

OPENTEXT™

# **OpenText™ Exceed™ User's Guide**

User's Guide

Version 15

# OpenText™ Exceed™ User's Guide

Rev.: 2/27/15

This documentation has been created for software version 15.0. It is also valid for subsequent software versions as long as no new document version is shipped with the product or is published at <https://knowledge.opentext.com>.

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# Chapter 1

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## Introducing Exceed

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## Welcome to Exceed

Exceed transforms your computer into a fully functional X Window terminal. It lets you run and display UNIX applications (X clients) from a Microsoft Windows environment. Exceed integrates your Windows desktop with environments such as UNIX, Linux, VMS, X Window System, IBM mainframes, and the Internet. Exceed is an integrated part of the OpenText Connectivity product family, which provides organizations with a comprehensive network connectivity solution.

Exceed includes innovative features that accelerate performance, simplify system administration, and optimize personal computing. Users are shielded from the complexities of network computing by working within the familiar Microsoft Windows environment. System administrators are provided with tools to set up, configure, and administer PCs remotely to ensure consistency among systems.

Use Exceed on your local computer to:

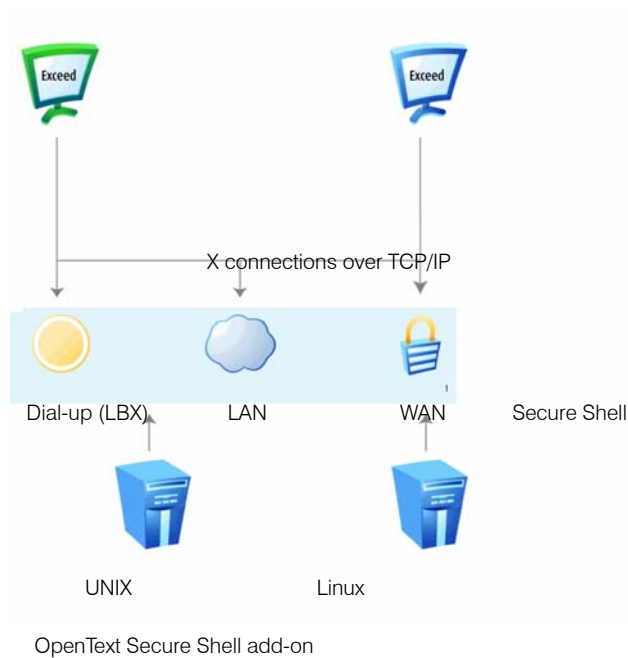
- Access powerful applications and information running on networked hosts.
- Establish simultaneous connections to different computers running X clients.
- Use an X window manager to display the visual interface you are familiar with from your X environment.

## Exceed and X Windows

In the X Window environment, the Exceed X server is also referred to as an X Window terminal or display server. Without Exceed X server software, X applications are accessible only via X terminals, UNIX, Linux, or VMS workstations.

Exceed works with your network transport software or your modem to access X Window applications on hosts running the X Window System. A host can be any machine using an operating system that is running the X Window environment.

The figure below shows how Exceed lets your PC access the X Window environment.



## The Exceed Interface

### Exceed Task Menu

The Exceed task menu is accessed by right-clicking on the Exceed icon on the Windows taskbar once Exceed is running. If Exceed does not appear in the taskbar, right-click the Exceed icon in the Windows system tray, select Tools and then click Show Main Icon.

For more information, see “Setting the Window Manager for Exceed” on page 15.

If you are running an X application in multiple window mode with Default To Native as the window manager, you can access the Exceed menu by right-clicking the Exceed icon in the title bar of the window.

You can use the Exceed task menu to perform the following tasks:



- accessing applications such as Xstart, Xsession, and Xconfig to configure settings for the current session
- perform Exceed XDMCP Broadcasts which let you start the Exceed X server in XDMCP Broadcast mode. For more information, see “XDMCP Broadcast Startup Mode” on page 55.
- perform Exceed XDMCP Queries which let you start the Exceed X server in XDMCP Query mode. For more information, see “XDMCP Query Startup Mode” on page 52.

## Exceed Menu

The Exceed main menu is accessed by right-clicking on the Exceed preview that is displayed when you hover over the Exceed icon on the Windows taskbar when Exceed is running. If Exceed does not appear in the taskbar, right-click the Exceed icon in the Windows system tray, select Tools and then click Show Main Icon.

For more information, see “Setting the Window Manager for Exceed” on page 15.

If you are running an X application in multiple window mode with Default To Native as the window manager, you can access the Exceed menu by right-clicking the Exceed icon in the title bar of the window.

You can use the Exceed main menu for many general tasks including:

- reloading databases for RGB, font, and keyboard
- performing copy and paste actions
- displaying the virtual desktop window
- switching the keyboard
- resetting the server
- toggling between the Windows desktop and the X server backdrop
- specifying whether mouse or touch actions on the Windows desktop are processed by Exceed
- viewing Exceed Help

The Exceed menu includes the File, Edit, View, Tools, and Help submenus.

## Exceed Toolbar

The Exceed toolbar is displayed when you open Exceed. The toolbar is a convenient way to perform typical Exceed menu actions while a session is running. You can drag and drop the toolbar to a desired location on your screen, or you can dock it by dragging it to the edge of your screen.

If the Exceed toolbar is not displayed, select **View** on the Exceed main menu, select **Toolbar** on the **View** menu, and then select **Show**.

For more information on customizing the Exceed toolbar, see **Exceed Help**.

You can also customize the Exceed toolbar to include buttons for Exceed menu commands or other applications. For example, you can add buttons for actions such as reloading the keyboard, showing workspaces, and resetting the server.

## Exceed Applications and Tools

You can also set up the connection manually.

Exceed contains several startup applications and tools that let you connect to a host and display UNIX, Linux, VMS and X applications on your PC.

On the **Start** menu, navigate to the **OpenText Exceed** program group to access the following applications:

**Exceed** Exceed is a PC X server that displays graphical UNIX, Linux, and X applications on your computer.

**Exceed Connection Manager** Exceed Connection Manager lets you view, create, rename, delete, and modify Xstart, Xsession, and Xconfig files from a single user interface. For more information, see **Exceed Help**.

### Exceed Tools

On the **Start** menu, navigate to the **OpenText Exceed** program group, and point to **Exceed Tools** to access the following:

**Exceed XDMCP Broadcast** Lets you start the Exceed X server in XDMCP Broadcast mode. For more information, see “XDMCP Broadcast Startup Mode” on page 55.

**Exceed XDMCP Query** Lets you start the Exceed X server in XDMCP Query mode. For more information, see “XDMCP Query Startup Mode” on page 52.

**Xconfig** Lets you customize Exceed properties. Starting Xconfig from the Start menu opens the default `.xcfg` file. To modify the `.xcfg` file for the current session, start Xconfig from the Exceed menu or the Exceed toolbar. For more information, see Chapter 4: Xconfig.

**Xsession** Lets you start the Exceed X server and multiple X clients/Windows programs simultaneously. You can also access Xsession from the Exceed menu, or the Exceed toolbar. For more information, see “About Xsession” on page 73.

**Xstart** Use Xstart to create Xstart (`.xs`) startup files and create shortcut icons to start regular X clients, such as your UNIX, Linux and X applications. When you click on a shortcut icon, it automatically establishes a host connection, logs on, and then starts an X client or runs a host-based script. You can access Xstart from the Exceed menu or the Exceed toolbar. For more information, see “About Xstart” on page 28.

## Security Tools

On the Start menu, navigate to the OpenText Exceed program group, and select Security Tools to access the following:

**OpenText Kerberos** An OpenText client implementation of the Kerberos security authentication protocol developed at MIT. For more information, see OpenText Kerberos Help.

## Other Exceed Products

### Exceed 3D

Exceed 3D is not included with Exceed. For more information, contact your sales representative.

Exceed 3D lets you display OpenGL-based X applications. OpenGL is a 3D graphics software interface that lets you create interactive programs that produce still or animated 3D color objects, including shading, lighting, and other effects. Exceed 3D interprets OpenGL calls from an X application, and sends the information to the video card on your computer.

## User Files

Depending on how your OpenText products are set up, user files can be categorized as either per-user or shared user. There can also be global user files.

### Per-User

Per-user files are application or service files that, when changed, affect only the user who is making the change (that is, the currently logged in user).

An example of a per-user file is `HostEx.ini`. If you configure `HostEx.ini` with HostExplorer to Not Prompt On Window Close for a particular user, then other users of the machine are not affected.

Another example of a per-user file is `Exceed.xcfg`. If you configure `Exceed.xcfg` with Xconfig to use a certain display, then other users of the machine are not affected.

**Note:** Each user of the product on the machine receives a personal user directory.

The following is the default location for per-user files. By default, this location is hidden:

```
C:\Users\Username\AppData\Roaming\Hummingbird\Connectivity\version
```

where *Username* is the name of the user and *version* is the version number of your product.

### Shared User

Shared user files are stored in the same location, so that any changes to the files affect all shared users.

The following is the default location for shared user files:

```
C:\ProgramData\Hummingbird\Connectivity\version
```

where *version* is the version number of your product.

## Global User

The global user folder is available to all users of the machine. Generally, the global user folder is intended as writable by administrators and readable by all users. In certain cases, folder permissions may be changed to allow everyone write access.

Files such as user profiles and mandatory settings are accessible from the global folder on the local machine (regardless of the current user). They can also be made accessible from a central location (for example, a network share) to multiple users when they install the product. During installation (on supported Microsoft Windows platforms), these files are copied locally to a shared folder under the All Users folder.

The following is the default location for global user files:

```
C:\ProgramData\Hummingbird\Connectivity\  
version\Global
```

where *version* is the version number of your product.



# Chapter 2

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## Connecting to Hosts and Running X Clients

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## Connecting

To connect to remote clients, you must specify the following:

- a startup method (usually through TCP/IP)
- a valid account on a UNIX host (with user ID and password)

If you are connecting for the first time, consider the following information on connecting to hosts:

- “Starting X Clients Using a Remote Process” on page 13
- “Creating Startup Files” on page 31 and “Running an Xstart File” on page 34
- “Creating Shortcuts” on page 34
- “XDMCP Broadcast Startup Mode” on page 55

After connecting to a host, ensure that you know the syntax to:

- Set display environment variables on different host systems. For more information, see “Setting the DISPLAY Environment Variable” on page 71.
- Start a specific window manager (if applicable). For more information, see “About Window Managers” on page 14.

**Note:** You can start clients in background mode in UNIX by typing an ampersand (&) at the end of the command.

### Starting X Clients Using a Remote Process

You can connect to clients using a remote process when Xceed starts (for example, an XDM script). Ideally, use an Xterm or some other terminal emulator, such as TELNET, which gives you a command prompt on the host to let you start other clients.

**Note:** Unless you are using a local window manager (that is, either HWM or Native window manager), the first X client you start must be a remote X window manager.

Before starting, do the following:

- Set the startup mode for Xconfig to passive. For more information, see “Running an Xstart File” on page 34.
- Start Exceed.
- If you are using HWM, start the window manager.
- Determine whether the DISPLAY variable is already defined on the host. If not, enter it on the command line. Otherwise, your X client will not run.

For more information, see “Setting the DISPLAY Environment Variable” on page 71.

Regardless of whether the DISPLAY environment variable is defined, you can start X clients using the appropriate command line syntax for your transport. Enter the command at the terminal emulator prompt.

## About Window Managers

A window manager interprets requests or commands entered on the computer and sends them to the Exceed X server. The X server sends the request to the X application, and the application sends instructions to the Exceed X server to display.

Multiple window mode creates a new window for each X client.

You can select the window manager you want to use in either single or multiple window mode. Only one window manager can run on a particular X display at a time.

Although window managers are Exceed clients, they may not display their own windows at startup. However, most X window managers have configurable menu systems.

**Note:** If you run an X window session without a window manager, you cannot perform window operations, such as resizing, moving, and iconizing. Overlapping windows can make hidden parts of underlying windows inaccessible.

## Setting the Window Manager for Exceed

Exceed can use local and remote window managers. Local window managers run on the local machine, while remote window managers run on a remote host. Running Exceed with a remote X window manager generally increases network traffic and may decrease overall system performance.

### To set the window manager:

- 1 In Xconfig, select Display And Video.
- 2 On the Screen tab, select one of the following options in the Window Manager area:
  - Native—Uses the native Microsoft window manager for the window manager.
  - X—Any X window manager, local or remote, is used for the window manager. You must start the window manager, as it does not start by default.
  - Default To Native—The native window manager is used by default. However, if a local or remote X window manager is running, it replaces the native window manager. After the X window manager is terminated, the native window manager is used.

## Starting Local Window Managers

For more information, see “HWM Configuration File” on page 277.

With Exceed, instead of using a remote window manager application, you can use a local window manager, such as the native Microsoft window manager, or HWM. To use a local window manager, you need to specify it in Xconfig. For HWM, you also need to start the window manager.

**To specify the local window manager:**

- 1 In Xconfig, select Display And Video.
- 2 On the Screen tab, select one of the following options in the Window Manager area, depending on the local window manager you want to use:

Window Manager	Option	Notes
Native	Native	The native Microsoft window manager cannot be used in single window mode.
HWM	X	Hummingbird (Motif-like) Window Manager can be used in single or multiple window mode.
	Default To Native	

**Note:** For more information on Native, X, and Default To Native options, see “Setting the Window Manager for Exceed” on page 15.

**To start HWM:**

On the Start menu, navigate to the OpenText Exceed product group, select Exceed Tools, and click HWM.

If you are running Exceed in either single or multiple window mode, you can double-click the HWM icon.

**Starting Remote X Window Managers**

If a remote window manager resides on one of your hosts, you can use it in single window mode or in multiple window mode. To use a remote X window manager, you need to specify it in Xconfig and then start the window manager.

You can start X window managers in the same way that you start any X client in passive startup mode. If you are running in XDMCP startup mode, the remote window manager is likely specified in the hosts startup file.

**To specify the remote window manager:**

- 1 In the left pane of Xconfig, click Display And Video.
- 2 On the Screen page, select the X or Default To Native option in the Window Manager area.

For more information on these options, see “Setting the Window Manager for Exceed” on page 15.

**To start a remote X window manager:**

- 1 Connect to the remote host using any startup method, such as Xstart, Xsession, or TELNET.
- 2 Provide a user ID, password, and any other login information required.
- 3 Type and execute the command to start the window manager.

You can use one of the following window manager startup commands:

Window Manager	Startup Command Syntax <sup>†</sup>
DEC (UNIX)	[ <i>path/</i> ]dxwm&
OpenLook	[ <i>path/</i> ]olwm&
AIX	[ <i>path/</i> ]aixwm&
DEC (VMS)	[ <i>path/</i> ]SPAWN/NOWAIT/INPUT=NL RUN SYS\$SYSTEM:DECW\$WINMGR
KDE (Linux)	[ <i>path/</i> ]startkde&
GNOME (Linux)	[ <i>path/</i> ]gnome-session&  Note: For GNOME sessions using Esound, you need to grant access to port 16001 in the Windows Firewall Settings. For Windows 7 and later, you have to disable Esound on the host or install an Esound server from a third party provider. For detailed information on this issue, refer to the Release Notes.

<sup>†</sup> You must specify the DISPLAY environment variable or command line parameter so that the remote window manager knows which display it should use to connect.

## Displaying X Clients

X clients are displayed depending on the window mode, which is based on your preferences. By default, the Exceed X server operates in multiple window mode and the window manager is configured to default to native.

### To specify the window mode:

- 1 In Xconfig, click Display And Video.
- 2 On the Screen tab, select a window mode:
  - **Single Window Mode**—Presents all clients in a single Exceed window. You can use any X window manager (local or remote) as your window manager.

**Note:** If you minimize the Exceed X server to an icon in single window mode, active client windows are no longer visible.

- **Multiple Window Mode**—Each client you start creates a new window on your display. You can use either the native (Microsoft Windows) or any X window manager (local or remote) as your window manager.

## Location of Menu Commands

**Multiple Window Mode** To access the Exceed menu, right-click Exceed on the taskbar with Exceed running. If the Exceed menu is hidden, right-click the taskbar icon in the system tray.

The location of Edit menu commands vary depending on whether you are running the native window manager or an X window manager in multiple window mode:

**Native Window Manager**—The Copy Rectangle and Copy All commands (To File, Printer, or Clipboard) appear on the Control menu (click the Control menu at the top left of the X client window) on the Edit submenu.

**X Window Manager**—The Copy Rectangle and Copy All commands (To File, Printer, or Clipboard) appear on the Control menu of Exceed and on the Exceed toolbar.

**Single Window Mode** To access menus, right-click Exceed in the taskbar. Alternatively, right-click the title bar of the Exceed window. To move menus to a menu bar in the Exceed window, click Move Menu on the Tools menu. To return the menus to being right-click accessible, click Move Menu again.

## Multiple X Display Support

Exceed supports multiple X displays. Users can run multiple simultaneous copies of the Exceed X server (limited by available memory and resources) as long as each copy has a unique display number. This feature is useful for users who want to establish multiple XDM (X Display Manager) sessions with different hosts.

**Note:** The easiest way to start up multiple simultaneous copies of the Exceed X server is to use Xsession. For more information, see “About Xsession” on page 73.

## Command Line Parameters

The Exceed X server (`Exceed.exe`) supports several command line parameters that specify the display number, file name, and host. If you want a particular command line parameter to default to its current Xconfig value in the `Exceed.xcfg` configuration file, then do not specify the parameter on the command line.

For example, to start the Exceed X server in single window mode on display 1 with an XDMCP Query startup mode to an `xmhost` host, specify the following:

```
exceed.exe -d 1 -m query -h xmhost -w single
```

### To specify the display number and configuration file name:

Use the following syntax:

```
-d display#  
-f filename.xcfg
```

where *display#* represents a display number from 0 – 9999 inclusive and *filename.xcfg* is the configuration file name.

### To specify the host name (optional):

Use the following syntax:

```
-m [passive|query|indirect|broadcast]
-h hostname
-w [multiple|single]
```

where *hostname* represents the connection host for the XDMCP Query or XDMCP Indirect startup modes.

## X Display Support Limitations

There are some limitations on multiple X display support. For example:

- Since X displays may share the same configuration file, do not make changes to your configuration while the Exceed X server is running.
- Since only one X display can own the desktop/root window and the configuration file is shared, do not enable multiple window mode settings if you are using the multiple X display feature.

In particular, do not enable the Root Mouse Action To X in the Multiple Window Mode Advanced dialog box. To access this dialog box, click Display And Video in Xconfig, select Multiple in the Window Mode area of the Screen page, and click Advanced. You can still use the Root Mouse Actions To X toolbar button, but make sure that the setting is selected for only one X display at a time.

- Colormaps are not shared between X displays which may result in color flashing in 256 color video mode when you change the focus between windows that are on different X displays.
- Multiple copies of the Exceed X server cannot share a single log file, so each copy of the Exceed X server has a log file name that is based on the log file name in the configuration file and the display number of the server.

For example, if the log file name in your configuration file is `exceed.log`, then each copy of the Exceed X server will use `exceeddisplay#.log` as the log file name, where `display#` is the display number of the Exceed X server.



**To disable support for multiple X displays:**

Do the following:

- Create an `XServer` key under the following key in the registry:  
`HKEY_LOCAL_MACHINE\SOFTWARE\Hummingbird\Connectivity\version\Exceed\`
- Create a (DWORD) value named `DisableMultipleXDisplays` and set the value to 1.

**Entering Data Using the Mouse and Keyboard**

You can use a two- or three-button Windows-compatible mouse with Exceed. To help you input data using your X Window terminal, Exceed also supports international keyboards.

You can perform any of the following changes, which are transparent to the X protocol:

- Type an X Window-supported character or string of characters using user-defined keystrokes by modifying the basic keyboard layout. For more information, see “Modifying a Keyboard File” on page 105.
- Simplify accented key entry by defining compose-key sequences. For more information, see “Creating Compose-Key Sequences” on page 110.
- Customize keyboard and mouse options and preferences. For more information, see “Modifying a Keyboard File” on page 105 and “Configuring Mouse Wheel Movements and Middle Button Emulation” on page 121.
- Customize or create new keyboard layouts with XKeys, a graphical keyboard utility. For more information, see “Using the XKeys Utility to Customize the Keyboard” on page 102.

## Copying and Pasting in Exceed

To print data, you must set up your printer using Print Setup on the Exceed Edit menu. For more information, see “Setting Print Settings” on page 27.

Exceed provides functionality that lets you copy and paste between Windows and X applications. You can copy, paste, and print selected rectangles of information, entire windows, and X selections. For example, you may want to copy and paste data, such as long path specifications, command lines, or sections of script files.

The copying and pasting procedure varies depending on the source and destination of the data, such as:

- between Windows-based applications (for example, Microsoft Word, Notepad, Paintbrush, Telnet, HostExplorer Basic, Xstart)
- between Windows-based applications and X clients displayed on your PC (that is, displaying to your Exceed X server)
- between X clients displayed on your PC

In the X environment, the X selection is a buffer with a specific name that stores the data you select within an X client window. It is the mechanism that you use to copy data from X to Windows or vice versa. If data is not being copied to or pasted from X selections, make sure that the correct X selection type is defined.

For more information, see “Copying and Pasting Between X Clients” on page 27.

The X client determines the X selection that is used. In most cases, the PRIMARY X selection is used, but other selections are available, such as SECONDARY, CLIPBOARD, and CUT\_BUFFER0 to CUT\_BUFFER7. Some X clients can use more than one X selection.

### To define the X selection:

- 1 In the left pane of Xconfig, click X Selection.
- 2 On the X Selection page, select the X selection associated with edit operations.
- 3 You can also automate copying and pasting using the Auto Copy X Selection and Auto Paste To X Selection options.

## Edit Menu Commands

For information on automatic copying and pasting, see “Automatic Copy and Paste” on page 218.

The copy and paste commands are available on the Exceed menu by selecting Edit. Most commands are similar to those in other Windows applications, and some commands use an X selection.

The Edit menu includes the following commands:

**Copy Rectangle** → **To Clipboard** | **To Printer** | **To File**—Copies a selected rectangle of the active X client window (multiple window mode) or the Exceed X server root window (single window mode) to a destination (such as Clipboard, printer, or file). After clicking Copy Rectangle, the cursor changes to a crosshair. To define an area to copy, click anywhere within the window and drag the mouse to define a rectangle. Releasing the mouse button copies the selected rectangle to the specified destination.

**Copy All** → **To Clipboard** | **To Printer** | **To File**—Copies all visible portions of the active X client window (multiple window mode) or the server root window (single window mode) to the specified destination (such as Clipboard, printer, or file).

**Copy X Selection** → **To Clipboard** | **To Printer** | **To File**—Copies the X selection to the specified destination (such as Clipboard, printer, or file).

**Paste To X Selection** → **From Clipboard** | **From File**—Pastes the contents of Clipboard or a file to the X selection. Any X client requesting the selection can paste the associated data as long as it supports the data type reported in the selection.

**Note:** You can paste data from the Windows Clipboard to another Windows application as long as the destination application supports the data or format type.

## Copying and Pasting Data

If you are having difficulty cutting and pasting data, check that Windows Clipboard contents appear in Clipboard Viewer.

You can copy data to Windows Clipboard, a file, or to the printer. If you copy and paste using Clipboard, you can use `csv` and `biff` formats.

### To copy data:

Copy data to Windows Clipboard using an appropriate Windows application, such as Paint.

**To paste text:**

- 1 On the Exceed menu, select Edit, select Paste To X Selection, and then click From Clipboard.
- 2 Click the right mouse button in the X client window. It may be necessary to click the right and left mouse buttons simultaneously in the X client window.

**To paste data:**

On the Exceed menu, select Edit and do any of the following:

- To paste data from Clipboard, click From Clipboard.
- To paste data from a file, click From File.

**To clear the X selection buffer:**

On the Exceed menu, select Edit and click Clear X Selection.

## Copying and Pasting Graphics

Exceed lets you copy images from X to the Windows Clipboard. You can copy an entire window or a partial window by dragging a rectangle over the window.

You can also paste images from the clipboard into an X client. The method of pasting an image to X is based on ICCCM (Inter-Client Communication Conventions Manual). Many X clients support the copying and pasting of graphics to other X clients, but only through ICCCM X selections.

For a technical description of copying and pasting images, refer to `seltest.doc`, located in the Exceed installation directory. For an example of copying and pasting images, refer to `seltest.c`. These files are in the following location:

```
C:\Program Files\Hummingbird\Connectivity\version\Exceed\Info
```

To build Seltest, you must upload it to a host where an Xlib development environment is available.

**To compile Seltest on a UNIX host:**

Use the following syntax:

```
cc -o seltest seltest.c -lX11
```

where the library file `libX11.a` is on your path.

**To paste images from Clipboard to Seltest:**

- 1 Copy an image to the Windows Clipboard using an appropriate Windows application, such as Paintbrush.
- 2 Run Exceed.
- 3 In the left pane of Xconfig, click X Selection. Check that the X selection setting is set to PRIMARY.
- 4 Run Seltest from an Xterm or TELNET window. This ensures that information is output to the standard output stream. Seltest initially displays an empty window.
- 5 Do one of the following:
  - Single window mode—On the Exceed menu, select Edit, select Paste To X Selection, and then click From Clipboard.
  - Multiple window mode—On the Exceed menu, select Edit, select Paste To X Selection.
- 6 Click the right mouse button in the Seltest window.

Seltest requests the current PRIMARY selection information and displays the selection target types that are available in the Xterm or TELNET window. If an image is available, it is displayed in the Seltest window. The amount of time it takes to display the image in the Seltest window varies depending on network load, image size, and color resolution. In most cases, it should not take longer than 30 seconds.

**To copy images from Seltest to Clipboard:**

- 1 Follow the previous procedure for pasting a clipboard image to the Seltest client.
- 2 Clear the contents of Clipboard by clicking Delete on the Edit menu of Windows Clipboard.

- 3 On the Exceed menu, select Edit and click Clear X Selection. If you are in multiple window mode, this causes the server to give up ownership of the PRIMARY selection.
- 4 Click the left mouse button in the Seltest window. Seltest requests ownership of the PRIMARY selection and associates the image it is displaying in its window with the PRIMARY selection.
- 5 Do one of the following:
  - Single window mode—On the Exceed menu, select Edit, select Copy X Selection and click To Clipboard.
  - Multiple window mode—On the Exceed menu, select Edit and click Copy X Selection. This causes the server to ask the PRIMARY selection owner (Seltest) for the PRIMARY selection image data. The server copies the image to the clipboard.
- 6 Display the Windows Clipboard Viewer to verify the image was transferred from the Seltest client to the clipboard.

## Copying and Pasting Between X Selection and File

You can copy the current X selection to a destination file. You can also paste the current X selection from a source file. By default, the X selection is copied/pasted from a file located in the Exceed *user* directory.

### **To copy the X selection to a destination file:**

On the Exceed menu, select Edit, and click Copy X Selection To File. In the dialog box that opens, select the destination file and click Save.

### **To paste the X selection from a source file:**

On the Exceed menu, select Edit, and click Paste File To X Selection. In the dialog box that opens, select the source file and click Open.

## Copying and Pasting Between X Clients

If your computer is properly configured, copying and pasting between different locales is supported. You can specify the locales in the Regional Settings in Control Panel.

If two X clients running on your computer support the same X selection, you can copy and paste between these X clients.

### To copy and paste between X clients:

- 1 Place the data that you want to copy in the X selection buffer.
- 2 On the Exceed menu, select Edit, select Copy X Selection, and then click To Clipboard. This places a copy of the X selection in Clipboard.

**Note:** You can define the X selection type used by the destination client. For more information, see “Copying and Pasting in Exceed” on page 22.

- 3 On the Exceed menu, select Edit, select Paste To X Selection, and then click From Clipboard.
- 4 Use the X client-specific method to paste the X selection data.

## Setting Print Settings

You can specify print settings for printing the current selection.

### To set print specifications:

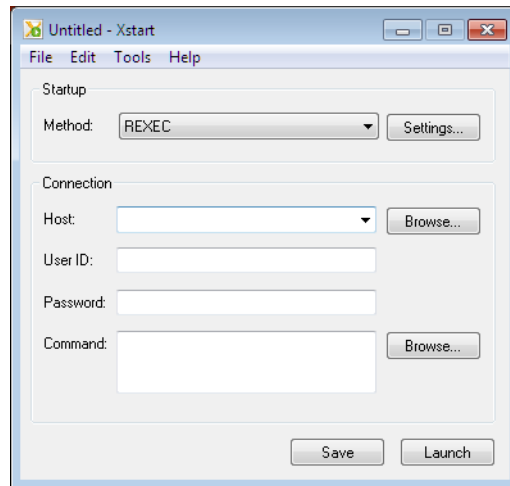
To specify the printer you want to use, click Print Setup on the Exceed menu, which opens a print dialog box.

On the Exceed menu, select Edit, select a copy command, and then click To Printer. The Copy To Printer dialog box lets you specify sizing and scaling options for printing the current selection. To have Exceed automatically size the selection, select the Best Fit or Stretch To Page option.

## Accessing Hosts and Starting Applications

### About Xstart

Xstart automates the process of accessing hosts and starting applications. Use Xstart to create Xstart (.xs) startup files and create shortcuts to UNIX, Linux, and X applications. Clicking one of these shortcuts automatically establishes a host connection, logs on, and then starts an X application.



### X Client Setup

In Xstart, the specified startup method, host, user ID, password, and command are stored in the .xs file. The X client is started using this information, along with various other Xstart settings.



## Xstart with Profile Spaces

If your installation of Exceed includes the Profile Space feature, and your Exceed administrator has enabled it, then you can use any Profile Space to save and run Xstart startup files.

### Note:

- Using the `GlobalExceed.ini` file, which is located in the `Global User` directory, Administrators can enable or disable Profile Spaces for all users, or allow users to enable it if required.
- Xstart startup files (`.xs`) referenced by an Xsession file (`.ses`) must reside in the same Profile Space as the Xsession file.

### To open Xstart:

On the Start menu, navigate to the OpenText Exceed program group, point to Exceed Tools, and then click Xstart.

If Exceed is already running, you can also right-click Exceed in the taskbar, and then click Xstart under Tasks.

## Startup Files

By installing an Xstart shortcut to an `.xs` file, you can double-click it to start Exceed and run the startup X client. You can also create script files for Web-based applications that require a user name and password.

### Note:

- If your installation of Exceed includes the Profile Space feature, and your Exceed administrator has enabled it, then you can use any Profile Space to save and run Xstart startup files.
- Xstart startup files (`.xs`) referenced by an Xsession file (`.ses`) must reside in the same Profile Space as the Xsession file.

When you save an Xstart file, it is saved according to the following:

- By default, startup files are saved in the `Profile` directory for the currently logged in user, but you can specify another location.

The default location for startup files:

```
C:\Users\Username\AppData\Roaming\Hummingbird\
Connectivity\version
```

- If your installation of Exceed includes the Profile Space feature, and the Exceed administrator has enabled it, then you can use any available Profile Space. Xstart startup files (`.xs`) referenced by an Xsession file (`.ses`) must reside in the same Profile Space as the Xsession file.

**Note:** Administrators can use the `GlobalExceed.ini` file to enable or disable profiles spaces for all users, or allow users to enable it if required. `GlobalExceed.ini` is located in the `Global User` directory.

## Startup Methods

In Xstart, select one of the following startup methods to establish the host connection:

Startup Method	Description
Secure Shell	Encrypts remote X windows communications. This option is available only if you have OpenText Secure Shell installed.
REXEC	Requires a password to connect to the host. You can also use REXEC to run local X clients on other PCs on your network if they are running the Xstartd service.
RSH (Remote Shell)	Similar to REXEC except that no password is required. Before using RSH, your computer must be authorized for RSH access on your host.
RLOGIN (Remote Login)	Requires a password.
TELNET	Requires a password. This startup method includes Kerberos V5 authentication and encryption for added security.
Local Application	Launches Windows applications (such as HostExplorer FTP, Exceed, or HWM) on the local host.

## Xstart Events

When you run an Xstart file, the following occurs:

- 1 The Xstart Information dialog box opens when you click Run if one or more options in the Local Prompt area are set to Ask User on the Prompts page of the Xstart Settings dialog box.

After account credentials have been verified, Xceed starts and retries the connection for the length of time specified in the Timeouts area on the Network page of the Xstart Settings dialog box.

- 2 After you have connected, the command specified in the Command box in Xstart is sent to the host specified in the Host box. If the command starts a client, the client session begins. The initial socket closes after the length of time specified in the Close box in the Timeouts area of the Network page.
- 3 If the Show Host Reply option is selected on the Network page, host or client messages are displayed in a window. You can copy text from this window to the clipboard.

### To open the Xstart Settings dialog box:

In Xstart, click Settings in the Startup area.

## Creating Startup Files

When you create a startup file, you need to select a startup method, define the host, user ID, and password, and specify a command to run on the host. You can also specify local or remote login prompts when Xstart runs.

### Command Example

Use the following command to start the Xterm client on a UNIX host:

```
[path]xterm -display mypcname:displaynumber &
```

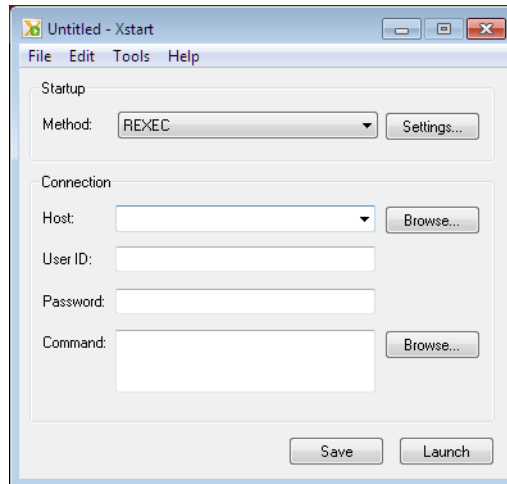
where:

- *path* is the location of Xterm on the host
- *mypcname* corresponds to your network node or address

- *displaynumber* is the display number you entered on the Communication page (accessible by clicking Communication in Xconfig). The display number is usually zero (0).

**To create a startup file and connect to the host:**

- 1 Open Xstart. For more information, see “About Xstart” on page 28.
- 2 In the Startup area, select a method from the Method box. The method depends on the transport that you are using and the host to which you want to connect. For more information, see “Startup Methods” on page 30.



Options that do not apply to the selected startup method are dimmed.

- 3 In the Connection area, specify the information required to connect to the host, log in, and execute a command to start an application.
  - a) In the Host box, type the host to which you want to connect, or click Browse to select one from a list of hosts on the network and the X applications available.

**Note:** To configure a host table, or edit the default `hostdb.txt`, click Settings in the Startup area. In the Xstart Settings dialog box, click the Other tab, and then click the Configure button next to Hosts in the Browse Methods area.

For more information, see “Using Login Macros” on page 61 and “User ID and Password Macros” on page 61.

For more information, see “Using Login Macros” on page 61 and “Command Macros” on page 62.

- b) Type a valid user ID and password for the host to which you want to connect. If you have defined a user ID and password macro, you can use it to fill in your user ID or password.
- c) In the Command box, type a command to run on the host. The command that you type depends upon the program type (X Window or Windows application), your host system, and how it is set up.

You can type the @d, @a, @:, and @# command macros as shortcuts in the Command box. The @d macro selects the proper IP address if the machine has more than one address. For more information, see Command Macros.

You can specify parts of the command using the available command macros by clicking Browse to select an application from a database.

**Note:** To configure an application database table, or edit the default appdb.txt, click Settings in the Startup area. In the Xstart Settings dialog box, click the Other tab, and then click the Configure button next to Applications in the Browse Methods area.

- 4 In Xstart, click Save.

In Xstart, click Create Shortcut on the File menu to create a shortcut locally or on the network. To connect to the host, select Launch.

#### To specify local or remote login prompts when Xstart runs:

- 1 In Xstart, click Settings in the Startup area.
- 2 In the Xstart Settings dialog box, do the following:
  - a) To provide a description for the Xstart file, click the Other tab. On the Other page, specify the description (maximum 40 characters) in the Description box.
  - b) To create a command on the Exceed client startup menu, select the Show On Exceed Startup Menu option to display the description. The description also appears in Xsession if the Xstart file is added to the session.
  - c) In the Xstart Settings dialog box, click OK.

- 3 In Xstart, click Save.

## Creating Shortcuts

You can create an Xstart or Xsession shortcut on the desktop, or in a local or network folder. You can double-click the Xstart or the Xsession shortcut to start Exceed and run the startup X client.

### To create an Xstart or Xsession shortcut:

- 1 Do one of the following:
  - In Xstart, open the `.xs` file.
  - In Xsession, open the `.ses` file.
- 2 On the File menu, click Create Shortcut on the File menu.
- 3 In the Browse For Folder dialog box, select a location for the shortcut.

To change the default icon, right-click the shortcut and click Properties to open the Windows Properties dialog box. To modify the shortcut caption, right-click the shortcut and click Rename.

## Running an Xstart File

When you use Xstart to start the X server, it is recommended that you set the startup mode to passive.

### To set the startup mode to passive:

In the left pane of Xconfig, select Communication. On the Communication tab, select Passive in the Mode box.

### To run an Xstart file:

Do one of the following:

- In Xstart, click Launch to start the X client using the startup information currently displayed in the Xstart window.
- In Xsession, click Launch to start Xstart files listed in the Session Contents area.

- Use any Windows Run dialog box to run an Xstart file using the Xstart command line syntax.
- If the Profile Space feature is installed and enabled, you can run the startup file from Connection Central.
- Use shortcut commands to run Xstart files from the Exceed menu by selecting Tools, selecting Client Startup or Session Startup, and then clicking a shortcut command.
  - Double-click a shortcut located on the desktop, or in a local or network folder.
  - On the Exceed menu, select Tools, select Client Startup, and then click a shortcut command.
  - On the Exceed menu, select Tools, select Session Startup, and then click a shortcut command (assuming the Xsession includes the proper Xstart file).
  - Right-click the Exceed icon in the Windows taskbar and click Xstart in the Tasks list.
  - Right-click the Exceed icon in the Windows taskbar and click Xsession in the Tasks list.

## Launching Windows Applications

You can launch Windows applications on hosts using Xstart.

### Command Line Switches

The following are possible command line switches:

-o <filename>	Specifies the Exceed configuration file.
-w <multiple single>	Specifies the window mode.
-m <passive query indirect broadcast>	Specifies connection method.
-h <hostname>	Specifies the remote host.
-n	Name for the window title bar. Note: Adding @h adds the host name to the title bar.

-d	Display setting.
-f <filename.xcfg>	Specifies an xconfig file (other than the default).

You can start Exceed using command line switches that effectively override Xconfig settings. For example, you could type in the following in the Command box located in Xstart:

```
"C:\Program Files\Hummingbird\Connectivity\version\Exceed\Exceed.exe" -w single -m query -h Host1 -n Host1 -d 2
```

In this example, you can run several different X servers (Exceed.exe) on various hosts using different configuration parameters.

### To launch Windows applications:

- 1 In Xstart, select Local Application in the Method box.
- 2 In the Command box, specify the application and related options. For more information, see “Creating Startup Files” on page 31.

## Typical Xstart Commands

You can type the following host commands in the Command box located in Xstart.

### UNIX C Shell Users

If you have defined the necessary environment variables, in the C shell resource file (.cshrc), you can type the command to invoke an X client.

For example, type the following command to start Xterm:

```
xterm -ls &
```

### UNIX Bourne Shell Users

Since the Bourne shell startup file (.profile) is not called when Xstart logs onto the host, we recommend that you include the PATH and DISPLAY variables on the command line.

The syntax is:

```
-display mypcname:0 &
```

For more information, see “Command Parameters” on page 51.



where *mypcname* is the IP address of the X server, and `&` indicates that the application should start in the background.

For Sun Sparc hosts, since you cannot specify the `OPENWINHOME` and `LD_LIBRARY_PATH` variables on a single command line, consider creating a UNIX shell script on the host to perform these functions.

For example, the following script, called `start_xterm`, starts an xterm:

```
#!/bin/sh
OPENWINHOME=/usr/openwin
export OPENWINHOME
LD_LIBRARY_PATH=path
export LD_LIBRARY_PATH
path /xterm -ls -display mypcname:0 &
```

where *usr* is the appropriate directory on the host, *path* is the directory where the Xterm is located, and *mypcname* is the network node specification of your computer.

Once you have created the `start_xterm` script, type the following in the Xstart file Command box:

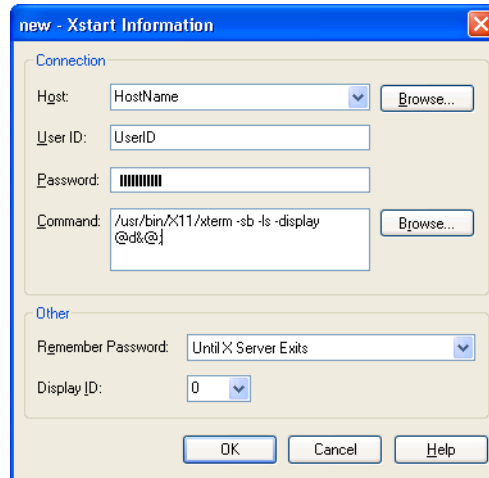
```
sh start_xterm &
```

## Responding to an Xstart Timeout

When Xstart times out waiting for a prompt (an answer from the host), the Enter Reply For Prompt dialog box opens, requiring your input to proceed. To respond to the prompt, use the Reply box. You can reply again or send revised login information or commands.

## Displaying Xstart Login Information

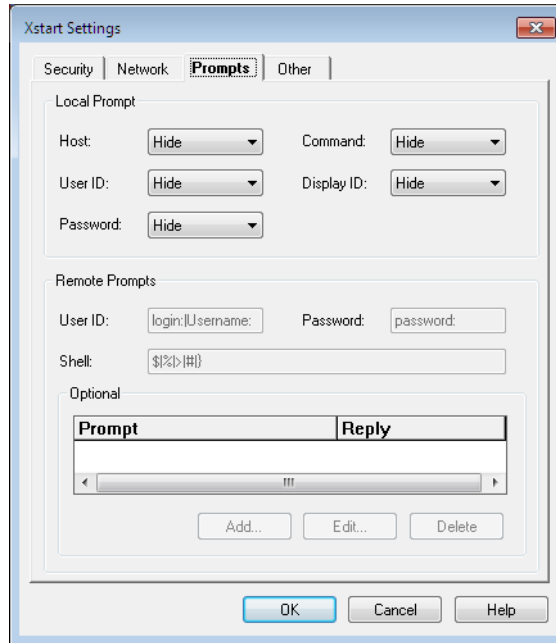
When you run an .xs file, the Xstart Information dialog box may open depending on the local prompt options selected on the Prompts page of the Xstart Settings dialog box. When you click OK in the Xstart Information dialog box, Exceed attempts to connect.



