

BEAM
XVI Extensions
X-Windows
for the visually impaired
BEAM Ltd 1999
Release 3.4.3

CONTENTS

This document is partitioned into the following sections:

- Section 1** Introduction, outlines the contents of the BEAM XVI X-Terminal Software.
- Section 2** User Guide; describes how to use XVI

Release Notes Version 3.4.3

Introduction

This new version of the XVI terminal software supersedes version 2v4v4 and all prior versions. A number of modifications and enhancements have been made.

Desk Top Locators

Added a locator system that shows the relative position of the visible area screen on the display with respect to the whole possible visible area."

Removal of Load On Startup Options

Following confusion from users regarding the Load On Startup options of some dialogs, the feature has been removed. All saved settings are now loaded when the terminal is started up.

Revert to Default Colours in XVI Colours Dialog

On previous releases the only way to reset the colours of the XVI application windows was to perform a restore defaults action from the user preferences dialog. This loaded ALL terminal defaults. The new option button in the XVI Colours Dialog allows reset of the Colours only.

Added Cursor Locators

A 'side bar' system for cursor location has been added. These side bars track the mouse cursor location and act as visual cues as to its location. They are switched on/off from the Cursor Options Dialog.

Mouse Cursor Speed

Added a facility to allow the changing the speed of the mouse cursor. Speed is selected from the Cursor Setup dialog.

SECTION 1

INTRODUCTION

Introduction

Thank you for buying one of BEAM's products. The BEAM XVI X-Terminal Software is an additional component to a BEAM Bxterm X-Terminal. Specifically developed to aid the use of a Bxterm by the partially sighted. XVI provides a number of additional features to a standard Bxterm.

Comprehensive Zoom Modes

XVI provides the ability to zoom the display from 1 to 8 times the standard size. In all zoom sizes a rapid hardware pan facility allows movement over the full screens display.

Magnification Glass

XVI provides a magnification glass facility that allows the user to zoom the area around current cursor position.

Cursor Colouring and Size

The colour and size of the cursor may be modified to aid visibility.

Mouse free Control

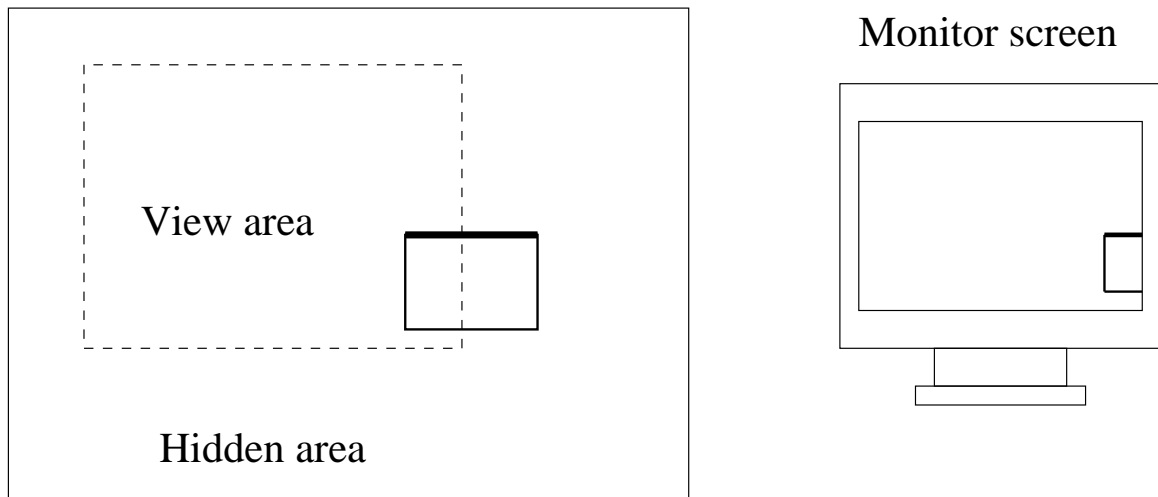
Both the cursor and the panning of the display can be moved by keyboard keys.

Auto event tracking

XVI supports a range of optional tracking modes. These enable the automatic panning of the display area over the full display.

The Virtual Display

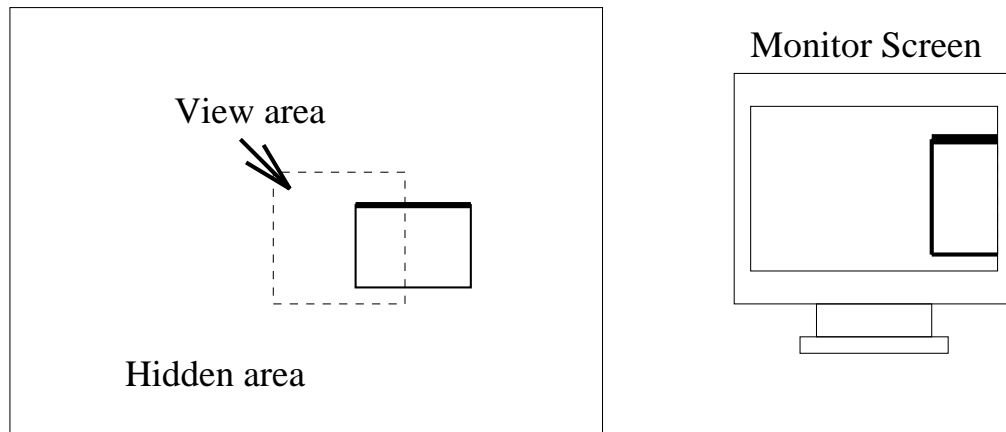
XVI uses a virtual display system. This system provides two areas, the visible area is that displayed upon the monitor, and the virtual area within which the visible area moves. The following picture illustrates the general idea.



