10 Visual Dynamic Keyboard

What's covered in this chapter

The Visual Dynamic Keyboard (VDK) is an on-screen keyboard that lets users enter text, select commands, activate dialog box controls, etc., without using the regular keyboard and mouse. It appears on-screen in a resizable window, as a keyboard with rectangular keys. The VDK provides greater accessibility to Windows applications to users with physical impairments. The VDK also has additional support for the HoTMetaL PRO Editor. Using the VDK, users can work with applications using alternative access methods: automatic scanning, inverse scanning, direct-dwell selection, direct-click selection, and five-switch directed input.

This chapter includes the following topics:

- Descriptions of the keyboard structure and the various keyboards included with the VDK.
- Methods of navigating and selecting with the VDK.
- Hardware settings and other options.

Overview

The VDK appears in its own window at the bottom of the application window. It will automatically center itself at the bottom of the window, though you can customize its position (see page 125). The VDK window always remains on top of the other application windows.

The VDK in the HoTMetaL PRO Editor window

Supported applications

The VDK is most closely coupled with the HoTMetaL PRO Editor. In addition to supporting the HoTMetaL PRO menu commands, it provides explicit support for the HoTMetaL PRO toolbars, the frame editor, table editor, and other special HTML editing functionality.

The VDK also provides support for other Windows applications, including the other components of HoTMetaL PRO. It can generally provide the following support for Windows applications:

- Access to menu commands.
- Dialog box navigation.
- Text entry, navigation, and editing.
- Window and dialog resizing.
- Windows task management.

The VDK will support toolbars in applications that provide toolbar information using Microsoft Active Accessibility, such as MS Office 97. Special editing capabilities of applications other than the HoTMetaL PRO Editor are not supported by the VDK.

Turning the VDK on and off

To turn the VDK on or off:

- Choose Visual Dynamic Keyboard... from the HoTMetaL PRO Editor Tools menu, or press Ctrl+T .

The VDK Settings dialog box appears. The VDK Settings dialog box is divided into sections, in a tabbed 'cardfile' style. To choose a section, click on the desired tab.

VDK Settings dialog box - VDK tab

- Choose the VDK tab, if it is not already displayed.
- Turn on the VDK On check box to enable the VDK. The VDK will not appear until you click on the Apply or OK button at the bottom of the dialog box. Deselect the VDK On check box to turn off the VDK.
- Click on OK to accept the setting.

Types of keyboards

The VDK actually consists of several different on-screen keyboards; only one keyboard can be visible at a time, but each keyboard has keys that let you navigate to the other keyboards. The types of keyboards are:

- Main keyboard – Provides basic page and dialog box navigation (page 118).
- Menu keyboards – Correspond to the application menus (page 124).
- Toolbar keyboards – Correspond to the application toolbars (page 122).
- Alphanumeric keyboards – Keyboards for text entry (page 119).
- Desktop Manager Keyboard – A keyboard for changing the position and size of the VDK or application window, and switching between tasks (page 125).
- Special editing keyboards– Special keyboards for carrying out editing tasks in the HoTMetaL PRO Editor: editing tables, editing frames, setting document colors, etc. (page 126).

Operating the VDK

The VDK can be operated with:

- A regular mouse.
- Another pointing device, such as a HeadMouse™, Trakker™, HeadMaster™ or a trackball.
- One, two or five switches attached through a switch interface.
- A standard joystick.

Depending on the requirements of the user, keys on the VDK keyboards can be selected in five ways:

- Direct-click selection – A key is selected by clicking on it with a mouse, or pointing to it with an alternative pointing device and hitting a switch (page 130).
- Direct-dwell selection – A key is selected by holding the mouse pointer over it for a certain length of time using a mouse or alternative pointing device (page 131).

- Automatic scanning – The VDK highlights rows and columns in the keyboard; the user signals with a switch when the row and column containing the desired key is selected (page 132).
- Inverse scanning – A variation on automatic scanning. The user starts and stops scanning by pressing and releasing a switch (page 134).
- Five-switch directed scanning – The user navigates through a keyboard using a joystick (page 136).

Hardware settings

The Hardware Settings tab of the VDK Settings dialog box contains three choices of input methods.

VDK Setting dialog box - Hardware Settings tab

- Mouse – A standard mouse or a mouse-like input device such as a HeadMouse™. This selection is for devices that connect through the the mouse port or mouse serial port.

- Serial Switches – This supports the use of the HandiWARE™ 3-switch serial input device 'HW-003 COM (9-pin) Port Connector with RJ-11'. This device can be used with the automatic and inverse VDK scanning methods.
- Game Port Joystick – Allows the use of a standard joystick or game pad for controlling the five-switch directed method.

If you wish to design a custom joystick selection device, you will need to use the following joystick specifications:

x-axis<21845 LEFT
x-axis>43960 RIGHT
y-axis>21845 UP
y-axis<43960 DOWN
Button 1 = SWITCH1
Button 2 = SWITCH2

Note Parallel port hardware devices are not supported at this time.

Terminology

Because many different devices can be used to operate the VDK, we have used common terms such as 'select', 'type', and 'click on' when referring to actions performed with the VDK. All of the actions referred to in this documentation can be performed from the VDK using any of the devices listed above.

Mouse pointer

As the 'mouse' pointer moves over the VDK, it will change shape to indicate that keys may be selected. If you are using one of the 'scanning' selection methods, the VDK cannot be activated unless the mouse pointer is within the VDK window.

Mouse pointer

Moving around in a dialog box

Dialog boxes generally contain several *controls*—buttons, groups of related buttons, text boxes, lists, sliders and so forth.

At any time, one control in a dialog box has *focus*: this means that an action you perform at the keyboard will affect that control. For example, if a text box has focus, any text that you type appears in that box; if a check box has focus, pressing Space will turn that check box on or off; if a slider has focus, the arrow keys change the values. Which control has focus is indicated in a number of ways:

- If a list of files, list box, drop-down list has focus, the current item in the list is highlighted.
- If a button or check box has focus, its label will be surrounded by a dotted rectangle.
- If a group of radio buttons has focus, the label of the one that's turned on will be surrounded by a dotted rectangle.
- If a text box has focus, it will contain the *insertion point* (a vertical bar that pulses on and off).
- If a slider has focus, a dotted rectangle surrounds the slide control.

In addition, each dialog box usually has a highlighted button, that is, a button with a solid, dark border. Typing Enter is equivalent to clicking on that button. A button can both be highlighted and have focus. The rule is: if a button has focus, then it will be highlighted also; if some other control has focus, then the *default* button will be highlighted. (Each dialog box has a particular button designated as the default: for example, in the VDK Settings dialog box, the VDK On check box is the default.)

You can use the regular keyboard or the Visual Dynamic Keyboard, rather than the mouse, to move between the controls in a dialog box. When you move to a particular control, it gets focus.

- Type Tab repeatedly to move forward (left to right, top to bottom) through the buttons.
- