

Compaq PATHWORKS 32

eXcursion User's Guide

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Houston, Texas**

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Preface

The *eXcursion User's Guide* introduces you to eXcursion and describes how to:

- Configure eXcursion to efficiently start and run your X applications
- Configure the eXcursion user interface
- Start and use X applications with eXcursion
- Troubleshoot eXcursion

The appendixes provide more detailed reference material.

For More Information

For more information, refer to the following:

- eXcursion online help
Choose Help from the Server menu, or click Help in any Control Panel page.
- Microsoft Windows online help
For information about how to use online help, see your Microsoft Windows documentation or choose Using Help or How to Use Help from the Windows Help menus.
- Documentation and online help for your X applications
For information about a particular X application, see the documentation or online help for the application.
- Documentation for your network transport
For information about defining node names and increasing network links, see the documentation for your network transport.

How to Order Additional Documentation

Use the following World Wide Web address for information about how to order additional documentation:

<http://www.compaq.com/openvms>

To reach the OpenVMS documentation Web site, click the Documentation quick link.

If you need help deciding which documentation best meets your needs, call 800-282-6672.

Overview of eXcursion

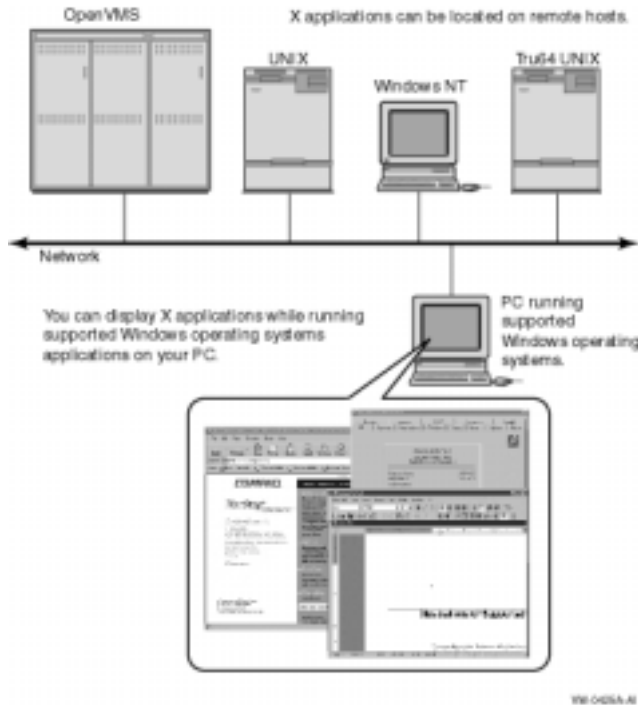
The eXcursion X Server lets you run X Window System client applications from any supported operating system. (For a complete list of supported platforms, see the Compaq PATHWORKS 32 Software Product Description (SPD). You can use X applications on your PC alongside supported operating system applications.

For example, you can simultaneously run an X terminal session (such as DECterm), an X mail program (such as Sun's Mailtool), and a Windows application (such as Microsoft Word for Windows) on your Windows desktop. You can even cut and paste information from one application to another.

eXcursion is based on the X Window System protocol, an industry-standard model for developing and running applications.

The primary component of eXcursion is the eXcursion X Server. The X Server is located on your PC and accesses client X applications on network host computers, allowing you to display and use those applications on your PC. (See Figure 1–1.)

Figure 1–1 Displaying and Using X Applications



eXcursion Components

eXcursion consists of the following components:

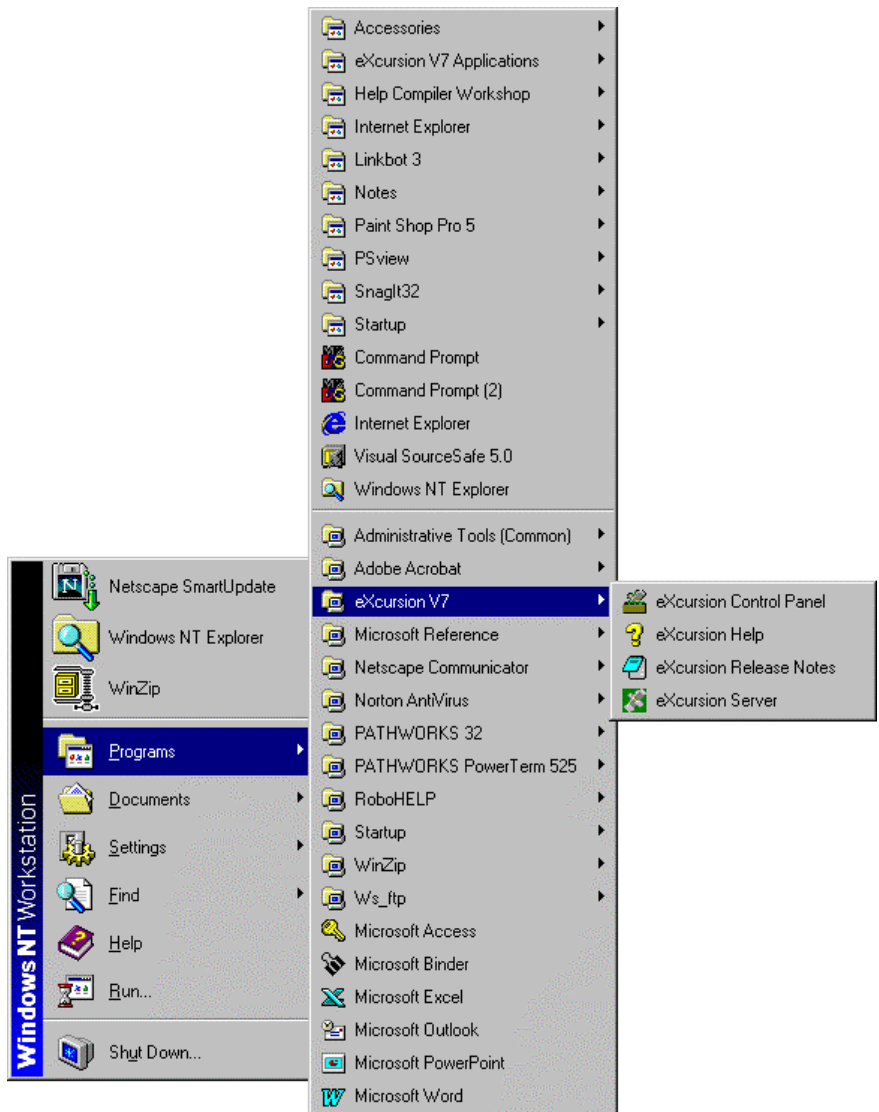
- eXcursion X Server
- Control Panel—The main user interface screen, used to access various pages (tabbed dialog boxes) for configuring, maintaining, and using the eXcursion X Server

Following the product's installation, the eXcursion icons are placed in a Windows program menu. Figure 1–2 shows the eXcursion program menu.

You can also create a copy of these icons on the desktop for convenient access.

The X Server and the Control Panel can be accessed from these icons.

Figure 1–2 eXcursion Program Menu



How to Access X Applications

There are several methods for accessing X applications through eXcursion:

Overview of eXcursion

- Clicking the Start button, pointing to Programs, and then pointing to the eXcursion V7 Applications menu.
- Using the Application submenu, displayed from the eXcursion Server icon on the taskbar.
- Creating shortcuts on the desktop.
- Using the eXcursion Control Panel.
- Through a terminal window.

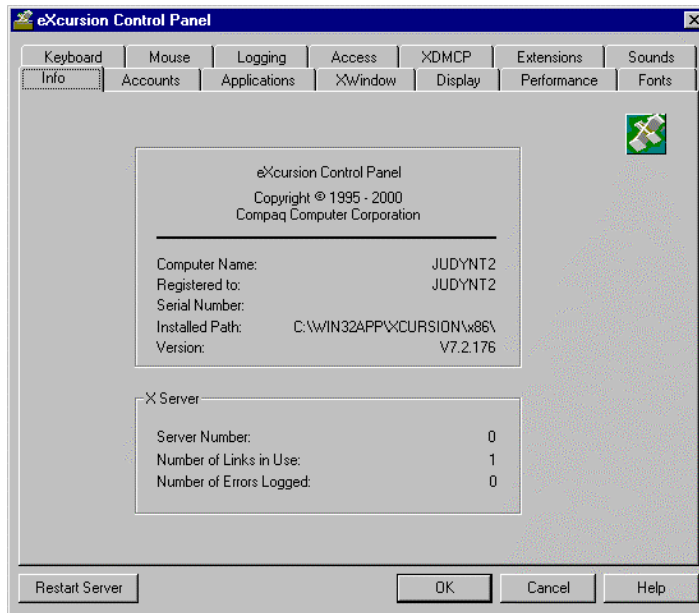
Using the eXcursion Control Panel

You can use eXcursion without ever opening the eXcursion Control Panel. But the Control Panel lets you perform the following functions:

- Define accounts and applications to effortlessly start applications you use regularly.
- Set user preferences.

The Control Panel is a tabbed dialog box. Each tabbed page in the Control Panel controls a part of the eXcursion configuration.

Figure 1–3 shows the Info (Information) page of the eXcursion Control Panel.

Figure 1–3 eXcursion Control Panel Info Page

From the eXcursion Control Panel, you can use the tabbed pages to do the following tasks:

- To view information about the eXcursion system, use the Info page.
- To configure eXcursion to start X applications, use these pages:
 - Accounts page
 - Applications page
 - XDMCP page
- To configure eXcursion for system security, use these pages:
 - Access page
 - Password page (Windows 95 and Windows 98 only)
- To configure eXcursion to support your user preferences and hardware, use these pages:
 - Display page
 - Performance page
 - Xwindow page

Overview of eXcursion

- Mouse page
- Keyboard page
- Sounds page
- To configure eXcursion to support your X applications' requirements, use these pages:
 - Fonts page
 - Extensions page
- To troubleshoot problems, use the Logging page.

Viewing eXcursion System Information

The Control Panel opens to the Info page, which contains general information about your eXcursion system, including:

- **Control Panel Information**—General information that can be useful when installing eXcursion or when diagnosing problems.
- **X Server Information**—Contains the following information:
 - **Server Number**—Associates a number with the X Server on your PC. This information is useful if you:
 - ◆ Have multiple X Servers on your PC
 - ◆ Want to display an X application using eXcursion by entering commands from your host account
 - **Number of Links in Use**—The number of open network links.

The number of X applications you can run is limited by the available network links.

eXcursion uses one network link for each transport.

Each X application you run uses at least one link, and some use several links.

You should set the maximum number of network links to 16 or greater. For more information on how to increase the number of network links, see the documentation for your network software.
 - **Number of Errors Logged**—If you enabled message logging, the number of errors logged.

Configuring eXcursion to Support Your Applications

As described in Chapter 4, you can easily start an X application from the eXcursion X Server without making any configuration changes. However, configuring eXcursion for application support allows you to automate the start up and use of X applications. You can:

- Give an application an easy-to-recall alias name.
- Specify that you want to be prompted for an application's parameters when you start an application.
- Specify that you want to be prompted for a user name and password when you start an application.
- Specify that you want an X application to start automatically when you start eXcursion.
- Add an application icon to the Program menu.
- Select one or more predefined X applications.
- Protect security by limiting access to your X Server on your PC.

Control Panel Pages for Application Support

Three of the eXcursion Control Panel pages are used to configure eXcursion for application startup:

- Accounts page—Defines the account information for the accounts under which you want the X applications to run.
- Applications page—Creates application aliases and defines application information.

Configuring eXcursion to Support Your Applications

- XDMCP page—Enables the X Display Manager Control Protocol.

Two Control Panel pages are used for configuring eXcursion for system security:

- Access page—Enhances security by restricting display access to the X Server.
- Password page—Sets or updates your eXcursion password (Windows 95 and Windows 98 only).

Note

If you are using Windows in VGA mode (640 x 480), you can enable Autohide or disable Always on Top for the taskbar, so the taskbar does not hide the OK and Cancel buttons of the eXcursion Control Panel.

Before You Begin

Before you configure eXcursion to support X applications, you need to identify the following:

- Which host computers on the network have the X applications you want to use.
- The startup command for specific applications. For example, the startup command to display an OpenVMS Notes window is shown in the following example:

```
$ notes/inter=decwindows
```

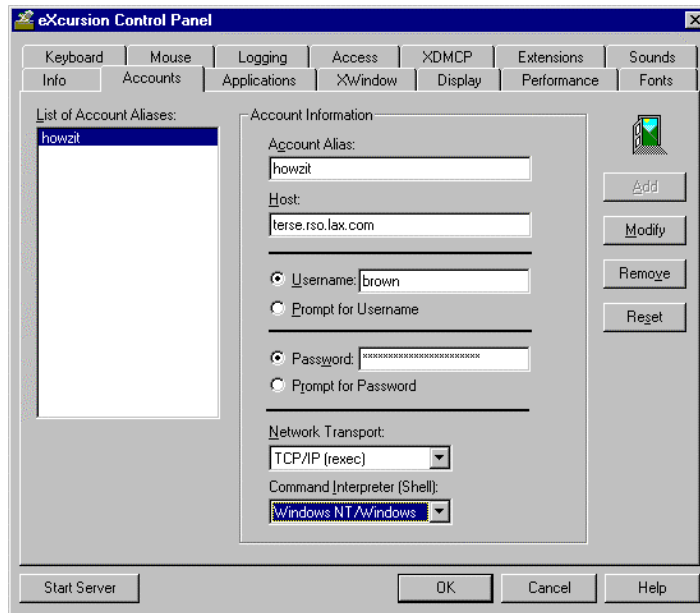
Defining Account Information for an X Host System

Use the Accounts page of the eXcursion Control Panel to define account information for your X host system. Once your account information is defined, you can perform the following tasks:

- Customize eXcursion for faster, easier startup of selected X applications.
- Start an X application without defining a startup method.

Figure 2–1 shows the Accounts page of the Control Panel.

Figure 2–1 eXcursion Control Panel Accounts Page



You can use the Accounts page of the Control Panel to define the following account information:

- **Account Alias**—The alias you use for this account.
- **Host**—A host on which you have an account. Enter the fully qualified host name.
- **Username**—Your user name on the remote host system.
- **Password**—Your password on the remote host system.
- **Network Transport**—The network you select to communicate with this host.
- **Command Interpreter (Shell)**—The command interpreter your host is using. eXcursion uses the Shell information to properly start your application.

To enter a new account:

1. Enter an account alias. This can be any name that helps you remember the account.
2. Enter a host name. This is a host on which you have an account. You can also use the network address.

Configuring eXcursion to Support Your Applications

3. Enter your user name (or select Prompt for Username).
4. Enter your password (or select Prompt for Password). To help maintain security, eXcursion echoes your password as asterisks (*). After you enter your password, the number of asterisks does not correspond to the password length.
5. Select a network transport.

To use DECnet, you must install *Compaq PATHWORKS 32*.

6. Select a Command Interpreter (Shell). The selection Any works with most OpenVMS and UNIX hosts. (It does not work with Windows NT hosts.) If you do not know what shell the host uses, you can select Any, but this is not recommended.

The other shell choices include:

- UNIX C
- UNIX Bourne
- UNIX Korn
- UNIX sh5
- OpenVMS/DCL
- Windows NT/Windows

The Command Interpreter is required to properly set the environment variable that instructs the application where to display. If this is set improperly, eXcursion displays a message in the log file indicating that the display could not be opened.

7. Click Add.

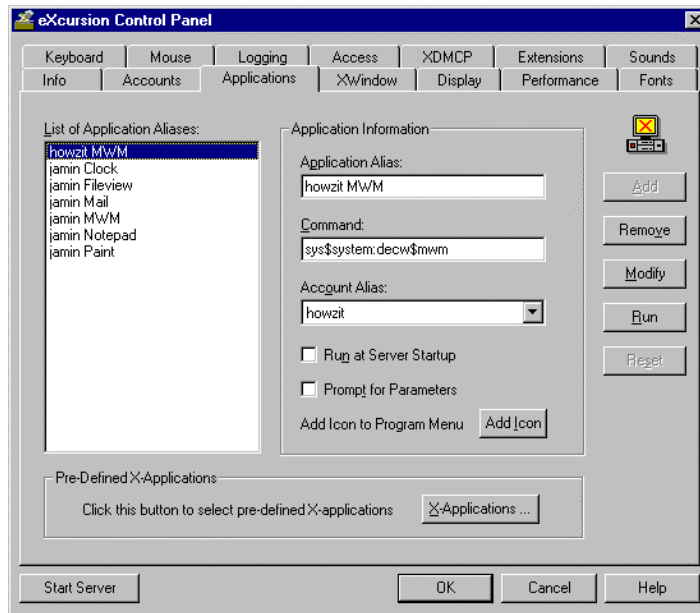
To change an account:

1. Select the account you want to change.
2. Make the desired changes.
3. Click Modify to save the changes.

Creating Aliases and Defining Application Information

The Applications page of the Control Panel (Figure 2–2) allows you to customize eXcursion for faster, easier startup of selected X applications.

Figure 2–2 eXcursion Control Panel Applications Page



You can use the Applications page to do the following:

- Define your own applications.
- Select a predefined X application.
- Add application icons to the Program menu.

Adding an X Application

In the List of Application Aliases list box, the Applications page lists the X applications for which you have defined startup procedures. Applications are listed alphabetically by alias.

The Application Information group box shows the startup parameters corresponding to the application whose alias is highlighted in the list of application aliases. You make all changes to the parameters or the aliases in the Application Information group box.

Configuring eXcursion to Support Your Applications

Note

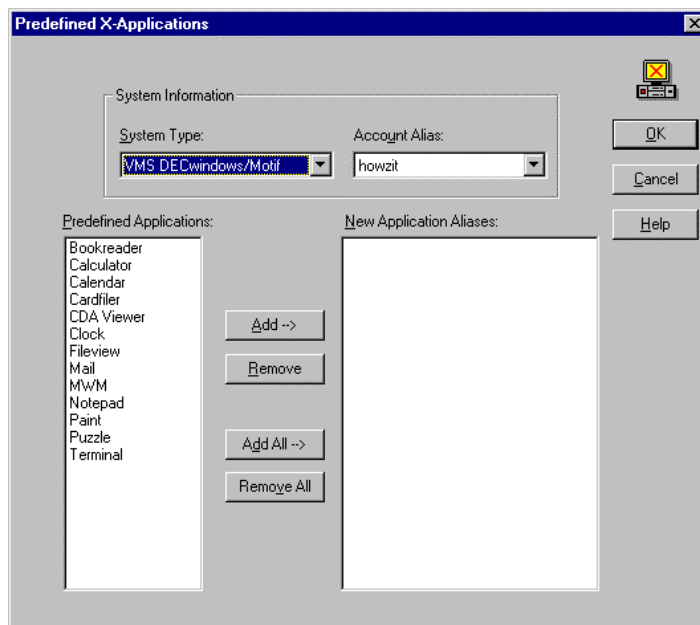
The applications on the List of Application Aliases list box also appear on the list of applications on the eXcursion Server Applications submenu (Chapter 4) and in the eXcursion V7 Applications submenu on the Programs menu.

You can add an application by using the list of predefined applications, or by adding it directly.

To add an application using the list of predefined X applications:

1. Click X Applications. Clicking this button displays the Predefined X Applications dialog box (Figure 2–3).

Figure 2–3 Predefined X-Applications Dialog Box



2. Select a system type and an account alias. (You must enter an account on the Accounts page before doing this step.)
3. Select the applications you want to add.
4. Click Add.

Configuring eXcursion to Support Your Applications

To remove an application after adding it, highlight the application and click Remove.

5. Click OK.

A window containing the eXcursion V7 applications is displayed, showing the new icons.

If you want to create a copy of an icon on your desktop, use the right mouse button to drag the icon from this window to the desktop, then click Copy Here.

The names of the applications you selected now appear in the list of applications on the eXcursion Control Panel Applications page and on the eXcursion Server Applications submenu. The applications also appear in the eXcursion V7 Applications Program menu.

To add an application directly:

1. In the Application Alias edit box, enter the name you want to appear as a menu item in the Application menu and as the title of the icon, if you choose to add an icon to a program menu. For example, enter Sun Mailtool, OpenVMS Notes, or any other application name of your choice.
2. In the Command box, enter the startup command for the X application. For example, to display an OpenVMS Notes window, you would type:

```
$ notes/inter=decwindows
```

To determine the startup command, see the documentation for the X application.

3. Select an account from the Account Alias drop-down list. If no accounts are listed, return to the Accounts page and define your accounts.
4. Check Run at Server Startup if you want this application to start when you start the eXcursion Server.

Configuring eXcursion to Support Your Applications

5. Check Prompt for Parameters if you want to be prompted for parameters each time you start this application. For example, you can start the OpenVMS Notepad and specify a file name as the parameter.

6. Click Add.

To remove applications after adding them, highlight the applications and click Remove.

7. Click Add Icon if you want eXcursion to display an icon for the X application on the Program menu for eXcursion V7 applications.

A window containing the eXcursion V7 applications is displayed, showing the new icon.

If you want to create a copy of the icon on your desktop, use the right mouse button to drag the icon from this window to the desktop, then click Copy Here.

8. You can start the application in several ways:

- By clicking Start on the taskbar, pointing to the Programs menu, then pointing to eXcursion V7 Applications, and clicking the application icon.
- From a desktop shortcut.
- When the eXcursion Server is running, by right-clicking the Server icon in the taskbar, pointing to Applications, and clicking on the desired application.

To change an application entry:

1. Click the alias of the application you want to modify.

The settings for that application appear in the Application Information group box of the Application page.

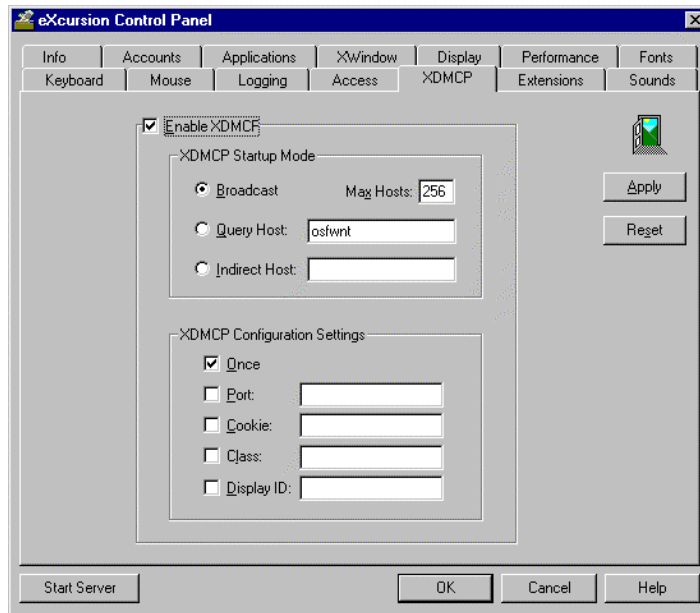
2. Change the parameters as necessary. (You can change the alias also.)
3. Click Modify to save the changes.

Using an X Display Manager

Use the XDMCP page (Figure 2–4) to specify startup mode and configuration for the X Display Manager Control Protocol (XDMCP).

If your remote host provides logon services with the X Display manager, use the XDMCP page to enable the services.

Figure 2–4 eXcursion Control Panel XDMCP Page



You must enable XDMCP before using it, by checking the Enable XDMCP box.

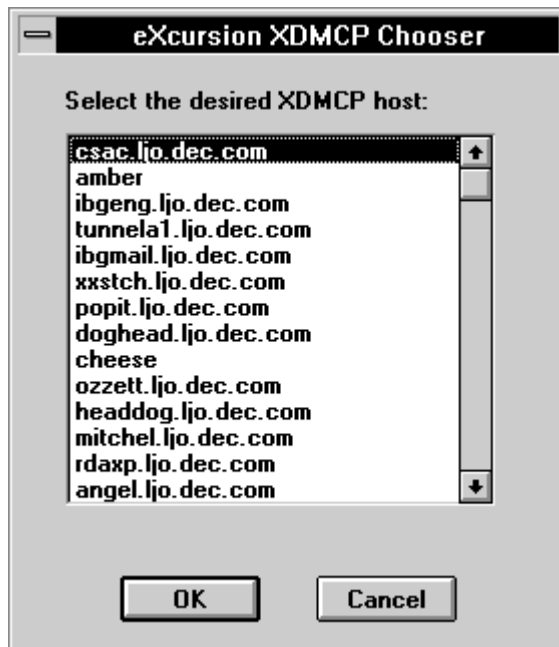
XDMCP startup mode specifies the method eXcursion uses to obtain the services of an external display manager. Any changes you make will take effect the next time you start eXcursion.

There are three XDMCP startup modes:

- **Broadcast**—eXcursion places a message on the network requesting an X display manager without specifying a particular one. eXcursion then displays the eXcursion XDMCP Chooser dialog box (Figure 2–5), allowing you to choose a host from the list of those that responded to the server and that allow login. The list can grow as hosts report to eXcursion.

The Max Hosts setting determines the maximum number of hosts (up to 512) that can be listed in the XDMCP Chooser list in Broadcast mode.

Figure 2–5 eXcursion XDMCP Chooser List Box



- **Query Host**—You specify the host you want to use. eXcursion requests an X display manager from that host.
- **Indirect Host**—You specify the host. eXcursion places a request to that host to issue a broadcast query. The host then displays a list of the display managers that responded to the broadcast query, allowing you to choose the host you want.

To select an XDMCP startup mode:

1. From the XDMCP page, click the startup mode you want to use.
For Query Host or Indirect Host modes, enter the host name.
2. Click Apply or OK to change the startup mode.

You are prompted to restart your system. The changes you made will now take effect.

XDMCP Configuration Settings:

The XDMCP configuration settings specify the following XDMCP configuration parameters:

Configuring eXcursion to Support Your Applications

- **Once**—The server terminates instead of resetting at the end of a session.

At the end of most sessions, a server resets. Resetting involves restoring all default values, terminating, and restarting. In Single Window mode, you will see the X root window close and reopen. Generally, a reset is not visible in Multiple Windows mode.
- **Port**—Use only to specify a port other than the default port. See your system administrator for more information.
- **Cookie**—Use only to define a specific security authorization key. If not specified, the X Server creates this key automatically. eXcursion supports MIT-MAGIC-COOKIE, XDM-AUTHORIZATION-1, and XDM-AUTHENTICATION-1.
- **Class**—An additional display qualifier. See your system administrator for more information.
- **Display ID**—The display ID given to you by your system administrator.

To change XDMCP configuration settings:

1. Check **Once** if you want the server to terminate after each session. Otherwise, leave it unchecked.
2. Select a port if your system administrator has told you to enter one here.
3. Enter your security authorization key in **Cookie** if you are using a special key. Otherwise, leave this blank.
4. Leave **Class** blank unless your system administrator has given you something to enter here.
5. Enter your display ID in **Display ID**, if your system administrator has told you to do this.
6. Click **Start Server** to start the X Server and proceed according to the startup mode you chose previously.

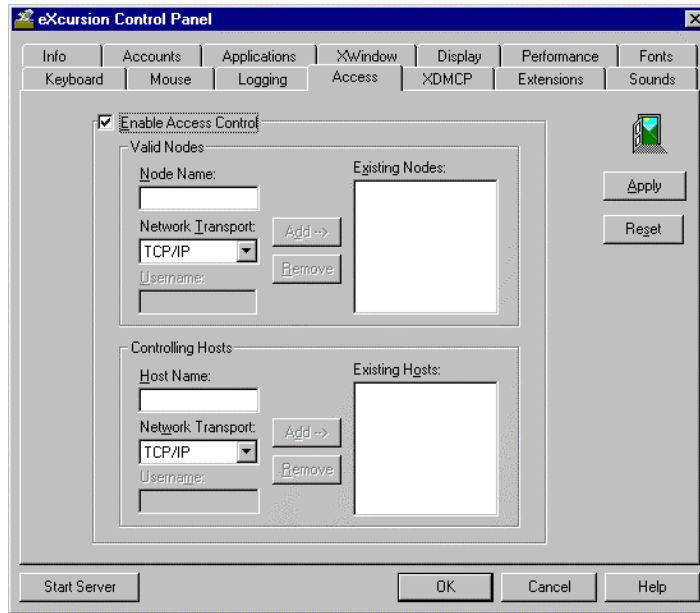
Restricting Access

The Access page of the Control Panel (Figure 2–6) allows you to specify the hosts (the Valid Nodes) that can run X applications on your PC. By restricting this access, you can prevent unauthorized users from running X applications on your PC. The Access page also allows you to restrict the external hosts (the Controlling Hosts) that can change the valid nodes.

Configuring eXcursion to Support Your Applications

If you select DECnet as your network transport, you can specify hosts and user names for both valid nodes and controlling hosts.

Figure 2–6 eXcursion Control Panel Access Page



Enabling Access Control

You must enable access to use the controls on the Access page.

To enable access control, check the Enable Access Control checkbox.

Adding and Removing Valid Nodes

Use the Valid Nodes group box to specify the hosts that are allowed to display X applications on your PC. You might want to limit display access to only those hosts where you have an account by specifying those nodes here. After you grant access to one or more hosts, no other hosts are able to display X applications on your PC.

To allow a host to display X applications on your PC:

1. Enter the host name in the Node Name box.
2. Select the network transport protocol in the Network Transport drop-down list.

Configuring eXcursion to Support Your Applications

If you select DECnet as the network transport, you can restrict access to specific user names on a host by entering the name in the Username box. You must make a separate entry for each host/user name combination. If you leave the Username field blank, eXcursion accepts any user.

3. Click Add to move the new node name to the Existing Nodes list.

To remove a host from the list of valid nodes:

1. Select the host name you want to remove in the Existing Nodes list.
2. Click Remove.

Adding and Removing Controlling Host Names

Use the Controlling Hosts group box to specify a host that can make changes to the list of valid nodes (Your local PC is always authorized.)

To add a host computer that can make changes to the list of valid nodes:

1. Enter the node name in the Host Name box.
2. Select the network transport protocol in the Network Transport drop-down list.

If you select DECnet as the network transport, you can restrict access to specific user names on a host by entering the name in the Username box. You must make a separate entry for each host/user name combination. If you leave the Username field blank, eXcursion accepts any user.

3. Click Add to move the new controlling host name to the Existing Hosts list.

To remove a controlling host name:

1. Select the host name you want to remove in the Existing Host list.
2. Click Remove.

Setting or Updating Your Password

An eXcursion password allows you to restrict access to eXcursion. Once you specify a password, eXcursion does not start without the password.

The password also indirectly restricts access to your X applications by using your eXcursion password as part of the encryption key for your X application passwords. Because of this feature, your X applications will not

Configuring eXcursion to Support Your Applications

start even if an unauthorized user manages to bypass your password and start eXcursion.

Use the Password page of the Control Panel (Figure 2–7) to set or update your eXcursion password.

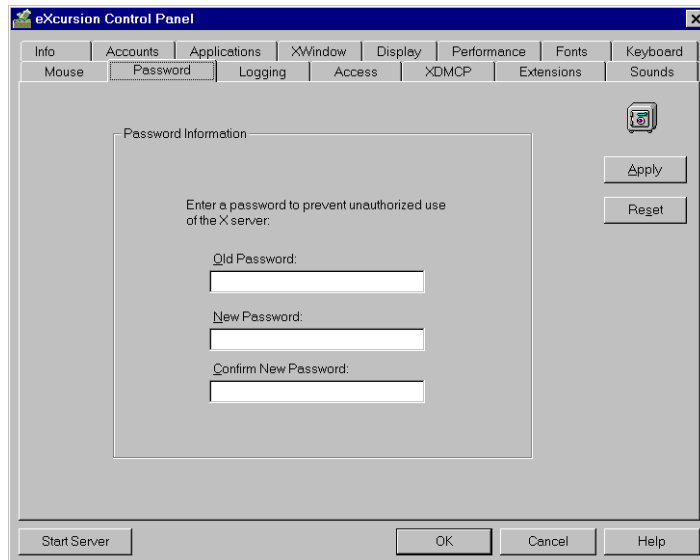
Note

The Password page is applicable only to eXcursion running on Windows 95 or Windows 98. When running on Windows NT or Windows 2000, eXcursion relies on Windows NT or Windows 2000 security.

Use the Password Information box to set a password that must be entered when you perform the following tasks:

- Start eXcursion.
- Resume an eXcursion session that you paused.

Figure 2–7 Control Panel Password Page



To change your password:

1. Enter your old password in the Old Password box.
2. Enter your new password in the New Password box.

Configuring eXcursion to Support Your Applications

3. Enter your new password again for confirmation in the Confirm New Password box.

Your new password will be in effect the next time you log on.

To enable the expired password feature of OpenVMS, see the *Compaq PATHWORKS 32 Installation Guide*.

Managing Your eXcursion User Interface

This chapter describes how to configure eXcursion to match your hardware and manage your working environment preferences. By using Control Panel pages, you can:

- Set display options (with the Display page)
- Set performance options (with the Performance page)
- Manage your eXcursion X Windows environment (with the XWindow page)
- Set the controls on your mouse (with the Mouse page)
- Change keyboard information (with the Keyboard page)
- Associate sounds with events (with the Sounds page)
- Add and locate font files (with the Fonts page)
- Manage X extensions (with the Extensions page)

Note that additional information about these Control Panel pages is available in the F1 and online Help.

The Control Panel pages include the following general use buttons:

- **OK**—Saves all Control Panel changes and closes the Control Panel.
- **Cancel**—Closes the Control Panel without saving changes.
- **Help**—Displays context-sensitive help.
- **Start Server**—Starts the X Server. This button changes to Restart Server if the X Server is running already.
- **Apply**—Saves the settings immediately. Some settings are applied immediately, whereas other settings cannot take effect until you restart

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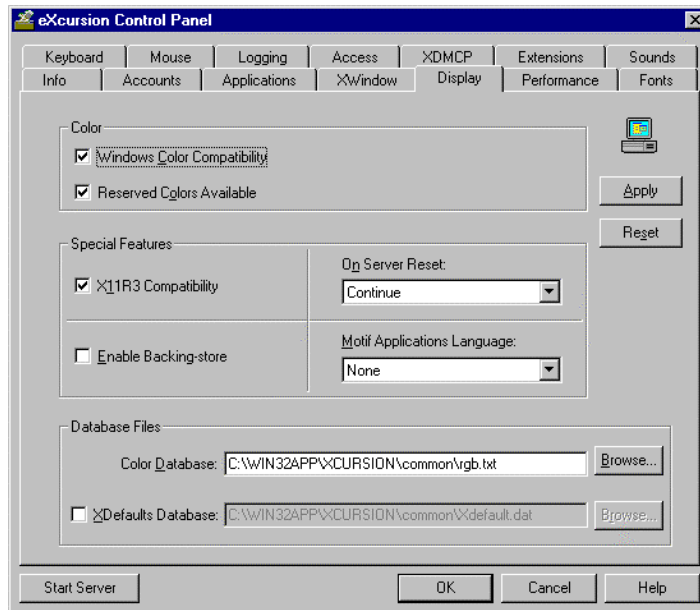
the X Server. A message is displayed for those settings that require you to restart the X Server to apply the changes.

- **Reset**—Returns all settings on the page to the last-saved settings.

Setting Display Options

Use the Display page to set eXcursion display options (Figure 3-1).

Figure 3-1 Control Panel Display Page



The following paragraphs describe each of the sections on the Control Panel Display page.

Color Group Box

The Color group box of the Display page allows you to maintain color compatibility between Windows and your X applications and access colors normally reserved for Windows.

Windows Color Compatibility Check Box—By selecting this box, you restrict the number of colors available to X applications in their private color maps and you minimize color shifts that occur when focus is changed between Windows and X applications.

Note

When you enable Windows Color Compatibility for a 256-color video system, 20 colors are reserved for Windows system use, making available 236 colors for use by X applications with private color maps.

When this function is disabled, two colors are reserved (for black and white), making available 254 colors for use by X applications.

Reserved Colors Available Check Box—When selected, eXcursion reports to applications that all colors are available in their private color maps. The actual number of colors available is determined by the Windows Color Compatibility check box.

Note

Selection of colors is done from the application or the X application's initialization file. For more information about selecting colors, see the documentation accompanying the application.

Special Features Group Box

Use the X11R3 Compatibility check box of the Display page to change X protocol error checking so you can run older versions of X applications.

eXcursion is based on Version 11, Release 6, of the X Window System. eXcursion is compatible with Version 11, Releases 4 and 5, of the X Window System as well as with Release 6.

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X11R3 Compatibility Check Box—Check the X11R3 Compatibility Check Box to relax some X protocol error checking so some old (X11R3) applications can run. Relaxing the protocol error checking has no effect on running Release 4, Release 5, or Release 6 applications.

To use eXcursion with X11, Release 3, applications:

1. Select the X11R3 Compatibility check box.
2. Click Apply or OK.

When this box is checked, you can continue to use applications based on X 11, Release 4, 5, and 6. An informational message is displayed any time you start an X11 Release 3 application.

On Server Reset Drop-down List Box—Allows you to specify what eXcursion should do after the last X client terminates. You can request that eXcursion continues to run, restarts itself, or terminates. The default is that eXcursion continues to run.

To specify the action that you want eXcursion to take, perform the following steps:

1. Click the down arrow to view the options.
2. Select an action.
3. Click Apply or OK.

Enable Backing-store Check Box—Lets an application indicate that eXcursion should save the contents of a covered window locally. Backing-store allows you to avoid having your screen refresh from over the network, thus providing a quicker local, refresh rate.

To enable backing-store, perform the following steps:

1. Click the Enable Backing-store check box.
2. Click Apply or OK.

Note

Enabling Backing-store in multiwindow mode might decrease server performance.

In single-window mode, Backing-store is not retained if part of the window is covered by a Microsoft Window, is clipped by the edge of the screen, or is erased by a screen saver. In such cases, the application window receives an expose event.

Motif Applications Language Drop-down List Box—Allows you to set the language used by Motif applications.

Motif applications capable of running in more than one language look for a language property on the X Server's root window. Selecting a language from the drop-down list sets this property. If you have defined an Xdefaults file in the Database Files section of the Display page, you should define this property there.

Note

Do not select a language in the drop-down list unless you need it. It can interfere with X applications that set other properties on the root window.

To specify the Motif applications language, perform the following steps:

1. Select the language you want to use from the drop-down list.
2. Click Apply or OK.

Database Files Group Box

Use the Database Files group box of the Display page to define a new color database or a new Xdefault database.

Color Database Check Box—X applications can ask the X Server for colors by name. By default, the X Server looks for the definition of these colors in a text file named RGB.txt. Colors are defined in this file as RGB values (three integers that specify the red, green, and blue components of the color).

If an X application requires a different set of color definitions, you can define a new color database.

To define a new color database:

Managing Your eXcursion User Interface

1. Copy RGB.txt to another file.
2. Edit the new file using a text editor.
3. Change the color database specified on the Display page.
4. Click Apply or OK.

XDefault Database Check Box—The XDefault database contains a set of default resource values for your X applications. These resource values control such parameters as fonts, colors, mouse, and cursor.

Select this option for the X Server to use XDefaults. If you select the option and omit a file specification, eXcursion uses the text file XDefault.dat.

If you want to define a new XDefault database, create a new file based on your current XDefault.dat file. Save the old file in case you want to restore it later.

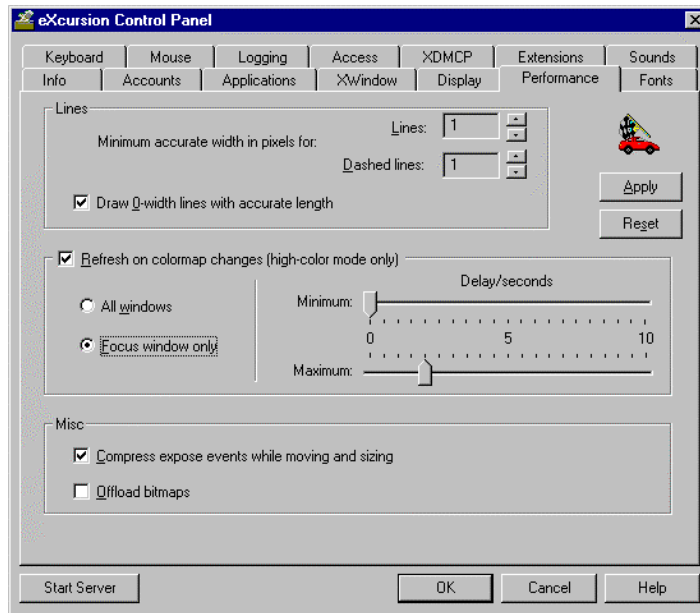
To define a new XDefault database, perform the following steps:

1. Copy your current XDefault.dat file to another file. Give the new file a different file name so you can save the older version.
2. Edit the new file using a text editor.
3. On the Display page, specify the new file name as your XDefault database.
4. Click Apply or OK.

Setting Performance Options

Use the Performance page to set eXcursion performance options (see Figure 3-2).

Figure 3-2 Control Panel Performance Page



The following paragraphs describe each of the sections on the Control Panel Performance page.

Lines Group Box

The Lines group box of the Performance page allows you to adjust how lines are drawn to improve performance at the expense of some accuracy. You can change the following attributes to improve performance:

Minimum accurate width in pixels for Lines—According to the X specification, all lines specified as width 1 or greater must be drawn exactly as specified. For 0-width (or thin) lines, the server is free to draw the line as fast as possible without restrictions for accuracy.

In eXcursion, 0-width lines are drawn using the graphics device interface (GDI), which can be significantly faster than using the X specification.

When you select a value for Minimum accurate width, all lines of that width and greater are drawn to the X specification. All lines less than the selected width are drawn using GDI.

If you specify INF in the Lines box, all lines are drawn using GDI.

Note

When GDI is used to draw a line, the pixels drawn might differ slightly from those specified in the X specification. Some styles, such as lines drawn with a tiled pattern, might be ignored.

Minimum accurate width in pixels for Dashed lines—This is similar to Minimum accurate width in pixels for Lines except it specifies how dashed lines should be drawn. This value must be less than or equal to the value for Minimum accurate width in pixels for Lines.

Note that dash patterns can differ slightly from the X specification if GDI is used.

Draw 0-width lines with accurate length attribute—By default, according to the X specification, the last pixel of a 0-width line should be drawn. GDI, however, does not draw this last pixel.

To correct this discrepancy, select the Draw 0-width lines with accurate length attribute; however, you might notice a slight decrease in line drawing performance.

Note

This only applies to 0-width lines; all other lines are drawn to match the length according to the X specification.

Refresh on Color Map Changes Group Box

If you are running eXcursion on a display with more than 256 colors, the **Refresh on color map changes** (high color mode only) group box allows you to specify that you want eXcursion to refresh windows when the underlying color map is changed. This ensures that the displayed colors are shown correctly.

By default, this option is enabled and might result in extra refreshing of the top-most window. In general, this should not be a problem; however, some applications, such as those that perform color map animation might experience problems. In such cases, you can disable this option.

All windows—Specifies that all windows should be refreshed when the underlying color map is changed. If you select this option, it ensures that all windows are displayed using the correct colors; however, this might cause significantly more refreshing than choosing the Focus window only option.

Focus window only—Specifies that only the focus window should be refreshed when the underlying color map is changed. If you select this option, the amount of redrawing after the color map has changed should be reduced; however, some windows might not be displayed using the correct color. This option is selected by default.

Minimum Delay—Specifies the number of seconds that elapse after the underlying color map has changed and the associated window is refreshed, if no other color map updates are made.

Maximum Delay—Specifies the maximum number of seconds that can elapse after the color map has changed and the associated window is refreshed.

Misc Group Box

The Misc group box of the Performance page allows you to compress expose events and to offload bitmaps for applications that demand a lot of GDI resources. You can change the following attributes to improve performance:

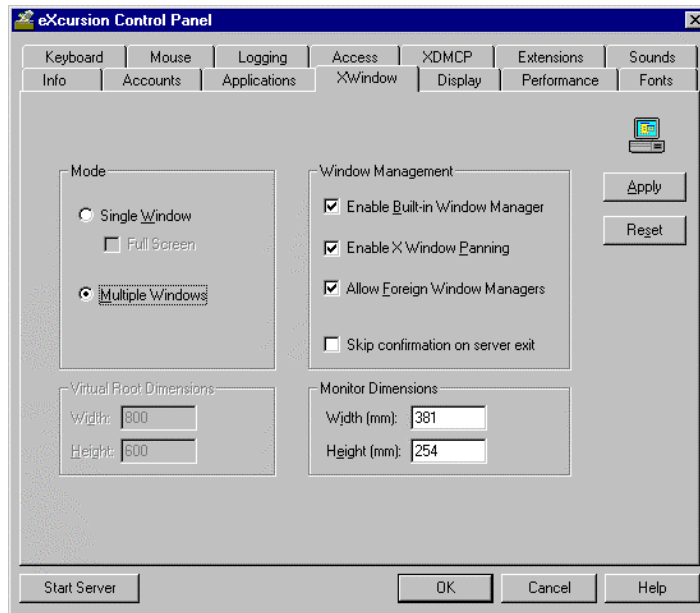
Compress expose events while moving and sizing—Select this check box to reduce the number of refreshes performed when a window is moved or sized. To increase performance, leave the check box selected.

Offload bitmaps—Select this check box to have eXcursion manage bitmap resources for the application. This might be necessary to prevent the depletion of bitmap resources available to the application. Note, however, that if you select this option it might slow down performance significantly. By default, this option is not selected.

Managing Your X Window System Environment

Use the XWindow page to manage your eXcursion X Window system environment (Figure 3-3).

Figure 3-3 Control Panel XWindow Page



The following paragraphs describe each of the group boxes on the XWindow page.

Mode Group Box

The Mode group box of the XWindow page allows you to switch between Single Window and Multiple Windows mode. You must restart the server for this to take effect.

Single Window Mode—In Single Window mode, all your X applications appear on a single eXcursion window, called the root window. A foreign window manager, such as the Motif Window Manager (MWM), must be used to manage the X applications.

Click the Full Screen check box if you want the eXcursion root window to completely cover your display window. The Full Screen option is only available in Single Window mode.

You control the maximum size of the root window with the Virtual Root Dimensions group box of the XWindow page.

Note

eXcursion ignores the setting of the built-in window manager switch in Single Window mode. The built-in window manager works only in Multiple Windows mode. See the discussion about the built-in window manager in the Window Management section.

If you are using the Motif Window Manager (MWM), the default behavior is to display application icons in the lower-right corner of the root window. You can configure the MWM to display application icons in the upper-right corner of the root window, if desired. Refer to the OSF documentation for details.

Multiple Windows Mode—Multiple Windows mode configures your display to look and act like a normal Windows environment. In Multiple Windows mode, each X application appears in a separate window.

To change Window mode:

1. Click Single Window or Multiple Windows to select the mode you want.
2. Click OK or Apply.
3. Restart the X Server to put the change into effect.

Note

The root window has the following known restrictions in Multiple Window mode:

- eXcursion does not capture mouse input to the root/desktop window.
 - Expose events on the root window are not sent back to the X applications using the root window.
 - Drawing performed on the root window will not be visible.
-

Window Management Group Box

The Window Management group box of the XWindow page allows you to disable the built-in windows manager or enable X Window panning.

Built-in Window Manager—The eXcursion Built-in Window Manager is an Inter-Client Communication Conventions Manual (ICCCM) compliant window manager that is tightly integrated with Microsoft Windows. You should use this window manager whenever you use Multiple Windows mode.

Managing Your eXcursion User Interface

The Built-in Window Manager works only in Multiple Windows mode. Other window managers can be used in Multiple Windows mode, but you should use the Built-in Window Manager to achieve the best integration with the Windows environment.

For normal use, enable the Built-in Window Manager. If you start a foreign window manager, the Built-in Window Manager “steps aside” and restarts when the other window manager stops. Only disable the Built-in Window Manager when you want no window management.

Allow Foreign Window Managers—If you want to run a foreign window manager in Multiple Window mode, you must check the Allow Foreign Window Managers check box. The default disables the Allow Foreign Window Managers feature.

Note

If you are using a foreign window manager in Multiple Windows mode, you might have conflicts with the eXcursion Built-in Window Manager, which can be seen as a problem with X focus, stacking order, and the like. These problems can usually be avoided by either switching to Single Window mode, or to the Built-in Window Manager in Multiple Windows mode.

Enable X Window Panning—An X application window can be placed partly off the screen. Panning lets you move the window into view by moving the mouse to the edge of the screen.

To enable X window panning, perform the following steps:

1. Check the Enable X Window Panning check box.
2. Click Apply or OK.

Note

The panning feature is available only if you use the Built-in Window Manager. You cannot enable panning and remote X Window Management at the same time.

Virtual Root Dimensions Group Box

The Virtual Root Dimensions group box sets the size of your X root window when you operate in Single Window mode. Virtual root dimensions apply

only in Single Window mode. This section is grayed out in Multiple Windows mode.

X applications can change their behavior based on the root window size. The values you specify for virtual root dimensions are the dimensions eXcursion reports to the X applications.

The values you specify can be larger or smaller than your actual screen size. If the dimensions you specify are larger than the actual root window (or bigger than the screen), a scroll bar is placed on the root window, allowing you to scroll around the window.

If you enter 0 by 0 as your X root window's virtual root dimensions, eXcursion reports the actual dimensions of your PC screen to your X applications.

To set the virtual root dimensions:

1. Enter your current screen resolution or any preferred screen resolution.
2. Click Apply or OK.

Example: If you are using SVGA resolution, set the Width textbox to 1024 and the Height textbox to 768.

Monitor Dimensions Group Box

The Monitor Dimensions group box of the XWindow page allows you to specify monitor dimensions for correct X application display.

