Administrator's Guide

Citrix ICA Win16 Client

Version 6.0

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 16-bit Windows (also called ICA Win16 Clients). This manual assumes knowledge of:

- The Citrix server to which the ICA clients connect

- The operating system on the client computer (Windows Version 3.1 or greater, Windows for Workgroups 3.11 or greater)

- 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 Win16 Client"	Gives a detailed list of features.
Chapter 2, "Deploying the Citrix ICA Win16 Client"	Describes how to install and update the Citrix ICA Win16 Client.
Chapter 3, "Configuring the Citrix ICA Win16 Client"	Describes how to configure connection properties and device mappings for the Citrix ICA Win16 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.
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 type at the command line or initialization files.
➢	Indicates a procedure with sequential steps.
▪	Indicates a list of related information, not procedural steps.

The Citrix ICA Clients allow users to connect to Citrix servers. When describing a feature or procedure common to all types of MetaFrame and *WINFRAME* servers, this manual uses the term *Citrix server*. When describing a feature unique to a particular MetaFrame or *WINFRAME* server, this manual specifies the appropriate server and version number.

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:

- The online help for the ICA Client you deploy.
- The *Citrix ICA Client Administrator's Guides* for the other ICA clients you deploy.
- For instructions on installing, configuring, and maintaining your Citrix servers, see the documentation included in your Citrix server package.

This book and other Citrix documentation is available in Adobe PDF format in the following locations:

- The documentation directory of your Citrix ICA Client CD-ROM
- The documentation directory of your Citrix server CD-ROM
- The product documentation library at http://www.citrix.com/services/ productdocs.asp.

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 your Citrix server 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:

- PDF versions of the documentation
- 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
- The Citrix Developer Network (CDN) available at http://www.citrix.com/cdn.

  This new, open enrollment membership program provides access to developer toolkits, technical information, and test programs for software and hardware vendors, system integrators, ICA licensees and corporate IT developers who incorporate Citrix server-based computing solutions into their products.

C H A P T E R   1

Introduction to the ICA Win16 Client

1

Overview

When connected to a Citrix server, the Citrix ICA Win16 Client provides additional features that make remote computing just like running applications on a local desktop. The Citrix ICA Win16 Client has the following features:

- Client device mapping
- Client drive mapping
- Client printer mapping
- Client COM port mapping
- Sound support
- Dialing prefixes
- Client Auto Update
- Windows clipboard integration
- Low bandwidth requirements
- SpeedScreen latency reduction
- Disk caching and data compression
- Application publishing support
- Business Recovery
- TCP/IP+HTTP server location
- Multi-session support
- Enhanced resolution and color depth

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. This feature is not available when connecting to MetaFrame for UNIX 1.0 and 1.1 servers.

Client drive mapping for all ICA Clients is transparent. Accessing a local drive on a client computer requires no manual configuration by the user of the 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 on 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 allows a remote application running on the Citrix server to access printers attached to the client computer. Any printers detected when you connect to a Citrix server are automatically added to the Print Manager. Client printers can be browsed and connected to in the same way as network printers. Users who access a Citrix server with the Citrix ICA Client can transparently access their local printers and disk drives (fixed and removable). The drive letters used for drive mapping are configurable and long filenames are supported.

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 a Citrix server.

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 44.1KHz. Audio support can be configured to use one of three different sound compression schemes. Each scheme provides different sound quality and bandwidth usage.This feature is not available when connecting to MetaFrame for UNIX 1.0 and 1.1 servers.

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 can define a dialing prefix named Office for use when dialing out from his office and a prefix called Remote for use when dialing in from the road or at home.

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. MetaFrame for UNIX does not use the Client Update Database. To use the Client Update Database, you must have either a MetaFrame for Windows or *WINFRAME* server in your server farm.

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

Windows Clipboard Integration

Users can cut and paste data between ICA sessions and local applications using the Windows clipboard.

Low Bandwidth Requirements

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

SpeedScreen Latency Reduction

SpeedScreen Latency Reduction is a collective term used to describe functionality that enhances the user's experience on slower network connections. SpeedScreen Latency Reduction functionality includes:

Local Text Echo

This ICA Client option accelerates the display of the input text on the client device.

Mouse Click Feedback

This ICA Client option provides visual feedback for mouse clicks to show that the user's input is being processed.

SpeedScreen latency reduction is not available when connecting to MetaFrame for UNIX 1.0 and 1.1 servers.

Disk Caching and Data Compression

These features 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.

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 the application entry's icon on the desktop.

Business Recovery

The Citrix ICA Client includes the additional intelligence to support multiple server sites (such as a primary and hot backup) with different addresses for the same published application name.

This feature provides consistent connections to published applications in the event of a primary server disruption.

TCP/IP+HTTP Server Location

TCP/IP+HTTP server location allows you to retrieve Citrix server and published application information across network configurations that restrict broadcast and UDP packets.

Multiple-Session Support

The Citrix ICA Win16 Client now supports up to three concurrent ICA sessions.

Enhanced Resolution and Color Depth

The ICA Win16 Client supports higher color depth and larger screen size for an ICA connection. You can configure color depth settings of High (16-bit) an True (24-bit) , and a window size of up to 1600 by 1200 pixels.

C H A P T E R   2

Deploying the ICA Win16 Client

2

Overview

This chapter explains how to install and update the Citrix ICA Win16 Client. Topics covered in this chapter include:

- System requirements
- Installation methods
- Creating client installation diskettes
- Installing the ICA Win16 Client
- Understanding Client Auto Update
- Configuring the Client Update Database

System Requirements

Computers used with the ICA Win16 Client must meet the following requirements:

- Standard PC architecture, 80386 processor or greater
- Windows Version 3.1 or greater (running in enhanced mode), or Windows for Workgroups Version 3.11 or greater
- 8MB RAM or greater
- Microsoft mouse or 100% compatible mouse
- VGA or SVGA video adapter with color monitor
- High-density 3.5-inch diskette drive and available hard disk space
- Sound Blaster 16-compatible sound card for sound support
- 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

- For network connections to the Citrix server, a network interface card (NIC) and the appropriate network transport software are required. Supported network transports are:
    - NetBIOS
    - IPX
    - SPX
- Microsoft Windows for Workgroups TCP/IP-32 (Windows for Workgroups only)
- Any WinSock-compliant TCP/IP stack

Installation Methods

You can install the Citrix ICA Win16 Client from:

- The %SystemRoot%\System32\Clients\Ica directory on your Citrix server machine
- The Citrix ICA Client CD
- Client installation diskettes created with the ICA Client Creator utility
- The ICA Client download site on http://download.citrix.com

For more information, see "Creating Client Installation Diskettes" and "Installing the Citrix ICA Win16 Client" 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.
2. From a MetaFrame server: On the **Start** menu, point to **Program**, then point to **MetaFrame Tools**. Click **ICA Client Creator**. The **Make Installation Disk Set** dialog box appears.

