

# Administrator's Guide

## **Citrix ICA UNIX Client**

Version 6.0

Information in this document is subject to change without notice. Companies, names, and data used in examples herein are fictitious unless otherwise noted. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of Citrix Systems, Inc.

© 1994-2000 Citrix Systems, Inc. All rights reserved.

Citrix, Independent Computing Architecture (ICA), MultiWin, SecureICA, Program Neighborhood, MetaFrame, and WINFRAME are registered trademarks or trademarks of Citrix Systems, Inc. in the U.S.A. and other countries.

Microsoft, MS, MS-DOS, Windows, Windows NT, and BackOffice are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

UNIX is a registered trademark of The Open Group in the U.S.A. and other countries.

Solaris is a trademark or registered trademark of Sun Microsystems, Inc. in the United States and other countries.

All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the United States and other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

HP-UX is a registered trademark of Hewlett-Packard Company.

AIX and RS/6000 are registered trademarks of International Business Machines Corporation.

SGI is a registered trademark of Silicon Graphics, Inc.

SCO is a registered trademark of The Santa Cruz Operation, Inc.

Tru64 is a registered trademark of Compaq Computer Corporation

All other Trade Names referred to are the Servicemark, Trademark, or Registered Trademark of the respective manufacturers.

---

# Contents

<b>Before you Begin</b> . . . . .	<b>7</b>
Who Should Use This Manual . . . . .	7
How to Use This Guide . . . . .	7
Conventions . . . . .	8
Finding More Information . . . . .	9
Citrix on the World Wide Web . . . . .	9
<b>Chapter 1 Introduction to the Citrix ICA Client</b> . . . . .	<b>11</b>
Overview . . . . .	11
Client Device Mapping . . . . .	12
Client Drive Mapping . . . . .	12
Client Printer Mapping . . . . .	12
COM Port Mapping . . . . .	12
Audio Mapping . . . . .	12
Encryption . . . . .	12
Disk Caching, Data Compression . . . . .	13
SpeedScreen Latency Reduction . . . . .	13
Low Bandwidth Requirements . . . . .	13
Client Auto Update . . . . .	13
True Color Support . . . . .	13
Color Approximation . . . . .	13
ICA Client Hotkeys . . . . .	14
Transparent Clipboard Access . . . . .	14
Application Publishing Support . . . . .	14
Business Recovery . . . . .	14
Seamless Windows . . . . .	14
<b>Chapter 2 Deploying the Citrix ICA UNIX Client</b> . . . . .	<b>17</b>
Overview . . . . .	17
About Installation . . . . .	17
System Requirements . . . . .	18
Installing the ICA Client . . . . .	18
Starting the ICA UNIX Client . . . . .	19
Preparing for Client Auto Update . . . . .	20
Using the Client Update Database . . . . .	20
The ICA Client Update Process . . . . .	21
Configuring the Client Update Database . . . . .	22

Creating a New Client Update Database . . . . .	23
Setting a Default Database. . . . .	23
Configuring the Properties of the Client Update Database . . . . .	24
Adding and Removing ICA Clients. . . . .	25
Changing the Properties of a ICA Client in the Database . . . . .	26
Removing the ICA Client . . . . .	28
Using the UNIX ICA Client as an “ICA to X Proxy” (“Server Side ICA”). . . . .	28
Supported Features . . . . .	30
Starting the ICA Client with “Server Side ICA” . . . . .	30
<b>Chapter 3    Configuring the Citrix ICA UNIX Client. . . . .</b>	<b>31</b>
Overview. . . . .	31
Creating a Connection Entry. . . . .	31
Opening a Connection . . . . .	33
Mapping Client Devices . . . . .	33
Mapping COM Ports . . . . .	34
Mapping Client Drives . . . . .	34
Mapping Client Printers on MetaFrame for Windows and WINFRAME. . . . .	37
Mapping Client Printers on MetaFrame for UNIX . . . . .	38
Setting up Printing . . . . .	38
Using Printing. . . . .	39
To print from applications . . . . .	40
Mapping Client Audio . . . . .	40
Changing a Connection Entry. . . . .	41
Configuring Network Properties . . . . .	42
Improving Performance. . . . .	43
Disk Cache . . . . .	44
Data Compression . . . . .	44
SpeedScreen Latency Reduction . . . . .	44
Specifying an Application to Run at Connection . . . . .	45
Changing the Window Properties . . . . .	46
Configuring Login Properties . . . . .	48
Changing the Default Settings . . . . .	48
Changing the Settings for the Disk Cache. . . . .	49
Configuring the Default Window Settings . . . . .	51
Configuring the Server Location and Business Recovery. . . . .	51
Configuring TCP/IP+HTTP Server Location. . . . .	53
Configuring Hotkeys . . . . .	54
Configuring Preferences . . . . .	56
Using xcapture . . . . .	57

- Improving Security . . . . . 58
  - Connecting Through a SOCKS Proxy Server . . . . . 58
  - Connecting Across a Firewall . . . . . 59
  - Using Encryption . . . . . 59
- Using Applications Published on a MetaFrame for UNIX Server . . . . . 60
  - Using the Window Manager . . . . . 60
    - About Seamless Windows on MetaFrame for UNIX . . . . . 60
    - Minimizing, Resizing, Positioning, and Closing Windows . . . . . 60
    - Using the Citrix Window Manager Menus . . . . . 61
  - Copying and Pasting Graphics Using ctxgrab and ctxcapture . . . . . 62
    - Using ctxgrab . . . . . 62
    - Using ctxcapture . . . . . 63
- Index . . . . . 65**



---

# 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 UNIX (also called the Citrix ICA UNIX Clients). This manual assumes knowledge of:

- Citrix MetaFrame or Citrix *WINFRAME*
- The operating system on the client computer (UNIX)
- 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 UNIX 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 UNIX Client"	Gives a detailed list of features.
Chapter 2, "Deploying the Citrix ICA UNIX Client"	Describes how to install and deploy the Citrix ICA UNIX Client.
Chapter 3, "Configuring the Citrix ICA UNIX Client"	Describes how to configure connection properties and device mappings for the Citrix ICA UNIX Client.

## Conventions

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

Convention	Meaning
<b>Bold</b>	Indicates boxes and buttons, column headings, command-line commands and options, icons, dialog box titles, lists, menu names, tabs, and menu commands.
<i>Italic</i>	Indicates a placeholder for information or parameters that you must provide. For example, if the procedure asks you to type <i>filename</i> , 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, [ <i>password</i> ] indicates that you can choose to type a <i>password</i> with the command. Type only the information within the brackets, not the brackets themselves.
...(ellipsis)	Indicates a command element can be repeated.
Monospace	Represents examples of screen text or entries that you can type at the command line or initialization files.
➤	Indicates a procedure with sequential steps.
▪	Indicates a list of related information, not procedural steps.

The Citrix ICA UNIX Client allows users to connect to MetaFrame and *WINFRAME* servers. When describing a feature or procedure common to all types for 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.

Instructions or features specific to a particular version of the Citrix ICA Clients for UNIX are identified as follows:

This symbol	Identifies instructions specific to
<b>True64</b>	Compaq Tru64 workstations
<b>HP-UX</b>	Hewlett-Packard workstations
<b>AIX</b>	IBM AIX workstations
<b>Linux</b>	Linux (Intel) workstations



---

This symbol	Identifies instructions specific to
<b>SCO</b>	SCO workstations
<b>IRIX</b>	Silicon Graphics IRIX workstations
<b>Solaris</b>	Sun Solaris workstations

---

## Finding More Information

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

- Online help in HTML format is installed with the client in the /help subdirectory. The help can be viewed using most HTML viewers and Web browsers. Open the contents.htm file to view the table of contents.
- The *Citrix ICA Client Administrator's Guides* for the other ICA Clients.
- For instructions on installing, configuring, and maintaining your Citrix servers, see the documentation included in your MetaFrame or *WINFRAME* package.

This book and other Citrix documentation are 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 files for MetaFrame, *WINFRAME*, and the Citrix ICA Clients for any last-minute updates, installation instructions, and corrections to the documentation.

---

## Citrix on the World Wide Web

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

- 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

# Introduction to the Citrix ICA Client



## Overview

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

- Client Device Mapping
  - Client Drive Mapping
  - Client Printer Mapping
  - COM Port Mapping
  - Client Audio Mapping
- Encryption
- Disk Caching and Data Compression
- Client Auto Update
- True Color Support
- Color Approximation
- ICA Client hotkeys
- Transparent Clipboard Access
- Application Publishing Support
- SpeedScreen Latency Reduction
- Low Bandwidth Requirements
- Multiple Session Support
- Seamless Windows Support

Some client features are available only when connecting to MetaFrame for Windows NT and MetaFrame for Windows 2000 servers.

## Client Device Mapping

The ICA Client supports client device mapping. *Client device mapping* allows a remote application running on the Citrix server to access printers and disk drives attached to the local client computer. Note that client device mapping is not supported when connecting to MetaFrame for UNIX Operating Systems 1.0 and 1.1 servers.