To specify your monitor dimensions:

1. Enter the monitor width and height, in millimeters (mm). For most monitors, you can use the default values.
2. Click Apply or OK.

To obtain the specifications for the display area, see the documentation for your monitor.

Setting the Display Resolution:

Resolution, which is the number of pixels per unit length, is another factor in the correct display of X applications. Resolution is most often expressed in dots (pixels) per inch, or dpi.

Regardless of the actual resolution of a monitor, it is a good idea to configure it for either 75 dpi or 100 dpi because many X applications only display correctly at these resolutions.

To set your resolution for 75 dpi:

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1. Determine the width and height of the monitor screen in pixels (for example, 1024 x 768).
2. Multiply each dimension by .339. The results are the dimensions in millimeters (mm). For example:
$$1024 \times .339 = 347 \text{ mm}$$
$$768 \times .339 = 260 \text{ mm}$$
3. Enter the results in the Monitor Dimensions group box described above.
4. Click Apply or OK.

Follow the same procedure to set resolution for 100 dpi, except multiply by .254 instead of .339.

For more information about setting monitor resolution, refer to Appendix H, Display Resolution and X Application Output.

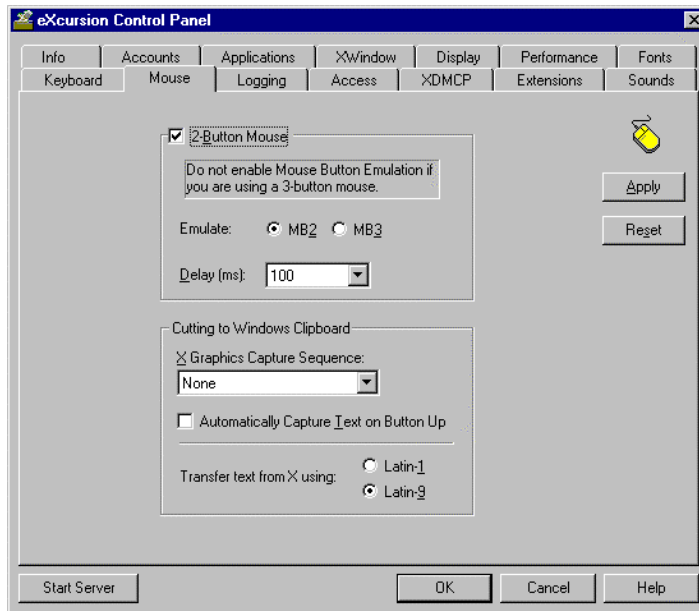
Mouse Controls

You can use the Mouse page of the Control Panel to set an X Graphics capture sequence by choosing the key and mouse combination you want to use to select graphics.

You can also use the Mouse page to enable the emulation of a third button on your mouse.

Figure 3-4 shows the Mouse page of the Control Panel.

Figure 3-4 Control Panel Mouse Page



The following paragraphs describe the group boxes on the Mouse page.

2-Button Mouse Group Box

If you have a two-button mouse, eXcursion lets you emulate a third mouse button by clicking both mouse buttons together.

Note

Mouse button emulation is necessary only if you have a two-button mouse and you use X applications that require a three-button mouse. Do not enable mouse button emulation if you are using a three-button mouse.

To enable mouse button emulation:

1. Click the 2-Button Mouse check box.
2. Select the button (MB2 or MB3) you want to emulate.

eXcursion defines the remaining button using the right mouse button.

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3. Set the Delay setting to the maximum time, in milliseconds (ms), that you want eXcursion to wait for the second button click after receiving the first.

The Delay setting affects the user in two ways:

- eXcursion will assume you are pressing a single button (whichever you pressed first) unless you press the second button within the delay period.
 - You will see a delay in your application responses to single-button mouse actions equal to the delay period.
4. Click Apply or OK.

Cutting to Windows Clipboard Group Box

X Graphics Capture Sequence Drop-down Box—Use the X Graphics Capture Sequence drop-down list box to define the key and mouse button combination for selecting graphics in an X application. The default is None.

To specify a different key and mouse button combination:

1. In the X Graphics Capture Sequence list box, choose the key and mouse button combination you prefer for selecting graphics in your X applications.
2. Click Apply or OK.

Automatically Capture Text on Button Up Check Box—You can capture text from an X application by selecting it with the mouse. When you release the mouse button, eXcursion automatically copies the text to the Windows Clipboard.

To enable automatic text capture on button up:

1. Click the Automatically Capture Text on Button Up check box.
2. Click Apply or OK.

Note

Some X applications might not be compatible with the Automatically Capture Text on Button Up feature. If you observe unexpected behavior, such as when you select text, disable the feature.

Transferring Text from X Option Button

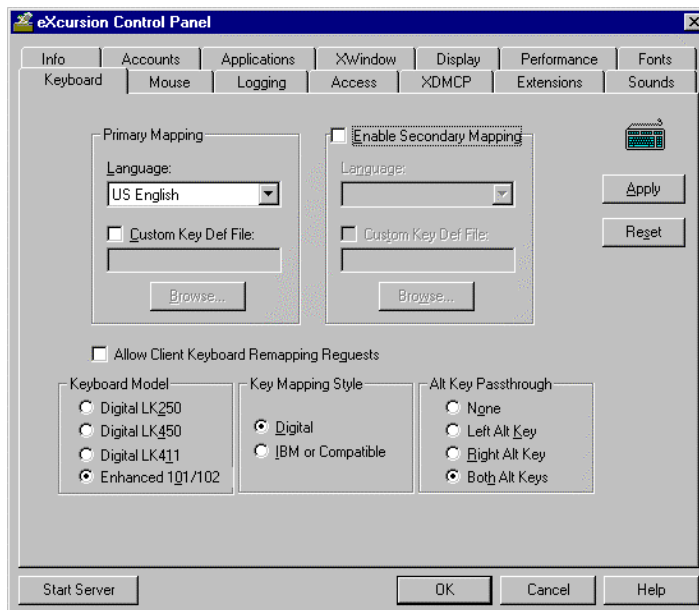
When copying text from an X application to a Microsoft application using the clipboard, eXcursion might be required to translate some characters from the X application's locale to Microsoft's locale. eXcursion supports X applications in either the Latin-1 or Latin-9 locale; however, it is unable to determine what locale to use on its own. By default, eXcursion assumes the X application is running in the Latin-9 locale and translates text accordingly. If you notice some characters transferring incorrectly, such as the International Currency Sign ¤ appearing as the Euro Currency Sign €, you might need to select the Latin-1 locale instead.

Keyboard Mapping

Use the Keyboard page (Figure 3-5) to change keyboard information. For example, if you get a new keyboard, or if the location of your key definition files changes, you must update the information on this page.

The default key definition directory name is `\installation directory\Xcursion\Keysyms`. The default location is the drive where eXcursion files are located.

Figure 3-5 eXcursion Control Panel Keyboard Page



Primary Mapping Group Box

Use the Primary Mapping group box of the Keyboard page to specify the mapping you want to use for the primary keyboard.

To specify the primary keyboard mapping:

1. Select the language you want to use.
2. If you are using nonstandard keys, check the Custom Key Def File check box and enter the name of the key definition file in the text box.

For a list of supported keyboard mappings, see Appendix B.

Enable Secondary Mapping Check Box

The Enable Secondary Mapping check box of the Keyboard page allows you to specify a secondary keyboard mapping. Most users need to specify only one keyboard setup, but you can specify a secondary keyboard setup if you require one. For example, you might need to set up eXcursion so you can switch between the French and German languages.

Note

To shift between the primary and secondary keyboard mappings, press Ctrl+Shift.

To enable secondary mapping:

1. Check the Enable Secondary Mapping check box.
2. Click Apply or OK.

To specify keyboard mapping for the secondary keyboard:

1. If you redefined one or more keys, check the Custom Key Def File check box and enter the name of the key definition file in the text box.
2. Click Apply or OK.

For a list of supported keyboard mappings, see Appendix B.

Remapping Requests

Many session managers try to remap the keyboard layout to a known state, but because they are configured for a workstation, the mapping is often incorrect for a PC keyboard; therefore, eXcursion prevents this by default.

If you have an X application that requires remapping to a known state, do the following:

1. Click the Allow Client Keyboard Remapping Requests check box.
2. Click Apply or OK.

Keyboard Model Group Box

The Keyboard Model group box of the Keyboard page lets you select a keyboard model.

To choose a keyboard model:

1. Click the Digital LK250, LK450, or LK411 keyboard option button if you have one of these keyboards.
2. Click the Enhanced 101/102 option button if you have any other keyboard.
3. Click Apply or OK.

Note

Most Digital keyboards are industry-standard Enhanced 101 or 102 keyboards. The LK450 and LK411 can be used in Enhanced 101 mode; however, with the standard drivers on Windows NT 4.0, function keys F13 and above might not work.

Key Mapping Style Group Box

The Key Mapping Style group box of the Keyboard page allows you to select the keyboard mapping style appropriate to your X environment. Refer to Appendix B to see the specific keyboard layout.

To choose a key mapping style:

1. Click the Digital option button if you want a keyboard that uses the Digital key mapping style, or if you need access to the Gold (PF1) key, or the PF1 to PF4 keys for OpenVMS applications.

Click the IBM or Compatible option button if you have any other keyboard.

2. Click Apply or OK.

Alt Key Passthrough Group Box

Microsoft Windows uses the Alt key for special purposes that prevent the Alt key from being used by eXcursion. Use this group box of the Keyboard page to specify which of the Alt keys you want eXcursion to pass to the X application. Alt keys not passed to the X application are available for Windows use.

On Windows NT systems, you cannot pass the Alt key in the Alt + Tab key sequence to an X application.

To choose the Alt keys you want to send to your X application:

1. Select the option buttons corresponding to the Alt keys you want eXcursion to pass to your X application.
2. Click Apply or OK.

Note

These settings apply to both primary and secondary mapping if secondary mapping is enabled.

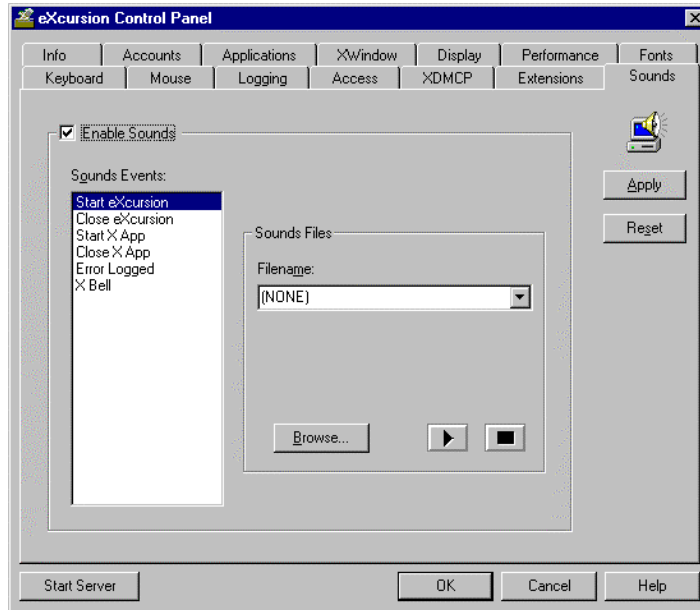
Associating Sounds

Use the Sounds page to associate sounds with certain events, by setting the following:

- Enable sounds
- Events that are associated with sounds
- Sounds to associate with an event

Figure 3-6 shows the Sounds page of the Control Panel.

Figure 3-6 eXcursion Control Panel Sounds Page



To associate a sound file with an event:

1. Click the Enable Sounds check box.
2. At the Sounds Events list, select the name of the event for which you want to associate a sound.
3. At Sounds Files list, select the name of the sound file you want to associate with the highlighted sounds event. You can use the down arrow or the Browse button to select the file.

Adding and Locating Font Files

A font path element (FPE) is a local or remote directory, or a font server, that contains one or more font files and an index file named `Fonts.dir`. There might also be an index of font aliases named `Font.ali`, or an index of scaleable fonts named `Fonts.sca`.

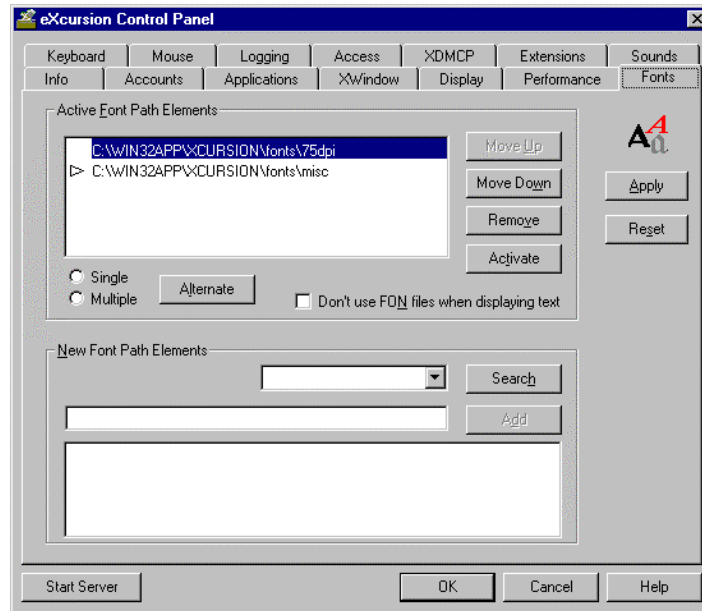
Use the Fonts page of the Control Panel to locate font files and add their font directory to your path. You can also use this page to remove font directories from your path.

You need to specify an additional font directory if you want to use additional fonts provided by eXcursion or an X application.

Managing Your eXcursion User Interface

Figure 3-7 shows the Fonts page of the Control Panel, which you use to add or locate font file directories.

Figure 3-7 Control Panel Fonts Page



Active Font Path Elements Group Box—Lists all FPEs known to the server as follows:

- Primary FPEs are shown in black.
- Alternate FPEs are shown in an alternate color (usually red).
- Single alternate FPEs are indented and positioned after their respective primary FPE.
- Multiple alternate FPEs are not indented and can appear anywhere in the list.
- Activated FPEs have an arrow indicator.

The Active Font Path Elements group box of the Fonts page also includes:

- **Single/Multiple option button group** – Selects which kind of alternate to create with the Alternate button.

- **Alternate button** – Specifies the selected FPE as an alternate. If the selected FPE is already an alternate, it toggles back to being a primary. If the selected FPE is activated, the activation status is removed.
- **Activate button** – Activates the selected FPE and places it on the font path. You can use it to test alternate FPEs before an actual failover event occurs. It lets you interactively examine and debug a font failover configuration, because the list box behaves exactly as the server does when faced with a failover condition. Refer to Appendix F for more information about font failover.
- **Don't use font files when displaying text check box** – Some graphics display cards have compatibility problems when using some of the FON files included with eXcursion. Click this option to disable text displays using the Microsoft Fon files. Text displays will be rendered using the X-based Pcf or Bdf files. If you do not notice any font display problems, leave this option unchecked, because Fon-based fonts render faster than either Pcf-based or Bdf-based fonts.

New Font Path Elements Group Box—Controls to add new FPEs to the Active Font Path Elements. These include:

- A drop-down list of the drives to choose when searching for new font elements
- A text box showing the directory you highlight in the list box
- A list box showing the directories on the selected drive that contain font index files
- A Search button to search the drive and list the font directories
- An Add button to add the selected font directory to the list of active FPEs

An Apply button—to implement the changes you made in this page of the Control Panel without closing the Control Panel. When you click Apply, your settings are saved immediately, but the X Server must be restarted for the settings to take effect.

A Reset button—to return all settings on this page to the last-saved settings.

Search for font directories

To search for font directories among local hard disks or mounted network shares:

1. Click the down-arrow of the drop-down list box by the Search button to display a list of available drives.

Managing Your eXcursion User Interface

2. Select a drive to search.
3. Click the Search button. The drive is searched for all directories that contain a Fonts.dir file. All such directories appear in the lower list box.

Active Font Path Elements Group Box

Use the Active Font Path Elements group box of the Fonts page to specify the font path for eXcursion to search. This list of active font sources can be directories or font servers.

eXcursion searches the FPEs in the order listed. You can improve performance by listing the most used path element first, with the others in order of decreasing activity.

To add FPEs to the active path, select from the New Font Path Elements list box:

1. Search for directories on a selected drive.
2. Highlight a font element from the list box.

The font element you highlight appears in the edit box next to the Add button.

3. Click the Add button to add the highlighted element.

Note

As a shortcut, you can simply double-click the font element to add it. You can also add the font elements directly by typing the FPE name into the edit box next to the Add button and clicking the Add button. This method is most useful for creating new font directories and adding font servers.

To use remote font files in a system using DECnet:

Enter the path of the remote font files using the syntax:

//decnet/host/path

where *host* is the DECnet node name, and *path* is the path of a font directory on the node. For example, to access fonts in a directory SYSTEM:[Fonts.75dpi] on node SERVER, enter:

//Decnet/Server/System:[fonts.75dpi]

To move a font element up the list:

1. Highlight an FPE.
2. Click Move Up.

The highlighted FPE moves up one level.

To move a font element down the list:

1. Highlight an FPE.
2. Click Move Down.

The highlighted FPE moves down one level.

To remove a font element:

1. Highlight an FPE.
2. Click Remove.

eXcursion removes the highlighted FPE from the list of active FPEs.

To create a single alternate FPE for a specific primary FPE:

1. Add the desired alternate FPE to the Active Font Path Elements list box.
2. Select the FPE and use the move up or down buttons to place it under the desired primary FPE.
3. Click the Single option button.
4. Click the Alternate button.

Note that the display shows the selected FPE in red text and indented.

To create a multiple alternate FPE:

1. Add the desired alternate FPE to the Active Font Path Elements list box.
2. Select the FPE and use the move up or down buttons to place it in the desired location.
3. Click the Multiple option button.
4. Click the Alternate button.

Note that the display shows the selected FPE in red text, but not indented.

To test your alternate FPE selections:

1. Select the FPE you want to put on the active font path.
2. Click the Activate button.

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Note that the indicator arrow shifts to the selected item.

To remove the activation indicator from an FPE (and thus remove it from the active font path):

1. Select the activated FPE, which can be a primary or an alternate FPE.
2. Click the Alternate button. One click toggles the FPE to some primary or alternate state and removes the activation indicator. A second click toggles the FPE back to its original type (minus the indicator).

Note

For information about alternate FPEs and font failover, refer to Appendix F.

Font File Format

The eXcursion X Server can read font files in any of the following formats:

Name	Font Type	File Extension
Bitmap Distribution Format	Bitmap	Bdf
Portable Compiled Format	Bitmap	Pcf
X11R4 SNF Format	Bitmap	Decw\$Font
Adobe Type 1 Scaleable Format	Outline	Pfa, pfb
Speedo Scaleable Format	Outline	Spd
Windows Font File Format	Outline	Fon

Creating a Fonts Directory

When you click the Search button in the New Font Path Elements group box of the Fonts page, eXcursion finds only the directories with Fonts.dir files.

To add a font directory that does not have a Fonts.dir file:

1. Enter the path name of the directory in the edit box to the left of the Add button.
2. Click Add.

eXcursion builds a Fonts.dir file for that directory and then adds the directory to the list of active FPEs.

To customize a fonts directory:

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1. Place the font files you want to use into the desired directory.
2. Delete font files you do not want included in this directory.
3. Delete the Fonts.dir file, if one exists.
4. Enter the path name of the directory in the edit box to the left of the Add button on the Fonts page of the Control Panel.
5. Click Add.

eXcursion builds a new Fonts.dir file for that directory and then adds the directory to the list of active FPEs.

These methods work for bitmapped fonts (Bdf and Pcf formats). Scaleable fonts (Type 1 or Speedo formats) require a different method.

To add a scaleable font:

1. Change or create the desired directory.
2. In that directory, edit or create the text file Fonts.sca.
3. Add an entry for each font.

The following example shows a Fonts.sca file:

```
4
cour.pfa -adobe-courier-medium-r-normal--0-0-0-0-m-0-iso8859-1
couri.pfa -adobe-courier-medium-i-normal--0-0-0-0-m-0-iso8859-1
courb.pfa -adobe-courier-bold-r-normal--0-0-0-0-m-0-iso8859-1
courbi.pfa -adobe-courier-bold-i-normal--0-0-0-0-m-0-iso8859-1
```

The first line tells the number of entries in the file (in this case, 4). References to “courier medium” would open the Type 1 font Cour.pfa, and references to “courier bold italic” would open Courbi.pfa

4. Enter the path name of the directory in the edit box to the left of the Add button on the Fonts page of the Control Panel.
5. Click Add.

When eXcursion builds a new Fonts.dir file for this directory, it merges the Fonts.sca file (if one exists) into Fonts.dir.

For more information about font names, refer to Appendix E, X Font-Naming Conventions.

Adding a Font Server

If you use TCP/IP, you can add a font server to the list of active FPEs. Font servers cannot be searched for on a network; contact your system administrator for a list of any font servers available on your network.

To add a font server to your fonts directory:

1. Enter the server specification into the edit box to the left of the Add button, using the following syntax:

tcp/node name:port number

where *node name* is the TCP/IP node name and *port number* is the TCP/IP port number.

Contact your system administrator for the correct port number value.

The default values are port 7000 to connect to an R5 font server and port 7100 to connect to an R6 font server.

2. Click Add to add the server to the list of active FPEs.

Note

Text drawing is significantly faster if eXcursion standard fonts are stored either locally or on a file server rather than on an X font server.

Common Desktop Environment (CDE) Font Setup

CDE uses the standard set of X fonts distributed with eXcursion, but it calls many of them by different names. A font alias file maps the CDE names into the standard X font names.

The contents of the alias file depend on the locale and the version of CDE. Consult your system manager for this information. CDE font aliases can be configured in one of two ways:

- **X Font Server** — Consult your system administrator for the address of a font server that is aware of the CDE font alias files. Put the address in your eXcursion font path.

On the font server, make sure that the font server configuration file, normally `/usr/var/X11/fs/fs_cache_config`, has been updated to include exporting the CDE font aliases in `/usr/dt/config/xfonts`.

- **Local/Network Font Directory** — If you do not have access to such a font server, the font alias file can be set up in a local font directory and added to the font path.

To set up a local directory:

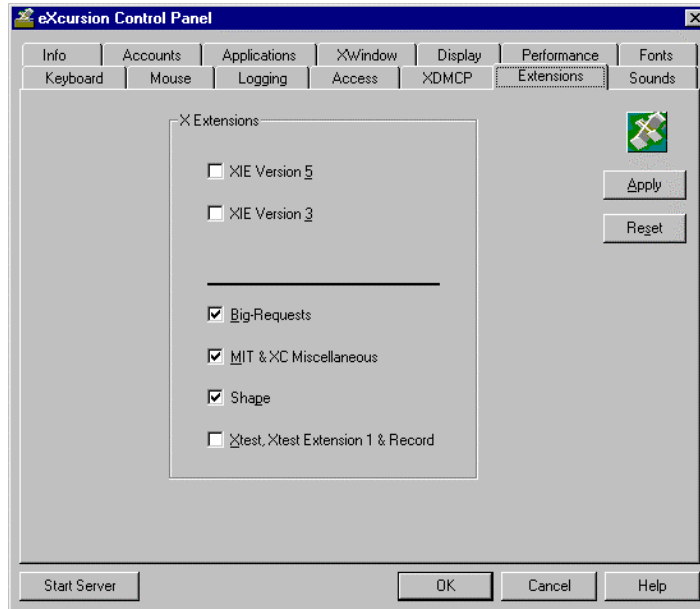
1. Create a new directory on your hard disk; for example, eXcursion\fonts\cde.
2. Obtain a copy of the appropriate CDE font alias file from your system administrator. (On a Tru64 UNIX system, the path is /usr/dt/config/xfonts/{LANG}/fonts.alias.) Rename the file to Fonts.ali and copy it into the \cde directory.
3. Use a text editor to create a Fonts.dir file in the \cde directory. Enter a single line containing the digit 0 in the file.
4. Use the eXcursion Font page of the eXcursion Control Panel to add the new directory to your eXcursion font path.

The eXcursion Server now understands the new CDE font names.

Managing Extensions to X

The Extensions page controls server extensions to X (see Figure 3-8).

Figure 3-8 eXcursion Control Panel Extensions Page



The X Image Extensions (XIE) enhance the ability of the X Window System to handle certain types of data. In most cases, your application documentation can tell you which extensions you require. XIE improves image processing and management.

eXcursion supports the following extensions:

- **XIE Versions 5 and 3 Check Boxes**—Supports image handling.
Note that you can check both XIE Version 3 and XIE Version 5 if your X applications need both.
If your X application does not use either extension, leave both boxes unchecked.
- **Big-Requests Check Box**—Enables the use of protocol requests that exceed 262,140 bytes in length.
- **MIT & XC Miscellaneous Check Box**—Client applications that are long running or use up their quota of resource IDs can receive a protocol

error. This extension helps avoid such a problem by supporting additional resources for the X Server.