    From a *WINFRAME* server: In the **Administrative Tools** folder, double-click **ICA Client Creator**. The **Make Installation Disk Set** dialog box appears.
3. In the **Network Client or Service** list, click the desired Citrix ICA Client. Select the **Format Disks** check box to format the disks when creating the installation media. Click **OK**.
4. Follow the directions on screen.

Installing the Citrix ICA Win16 Client

> ➢ **To install the ICA Win16 Client**

1. Make sure the client computer is properly configured and cabled. Make sure any previous installations of the Citrix ICA Client (including the ICA Connection Center, whose icon appears in the system tray in the task bar if it is active) are not running.

   If you are installing from diskettes, insert ICA Win16 Client Setup diskette #1 in drive A (or other appropriate drive) of the client computer. Run **a:setup** using the **Run** option on the program Manager **File** menu or File Manager.

   If you are installing from the Citrix ICA Client CD, go to \ICAINST*language*\ICA16\disks\disk1, and run **setup.exe**.

   If you are installing from a Citrix server, go to %SystemRoot%\System32\Clients\Ica\Ica16\disks\disk1, and run **setup.exe**.

2. The **Welcome** screen appears. Read the information on this screen and click **Next**.

3. The **Choose Destination Location** screen appears:

   You can change the displayed path if desired by clicking **Browse**. Click **Next** to accept the displayed path and continue installation.

4. The **Select Program Folder** appears:
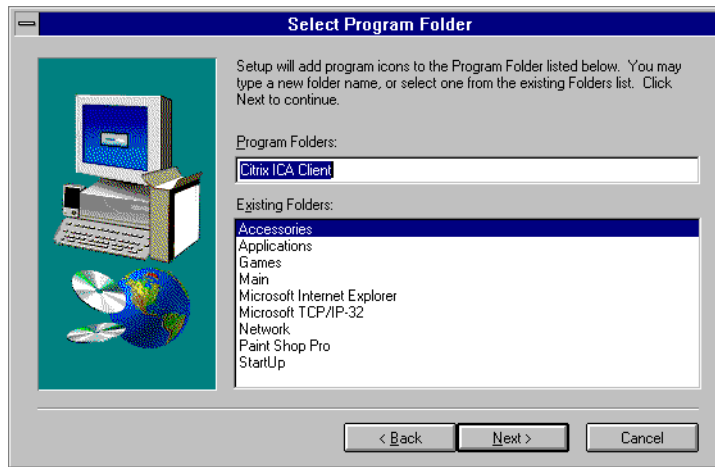
You can choose to use the default Citrix ICA Client folder, specify the name of a new program folder, or add the ICA Win16 Client icons to an existing folder. The program folder you specify is created if it does not already exist. Click **Next** to continue.

5. The **ICA Client Name** screen appears:
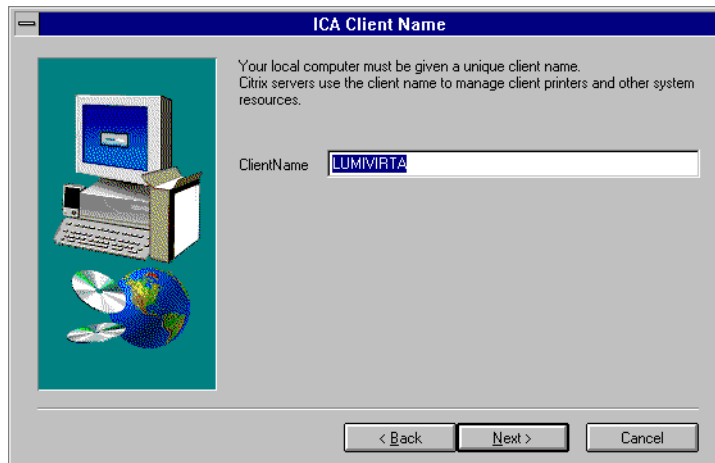
Specify a unique client name for your client computer. Citrix servers use the client name to manage client printers and other system resources. If you do not give your client computers unique client names, device mapping and application publishing may not operate correctly. When you are done, click **Next** to continue. A progress window appears displaying the file names as they are copied to your hard drive.

6. If you are installing from diskette, the **Setup Needs the Next Disk** dialog box appears. Remove the first ICA Win16 Client diskette from drive A (or other appropriate drive) and insert the second diskette. Click **OK**.

7. When the Citrix ICA Client finishes copying the program files, the **Information** dialog box appears.

    Click **OK** to exit this window.

    The **Citrix ICA Client** program group appears on your desktop:

Starting the ICA Win16 Client

➢ **To start the ICA Win16 Client**

Select the Citrix ICA Client program group and double-click Remote Application Manager to open the Remote Application Manager window.

The Remote Application Manager window displays two types of configured connections: ICA connections and published applications. An ICA connection allows the user to access the desktop of a Citrix server. The user can run any applications available on the desktop, in any order. A published application is a predefined application and its associated environment.

➢ **To start a previously defined connection**

Double-click the desired entry in the list, or place the cursor bar on the desired entry and choose **Connect** from the **Entry** menu.

If the remote application entry contains a valid user name, domain, and password, the ICA Client logs in as that user name. If no user name and password are present in the entry, the server logon screen appears. The user must enter a valid user name and password for the Citrix server and click **OK** to begin the session.

➢ **To add a new connection**

1. From the **Entry** menu, select **New.**

2. Follow the instructions in the **Add a new Remote Application** wizard.

    For more information about configuring remote applications, see Chapter 3, "Configuring the ICA Win16 Client", and the online help for the ICA Win16 Client.

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.

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 logon 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.

Note MetaFrame for UNIX does not use the Client Update Database. To use the Client Update Database, you must have either a MetaFrame for Windows or *WINFRAME* server in your server farm.

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 Configuration**.

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

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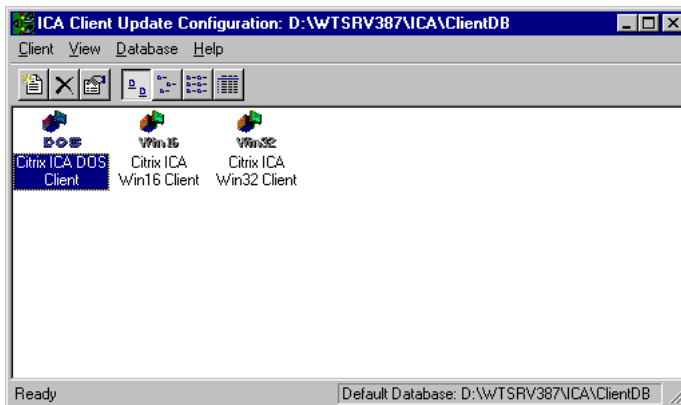
The location of the current client update database is shown in the status bar. This is the database the Citrix server uses to update Citrix ICA Clients. The main window shows the ICA Clients currently configured in the database.