## Client Drive Mapping

*Client drive mapping* makes any directory mounted on your UNIX computer, including CD-ROMs, available to you during ICA sessions on Citrix servers. When a Citrix server is configured to allow client drive mapping, you can access your locally stored files, work with them during your ICA sessions, and then save them either on a mounted directory or on a drive on the Citrix server.

## Client Printer Mapping

Client printer mapping lets users access printers attached to their computers during ICA sessions. ICA Client users can print to any spooled printer available from the UNIX workstation.

## COM Port Mapping

**Linux** Client COM port mapping allows devices attached to the client computer's COM ports to be used from ICA sessions on a Citrix server. This allows local devices like modems, serial printers, and bar-code scanners to be used by applications running on the Citrix server.

## Audio Mapping

**Linux** Audio mapping allows your client computer to play sounds generated by applications running on the Citrix server.

**HP-UX** ICA Client audio support includes configurable sound quality levels that allow you to customize sound quality based upon the amount of bandwidth available.

**AIX**

**Solaris**

## Encryption

**Linux** The ICA Client supports encryption using Citrix SecureICA Services. SecureICA is a server extension that adds advanced RSA RC5 encryption to the Citrix server and clients. See the SecureICA Services documentation for more information. Note that to use advanced encryption, you need to install SecureICA on your Citrix server. Strong encryption is available only on the Linux ICA Client.

## Disk Caching, 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.

## SpeedScreen Latency Reduction

**Linux** SpeedScreen is a combination of technologies implemented in the ICA that decreases bandwidth consumption and total packets transmitted. SpeedScreen Latency Reduction includes Local Text Echo and Mouse Click Feedback, which together, enhance user experience on a slow network. Note that SpeedScreen is not supported by all Citrix servers.

## Low Bandwidth Requirements

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

## 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 ICA Clients are stored in a central *Client Update Database* on a MetaFrame for Windows server. The latest versions of the ICA Client software are downloaded to ICA Client devices when users connect to a Citrix server.

## True Color Support

**Linux** You can use the ICA Client on UNIX desktops configured for true color (24-bit) support. The ICA Client supports high color (16-bit) and true color (24-bit) ICA connections.

## Color Approximation

Because of differences in the palettes used between the ICA Client (and the applications it displays) and native UNIX desktops, an annoying flashing can occur when switching context on a pseudo-color display. The ICA Client's color approximation scheme eliminates this flashing by using colors from the local desktop palette to display the ICA Windows sessions.

## ICA Client Hotkeys

The ICA Client provides hotkeys that can be used to control various functions while in an ICA session. ICA Client hotkeys let you define alternative key combinations for the hotkeys Alt+F1 to Alt+F12 because these are reserved for use by X window managers.

## Transparent Clipboard Access

You can use the client workstation's clipboard to cut and paste objects between applications running locally on the client computer and applications running remotely in an ICA session.

Access to the local clipboard requires no special configuration or procedures; using the familiar cut, copy, and paste commands, you can transfer text, pictures, and other objects back and forth between local and remote applications.

You can use the **xcapture** program to assist the exchange of graphical data between the Citrix server clipboard and non-ICCCM-compliant X-window applications on the X desktop. See "Using xcapture" in Chapter 3, "Configuring the Citrix ICA Client" for more details. Note that not all server platforms support all media types on the clipboard.

## 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.

## Business Recovery

The ICA Client includes the additional intelligence to support multiple server sites (such as 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 primary server disruption.

---

# Seamless Windows

**Linux**

The ICA Client supports the seamless integration of local and remote applications on the local X Desktop. By selecting the Seamless Windows option when configuring a connection to a Citrix server, a user does not need to access an entire remote desktop to run remote applications. With a single session, a user can gain access to multiple applications and switch between local and remote applications.





# Deploying the Citrix ICA UNIX Client



## Overview

This chapter describes how to install, deploy, and remove the Citrix ICA UNIX Client. Topics covered in this chapter include:

- System requirements
- Installing the ICA Client
- Starting the ICA Client
- Preparing for Client Auto Update
- Using the Client Update Database
- Removing the ICA Client
- Using the ICA Client as an “ICA to X proxy” (“Server Side ICA”)

## About Installation

There are two ways in which you can install the ICA Client:

- If you are installing the client on machines that don’t already have an ICA Client installed on them, you must install the client manually. See “Installing the ICA Client.”
- If you already have a previous version of the ICA Client, you can update it automatically to this version by adding this client to the Client Update Database. See “Using the Client Update Database.”

# System Requirements

The ICA Client supports the following systems and versions. Features may vary among the supported platforms. Instructions or features specific to a particular version of the Citrix ICA UNIX Client are identified with an appropriate symbol. See the “Conventions” section for a list of symbols.

UNIX System	Version
Compaq Tru64 UNIX	3.2 or above
HP-UX	10.20 or above
IBM AIX	4.1.4 or above
Linux	Red Hat 5.2 or above, Caldera 2.2 or above, SuSE 6.0 or above, and Slackware 4.0 or above***
SCO	UNIXWare 7, UNIXWare 2.1*, OpenServer 5*
SGI IRIX	6.3 or above
Sun Solaris	1.0** (SunOS 4.1.4), 2.5.1 (SunOS 5.5.1), and Intel Platform Edition 2.6 (SunOS 5.6) or above

\* The SCO client requires the Binary Compatibility Module to run under UNIXWare 2.1 and OpenServer 5.

\*\* Requires OpenWindows patch 100444-76.tar.Z, available from SunSolve Online.

\*\*\* Requires LibC6

Systems running the ICA Client require the following:

- 12MB of free disk space for installation
- 16 or 256 color video display or higher
- TCP/IP networking

## Installing the ICA Client

Before installing the ICA Client, ensure that you have at least 12MB of free disk space available. Depending on your UNIX platform, you can check the available disk space with one of the following commands:

```
df -k <Enter>
df <Enter>
bdf <Enter>
```

➤ **To install the Citrix ICA UNIX Client:**

1. Log on as root at the client workstation.
2. Open a command window.
3. If you are installing the ICA Client from a CD-ROM, insert the CD-ROM in the drive. Mount the CD-ROM using the appropriate instructions for your workstation. Change to the ICAClient/IcaUNIX directory on the mounted CD-ROM.

— or —

If you are installing the ICA Client from a tar file, uncompress the tar file and extract the contents into a temporary directory.

4. Run the setup program by typing `./setupwfc` and press Enter.

— or —

If file names on the CD-ROM are displayed in uppercase and are followed by other characters (such as ;1), use the command `./SETUPWFC*` and press Enter.

A menu of options appears.

5. Enter **1** to install the ICA Client and press Enter.

The installation procedure prompts:

Please enter the directory in which Citrix ICA Client is to be installed [default /usr/lib/ICAClient] or type "quit" to abandon the installation:

6. Press Enter to install in the default location.

The installation procedure allows you to confirm that you want to proceed.

7. Type **y** and press Enter to proceed or **n** and press Enter to cancel the installation.

The installation procedure displays the Client Software License Agreement and then prompts for confirmation to proceed.

8. Type **y** and press Enter to proceed or **n** and press Enter to cancel the installation. If you have Netscape installed you will be prompted to choose installation of the plug in. If you require the plug in, press **y**.
9. When the installation is complete, the main installation menu is displayed again. Enter **3** and press Enter to exit from the setup program.

## Starting the ICA UNIX Client

➤ **To start the UNIX client**

At the UNIX prompt, type `/usr/lib/ICAClient/wfcmgr` and press Enter (where `/usr/lib/ICAClient` is the directory in which you installed the ICA Client).

---

**Note** If the ICA Client has not been installed in the default installation directory, ensure that the environment variable ICAROOT is set to point to the actual installation directory.

---

## Preparing for Client Auto Update

This version of the ICA Client software can be set up so that you can automatically update it from a MetaFrame for Windows or *WINFRAME* server when a newer version is available. This means that you will be able to “push” a new version of the client software from a central database to the workstation instead of installing the client manually at each workstation. You must be root to deploy the ICA Client.

➤ **To enable the ICA UNIX Client software for automatic update**

In the ICA Client main window, click **Options** and then click **Settings**. In the **Settings** dialog box, select **Preferences** from the pull-down menu. Select **Allow Automatic Client Updates** to allow the client to be automatically updated with a newer version from the Citrix server.

---

**Note** The client must be installed in the default location, `/usr/lib/ICAClient/`, and you must be logged in as root for automatic update to work.

---

## Using the Client Update Database

If the version of the ICA Client currently installed supports client auto update, future versions of the ICA Client can be automatically downloaded when a user connects to a MetaFrame for Windows server. The new versions of the ICA Clients are downloaded from the Client Update Database.

ICA Client Auto Update works with all transport types supported by ICA (TCP/IP, IPX, NetBIOS, and serial) and supports the following features:

- Automatically detects older client files
- 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 Linux ICA Client. It cannot be used to update a Solaris Client to the Linux Client. The ICA UNIX Client only supports TCP/IP.

---

## The ICA Client Update Process

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

<b>Product/Model number</b>	<b>Platform</b>
1/1	ICA Client for DOS
E/1	ICA 32-bit Client for DOS
1/2	ICA Client for Win16
1/3	ICA Client for Win32
81/1	ICA Client for Compaq Tru64
81/2	ICA Client for HP-UX
81/3	ICA Client for SunOS
81/4	ICA Client for Solaris (SPARC)
81/5	ICA Client for SGI
81/6	ICA Client for RS6000
81/7	ICA Client for Solaris (Intel)
81/8	ICA Client for Linux (Intel)
81/9	ICA Client for SCO
81/A	ICA Client for Linux (ARM)
81/B	ICA Client for NET BSD
81/C	ICA Client for SCO CMW
82/1	ICA Client for Macintosh

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

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

- The MetaFrame for Windows server queries the ICA Client when the user logs on. If the server detects that the ICA Client is up-to-date, it continues the logon transparently.
- If an update is needed, by default, the MetaFrame for Windows 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 Metaframe for Windows 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 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 server again to continue working.
- After disconnecting from the server, the ICA Client completes the update. All client programs must be closed before the 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 ICA Client can complete the update.
- In case of a problem, the existing ICA Client files are saved in a hidden directory called `.bk` in `/usr/lib/ICAClient`.

## Configuring the Client Update Database

During MetaFrame for Windows 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 MetaFrame for Windows 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 servers.

Use the ICA Client Update Configuration utility to:

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

### ➤ **To start the ICA Client Update Configuration utility**

1. From a MetaFrame for Windows 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 server uses to update 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 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 MetaFrame for Windows 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.

---

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. ICA Clients are not updated if the database is not enabled.

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

- In **Client Download Mode**, click **Ask user** to allow the user to choose to accept or postpone the client update. Click **Notify user** to notify the user of the client update and require the update. Click **Transparent** to update the user's ICA Client without notifying the user.
- In **Version Checking**, click **Update older client versions only** to update client versions that are older than the new client. Click **Update any client version** to update all client versions to this version of the client. Use this option to force an older client to replace a newer client.
- In **Update Mode**, select the **Force Disconnection** check box to require users to disconnect and complete the update. By default, users can choose whether to disconnect and complete the client update after the new client files are downloaded. Clear the **Allow background download** check box to force users to wait for all client files to download before continuing. By default, users can choose whether to download new client files in the background and continue working.
- Select the **Log Downloaded Clients** check box to write an event in the event log when a ICA Client is updated.
- By default, errors that occur during a client update are written to the event log. Clear the **Log Errors During Download** check box to turn off error logging.
- Specify the maximum number of simultaneous updates per Citrix server. When the specified number of client updates are occurring, new client connections are not updated. When the number of client updates drops below the specified maximum, new client connections are updated.



## Adding and Removing ICA Clients

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

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

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

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

The client installation file, Update.ini, is located in %SystemRoot%\System32\Clients\Ica\ica32\disks\disk1.

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

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

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

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

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

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

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

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

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

Click **Next** to continue.

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

Auto Client Update uses the Windows 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 an 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 ICA Clients to this client. All other clients of the same product, model, and version are disabled.

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

➤ **To remove an ICA Client from the database**

1. In **Client Update Configuration**, click on the ICA Client to remove.
2. From the **Client** menu, click **Delete**. A dialog box displays the selected client information and asks for confirmation.
3. Click **OK** to remove the client. The ICA Client is now removed from the database.

## Changing the Properties of a ICA Client in the Database

Use the **Properties** dialog box to maintain the configuration of an 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 ICA Client in the database**

1. In **ICA Client Update Configuration**, click on the 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 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 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 an 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.

## Removing the ICA Client

➤ **To remove the ICA UNIX Client**

1. Log on as root.
2. Run the setup program by typing `/usr/lib/ICA Client/setupwfc` and press Enter.  
— or —

If you installed the ICA Client to a different location, enter that path and press Enter.

3. Enter **2** and press Enter to remove the ICA Client.

## Using the UNIX ICA Client as an “ICA to X Proxy” (“Server Side ICA”)

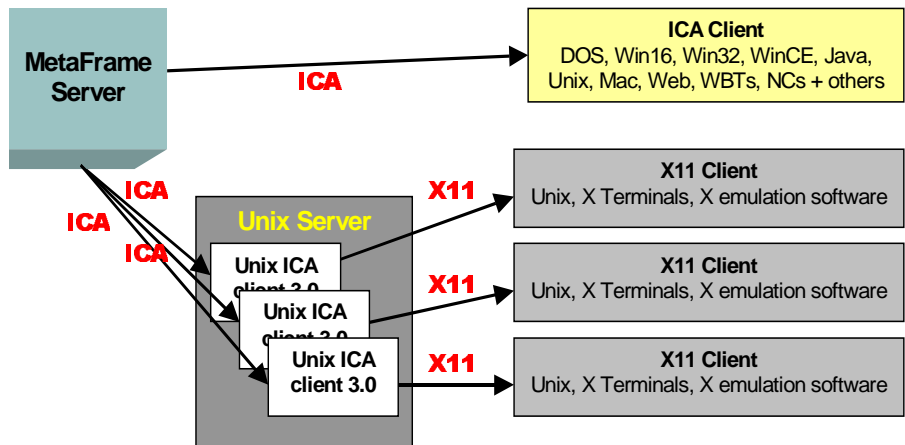
You can use a workstation running the ICA Client as a server and redirect the output to another X11-capable device. You may want to do this to deliver Microsoft Windows applications to X terminals or to UNIX workstations for which an ICA Client is not available (and for which the Java ICA Client is not a viable alternative).

---

**Note** ICA Client software is available for many X terminals and this is the preferred solution in these cases.

---

When you run the ICA Client, you can think of the client as an ICA-to-X11 converter that directs the X11 output to your local UNIX desktop. However, you can redirect the output to another X11 display. This means that you can run multiple copies of the ICA Client simultaneously on one workstation, with each sending its output to a different device.



To set up this type of system, you need a UNIX server to act as the ICA-to-X11 proxy.

- If you have X terminals already, you can run the ICA Client on the UNIX server that usually supplies the X applications to the X terminals.
- If you want to deploy UNIX workstations for which an ICA Client is not available, you will need an extra UNIX server to act the proxy. This can be a PC running Linux.

### Server Sizing

If you want to use a PC running Linux to act as the proxy, you can use the following example as a guide when choosing a computer:

- Pentium 166 MMX (no L2 cache), 64MB RAM, Red Hat Linux 5.1
- Linux ICA Client Version 3.0
- Sessions directed to an IBM Netstation 100 running as an X terminal

In tests, each ICA session used approximately 2.5MB of RAM on the Linux proxy device. With six sessions, the running CPU load was 20-25% with each connection running an “average user load” stress test. This indicates that a Pentium II 400 with 128MB RAM could be expected to comfortably support 40 X11 sessions.

## Supported Features

Applications are supplied to the final device using X11, using the capabilities of the ICA protocol.

By default, you can only use drive mapping to access the drives on the proxy. This is not a problem if you are using X terminals (which usually do not have local drives). If you are delivering applications to other UNIX workstations, you can either:

- NFS mount the local UNIX workstation on the workstation acting as the proxy, then point a client drive map at the NFS mount point on the proxy.
- Use an NFS-to-SMB proxy such as SAMBA, or an NFS client on the Citrix server such as Interdrive NFS.
- Some features will not be passed to the final device:
  - Audio will not be delivered to the X11 device, even if the server acting as a proxy supports audio.
  - Client printers are not passed through to the X11 device. You will need to mount the UNIX printer on the *WINFRAME* or MetaFrame server manually using LPD printing, or use a network printer.

## Starting the ICA Client with "Server Side ICA"

- **To start the ICA Client session from an X terminal or a UNIX workstation**
1. Telnet to the device acting as the proxy.
  2. In a C shell on the local device, set the DISPLAY environment variable to the local device. For example, type:  
`set DISPLAY=<local device:0>`
  3. At a command prompt on the local device, type:  
`xhost <proxy server name>`
  4. Locate the directory where the ICA Client is installed. At the command prompt, type:  
`wfcmgr &`

---

**Note** If you get font errors on the local X display when you start the ICA Client, start the font server on the proxy server - on Linux just type `xfs &`, on Solaris type `xfs -port fs`.