### To set local prompts:

- 1 In Xstart, click Settings in the Startup area.
- 2 In the Xstart Settings dialog box, specify the local prompts on the Prompts page. Select one of the following prompt types for each item in the Local Prompts area:
  - Hide—If all local prompt options are set to Hide, the Xstart Information dialog box does not open when you a run a file.
  - Show Only—For the corresponding local prompt, the Xstart Information dialog box displays the information.
  - Ask User—For the corresponding local prompt, the Xstart Information dialog box prompts for the information before making the connection. You can specify Ask User for: the host you want to

connect to, the user ID, the command sent to the host, the display ID number, and the password.



## Displaying the Xstart Host Reply Window

You can display a host reply window when you run Xstart, which is useful for troubleshooting connections and displaying errors. You can copy information from the Host Reply window to the Windows Clipboard.

### To set the display of the host reply window:

- 1 In Xstart, click Settings in the Startup area.
- 2 In the Xstart Settings dialog box, click the Network tab.
- 3 On the Network page, select the Show Host Reply option to display a host reply window when you run Xstart.

### **To hide or close the host reply window:**

You can hide the Host Reply window when the connection opens. It re-displays when the X client terminates. When the connection closes, click OK to close this window.

Click Close to terminate the remote execution command socket monitoring the host replies. Click Copy to copy text from the Host Reply window to Windows Clipboard.

## **Browsing for Hosts and Applications**

To browse for hosts and applications in Xstart, you must specify which methods and options to use in the Browse Hosts and Browse Applications dialog boxes.

### **To set browsing options:**

- 1 In Xstart, click Settings in the Startup area.
- 2 In the Xstart Settings dialog box, click the Other tab.
- 3 On the Other page, click the Configure button next to Hosts to open the Browse Hosts dialog box, or the Configure button next to Applications to open the Browse Applications dialog box. For more information, see:
  - Browse Hosts/Applications dialog box: Method page
  - Browse Hosts dialog box: Options page
  - Browse Applications dialog box: Options page

### **Browse Hosts/Applications dialog box: Method page**

This page lets you specify the file retrieval method for the Browse Hosts and Browse Applications dialog boxes.

**Method**—Specifies the file retrieval method.

- **File**—Uses the `hostdb.txt` file as a source for the host browse and `appdb.txt` as a source for the application browse. You can create and

For more information about `hostdb.txt`, see “Host Address File” on page 44. For more information about `appdb.txt`, see “Application Database File” on page 45.

maintain these files. The `hostdb.txt` file lists IP addresses and their associated hosts. This information affects which hosts Xstart browses.

For example:

```
123.45.67.89    boethius
```

The `appdb.txt` file lists applications and their typical locations on various servers in the form:

```
#category/application          /full/path/to/binary
```

For example:

```
#Terminals
```

```
Terminals/dtterm              /usr/dt/bin/dtterm
```

```
#Window managers
```

```
Window managers/fluxbox      /usr/bin/fluxbox
```

**Note:** The `stdappdb.txt` file, which contains applications and their typical locations on various servers, is located in the `Exceed User` directory. For more information, see the Installation Guide.

An application may be listed here, and consequently appears when you browse for applications, but there is no automatic confirmation that the application itself is in the specified directory.

- **FTP**—Uses files on an FTP server as the source for the host and the application browse. You can only access these files, not edit them. Source files are similar to those described for the File method. To properly configure the Browse Hosts or Browse Applications tabs using FTP, you must provide a server name, user name, password, account (if applicable), and path. In the File box, enter the name and location of the source file on the FTP server.
- **NIS**—Uses NIS (Network Information Service) maps `hosts.byaddr` as a source for the host browse and `appdb` as a source for the application browse. The system administrator on the UNIX side must create these maps.

NIS and NIS+ file retrieval methods are available only after configuring them in Directory Services Explorer.

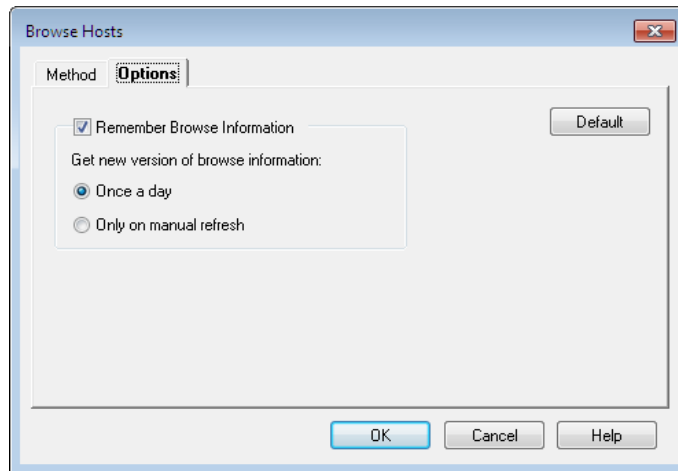
- **NIS+** —Uses NIS+ maps `hosts` (as a source for the host browse) and `appdb` (as a source for the application browse). The system administrator on the UNIX side must create these maps.

**Edit**—Opens an editing tool, where you can modify the selected file.

**Browse**—Opens a browse dialog box, where you can select a different file.

### **Browse Hosts dialog box: Options page**

The Options page let you specify the options for the Browse Hosts dialog box.



This page contains the following options:

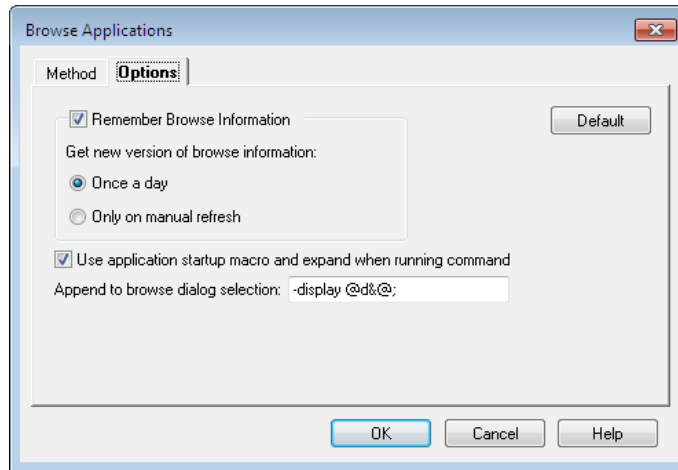
To refresh the Host browse, click Refresh in the Browse For Hosts dialog box, which opens when you click Browse next to the Host box in Xstart.

**Remember Browse Information**—Controls whether Exceed remembers (caches) browse information. If the check box is cleared, information is not cached and each browse retrieves the applications file. If the check box is selected, information is cached and you can use the cached or locally saved list of applications and only refresh the browse from the source **Once A Day** (the default) or **Only On Manual Refresh**. Even if you select **Once A Day**, you can still use Refresh to update the information.

Click **Default** to restore original settings.

## Browse Applications dialog box: Options page

The Options page let you specify the options for the Browse Applications dialog box.



This page contains the following options:

**Remember Browse Information**—Controls whether Exceed remembers (caches) browse information. If the check box is cleared, information is not cached and each browse retrieves the applications file. If the check box is selected, information is cached and you can use the cached or locally saved list of applications and only refresh the browse from the source Once A Day (the default) or Only On Manual Refresh. Even if you select Once A Day, you can still use Refresh to update the information.

**Note:** To force a refresh (regardless of the settings), hold down the Shift key before launching Xstart or an Xstart startup file.

**Use Application Startup Macro And Expand When Running Command**—Determines whether the selected browse item is inserted in the Xstart Command box as an application macro, or as the full path and application name. If inserted as a macro, it expands when the startup session runs.

**Append To Browse Dialog Selection**—Appends a string (variables, macros, flags, and so on) to the end of the item selected in the Browse dialog box (click Browse on the Methods page).

**Default**—Restores original settings.

## Xstart Host and Application Files

### Host Address File

The `hostdb.txt` file lists IP addresses and corresponding host names that affect which hosts Xstart browses.

For example:

```
123.45.67.89    boethius
```

### Host List File

The `rupdb.txt` file lists hosts that are running an `rpcd` daemon that supports the `rstatd` service. This service is capable of running the `rup` command, which returns status information about the host, including the service load. The `rup` command is a Remote Procedure Call (RPC) and the `rpcd` daemon handles all incoming RPCs.

Xstart consults `rupdb.txt` when running Load Optimization by sending a `rup` RPC to each host in `rupdb.txt` to find the least busy one. You can use section names in `rupdb.txt` to associate applications with host names.

The following syntax rules apply:

- Lines beginning with # are comments and are ignored by the system.
- Section names are enclosed in square brackets [ ].
- If you do not provide a name in the Section Name(s) box on the Options page of the Browse Load Optimization dialog box, then the system inserts the name [Default Section] in the `rupdb.txt` file. For more information, see “Load Optimization” on page 46.
- You can use any combination of alphabetic characters, spaces, capitalization, and numbers in section names. If you want to list more than one application in a section name, separate them with commas.
- When you add the hosts, type only one host on each line. Host names may be in short or full form, for example, `irix` or `irix.domain.com`.



For example:

```
[xclock]
onefish
twofish

[xterm]
redfish
bluefish
```

In this example, the hosts `onefish` and `twofish` support the `xclock` application; the hosts `redfish` and `bluefish` support the Xterm application. When you specify an application in the section, Xstart queries only those hosts following each section. This prevents Xstart from contacting a host that does not run the desired application.

**Note:** The `appdb.txt` file lists hosts that must be running `rstatd`. Therefore, the list of hosts in `appdb.txt` is a subset of the hosts listed in `rupdb.txt`, which is itself a subset of the hosts in `hostdb.txt`.

## Application Database File

The `appdb.txt` file lists host names, application category/nicknames, and full path names for applications on remote hosts. Xstart uses `appdb.txt` to determine which hosts run a particular application.

For example:

```
solaris/mailtool: /usr/bin/mailtool
```

where `solaris` is the host, `mailtool` is the application, and `/usr/bin/mailtool` is the application path.

## Listing NIS Maps on the System

The Browse NIS Maps dialog box in Xstart lists the configured NIS maps available to your system. These can be standard maps, such as `hosts.byaddr` which lists available hosts by their IP addresses, or custom maps set up by your system administrator, such as `appdb`, which references all the applications available to your system.

For the NIS maps available for host or application browsing, check with your system administrator.

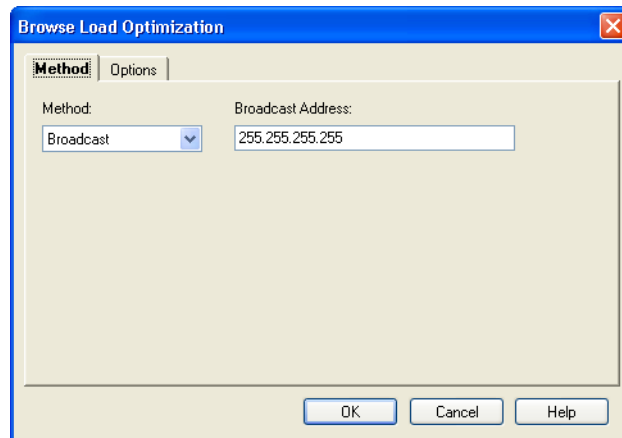
## Load Optimization

This feature makes Xstart connections more efficient. The connection is redirected to another host if the original host is already accommodating many connections.

When you run the Xstart file, the system locates the specified host. If that host is busy, the system finds the host best able to accommodate the connection, based on the search format you specified.

## Methods

To configure Xstart for load optimization, select a method on the Method page of the Browse Load Optimization dialog box.



The following options are available:

For more information about `rupdb.txt`, see “Host List File” on page 44.

- **File**—Xstart scans the `rupdb.txt` file for available hosts and tries to run the application on the least busy host. You can create and maintain this file, and save it in the `User` directory. This method is the easiest to run and is convenient if the desired application resides on every host in `rupdb.txt` (such as Xterm). If the application runs on certain hosts only (not necessarily the least busy ones), then this method could fail.

For more information about `appdb.txt`, see “Application Database File” on page 45.

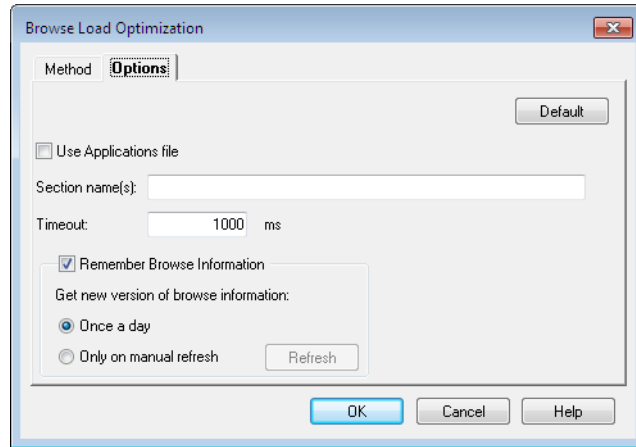
Alternatively, you can use `rupdb.txt` in conjunction with `appdb.txt` (provided you have previously created `appdb.txt`). In this case, select the Use Applications File option on the Options page. By comparing the two files, Xstart figures out what subset of hosts in `rupdb.txt` have the desired application and selects from those only.

NIS and NIS+ file retrieval methods are available only after configuring them in Directory Services Explorer.

- **FTP**—Uses a file on an FTP server as the source for available hosts. You can read a file this way but not edit it. To properly configure load optimization by FTP, enter the server name, user name, password, and account (if applicable) in the fields provided. In the File box, enter the name and location of the source file on the FTP server.
- **NIS**—Uses an NIS (Network Information Service) map `rupdb` as a source for available hosts. Before browsing, you must configure Directory Services. The system administrator on the UNIX side must create the map.
- **NIS+** —Uses an NIS+ map `rupdb` as the source for available hosts. Before browsing, you must configure Directory Services. The system administrator on the UNIX side must create the map.
- **Broadcast**—Sends out a broadcast on the network. This option is limited to queries within your subnet, unless you type an address for another subnet. If you selected Use Applications File on the Options page, then Xstart broadcasts the `rup` RPC to the subset of hosts in `appdb.txt` that run the desired application. If Use Applications File is not selected, then Xstart broadcasts to all hosts on the subnet. Using this method, you do not need a `rupdb.txt` file.
- **Browse Applications**—Uses an application database file (`appdb.txt`) to get a list of hosts to check.

## Options

To specify options for load optimization, select a method on the Options page of the Browse Load Optimization dialog box.



The following options are available:

**Use Applications File**—Specifies that Xstart uses `rupdb.txt` in conjunction with `appdb.txt`.

**Section Name(s)**—Specifies one or more section names (separated by commas). These are defined in `rupdb.txt`. Each section name field can include one or more section names (separated by commas).

**Timeout**—Sets a timeout value from 0 to 9999 milliseconds. If Broadcast was selected on the Method page, this time is the total time that Xstart waits for answers from remote hosts. If other methods were selected, this time is the maximum time to wait for an answer from each host.

**Remember Browse Information**—For more information, see the description in “Browse Hosts dialog box: Options page” on page 42.

**Default**—Restores original settings.

**To optimize loads on hosts:**

- 1 Create the Xstart file. For more information, see “Creating Startup Files” on page 31.
- 2 In Xstart, click Settings.
- 3 In the Xstart Settings dialog box click the Other tab.
- 4 In the Browse Methods area, select Load Optimization and then click Configure.
- 5 In the Browse Load Optimization dialog box, do the following:
  - On the Method page, select a method and provide the appropriate information.
  - On the Options page, provide application file information/parameters and browse information parameters.
- 6 Click OK.

When you run the Xstart file, the system locates the host you specified. If that host is busy, the system finds the host best able to accommodate the connection, based on the search formats specified.

## Using Xstart on VMS Systems

You can use Xstart on VMS systems by selecting the correct startup method for your transport software and entering all of the required information in the Xstart window.

### TCP/IP Transports

You can use Xstart on a VMS system running TCP/IP if your VMS system supports REXEC or RSH. Alternatively, you can use TELNET to connect and start remote applications.

You must create a script on the host containing the DISPLAY environment variable specification and the command to start the X client. You can then use REXEC or RSH to connect to the host and execute the script.

## Startup Modes

For more information, see “Configuring Communication Settings” on page 124.

### Selecting an X Client Startup Mode

In Xconfig, you can select the startup mode for the client. The startup mode determines the sequence of events when you start Exceed, including automatic host connection. The startup mode you use depends on your transport, your host, and your preferences.

#### To select an X client startup mode:

- 1 In the left pane of Xconfig, click Communication.
- 2 On the Communication page, select one of the following startup modes from the Mode box:
  - **Passive Mode**—Before using HostExplorer, Xstart, Xsession, or a remote process to manually connect to a host and start an X client, select Passive. This startup mode does not connect to a specific host when it starts Exceed. You must know the UNIX commands required to run X clients.
  - **XDMCP Query**—Connects to, and queries, the host specified in the Connect Host box of the XDMCP Startup Modes dialog box (accessible by selecting XDCMP Query in the Mode box on the Communication page and clicking the Configure button).
  - **XDMCP Indirect**—Connects to, and queries, the host specified in Connect Host in the XDMCP Startup Modes dialog box. After connecting, a general request is made for X display management (XDM) to start clients on the host and broadcast the request to one or more other hosts.
  - **XDMCP Broadcast**—Broadcasts an XDM request to hosts included in the Host List file (`xdmcp.txt`) or to the address in the Broadcast Address box of the Transport Settings dialog box.

## Passive Startup Mode

Passive startup mode lets you start Exceed without connecting to a specific host. If you plan to use Xstart or Xsession to manually connect to a host and start X clients, or if you are using a remote process such as TELNET or an Xterm to start clients, you must use this startup mode.

**Note:** If you are not using a local window manager (that is, either HWM or native window manager), you must start a remote X window manager.

### Before starting Exceed:

- Start the HWM window manager. You can double-click the appropriate shortcut. You must know how to run X clients. Enter commands in the Command box. Depending on whether your host is UNIX or VMS, the command line varies.
- Determine whether the DISPLAY environment variable is already defined on the host. If not, enter it on the command line. Otherwise, your X client will not run.

For more information about DISPLAY, see “Setting the DISPLAY Environment Variable” on page 71.

## Command Parameters

The following is a list of available command parameters:

Parameter	Explanation
<i>path</i>	The directory containing the application you want to run on the host to which you are connected. If you have pre-configured the PATH environment variable on your host, you may not need to enter it on the command line.
<i>application</i>	The executable name of the application.
<i>parameters</i>	Any application parameters that you want to specify.
-display	The command line option that introduces the display specification of Exceed. This specification contains the <i>myhostname</i> , <i>transportindicator</i> , and <i>displaynumber</i> parameters.  If you have pre-configured the DISPLAY environment variable on your host, you do not need to enter your display specification on the command line.

Parameter	Explanation
<i>mypcname</i>	The name or network address of the computer running Exceed.
<i>displaynumber</i>	The Exceed display number. You can specify this value on the Communication page (by clicking Communication in Xconfig). Typically, the display number is zero (0).
&	Indicates that this UNIX application should run in the background.

## XDMCP Query Startup Mode

When you start Exceed, XDMCP Query startup mode automatically connects to the host specified in the Connect Host box of the XDMCP Startup Modes dialog box. After you log in, Exceed queries the host that starts the clients specified in the host XDM session (script) file.

**Note:** XDMCP Query startup mode assumes that the host supports the X Display Manager Control Protocol and contains a session file (script) to start clients.

### Before starting Exceed:

- Ensure that the host is running the X Display Manager (XDM).
- Verify the name or network node specification is correct for the host you are connecting to (as specified in the Connect Host box in the XDMCP Startup Modes dialog box). To access this dialog box, refer to the following procedure.
- Ensure an XDM session file exists—Xstart verifies that an XDM session file (client starter script) exists on the host.

### To configure Exceed to use XDMCP Query startup mode:

- 1 In the left pane of Xconfig, click Communication.
- 2 On the Communication page, select XDMCP Query in the Mode box. Leave the Display Number set to the default value of 0 unless your system administrator tells you otherwise.



- 3 Click Configure.
- 4 In the XDMCP Startup Modes dialog box, type the name of the host to which you want to connect at server startup in the Connect Host box. If you leave the box blank, Exceed prompts for a host name at runtime.
- 5 Modify any additional XDM settings displayed in the XDMCP Startup Modes dialog box.

**To start X clients:**

Before starting X clients, make sure that Exceed is configured to start in XDMCP Query startup mode using Xconfig.

- 1 Start Exceed and run XDMCP Query. One way to do this is to navigate to the OpenText Exceed program group on the Start menu, point to Exceed Tools, and click Exceed XDMCP Query.
- 2 In the Exceed XDMCP Query dialog box, type a host name or IP address and click OK.
- 3 Log in to the host. Exceed queries the host, starting clients listed in its XDM session (script) file.
- 4 To start additional X clients, you can use another startup application (that is, Xstart, Xsession, or TELNET).

## XDMCP Indirect Startup Mode

When you start Exceed, XDMCP Indirect startup mode sends a query to the host specified in the Connect Host box of the XDMCP Startup Modes dialog box. Either the host starts, or it broadcasts a request for one or more other hosts to start clients.

**Note:** This startup mode assumes that the host supports the X Display Manager Control Protocol and contains a session file (script) to start clients.

**Before starting Exceed:**

- Ensure that the host is running the X Display Manager (XDM).
- Verify the name or network node specification for the host you are connecting to (as specified in the Connect Host box in the XDMCP Startup Modes dialog box). To access this dialog box, refer to the following procedure.

- Ensure an XDM session file exists—Xstart verifies that an XDM session file (client starter script) exists on the host.

**To configure Exceed to use XDMCP Indirect mode:**

- 1 In the left pane of Xconfig, click Communication.
- 2 On the Communication page, select XDMCP Query in the Mode box. Leave the Display Number set to the default value of 0 unless your system administrator tells you otherwise.
- 3 Click Configure.
- 4 In the XDMCP Startup Modes dialog box, specify the hosts that you want to receive the broadcast.
- 5 Specify additional XDM settings as necessary, and click OK.

If the Select First Display Manager option is selected in the XDMCP Startup Modes dialog box, Exceed connects to the first display manager that responds to the broadcast and the Login Information dialog box prompts you to log in to the host.

If the Select First Display Manager option is cleared, Exceed opens the Display Manager Chooser dialog box, prompting you to select a host to manage the display. After you make a selection, the Login Information dialog box prompts you to log in. Once successfully logged in to the host, clients specified in the XDM session file (script) are run.

**To start X clients:**

Before starting X clients, make sure that Exceed is configured to start in XDMCP Query startup mode using Xconfig.

- 1 Start Exceed and run XDMCP Query. Navigate to the OpenText Exceed program group on the Start menu, point to Exceed Tools, and click Exceed XDMCP Query.
- 2 Log in to the host specified in the Connect Host box. After a connection is established, the host either starts clients or broadcasts a request for one or more other hosts to start clients, depending on information in the XDM session file (script).

- 3 The host that becomes the display manager depends on the Select First Display Manager setting in the XDMCP Startup Modes dialog box.

If this setting is checked, the first responding host becomes the display manager, and the Login Information dialog box appears for you to log in to that host.

If this setting is not checked, the Display Manager Chooser dialog box opens. You must select a host to be the display manager. After you choose, the Login Information dialog box opens for you to log in to the host.

- 4 To start additional X clients, you can use another startup application (that is, Xstart or Xsession).

## XDMCP Broadcast Startup Mode

When you start Exceed, XDMCP Broadcast startup mode broadcasts an X connection request to the network hosts. You can broadcast to hosts in the host list file (`xdmcp.txt`) and/or those referenced by the broadcast address. Multicast addressing limits the sending of packets to a specific group of hosts. This avoids a broadcast to every host on the network. You can specify an address in the XDMCP area of the XDMCP Startup Modes dialog box.

**Note:** This startup mode assumes that the host supports the X Display Manager Control Protocol and contains a session file (script) to start clients.

### Before starting Exceed:

- Ensure that the host is running the X Display Manager (XDM).
- Verify the name or network node specification is correct for the host you are connecting to (as specified in the Connect Host box in the XDMCP Startup Modes dialog box). To access this dialog box, refer to the following procedure.
- Ensure an XDM session file exists—Xstart verifies that an XDM session file (client starter script) exists on the host.

### To configure Exceed to use XDMCP Broadcast mode:

- 1 In the left pane of Xconfig, select Communication.
- 2 On the Communication tab, select XDMCP Broadcast in the Mode box. Leave the Display Number set to the default value of 0 unless your system administrator tells you otherwise.
- 3 Click Configure.
- 4 In the XDMCP Startup Modes dialog box, specify the hosts that you want to receive the broadcast.

You can add the broadcast host names to the Host List file (by default, `xdmcp.txt`). If you select Broadcast/Multicast, Exceed broadcasts to the address specified in the Address box.

- 5 Specify additional XDM settings as necessary.

If Select First Display Manager is selected in the XDMCP Startup Modes dialog box, Exceed connects to the first display manager that responds to the broadcast and the Login Information dialog box prompts you to log in to the host.

If Select First Display Manager is cleared, Exceed opens the XDMCP Display Manager Chooser dialog box which prompts you to select a host to manage the display. After making a selection, the Login Information dialog box prompts you to log in. Once successfully logged in to the host, clients specified in the XDM session file (script) are run.

### To start an X client:

Before starting X clients, make sure that Exceed is configured to start in XDMCP Broadcast startup mode using Xconfig.

- 1 Navigate to the OpenText Exceed program group on the Start menu, point to Exceed Tools, and click Exceed XDMCP Broadcast.
- 2 Exceed starts and broadcasts a request to hosts listed in the Host Access Control file to start clients specified in their scripts.

The host that becomes the display manager depends on whether Select First Display Manager is selected in the XDMCP Startup Modes dialog box. If selected, the host connects to the first display manager.

**Note:** To specify a host that is not listed in the Host List file, type the address in the Host box, and click Add.

- 3 If you want to run additional X clients, you can use a separate startup application (that is, Xstart, Xsession, or TELNET).

## **XDMCP Timeouts**

The XDMCP Idle dialog box indicates that the host has not responded to your XDMCP request and Exceed has timed out. The timeout is set to 126 seconds.

- To force the server to reset after timing out, click Retry.
- To force Exceed into Passive mode until the server resets, click Passive.
- To exit Exceed, click Exit.



# Chapter 3

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## Advanced Connection Methods

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## Advanced Xstart Features

### Using Login Macros

You can use macros as shortcuts in the User ID, Password, and Command boxes of Xstart.

### User ID and Password Macros

You can use the following macros to specify your user ID and password in Xstart.

For more information, see “Creating a Global Login” on page 63.

Macro	Description
@u or @U	Inserts the user ID, depending on the startup mode.
@p or @P	Inserts the password, depending on the startup mode.
@h or @H	Inserts the host name, depending on the startup mode.
@w or @W	Inserts the Windows user name.
%w	Inserts your Windows user ID.

For more information, see “Defining User ID and Password Macros” on page 65.

You can also use @u or @U and @p or @P to specify default login information in Xstart.

## Command Macros

In Xstart, the Command box lets you send a UNIX command to the host. The command you type depends on your host system and how it is configured. You can use the following macros when specifying a command. These macros are automatically defined by Xstart; you do not need to perform additional steps to define them.

Macro	Description
@d or @D	Inserts the display environment specification. Do not use with VMS systems.  For example, type the following command to start xterm: <pre>xterm -display @d &amp;</pre>
@a or @A	Inserts the network address.  For example, type the following command to start xterm: <pre>xterm -display @a:0 &amp;</pre>
@m	Inserts security information as part of the MIT-MAGIC-COOKIE-1 (Xauthority) security feature. At run time, Xstart replaces @m with the required security information and key and sends this information to the host. Xstart also adds the key to the local database, and Exceed then uses this key to authenticate X applications. If you select the Enable User Access Control List option on the Security page in Xconfig, only X connections started by Xstart with the @m macro in the command line are accepted.  For example, type the following command to start xterm using Xauthority security: <pre>@m/usr/openwin/bin/xterm -sb -ls -display @d&amp;@;</pre>
@:	Inserts the display transport identifier.  For example, type the following command to start xterm: <pre>xterm -display @a@:0 &amp;</pre>
@#	Inserts the Display Number as configured on the Communication page in Xconfig.  For example, type the following command to start xterm: <pre>xterm -display @a@:@# &amp;</pre>
@@	Inserts the @ character.

Macro	Description
@#	(Local Application method only) Inserts the Display Number.
@!	(Local Application method only) Starts Exceed if it is not already running.

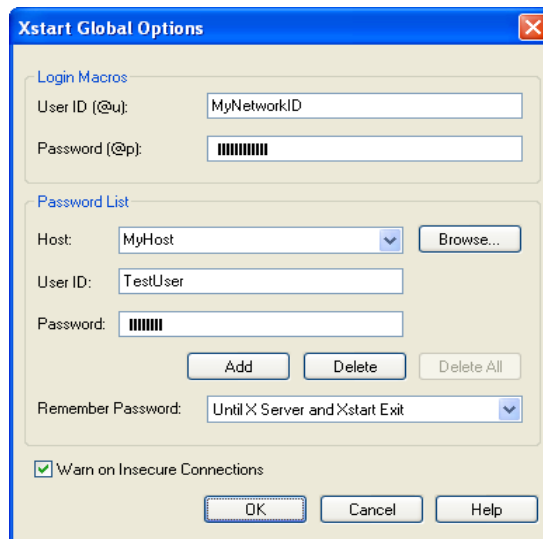
## Creating a Global Login

This feature lets you cache your password, so that during an Xstart session, you log in just once. The system caches the password until you either exit Exceed or manually empty the cache. For example, you may need to manually empty the cache if you are leaving your computer unattended for a long period of time.

### To create a universal login:

- 1 Create an Xstart file using Xstart.
- 2 In Xstart, click Options on the Tools menu. The Xstart Global Options dialog box opens.

For more information, see “Creating Startup Files” on page 31.



- 3 In the Login Macros area, do the following:

For more information, see “User ID and Password Macros” on page 61.

- User ID (@u)—Type a global user name. @u or @U automatically inserts this default user ID in the Xstart Information dialog box for each connection you make.
  - Password (@p)—Type a global password. An asterisk displays for each character. @p or @P automatically inserts this default password in the Xstart Information dialog box for each connection you make.
- 4 In the Password List area, create a password list by providing one or more host names and a corresponding user ID and password for each host.
  - 5 Select an option from the Remember Password drop-down list.:
    - No—The password is not remembered and must be typed for each connection.
    - Until X Session Loaded Or X Server Exits—If the host recognizes the user ID and password, further connections to that host by the user ID do not require a password unless either the Xsession finishes loading or the Exceed X server exits.
    - Until X Server Exits—If the host recognizes the user ID and password, further connections to that host by the user ID do not require a password unless the Exceed X server exits.
    - Until X Server And Xstart Exit—If the host recognizes the user ID and password, further connections to that host by the user ID do not require a password unless both the Exceed X server and Xstart exit.
  - 6 Ensure that the Warn On Insecure Connections check box is selected if you want a warning message to appear each time a user attempts to establish an unsecured connection using Exceed. If you do not select this option, this warning message does not appear.

To secure your connection sessions, Exceed offers Secure Shell encryption and authentication, which is available only if you purchase and install OpenText Secure Shell.
  - 7 Click OK to close the Xstart Global Options dialog box.
  - 8 In Xstart, click Save on the File menu.

**To manually empty the password cache:**

- 1 In Xstart, open an Xstart file by clicking Open on the File menu.
- 2 Click Options on the Tools menu. The Xstart Global Options dialog box opens.
- 3 In the Password List area, click Delete All. This empties the cache, so that the next time you run or create an Xstart connection, the system prompts for a password.

**Defining User ID and Password Macros**

You can use a user ID and password macro to automatically provide your user ID or password.

**To define user ID and password macros:**

- 1 In Xstart, click Options on the Tools menu.
- 2 In the Xstart Global Options dialog box, type a user name and password in the Login Macros area. Macro @u (or @U) inserts the user name and macro @p (or @P) inserts the password automatically in the Xstart Information dialog box.
- 3 Continue to configure and save your Xstart file as appropriate.

For more information, see “User ID and Password Macros” on page 61.

**Remembering Host Passwords**

Use the Xstart Global Options dialog box to specify the Remember Password state for a specific host, as well as user ID and password. To access this dialog box, click Options on the Tools menu in Xstart. After Xstart recognizes the login combination, it uses the appropriate Remember Password rule.

For a description of available password options, see “Creating a Global Login” on page 63.

**Note:** If you cannot browse, you may need to configure Host browsing in the Browse Hosts dialog box. In Xstart, click Settings in the Startup area. In the Xstart Settings dialog box, click the Other tab. On the Other page, click Configure for Hosts in the Browse Methods area.

**Managing the Password List in Xstart**

You can add or modify password entries for Xstart files.

**To add or update password entries:**

- 1 In Xstart, open an Xstart file by clicking Open on the File menu.
- 2 Click Options on the Tools menu. The Xstart Global Options dialog box opens.
- 3 Specify values for the Host, User ID, and Password boxes. Next, select a rule from the Remember Password drop-down list box, and then click Add. If an entry already exists for the host and user ID you specified, you have the option of updating the entry when you click Add.
- 4 Click Yes in the confirmation dialog box that opens to apply your changes.

**To delete password entries:**

- 1 In Xstart, open an Xstart file by clicking Open on the Tools menu.
- 2 Click Options on the Tools menu. The Xstart Global Options dialog box opens.
- 3 Do one of the following in the dialog box:
  - To delete all password list entries, leave all boxes blank and click Delete All.
  - To delete all password list entries for a specific user ID, specify the value in the User ID box and click Delete All.
  - To delete all password list entries for a specific host, specify the value in the Host box and click Delete All.
  - To delete all password list entries for a specific user ID on a specific host, specify the host in the Host box and the user ID in the User ID box and click Delete.

## **Password Expiry Prompts**

Xstart detects UNIX password expiry prompts that require the user to change the password. This applies to Rlogin, TELNET, and Secure Shell start methods.

## Changing Hosts, IDs, and Passwords Across Multiple Files

You can change your host, user ID, and password across multiple Xstart files at the same time.

### To change information across multiple files:

- 1 In Xstart, click Find And Replace in the Tools menu. The Find And Replace dialog box opens.
- 2 In the Location area, browse to the directory in which you want to perform your search. The *User* directory is selected by default.
- 3 In the Find area, specify the item(s) you want to change using the Host, User ID, and/or Password boxes.
- 4 In the Replace area, specify your new information. If you are changing the password, you must type the new password in the Password box and then re-type it in the Confirm Password box.
- 5 Click one of the following buttons:
  - Replace All—Lets you apply changes to all Xstart files meeting the defined criteria.
  - Replace—Lets you apply changes to individual files.
- 6 In the Confirm Change dialog box that opens, review your proposed change(s) and use the Change, Next, or Change All buttons to apply the appropriate action to the specified Xstart file.
- 7 Repeat steps 2 – 6 as many times as necessary, then click Close in the Find And Replace dialog box.

## Running Multiple Exceed Sessions

You can run multiple instances of the Exceed X server. If you open Exceed while another instance of Exceed is running, the Exceed Multiple Sessions dialog box opens. It prompts you to decide whether to run multiple sessions or to run just one session.

For detailed user interface information, see Exceed Help.

If Do Not Prompt For Multiple Sessions is selected on the Common Settings page, or if the option was selected in a previous Exceed Multiple Sessions dialog box, then the Exceed Multiple Sessions dialog box does not open when subsequent Exceed sessions are run. To re-enable the appearance of this dialog box, clear the Do Not Prompt For Multiple Sessions check box on the Common Settings page.

To run another instance of Exceed, select Run Multiple Sessions on the Common Settings tab of the Display and Video page in Xconfig. If this option is not selected (and Do Not Prompt For Multiple Sessions is selected), then neither the prompt dialog box nor another Exceed session opens.

## Starting Multiple X Clients or Windows Programs

Xstart is designed specifically for starting X clients. Local Application startup method lets you start any Windows application, including an FTP or TELNET session. If you use additional command line parameters supported by FTP and TELNET, you can create an Xstart file (and shortcut) that automatically connects to the host.

### Using Xstart Commands

When creating an Xstart file, you can put multiple commands in the Command box in Xstart. This feature is useful for simultaneously starting X applications that you commonly use, such as expense reports, calendar, and e-mail applications. To use this feature, all of the X applications must reside on the same host.

**Note:** You may need to edit the command line to accommodate a particular host. For example, each command is separated by a semi-colon. However, some UNIX hosts do not accept semi-colons.

### Using Xsession

Xsession sequentially executes a series of program/client startup files. It lets you create icons to run:

- Exceed using different initial window and startup modes
- multiple Xstart files



## Running Xstart from a Command Line

You can run Xstart from a command line to start an X client directly from a Windows shell. Use the following command line syntax in the Windows Run dialog box:

```
home/xstart [-m Method] [-h Host] [-u UserID] [-p Password]
[-c Command] [-l|-l-] [-t CloseTimeout]
```

or

```
home/xstart Settings.xs [-m Method] [-h Host] [-u UserID]
[-p Password] [-c Command] [-l|-l-] [-t CloseTimeout]
```

where:

- *home* is your *User* directory.
- *Settings.xs* is the name of an Xstart settings file. If the Xstart file name is preceded by a path, Xstart searches that directory. Otherwise, it searches the *User* directory.

**Note:** Options specified after the *Settings.xs* parameter override settings in the *.xs* file provided that the options are placed to the right of the file specification. If an *.xs* file is specified without command line options, Xstart uses information in the file to start the X client.

- items enclosed in [ ] are available options.

## Command Line Options

The following table describes command line parameters:

Parameter	Description
-m <i>Method</i>	<i>Method</i> can be REXEC, RSH, TELNET, RLOGIN, SSH, or local, each representing the supported startup method.
-h <i>Host</i>	<i>Host</i> is the host to which you want to connect. Type either the host name or its network address.
-u <i>UserID</i>	<i>UserID</i> is the login name used to log in to the host.

Spaces within a command must be enclosed in double quotation marks: " ".

Parameter	Description
<code>-p Password</code>	<i>Password</i> is the host password for the startup method.
<code>-c Command</code>	<i>Command</i> is the action executed by the host. If the command contains spaces, it must be enclosed in double quotes (for example, " <i>my command</i> ").
<code>-l   -l-</code>	Login Information prompt. Type either: <ul style="list-style-type: none"> <li>• (Minus sign, lowercase L) The Xstart Login Information dialog box opens at run time and prompts for a host, user ID, password, and command.</li> <li>• (Minus sign, lowercase L, minus sign) Xstart does not prompt for login information.</li> </ul>
<code>-t CloseTimeout</code>	<i>CloseTimeout</i> is the number of seconds the remote execution facility socket remains open after the host has acknowledged receipt of the command.

**Note:** You can run multiple Xstart files simultaneously with Xsession. You can create an Xsession file (.ses) that includes multiple client or application startup files (.xs). You can also create a shortcut that lets you start the files included in the Xsession.

To start an xterm on a host called Sparcy, using REXEC:

```
home\xstart -m rexec -h sparcy -u user -p abcdabcd -c "xterm -ls -display pc:0&"
```

To start an xterm on a host called Sparcy, using RSH:

```
home\xstart -m rsh -h sparcy -u user -c "xterm -ls -display pc:0&"
```

To use the file xterm.xs located in the *User* directory to start an X client:

```
home\exceed\xstart xterm.xs
```

## Environment Variables

DISPLAY and PATH variables are often defined for the host session. For example, X clients use DISPLAY to determine which X server to use. You can specify these variables:

- on the command line
- for the current X window session

You can save the DISPLAY variable in the startup file (UNIX hosts: `.cshrc` for the C shell, or `.profile` for the Bourne shell). The startup file automatically sets any variables needed when a user logs in. To include your DISPLAY variable in the startup file, add the commands described in the next topic.

**Note:** You may want to verify that the DISPLAY environment variable does not already exist in the host startup file. If DISPLAY has been set, it appears in the list of environment variables for your computer on the host.

To view this list, enter the command corresponding to your host:

- UNIX: `"env"` or `"printenv"` (`"echo $DISPLAY"` gives the current value)
- VMS: `"SHOW DISPLAY"`

### Setting the DISPLAY Environment Variable

You can specify the DISPLAY on the Xstart command line that starts the X client. The syntax is:

```
-display mypcname:0 &
```

where *mypcname* is the IP address of the Exceed X server, and & indicates that the application should start in the background.

### For the Current X Window Session

If you set the DISPLAY variable on the host, you have to specify it when you start a client. The command to set your DISPLAY variable depends on your shell.

C shells normally display a `%` prompt.

```
setenv DISPLAY mypcname:0
```

Bourne shells normally display a `$` prompt.

```
DISPLAY=mypcname:0  
export DISPLAY
```

**Note:** If you are running Open Windows on a Sun Sparcstation, set the following environment variables after setting the display:

```
OPENWINHOME=/usr/openwin
```

```
LD_LIBRARY_PATH=/usr/openwin/lib
```

For both variables, replace *usr* with the directory on the host where the X Window system files are located.

## Command Line Syntax for Starting X Clients

### UNIX Hosts

If DISPLAY is not defined, you can start X clients using the following command line syntax:

```
[path/]application [parameters] -display mypcname:displaynumber &
```

If DISPLAY is defined, you can start X clients using this command line syntax:

```
[path/]application [parameters] &
```

### VMS Hosts

You can specify DISPLAY on the client startup command only if you are using Xstart with certain command line syntax shown missing. Otherwise, you must define DISPLAY on the host.

If DISPLAY is defined, you can start X clients using this command line syntax:

```
RUN SYS$SYSTEM:DECW$application
```

For example:

```
RUN SYS$SYSTEM:DECW$CLOCK
```

**Note:** There is no space after the colon (:) in the specified command line.

## About Xsession

See page 75 for a sample Xsession Window.

Xsession lets you start multiple X clients or Windows programs (including TELNET, TN3270, and FTP settings files) simultaneously. Each Xsession file (.ses) references multiple Xstart startup files (.xs), each of which is configured to automate the process of accessing hosts and starting applications. Therefore, before starting an Exceed session using Xsession, you must create an Xstart file for each X client and Windows application that you want Xsession to start. The information required by individual programs resides in the Xstart files associated with the Xsession file.