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:
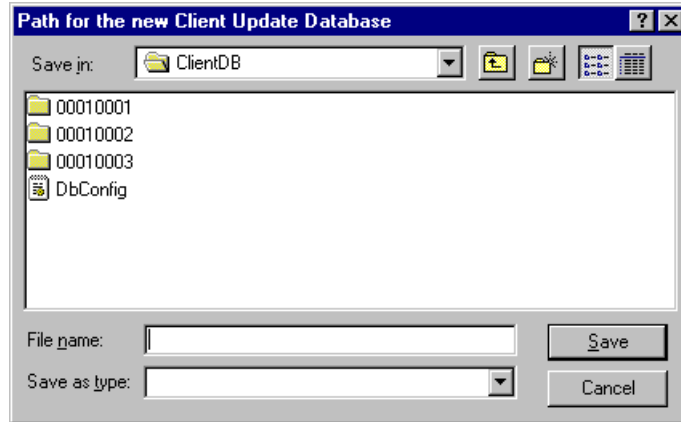
    2.   Enter a path for the new client update database and click **OK**.

       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:
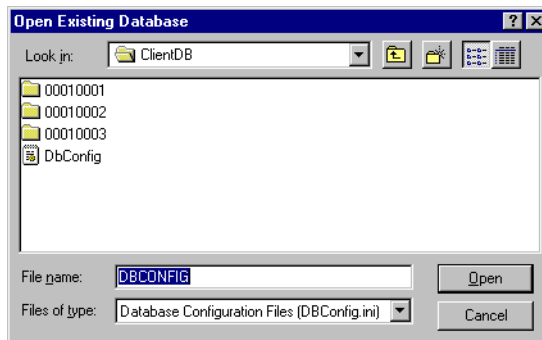
2. Specify the path to the database that will be used as the default.

3. Click **OK**.

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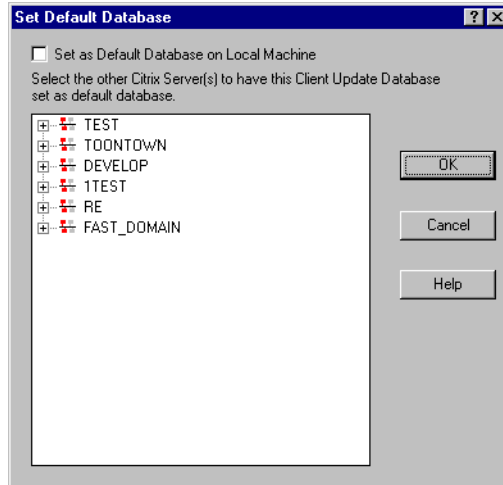
Select the **Set as Default Database on Local Machine** check box to make the currently opened database the default database.

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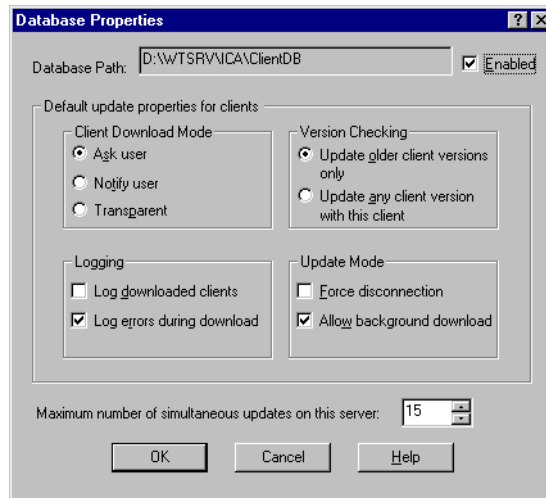
The **Default update properties for clients** options specify the default behavior for Citrix ICA Clients added to the update database. If you change the properties of an individual client in the database, those properties will override the default properties.

- 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 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 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. While the specified number of client updates is 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\Ica16\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.

3. The Citrix ICA Client is removed from the database.

Changing the Properties of an 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 ICA Win16 Client

Overview

This chapter describes how to configure the ICA Win16 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. Users can:

- Transparently access local drives, printers, and COM ports
- Cut and paste between the ICA session and the local Windows clipboard
- 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 Citrix Connection Configuration.
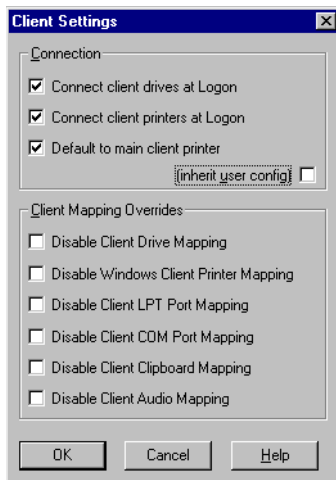
The **Connection** options control whether drives and printers are mapped to client drives and printers. If these options are cleared, the devices are still available but must be mapped to drive letters and port names manually.

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.

Note Client drive mapping is not supported when connecting to MetaFrame for UNIX 1.0 and 1.1 servers.

Client drive mapping is transparently built into the standard Citrix device redirection facilities. The client's disk drives are displayed as share points to which a drive letter can be attached. 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 reestablished unless automatic client device mapping is disabled. Automatic client device mapping can be configured for ICA connections and users. 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

The Citrix ICA Win16 Client supports auto-created printers. With *auto-created printers*, users find their local printers mapped to their ICA sessions and ready for use as soon as they connect.

After connecting to a Citrix server, users can view their local printers using Windows utilities.

Published applications and ICA server connections configured to run a specified initial program offer users the same access to their local printers, although users cannot use Windows utilities to view local printers. When connected to published applications, users can print to local printers in the same way they would print to a local printer when using locally run applications.

Note For information about how to configure ICA Client printing for MetaFrame for UNIX connections, see the *MetaFrame for UNIX Operating Systems Administrator's Guide*.

If the **Connect Client Printers at Logon** check box is checked in the terminal connection or user profile, the client printers are automatically connected when users log on and are deleted when they log off if the printers do not contain any print jobs. If print jobs are present, the printer (and its associated jobs) is retained.

Tip If users do not want the automatically created printers deleted when they log off, use Print Manager in the ICA session to view the **Properties** dialog box for the client printer. This dialog box contains a **Comment** field (on MetaFrame servers) or a **Description** field (on *WINFRAME* servers) that contains the string **Auto Created Client Printer** for automatically created client printers. If users modify or delete this description, the printer is not deleted at logoff. Subsequent logons will use the printer already defined and not modify it. If users change the Windows printer settings, they will not automatically be set in this case. One reason for not wanting them deleted may be the use of custom print settings.