---

# Configuring the Citrix ICA UNIX Client



## Overview

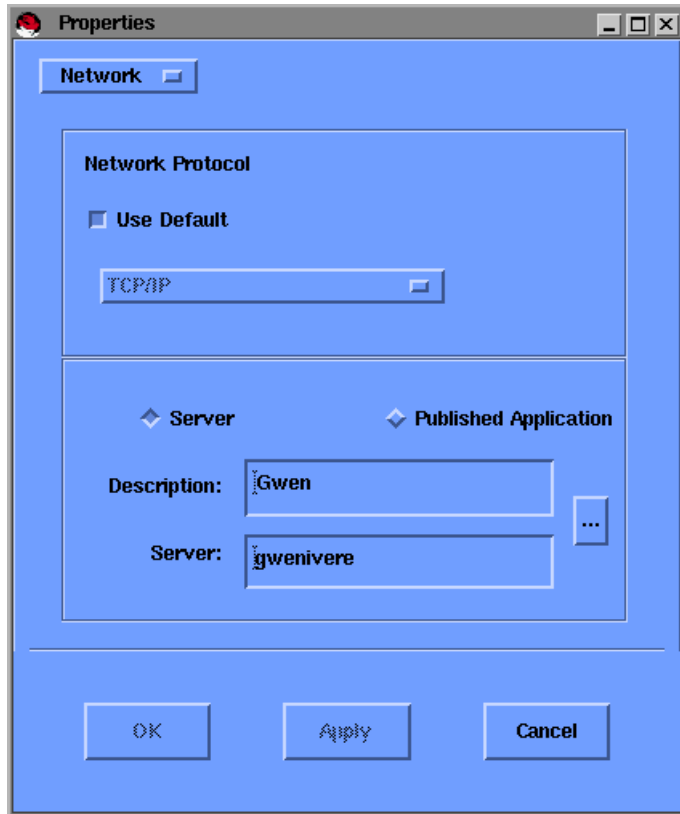
This chapter describes how to configure the Citrix ICA UNIX Client. Topics in this chapter include:

- Creating a connection entry
- Mapping client devices
- Changing a connection entry
- Changing the default settings
- Using X-Capture
- Improving security

## Creating a Connection Entry

You can create two types of connections to Citrix servers: ICA connections and published applications. An *ICA connection* lets a user 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. Published applications can also be run in seamless mode, where the applications appear to the client as if they are running locally, each application running in its own resizable window.

- **To create a connection entry**
  1. Start the ICA Client. From the **Entry** menu, click **New**, or click **New** on the toolbar. The **Properties** dialog box appears with the **Network** page displayed:



2. In the **Description** field, type a description for the entry. The description is used to identify the connection in the Citrix ICA Client window.
3. Click **Server** or **Published Application**.
4. For a server connection, type the name or IP address of the Citrix server or select the name from the pop-up menu to the right of the **Server** field.

— or —

For a published application, type the name of the published application or select the name from the pop-up menu to the right of the **Server** field.

5. Click **OK** to save the entry or **Cancel** to exit the **Properties** dialog box without saving the entry.

When you have created a connection entry with the appropriate network connection properties set up, the description appears in the main ICA Client window.



---

**Note** This is the simplest way to create a connection entry. When you follow these steps, you set the essential items you will need to connect to the Citrix server from the workstation. You can change some of the other properties for a connection, for example, the window size or color settings. See “Changing the Window Properties.”

---

## Opening a Connection

You can connect to a Citrix server session from the main ICA Client window or directly from the UNIX prompt.

➤ **To open a connection from the main ICA Client window**

Double-click the name of the Connection Entry that you want to open in the **Citrix ICA Client** window. Alternatively, select the name of the connection entry and click **Connect** from the **Entry** menu.

➤ **To open a connection from the command line**

Type the following command at the UNIX prompt:

```
/usr/lib/ICAClient/wfica -desc description
```

where *description* is the full text from the **Description** field of the connection entry.

---

**Note** If you cannot connect to a Citrix server you may need to change the server location or SOCKS proxy details. See “Configuring the Server Location” and “Connecting through a SOCKS Proxy” for more details.

---

## Mapping Client Devices

The Citrix ICA UNIX Clients support client device mapping for connections to *WINFRAME* and *MetaFrame* for Windows servers. *Client device mapping* allows a remote application running on the Citrix server to access printers and disk drives attached to the local client computer. The applications and system resources appear to the user at the client workstation as if they are running locally. Ensure that client device mapping is supported on your Citrix server before using these features.

---

**Note** Drive mapping, COM port mapping, and client audio are not supported by *MetaFrame* for UNIX Operating Systems v1.0-1.1

---

This section includes more information about:

- Mapping COM ports
- Mapping client drives

- Mapping client printers
- Mapping client audio

## Mapping COM Ports

**Linux** If you are running the ICA Client on Linux, you can perform bi-directional mapping of Linux serial devices; e.g., /dev/ttyS0 to Citrix Server COM ports. This allows a user at the client workstation to use local devices like modems, serial printers, and bar-code scanners seamlessly from the applications running on the Citrix server.

- **To configure COM port mapping**
  1. In the Citrix ICA Client window, click the **Options** menu and then click **Settings**.
  2. In the **Settings** dialog box, select **COM Ports** from the pull-down menu.
  3. Click **Add** to map a COM port.

## Mapping Client Drives

*Client drive mapping* makes any directory mounted on the ICA Client workstation, including CD-ROMs, available to the user during ICA sessions on Citrix servers. When a Citrix server is configured to allow client drive mapping, users can access their locally stored files, work with them during their ICA sessions, and then save them again either on a local drive or on a drive on the Citrix server.

You can control drive mapping at the Citrix server, in the **Client Settings** dialog box in **Citrix Connection Configuration**. Use the **Connection** settings to specify the devices to automatically map at logon. You can also use the **Client Mapping Overrides** to allow a user to control the device mapping from the client workstation during ICA Client sessions, in the **Drive mapping** dialog box. Use this dialog to specify which folders and drives to map at logon. This applies for all connection sessions

➤ **To specify the directories to automatically map during logon**







1. In the Citrix ICA Client window, click **Options** and then click **Settings**. In the **Settings** dialog box, select **Drive Mapping** from the pull-down menu:



For each Citrix server drive letter, the **Drive Mapping** list shows the disk or pathname of the UNIX directory mapped to the drive. In the **Enable/Read/Write** columns, icons display whether each mapped drive is enabled for use and what type of access the user will have to the drive.

2. Click the check box in the **Enable** column next to an available drive letter and then click in the field for the drive.
3. Click **Modify**. A standard UNIX file selection dialog box appears. Select the UNIX directory you want to map and click **OK**.
4. The mapped directory appears in the **Drive Mapping** list. If the drive letter you selected is not available on the Citrix server, the specified directory is mapped to another free drive letter at logon.

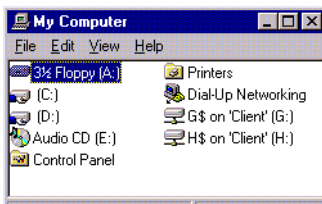
5. Specify the access for the drive by clicking the corresponding read/write icons. You can use:

Icon	Meaning
	Read access
	Prompt for read access on first access per session
	No read access
	Write access
	Prompt for write access on first access per session
	No write access

6. Make sure **Enable Drive Mapping** is checked. Click **OK**. Log off any ICA connections already established and reconnect. The same drive mapping and access settings will apply to all connection entries.

➤ **To view mapped client drives when connected to a MetaFrame for Windows server**

From within the ICA Client session, double-click **My Computer** on the remote desktop. The **My Computer** screen appears:



Published applications and ICA server connections that run a specified initial program offer users the same access to their local drives. When connected to published applications, users can access local drives in the same way they would when using locally run applications.

➤ **To manually map a client drive on a Citrix server**

Mapped drives that do not appear after logon can be manually mapped from within an ICA session. Use the following procedure to manually map a client drive.

1. In the Citrix ICA Client window, double-click on a connection entry and log on to the Citrix server.
2. On a *WINFRAME* server, start File Manager. From the **Disk** menu, click **Connect Network Drive**. The **Connect Network Drive** dialog box appears.

On a MetaFrame for Windows server, start Windows Explorer. From the **Tools** menu, click **Map Network Drive**. The **Map Network Drive** dialog box appears.

3. In the **Drive** field, select a server drive letter. This drive letter will represent the mapped client drive.
4. From the **Shared Directories** list, double-click **Client Network, Client**, and then select the appropriate icon for your UNIX directory from the list of available client drives.
5. If you want to have this drive available to you each time you log on to this server, check **Reconnect at Logon**. Click **OK**.

## Mapping Client Printers on MetaFrame for Windows and WINFRAME

*Client printer mapping* lets users access spooled printers available to the workstation during ICA sessions. When a Citrix server is configured to allow client printer mapping, applications running remotely on the Citrix server can print to a spooled printer.

### ➤ To map a local printer on a MetaFrame for Windows server

1. From the UNIX workstation, start an ICA connection and log on to the MetaFrame server.
2. Click **Start** on the taskbar, point to **Settings**, then click **Printers**.
3. In the **Printers** window, you will see an icon for a network printer with a name similar to *workstation#printer*, where *workstation* is the UNIX workstation name and *printer* is the UNIX name for the printer.
4. If no client printer is available, double-click **Add Printer**. The **Add Printer Wizard** appears.
5. Click **Network printer server** and then click **Next**.
6. Double-click **Client Network** and then double-click **Client**.
7. Select the printer from the list displayed. Spooled printers available on the UNIX workstation have a name similar to *workstation#printer*. Click **OK**.
8. If you want this printer to be the default printer, click **Yes** and then click **Next**.
9. Click **Finish**.