- **Shape**—Provides arbitrary window and border shapes within the X11 protocol.

Note

The Shape extension only shapes non-top-level windows in Multiple Windows mode, with the Built-in Window Manager enabled.

- **Xtest, Xtest Extension 1 & Record**—Supports system testing.

See your application documentation to determine if you need to select any extensions.

Using X Applications

Now that you have set up eXcursion, you are ready to use it for accessing X applications.

NOTE

The xapps directory under the eXcursion directory on the PATHWORKS 32 CD-ROM contains a set of sample applications that are provided “as is”; they are not supported. Refer to the Readme.txt file in that directory for more information.

There are several ways to start an X application. You can start an application directly by:

- Clicking Start on the taskbar, pointing to Programs, and then pointing to the eXcursion V7 Applications menu (if you have predefined the application)
- Launching the application from a shortcut, if you have created one

If the eXcursion Server is running, you can start an application by:

- Right-clicking the eXcursion Server icon on the taskbar, then pointing to Applications and either:
 - Choosing the application from the Application submenu (if you have predefined the application)
 - Using the Run X Applications dialog box
- Using the Control Panel Applications page
- Invoking an X application from a terminal session on a remote host

Starting an X Application Directly

You can start an X application directly if you have added an X application to the Programs menu or created a shortcut. The eXcursion Server does not have to be running.

To start an X application directly:

1. Click Start on the taskbar, point to Programs, and then point to the eXcursion V7 Applications menu (if you have predefined the application).
2. Click the application icon.

The eXcursion Server starts automatically if it is not already running.

Starting an X Application Through eXcursion

To start an application using eXcursion, you display the eXcursion Main menu, which gives you access to a variety of eXcursion and Windows functions.

To start eXcursion:

1. Click Start, point to Programs and then point to eXcursion V7.
2. Click eXcursion Server. The eXcursion Server icon is placed on your taskbar and the XDMCP Chooser list box is displayed.
3. Choose an XDMCP host.
4. Click the eXcursion Server icon on the taskbar with the right mouse button to bring up the eXcursion Main menu, shown in Figure 5-1.

Note

In Multiple Windows mode, only the eXcursion Server icon appears on your taskbar. In Single Windows mode, the X root window also appears.

Figure 4–1 eXcursion Main Menu



Using the eXcursion Main Menu

The eXcursion Main menu provides access to:

- **Windows features**

The first three items on the Main menu—Restore, Move and Close—are standard Windows features that appear on the Main menu. See your Microsoft platform documentation for information on these features.

- **About**

Provides information about the current version of eXcursion.

- **Help**

Starts the eXcursion online Help facility.

- **Network Monitors**

Using X Applications

Allows you to activate LEDs that indicate network activity or to activate Maestro, an audio aid that indicates message transmission for an X application. (See Chapter 5 for more information.)

- **Pause** (Available on Windows 95 and Windows 98 only)

Locks your workstation. (See Chapter 2 for more information about setting passwords.)

- **Minimize All X Windows**

Minimizes all your X Windows applications as icons on the taskbar. This option is only available if you are running in multiple-window mode.

- **Control Panel**

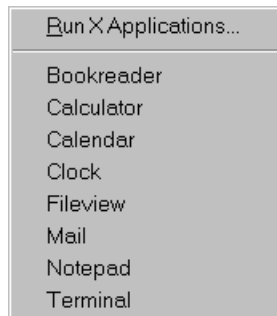
Brings up the eXcursion Control Panel. (See Chapters 1, 2, and 3 for more information.)

- **Applications**

Displays the Applications submenu. (See the Applications Submenu section for more information.)

5. An Applications submenu similar to the one shown in Figure 4–2 appears. Click Applications on the eXcursion Main menu.

Figure 4–2 eXcursion Applications Submenu



This submenu allows you to run X applications either by clicking a specific application you previously predefined (Adding an X Application, Chapter 2) or by clicking Run X Applications and using the Run X Applications dialog box.

- **To start a predefined application:**

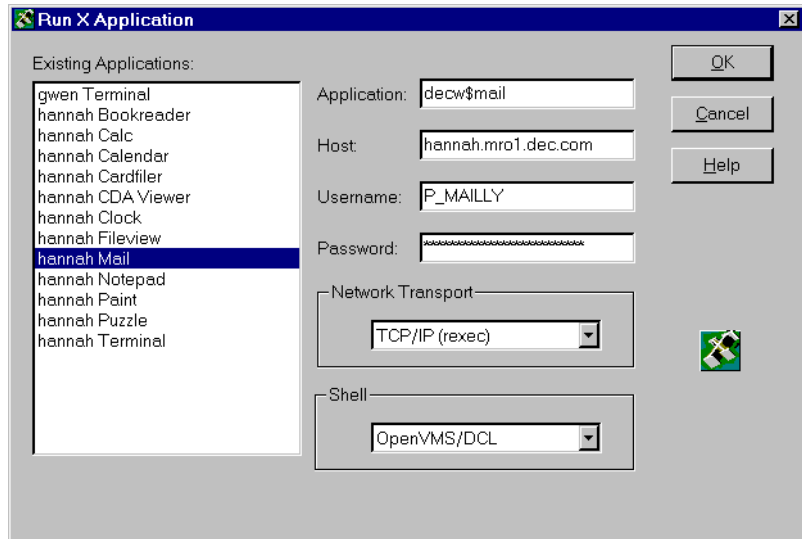
Click the application you want to run.

eXcursion starts the selected application. See the Logging section in Chapter 5 for help if your application does not start.

- **To use the Run X Applications dialog box:**

Click Run X Applications on the eXcursion Applications submenu to display the Run X Applications dialog box (Figure 4–3).

Figure 4–3 Run X Applications Dialog Box



- **To start an X application from this dialog box if the application you want is on the list of existing applications:**
 1. Click on the application.
 2. Click OK.
- **To start an X application from this dialog box if the application you want shares some parameters with one of the listed existing applications:**
 1. Click the listed application that is similar to your application.
 2. Modify the login parameters as necessary.
 3. Click OK.
- **To start a new X application from this dialog box:**

Using X Applications

1. Enter the login parameters:
The command line for the application
The host name you want to use for the application
Your user name
Your password
2. Select the network transport you want to use to communicate with this host in the Network Transport list box.
3. Select the shell (command interpreter) that this host supports in the Shell list box.
4. Click OK.

See the discussion of Defining Account Information for an X Host System and Creating Aliases and Defining Application Information in Chapter 2 for more information on starting applications.

Starting an X Application from a Terminal Session

This procedure is sometimes useful when you already have a terminal window open and want to quickly use an X application. It can also be useful to test an application if you are having trouble opening it through eXcursion.

To start an application from a terminal session:

1. Ensure that your display setting is pointing to your local display.

For example, on OpenVMS, you would enter a command similar to the following:


```
$ set display/create/trans=tcpip/node=16.20.126.218
```


On UNIX (C shell), you would enter a command similar to the following:


```
setenv DISPLAY 16.20.126.218:0
```
2. Ensure that the eXcursion Server is running on your local system.
3. Enter the command line for the X application in your terminal session window.

Troubleshooting

If you have a problem during setup or while you are using eXcursion, check the information in this chapter or in the Release Notes to see if it includes a solution to your problem. If you cannot solve your problem, call your local Customer Service Center. In the U.S., that number is 1-800-354-9000.

Diagnostic Features

eXcursion includes two useful features to help you troubleshoot a problem:

- Error message logging
- Network activity monitoring

Creating a Log of Error Messages

If you have performance problems or difficulties starting X applications, you might find it helpful to create a log file for the following:

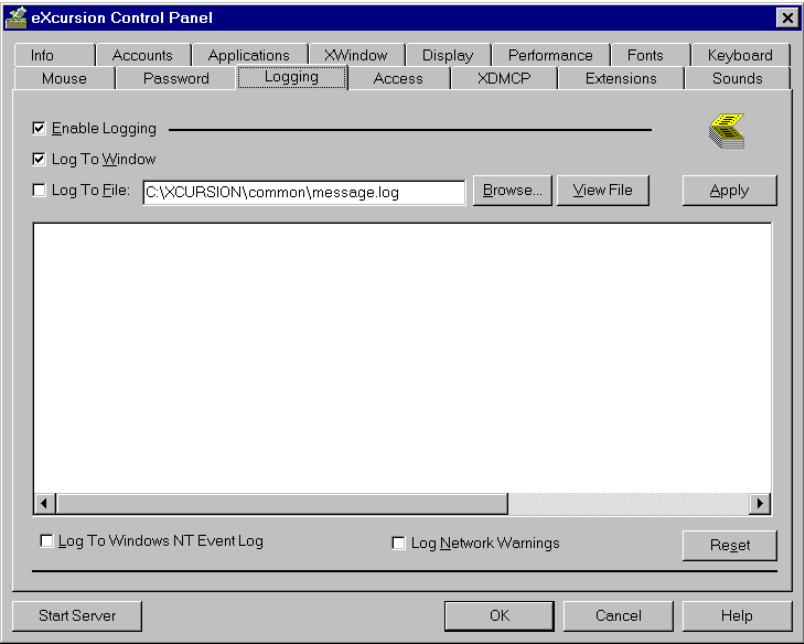
- Error and warning messages produced by eXcursion in response to X applications
- All X protocol requests made to eXcursion by X applications

If you have performance problems or difficulties starting X applications, you might find it helpful to log error and warning messages produced by eXcursion in response to X applications. Use the Logging page of the Control Panel to do this. (See Figure 5–1.)

Note

Use of the logger can significantly degrade server performance.

Figure 5–1 eXcursion Control Panel Logging Page



Note

If you have a Windows NT or a Windows 2000 system, the Logging page includes a Log to Windows NT Event Log check box. The Logging page does not display the check box on Windows 95 or Windows 98 systems.

If you define a message log file, you can determine how many errors have been logged to it by viewing status information on the Info page of the eXcursion Control Panel.

Use the Logging page to:

- Enable or disable logging.
- Select the type of logging. (You can log to any combination of window, log file, or Windows NT event logger)
- Create a log file.
- View the error messages collected by the log file.

To enable logging:

1. Check the Enable Logging checkbox.
2. Click OK.

To log to a window:

1. Enable logging.
2. Check the Log to Window checkbox.
3. Click OK.

To log to the Windows NT event logger (must be running on Windows NT or Windows 2000):

1. Enable logging.
2. Check the Log to Windows NT Event Log checkbox.
3. Click OK.

To create an error message log file:

1. Enable logging.
2. Click Log to File.
3. Enter the log file name and path in the Log File box.

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4. Click OK.

To view error and warning messages in a log file:

1. Enter the name of the log file in the box to the right of the text or find the file with the Browse button.
2. Click the View File button to display the contents of the log file in the text box.

Note

Error and warning messages accumulate in the message log file from one eXcursion session to another, so be sure to periodically review and delete the log file to ensure maximum performance from eXcursion.

To log network warnings for debugging purposes:

1. Enable logging.
2. Check the Log Network Warnings check box.
3. Click OK.

Network Activity Monitoring

Two features are available for monitoring network activity between eXcursion and X applications:

- The network activity indicator, a visual aid
- Maestro, an audio aid

Note

These features slow eXcursion performance. If you need to improve eXcursion performance, you can temporarily disable these features.

To enable the network activity indicator:

1. Ensure that the eXcursion Server icon is displayed on your screen.
2. Click Network Monitors on the eXcursion Main menu.
3. Click the Network LEDs submenu. This causes two small lights to appear in the eXcursion Server icon during network activity. The green

light shows transmission from the server. The red light indicates network data received by the server.

4. To turn off the network activity indicator, repeat steps 2 and 3.

To enable Maestro:

1. Ensure that the eXcursion Server icon is displayed on your screen.
2. Click Network Monitors on the eXcursion Main menu.
3. Click Maestro on the Network Monitors submenu.

Maestro beeps every time eXcursion receives messages from the X application.

4. To turn off Maestro, repeat steps 2 and 3.

Troubleshooting Common Problems

Can't Open Display

When you create multiple TCP DECterms on OpenVMS systems and then launch other X applications from any of the DECterms other than the first, the X application might fail to launch and the error displayed is similar to the following:

```
Can't Open Display
```

```
%SYSTEM-W-NOSUCHDEV, no such device available
```

To avoid this problem, launch the X application from eXcursion directly. However, if you need to launch from the DECterm, your LOGIN.COM file should first be modified so that the display device is preserved (unless your system administrator has already done so). To do this, perform the following edit:

At the top of your login.com file, insert the following line, which opens a channel on the WSA device, thus preserving it:

```
$ if "" .nes. f$logi ("decw$display") then open savdpy -
'f$logi ("decw$display")'
```

Or, you can put the line in the systemwide SYSLOGIN.com, if you want it to be in effect for all users.

CDE Backdrop Window Covers Existing Windows

When running CDE on eXcursion, switching workspaces causes the new backdrop window to cover up windows that are supposed to be visible on multiple workspaces, such as the front panel.

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To work around this problem, do the following:

1. Run the CDE Style Manager application.
2. Click on the Backdrop icon.
3. Select the NoBackdrop option.
4. Click on Apply.
5. Repeat this procedure for each workspace.

EREMOTE Error

If you are attempting to start a Compaq Tru64 UNIX application, and you see the Error=EREMOTE error when the log window is enabled, it could mean that the file PCX_SERVER has not been installed as described in the “Installing on Alpha Hosts Running DECnet on Compaq Tru64 UNIX” section of the *Compaq PATHWORKS 32 Installation Guide*.

eXcursion Does Not Change Color of X Cursor

The eXcursion Server does not support application requests to change the cursor’s foreground and/or background color. Instead, eXcursion remaps the specified color(s) to either black or white when changing the cursor color.

Font Problems

If you get the following message, the Server cannot open some required fonts:

```
Can't open default font 'fixed'
```

Possible causes include:

- The Misc directory is not on the font path.
- The machine on which the Misc directory is stored is not available.
- The Misc directory does not have a Fonts.dir file.
- There is a problem with another directory on the font path.
- The .pcf font file 6X13.pcf is not in the Misc directory.

F17 Function Key and Industry Standard Keyboard

The F17 key is used to change the mode of the LK250 keyboard between industry-standard mode and DIGITAL LK250 mode. To support the use of the F17 function key on an industry-standard keyboard (F17 does not exist

on those keyboards), one of the function keys (F7, for example) has to be remapped as F17 in the corresponding Keysym file, thus avoiding a conflict between left-to-right and right-to-left.

Note that for compatibility with some software, you need to assign the remapped key (F7) to a nonexistent scancode (6A). Note also that the remapping of F17 to the F7 key is already done in the Keymaps files used with the Keyboard Manager (KM).

You can change this mapping by modifying and recompiling the Lk250dl.txt and Lk250dus.txt files (or modifying the hebrew-lk250d.decw\$keymap and the english-lk250d.decw\$keymap, if you use KM).

Function Keys Greater than F12 Might Not Work on Some Systems (Windows NT)

On Windows NT, function keys greater than F12 may not work properly on some systems.

High-Color Window Refresh

If you are using eXcursion on a system with more than 256 colors, modifications to the color palette will not be seen in a window until it is redrawn. eXcursion automatically refreshes the window that had focus when the color palette was changed. Because continuous updates to a color palette would cause excessive redraws, eXcursion might delay the refresh for up to five seconds. Note that palette animation will not work, if the system is set to more than 256 colors.

Insufficient Network Links

The number of X applications you can run is limited by the maximum available links.

If you have an insufficient number of network links available, you might experience problems starting X applications.

You should set the number of available network links to 100 or greater.

For information on how to set the number of network links, see the documentation for your network software.

Motif Defaults

Some keyboards might experience problems echoing angle bracket keys (< and >) in DECterm, unless a Decw\$XDefaults.dat file is present in the

Troubleshooting

user's Sys\$Login directory. This file must contain at least one nonblank line.

Reading Application Messages at the Host

To read error messages generated at the host by an X application, perform the following steps:

1. Using a Windows based terminal emulator, log in to your account on the host where the X application resides.
2. From your account on the host:
 - If it is an OpenVMS host running DECnet, check the Netserver.log file (located in your default directory) for messages.
 - If it is a UNIX host, you can redirect the error and warning messages generated at the host to output files. For example, if you use the C shell and you want to redirect messages for the X application **dxclock**, enter the following:

```
dxclock > out.log >& err.log
```

Problem Starting an X Application

If you cannot start an X application, check the following details to identify the source of the problem:

- If you use eXcursion files located on a network drive, check the status of the drive. It might be unavailable. Try again later, or check with your system administrator.

Check that the node or host name or number you are trying to reach is defined in your PC database.

Check that the spelling of the node or host name is correct and complete. For example, to reach a TCP/IP address you might need to include the full domain name.

- If you receive an error message that your login information is invalid, check that your user name and password have been entered correctly.
- If the X application is located on a UNIX host, ensure that the startup command for the application is entered correctly. (UNIX commands are case sensitive.)

The application startup command is displayed in the Application Information edit box on the Applications page of the Control Panel.

- If the X application is located on an OpenVMS host, obtain access to the OpenVMS account through another route and rename the Login.com file to Login.sav.

Login.com files sometimes contain commands that could cause a network process to fail. (An example would be a command that modifies terminal settings.)

- To ensure that the X application is running, try starting it in a terminal session window. For more information, see Starting an X Application from a Terminal Session, Chapter 4.

Note

Error messages and other valuable information can be viewed in the eXcursion logger window. To activate this window, use the Logging page in the eXcursion Control Panel.

Repeated Login Failures

See your system manager, if you receive the following error message when starting applications from eXcursion:

```
Remote Start:  'INTERnet ACP AUXS failure
                Status = %LOGIN-F-EVADE'
```

Sun OpenWindows Applications Fail to Run Under eXcursion

If you use Sun OpenWindows applications, you must set three environment variables in your shell initialization file on the Sun host.

Set this environment variable...	To...
LD_LIBRARY_PATH	/usr/openwin/lib
XAPPLRESDIR	/usr/openwin/lib/X11/app_defaults
OPENWINHOME	/usr/openwin

Text in Windows Is Not Spaced Properly

If you notice the following problems, your display (monitor) resolution might not be set correctly:

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- Words spaced erratically (for example, words overlapping each other or large spaces between words)
- Individual characters not spaced correctly (for example, characters that are too far apart or too close together)

Some X applications only display correctly at certain resolutions. When this is the case, it is also important to use the appropriate set (either 75 dpi or 100 dpi).

Refer to the following for information about setting the monitor resolution:

- The Monitor Dimensions section in Chapter 3.
- Appendix H, Display Resolution and X Application Output.

Refer to the section Adding and Locating Font Files in Chapter 3 for information about setting the Font Set.

Some Text Characters Are Not Displayed Properly

Some video drivers have compatibility problems with the set of .fon font files shipped with eXcursion that might cause some characters to be clipped.

If you notice this problem, you can disable the .fon files by selecting the **Do not use FON files when displaying text** option on the Font page of the eXcursion Control Panel.

Unable to Create Cursor with Some Drivers

With some video drivers, eXcursion is unable to create the X cursor. When this happens, the cursor disappears when it enters an X application.

To work around this problem, you can use the following eXcursion configuration switch: `ZdebugKeys=noCursor`.

Using eXcursion with Motif Windows Manager Might Cause Key Conflicts

You can elect to turn off the Motif Windows Manager (MWM) or redefine the conflicting keys in the Motif Windows Manager, if you are experiencing key conflicts.

Keyboard Manager Switching Limitations

You cannot use all the possible keys for keyboard switching with Keyboard Manager (KM). For example, the Ctrl/Shift combination does not work.

The Alt key is intercepted by Microsoft Windows and thus cannot be used by keyboard switching.

Performance Considerations

Full Drag Option and Resizing Windows

When the Full Drag option is on, resizing windows can be extremely slow and cause numerous repaints. It is suggested that you turn off Full Drag while eXcursion is in use.

Logging and Server Performance

When logging is enabled, you might see a significant degradation in server performance.

A

Redefining Keys to Meet X Application Requirements

The keys on your keyboard are mapped to definitions that tell X applications how to interpret the keys that you press. The key definitions are contained in a key definition file.

You can redefine how keys are interpreted by X applications. You might want to redefine a key because of personal preference. Or you might need to redefine a key because an X application requires a special definition. For example, your X application might require a key that produces the fraction $\frac{3}{4}$; if your key definition file does not already define a $\frac{3}{4}$ key, you can define a key for that purpose.

Editing Your Key Definition File

This section describes how to edit your key definition file to redefine keys.

To edit your key definition file:

1. Determine which key definition file you are using by viewing the Keyboard page of the eXcursion Control Panel. The key definition file in use is either located in the eXcursion installation directory under the subfolder \keysyms or in a custom location specified in the Custom Key Def File option.

Redefining Keys to Meet X Application Requirements

The location of the key definition file, if changed in the eXcursion Control Panel, can also be obtained from the KeySymFile value under the Windows registry key:

```
HKEY_CURRENT_USER/Software/DigitalEquipmentCorporation/eXcursionV7/Configuration/Config0/KeysymFile
```

- 2. Copy the key definition file to a directory on your PC so you have read and write access to the file. To copy the key definition file, enter the following at the DOS prompt:

```
C:\> COPY Path\File.txt C:\Dir\*.*
```

Command Element	Explanation
<i>Path\File.txt</i>	The location and file name of the .txt version of your key definition file. For example, C:\Xcursion\Keysyms\Lk450dus.txt.
<i>Dir</i>	The directory on your PC to which you are copying the .txt file. For example, \Xcursion\Newkey.

The following example copies the Lk450dus.txt key definition file from the \Xcursion\Keysyms directory on drive C to the \Xcursion\Newkey directory on drive C:

```
C:\> COPY C:\Xcursion\Keysyms\Lk450dus.txt
C:\Newkey\*.*
```

- 3. Locate the keycode map of your keyboard in Appendix C; then find the keycode for the key you are redefining.

A keycode is the hexadecimal number assigned to the key to identify the key regardless of how it is defined or mapped.

For example, Figure C–3 shows that the keycode for the first key in the top row of the LK450 keyboard is 3B.

Note

Each keycode in the key definition file begins with “0x”; the 0x is omitted from the illustrations in Appendix C. So if the keycode you are redefining is labeled 3B in Appendix C, the full keycode name in your key definition file is 0x3B.

Redefining Keys to Meet X Application Requirements

4. Use Appendix D to obtain the keysym name for the key definition you want to assign to the key.

A keysym name is the key definition, written in a special format so that the eXcursion server and X applications can understand it.

For example, Table D-2 lists XK_threequarters as the keysym name for the 3/4 key.

5. Using any text editor, go to the line of your key definition file that begins with the keycode you identified in step 3.

Keycodes are displayed in the left column of the file. For example, the line in the Lk450dus.txt file for the 0x3B key might look like this:

```
0x3B unshifted XK_F1
```

There may be as many as four lines for the keycode you identified in step 3, with each line containing a key definition for the key in different states (shifted, unshifted, and so on). The middle column specifies the key state to which the key definition applies.

The following table explains the four possible key states that can be specified in the middle column of a key definition file:

Key State	Explanantion
Unshifted	Neither the Shift key nor the Alt key is held down.
Shifted	The Shift key is held down.
Altunshifted	The Alt key is held down, but the Shift key is not held down.
Altshifted	The Alt key and the Shift key are both held down.

Note

The Alt key state for keys located on the numeric keypad is achieved by having the Num Lock key on.

6. Edit the line by substituting or adding the new keysym name.

For example, the current definition in the key definition file for the unshifted key coded 0x3B might be F1:

```
0x3B unshifted XK_F1
```

Redefining Keys to Meet X Application Requirements

To redefine the unshifted 0x3B key as the 3/4 key, edit the line in the key definition file so it looks like this:

```
0x3B unshifted XK_threequarters
```

You may want to leave the current definition for the unshifted 0x3B key and define the shifted 0x3B key as the three-quarters key. If so, edit your key definition file to include the following lines for the 0x3B key:

```
0x3B unshifted XK_F1  
0x3B shifted XK_threequarters
```

7. Save and exit the .txt file.
8. Check the Custom Key Def File checkbox on the Keyboard page of the eXcursion Control Panel and type the path of the new location of the .txt file.

B

Illustrations of Supported Keyboard Mappings

This appendix contains illustrations of keyboard mappings included with eXcursion.

The legend with each keyboard mapping gives the following information:

- The **Key** column identifies a particular key on the physical keyboard.
- The **Unshifted** column gives the meaning of that key when it is unshifted.
- The **Shifted** column gives the meaning of that key when it is shifted.
- The **Altunshifted** column gives the meaning of that key when it is unshifted with the Alt key pressed.

While Figure B–5 and Figure B–6 describe the LK450 keyboard, any keyboard driver that supports the LK450 will also support the LK461 and LK46W even though the driver literature might not make that statement.