If the user and terminal connection profile do not specify **Connect Client Printers at Logon**, you can use Print Manager to connect to a client printer. These printers are not automatically deleted when the user logs off.

➢ **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**.

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 Windows printer name. 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, multiple printers can share a printer port without conflict.

➢ **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.

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 Windows printer name.

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.

Note Client COM port mapping is not supported when connecting to MetaFrame for UNIX 1.0 and 1.1 servers.

➢ **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 a *WINFRAME*, double-click **Command Prompt** in the **Main** program group.

    On a MetaFrame server, click **Start**, then **Programs**, then **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 the device to the mapped name. For example, if you map COM1 on the client to COM5 on the server, install the 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.

Note COM port mapping is not TAPI-compatible. TAPI devices cannot be mapped to client COM ports.

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. You can control the amount of bandwidth used by client audio mapping.

Note Client audio is not supported when connecting to MetaFrame for UNIX 1.0 and 1.1 servers.

➢ **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.

Client Audio Mapping can cause excessive load on the Citrix servers and the 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 You can set audio quality 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 qualities is used.

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.

- **Low**. This setting is recommended for low-bandwidth connections, including most modem connections. This setting causes any sounds sent to the client to be compressed to a maximum of 16Kbps. This compression results in a significant decrease in the quality of the sound. The CPU requirements and benefits of this setting are similar to those of the Moderate setting; however, the lower data rate allows reasonable performance for a low-bandwidth connection.

Connection Types

Using the Citrix ICA Win16 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
    - TCP/IP+HTTP
    - IPX
    - SPX
    - NetBIOS

You can also use Microsoft's Remote Access Service (RAS) or Dial-Up Networking (DUN) in combination with the Citrix ICA Client to connect a client PC with a Citrix server. This type of connection requires:

- The RAS or third-party serial PPP software is installed on the client PC.
- The RAS server is in the same Microsoft network as the Citrix server.
- The user dials into the RAS server to establish a connection between the client PC and the RAS server.
- The user defines a network connection entry in Remote Application Manager for the network protocol that exists between the RAS server and the Citrix server.

Configuring a SOCKS Proxy Connection

You can configure the ICA Win16 Client to connect to a Citrix server through a SOCKS proxy server. This section describes:

- Why you use a SOCKS proxy server
- Where to locate your SOCKS proxy server

Using SOCKS to Route ICA Traffic through Firewalls

To limit access into and out of your Citrix servers, configure a SOCKS proxy server to handle connections between clients and the server. You can place the proxy server on either side of the firewall, or in some situations, on both sides of the firewall.

The benefits of using a SOCKS proxy server include:

- Information hiding, where system names inside the firewall are not made known to systems outside the firewall through DNS (Domain Name System)
- Authentication between an ICA Client and SOCKS proxy servers
- Authentication between two SOCKS proxy servers

- Relaying between two SOCKS proxy servers
- Channeling different TCP connections through one connection
- UDP proxying

Note The Citrix ICA Win16 Client supports only clear text username and password authentication.

The general procedure for connecting the ICA Win16 Client through a proxy are:

1. Be sure that your firewall is configured and working properly.
2. Install your SOCKS proxy server and test that it works with Web browsers.
3. Configure and deploy the ICA Win16 Client.

Locating Your Proxy Server

You can locate your proxy server on either side of your firewall. In some situations, you may want to locate a proxy server on both sides of the firewall. Typical SOCKS proxy configurations are described below. See your proxy documentation for further details about placement and implementation of your proxy server.

Setting Up a Proxy between Clients and a Firewall (for Outbound Connections)

To restrict clients from connecting directly to servers outside your firewall, install a proxy server between the client systems and the firewall, as shown below.
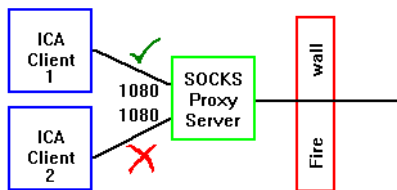

The proxy server uses its authentication features to determine whether ICA Clients can access networks outside the firewall. Configure the firewall to pass only network traffic that comes from the SOCKS proxy server.

Setting Up a Proxy Between Citrix Servers and a Firewall (for Inbound Connections)

To protect your Citrix servers, install a proxy server between your servers and the firewall. You can configure the firewall in two ways:

Maximize Trust. Configure the firewall to pass only network traffic that is directed to the SOCKS proxy server. The proxy server performs the authentication of the ICA Client.
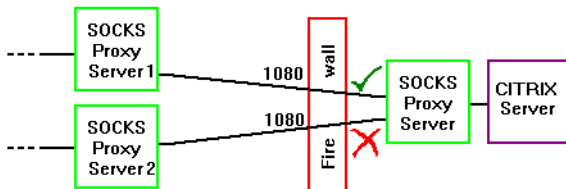

Minimize Risk. Configure the firewall to allow only connections from specific machines in addition to passing only network traffic that is directed to the SOCKS proxy server.
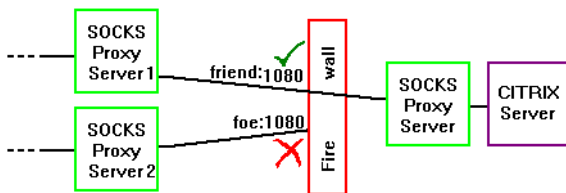
Setting Up a Virtual Private Network Using Two Proxy Servers

You can create a Virtual Private Network (VPN) between two sites by configuring a proxy server inside the firewall at both the client and server sites. Set up the firewalls to allow only directed UDP traffic between the two SOCKS proxy servers and TCP on the SOCKS port.

For additional security, configure the SOCKS proxy server on the ICA Client side to authenticate with the SOCKS proxy server on the Citrix server side. To obtain the address of a SOCKS proxy server within an outside firewall, contact the system administrator responsible for configuring that firewall.
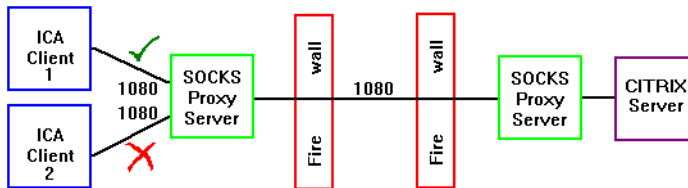
For more information on configuring the ICA Win16 Client to use with a SOCKS proxy server, see the "Configuring Server Location" section later in this chapter.

Configuring Connections to Citrix Servers and Published Applications

This section describes how to configure connections to Citrix servers and published applications using Remote Application Manager.