- **To map a local printer on a WINFRAME server**
  1. Log on to the *WINFRAME* server.
  2. In the **Main** program group, double-click **Print Manager**. In the **Printer Manager** window, you will see an icon or open dialog box for a network printer with a name similar to *workstation#printer*, where *workstation* is the UNIX workstation name and *printer* is the UNIX name for the printer.
  3. If no client printer is available, select **Connect to Printer** from the **Printer** menu.
  4. From the **Shared Printer** list, double-click **Client Network** and then double-click **Client**.
  5. Select the client printer icon, which will have a name similar to *workstation#printer*, and click **OK**.
  6. If you want this printer to be your default printer, select it from the **Default** menu at the top of the **Printers** window.

## Mapping Client Printers on MetaFrame for UNIX

Before users can print to a client printer from MetaFrame for UNIX, printing must be enabled by the administrator. This section describes how to enable printing on the server. It describes how users can list available client printers and print files from the command line or from applications.

In a UNIX environment, the application performs the print rendering. The printer driver is specified inside the application or, in the case of a desktop utility, raw text is generated.

---

**Note** For further information about printing on MetaFrame for UNIX Operating Systems, see the *MetaFrame Administrator's Guide* and the manual pages.

---

### Setting up Printing

- **To check if client printing is currently enabled or disabled**
  1. Log on to the MetaFrame server as a Citrix server administrator.
  2. At the command prompt, type:

```
ctxcfg -p list
```
- **To enable or disable client printing**
  1. Log on to the MetaFrame server as a Citrix server administrator.

- At the command prompt:

To	Use the command
Enable client printing	<code>ctxcfg -p enable</code>
Disable client printing	<code>ctxcfg -p disable</code>

➤ **To display mapped client printers**

- At the command prompt, type:

```
ctxprinters
```

A list of printers configured on the client and mapped for use from the ICA session is displayed. **(default)** is displayed after the printer that is the default. The following information is shown for each printer:

- Printer name or printer port (for example, `lpt1`). This can be used in the **ctxlpr -P** command to specify a printer other than the default.
- Printer driver name. This is for information only.
- Printer connection description. This is for information only.

## Using Printing

➤ **To print a file from an ICA Client session**

- At the command prompt, type **ctxprinters**.
- From the results of `ctxprinters`, identify the printer or printer port that you want to use. To print to a printer other than the default, note the printer name—the printer name is the first item in the `ctxprinters` listing.
- At the command prompt:

To	Use the command
Print the file named <i>filename</i> to the default printer.	<code>ctxlpr filename</code>
Print a series of files to the default printer. Each file is treated as a separate print job.	<code>ctxlpr filename filename</code>
Print a file to a printer (or printer port) other than the default. This is the printer name or printer port shown in the first column of the output from <code>ctxprinters</code> .	<code>ctxlpr -P [Printername   Printerport] filename</code>
Print a file in the background.	<code>ctxlpr -b filename</code>
Print a file only if the printer is not in use. Use this option to stop an application waiting while other printer jobs are handled. If the printer is in use, an error message is displayed.	<code>ctxlpr -n filename</code>

## To print from applications

The exact configuration of how to set up printing from applications depends on the behavior and user interface of the UNIX application.

If the user interface for an application allows you to specify the actual printer command to use when printing, you can configure client printing by replacing the **lpr** or **lp** command with the **ctxlpr** command.

When a user connects to the server and prints from the application in a session, the server redirects the output to the mapped client printer.

Often, in this type of application, you can also specify the command line modifiers on a different line. You can use the same switches for **ctxlpr** as when printing from the command line. For example, use **-P** with a printer name (or printer port) to print to a printer other than the default; use **-b** for background printing, and so on.

---

**Tip** If the user interface of an application does not allow you to specify the actual printer command to use when printing, determine if the application (or window manager) uses a configuration file where you can replace the **lpr** command functionality with **ctxlpr**.

---

## Mapping Client Audio

**Linux** Client audio mapping enables users at the client workstation to hear the sounds and audio from the application they are using, even though the application is running on the Citrix server.

**HP-UX**

**AIX**

**HP-UX**

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 you can disable client audio mapping completely.

An administrator can set the audio quality or enable/disable client audio mapping on the Citrix server. A user can set the audio quality or enable/disable client audio mapping for an entry from the client workstation. 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 Medium setting; however, the lower data rate allows reasonable performance for a low-bandwidth connection.
- **To enable or disable ICA Client audio on a MetaFrame for Windows server**
    1. Click **ICA Settings** in Terminal Server Connection Configuration.
    2. Select an option from the **Client Audio Quality** drop-down list.
  - **To enable or disable 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.
  - **To configure audio mapping for a connection entry**
    1. In the ICA Client main window, select the name of the connection you want.
    2. Click **Properties** from the **Entry** menu, or click the **Properties** button. The **Properties** dialog box shows the current properties of the selected connection.
    3. In the **Properties** dialog box, select **Connection** from the pull-down menu.
    4. Select **Enable Sound** to enable sound support. Select High, Medium, or Low quality depending on the available bandwidth.

## Changing a Connection Entry

This section describes how to change the properties for an existing connection entry.

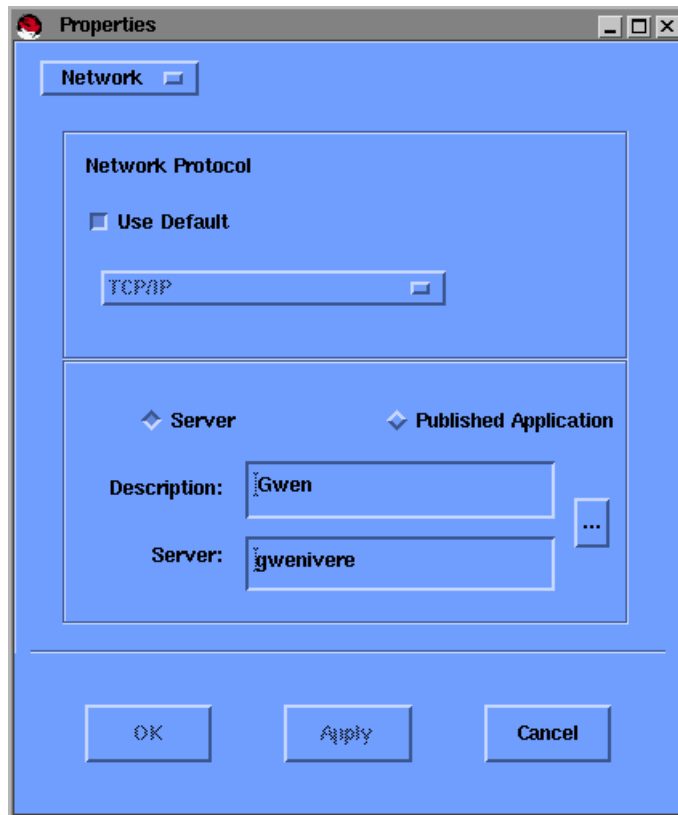
- **To change the properties for a connection entry**
  1. From the Citrix ICA Client window, select the connection entry that you want to change.
  2. From the **Entry** menu, click **Properties**. The **Properties** dialog box has pages corresponding to the properties you can control, including:

- The **Network** page, where you can change the settings required to establish a connection with the Citrix server. See “Configuring Network Properties.”
- The **Connection** page, where you can control the connection between the Citrix server and client workstation; e.g., to improve performance by reducing bandwidth. See “Improving Performance.”
- The **Application** page, where you can specify an application to run when you connect the Citrix server. See “Specifying an Application to Run at Connection.”
- The **Window** page, where you can specify the window size and number of colors used for the ICA session. See “Changing the Window Properties.”
- The **Login** page, where you can specify your login details so that you do not have to type them each time you connect to a Citrix server. See “Configuring Login Properties.”

## Configuring Network Properties

Use the **Network** page in the **Properties** dialog box to specify a connection with a Citrix server and the network protocol to use.

- **To change the network properties for a connection entry**
  1. From the main ICA Client window, select the connection entry that you want to change.
  2. From the **Entry** menu, click **Properties**.
  3. From the **Properties** dialog box, select **Network** from the drop-down list to display the **Network** page:



4. Adjust the properties as required:
  - Enter a description of the connection in the **Description** field.
  - Click **Server** to configure a connection to a Citrix server. Click **Published Application** to configure a connection to a published application. You can specify a server either by its name or its IP address. Click the “Browse” (...) button to get a list of Servers or Published Applications.
  - Click **Network Protocol** to change the protocol used when locating the ICA master browser. If a firewall restricts UDP messages, select **TCP/IP+HTTP** from the list.

**Linux**

## Improving Performance

Use the **Connection** page in the **Properties** dialog box to set up a disk cache, enable data compression, or enable SpeedScreen Latency Reduction to increase performance over bandwidth-limited connections.

