must have the FTP Software DOS TCP/IP stack installed and active on your client computer. Specify the TCP/IP address (for example, 128.66.54.10) of the Citrix server in the **Server** field, or press the DOWN ARROW key and select the server or published application from the displayed selection list. This transport type supports both remote node and remote control connections.

- TCP/IP - Novell LAN WorkPlace. This uses the Novell LAN Workplace DOS TCP/IP stack. You must have the Novell LAN Workplace DOS TCP/IP stack installed and active on your client computer. Specify the TCP/IP address (for example, 128.66.54.10) of the Citrix server in the **Server** field, or press the DOWN ARROW key and select the server or published application from the displayed selection list. This transport type supports both remote node and remote control connections.

- TCP/IP - Microsoft. This uses the Microsoft LAN Manager 2.1 DOS TCP/IP stack. You must have the Microsoft LAN Manager DOS TCP/IP stack installed and active on your client computer. Specify the TCP/IP address (for example, 128.66.54.10) of the Citrix server in the **Server** field, or press the DOWN ARROW key and select the server or published application from the displayed selection list. This transport type supports both remote node and remote control connections.

- TCP/IP - VSL. This selection uses technology from JSB Computer Systems, which supports many different DOS TCP/IP stacks. Each stack is supported by a Virtual Socket Library TSR. The correct TSR is loaded by running the Vsl.com program. You must have the appropriate TCP/IP stack installed and active on your client computer and run the Vsl.com TSR program before starting the Citrix ICA DOS Client. Specify the TCP/IP address of the Citrix server in the **Server** field, or press the DOWN ARROW key and select the server or published application from the displayed selection list. The list of DOS TCP/IP stacks supported by Vsl.com can be found in the "System Requirements" section in Chapter 2 of this manual.

- **Server** or **Published Application**. Select **Server** to configure a connection to a Citrix server. A *server* connection allows a user to access the desktop of a Citrix server. The user can run any applications available on the desktop, in any order. Select **Published Application** to configure a connection to a published application. A *published application* is a predefined application and its associated environment (for example, directories and initialization files) that execute on a remote Citrix server.

For	Specify
NetBIOS	The network name of the Citrix server or a server name or published application from the pull-down list.
IPX/SPX	The network name of the Citrix server, a server name or published application from the pull-down list, or the network address of the NIC in the Citrix server.
TCP/IP	The network name of the Citrix server, a server name or published application from the pull-down list, or the TCP/IP address of the Citrix server.

Tip If you need to obtain the network address of the NIC in the Citrix server, log on to the Citrix server as an administrator. Double-click on the **Diagnostics** icon in the **Administrative Tools (Common)** group or run WINMSD.EXE. Click **Network**. The NIC address appears in the **Address** field of the **Transports** window.

- **Username**, **Password**, **Domain**. These fields can be used to automatically log on to the Citrix server once a connection is established. If these fields are not specified, the logon screen appears when the connection to the Citrix server is established.

- **Command Line**, **Working Directory**. These fields can be used to automatically start a specified program once the logon to the Citrix server is successful. (These fields are not used with published application connections.) Enter the command line invocation of the program with any required options and parameters, and the working directory required to execute a program once the connection to the Citrix server is established.

If no program information is specified, the program specified in the user profile is started. Program Manager or Explorer, depending upon whether the connection is to a *WINFRAME* or MetaFrame server, is started if no program is specified in the user profile.

- **Use Data Compression**. Check this box to enable data compression. Data compression reduces the amount of data sent over the connection but consumes a small amount of processor time to perform the compression and decompression. In high-bandwidth LAN environments where bandwidth consumption is not a concern, disabling data compression may give better performance.

- **Enable Sound**. Check this box to enable sound support. Your client computer must have a Sound Blaster 16-compatible sound card installed. The BLASTER environment variable must be set to the proper values. Remote applications will be able to play sounds on your client.

- **Quality**. This field allows you to configure sound presentation quality. Select one of the following values:

  - **High**. This value provides the greatest audio quality but should only be used when bandwidth consumption is not a concern.

  - **Medium**. Using this value results in less bandwidth consumption than when using **High**. Compression of sound data provides greater bandwidth efficiency but reduces sound quality somewhat. This value is recommended for most LAN-based connections.