The Virtual display system

The view area moves within the larger virtual area automatically, either when the mouse nears the edge of the monitor screen or explicitly directed to move by use of an XVI 'hot key' sequence.

XVI allows the size of the visible area to be zoomed. When zoomed every thing displayed within the visible area is larger but it displays less of the total virtual area.

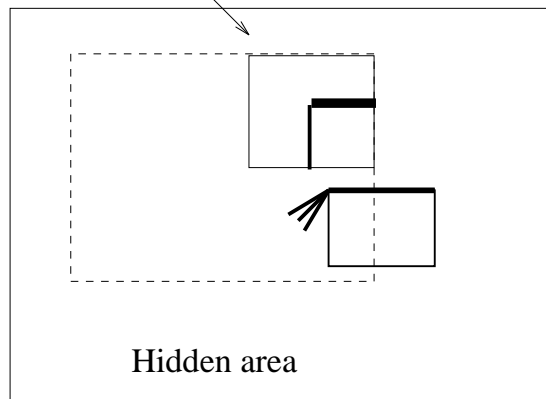


A Zoomed display

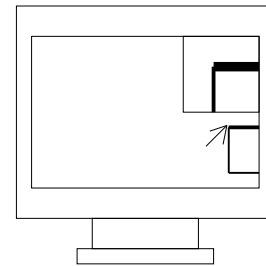
The Magnifying Glass

During the normal use of windowing systems, the centre of attention is often the current cursor position, for example, to press an on-screen button the cursor may need to be over the button prior to pressing a mouse button. XVI has a facility to help with the tracking and locating of the cursor, it is called the magnifying glass. The magnifying glass constantly displays a greatly magnified image of the screen around the current cursor position. The effect is optional and may be switched on and off at will.

Magnified view around cursor position



Monitor screen



 = On screen cursor

The Magnifying Glass

Cursor Options

Generally the cursor under X-windows is black and white. XVI allow the colour of the cursor to be changed to enhance its visibility. The size of the cursor can be increased to aid visibility.

Tracking

Tracking is a complex topic, its setup is dependent upon the application requirements of the user. Tracking is the means by which XVI can automatically move the viewable area around within the hidden virtual area, automatically detecting the area of interest. It is possible for XVI to track the following events:

Motif Track the current Motif data entry window. This option only works with Motif applications. The Motif entry window is shown on the display as a 4 pixel wide black border around the input window, whenever this border moves XVI attempts

to display it on the screen. Typically this tracking mode is most useful on data entry type applications.

Text Print Tracks the last text printed on the display.

Text Cursor Attempt to follow the current text cursor position.

Focus Window

Attempt to display the current focus window. The focus window is the window currently accepting keyboard and mouse input. Typically systems indicate the focus window by a specially coloured border.

Drawing Commands

Attempt to follow drawing commands, these range from line drawing, to circle etc.

Stay in client This mode differs from the above in that the tracking is programmed by the user to be a single client application. XVI will then constrain the visible area to windows generated by this client application.

Focus Window Only

Constrains tracking to within the current focus window.

SECTION 2

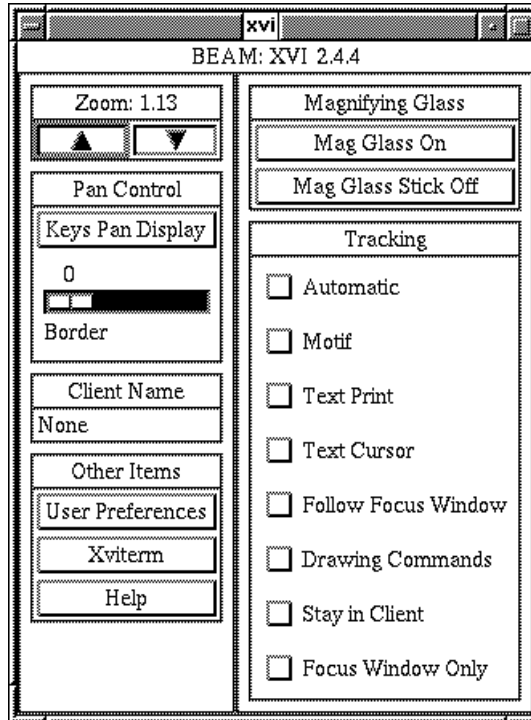
USERS GUIDE

Starting XVI

If you are using an XVI Bxterm then XVI may be automatically started up every time the machine is switched on. The controls for XVI at startup can be found in the "Startup Config" menu of the Bxterm xchoose application.

On Unix systems supporting the BEAM XVI server extensions XVI can be started in the normal X application manner.

The XVI primary dialog



The XVI main dialog is a window area on the display. It contains a number of control and message objects. Control objects comprise a rectangular area on the screen and allow modification by the user with the use of the mouse or key presses. There are a number of different types of control objects the main ones are:

| Object Type | Description |
|---------------|---|
| Button | This is shown as a 3 dimensional button that can be operated by the user by use of the Left hand Mouse button or by use of the Enter key. |
| Toggle Button | This is shown as a 3 dimensional button area that can be operated by the user by use of the Left hand Mouse button or by use of the Enter key. The area turns dark or light to indicate an on/off state. |
| Slider | This is show as a slider control. It can be operated by the user by pressing and holding the Left hand Mouse button and dragging the slider to the position required. Alternatively the keyboard arrow keys can be used to move |

the sliders position.

