StarQuest Client Access for UNIX OS

User's Guide

Table Of Contents

About Client Access for UNIX OS

StarQuest Client Access for UNIX OS ("Client Access for UNIX OS") allows you to connect your UNIX system to an IBM AS/400 system. This expands the capability of your UNIX system with any combination of the following:

Sharing information between systems
Transferring data between systems
Emulating a 5250 terminal
Submitting AS/400 system commands from your UNIX workstation

Client Access for UNIX OS includes the following applications and features:

File Transfer
5250 Terminal Emulator
Remote Command
Client Access Shell (CASH)
Server Manager
APIs

Standard IBM AS/400 Client Access APIs

Special Client Access for UNIX OS APIs

Installation

Information about installing this product on your UNIX system is covered in files on the product CDROM. Consult with your System Administrator for details. Also see **About Installing Client Access for UNIX OS**.

Accessing Applications

You can access applications from the Main Menu or the command line. X Window users can click on the program icons in the COSE Application Manager.

See **Main Menu** and **Command Line Access**.

Transferring Files

The File Transfer user interface is designed to let you quickly transfer files between your UNIX machine (client) and an AS/400 host (server). See **About Transferring Files**.

5250 Emulator

Provides IBM 5250 terminal emulation for convenient access to the AS/400 from your UNIX system. See **About the 5250 Emulator** for information.

Remote Command

Lets you run AS/400 commands on the AS/400 from your UNIX system. See **Remote Command** for information.

Server Manager

Lets you manage your connections to host servers. See **About Setting Servers** and **Server Manager** for more information.

Technical Information

[About APIs](#)

[Localization](#)

[Troubleshooting](#)

About Installing Client Access for UNIX OS

The product and License Manager installation and deinstallation information are on the StarQuest Client Access for UNIX OS CDROM and can be accessed from Help Contents ('Install and Deinstall Instructions (Setup').

This Help file and a browser are installed with the product. The Help files are in HTML 1.1 and can be read with any HTML browser you specify with the Browser environment variable.

Review the information in [Running the Program](#), [About Setting Servers](#), and [Environment Variables](#) for post-installation information before using the product.

You can access the product applications from the Main Menu or the command line. X Window users can use the COSE desktop icons. See [Main Menu](#) and [Command Line Access](#) for more information.

The Client Access for UNIX OS applications and features are:

> Main Menu
> Server Manager
> File Transfer
> 5250 Emulator
> Remote Command
> Client Access Shell (CASH)

Before You Begin

Before you begin using StarQuest Client Access for UNIX OS you should be familiar with the UNIX operating system.

There are several sources of information about StarQuest Client Access for UNIX OS:

> Online Help (used with a Browser)
> UNIX man pages
> Install and Deinstall Instructions
> Reference guides

Online Help describes the features and their functions. Help indicates what information is specific to X Window System** users and what is specific to character-oriented terminal users.

Manual Pages provide technical descriptions of the product applications.

Refer to your UNIX system documentation for information on navigating your system. Also see "Navigating for Character-oriented Terminals" in Running the Program for information.

Install and Deinstall information can be accessed from the Help Contents Technical Information section, "Install and Deinstall Instructions (Setup)."

You may want to refer to these IBM books for information about the AS/400:

> *National Language Support* SC41-3101

For information about AS/400 Systems at V3R1 or later CISC releases:

> *Publications Reference* SC41-3003 provides information on all the books in the AS/400 library.

For information about AS/400 Systems at V3R6 or later RISC releases:

> *Publications Reference* SC41-4003 provides information on all the books in the AS/400 library.

For API information, see About APIs and refer to the *StarQuest Client Access for UNIX OS API and Technical Reference* guide provided on the product CDROM. It can be read with the browser provided with the Client Access for UNIX OS product or any commercial browser that reads HTML. Or, contact StarQuest for information about a printed copy of the document.

You are now ready to begin Running the Program.

Running the Program

Information in this section:

> Application Access
> About Client Access Shell (CASH)
> About COSE Icon Access
> Setting Servers
> Setting Environment Variables
> How to Reset Environment Variables at Logon
> Navigating for Character-oriented Terminals

Application Access

There are several ways to access Client Access for UNIX OS and its applications:

Main Menu

Command Line Access

Client Access Shell (CASH)

COSE Icon (X Window only)

About Client Access Shell (CASH)

Client Access Shell (CASH) provides a command line interface to communicate with the AS/400. You can use the Client Access Shell to transfer files, set servers, and issue remote commands to the AS/400.

About COSE Icon Access

The Client Access for UNIX OS application group icon ('CA400') appears in the COSE Application Manager. The COSE Application Manager installation for Client Access for UNIX OS is described in the UNIX Install section of the Setup instructions on the product CDROM.

How to run applications using the COSE Icons

In the COSE Application Manager, double click on the CA400 application group icon ('CA400') to access the individual application icons.

Double click on an application icon to open that application.

Setting Servers

See About Setting Servers for information about adding servers before you begin using Client Access UNIX for OS for the first time. Also see Server Manager.

Setting Environment Variables

The environment variables must be set correctly for the Client Access for UNIX OS programs to run successfully.

See Configuration on the Client Access for UNIX OS Main Menu for a list of your current settings for the required environment variables. See Environment Variables for details about the required environment variable settings for the Client Access for UNIX OS programs.

How to Reset Environment Variables at Logon

Follow the steps below to set your Client Access for UNIX OS environment variables so they are automatically set every time you logon or issue the indicated command. See Environment Variables for a list of required environment variable settings. Set the environment variables in the order shown there.

C shell (csh) users:

Step 1
In your home directory (for example, /home/users/*your_user_name*), edit your **.cshrc** file and add **all** applicable environment variables for your system at the end of the file. Example:

> setenv CA400 CA400_directory_name [Example: /usr/lpp/ca400]
>
> setenv PATH ${PATH}:${CA400}/bin
>
> setenv TMPDIR system_temp_directory [Example: /tmp]
> setenv *env_variable value*
> ...
> ...

Step 2
Save the edited *.cshrc* file.

Your Client Access for UNIX OS environment variables are now set and will be set every time you logon or issue this command:

> source ${HOME}/.cshrc

Korn or Bourne shell (ksh, sh):

Step 1
In your home directory (for example, /home/users/*your_user_name*), edit your **.profile** file and add **all** of the environment variables for your system at the end of the file. For example:

> CA400=*CA400_directory*
> export CA400
>
> PATH=${PATH}:${CA400}/bin
> export PATH
>
> ...
> ...

Step 2
Save the edited *.profile* file.

Your Client Access for UNIX OS environment variables are now set and will be set every time you logon or issue this command:

> . ${HOME}/.profile

Navigating for Character-oriented Terminals

5250 Emulator Menu

> **Menu Bar -** Press **ESC-m** to see the Menu Bar and user interface.

Application Navigation

Use these keys for navigating Client Access for UNIX OS application menus:

> Use Tab and Shift-Tab to move forward and backward to the functions
> Press Return to select an item
> Use the Arrow keys to move within functions or to scroll lists

Browser Navigation

The Client Access for UNIX OS browser functions are described in this section.

Each Help topic is accessible through a hyperlink. The Help Contents lists all of the Help topics as hyperlinks ("Links"). When you display a particular topic, Links to related topics may be in the text.

Use the Tab key to move between menu items and Help text.

Selecting a Topic:

> Up Arrow - move to nearest topic Link before cursor and highlight the Link
> Down Arrow - move to nearest topic Link after the cursor and highlight the Link
> Right Arrow - display the highlighted Link topic

Moving within a Topic:

> Ctrl f - scroll forward
> Ctrl b - scroll backward

Return to Previous Topic:

> Left Arrow - Return to previous topic(s)

Browser Menu:

> File
>
> > Shell - open a UNIX shell
> >
> > Exit - exit Help
>
> View
>
> > Refresh - refresh the Help screen

Go

Back - move to previous topic(s)

Forward - move to next topic

Page Up - move up the page of current topic

Page Down - move down the page of current topic

Before you use Client Access for UNIX OS, you may want to review How to Print and Manual Pages.

Running the Program

Configuration

You can the access the Configuration user interface from the Client Access for UNIX OS Main Menu. Click on Exit to return to the Main Menu.

Configuration lists your current settings for the environment variables required for Client Access for UNIX OS. The environment variables must be set correctly for your system in order to successfully use the Client Access for UNIX OS applications. See Running the Program for a description of how to insure your environment variables are reset correctly each time you open Client Access for UNIX OS. See Environment Variables for information about the required settings.