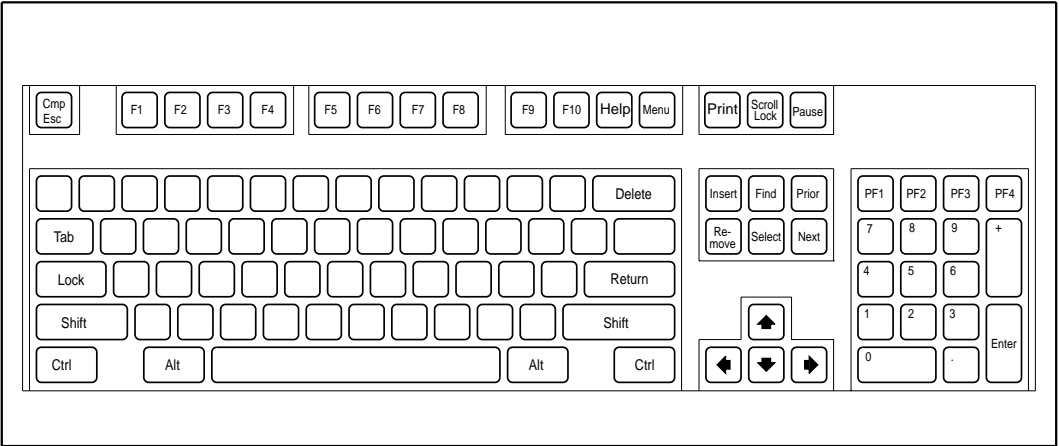
Therefore, these diagrams can also be applied to the use of the LK461 and LK46W with the eXcursion product, as follows:

- The U.S. version of the LK461, the LK461–AA, has keycap legends on the top surface identical to those found on the LK450–AA.
- European variants have differences between the LK450 and the LK461.

Note

With the standard drivers on Windows NT V4.0 and Windows 2000, the function keys F13 and above might not work.

Figure B-1 Enhanced 101 Keyboard Mapped to DIGITAL Key Mapping Style



Upper Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
Esc	XK_Escape	XK_Multi_key (Compose)	F8	XK_F8	
F1	XK_F1		F9	XK_F9	
F2	XK_F2		F10	XK_F10	
F3	XK_F3		F11	XK_Help	
F4	XK_F4		F12	XK_Menu	
F5	XK_F5		Print Screen	XK_Print	
F6	XK_F6		Scroll Lock	XK_Scroll Lock	
F7	XK_F7		Pause	XK_Pause	

Editing Keypad

Key	Unshifted	Shifted
Insert	XK_Insert	
Home	XK_Find	
Page Up	XK_Prior	
Delete	DXK_Remove	
End	XK_Select	
Page Down	XK_Next	
Up Arrow	XK_Up	
Down Arrow	XK_Down	
Left Arrow	XK_Left	
Right Arrow	XK_Right	

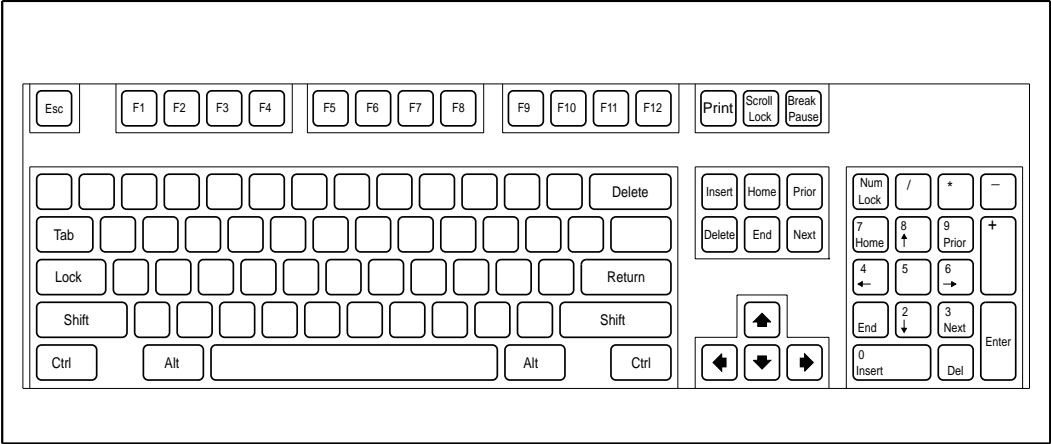
Numeric Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
Num Lock	XK_KP_F1		5	XK_KP_5	
/	XK_KP_F2		6	XK_KP_6	
*	XK_KP_F3		1	XK_KP_1	
-	XK_KP_F4		2	XK_KP_2	
7	XK_KP_7		3	XK_KP_3	
8	XK_KP_8		Enter	XK_KP_Enter	
9	XK_KP_9		0	XK_KP_0	
+	XK_KP_Add	XK_KP_Separator	.	XK_KP_Decimal	
4	XK_KP_4				

Keyboard

Key	Altunshifted
e	XK_EuroSign

Figure B–2 Enhanced 101 Keyboard Mapped to IBM or Compatible Key Mapping Style



Upper Keypad

Key	Unshifted	Shifted
Esc	XK_Escape	
F1	XK_F1	
F2	XK_F2	
F3	XK_F3	
F4	XK_F4	
F5	XK_F5	
F6	XK_F6	
F7	XK_F7	

Key	Unshifted	Shifted
F8	XK_F8	
F9	XK_F9	
F10	XK_F10	
F11	XK_F11	
F12	XK_F12	
Print Screen	XK_Print	
Scroll Lock	XK_Scroll_Lock	
Pause	XK_Pause	XK_Break

Editing Keypad

Key	Unshifted	Shifted
Insert	XK_Insert	
Home	XK_Home	
Page Up	XK_Prior	
Delete	XK_Delete	
End	XK_End	
Page Down	XK_Next	
Up Arrow	XK_Up	
Down Arrow	XK_Down	
Left Arrow	XK_Left	
Right Arrow	XK_Right	

Numeric Keypad

Key	Unshifted	Shifted
Num Lock	XK_Num_Lock	
/	XK_Divide	
*	XK_Multiply	
–	XK_Subtract	
7	XK_Home	XK_KP_7
8	XK_Up	XK_KP_8
9	XK_Prior	XK_KP_9
+	XK_Add	XK_KP_0
4	XK_Left	XK_KP_4

Key	Unshifted	Shifted
5		XK_KP_5
6	XK_Right	XK_KP_6
1	XK_End	XK_KP_1
2	XK_Down	XK_KP_2
3	XK_Next	XK_KP_3
Enter	XK_Enter	
0	XK_Insert	XK_KP_0
Del	XK_Delete	XK_Decimal

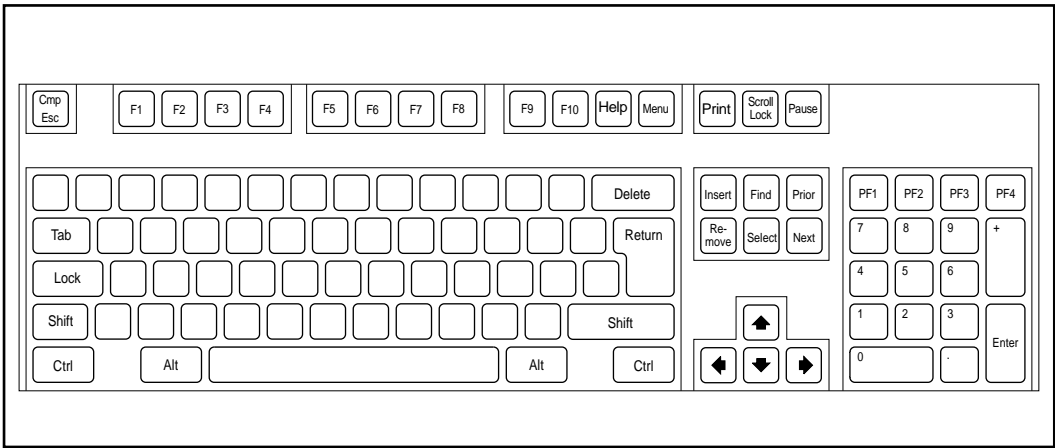
Keyboard

Key	Altunshifted
e	XK_EuroSign

NOTE:
Shift and Num Lock can be used to toggle the Numeric Keypad between numeric and editing output. When Num Lock is on, the shifted key value will be in effect.

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Figure B-3 Enhanced 102 Keyboard Mapped to DIGITAL Key Mapping Style



Upper Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
Esc	XK_Escape	XK_Multi_key (Compose)	F8	XK_F8	
F1	XK_F1		F9	XK_F9	
F2	XK_F2		F10	XK_F10	
F3	XK_F3		F11	XK_Help	
F4	XK_F4		F12	XK_Menu	
F5	XK_F5		Print Screen	XK_Print Screen	
F6	XK_F6		Scroll Lock	XK_Scroll Lock	
F7	XK_F7		Pause	XK_Pause	

Editing Keypad

Key	Unshifted	Shifted
Insert	XK_Insert	
Home	XK_Find	
Page Up	XK_Prior	
Delete	DXK_Remove	
End	XK_Select	
Page Down	XK_Next	
Up Arrow	XK_Up	
Down Arrow	XK_Down	
Left Arrow	XK_Left	
Right Arrow	XK_Right	

Numeric Keypad

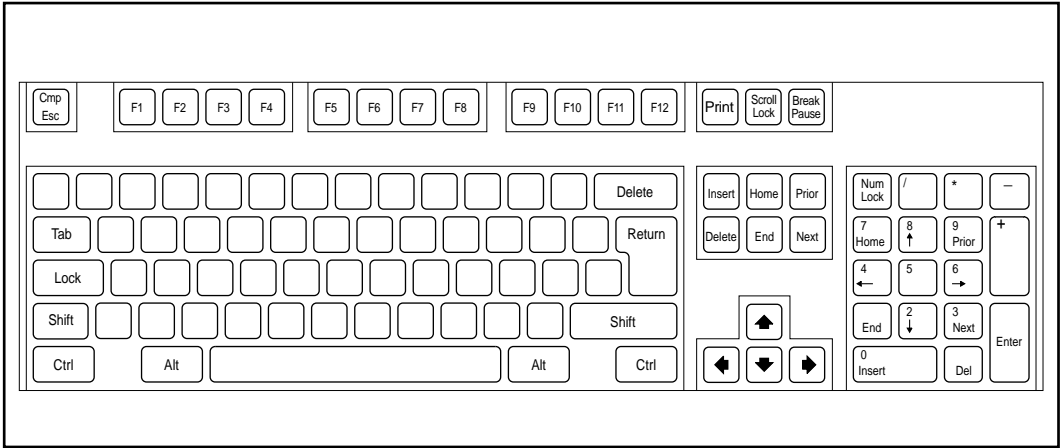
Key	Unshifted	Shifted	Key	Unshifted	Shifted
Num Lock	XK_KP_F1		5	XK_KP_5	
/	XK_KP_F2		6	XK_KP_6	
*	XK_KP_F3		1	XK_KP_1	
-	XK_KP_F4		2	XK_KP_2	
7	XK_KP_7		3	XK_KP_3	
8	XK_KP_8		Enter	XK_KP_Enter	
9	XK_KP_9		0	XK_KP_0	
+	XK_KP_Add	XK_KP_Separator	.	XK_KP_Decimal	
4	XK_KP_4				

Keyboard

Key	Altunshifted
e	XK_EuroSign

VM-0350A-AI

Figure B-4 Enhanced 102 Keyboard Mapped to IBM or Compatible Key Mapping Style



Upper Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
Esc	XK_Escape		F8	XK_F8	
F1	XK_F1		F9	XK_F9	
F2	XK_F2		F10	XK_F10	
F3	XK_F3		F11	XK_F11	
F4	XK_F4		F12	XK_F12	
F5	XK_F5		Print Screen	XK_Print	
F6	XK_F6		Scroll Lock	XK_Scroll_Lock	
F7	XK_F7		Pause	XK_Pause	XK_Break

Editing Keypad

Key	Unshifted	Shifted
Insert	XK_Insert	
Home	XK_Home	
Page Up	XK_Prior	
Delete	XK_Delete	
End	XK_End	
Page Down	XK_Next	
Up Arrow	XK_Up	
Down Arrow	XK_Down	
Left Arrow	XK_Left	
Right Arrow	XK_Right	

Numeric Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
Num Lock	XK_Num Lock		5		XK_KP_5
/	XK_Divide		6	XK_Right	XK_KP_6
*	XK_Multiply		1	XK_End	XK_KP_1
-	XK_Subtract		2	XK_Down	XK_KP_2
7	XK_Home	XK_KP_7	3	XK_Next	XK_KP_3
8	XK_Up	XK_KP_8	Enter	XK_Enter	
9	XK_Prior	XK_KP_9	0	XK_Insert	XK_KP_0
+	XK_Add	XK_KP_4	Del	XK_Delete	XK_Decimal

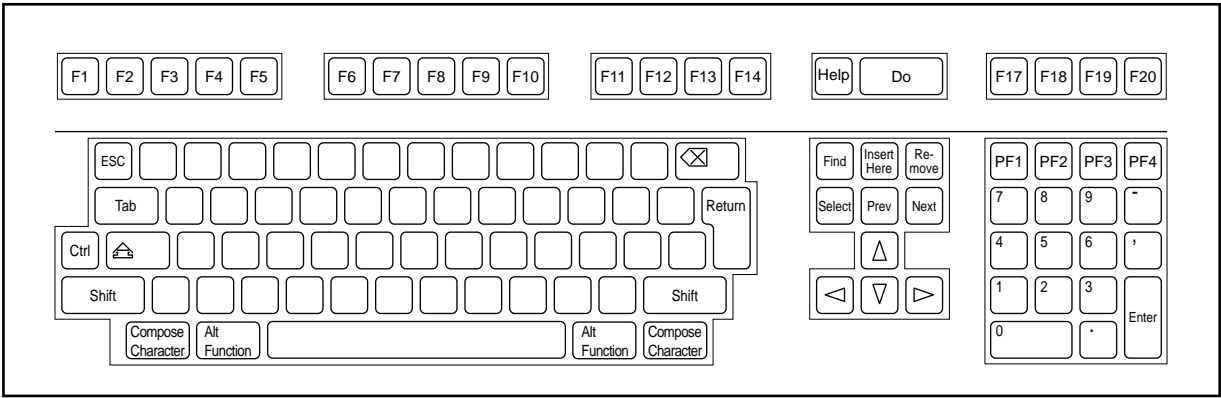
Keyboard

Key	Altunshifted
e	XK_EuroSign

NOTE:
Shift and Num Lock can be used to toggle the Numeric Keypad between numeric and editing output. When Num Lock is on, the shifted key value will be in effect.

VM-0351A-AI

Illustrations of Supported Keyboard Mappings



Upper Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
F1	XK_F1		F11	XK_F11	
F2	XK_F2		F12	XK_F12	
F3	XK_F3		F13	XK_F13	
F4	XK_F4		F14	XK_F14	
F5	XK_F5		F15	XK_Help	
F6	XK_F6		F16	XK_Menu	
F7	XK_F7		F17	XK_F17	
F8	XK_F8		F18	XK_F18	
F9	XK_F9		F19	XK_F19	
F10	XK_F10		F20	XK_F20	
			ESC	XK_Multi_key	

Editing Keypad

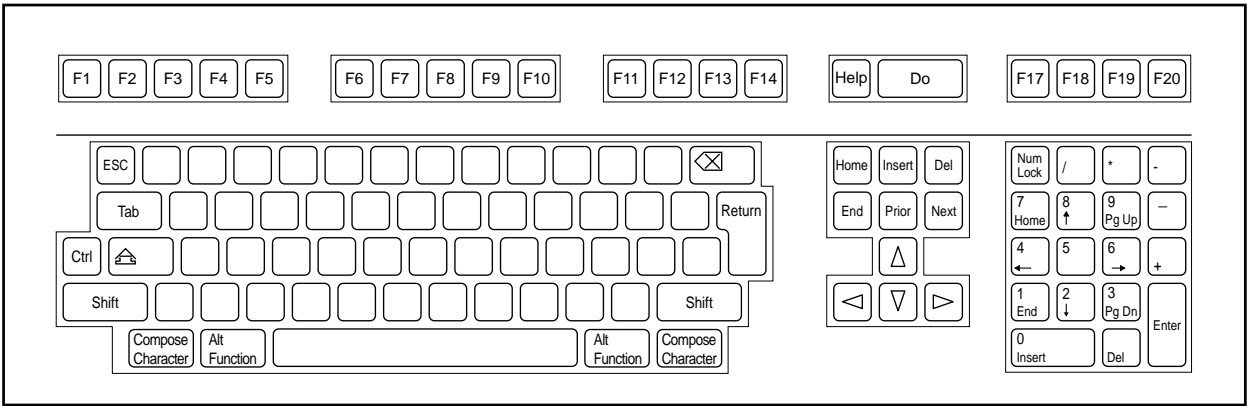
Key	Unshifted	Shifted
Find	XK_Find	
Insert Here	XK_Insert	
Remove	DXK_Remove	
Select	XK_Select	
Prev	XK_Prev	
Next	XK_Next	
Up Arrow	XK_Up	
Down Arrow	XK_Down	
Left Arrow	XK_Left	
Right Arrow	XK_Right	

Numeric Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
PF1	XK_KP_F1		5	XK_KP_5	
PF2	XK_KP_F2		6	XK_KP_6	
PF3	XK_KP_F3		,	XK_KP_Separator	
PF4	XK_KP_F4		1	XK_KP_1	
7	XK_KP_7		2	XK_KP_2	
8	XK_KP_8		3	XK_KP_3	
9	XK_KP_9		Enter	XK_KP_Enter	
-	XK_KP_Subtract		0	XK_KP_0	
4	XK_KP_4		.	XK_KP_Decimal	

Figure B-5 DIGITAL LK450 Keyboard Mapped to Digital Key Mapping Style

Figure B-6 DIGITAL LK450 Keyboard Mapped to IBM or Compatible Key Mapping Style



Upper Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
F1	XK_F1		F11	XK_F11	
F2	XK_F2		F12	XK_F12	
F3	XK_F3		F13	XK_F13	
F4	XK_F4		F14	XK_F14	
F5	XK_F5		F15	XK_Help	
F6	XK_F6		F16	XK_Menu	
F7	XK_F7		F17	XK_F17	
F8	XK_F8		F18	XK_F18	
F9	XK_F9		F19	XK_F19	
F10	XK_F10		F20	XK_F20	
			ESC	XK_Multi_key	

Editing Keypad

Key	Unshifted	Shifted
Find	XK_Home	
Insert Here	XK_Insert	
Remove	XK_Delete	
Select	XK_End	
Prev	XK_Prior	
Next	XK_Next	
Up Arrow	XK_Up	
Down Arrow	XK_Down	
Left Arrow	XK_Left	
Right Arrow	XK_Right	

Numeric Keypad

Key	Unshifted	Shifted	Key	Unshifted	Shifted
PF1	XK_Num Lock		5		XK_KP_5
PF2	XK_KP_/_		6	XK_Right	XK_KP_6
PF3	XK_KP_*		+	XK_KP_Add	XK_KP_Separator
PF4	XK_KP_-		1	XK_End	XK_KP_1
7	XK_Home	XK_KP_7	2	XK_Down	XK_KP_2
8	XK_Up	XK_KP_8	3	XK_Pg Dn	XK_KP_3
9	XK_Pg Up	XK_KP_9	Enter	XK_KP_Enter	
-	XK_KP_Subtract		0	XK_Insert	XK_KP_0
4	XK_Left	XK_KP_4	Del	XK_Delete	XK_KP_Decimal

NOTE:
Shift and Num Lock can be used to toggle the Numeric Keypad between numeric and editing output. When Num Lock is on, the shifted key value will be in effect.

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C

Keycode Maps of Supported Keyboards

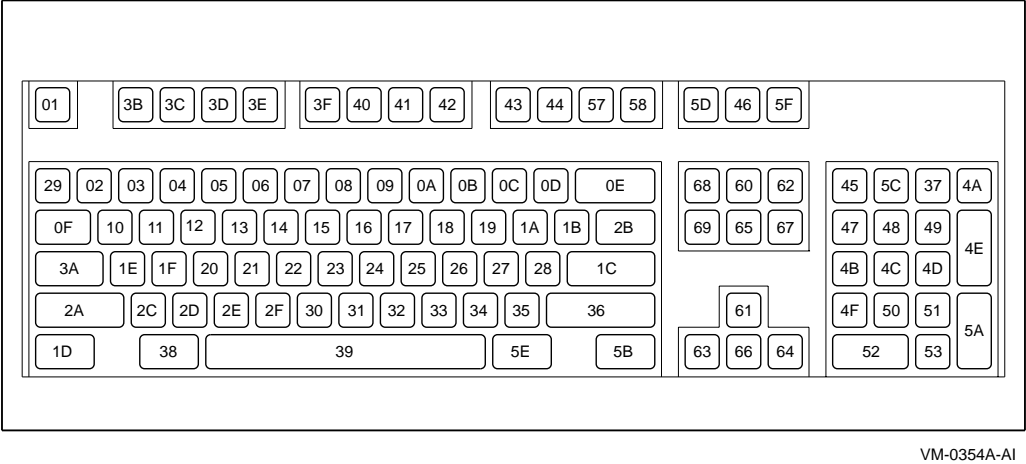
This appendix contains keycode maps for the following keyboards:

- IBM and compatible Enhanced 101-key keyboards (Figure C–1)
- IBM and compatible Enhanced 102-key keyboards (Figure C–2)
- LK450 keyboards (Figure C–3)

Use these maps to identify keys by their keycode name so you can redefine them. See Appendix A for instructions on redefining keys.

Keycode Maps of Supported Keyboards

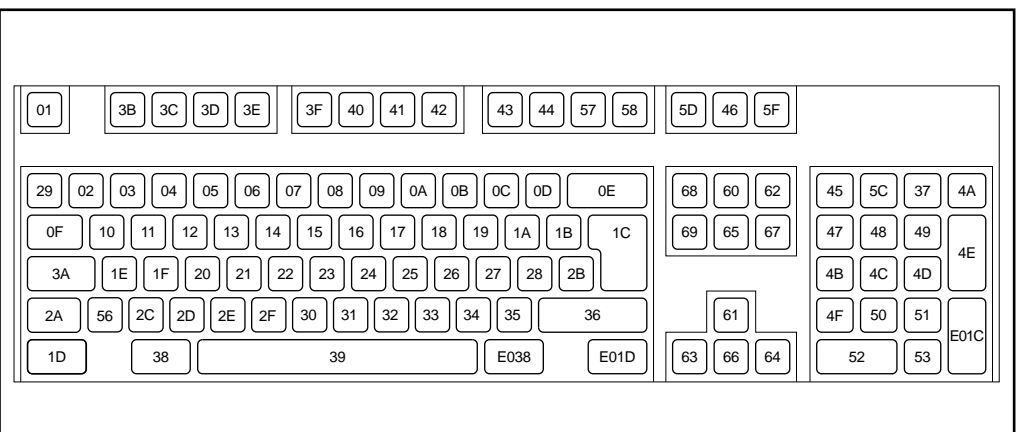
Figure C-1 Keycode Map for IBM and Compatible Enhanced 101-Key Keyboards



VM-0354A-AI

Keycode Maps of Supported Keyboards

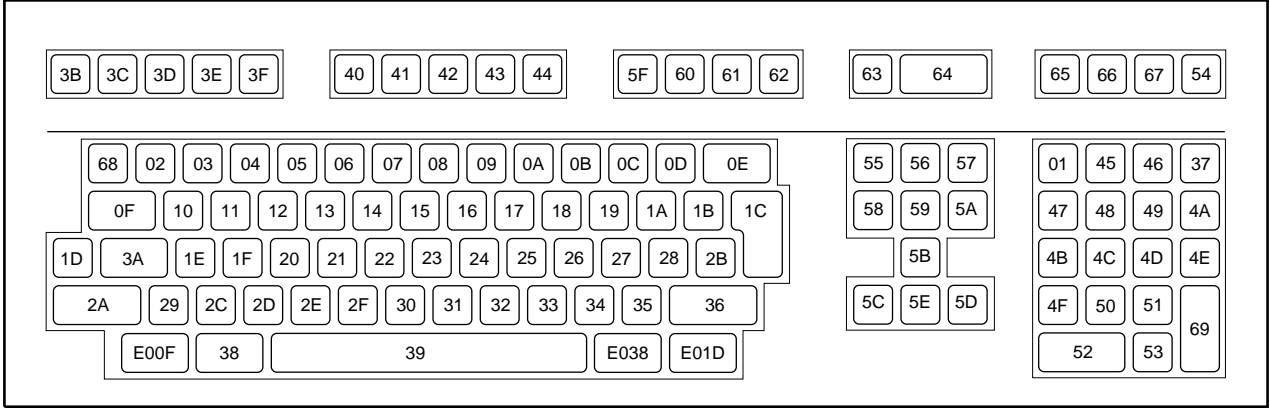
Figure C–2 Keycode Map for IBM and Compatible Enhanced 102-Key Keyboards



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Keycode Maps of Supported Keyboards

Figure C-3 Keycode Map for DIGITAL LK450/LK451 Keyboards



VM-0356A-AI

D

Keysym Names

This appendix contains tables that specify keysym names for the following types of keys:

- Miscellaneous (Table D–1)
- ISO Latin-1 (Table D–2)
- ISO Latin-2 (Table D–3)
- ISO Latin-3 (Table D–4)
- ISO Latin-4 (Table D–5)
- Katakana (Table D–6)
- Arabic (Table D–7)
- Cyrillic (Table D–8)
- Greek (Table D–9)
- Technical (Table D–10)
- Special (Table D–11)
- Publishing (Table D–12)
- APL (Table D–13)
- Hebrew (Table D–14)
- DEC Private (Table D–15)
- Currency (Table D–16)

Use these tables to obtain the keysym name for the key you want to define. See Appendix A for instructions on redefining keys.