A message object might by line of text giving the current level of magnification. The key distinction is that controls do as the name suggests, they allow the user to control the **xvi** application.

For persons who prefer to use the keyboard, all the control features may be accessed via special keystrokes.

The XVI main dialog comprises distinct functional groups. On screen these groups are contained within a border. Each group has a title (The group titles are message objects, are are shown on a light blue background).

The zoom group has a title and two arrow buttons, one pointing up the other down.

The Pan Control group has a push button and a slider while the Tracking group comprises solely toggle buttons. To activate any button move the cursor over the item and press the left mouse button. The slider may be moved by pressing and holding the left mouse button while over the slider button, drag the button to the desired position and then release the mouse button.

Tip Each button is a rectangular area on the screen. For ease of use we have coloured the background of the buttons light grey, this stands out from the darker grey background.

Tip It is possible to control the buttons and slider using only the keyboard. The TAB key, (the fourth key up on the extreme left of the keyboard) moves between groups and the cursor keys (the group of four keys situated two thirds to the lower right on the keyboard) move between items. Keyboard control is particularly powerful if Motif tracking is enabled, more on this later.

The groups perform the following operations:

Zoom Group

Non XVI systems don't support zooming, rather they have a zoom factor of one. The XVI has a number of levels ranging from no zoom, 1 times, to around 6 times. There are two ways of changing the current zoom level. Firstly, the main dialog zoom group contains two control buttons. Secondly, the zoom level can be controlled from the keyboard.

Description

On screen the zoom group comprises, a title and two 'arrow buttons' located side by side below the title. One arrow button points upwards, the other downwards.

Up Arrow Button

The zoom up button causes the entire screen to be magnified, once the monitor has had time to settle every thing will be displayed larger. It will be noted however, that not as much will be displayed. To view the portions forced off the display move the mouse towards the appropriate edge of the display and the entire screen will pan and make things visible.

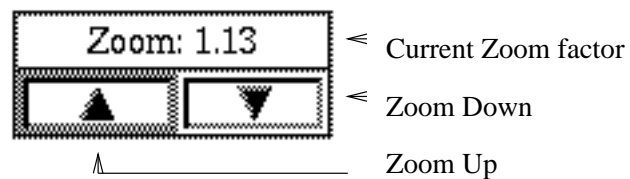
There is a maximum level of zoom at which point further pressing of the button will have no effect.

Down Arrow Button

The zoom down button has the reverse effect to the zoom up button described above

Zoom: This indicates the current level of zoom.

Quick Reference



Quick Keys

Ctrl Shift + + Zoom In entire display

- Zoom Out entire display

Pan Control Group

When the zoom level is greater than one, all of the information is no longer displayed, a hidden area is created. The means by which this area is brought visible on the monitor screen is called panning. Normally this works using the cursor. Moving the cursor near the edge of the screen causes some of the hidden area to be displayed.

Description

The pan control group comprises a title, button labeled "Keys Pan Display" or "Keys Pan Cursor", and below the button a slider button. Below the slider button there is the word Border while above is a number. The number given the current value of the slider.

Keys Pan Display Button

This button controls the manner in which the keyboard cursor keys are interpreted by XVI. The text on the button indicates what the button will do, pressing the button when "Keys Pan Display" is displayed will cause the XVI cursor keys to pan the entire display. The alternative "Key Move Cursor" title allows the cursor to be moved by the keyboard.

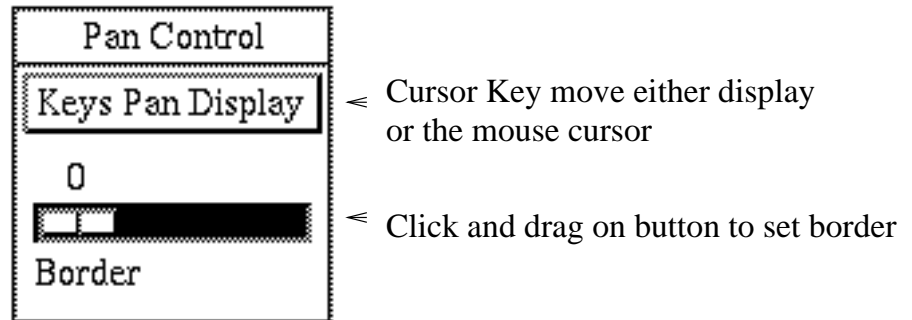
Border Slider

The border slider adjusts the point at which the display automatically pans. This border can be used to keep the cursor within a small area on the monitor. To control the slider using the mouse, move the mouse cursor onto the slider button, press and HOLD the left mouse button. Drag the mouse to the left to increase the value, the right to decrease. Once the slider is active (has a thick black border) the left and right cursor keys may be used to set the value. The border slider minimizes the distance from the center of the screen that the cursor moves allowing the user to focus over a small area. ie Rather than the cursor moving around the screen the screen moves around the cursor and the focus point on the screen is fixed. The larger the border value the less distance the cursor moves from the center of the display before the display pans.