- Configuring Remote Application Manager preferences
- Configuring disk caching
- Configuring server location
- Configuring hotkeys
- Configuring event logging
- Modifying the application profile settings
- Setting display fonts
- Configuring dialing prefixes
- Configuring Remote Application Properties

Configuring Remote Application Manager Preferences

You can create a group of settings that serve as defaults for all remote application entries created using the Remote Application Manager. The user can override some of these global settings by choosing their own values when using the **Add a New Remote Application** wizard to create new entries or the **Properties** dialog box to edit existing entries.

➞   **To set Remote Application Manager preferences**

From the **Options** menu in Remote Application Manager, click **Settings** and then **Preferences**. The **Preferences** tab of the **Settings** dialog box appears:
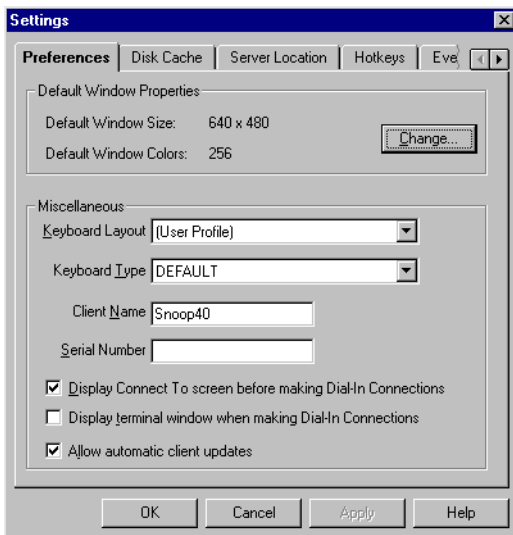
The settings on this menu are:

▪   **Default Window Properties. Default Window Size** specifies the window size (in pixels) that remote applications run in. **Default Window Colors** specifies the number of colors displayed. These settings are used by each remote application unless the user overrides these values in the remote application's properties. Click **Change** to modify these fields.

Important The number of window colors you select must be less than or equal to the screen resolution of the client computer. For example, if you specify 256 colors, the display adapter must support 256 colors at the specified screen resolution and Windows must be configured to use a 256-color display mode. If you start an ICA session with a color depth that is greater than the client computer's color depth, the ICA session reverts to the client computer's color depth.

▪   **Keyboard Layout**. This selection box specifies the keyboard layout of the client computer. The Citrix server uses the keyboard layout information to configure the session for the keyboard layout. The default value **(User Profile)** uses the keyboard layout specified in the user profile. If the keyboard layout of the client computer does not match the one specified in the user profile, select a keyboard layout from the list.

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

- **Client Name**. This text box allows you to change the client name of the 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. 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.

- **Serial Number**. This is the serial number of the 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 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 **Serial Number** field is not used by MetaFrame servers.

- **Display Connect To screen before making Dial-In Connections**. If this is checked, the **Connect To** screen is displayed when the user makes a dial-In connection.

- **Display terminal window when making Dial-In Connections**. Check this box if the dial-in configuration includes third-party products, such as security devices and X.25 PADs, that require an ASCII dialog before connecting to the Citrix server.

- **Allow automatic client updates**. Check this box to allow the Citrix server to update the Citrix ICA Win16 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 Win16 Client files. This feature is not available in *WINFRAME* Version 1.7 or earlier.

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 in Remote Application Manager, click **Settings** and then **Disk Cache** to display the **Disk Cache** tab.

The settings on the **Disk Cache** tab are:

- **Amount of disk space to use**. Configures the amount of disk space as a percentage of the partition containing the caching directory.
- **Disk cache directory**. Specifies the location of the directory containing the cached image data. The default directory is a subdirectory of the directory in which the client is installed. Select **Change Directory** to change the location of this directory.
- **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 It is not recommended to clear the cache if any ICA connections are open. Before clearing the cache, verify that all ICA connections are closed.

Configuring Server Location and Business Recovery

Server location (also called server browsing) provides a method for a user at a network-connected Citrix ICA Client to view a list of all Citrix servers on the network that have ICA connections configured for that network protocol, and a list of all published applications. You can specify a separate server location for each network protocol.

The default setting for server location is **(Auto-Locate)**. The auto-locate function works as follows:

1. The ICA Client broadcasts a "Get Nearest Citrix server" packet. The first Citrix server to respond returns the the address of the master ICA Browser, which is used in the next step.
2. The ICA Client sends a request for the server and published application lists to the master ICA Browser.
3. The master ICA Browser responds with a list of all Citrix servers on the network and a list of all published applications.

Business recovery provides consistent connections to published applications in the event of a master ICA Browser server disruption. You can define up to three groups of Citrix servers to which you want to connect: a primary and two backups. Each group can contain from one to five servers. When you specify a server group for your client, the client attempts to contact all the servers within that group simultaneously (broadcasting) and the first server to respond is the one to which you connect. The client broadcasts only if you have selected **(Auto-locate)** from the address list.

To eliminate broadcasts on your network, or if your network configuration uses routers or gateways, you can set a specific server address for the Citrix server that functions as the master browser.

➢ **To configure server location and business recovery settings**

From the **Options** menu in Remote Application Manager, click **Settings**, and then click the **Server Location** tab. The fields on the **Server Location** tab are:

Network Protocol. The Network Protocol field instructs the Citrix ICA Client what low-level network protocol to use to connect to a Citrix server. The protocol that you select must be installed on your local computer and must also be in use on the Citrix server to which you want to connect.

Server Group. Use the **Server Group** field to create lists of specific servers that you want to designate as primary and backup servers for connecting to published applications.

Use this field to designate whether the servers entered in the **Address List** field belong to your Primary, first backup (Backup 1), or second backup (Backup 2) group.

Important Each of these server groups **must** be located on different subnets.

Address List: Use the address list field to:

- Designate servers for your primary and backup server groups
- View and change the list of Citrix servers used in the selected server group.
- Specify an address of a Citrix server that will retrieve server and published application information from the network.

If you have not selected any servers, **[Auto-Locate]** is selected by default.

- Click **Add** to add a Citrix server to your server group's address list.

Important All Citrix servers within a server group **must** be located on the same subnet.

- Click **Delete** to remove the selected Citrix server from the address list.
- If **(Auto-Locate)** is selected, the first server is located automatically.

Note You can enter either the network address for a Citrix server or the Citrix server name.

Firewalls: Click **Firewalls** to display the **Firewall Settings** page. Use this page to configure the ICA Win16 Client to connect to a Citrix server through a SOCKS proxy server, or to use an alternate address to browse for Citrix servers and published applications that are inside a firewall.

Configuring TCP/IP+HTTP Server Location

You can browse for Cirtix servers and published applications across a firewall that does not allow UDP broadcasts by using TCP/IP+HTTP server location.