Environment Variables

You must set the environment variables correctly in order to run Client Access for UNIX OS. From the Main Menu, select Configuration to see a list of your current environment variable settings. See Running the Program for a description of how to set your environment variables so they are reset correctly each time you open Client Access for UNIX OS.

Set the environment variables listed below that apply to your system. Be sure to set the platform-specific and terminal-specific environment variables that apply to your system. All environment variables are case-sensitive and must be set in the order shown.

NOTE: All variables that apply to your system **must be set** except the optional SHELL variable.

CA400
CA400 specifies the path to a fully-installed and configured Client Access for UNIX OS software distribution.
AIX Example:

> CA400=/usr/lpp/ca400
> export CA400

Solaris and HP-UX Example:

> CA400=/opt/ca400
> export CA400

PATH
Specifies the path for the Client Access for UNIX OS applications.

If PATH already has a value set:

> PATH=${PATH}:${CA400}/bin
> export PATH

If PATH does not have a value set:

> PATH=${CA400}/bin
> export PATH

BROWSER
Specify the name of the browser you want to use to access on-line Help and Setup. NOTE: Client Access for UNIX OS supplies a local browser ("cabrowser" for character-oriented terminals, "xcabrowser" for X Window). However, you can specify any browser that reads .HTML files.

Local browser example (*xcabrowser* for X Window and *cabrowser* for Character-oriented terminals):

    BROWSER=*browsername*
    export BROWSER

Commercial browser example:

    BROWSER=*browsername* (example: BROWSER=netscape)
    export BROWSER

LANG
LANG determines the language for intrinsic messages for Client Access for UNIX OS. If LANG is not set or is set to the empty string, the default "C" is used (see *lang (5)*). See [Localization](#) for information about locale and language settings available for your UNIX platform. The locales supported for each platform are in *${CA400}/etc/lang.tab*.

    LANG=C
    export LANG

MANPATH
Sets the path for man pages.

If MANPATH already has a value set:

    MANPATH=${MANPATH}:${CA400}/man
    export MANPATH

If MANPATH does not have a value set:

    MANPATH=${CA400}/man
    export MANPATH

STARLM
Sets the path to a fully-installed StarQuest License Management package which is required before Client Access for UNIX OS can run.
Example:

    STARLM=/opt/local/starlm
    export STARLM

TMPDIR
Temporary files are normally created in directory */tmp*. You may designate an alternate temporary directory by assigning a pathname to *TMPDIR*.
Example:

    TMPDIR=*/var/tmp*
    export TMPDIR

Character-oriented Terminals Only

TERM
Identifies the type of terminal in use (see *environ(5)* and *term(5)*).

> TERM=vt100
> export TERM

Optional - Character-oriented terminals only

SHELL
SHELL defines the shell interpreter invoked when "Shell" is selected from the File menu of an application. If SHELL is not set or is set to the empty string, the default interpreter */bin/sh* is used (see *sh(1)*).
Example:

> SHELL=/bin/sh [/bin/csh for C-Shell]
> export SHELL

SHELL allows you to work in a UNIX shell while in a Client Access for UNIX OS application. Type 'Exit' to leave the shell and return to the application.

X Window Only

DISPLAY
Identifies the X Window display.

> DISPLAY=*systemname*:0.0
> export DISPLAY

AIX Platform Only

LIBPATH
Specifies the library path for AIX.

If LIBPATH already has a value set:

> LIBPATH=${*LIBPATH*}:${CA400}/lib
> export LIBPATH

If LIBPATH does not have a value set:

> LIBPATH=${CA400}/lib
> export LIBPATH

HP-UX Platform Only

SHLIB_PATH
Specifies the library path for HP-UX.

If SHLIB_PATH already has a value set:

> SHLIB_PATH=${*SHLIB_PATH*}:${CA400}/lib
> export SHLIB_PATH

If SHLIB_PATH does not have a value set:

> SHLIB_PATH=${CA400}/lib
> export SHLIB_PATH

Solaris Platform Only

LD_LIBRARY_PATH

Specifies the library path for Solaris.

If LD_LIBRARY_PATH already has a value set:

> LD_LIBRARY_PATH=${*LD_LIBRARY_PATH*}:${CA400}/lib:/usr/dt/lib
> export LD_LIBRARY_PATH

If LD_LIBRARY_PATH does not have a value set:

> LD_LIBRARY_PATH=${CA400}/lib:/usr/dt/lib
> export LD_LIBRARY_PATH

NOTE: The X Window libraries Xm, Xt, and X11 may not be included here. If the application cannot find these libraries, add the library path to LD_LIBRARY_PATH.

Command Line Access

You can use the Main Menu to access Client Access for UNIX OS applications or use the command line.

NOTE for new users: Before opening any Client Access for UNIX OS applications, it is important that you review Running the Program for information about initial requirements.

Main Menu and Application Directory

The Main Menu and other applications are stored in directory *${CA400}/bin*.

Browser

Open the browser and Help file supplied with Client Access for UNIX OS:

X Window:

> xcabrowser ${CA400}/nls/${LANG}/index.html

Character-oriented terminals:

> cabrowser ${CA400}/nls/${LANG}/index.html

Main Menu

Open the Main Menu user interface:

X Window:

> xcamenu

Character-oriented terminals:

> camenu

Client Access Shell

Open the Client Access Shell (CASH) user interface (command line interface is used to communicate with the AS/400):

> cash

Server Manager

Open the Server Manager user interface:

X Window:

>serverman

Character-oriented terminals:

>casm

File Transfer

Open File Transfer User Interface:

X Window:

>xcaftp

Character-oriented terminals:

>caftp

NOTE: You can specify a Profile file name after the application name to open File Transfer with the preferences set.

5250 Terminal Emulator

Open the 5250 Emulator User Interface:

X Window:

>xca5250

Character-oriented terminals:

>ca5250

Remote Command

Open the Remote Command user interface:

X Window:

>xcarc

Character-oriented terminals:

>carc

NOTE: You can specify a Profile file name after the application name to open Remote Command with the preferences set.

How to Print

Client Access for UNIX OS does not provide a separate printing utility.
Use the existing AS/400 and UNIX standard TCP/IP print utilities
(lpr and lpd). Refer to the AS/400 and UNIX manuals for information.

Or, refer to the IBM AS/400 Service and Support web page "Remote
Printing with TCP/IP": http://www.as400.ibm.com/service/400tcp/lpr.htm

Manual Pages

There is a UNIX man page for each application in Client Access for UNIX OS. You can access a man page by typing "man *application_name*" on the command line. The application names are listed in Command Line Access. Also see Environment Variables for additional man page references.

A complete list of the Client Access for UNIX OS man pages is in *${CA400}/man/cat1*. A list of the StarQuest License Management man pages is in *$STARLM/man/man1*.

Main Menu

Type *xcamenu* (X Window users) or *camenu* (character-oriented terminal users) at the UNIX prompt to display the Client Access for UNIX OS Main Menu. X Window users can choose to access the Main Menu by clicking on the COSE icon.

Use the Main Menu to select the Client Access for UNIX OS application you want to use. Select 'Configuration' from the Main Menu to see your current settings for the required Environment Variables.

X Window Main Menu:

>   5250 Emulator
>   File Transfer
>   Remote Command
>   Server Manager
>   Configuration
>   Help
>   Exit

Click on 'Exit' to exit from Client Access for UNIX OS and return to the UNIX prompt.

Character-oriented Terminal Main Menu:

> 1) 5250 Emulator

> 2) File Transfer

> 3) Remote Command

> 4) Configuration

> 5) Help

Enter the number of your selection or enter "." to exit from Client Access for UNIX OS and return to the UNIX prompt.

For more information see

> **About the 5250 Emulator**
>
> **About Transferring Files**
>
> **Remote Command**
>
> **About Setting Servers**
>
> **Configuration**

About Transferring Files

File Transfer is used to copy files to and from the AS/400. There are several ways to access File Transfer:

> Main Menu - select File Transfer
> Enter **xcaftp** (X Window) or **caftp** (character-oriented terminals) from the command line
> Click on the File Transfer COSE icon (X Window)
> 5250 Emulator - select File: Transfer... (X Window)

User Interface

The File Transfer user interface lets you select files to transfer to the AS/400 or AS/400 files to transfer to your UNIX system. You can also select AS/400 servers, select binary or ASCII text format for the file transfer, and specify options for text conversion.

Profile File Stores File Transfer Preferences

File Transfer reads its initial preference settings from your default Profile file (*${HOME}/.ca400/xcaftprc* for X Window and *${HOME}/.ca400/caftprc* for character-oriented terminals) after preferences are initially saved in the file ('File: Save' in the application). You can create new Profile files by saving session preferences with 'File: Save As...'. You can restart a previously saved session using the preferences saved in a Profile file by selecting 'File: Open' or with this command:

> xcaftp *profile_filename* (X Window)
>
> > or
>
> caftp *profile_filename* (Character-oriented terminals)

See File Transfer Menu Commands for more information about Profile Files and descriptions of all menu functions.

See File Transfer User Interface for information about File Transfer features.

See File Transfer Technical Information for important technical information about file transfers.

See also: File Transfer Toolbar and File Transfer List Boxes

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> Click on the File Transfer COSE icon (X Window)
> 5250 Emulator - select File: Transfer... (X Window)

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xcaftp *profile_filename* (X Window)

or

caftp *profile_filename* (Character-oriented terminals)

See [File Transfer Menu Commands](#) for more information about Profile Files and descriptions of all menu functions.

See [File Transfer User Interface](#) for information about File Transfer features.

See [File Transfer Technical Information](#) for important technical information about file transfers.

See also: [File Transfer Toolbar](#) and [File Transfer List Boxes](#)

File Transfer User Interface

Client Access for UNIX OS File Transfer lets you transfer files between your UNIX system and the AS/400. You select the file to copy to an existing directory or one you create. The file is copied in binary or text format. You select the server and text conversion options.

You can access File Transfer from the Main Menu, the command line **xcaftp** for X Window and **caftp** for character-oriented terminals, the File Transfer COSE icon (X Window), or from the 5250 Emulator select 'File: Transfer...' (X Window).

File Transfer features:

Main Menu

> **File -** Default, Open..., Save, Save As..., Exit

> Shell (character-oriented terminals only)

View -

X-Window: By Name, By Time, Reversed, Hidden Files

Character-oriented terminal: Filter, Refresh, By Name, By Time, Reversed, Hidden Files

Server - Server..., [List of servers]
Options -

X-Window: End of Line Characters, Text Conversion, Tab Character Conversion

Character-oriented terminal: Prompting, Binary transfer, Text transfer, Strip newlines, Strip carriage returns, Expand tabs

Help - Help Browser, About...

For detailed menu information, see **File Transfer Menu Commands**

Tool Bar (X Window only]

The Tool Bar is a set of buttons representing tools that let you navigate the list boxes and do the following:

Up - Move up one directory from selected directory.
Change Dir - Enter different directory (and path) in dialog box.
Create Dir - Enter directory name (and path) in the dialog box.
Filter - Select the directories and files to view in the list box. For example, enter "*.doc" to see only *.doc* files.
After you make your selection, the filter label next to *File:* indicates the filter applied to the current directory and files. The default is all files (*) in a directory.
Info - (UNIX side only) Display a message box with file information (similar to the UNIX command **ls -l**).
Rename - (UNIX side only) Rename a file or directory.
Delete - Delete the selected file or directory (a directory must be empty).

For detailed information, see **File Transfer Toolbar**.

Copy

Copy transfers the selected file to the selected target destination.

Binary or Text

You can specify **binary** or **text** for the format of the file being transferred.

Prompting

If selected, the system checks if a file the same name exists on the target system and, if so, prompts you with a message. If Prompting is not selected, the target file is given the same name as the source file.

Status Line

The Status Line describes the function of the feature at the cursor location and the program activity status.

See also

About Transferring Files

File Transfer Menu Commands

File Transfer Toolbar

File Transfer List Boxes

File Transfer Technical Information

File Transfer Menu Commands

About the Profile File:

Profile files store the File Transfer preferences listed below and are used when you select 'Default' or 'Open...' in the File menu. File Transfer default Profile files are **xcaftprc** (X Window) and **caftprc** (character-oriented terminal). Profile files contain the following File Transfer variables:

> System focus (UNIX or AS/400)
> Server name (NOTE: If a server is specified in your *caftprc* or *xcaftprc* default Profile file, it is the default server. Otherwise, the default server set in CASH is used.)
> Current directories for UNIX and AS/400
> Sort order (same as Filter) for UNIX and AS/400
> Transfer mode (binary or text)

Main Menu

File - Default, Open..., Save, Save As..., Shell, Exit

Use the File features to manage different session profiles for File Transfer.

Default - resets the current file transfer session to the default session profile. The Profile filename is displayed on the right side of the Title Bar.

Open... - opens the "Open Profile File" window. Enter a Profile filename and path in the 'Selection' field and select "OK". Or, use the list boxes to select a directory and file. Use 'Filter' to narrow the selection: enter the directory and file selection you want and select 'Filter'.

When you have selected the directory and the filename you want is in the 'Selection' field, select "OK".

The Profile filename is displayed on the right side of the Title Bar and the Profile preferences are used for the current session.

Save - saves the session parameters to the current session Profile filename.

Save As... - opens the "Save Profile File" window and saves the current session preferences to a Profile filename you specify. Enter a Profile filename and path in the 'Selection' field and select "OK". Or, use the list boxes to select a directory and file. Use 'Filter' to check for existing directories and files: enter the directory and file selection you want and select 'Filter'.

When you are done and the directory and filename you want is in the 'Selection' field, select "OK".

The "Save As" Profile filename is displayed on the right side of the Title Bar.

Shell - (character-oriented terminals only) opens a UNIX shell. Type "exit" to return to File Transfer. This lets you work in a UNIX shell without exiting the File Transfer application.

NOTE: The SHELL environment variable determines the shell that opens.

Exit - exits File Transfer.

View - View the files in the selected directory by By Name, By Time, in Reverse order, or show Hidden files.

Server **- Server..., [List of Servers]**

Server... (X Window only) opens the Server Manager dialog box for managing servers.

List of Servers: servers known to Client Access. The current server is indicated and you can select a different server from the list. A message appears if you select a server that is not currently available.

NOTE: for more information about servers, see About Setting Servers.

Options **-** Select options for text conversion.

X Window only:

End of Line Characters [select one]

-Convert to Newline: UNIX
-Convert to Carriage Return: Macintosh
-Convert to Carriage Return and Newline: DOS, OS/2, Windows
-No conversion **[default]**

Text Conversion [select one]

-Convert based on current locale **[default]**
-Convert to locale...
-Convert to codeset...
-No conversion

Tab Character Conversion [select one]

-Expand to spaces, tabstops...
-No conversion **[default]**

Character-oriented terminals only:

Prompting - If selected, the system checks if a file the same name exists on the target system and, if so, prompts you with a message. If Prompting is not selected, the target file is given the same name as the source file.

Binary transfer

Text transfer

Strip newlines

Strip carriage returns

Expand tabs

Help **-** Help Browser, About...

Help Browser gives you context-sensitive help.

Also see

File Transfer Toolbar
File Transfer List Boxes
File Transfer User Interface
File Transfer Technical Information

File Transfer Toolbar (X Window only)

The File Transfer Toolbar is a set of buttons that let you easily navigate the file transfer list boxes. All toolbar buttons affect only the listbox for the selected (highlighted) system (local or remote). These buttons are available to X Window users only.

Toolbar

> ***Up -*** Move up one directory level.
> ***Change Dir -*** Change directory (using relative or absolute path names).
> ***Create Dir -*** Create a new directory (and path).
> ***Filter -*** Select the files to view in list box. For example, enter **.doc* to list .doc files only. The default without a filter selected is a listing of all files in a directory (*).
> ***Info -*** (UNIX side only) Display a message box with file information (like the UNIX **ls -l** command).
> ***Rename -*** (UNIX side only) Rename a selected file or directory.
> ***Delete -*** Delete a selected file or directory (a directory must be empty).

Also see:

> **File Transfer Menu Commands**
>
> **File Transfer List Boxes**
>
> **File Transfer User Interface**
>
> **File Transfer Technical Information**

File Transfer List Boxes

The list of your local UNIX files is displayed on the left of the File Transfer user interface and the AS/400 (remote) list box is on the right. See File Transfer Menu Commands, File Transfer Toolbar, and File Transfer Technical Information for information about transferring files and selecting transfer options.

NOTE: Be sure to specify both local and remote directories and files before you use transfer any file.

> ***User and System*** - This field is highlighted when the listbox is selected. The field identifies the user name, system name, and the system (local or remote).
> ***Current directory path*** - This field shows the directory path and current location.

X Window: You can change the directory path by selecting this field and then selecting *Change Dir* on the Tool Bar and entering a new path.

Character-oriented terminal: Tab to the directory command line, enter a directory path, press Return.

> ***Directories*** - This listbox shows all of the directories below the current directory. Use the scroll bars to see more directories.

X Window: Click on a directory to select it. Double click on a directory to change to that directory.

Character-oriented terminal: Tab to list box, use Arrow keys to scroll to a directory name, press Return to select.

Files - This listbox shows all of the files in the selected directory.