Windows 7 users can pin specific Xsession files to the Xsession jump list.

When you run an Xsession file, the .xs files run in the order specified. You can indicate whether you want to start the Exceed X server when you run the Xsession file. If so, you can also specify the initial window and startup modes. You can install a shortcut that lets you run the files included in the X session.

## Using Xsession with Profile Spaces

If your installation of Exceed includes the Profile Space feature, and the Exceed administrator has made the feature available, then you can use any available Profile Space to save and run Xsession files.

### Note:

- Using the `GlobalExceed.ini` file, which is located in the `Global User` directory, administrators can enable or disable profiles spaces for all users, or allow users to enable it if required.
- Xstart startup files (`.xs`) referenced by an Xsession file (`.ses`) must reside in the same Profile Space as the Xsession file.

## Running Multiple Xstart Profiles

To run multiple connections, create an Xsession file. Xsession lets you combine `.xs` files into a single `.ses` file that starts multiple X clients or Windows programs (including HostExplorer, TN3270, and FTP settings files) simultaneously.

In Xsession, click **Options** on the **Tools** menu. In the Xsession Options dialog box, you can specify the following:

- Whether the Exceed X server lists the file in its **Session Startup** submenu (accessible by clicking **Tools** on the Exceed menu) and the Exceed toolbar **Session Startup** button.
- Whether Exceed automatically starts before running the clients or programs.
- If you want Xsession to start the Exceed X server automatically, you can also specify the initial window and startup modes.

You can create different Xsessions to run different window managers simultaneously.

Xsession provides other useful options such as specifying a configuration file with custom settings, window modes, and startup modes. If you select these settings within Xsession, they override Xconfig settings.

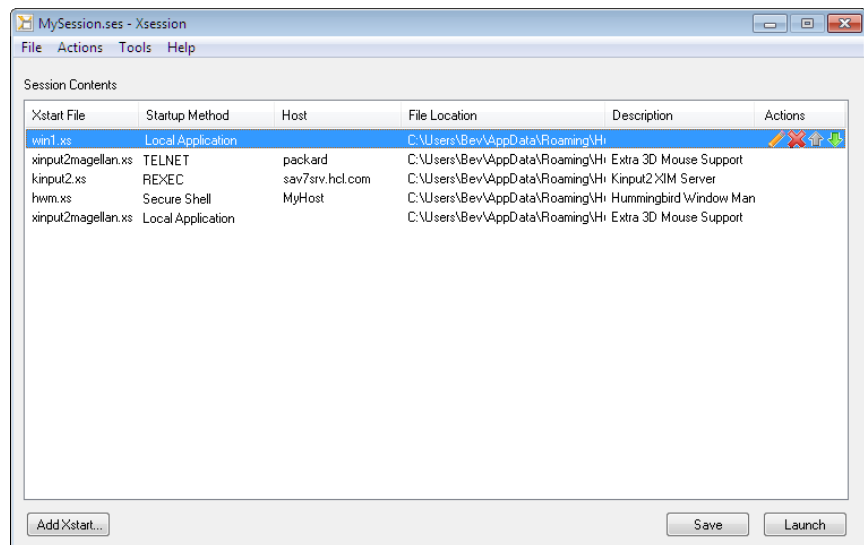
#### Note:

- By default, all Xsession files are saved in the `Profile` directory for the currently logged in user, but you can specify another location. The `.ses` file extension is appended automatically.
- If your installation of Exceed includes the Profile Space feature, then you can use any available Profile Space to save and run Xsession files. Xstart startup files (`.xs`) referenced by an Xsession file (`.ses`) must reside in the same Profile Space as the Xsession file.

## Entering Startup Information

You may find it useful to create Xsession files that just start the X server with a specific startup mode and window mode. This lets you install custom icons to start the X server in different ways and to selectively override the default settings in Xconfig.

The Xsession displays information about Xstart files in the current Xsession.



For information on creating an Xstart file, see “Creating Startup Files” on page 31.

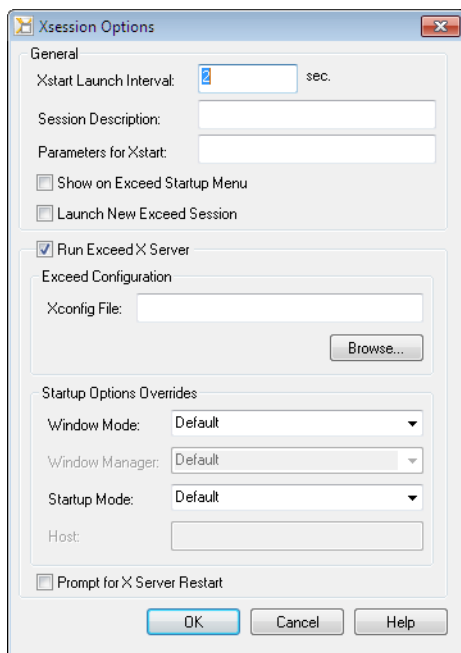
For more details about Xsession menus, see Exceed Help.

Use the Up and Down arrows in the Actions column to rearrange the Xsession startup sequence. Use the X in the Actions column to delete an Xstart file from the current Xsession. Use the Pencil in the Actions column to open the Xstart file for editing.

File menu commands let you create new Xsessions, open existing Xsessions, save Xsessions, and create shortcuts. View menu commands let you toggle the toolbar (on or off), set button size, or reload (update and redraw) the list of available Xstart files. This is useful if you are adding or deleting Xstart files while running Xsession.

Actions menu commands let you add Xstart files to the current Xsession, modify existing Xstart files, and remove Xstart files. Repair Xstart lets you find and select a file which the application cannot locate (for example, if it was moved, deleted, or renamed since it was first added to the Xsession). The missing file is replaced by the selected file. You can also rearrange Xstart files.

Tools menu commands let you reload your Xsession or open the Xsession Options dialog box.





Xstart Launch Interval applies to Xstart programs only. Local applications are started immediately.

Use the General area to specify the interval between the startup of each Xstart file.

You can type a Session Description (up to 40 characters) which becomes the caption for the Session Startup menu command (and the menu that displays when you click Client Startup on the Exceed toolbar). To create this command, select Show On Exceed Startup Menu. If you did not specify a Session Description, Xsession uses the file name (without the extension) for the (menu command) caption.

Xsession settings override the defaults in Xconfig.

The Run X Server option starts Exceed automatically when the Xsession file is run. To restart the server with the server options specified in the Xsession file before running any programs, select Prompt For Server Restart. You can specify an Exceed X server configuration file.

You can specify further overrides under Startup Option Overrides. Select Single, Multiple, or Default (whatever is specified on the Xconfig Screen page) window mode. If the window mode is Multiple, select a window manager. Select a startup mode (Default is the mode specified on the Xconfig Communication page). If XDMCP Query or XDMCP Indirect is selected, specify the network address of the connect host.

**Warning!** To apply the new Xsession settings, you must restart the server.

## Working with Xsession

### To create or modify an Xsession file:

- 1 In Xsession, do one of the following:
  - To create an Xsession file—Click Add Xstart at the bottom of the Session Contents area to locate and select a `.xs` file. Repeat as necessary.
  - To modify an Xsession file—Click Open on the File menu to locate and select a `.ses` file.
- 2 Use the icons in the Session Contents area to edit, remove, or rearrange your `.xs` file(s).

- 3 On the File menu, click Save. Xsession files are automatically saved with an `.ses` extension in one of the following locations:
  - By default, all Xsession files are saved in the `Profile` directory.
  - If your installation of Exceed includes the Profile Space feature and the Exceed administrator has made it available, then you can use any available Profile Space to save and run Xsession files. Xstart startup files (`.xs`) referenced by an Xsession file (`.ses`) must reside in the same Profile Space as the Xsession file.

**To specify options for the current Xsession file:**

- 1 In Xsession, click Options on the Tools menu. The Xsession Options dialog box opens.
- 2 In the General area, do the following as necessary:
  - To change the time between startup of `.xs` files, modify the Xstart Launch Interval setting. The default value is 2 seconds.
  - To provide a brief description of the current Xsession file, use the Session Description box. This description becomes the caption for the file when it appears on the Session Startup menu (accessible by clicking Tools on the Exceed menu). If you do not provide a description, Xsession uses the current Xsession file name as the caption.
  - Use the Parameters For Xstart box to add command line parameters to the selected Xstart file. For more information, see “Running Xstart from a Command Line” on page 69.
  - To list the current Xsession file on the Session Startup menu for Exceed, select Show On Exceed Startup Menu. If you select this option, the file also appears in the list that appears when you click Session Startup on the Exceed toolbar.

The file is displayed with the caption as specified by the Session Description box mentioned above. For information on how to access the Session Startup menu, see the previous bulleted item.
  - To launch a new Exceed session for each Xsession profile you run, select Launch New Exceed Session. Exceed launches a session with an incremented display number for each new Xsession.

- 3 If you want to automatically start the Exceed X server with your Xsession file, do the following:
  - a) Select Run Exceed X Server.
  - b) In the Exceed Configuration area, specify the Xconfig file that you want your Xsession file to run.
- 4 In the Startup Options Overrides area, select the appropriate startup options for your Exceed sessions. These options override the defaults in Xconfig.
- 5 If you want Xsession to prompt for confirmation before restarting the server (each time the file is run), select Prompt For X Server Restart.
- 6 Click OK to apply your changes and close the Xsession Options dialog box.
- 7 In Xsession, click Save on the File menu. Xsession files are automatically saved with an .ses extension in one of the following locations:
  - By default, all Xsession files are saved in the Profile directory.
  - If your installation of Exceed includes the Profile Space feature and the Exceed administrator has made it available, then you can use any available Profile Space to save and run Xsession files. Xstart startup files (.xs) referenced by an Xsession file (.ses) must reside in the same Profile Space as the Xsession file.

## Xsession File Sequence

The following describes the sequence of events when you run an Xsession session. You can use this information to help you troubleshoot connection issues.

- 1 If Run Exceed X Server is selected in the Xsession Options dialog box (accessible by clicking Options on the Tools menu in Xsession), and the X server was not previously started, the X server starts.

If the X server is already running and you selected Prompt For X Server Restart, Xsession prompts you to restart the server.

To troubleshoot a connection, see “Exceed Diagnostics” on page 265 and “Chapter 2: Connecting to Hosts and Running X Clients” on page 11.

- 2 The pause between the start of profiles corresponds to the Xstart Launch Interval specified in the General area of the Xsession Options dialog box. Profiles start according to the order listed in the Session Contents area of the Xsession file (.ses).

## Starting Multiple Exceed X Servers

The easiest way to startup multiple, simultaneous instances of the Exceed X server is to use Xsession.

### To start multiple Exceed X servers:

- 1 In Xsession, click Options on the Tools menu. The Xsession Options dialog box opens.
- 2 In the Session Description box, provide a description for the current Xsession file. For more information on how this description is used, see “Working with Xsession” on page 77.
- 3 Select Run Exceed X Server.
- 4 Click OK to save the session and close the Xsession Options dialog box.
- 5 In Xstart, create and save a profile (specifying Local Application as the startup method) for each instance of the Exceed X server. For each profile, ensure that:
  - the command line is fully specified or that settings in `Exceed.xcfg` are suitable
  - a unique display number is used for each instance

#### Note:

- Multiple X display support has certain restrictions. For more information, see Multiple X Display Support.
- If your installation of Exceed includes the Profile Space feature and the Exceed administrator has made it available, then you can use any available Profile Space to save and run Xsession files. Xstart startup files (.xs) referenced by an Xsession file (.ses) must reside in the same Profile Space as the Xsession file.

- 6 In Xsession, add the Xstart profiles to your Xsession file by clicking Add on the Actions menu.
- 7 Save your Xsession file by clicking Save or Save As on the File menu. Optionally, create a shortcut to enable a double-click startup of the session by clicking Create Shortcut on the File menu.

## Exceed Display Controller Console

For more details about the Exceed Display Controller Console, see Exceed Help.

Display numbers are used for differentiating between multiple instances of Exceed and are required to correctly map X server input and output. The Exceed Display Controller Console (a Microsoft Management Console plug-in) provides an interface for setting parameters that control display numbers in the `Display Manager.ini` file. The left pane displays a tree of the types of display number settings, which can be expanded to view various options. Select an option to view settings in the right pane.

For more information about Microsoft Management Console, consult the Microsoft Windows documentation.

**Note:** Exceed Display Controller Console is available only for terminal servers/remote desktop servers that are running Windows Server 2008 (32 and 64 bit), Server 2008/2012 R2 (64 bit).

## Common Desktop Environment (CDE)

A handshake is an activity that keeps two computers or programs synchronized (such as the CDE display manager and the X protocol). It usually involves the exchange of messages or packets of data between two systems.

When you log in to the UNIX host via the CDE display manager using XDMCP, a handshake implemented by the X protocol is employed. CDE does not begin unless it detects a supported X server (that is, Exceed).

**To start CDE:**

- 1 Ensure CDE is configured properly on a UNIX host.
- 2 In the left pane of Xconfig, click Display and Video. On the Screen page that opens, select either the Multiple or Single window mode.

**Note:** If you select multiple window mode and you are using the Windows (native) window manager, verify that the Cascade Windows option is not selected.

- 3 In the left pane of Xconfig, click Communication. On the Communication page that opens, select XDMCP Broadcast from the Mode drop-down list.
- 4 Click Save.
- 5 Start Exceed.
- 6 From the XDMCP Display Manager Chooser, select a UNIX host, and click OK. The greeter opens.
- 7 Log in to the UNIX host.

The CDE session manager starts and the interface displays on your computer.

## Using Desktop Environments for Linux

There are two main types of X Graphical Desktop Environments in Linux. Depending on which one you chose when you installed Linux, either KDE or GNOME is set as the default desktop.

- KDE—K Desktop Environment uses KWin as its window manager.
- GNOME—GNU Network Object Model Environment works with window managers such as Enlightenment, Sawmill, and Window Maker.

KDE and GNOME run on a Linux host and are displayed on the remote computer using standard X protocol.

**Note:** For GNOME sessions using EsoundD, you need to grant access to port 16001 in the Windows Firewall Settings. For Windows 7 and later, you must disable EsoundD on the host or install an EsoundD server from a third party provider. For detailed information on this issue, refer to the Release Notes.

## Running Multiple CDE Sessions

Running multiple CDE sessions requires passing command line parameters to `Exceed.exe`.

**To create multiple Xstart sessions (each with specific command line parameters):**

- 1 In Xstart, create an Xstart file by selecting Local Application as the startup mode, and click Settings. The Xstart Settings dialog box opens.
- 2 In the General area of the Other page, provide an explanation or label (such as CDEHostA) in the Description box, and click OK to close the Xstart Settings dialog box.
- 3 In Xstart, specify the `exceed.exe` command and its appropriate parameters in the Command box.

For example:

```
exceed.exe -d 1 -m query -h host -w single -n session
```

where:

`-d 1` specifies the display number

`-m query` specifies the startup mode

`-h host` specifies the connect host

`-w single` specifies the window mode

`-n session` specifies the session name that appears in the title bar (single window mode)

- 4 Click Run on the Action menu to test the startup file. If the session runs successfully, close the Exceed window, and then save the startup file by clicking Save or Save As on the File menu.
- 5 On the File menu, click New. Repeat steps 3 and 4 for each startup file. Be sure to type a unique description (such as CDEHostB, CDEHostC, and so on) for each session.

#### **To run Common Desktop Environment (CDE) sessions with Xsession:**

You can also add files by dragging and dropping .xs files into the Session Contents list.

- 1 In Xsession, click Add on the Tools menu to add Xstart files (.xs) to your Xsession. Xsession lists the files in Session Contents.
- 2 If necessary, use the Xsession Options dialog box (accessible by clicking Options on the Tools menu in Xsession) to make additional changes to your Xsession file. You can also modify or reorder your Xstart sessions within Xsession by using the Modify, Move Up, or Move Down buttons. For more information, see “Working with Xsession” on page 77.
- 3 Click Run on the Tools menu to test the CDE sessions.
- 4 If the Xstart sessions run successfully and you are satisfied with how the overall Xsession runs, click Save on the File menu. Optionally, create a shortcut to enable a double-click startup of the session by clicking Create Shortcut on the File menu.

## Securing Connections

### OpenText Secure Shell

To secure your connection sessions, Exceed offers Secure Shell encryption and authentication, which is available only if you purchase and install OpenText Secure Shell. OpenText Secure Shell is a client implementation of the Secure Shell protocol (SSH-2).

To make an Exceed X Window session secure, specify Secure Shell as the startup method in Xstart. The connection parameters specified in Xstart are used to establish a Secure Shell tunnel to the target host:

- Host



- User ID
- Authentication Method

For more information, consult the OpenText Secure Shell documentation.

## Kerberos

This option is available only for the TELNET startup method. Select this option to enable use of Kerberos V5, and to select and configure options.

Kerberos is an authentication service developed at MIT for open network computing environments. Kerberos works by assigning a key, called a ticket, to each user that logs on to the network. The ticket is then embedded in messages to identify the sender of the message.

For more information, refer to OpenText Kerberos Help.

## X11 Authentication

For certain environments, user-level security is controlled by a binary file, `.xauthority`. It contains cookies that associate an IP address with a binary value. When an X11 application runs, the file is accessed and then the appropriate cookie is extracted and sent to the X server (typically located on another computer). If the X server accepts the cookie, then the connection succeeds.

For more information, see  
"OpenText Secure Shell"  
on page 84.

For a higher level of security, consider using OpenText Secure Shell (a client implementation of the SSH-2 Secure Shell protocol) for X11 tunnelling and port forwarding. This product is a TCP-based client/server protocol that provides authentication, encryption, and data integrity.

X11 authentication options in Secure Shell interact with Exceed. When an unknown X client tries to connect, Exceed prompts for a decision to allow or refuse the connection. Allowing the connection depends on whether the X client is trusted or untrusted.

## Password Aging

Password aging is a common tool used to ensure a modest level of security. Changing the password periodically reduces the potential damage caused by intruders who gain access to the network by using stolen user credentials. However, frequent password change also inconveniences end-users and reduces productivity because, in some cases, the passwords are stored in many application profiles. Users must manually replace the aged password with the new password.

For more information, see  
"Password Expiry  
Prompts" on page 66.

Exceed can handle password aging events and automatically propagate the changes to Xstart profiles. Users do not have to manually update Xstart profiles with the new password. Xstart detects UNIX password expiry prompts that require the user to change password. This applies to Rlogin, TELNET, and Secure Shell start methods.

# Chapter 4

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## Xconfig

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## About Xconfig and its Mandatory Settings

This section describes Xconfig, a utility for configuring Exceed settings. The settings are used when you run an X client.

### Which settings you can configure in Xconfig

The default Xconfig settings suit most systems. Typically, changes you make in Xconfig take effect immediately. In some cases, Exceed displays a message indicating that the setting cannot be updated until the server is reset. Note that a server reset terminates all X clients.

Xconfig enables you to configure the following settings:

Settings for...	See more...
Input Devices	• <a href="#">Configuring your keyboard</a>
Communication	• <a href="#">Configuring Communication Settings</a>
Security	• <a href="#">Configuring Security Settings</a>
Display and Video	• <a href="#">Configuring Display and Video Settings</a>
X Selection	• <a href="#">Configuring the Copy, Paste, and X Selection</a>
Fonts	• <a href="#">Configuring Fonts</a>
Open GL	• <a href="#">Configuring OpenGL settings for Exceed 3D and GLX</a>
X Protocol	• <a href="#">Configuring X Protocol Settings</a>
Performance	• <a href="#">Configuring Performance Settings</a>
Troubleshooting	• <a href="#">Configuring Troubleshooting Settings</a>
Power Management	• <a href="#">Configuring Power Management Settings</a>
System Administration	• <a href="#">Configuring System Administration Settings</a>
Accessibility	• <a href="#">Configuring Accessibility Settings</a>



## XconfigMandatory Settings

Xconfig mandatory settings lets administrators lock certain individual settings so that users cannot change them. By default, all settings are initially available for configuration. This option is available only for Administrators or users with elevated (administrative) privileges.

### To lock certain settings and options from within Xconfig:

From the Xconfig File menu, select Mandatory Settings. When this option is selected, a green lock icon appears for all the Xconfig settings.

To toggle between unlocked and locked state, click the lock icon.

-  • unlocked (green lock) and
-  • locked or mandatory (red lock)

Locked (mandatory) settings are saved to `Mandatory.xcfg` (located in the Global directory).

## Viewing or modifying configuration files created with Xconfig

This section contains the following topics:

- “Location of default Exceed.xcfg file” on page 92
- “Accessing an Xconfig file” on page 93

### Location of default Exceed.xcfg file

The default configuration file (`Exceed.xcfg`) is a per-user file. Per-user files affect only the user who is making the change (the user who is currently logged in). For example, if you configure `Exceed.xcfg` to use a certain display, other users of the machine are not affected.

The default location for per-user files is:

```
C:\Users\Username\AppData\Roaming\Hummingbird\  
Connectivity\version\Exceed
```



where *Username* is the name of the user and *Version* is the version number of your OpenText product.

**Note:** Each user of the product on the machine receives a personal *User* directory located in the product subfolder. See “User Files” on page 8.

## Accessing an Xconfig file

This section describes how to access an Xconfig file, using the command line or the Xsession utility.

### To view or modify an Xconfig file using the command line:

- Specify */f* and the full path to the configuration file on the Exceed X server command line.

### To view or modify an Xconfig file from Xconfig:

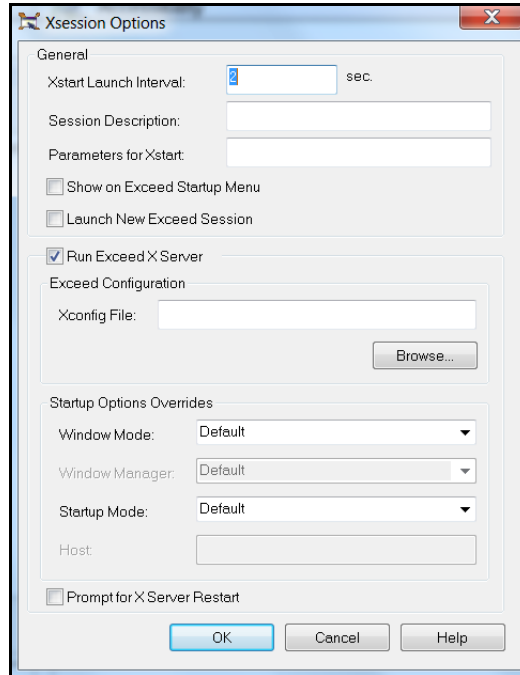
- 1 Start Xconfig. See “Starting Xconfig and displaying the relevant settings” on page 95.
- 2 From the File menu, select Open. A dialog box is displayed. It allows you to locate and select a configuration file (\*.xcfg).

### To specify an Xconfig file in the Xsession utility:

- 1 Right-click the Exceed icon in the taskbar. From the menu that is displayed, select Xsession.

The Xsession utility is started.

- 2 From the Tools menu, select Options. The Xsession Options dialog box is displayed.



- 3 Under Exceed Configuration, in the Xconfig File box, specify the configuration file. You may also click the Browse button, to browse for the file.
- 4 Select Prompt For X Server Restart.
- 5 Click OK.

## Starting Xconfig and displaying the relevant settings

This section describes how to start the Xconfig utility.

### Starting Xconfig

To start the Xconfig utility:

- 1 Right-click on the Exceed icon in taskbar.
- 2 From the menu that is displayed, select Xconfig. The utility is started.

### Accessing Xconfig categories of settings

This section describes how to access the Exceed settings you want to modify in Xconfig.

#### To access the configuration settings you want to modify:

- 1 Start Xconfig. By default, the Xconfig main page (Input Devices) is displayed.
- 2 Click the relevant item in the Xconfig left pane. For example, to display Communication settings, click Communication, in the left pane. Alternatively, start Xconfig, display the Settings menu, and select the menu option of your choice. For more details about all available menus, see “Using Xconfig menus” on page 95.

## Using Xconfig menus

This section lists the Xconfig menus and their options.

The following menus are available:

- “File menu in Xconfig” on page 96
- “Settings menu in Xconfig” on page 96
- “Actions menu in Xconfig” on page 97
- “Help menu in Xconfig” on page 98

## File menu in Xconfig

This section describes the File menu options in Xconfig.

Menu option	Description
Open	Opens a dialog box for locating and selecting a configuration file (*.xcfg).
Save	Saves the modifications you made.
Save As	Opens a dialog box for saving the current configuration file under a new name. By default, Exceed.xcfg is the configuration file name.
Mandatory Settings	<p>Displays icons beside certain settings and options that system administrators can lock (make mandatory), or unlock. This option is available only for Administrators or users with administrative privileges.</p> <p>To toggle between unlocking or locking an option or setting, click the icon next to this option or setting.</p> <p>Note: Green lock indicate that the option or setting is not locked. Red icon indicates the locked option or setting. For more details, see “Xconfig Mandatory Settings” on page 203</p>
Exit	Saves any changes made to the current configuration file and exits Xconfig.

## Settings menu in Xconfig

This section describes the Settings menu options in Xconfig.

Menu option	Description
Keyboard Input	Display the Keyboard Input tab of the Input Devices page.
Mouse Input	Display the Mouse Input tab of the Input Devices page.
CJK Input	Display the CJK (Chinese/Japanese/Korean) Input tab of the Input Devices page.
Communication	Display the Communication page.
Security	Display the Security page.

Menu option	Description
Screen Definition	Display the initial (Screen) tab of the Display and Video page in Xconfig.
Video	Display the initial (Screen) tab of the Display and Video page in Xconfig.
X Selection	Display the X Selection page.
Font	Display the Font page.
OpenGL	Display the OpenGL page.
Protocol	Displays the X Protocol page.
Performance	Displays the Performance page.
Troubleshooting	Displays the Troubleshooting page.
Power Management	Displays the Power Management page.
System Administration	Displays the System Administration page.
Accessibility	Displays the Accessibility page.

## Actions menu in Xconfig

This section describes the Actions menu options in Xconfig.

Menu option	Description
Launch Xceed With Current Settings	Launches a new instance of Xceed using the current settings.
Change My Password	Opens the Xconfig Password dialog box. Enter your old password and the new password, and confirm the change. See "Restricting Access to Xconfig" on page 197.
Restore To Default Settings	Restores default settings (the settings in Xceed.xcfg).
Add Screen	Adds screens (up to 4, the initial screen being 0).
Remove Screen	Removes the highest numbered screen (except for Screen 0, which is the initial screen).

## Help menu in Xconfig

This section describes the Help menu options in Xconfig.

Menu option	Description
View Help	Launches the Help file for Xconfig. You may select the option or press the F1 function key on the keyboard.
About Xconfig	Display the information about Xconfig.

## Configuring your keyboard

This section describes the Input Devices settings for your keyboard, and how to modify them.

This section contains the following topics:

- “Which keyboard settings you can configure” on page 99
- “Primary or Alternative keyboard settings” on page 99
- “Window Modifiers Behavior for Your Keyboard” on page 100
- “Keyboard Hook” on page 101

Keyboard files are provided. They contain keyboard layout and symbol mappings. Keyboard files are stored in the *User* directory and have a *.kbf* extension. See “User Files” on page 8.

Exceed support international keyboards. See “International Keyboards” on page 1. Where the keyboard file name differs from the name of the country, the file name appears in parentheses ( ) beside it.

**Note:** If you are running a Chinese, Japanese, or Korean (CJK) Windows operating system (provided Microsoft IME is installed and enabled), the Input Devices include a settings page for CJK input.

- To customize your keyboard further, you will need to use the XKeys utility. See “Using the XKeys Utility to Customize the Keyboard” on page 102.

### Which keyboard settings you can configure

Use the Keyboard Input tab of the Input Devices page to configure:

- **Keyboard Mapping**—customize the current keyboard file, select an alternative keyboard file, or allow clients to modify keyboard mapping). For detailed customizing of keyboard files, you will need to use the XKeys key mapping utility.
- **Windows Modifier Behaviour**—map Shift and Alt keys for Exceed; associate keyboard keys with X keysyms and compose key sequences.
- **Other**—select whether Keyboard Hook is used

### Primary or Alternative keyboard settings

This section describes how to select a primary or alternative keyboard file, and configure whether Exceed users can modify them on their computers.

- By default, Exceed automatically detects an existing keyboard as the primary keyboard (automatically determines the keyboard defined in Windows Control Panel).

### To configure the Primary or Alternative keyboard mappings:

- 1 Ensure that you have a copy of the original keyboard file, as a precaution.

**Note:** By default, keyboard files are stored in the *User* directory and have a *.kbf* extension. If you are not using a supported keyboard, or if you are using a keyboard without a separate cursor keypad and 12 function keys, you can create a custom keyboard file to interact with Exceed.

- 2 In the left pane of Xconfig, click Input Devices. The Keyboard Input tab of the Input Devices page is displayed.

- 3 Under Keyboard Mapping, select the Primary and/or Alternate keyboard file you want to use.
  - The Primary box displays the name of the current primary keyboard file.
  - The Alternate box displays the name of the current alternative keyboard file. Displays the name of the alternate keyboard file. By default, the U.S. English keyboard `us.kbf` is used.
- 4 Perform the task of your choice:
  - To change the individual settings of either the Primary or Alternate keyboards, click Edit. To change the individual settings of a keyboard file not listed in the lists, Browse to the file, and then click Edit.

The XKeys key mapping utility is displayed. Customize the file as desired, and save the changes. See “Using the XKeys Utility to Customize the Keyboard” on page 102. See also “Modifying a Keyboard File” on page 105.
  - To allow users to modify keyboard files from their computers, select Allow Clients To Modify Keyboard Mapping.

You may now proceed to configure the Windows Modifier Behavior.

## Window Modifiers Behavior for Your Keyboard

This section describes how to associate keyboard keys with X keysyms, and compose key sequences.

- 1 In the left pane of Xconfig, click Input Devices. The Keyboard Input tab of the Input Devices page is displayed.
- 2 Under Windows Modifier Behavior, define how the Alt keys, Windows key, and Shift keys are interpreted by Exceed. The drop-down list box lists the following options for each key type:
  - To Windows—causes the left and right keys to be sent through to Windows.
  - To X—causes the left and right keys to be sent through to X.
  - Left To Windows, Right To X—causes the left key to be sent through to Windows and the right key to be sent through to X.



Right To Windows, Left To X—causes the right key to be sent through to Windows and the left key to be sent through to X.

- **Alt Key**—Defines whether Alt key sequences are directed to Microsoft Windows or to X Window clients. On keyboards that contain two Alt keys, use the Left To/Right To options to assign the Alt keys on the left and right-hand side of the keyboard separately.
- **Windows Key**—Defines how the Windows keys on your keyboard are interpreted by Xceed. You can choose from the same options as listed for the Alt key. Each Windows key can control a different function.

**Note:** The Windows key does not exist in the default keyboard file. To map the Windows key, you must add it manually. See Adding a Physical Key for more information.

- **Shift Key**—Defines how the Shift keys on your keyboard are interpreted by Xceed. The drop-down list box lists the following options:
  - Map Both Left And Right**—causes the left and right Shift keys to be treated separately.
  - Map Left As Right**—any time you press a Shift key on your keyboard, it is treated as a Right Shift.
  - Map Right As Left**—any time you press a Shift key on your keyboard, it is treated as a Left Shift.

## Keyboard Hook

This section describes the Keyboard Hook option.

- **Use Keyboard Hook**—Ties Exceed into the system keyboard. When switching the focus from a desktop application and to an X window, Exceed informs the X application about the corrected keyboard state.

**Warning!** Certain desktop applications (such as screen readers) do not work properly if Use Keyboard Hook is selected. If you want to enable the accessibility feature, you need to clear the Use Keyboard Hook option. See “Configuring Accessibility Settings” on page 198.

## Using the XKeys Utility to Customize the Keyboard

This section describes how to use the XKeys utility to configure keyboard files. The XKeys utility simplify the process of keyboard files mapping.

This section contains the following topics:

- “About the Xkeys Utility” on page 102
- “Modifying a Keyboard File” on page 105
- “Mapping a New Keysym to an Existing Key” on page 106
- “Deleting a Keysym Mapped to a Key” on page 108
- “Mapping a Macro to an Existing Key” on page 109
- “Macro Events” on page 109 “Creating Compose-Key Sequences” on page 110
- “Managing Keysyms and Keysym Sets” on page 110
- “PrintScrn Key Support” on page 111
- “Adding a Physical Key” on page 112
- “Deleting a Physical Key” on page 113

### About the Xkeys Utility

This section describes XKeys utility. This key-mapping utility is used to simplify the process of keyboard files mapping. It has been designed to communicate with an X protocol host.

The following changes are transparent to the X protocol:

- modify any basic keyboard layouts to send an X Window-supported character or string of characters using user-defined keystrokes
- define the sequences that simplify entering accented keys (using Compose Key options)
- customize keyboard and mouse options and preferences in the Xconfig Input Settings dialog box
- customize or create new keyboard layouts

**Note:** Back up a keyboard file before modifying it. Start the XKeys utility, and from the File menu select Save As. name the new copy of the file. This ensures that the copy of the original file remains intact, in case you need to revert to it.

**Note:** Every key you want to use must be defined in your keyboard file. To define a key, describe the symbol(s) it can generate in the No Shift, Shift, Mode Switch, and Shift Mode Switch states. The key definition is represented by a keysym (key symbol) hexadecimal value corresponding to the symbol generated in a specific state. An undefined key symbol does not function in any X application.

### To open the XKeys utility:

- 1 In Xconfig, display the Keyboard Input tab of the Input Devices page.
- 2 In the Keyboard Mapping area, select a `.kbf` file, and then click Edit (the button is available for either the Primary or Alternate keyboard files). The XKeys mapping utility is displayed.
- 3 To load a different keyboard file so that you can modify it:
  - From the XKeys File menu, select Open. This will allow you to locate and select the file.
  - Back up the file, before modifying it. From the File menu, select Save As. This ensures that the original file is intact if you need to revert to it.

**To use different modes of XKeys configuration:**

- 1 From the View menu, select the Mapping Mode or the Layout Mode.
  - Mapping Mode—Allows you to customize a keyboard file, associate X Keysyms to keys, compose key sequences, and build macros.
  - Layout Mode—Allows you to customize a keyboard file by adding or repositioning physical keys. Use this mode to create a new layout, or modify an existing one.
- 2 Proceed to modify the keyboard file. Note that you can accommodate non-standard keyboards by manually editing the keyboard text file or by using XKeys.

## Modifying a Keyboard File

This section describes how to customize your keyboard, by modifying an existing keyboard file.

**Note:** Create a backup of the original keyboard file before you customize it. After you load the file into XKeys, click Save As from the File menu and specify another file name. This ensures that the original file is intact if you need to revert to it.

The following table describes various scenarios for modifying a keyboard file:

You want to..	Details
Make a key on your keyboard generate a particular X Keysym	Map the Keysym to a key on your keyboard. See topic “Mapping a New Keysym to an Existing Key” on page 106
Send multiple Keysyms to the remote host, using a single key	To forward multiple Keysyms, create a macro or a string of symbols, and map it to a key. See “Mapping a Macro to an Existing Key” on page 109.
Generate a special Keysym that consists of an unknown accented character	To generate a special Keysym, define a compose-key sequence to forward that special Keysym to the remote host. See topic “Creating Compose-Key Sequences” on page 110.

You want to..	Details (Continued)
Resolve the situation where your keyboard does not have a separate cursor keypad	Map existing keys to generate the symbols on a cursor keypad.
Create a keyboard file for mathematical symbols or for other Keysyms that are not available	Use Keysym File Editor to add custom Keysyms and create new Keysym Sets. See “Managing Keysyms and Keysym Sets” on page 110.
Create a keyboard file for mathematical symbols or for an alphabet (such as Arabic, Cyrillic, Greek, and Hebrew)	Create a new keyboard file using the New command on the XKeys File menu and map the symbol to each key.
Use extra keys on your non-standard physical keyboard to send Keysyms to a remote host	To add a physical key to a keyboard file, you must change the layout of the keys. See “Adding a Physical Key” on page 112.

## Mapping a New Keysym to an Existing Key

This section describes how to modify the mapped key on your keyboard to generate a different Keysym. Click **Mapping** on the XKeys Edit menu (in Mapping Mode only) to display a mapping dialog box.

**Note:** You cannot map a Keysym to a non-standard key unless you have included it by changing the layout of the keyboard file. For more information, see “Adding a Physical Key” on page 112.

For example, change the current Keysym mapping of the Backspace key to any of the following:

- the delete Keysym

- a special character (such as æ or þ) defined in a compose-key sequence

**Note:** You can map a compose-key sequence in the X Compose Mapping dialog box. The X Compose Mapping dialog box has the same functionality as the XKeys mapping dialog box.

### To map a new Keysym:

- 1 In the left pane of Xconfig, click Input Devices. The Keyboard Input tab is displayed.
- 2 Select a primary or alternate keyboard file, and click Edit.
- 3 Select the key that you want to map. Do so by clicking the key in the XKeys window (Mapping Mode) or pressing the corresponding key on your keyboard. You can view the current mappings in the Mapping For Key Labelled: *Keysym* group box.
- 4 Select Mapping on the Edit menu. An XKeys mapping dialog box opens. You can view the current mappings for the key you specified in the Mapping For Key Labelled: *Keysym* group box.
- 5 Click any of the following states: Unshifted, Shifted, Mode Switch, Shift Mode Switch. To delete the current mapping for this state, click Clear Mapping.
- 6 Select a Keysym Set from the Symbol Set list. Each Keysym Set contains a different list of Keysyms, which are displayed in the Keysyms list.

**Note:** If you do not know which Keysym Set a Keysym belongs to, you can search for it by entering the Keysym in the Search box and clicking Find. XKeys selects the appropriate Keysym Set in the Symbol Set list, and then highlights the closest match in the Keysyms list. If the first Keysym matched is not correct, click Find until you find the symbol.

- 7 Select the Keysym that you want to map to this key in the Keysyms list and click Select Keysym. The mapping is changed for the state you selected earlier.

- 8 Select a modifier state in the X Key States area. You can assign any combination of modifiers. If you would like the key to auto-repeat when held down, enable the Repeat check box.

**Note:** Select only one Mod key.

- 9 To map different Keysyms to the remaining states, repeat steps 5 – 8.
- 10 Click OK. The Current X Mapping panel in the XKeys window now displays the new mappings.

**Note:** To change the keycap text on a key, select Layout Mode from the View menu. Once in Layout mode, press the key on your physical keyboard to select it and type the keycap text in the abbreviation box.

## Deleting a Keysym Mapped to a Key

### To delete a Keysym mapped to a key:

- 1 In the left pane of Xconfig, click Input Devices. The Keyboard Input tab is displayed.
- 2 Select a primary or alternate keyboard file, and click Edit.
- 3 Select the key that you want to map by clicking the key in the XKeys window (Mapping Mode) or pressing the corresponding key on your keyboard. You can view the current mappings in the Mapping For Key Labelled: *Keysym* area.
- 4 Click Mapping on the Edit menu to open a mapping dialog box. You can view the current mappings for the key you specified in the Mapping For Key Labelled: *Keysym* group box.
- 5 Click any of the following states: Unshifted, Shifted, Mode Switch, Shift Mode Switch. To delete the current mapping for this state, click Clear Mapping.
- 6 To delete the mapping for another state, repeat the previous step.



## Mapping a Macro to an Existing Key

Use the Macros dialog box to add, edit, and delete a macro. You can display the Macros dialog box by selecting Macro on the XKeys Edit menu.

**Note:** You cannot map a Keysym to a non-standard key unless you have included the key by changing the layout of the keyboard file. For more information, see “Adding a Physical Key” on page 112.

### To map a macro:

- 1 In the left pane of Xconfig, click Input Devices. The Keyboard Input tab is displayed.
- 2 Select a primary or alternate keyboard file, and click Edit.
- 3 On the XKeys Edit menu, click Macros.
- 4 In the Macros dialog box, click Add. The Macro Binding dialog box opens.
- 5 Click Browse. The Macro Selector dialog box opens.
- 6 Click Add. The New Macro Properties dialog box opens.
- 7 Specify a macro Name and Description.
- 8 Click Start Record and type the keys and key combinations that you want to be a part of this macro.
- 9 Click Stop Record to end recording. Click OK.
- 10 In the Macro Selector dialog box, click OK.
- 11 In the Macro Binding dialog box, select a key from the Bind Key list to attach the macro to, including any modifiers from the Modifier area.
- 12 Click OK. The macro is added to the list in the Macros dialog box.

## Macro Events

A macro recorded in the New Macro Properties dialog box displays an event list representing actual keystrokes: the name of the key pressed and the physical action of either pressing or releasing the key.

## Creating Compose-Key Sequences

Create compose-key sequences to access additional symbols by typing two keystrokes. For example, Keystroke 1 + Keystroke 2 or Composing Key + Keystroke 2.

### To define the compose-key sequence:

- 1 In the left pane of Xconfig, click Input Devices. The Keyboard Input tab is displayed.
- 2 Select a primary or alternate keyboard file, and click Edit.
- 3 On the XKeys Edit menu, select Compose Sequences. The Compose Sequence dialog box opens.
- 4 Click Add to define a new compose-key sequence. The Build Compose Sequence dialog box opens.
- 5 Click Keystroke 1, and then press a key on your keyboard to use as the composing key.
- 6 Choose a modifier from the Modifiers For Keystroke 1 group box.
- 7 Click Keystroke 2, and then press a key on your keyboard.
- 8 If you want to map this compose sequence, click Next. The X Compose Mapping dialog box opens. It is similar to the mapping dialog box that appears when you click Mapping on the Edit menu.
- 9 Click Finish.

## Managing Keysyms and Keysym Sets

The Keysym File Editor is a powerful tool for managing custom Keysyms and Keysym Sets. To open the Keysym File Editor dialog box, click Keysym on the XKeys Edit menu.

### To add custom Keysyms to an existing Keysym Set:

- 1 In the left pane of Xconfig, click Input Devices. The Keyboard Input tab is displayed.
- 2 Select a primary or alternate keyboard file, and click Edit.

- 3 On the XKeys Edit menu, click Keysyms. The Keysym File Editor dialog box opens.
- 4 On the Key Symbols page, select the Set Name of the Keysym Set into which you want to place the custom symbol.
- 5 Click Add Keysym. The Add KeySym dialog box opens.
- 6 Type a KeySym name and a hexadecimal value.
- 7 Click OK.