The border may be set to a value between 0 and 50%. At 0 the cursor will move all the way to the edge of the visible area before the screen pans. At 50 the cursor will attempt to stay in the centre of

the screen. This can be useful for users who have difficulty following the cursor. The cursor will remain in the centre for as long as possible, near the edge of the virtual area it has no alternative but to move. This is best illustrated by a short 'play' on the terminal.

Quick Reference



Quick Keys

The pan control group has no quick keys. It can only be controlled when the XVI main dialog is active.

Client Name Group

Description

One of the Tracking modes of XVI (more later) allows the selection of a single application. The name of this application is indicated on the status line in this group. If no application is selected then the word "none" is displayed. This group has no controls.

Other Items Group

Description

The "Other Items Group" is a catch-all for operations that don't fit in any other group. The group contains a title and three buttons located in a single column.

User Preferences Button

This button causes the User Preferences dialog box to pop-up. The dialog, has further buttons to allow the default XVI settings to be changed. Various options can be changed, including the cursor colour size and the colour scheme of other applications.

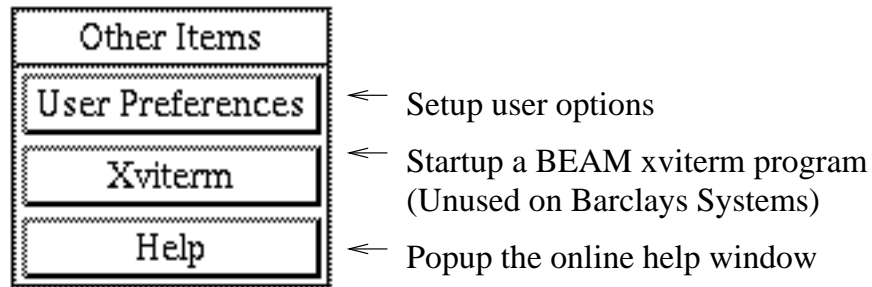
Xviterm Button

The button invokes the Xviterm program. This program is similar to the normal xterm X-Windows terminal found on many Unix computer systems. It provides extensive zoom and tracking feature not found on xterm itself.

Help Button

The Help button pops up the on-line help facility.

Quick Reference

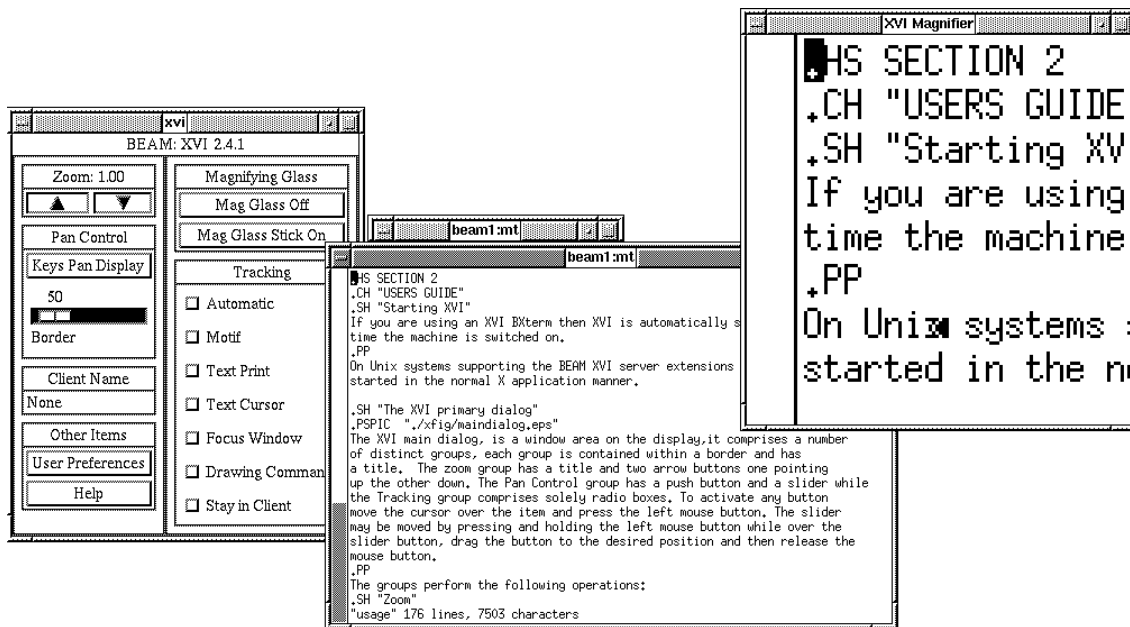


Magnifying Glass Group

In the introduction section of the manual, the use of the magnifying glass was outlined. This group performs various operations with the magnifying glass.

The Magnifying glass button switches on and off a magnifying glass window. This window will show in greatly magnified form, the region around the current cursor position. The level of zoom within this window can be increased and decreased by pressing the keyboard keys. The group comprises title and two buttons, one labeled Mag Glass On (Off) the other Mag Glass Stick On (Off).

The figure below is screen shot to the magnifier in use.



Description

The Magnifying Glass group contains a title and two buttons located in a single vertical column.