X Window: Use the scroll bars to see more files. Click on the file you want to copy to the AS/400.

Character-oriented terminal: Tab to listbox, use Arrow keys to scroll to a file name, press Return to select.

Copy - Select to copy the selected file to the target system.

X Window: Click on the Copy button.

Character-oriented terminal: Tab to Copy at bottom of screen and press Return.

ATTENTION: Make sure the target list box is set to the directory you want.
The source file is copied with the same name as the target unless *Prompting* is selected.

Binary, Text - You can transfer a file in either binary format or text format.

X Window: Click on Binary or Text.

Character-oriented terminal: Select Binary and Text transfer in the Options Menu.

Prompting - If selected, the system checks if a file by the same name is on the target system. If so, you are prompted to overwrite or rename the file. If Prompting is not checked, the target file is given the same name as the source file.

X Window: Click on Prompting.

Character-oriented terminal: Select Prompting in the Options Menu to rename a file being copied.

See also

File Transfer User Interface

File Transfer Menu Commands

File Transfer Toolbar

File Transfer Technical Information

File Transfer Technical Information

This section contains important technical details about StarQuest Client Access for UNIX OS file transfers that you should review. Refer to the IBM AS/400 reference manuals for definitions of technical terms and detailed information. File Transfer utilizes two file systems:

QSYS File System
QDLS and QOPENSYS File Systems

Each system is described below.

QSYS File System

File Transfer supports the upload and download of the following types of files: Source Physical Files (SPF) and Database (DB) Files. These files are converted from ASCII to EBCDIC when uploaded and from EBCDIC to ASCII when downloaded.

Client Access for UNIX uses Database APIs for uploading and downloading files in the QSYS file system.

Source Physical files on the AS/400

> Typically contain 3 fields per record: Line [sequence number] number, Date, and Data.
> The files can have multiple members. Any of these members may be accessed for file transfer.

Database files on the AS/400

> Can contain single or multiple fields. Database files can contain multiple members unless the file is an SQL table. SQL Tables contain only one member.
> File uploads to multiple-field DB file members of the same member name are not supported by File Transfer.

Download of Source Physical Files from the Host

Source Physical file members are downloaded to the client as a single data field (line numbers and dates are stripped). Records are delimited by a newline.

Download of Database Files from the Host

Database file members are downloaded to the client with field delimiters (space) and single quotes encapsulating the field data. Records are delimited by a newline.

Upload Files to the Host in the QSYS file system

A file uploaded to QSYS is written as a single alphanumeric field.

Records are delimited by a newline. A newline on the UNIX system will cause a new record to be created. If the [length of a line is greater than the record length of the target file, the text is wrapped.

If any kind of file is uploaded to a directory ('library') in QSYS where a file of the same name does not exist, a new Source Physical file and member of the same name is created by default.

If a file is uploaded to QSYS and a file of the same name exists, File Transfer checks to see if it is a Database file or a Source Physical file.

UPLOADING SOURCE PHYSICAL FILES IN QSYS

Sequence numbers and date fields get updated by the AS/400 for uploaded Source Physical files.

Uploading a SPF to a library where a file of the same name does not exist:

> A new SPF and member of the same name is created.

Uploading a SPF when the same file name exists in the specified library:

> An '..overwrite?' prompt appears within the file transfer applications.

> If 'OK' is selected, the first file member is cleared. A new file member of the same name as the file is then inserted. The new data is inserted as a single field in the member. Other members within that file are not changed.

UPLOADING DATABASE FILES IN QSYS

If uploading to a Database file that is an SQL table, the default member (usually of the same name) is the only member where data can be inserted.

When uploading to a Database file with the same file name, file transfer checks the default member for more than one field.

> If the Database file member contains one field, an '..overwrite?' prompt appears within the file transfer applications.

> If 'OK' is selected, the member gets 'cleared', and the new data is inserted as a single field.

> If the Database file member contains more than one field, the upload function is not supported by file transfer and displays an error message.

If a file is a single column SQL table and the source file name is the same as the target table name, the table is overwritten. Otherwise the appropriate error message is returned: "Request not supported" or "CPFXXXX Unable to add member...".

QDLS and QOPENSYS File Systems

Client Access for UNIX uses bytestream (bit for bit) for uploading to and downloading from these file systems.

Types of files transferred using QDLS and QOPENSYS: binary and text files.

NOTE: Text file transfer uses *iconv* converters on the client for uploading and downloading files. See your System Administrator for information about *iconv* converters or see the UNIX man page 'iconv'.

Download binary files from the Host

The file is transferred bit for bit to the client in the same format as it exists on the host.

Downloading a binary file to a directory containing a file with the same name displays an '..overwrite?' prompt in the File Transfer application. Selecting 'OK' overwrites the file.

Download text files from the Host

The *iconv* converters on the client convert the EBCDIC text from the host to text corresponding to the ASCII code page selected for the client. (This text conversion is determined by the lang setting as described in Localization.)

Downloading a text file to a directory containing a file with the same name displays an '..overwrite?' prompt in the File Transfer application. Selecting 'OK' overwrites the file.

Upload binary files to the Host

The file is transferred bit for bit to the host in the same format as it exists on the client.

Uploading a binary file to a directory containing a file with the same name displays an '..overwrite?' prompt in the File Transfer application. Selecting 'ok' overwrites the file.

Upload text files to the Host

The *iconv* converters on the client convert the ASCII text from the client to the EBCDIC code page selected for the host. (This text conversion is determined by the lang setting as described in <u>Localization</u>.)

Uploading a text file to a directory containing a file with the same name displays an '..overwrite?' prompt in the File Transfer application. Selecting 'OK' overwrites the file.

See also

      About Transferring Files

      File Transfer User Interface

      File Transfer Menu Commands

      File Transfer Toolbar

      File Transfer List Boxes

Remote Command

Remote Command lets you run AS/400 commands from your UNIX system. It provides an alternative to the 5250 emulator. There are several ways to access Remote Command:

> Main Menu - select Remote Command
> Command line - enter **xcarc** (X Window) or **carc** (character-oriented terminals)
> Click on the Remote Command COSE icon (X Window)
> 5250 Emulator - select File: Remote Command… (X Window)

Remote Command features:

> Select Server from menu
> Run single commands
> Run a file of commands in series (batch file)
> Tool bar button functions (X Window)
> Online Help
> Profile file with preference settings

About the Profile File: Profile files store the Remote Command preferences listed below. A Profile file is used when you select 'Default' or 'Open...' in the File menu. The Remote Command default Profile files are **xcarcrc** (X Window) and **carcrc** (character-oriented terminal). Profile files contain the following Remote Command variables:

> Server name (NOTE: If a server is specified in your *carcrc* or *xcarcrc* default Profile file, it is the default server. Otherwise, the default server set in CASH is used.)
> Remote command(s) previously saved in the command field
>
> OR
>
> Batch file name previously saved in the command field.

Main Menu

> **File** - Default, Open..., Save, Save As..., Exit
>
> > Shell (character-oriented terminals only)
>
> **Server** - Server... (X Window only), [List of servers]
>
> **Help** - Help Browser, About...

For details about the Remote Command Main Menu functions, see descriptions in the [File Transfer Menu Commands](#) section. File Transfer menu descriptions also apply to Remote Command.

Command Field

Type AS/400 commands (for example, CRTLIB TEMP) or a UNIX filename which has commands in series (batch file).

Text Box

Displays the command (underlined) and the return message, if any.

Run

Executes the command in the Command Field and displays the command and results in the Text Box.

Syntax

Checks the syntax and validity of the command in the Command Field.

Clear

Clears the Command Field and text box.

Client Access Shell (CASH)

Client Access Shell (CASH) provides a command line interface to communicate with the AS/400. You can use the Client Access Shell to transfer files, set servers, and issue remote commands to the AS/400.

Enter *cash* at the UNIX prompt in the *${CA400}/bin* directory to use the CASH feature. Enter *quit* to exit from CASH.

CASH Commands

NOTE: Words in italics indicate names you supply and "remote" refers to the AS/400.

cd - Prints the remote working directory name.

cd *pathname* - Changes the remote working directory.

currentserver - Displays information about the current server.

defaultserver - Displays information about the default server.

deletefile *filename* - Removes a remote file. If you are in the QSYS system, you must enter the fully-qualified pathname of the file. Example: To delete *myfile,* enter this command: *deletefile /QSYS.LIB/test.lib/myfile.file*

getdbfile libraryname membername [localfilename] - Transfers a database file from the remote AS/400 to your UNIX machine. NOTE: *getdbfile* is used only for downloading database files in the QSYS file system on the AS/400. Example: To get "*/QSYS.LIB/test.lib/myfile.file/myfile.mbr*", enter the command, library name (*test*) and the member name (*myfile*): *getdbfile test myfile localfilename*

get *remotefile localfile* - Copies a remote file to a local file. Example: *get/QDLS/testlib/test /tmp/test*

ls *pattern* - Lists contents of a remote directory. Use *pattern* to match the remote file or directory name. For example, **ab* finds matches for any remote file or directory with a name ending in "ab".

mkdir *directoryname* - Creates a remote directory.