➢ **To configure TCP/IP+HTTP server location**

1. Select **TCP/IP + HTTP** from the **Network Protocol** drop-down list.

2. Click **Add** to display the **Add Server Location Address** box.

3. Enter the name or IP address of a Citrix server and a recognized port number (the default is port 80) and click **OK**.

> **Note** If you do not enter an IP address, you must have a Citrix server on your network mapped to the default name of ica.*domainname*, where *domainname* is a TCP/IP domain name. TCP/IP+HTTP server location does not support the **(Auto-Locate)** function.

The specified server responds with a list of servers and published applications.

You can also configure server location settings per application. See "Configuring Remote Application Properties" later in this chapter.

Configuring Hotkeys

The Citrix Win16 Client provides users with hotkeys that can be used during ICA sessions to control various functions. Some hotkeys control the behavior of the Win16 Client itself while others emulate standard Windows hotkeys. For example, the standard Windows hotkey ALT-ESC cycles the focus through the minimized icons and open windows of applications that are running on a Windows computer. Using the ALT-ESC hotkey on the client machine cycles the focus through the open applications on the client machine. If you are connected to a Citrix server and would like to cycle the focus through applications you have opened remotely, you cannot press ALT+ESC because this key combination is reserved by the local Windows operating system for its own use. To simulate the ALT+ESC hotkey in an ICA session, use the ICA Win16 Client hotkey ALT+F2.

Each hotkey is composed of a shift state and a key. You can disable a hotkey by selecting **(none)** for the hotkey. Use the pull-down lists to customize the hotkey assignments.

➢ **To set ICA Win16 Client hotkeys**

● From the **Options** menu in Remote Application Manager, click **Settings** and then **Hotkeys** to display the **Hotkeys** tab.

The fields on the **Hotkeys** tab are:

▪ The **Task List** hotkey displays the Windows Task List for the local Windows desktop on the client computer. The default value for the **Task List** hotkey is SHIFT+F1. You can also use CTRL+ESC to display the Windows Task List on the client computer if you are not using SHIFT+F1 as an ICA Win16 Client hotkey.

▪ The **Close Remote Application** hotkey disconnects from the Citrix server and exits the ICA Win16 Client. Using this hotkey will either leave the associated application in a disconnected state on the Citrix server or exit the application on the Citrix server depending on how the application is configured. The default value for the **Close Remote Application** hotkey is SHIFT+F3.

▪ The **Toggle Title Bar** hotkey causes the Citrix ICA Client window to display or hide its Windows title bar. The default value for the **Toggle Title Bar** hotkey is SHIFT+F2.

▪ The **CTRL-ALT-DEL** hotkey sends the standard Windows hotkey CTRL+ALT+DEL to the Citrix server running the remote application. This hotkey displays the Windows NT Security desktop in the ICA session. The default value for the **CTRL-ALT-DEL** hotkey is CTRL+F1.

▪ The **CTRL-ESC** hotkey sends the standard Windows hotkey CTRL+ESC to the Citrix server running the remote application. When using this hotkey during an ICA session on a *WINFRAME* server, the remote Task List appears. If the ICA session is running on a MetaFrame server, the remote Windows NT **Start** menu appears.The default value for the **CTRL-ESC** hotkey is CTRL+F2.

▪ The **ALT-ESC** hotkey sends the standard Windows hotkey ALT+ESC to the Citrix server running the remote application. This hotkey is used to cycle the focus through maximized and minimized windows of programs that have been opened in an ICA session. The default value for the **ALT-ESC** hotkey is ALT+F2.

▪ The **ALT-TAB** hotkey sends the standard Windows hotkey ALT+TAB to the Citrix server running the remote application. Use this hotkey to cycle through applications that have been opened in the ICA session. A popup box appears and displays the programs as you cycle through them. The selected application receives keyboard and mouse focus. The default value for the **ALT-TAB** hotkey is ALT+PLUS.

- The **ALT-BACKTAB** hotkey sends the standard Windows hotkey ALT+SHIFT+TAB to the Citrix server running the remote application. Like the ALT+TAB hotkey, this key sequence cycles through applications that have been opened in the ICA session but in the opposite direction. The chosen application receives keyboard and mouse focus. The default value for the **ALT-BACKTAB** hotkey is ALT+MINUS.

- The **CTRL-SHIFT-ESC** hotkey sends the standard Windows hotkey CTRL+SHIFT+ESC to the MetaFrame server running the remote application. (This hotkey is not used by ICA sessions on *WINFRAME* servers.) This hotkey displays the Windows NT Task Manager in the ICA session. The default value for the **CTRL-SHIFT-ESC** hotkey is CTRL+F3.

- The **Toggle Latency Reduction** hotkey turns SpeedScreen latency reduction on or off. Turning on latency reduction reduces the time between your keyboard or mouse input and a visible response on the screen.

Configuring Event Logging

The ICA Win16 Client supports event logging for diagnosis and troubleshooting purposes. Event log data is stored as standard ASCII text data in a log file (default name Wfcwin.log) and can be viewed by any text editor.

Important Use event logging sparingly and only when actively investigating a problem. Due to the large amount of data generated and logged to disk, event logging causes a significant performance degradation.

➢ **To configure event logging**

From the **Options** menu in Remote Application Manager, click **Settings**, then **Event Logging** to display the **Event Logging** page. 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.

Modifying the Application Profile

You can change some of the application profile settings for Remote Application Manager. All settings are enabled by default.

➢ **To modify the application profile**

From the **Options** menu in Remote Application Manager, click **Settings**, and then click **Profile** to display the **Profile** page.

The settings that can be changed from this page are:

- **Confirm destructive actions**. Select this check box to be prompted for confirmation when you perform a destructive action. Clear this check box if you do not want to be prompted when performing destructive actions.

- **Show Tool Bar**. Select this check box to display the application toolbar.

- **Show Status Bar**. Select this check box to display the application status bar.

- **Save Settings on Exit**. Select this check box to save the application profile automatically when you exit Remote Application Manager.

- **Save Settings Now**. Click this button to immediately save the current application profile.

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 in Remote Application Manager, click **Modems**, then 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 about modifying dialing prefixes, see the online help for this client.

Configuring Remote Application Properties

Use the remote application **Properties** dialog box to maintain the configuration information associated with individual entries in the Remote Application Manager list. Information in the **Properties** dialog box overrides the global default values maintained by the **Settings** dialog. The **Properties** dialog box contains three tabs. The first tab is either the **Network**, **Dial-In**, or **Serial** tab, depending upon the type of remote application entry. The last two tabs are the **Connection Options** tab and the **Application** tab.

➢ **To view a remote application's properties**

Select an entry in the Remote Application Manager list. From the **Entry** menu, click **Properties**.