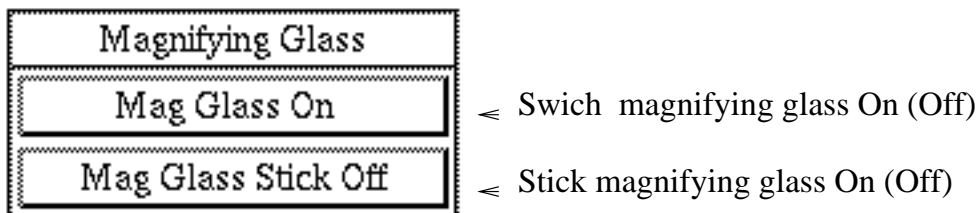
Mag Glass On (Off) Button

This button turns the magnifying glass window on and off. It may also be controlled directly from the keyboard.

Mag Glass Stick On (Off) Button

It is possible to stick the magnifying glass window to a fixed position on the screen. When stuck the magnifying glass does not pan like other windows but remains static.

Quick Reference



Quick Keys

| | | | | |
|-----------------------------------|------------------------------------|---|--------------------------------|---------------------------|
| <input type="text" value="Ctrl"/> | <input type="text" value="Shift"/> | + | <input type="text" value="M"/> | Magnifying Glass ON & Off |
| | | | <input type="text" value="U"/> | Zoom In |
| | | | <input type="text" value="D"/> | Zoom Out |

Tracking Group

XVI provides a number of optional modes of Tracking events that happen on the display. For example you may be viewing a small section of the display, elect to press some button, this causes a pop up dialog else where on the display that is not within the portion you can currently see. There are now two alternatives, the first is to use the mouse to pan around the display to find the pop up, the second utilizes the power of XVI to automatically move the viewing area around the pop up.

The Tracking options are selected from the main XVI dialog or by the use of the function keys F1 to F7, a function key must be pressed at the same time as the CTRL and SHIFT keys.

Most of the Tracking modes may be used together, for example it is possible to Track drawing commands and the text cursor, however due to the complex nature of many applications such modes may lead to unexpected results. The visual area may move to unexpected areas within the hidden virtual area. Be prepared to experiment and note that different applications may well require differing setups.

Description

The Tracking group comprises, title and eight toggle buttons arranged in a single vertical column. A toggle button is similar in operation to a domestic light switch, it has two states, on and off. On screen the on position is indicated by a blacked out rectangle to the left of the button text.

The Automatic Toggle

This button switches the automatic tracking of events on and off. In its automatic mode XVI attempts to follow all events. When off

XVI still keeps track of the events but the visual area is not automatically moved.

Quick Key:

If you want XVI to attempt to find the latest event then press CTRL + SHIFT + KPENTER. This will move to the latest event. KPENTER is the enter key on the numeric keypad.

Motif Toggle

Motif is type of user interface, it is used by programmers to create many popular applications. XVI supports a mode of tracking specifically to aid the use of these applications. In Motif the current area of input, is high-lighted by a bounding rectangle, generally black. The Motif tacking mode attempts to track this rectangle keeping it within the visible area of the display. Typically this is useful for data entry applications.

Text Print Toggle

Text print tracking, attempts to follow the last character typed. Typical application is a word processor or simple text editor.

Text Cursor Toggle

Attempts to follow the text cursor.

Focus window Toggle

In X-Window applications, any window may at some time have associated with it what is called the focus. It is to this window that all keyboard and mouse input occurs. XVI can attempt to track this focus window.

Drawing Commands Toggle

Drawing commands include line drawing, circles, polygons etc. If the track drawing command option is active XVI will move the view window to include the location of the last drawing event.

Stay in Client Toggle

Any X-Windows application ‘talks’ to the display and is called a client. Any single client application may have a number of separate windows on the display at any time.

To select a client application to track select the Stay in client option from the XVI main dialog (or CTRL + SHIFT +F7). Move

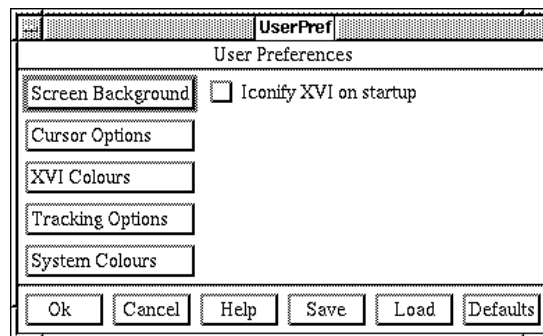
the cursor over on of the application windows and press the keys CTRL + SHIFT + <Return>.

The XVI Dialogs

During the explanation of the Primary XVI Window, mention was made of additional setups. These setups are all controlled via a number of pop-up dialog windows. For example the User preferences button in the main window, when activated causes the User preferences dialog window to appear. Each dialog window has some common features. Each has a title and each has a horizontal row of buttons at the bottom of the window.

Tip It is possible to move around the buttons using the TAB and Cursor Keys. The TAB key moves between key groupings, the cursor keys move within a group. The buttons at the bottom of a dialog are a group so use the cursor keys to select the button you want.

The User Preferences Dialog



The user setup dialog allows the setup of various XVI parameters. These parameters are divided into generic groups for ease of use. To set the desired option activate the appropriate button.

Description

The user preferences dialog comprises three areas, a title ("User Preferences), a work area containing five normal buttons in a vertical column and a single toggle button in a second column. Along the bottom of the dialog is a horizontal row of buttons.

Screen Background Button

Setup the colour and pattern of the root window. The root window is the background upon which all other windows rest.

Cursor Options Button

Setup the colour and size of the mouse cursor.

XVI Colours Button

Setup the colours of the BEAM XVI application.

Tracking Options Button

Setup the tracking options.