Keysym Names

Table D–1 Keysym Names—Miscellaneous

Table D–1 Keysym Names—Miscellaneous	
Keysym Name	Key Definition
XK_BackSpace	Backspace, Back Space, or Back Char
XK_Tab	Tab
XK_Linefeed	Linefeed or LF
XK_Clear	Clear
XK_Return	Return or Enter
XK_Pause	Pause or Hold
XK_Scroll_Lock	Scroll Lock
XK_Escape	Escape
XK_Multi_key	Multi-Key Character Preface
XK_Kanji	Kanji or Kanji Convert
XK_Muhenkan	Cancel Conversion
XK_Henkan_Mode	Start/Stop Conversion
XK_Henkan	Alias for Henkan_Mode
XK_Romaji	to Romaji
XK_Hiragana	to Hiragana
XK_Katakana	to Katakana
XK_Hiragana_Katakana	Hiragana/Katakana toggle
XK_Zenkaku	to Zenkaku
XK_Hankaku	to Hankaku
XK_Zenkaku_Hankaku	Zenkaku/Hankaku toggle
XK_Touroku	Add to Dictionary
XK_Massyo	Delete from Dictionary
XK_Kana_Lock	Kana Lock
XK_Kana_Shift	Kana Shift
XK_Eisu_Shift	Alphanumeric Shift
XK_Eisu_toggle	Alphanumeric toggle
XK_Home	Home
XK_Left	Left, Move Left, or Left Arrow
XK_Up	Up, Move Up, or Up Arrow
XK_Right	Right, Move Right, or Right Arrow
XK_Down	Down, Move Down, or Down Arrow
XK_Prior	Prior or Previous
XK_Next	Next

Keysym Names

Table D–1 Keysym Names—Miscellaneous

Keysym Name	Key Definition
XK_End	END or EOL
XK_Begin	BEGIN or BOL
XK_Select	Select or Mark
XK_Print	Print
XK_Execute	Execute, Run, or Do
XK_Insert	Insert or Insert Here
XK_Undo	Undo or Oops
XK_Redo	Redo or Again
XK_Menu	Menu
XK_Find	Find or Search
XK_Cancel	Cancel, Stop, Abort, or Exit
XK_Help	Help or Question Mark
XK_Break	Break
XK_Mode_switch	Mode Switch, Script Switch, or Character Set Switch
XK_script_switch	Alias for Mode_switch
XK_Num_Lock	Num Lock
XK_KP_Space	Keypad Space
XK_KP_Tab	Keypad Tab
XK_KP_Enter	Keypad Enter
XK_KP_F1	Keypad F1, PF1, or A
XK_KP_F2	Keypad F2, PF2, or B
XK_KP_F3	Keypad F3, PF3, or C
XK_KP_F4	Keypad F4, PF4, or D
XK_KP_Multiply	Keypad Multiplication Sign or Asterisk
XK_KP_Add	Keypad Plus Sign
XK_KP_Separator	Keypad Separator or Comma
XK_KP_Subtract	Keypad Minus Sign or Hyphen
XK_KP_Decimal	Keypad Decimal Point or Full Stop
XK_KP_Divide	Keypad Division Sign or Solidus
XK_KP_0	Keypad Digit Zero
XK_KP_1	Keypad Digit One
XK_KP_2	Keypad Digit Two
XK_KP_3	Keypad Digit Three
XK_KP_4	Keypad Digit Four

Keysym Names

Table D–1 Keysym Names—Miscellaneous	
Keysym Name	Key Definition
XK_KP_5	Keypad Digit Five
XK_KP_6	Keypad Digit Six
XK_KP_7	Keypad Digit Seven
XK_KP_8	Keypad Digit Eight
XK_KP_9	Keypad Digit Nine
XK_KP_Equal	Keypad Equals Sign
XK_F1	F1
XK_F2	F2
XK_F3	F3
XK_F4	F4
XK_F5	F5
XK_F6	F6
XK_F7	F7
XK_F8	F8
XK_F9	F9
XK_F10	F10
XK_F11	F11 or L1
XK_L1	F11 or L1
XK_F12	F12 or L2
XK_L2	F12 or L2
XK_F13	F13 or L3
XK_L3	F13 or L3
XK_F14	F14 or L4
XK_L4	F14 or L4
XK_F15	F15 or L5
XK_L5	F15 or L5
XK_F16	F16 or L6
XK_L6	F16 or L6
XK_F17	F17 or L7
XK_L7	F17 or L7
XK_F18	F18 or L8
XK_L8	F18 or L8
XK_F19	F19 or L9
XK_L9	F19 or L9

Keysym Names

Table D–1 Keysym Names—Miscellaneous	
Keysym Name	Key Definition
XK_F20	F20 or L10
XK_L10	F20 or L10
XK_F21	F21 or R1
XK_R1	F21 or R1
XK_F22	F22 or R2
XK_R2	F22 or R2
XK_F23	F23 or R3
XK_R3	F23 or R3
XK_F24	F24 or R4
XK_R4	F24 or R4
XK_F25	F25 or R5
XK_R5	F25 or R5
XK_F26	F26 or R6
XK_R6	F26 or R6
XK_F27	F27 or R7
XK_R7	F27 or R7
XK_F28	F28 or R8
XK_R8	F28 or R8
XK_F29	F29 or R9
XK_R9	F29 or R9
XK_F30	F30 or R10
XK_R10	F30 or R10
XK_F31	F31 or R11
XK_R11	F31 or R11
XK_F32	F32 or R12
XK_R12	F32 or R12
XK_F33	F33 or R13
XK_R13	F33 or R13
XK_F34	F34 or R14
XK_R14	F34 or R14
XK_F35	F35 or R15
XK_R15	F35 or R15
XK_Shift_L	Left Shift
XK_Shift_R	Right Shift

Keysym Names

Table D–1 Keysym Names—Miscellaneous	
Keysym Name	Key Definition
XK_Control_L	Left Control
XK_Control_R	Right Control
XK_Caps_Lock	Caps Lock
XK_Shift_Lock	Shift Lock
XK_Meta_L	Left Meta
XK_Meta_R	Right Meta
XK_Alt_L	Left Alt
XK_Alt_R	Right Alt
XK_Super_L	Left Super
XK_Super_R	Right Super
XK_Hyper_L	Left Hyper
XK_Hyper_R	Right Hyper
XK_Delete	Delete_or_Rubout

Table D–2 Keysym Names—ISO Latin-1

Table D–2 Keysym Names—ISO Latin-1	
Keysym Name	Key Definition
XK_space	Space
XK_exclam	Exclamation Point
XK_quotedbl	Quotation Mark
XK_numbersign	Number Sign
XK_dollar	Dollar Sign
XK_percent	Percent Sign
XK_ampersand	Ampersand
XK_apostrophe	Apostrophe, Quote Right
XK_parenleft	Left Parenthesis
XK_parenright	Right Parenthesis
XK_asterisk	Asterisk
XK_plus	Plus Sign
XK_comma	Comma
XK_minus	Hyphen or Minus Sign
XK_period	Full Stop

Keysym Names

Table D–2 Keysym Names—ISO Latin-1

Keysym Name	Key Definition
XK_slash	Solidus
XK_0	Digit Zero
XK_1	Digit One
XK_2	Digit Two
XK_3	Digit Three
XK_4	Digit Four
XK_5	Digit Five
XK_6	Digit Six
XK_7	Digit Seven
XK_8	Digit Eight
XK_9	Digit Nine
XK_colon	Colon
XK_semicolon	Semicolon
XK_less	Less Than Sign
XK_equal	Equals Sign
XK_greater	Greater Than Sign
XK_question	Question Mark
XK_at	Commercial At
XK_A	Latin Capital Letter A
XK_B	Latin Capital Letter B
XK_C	Latin Capital Letter C
XK_D	Latin Capital Letter D
XK_E	Latin Capital Letter E
XK_F	Latin Capital Letter F
XK_G	Latin Capital Letter G
XK_H	Latin Capital Letter H
XK_I	Latin Capital Letter I
XK_J	Latin Capital Letter J
XK_K	Latin Capital Letter K
XK_L	Latin Capital Letter L
XK_M	Latin Capital Letter M
XK_N	Latin Capital Letter N
XK_O	Latin Capital Letter O
XK_P	Latin Capital Letter P

Keysym Names

Table D–2 Keysym Names—ISO Latin-1	
Keysym Name	Key Definition
XK_Q	Latin Capital Letter Q
XK_R	Latin Capital Letter R
XK_S	Latin Capital Letter S
XK_T	Latin Capital Letter T
XK_U	Latin Capital Letter U
XK_V	Latin Capital Letter V
XK_W	Latin Capital Letter W
XK_X	Latin Capital Letter X
XK_Y	Latin Capital Letter Y
XK_Z	Latin Capital Letter Z
XK_bracketleft	Left Square Bracket
XK_backslash	Reverse Solidus
XK_bracketright	Right Square Bracket
XK_asciicircum	Circumflex Accent
XK_underscore	Low Line
XK_grave	Grave Accent, Quote Left
XK_a	Latin Small Letter a ¹
XK_b	Latin Small Letter b
XK_c	Latin Small Letter c
XK_d	Latin Small Letter d
XK_e	Latin Small Letter e
XK_f	Latin Small Letter f
XK_g	Latin Small Letter g
XK_h	Latin Small Letter h
XK_i	Latin Small Letter i
XK_j	Latin Small Letter j
XK_k	Latin Small Letter k
XK_l	Latin Small Letter l
LK_m	Latin Small Letter m
XK_n	Latin Small Letter n
XK_o	Latin Small Letter o

¹ Use this convention for the following small letter keysyms: for a single, alphabetic keysym that is case sensitive, treat it as equivalent to a two-element list of the lowercase and uppercase keysyms.

Keysym Names

Table D–2 Keysym Names—ISO Latin-1

Keysym Name	Key Definition
XK_p	Latin Small Letter p
XK_q	Latin Small Letter q
XK_r	Latin Small Letter r
XK_s	Latin Small Letter s
XK_t	Latin Small Letter t
XK_u	Latin Small Letter u
XK_v	Latin Small Letter v
XK_w	Latin Small Letter w
XK_x	Latin Small Letter x
XK_y	Latin Small Letter y
XK_z	Latin Small Letter z
XK_braceleft	Left Curly Bracket
XK_bar	Vertical Line
XK_braceright	Right Curly Bracket
XK_asciitilde	Tilde
XK_nobreakspace	No-Break Space
XK_exclamdown	Inverted Exclamation Mark
XK_cent	Cent Sign
XK_sterling	Pound Sign
XK_currency	Currency Sign
XK_yen	Yen Sign
XK_brokenbar	Broken Vertical Bar
XK_section	Paragraph Sign or Section Sign
XK_diaeresis	Diaeresis
XK_copyright	Copyright Sign
XK_ordfeminine	Feminine Ordinal Indicator
XK_guillemotleft	Left Angle Quotation Mark
XK_notsign	Not Sign
XK_hyphen	Hyphen or Minus Sign
XK_registered	Registered Trademark
XK_macron	Macron
XK_degree	Degree Sign or Ring Above
XK_plusminus	Plus-minus Sign
XK_twosuperior	Superscript Two

Keysym Names

Table D–2 Keysym Names—ISO Latin-1	
Keysym Name	Key Definition
XK_threesuperior	Superscript Three
XK_acute	Acute Accent
XK_mu	Micro Sign
XK_paragraph	Paragraph Sign or Pilcrow Sign
XK_periodcentered	Middle Dot
XK_cedilla	Cedilla
XK_onesuperior	Superscript One
XK_masculine	Masculine Ordinal Indicator
XK_guillemotright	Right Angle Quotation Mark
XK_onequarter	Vulgar Fraction One Quarter
XK_onehalf	Vulgar Fraction One Half
XK_threequarters	Vulgar Fraction Three Quarters
XK_questiondown	Inverted Question Mark
XK_Agrave	Latin Capital Letter A with Grave Accent
XK_Aacute	Latin Capital Letter A with Acute Accent
XK_Acircumflex	Latin Capital Letter A with Circumflex Accent
XK_Atilde	Latin Capital Letter A with Tilde
XK_Adiaeresis	Latin Capital Letter A with Diaeresis
XK_Aring	Latin Capital Letter A with Ring Above
XK_AE	Latin Capital Diphthong AE
XK_Ccedilla	Latin Capital Letter C with Cedilla
XK_Egrave	Latin Capital Letter E with Grave Accent
XK_Eacute	Latin Capital Letter E with Acute Accent
XK_Ecircumflex	Latin Capital Letter E with Circumflex Accent
XK_Ediaeresis	Latin Capital Letter E with Diaeresis
XK_Igrave	Latin Capital Letter I with Grave Accent
XK_Iacute	Latin Capital Letter I with Acute Accent
XK_Icircumflex	Latin Capital Letter I with Circumflex Accent
XK_Idiaeresis	Latin Capital Letter I with Diaeresis
XK_ETH	Icelandic Capital Letter ETH
XK_Ntilde	Latin Capital Letter N with Tilde
XK_Ograve	Latin Capital Letter O with Grave Accent
XK_Oacute	Latin Capital Letter O with Acute Accent
XK_Ocircumflex	Latin Capital Letter O with Circumflex Accent

Keysym Names

Table D–2 Keysym Names—ISO Latin-1

Keysym Name	Key Definition
XK_Otilde	Latin Capital Letter O with Tilde
XK_Odiaeresis	Latin Capital Letter O with Diaeresis
XK_multiply	Multiplication Sign
XK_Ooblique	Latin Capital Letter O with Oblique Stroke
XK_Ugrave	Latin Capital Letter U with Grave Accent
XK_Uacute	Latin Capital Letter U with Acute Accent
XK_Ucircumflex	Latin Capital Letter U with Circumflex Accent
XK_Udiaeresis	Latin Capital Letter U with Diaeresis
XK_Yacute	Latin Capital Letter Y with Acute Accent
XK_THORN	Icelandic Capital Letter THORN
XK_ssharp	German Small Letter Sharp s
XK_agrave	Latin Small Letter a with Grave Accent
XK_aacute	Latin Small Letter a with Acute Accent
XK_acircumflex	Latin Small Letter a with Circumflex Accent
XK_atilde	Latin Small Letter a with Tilde
XK_adiaeresis	Latin Small Letter a with Diaeresis
XK_aring	Latin Small Letter a with Ring Above
XK_ae	Latin Small Diphthong ae
XK_ccedilla	Latin Small Letter c with Cedilla
XK_egrave	Latin Small Letter e with Grave Accent
XK_eacute	Latin Small Letter e with Acute Accent
XK_ecircumflex	Latin Small Letter e with Circumflex Accent
XK_ediaeresis	Latin Small Letter e with Diaeresis
XK_igrave	Latin Small Letter i with Grave Accent
XK_iacute	Latin Small Letter i with Acute Accent
XK_icircumflex	Latin Small Letter i with Circumflex Accent
XK_idiaeresis	Latin Small Letter i with Diaeresis
XK_eth	Icelandic Small Letter eth
XK_ntilde	Latin Small Letter n with Tilde
XK_ograve	Latin Small Letter o with Grave Accent
XK_oacute	Latin Small Letter o with Acute Accent
XK_ocircumflex	Latin Small Letter o with Circumflex Accent
XK_otilde	Latin Small Letter o with Tilde
XK_odiaeresis	Latin Small Letter o with Diaeresis

Keysym Names

Table D–2 Keysym Names—ISO Latin-1	
Keysym Name	Key Definition
XK_division	Division Sign
XK_slash	Latin Small Letter o with Oblique Stroke
XK_ugrave	Latin Small Letter u with Grave Accent
XK_uacute	Latin Small Letter u with Acute Accent
XK_ucircumflex	Latin Small Letter u with Circumflex Accent
XK_udiaeresis	Latin Small Letter u with Diaeresis
XK_yacute	Latin Small Letter y with Acute Accent
XK_thorn	Icelandic Small Letter thorn
XK_ydiaeresis	Latin Small Letter y with Diaeresis

Table D–3 Keysym Names—ISO Latin-2

Table D–3 Keysym Names—ISO Latin-2	
Keysym Name	Key Definition
XK_Aogonek	Latin Capital Letter A with Ogonek
XK_breve	Breve
XK_Lstroke	Latin Capital Letter L with Stroke
XK_Lcaron	Latin Capital Letter L with Caron
XK_Sacute	Latin Capital Letter S with Acute Accent
XK_Scaron	Latin Capital Letter S with Caron
XK_Scedilla	Latin Capital Letter S with Cedilla
XK_Tcaron	Latin Capital Letter T with Caron
XK_Zacute	Latin Capital Letter Z with Acute Accent
XK_Zcaron	Latin Capital Letter Z with Caron
XK_Zabovedot	Latin Capital Letter Z with Dot Above
XK_aogonek	Latin Small Letter a with Ogonek
XK_ogonek	Ogonek
XK_lstroke	Latin Small Letter l with Stroke
XK_lcaron	Latin Small Letter l with Caron
XK_sacute	Latin Small Letter s with Acute Accent
XK_caron	Caron
XK_scaron	Latin Small Letter s with Caron
XK_scedilla	Latin Small Letter s with Cedilla

Keysym Names

Table D–3 Keysym Names—ISO Latin-2

Keysym Name	Key Definition
XK_tcaron	Latin Small Letter t with Caron
XK_zacute	Latin Small Letter z with Acute Accent
XK_doubleacute	Double Acute Accent
XK_zcaron	Latin Small Letter z with Caron
XK_zabovedot	Latin Small Letter z with Dot Above
XK_Racute	Latin Capital Letter R with Acute Accent
XK_Abreve	Latin Capital Letter A with Breve
XK_Lacute	Latin Capital Letter L with Acute Accent
XK_Cacute	Latin Capital Letter C with Acute Accent
XK_Ccaron	Latin Capital Letter C with Caron
XK_Eogonek	Latin Capital Letter E with Ogonek
XK_Ecaron	Latin Capital Letter E with Caron
XK_Dcaron	Latin Capital Letter D with Caron
XK_Dstroke	Latin Capital Letter D with Stroke
XK_Nacute	Latin Capital Letter N with Acute Accent
XK_Ncaron	Latin Capital Letter N with Caron
XK_Odoubleacute	Latin Capital Letter O with Double Acute Accent
XK_Rcaron	Latin Capital Letter R with Caron
XK_Uring	Latin Capital Letter U with Ring Above
XK_Udoubleacute	Latin Capital Letter U with Double Acute Accent
XK_Tcedilla	Latin Capital Letter T with Cedilla
XK_racute	Latin Small Letter r with Acute Accent
XK_abreve	Latin Small Letter a with Breve
XK_lacute	Latin Small Letter l with Acute Accent
XK_cacute	Latin Small Letter c with Acute Accent
XK_ccaron	Latin Small Letter c with Caron
XK_eogonek	Latin Small Letter e with Ogonek
XK_ecaron	Latin Small Letter e with Caron
XK_dcaron	Latin Small Letter d with Caron
XK_dstroke	Latin Small Letter d with Stroke
XK_nacute	Latin Small Letter n with Acute Accent
XK_ncaron	Latin Small Letter n with Caron
XK_odoubleacute	Latin Small Letter o with Double Acute Accent
XK_rcaron	Latin Small Letter r with Caron

Keysym Names

Table D–3 Keysym Names—ISO Latin-2

Keysym Name	Key Definition
XK_uring	Latin Small Letter u with Ring Above
XK_udoubleacute	Latin Small Letter u with Double Acute Accent
XK_tcedilla	Latin Small Letter t with Cedilla
XK_abovedot	Dot Above

Table D–4 Keysym Names—ISO Latin-3

Table D–4 Keysym Names—ISO Latin-3

Keysym Name	Key Definition
XK_Hstroke	Latin Capital Letter H with Stroke
XK_Hcircumflex	Latin Capital Letter H with Circumflex Accent
XK_Iabovedot	Latin Capital Letter I with Dot Above
XK_Gbreve	Latin Capital Letter G with Breve
XK_Jcircumflex	Latin Capital Letter J with Circumflex Accent
XK_hstroke	Latin Small Letter h with Stroke
XK_hcircumflex	Latin Small Letter h with Circumflex Accent
XK_idotless	Small Dotless Letter I
XK_gbreve	Latin Small Letter g with Breve
XK_jcircumflex	Latin Small Letter j with Circumflex Accent
XK_Cabovedot	Latin Capital Letter C with Dot Above
XK_Ccircumflex	Latin Capital Letter C with Circumflex Accent
XK_Gabovedot	Latin Capital Letter G with Dot Above
XK_Gcircumflex	Latin Capital Letter G with Circumflex Accent
XK_Ubreve	Latin Capital Letter U with Breve
XK_Scircumflex	Latin Capital Letter S with Circumflex Accent
XK_cabovedot	Latin Small Letter c with Dot Above
XK_ccircumflex	Latin Small Letter c with Circumflex Accent
XK_gabovedot	Latin Small Letter g with Dot Above
XK_gcircumflex	Latin Small Letter g with Circumflex Accent
XK_ubreve	Latin Small Letter u with Breve
XK_scircumflex	Latin Small Letter s with Circumflex Accent

Table D–5 Keysym Names—ISO Latin-4

Table D–5 Keysym Names—ISO Latin-4	
Keysym Name	Key Definition
XK_kra	Small Greenlandic Letter kra
XK_Rcedilla	Latin Capital Letter R with Cedilla
XK_Itilde	Latin Capital Letter I with Tilde
XK_Lcedilla	Latin Capital Letter L with Cedilla
XK_Emacron	Latin Capital Letter E with Macron
XK_Gcedilla	Latin Capital Letter G with Cedilla
XK_Tslash	Latin Capital Letter T with Oblique Stroke
XK_rcedilla	Latin Small Letter r with Cedilla
XK_ityilde	Latin Small Letter i with Tilde
XK_lcedilla	Latin Small Letter l with Cedilla
XK_emacron	Latin Small Letter e with Macron
XK_gcedilla	Latin Small Letter g with Cedilla Above
XK_tslash	Latin Small Letter t with Oblique Stroke
XK_ENG	Lappish Capital Letter ENG
XK_eng	Lappish Small Letter eng
XK_Amacron	Latin Capital Letter A with Macron
XK_Iogonek	Latin Capital Letter I with Ogonek
XK_Eabovedot	Latin Capital Letter E with Dot Above
XK_Imacron	Latin Capital Letter I with Macron
XK_Ncedilla	Latin Capital Letter N with Cedilla
XK_Omacron	Latin Capital Letter O with Macron
XK_Kcedilla	Latin Capital Letter K with Cedilla
XK_Uogonek	Latin Capital Letter U with Ogonek
XK_Uityilde	Latin Capital Letter U with Tilde
XK_Umacron	Latin Capital Letter U with Macron
XK_amacron	Latin Small Letter a with Macron
XK_iogonek	Latin Small Letter i with Ogonek
XK_eabovedot	Latin Small Letter e with Dot Above
XK_imacron	Latin Small Letter i with Macron
XK_ncedilla	Latin Small Letter n with Cedilla
XK_omacron	Latin Small Letter o with Macron

Keysym Names

Table D–5 Keysym Names—ISO Latin-4

Keysym Name	Key Definition
XK_kcedilla	Latin Small Letter k with Cedilla
XK_uogonek	Latin Small Letter u with Ogonek
XK_utilde	Latin Small Letter u with Tilde
XK_umacron	Latin Small Letter u with Macron

Table D–6 Keysym Names—Katakana

Table D–6 Keysym Names—Katakana

Keysym Name	Key Definition
XK_overline	Overline
XK_kana_fullstop	Kana Full Stop
XK_kana_openingbracket	Kana Opening Bracket
XK_kana_closingbracket	Kana Closing Bracket
XK_kana_comma	Kana Comma
XK_kana_conjunctive	Kana Conjunctive
XK_kana_WO	Kana Letter WO
XK_kana_a	Kana Letter Small a
XK_kana_i	Kana Letter Small I
XK_kana_u	Kana Letter Small u
XK_kana_e	Kana Letter Small e
XK_kana_o	Kana Letter Small o
XK_kana_ya	Kana Letter Small ya
XK_kana_yu	Kana Letter Small yu
XK_kana_yo	Kana Letter Small yo
XK_kana_tsu	Kana Letter Small tsu
XK_prolongedsound	Prolonged Sound Symbol
XK_kana_A	Kana Letter A
XK_kana_I	Kana Letter I
XK_kana_U	Kana Letter U
XK_kana_E	Kana Letter E
XK_kana_O	Kana Letter O
XK_kana_KA	Kana Letter KA
XK_kana_KI	Kana Letter KI