**pingserver file|central|netprt|signon||rmtcmd|dtaq|database|*Port Mapper host_server_name* - Verifies that a server at the host is available. If the host_server_name is not provided, the default is used. The default server is the server last connected. Example: *pingserver 449 myhost.ibm.com*
NOTE: pingserver is useful for verifying the status of the AS/400 servers. See Troubleshooting for more information.

put *localfile remotefile* - Copies a local file to a remote file. Example: *put /tmp/test /QDLS/testlib/test*
WARNING: If a file of the same name exists, it will be overwritten without warning.

For a file upload to the QSYS filesystem, the target member name must be specified. Example: *put /tmp/test /QSYS.lib/testlib.lib/test.file/test.mbr*

WARNING: If a file or member of the same name exists, it will be overwritten without warning.

quit - Exits the CASH shell.

removeserver *servername* - Removes the specified server.

rmdir *directoryname* - Removes a remote directory (if empty).

runcmd *command* - Issues remote command to the current AS/400 port.

serverlist - Prints information about all known servers.

setserver *hostname userid password* - Connects to a new host server.

transfermode [binary|text] - Sets the file transfer mode.

Using the 5250 Emulator

The Client Access for UNIX OS 5250 Emulator lets you logon to a networked AS/400 from your UNIX system and communicate remotely with the AS/400 host. 5250 Emulator user interface provides these features:

X Window

> Key mapping
> Host language setting
> Menu access to File Transfer and Remote Command
> Online Help
> Session settings
> Server management and selection
> Copy and paste
> Printing

Character-oriented terminals

> Key mapping (by editing the *ca5250_keymap* file)
> Online Help
> Server selection
> Printing
> Session settings (by editing the *ca5250rc* file)

See the sections below for detailed information about the 5250 terminal emulator.

> [5250 Emulator User Interface](#)
>
> [5250 Emulator Menu Commands](#)
>
> [5250 Emulator Session Settings](#)
>
> [5250 Emulator Copying and Pasting](#)
>
> [5250 Emulator Keyboard Mapping](#)

5250 Emulator User Interface

The 5250 Terminal Emulator provides a user interface for remote terminal access to the AS/400.

5250 Emulator User Interface

> X Window:

Select 5250 from the Main Menu, by clicking on the COSE icon, or by entering **xca5250** at the command line to open the 5250 emulator and access the AS/400 Sign On screen.

Character-oriented terminals:

Select 5250 from the Main Menu or enter **ca5250** at the UNIX command line to open the 5250 emulator and access the AS/400 Sign On screen.

Press **ESC-m** to see the Menu Bar and use the arrow keys to navigate.

Menu Bar (X Window only)

> **File -** New, Print Screen, Printer Setup, File Transfer… , Remote Command… , Exit
> **Edit -** Copy, Paste, Select All
> **Server** - Server…, [List of servers]
> **Session -** Connect, Disconnect, Settings…
> **Keypad -** [5250 Function list (Tear Off)]
> **Help -** Help Browser, About…

Menu Bar (character-oriented terminals only)

> **File -** Print Screen, Exit
> **Server -** [List of servers]
> **Session -** Connect, Disconnect
> **Keypad -** [5250 Function list]
> **Help -** Help Browser, About…

Keypad

Select Keypad for standard 5250 key selection. See 5250 Emulator Keyboard Mapping for default mapping tables and information about changing the key mapping.

Tear Off Keypad [X Window]:

> The standard 5250 functions can be selected from the Keypad menu. Click on the dotted line at the top of the list and it turns into a "Tear Off Keypad" window. Click and hold the title bar to drag the list to any part of your screen for display. Click on the Close box in the left corner of the Tear Off title bar to close the list.

5250 Status Line

Status Indicators

Highlighted menu items are described in the status line. When no menu item is highlighted, the status line shows the system status (for example, "Connected").

The following status indicators are only true when red (X Window) or displayed (Character-oriented terminals):

SA (System Available)

> The AS/400 is operating and available to your system.

MW (Message Waiting)

> The AS/400 has one or more messages for you.

KS (Keyboard Shift)

> The keyboard is in shifted mode.

IM (Insert Mode)

> Characters inserted into an existing field will not type over the existing data.

II (Input Inhibited)

> Keyboard input is not being accepted by the AS/400 because the system is processing your request.

KB (Keystroke Buffering)

Keystrokes are being saved in a temporary buffer (storage space) because keyboard input is not being accepted by the AS/400 (as indicated by the II indicator). After the II indicator goes off, the keystrokes are processed. To clear the keystroke buffering, press the RESET key.

KNJ (Double Byte Field)

(Displayed for Double Byte only) The cursor is currently in a field that accepts DBCS character input.

LISO (Lower ISO Shift)

(Displayed for Double Byte only) This indicator shows the state of the LISO Shift function. LISO Shift allows the display of lower case Latin characters when using certain DBCS languages.

Host Name

The AS/400 host name used by UNIX to connect to the AS/400 is displayed at the right end of the status line.

See also:

5250 Emulator Menu Commands

5250 Emulator Copying and Pasting

About the 5250 Emulator

5250 Emulator Session Settings

5250 Emulator Menu Commands

Character-oriented terminal users press **ESC-m** to see the Menu and use the arrow keys to navigate.

File Menu

Create a new session, print the contents of the screen, run **File Transfer** or **Remote Command,** or exit from the 5250 emulator.

New [X Window only]

Start a new session with the default settings.

Print Screen

Print the screen contents.

Printer Setup [X Window only]

Opens the Print Setup window where you enter a command used for local printing on your UNIX system (normally "lp").

File Transfer… [X Window only]

Opens the File Transfer application.

Remote Command… [X Window only]

Opens the Remote Command application.

Exit

Exit from the 5250 Emulator.

Edit Menu [X Window only]

The Edit menu is used to select and move text.

Copy

Copy the selected text to the clipboard.

Paste

Copies text from the clipboard and pastes it at the selected location.

See [5250 Emulator Copying and Pasting](#) for details.

Select All

Selects all text on the screen.

Server Menu

Use the Server Menu to select an AS/400 server.

Server… [X Window only]

Choose **Server...** to open the Server Manager dialog box.

List of Servers

Select a server from a list of AS/400 servers known to Client Access. A message appears if you select a server that is not currently available. The current server is indicated.

Session Menu

Use the Session Menu to connect and disconnect from your current AS/400 server and change default 5250 settings.

Connect

Connects to the host AS/400 and displays the AS/400 Sign On screen.

Disconnect

Disconnects from the AS/400. The AS/400 screen clears.
You can now exit the 5250 emulator or connect to a different server.

Settings… [X Window]

NOTE: Character-oriented terminal users can change feature settings by editing the *ca5250rc* file.

Opens the Session Settings dialog box and allows you to change these settings:

- o Host Language
- o Display Type
- o Cursor Type
- o Key Mapping

See 5250 Emulator Session Settings for detailed information.

Keypad

The standard 5250 functions can be selected from the Keypad menu. **X Window only:** Click on the dotted line at the top of the Keypad. The Keypad turns into a "Tear Off Keypad" window. Click and hold the title bar to drag the list to any part of your screen for display. Click on the Close box in the left corner of the Tear Off Keypad title bar to close the list.

See 5250 Emulator Keyboard Mapping for more information.

Help

Help Browser

Opens the browser and shows Help topic for the selected function.

About…

Displays Client Access for UNIX OS information.

See also:

About the 5250 Emulator

5250 Emulator Copying and Pasting (X Window only)

The 5250 Emulator allows you to make a copy of displayed text so that you can use that information in other applications. After copying information to the Clipboard, you can change to a different application and paste the information into that application. You can also copy information from other applications into the 5250 screen. The pasted information is entered as a series of keystrokes.

To copy and paste displayed information in the 5250 terminal emulator window:

> 1. Select (highlight) the information you want to copy or choose Select All from the Edit menu.
>
> 2. Choose Copy from the Edit menu. The selection is copied to the Clipboard.
>
> 3. Change to the application where you want to paste the contents of the Clipboard.
>
> 4. Select the insertion point with the cursor.
>
> 5. Choose Paste from the Edit menu. The text is inserted at the cursor location.