System Colours Button

Setup the colours for ALL applications. Any colour on the screen can be changed to another.

Iconify XVI on startup Toggle

If set to ON (rectangle to the left of text blacked out) then the main XVI window is iconified at startup. Normally the icon representing the main window is to be found at the lower left hand side of the display. Once a user is familiar with XVI, then to avoid the XVI window cluttering the display, this button is set to ON.

OK Button

Press this button to indicate that you are happy with the settings and wish to exit this dialog.

Cancel Exit the dialog without change.

Save Button

Saves the current XVI settings. These settings are automatically loaded on startup.

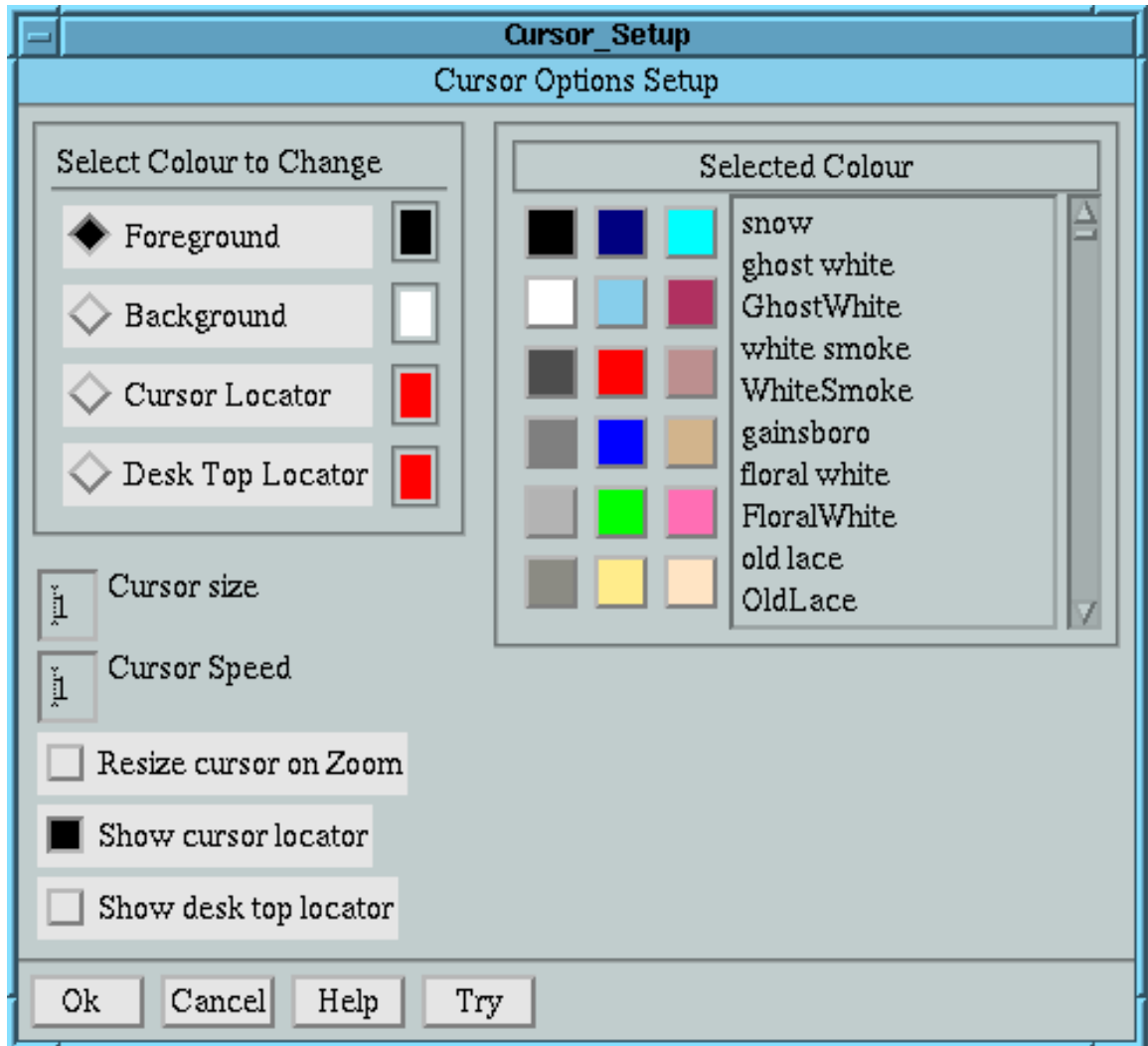
Load Button

Load the last set of saved settings. This is typically used to restore to a known state after experimenting.

Defaults Button

Restore all settings to the BEAM defaults.

The Cursor Setup Dialog



The cursor setup dialog allow the modification of the cursor colours and magnification. The cursor is magnified independently of the rest of the screen and can be up to 8 times larger. The cursor has two colours, a foreground and a background. To setup a foreground colour select the foreground radio button. Then either choose one of the fixed colours from the array of given colours or select one by name from the scrolled list. Proceed in a similar manner for the background.

Cursor Size Text Entry Box

To set the zoom level for the cursor entry a number from 1 to 8 into the box left of the words Cursor size.

Cursor Speed Text Entry Box

The speed of the mouse cursor may be adjusted. Enter a number

from 1 to 5 into the box left of the words cursor speed. 1 is the fastest and 5 the slowest speeds.