## Disk Cache

Bitmap caching stores commonly-used graphical objects such as bitmaps in a local disk cache on the client computer. If you are connecting to a Citrix server over a high-speed LAN, you do not need disk caching.

➤ **To enable bitmap caching**

1. From the ICA Client window, select the connection entry that you want to change.
2. From the **Properties** page, select **Connections** from the drop-down list to display the **Connections** page.
3. Select **Use Disk Cache for Bitmaps** to store commonly-used graphical objects such as bitmaps in a local disk cache on the client computer.

---

**Note** You can enable or disable bitmaps for each connection entry so that you can control the connection to each Citrix server. Note that only one physical cache is used for all connection sessions that are enabled. See “Changing the Settings for the Disk Cache.”

---

## Data Compression

Data compression reduces the amount of data transferred across the ICA session. This requires additional processor resources to compress and decompress the data, but it can increase performance over bandwidth-limited connections.

➤ **To enable data compression**

1. From the ICA Client window, select the connection entry that you want to change.
2. From the **Properties** page, select **Connections** from the drop-down list to display the **Connections** page.
3. Select **Use Data Compression** to reduce the amount of data transferred across the ICA session.

## SpeedScreen Latency Reduction

**Linux** SpeedScreen Latency Reduction improves performance over high latency connection by providing instant feedback to the user in response to typed data or mouse clicks.

---

**Note** SpeedScreen will work only when it is available on the Citrix server you are connecting to and has been enabled. See your Citrix server documentation for more details.

---

➤ **To change SpeedScreen settings**

1. From the ICA Client window, select the connection entry that you want to change.
2. From the **Properties** page, select **Connections** from the drop-down list to display the **Connections** page.
3. In the SpeedScreen section there are two list boxes, **Local Text Echo** and **Mouse Click Feedback**. **Local Text Echo** accelerates display of the input text, effectively shielding you from experiencing latency on the network. **Mouse Click Feedback** provides visual feedback of a mouse click, in that the mouse pointer is immediately changed to an hourglass indicator. Select a mode from the drop-down list:
  - 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.
  - 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 the mode to **Auto** to turn SpeedScreen on or off depending on the latency of the connection. You can override Auto mode using the **Toggle SpeedScreen** hotkey.

## Specifying an Application to Run at Connection

Use the **Application** page in the **Properties** dialog box to specify an application to run when you connect using the connection entry. If you specify an application, you do not see the Citrix server desktop when you connect and the connection is closed when you quit the application.

➤ **To specify an application to run at connection**

1. From the ICA Client window, select the connection entry that you want to change.

- From the **Properties** page, select **Application** from the drop-down list to display the **Application** page.

The image shows a screenshot of a dialog box titled "Properties". At the top left, there is a drop-down menu currently set to "Application". Below this, there are two text input fields. The first is labeled "Application:" and the second is labeled "Working Directory:". At the bottom of the dialog box, there are three buttons: "OK", "Apply", and "Cancel".

- In the **Application** field, you can specify the pathname of an application to be run after connecting to a Citrix server.
- In the **Working Directory** field, you can specify the pathname of a directory to be used with the application.

---

**Note** If the entry you are configuring is a connection to a published application, the **Application** dialog box will not be available.

---

## Changing the Window Properties

Use the **Window** page to change the window size and number of colors used for a particular connection.

➤ **To configure the window properties**

- Select the connection entry you want to change.

- From the **Properties** page, select **Window** from the drop-down list to display the **Window** page.



- **Window Size** allows you to select from **Fixed Size**, **Percentage of Screen**, or **Full Screen**. Selecting **Fixed Size** or **Percentage** and type the size (in pixels) or percentage in the **Window Size** boxes.
- **Window Colors** allows you to set the number of window colors to **16**, **256**, **32 Thousand**, or **16 Million**. Your display must be capable of displaying the resolution and color depth you select.

- **256 Color Mapping** allows you to set up 256 color sessions to use approximate or exact colors. Use **Shared - Approximate Colors** to eliminate color flashing when switching context. Note that if other applications have allocated all 256 colors, the client will use a private colormap.
- In each case, select **Use Default** to use the default window size or window colors setting. For more information about setting defaults, see “Configuring the Default Window Settings.”

## Configuring Login Properties

The **Login** page allows you to enter login details of your ICA connection so that you don't need to type them in each time you connect.

- **To configure login properties**
  1. From the Citrix ICA Client window, select the connection entry that you want to change.
  2. From the **Properties** page, select **Login** from the drop-down list to display the **Connections** page.
  3. Type your **Username**, **Domain** (optional), and **Password** for the connection.

## Changing the Default Settings

This section describes how to change settings that apply for all connection entries on the workstation.

It also describes how to change the default settings that are used when you create a new connection entry. You may want to do this if you prefer to use a particular setting; for example, a window size that is different from the suggested setting.

- **To change the default settings**
  1. Display the Citrix ICA Client window.
  2. From the **Options** menu, click **Settings**. The **Settings** dialog box has pages corresponding to the properties you can control, including:
    - The **Server Location** page, where you can specify the server address for the Citrix server that functions as the master browser. See “Configuring the Server Location and Business Recovery.”
    - The **Hotkeys** page, where you can define alternative key combinations for system hotkeys. See “Configuring Hotkeys.”
    - The **Window** page, where you can specify the settings to use for all new connection entries. See “Configuring the Default Window Settings.”



- The **Disk Cache** page, where you can define settings for the disk cache. See “Changing the Settings for the Disk Cache.”
- The **Preferences** page, where you can control other settings that apply to all connection entries. See “Configuring Preferences.”
- The **Firewall** settings page, where you can configure firewalls and a SOCKS proxy. See “Improving Security.”

---

**Note** You can also set up drive mappings from the **Settings** dialog box. See “Mapping Client Devices.”

---

## Changing the Settings for the Disk Cache

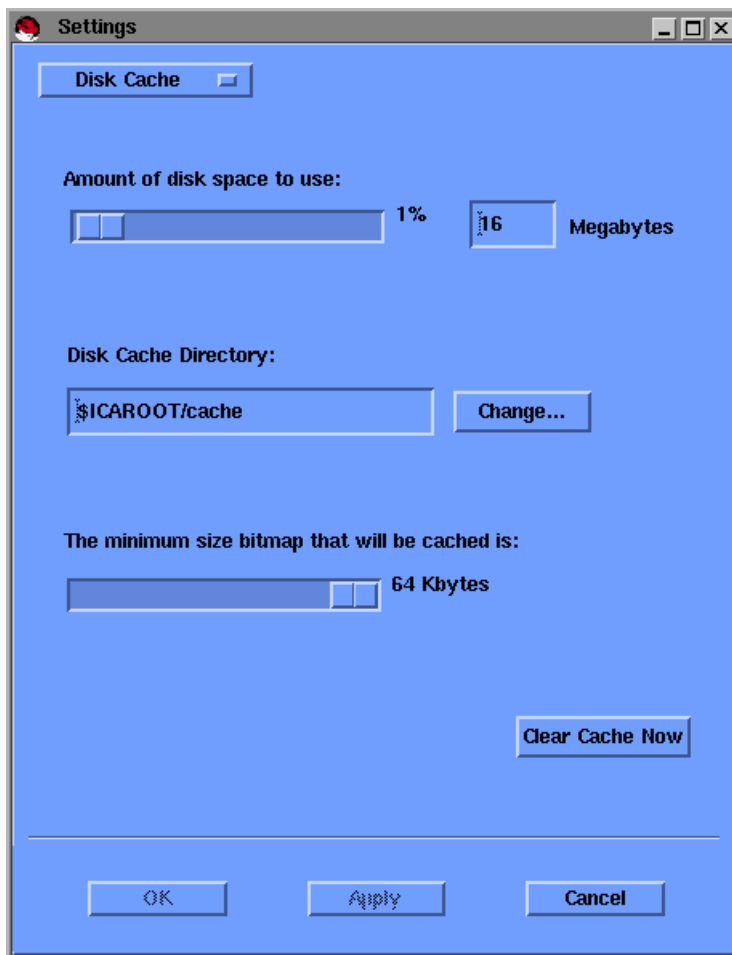
Use the **Disk Cache** page in the **Settings** dialog box to control the location, size, and contents of the disk cache.

---

**Note** The disk cache is used only if it is enabled for a particular connection. See “Improving Performance” for more details.

---

- **To adjust the settings for the disk cache**
  1. From the **Options** menu, click **Settings**.
  2. From the **Settings** dialog box, select **Disk Cache** from the drop-down list. This displays the **Disk Cache** page:



- To set the maximum size of the cache, adjust the **Amount of disk space to use** slider to show a percentage of the disk, or type in the maximum size you want to allow.
- To set the size of the minimum bitmap to cache, adjust the slider.
- To change the location of the cache, set the **Disk Cache Directory** as appropriate. If you change the location of a cache on a workstation, make sure that you clear the old cache first.
- To clear the cache, click the **Clear Cache Now** button. 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.