**To add or create a new Keysym set:**

- 1 In the Keysym File Editor dialog box, click the Symbol Sets tab.
- 2 On the Symbol Sets page, click Add Set. The Add Set Name dialog box opens.
- 3 Type a name in the New Set Name box.
- 4 Click OK. The name appears in the list on the Key Symbols page; the remaining boxes appear empty, indicating that this is a new Keysym set.
- 5 Add a custom Keysym by following the previous procedure.

## **PrintScrn Key Support**

This section describes how to map the PrintScrn key.

To use the PrintScrn key:

- 1 Using Xconfig, edit the selected keyboard file. Add the PrntScrn key to the layout. See “Adding a Physical Key” on page 112.
- 2 After the key has been added, switch to Mapping Mode and map the key to an X Keysym.

**Note:**

- Before customizing a keyboard file, back up the original. To do this, load the keyboard file. From the Xkeys File menu, select Save As, and name the backup file. This preserves the original file in case you need to revert to it later.
- Every key you want to use must be defined in your keyboard file. To define a key, describe the symbol(s) it can generate in the No Shift, Shift, Mode Switch, and Shift Mode Switch states. The key definition is represented by a keysym (key symbol) hexadecimal value corresponding to the symbol generated in a specific state. An undefined key symbol does not function in any X application.

## Adding a Physical Key

Standard 101-key and 102-key layouts are found in the Exceed *User* directory. If you are using a non-standard keyboard, you need to add keys. You can perform this task in two ways:

- Start with a default keyboard and add the extra keys.
- Start from scratch and build a completely new layout.

**To add a new physical key to an existing keyboard file:**

- 1 In the Xconfig left pane, click Input Devices. The Keyboard tab is displayed.
- 2 Select a primary or alternate keyboard file, and click Edit. The XKeys utility is displayed.
- 3 From the XKeys View menu, click Layout Mode.

- 4 Press a key on your keyboard that is currently not defined in your keyboard file. Once the key is placed in the XKeys window, move and reshape it to match your physical keyboard layout.
- 5 In the Abbreviation box, type the key cap you wish XKeys to display on the key. The key is added to the keyboard layout. You can map X symbols to the new key.

### To create a new keyboard layout:

**Note:** Create a completely new keyboard layout *only* if your keyboard is substantially different than the supplied layouts.

- 1 In Mapping Mode, click New on the XKeys File menu. Do not use an existing keyboard layout when prompted. A blank XKeys screen displays.
- 2 On the XKeys View menu, select Layout Mode.
- 3 One at a time, press each key on your keyboard. XKeys places each key on the supplied grid below the mouse cursor. As keys are added, move and reshape the key to match the physical layout of your keyboard. Keys may be moved using standard drag and drop methods.
- 4 To modify the text displayed on a key cap, replace the text in the Abbreviation box. This is useful when Windows supplies a long key description.
- 5 You can now map X Keysym values to each physical key.

### Deleting a Physical Key

You can delete keys in Layout mode. Highlight a key and select Delete from the XKeys Edit menu. A message box appears to confirm the deletion.

**Note:** You can also delete keys in Layout mode by moving the mouse pointer over the key and then clicking the right mouse button.



## *Keyboard and Mouse Wheel Macros*

### About Keyboard and Mouse Wheel Macros

This section describes how to use macros to modify the keyboard you want to use with your X applications. Y

You can:

- add, modify, and delete macros or parts of macros
- insert a macro action
- select, add, edit, delete, and import macros to use with a mouse wheel

#### **Inserting a Macro Action**

In the Edit Macro Properties dialog box, click a macro, and then click Insert. In the Insert Action Item dialog box, select an insert option. After you click OK, the Edit Macro Action dialog box opens. Edit the Action Type, Key, and Event Type.

#### **Selecting a Macro**

In the Macro Selector dialog box, you can select, add, edit, delete, and import macros to use with a mouse wheel. Macros are useful for adding functionality to your mouse and keyboard for X applications. To add a macro to the list, click Add.

### Creating a New Macro

**To create a new macro:**

- 1 Open the Macro Selector dialog box for keyboard or mouse input.
- 2 Click Add.
- 3 Complete the following boxes in the New Macro Properties dialog box:

- Name—The name of the macro to appear in the list of macros.
  - Description—Some word cues to remind you what the macro is for.
- 4 Click Start Record. Complete the key sequence exactly as you want the macro to behave.
  - 5 When you are finished, click Stop Record.
  - 6 Create other macros as required, by repeating steps 2-5. Click OK to save the macros and return to the Macro Selector dialog box.

## Modifying Macros

To edit the action of a macro, select it, and then click Edit. In the Edit Macro Action dialog box, you can edit the following:

Action Type	Keystroke or Command
Key	Scancode—Lets you change the key in the macro. To add a key to the macro, click Next Key Typed.
Event Type	Key Press, Key Release or Key Press + Key Release—Let you change the kind of action required for the macro.

## Macro Shortcuts

You can use a shortcut from Exceed on the Windows taskbar to launch a macro under multiple window mode. Click Exceed on the Windows taskbar, and then press the same key/keys to which you bound a particular macro in the Macro Binding dialog box. This launches the macro.

Since this method does not involve X clients, keystroke action types are ignored and only macros with command action types are invoked. These action types are defined in the Edit Macro Action dialog box.

## Configuring CJK Keyboard Input (Chinese, Japanese, and Korean)

This section describes how to configure the Input Devices settings for the Chinese, Japanese and Korean languages, and how to modify them.

The CJK Input icon appears in Xconfig only if you are running a CJK Windows operating system (provided Microsoft IME is installed and enabled).

Use the CJK Input tab of the Input Devices page to configure how to enter and pass Chinese, Japanese, or Korean (CJK) text to an X client.

To enter CJK text in an X client, you need to run an Input Method (IM) server.

**Note:** The CJK Input icon appears in Xconfig only if you are running a CJK Windows operating system or supported Microsoft Windows platforms (provided Microsoft IME is installed and enabled).

You can configure Exceed to use either an external X client as the IM server or an IM server built into the X server. To use the Microsoft Windows Input Method Editor (IME) to enter text in an X client, you must configure Exceed to use an IM server built into the X server.

You can select one of the following input methods to enter CJK text:

- Select **Use Input Server On The Host** to use an input method server X client.
- Select **Protocol** to use an Input Method Server built into the Exceed X server.
- Select **Copy And Paste** to use copy and paste commands to input CJK text.



For information on the remote Input Method Server, refer to your host documentation.

## Using an Input Method Server X Client

Use the Use Input Method Server On The Host option to enter CJK text using whatever mechanism the input method (IM) server X client supports. Select this option if you are using an external IM server X client. This means the Exceed X server will not support internal CJK input methods. This option does not permit the use of the Microsoft Windows IME to enter CJK text.

The available IM Server X clients vary by host type. The following table shows the IM Servers typically available on specific host types:

Host Type	IM Server
HP	xkim/xjim/xsim/stim
Solaris	htt
Digital	dxhangulim/dxhanyuim/dxhaziim/dxjim

## Using an Input Method Server Built into the Exceed X Server

Select the Protocol option.

The Exceed X server internally manages an Input Method Server and uses the Microsoft Windows IME to enter CJK text. When you enter text, Exceed uses one of the selected protocols to pass text to the X client.

Exceed registers and manages an Input Method Server for each protocol selected in the Protocol Selection area. This means that you can enable multiple protocols, and each X client can use the protocol of its choice. We recommend that you enable all available protocols.

**Specifying Locale (Ximp/XIM)**—Exceed supports most of the standard encoding names. In most cases, you do not have to specify the encoding name. However, if your X clients are running in a non-standard encoding environment, enter the appropriate locale name.

## Using Copy and Paste to Input CJK Text

Select the Copy And Paste option. Exceed does not register an Input Method (IM) Server when this option is selected; it uses the Microsoft Windows IME to enter CJK text. Rather than using an IM Server to pass text to the X client, it copies the text into the X selection and tries to paste the X selection CJK text into the X client.

Exceed supports two copy and paste input methods. One is designed for Kterm and the other for OpenLook. Select the copy and paste method you want to use in the Use Environment area. If the CJK text is not automatically pasted into your X client, you need to use the X client Paste operation to paste the CJK text.

## Special Considerations for Traditional Chinese

Exceed supports both Simplified and Traditional Chinese.

Because there is no standard encoding in Traditional Chinese environments, Exceed can support only one encoding name at a time. By default, Exceed supports the HP-BIG5 (HP Traditional Chinese Environment) encoding. If you want to use the BIG5-0 (Digital Traditional Chinese Environment) encoding, you need to make changes to the Exceed initialization file and the `xlc_locale` file.

### To input Traditional Chinese using the BIG5-0 (Digital Traditional Chinese Environment) encoding:

- 1 Open `Exceed.xcfg` in a text editor. Near the end of the file, locate the following XML tag just after the `<Undocumented>` tag:

```
<CJK_BIG5EncodingName>HP-BIG5</CJK_BIG5EncodingName>
```

This tag lets you input Traditional Chinese in an HP environment. Modify the tag to the following and save the file:

```
<CJK_BIG5EncodingName>BIG5-0</CJK_BIG5EncodingName>
```

- 2 Open the `xlc_locale` file on your computer.
- 3 Under the heading `fs1`, modify as follows:
  - `# used for HP-UX`
  - `# charset HP-BIG5:GLGR`

- # used for Digital UNIX
  - charset BIG5-0:GLGR
- 4 Under the heading `cs1`, modify as follows:
    - # used for HP-UX
    - # ct\_encoding  
HP-BIG5:GLGR:\x1b\x25\x2f\x30\x80\x8aHP-BIG5\x02
    - # used for Digital UNIX
    - ct\_encoding  
BIG5-0:GLGR:\x1b\x25\x2f\x32\x80\89BIG5-0\x02
  - 5 Restart Xceed if it is running.

**To view the Traditional Chinese HP Common Desktop environment:**

- 1 Download the following Chinese Big5 fonts:
  - `uwb5-16m.bdf.gz`
  - `eb5-24f.bdf.gz`

You can also search for the fonts on the Internet (for example, by using an FTP search engine).
- 2 Decompress the GZIP compressed fonts.
- 3 In Xconfig Font Settings, select **Compile Fonts** in the Font Settings dialog box and compile the downloaded `.bdf` fonts to the `.fon` format.
- 4 Copy `uwb5-16m.fon` and `eb5-24f.fon` to the `Home\font\chinese` directory.
- 5 Import the font aliases:
  - a) Select **Import Alias** in the Font Settings dialog box.
  - b) Select `chinese.ali` in the `Xceed User` directory.
  - c) For the **Limit Import To Selected Font Directory** option, select `Home\font\chinese`.
  - d) Click **Import**.

- 6 If Exceed is running, on the Exceed menu, select File, select Reload Database, and click Font.

**To view the Traditional Chinese Digital Common Desktop environment:**

- 1 Follow the steps in the previous procedure.
- 2 Create a new font subdirectory in the *Home*\font directory.
- 3 Download the following fonts from a Digital UNIX host that supports Traditional Chinese into the new font directory created in step 2:
  - `adecw_hei_cns11643_16_16_75.pcf`
  - `adecw_screen_cns11643_16_18_75.pcf`
  - `adecw_screen_cns11643_24_24_75.pcf`
  - `jdecw_screen_dec suppl_8_18.pcf`
  - `jdecw_screen_dec suppl_12_24.pcf`
- 4 In Xconfig Font Settings, select Compile Fonts in the Font Settings dialog box and compile the downloaded .pcf fonts to the .fon format.
- 5 Add the new font directory to the font database and move it to the top of the font database list using the Move Up button.
- 6 Import the font aliases. To import the font aliases:
  - a) Select Import Alias in the Font Settings dialog box.
  - b) Select the `dec_tw.ali` file in the Exceed *User* directory.
  - c) For the Limit Import To Selected Font Directory option, select the new subdirectory created in step 2 from the *Home*\font directory.
  - d) Click Import.
- 7 If Exceed is running, right-click Exceed on the Windows taskbar, select File, select Reload Database, and click Font.

## Configuring Mouse Wheel Movements and Middle Button Emulation

This section describes how to configure the following mouse settings.

- mouse wheel movement
- middle-button emulation (adding a virtual middle button to your two-button mouse)

To customize macros and how they are mapped to the mouse wheel, see “Mapping a Macro to the Mouse Wheel” on page 123.

### To configure mouse settings:

- 1 In the left pane of Xconfig, click Input Devices, and then the Mouse Input tab. The tab is displayed.
- 2 Configure the available Mouse Wheel settings:
  - Wheel movement is ignored—Select this option to invalidate all mouse wheel input.
  - Wheel movement scrolls Root window (In Single Window Mode only)—Select this option to enable scrolling in the main root window only.
  - Wheel movement invokes macro—Select this option to map the wheel movement to a macro. This is the only option that lets you scroll in Multiple Window Mode. For instructions on how to map to a macro, see “Mapping a Macro to the Mouse Wheel” on page 123.
  - Wheel movement sends Mouse button event (button 4/5/6/7)—Use button 4/5/6/7 events to scroll the windows of existing X applications. ButtonPress and ButtonRelease events are sent according to the mouse wheel motion (up/down).
- 3 Configure the Middle Button Emulation and its behavior. This allows you to add middle-button capabilities to your two-button mouse. A virtual middle button is created for your two-button mouse.
  - Select the Middle Button Emulation check box to enable the feature.
  - In the Click Interval box, enter the value of your choice. This value indicates how much time needs to pass between clicking the left and

right mouse buttons before the middle-button emulation will occur.

- 4 In the Movement Threshold box, enter the value of your choice. This value specifies how many pixels the mouse is allowed to move during the clicks to still be considered a middle-button mouse. The value indicates pixel movement that is allowed when you click the left and right mouse buttons. If you stay within the specified number of pixels, you are indicating to the system that middle button emulation is to be used.

Click both left and right mouse buttons simultaneously to emulate a middle mouse button.

## Mapping a Macro to the Mouse Wheel

This section describes how to map a macro to the mouse wheel, for specific X applications. You need to perform this task, because otherwise X Windows does not recognize the mouse wheel.

### To map a macro to the mouse wheel:

- 1 In the left pane of Xconfig, click Input Devices, and then click the Mouse Input tab. The tab is displayed.
- 2 Select Wheel Movement Invokes Macro, and then click Macro Bindings. The Mouse Wheel Macro Bindings dialog box is displayed.
- 3 In the Assigned Wheel Macros area, select a mouse action combination, and then click the adjacent browse button. The Macro Selector dialog box is displayed.
- 4 Click Add. The New Macro Properties dialog box is displayed.
- 5 In the Name and Description boxes, type the function of the new macro and a brief description. For example, type `vi_scroll_up` and Scroll Up.
- 6 After you have decided on the keys you want to map to the mouse wheel, in the Event List area, click Start Record.
- 7 Type the key sequence on the keyboard. When you are finished, the application stops recording automatically. Click OK to return to the Macro Selector dialog box.
- 8 Select your new macro from the list, and then click OK.
- 9 The new macro is associated with the wheel action you selected. Click OK to return to the Mouse Input page.

## Configuring Communication Settings

This section describes the Communication settings. They determine the sequence of events that occur when you start Exceed, including whether a host connection is made automatically.

Use this Xconfig page to configure:

- Startup mode used by Exceed — Passive or XDMCP. The mode you use depends on your host and preferences.
- Network Adapters—configure which IP address and adapter are used; specify external addresses for connecting through a virtual private network (VPN))
- Auto Close Connection—configure whether the connection is closed automatically under certain conditions
- List of network providers

### To access and configure the Communication settings:

- In the left pane of Xconfig, click Communication. Alternatively, from the Settings menu, select Communication. The Communication page is displayed.

### Startup

**Mode**—This drop-down list contains two basic categories of server startup modes: Passive and XDMCP (X Display Manager Control Protocol).



Mode	Details
Passive	This mode starts the server without making an initial attempt to connect to a specific host. Use Passive mode if you intend to use TELNET, Xstart, Xsession, or a remote process to connect to a host and start an X client.
XDMCP	<p>XDM lets you manage X displays. It allows for centralized control over the X environment and provides an added measure of security. XDM provides an X-based login function and generates authorization information that can be used by Exceed to control which users on which hosts may be given access to an Exceed X server display.</p> <p>If you use an XDMCP startup mode, you do not need a separate startup application to start X clients (that is, Xstart, Xsession, or TELNET). However, you may use these applications to start additional X clients.</p> <p>XDMCP lets you automatically activate the particular XDMCP connection process whenever you start Exceed. After you start Exceed and successfully log in to XDM, the clients listed in the XDM session script file will be started.</p> <p>For more information, click an XDMCP startup mode link:</p> <ul style="list-style-type: none"> <li>• XDMCP Query Startup Mode</li> <li>• XDMCP Broadcast Startup Mode</li> <li>• XDMCP Indirect Startup Mode</li> </ul>

**Configure**—Opens the XDMCP Startup Modes dialog box where you can configure additional XDMCP settings.

**Display Number**—Specifies which port the client connects to. The default display number is 0.

## Network Adapters

The Network Adapters section allows you to specify which network adapter and which IP address to use.

Xconfig now allows user control over which interface(s) the Exceed X Server listens on, both through configuration file settings and command line settings, especially but not exclusively on multihomed hosts.

Task	Details
Specify which adapter to use, if you have multiple adapters	<p>A new command line option allows you to specify which Exceed adapter to use as the DISPLAY. Enter the following command:</p> <pre>exceed.exe -adapter n</pre> <p>where n = 1 or 2 or 3.</p>
Specify which IP address to use and where to apply it	<p>If you have multiple adapter or Virtualized Network, you can configure the IP address Exceed will use and how this IP address needs to be applied.</p> <p>In Xconfig, under Communication tab &gt; Network Adapter, select one of the following three options:</p> <ul style="list-style-type: none"> <li>• Adapter IP Address: Type an IP address</li> <li>• Network Interface: Select which adapter you want Exceed to use.</li> <li>• Virtualized IP address: use if you have virtualized network</li> </ul> <p>After you have configured the IP address Exceed should use, specify how the IP address will be applied:</p> <ul style="list-style-type: none"> <li>• In Exceed Title—the IP address will be displayed in the Exceed Windows title bar, and the Full Screen Toolbar.</li> <li>• For XDMCP Session: Exceed will send this IP address as the DISPLAY to XDMCP Server</li> <li>• To Set DISPLAY Variable: Exceed will set the DOS environment DISPLAY="the IP address for Exceed to use"</li> </ul>

### Auto Close Connection

The Auto Close Connection settings determine conditions under which Exceed terminates a connection.

- **Auto Close Connection**—If you enable this option, Exceed terminates a connection under one of the following two conditions:
  - Use X Screen Saver Time**—The connection terminates when the screen saver activates.
  - After \_\_ Hours \_\_ Minutes**—The connection terminates after the specified time if the host is inactive.
- **Close Even When Application Is Active**—The connection terminates if the host is still generating output, for example, during processes such as data compiling.

### Other

Click Network Providers to control and optimize the order of network service providers.

## Creating or Editing the Host List

This section describes the Host List file. This text file contains the names and Internet Protocol (IP) addresses of all hosts that receive the broadcast request, when you start the server in the XDMCP Broadcast startup mode. The file lets you restrict access to your Exceed X server to specific hosts. By default, the host list is the `xdmcp.txt` file in your Exceed *user* directory.

### To create a new host list:

- 1 Open a text editor such as Notepad.
- 2 List the host names. Specify only one symbolic host name or constant address per line.
- 3 Save the file.

After you create a new file, you can use it in the XDMCP startup modes.

### To add a host to the `xdmcp.txt` file:

- 1 In the left pane of Xconfig, click Communication.
- 2 From the Mode list, select XDMCP Broadcast.

- 3 Click **Configure**. The XDMCP Startup Modes dialog box opens.
- 4 Enable **Host List File**.
- 5 Click **Edit** to open `xdmcp.txt` in a text editor.
- 6 To add to the list, type the name or Internet Protocol (IP) address of the host you want to add on a new line.
- 7 Save the file and exit Notepad.

## Host List File Syntax

The Host List file is a text file containing the names and addresses of all hosts that receive broadcast requests. You can use the **Host List File** option (in the XDMCP Broadcast area of the XDMCP Startup Modes dialog box) to edit the file or enable/disable its use. The default file `xdmcp.txt` is located in the Exceed `User` directory.

Text on any line following a number sign (#) is ignored. Completely blank lines and all carriage-control characters are also ignored. The format of information lines is as follows:

- Host names are not case-sensitive.
- The address is specified in Internet Protocol (IP) address notation.

## Configuring Security Settings

This section describes how to configure the Security settings in Xconfig.

Security options can either restrict or allow access to specific features of the Exceed X server. You can also:

- control the hosts that can run X clients using Exceed
- edit the Host Access Control List (`xhost.txt`)
- edit the User Access Control List (`xauth`)
- specify or edit the Security Policy File

To access and configure the Security settings:

- 1 In the left pane of Xconfig, click Security. The Security page is displayed.
- 2 Modify the settings and click Save.

## Host Access Control List

This area contains options that restrict access to your Exceed X server by specific hosts. By default, the Host Access Control List is the `xhost.txt` file in the `User` directory.

**Note:** If you select the `xhost.txt` file, you can use only Passive startup mode on the Communication page.

**File, Edit, Browse**— Specify another file through one of the following methods:

- Type its full path (if other than the Exceed `User` directory) and file name in the File box. You can locate it by clicking Browse adjacent to the File box.
- Modify the Host Access Control List file in a text editor by clicking Edit. The `xhost.txt` file is open in the text editor. In this file you can document the list of host names or IP addresses that can connect to Exceed.

This list can use wild cards. For example:

```
rnd*.opentext.com
rnd.*.com
rnd.opentext.???
10.3.15.*
10.3.*
```

Under Host Access Control List, you can also enable the following settings:

- **No Host Access**—Instructs Exceed to use an empty Host Access Control List to regulate access (that is, no hosts are allowed access).

- **Allow Connection from Local X clients**—Select this option if you want to enable local X clients to connect.
- **Any Host Access**—Terminates use of the Host Access Control List and allows unrestricted access to all hosts on the network.
- **Allow Clients To Modify Host Access Control List**—Regulates client modification of the Host Access Control List (`xhost.txt`).

## Enable User Access Control List

This option enables security at the user level (rather than at the host level) without using XDMCP. By default, this setting is not selected. For optimal security when enabling this setting, clear the Allow Clients To Modify Host Access Control List option, and select the Host Access Control List option.

User-level security is controlled by an `.xauthority` file (by default, `xauth`), which is read each time the server is started or reset. You can create an `.xauthority` file using the host-based Xauth utility. To make this binary file available to Exceed, download it from the host and copy it to the `User` directory. To select an `.xauthority` file other than the default `xauth` file, click Browse.

## Connection Warnings

**Warn On Unauthorized Connections**—Opens a warning dialog box whenever an unauthorized X client tries to connect. By default, Exceed refuses unauthorized connections. The warning gives you the opportunity to accept or refuse unauthorized X application connections.

**Warn On Authorized Connections**—Opens a warning dialog box whenever an authorized X client tries to connect.

## Host Access Control List Syntax

The Host Access Control List is a text file containing the names and addresses of all hosts with access to the Exceed server. Use the Host Access Control List File area on the Security page in Xconfig to specify options.

The default file `xhost.txt` is located in the Exceed `User` directory. A number sign (`#`) at the beginning of a line means the line is treated as a comment and is ignored. An information line has the following format:

- Host names are not case-sensitive.

- The address is specified in Internet Protocol (IP) address notation.

## Creating and Editing the Host Access Control List

This section describes how to:

- add a host to the Host Access Control List
- create and use a different Host Access Control List

The Host Access Control List is a text file. This text file allows you to provide access to your X server to specific hosts. The default Host Access Control List file (`xhost.txt`) is located in the `user` directory.

### To add a host to the `xhost.txt` file:

- 1 In the left pane Xconfig, click Security. Alternatively, from the Settings menu, select Security. The Security page is displayed.
- 2 In the Host Access Control List area, click File.
- 3 Click Edit to open the Host Access Control List in a text editor.
- 4 To add to the list on a separate line in this file, specify the name or Internet Protocol (IP) address of the host that you want to add.

**Note:** Host names are not case-sensitive. Lines beginning with a number sign (#) are treated as comments.

- 5 Save the file and exit Notepad.
- 6 To reload the list, right-click Exceed on the Windows taskbar. On the File menu, point to Reload Database, and then click Access Control Lists.

### To create and select a new host access control list:

- 1 Open a text editor, such as Notepad.
- 2 List the host names. You can specify only one symbolic host name or constant address per line.
- 3 Save the file.

- 4 Go to Xconfig, and display the Security page. In the left pane of Xconfig, click Security. Alternatively, from the Xconfig Settings menu, select Security. The Security tab is displayed.
- 5 Select Enable User Access Control List.
- 6 If the file you created is not listed, click Browse. to locate it. Locate and select the file. Ensure that it is specified in the File field.

## Creating the User Access Control List

This section describes how to create the User Access Control List. This text file allows you to restrict access to your Exceed X server at a user level (rather than at the host level).

By default, the User Access Control List for user-level security, is the `.xauthority` file. You cannot edit this file on your computer. You must edit it on the host.

The file contains cookies that represent each client. A successful connection is established if the cookie sent by the client matches the one on the X server. Exceed includes a Windows version of the Xauth program. Individual cookies can be directly merged to the local `.xauthority` file. This simplified method of synchronizing the `.xauthority` file benefits organizations that rely heavily on this type of user-level security.

### To create the user access control file:

- 1 Create an `.xauthority` file on your host using the host-based xauth utility. For more information, refer to the man pages on the xauth utility available in UNIX.
- 2 Enable xstartd using InetD (in Control Panel, double-click OpenText InetD).
- 3 Propagate your DISPLAY (where DISPLAY is the Exceed X server *IP Address:DisplayNumber*) to the Exceed X server by using the following command on the host:

```
"xauth nextract - Exceed_Xserver_IP_Address:DisplayNumber
rexec -l your_pc_username -p your_pc_password
Exceed_Xserver_IP_Address xauth nmerge -"
```



- 4 Go to Xconfig, and display the Security page. In the left pane of Xconfig, click Security. Alternatively, from the Xconfig Settings menu, select Security. The Security tab is displayed.
- 5 Select Enable User Access Control List.
- 6 If the file you created is not listed, click Browse to locate and select the file.
- 7 To reload the list, right-click Exceed on the Windows taskbar. On the File menu, point to Reload Database, and then click Access Control Lists.

## Authorizing X Clients

This section describes how to authorize X clients.

In Xconfig, the Security page authorizes X clients in stages.

If an X client tries to connect to the Exceed X server in a non-XDMCP startup mode, the following authorization occurs:

- If the user access control is enabled and the X client passes the authorization screening, it is allowed to run.
- If the X client originates on a host specified in the Host Access Control List, or if host access control is disabled, the client is allowed to run.

### To manage access for X clients:

- 1 In the left pane of Xconfig, click Security. Alternatively, from the Xconfig Settings menu, select Security. The Security tab is displayed.
- 2 To disable host access control:
  - Click No Host Access. If you select Enable User Access Control and want full security, use a Host Access Control List with no entries. This is equivalent to selecting the No Host Access option.
- 3 To ensure that the X client is not refused:
  - Clear the check box Allow Clients To Modify Host Access Control List. If you do not clear the check box, the client may be refused.



## Configuring Display and Video Settings

This section describes how to configure display and video settings for Exceed.

This section contains the following topics:

- “Configuring Single Window Mode Screen Settings” on page 135
- “Configuring Multiple Window Mode Screen Settings” on page 141
- “Adding or Removing Screens at the Screen tab” on page 143
- “Creating or Editing a Local XRDB Database” on page 143
- “Configuring Common Settings for Display and Video” on page 147
- “Configuring Video Settings” on page 151
- “Configuring Advanced Settings for Display and Video” on page 152

### Accessing Display and Video settings

**To configure Display and Video settings:**

- 4 In the left pane of Xconfig, click Display and Video. The Display and Video page opens, with its initial tab, Screen, displayed. Configure the desired settings:

## Configuring Single Window Mode Screen Settings

This section describes how to configure the Screen settings, in Single Window Mode.

The settings include:

- use of multiple monitors and number of display screens (logical and physical screens)
- window panning
- loading of the XRDB database
- enabling, adding or removing screens

By default, one screen (Screen 0) is available. Screen 0 cannot be deleted or disabled. Up to eight screens may be supported.

The following options are available on the Screen # tab on the Display and Video page once you have selected a screen (other than Screen 0) in the left pane.

### Enabling additional screens

Select the following option:

- **Enable Screen**—Enables additional screens (Screen 1, Screen 2, and Screen 3).

You may clear the option to disable a screen for certain applications. Screen 0 cannot be disabled.

## Monitor Settings at the Screen tab

### To display an X session, you can:

- use all monitors that are attached to your machine, or
- specify which monitors you want to use.

### To configure monitor use:

Under Use monitor(s), select the option of your choice.

Monitor Option	Details
All	Enables the use of all available monitors.
Only Primary	Enables the use of only your primary monitors.
All Non-Primary	Enables the use of all non-primary monitors.
Specified	Lets you specify which monitors to use. Type the monitor number in the adjacent box. Up to 32 monitors are supported. To use multiple monitors, you must install multiple video cards or a video card that supports multiple monitors on your computer.

- 5 In the available text field, enter the monitor number.

The interpretation of monitor numbers depends on the resolution of a single monitor setting. For supported Microsoft Windows platforms, if you set the resolution values to 0, Exceed uses monitor numbers that correspond to the numbers displayed for each monitor in your Windows Control Panel Display settings.

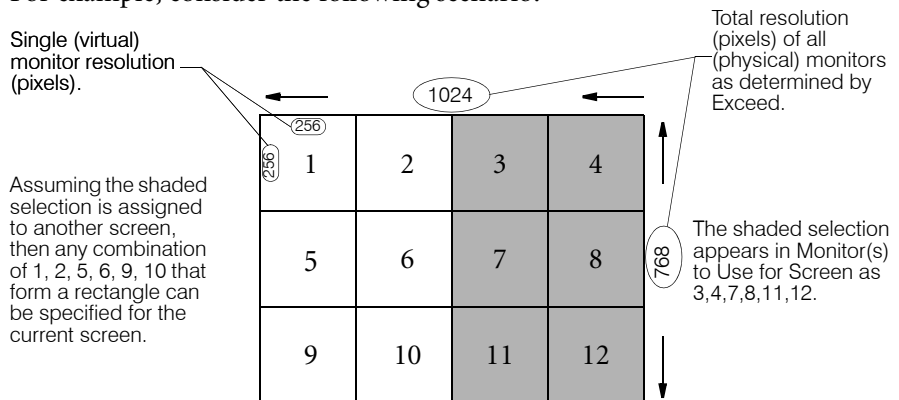
For all platforms, if these resolution values are non-zero, your monitors are numbered starting at 1 (for the monitor in the top left corner of your Windows desktop) and increment by one for each monitor (as you move left to right and top to bottom).

The monitor numbers for a screen must represent monitors that are adjacent to each other and of the same color format. If you have configured Multiple Window Mode for a screen, the monitor numbers used by this screen cannot be identical to those used by any other screen configured for Multiple Window Mode.

Note that you can tile multiple monitors over the Windows desktop if:

- they are all set to the same resolution (width, height, and color format)
- collectively they form a complete rectangle

For example, consider the following scenario:



## Window Mode Settings at the Screen tab

Select the Single Window Mode.

- **Multiple Window Mode**—Each client you start creates its own new window. The native (Microsoft Windows) or the X Window manager (local or remote) handles all window functions. The default window manager in multiple window mode is Default To Native. If this option is selected, Exceed looks for another window manager; if none exist, Exceed uses Microsoft Windows to manage the window. For more details, see “Configuring Multiple Window Mode Screen Settings” on page 141.
- **Single Window Mode**—Presents all clients in a single Exceed window. A local or a remote X Window manager controls all window functions.

If several screens are used, you can mix and match window modes.

If Multiple Window Mode is selected for a particular screen, the monitor numbers used by this screen cannot be identical to those used by any other screen that is also configured to use Multiple Window Mode. The monitor numbers must be unique.

## Panning Setting at the Screen tab

This option lets you pan across the server window to view parts of client windows that are off screen when you are running the native window manager (Microsoft Windows). Do this by ensuring that the client window has focus (it is on top of other windows), and then move the mouse pointer to the edge of the screen.

The panning method depends on whether or not the Full Screen setting, under Root Size, is selected.

- Full Screen is selected—you can pan up or down to display or hide the window title bar, and left or right to display or hide part of the Windows desktop. When you select Full Screen, you cannot adjust the panning controls (speed and amount).
- Full Screen is disabled—the window pans according to the panning controls.

**To configure the Panning feature:**

- 1 Select your Window Mode (Multiple or Single).
- 2 If Multiple Window mode is used, ensure that Fit Window to Display, under Window Manager, is disabled.
- 3 If Single Window Mode is selected, select or disable Full Screen option. Under Root Size, select Full Screen check box.
- 4 Select or clear the Panning check box.

The following Panning options may be selected, if Full Screen option is disabled:

**Speed**—Slow, Medium, or Fast. The default speed is Slow. When you set the speed to Slow, you can pan by moving the mouse pointer to the edge of the screen repeatedly. When the speed is Medium or Fast, you can pan by positioning the mouse pointer on the appropriate edge of the window.

**Amount**—The incremental percentage of the window size in which panning occurs. You can enter any value between 1 and 100 in the Amount text box.

**Auto Load XRDB**

Select this option if you want the Exceed X server to automatically load the local resource database each time it restarts or resets.

The local resource database is named in the File text box. By default, the file is named `xrdb.txt`.

A sample `xrdb.txt` file is stored in the following location:

```
C:\Program Files\Hummingbird\Connectivity\version\Exceed\Info
```

To use this file without changing the contents of the XRDB file text box, copy this file to your User directory. If the Auto Load XRDB setting is not selected, you must manually load the local resource database. To do so, display the Exceed File menu, and select the relevant XRDB option.

**Server Visual**

Defines the color characteristics for the specified screen of your Exceed X server display.

**AutoSelect**—Automatically selects the server Visual setting.

**PseudoColor Emulation**—Supports dynamic colormaps of 16 or 256 colors. Under normal circumstances, the PseudoColor Emulation setting is appropriate.

**Note:** A TrueColor driver supports PseudoColor mode.

**TrueColor**—Use this setting if your display driver supports 32,768 or more simultaneous colors on your video adapter.

## Root Size

Sets the size of the server root window (in pixels). You can make the root window larger than your screen. The maximum root window size is 8192 x 8192 pixels. A width or height of 0 implies that the root size is equal to the size of your screen. For certain applications to run, you may need to make the root size larger than your screen.

A width or height of 0 implies that the root size is equal to the size of the client area of a maximized window when Exceed menus open on the Control menu box (that is, with no menu bars or scroll bars). If you make the root size larger than the client window, you can use the panning feature or scroll bars to view any hidden parts of the root.

**Full Screen**—Sets the size of the server root window to the full size of the screen. If this option is selected, you cannot adjust the panning controls (speed and amount).

## Window Appearance (Single Window Mode only)

**Save Geometry On Exit**—Saves the server window geometry (that is, window position, size, and state) when you exit the server and restores it when you start the server and enter single window mode. The setting for this option is saved when you terminate the server.



## Configuring Multiple Window Mode Screen Settings

This section describes how to configure the Screen settings in Multiple Window Mode.

Most of the settings from the Single Window Mod may be reused. For initial details, see “Configuring Single Window Mode Screen Settings” on page 135. This section contains additional details, for settings that affect Multiple Window Mode.

**When Multiple Window mode is enabled, at the Screen tab, the following new settings become available**

- **Window Manager**—Lets you select the window manager to use in multiple window mode. Select one of the following from the list:
  - **Native**—Microsoft Windows is used as the window manager. Common Desktop Environment (CDE) sessions do not support the Native window manager.
  - **X**—Any X window manager, local or remote, is used as the window manager. You must start the window manager because no window manager is started by default.
  - **Default to Native**—By default, the Windows window manager is used. However, if a local or remote X window manager is started, it replaces the Windows window manager. After the X window manager is terminated, Windows is again used as the window manager.
  - Panning is available only when you are using the Windows Window Manager.
  - If you are using an X window manager and want to open the X window manager menus when you click the Windows desktop, you can either:
- enable the Root Mouse Actions To X option in the Advanced Multiple Window Mode dialog box

**Note:** Normal Windows desktop mouse actions do not work when this option is enabled.

- change the setting as needed using the Root Mouse Actions to X button on the Exceed X server toolbar

**Fit Window To Display**—Sends a request to any client that creates a window larger than the size of your screen to make the window the size of your screen.

**Note:** If you enable Panning, do not enable Fit Window to Display.

**Cascade Windows**—Tells the server to cascade all top-level client windows for which a client does not specify any position.

## Advanced Settings

**Root Mouse Actions To X**—Lets you specify whether mouse actions on the Windows desktop are processed by the Exceed X server.

By enabling the Root Mouse Actions to X option, you can click the Windows desktop to access X window manager menus. Normal Windows desktop mouse actions do not work while this mode is enabled. To change the state immediately, toggle this setting in Xconfig or press a button on the server toolbar.

**Track Mouse**—Tells the server to keep track of the location of the mouse even when it is outside an X client window. When selected, a client like Xeyes follows the mouse around your screen.

**Delay Window Mapping**—Some X clients erroneously expect a window map request to be delayed, or they do not draw the contents of their windows. Other X clients expect windows to be mapped immediately because they expect no window manager to be running at the time (as is the case with some XDM Login clients).

When you run an X client with a remote window manager, the fact that window manager and Exceed X server are not running on the same machine causes a delay in mapping windows. In multiple window mode, however, you are using a local window manager; therefore, no such delay exists. Use the Delay Window Mapping option to determine whether window mapping is delayed in multiple window mode.

## Adding or Removing Screens at the Screen tab

By default, one X screen (Screen 0) is available.

**Note:** To use multiple monitors, you need to install multiple video cards on your computer.

To add or remove X screens:

- 1 Click Add Screen button, in the upper right corner of the Screen tab. The new screen is added, and listed in the left pane of Xconfig, under Display and Video.
- 2 To remove the screen, select it in the left pane of the Xconfig, under Display and video. At the Screen tab, click the Remove Screen button.

You cannot delete screen 0. Screens must be deleted in reverse numerical order. That is, if you have six screens (0,1, 2, 3, 4, and 5), you cannot delete screen 3 before deleting screen 4.

As an alternative to deleting a screen, you can disable it by clearing the Enable Screen option, at the Screen tab. If you disable a screen, all higher-numbered screens are disabled as well. Up to eight X screens are supported. This feature is useful if you need the data split across multiple monitors or divided into many screens.

## Creating or Editing a Local XRDB Database

This section describes how to create or edit a local XRDB database.

This resource database resides on your computer instead of on the host. It defines properties that clients can use. The local resource database defaults to the `xrdb.txt` file in the `User` directory.

If you have created more screens than the default (Screen 0), you can set XRDB database settings independently in each screen's page. Click Display And Video. The Screen tab is displayed. Click Edit (in the Auto Load XRDB area) on the Screen page to modify the database.

Load and remove the XRDB database using commands on the File submenu (available on the Exceed menu). To automatically reload the XRDB database with the server, select the Auto Load XRDB setting on the Screen page. You can also create an entirely new file or download a database from the host.

## RGB Database Syntax

The RGB database associates symbolic color names with specific Red, Green, and Blue values. X clients request these values and/or color names when displaying information on your screen.

## File Syntax

Each valid line in the `rgb.txt` file has the following format:

	<b>R</b>	<b>G</b>	<b>B</b>	
Example:	70	130	180	SteelBlue

Interpretation—The color named SteelBlue has a Red value of 70, a Green value of 130 and a Blue value of 180.

RGB values must be in the range 0 through 255. The colorname field in the text file is not case-sensitive and spaces are ignored.

**Note:** The Exceed log file keeps track of any client requests for colors not defined in the RGB database. You can then add these colors to the database for future use.

## XRDB File Format

In the resource file:

- Empty lines are ignored.
- Tab characters are always converted to a single space.
- Lines starting with an exclamation mark (!) are ignored.
- Lines starting with a number sign (#) are preprocessor statements (see below).

- Every line must provide a resource specification as follows:  

```
resourceName : text
```
- Spaces located before `resourceName`, the colon, and the start of the text as well as at the end of the line are ignored.
- `resourceName` may contain only the following characters:  

```
. a-z A-Z 0-9 _ -
```

## Preprocessor Statements

Preprocessor statements let you set `if...else` conditions that define the `xrdb.txt` statements to process. You can use preprocessor statements to perform functions such as testing the resolution and color display of the video adapter and monitor before deciding which resource database statements to use.

A preprocessor statement is any statement that starts with a number sign (#).

## Expressions in Preprocessor Statements

---

<code>#if</code>	Specifies an expression in a format described in the <code>#endif</code> example below. If the expression is true, successive statements are processed. Otherwise, they are not processed.  Note: <code>#if</code> and <code>#endif</code> statements can be nested.
<code>#endif</code>	An <code>#endif</code> statement marks the range of each <code>#if</code> statement. For example:  <pre>#if Planes == 8 ! test for 256 colors color ... ! specify color statements #endif</pre>
<code>#else</code>	You can use one <code>#else</code> statement within an <code>#if...#endif</code> range. The <code>#else</code> statement has the effect of swapping the result of the <code>#if</code> for all the statements until the next <code>#endif</code> .

---

Expressions in preprocessor statements take the following form, with the parameters separated by at least one space:

*id operator constant*

where *id* can be any of the following:

- `xpixels`—The width of the screen in pixels.
- `ypixels`—The height of the screen in pixels.
- `planes`—The number of video planes. The number of colors is  $2^{\text{planes}}$  (that is, 4 planes specifies 16 colors; 8 planes, 256).
- `color`—Indicates if Exceed visual supports color. If the default server-visual supports color, then `Color` is set to 1; otherwise, it is set to 0. Use this setting to test whether the default server-visual supports color (for example, `PseudoColor`, `StaticColor`, `TrueColor` visuals).
- `static`—Indicates the type of colormaps supported. If the server supports only static, read-only colormaps, `static` is set to 1. Otherwise, it is set to 0. Use this setting to test if the server mode supports static read-only colormaps or dynamic read/write colormaps.

and *operator* can be any of the following where *constant* is a decimal numeric value (for example: `xpixels == 80`):

Operator	Definition (where <i>n</i> is a decimal numeric value)
<code>==</code>	TRUE if <code>&lt;id&gt;</code> is equal to <code>n</code>
<code>&lt;&gt;</code>	TRUE if <code>&lt;id&gt;</code> is not equal to <code>n</code>
<code>&lt;</code>	TRUE if <code>&lt;id&gt;</code> is less than <code>n</code>
<code>&lt;=</code>	TRUE if <code>&lt;id&gt;</code> is less than or equal to <code>n</code>
<code>&gt;</code>	TRUE if <code>&lt;id&gt;</code> is greater than <code>n</code>
<code>&gt;=</code>	TRUE if <code>&lt;id&gt;</code> is greater than or equal to <code>n</code>

For example, to see if a video resolution is available that is greater than or equal to 1024 pixels wide, use the following:

```
#if xpixels >= 1024
```

To test for 256-color capability:

```
#if planes == 8
```

## Configuring Common Settings for Display and Video

This section describes how to configure common Display and Video settings.