Resize Cursor On Zoom

With this option set to on (toggle button black) when the display is zoomed the cursor will be set to the size specified by the cursor size option. The effect is that while the rest of the display changes in size the cursor remains constant. With the option off the cursor is magnified along with the rest of the display.

Show Cursor Locator

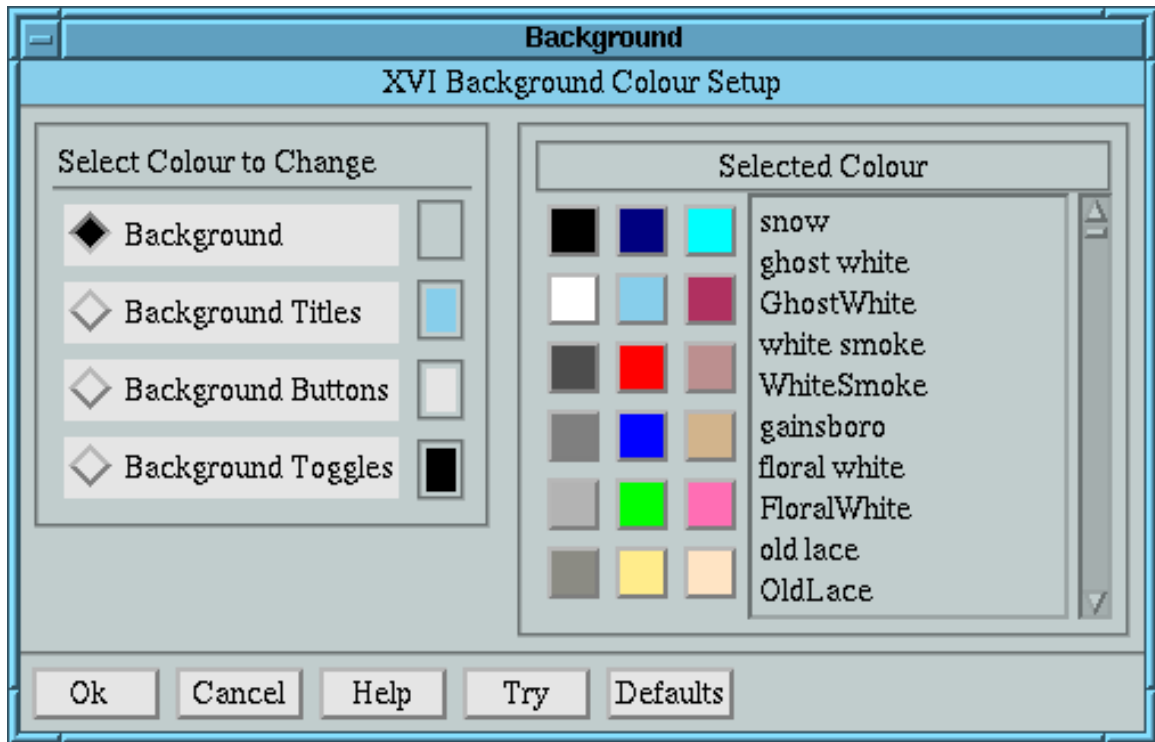
If this option is on there will appear on the display edges 2 or 4 moving rectangles. These follow the position of the mouse cursor and are intended as visual cues.

Show Desk Top Locator

When the terminal magnifies, only a portion of the full screen is shown. The locator bars switched on by this button show the position of the viewable area within the possible whole screenfull. The length of the bars indicate the size of the viewable area with respect to the total possible.

Try The Try button can be used to "try out" the selected colour settings. These settings are only temporary and the original colours are restored if the **Cancel** button is pressed.