---

**Note** An administrator can view information about the bitmap cache settings for an ICA connection using the **Cache** tab in Citrix Server Administration. See your server documentation for more details.

---

## Configuring the Default Window Settings

Use the **Window** page in the **Settings** dialog box to set up the default window settings for all new connection entries.

These settings are used as the default for all new connections. If you want to change the window settings for a specific connection, see “Changing the Window Properties.”

➤ **To configure the default window settings**

1. Select **Window** from the drop-down list on the **Settings** dialog box to display the **Window** page.
2. Adjust the settings as required, for example:
  - **Window Size** allows you to select from **Fixed Size**, **Percentage of Screen**, or **Full Screen**.
  - **Window Colors** allows you to set the number of window colors to 16, 256, 32 Thousand, or 16 Million. Before selecting a new color mode, ensure that it is supported on your machine.
  - **256 Color Mapping** allows you to set up 256 color sessions to use approximate or exact colors. Use Shared - Approximate Colors to eliminate color flashing when switching context. Note that if other applications have allocated all 256 colors, the client will use a private colormap.

## Configuring the 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 address of the first Citrix server to respond is then used in the next step. This server functions as the master ICA browser.
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.

---

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

---

*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.

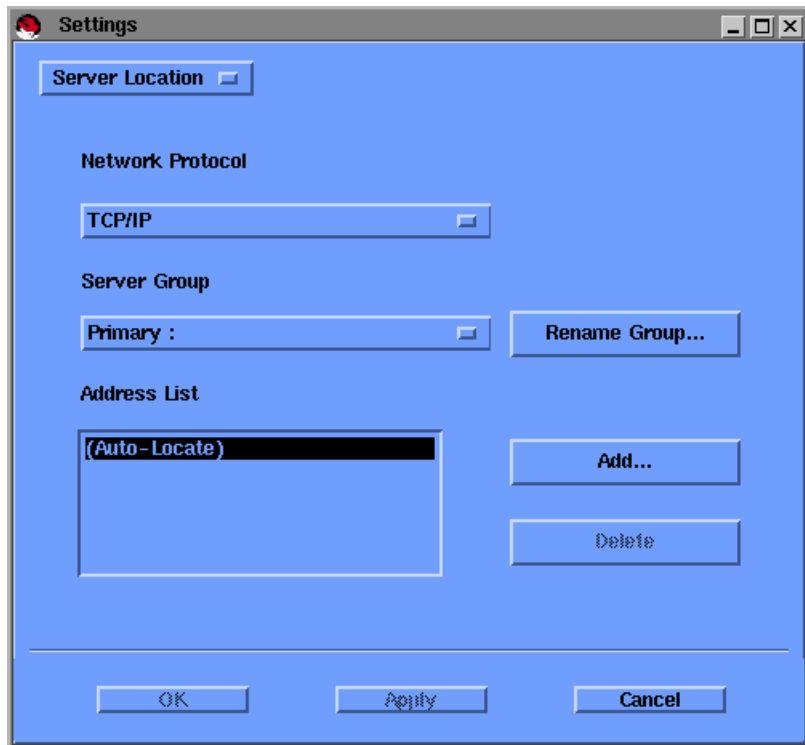
Server Location can be configured globally or per connection.

---

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

---

- **To configure server location and business recovery**
  1. From the **Settings** page, select **Server Location** from the drop-down list to display the **Server Location** page:



2. Click the **Add** button to display the **Add Server Location Address** dialog box.
3. Enter the name or IP address of a specific Citrix server and click **OK**

---

**Note** You can place more than one address in the server location list to allow clients to continue to connect and function even if one of the servers is not available.

---

## Configuring TCP/IP+HTTP Server Location

You can retrieve Citrix server and published application information across a firewall by using TCP/IP+HTTP server location. Using HTTP for application browsing eliminates the use of UDP and allows Citrix servers to be located from behind a network firewall.

➤ **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.

---

4. The specified server responds with a list of all servers and published applications in its server farm.

---

**Important** For custom ICA connections, you must configure the TCP/IP+HTTP server location settings for each ICA connection.

---

## Configuring Hotkeys

Use the **Hotkeys** page to map keys to the Microsoft Windows keypresses Alt+F1 to Alt+F12. These key combinations are used for different functions in X Windows.

For example, in Microsoft Windows the standard key combination Alt+F4 closes the current window. The same key combination closes the session in X Windows. When you want to use a Microsoft Windows key combination during a session, you can use the mapped hotkey instead.

➤ **To display the hotkey settings**

From the **Settings** page, select **Hotkeys** from the drop-down list:



On the **Hotkeys** pages, you can define alternative key combinations for the hotkeys <Alt> <F1> to <Alt> <F12>, which are reserved for use by X Windows.

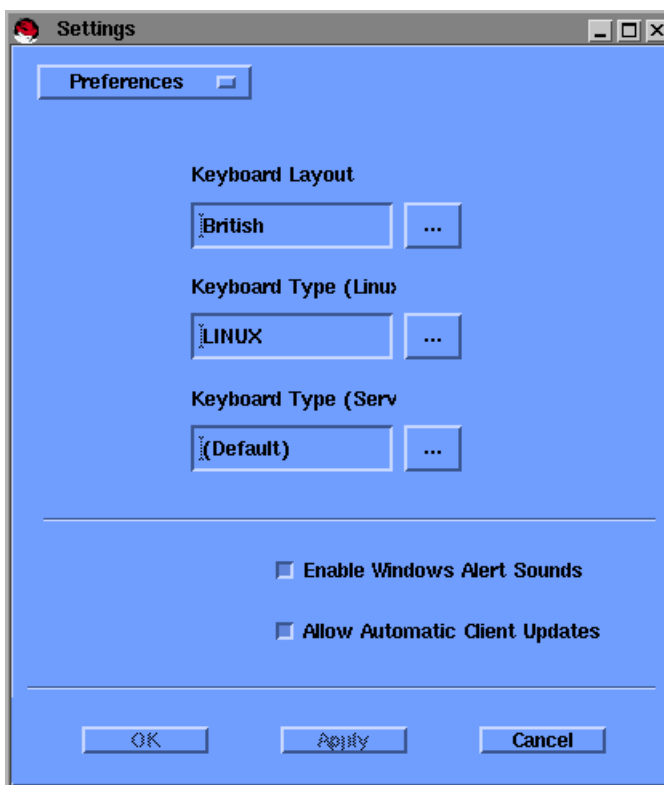
By default, these key combinations are generated by <Alt> <Ctrl> <F1> to <Alt> <Ctrl> <F12>, but you can change the definitions by selecting alternative keys from the pop-up menus.

Any <Alt> key combinations not used by your X Window manager can be used as normal within the ICA session.

**Note** If you want to use the PC key combination <Ctrl> <Alt> <Delete> during the connection session, use the key combination <Ctrl> <Alt> <Enter> or <Ctrl> <Alt> <RETURN>.

## Configuring Preferences

- **To configure the preference settings**
  1. Select **Preferences** from the drop-down list in the **Settings** dialog box to display the **Preferences** page:



2. Adjust the settings as required, for example:
  - Select **Keyboard Layout** to set the input locale, where input locale is the language you want to type in. Select your input locale from the list.



- Select **Keyboard Type (Client)** to select the correct keyboard type for your workstation. Select your workstation type from the list.
- Select **Keyboard Type (Server)** to specify the physical keyboard type you are using. The default is a standard 105 key keyboard. If you are using a Japanese keyboard, select it from the list. For all other keyboards, use the default.
- Select **Enable Windows Alert Sounds** if you want Windows alert sounds to be played using the UNIX workstation sound system.
- Select **Allow Automatic Client Updates** to allow the client software at this workstation to be automatically updated when a newer version is available. See “Preparing for Client Auto Update” in Chapter 2, “Deploying the Citrix ICA UNIX Client.”

## Using xcapture

The Citrix ICA UNIX Client includes a helper application, xcapture, that can assist the exchange of graphical data between the Citrix server clipboard and non-ICCCM-compliant X window applications on the X desktop. You can use xcapture to:

- Grab dialogs or screen areas and copy them between the UNIX desktop (including non-ICCCM-compliant applications) and an application running in an ICA Client window.
- Copy graphics between the ICA Client and X graphics manipulation utilities xmag or xv.

### ➤ To start xcapture

At the UNIX prompt, type `/usr/lib/ICAClient/util/xcapture` and press Enter (where `/usr/lib/ICAClient` is the directory in which you installed the ICA UNIX Client).

### ➤ To copy from the UNIX desktop

1. From the xcapture dialog, click **From screen**. The cursor changes to a crosshair.
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, you can cancel the selection by clicking the right button before releasing the first button.
3. From the xcapture dialog, click **To ICA**. The xcapture button changes color to show that it is processing the information.