- **Encryption Level**. Select the level of encryption for the ICA connection. The default level is Basic. Strong encryption using the RC5 algorithm is available with Citrix SecureICA Services. SecureICA Services enables RSA RC5 encryption with 40-, 56-, or 128-bit session keys. The Citrix server must be configured to allow the selected encryption level or greater. For example, if the Citrix server is configured to allow RC5 56-bit connections, the Citrix ICA Client can connect with RC5 56- or 128-bit encryption.

Note RC5 56- and 128-bit encryption levels are only available in North America. Only Basic encryption is available if Citrix SecureICA Services is not installed.

Serial Entry Properties

```
┌──────────────────────── Entry Properties ────────────────────────┐
│ ▐                                                                 │
│ Description: [Dial-In                              ]              │
│ Transport:   [Standard COM Port                  ][▼]            │
│                                                                   │
│ Device: [Sportster 33600 FAX INT PnP             ][▼]  Settings...│
│ Phone Number: [1-954-555-5555                     ]              │
│                                                                   │
│ Username:    [                    ]                               │
│ Password:    [                    ]                               │
│ Domain:      [                    ]                               │
│ Command Line:     [                                      ]       │
│ Working Directory: [                                     ]       │
│                                                                   │
│ [X]  Use data compression                                         │
│ [X]  Enable Sound                                                 │
│      Quality: [Medium          ][▼]                              │
│                                                                   │
│ Encryption Level: [Basic                         ][▼]           │
│       >     OK     <       Cancel             Help               │
└───────────────────────────────────────────────────────────────────┘
```

The fields in the serial **Entry Properties** dialog box are:

- **Description**. A description of the server entry that appears in the server list on the **Main** menu. This description can be used on the command line to cause the ICA DOS Client to bypass the **Main** menu and connect to the named entry.

- **Transport**. The transport method used to connect to the Citrix server. Press the UP or DOWN keys to display a list of available transport types. The additional setup fields in the lower portion of the screen change depending on the selected transport type.

    The transport types include (serial types only):

    - Standard COM Port. This uses the standard DOS serial port interface. Specify the device name (for example, COM1) in the **Device** field.

    - Int 14 - Bios. This uses the BIOS INT 14H serial port interface. Specify the device name (for example, COM1) in the **Device** field.

    - Int 14 - DigiBoard. This uses the Digi International INT 14H serial port interface, which is an extension to the BIOS INT 14H driver that works with Digi International intelligent async adapters. You must load the INT 14H driver supplied by Digi International to use this transport type. Specify the device name (for example, COM3) in the **Device** field.

    - Int 14 - Equinox SuperSerial. This uses the Equinox SuperSerial INT 14H serial port interface, which is an extension to the BIOS INT 14H driver that works with Equinox SuperSerial (SST) intelligent async adapters. You must load the INT 14H driver supplied by Equinox to use this transport type. Specify the device name (for example, COM3) in the **Device** field.

- **Device**. This selection box appears only when a serial transport type is selected and lists serial devices that are configured for use with the ICA DOS Client. Selecting **New Device** from the **Device** pull-down list displays the **Add Device** dialog box, used to create a new device. See "Device Setup Menu" in this chapter for information on using this screen to configure serial devices.

- **Settings**. Clicking this button displays the **Device Settings** menu, used to change the settings for the device specified in the **Device** selection box. See "Device Settings Menu" below for more information on using the **Device Settings** menu.

- **Phone Number**. This field appears only when a serial transport type is selected. Specify the telephone number to be used to connect to the Citrix server. This field is left blank when configuring a direct serial connection using a null modem cable.

- **Username**, **Password**, **Domain**. These fields can be used to automatically log on to the Citrix server once a connection is established. If these fields are not specified, the logon screen appears when the connection to the Citrix server is established.

- **Command Line**, **Working Directory**. These fields can be used to automatically start a specified program once the logon to the Citrix server is successful. Enter the command line invocation of the program with any required options and parameters, and the working directory required to execute a program once the connection to the Citrix server is established.

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Note RC5 56- and 128-bit encryption levels are only available in the United States. Only Basic encryption is available if SecureICA Services is not installed.

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