Keysym Names

Table D–6 Keysym Names—Katakana

Keysym Name	Key Definition
XK_kana_KU	Kana Letter KU
XK_kana_KE	Kana Letter KE
XK_kana_KO	Kana Letter KO
XK_kana_SA	Kana Letter SA
XK_kana_SHI	Kana Letter SHI
XK_kana_SU	Kana Letter SU
XK_kana_SE	Kana Letter SE
XK_kana_SO	Kana Letter SO
XK_kana_TA	Kana Letter TA
XK_kana_CHI	Kana Letter CHI
XK_kana_TSU	Kana Letter TSU
XK_kana_TE	Kana Letter TE
XK_kana_TO	Kana Letter TO
XK_kana_NA	Kana Letter NA
XK_kana_NI	Kana Letter NI
XK_kana_NU	Kana Letter NU
XK_kana_NE	Kana Letter NE
XK_kana_NO	Kana Letter NO
XK_kana_HA	Kana Letter HA
XK_kana_HI	Kana Letter HI
XK_kana_FU	Kana Letter FU
XK_kana_HE	Kana Letter HE
XK_kana_HO	Kana Letter HO
XK_kana_MA	Kana Letter MA
XK_kana_MI	Kana Letter MI
XK_kana_MU	Kana Letter MU
XK_kana_ME	Kana Letter ME
XK_kana_MO	Kana Letter MO
XK_kana_YA	Kana Letter YA
XK_kana_YU	Kana Letter YU
XK_kana_YO	Kana Letter YO
XK_kana_RA	Kana Letter RA
XK_kana_RI	Kana Letter RI
XK_kana_RU	Kana Letter RU

Keysym Names

Table D–6 Keysym Names—Katakana

Keysym Name	Key Definition
XK_kana_RE	Kana Letter RE
XK_kana_RO	Kana Letter RO
XK_kana_WA	Kana Letter WA
XK_kana_N	Kana Letter N
XK_voicedsound	Voiced Sound Symbol
XK_semivoicedsound	Semi-voiced Sound Symbol
XK_kana_switch	Alias for Mode_switch

Table D–7 Keysym Names—Arabic

Keysym Name	Key Definition
XK_Arabic_comma	Arabic Letter COMMA
XK_Arabic_semicolon	Arabic Letter SEMICOLON
XK_Arabic_question_mark	Arabic Letter QUESTION_MARK
XK_Arabic_hamza	Arabic Letter HAMZA
XK_Arabic_maddaonalef	Arabic Letter MADDAONALEF
XK_Arabic_hamzaonalef	Arabic Letter HAMZAONALEF
XK_Arabic_hamzaonwaw	Arabic Letter HAMZAONWAW
XK_Arabic_hamzaunderalef	Arabic Letter HAMZAUNDERALEF
XK_Arabic_hamzaonyeh	Arabic Letter HAMZAONYEH
XK_Arabic_alef	Arabic Letter ALEF
XK_Arabic_beh	Arabic Letter BEH
XK_Arabic_tehmarbuta	Arabic Letter TEH MARBUTA
XK_Arabic_teh	Arabic Letter THE
XK_Arabic_theh	Arabic Letter THEH
XK_Arabic_jeem	Arabic Letter JEEM
XK_Arabic_hah	Arabic Letter HAH
XK_Arabic_khah	Arabic Letter KHAH
XK_Arabic_dal	Arabic Letter DAL
XK_Arabic_thal	Arabic Letter THAL
XK_Arabic_ra	Arabic Letter RA
XK_Arabic_zain	Arabic Letter ZAIN

Keysym Names

Table D–7 Keysym Names—Arabic

Keysym Name	Key Definition
XK_Arabic_seen	Arabic Letter SEEN
XK_Arabic_sheen	Arabic Letter SHEEN
XK_Arabic_sad	Arabic Letter SAD
XK_Arabic_dad	Arabic Letter DAD
XK_Arabic_tah	Arabic Letter TAH
XK_Arabic_zah	Arabic Letter ZAH
XK_Arabic_ain	Arabic Letter AIN
XK_Arabic_ghain	Arabic Letter GHAIN
XK_Arabic_tatweel	Arabic Letter TATWEEL
XK_Arabic_feh	Arabic Letter FEH
XK_Arabic_qaf	Arabic Letter QAF
XK_Arabic_kaf	Arabic Letter KAF
XK_Arabic_lam	Arabic Letter LAM
XK_Arabic_meem	Arabic Letter MEEM
XK_Arabic_noon	Arabic Letter NOON
XK_Arabic_ha	Arabic Letter HA
XK_Arabic_waw	Arabic Letter WAW
XK_Arabic_alefmaksura	Arabic Letter ALEF MAKSURA
XK_Arabic_yeh	Arabic Letter YEH
XK_Arabic_fathatan	Arabic Letter FATHATAN
XK_Arabic_dammatan	Arabic Letter DAMMATAN
XK_Arabic_kasratan	Arabic Letter KASRATAN
XK_Arabic_fatha	Arabic Letter FATHA
XK_Arabic_damma	Arabic Letter DAMMA
XK_Arabic_kasra	Arabic Letter KASRA
XK_Arabic_shadda	Arabic Letter SHADDA
XK_Arabic_sukun	Arabic Letter SUKUN
XK_Arabic_switch	Alias for Mode_switch

Keysym Names

Table D–8 Keysym Names—Cyrillic

Table D–8 Keysym Names—Cyrillic	
Keysym Name	Key Definition
XK_Serbian_dje	Serbian Small Letter dje
XK_Macedonia_gje	Macedonian Small Letter gje
XK_Cyrillic_io	Cyrillic Small Letter io
XK_Ukrainian_ie	Ukrainian Small Letter je
XK_Macedonia_dse	Macedonian Small Letter dse
XK_Ukrainian_i	Byelorussian/Ukrainian Cyrillic Small Letter I
XK_Ukrainian_yi	Ukrainian Small Letter yi
XK_Cyrillic_je	Cyrillic Small Letter je
XK_Cyrillic_lje	Cyrillic Small Letter lje
XK_Cyrillic_nje	Cyrillic Small Letter nje
XK_Serbian_tshe	Serbian Small Letter tshe
XK_Macedonia_kje	Macedonian Small Letter kje
XK_Byelorussian_shortu	Byelorussian Small Letter Short u
XK_Cyrillic_dzhe	Cyrillic Small Letter dzhe
XK_numerosign	Número Sign
XK_Serbian_DJE	Serbian Capital Letter DJE
XK_Macedonia_GJE	Macedonian Capital Letter GJE
XK_Cyrillic_IO	Cyrillic Capital Letter IO
XK_Ukrainian_IE	Ukrainian Cyrillic Capital Letter JE
XK_Macedonia_DSE	Macedonian Capital Letter DSE
XK_Ukrainian_I	Byelorussian/Ukrainian Capital Letter I
XK_Ukrainian_YI	Ukrainian Capital Letter YI
XK_Cyrillic_JE	Cyrillic Capital Letter JE
XK_Cyrillic_LJE	Cyrillic Capital Letter LJE
XK_Cyrillic_NJE	Cyrillic Capital Letter NJE
XK_Serbian_TSHE	Serbian Capital Letter TSHE
XK_Macedonia_KJE	Macedonian Cyrillic Capital Letter KJE
XK_Byelorussian_SHORTU	Byelorussian Capital Letter Short U
XK_Cyrillic_DZE	Cyrillic Capital Letter DZE
XK_Cyrillic_yu	Cyrillic Small Letter yu
XK_Cyrillic_a	Cyrillic Small Letter a
XK_Cyrillic_be	Cyrillic Small Letter be
XK_Cyrillic_tse	Cyrillic Small Letter tse

Keysym Names

Table D–8 Keysym Names—Cyrillic

Keysym Name	Key Definition
XK_Cyrillic_de	Cyrillic Small Letter de
XK_Cyrillic_ie	Cyrillic Small Letter ie
XK_Cyrillic_ef	Cyrillic Small Letter ef
XK_Cyrillic_ghe	Cyrillic Small Letter ghe
XK_Cyrillic_ha	Cyrillic Small Letter ha
XK_Cyrillic_i	Cyrillic Small Letter I
XK_Cyrillic_shorti	Cyrillic Small Letter Short I
XK_Cyrillic_ka	Cyrillic Small Letter ka
XK_Cyrillic_el	Cyrillic Small Letter el
XK_Cyrillic_em	Cyrillic Small Letter em
XK_Cyrillic_en	Cyrillic Small Letter en
XK_Cyrillic_o	Cyrillic Small Letter o
XK_Cyrillic_pe	Cyrillic Small Letter pe
XK_Cyrillic_ya	Cyrillic Small Letter ya
XK_Cyrillic_er	Cyrillic Small Letter er
XK_Cyrillic_es	Cyrillic Small Letter es
XK_Cyrillic_te	Cyrillic Small Letter te
XK_Cyrillic_u	Cyrillic Small Letter u
XK_Cyrillic_zhe	Cyrillic Small Letter zhe
XK_Cyrillic_ve	Cyrillic Small Letter ve
XK_Cyrillic_softsign	Cyrillic Small Soft Sign
XK_Cyrillic_yeru	Cyrillic Small Letter yeru
XK_Cyrillic_ze	Cyrillic Small Letter ze
XK_Cyrillic_sha	Cyrillic Small Letter sha
XK_Cyrillic_e	Cyrillic Small Letter e
XK_Cyrillic_shcha	Cyrillic Small Letter shcha
XK_Cyrillic_che	Cyrillic Small Letter che
XK_Cyrillic_hardsign	Cyrillic Small Hard Sign
XK_Cyrillic_YU	Cyrillic Capital Letter YU
XK_Cyrillic_A	Cyrillic Capital Letter A
XK_Cyrillic_BE	Cyrillic Capital Letter BE
XK_Cyrillic_TSE	Cyrillic Capital Letter TSE
XK_Cyrillic_DE	Cyrillic Capital Letter DE
XK_Cyrillic_IE	Cyrillic Capital Letter IE

Keysym Names

Table D–8 Keysym Names—Cyrillic	
Keysym Name	Key Definition
XK_Cyrillic_EF	Cyrillic Capital Letter EF
XK_Cyrillic_GHE	Cyrillic Capital Letter GHE
XK_Cyrillic_HA	Cyrillic Capital Letter HA
XK_Cyrillic_I	Cyrillic Capital Letter I
XK_Cyrillic_SHORTI	Cyrillic Capital Letter Short I
XK_Cyrillic_KA	Cyrillic Capital Letter KA
XK_Cyrillic_EL	Cyrillic Capital Letter EL
XK_Cyrillic_EM	Cyrillic Capital Letter EM
XK_Cyrillic_EN	Cyrillic Capital Letter EN
XK_Cyrillic_O	Cyrillic Capital Letter O
XK_Cyrillic_PE	Cyrillic Capital Letter PE
XK_Cyrillic_YA	Cyrillic Capital Letter YA
XK_Cyrillic_ER	Cyrillic Capital Letter ER
XK_Cyrillic_ES	Cyrillic Capital Letter ES
XK_Cyrillic_TE	Cyrillic Capital Letter TE
XK_Cyrillic_U	Cyrillic Capital Letter U
XK_Cyrillic_ZHE	Cyrillic Capital Letter ZHE
XK_Cyrillic_VE	Cyrillic Capital Letter VE
XK_Cyrillic_SOFTSIGN	Cyrillic Capital Soft Sign
XK_Cyrillic_YERU	Cyrillic Capital Letter YERU
XK_Cyrillic_ZE	Cyrillic Capital Letter ZE
XK_Cyrillic_SHA	Cyrillic Capital Letter SHA
XK_Cyrillic_E	Cyrillic Capital Letter E
XK_Cyrillic_SHCHA	Cyrillic Capital Letter SHCHA
XK_Cyrillic_CHE	Cyrillic Capital Letter CHE
XK_Cyrillic_HARDSIGN	Cyrillic Capital Hard Sign

Table D–9 Keysym Names—Greek

Table D–9 Keysym Names—Greek	
Keysym Name	Key Definition
XK_Greek_ALPHAaccent	Greek Capital Letter ALPHA with Accent
XK_Greek_EPSILONaccent	Greek Capital Letter EPSILON with Accent
XK_Greek_ETAaccent	Greek Capital Letter ETA with Accent
XK_Greek_IOTAaccent	Greek Capital Letter IOTA with Accent
XK_Greek_IOTAdiaeresis	Greek Capital Letter IOTA with Diaeresis
XK_Greek_OMICRONaccent	Greek Capital Letter OMICRON with Accent
XK_Greek_UPSILONaccent	Greek Capital Letter UPSILON with Accent
XK_Greek_UPSILONdiaeresis	Greek Capital Letter UPSILON with Diaeresis
XK_Greek_OMEGAaccent	Greek Capital Letter OMEGA with Accent
XK_Greek_accentdiaeresis	Diaeresis and Accent
XK_Greek_horizbar	Horizontal Bar
XK_Greek_alphaaccent	Greek Small Letter Alpha with Accent
XK_Greek_epsilonaccent	Greek Small Letter Epsilon with Accent
XK_Greek_etaaccent	Greek Small Letter Eta with Accent
XK_Greek_iotaaccent	Greek Small Letter Iota with Accent
XK_Greek_iotadiaeresis	Greek Small Letter Iota with Diaeresis
XK_Greek_iotaaccentdiaeresis	Greek Small Letter Iota with Accent and Diaeresis
XK_Greek_omicronaccent	Greek Small Letter Omicron with Accent
XK_Greek_upsilonaccent	Greek Small Letter Upsilon with Accent
XK_Greek_upsilondiaeresis	Greek Small Letter Upsilon with Diaeresis
XK_Greek_upsilonaccentdiaeresis	Greek Small Letter Upsilon with Accent and Diaeresis
XK_Greek_omegaaccent	Greek Small Letter Omega with accent
XK_Greek_ALPHA	Greek Capital Letter ALPHA
XK_Greek_BETA	Greek Capital Letter BETA
XK_Greek_GAMMA	Greek Capital Letter GAMMA
XK_Greek_DELTA	Greek Capital Letter DELTA
XK_Greek_EPSILON	Greek Capital Letter EPSILON
XK_Greek_ZETA	Greek Capital Letter ZETA
XK_Greek_ETA	Greek Capital Letter ETA
XK_Greek_THETA	Greek Capital Letter THETA
XK_Greek_IOTA	Greek Capital Letter IOTA
XK_Greek_KAPPA	Greek Capital Letter KAPPA
XK_Greek_LAMDA	Greek Capital Letter LAMDA

Keysym Names

Table D–9 Keysym Names—Greek

Keysym Name	Key Definition
XK_Greek_MU	Greek Capital Letter MU
XK_Greek_NU	Greek Capital Letter NU
XK_Greek_XI	Greek Capital Letter XI
XK_Greek_OMICRON	Greek Capital Letter OMICRON
XK_Greek_PI	Greek Capital Letter PI
XK_Greek_RHO	Greek Capital Letter RHO
XK_Greek_SIGMA	Greek Capital Letter SIGMA
XK_Greek_TAU	Greek Capital Letter TAU
XK_Greek_UPSILON	Greek Capital Letter UPSILON
XK_Greek_PHI	Greek Capital Letter PHI
XK_Greek_CHI	Greek Capital Letter CHI
XK_Greek_PSI	Greek Capital Letter PSI
XK_Greek_OMEGA	Greek Capital Letter OMEGA
XK_Greek_alpha	Greek Small Letter alpha
XK_Greek_beta	Greek Small Letter beta
XK_Greek_gamma	Greek Small Letter gamma
XK_Greek_delta	Greek Small Letter delta
XK_Greek_epsilon	Greek Small Letter epsilon
XK_Greek_zeta	Greek Small Letter zeta
XK_Greek_eta	Greek Small Letter eta
XK_Greek_theta	Greek Small Letter theta
XK_Greek_iota	Greek Small Letter iota
XK_Greek_kappa	Greek Small Letter kappa
XK_Greek_lamda	Greek Small Letter lamda
XK_Greek_mu	Greek Small Letter mu
XK_Greek_nu	Greek Small Letter nu
XK_Greek_xi	Greek Small Letter xi
XK_Greek_omicron	Greek Small Letter omicron
XK_Greek_pi	Greek Small Letter pi
XK_Greek_rho	Greek Small Letter rho
XK_Greek_sigma	Greek Small Letter sigma
XK_Greek_finalsmallsigma	Greek Small Letter final small sigma
XK_Greek_tau	Greek Small Letter tau
XK_Greek_upsilon	Greek Small Letter upsilon

Keysym Names

Table D–9 Keysym Names—Greek

Keysym Name	Key Definition
XK_Greek_phi	Greek Small Letter phi
XK_Greek_chi	Greek Small Letter chi
XK_Greek_psi	Greek Small Letter psi
XK_Greek_omega	Greek Small Letter omega
XK_Greek_switch	Alias for Mode_switch

Table D–10 Keysym Names—Technical

Keysym Name	Key Definition
XK_leftradical	Left Radical
XK_toplefttradical	Top Left Radical
XK_horizconnector	Horizontal Connector
XK_topintegral	Top Integral
XK_botintegral	Bottom Integral
XK_vertconnector	Vertical Connector
XK_topleftsqbracket	Top Left Square Bracket
XK_botleftsqbracket	Bottom Left Square Bracket
XK_toprightsqbracket	Top Right Square Bracket
XK_botrightsqbracket	Bottom Right Square Bracket
XK_topleftparens	Top Left Parenthesis
XK_toprightparens	Top Right Parenthesis
XK_botrightparens	Bottom Right Parenthesis
XK_leftmiddlecurlybrace	Left Middle Curly Brace
XK_rightmiddlecurlybrace	Right Middle Curly Brace
XK_topleftsummation	Top Left Summation
XK_botleftsummation	Bottom Left Summation
XK_topvertsummationconnector	Top Vertical Summation Connector
XK_botvertsummationconnector	Bottom Vertical Summation Connector
XK_toprightsummation	Top Right Summation
XK_botrightsummation	Bottom Right Summation
XK_rightmiddlesummation	Right Middle Summation
XK_lessthanequal	Less Than or Equal Sign

Keysym Names

Table D–10 Keysym Names—Technical

Keysym Name	Key Definition
XK_notequal	Not Equal Sign
XK_greaterthanequal	Greater Than or Equal Sign
XK_integral	Integral
XK_therefore	Therefore
XK_variation	Variation or Proportional to
XK_infinity	Infinity
XK_nabla	Nabla or Del
XK_approximate	Is Approximate to
XK_similarequal	Similar or Equal to
XK_ifonlyif	If and Only if
XK_implies	Implies
XK_identical	Identical
XK_radical	Radical
XK_includedin	Is Included in
XK_includes	Includes
XK_intersection	Intersection
XK_union	Union
XK_logicaland	Logical and
XK_logicalor	Logical or
XK_partialderivative	Partial Derivative
XK_function	Function
XK_leftarrow	Left Arrow
XK_uparrow	Upward Arrow
XK_rightarrow	Right Arrow
XK_downarrow	Downward Arrow

Table D–11 Keysym Names—Special

Table D–11 Keysym Names—Special	
Keysym Name	Key Definition
XK_blank	Blank
XK_soliddiamond	Solid Diamond
XK_checkerboard	Checkerboard

Keysym Names

Table D–11 Keysym Names—Special

Keysym Name	Key Definition
XK_ht	“HT”
XK_ff	“FF”
XK_cr	“CR”
XK_lf	“LF”
XK_nl	“NL”
XK_vt	“VT”
XK_lowrightcorner	Lower-Right Corner
XK_uprightcorner	Upper-Right Corner
XK_upleftcorner	Upper-Left Corner
XK_lowleftcorner	Lower-Left Corner
XK_crossinglines	Crossing-Lines
XK_horizlinescan1	Horizontal Line or Scan 1
XK_horizlinescan3	Horizontal Line or Scan 3
XK_horizlinescan5	Horizontal Line or Scan 5
XK_horizlinescan7	Horizontal Line or Scan 7
XK_horizlinescan9	Horizontal Line or Scan 9
XK_leftt	Left “T”
XK_rightt	Right “T”
XK_bott	Bottom “T”
XK_topt	Top “T”
XK_vertbar	Vertical Bar

Table D–12 Keysym Names—Publishing

Keysym Name	Key Definition
XK_emspace	Em Space
XK_enspace	En Space
XK_em3space	3/Em Space
XK_em4space	4/Em Space
XK_digitspace	Digit Space
XK_punctspace	Punctuation Space
XK_thinspace	Thin Space

Keysym Names

Table D–12 Keysym Names—Publishing

Keysym Name	Key Definition
XK_hairspace	Hair Space
XK_emdash	Em Dash
XK_endash	En Dash
XK_signifblank	Significant Blank Symbol
XK_ellipsis	Ellipsis
XK_doubbaselinedot	Double Baseline Dot
XK_onethird	Vulgar Fraction One Third
XK_twothirds	Vulgar Fraction Two Thirds
XK_onefifth	Vulgar Fraction One Fifth
XK_twofifths	Vulgar Fraction Two Fifths
XK_threefifths	Vulgar Fraction Three Fifths
XK_fourfifths	Vulgar Fraction Four Fifths
XK_onesixth	Vulgar Fraction One Sixth
XK_fivesixths	Vulgar Fraction Five Sixths
XK_careof	Care of
XK_figdash	Figure Dash
XK_leftanglebracket	Left Angle Bracket
XK_decimalpoint	Decimal Point
XK_rightanglebracket	Right Angle Bracket
XK_marker	Marker
XK_oneeighth	Vulgar Fraction One Eighth
XK_threeeighths	Vulgar Fraction Three Eighths
XK_fiveeighths	Vulgar Fraction Five Eighths
XK_seveneighths	Vulgar Fraction Seven Eighths
XK_trademark	Trademark Sign
XK_signaturemark	Signature Mark
XK_trademarkincircle	Trademark Sign In Circle
XK_leftopentriangle	Left Open Triangle
XK_rightopentriangle	Right Open Triangle
XK_emopencircle	Em Open Circle
XK_emopenrectangle	Em Open Rectangle
XK_leftsinglequotemark	Left Single Quotation Mark
XK_rightsinglequotemark	Right Single Quotation Mark
XK_leftdoublequotemark	Left Double Quotation Mark

Keysym Names

Table D–12 Keysym Names—Publishing

Keysym Name	Key Definition
XK_rightdoublequotemark	Right Double Quotation Mark
XK_prescription	Prescription, Take, or Recipe
XK_minutes	Minutes
XK_seconds	Seconds
XK_latincross	Latin Cross
XK_hexagram	Hexagram
XK_filledrectbullet	Filled Rectangle Bullet
XK_filledlefttribullet	Filled Left Triangle Bullet
XK_filledrighttribullet	Filled Right Triangle Bullet
XK_emfilledcircle	Em Filled Circle
XK_emfilledrect	Em Filled Rectangle
XK_enopencircbullet	En Open Circle Bullet
XK_enopensquarebullet	En Open Square Bullet
XK_openrectbullet	Open Rectangle Bullet
XK_opentriplebulletup	Open Triangle Bullet Up
XK_opentriplebulldown	Open Triangle Bullet Down
XK_openstar	Open Star
XK_enfilledcircbullet	En Filled Circle Bullet
XK_enfilledsqbullet	En Filled Square Bullet
XK_filledtribulletup	Filled Triangle Bullet Up
XK_filledtribulldown	Filled Triangle Bullet Down
XK_leftpointer	Left Pointer
XK_rightpointer	Right Pointer
XK_club	Club
XK_diamond	Diamond
XK_heart	Heart
XK_maltesecross	Maltese Cross
XK_dagger	Dagger
XK_doubledagger	Double Dagger
XK_checkmark	Check Mark or Tick
XK_ballotcross	Ballot Cross
XK_musicalsharp	Musical Sharp
XK_musicalflat	Musical Flat
XK_malesymbol	Male Symbol

Keysym Names

Table D–12 Keysym Names—Publishing

Keysym Name	Key Definition
XK_femalesymbol	Female Symbol
XK_telephone	Telephone Symbol
XK_telephonerecorder	Telephone Recorder Symbol
XK_phonographcopyright	Phonograph Copyright Sign
XK_caret	Caret
XK_singlelowquotemark	Single Low Quotation Mark
XK_doublelowquotemark	Double Low Quotation Mark
XK_cursor	Cursor