4. When the transfer is complete, use the appropriate paste command in the application in the ICA Client window.
- **To copy from xv to an application in the ICA Client window**
    1. From xv, copy the information.
    2. From the xcapture dialog, click **From XV** and then click **To ICA**. The xcapture button changes color to show that it is processing the information.
    3. When the transfer is complete, use the appropriate command in the application in the ICA Client window to paste the information.
  - **To copy from an application in the ICA Client window to xv**
    1. From the application in the ICA Client window, copy the information.
    2. From the xcapture dialog, click **From ICA** and then click **To XV**. The Xcapture button changes color to show that it is processing the information.
    3. When the transfer is complete, you can use the paste command in xv.
  - **To copy between xmag and an application in the ICA Client window**
    1. Copy the information in xmag or the ICA Client application.
    2. From the xcapture dialog, click **From ICA** and then click **To ICA**. The xcapture button changes color to show that it is processing the information.
    3. When the transfer is complete, use the appropriate paste command in the destination application.

---

**Note** Note that while both **xmag** and **xv** can also do screen grabs, they do not cope well with mixed-visual or mixed-colormap regions. **xmag** does not grab the colormap at the same time as the pixels.

---

## Improving Security

The following settings describe how to configure an ICA connection through a SOCKS proxy server or across a firewall, and how to set encryption. SOCKS proxy servers and firewalls are used on networks to improve security. Encryption increases the security of the ICA connection itself.

## Connecting Through a SOCKS Proxy Server

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. You can configure the ICA Client to connect to a Citrix server through a SOCKS proxy server.

- **To specify a SOCKS proxy for an ICA connection**

1. Select the name of the connection you want in the ICA Client window. Click the **Properties** button.
  2. Choose **Connection** from the **Properties** dialog box to display the **Connection** page.
  3. Check **Connect Via SOCKS Proxy** and type the **Address** (or IP number) and **Port** of the SOCKS Proxy server. Click **OK**.
- **To specify a default SOCKS proxy**
1. Click the **Option** menu and choose **Settings**. The **Settings** dialog box appears.
  2. Select the **Firewall Settings** page.
  3. Click **Connect Via SOCKS Proxy**. Type the **Address** (or IP number) and **Port** of the SOCKS proxy. Click **OK**.

## Connecting Across a Firewall

Network firewalls can allow or block packets based on the destination address and port. If you are using ICA through a network firewall, use the information provided in this section to configure the firewall settings. You can configure the ICA Client to connect to a Citrix server through a firewall.

- **To connect across a firewall**
1. Click the **Option** menu and choose **Settings**.
  2. Select the **Firewall Settings** page.
  3. Click **Use alternate address for firewall connection**.
  4. Add the external Internet address of a Citrix server that is on the subnet to which you want to connect to the **Address List** in the **Server Location** page. See “Configuring the Server Location and Business Recovery.”

## Using Encryption

Encryption increases the security of your ICA connection. By default, basic encryption is enabled on all connections. 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.

---

**Note** Selecting RC5 encryption disables automatic logon to the Citrix server

---

- **To change the encryption settings**
1. Select the name of the connection you want in the **Citrix ICA Client** window. Click the **Properties** button.
  2. Choose **Connection** from the **Properties** dialog box to display the **Connection** page.

3. Click the **Encryption Level** button and choose an encryption level from the list. Click **OK**.

---

**Note** The Citrix server can be configured to only allow connections from ICA Clients that support basic or advanced encryption.

---

## Using Applications Published on a MetaFrame for UNIX Server

For connections to applications published on a MetaFrame for UNIX server, two additional utilities provide functionality for configuring session display and copying and pasting objects between the ICA session and the client device. This section describes how to access and use these tools through the Citrix window manager.

### 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.

#### **Linux** About Seamless Windows on MetaFrame for UNIX

*Seamless windows* are ICA Client session windows containing published applications that are configured to run in seamless mode. In seamless mode, applications running on the MetaFrame server appear to the client as if they are running locally, and each application appears in its own resizable window.

You can also display seamless windows in “full screen” mode, which places the published application in a full-screen sized desktop. This mode lets you access the ctxwm menu system.

#### Accessing Seamless “Full Screen” Mode






- **To switch between seamless and seamless “full screen” modes**  
Press SHIFT and F2.

#### 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 Citrix 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.
	<i>(Taskbar or Icon)</i>	
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 wish 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	 <i>(Title-bar)</i>	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

In remote desktop and seamless "full screen" windows, 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 Citrix window manager 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.

---

## Copying 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 copy 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 copy 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 Citrix window manager.

➤ **To access the ctxgrab utility from the Citrix window manager**

1. In seamless mode, right click the **ctxgrab** button in the top, left hand corner of the screen to display a menu and choose the **screengrab** option.  
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 xv.

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 Citrix window manager**
  1. In seamless mode, right click the ctxcapture button in the top, left hand corner of the screen to display a menu and choose the screengrab option.

In full screen mode, left click to display the Citrix window manager 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**.



# Index

## A

- adding Citrix ICA Clients to the client update database 25
- Alt Key Combinations 54
- application publishing
  - using the window manager 60
- Application Publishing Support 14
- Applications 45
- Approximate Colors 46, 51
- Audio Mapping 40

## B

- Bandwidth Reduction
  - Data Compression 43
  - Disk Caching 43
    - disk caching 49
- Bitmap Caching 43, 49
- Business Recovery 14, 51

## C

- Cache Settings 49
- Caching Bitmaps 43, 49
- Changing a Connection Entry 41
- Changing Protocol 53
- Citrix on the World Wide Web 9
- Citrix window manager 60
- Client Auto Update 13
- Client Device Mapping 12
- Client Drive Mapping 12
- Client Printer Mapping 12
- client update database 20
  - adding and removing Citrix ICA Clients 25
  - changing the properties of a Citrix ICA Client in the Database 26
  - configuring properties 24
  - creating a new database 23
  - setting a default database 23
- Clipboard 14
- Color Approximation 46
- Color Mapping 46, 51
- COM Ports 34
- Configuring Application Properties 45
- Configuring Default Settings 48
- Configuring Default Window Settings 51
- Configuring Hotkeys 54
- Configuring Network Properties 42

- Configuring Preferences 56
- Configuring the Citrix ICA UNIX Client 31
- Configuring the client update database 22
- Configuring Window Properties 46
- Connection Entries
  - Changing 41
  - Creating new Entries 31
  - Default settings 48
  - Running Applications 45
- Conventions 8
- Creating a Connection Entry 31
- creating a new client update database 23
- ctxcapture 63
- ctxgrab 62
- ctxwm 60
- ctxwm, window manager 60, 61

## D

- Data Compression 13, 43
- Deploying the Citrix ICA UNIX Client 17
- Disk Cache 49
- Disk Caching 13, 43
- Drive Mapping 34

## E

- Editing a Connection Entry 41
- Enabling
  - Alert sounds 56
  - Bitmap Cache 43
  - Data Compression 43
- Encryption 12
  - Using 59

## F

- Finding More Information 9
- full screen seamless mode 60

## H

- Hotkeys 54
- How to Use this Guide 7

## I

- ICA to X proxy 28
- ICA UNIX Client Hotkeys 14
- Installing the ICA UNIX Client 18
- Introduction to the Citrix ICA UNIX Client 11

## K

- Keyboard Layout 56

## L

- Launching a Connection 33

Logon Parameters 42

## M

Mapping Client Audio 40  
Mapping Client Devices 33  
Mapping Client Drives 34  
Mapping Client Printers 37  
Mapping COM Ports 34  
Mapping Serial Ports 34

## N

New Connection Entries 31

## O

Opening a Connection Entry 33  
Operating Systems Supported 18

## P

Pasting between applications 14  
Platforms supported 18  
Preferences 56  
Printer Mapping 37  
Properties dialog  
    Application page 45  
    Connection page 43  
    Network page 42  
    Window page 46  
Published Applications 14, 42  
publishing applications  
    using the window manager 60

## R

Redirecting Client Output 28  
remote desktop windows 60  
removing Citrix ICA Clients from the client  
update database 25  
Removing the Citrix ICA UNIX Client 28

## S

Screen grabs 14  
Seamless Windows  
    Overview 14  
seamless windows 60  
    MetaFrame for UNIX 60

Security 58

Serial 34

Server Location 51

Server Name 42

Server Side ICA 28

Setting up the Citrix ICA UNIX Client 31

Settings dialog

    Disk Cache page 49

    Hotkeys page 54

    Preferences page 56

    Window page 51

Shortcut Keys 54

Sound Support 40

SpeedScreen

    Change Settings 45

    Overview 13

Starting a Connection Session 33

Starting the Citrix ICA UNIX Client 17

Starting the ICA UNIX Client 19

System Requirements 18

## T

TCP/IP+HTTP 53

Transparent Clipboard Access 14

True Color

    Overview 13

True Color Desktop Support 13

## U

Uninstalling the Citrix ICA UNIX Client 28

Unix platforms 18

## W

Who Should Use this Manual 7

window manager, published applications 60

Window Properties 46

Window Settings 51

windows

    remote desktop 60

    seamless 60

## X

X11 deployment 28

xcapture 14