### To configure the common settings

- 1 In the left pane of Xconfig, select Display and Video.
- 2 Click the Common Settings tab.
- 3 Select or clear the options of your choice, and click Save.

### Native Window Manager Focus Policy

Lets you choose whether a window has focus while the pointer is pointed only at the window or whether you need to click in the window.

**Note:** The window is not brought to the front when it is given focus with the pointer. To bring the window to the front, click your left mouse button on the window caption or on its sizing border.

Select one of the following options from the drop-down list:

Focus	Description
Click	Click the left mouse button on the window to give it focus.
Pointer	Move the mouse pointer into the window to give it focus.

### Reset and Exit

**Reset X Server When Last X Client Exits**—Automatically resets the server when the last client connection is closed. This option is selected by default.

**Exit On X Server Reset**—Terminates the X server when the last client connection is closed.

**Close Warning on Exit**—Opens the Exceed Close Warning dialog box whenever you enter a command that shuts down the server. The dialog box prompts you to confirm or cancel the action (it also includes options to not repeat the warning, and to save the session including geometry and workspaces).

**Save Session On Exit**—(Native Window Manager Only) Exceed remembers applications (either Local X applications or applications started using an Xstart file) and their locations.

## Other

**Hide X Server Menu Items**—Prevents users from performing tasks from the menu.

**Use Desktop Work Area**—Uses the entire desktop and excludes the Always On Top option for the Exceed toolbar.

**Enable Workspaces**—Workspaces imitate the Common Desktop Environment (UNIX) and GNOME (Linux). You can arrange X clients in different workspaces and enable multiple workspaces.

**Note:** If you have installed OpenText Secure Shell to secure Workspace-enabled Exceed sessions, ensure that the Dynamically Acquire X11 Cookies option is disabled in OpenText Secure Shell. Exceed will generate the correct cookie and make it available to OpenText Secure Shell.



## Single Window Mode Resizing policy

Exceed allows Fixed, Scaled, and Dynamic resizing of the root window and its contents. When launching Exceed in Single Window Mode on monitors that use different resolutions, the root window uses the resolution of the smallest display. This eliminates the need for scroll bars.

Setting	Details
Fixed	<p>In this mode, a user (or the system) defines the size of the root window. By default, an X session uses Fixed resizing policy. If you click the Maximize button in the toolbar, the main window is restored to its original position and size.</p> <p>Note: Scroll bars appear automatically, when Fixed policy is in use. GLX applications will be terminated when you switch from Fixed to Scaled resizing policy.</p>
Dynamic	<p>Allows you to resize the window dynamically. The X application (such as the KDE environment) will reflect this and fit in the new window. For example, you may switch from Single to Multiple Monitor Mode (or vice versa). The X applications will renegotiate the new root window size and be redrawn appropriately based on the new information. They would not be distorted as it might happen in the Scaled mode. The minimum size of the window has been set to 800x600. You cannot resize the window to be smaller. When the window is maximized, the window and root window will cover the work area.</p>

Setting	Details (Continued)
Scaled	<p>When you resize the window, the size of the root window does not change, but the contents of the X session scale up/down accordingly. For example, if multiple X sessions are running, the user may view them as thumbnails. Scaling does not affect the behavior of UNIX applications, because the root window size remains the same.</p> <p>When you select the Scaled policy you have the following options:</p> <ul style="list-style-type: none"> <li>• Select <b>Maintain Aspect Ratio</b>—In this case, the contents of the X session scale so that their original ratio is preserved, and the objects in the main window do not appear distorted.</li> <li>• Do not select <b>Maintain Aspect Ratio</b>—In this case, the main window of the X session and its contents will be resized, but their original ratio will not be maintained, and the objects in the window may appear distorted.</li> </ul> <p>Note: You cannot switch directly from a <i>Scaled</i> to <i>Dynamic</i> policy, or <i>Dynamic</i> to <i>Scaled</i>. You must switch to and apply <i>Fixed</i> resizing policy, before choosing <i>Scaled</i> or <i>Dynamic</i>.</p>

## Do Not Prompt for Multiple Sessions

**Do Not Prompt For Multiple Sessions**—If this option is enabled, Exceed does not open the Exceed – Multiple Sessions dialog box when other instances of Exceed are run.

**Run Multiple Sessions**—Runs multiple instances of Exceed. If the Do not Prompt for Multiple Sessions check box is cleared, the Exceed – Multiple Sessions dialog box prompts you to select options for each session.

## Do Not Prompt for Display Settings Change

**Do Not Prompt For Display Settings Change**—Prevents Exceed from prompting for a server reset if display settings (for example, resolution or color depth) were changed.

**Always Reset Server**—Resets the server automatically when display settings have changed.

## Exceed Toolbar Configuration File

This area lets you specify an Exceed toolbar configuration file (.tb). These files let you determine the language, availability and location of toolbar buttons in your X session. You can also use them to configure custom application buttons.

Select a file from the drop down list of files, located in the Exceed program file location. If the file you require is located elsewhere, click Browse. If you want to edit the settings in the selected file, click Edit to open the Customize Toolbar dialog box.

## Configuring Video Settings

This section describes how to configure Video settings, to customize the video mode and colors displayed by Exceed.

You can set monitor width and height, associate names with Red, Green, and Blue values in an RGB database, and specify the icon defaults for native window manager mode.

To access the Video tab and edit the settings:

- 1 In the left pane of Xconfig, select Display And Video.
- 2 Click the Video tab. This Xconfig tab controls the video mode and colors displayed by your Exceed X server.
- 3 Change the available settings.
- 4 Click Save, to save your settings to the configuration file. To restore original video settings, click Load Defaults.

### Screen

**Specify In mm**—Lets you adjust the screen size using the Width and Height text boxes. Width and height define the viewable portion of the screen in millimeters (1 inch equals 25.4 mm). If either of these boxes is 0, the server uses the values returned by the Windows display driver. Because most X clients ignore the screen width and height data, the default values of 0 are sufficient in most cases.

**Compute Based On Monitor DPI (Dots Per Inch)**—Calculates the screen size based on the monitor dots per inch. Default values are 75 and 100.

### **Palette**

**Optimize Colormaps To Reduce Flashing On Focus Change**—Determines how the Exceed X server interacts with the Windows color palette. Select this option to try reducing flash when changing focus from one window to another.

### **RGB Database**

Associates text names with the Red, Green, and Blue values displayed on your monitor. The RGB Database is the file in the *User* directory. To open the database in a text editor, click Edit. Select the appropriate keyboard file in the list or click Browse to select a file from another directory. Default locations for *User* files.

### **Native Window Manager Icon Defaults**

Lets you define the default foreground and background icon colors as well as which default client icon to use with the native window manager. You can specify the icon colors using names that are listed in the RGB database, or you can specify an RGB triple (for example, 255 255 255). Click Change Icon to open a dialog box that lets you locate and select a different icon.

## **Configuring Advanced Settings for Display and Video**

This section describes how to configure the Advanced Settings tab. This tab contains native window manager options and various other options affecting display and video.

To access the Advanced tab and edit the settings:

- 1 In the left pane of Xconfig, select Display And Video.
- 2 Click the Advanced tab.
- 3 Change the available settings.

- 4 Click **Save**, to save your settings to the configuration file. To restore original video settings, click **Load Defaults**.

This Xconfig page contains the following options:

### **Native Window Manager**

**Map Window Without Motif Input**—Motif input is a window property that specifies which window requires keyboard input. Selecting this option means the user can put input into any window.

**Configure Window Position To Client**—Sets the window position to that of the client window.

**Pad Motif Window**—Puts one extra layer on the frame window. Some applications expect this extra layer.

**Native Window Manager Tooltip**—Enables tooltips when the cursor hovers over a toolbar button.

**Allow Primary Window On Top**—Lets the primary window appear on top of any transient (secondary) dialog box.

**Draw On Moving Window**—If you move a window that is displaying an animated X client (such as Ico), selecting this option forces the window to keep drawing.

**Draw On Resizing Window**—If you resize a window that is displaying an animated X client (such as Ico), selecting this option forces the window to keep drawing.

**No Focus On Window Raise**—Keeps the focus on the lower window unless the X application sets the focus on the upper window. This option is selected by default.

**On Focus Raise Window To Top**—Raises the window in focus to the top of the screen. Even if the X application doesn't require it, the window is restacked to the top.

**Warn On X Client Exit**—Displays a warning dialog box when you close an X client in multiple window mode with the native window manager.

## Other

**Show Multiple Monitor Warnings**—Causes warning dialog boxes to be displayed when using multiple monitors that have differing video settings. To resolve incompatible settings, Exceed runs using a default Screen configuration. For further details, consult the Exceed log file. This option is selected by default.

**Force Window To Foreground**—Forces the X application window to the foreground. This option is selected by default.

**Raise Window On Click**—Forces the X application window to the foreground of a Microsoft application window when clicked.

**Multiple Color Depths Support**—Enables advertisement of all supported visuals. This lets certain X applications display correctly (for example, if 8-bit PseudoColor or 24-bit TrueColor is the default visual on a high-color video device). Clearing this option means that Exceed advertises only the default visual.

**Sun Microsystems Compatible Colormap**—Enables Sun Microsystems-compatible colors and affects the default settings of the PseudoColor Emulation server visual (by default, the X server allocates the color black to cell zero, and the color white to cell one when PseudoColor Emulation is enabled). Selecting this option reverses the allocation: black is allocated to cell one, and white is allocated to cell zero.

**User Installed Colormap**—Use in PseudoColor emulation mode only (select PseudoColor from the Server Visual drop-down list on the Screen page and select TrueColor in Windows' video settings). Exceed can emulate colormaps when in PseudoColor Emulation mode. Most applications set each window to a certain colormap. For these applications, this option should be cleared. However, some applications (incorrectly) assume only one colormap is visible at any time. When this option is selected, windows that have requested the default colormap will use the installed colormap (via the InstallColormap protocol request) instead.

**2D Overlay**—Treats the 2D overlay window as if it were placed on the main layer. This option avoids unnecessarily having to recalculate and redraw all windows on the main layer if the 2D overlay window is repositioned.

**Depth 12 PseudoColor**—Allow depth-12 PseudoColor Emulation for screens set to high color or true color.

**Layered Windows Support**—When this option is selected, window layers do not have to be redrawn.

**Prevent Center Dialog Across Monitors**—Ensures that when multiple monitors are used, dialogs are not displayed in the center of the viewing area (across two or more monitors). When this option is enabled, dialogs that would otherwise span two or more screens are displayed entirely within a single physical screen.

This option repositions only those dialog boxes that are centered (center-mapped vertically and horizontally ) by their parent applications. Dialog boxes mapped otherwise will retain their mapped position and may appear across multiple monitors.

## Configuring the Copy, Paste, and X Selection

This section describes how to configure the ability to copy, paste and select content in an X application.

### To configure X Selection settings:

- 1 In the left pane of Xconfig, click X Selection. The X Selection page is displayed.
- 2 Select the options of your choice.
- 3 Click Save.

The following options are available at the X Selection page.

- **X Selection Associated With Edit Operations**—Lets you identify the correct X selection type. Most X applications use the PRIMARY selection. With X clients that support SECONDARY or CLIPBOARD, you can change the X selection. For old X clients that do not support the X selection mechanism, you can choose from CUT\_BUFFER0 through CUT\_BUFFER7. If a client supports a different selection than those listed, type the name of the custom X selection in the box.
- **Auto Copy X Selection**—When the X selection changes, the contents of the X selection are automatically copied to Clipboard.

- **Copy On Focus Loss**—Copies the X selection to Clipboard when the window containing the X selection loses focus.
- **Auto Paste To X Selection**—When the content of Clipboard changes, it is automatically pasted to the X selection.
- **Grab Clipboard Retry Time (ms)**—If Clipboard is unavailable, try again after the specified interval (in milliseconds).
- **Auto Paste Delay Time (ms)**—Copies the X selection to the Windows Clipboard after the specified time (in milliseconds).

### Specifying X Selection Type

You can select the type of X selection commands using the X Selection commands for copying and pasting on the Edit submenu (available on the Exceed menu). X selection settings and options are saved when you terminate the server.

### Automatic Copy and Paste

You can set your system to automatically copy and paste X selections.

This saves time and is especially useful for high volume copying and pasting.

#### To set copying and pasting of X selections to automatic:

- 1 In the left pane of Xconfig, click X Selection. The X Selection page is displayed.
- 2 Select the following options as required:

Select	To
Auto Copy X Selection	Copy the contents of the X selection to the Clipboard.
Copy On Focus Loss	Copy the contents of the X selection to the Clipboard when the window containing the X selection is not in focus.
Auto Paste To X Selection	Paste the contents of the Clipboard when the Clipboard contents change.



- 3 Click Save.

### Using a Temporary Storage Buffer

Copying and pasting processes use a temporary buffer to hold data until it is cleared or replaced. This is similar to Windows Clipboard. The buffer being used depends upon whether you are running Windows applications or X applications.

The X selection an X client uses, and how it is used, depends on the client. Most systems use the PRIMARY X selection, but other selections such as SECONDARY, CLIPBOARD, and CUT\_BUFFER0 to CUT\_BUFFER7 are also defined. Some clients can make use of more than one X selection.

#### To specify the X selection buffer:

- 1 In the left pane of Xconfig, click X Selection. The X Selection page is displayed.
- 2 Select the buffer type.
- 3 Click Save.

## Configuring Fonts

This section describes how to configure Font settings for an Xceed font database. You can:

- add fonts, font directories, and font servers to the database
- select default text and cursor fonts
- create font font aliases
- enable automatic font substitution
- compile fonts
- make fonts scalable
- extract logical font names
- recode Unicode fonts using encoding files

**To access and configure Fonts settings:**

- 1 In the left pane of Xconfig, select Fonts. Alternatively, from the Xconfig Settings menu, select the Font option. The initial tab, Font, is displayed.
- 2 Configure Font Database settings.
  - **File**—Displays the file name for the font database.
  - **View**—Opens the Font Database dialog box in view mode.
  - **Edit**—Opens the Font Database dialog box in edit mode, which lets you manage the font database.
  - **Browse**—Opens a dialog box that lets you browse for another font database.
- 3 Configure Font Defaults settings. Specify the default text font.

**About Font Database and Font Servers**

This section describes font related information: font database and font server.

The Exceed installation includes font databases that support the International CDE.

The font database supports:

- scalable fonts
- font servers

You can create multiple font sets and load the one(s) you want to use at run-time. Exceed can automatically connect to a font server running on the XDMCP host server. The font database is stored in the `lfp.xdb` file in the directory where Exceed is installed. .

Specific fonts in the font database are stored in font directories and on font servers. Exceed also supports pseudo fonts for Unicode.

A font database can contain X raster (bitmap) fonts in `.fon` and `.wff` format, True Type scalable fonts, and pseudo fonts (fonts provided by the operating system and made available to X clients). X raster fonts can be made scalable.

## Font Directories and Font Servers

To access font directories and servers in the font database:

- 1 In the left pane of Xconfig, select Fonts. The Font tab is displayed.
- 2 Click Edit. A window opens listing all Use the buttons in the Font Database dialog box to make the necessary changes.

When an X client requests a font, Xceed searches each font directory or server in the font database in the order they are listed in the Font Database dialog box. The search continues until the requested font is found.

## Fonts

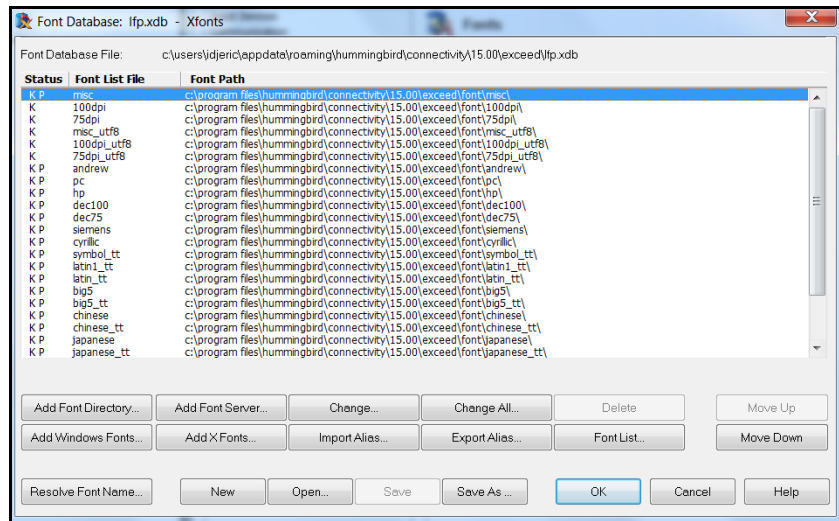
To add, change, or delete individual fonts within the selected font directory or server in the Font Database dialog box, click Font List. This displays the fonts contained in the selection. The Font Database dialog box also provides buttons that let you view the font, font properties, font information, and character information.

## Editing the Font Database

This section describes how to edit a font database.

### To view and edit the font database:

- 1 In the left pane of Xconfig, select Fonts. The initial tab, Font, is displayed. Alternatively, from the Xconfig Settings menu, select the Font option.
- 1 Click Edit. The Font Database: *file* – Xfonts dialog box is displayed. This dialog box lists all the font directories and font servers in the font database.

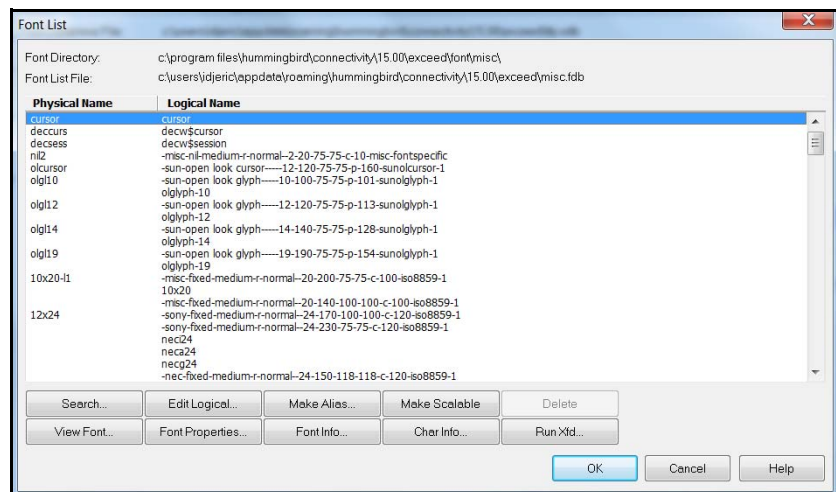


- 2 Use the buttons and options in the Font Database: *file* – Xfonts dialog box to make the following changes:
  - add, change, or delete font directories in the database
  - add, change, or delete font servers in the database
  - change the paths of the font directories/servers
  - add Windows or X fonts
  - import or export aliases

- display the Font List, to view physical and logical font names
  - determine (resolve) the physical font names of logical fonts
  - rebuild the database
- 3 Place the font directories/servers containing the most commonly requested fonts at the top of the list to reduce the amount of time it takes to find a match. Click Move Up and Move Down to change the display (search) order.

### To add, change, or delete fonts:

- 1 In the Font Database: *file* – Xfonts dialog box, select a font directory or server, and then click Font List. The Font List dialog box opens displaying the fonts contained in the selection.



- 2 Use the buttons in the Font List dialog box to make the following changes:
  - add, change, and delete fonts
  - load another font database file
  - view font lists for each database, create aliases, and scale fonts
  - rebuild font databases

- 3 After you have made changes, click OK in the Font List dialog box, and again in the Font Database dialog box. The modified file (.xdb extension) is saved in the directory where Exceed is installed.

**Note:** When you install fonts, you should install both 75 dpi and 100 dpi fonts for best font matching. Additionally, if the monitor size is greater than 1024 x 768, in the Font Database dialog box, place the 100 dpi font in a higher priority than the 75 dpi font.

## Understanding Font Database Settings

This section describes Font Database settings you can configure. For more details on how to access the Font Database settings, see “Editing the Font Database” on page 160.

### Font Database

The default font database is `1fp.xdb` which is located in the *User* directory. This file is created during installation. You can modify the font database according to your needs. Click Save As to save modifications and type a new file name. Click Browse to locate and select another .xdb file.

Default locations for *User* files

The font database box displays the following information:

**Status**—The following characters indicate the accessibility of the font directory or server at startup: "L" (Load), "K" (Keep), "I" (Inactive), "N" (Directory Not Available), and "P" (Physical Font Name Match Allowed).

For more details, about these options, see “Changing Paths in the Font Database” on page 165.

**Font List File**—For each font directory, the font database file name (without extension) is listed. For each font server, the name of the cache used by the server is listed.

**Font Path**—Displays the path to the font directory and font server included in the font database.

## Buttons

An array of buttons lets you manage the font database:

**Add Font Directory**—Opens the Add Font Directory dialog box.

**Add Font Server**—Opens the Add Server dialog box.

**Change**—If a font directory is selected, this button opens the Change Font Directory dialog box. If a font server is selected, this button opens the Change Font Server dialog box.

**Change All**—Opens the Change All Font Directories/Servers dialog box.

**Delete**—Prompts you to confirm deletion of the selected font database file or font server.

**Add Windows Fonts**—Opens the Add Windows Fonts dialog box.

**Add X Fonts**—Opens the Add X Fonts dialog box.

**Import Alias**—Opens the Import Alias dialog box.

**Export Alias**—Opens the Export Alias dialog box.

**Font List**—Opens the Font List dialog box.

**Resolve Font Name**—Opens the Resolve Font Name dialog box.

**New**—Opens the font database under a file name prefixed with “untitled\_lfp”.

**Open**—Opens a dialog box for locating and selecting a font database file.

**Save**—Saves the font database.

**Save As**—Opens a dialog box for saving the font database under a different file name.

**Move Up, Move Down**—Moves the selected font directory or server up or down in the list. Exceed searches for fonts by browsing through each font directory or server in the order listed. Use this feature if fonts in certain directories can meet matching criteria and you want to give those directories higher priority. For a long list of directories, you can reduce waiting periods while a match is found by moving directories/servers containing frequently requested fonts to the top of the list.

## Adding and Changing Font Directories

The Add Font Directory button in the Font Database dialog box lets you add a font directory to the font database. The Change button lets you edit the selected font directory. These buttons open a similar dialog box: Add Font Directory or Change Font Directory, respectively.

### To add a font directory:

- 1 In the left pane of Xconfig, select Fonts. The initial tab, Font, is displayed. Alternatively, from the Xconfig Settings menu, select the Font option.
- 2 Click Edit. The Font Database: *file* – Xfonts dialog box opens listing all font directories and servers in the font database.
- 3 Click Add Font Directory. The Add Font Directory dialog box opens.
- 4 Specify a path and file name (\* .fđb), or browse to a location.
- 5 Select Status options. For more details about these options, see “Changing Paths in the Font Database” on page 165.
- 6 Click OK. The directory is added to the bottom of the font database list.

### To change a font directory:

- 1 In the Font Database dialog box, click Change. The Change Font Directory dialog box opens.
- 2 Make changes to the path, file name, and directory status as necessary.
- 3 Click OK.

**Note:** Reloading the font database implements any changes you make. To reload the font database while the server is running, right-click the Exceed button on the taskbar. On the File menu, point to Reload Database, and then click Font.



## Changing Paths in the Font Database

### To change the path in the font database:

- 1 In the left pane of Xconfig, select Fonts. The initial tab, Font, is displayed. Alternatively, from the Xconfig Settings menu, select the Font option.
- 2 On the Font tab, click Edit. The Font Database dialog box opens.
- 3 Click Change All. The Change All Font Paths dialog box opens.
- 4 Type the prefix pattern you want to search for in the Find text box and the pattern you want to replace it with in the Replace text box. For example, to move font directories from `F:\EXCEEDW` to `C:\EXCEED`, type `F:\EXCEEDW` in the Find box and `C:\EXCEED` in the Replace box.
- 5 To change the status of font directories that match the Find pattern, click State in the Change Status area and select the new status you want to assign (Load, Keep, Inactive).

- State

**Load**—When the Exceed X server starts or restarts, the font directory is loaded automatically (or when the default font path is manually reloaded or requested by a client) or a connection is automatically made to the font server.

**Keep**—This is similar to Load state except the font directory or font server connection is kept resident at all times. It remains resident even if a client forces a new path that does not include the Keep directory or server.

**Inactive**—The font directory is not automatically loaded or a connection with the font server is not re-established when the Exceed X server starts. However, a client such as Xset may manually load an inactive font directory.

- 6 To change the Physical Font Name Match Allowed setting for font directories that match the Find pattern:

Click Match in the Change Status area, and enable or disable Physical Font Name Match Allowed.

**Physical Font Name Match Allowed**—Corresponds to a font file name without the extension. Physical font names are displayed in the left most column of the Xconfig Font List dialog box. The Match option is available only for font directories.

**Note:** To change *only* the status or Physical Font Name Match Allowed setting of font directories or servers, leave the Find text box blank. This indicates that the changes should be made to all font directories and servers.

- 7 Click Next to find the first font directory or server that matches the Find pattern. Xconfig displays the name of the first matching font directory or font server.
- 8 To replace the Find pattern with the Replace pattern in this font directory or server, click Change. To skip this font directory or server and go to the next match, click Next. To make changes to all matching font directories or servers, click Change All.

## Changing the Font Directory Search Order

Exceed sequentially searches each individual directory and font server in the font database for X client font requests based on their listed order in the Font Database dialog box. You may want to move font directories or servers containing frequently requested fonts to the top of the font database list to minimize the time needed to find them.

### To change the font directory search order:

- 1 In the left pane of Xconfig, select Fonts. The initial tab, Font, is displayed. Alternatively, from the Xconfig Settings menu, select the Font option.
- 2 On the Font tab, click Edit. The Font Database dialog box opens.

- 3 Select the font directory or server to move and click Move Up or Move Down as necessary.

**Note:** If a font server stops running, the Exceed X server automatically reconnects when the server is running again.

## Adding and Changing Font Servers

You can add or change font servers for a particular database by using the Font Database dialog box.

### To add a font server:

- 1 In the left pane of Xconfig, select Fonts. The initial tab, Font, is displayed. Alternatively, from the Xconfig Settings menu, select the Font option.
- 2 On the Font tab, click Edit. The Font Database dialog box is displayed.
- 3 Click Add Font Server. The Add Font Server dialog box opens.
- 4 Specify a host name or IP address, a transport protocol, and a server port.
- 5 Select Status options (Load, Keep, Inactive).
- 6 Click OK. The server is added to the bottom of the font database list.

### To change a font server:

- 1 In the Font Database dialog box, select a font server and click Change. The Change Font Directory dialog box opens.
- 2 Make changes to the font server and status as necessary.
- 3 Click OK.

**Note:** Reloading the font database implements any changes you make. To reload the font database while the server is running, right-click the Exceed button on the taskbar. On the File menu, point to Reload Database, and then click Font.

## Accessing the Font Server (Advanced Settings)

This section describes the advanced font management settings. The section describes how to control access to the font server, after you have added it to your list of font databases, you can control how it is accessed.

### To access the Advanced settings on your Fonts page:

- 1 In the left pane of Xconfig, select Fonts. Alternatively, from the Xconfig Settings menu, select the Font option. The initial tab, Font, is displayed.
- 1 Click the Advanced tab. The tab is displayed.
- 2 Modify the settings, and click Save.

### Font Servers

**Synchronous Operation**—Font server requests are completely processed before Exceed continues servicing X clients. This option should be selected only for troubleshooting. By default, other X clients are serviced while an X client is waiting for the response from the font server.

**Timeouts (secs.)**—Specify the Read and Write Timeout values (from 0 through 999) for font servers. By default, the Read timeout is 30 seconds and the Write timeout is 5 seconds. After timeout, Exceed assumes the font server is no longer available and closes the connection. If the timeout is too short, delays caused by network traffic might cause Exceed to unnecessarily disconnect from the font server. If the timeout is too long and the font server is unavailable, an excessive delay occurs before Exceed closes the connection. Default values favor a reliable connection, not the quick response. If the timeout is set for a quick response, the Enable Auto Reopen option should be selected.

**Enable Auto Reopen**—Instructs Exceed to try reconnecting to the font server if the connection is broken. If the font server is unavailable, periodic attempts to reconnect will slow down Exceed. If the font server is reliable, you can clear this option.

**Enable Cache**—Instructs Xceed to locally cache fonts from the font server. Each font is obtained from the font server once. If the same X applications are usually run and all necessary fonts are cached, then there is virtually no need for the font server. Font access from the cache is faster than from the font server. This option is enabled by default.

**Local Fonts First**—Searches local fonts first. Usually, the search priority is from top to bottom in the font database list. This option overrides the font search order set by the X client, assuming that the X client assigns a higher priority to the font server over local fonts. This is useful where the local font database can provide most of the fonts necessary to run X applications. This option is disabled by default.

### **Default Resolution for Scalable Fonts**

From the drop-down list, select a resolution. Xceed uses this value to calculate font size in pixels. This is useful where the X client specifies size of a requested font in points but does not specify the resolution. If this value is set to zero, then the resolution is defined automatically by the screen resolution.

### **Other Options**

**Automatic Font Substitution**—Substitutes the closest matching font for any font request that cannot be filled and would otherwise result in an error.

**Optimize For Java VM**—This option works around issues with some Java VM (buffer overflow) running on UNIX hosts (Java applications are more sensitive to large font databases than X applications).

**Use Typographic Font Size**—Specifies use of the absolute font size (according to the font family specification). By default, this option is enabled.

## Making Fonts Scalable

The Make Scalable button in the Font List dialog box lets you transform the selected font (resize, rotate, slant, and so on). Scalable fonts let you open and use font sizes that do not correspond to physical font files. Font scaling does not occur automatically; if you want to make a font scalable, you must create a scalable font entry.

### To scale fonts:

- 1 In the left pane of Xconfig, click Fonts. The Font tab is displayed.
- 2 Click Edit. The Font Database dialog box opens.
- 3 Select the font path and directory containing the font you want to scale.
- 4 Click Font List. The Font List dialog box opens.
- 5 Select the real font that you want to make scalable.
- 6 Click Make Scalable. A scalable entry is created. It has a physical name of (scalable) and appears at the end of the font list.

All the real fonts in this font directory that you can derive from the scalable entry are now scalable. To determine which fonts are scalable, click View Font while this scalable entry is selected. Note that they all have a similar XLFD logical name. At run time, Exceed chooses a closest real font from the list of fonts to be scaled.

## Creating Font Aliases

In some cases, X clients may request a font not included in the database. The server responds by issuing a “Font not available” error message and logging the logical name or search pattern of that font in the log file.

You can use a font alias to link the requested font to an existing font with similar characteristics. After you create the font alias, clients can request the previously denied font so that the server can deliver the font alias.

**Note:** Check the log file regularly for denied font requests.

**To create a font alias:**

- 1 In the left pane of Xconfig, click Fonts. The Font tab is displayed.
- 2 Click Edit. The Font Database dialog box opens.
- 3 Click Font List. The Font List dialog box opens.
- 4 Click Search to find an existing font resembling the requested font pattern. If you do not find one in this directory, try another directory until you find one that you consider a reasonable match.
- 5 Click Make Alias in the Font List dialog box.
- 6 Type or paste the font name in the box.
- 7 Click OK.

The font alias appears immediately below the logical font name in the second column of the Font List dialog box.

## Creating Several Aliases

To create several aliases at the same time, create an alias file containing all of the desired aliases. An alias file is a text file that you can create or edit in any text editor, such as Windows Notepad. You can then import the contents of the alias file into the font database.

## Importing Alias Files

You can import a file containing aliases into the font database.

**To import an alias file:**

- 1 In the left pane of Xconfig, click Fonts. The Font tab is displayed.
- 2 Click Edit. The Font Database dialog box opens.
- 3 Click Import Alias.
- 4 In the Import Alias dialog box, type the path of the alias file being imported in the From box or click Browse.
- 5 In the To box, select a destination path from the drop-down list. By default, the entry selected in the Font Database dialog box is initially displayed.

- 6 Click Import to start importing.
- 7 Repeat steps 4 – 6 for each alias file you want to import.
- 8 Click Close.

## Exporting Alias Files

The Export Alias dialog box lets you export aliases from the font database. Using this feature, you can export a group of aliases to a file so that you can distribute them among other Exceed users in your company.

### To export an Alias file:

- 1 In the left pane of Xconfig, click Fonts. The Font tab is displayed.
- 2 Click Edit. The Font Database dialog box opens.
- 3 Click Export Alias.
- 4 In the Export Alias dialog box, select the source path in the From box. By default, the entry selected in the Font Database dialog box is initially displayed. Select the desired Output Type.
- 5 Type the destination path in the To box or click Browse.
- 6 Click Export to start exporting.
- 7 Repeat the above steps for each alias file you want to export.
- 8 Click Close.

## Alias File Format

To create several aliases at the same time, create a file containing all the desired aliases. You can then import the contents of the alias file into the font database. You can create an alias file in any text editor, such as Windows Notepad.

### Guidelines

- Each line in a standard X alias file contains two columns separated by spaces or tabs.
- Lines in the alias file have a certain format. If spaces or quotation marks are part of either an alias name or a line, enclose the name in quotation



marks ("). Within the name, use the backslash character (\) before any quotation mark or space. For example, if you want to enter the line `ABC"DEF fixed`, then type `"ABC\"DEF" fixed`

Within names, you can use the standard wildcard characters \* and ?. For example:

```
myfont-*--courier-bold-r-normal--*-m--iso8859-1
```

FILE\_NAMES\_ALIASES lines, typically used to automate physical font alias matching, are ignored. However, you can enable physical name matching by using the Physical Font Name Match Allowed check box in the Add Font Directory dialog box.

- The following non-standard source file statements are supported:
  - a) Enter comments by placing a # (number sign) as the first character on a source line.
  - b) Alias names can be limited to a particular directory in the font database using the following source line:

```
+Y
```

where *Y* is the name of any directory listed in the database. For example:

```
+C:\EXCEED\FONT\75DPI
```

By default, a + line remains in effect until the next + line is encountered. A + line not followed by a path resets the search to the entire database.

- c) Specifying a \$ as the first character of a path in an alias file implies the Exceed *Home*\Font directory. For example:

```
$andrew
```

This specifies the *Home*\Font\Andrew directory.

- d) If the alias name ends in a period (.), the extension is removed. The server also removes trailing . tags from font name patterns.

## Encoding File Support

Exceed offers encoding file (.enc) support for the recoding of Unicode-encoded fonts (iso 10646-1) to a specified encoding. Before you begin, however, you must ensure that the *User* directory contains the following:

- an `encodings.dir` file
- a subdirectory called `encodings` in which you can place the encoding files (.enc).

To make use of encoding files, create an alias to the Unicode font you want to recode. You must ensure that the Unicode font contains all of the glyphs specified in the .enc file the font alias refers to. If a glyph is missing in the Unicode font, it will be absent from all text created with the alias font.

## Setting Up Remote Font Architecture

By default, Exceed installs and makes use of fonts locally. However, you can place fonts in a central network location and configure each installation of Exceed to use these remote fonts.

To implement this architecture, you need a machine to serve as the remote font repository. For the purpose of this procedure, we will call the repository FONTREP. This name represents the PC name. All Exceed installations must have access to FONTREP to access the remote fonts.

This procedure assumes that the installation uses the default location and that the installation is performed by the user “Administrator”.

### To set up remote fonts:

- 1 On FONTREP, perform a complete installation of Exceed ensuring that the installation includes all of the fonts that your users require.
- 2 Share the following font directory and set the proper permissions for users.

```
C:\Program Files\Hummingbird\Connectivity\version\Exceed\
Font\
```

The remote administrator should have full control and Exceed users who will connect to FONTREP should have read access at the minimum.

- 3 Copy the \*.fdb and lfp.xdb files from the User directory to the Exceed Font folder.

The folder is in the following location:

```
C:\Program Files\Hummingbird\Connectivity\version\Exceed\Font\
```

- 4 Rename the relocated lfp.xdb file to shared.xdb.
- 5 Edit the registry on the client machines that are using  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Hummingbird\Connectivity  
\version\Exceed.

To do this, create a new String Value for SharedFontDir and assign the value \\FONTREP\font, which is the directory that you shared previously.

- 6 On FONTREP, launch Xconfig. In the left pane of Xconfig, click Fonts. The Font tab is displayed.
- 7 On the Font page, browse to and select \\fontrep\font\shared.xdb. Use the fully qualified rather than the local path.
- 8 Click Edit to open the Font Database dialog box. Ensure that all font paths begin with \\FONTREP\font\.

If the paths differ, click Change All. In the Change All Font Paths dialog box, find and replace the default location, C:\Program Files\Hummingbird\Connectivity\version\Exceed\Font\, with the shared location, \\FONTREP\font.

For example, the font paths should read:

```
\\FONTREP\font\misc\  
\\FONTREP\font\75dpi\  
\\FONTREP\font\...
```

- 9 Save the changes, and exit Xconfig.

### To deploy remote fonts using Sconfig:

- 1 On FONTREP or any other PC that users can access, perform an administrative installation (c:\admin) of Exceed.
- 2 Copy the modified `exceed.xcfg` you created on FONTREP to `C:\admin\Program Files\Hummingbird\Connectivity\version\Default User\Exceed` on the system where you performed the administrative installation.
- 3 Launch Sconfig to customize this administrative installation. In the left pane, click Features, and expand the Exceed *version* tree that appears in the right pane. Expand the Exceed item and disable Exceed Fonts.
- 4 In the left pane, click Registry and set the following:
  - in the Root box, type `HKEY_LOCAL_MACHINE`
  - in the Data Type box, select `REG_SZ`.
  - in the Key box, type `SOFTWARE\Hummingbird\Connectivity\version\Exceed`
  - in the Value Name box, type `SharedFontDir`
  - in the Value Data box, type `\\FONTREP\font`
- 5 Save the changes, which will create a Transform file (`font.mst`).
- 6 Do the following on each client machine:
  - a) Connect to the system where you performed the administrative installation. In this case, the `font.mst` file will be in the root directory of the administrative copy.
  - b) Run the following command:

```
Setup /v"TRANSFORMS=font.mst"
```

- 7 When the installation is complete, the client systems are configured to use the remote fonts remotely on FONTREP. To confirm this, launch Font Management in Xconfig again. The font database should point to `\\FONTREP\font\shared.xdb`. If you click Edit on the Font page, the various font paths should be prefixed with `\\FONTREP\font`.

**Note:** By default, the font server's cache will be located in the `FS_cache` folder under the `\\FONTREP\font` directory. If you want the font server's cache to reside locally, use the `FSCacheDir` environment variable to specify the desired location.

## Configuring OpenGL settings for Exceed 3D and GLX

This section describes how to configure OpenGL settings. It also describes how Exceed allows applications that use the Mesa OpenGL client library to use server-side software OpenGL rendering.

The OpenGL page is available only if you have Exceed 3D installed.

**To configure OpenGL settings:**

- 1 In the left pane of Xconfig, click OpenGL. The **OpenGL** page is displayed.  
 Alternatively, display the Xconfig X Protocol page, and its Extension tab. At this tab, enable the GL option, and click Configure. A dialog box is displayed, allowing you to set (select or clear) the OpenGL configuration.
- 2 Configure the OpenGL options of your choice:

OpenGL Setting	Details
Enable OpenGL	<p>Enable the GLX extension so applications can use OpenGL.</p> <p>Recommended setting: Enabled</p> <p>Disabling this option will prevent applications from using GLX. If an application supports multiple drawing methods, disabling GLX may force it to use a non-GLX drawing method.</p> <p>Why you may want to disable GLX:</p> <ul style="list-style-type: none"> <li>• Work around application bug in GLX rendering path</li> <li>• Work around application slow performance in GLX rendering path</li> <li>• Avoid requiring OpenGL-supporting video card on Exceed host</li> </ul>
Direct Rendering	<p>Increase performance for applications running on the local host by passing OpenGL rendering commands directly to the GPU.</p> <p>Recommended setting: Enabled</p> <p>When enabled, applications that are linked with hclglx.dll can pass their OpenGL rendering commands directly to the GPU. This can greatly increase performance compared to indirect rendering, where all rendering commands must first pass through the X server.</p> <p>Applications that are not on the local host, or are not linked with hclglx.dll, will fall back to indirect rendering.</p>

---

OpenGL Setting	Details
Hardware Acceleration	<p>Use the local GPU instead of software for OpenGL rendering.</p> <p>Recommended setting: Enabled</p> <p>Attempt to use a hardware-accelerated OpenGL driver for rendering. If none is available, or this option is disabled, the Microsoft Software OpenGL renderer is used. The software renderer is slower and supports fewer OpenGL features, notably disabling GLX 1.3 support.</p> <p>RDP sessions cannot access hardware acceleration and always use the software renderer. Because this option switches OpenGL drivers, disabling it is useful for troubleshooting, to determine if an application crash or rendering issue is related to a specific OpenGL driver.</p>
One Visual Per Pixel Format	<p>Provide applications with a full list of Visuals, one for every Pixel Format the video card supports.</p> <p>Recommended setting: Enabled</p> <p>Each Pixel Format on the local video card supports different OpenGL capabilities, such as color depth, stencil buffer, or double buffering.</p> <p>When this option is disabled, only a handful of Visuals with reasonably diverse capabilities are made available to applications. If an application complains that it cannot find a suitable visual, make sure this option is enabled.</p> <p>Sometimes applications do not correctly specify required visual capabilities which can result in errors or rendering issues. In such a case, disable this option to make the application choose a different visual.</p> <p>Related undocumented flag: <i>GLXRequiredVisualFBConfigAttribs</i></p>

---

OpenGL Setting	Details
Overlay Support	<p>Advertise hardware overlay plane support.</p> <p>Recommended setting: Disabled</p> <p>Some applications use hardware overlay planes to draw parts of the user interface (UI). This option is disabled by default, because most applications do not need overlay support, and it prevents careless applications from accidentally selecting an overlay visual.</p> <p>To function, this option requires hardware support in the GPU and overlay support enabled in the video driver. Typically only workstation-class GPUs support hardware overlays.</p>
GLX 1.3 Support	<p>Support and advertise GLX 1.3+ features</p> <p>Recommended setting: Enabled</p> <p>GLX 1.3 notably adds support for FBConfigs and PBuffers and allows applications to use more advanced OpenGL functionality.</p> <p>Sometimes applications have different rendering paths for GLX 1.3+ vs. lower GLX versions.</p> <p>Disabling GLX 1.3 may cause an application to choose a different method of rendering and work around drawing or other issues.</p>

## MESA Server Side Software OpenGL Rendering

This section describes how Exceed handles applications that use Mesa OpenGL client library.