Network Properties

Server entries using a network connection display the **Network** menu:

The fields on the **Network** tab are:

▪ **Description**. A short description that appears in the server list on the **Main** menu. This description also appears in the title bar of the Citrix ICA Client window. The description cannot contain any of the following characters:

\ / : * ? " < > | , . { } ( )

- **Network Protocol**. The network protocol used. The transport types include:
  - **TCP/IP**. This setting selects the Microsoft WinSock TCP/IP stack. You must have a properly configured network interface card (NIC) and the Microsoft WinSock TCP/IP stack installed and active on the client computer.
  - **TCP/IP+HTTP**. This setting selects TCP/IP+HTTP server location protocol, which allows you to retrieve Citrix server and published application information across a firewall.
  - **NetBIOS**. This setting selects 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.
  - **IPX**. This setting selects the IPX LAN protocol. You must have a properly configured NIC and the Windows IPX Workstation support from Novell installed and active on the client computer.
  - **SPX**. This setting selects the SPX LAN protocol. You must have a properly configured NIC and the Windows SPX Workstation support from Novell installed and active on the client computer.
- **Server or Published Application**. Click **Server** to configure a connection to a Citrix server. Click **Published Application** to configure a connection to a published application.

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 when a connection is established. If these fields are not specified, the logon screen appears when the connection to the Citrix server is established.

Dial-in Connection Properties

Server entries using a dial-in connection display the **Dial-In** tab:
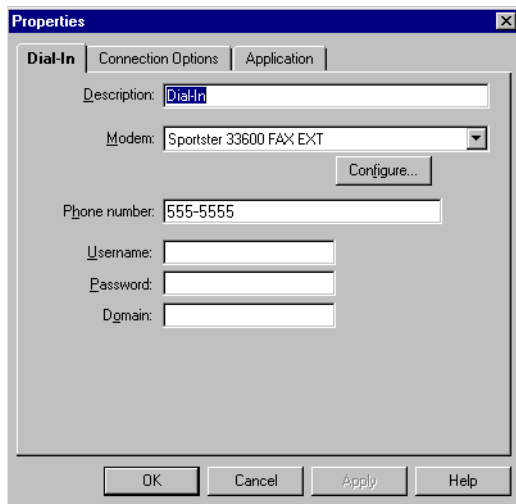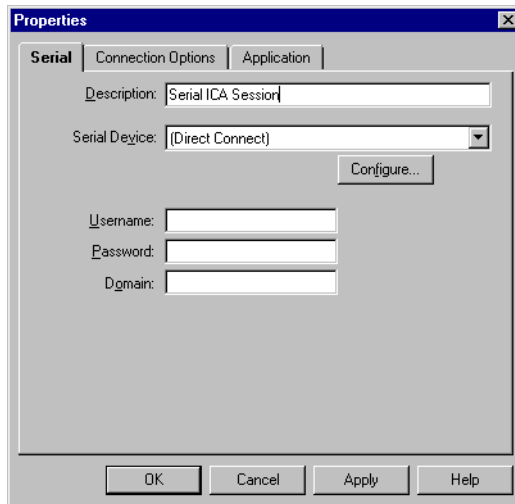

The fields on the **Dial-In** tab are:

- **Description**. A short description that appears in the server list on the **Main** menu. This description also appears in the title bar of the Citrix ICA Client window. The description cannot contain any of the following characters:

  \ / : * ? " < > | , . { } ( )

- **Modem**. The modem used. Click **Configure** to invoke the **Client Modem Properties** dialog box. For more information about configuring modems, see the online help for this client.

- **Phone number**. Enter the telephone number in a format compatible with your modem.

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

Serial Connection Properties

Server entries using a serial connection display the **Serial** tab:

The fields on the **Serial** tab are:

- **Description**. A short description that appears in the server list on the **Main** menu. This description also appears in the title bar of the Citrix ICA Client window. The description cannot contain any of the following characters:

  \ / : * ? " < > | , . { } ( )

- **Serial Device**. The serial device used. Click **Configure** to invoke the **Serial Device Properties** dialog box. For more information on configuring serial devices, see the online help for this client.

- **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.

Connection Options

The **Connection Options** tab is the same for network, dial-in, and serial connections.

The fields on the **Connection Options** tab are:

- **Use data compression**. Data compression reduces the amount of data that needs to be transferred but requires additional processor resources to compress and decompress the data. If your connection is bandwidth-limited, enabling data compression increases performance.

- **Use disk cache for bitmaps**. Bitmap caching to disk stores commonly-used graphical objects such as bitmaps in a local cache on the client's hard disk space. If your connection is bandwidth-limited, enabling disk caching increases performance. If your client is on a high-speed LAN, you do not need disk caching. Dial-in connections have disk caching enabled by default.

- **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 Client to the Citrix server. Leaving this option unchecked makes the session more responsive to keyboard and mouse movements. Checking this option improves performance if you use Dial-up Networking.

- **Enable Sound**. Check this box to enable sound support. The client computer must have a Sound Blaster 16-compatible sound card installed. Published applications can then play sounds on the client.

  Select one of the following values for **Quality**:

  - **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.

  - **Low**. This setting is recommended for low-bandwidth connections, including most modem connections. This setting causes any sounds sent to the client to be compressed to a maximum of 16Kbps. This compression results in a significant decrease in the quality of the sound. The CPU requirements and benefits of this setting are similar to those of the

Moderate setting; however, the lower data rate allows reasonable performance for a low-bandwidth connection.

- **Encryption Level**. Select the level of encryption for the ICA connection. The default level is Basic. Select **RC5 128-bit Login Only** to use encryption during authentication.

  The Citrix server must be configured to allow the selected encryption level or greater. To enable encryption levels higher than **Basic**, the Citrix server must support RC5 encryption. This support is included with SecureICA Services and Feature Release 1.

  SpeedScreen Latency Reduction. SpeedScreen latency reduction is a collective term used to describe the functionality that helps enhance user experience on slower network connections.

  Note Latency reduction is available only if you are connecting to a server that is configured and licensed for latency reduction.

  For slower connections (for example if you are connecting over a WAN or a dial-in connection), set mode to On to decrease the delay between user input and screen display. Choose either **Mouse Click Feedback** or **Local Text Echo**.

  For faster connections (for example, if you are connecting over a LAN), set mode to **Off**.

  If you are not certain of the connection speed, set mode to **Auto** to turn SpeedScreen latency reduction on or off depending on the speed of the connection. You can override **Auto** mode using the **Toggle Latency Reduction** hotkey.

- **Window Properties**. The **Window Size** field specifies the window size (in pixels) that a remote application runs in. **Window Colors** specifies the number of colors displayed. You can modify these fields by clicking **Change**.

The **Use Default** check boxes must be cleared to change the window properties. You can change the window size to a standard VGA or SVGA value or specify a custom window size.