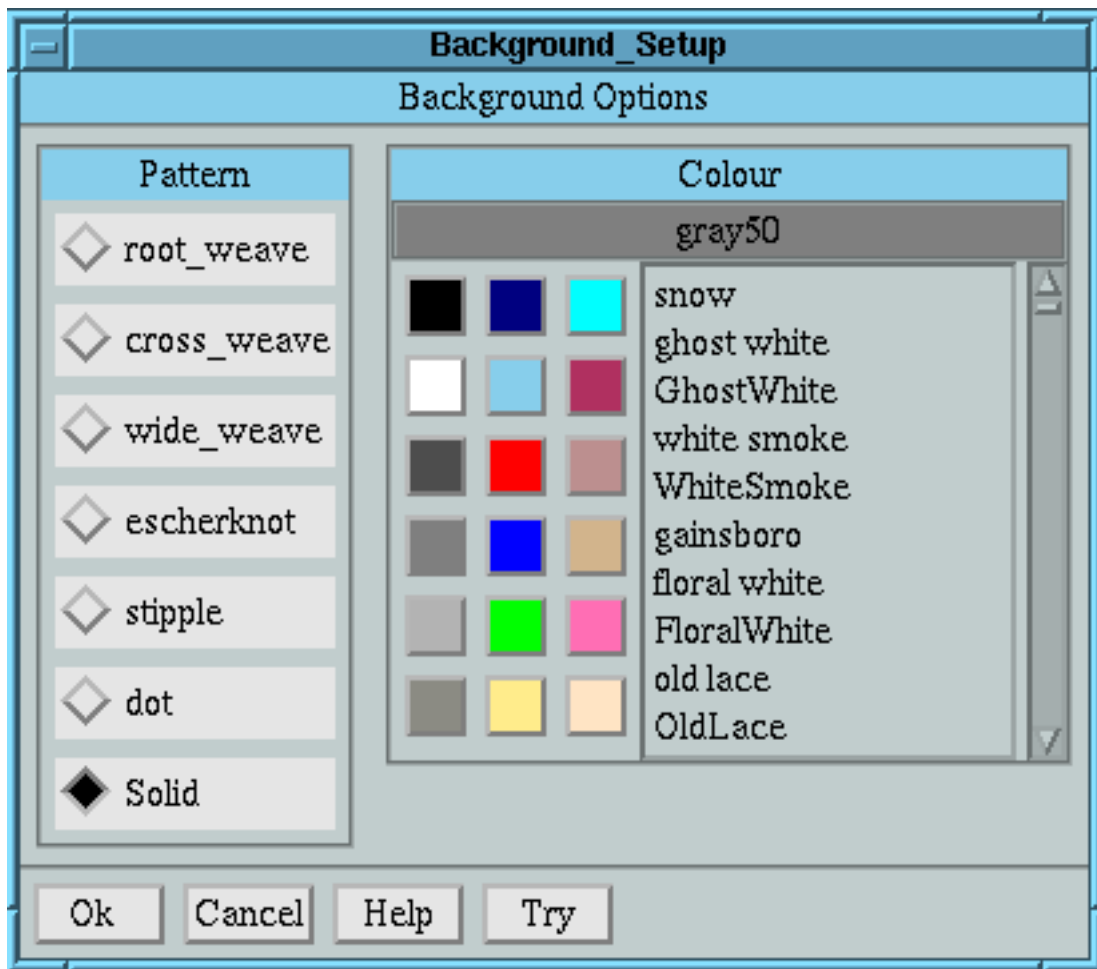
The XVI colours Dialog



The XVI colours dialog allows the look and feel of the XVI application itself to be modified. The selection of colour is performed in the same manner as the cursor colour dialog, select the radio button for the colour to change, then select a colour from the array or list.

Try The Try button can be used to "try out" the selected colour settings. These settings are only temporary and the original colours are restored if the **Cancel** button is pressed.

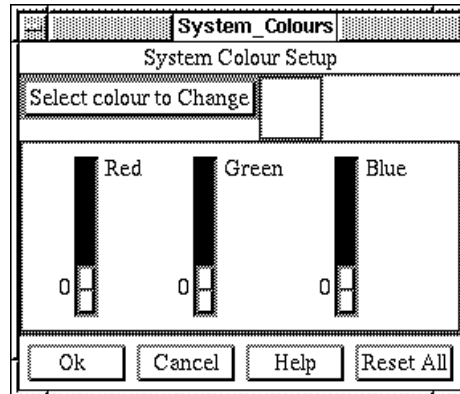
The Background Dialog



The background dialog allow both the colour and pattern of the root window to be modified. Select a pattern from the list of patterns and a colour from the colour selector.

Try The Try button can be used to "try out" the selected colour settings. These setting are only temporary and the original colours are restored if the **Cancel** button is pressed.

The System Colours Dialog



Any colour on the display can be changed to another colour. Use this dialog to setup the colours. Note, once satisfied you must use the **Save** button in the User preferences dialog to save the settings.

Description

The System Colours dialog is titled "System Colour Setup", within the work area is a button labeled "Select colour to change" with a colour status box to it right. Below the button and arranged in a row are three vertical sliders labeled Red, Green and Blue. The normal dialog bottom buttons of "OK", "Cancel" and Help are supplemented with an additional button labeled "Reset All" located to the right of the "Help" button.

Select colour to Change Button

Press to select a colour to modify. To select a colour press this button then move the mouse cursor over the colour you wish to change and press the Left hand mouse button. The colour is now selected and is displayed in the box to the right of the Select colour button.

Red, Green and Blue Sliders

Manipulate the sliders, using the mouse or keyboard to change the colour. **Reset All** The "Reset All" button will put back all the colours to the stage of the last saved colours.

XVI - Quick Keys

Shift

+

Ctrl

| | |
|-------------------------|----------------------------|
| Tracking Control | |
| F1 | Automatic /Manual Tracking |
| F2 | Motif mode |
| F3 | Follow text |
| F4 | Follow text cursor |
| F5 | Follow focus window |
| F6 | Follow drawing commands |
| F7 | Stay in client |
| F8 | Focus Window Only |
| RETURN | Select new client |

| | |
|---------------------------------|-------------------------|
| Magnifying Glass Control | |
| M | Magnifying glass on/off |
| U | Increase magnification |
| D | Decrease magnification |
| Pan Control | |
| F9 | Move cursor or display |
| Find | |
| P | Mouse Cursor |
| ENTER | Last Event |

XVI - Quick Keys

| |
|-------|
| Shift |
| + |
| Ctrl |

| Display Control | |
|---|---|
| Automatic /Manual Zoom In entire display | - |
| Zoom Out entire display | + |
| Full Screen/Current zoom | Z |
| Full Screen/Current zoom | * |
| Pan display up | ⤴ |
| Pan display down | ⤵ |
| Pan display left | ⤶ |
| Pan display right | ⤷ |

| Cursor Control | |
|------------------------|----|
| Move cursor or display | F9 |
| Move cursor up | ⤴ |
| Move cursor down | ⤵ |
| Move cursor left | ⤶ |
| Move cursor right | ⤷ |

| Administration | |
|----------------|---|
| Stop XVI | N |
| Start XVI | X |

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