By default, Exceed now allows applications that use the Mesa OpenGL client library to use server-side software OpenGL rendering. This means that Mesa (version 7.1 and later) uses its internal Software Rasterizer to render OpenGL and sends the resulting image to display in Exceed.



For some applications this may increase performance. For other applications, this may decrease performance. To disable this and force the previous default behaviour of indirect OpenGL rendering on the Exceed host, set the following environment variable before launching the application:

```
LIBGL_ALWAYS_INDIRECT=y
```

For example:

```
LIBGL_ALWAYS_INDIRECT=y glxgears
```

Applications that run on hosts with NVIDIA or AMD OpenGL drivers installed are not affected, and will continue to use indirect OpenGL rendering as always.

To disable Mesa software rendering completely and revert to the previous Exceed 14 behaviour, open your system registry and navigate to the following key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Hummingbird\Connectivity\15.00\Exceed\XServer
```

Create a new DWORD value named `MesaVisualCompat` and set its value to 0.

This will disable Mesa software-based OpenGL rasterizer and force the use of `LIBGL_ALWAYS_INDIRECT=y` on the application server, to make indirect rendering work.

## Configuring X Protocol Settings

This section describes the X Protocol settings.

These settings govern how the X protocol is interpreted, and thus regulate how Exceed operates.

X protocol settings you need to:

- configure settings on the Protocol tab
- configure extensions (enable a specific extension, and make specific extensions available to untrusted clients)

## Configuring the Protocol tab

This section describes how to configure the settings located on the Protocol tab of the X Protocol configuration page.

### To configure the settings at the Protocol tab:

- 1 In the left pane of Xconfig, click X Protocol. Alternatively, from the Xconfig Settings menu, select Protocol. The Protocol tab is displayed.
- 2 **Under Compatibility, select or clear the following settings:**
  - **DECwindows Compatibility**—Provides DECwindows compatibility.
  - **X Conformance Test Compatibility**—Configures Exceed to pass certain tests in the X Conformance Test Suite (X Test Suite) that it would normally fail. These failures occur because some X clients have problems for which the Exceed X server has benign workarounds. You should also select Allow Clients To Modify Host Access Control List on the Security page to pass certain X Test Suite tests. To access the Security page, click Security, Access Control And System Administration in Xconfig.

Additionally, selecting this option overrides the Delay Window Mapping option (in the Multiple Window Mode Advanced dialog box). If Allow Clients To Modify Host Access Control List is selected, there is no delay on window mapping.
  - **Enable Custom Vendor String**—Lets you specify the vendor string that is passed to clients at connection time (in the connection block). If your client requires a specific vendor string, select Enable Custom Vendor String, type the Vendor String in the box, and click OK.

## Configuring X Protocol Extensions

This section describes how to:

- enable or disable X Protocol extensions

- make some extensions available to untrusted clients (by selecting them in the right pane of the Extensions tab)

**Warning!** If the All Extensions entry is cleared in the right list box after being selected, then extensions remain selected. You must clear each one to disallow access by untrusted clients.

### To access and configure the X Protocol extensions:

- 1 In the Xconfig left pane, click X Protocol. Alternatively, from the Xconfig Settings menu, select Protocol. The X Protocol page is displayed.
- 2 Click the Extensions tab. The tab is displayed.
- 3 Under Enable Extensions:
  - Select the check box next to the extensions you want to enable. Clear the check boxes for the extensions you want to disable.
- 4 Under Enable Extensions for Untrusted Clients
  - Select the check box next to the extensions you want to enable. Clear the check boxes for the extensions you want to disable.
- 5 Click OK to save your selections.

Click **Default** to restore the original protocol extension selections for the Xconfig configuration file (initially `Exceed.xcfg`).

## Understanding X Protocol Extensions

This section lists the supported extensions. For details on how to enable them or disable them, see “Configuring X Protocol Extensions” on page 182.

### Default Protocol Extensions

The following extensions are the Xconfig defaults for `Exceed.xcfg`:

- **BIG-REQUESTS**—Lets clients extend the length box in protocol requests to a 32-bit value from the standard X protocol of 2<sup>18</sup> bytes long. This is useful for certain graphics extensions and other extensions that transmit complex information to the server. This extension enables the use of protocol requests that are longer than 262140 bytes.
- **DAMAGE**—Lets clients be notified whenever something is drawn to a window. This feature is useful for virtual network computing (VNC) servers, for screen magnifiers, and for clients using the Composite extension to update the screen.
- **DOUBLE-BUFFER** (X11R6.1 DOUBLE-BUFFER extension)—Lets applications draw images to a back buffer. When the image is completely rendered there, it can be swapped into the role of the front buffer, which makes the image. Thus, only completely rendered images are shown and remain visible during the entire time it takes to render a new frame. The result is flicker-free animation.
- **RANDR**—The resize and rotate extension (RandR) lets clients modify the size, accelerated visuals, and rotation of an X screen. It also informs clients when screens were resized or rotated, and it lets them discover which visuals have hardware acceleration available.
- **RECORD**—Enables support for recording all core X protocol and arbitrary extension protocol completely within the X Server. When the extension is requested to intercept a specific protocol by one or more clients, the protocol data is formatted and returned to the recording clients. The extension provides a mechanism for capturing all events, including input device events that go to no clients. The extension does not provide data compression before intercepted protocol is returned to the recording clients.
- **RENDER**—Enables anti-aliased text and alpha-blending on the Exceed X server. Newer desktop environments (such as the latest versions of KDE and GNOME) use the RENDER extension for anti-aliased text.
- **SECURITY**—Enables the protocol needed to provide enhanced server security. This extension cannot be exposed to untrusted clients. This extension introduces the notion of secure and insecure extensions. A secure extension is believed to be safe for use by untrusted clients; that is, there are no known significant security concerns that an untrusted client could use to destroy, modify, or steal data from trusted clients. All extensions not considered secure are called insecure.

- **SHAPE**—Allows for arbitrary window and border shapes. It causes the server to report the SHAPE extension when queried by a client for the list of supported extensions. By default, this setting is selected. Drawing operations on non-rectangular windows are slower than on rectangular windows. Certain clients use non-rectangular windows instead of rectangular windows if the SHAPE extension is present. To improve the performance of these clients, disable the SHAPE extension before starting the client.
- **SYNC**—Enables the X11R6 synchronization extension. This extension provides primitives that let synchronization between clients take place entirely within the X server. It removes any error introduced by the network and makes it possible to synchronize clients on different hosts running different operating systems.

The SYNC extension is important for multimedia applications, which synchronize audio, video, and graphics data streams. This extension also provides internal timers within the X server to which client requests can be synchronized. This lets you implement simple animation applications without any round-trip requests. It also makes the best use of buffering within the client, network, and server.

- **XFIXES**—A collection of improvements for deficiencies in the core protocol, including:
  - Save Set processing changes
  - notification when a selection changes
  - server-side region objects
  - cursor tracking
  - cursor names (labels)
- **XINERAMA**—Allows applications and window managers to use two or more physical displays as one display. The display behavior may differ depending on the window manager used. If you enable this extension,

ensure that the Use All Monitors setting (Xconfig, Screen Definitions) for screen 0 is also enabled.

**Note:**

- It is recommended that you use TrueColor (24 or 32-bit) on each display, but display setting inconsistencies do not pose a problem for most window managers. It is also recommended that you do not use 8-bit (256 color) modes.
- The physical configuration of monitors in anything other than a horizontal or vertical row can cause inconsistent behavior.

- **XInputExtension**—Enables the X Input Extension Protocol (X11R6 synchronization extension). Any kind of input device may be used as an extension input device. This extension is designed to accommodate new types of input devices that may be added in the future. Starting with the core X keyboard and pointer, new devices need have only their new classes (unique numbers) registered to be recognized by this extension; they do not need an entire new extension for each new device.
- **X-Resource**—Lets clients query the X server about its usage of various resources. It is a developer tool to assist with making server resource usage more efficient and to debug server-side resource leakage.
- **XTEST**—Client/server extensions required for hands off validation of the X11 server. They provide access to write-only server resources (for example, the cursor associated with a specific window) and remote activation of certain input device events (such as controlling the pointing device or pressing a key or button).

More information about other protocol extensions.

## Other Protocol Extensions

The following are the extensions not selected by default in `Exceed.xcfg`:

- **Composite**—Lets clients request that all drawing to window is redirected to an off-screen buffer. Though the DAMAGE extension, the client (called a compositing manager) can know which areas of a window are modified and render the windows on screen. By using the drawing requests (from both the core protocol and the RENDER

extension), the compositing manager can create special effects, such as translucent windows.

- **GLX**—Enables support for OpenGL, a high-performance 3D-oriented renderer. When this extension is selected at the Extensions tab of X protocol page, you may click the Configure button. A dialog box is displayed, allowing you to configure GLX functionality. See also “Configuring OpenGL settings for Exceed 3D and GLX” on page 177.
- **MIT-SHM** (Shared Memory)—Lets local X clients store ximage data in a memory segment that is shared with the local X server. This precludes having to send the ximage over the Xlib interprocess communication channel. For large images, using this facility can result in an increase in performance.
- **XKEYBOARD**—Provides improved layout and features for keyboards (for example, Russian and Hungarian).
- **XVideo**—Utilizes hardware capacities to speed up video playback and to reduce total CPU time on both systems running Exceed and the X client. It also provides server-side video adjustment for brightness, contrast, and hue if the hardware supports it.

The Xvideo extension is comprised of two parts:

- **Image playback**—Depending on the capacities of the system video card, Exceed can utilize the color space conversion or hardware scaling provided by the video card to play back video frames of certain formats and to rescale video frames to the desired size.
- **Video stream**—Exceed provides interfaces to play back the video stream from live sources such as web cams. Exceed also supports still image capture from those video streams to X windows.

**Note:** To successfully make use of XVideo functionality, ensure that the following is true:

- Your hardware provides the required capacities.
- Xvideo support is available and enabled in the video playback software (the X client).
- As X applications typically run on a remote host, Xvideo shared memory should not be used. Please refer to the X application’s documentation for more information.



## Performance Settings

### Configuring Performance Settings

This section describes how to configure the following Performance settings:

- Drawing Settings
- Advanced Settings

The settings are used to:

- adjust Microsoft Windows system resources used by Exceed for various performance-related drawing techniques
- configure Exceed for optimal graphics performance for your current video configuration

#### To configure Performance settings:

- 1 In the left pane of Xconfig, click Performance. Alternatively, from the Xconfig Settings menu, select the Performance option. The Performance tab is displayed.
- 2 Modify the Drawing and Advanced settings.

#### Drawing Settings

Under Drawing, modify:

**Draft Mode**—Selected by default, this option improves performance, but results in a slight and generally unnoticeable reduction in drawing accuracy.

**Batch Requests**—Can help improve the performance of the Exceed X Server.

**Backing Store**—Reduces network traffic and improves window refresh speed at the expense of window drawing speed and memory. You can set the following options that determine the conditions under which the backing store is used:

- None—Never saves the contents of the X application window.



- **When Mapped**—Backing store is provided to all mapped windows if the application requests it. Window content is saved only when the X application is drawing to the window when it is mapped. (In this context, mapped means not minimized.)
- **Always**—Always attempt to preserve the contents of any window, whether or not it is mapped, if the application requests it.

### Advanced Settings

**Read On WriteBlocked**—Continues processing X application requests even when the application temporarily stops responding to a reply or event.

**Oversized Cursors**—Lets the X application create cursors larger than 32 by 32 pixels.

## Configuring Troubleshooting Settings

For detailed information about the user interface and how to access it, see Exceed Help.

This section describes the troubleshooting settings that you can configure. Use the Troubleshooting page in Xconfig to modify the following settings:

- Log Settings
- Trace Settings

They allow you to:

- specify font and other information that is written to the log file
- view the log file (`Exceed.log`)
- trace Exceed activity from startup

### To view or modify the troubleshooting settings:

- 1 In the left pane of Xconfig, click Troubleshooting. Alternatively, from the Xconfig Settings menu, select the Troubleshooting option. The Troubleshooting tab is displayed.
- 2 Modify the following groups of settings: Enable Log and Trace.

## Log Settings

- **Enable Log**

This setting activates the Exceed built-in logging functionality. Initially, the Enable Log option is selected, and Exceed logs information to the file specified in this text box. By default, the `Exceed.log` file is stored in the *User* directory. You can specify another file by typing the full name and path in this box. To open this file in a text editor, click View.

When you select the Enable Log setting, you can also enable and disable any of the following:

- **Log Font Opens**—Lets you log all requests to open fonts. Select this option only for troubleshooting purposes. Do not forget to clear this option when you are finished troubleshooting. By default, this setting is not selected.
- **Log Window And Command Names**—Causes Exceed to log the initial settings of the `WM_COMMAND` and `WM_NAME` properties on Input/Output root-level windows. This is useful when you are trying to determine which client is associated with a particular network socket. Select this option only for troubleshooting purposes. Do not forget to clear this option when you finish troubleshooting. By default, this setting is not selected.
- **Log GLX Information**—Logs all OpenGL requests. Select this option only for troubleshooting purposes. Do not forget to clear this option when you are finished troubleshooting. By default, this setting is not selected.
- **Log Connection Error**—Logs connection errors.
- **Log XDMCP Progress Status**—Logs all XDMCP progress status.

## Trace Settings

The Trace group box lets you enable or disable any of the following:

- **Trace Initially On**—Do not select the Trace Initially On setting unless you want to trace the dialog between the server and the first client. When you select this option, the trace starts when the server does, and all dialog between the server and the first client, including XDM, is

traced. The trace file is output to the *User* directory with a `.trx` file name extension.

**Warning!** Select this setting only when absolutely necessary; it severely degrades server performance. Do not forget to clear this setting after performing your trace.

- **Slow Trace**—Lets you trace situations even when the server hangs. If the server hangs and the PC must be rebooted, the current trace file is likely unavailable; this setting lets you compensate for this situation.

**Warning!** Use this setting only when absolutely necessary, as it severely degrades server performance.

## Viewing the Log File

This section describes how to display a log file, from the Troubleshooting page, or the Exceed menu.

The following information about X applications and their connections may be logged:

- remote port, IP address, socket # connection
- initial data connection from X applications
- who closed the connection and error number indicating the reason for closing
- rejection of an X application request to connect to Exceed
- names of fonts requested by clients but not found
- names of fonts substituted if the Automatic Font Substitution (Font Database dialog box) and Log Font Opens (Troubleshooting page) options are selected
- names of colors requested but not found in the RGB database
- Open GLX information
- which application is being loaded

To display a log file from Xconfig:

- 1 In the left pane of Xconfig, click Troubleshooting. Alternatively, from the Xconfig Settings menu, select the Troubleshooting option. The Troubleshooting tab is displayed.
- 2 Click the View button, next to the name of the file.
- 3 Select a log file you want to view, and click OK.

To display a log file from the Exceed menu:

From the File menu, select View Log.

## Handling Denied Requests for Colors

This section describes what happens if a client requests a color that the server cannot supply.

In this case, the requested color name appears in the log file. You can view the log file on the Troubleshooting page in Xconfig. Add these colors to the RGB database for future use.

### **To add colors to the RGB database:**

- 1 In the left pane of Xconfig, click Display And Video. The initial tab, Screen, is displayed.
- 2 Click the Video tab.
- 3 Click Edit to open the RGB text file in a text editor.tab.
- 4 Add a new entry to the database for the color name requested and assign Red, Green, and Blue values for that color name. The assigned Red, Green, and Blue values are arbitrary; they may or may not be related to the actual color name. An entry is made for the color to ensure that a color is returned to the client when requested instead of creating a "Color not found" error.

For example:

A failed request for the color was logged.

```
239255242Melon
```

Interpretation—The next time a client requests the color `MelOn`, the RGB combination of 239, 255, 242 will generate the color. This may or may not be the color that the client visualized, but a color is returned and the operation proceeds.

- 5 Save the modified `rgb.txt` file.
- 6 Right-click `Exceed` on the Windows taskbar, select `File` menu, select `Reload Database`, and then click `RGB` to reload the RGB database.

**Note:** Exiting and restarting the server also reloads the database.

This color is now available to X clients.

## Handling Denied Requests for Fonts

If a client requests a font that the server cannot supply, the name of the requested font appears in the log file. To view the log file, click `View` in the `Xconfig Troubleshooting` page.

To resolve requests for missing fonts, you can:

- create font aliases
- compile the font source in `.bdf` or `.pcf` format using the `Xconfig Font Compiler`
- enable automatic font substitution



## *Power Management*

### Configuring Power Management Settings

This section describes how to configure the following Power Management Settings:

- Refuse Sleep
- User Interaction
- Presentation
- Wake Up

#### **To configure the Power Management settings:**

- 1 In the left pane of Xconfig, click Power Management. Alternatively, from the Xconfig Settings menu, select the Power Management option.
- 2 At the Power Management tab, select or clear the options of your choice.

#### **Refuse Sleep**

Select one of the options below to indicate under what circumstances the system should not enter sleep mode. If you are running connections to remote hosts, select the Always option.

- **Always**—Always refuse sleep requests.
- **When Connected**—Exceed refuses the sleep requests when there is a connection to an X server, either local or remote.
- **When Remotely Connected**—Exceed refuses the sleep requests when there is remote connection to an X server.
- **When Remote Client Is Active Within (sec.)**—Exceed refuses the sleep requests when a remote connection is active within the specified time (in seconds).

### User Interaction

Maintains the display even if the system enters sleep mode.

Select a time interval (Grace Period Before Sleep) from the list to determine how long the system should standby before entering sleep mode.

Examples of user interaction are mouse or keyboard actions, drawing, change of geometry, or other data exchanges between the X server and the X clients.

### Presentation

Causes the system to reset after sleeping for a long period of time.

**Prevent display from being shut down**—Maintains the display even if the system enters sleep mode (due to a Windows setting that turns the monitor off).

### Wake Up

**Server reset after critical sleep**—Causes the system to reset after sleeping for a long period of time. For example, an extended sleep period might be caused by some critical situation such as low battery power.

## Configuring System Administration Settings

This section describes how to configure system administration settings. The System Administration page can be locked by the system administrator.

In this case, you cannot disable settings.

To configure the System Administration features:

- 1 In the left pane of Xconfig, click System Administration. Alternatively, from the Settings menu, select System Administration. The page is displayed.
- 2 Select or clear the relevant option. If you select a particular check box, the associated feature is disabled.

3 Click Save. Selections are enforced the next time you start Xconfig.

The following features may be disabled (if the check box is selected) or enabled (if the check box is cleared):

Options	Result
Disable Features	Select this check box to access the list of features.
Test Extensions	X clients cannot test X11 servers by simulating X events (such as keystrokes and mouse clicks).
Trace	The Trace command is not available on the Exceed File submenu. No trace file is created.
X Client Native Window Manager Exit	In the Client window, the Exit button is unavailable. Also, the close command on the pop-up menu (right-click the client window title bar) is unavailable.
X Server Copy/Paste	On the Exceed menu, all copy and paste commands are not available on the Edit submenu. Also, all toolbar copy and paste buttons are unavailable.
X Server Exit	On the Exceed menu, the Exit command is not available on the File submenu.
X Server Reset	On the Exceed menu, the Server Reset command is not available on the Tools submenu.
X Server Toolbar Close	When enabled, the Exceed toolbar cannot be closed.
Xstart Browse Hosts and Applications	Xstart Browse buttons are unavailable. These buttons open the Browse For Hosts dialog boxes.
Xstart Browse Hosts and Applications Configuration	On the Other page of the Xstart Settings dialog box, the Configure buttons are not available. These buttons open the Browse Hosts/Applications dialog boxes.
Xstart Load Optimization	On the Other page of the Xstart Settings dialog box, the Load Optimization option is not available. Also, the Configure button that opens the Browse Load Optimization dialog box is not available.



Options	Result
Xstart Password Save	The Xstart file cannot be saved or run. A warning informs users that saving of passwords is disabled.
Xstart Remember Password	In the Xstart Global Options dialog box, the Password List area (including Remember Password functionality) is unavailable.
Xstart RLOGIN Startup Method	The Xstart file cannot be saved or run. A warning informs users that this method is disabled.
Xstart RSH Startup Method	The Xstart file cannot be saved or run. A warning informs users that this method is disabled.

## Restricting Access to Xconfig

This section describes how to set a password to:

- restrict access to Xconfig and specific Xconfig settings
- restrict access to configuration settings on the System Administration page.

### To specify a password for the first time:

- 1 In Xconfig, from the Actions menu, select Change My Password.
- 2 In the New Password text box, type the password of your choice.
- 3 In the Confirm Password text box, retype the password.
- 4 Click OK. The next time you start Xconfig, the new password is implemented.

### To change an existing password:

- 1 Type your current password in the Old Password text box.
- 2 Type your new password in the New Password text box and then retype it in the Confirm Password text box.

- 3 Click OK to save your changes. The next time you start Xconfig, the new password is implemented.

**To remove password protection:**

- 1 Type your current password in the Old Password text box, and leave the other two text boxes blank.
- 2 Click OK to save your changes. The next time you start Xconfig, this password is removed. Note that if you do not use a password, anyone can make changes to the settings formerly protected by this password.



## *Accessibility*

# Configuring Accessibility Settings

This section describes how to configure Exceed Accessibility settings.

These settings enable access to information about the user interface elements.

**To configure Accessibility settings for Exceed:**

- 1 In the left pane of Xconfig, click Accessibility. Alternatively, from the Xconfig Settings menu, select the Accessibility option. The Accessibility tab is displayed.
- 2 Select the Enable Accessibility check box.
  - **Enable Accessibility**—Gives visually impaired users the capability to read the X display by means of support for Microsoft Active Accessibility (MSAA). Users with visual impairments can use MSAA compliant screen reading applications, such as Microsoft Narrator, to read and listen to the screen of Motif X Window applications. This feature is not available with 64-bit versions of the product.)

- 3 Depending on how your system is configured, you may be prompted to turn off (clear) the following option (located under Input Devices > Keyboard: Use Keyboard Hook).

Click **Yes**, to turn off this option, which prevents key input echo from working properly with the Accessibility feature. By clicking **Yes**, you will disable the keyboard echo (the appearance of letters on the screen as someone types).

- 4 Select or clear the option of your choice (available if the Enable Accessibility is selected):
  - **Readiness Check Interval (ms)**—The default is 5000 milliseconds. Setting it to 0 means that Exceed does not wait until all the information is ready for collecting by a screen reader when an X client window is created.
  - **Maximum Number Of Times To Check**—The default is 5. This determines the number of times Exceed attempts to detect accessibility information. If accessibility information is ready for a screen reader, the X client window opens. If all attempts fail, the X client window still opens but without accessibility information. This happens when an X client is launched on a system where accessibility modules are not installed.



# Chapter 5

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## Introducing Exceed 3D

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## About Exceed 3D

To order Exceed 3D, contact your sales representative. For contact information, see Appendix C: General Accessibility and Customer Support.

Exceed 3D lets you view three-dimensional (3D) applications under Exceed and create 3D applications using Exceed XDK. This section contains important information about Exceed 3D and instructions for installing Exceed 3D. Unless otherwise specified, all references to Windows 7/Server 2008 and later are referred to generically as Windows.

### Overview and Features

Exceed 3D lets you use the Exceed X server to display OpenGL-based 3D applications. Exceed 3D provides support for OpenGL 1.2 and GLX 1.4.

OpenGL is an industry-standard 3D graphics software interface. It lets you create interactive programs that produce still or animated 3D color objects with shading, lighting, and other effects. GLX is the X Window System extension that implements OpenGL.

Exceed 3D supports:

- OpenGL version 1.2, GLX 1.3 (if supported by your graphics adapter), and GLX 1.4
- RGBA and color index modes on all video devices, including True Color 16-bit and 32-bit color video cards
- overloaded visuals to support OpenGL extended attributes such as double and single buffering
- direct rendering
- hardware acceleration (if supported by your graphics adapter)
- overlays (if supported by your graphics adapter)
- stereo (if supported by your graphics adapter)
- texture3D (if supported by your graphics adapter)

For demonstration purposes, sample programs are shipped with Exceed XDK.

## Exceed 3D Requirements

Before you install Exceed 3D, make sure the computer on which you are installing it meets the following minimum system requirements:

- Microsoft Windows 7/8/8.1/Server 2008, Server 2008 R2/Server 2012 R2
- Microsoft Visual C/C++ Version 4.2 or higher to develop OpenGL X clients

A graphics card specifically designed to support OpenGL should support overlay.

### Graphics Cards

Most current high performance graphics cards support OpenGL, but some are not specifically designed for OpenGL, which could cause problems with some UNIX software if it requires specific OpenGL-related features. For more information, contact your UNIX software vendor to see which hardware they support, or contact your graphics card manufacturer.

## GLX Protocol

Exceed 3D includes GLX, the OpenGL extension for the X Window System.

### OpenGL Extensions

For detailed information about extensions, see the OpenGL Extension Registry:

<http://oss.sgi.com/projects/ogl-sample/registry/index.html>

The registry is maintained by Silicon Graphics, Inc. and provides standards, specifications, naming conventions, guidelines, and other related documentation.



## Extensions supported by Exceed 3D

Exceed 3D supports the following OpenGL extensions:

**Note:** Your graphics adapter must also support these extensions.

GL_ARB_depth_texture	GL_ARB_multitexture
GL_ARB_point_parameters	GL_ARB_shadow
GL_ARB_shadow_ambient	GL_ARB_texture_border_clamp
GL_ARB_texture_compression	GL_ARB_texture_cube_map
GL_ARB_texture_env_add	GL_ARB_texture_env_combine
GL_ARB_texture_env_crossbar	GL_ARB_texture_env_dot3
GL_ARB_texture_mirrored_repeat	GL_ARB_texture_non_power_of_two
GL_ARB_vertex_blend	GL_ARB_window_pos
GL_EXT_abgr	GL_EXT_blend_color
GL_EXT_blend_logic_op	GL_EXT_blend_minmax
GL_EXT_blend_subtract	GL_EXT_cmyka
GL_EXT_convolution	GL_EXT_copy_texture
GL_EXT_framebuffer_object	GL_EXT_histogram
GL_EXT_misc_attribute	GL_EXT_packed_pixels
GL_EXT_pixel_transform	GL_EXT_point_parameters
GL_EXT_polygon_offset	GL_EXT_rescale_normal
GL_EXT_subtexture	GL_EXT_texture
GL_EXT_texture_env_add	GL_EXT_texture_env_combine
GL_EXT_texture_filter_anisotropic	GL_EXT_texture_object
GL_EXT_texture3D	GL_EXT_vertex_array
GL_HP_convolution_border_modes	GL_PGI_misc_hints
GL_PGI_vertex_hints	GL_SGI_color_matrix

<code>GL_SGI_color_table</code>	<code>GL_SGI_texture_color_table</code>
<code>GL_SGIS_detail_texture</code>	<code>GL_SGIS_generate_mipmap</code>
<code>GL_SGIS_sharpen_texture</code>	<code>GL_SGIS_texture_border_clamp</code>
<code>GL_SGIS_texture_edge_clamp</code>	<code>GL_SGIS_texture_filter4</code>
<code>GL_SGIS_texture_lod</code>	<code>GL_SGIS_texture_select</code>
<code>GL_SGIS_texture4D</code>	<code>GL_SGIX_clipmap</code>
<code>GL_SGIX_depth_texture</code>	<code>GL_SGIX_fog_offset</code>
<code>GL_SGIX_interlace</code>	<code>GL_SGIX_shadow</code>
<code>GL_SGIX_shadow_ambient</code>	<code>GL_SGIX_texture_add_env</code>
<code>GL_SGIX_texture_lod_bias</code>	<code>GL_SGIX_texture_multi_buffer</code>
<code>GL_SGIX_texture_scale_bias</code>	<code>GL_SUN_global_alpha</code>
<code>GL_SUN_vertex</code>	<code>GLX_EXT_import_context</code>
<code>GLX_EXT_texture_from_pixmap</code>	<code>GLX_EXT_visual_info</code>
<code>GLX_EXT_visual_rating</code>	

## OpenGL Direct Rendering

Exceed 3D supports OpenGL direct rendering for improved local GLX client performance when the client is running on the same PC as the X server display. Direct rendering does not support a color index with any depth.

**Note:** If you have problems with resizing an OpenGL window, turn off direct rendering. These problems are caused by the Microsoft implementation of OpenGL.

## Troubleshooting Problems with Graphics Cards

If you suspect that Exceed 3D has not selected the correct graphics card for your application, the following instructions may help you investigate the problem:

- 1 Select the Log GLX Information check box in the Troubleshooting dialog box of the Xconfig application.
- 2 Run the Exceed X server. On the Tools menu, click Log File to view the Exceed log file. This file lists the available OpenGL pixel formats that are implemented by your graphics card and by Microsoft software.
- 3 Run the `xglinfo` demo program and view the output in the Local X Console window. The output lists the visuals supported by the Exceed X server. (By default, the Local X Console window closes after all Local X clients exit. To change this option, in the Local X Console, click Close on Last Client Exit.)
- 4 Run your application and view the Exceed log file again. The OpenGL pixel format selected by the Exceed X server for your application is written to the log file.

By examining this output, you can determine if the Exceed X server selected the right graphics card for your application. If not, contact Customer Support. You may be asked to send the following log files: `exceed.log` and `xlib.log`, located in your Exceed user directory.



# Chapter 6

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## Introducing Exceed XDK

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## Introducing Exceed XDK

Exceed XDK is a set of .dlls, include files, and libraries that you can use to develop GUI or console local X clients that run on your PC instead of a UNIX or Linux host. You can develop a local client using Exceed XDK, or you can port the code of an existing UNIX or Linux X application and rebuild the project so that the application runs locally on a PC. You can also develop OpenGL X applications with 3D capabilities for Windows.

Exceed XDK includes the Motif User Interface Language compiler (UIL), a Motif Window Manager (MWM) that supports double-byte and multi-byte character sets, and various additional Motif include files and libraries for developing local Motif clients. Local Motif clients are clients that use the current implementation of the OSF/Motif Widget set and are built to run on your PC instead of a UNIX host.

In order to develop local X clients, you must have programming knowledge of these operating systems and the X Window System. Use Microsoft Visual C++ or CYGWIN gcc compilers and linkers to build your local X client.

This section describes the following:

- what Exceed XDK provides
- how to use Exceed XDK to develop a local X client (including how to port a UNIX or Linux X client to a PC and recompile it)
- how to use the built-in Japanese and other locale-support components

**Note:** No development components in this version of Exceed XDK—including header files, import/static libraries, and sample source code—are intended for use with any development components of Exceed XDK earlier than version 6.

### Sample Source Code

Exceed XDK contains the source files for compiling and linking the Circles, Ico, Xlogo, HelloMotif, Periodic, and Pplane programs in the XDK source directory.

## Extensions Support

Exceed XDK (hclglx.lib) supports the following OpenGL extensions:

GL_ARB_imaging	GL_ARB_multitexture
GLX_ARB_get_proc_address	GL_ARB_texture_env_add
GL_ARB_texture_env_combine	GL_EXT_abgr
GL_EXT_blend_color	GL_EXT_polygon_offset
GL_EXT_texture	GL_EXT_texture3D
GL_EXT_subtexture	GL_EXT_copy_texture
GL_EXT_histogram	GL_EXT_convolution
GL_SGI_color_table	GL_EXT_texture_object
GL_EXT_vertex_array	GL_EXT_blend_minmax
GL_EXT_blend_subtract	GL_EXT_blend_logic_op
GL_EXT_texture_env_combine	GL_EXT_texture_env_add

Your graphics adapter must also support these extensions.

Among these extensions, you can only use `GLX_ARB_get_proc_address` with Exceed direct rendering mode. This extension lets Exceed virtually support any extension that it does not support directly. Exceed can get extension functions directly from the hardware driver.

## Extensions Not Supported

Some extensions are not supported, for example `GL_NV_vertex_program`. However, it is possible to use an unsupported extension by calling the `glXGetProcAddressARB` function.

For example:

```
typedef void (APIENTRY * PFNGLBINDPROGRAMNVPROC )
(GLenum target, GLuint id );

PFNGLBINDPROGRAMNVPROC pfnBindProgramNV = NULL ;