To copy information from an application and paste it into the 5250 emulator window:

> 1. Copy the selected information to the Clipboard by using the application's standard copy command.
>
> 2. Change to an active 5250 emulator session or start a 5250 emulator session.
>
> 3. Check to see that the session is in a state in which keystrokes can be received.
>
> 4. Choose Paste from the Edit menu. The copied information is entered as a series of keystrokes at the cursor location.

See also:

About the 5250 Emulator

5250 Emulator Session Settings

All 5250 Emulator features are configured with default settings based on your language and operating environment. X Window users select Settings from the Session menu to customize the 5250 Emulator. For character-oriented terminals, use the *ca5250rc* file to customize the 5250 emulator features.

The following 5250 Emulator features can be customized:

> Host Language
> Display Type
> Cursor Type
> Key Mapping

Host Language

Use Host Language to indicate the language to use on your AS/400. The language, by default, is set depending on the setting of your LANG variable. Available languages are shown in the Host Language drop-down list.

Display Type

Use Display Type to select the display you want:

> 1. Select 'Display Type' from the Feature drop down.
> 2. Click the checkbox by the display you want.
> 3. Click on OK.

Cursor Type

Use Cursor Type to customize the cursor:

1. Select 'Cursor Type' from the Feature drop down.
2. Click on Block or Underline.
3. Select or deselect Blinking.
4. Click on OK.

Key Mapping

The key mapping dialog shows two scrollable list boxes. One contains a list of all mappable **5250 Functions**. The other contains **Local Key Mappings**. To display a key mapping for a particular 5250 function, scroll through the **5250 Function** list to the desired function. Click on the desired function and the local key mappings appear in the **Local Key Mapping** list box. See 5250 Emulator Keyboard Mapping for tables of the X Window and character-oriented terminal default key mappings.

Add a new key mapping

1. Select the desired 5250 function in the **5250 Function** list box.
2. Click the 'Add Mapping' button.
3. Press the key sequence you want for the 5250 function, or enter a key and select Shift, Control, or Alt from the Modifier Keys section.
4. Click 'Save' to save the new mapping.

Modify an existing mapping

1. Select the desired 5250 function in the **5250 Function** list box.
2. Select the local key mapping you want to change in the **Local Key Mapping** list box.
3. Click the 'Modify Key Mapping' button.
4. Press the key sequence you want for the 5250 function or enter a key and select Shift, Control, or Alt from the Modifier Keys section.
5. Click 'Save' to save the new mapping.

Delete an existing mapping

1. Select the desired 5250 function in the **5250 Function** list box.
2. Select the local key mapping to delete in the **Local Key Mapping** list box.
3. Click the 'Delete Key Mapping' button.

See 5250 Emulator Keyboard Mapping for tables of the default key mappings and technical information about editing the default mappings.

5250 Emulator Key Mapping

Your 5250 Emulator has default key mappings for X Window and character-oriented terminals. These key mappings are shown below. Or, you can change the key mappings to suit your needs.

If you use X Window, you may use Session Settings: Key Mapping to customize the key mapping. See 5250 Emulator Session Settings for more information.

Key Mapping File Information

The 5250 functions to local key mappings are maintained in two files: *xca5250_keymap* for the X Window version and *ca5250_keymap* for the character-oriented terminal version. Each file uses symbolic names to represent 5250 functions and local key strokes required to generate the 5250 function. Although each file can be edited, you may want to change the X Window keymap file using Session Settings in the application menu.

Note: man pages xca5250(1) and ca5250(1) contain information and default key mapping.

Both *xca5250_keymap* and *ca5250_keymap* are created in your directory *${CA400}/.ca400* the first time the application is run. Prototypes for these files containing the default key mappings can be found in *${CA400}/etc*. These files should be copied to your *${CA400}/.ca400* directory before editing. See the comment sections in each of these files for the proper syntax.

Default Key Mapping for X Window

5250 Function	X Window Key Mapping	Notes
ATTENTION	Escape	
F1	F1	
F2	F2	
F3	F3	
F4	F4	
F5	F5	
F6	F6	
F7	F7	
F8	F8	
F9	F9	
F10	F10	
F11	F11	
F12	F12	
F13	Shift + F1	
F14	Shift + F2	
F15	Shift + F3	
F16	Shift + F4	
F17	Shift + F5	
F18	Shift + F6	
F19	Shift + F7	
F20	Shift + F8	
F21	Shift + F9	
F22	Shift + F10	
F23	Shift + F11	
F24	Shift + F12	
BACKSPACE	Backspace	
TAB	Tab	
BACKTAB	Shift + Tab	
CLEAR	Pause	
CURSOR UP	Up Arrow	
CURSOR DOWN	Down Arrow	
CURSOR LEFT	Left Arrow	
CURSOR RIGHT	Right Arrow	
DELETE CHARACTER	Delete	
DUPLICATE	Shift + Insert	
ENTER	Enter	
NEWLINE	Shift + Enter	
ERASE EOF	Alt + Home	
HOME	Home	
END	End	
ERASE	Alt + End	
FIELD -	Numeric Keypad -	
FIELD +	Numeric Keypad +	
FIELD EXIT	Numpad Home (numlock off)	
HELP	Scroll Lock	

INSERT MODE TOGGLE	Insert	
ROLL DOWN (page up)	Page Up	
ROLL UP (page down)	Page Down	
HOST PRINT	Print Screen	
RESET	Control + R	
SYSTEM REQUEST	Control + S	
TEST REQUEST	Control + T	
PA1	Control + 1	3270 Passthrough
PA2	Control + 2	3270 Passthrough
PA3	Control + 3	3270 Passthrough
HEX ENTRY	Control + X	
SO/SI DISPLAY TOGGLE	Control + D	Double byte languages only
KANJI MODE TOGGLE	Control + K	Double byte languages only
LOWER ISO TOGGLE	Control + L	Double byte languages only
WP BEGIN BOLD	Alt + B	
WP BEGIN UNDERLINE	Alt + U	
WP BEGINNING OF LINE	Alt + Numeric Keypad 4 (numlock on)	
WP BOTTOM OF PAGE	Alt + Numeric Keypad 2 (numlock on)	
WP CARRIER RETURN	Alt + Enter	
WP CENTER	Alt + C	
WP END BOLD/UNDERLINE	Alt + J	
WP END OF LINE	Alt + Numeric Keypad 6 (numlock on)	
WP HALF INDEX DOWN	Alt + H	
WP HALF INDEX UP	Alt + Y	
WP INSERT SYMBOLS	Alt + A	
WP NEXT STOP CODE	Alt + N	
WP NEXT TEXT COLUMN	Alt + D	
WP PAGE END	Alt + P	
WP REQUIRED BACKSPACE	Alt + Backspace	
WP REQUIRED PAGE	Alt + R	
WP REQUIRED SPACE	Alt + Space	
WP REQUIRED TAB	Alt + Tab	
WP STOP CODE	Alt + S	
WP TOP OF PAGE	Alt + Numeric Keypad 8 (numlock on)	
WP WORD UNDERLINE	Alt + W	

Default Key Mapping for Character-oriented Terminals

5250 Function	Key Mapping	Notes
Application Menu	Escape + m	
ATTENTION	Escape + a	
F1	Escape + 1	
F2	Escape + 2	
F3	Escape + 3	
F4	Escape + 4	
F5	Escape + 5	
F6	Escape + 6	
F7	Escape + 7	
F8	Escape + 8	
F9	Escape + 9	
F10	Escape + 10	
F11	Escape + 11	
F12	Escape + 12	
F13	Escape + Shift + 1	
F14	Escape + Shift + 2	
F15	Escape + Shift + 3	
F16	Escape + Shift + 4	
F17	Escape + Shift + 5	
F18	Escape + Shift + 6	
F19	Escape + Shift + 7	
F20	Escape + Shift + 8	
F21	Escape + Shift + 9	
F22	Escape + Shift + 10	
F23	Escape + Shift + 11	
F24	Escape + Shift + 12	
BACKSPACE	Backspace	
TAB	Tab	
BACKTAB	Escape + Tab	
CLEAR	Escape + c	
CURSOR UP	Up Arrow	
CURSOR DOWN	Down Arrow	
CURSOR LEFT	Left Arrow	
CURSOR RIGHT	Right Arrow	
DELETE CHARACTER	Delete	
DUPLICATE	Escape + d	
ENTER	Enter	
NEWLINE	Control + n	
ERASE EOF	Escape + e	
HOME	Escape + Shift + h	
END	Escape + Shift + n	
ERASE	Escape + Shift + e	
FIELD -	Escape + m	
FIELD +	Escape + p	
FIELD EXIT	Control + x	
HELP	Escape + h	