Table D–13 Keysym Names—APL

Table D–13 Keysym Names—APL

Keysym Name	Key Definition
XK_leftcaret	Left Caret
XK_rightcaret	Right Caret
XK_downcaret	Down Caret
XK_upcaret	Up Caret
XK_overbar	Overbar
XK_downtack	Down Tack
XK_upshoe	Up Shoe (CAP)
XK_downstile	Down Stile
XK_underbar	Underbar
XK_jot	Jot
XK_quad	Quad
XK_uptack	Up Tack
XK_circle	Circle
XK_upstile	Up Stile
XK_downshoe	Down Shoe (CUP)
XK_rightshoe	Right Shoe
XK_leftshoe	Left Shoe
XK_lefttack	Left Tack
XK_righttack	Right Tack

Keysym Names

Table D–14 Keysym Names—Hebrew

Table D–14 Keysym Names—Hebrew	
Keysym Name	Key Definition
XK_hebrew_doublelowline	Double Low Line
XK_hebrew_aleph	Hebrew Letter Aleph
XK_hebrew_bet	Hebrew Letter Bet
XK_hebrew_gimel	Hebrew Letter Gimel
XK_hebrew_dalet	Hebrew Letter Dalet
XK_hebrew_he	Hebrew Letter He
XK_hebrew_waw	Hebrew Letter Waw
XK_hebrew_zain	Hebrew Letter Zain
XK_hebrew_chet	Hebrew Letter Chet
XK_hebrew_tet	Hebrew Letter Tet
XK_hebrew_yod	Hebrew Letter Yod
XK_hebrew_finalkaph	Hebrew Letter Final Kaph
XK_hebrew_kaph	Hebrew Letter Kaph
XK_hebrew_lamed	Hebrew Letter Lamed
XK_hebrew_finalmem	Hebrew Letter Final Mem
XK_hebrew_mem	Hebrew Letter Mem
XK_hebrew_finalnun	Hebrew Letter Final Nun
XK_hebrew_nun	Hebrew Letter Nun
XK_hebrew_samech	Hebrew Letter Samech
XK_hebrew_ayin	Hebrew Letter A'Yin
XK_hebrew_finalpe	Hebrew Letter Final Pe
XK_hebrew_pe	Hebrew Letter Pe
XK_hebrew_finalzade	Hebrew Letter Final Zade
XK_hebrew_zade	Hebrew Letter Zade
XK_hebrew_qoph	Hebrew Letter Qoph
XK_hebrew_resh	Hebrew Letter Resh
XK_hebrew_shin	Hebrew Letter Shin
XK_hebrew_taw	Hebrew Letter Taw
XK_hebrew_switch	Alias for Mode_switch

Keysym Names

Table D–15 Keysym Names—DEC Private

Table D–15 Keysym Names—DEC Private	
Keysym Name	Key Definition
DXK_ring_accent	Ring Accent ¹
DXK_circumflex_accent	Circumflex Accent ¹
DXK_cedilla_accent	Cedilla Accent ¹
DXK_acute_accent	Acute Accent ¹
DXK_grave_accent	Grave Accent ¹
DXK_tilde	Tilde ¹
DXK_diaeresis	Diaeresis ¹
DXK_Remove	Remove ²

¹ 2-key compose sequence initiator

² Special keysym for the Remove key on the LK201 keyboard editing keypad

Table D–16 Keysym Names—Currency

Table D–16 Keysym Names—Currency	
Keysym Name	Key Definition
XK_EcuSign	Ecu Sign
XK_ColonSign	Colon Sign
XK_CruzeiroSign	Cruzeiro Sign
XK_FFrancSign	Ffranc Sign
XK_LiraSign	Lira Sign
XK_MillSign	Mill Sign
XK_NairaSign	Naira Sign
XK_PesetaSign	Peseta Sign
XK_RupeeSign	Rupee Sign
XK_WonSign	Won Sign
XK_NewSheqelSign	New Sheqel Sign
XK_DongSign	Dong Sign
XK_EuroSign	Euro Sign

X Font-Naming Conventions

This appendix provides the following information:

- An overview of X font-naming conventions
- A definition of each field in a font name
- Examples of valid font names

Note

For more information on X font-naming conventions, see *The X Window System*, by Scheifler and Getty, published by the Digital Press.

Overview of X Font-Naming Conventions

X applications specify fonts through the naming conventions of the X Logical Font Description (XLFD). An XLFD name is a string of field names separated by hyphens. A font name uniquely identifies the font. It also contains information about the origin of the font and the attributes of the font.

A font name consists of the following fields, each preceded with a dash:

- FOUNDRY
- FAMILY_NAME
- WEIGHT_NAME
- SLANT
- SETWIDTH_NAME

X Font-Naming Conventions

- ADD_STYLE_NAME
- PIXEL_SIZE
- POINT_SIZE
- RESOLUTION_X
- RESOLUTION_Y
- SPACING
- AVERAGE_WIDTH
- CHARSET_REGISTRY
- CHARSET_ENCODING

The entire font-name string must have no more than 255 characters. When X applications specify font names with the wildcard characters asterisk (*) and question mark (?), they should explicitly include all field delimiters to avoid unexpected results.

Note

SPACE is a valid character in a font-name field; that is, a FAMILY_NAME might be *ITC Avant Garde Gothic*.

Font Name Field Definitions

This section provides a brief definition of each field in a font name:

- FOUNDRY
The name or identifier of the organization that digitized and supplied the font.
- FAMILY_NAME
Identifies the range or “family” of typeface designs that are all variations of one basic typographic style.

Examples of FAMILY_NAMES:

Helvetica
ITC Avant Garde Gothic
Times
Times Roman
Bitstream Amerigo
Stone

X Font-Naming Conventions

- **WEIGHT_NAME**

Identifies the font's typographic weight, according to the foundry's judgment. For example, **WEIGHT_NAME** identifies the nominal blackness of the font.

The interpretation of this field is somewhat problematic, as the judgment of typographic weight has traditionally depended upon the overall design of the typeface family in question. (It is possible that the demibold weight of one font could be almost equivalent in typographic feel to a bold font from another family.)

- **SLANT**

A code-string that indicates the overall posture of the typeface design used in the font.

The encoding is explained in Table E-1.

Table E-1 SLANT Encodings

Code	English String	Description
"R"	Roman	Upright design
"I"	Italic	Italic design, slanted clockwise from vertical
"O"	Oblique	Obliqued upright design, slanted clockwise from vertical
"RI"	Reverse Italic	Italic design, slanted counterclockwise from vertical
"RO"	Reverse Oblique	Obliqued upright design, slanted counterclockwise from vertical
"OT"	Other	Other

- **SETWIDTH_NAME**

Gives the font's typographic proportionate width; that is, the nominal width per horizontal unit of the font, according to the foundry's judgment.

As with **WEIGHT_NAME**, the interpretation of this field is somewhat problematic, because the designer's judgment of setwidth has traditionally depended upon the overall design of the typeface family in question. X applications should use the **RELATIVE_SETWIDTH** font property, which gives the relative coded proportionate width, or calculate the proportionate width, for purposes of font matching or substitution.

X Font-Naming Conventions

Examples of SETWIDTH_NAMES:

Normal
Condensed
Narrow
Double Wide

- **ADD_STYLE_NAME**

Identifies additional typographic style information not available in other fields but needed to uniquely identify the font.

ADD_STYLE_NAME is not a typeface classification field and is only used for uniqueness. Its usage, as such, is not limited to typographic style distinctions.

Examples of ADD_STYLE_NAMES:

Serif
Sans Serif
Informal
Decorated

- **PIXEL_SIZE**

Gives the height, in pixels, of the font.

- **POINT_SIZE**

POINT_SIZE gives the height, in decipoints, of the font. There are 722.7 decipoints to the inch. This value assumes that the display device has the vertical resolution specified in the RESOLUTION_Y field.

- **RESOLUTION_X and RESOLUTION_Y**

The horizontal and vertical resolution the font was designed for, measured in dots per inch (dpi).

- **SPACING**

Indicates the escapement class of the font; that is, monospace (fixed pitch), proportional (variable pitch), or CharCell (a special monospaced font that conforms to the traditional data processing character cell font model).

X Font-Naming Conventions

The encoding is explained in Table E-2.

Table E-2 SPACING Encodings

Code	English String	Description
“P”	Proportional	A font whose character widths can vary for each character
“M”	Monospace	A font whose character widths are the same for all characters
“C”	CharCell	A font whose character widths and heights are the same for all characters

- **AVERAGE_WIDTH**
The average width of all characters in the font, measured in 1/10th pixels.
- **CHARSET_REGISTRY**
Identifies the registration authority that owns the specified encoding.
- **CHARSET_ENCODING**
Identifies the ordering of characters within the font.

The ISO Latin-1 character set has the **CHARSET_REGISTRY** “ISO8859” and the **CHARSET_ENCODING** “I”.

Scaleable and Polymorphic Font Names

eXcursion can open and scale to any size scaleable fonts in the Adobe Type 1 or Bitstream Speedo formats. If an XLFD name has the digit “0” in the **PIXEL_SIZE**, **POINT_SIZE**, and **AVERAGE_WIDTH** fields, it is interpreted as a scaleable font. The **RESOLUTION_X** AND **RESOLUTION_Y** fields can also be set to “0”.

X Font-Naming Conventions

Examples of Font Names

The following examples of font names are derived from the screen fonts shipped with X servers meeting the X11 Release 6 specification.

Table E–3 Examples of X Font Names

Font	X Font Name
Courier 8pt @75dpi	-Adobe-Courier-Medium-R-Normal--8-80-75-75-M-50-ISO8859-1
Courier 12pt	-Adobe-Courier-Medium-R-Normal--12-120-75-75-M-70-ISO8859-1
Courier Bold	-Adobe-Courier-Bold-R-Normal--10-100-75-75-M-10pt 60-ISO8859-1
Courier BoldOblique 10pt	-Adobe-Courier-Bold-O-Normal--10-100-75-75-M-60-ISO8859-1
Courier Oblique 10pt	-Adobe-Courier-Medium-O-Normal--10-100-75-75-M-60-ISO8859-1
Times Roman 10pt @100dpi	-Adobe-Times-Medium-R-Normal--14-100-100-100-P-74-ISO8859-1
Times Bold 10pt	-Adobe-Times-Bold-R-Normal--14-100-100-100-P-76-ISO8859-1
Charter 12pt @75dpi	-Bitstream-Charter-Medium-R-Normal—12-120-75-75-P-68-ISO8859-1
Charter BoldItalic 12pt	-Bitstream-Charter-Bold-I-Normal--12-120-75-75-P-75-ISO8859-1
Charter Bold 12pt	-Bitstream-Charter-Bold-R-Normal--12-120-75-75-P-76-ISO8859-1
Charter Italic 12pt	-Bitstream-Charter-Medium-I-Normal--12-120-75-75-P-66-ISO8859-1
Courier medium, scaleable	-Adobe-Courier-Medium-R-Normal--0-0-0-0-M-0-ISO8859-1
Courier bold, scaleable	-Adobe-Courier-Bold-R-Normal--0-0-0-0-M-0-ISO8859-1

Scaleable Font Aliases

One font can be substituted for another by declaring an alias for it in a file named `Fonts.ali`. This file can be created or edited with any text editor. It resides in the same directory as a `Fonts.dir` file.

The `Fonts.ali` file contains aliases of the form:

```
RequestedFont      ActualFont
```

where `RequestedFont` is the XLFD requested by an X application and `ActualFont` is the XLFD to be substituted.

Font Failover

You can obtain fonts from a local hard disk or from remote sites. The remote sites can be font directories or font servers. Your font path can contain several Font Path Elements (FPEs), but some may be offline at any given time.

To deal with this situation, you can enter several equivalent FPEs in the font path. If one FPE is not available, the search proceeds to another FPE. Such a font path might appear as:

`\Dir1\100dpi`

`\Dir2\100dpi`

`\Dir1\75dpi`

`\Dir2\75dpi`

This approach can slow down all font searches, even when all systems are operating normally. FPEs are searched for in order until the requested font is found, or until all FPEs have been tried. Font aliases can cause all FPEs to be examined for every font opened, because an alias may refer to a font in any FPE. If an FPE goes offline, there can be long delays in routine font access because the network can time out trying to access the FPE.

Adding redundant FPEs to the active font path also increases the size of the server's font lookup tables, which consumes more of the PC's memory. For best performance, you should keep the number of FPEs to a minimum.

The eXcursion server provides redundancy in the form of font failover; that is, if one FPE is not available, an alternate is picked dynamically. Failover FPEs are kept off the font path until they are genuinely needed.

Font Failover

To establish font failover, declare each FPE known to the server as either a primary or an alternate FPE. Primary FPEs are active elements of the font path. Alternate FPEs are kept off the font path and are inactive.

Typically, an alternate site has the same set of fonts as the primary site. The purpose of an alternate is not to provide exotic, rarely used fonts, but to increase font availability.

A failover site becomes active only when the following conditions exist:

- The font path changes (for example, when the server is started or when you change the font path).
- When access or initialization of a font directory fails. In this case, the site may not be available, there may be a network problem, or there may be a problem with the Fonts.dir file.

Note that alternates are not activated on *BadFont* - *font-not-known* - errors. If this were allowed, any request for an unknown font would activate all the alternate sites, which is generally not desirable.

Setting Up a Failover Configuration

There are two basic kinds of FPEs:

- Individual directories of fonts
- Font servers

A single font server FPE can manage many font directories and thus serve as an alternate for several individual directories.

The two kinds of alternates include:

- Single—a single alternate replaces a single, specific FPE
- Multiple—a multiple alternate replaces all active FPEs

The following examples describe four types of searches.

Example 1

Example 1 describes normal searching, no alternates.

The FPEs in the font path are searched in order to satisfy each font request. If a font is not found in the first FPE in the font path, the search proceeds to the next FPE and so on. The search proceeds through all FPEs until the font is found. Usually, you set up the font path so the FPEs most frequently used are first and those less frequently used are last.

Example 2

Example 2 describes using single alternates.

If the font lookup fails because the 100 dpi FPE is temporarily unavailable, it is best to find an alternate 100 dpi FPE, which presumably has the desired font.

```

\\Fonts1\Dir1\100dpi
    r:\Dir2\100dpi
\\Fonts1\Dir1\75dpi
    r:\Dir2\75dpi
\\Fonts1\Dir1\Misc
    r:\Dir2\Misc

```

The example shows three primary directory FPEs. Each one has an alternate on a different disk/share, which is indented to show it is associated with a single primary FPE. The control panel list box displays alternates in red text.

An FPE can have no, one, or many alternates. All alternates for a given FPE are tried before proceeding to the next active FPE. You can denote this arrangement as:

```

\Dir1\100dpi
    \Dir2\100dpi
    \Dir3\100dpi
\Dir1\75dpi
    \Dir2\75dpi

```

The following is a common font configuration problem:

```

\Dir1\100dpi
\Dir1\75dpi
\Dir1\misc

```

eXcursion includes a 100 dpi and a 75 dpi font set. If you install both sets and have both on the font path, you often get unexpected results. If you want a backup, you can keep one of these directories as an alternate of the other, as shown below:

```

\Dir1\100dpi

```

Font Failover

\Dir1\75dpi

\Dir1\misc

Example 3

Example 3 describes using multiple alternates.

There is also a need for multiple alternates: a single FPE that may serve as an alternate to several FPEs. Font servers make good multiple alternates.

\\Fonts1\Dir1\100dpi

\\Fonts1\Dir1\Misc

* TCP/Fserve1.xxx.com:7000

* TCP/Fserve2.yyy.com:7000

In this example, **Fserve1.xxx.com** serves as an alternate for both primary directories. If any of the directories fail, fserve1 becomes active, and the other directories become inactive (therefore, the multiple alternate should be able to cover all the primaries it is backing up).

If **Fserve1** is unavailable or fails, **Fserve2** (the next multiple alternate) becomes active.

Note that the multiple alternates need not be the last items in the list (although this would be a reasonable convention to adopt). They may be placed anywhere in the list. Only their order relative to other multiple alternates is significant.

Font failover search algorithm

The font failover search or replacement algorithm summary follows:

- If an FPE fails, check the next one in the list. If it is a single alternate, use it.
- The search for a single alternate stops when the next FPE in the list is a primary.
- If there are no more single alternates for an FPE, the server will look for a multiple alternate. The first multiple alternate available is used. A multiple alternate may be placed anywhere in the list box.
- If a multiple alternate becomes active, all other FPEs become inactive.

Restrictions

Restrictions are as follow:

- All primary, alternate and multiple alternate FPEs must be unique; that is, an FPE can only appear in the list once. If you want an FPE to be an alternate for several primaries, it must be declared multiple.
- When an FPE fails, only one FPE is selected to take its place. Therefore, as an example, a font server cannot be replaced with three directory FPEs.
- When a multiple alternate becomes active, all other FPEs become inactive. A multiple alternate must therefore cover the fonts of the primary FPEs in order to be effective. A font server is generally the best choice for a multiple alternate.

Example 4

Example 4 describes activating selected FPEs.

You can activate any FPE in the list, primary or alternate, with the Activate button on the Control Panel Fonts page. Activated FPE entries in the list box are indicated with a small arrow.

When failover conditions occur, the server selects appropriate alternates for the primaries that have failed. You can also make the server use any alternate at any time by activating that element with the Control Panel, which makes it easy to test the alternates for proper operation and performance.

In the example below, the server will try \Dir1\100dpi first, and will only try the others after it fails.

```
> \Dir1\100dpi
    \Dir2\100dpi
    \Dir3\100dpi
```

However, if \Dir2\100 dpi is activated, the display appears as follows:

```
\Dir1\100dpi
>  \Dir2\100
    \Dir3\100dpi
```

The server will try \Dir2\100dpi first, and fail over to \Dir3\100dpi if necessary. The server ignores \Dir1\100dpi, as though \Dir2\100dpi was a primary FPE.

If a multiple alternate FPE becomes active, all other FPEs become inactive, because a multiple alternate covers all other FPEs.

Command Line Switches

The following table lists the eXcursion command line switches available.

Switch	Description
-ac	Disable access control restrictions
-audit init	Set audit trail level
-auth string	Select authorization file
Bc	Enable bug compatibility
-bs	Disable any backing-store support
-co string	Color database file
-dpi int	Screen resolution in dots per inch
-deferlphs [no all 16-bit]	Defer loading if [no all 16-bit] glyphs
-fc string	Cursor font
-fn string	Default font name
-fp string	Default font path
-help	Prints message with these options
-I	Ignore all remaining arguments
-r	Turns off auto-repeat
R	Turns on auto-repeat
-su	Disable any save under support
-terminate	Terminate at server reset
-to #	Connection time out
-tst	Disable testing extensions
-wm	WhenMapped default backing-store
-query host-name	Contact named host for XDMCP
-broadcast	Broadcast for XDMCP

Command Line Switches

Switch	Description
-indirect host-name	Contact named host for indirect XDMCP
-port port-num	UDP port number to send messages to
-once	Terminate server after one session
-class display-class	Specify display class for XDMCP
-cookie xdm-auth-bits	Specify the magic cookie for XDMCP
displayID display-id	Manufacturer display ID for request
-trap [=trapfile]	Save requests to file
-replay [=replayfile]	Replay saved requests from file

Display Resolution and X Application Output

The height and width of a display screen is most commonly given in pixels (dots). Resolution, the number of pixels per unit length, is often important in the correct display of X applications. Resolution is most often expressed in dots (pixels) per inch, or dpi.

Regardless of the actual resolution of a display, it may be necessary to report a specified figure because some X applications only display correct output at certain resolutions. To calculate a monitor's pixel dimension in millimeters at the desired resolution (for example, 75 dpi):

Determine the width W and height H of the monitor screen in pixels (for example, 1024 x 768).

Select the desired resolution R to be reported by the server. R is most commonly set to 75 or 100 dpi.

Calculate W_r , the width in mm, as shown below:

$$W_r = \frac{W \text{ pixels}}{R \text{ pixels/inch}} \times \frac{25.4 \text{ mm}}{\text{inch}}$$

Therefore, to set monitor resolution to 75 dpi:

- $W_r = .339 \times W$
- $H_r = .339 \times H$

To set the resolution to 100 dpi:

- $W_r = .254 \times W$
- $H_r = .254 \times H$

Display Resolution and X Application Output

Enter the appropriate monitor dimensions as described in the Monitor Dimensions section in Chapter 3.

Go to the Fonts page (refer to page 3-21 through page 3-29 for information about the Fonts page) to make sure the proper font directory is on the font path (either 75 dpi or 100 dpi). It is best not to have both on the path at the same time.

Restart the eXcursion server. You can verify the reported monitor density by running `xdpyinfo` from a terminal window on the host.

Glossary

alias

An alternate name for an X application that you specify when you define the startup method for the X application. For example, you could define Mail as the alias for OpenVMS Mail. The alias is displayed in the List of Application Aliases on the Applications page of the Control Panel, the eXcursion V7 Applications menu on the Programs menu, and under Applications on the Applications submenu on the taskbar icon.

compose key

A key that lets you specify a series of keystrokes to create characters that do not exist as standard keys on the keyboard.

controlling hosts

Computers that can control the list of valid nodes. See also *Valid nodes*.

DECnet

Networking software that runs in both local and wide area networks. With DECnet, different types of computers that have different operating systems can be connected, and users can access information and services on a remote computer.

DECnet is a networking protocol and transport.

display access

Access to eXcursion from a host where X applications reside. For example, by entering commands at a host with display access, you (or anyone) can display an X application in an eXcursion session on your PC.

dpi

Refers to the resolution of screen fonts in dots per inch.

eXcursion Server

The eXcursion component that is an X Window System graphics application that lets you display and use X applications residing on remote hosts on your network.

font files

Files that contain information about typefaces and type sizes.

font path element (FPE)

A local or remote directory that contains one or more font files and an index file named Fonts.dir. There can also be an index file of font aliases named Fonts.ali or an index file of scaleable fonts named Fonts.sca

font server

An independent server program that runs on UNIX platforms. It transmits requested fonts to any number of X Servers over a TCP/IP network, and thus can serve as a central repository of fonts for a large number of users.

graphics device interface (GDI)

An executable program that processes graphical function calls from a Windows-based application and passes those calls to the appropriate device driver, which performs the hardware-specific functions that generate output.

host

An individual computer that can communicate with other computers in a network and provides services, such as X applications, to other computers.

keyboard mapping

The interpretation of individual keys on your keyboard. For example, you can have a Compaq keyboard but choose to map it to an IBM or IBM-compatible keyboard layout. Applications interpret the keys as though the keyboard were an IBM keyboard.

keycode

The hexadecimal number assigned to a key for identification, regardless of how the key is defined or mapped.

key definition file

The definitions of keys stored in a file and used by an application. The file associates the key you press with the application's interpretation of that key.

keysym name

A key definition written in a particular form that eXcursion understands. For example, XK_F1 is the keysym name that defines a key as the F1 key.

local

Stored on or connected to a computer, such as an application or a printer. "Local" is the opposite of being available over a network.

local directory

A directory on a local hard disk. See also *remote directory*.

local window manager

Refers to X application window management (moving, sizing, manipulation of windows) being handled by Windows. See also *remote window manager*.

MB1, MB2, MB3

Mouse button 1, mouse button 2, and mouse button 3, respectively. Usually, MB1 is the left mouse button, MB2 the center button, and MB3 the right button; however, users can redefine the setup.

panning

Moving the mouse to bring hidden areas of your video screen into view.

parameters

Information added to the command that starts an application. The parameter determines how the application runs.

primary selection

A highlighted block of text in an X application.

remote directory

A directory on a shared network hard disk. See also *local directory*.

remote window manager

An X application that lets you move, manipulate, and size X application windows. Alternatively, you can use Windows as your window manager.

root window

In the X Window System, the screen background. A root window has no frame and is similar to a Windows screen background. Some popular X applications, such as window managers and *xgifroot*, require the ability to display on the root window.

socket

A network link that the eXcursion Server uses to establish incoming connections.

TCP/IP (Transmission Control Protocol/Internet Protocol)

A set of protocols that governs the transport of information among computers and networks of dissimilar types. TCP/IP is an alternative to the DECnet network transport.

User Profile

Contains information about application startup, the location of font and key definition files, and other selections made from eXcursion Setup and the eXcursion Control Panel.

valid nodes

Hosts from which X applications can be displayed in an eXcursion session on your PC. See also *controlling hosts*.

window manager

An application that lets you move, manipulate, and size X application windows. X application windows can be managed by a remote window manager or by Windows.

Window menu

Window menu commands are available if you use Windows as your window manager; they move, size, minimize, maximize, and close X application windows. They also allow you to cut and paste, using the Capture Primary Selection option. Access the Window menu by clicking the X icon located in the top-left corner of the X application window.

X application

An application based on the X Window System and designed to run with an X Server. Also called X client.

XDM (X Display Manager)

A client designed to start the X Server automatically and to keep it running.

X Server

An X Window System graphics application that lets you display and use X applications residing on hosts on your network. eXcursion is an X Server.

X Window System

The industry-standard window system on which eXcursion is based.

The key components of an X Window System include the X Server and X applications.

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