char *exten = ( char * ) glGetString( GL_EXTENSIONS );
```



```
if( strstr( exten, "GL_NV_vertex_program" ) )  
pfnBindProgramNV = ( PFNGLBINDPROGRAMNVPROC )  
glXGetProcAddressARB( "glBindProgramNV" );
```

**Note:** This example is for direct rendering only. The results of using extension `GL_NV_vertex_program` in another mode (rendering through Exceed) are unpredictable.

## X11 Motif and OpenGL Version Support

This version of Exceed XDK supports X11R7.0, Motif 1.2.4, Motif 2.0.3, and Motif 2.1.30 with Complex Text Layout (CTL).

Support to run X11R5 local clients built using (GLX 4, OpenGL 1.2, and) versions of Exceed XDK prior to Version 6 is also included if you install the X11R5 Local X Clients Runtime component. However, you cannot create X11R5 clients with this version of Exceed XDK.

### International Support

This version of Exceed XDK includes extensions that support user input of the Euro and Latin-9 currency symbols.

Exceed XDK provides support for developing and running X applications using all major European languages, as well as Japanese, Chinese, and Korean. This version of Exceed XDK also supports X11 Internationalization (I18N).

In addition, if you are using Motif 2.1.30 CTL, you can use Exceed XDK to develop context-sensitive local Arabic or Hebrew applications.

### Motif Tools Libraries (Xmt 2.1.2)

Exceed XDK includes support for X Motif tools. You can build Xmt applications with Motif 2.0.x and Motif 1.2.x. Exceed XDK provides two pairs of static libraries (`HumXmt.lib` and `XmtStatXm.lib`) can be used with dynamic and static Xm libraries. You can find Xmt header files in folders in this location:

C:\Program Files\Hummingbird\Connectivity\Version\Exceed\  
XDK\Include\Xmt

These libraries are not yet available for Cygwin.

For complete documentation of the Xmt library, consult *Motif Tools: Streamlined GUI Design and Programming with the Xmt* by David Flanagan (published by O'Reilly & Associates, Inc.).

**Note:** A license (required to use Xmt libraries) is included with “*Motif Tools: Streamlined GUI Design and Programming with the Xmt*”.

## Motif and OpenGL GCC Static Libraries

Motif Widget Set (`libXmSt.a`) and Motif Resource Manager (`libMrmSt.a`) static libraries for Motif 1.2.4, Motif 2.0.3, and Motif 2.1.30 CTL are now available for a gcc compiler under the CYGWIN environments on Win32 systems.

These libraries can be found in the following locations:

- `Home\Xdk\Motif12\Gcc\Lib` (for Motif 1.2.4 applications)
- `Home\Xdk\Gcc\Lib` (for Motif 2.0.3 and OpenGL applications)
- `Home\Xdk\Motif21\Gcc\Lib` (for Motif 2.1.30 CTL applications)

*Home* directory refers to the default location, `C:\Program Files\Hummingbird\Connectivity\version\product`, but another location may be specified in the OpenText Setup Wizard during installation.

## GNOME/Linux Files

This version of Exceed XDK provides library and header files for GNOME/Linux development with a CYGWIN gcc compiler. These files can be found in the following location: `Home\Xdk\Gcc\`

## Exceed XDK Files

For more information, see “Building a GNOME/Linux X Client Using a CYGWIN GCC Compiler” on page 43.

The table below lists Exceed XDK files that are installed and the directories in which they are installed. *Home* directory refers to the default location `C:\Program Files\Hummingbird\Connectivity\version\product` but another location may be specified in the OpenText Setup Wizard during installation. There are various types of *User* directories. For more information about installation directories and installed (user) files, see the Installation Guide.

Directory Name	Directory Contents
<i>Home</i>	Xlib.dll, Xt.dll, Xaw.dll, Xmu.dll, Xm.dll, HCLXt.dll, HCLXaw.dll, HCLXmu.dll, HCLXm.dll, HCLXm12.dll, HCLXm21.dll, HCLIce.dll, HCLXiirt.dll, HCLSm.dll, HCLXi.dll, HCLXtst.dll, HCLXp.dll, HCLShm.dll, layout.dll, humxim.dll, humxom_ar.dll, HCLMrm.dll, HCLMrm12.dll, HCLMrm21.dll, HCLXaw3d.dll, HumXpm.dll, HumXRender.dll, HumXRandr.dll, HumXComposite.dll, HumXDamage.dll, HumXEvie.dll, HumXFixes.dll, HumXKBFile.dll, and sample local X clients.  Also includes the Motif User Interface Compiler (UIL) and the sample Motif clients. <code>uil.exe</code> is for use with Motif 2.0.x X clients, <code>uil12.exe</code> is for use with Motif 1.2.x X clients, and <code>uil21.exe</code> is for use with Motif 2.1.x X clients.
<i>Home\Xdk\Include\GL</i>	Include files for OpenGL libraries.
<i>Home\Xdk\Include\X11\Glx</i>	Include files for OpenGL libraries.
<i>Home\Xdk\Include\Xmt</i>	Include files for the Motif Tools library.
<i>Home\Xdk\Include\Xm</i>	Include files for the Motif 2.0.x Widget library.
<i>Home\Xdk\Include\Mrm</i>	Include files for the Motif 2.0.x Resource Manager library.
<i>Home\Xdk\Include\UIL</i>	Include files for the Motif 2.0.x User Interface Language library.
<i>Home\Xdk\Motif12\Include\Xm</i>	Include files for the Motif 1.2.x Widget library.
<i>Home\Xdk\Motif12\Include\Mrm</i>	Include files for the Motif 1.2.x Resource Manager library.
<i>Home\Xdk\Motif12\Include\Uil</i>	Include files for the Motif 1.2.x User Interface Language library.
<i>Home\Xdk\Motif21\Include\Xm</i>	Include files for the Motif 2.1.x Widget library.

Directory Name	Directory Contents
<i>Home</i> \Xdk\Motif21\Include\Mrm	Include files for the Motif 2.1.x Resource Manager library.
<i>Home</i> \Xdk\Motif21\Include\Uil	Include files for the Motif 2.1.x User Interface Language library.
<i>Home</i> \Xdk\Src	Subdirectories containing source code for the sample local X and Motif 2.0.x clients.
<i>Home</i> \Xdk\Lib (32 bit) <i>Home</i> \Xdk\Libx64 (64 bit)	<p>Import libraries: <code>xlib.lib</code>, <code>HCLXmu.lib</code>, <code>HCLSm.lib</code>, <code>HCLIce.lib</code>, <code>HCLXiert.lib</code>, <code>HCLXi.lib</code>, <code>HCLXtst.lib</code>, <code>HCLShm.lib</code>, <code>HCLXp.lib</code>, <code>HumXpm.lib</code>, <code>HumXRender.dll</code>, <code>HumXRandr.dll</code>, <code>HumXComposite.dll</code>, <code>HumXDamage.dll</code>, <code>HumXEvie.dll</code>, <code>HumXFixes.dll</code>, and <code>HumXKBFile.dll</code>.</p> <p>Combination import libraries and static data: <code>HCLXt.lib</code>, <code>HCLxaw3d.lib</code>, <code>HCLxaw.lib</code>, and <code>XmStatXt.lib</code>.</p> <p>Also includes the Motif Widget library <code>HCLXm.lib</code> (import library and static data), <code>XmStatic.lib</code> (static library), the Resource Manager libraries (<code>HCLMrm.lib</code> is the import library and <code>MrmStat.lib</code> is the static library), Motif Tools static libraries <code>HumXmt.lib</code> and <code>XmtStatXm.lib</code>, and the User Interface Language static library (<code>HCLUil.lib</code>) for Motif 2.0.x.</p>
<i>Home</i> \Xdk\Motif12\Lib (32 bit) <i>Home</i> \Xdk\Motif12\Libx64 (64 bit)	The Motif Widget library <code>HCLXm.lib</code> (import library and static data), <code>XmStatic.lib</code> (static library), the Resource Manager libraries ( <code>HCLMrm.lib</code> is the import library and <code>MrmStat.lib</code> is the static library), Motif Tools static libraries <code>HumXmt.lib</code> and <code>XmtStatXm.lib</code> , and the User Interface Language static library ( <code>HCLUil.lib</code> ) for Motif 1.2.x.
<i>Home</i> \Xdk\Motif21\Lib (32 bit) <i>Home</i> \Xdk\Motif21\Libx64 (64 bit)	The Motif Widget library <code>HCLXm.lib</code> (import library and static data), <code>XmStatic.lib</code> (static library), the Resource Manager libraries ( <code>HCLMrm.lib</code> is the import library and <code>MrmStat.lib</code> is the static library), and the User Interface Language static library ( <code>HCLUil.lib</code> ) for Motif 2.1.x.
<i>Home</i> \Xdk\Motif12\Gcc\Lib	GCC import and static libraries for Motif 1.2.x.
<i>Home</i> \Xdk\Motif21\GCC\Lib	GCC import and static libraries for Motif 2.1.x.
<i>Home</i> \Xdk\GCC\Lib	GCC import and static libraries for X, Motif 2.0.x, and OpenGL.
<i>Home</i> \Xdk\GCC\Include	Common include files for GNOME/Linux development.
<i>Home</i> \Xdk\GCC\Include\Gtk	GTK files for GNOME/Linux development.
<i>Home</i> \Xdk\GCC\Include\Gdk	GDK files for GNOME/Linux development.

Directory Name	Directory Contents
<i>Home</i> \xdk\Include\X11	Include files for compiling local X clients.
<i>Home</i> \xdk\Include\X11\Extensions	Include files for X Extensions.
<i>Home</i> \xdk\Include\X11\Bitmaps	X11 bitmap files.
<i>Home</i> \xdk\Include\X11\Xaw	Include files for the Athena Widget Set.
<i>Home</i> \xdk\Include\X11\Xmu	Include files for X miscellaneous utility library.
<i>Home</i> \xdk\Include\X11\Xaw3d	Include files for the Athena 3D Widget Set.
<i>Home</i> \xdk\Include\X11\Ice	Include files for inter-client exchange library.
<i>Home</i> \xdk\Include\X11\Sm	Include files for session management library.
<i>User</i>	User-configurable resource files, such as the <code>.xdefaults</code> file and application resource files (including application resource files for the sample X clients). Also includes the <code>X Error Database</code> file and the <code>X Keysym Database</code> file.  Any binary User Interface files ( <code>.uid</code> ) and application resource files for the sample local Motif clients are also located here.
<i>User</i> \Locale	Contains locale files database, locale aliases database, and various subdirectories containing locale database files for each different locale.
<i>User</i> \SJ3	Supporting directories for Kinput2 (Japanese XIM server).
<i>User</i> \SJ3DEF	

For more information regarding the files included in Exceed XDK, see the file `XDKFiles.txt` located in your *Home*\Info directory.

## Exceed XDK Runtime Control Variables

Runtime control over Exceed XDK libraries is provided with the settings described in the table at the end of this section. These settings are defined in the environment or the registry database. Exceed XDK initially searches for runtime control variables in the environment (set with the DOS command `SET`). If it cannot find the variables there, it searches the registry database for the variable values under the following keys:

- If you installed the software for use by a single user:  
HKEY\_CURRENT\_USER\Software\Hummingbird\Connectivity\*version*\Exceed\XDK
  - If you installed the software for use by multiple users:  
HKEY\_LOCAL\_MACHINE\Software\Hummingbird\Connectivity\*version*\Exceed\Xdk
- where *version* is the version number of the software.

If Exceed XDK cannot find the variable values in these locations, it searches under the Exceed key in the same order.

Some of these entries replace the corresponding environment variables described in the MIT X Window documentation. If a variable is not defined, then the default value is used.

**Note:** When specifying values for these variables, the path specifications must follow the DOS or NTFS conventions.

The following table lists and describes Exceed XDK runtime variables.

Variable Name	Description and Default
BITMAPDIR	The location of the directory containing bitmaps read by clients at runtime. Default: <i>Home</i> \Xdk\Include\X11\Bitmaps
DISPLAY	The name of the default display on which local X clients are displayed. The display name should also include the display number. Default: LOCALPC:0.0 <b>Note:</b> LOCALPC is a special keyword indicating that local X clients should be displayed on the local PC.
HOME	The equivalent of your <i>Home</i> directory on UNIX. It is added to the search path for several types of files. Default: Exceed <i>Home</i> directory.
HOMEDIR	HOMEDIR=drive:path Default: Exceed <i>Home</i> directory.

Variable Name	Description and Default
LANG	<p>If you are running Local X clients, LANG defines the locale that you want to use. For example, to use Japanese, you would set LANG to <code>ja_JP.SJIS</code> or to <code>japanese</code>.</p> <p>You can put your language-specific resource files under <code>User\LANG</code>.</p> <p>Also, if you are developing local X clients, you need to call <code>setlocale(LC_ALL, "")</code> to indicate to the C runtime library that your application will use the locale associated with the LANG environment variable instead of the C locale.</p> <p>Default: the default system locale.</p>
LOGFILE (XDK-specific variable)	<p>The name of the file to which Local X Console messages are logged. Logging only occurs if the LOGGING variable (described below) is set to YES. For more information, see the <i>Exceed User's Guide</i>.</p> <p>Default: <code>User\XLib.log</code></p>
LOGGING	<p>Specifies whether messages are logged to a file.</p> <p>If this variable is set to YES, then messages sent to the Local X Console are logged to a file. Otherwise, messages are not logged. For more information, see the <i>Exceed User's Guide</i>.</p> <p>The name of the log file is specified by the LOGFILE variable (described above).</p> <p>Default: YES</p>
MULTITHREADALERT (XDK-specific variable)	<p>Specifies an action the X client can take if it is multithreaded and is experiencing problems (such as freezing until the mouse is moved). You can specify one of three values: 0, 1, or 2.</p> <p>The first option (0) sets the X client to do nothing.</p> <p>The second option (1) sets the X client to be ready for <code>XtAppAddInput</code> or <code>XtAppAddTimeout</code> (either of which is set by another thread).</p> <p>The third option (2) sets the X client to be ready for <code>XtAppAddInput</code> or <code>XtAppAddTimeout</code> (set by another thread) and gives the client protection from freezing when there is no X event data to read.</p> <p>All three options can reside under the <code>Exceed</code> or <code>xdk</code> keys. All have a string value.</p> <p>Default: 0 (do nothing)</p>

Variable Name	Description and Default
NAMEDPIPEONBREAK (XDK-specific variable)	<p>Specifies a behavior if Named Pipe is closed or broken. This variable can have one of two values: 0 or 1.</p> <p>The first option (0) calls a designated callback function only when some data is found. This functionality is consistent with how Named Pipe Xt Input function was handled in versions of Exceed XDK prior to version 8.0.</p> <p>The second option (1) calls a specified callback function when data was found or if Named Pipe is closed or broken.</p> <p>Default: 0</p>
RESOURCE_NAME	<p>The default file name of an X resource.</p> <p>Default: the client's name.</p>
RUNXSERVERIPADDR (XDK-specific variable)	<p>Specifies a local host name to start the X server automatically. For example, you can specify this variable as either 127.0.0.1 or <code>DisplayName</code>, where the first is a specific IP address and the second is your local display name.</p> <p>If you do not specify this variable, the display is treated as a remote one.</p> <p>Default: not specified.</p>
UIDPATH	<p>UIDPATH=%U;drive:path\%U; drive:path\%U</p> <p>Default:%U;XAPPLRESDIR\%U; HOME\%U</p>
WMDPATH	<p>WMDPATH=%S;drive:path\%S; drive:path\%S</p> <p>Default: %S;XAPPLRESDIR\%S; HOME\%S</p>
XAPPLRESDIR	<p>The directory containing the Xt resource files.</p> <p>The format is: XAPPLRESDIR=drive:path</p> <p>Default: Exceed <i>User</i> directory.</p>
XBMLANGPATH	<p>XBMLANGPATH=%B; drive:path\%B;drive:path\%B</p> <p>Default: %B;XAPPLRESDIR\%B; HOME\%B</p>



Variable Name	Description and Default
XENVIRONMENT	The full path and file name of an <code>xdefaults</code> file (if you create one). Default: <code>User\.xdefaults</code>
XFILESEARCHPATH & XUSERFILESEARCHPATH	The full path for <code>xt</code> resource files. The syntax for these paths is described in the MIT documentation for the X Window System. If a path contains more than one directory, use a semicolon (;) to separate them.  Default: Depends on the values for your Exceed <i>Home</i> directory and <code>XAPPLRESDIR</code> described above.
XKEYSYMDB	The full path and file name of an X keysym database. Default: <code>User\Xkeysymdb</code>
XLOCALEDIR	The directory containing locale database and alias files. Default: <code>User\LOCALE</code>
XMODIFIERS	Specifies how the locale modifiers are configured. Default: not specified.
XSERVERCONNECTION RETRIES (XDK-specific variable)	Specifies the number of attempts made by the local X client to establish a server connection. Default: 3 attempts.

## Sample Local X, Motif, and OpenGL Clients

Exceed XDK includes several sample local X, Motif, and OpenGL clients. Some of the samples include source code. To run one of these clients, double-click its icon in the Local X Clients folder.

Below is a brief description of the sample local X and Motif clients included with Exceed XDK. The icon associated with each client is shown beside the description.



**Bitmap** A local X client used for creating and editing X bitmap files.



**Circles** A local X client that shows the alpha-channel capability of the Render extension. Source code location: `Home\Xdk\Src\Circles`



**Editres** A local X client that lets users and application developers view the full widget hierarchy of any X Toolkit application that speaks the Editres protocol. Editres can also help you construct resource specifications, apply the resource to the application, and view the results dynamically. Once you are satisfied with the resource specification, Editres appends the resource string to your X Resources file.

**Note:** To use Editres with Motif applications, you need to make some changes to the source code. For more information, see “Developing Local Motif Clients” on page 26.



**Ico** A local X client that displays a bouncing icosahedron. Ico is useful for testing the speed of your system and display. Source code location:

*Home\Xdk\Src\Ico*



**Maze** A local X client that draws a random maze and finds the solution. Maze is useful for testing the speed of your system and display.



**MotifAnim** A Motif client in which both its animation and user interface is defined with the User Interface Language (UIL) compiler. It also demonstrates the use of the UIL compiler.



**Periodic** A Motif client that demonstrates the use of most existing Motif widgets. It also demonstrates the UIL compiler. Source code location:

*Home\Xdk\Src\Periodic*



**Seltest** A sample implementation of an X client that demonstrates copying and pasting graphics between Windows Clipboard and the X Selection.



**Showcmap** A local X client that displays a map of the system colors.



**Xdpyinfo** A local X client that prints X server information to the Local X Console.



**Xev** The X Event Tester that when running, writes information to the Local X Console about X events such as key presses, mouse movements, and button clicks.



**Xlogo** A local X client that displays the X Window System logo. Source code location: *Home\Xdk\Src\Xlogo*



**Xmt Mockup** A local X client that demonstrates features of the Xmt library.

## Sample Programs

For demonstration purposes, the following sample programs are shipped with Exceed 3D.



**Atlantis** A local X client that demonstrates the movement of objects. It uses the `hclglut.lib` library.



**Insect** A local X client that shows a walking insect. It uses the `hclaux.lib` library and Color Index mode.



**Vulcan Gunner** A local X client that demonstrates lighting and animation. It uses the `hclglut.lib` library.



**XGLInfo** A local X client that displays GLX visual configurations. It returns XGL information from the server.



**ZoomDino** A local X client that uses OpenGL overlay and shows a zooming dinosaur (if the overlay is supported by your graphics adapter).

## Exceed Tools

The following Exceed tools are shipped with Exceed XDK.



### MWM

MWM is a local implementation of the Motif window manager. To access MWM, navigate to the OpenText Exceed XDK program group, and then click MWM.



### Kinput2

Kinput2 is an input server for X11R6 applications requiring Japanese text input, including Kana-Kanji conversion. To access Kinput2, navigate to the OpenText Exceed program group, point to Exceed Tools, and click Kinput2 XIM Server.



# Chapter 7

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## Developing Local X Clients

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## About Developing Local X Clients

For more information, see “Developing Local X Applications Using Visual C++” on page 234 and “Local X Console Application” on page 235.

You can use the contents of the Exceed XDK in conjunction with an application development tool to create a local X client. The Exceed XDK lets you create two types of local X client applications:

- GUI application (Win32)—Makes use of the Local X Console application to display output.
- Console application—Runs in a DOS shell. These applications use `STDIN` for console input and `STDOUT` and `STDERR` for console output.

### Methods for Creating X Clients

You can create a local X client of either type with one of two methods: you can write your own code, or you can port an existing client from the UNIX or Linux host to your PC and rebuild. When Microsoft Visual C++ is used, your client code must reflect the differences between the X Window System (as described in MIT documentation) and Exceed XDK, and, more importantly, between Microsoft Visual C++ and UNIX C/C++ standard functions and header files.

In most cases, when you use CYGWIN GCC compilers and the Exceed XDK development environment, you do not have to change your code. To develop local X clients, you must have programming knowledge of these operating systems and the X Window System.

For important information on redistributing Exceed XDK components with your local clients, please contact your sales representative.

## Development Overview

This section describes what you need to know about Exceed XDK in order to develop a local X client.

## Functions Specific to the Exceed XDK

The following additional functions are included in the Exceed XDK. They are specific to the OpenText implementation of Xlib.

Function	Description
HCLSelect	Used in conjunction with the <code>xConnectionNumber</code> API to check the status of connections.
lprintf    hfprintf lfprintf    hputc lputchar    hfputc lputc        hputs lputs        perror lfputc lfputs lperror	Prints to both the Local X Console (system console) and the log file (if logging is turned on).  These functions replace the original functions and those similar to the original ones ( <code>printf</code> , <code>fprintf</code> , <code>fputchar</code> , <code>putc</code> , <code>puts</code> , <code>fputc</code> , <code>fputs</code> , <code>perror</code> ).
Xgetenv	Xgetenv is similar to getenv function except it returns environment variables related to X/Motif. Replaces the system getenv function when XGETENV is defined as a compiler flag.
gettimeofday	Returns the time of day. This function is accurate to a millisecond.

**Note:** For functions that take file ID as a first parameter, the redirection works for only SYSERR and SYSOUT. Otherwise, they work the same as the original ones.

The prototypes for the above functions are provided in the `xlibXtra.h` and `X.h` files in the `home\XDK\INCLUDE\X11` directory, where *home* is the directory in which the software is installed.

Previous versions of the Exceed XDK also included functions for initializing the Xlib, Xaw, Xm, and Xt libraries (`HCLXlibInit`, `HCLXawInit`, `HCLXmInit`, and `HCLXtInit`). In this latest version, however, initialization is hidden so that it is transparent for porting, meaning that you no longer need to call an



initialization function. If for some reason your compiler has difficulty with Xm initialization, you may need to add MOTIFAPP as an additional preprocessor definition; for more information, see “Troubleshooting” on page 251.

## Memory Management

Xlib contains its own memory management routines, including `Xfree`, `Xmalloc`, and `Xcalloc`. In order to maintain compatibility with future versions of the Exceed XDK, use these routines instead of Microsoft WIN32 memory management routines.

Memory allocated by these Xlib routines should be freed using Xlib routines. Similarly, memory that is freed using Xlib routines should be allocated by Xlib routines.

## XtAppAddInput Function

The `XtAppAddInput` function supports the following input types:

Type	Mask
HCL socket	<code>XtInputReadMask</code> , <code>XtInputWriteMask</code> , <code>XtInputExceptMask</code>
Winsock socket	<code>XtInputReadWinsock</code> , <code>XtInputWriteWinsock</code>
File	<code>XtInputReadFileHandle</code>
Pipe	<code>XtInputReadFileHandle</code>
Named pipe	<code>XtInputReadNamedPipe</code>

## Gethostname Function

`xlib.dll` exports the `gethostname` function. A function by this name is also exported by the Windows Sockets `.dll`.

We do not recommend that you use the `xlib.dll` version of this function; it is provided by Xlib only for backwards compatibility. In order to ensure that you are using the Windows Sockets version of this function, and not the `xlib.dll` version, your link statement must include `wsock32.lib` before `xlib.lib`.

## Checking X Connection Status

You can use the `HCLSelect` API in conjunction with `XConnectionNumber` to check the status of X connections. The `HCLSelect` API takes the same parameters and returns the same type as the Windows Sockets `select` API. The only difference between the two APIs is that `HCLSelect` supports connection numbers as returned by `Xlib`, while `select` does not.

The following example shows how to use the `HCLSelect` API. This example specifies a connection number (`i`) and then requests various types of information (`&rfd`s, `&wfd`s, `&efd`s, `&nowait`) about that connection.

```
i = XConnectionNumber(dpy);
FD_SET(i, &rfd);
n = HCLSelect(0, &rfd, &wfd, &efd, &nowait);
```

## Starting a Microsoft Application Inside an X Application

To start a Microsoft application (such as Internet Explorer), inside an X application, and give it focus, use the `HumAllowSetFocusWindow` function:

```
void HumAllowSetFocusWindow(Display *dpy, DWORD pid)
```

where `Display *dpy` points to the display structure of the X application, and `DWORD pid` is the process identification of the Microsoft application.

## Setting the Locale for an X Client

For more information about setting locales, see the `LANG` environment variable description in “Exceed XDK Runtime Control Variables” on page 7.

The runtime control variable `XLOCALEDIR` replaces `XNLSPATH` used in `X11R5`. The default value for `XLOCALEDIR` is `user\LOCALE`. The `locale.dir` file (in `user\LOCALE`) replaces the `nls.dir` file used in `X11R5`.

Locale aliases are supported. You can specify your locale alias in the `locale.alias` file in the `user\LOCALE` directory.

Setting the proper locale in your X client depends on the following conditions.

## Same Encoding in the Operating System and the X Client

If you are developing an X Toolkit application and the encoding of your operating system is the same as that for your X client, you do not need to specify a `setlocale` function because it will be called automatically from inside the `Hclxt.dll`.

## Different Encoding in the Operating System and the X Client

If you are developing an X Toolkit application and the encoding of your operating system is different than that for your X client, you should not use the system `setlocale` function. Rather, you should call the `_Xsetlocale` function; you can call it explicitly or use the `X_LOCALE` macro to call it.

### Use this function in two ways:

- Specify a second parameter of the `_Xsetlocale` function. For example:

```
_Xsetlocale(LC_ALL, "jaJP.euc");
```

where `jaJP.euc` is the locale and encoding name.

- Do not specify a second parameter and instead set the `LANG` variable. For example:

```
_Xsetlocale(LC_ALL, "");
```

You then need to set the `LANG` variable to `jaJP.euc`.

## Accepting Localized Input

X11R6 XIM support is included on the server side. This support lets local X clients accept localized input when displaying to an X server that supports X11R6 XIM (such as the X Server in Exceed 6.0.2 or higher).

## Header File Type Renaming

The type `BOOL` in the X header files has been renamed to `XBOOL` to resolve possible conflicts with the Windows header file definition. This renaming is the same as in previous versions of the Exceed XDK.

## Using Multiple Screens for Local X Clients

The Exceed XDK lets you use different screens with your local X clients. If the display name is specified as `:0.X` (where `X` is the screen number), Xlib assumes that the local client is to be displayed locally to `LOCALPC:0.X`.

## Storing X Image Data in a Memory Segment

The shared-memory extension allows local X clients to store Ximage data in a memory segment that is shared with the local X server. When you work with large images, this facility can greatly enhance performance because you do not have to send the Ximage over the Xlib interprocess communication channel.

When using the shared-memory extension, make sure that the MIT-SHM option is enabled.

### To use shared-memory Ximages:

- 1 Create the shared memory Ximage structure.
- 2 Create a shared memory segment to store the image data.
- 3 Inform the X server about the shared memory segment.
- 4 Use the shared Ximage much like a normal image.

For more information, refer to the MIT documentation.

### To enable the MIT-SHM option:

- 1 Run the Xconfig utility.
- 2 Double-click the Protocols icon.
- 3 In the Protocols dialog box, click Extensions.
- 4 Enable the MIT-SHM option.

## Exceed XDK Shared Memory Extension Files

Use the following files with the Exceed XDK shared memory extension. In this table, the *home* directory refers to the directory in which the software is installed.

For example:

```
C:\Program Files\Hummingbird\Connectivity\version\Exceed\
```

where *version* is the version number of the software.

File Name	Description
Hclshm.dll	This .dll contains an implementation of the following four UNIX shm functions: shmget, shmatt, shmatt, and shmctl. It is located in your <i>home</i> directory.
HCLSHM.h	This include file contains UNIX shm function prototypes that are not part of X11R6.8. It is located in your <i>home</i> \XDK\INCLUDE\X11 directory. <b>Note:</b> This header file includes the shm.h file. If you are using any shm definitions in addition to functions, then only this file needs to be included.
SHM.h	This header file contains the UNIX shm definitions. It is located in your <i>home</i> \XDK\INCLUDE\X11 directory.
HCLSHM.lib	This file is the Import library for the Hclshm.dll. It is located in your <i>home</i> \XDK\LIB directory.

**Note:** The SHM functions do not represent a complete UNIX implementation. You can use these functions to share memory only between local X clients developed for use with the Exceed X server. You cannot use these functions for any other purpose.

## Restrictions on the Exceed XDK Shared-Memory Extension

The restrictions on the Exceed XDK Shared-Memory Extension are as follows:

- Shared-memory pixmaps are not supported.
- You can share memory between X clients and an Exceed X server only when they are running on the same computer.

## Developing Local X Applications Using Visual C++

### Developing GUI (Windows) Applications

If you are creating a GUI application, your local client application requires a `WinMain` procedure. A `WinMain` procedure is provided in the static part of the library `Xlib.lib`, located in the `home\XDK\LIB` directory. The `WinMain` procedure in the `Xlib` library calls your main procedure.

If you are porting a client receiving input via `STDIN`, use an alternate method of receiving input, such as a Windows dialog box.

For information about logging, see “Functions Specific to the Exceed XDK” on page 228.

`fprintf` and other Exceed XDK print functions provided in `Xlib.dll` are similar to the standard C `print` function, except they redirect output to the Local X Console and Xlib log file (when the `LOGGING` flag is set to “YES”). However, output strings are limited to 2 KB per function call.

### Compiling and Linking

When creating a GUI application, you also need the standard files required for compiling and linking a Microsoft Windows 32- or 64-bit application (for example, an `.rc` resource file).

### Developing Console Applications

To develop local X clients as console applications, you need to compile and link your application as a console application type.

## Local X Console Application

The complete menu structure of the Local X Console application is shown in the table below:

Menu	Function Name	Function Definition
File	Save/Save As	Saves the contents of the local console to a file.
	Print	Prints the contents of the local console.
Edit	Copy	Copies the selected contents of the local console to the Windows clipboard.
	Clear All	Clears the entire contents of the local console.
	Select All	Selects the entire contents of the local console.
	Undo	Undoes the previous "Clear All" operation.
	Find	Finds a string in the local console.
	Find Next	Finds the next string in the local console.
View	Toolbar	Enables you to display or hide the toolbar.
Client Control	Client Manager	Displays the Client Manager dialog box.
Option	Close on last exit	Closes the local console dialog box when the last local X client is closed.
Help	Help	Loads the Help.

## Developing Local Motif Clients

This section builds on the general information provided in “Development Overview” on page 227. After you have familiarized yourself with that information, read this section for Motif-specific instructions.

The Exceed XDK provides the source code and makefile for two sample local Motif clients, as shown in the following table.

Client Name	Code Location
HelloMotif	<i>home</i> \XDK\SRC\HELLOMOT directory
Periodic	<i>home</i> \XDK\SRC\PERIODIC directory

You can study the source code as examples of Motif clients modified to run locally. For important information on redistributing Motif Development Kit components with your local clients, refer to the license agreement.

## Using Editres

You can also use Editres, a tool that lets you view the full widget hierarchy of any X Toolkit application that speaks the Editres protocol.

To use Editres with a Motif application, you need to make the following changes to your source code.

- 1 Add the following code right after the application's shell widget (in this case, `toplevel`) is created:

```
XtAddEventHandler(toplevel, (EventMask)0, TRUE,  
_XEditResCheckMessages, NULL);
```

- 2 When you compile, make sure you link against `HCLXmu.lib` (because it has the `_XEditResCheckMessages` function inside).

## Creating Support for Wheel Mouse

The Exceed XDK supports wheel mouse functionality for text-related Motif widgets.

To create support for a wheel mouse, users of the local Motif X client must configure the appropriate X Server setting. For example, if they are using Exceed as the X server, they must:

- 1 Open XConfig by doing one of the following:
  - On the Exceed Tools menu, click Configuration.
  - On the Exceed toolbar, or double-click the Xconfig icon.



- 2 In the Mouse Input dialog box, select the Wheel Movement Sends Mouse Button Event (Button 4/5) option.

Button event 4 should be used for “Up” and button event 5 should be used for “Down”.

## Linking with Visual C++ and GCC Static Motif Libraries

If you are linking with the static version of the Motif libraries (`XmStatic.lib`), define the symbol `XMSTATIC` in your compiler preprocessor definitions. Doing so ensures that you use the correct prototype definitions when you compile. Use `MrmStat.lib` (static Mrm library) with `XmStatic.lib`.

### Using XT with XmStatic.lib

Also, if you are linking with `XmStatic.lib`, link with the library `Xmstatxt.lib` instead of `Hclxt.lib`. You must use `Hclxt.lib` if you are using the `.dll` version of Motif and linking with `Hclxm.lib`.

### Linking with GCC Static Motif Libraries

To link against GCC static Motif libraries, use `libXmSt.a` and `libMrmSt.a` instead of `libXm.a` and `libMrm.a`.

## Compiling the UIL Files of Local Motif Clients

You can compile a local `.uil` file of a Motif client using the Motif UIL Compiler, which is itself a local Motif client. It can be found in the `Exceed home` directory. There are three versions of the UIL compiler: `UIL.exe` is for use with Motif 2.0.x X clients, `UIL12.exe` is for use with Motif 1.2.x X clients, and `UIL21.exe` is for use with Motif 2.1.30 CTL.

To use the Motif UIL compiler, type the following command:

```
home\uil.exe file name -o binfile
```

where *home* is the directory in which the software is installed, *file name* is an ASCII text file written in the Motif UIL and *-o binfile* specifies the output file for the generated binary code.

For example:

```
"c:\Program Files\Hummingbird\Connectivity\version\  
Exceed\uil.exe" <CR>
```

```
"c:\Program Files\Hummingbird\Connectivity\version\  
Exceed\XDK\Src\Hellomotif\hellomotif.uil" -o <CR>
```

```
"c:\Program Files\Hummingbird\Connectivity\version\  
Exceed\XDK\Src\Hellomotif\hellomotif.uid" <CR>
```

where *version* is the version number of the software and <CR> indicates that the given text must be entered as one line with a carriage return at the end.

## Creating .dlls Containing Standard or Custom Widget Classes

When creating a .dll, you can use the standard widget classes that come with the Exceed XDK or you can define custom widget classes. If you choose to define custom widget classes, read this entire section to note compiler differences.

### Specifying Widget Classes

You cannot directly specify a widget class structure name; you need to use a pointer to it instead. You have the following options:

- CustomClassRec—Cannot be specified inside the .dll
- CustomWidgetClass—Can be specified inside the .dll

Use the following function to initialize a custom widget class .dll:

```
void HCLXmVaFixWCs(customWidgetClass1, superclass1,  
customWidgetClass2, superclass2, ... , NULL);
```

This function is used for proper superclass assignment in a `.dll`. It should be called from the inside of the `.dll` to initialize it. The first parameter of each pair specifies the new widget class. The second parameter of each pair specifies the superclass for the new widget class. You can add multiple pairs in the string depending on the number of new widget classes you want to create, though the final parameter of the string must be `NULL`.

**Note:** In earlier versions of the Exceed XDK, you could use the `HCLFixStPointers` and `HCLFixWidgetClass` functions to create a custom widget class. These two functions are still supported, but their functionality has been combined into the new `HCLXmVaFixWCs` function.

### Using Custom Widget Classes for a Microsoft Visual C++ Compiler

When creating `.dlls` involving custom widget classes, you must use the `_declspec(dllexport)` declaration for each widget class in the `.dll`. These special declarations allow proper address references to widget classes when importing them in another `.dll`.

When creating an executable or a `.dll` that uses a custom widget classes `.dll`, you must use `_declspec(dllimport)` to import the custom widget classes.

### Using Custom Widget Classes for a GCC Compiler

You must call the `HCLXmInitDll` function from inside the `.dll` to initialize the widget classes.

## Developing Local OpenGL X Applications

Exceed XDK provides a full suite of GLX libraries and tools required for developing three-dimensional OpenGL X applications on Windows systems.

## Using the OpenGL X Development Kit

The Open GL X Development Kit supports the following:

Libraries	Description
hclglx.lib libglx.a	The core set of GLX functions. All functions are prefixed with gl or glX.
hclglu.lib libglu.a	The OpenGL Utility support library (except all NURBS functions). All functions are prefixed with glu.
hclnurbs.lib libnurbs.a	All Non-Uniform Rational B-Spline (NURBS) functions from the OpenGL Utility library. All functions are prefixed with glu.
hclaux.lib libaux.a	The auxiliary library, providing a simple interface that is independent of the Window System. All functions are prefixed with aux and tk.
hclglut.lib libglut.a	The OpenGL Utility Toolkit library. All functions are prefixed with glut.
glwstati.lib libglw.a	The OpenGL Drawing Area Widget static library. It lets you draw 3D graphics using one visual and a 2D user interface using another visual.  Note: If you use two different visuals, your application may not display the correct colors simultaneously. Specifically, if your 3D graphics use the RGBA color mode (the TrueColor visual) and your 2D user interface uses the default visual, set the Xconfig Server Visual Screen Definition setting to TrueColor.

Exceed XDK includes dynamic link libraries for creating OpenGL X applications. Developers who resell commercial OpenGL X applications created with these libraries are not required to pay licensing fees.

**Note:** If you use Motif dynamic link libraries, you need to pay royalties to OSF. For more information, see the Licensing Agreement shipped with this product.

## Developing Local Arabic or Hebrew Clients Using CTL

If you are using Motif 2.1.30 with Complex Text Layout (CTL), you can develop context-sensitive Arabic or Hebrew applications.

This section builds on the general information provided in “Development Overview” on page 227. After you have familiarized yourself with that information, use this procedure for Arabic- or Hebrew-specific instructions.

The Exceed XDK supports Windows TrueType fonts for the Arabic language. As well, in addition to UNIX encoding for the Arabic language (ISO 8859-6), you can now use Windows encoding 1256 (described in step 3 of the procedure below). For Hebrew applications, CTL layout methods are only used when you set the locale to `IW`.

### To develop an Arabic or Hebrew application with Motif 2.1.30 CTL:

- 1 Develop your source code in accordance with X11 standards.
- 2 Build your application using the `hclxm.lib` (Xm library) and Motif header files (located in the `home\XDK\MOTIF21\LIB\` directory, where `home` is the directory in which you installed the software), as well as any other necessary files.
- 3 Call the `_XsetLocale` function at the beginning of your application’s source “main” function.

---

For Arabic applications

- For UNIX encoding, set the locale to `ar_CTL`:  
`_XsetLocale(0, "ar_CTL");`
  - For Windows encoding, set the locale to `ar_WINCTL`:  
`_XsetLocale(0, "ar_WINCTL");`
- 

For Hebrew applications

- Set the locale to `IW`:  
`_XsetLocale(0, "IW");`
- 

- 4 Define CTL as a preprocessor definition when you compile your application. If you are using Microsoft Visual C++ Studio (version 6.0 or later), you can add preprocessor definitions by doing the following:

- a) On the Project menu, click Settings and then click the C/C++ tab. In the upper left of the tab, from the Settings For drop-down list, select All Configurations.
  - b) From the Category drop-down list, select Preprocessor. In the Preprocessor definitions field, add the string `CTL`.
  - c) Click OK to save the settings and exit the dialog box.
- 5 Compile and link your project.

## Developing Local X Clients Using Dynamic Load of XLC/XIM/XOM

`xlib.dll` (part of the Exceed XDK) partially supports the X11 Internationalization (I18N) from Sun Microsystems. With this functionality, you can dynamically load XIM, XOM, and XLC modules. Use this functionality to switch to a different language on the fly.

**Note:** For this functionality to work, you must write the appropriate code to support this functionality, and you need to have the correct language-specific XLC, XIM, and XOM `.dll` files.

### Activating the Functionality

If you make no changes to your code, `xlib.dll` treats XLC, XIM, and XOM as an integrated part of the X11 binary. It does not dynamically load them.

To activate a dynamic load regime of XLC, XIM, and XOM, you need to specify `USE_DYNAMIC_XIO` as a compiler flag when you build the application:

```
-DUSE_DYNAMIC_XIO
```

You also need to supply the application with an information file (`XI18N_OBJS`) that lists the required XLC, XIM, and XOM `.dll` files. Make sure this information file is in the following directory:

```
USERDIR\LOCALE\<local_name>
```

## Building an X Client Using Visual C++

This section describes how to build an X client using a Visual C++ development tool. It assumes the following:

- You have read the general development notes previous to this section, as well as the sections specific to GUI, console, Motif, or Arabic/Hebrew X clients (depending on the type of application you are developing).
- You have already written the source code (taking into account the development information described in the earlier sections of this chapter) or ported existing code from a UNIX machine to your PC. All source code must be compliant with X11 standards.

Once you have the source code and are familiar with the Exceed XDK development particulars, you can use this section to learn how to:

- Prepare your source code for Visual C++ use.
- Create and build a project using the Exceed XDK Application Wizard, a component of Microsoft Visual C++ Studio (version 6.0 or later); this method is the most automated.
- Create and build a project manually using any version of Microsoft Visual C++ Studio.
- Build an X client using a makefile.

For information about building an X client using a CYGWIN GCC compiler, see “Building an X Client Using a CYGWIN GCC Compiler” on page 250 and “Building a GNOME/Linux X Client Using a CYGWIN GCC Compiler” on page 250.

### Preparing the Source Code for Visual C++ Use

Once you have written or ported the source code for the X client, you need to prepare it in the following way. Regardless of whether you are using the Exceed XDK Application Wizard, creating and building a project manually, or using a makefile, you must follow this procedure.

### To prepare your code for Visual C++ development:

For more information, see "Memory Management" on page 229.

- 1 In the source code, change memory allocation and de-allocation routines to their Xlib counterparts.
- 2 Check for any incompatibilities between Windows and UNIX, including the following:
  - a) Ensure that there is no UNIX-dependent code that is incompatible with Microsoft Windows. For example, you must rewrite code that uses such items as timers, mailboxes, and `STDIN` (for GUI applications).
  - b) Ensure that the code does not use any keywords reserved for the Windows C compiler as variables, labels, or application-defined function names.
- 3 Ensure that all functions are properly prototyped.

For more information, see "Functions Specific to the Exceed XDK" on page 228.

The prototypes for functions specific to the HCL implementation of Xlib are provided in the `xlibxtra.h` and `x.h` files in the `home\XDK\INCLUDE\X11` directory (where *home* is the directory in which you installed the software).

- 4 Compile and link your client.

## Using the Exceed XDK Application Wizard

The Exceed XDK Application Wizard lets you build Motif and X Window projects; it operates within the user interface of Microsoft Visual C++ Studio (Version 6.0 or later). You can use the wizard to create an empty project that has the proper include paths, preprocessor definitions, and link libraries.



When using the Exceed XDK Application Wizard, you can choose one of the following application-type options from the drop-down list.

This Option...	Creates an Empty Project that Contains:
Athena Widget	The Athena Widget Set Library, along with necessary lower-level libraries.
Motif 1.2.4	The Motif library for version 1.2.4, along with necessary lower-level libraries.
Motif 2.0.3.	The Motif library for version 2.0.3, along with necessary lower-level libraries.
Motif 2.1 CTL	The Motif library for version 2.1.30 with Arabic or Hebrew CTL support, along with necessary lower-level libraries.
MRM 1.2.4	The MRM and Motif libraries for version 1.2.4, along with necessary lower-level libraries.
MRM 2.0.3	The MRM and Motif libraries for version 2.0.3, along with necessary lower-level libraries.
MRM 2.1	The MRM and Motif libraries for version 2.1 with Arabic CTL support, along with necessary lower-level libraries.
X only	Only the X11 library.
Xt Application	The XT and X11 libraries for version 1.2.4, along with necessary lower-level libraries.

After you click Finish in the wizard, a screen shows a summary of your choices.

The wizard also lets you choose the following project options:

**GUI Application**—The wizard creates an empty GUI application in the type that you specify above. If you do not click this option, the wizard creates a console application.

**Static Motif Libraries**—The wizard uses static versions of MRM and/or Motif libraries to create the project. If you do not click this option, the wizard uses .dll versions.

**.dll**—The wizard creates an empty project that can produce a .dll. If you do not select this option, the project will produce an executable.

**Loadable X i18n Architecture**—Defines a preprocessor macro that forces the XDK to use dynamic logging of XLC, XIM, and XOM.

**To create and build a project using the Exceed XDK Application Wizard:**

- 1 Create an empty Visual C project:
  - a) On the File menu of Microsoft Visual C++ Studio, click New and then click the Projects tab.
  - b) Double-click the Exceed XDK AppWizard icon.
  - c) In the wizard, specify a location for the project. You can browse for a location or type one directly into the field. For example:

```
C:\Program Files\Hummingbird\Connectivity\version\Exceed\XDK\SRC\
```

where *version* is the version number of the software.
  - d) Specify a project name and click OK.
  - e) Select an application type (such as Athena Widget) and click Finish. Scan the resulting new project information to make sure it is correct and click OK. On the Project menu, click Add To Project, Files. Add all source files to the project.
- 2 If needed, include additional libraries:
  - a) On the Project menu, click Settings and click the Link tab.
  - b) In the upper left of the tab, from the Settings For drop-down list, select All Configurations.
  - c) From the Category drop-down list on the tab, select Input; type the library paths in the Object/Library Modules field.
  - d) When finished, click OK to save the settings and close the dialog box.

For most application types, the wizard automatically includes the standard libraries, but you may want to customize the settings or add additional ones.
- 3 On the Build menu, click Build *ProjectName* (where *ProjectName* is the name of your project that Visual Studio automatically inserts into the menu item).

- 4 On the Build menu, click Execute *ProjectName* (where *ProjectName* is the name of your project that Visual Studio automatically inserts into the menu item).

**Note:** If the Exceed directory is not included in the default project path, the execution may not work. In this case, do the following:

- On the Project menu of Microsoft Visual C++ Studio, click Settings and click the Debug tab.
- From the Category drop-down list, choose General.
- Type the Exceed directory path into the Working Directory field.
- On the Build menu, click Execute *ProjectName* (where *ProjectName* is the name of your project that Visual Studio automatically inserts into the menu item).

## Creating and Building a Project Manually

Instead of using the Exceed XDK Application Wizard, which requires version 6.0 (or later) of Microsoft Visual C++ Studio, you can build a Visual C++ project manually.

### To create and build a project manually:

- 1 Create an empty Visual C project:
  - a) On the File menu of Microsoft Visual C++ Studio, click New and then click the Projects tab.
  - b) In the main window of this tab, select either Win32 Application (for a GUI application) or Win32 Console Application (for a console application).
  - c) Specify a location for the project. You can browse for a location or type one directly into the field. For example:

```
C:\Program Files\Hummingbird\Connectivity\version\  
Exceed\XDK\SRC\  
where version is the version number of the software.
```

- d) Specify a project name and click OK.

- e) In the resulting dialog box, choose to create an empty project and click Finish. Scan the resulting new project information to make sure it is correct and click OK.
- 2 Customize the project to work with the Exceed XDK:
    - a) On the Project menu, click Settings and then click the C/C++ tab. In the upper left of the tab, from the Settings For drop-down list, select All Configurations. (All of the subsequent settings described in this procedure, regardless of the tab on which they are located, should be for All Configurations).
    - b) From the Category drop-down list, select Code Generation. From the Use Run-time Library drop-down list, select Multithreaded .dll.
    - c) From the Category drop-down list, select Preprocessor. In the Include Additional Directories field, type the Exceed XDK include path (the location at which you've installed the Exceed XDK include files). For example:

```
C:\Program Files\Hummingbird\Connectivity\version\Exceed\XDK\include\
```

where *version* is the version number of the software.
    - d) Click the Link tab of the Settings dialog box. From the Category drop-down list, select Input. In the Additional Library Path field, type the Exceed XDK lib path (the location at which you've installed the Exceed XDK lib files). For example:

```
C:\Program Files\Hummingbird\Connectivity\version\Exceed\XDK\lib\
```
    - e) When finished, click OK to save the settings and close the dialog box.
  - 3 On the Project menu, click Add To Project, Files. Add all source files to the project.
  - 4 On the Project menu, click Settings and then click the Link tab. From the Category drop-down list, select Input. In the Object/Library Modules field, type the names of the necessary libraries for the X client.

For example:

```
HCLSm.lib HclXaw.lib HclXmu.lib HclXt.lib xlib.lib
```

When finished, click OK to save the settings and close the dialog box.

- 5 On the Build menu, click Build *ProjectName* (where *ProjectName* is the name of your project that Visual Studio automatically inserts into the menu item).
- 6 On the Build menu, click Execute *ProjectName* (where *ProjectName* is the name of your project that Visual Studio automatically inserts into the menu item).

**Note:** If the Exceed directory is not included in the default project path, the execution may not work. In this case, do the following:

- On the Project menu of Microsoft Visual C++ Studio, click Settings and click the Debug tab.
- From the Category drop-down list, choose General.
- Type the Exceed directory path into the Working Directory field.
- On the Build menu, click Execute *ProjectName* (where *ProjectName* is the name of your project that Visual Studio automatically inserts into the menu item).

## Building an X Client Using a Makefile

You can build an X client using a Microsoft Visual C++ makefile.

### To build an X client using a makefile:

- 1 Locate the source files for the X client (either files you have written from scratch or ones you have copied from the UNIX host to your PC).
- 2 Create a makefile that contains the proper Exceed XDK include and library paths.
- 3 Build the application.

## Building an X Client Using a CYGWIN GCC Compiler

The following procedure describes how to build an X client using either a CYGWIN GCC compiler.

### To build an X client using a GCC compiler:

- 1 Locate the source files for the X client (either files you have written from scratch or ones you have copied from the UNIX host to your PC).
- 2 Do one of the following:
  - From the command line, start the GCC compiler, specifying proper Exceed XDK include and library paths and other parameters.
  - Create a makefile that includes the proper Exceed XDK include and library paths. You may also want to specify additional compiler-specific options in the updated makefile.
- 3 Compile and link your X client using the CYGWIN shell.

## Building a GNOME/Linux X Client Using a CYGWIN GCC Compiler

The following procedure describes how to build a GNOME/Linux X client using a CYGWIN GCC compiler.

You can find the required libraries and header files in the following location:

```
home\XDK\GCC\
```

where *home* refers to the directory in which the Exceed XDK software is installed.

### To build a GNOME/Linux X client using a GCC compiler:

- 1 Locate the source files for the X client (either files you have written from scratch or ones you have copied from the Linux host to your PC).
- 2 Do one of the following:
  - From the command line, start the GCC compiler, specifying proper Exceed XDK include and library paths and other parameters.

- Create a makefile that includes the proper Exceed XDK include and library paths. You may also want to specify additional compiler-specific options in the updated makefile.
- 3 Compile and link your X client using the CYGWIN shell.

## Troubleshooting

This section provides some problem-solving tips for problems commonly encountered when developing local X clients with the Exceed XDK.

- If you are developing an internationalized client and your operating system's encoding is different than that for your X client, you need to call the `_xsetlocale` function. For more information, see “Setting the Locale for an X Client” on page 230.
- When you develop Arabic or Hebrew CTL applications, you have to specify CTL as your preprocessor definition. In Microsoft Visual C++ Developer's Studio (Version 6.0 or later), you can add preprocessor definitions on the C/C++ tab of the project settings dialog box: on this tab, from the Category drop-down list, choose Preprocessor. In the Preprocessor definitions field, add the string CTL.
- When you develop Motif applications and you are linking with the static version of the Motif libraries (`xmStatic.lib`), you must define the symbol XMSTATIC in your compiler preprocessor definitions. Doing so ensures that you use the correct prototype definitions when you compile.
- Reserved Keywords—Check for words that are reserved keywords in the PC C compiler but not in the UNIX host C compiler. For example, using `exit` as a variable may cause unpredictable results.
- Compiler Options—Ensure that the compiler and linker options are correct. You can find the correct options in the sample make files in the source directory.
- Path Names—Ensure that the Exceed XDK `.dlls` are either on your path or in your current default directory.





## Chapter 8

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# Exceed XDK — Japanese Locale Support

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## Using Japanese Locale Support

For more information regarding Exceed support for the Japanese Locale, see Xconfig Help.

The `xlib.dll` and the X server included in Exceed XDK both support the X11R6 X Input Method (XIM). If your X client has been internationalized, users can input Japanese in your X client using a Microsoft Windows-compatible Japanese IME (Input Method Editor) in Japanese Windows. If you are developing an internationalized client, observe the following conditions.

**Note:** Performing a typical installation does not install Japanese Locale Support. Instead, you must perform a custom installation and select the Japanese Locale Support component.

### Same Encoding in the Operating System and the X Client

If you are developing an X Toolkit application and the encoding of your operating system is the same as that for your X client, you do not need to specify a `setlocale` function because it will be called automatically from inside the `Hclxt.dll`.

### Different Encoding in the Operating System and the X Client

If you are developing an X Toolkit application and the encoding of your operating system is different than that for your X client, you should not use the system `setlocale` function. Rather, you should call the `_Xsetlocale` function; you can call it explicitly or use the `X_LOCALE` macro to call it.

You can use this function in two ways:

Specify a second parameter of the `_Xsetlocale` function. For example:

```
_Xsetlocale(LC_ALL, "jaJP.euc");
```

where `jaJP.euc` is the locale and encoding name.

Do not specify a second parameter and instead set the `LANG` variable. For example:

```
_Xsetlocale(LC_ALL, "");
```

You then need to set the `LANG` variable to `jaJP.euc`.

## Using Kinput2

Kinput2 is an input server for X11R6 applications requiring Japanese text input, including Kana-Kanji conversion.

Internationalized clients using X11R6 Xlib connect to Kinput2 using the X Input Method Protocol (X11R6 standard). Clients requiring Kana-Kanji conversion services for Japanese text send a request to Kinput2, which receives the request, performs Kana-Kanji conversion, and sends the converted text back to the client.

Kinput2 supports the following input styles:

- root-window
- off-the-spot
- over-the-spot

### To start Kinput2:

- 1 Double-click the Kinput2 icon to start Kinput2 and open the Local X Console.
- 2 On the Client Control menu in the Local X Console application, click Client Manager.

You can then see that Kinput2 is in the Active Clients list, meaning that Kinput2 is started and is ready to accept connections from X clients.

**Note:** You must install Japanese fonts to ensure that Kinput2 functions correctly. Japanese fonts are not automatically installed when you select Kinput2.

### To terminate Kinput2:

- 1 Select Kinput2 from the Active Clients list under Client Manager in the Local X Console.
- 2 Click Terminate Client.

## Keystroke Conversion Tables

The following tables list the keystrokes possible for Japanese locale support.

### Key Bind

Purpose	Keystroke
Convert Mode On/Off	SHIFT+SPACE
Convert/CandidateList	Ctrl+J
NextCandidate	Ctrl+N
Previous Candidate	Ctrl+P
Confirm	Ctrl+L
ExtendService	Ctrl+O
ShrinkSentence	Ctrl+I
CancelChange	Ctrl+G

### MoveCursor

Purpose	Keystroke
DeleteCharacter	Ctrl+H
Up	Ctrl+P
Down	Ctrl+N
Forward	Ctrl+F
Backward	Ctrl+B
Home	Ctrl+A
End	Ctrl+E
Undo	Ctrl+U

## InputMode

<b>Purpose</b>	<b>Keystroke</b>
InputSpecialCharacter	Ctrl+Q or F10
Input JIS Code	F5
InputFullStop	F6
ChangeMode	F9

## CharCodeConversion

<b>Purpose</b>	<b>Keystroke</b>
ToDoubleByteKatakana	F1
ToDoubleByteHiragana	F2
ToSingleByteKatakana	F3
ToDoubleByte	F4

## Dictionary

<b>Purpose</b>	<b>Keystroke</b>
RegisterDictionary	Ctrl+T
UnregisterDictionary	Ctrl+V
Escape from the mode	ESC

## Roman Character Conversion

Make sure you input all characters in the correct case. The conversion table for characters A, I, U, E, and O is as follows:

Roman Character	A	I	U	E	O
A	a	i	u	e	o
K	ka	ki	ku	ke	ko
C	ca	ci	cu	ce	co
S	sa	si/shi	su	se	so
T	ta	ti/tsyi/chi	tu/tsu	te	to
N	na	ni	nu	ne	no
H	ha	hi	fu	he	ho
P	pa	pi	pu	pe	po
M	ma	mi	mu	me	mo
Y	ya	yi	yu	ye(ie)	yo
R	ra	ri	ru	re	ro
L	la	li	lu	le	lo
W	wa	wi	wu	we	wo
G	ga	gi	gu	ge	go
Z	za	zi/ji	zu	ze	zo
D	da	di	du/dsu	de	do
B	ba	bi	bu	be	bo

The conversion table for Roman characters ya, yi, yu, ye, and yo is as follows:

<b>Roman Character</b>	<b>ya</b>	<b>yi</b>	<b>yu</b>	<b>ye</b>	<b>yo</b>
K	kya		kyu	kye	kyo
G	gya	gyi	gyu	gye	gyo
Sy	sya		syu	sye	syo
Sh	sha	shi	shu	she	sho
J	ja		ju	je	jo
Jy	jya	jyi	jyu	jye	jyo
Sw		swi		swe	
Th	tha	thi	thu	the	tho
Ty	tya	tyi	tyu	tye	tyo
Tsy	tsya		tsyu	tsye	tsyo
Ch	cha		chu	che	cho
Cy	cya		cyu	cye	cyo
Dy	dya	dyi	dyu	dye	dyo
Dh	dha	dhi	dhu	dhe	dho
Dw	dwa	dwi	dwu	dwe	dwo
Ny	nya	hyi	nyu	nye	nyo
Hy	hya	hyi	hyu	hye	hyo
By	bya	byi	byu	bye	byo
Py	pya	pyi	pyu	pye	pyo
Hw	hya	hyi	hyu	hye	hyo



Roman Character	ya	yi	yu	ye	yo
My	mya	myi	myu	mye	myo
Ry	rya	ryi	ryu	rye	ryo
Ly	lya	lyi	lyu	lye	lyo
V					vyo

The conversion table for characters a, i, u, e, and o is as follows:

Roman Character	a	i	u	e	o
wh	wha	whi	whu	whe	who
qw	qwa	qwi	qwu	qwe	qwo
fw	fwa	fwi	fwu	fwe	fwo
vy	vya	vyi	vyu	vye	
kw	kwa	kwi	kwu	kwe	kwo
qa	qa	qi		qe	qo
gw	gwa	gwi	gwu	gwe	gwo
ts	tsa		tsu	tse	tso
tw	twa	twi	twu	twe	two
f	fa	fi		fe	fo
v	va			ve	vo
x	xa	xi	xu	xe	xo
xy	xya	xyi	xyu	xye	xyo

The table for key input order is as follows:

<b>Key Input in Order</b>	
nn/n'	n
xtu/xtu	tu
xwa	wa
vya	vy
xwi	wi
xwe	we
xwo	wo
xka/xca	ka
xke	ke
—	- (prolonged sound)
x-	- (hyphen)
x,	, (comma)
,	⌘ (comma)
.	° (full stop)
x.	. (period)
X[	⌈ (key parenthesis)
X]	⌋ (key parenthesis)
X/	• (central black dot)

# Appendix A

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## Troubleshooting

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## Exceed Diagnostics

This section describes possible solutions to problems that you may encounter while using Exceed. To troubleshoot issues, the following methods are available:

- Diagnosing using progress messages.
- Diagnosing using logs and trace operations.

### Troubleshooting Xstart

#### Progress Messages

Usually, the first step in troubleshooting a connection is displaying system progress messages.

#### To display progress messages:

- 1 In Xstart, click Settings in the Startup area.
- 2 In the Xstart Settings dialog box, click the Network tab.
- 3 On the Network page, select any of the following options in the Troubleshooting area:
  - Show Progress—Reveals what is happening while you try to connect and start an application.
  - Show Host Reply—Displays a summary of the startup information, the macros you used displayed in expanded form, and what reply was given by the host or application.

#### Common Error Messages

The common error messages are as follows:

**Correct user name and password—System does not connect** If the host does not return an invalid name or password message, there may be something wrong with the communications link. For more information, see “Checking Your Setup” on page 268.

**Host returns invalid name or password message** If you receive an invalid name or password message but the system is connecting, the login information is incorrect.

**Host returns “Command not found” or “No such file or directory” message** If you receive either message but the system is connecting, there may be something wrong with the path, or the parameters or syntax of the command specified in the Command box in Xstart. For more information, see “Checking Your Setup” on page 268.

**Xstart connects but the client does not start** The client may not be getting enough time to start before the initial Xstart socket closes down. For more information, see “Checking That the Client Has Enough Time to Start” on page 269.

**The Client is not authorized to run on the server** To verify authorization, examine the `Exceed.log` file for errors.

On the Troubleshooting page, click View.

For problems with permissions, edit the Host Access Control List file.

In the left pane of Xconfig, select Security. On the Security page, edit the Host Access Control List file (select File, specify the file name, and then click Edit). You may have to also edit the file indicated in the Enable User Access Control List area.

## Logs and Trace Operations

Exceed provides Troubleshooting settings in its Xconfig utility.

### Troubleshooting in Xconfig

You can specify options for troubleshooting to view the log file, to set what information is recorded in the log file, and to enable tracing. There are two main methods of active troubleshooting available: logging and tracing.

You can log information into a file for later inspection. You can log Font Open requests, the initial settings of the WM\_COMMAND and WM\_NAME properties on InputOutput root level windows, and all OpenGL requests.

**Note:** OpenGL support requires Exceed 3D. OpenGL is an industry-standard three-dimensional graphics software interface. It lets you create interactive programs that produce still or animated 3D color objects with shading, lighting, and other effects. GLX is the X Window System extension which implements OpenGL.

You can also conduct tracing to record all protocol traffic between the Exceed X server and the host to a binary file. On the Troubleshooting page in Xconfig, there are options that can help with the trace. For example, you can turn on tracing as soon as the Exceed X server starts, which means that the dialog with the first X client is recorded. You can also select the Slow Trace option, which writes all information directly to the file without buffering any of the data. This is helpful if you are tracing a situation where the Exceed X server crashes because any buffered information would be lost.

The trace stops when the Exceed X server terminates. If you turned tracing on by clicking Trace on the Exceed File menu, you can terminate tracing by selecting Trace again. If tracing was turned on in the Troubleshooting page in Xconfig, you should clear the Trace Initially On option as soon as possible. Otherwise, whenever the Exceed X server is restarted, tracing begins again.

**Warning!** Tracing creates large disk files on your system, and can impair Exceed X server performance. Therefore, use tracing only when you are troubleshooting a problem.

### **To specify troubleshooting options:**

In Xconfig, click Troubleshooting, and then click the Troubleshooting tab.

## Required Port Numbers

The table below lists incoming ports that are required for various components or protocols. To avoid conflicts, ensure other applications are not using these ports. If your organization uses a firewall, you can block or allow network traffic where appropriate.

Component	Port(s)
Bootstrap	67
Finger	79
FTP/SFTP	21
Lpq/Lpr	515
TELNET	23
Tftp	69
Network Time	37
Xstart/REXEC	512
Exceed	6000-6999
Secure Shell	22
XDMCP	177

## Resolving Connection Problems

For more information, see “Progress Messages” on page 265.

If you cannot connect to a host or cannot start X clients with Xstart, you can enable the Show Progress and Show Host Reply boxes on the Network page of the Xstart Settings dialog box.

## Checking Your Setup

A quick way to verify that your setup is working properly is to type an invalid password for the REXEC startup method or an invalid ID name for the RSH startup method.

- If the host does not return an invalid name or password message, there is a problem with the communications link. For example, the host is not



running or it does not support REXEC or RSH. There may also be a problem with your transport configuration.

- If the host returns an invalid name or password message, the system is connecting but the login information is incorrect.
- If you receive an invalid name or password message, the connection is working. However, there may be something wrong with either the syntax or the parameters of the command you typed in the Command box in Xstart. You may need to type DISPLAY or PATH variables on the command line.

### Checking That the Client Has Enough Time to Start

If the Xstart file seems to connect with the host properly but a client does not start, the client may not have enough time to start before the initial Xstart socket closes down. On the Network page of the Xstart Settings dialog box, set the Close box in the Timeouts area to -1 (minus one), select the Show Host Reply option, and then click OK. To access the Xstart Settings dialog box, click Settings in Xstart.

The Close setting at -1 keeps the first socket open even after the client socket is established. The Show Host Reply option displays all host-generated messages in a host reply window. If the client seems to start properly, try different values in the Close box until you find a value that gives the client enough time to start and then closes down the initial socket.

### Tracing Server Operation

Exceed uses tracing to capture data transferred between the Exceed X server and X clients, font servers, and XDMCP servers. All traces create a binary file with an extension of `.trx` in the Exceed *User* directory.

<p><b>Warning!</b> Tracing the X protocol writes all protocol traffic between Exceed and the host to a file. This quickly creates large disk files, which can severely impair server response time.</p>
---

## Tracing a Fatal Error

If the server hangs, select Slow Trace on the Troubleshooting page of Xconfig. The Slow Trace option outputs all data transferred to the trace file. Since buffers are not used, this procedure severely degrades server performance and should be specified only when necessary.

## Tracing Dialog with First X Client

To examine Exceed interaction with the first X client, turn tracing on from Xconfig to begin the trace when Exceed starts. Make sure you clear this option when you are finished troubleshooting.

## Tracing a Session

You can turn on tracing temporarily while Exceed is running using the Trace command on the Exceed File menu.

### To turn on tracing:

- 1 In Xconfig, select Troubleshooting.
- 2 Select Trace Initially On to turn tracing on. You should turn on tracing for troubleshooting purposes only.
- 3 On the Exceed menu, select File and click Insert Trace Comment.
- 4 In the Exceed Trace File dialog box, specify a comment related to the problem and then click OK.

### To turn off tracing:

The trace stops when you close Exceed.

On the Exceed menu, select File and click Trace, which removes the check mark that indicates that the tracing is on. Make sure that you clear the Trace Initially On option on the Troubleshooting page in Xconfig. Otherwise, Exceed automatically turns tracing on when it restarts.

## Viewing Server Error Messages

You can find server error messages in the log file, trace files, and special Xstart or TELNET windows. Examine the log file if an X session terminates abnormally. You may also want to check the log file periodically to ensure that X font and color requests are being met.

**To display the log file:**

Do one of the following:

- On the Exceed menu, point to Tools, and then click Log File.
- Click Log File on the Exceed toolbar.
- In Xconfig, click Troubleshooting. On the Troubleshooting page, click View.

**General Errors**

You can check Exceed operations using tracing. Once enabled, all X protocol traffic between Exceed and the host is written to a file.

**Transport Errors**

If an error is generated before you establish connection, it usually means it was not possible to connect to the host. Although a transport error is generated, the actual cause may be that a host connection was not available.

Transport errors are reported in the log file as follows:

*message (e)*

where *message* is a text message indicating the nature of the error and *e* represents an error code associated with your network transport. For more information on transport errors, see your network transport documentation.

**Host-Generated Error Messages**

If you have established a TELNET host session, messages normally displayed in a terminal emulation window appear in the TELNET window.

In Xstart, you can view host-generated messages. Host or client messages are saved in a log file while the initial socket remains open.

**To log the entire session:**

- 1 In Xstart, click Settings in the Startup area.
- 2 In the Xstart Settings dialog box, click the Network tab.
- 3 On the Network page, set the Close box in the Timeouts area to -1 (minus one).

### **Denied Font Requests**

If an X client requests a font that Exceed cannot provide, the font name or search pattern is noted in the log file.

### **Denied Color Requests**

If an X client requests a color that Exceed cannot provide, the color is noted in the log file.

# Appendix B

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## HWM

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## About HWM

HWM is a local, Motif-like window manager. Like remote, host-based window managers, HWM provides a graphical interface that you can use to start and exit clients, as well as position and iconize the windows on your display.

You can run multiple instances of HWM within multiple Exceed instances.

Unlike other window managers running on the host, HWM is a local X client that runs on your computer. Running locally speeds up window management functions while reducing network traffic. You can run HWM in single or multiple window mode.

### To start HWM:

On the Start menu, navigate to the OpenText Exceed product group, point to Exceed Tools, and click HWM. Depending on how you configured HWM, the HWM Virtual Desktop and/or the Icon Manager display.

**Note:** You can run HWM either when the X server is operating in Single Window mode, or in Multiple Window mode when configured for X, or Default To Native Window Manager.

## A Quick Tour of HWM

Depending on the window mode, specific options may have to be selected for the system menu to be displayed when you click the Windows desktop.

The **System** menu, also referred to as the control menu or context menu, is the main menu in HWM. The **System** menu contains most of the HWM commands, including standard functions that let you raise a window, move a window up and down, refresh the display, and kill a client.

For example, when you choose the **Kill Client** command, the pointer changes to a skull and crossbones. You can exit an application by choosing this command, moving the pointer to the application window, and then clicking the left mouse button.

The **System** menu also contains the following submenus:

**Window Ops menu** Contains commands that let you create icons, move, resize, raise, lower, zoom/unzoom, refresh, and close a window. You can display this menu by selecting it from the **System** menu or by clicking **Window Ops** in the client window.

When you select a Window Ops command from the client window, the operation takes place on the client. When you select a Window Ops command from the System menu, the operation takes place on the next client that you click.

**Desktop Settings menu** Contains commands that show or hide the Virtual Desktop, the Icon Manager, or any X clients displayed as icons.

For more information about Local Commands or adding X clients to the X Commands menu, see the examples under "Active Functions" on page 290.

**Local Commands menu** Contains commands to open Xconfig, Xstart, or open `Hwmcfg.src` for editing in Notepad.

**X Commands menu** Initially, this is an empty menu. You can add commands that start X clients by editing the HWM configuration file. You can also display this menu by right-clicking the X server window background.

**Root Window menu** Contains commands that let you change the pattern or color of the X server window (root window) background. Your selection is implemented immediately.

**Note:** If you are running in multiple window mode, you must make sure that the Root Drawing option is set to either Background or Full Support. If Root Drawing is set to None, then the changes you make using the Root Window menu will not take effect.

To access the Root Drawing option, click Display And Video in Category View in Xconfig. On the Screen page, click Advanced. In the Multiple Window Mode Advanced dialog box, make the modifications as necessary.

**Exit/Restart menu** Contains commands that let you exit or restart HWM.

**Note:** The Help command displays a quick reference table that shows you how to invoke various HWM and Virtual Desktop functions using keystroke or mouse button combinations.



**To access the system menu (single window mode):**

In HWM, click anywhere in the X server window background. If the cursor is in a client window, you can also display this menu by holding down the Alt key and clicking.

**To specify the display of the system menu (multiple window mode):**

- 1 In the left pane of Xconfig, click the desired multiple window mode Screen #. The Screen # tab is displayed.
  - Select Root Mouse Actions To X, and then click OK. Alternatively, you can select Root Mouse Actions To X on the Exceed X server toolbar.
- 2

**To enable the HWM Virtual Desktop:**

Run HWM to open the Virtual Desktop. Include the following VirtualDesktop statement in your HWM configuration file:

```
VirtualDesktop
```

**Note:** You can disable the Virtual Desktop by inserting an exclamation mark (!) at the beginning of this line. For more information on Virtual Desktop statements, see “HWM Virtual Desktop” on page 283.

## HWM Configuration File

HWM operates according to the specifications in the `hwmcfg.src` configuration file, located in the `User` directory.

This text file is loaded each time you start or restart HWM. You can customize HWM by editing the `Hwmcfg.src`. You can display the HWM specifications when the application is running.

**Note:** This file is annotated to help you understand the functions and statements in it. We recommend that you make a backup of the configuration file before customizing it. This ensures that the original file remains intact if you need to revert to it. Changes to HWM configuration file take effect when you restart HWM.

### **To edit the HWM configuration file:**

For more information on the system menu, see “A Quick Tour of HWM” on page 275.

In HWM, select Local Commands and then click Edit HWM Config on the system menu.

## **Formatting Rules**

The following sections outline some basic formatting rules to consider when customizing the configuration file.

## Configuration File Syntax

Component	Formatting Rule
<b>Statements</b>	
Exclamation Mark (!)	Appears at the beginning of the line and indicates that this line is a comment.
#If...#Then	Preprocessor statements must always begin with a number sign (#). For more information, see “Preprocessor Statements” on page 293.
<b>Menus</b>	
Submenus	Submenus must always be defined before they can be included in another menu.
<b>Lines</b>	
Backslash (\) Continued Rows	Indicates that this line continues onto the next line. Continued rows must appear sequentially in the configuration file. You cannot have blank lines between continued lines.
<b>Tokens</b>	
Usage/Spacing	Each statement should consist of one or more tokens separated by one or more spaces.  Note: A token is either a series of non-space characters, or any sequence of characters enclosed by matching quotation marks (for example, “a b/c? d*e”).
Case Sensitivity	Tokens that are HWM functions are not case-sensitive. Any string that displays as text on the screen is case-sensitive.
Backslash (\)	Within a string, the backslash character (\) starts an escape sequence (see the Supported Character Escape Sequences table below).

## Supported Character Escape Sequences

Sequence	Function
\\	Represents a single backslash (\).
\n	Generates a newline character (0x0A).
\r	Generates a carriage return character (0x0D).
\xdd	Formulates any byte value except 0. Each d is a hexadecimal digit.
\u	Inserts the default user path. A trailing \ is also inserted, if needed. For example, "\uhwmcfg.src" is equivalent to: C:\Program Files\Hummingbird\Connectivity\version\ Default User\Exceed\hwmcfg.src
\i	Inserts the <i>home\info</i> path. A trailing \ is also inserted, if needed. For example, "\ixrdb.txt" is equivalent to: C:\Program Files\Hummingbird\Connectivity\version\ Exceed\info\xrdb.txt
\h	Inserts the <i>home</i> path. A trailing \ is also inserted, if needed. For example, "\hexceed.exe" is equivalent to: C:\Program Files\Hummingbird\Connectivity\version\ Exceed\Exceed.exe
\	Continues a single line, onto the next line.
\?	Enters a wildcard character that is otherwise used to delineate a string or start an escape sequence.  Note: A question mark (?) denotes any wildcard character.

## Functions

Functions are commands in the configuration file that perform specific actions. If you invoke any of the functions that affect a single window (such as iconify, refresh, zoom) from a menu that is bound to that window, the function operates immediately. However, if you invoke the same function from a menu that is not bound to the window, you have to click the left mouse button in the appropriate window to perform the operation.

The following table lists the supported functions:

<b>Function</b>	<b>Description</b>
Nop	Specifies a no operation token.
Iconify	Iconifies/restores a window.
Menu menu_name	Activates the named menu. When this function is called, HWM places the upper left corner of the menu at the current mouse position.
Move	Raises and moves a window or icon.
Resize	Raises and resizes a window.
Zoom	Zooms/unzooms a window.
Refresh	Forces a redraw of the selected window.
RefreshScreen	Refreshes the entire screen.
ShowIconMgr	Shows/raises the Icon Manager.
HideIconMgr	Removes the Icon Manager.
ShowIcons	Displays client icons.
HideIcons	Hides client icons.
Up	Circulates a window up.
Down	Circulates a window down.
Top	Raises a window to the top.
Bottom	Lowers a window to the bottom.
Kill	Kills a client.
Exit	Exits HWM.
Restart	Restarts the window manager (and rereads the <code>Hwmcfg.src</code> file).
Freesel	Releases ownership of the PRIMARY selection.
Setroot	Changes the appearance of the root window.

## Statements

Statements are a sequence of actions in the HWM configuration file (`Hwmcfg.src`) that carry out a specific function in HWM. Editing the statements in `Hwmcfg.src` lets you customize HWM. When used in a `Hwmcfg.src` file, a single statement carries out a single action, while a series of statements carries out a complex sequence of actions.

The following sections describe the representative statements in the `Hwmcfg.src` file in the order they appear in the file. However, not all statements listed are included in the default configuration.

The supported HWM statements can be grouped into the following categories:

- Virtual Desktop statements
- Font statements
- Window statements
- Color statements
- Icon Manager statements
- Menu Definition statements
- Mouse Button Binding statements

**Note:** You can disable any of the statements in the configuration file by inserting a comment indicator or exclamation mark (!) at the beginning of the statement.

## HWM Virtual Desktop

The HWM Virtual Desktop is the first section in the configuration file. The following statements appear in the default configuration file:

Statements	Description
VirtualDesktop	<p>Opens the Virtual Desktop when you run HWM. You can disable the Virtual Desktop by inserting an exclamation mark (!) at the beginning of this line.</p> <p>The syntax for this statement is as follows:</p> <pre>VirtualDesktop</pre>
VdeskScale	<p>Specifies the scale of the Virtual Desktop window.</p> <p><code>number</code> defines the scale of the Virtual Desktop in comparison to your screen. This value indicates the number of screen pixels that each pixel of the Virtual Desktop represents. By default, the value is 20. Therefore, each pixel on the Virtual Desktop represents 20 pixels on your screen.</p> <p>The syntax for this statement is as follows:</p> <pre>VdeskScale number</pre>
StickyVdesk	<p>Places the Virtual Desktop within itself to prevent the Virtual Desktop itself from being displayed from within the Virtual Desktop window. This statement ensures that you will not inadvertently move the Virtual Desktop off the screen.</p> <p>The syntax for this statement is as follows:</p> <pre>StickyVdesk</pre> <p>Note: If you want the Virtual Desktop to appear as a rectangle within the Virtual Desktop window, insert an exclamation mark (!) at the beginning of this statement.</p>
DoubleClick	<p>Specifies double-click span in milliseconds. The default is 300 as shown in the following syntax:</p> <pre>DoubleClick_msec 300</pre>

Statements	Description
FadedMenus	To specify faded menus, remove the exclamation mark (!) from the beginning of the statement. The syntax for this statement is as follows: FadedMenus Note: The Render extension must be active.
borderwidth	Sets the 3D border width to the desired number of pixels. The default is 8 as shown in the following syntax: borderwidth 8
nocascade	If you do not want to cascade windows, remove the exclamation mark (!) from the beginning of this statement: !nocascade
positionisframe	To specify (x, y) coordinates for your client window (not for its frame), remove the comment indicator (!) from the beginning of this statement: !positionisframe 0 Note: You must also uncomment (remove the ! from) nocascade to set (x, y) coordinates for the window.

## Other Supported HWM Virtual Desktop Statements

There are other statements that control the operation of HWM Virtual Desktop that are not included in the default configuration file. Other supported HWM Virtual Desktop statements are as follows:

**color vdesk** Sets the foreground (screen frame) and background color of the Virtual Desktop. The syntax for these statements are as follows:

```
color vdesk foreground colorname
```

```
color vdesk background colorname
```

**VdeskGeom** Specifies the placement of the HWM Virtual Desktop window. The syntax for this statement is as follows:

```
VdeskGeom [+|-]x[+|-]y
```



This statement only works if windows are automatically placed (for example, if `NoGhost` is specified in `Hwmcfg.src`). A single `+` or `-` must precede each `x` and `y`.

The parameters are described as follows:

Parameter	Description
<code>+x</code>	Specifies the horizontal position of the window, where <code>x</code> is the number of pixels from the left edge of the server root window to the left border of the Virtual Desktop.
<code>-x</code>	Specifies the horizontal position of the window, where <code>x</code> is the number of pixels from the right edge of the server root window to the right border of the Virtual Desktop.
<code>+y</code>	Specifies the vertical position of the window, where <code>y</code> is the number of pixels from the top edge of the server root window to the top border of the Virtual Desktop.
<code>-y</code>	Specifies the vertical position of the window, where <code>y</code> is the number of pixels from the bottom edge of the server root window to the bottom border of the Virtual Desktop.

**VdeskButton** Lets you configure which mouse button is needed to drag the server window frame or client windows to a new location. The syntax for this statement is as follows:

```
VdeskButton b1 b2
```

**Note:** *b1* is the button that moves the frame; *b2* is the button that moves the client windows. The values for *b1* and *b2* can be either 1, 2 or 3, which represent the left, middle and right buttons on the mouse, respectively. The values for *b1* and *b2* must be different. The default is `VdeskButton 3 1`, where the left button (number 1) moves the client windows and the right button (number 3) moves the frame.

For more information on bind statements, see “Mouse Button Bindings” on page 291.

**ShowVdesk/HideVdesk** Lets you show or hide the Virtual Desktop when the Virtual Desktop is enabled via an preceding `VirtualDesktop` statement. The syntax for this statement is as follows:

```
ShowVdesk
```

HideVdesk

**Note:** Statements and functions can also be called using mouse-button bind statements. For example, to show the Virtual Desktop whenever you hold down Alt-Shift and then click the right mouse button, use the following statement:

For more information on preprocessor statements, see “Preprocessor Statements” on page 293.

## Font Statements

The preprocessor statement shown below sets the font used by HWM. It uses the preprocessor `#if...#else...#endif` format to set one of two different fonts, depending on the size of the server screen.

```
#if Xpixels >= 1024  
  
font 10x20  
  
#else  
  
font 6x10  
  
#endif
```

## Window Statements

The following window statements let you move, resize, and focus windows:

**NoGhost** Lets you instruct HWM to automatically place and size client windows. The syntax for this statement is as follows:

```
NoGhost
```

To move and resize client windows when they first appear on your screen, add an exclamation mark (!) to this statement. The windows then appear as outlines, which you can place anywhere on the screen or Virtual Desktop.

**ClickToFocus** Lets you focus client windows. This statement, by default, requires that you click a client window to focus and raise it. The syntax for this statement is as follows:

```
ClickToFocus [raise] 1
```

If you want the pointer to focus the window, insert an exclamation mark (!) before this statement. The raise parameter is optional. You can also specify one of 1 (left), 2 (middle), or 3 (right) to indicate which mouse button to click.

## Color Statements

Color statements set the colors that HWM displays for windows, menus, icons, dialogs, and the Icon Manager.

**3D Effect** HWM achieves its 3D effect by using three colors. In each of the areas where you can set background and foreground color, HWM allocates a third color that is a shade of the background. If colors are not specified for WINDOW, TRANSIENT, ICON, ICONMGR, or MENU, HWM assumes the colors are black and white, with gray shading.

**Setroot color\_specification** Specifies the color of the root server window. The syntax for this statement is as follows:

```
Setroot color_specification
```

The following table describes different types of *color\_specification*.

Color_Specification	Description
default	Resets the server root window to its default.
solid color	Changes the server root window to a solid color, where color is any color defined in the RGB database. If the color name contains spaces or tabs, enclose it in quotation marks (" ").
bitmap filespec [fg color bg color]	Changes the server root window to the pattern described in the file filespec, where filespec specifies a standard X11 bitmap. You can optionally specify the foreground and background color.

## Icon Manager Statements

The Icon Manager configuration statements that appear in the default configuration file are listed as follows:

**IconMgrOn** Enables the Icon Manager when you run HWM. The syntax for this statement is as follows:

```
IconMgrOn
```

This statement automatically displays the Icon Manager in the server window. You can disable the Icon Manager by inserting an exclamation mark (!) at the beginning of this line.

**stickyIconMgr** Prevents the Icon Manager itself from being displayed from within the Virtual Desktop window. This statement ensures that you will not inadvertently move the Icon Manager off the screen while using the Virtual Desktop. The syntax for this statement is as follows:

```
stickyIconMgr
```

If you want the Icon Manager to appear as a rectangle within the Icon Manager window, add a (!) before this statement.

**HideIcons** Hides any client that is currently iconified. The syntax for this statement is as follows:

```
HideIcons
```

If you want the icons displayed, you can replace this statement with the ShowIcons function.

## Other Supported Icon Manager Statements

There are additional supported statements that are related to the operation of HWM Icon Manager. The following statements are not included in the default `Hwmcfg.src` file:

**IconImage** Associates a specific bitmap file to act as an icon for a particular client window. The syntax for this statement is as follows:

```
IconImage window-name bitmap
```

For example, you can use the bitmap file provided in the Info directory (by default, `C:\Program Files\Hummingbird\Connectivity\version\Exceed\Info`) as an icon for an xterm window by using the following statement:

```
IconImage xterm "\bird.bit"
```

You can also associate a pixmap to be used as the default HWM icon for clients that do not specify an icon by using the following statement:

```
IconPixmap filespec
```

**Note:** *filespec* must specify a standard X11 bitmap file.

For more information on the *x* and *y* variables, see “VdeskGeom” on page 284.

**IconMgrGeom** Specifies the placement of the Icon Manager window. The syntax for this statement is as follows:

```
IconMgrGeom [+|-]x[+|-]y
```

## Menu Definitions

Menu names are case-sensitive.

The configuration file also lets you configure how menus appear on HWM. Menu definitions start with the word `menu`, followed by the name of the menu enclosed in quotation marks ( " ") and ending with the word `endmenu`. Any items that appear on the menu are defined on the lines in between these two words.

All HWM menus appear in the menu definition section. They can be divided into two categories: menus with inactive menu functions and menus with active functions.

### Inactive Functions

Menus with inactive functions are menus that do not perform any operations. They present information, rather than provide menu commands.

For example, the `VdeskHelp` menu has no active functions. Lines that do not invoke functions (or blank lines on a menu), are exited with `noop`, which indicates No Operation. Strings in the menu definition, or text enclosed in quotation marks ( " "), display on the menu using the default font specified in this file.

**Note:** Blank lines on the menu are indicated with an empty string ( " ").

For example:

```
menu VdeskHelp
```

```

"Click on With Mouse Button Function" nop
"-----" -----" nop
"anywhere Alt Shift right Show VirtualDesktop" nop
"anywhere Alt Shift left Hide VirtualDesktop" nop
" " " " nop
"in Vdesk left Move the view" nop
"in Vdesk on a window right Move
and/or show the name of a window" nop
endmenu

```

## Active Functions

Menus with active function menu items execute a specific operation or invoke a specific submenu when the user chooses it from the menu. For example, the Window Ops menu includes items which perform various window functions:

```

menu "Window Ops"
    "Iconify" iconify
    "Move" move
    "Resize" resize
    "Raise" top
    "Lower" bottom
    "Zoom" zoom
    "Refresh" refresh
    "Close" kill
endmenu

```

For more information on this menu, see "A Quick Tour of HWM" on page 275.

To start an application from an HWM menu, use "run" with the specified command. You can use the Local Commands menu to execute local Windows or X apps. For example:

```

menu "Local Commands"
    "Xconfig" run "xconfig"

```

```

Xsession"          run "xsession"
"Xstart"          run "xstart"
"Hwm config"      run "notepad hwmcfg.src"
endmenu

```

You can use the X Commands menu to start remote X clients using Xstart. For example:

```

menu "X Commands"
    "XTerm Packard"  run "xstart packard.xs"
endmenu

```

## Mouse Button Bindings

The mouse button bindings section of the `Hwmcfg.src` file lets you display a menu or perform a function by either binding it to a mouse button, or to a mouse button and keystroke combination.

In general, the syntax for a bind statement is:

```
bind [location] [modifier] button menu_or_function
```

Mouse button binding parameters are described in the chart below:

Mouse Button Binding Parameters	
Location <sup>1</sup>	Description
Root (or R)	Binding is valid on the root window.
Window (or W)	Binding is valid on a window.
Icon (or I)	Binding is valid on an icon.
Left (or L)	Binding is valid on a window banner's left button (typically the Window Ops button).
OutsideRight (Right, OR, or R)	Binding is valid on a window banner's outside right button (typically the zoom button).

<b>Mouse Button Binding Parameters</b>	
InsideRight (or IR)	Binding is valid on a window banner's inside right button (typically the button to iconify).
Middle (Mid or M)	Binding is valid on a window banner's title bar, that is, outside of the buttons.
<b>Modifier<sup>2</sup></b>	<b>Description</b>
Shift (or S)	<Shift> required.
Control (CTRL or C)	<Ctrl> required.
Mod1 (ALT or A)	Mod1 required.
Mod2... Mod 5	Mod2... Mod5 required.
<b>Button<sup>3</sup></b>	<b>Description</b>
B1 (or 1)	Mouse button 1 (left).
B2 (or 2)	Mouse button 2 (middle).
B3 (or 3)	Mouse button 3 (right).

<sup>1</sup> If none of Root, Window, Icon, Left, Right, InsideRight, or Middle are specified, all are assumed.

<sup>2</sup> Alt is used as a synonym for Mod1, as this is the modifier associated with the Alt key in the keyboard files supplied with Exceed.

<sup>3</sup> Only one of B1, B2, or B3 can be specified in any one statement.



## Preprocessor Statements

Preprocessor statements let you set `if...else` conditions that define which statements in the `Hwmcfg.src` file are processed. The following preprocessor statements are supported:

Statement	Description
<code>#if expression</code>	Used to specify an expression. Expression format is described in the Expressions in Preprocessor Statements section below. If the expression is true, successive statements are processed. If the expression is false, successive statements are not processed.
<code>#endif</code>	This statement marks the end of the range of the <code>#if</code> statement. For each <code>#if</code> statement there must be one <code>#endif</code> statement.
<code>#else statement(s)</code>	You can use one <code>#else</code> statement within each <code>#if...#endif</code> range. If the expression in the associated <code>if</code> statement is false, all statements between <code>#else</code> and the associated <code>#endif</code> are processed.

For example:

```
#if Planes == 8 !test for 256 colors
  color active transient foreground blue
  color inactive window background red
  color...!specify colors
#else
  color active transient foreground white
  color inactive window background black
  color...!different colors
#endif
```

**Note:** `#if...#endif` statements can be nested, that is `if...#endif` ranges can be placed within each other.

**Expressions in Preprocessor Statements** Expressions in preprocessor statements take the following format, and the fields must be separated by one space:

```
id operator constant
```

These fields are discussed in the following table:

<b>Field</b>	<b>Description</b>
<b>id</b>	
<code>xpixels</code>	The width of the server screen in pixels.
<code>ypixels</code>	The height of the server screen in pixels.
<code>Planes</code>	Represents the number of video planes. The number of colors is $2^{\text{planes}}$ , that is, 4 planes specifies 16 colors; 8 planes specifies 256 colors.
<code>Color</code>	Used to test whether or not the server supports color. (For example: <code>PseudoColor</code> or <code>StaticColor</code> .) If the default server supports color, <code>Color</code> is set to 1. Otherwise, it is set to 0.
<code>Static</code>	Used to test whether or not the server supports static read-only colormaps or dynamic read/write colormaps. If the server supports only static colormaps, <code>Static</code> is set to 1. If the server supports dynamic colormaps, <code>Static</code> is set to 0.
<code>VdeskOn</code>	Used to test whether the Virtual Desktop is specified in <code>Hwmcfg.src</code> . If the Virtual Desktop is specified, <code>VdeskOn</code> is set to 1, otherwise it is 0.
<b>operator</b>	
<code>==</code>	TRUE if ID is equal to constant.
<code>&lt;&gt;</code>	TRUE if ID is not equal to constant.
<code>&lt;</code>	TRUE if ID is less than constant.
<code>&lt;=</code>	TRUE if ID is less than or equal to constant.

Field	Description
>	TRUE if ID is greater than constant.
>=	TRUE if ID is greater than or equal to constant.
<b>constant</b>	
constant	A decimal numeric value.

## About the Exceed Virtual Desktop

The Exceed Virtual Desktop window represents the entire area of your virtual screen. The top left corner of this box corresponds with the top left corner of your physical screen, which is only a portion of the virtual screen area.

The Virtual Desktop can represent an area many times larger than the actual server root window. It displays an overview of the entire contents of the server root window, including those X clients that are currently off-screen. You can use this extended desktop area to display and work with numerous Microsoft Windows-based applications and X applications running the native window manager without crowding the work area.

### The Exceed Virtual Desktop Window

Colored boxes within the Virtual Desktop window represent open application windows. The box that contains the color used by Windows for active application title bars represents the currently active application. Light gray boxes represent inactive application windows.

A red frame outlines the portion of the Virtual Desktop that is visible on your display. This frame can be moved by right-clicking it and dragging it to the desired location. If you move it to a client application, that gives it the focus. Each active client appears as a shaded box. When you click in a shaded box, the name of the client appears in the Virtual Desktop title bar. The client window with the focus appears with its title bar, border color, and shaded box in the highlight color.

You can position client windows anywhere within the Virtual Desktop by clicking the window and dragging it to the desired location. When you release the mouse button, the window moves to the specified location.

## Navigating the Exceed Virtual Desktop

Minimized applications do not appear in the Virtual Desktop window.

When you click and hold the left mouse button on a box representing an application window, the title bar caption appears in the title bar of the Exceed Virtual Desktop window. You can use this feature to find applications that are currently off-screen. You can right-click any area within the virtual desktop to display that area on your physical screen.

The following keyboard navigation is available when Exceed Virtual Desktop has focus:

- Use the Tab key to change the selected application in the Virtual Desktop window.
- Press the Esc key to de-select applications.
- Use the up/down/right/left arrow keys to navigate the Virtual Desktop window and to move selected applications.
- If you enabled Direct Placement in the Virtual Desktop Options dialog box, you can move the current window by right-clicking anywhere in the Virtual Desktop window.
- If you enabled Use Virtual Desktop Workspaces in the Virtual Desktop Options dialog box, you can use the numeric keys or the hot keys on your keyboard to shift the display onto a specific virtual display area. You can also right-click the Virtual Desktop title bar and select the virtual display area you want to view.
- To use Function keys to toggle between workspaces, use the Workspaces Configuration dialog box to specify workspace names and function key combinations. For more information, see Exceed Help.

### **To move an application:**

Click and hold the application box drag it to the new location in the Virtual Desktop.

## Configuring the Exceed Virtual Desktop

You can modify the look and behavior of the Virtual Desktop and enable features that let you parse, name, and navigate the virtual area. For more information on configuring the Virtual Desktop, see Exceed Help.

### To configure the virtual desktop:

- 1 On the Exceed Menu, select Tools, and click Virtual Desktop. Alternatively, click Virtual Desktop on the Exceed toolbar.
- 2 In the Virtual Desktop window, right-click on the Virtual Desktop title bar and click Options on the menu that appears.
- 3 Use the Virtual Desktop Options dialog box to make the necessary modifications.