INSERT MODE TOGGLE	Control + a	
ROLL DOWN (page up)	Control + u	
ROLL UP (page down)	Control + d	
HOST PRINT	Control + p	
RESET	Control + r	
SYSTEM REQUEST	Escape + s	
TEST REQUEST	Control + t	
PA1	Escape ,	3270 Passthrough
PA2	Escape .	3270 Passthrough
PA3	Escape /	3270 Passthrough
HEX ENTRY	Escape + x	
SO/SI DISPLAY TOGGLE	Escape + t	Double byte languages only
KANJI MODE TOGGLE	Control + k	Double byte languages only
LOWER ISO TOGGLE	Escape + t	Double byte languages only
WP BEGIN BOLD	Control + w + b	
WP BEGIN UNDERLINE	Control + w + u	
WP BEGINNING OF LINE	Control + w + 4	
WP BOTTOM OF PAGE	Control + w + 2	
WP CARRIER RETURN	Control + w + Enter	
WP CENTER	Control + w + c	
WP END BOLD/UNDERLINE	Control + w + J	
WP END OF LINE	Control + w + 6	
WP HALF INDEX DOWN	Control + w + h	
WP HALF INDEX UP	Control + w + y	
WP INSERT SYMBOLS	Control + w + a	
WP NEXT STOP CODE	Control + w + n	
WP NEXT TEXT COLUMN	Control + w + d	
WP PAGE END	Control + w + p	
WP REQUIRED BACKSPACE	Control + w + Backspace	
WP REQUIRED PAGE	Control + w + r	
WP REQUIRED SPACE	Control + w + Space	
WP REQUIRED TAB	Control + w + Tab	
WP STOP CODE	Control + w + s	
WP TOP OF PAGE	Control + w + 8	
WP WORD UNDERLINE	Control + w + w	

Setting Servers

Setting servers is a post-installation task and updates your *.signon* file. When you open File Transfer, Remote Command, or the 5250 Emulator, the server in the *.signon* file is the current server. Before you begin using Client Access UNIX for OS for the first time, it is a good idea set a server.

> WARNING
>
> DO NOT DIRECTLY EDIT THE .signon FILE. The *.signon* file can be updated only by server changes (Add, Modify, Delete servers) made through the Server Manager, File Transfer, 5250 Emulator, and Remote Command applications, as listed below.

Required AS/400 Servers

All required AS/400 servers must be connected and available in order to successfully run Client Access for UNIX OS. Use the Cash Access Shell (CASH) command 'pingserver' to verify that the eight necessary AS/400 servers are connected and available. (See the "Client Access Shell" topic for command syntax and "Troubleshooting" for details.)

Access to Set Servers (X Window)

    Main Menu: Server Manager
    Command line: enter *serverman*
    File Transfer: Select 'Server: Server…' from Main Menu to run Server Manager
    Remote Command: Select 'Server: Server…' from Main Menu to run Server Manager
    5250 Emulator: Select 'Server: Server…' from Main Menu to run Server Manager
    Client Access Shell (CASH) *setserver* command
    COSE icon for Server Manager

Access to Set Servers (Character-oriented terminals)

    Client Access Shell (CASH) *setserver* command

Instructions for Setting Servers

Follow the instructions below to set servers for your system.

NOTE: When you add, modify, or delete a server, your **.signon** file is updated. When you open File Transfer, Remote Command, or the 5250 Emulator, the server in the **.signon** file is the current server.

X Window users can also see [Server Manager](#) for information about managing servers.

Set Servers: X Window

To add a server using the Server Manager user interface:

1. Click the 'Add' button.

2. In 'Add Server', enter the server name, valid user ID, and password information.

3. Click 'OK'.

This updates your **.signon** file and the server is ready to connect.

To modify a server using the Server Manager user interface:

     1. Click the 'Modify' button.

     2. In 'Modify Server', enter a new valid user ID and password information.

     3. Click 'OK'.

This updates your **.signon** file and the server is ready to connect.

To delete a server using the Server Manager user interface:

     1. Select a server from the Server list.

     2. Click the 'Delete' button.

This updates your **.signon** file and the server is removed from your .signon file and does not appear in the server list on applications.

Set Server: Character-oriented Terminal

To add a server:

     1. Enter 'casm' at the UNIX command line.

     2. Tab to 'Add' at the bottom of the screen and press Return.

     3. In the Server window, enter the Host Name, User ID, and Password.

     4. Tab to 'OK' and press Return.

This updates your **.signon** file and the server is ready to connect.

To modify a server:

     1. Enter 'casm' at the UNIX command line.

     2. Tab to 'Modify' at the bottom of the screen and press Return.

     3. In the Server window, select server name and enter new User ID, and Password.

     4. Tab to 'OK' and press Return.

This updates your **.signon** file and the server is ready to connect.

To delete a server:

     1. Enter 'casm' at the UNIX command line.

     2. In the Server window, select server name.

     3. Tab to 'Delete' at the bottom of the screen and press Return. A Confirm window appears.

     4. Tab to 'Yes' and press Return.

This updates your **.signon** file. The server is removed from your **.signon** file and does not appear in the server list on applications.

Character-oriented terminal users follow the information below using the [Client Access Shell (CASH)](#) application.

To set a server using CASH:

    1. Enter **cash** at the UNIX prompt.

    2. Enter the command:

           setserver *hostname userid password*

    3. Enter **quit** to exit CASH.

This updates your **.signon** file and the server is ready to connect.

See [Client Access Shell (CASH)](#) for other commands that can help you manage servers.

Server Manager (X Window)

Server Manager provides a graphic interface for setting servers. There are several ways to access Server Manager:

```
Main Menu: Server Manager
Command line: enter serverman
File Transfer: Select 'Server: Server...' from the menu bar to run Server
Manager
Remote Command: Select 'Server: Server...' from the menu bar to run Server
Manager
5250 Emulator: Select 'Server: Server...' from the menu bar to run Server
Manager
COSE icon for Server Manager
```

Server Manager displays the available servers and shows the user ID for each. You can add a server, delete a server, or modify server information using Server Manager.

New users with X Window should follow the procedures below to add servers before using the Client Access for UNIX OS applications. Character-oriented terminal users see [About Setting Servers](#).

To set a server using the Server Manager user interface:

    1. Click the 'add' button.

    2. In 'Add Server', enter the server name, valid user ID, and password information.

    3. Click 'OK'.

This updates your *.signon* file. When you add, modify, or delete a server, your *.signon* file is updated. When you open File Transfer, Remote Command, or the 5250 Emulator, the server in the *.signon* file is the current server. See [About Setting Servers](#) for information about adding, modifying and deleting servers.

See [Client Access Shell (CASH)](#) for other commands that can help you manage servers.

Also see [About APIs](#).

About APIs

You can use the *Client Access for UNIX OS API and Technical Reference* (provided on the product CDROM) for developing your own applications for Client Access for UNIX OS.

> NOTE: The *Client Access for UNIX OS API and Technical Reference* provided on the product CDROM can be read with this browser or a commercial browser. Or, contact StarQuest for information about a printed copy of the document.

Knowledge of the setup of your compiler and execution environment on the UNIX platform is recommended before you create applications that use the Client Access APIs. Information on linking libraries and compiling code is supplied below for specific UNIX platforms.

API Implementation

The APIs for Client Access for UNIX OS are implemented as C functions that you can link into your own applications. This guide describes how to use the various APIs in the program.

NOTES:

> 1. You must use the library files and C header *include* files provided with Client Access for UNIX OS.

> 2. The APIs can be used with C programming language; it is not necessary to use C++.

In order to use Client Access for UNIX OS APIs, you must link your code to several libraries and then use the specified compilers. The information below describes the libraries, linkers, and compilers needed for AIX, Solaris** (SunOS**), and HP-UX** platforms.

> ### *NOTE FOR HP-UX:*

> A patch PHCO_7177 for users of the NIS (Network Information Service**) is normally installed during the standard Client Access for UNIX OS installation procedure. The patch and detailed information is in *http://support.mayfield.hp.com*.

Link to Libraries:

You must make the following links to your code:

Application library

> Example (Remote Command):

> *libca400rc.a* for AIX
> or
> *libca400rc.sl* for HP-UX
> or
> *libca400rc.so* for Solaris

CA400 library

> *libca400.a* for AIX
> or
> *libca400.sl* for HP-UX
> or
> *libca400.so* for Solaris

Compiling APIs: Platform-Specific Information

AIX

Compiler: xlC or xlc (No special flag is needed.)

Solaris

Compiler: CC or cc (No special flag is needed.)

HP-UX

Compiler: CC or cc (No special flag is needed.)