Important The number of window colors you select must be less than or equal to that of the client computer. For example, if you specify 256 colors, the display adapter must support 256 colors at the specified screen resolution and Windows must be configured to use a 256-color display mode. If you start an ICA session with a color depth that is greater than the client computer's color depth, the ICA session reverts to the client computer's color depth.

Application Properties

The **Application** tab is the same for network, dial-in, and serial connections.

The fields on the Application tab are optional and can be used to start a program when logon to the Citrix server is successful. The fields on the **Application** tab are:

- **Application**. If the connection is to a server desktop, this field specifies the application to run immediately after logon to the Citrix server. Enter the fully qualified drive and path of the program to run, followed by any necessary command line parameters and switches. Click **Browse** to browse the Citrix server for the application. (**Browse** does not appear for dial-in or serial connections.)

- **Working Directory**. Specifies the working directory to use with the program specified in the **Application** field.

- **Change Icon**. Click **Change Icon** to use a different icon for a remote application. A scrollable list of icons appears for you to choose from.

- **Select Program Group**. Click **Select Program Group** to add the remote application icon to a different program group. A pull-down list of program groups appears for you to choose from. You may also specify a new program group by typing the name of the new group in the edit field of the pull-down list.

Using Applications Published on MetaFrame for UNIX

For connections to applications published on MetaFrame for UNIX Operating Systems, two additional utilities provide functionality for configuring session display and cutting and pasting objects between the ICA session and the client device. This section describes how to use these utilities.

Using the Window Manager

If you are connecting to an application published on a MetaFrame for UNIX server, use the Citrix window manager (ctxwm) to minimize, resize, position and close windows, and access seamless "full screen" mode. This section describes how to use the window manager.

Minimizing, resizing, positioning and closing windows

When you connect to a published application on a MetaFrame for UNIX server, buttons to minimize, resize, position and close windows are provided by the ctxwm window manager.

> **To minimize, resize, position, and close windows**

Use the left mouse button to click on the following buttons

To	Click	Note
Minimize published application windows on your desktop		Seamless windows are minimized as buttons on the desktop's taskbar. Non-seamless and seamless "full screen" windows are minimized as icons on the desktop.
Open a minimized window		Click its button on the taskbar or its icon on the desktop.
Adjust the size of published application windows		Click and hold down the mouse button, then move the pointer to the edge of the window and drag it in the direction you want to scale it. The window dimensions are displayed in the top left hand corner. Release the mouse button to apply the resizing. To resize the window proportionately, move the mouse pointer to a corner of the window and drag it.
Re-position published application windows		Click and hold down the mouse button, drag the window to the required position on the desktop, and release the mouse button.
Close and exit a published application		When you close the last application in a session, after 20 seconds the session disconnects automatically.

Using the Citrix Window Manager Menus

You can use the ctxwm menu system to log off, disconnect, and exit from
published applications and connection sessions.

➢ **To access the ctxwm menu system**

1. On a blank area of the remote desktop window, click and hold down the left
    mouse button. The ctxwm menu is displayed.

2. Drag the mouse pointer over **Shutdown** to display the shutdown options.

➢ **To choose an option from the ctxwm menu**

Drag the pointer over the required option to highlight it. Release the mouse button
to select the option.

To	Choose
Terminate the connection and all running applications	Logoff
Disconnect the session but leave the application running	Disconnect
Disconnect the session and terminate the application	Exit

Note Your Citrix server may be configured to terminate any applications that are
running if a session is disconnected.

Cutting and Pasting Graphics Using ctxgrab and ctxcapture

If you are connected to an application published on a MetaFrame for UNIX
server, use ctxgrab or ctxcapture to cut and paste graphics between the ICA
session and the local desktop. These utilities are configured and deployed from
the MetaFrame for UNIX server.

Using ctxgrab

The ctxgrab utility is a simple tool you can use to cut and paste graphics from
ICA applications to applications running locally on the client device. This utility
is available from the command prompt or, if you are using a published
application, from the ctxwm window manager.

➢   **To access the ctxgrab utility from the window manager**

1.   In full screen mode, left click to display the ctxwm menu and choose the screengrab option.

2.   When **ctxgrab** is started, a dialog box is displayed.

➢   **To copy from an application in an ICA Client window to a local application**

1.   From the **ctxgrab** dialog box, click **From screen**.

2.   To:

Select a window: move the cursor over the window you want to copy and click the middle mouse button.

Select a region: hold down the left mouse button and drag the cursor to select the area you want to copy.

Cancel the selection: click the right mouse button. While dragging, cancel the selection by clicking the right mouse button before releasing the first button.

3.   Use the appropriate command in the local application to paste the object.

Using ctxcapture

The ctxcapture utility is a more fully-featured utility for cutting and pasting graphics between ICA applications and applications running on the client device.

With ctxcapture you can:

- Grab dialogs or screen areas and copy them between an application in an ICA Client window and an application running on the local client device, including non-ICCCM-compliant applications.

- Copy graphics between the ICA Client and the X graphics manipulation utility xvf.

If you are connected to a published desktop, ctxcapture is available from the command prompt. If you are connected to a published application, and the Citrix server administrator has made it available, you can access ctxcapture through the ctxwm window manager.

➢   **To access the ctxcapture utility from the window manager**

1.   Left click to display the **ctxwm** menu and choose the **screengrab** option.

2.   When ctxcapture is started, a dialog box is displayed.

➢ **To copy from a local application to an application in an ICA Client window**

1. From the **ctxcapture** dialog box, click **From screen**.

2. To:

   Select a window: move the cursor over the window you want to copy and click the middle mouse button.

   Select a region: hold down the left mouse button and drag the cursor to select the area you want to copy.

   Cancel the selection: click the right mouse button. While dragging, cancel the selection by clicking the right mouse button before releasing the first button.

3. From the **ctxcapture** dialog box, click **To ICA**. The **xcapture** button changes color to indicate that it is processing the information.

4. When the transfer is complete, use the appropriate command in the local application to paste the information.

➢ **To copy from an application in an ICA Client window to a local application**

1. From the application in the ICA Client window, copy the graphic.

2. From the **ctxcapture** dialog box, click **From ICA**.

3. When the transfer is complete, use the appropriate command in the local application to paste the information.

➢ **To copy from xv to an application in an ICA Client window or local application**

1. From xv, copy the graphic.

2. From the **ctxcapture** dialog box, click **From xv** and **To ICA**.

3. When the transfer is complete, use the appropriate command in the ICA Client window to paste the information.

➢ **To copy from an application in an ICA Client window to xv**

1. From the application in the ICA Client window, copy the graphic.

2. From the **ctxcapture** dialog box, click **From ICA** and **To xv**.

3. When the transfer is complete, use the paste command in xv.

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