Security:

Database:

cwbDB_StartServer returns *CWB_SECURITY_ERROR* if no security information is found in *.signon* file (see *Security* in Troubleshooting for details). A user interface is not implemented in Client Access for UNIX OS.

Data Queue:

cwbDQ_Open, *cwbDQ_Create*, and *cwbDQ_Delete* return *CWB_SECURITY_ERROR* if no security information is found in *.signon* file (see "Security" in Troubleshooting for details). No user interface is implemented in Client Access for UNIX OS.

Remote Command:

cwbRC_StartSys returns *CWB_SECURITY_ERROR* if no security information is found in the *.signon* file (see "Security" in Troubleshooting for details). No user interface is implemented in Client Access for UNIX OS.

Serviceability (Debug and Log Trace):

All messages and trace information are forwarded to *syslogd* instead of a file. *syslogd* is a UNIX system daemon. To view or save messages sent to *syslogd*, refer to your UNIX manual.

Debug

A debug configuration file, *$CA400/etc/conf/debug.cf*, is used to turn debug ON and OFF during run time. (To modify *debug.cf*, the user must have the authority to access the $CA400 installation directory.) Debug is OFF by default.

Turn the message log on set:

SV\DEBUG MESSAGE_LOG,ON

Turn trace on set:

SV\DEBUG TRACE,ON

Turn entry and exit trace on set:

SV\DEBUG TRACE,ON
and

SV\DEBUG ENTRY_EXIT,ON

Log Data Stream

Debug trace is also implemented for logging the data stream. To turn it on, set *CO\DEBUG=TRACE,ON* and assign a full-path filename to capture the log. By default, the capture file is set to */tmp/ca400_co.log*. This debug trace is implemented in Client Access for UNIX OS only. There is no API to control the trace.

Program Creation

You can use the *Client Access for UNIX OS API and Technical Reference* as a guide for developing your own applications. You need to create your own *make* files, and compile and link scripts. You may use the standard *imake* facility in UNIX and UNIX compiler supplied by your UNIX vendor. Knowledge of the setup of your compiler and execution environment on the UNIX platform is recommended before you start creating applications that use the Client Access APIs.

Header Files

The header files for the Client Access for UNIX OS product are located in the *$CA400/include* directory for the product. The path for *include* files must be in your compiler directives.

NOTE: You must use the header files provided with the Client Access for UNIX OS product. The header files for other platforms have the same names as the UNIX header files, but are different.

Header files included with the Client Access for UNIX OS product:

Header file Usage

cwb.h	Common definitions
cwbco.h	Configuration APIs
cwbdb.h	Database APIs
cwbdq.h	Data queue APIs
cwbdt.h	Data transformation APIs
cwbsv.h	Service APIs
cwbsy.h	Security APIs
cwbobj.h	Object APIs
cwbrc.h	Remote Command APIs
cwbport.h	UNIX specific APIs

Library Files

The library files for the Client Access for UNIX OS product are UNIX shared libraries for both AIX and Solaris and static libraries for HP-UX. They are located in the *$CA400/li*b directory. Make sure that your *make* files include a reference to these library files before you create your applications.

If the Client Access for UNIX OS library files are relocated after linking with your application, the environment variable that sets the library path for your platform must be set to include the new location. See Environment Variables for more information.

Library files are included with the Client Access for UNIX OS product:

AIX 4.1.4 Libraries

These are shared libraries created by xlC.

File	Usage
libca400.a	Core functions
libca400db.a	Database functions
libca400dq.a	Data queue functions
libca400rc.a	Remote Command functions
libca400obj.a	AS/400 object functions

Solaris 2.5 Libraries

File	Usage
libca400.so	Core functions
libca400db.so	Database functions
libca400dq.so	Data queue functions
libca400rc.so	Remote Command functions
libca400obj.so	AS/400 object functions

HP-UX 10.10 Libraries

File	Usage
libca400.sl	Core functions
libca400db.sl	Database functions
libca400dq.sl	Data queue functions
libca400rc.sl	Remote Command functions
libca400obj.sl	AS/400 object functions

Troubleshooting

Client Access for UNIX OS provides several levels of help:

Online Help
Online messages
man pages
Setup Instructions (on product CDROM)
Client support

If you have a question that cannot be answered by using online Help, messages, or man pages, contact your System Administrator for help. Your System Administrator is responsible for entering the user, security, server, licensing, and other information that allows you to use the StarQuest Client Access for UNIX OS product to communicate commands and transfer files between your local UNIX system and the remote AS/400.

Required AS/Servers

All required AS/400 servers must be connected and available in order to successfully run Client Access for UNIX OS.

Use the Cash Access Shell (CASH) command 'pingserver' to verify that the eight necessary AS/400 servers are connected and available. The servers are: central, database, dataquery, file, netprt, remote command, signon, and Port Mapper. (See the Client Access Shell (CASH) for command syntax.) The table shows the Socket numbers or names to use with the pingserver command (example: *pingserver netprt 449 myhost.ibm.com*).

Socket #	Server Name
449	Port Mapper
8470	central
8471	database
8472	dtaq
8473	file
8474	netprt
8475	rmtcmd
8476	signon

Solaris Security Error

If a Solaris system user receives a security error, check with your System Administrator to make sure that the post-installation script was run as described in Installation.

StarQuest License Manager

The StarQuest License Manager must be running before StarQuest Client Access for UNIX OS can run. Check with your System Administrator if the License Manager should require restarting.

Localization

AS/400 LOCALIZATION

Refer to the IBM publication *National Language Support* SC41-3101 for a list of supported CCSIDs. CCSID is an AS/400 language term indicating the AS/400 code set which corresponds to a UNIX locale (LANG).

UNIX LOCALIZATION

This section describes the use of locale and the LANG environment variable. The platform-specific locale settings for the AIX 4.1.4, HP-UX 10.10, and Solaris 2.5 (SunOS 5.x) are listed in the Setup instructions on the product CDROM. Ask your System Administrator for details.

The LANG environment variable you set for Client Access for UNIX OS determines the locale (language) of the program messages and screens you view on your UNIX system. For information about setting the LANG environment variable, see Environment Variables.

The locales supported for each platform are listed in *${CA400}/etc/lang.tab*. Enter a value from the Locale column to set the $LANG environment variable.
Example:

> LANG=C
> export LANG

NOTE: If the environment variable LANG is unset or is null, it defaults to LANG=C.

About Locale Code Sets and iconv

Locale defines the natural language running on a UNIX system. It is usually set as an environment variable (LANG). If the environment variable LANG is unset or is null, it defaults to LANG=C.

CCSID is an AS/400 language term indicating the AS/400 code set which corresponds to a UNIX locale (LANG). Code sets for locale and CCSID are needed for string conversion between a UNIX system and an AS/400. The conversion is done using UNIX *iconv* which is described in a UNIX man page. The tables *lang.cs* and *ccsid.cs* can be used to look up the code set for the UNIX locale and AS/400 CCSID.

The tables for each UNIX platform (AIX, Solaris, and HP-UX) are different and can be located in *${CA400}/etc/conf* .

When sending data stream to the remote AS/400, Client Access for UNIX OS looks up the code set of its locale from *lang.cs*, then looks up the code set of the CCSID of the remote system from *ccsid.cs*. It then converts the text strings in the data stream from local code set to remote code set.

When receiving data stream from the remote AS/400, Client Access for UNIX OS converts the text strings in the data stream from the remote code set to the local code set.

Identifying Code Sets

You can verify that your UNIX system has language conversion capability by checking the *iconv* resource. Check *${CA400}/etc/conf* for the *lang.cs* and *ccsid.cs* code set tables.

UNIX System Code Set: Find the local code set by looking into *lang.cs* for the matching locale.

AS/400 Code Set: Find the AS/400 code set by looking into *ccsid.cs* with the host CCSID.

For example, the code set of locale "C" is ISO8859-1 and CCSID 037 is IBM-037 for AIX. After obtaining the code sets, you can look up the *iconv* resource to find conversion information.

How to Look up Conversion Information

AIX

Look into the directories *ered/usr/lib/nls/loc/iconv* or */usr/lib/nls/loc/iconvTable* to find the *from-codeset_to-codeset* table. To convert from locale "C" to 037, you need ISO8859-1_IBM-037. You can also find the reverse conversion: IBM-037_ISO8859-1.

Solaris

Look into the */usr/lib/iconv* directory to find the *from-codeset%to-codeset* table.

HP-UX

Look into the file */usr/lib/nls/iconv/config.iconv*. The top portion of the file contains aliases, the second portion contains conversion entries. Locate entries with this command:

> *from-codeset to-codeset table-name/- method-name/default ...*

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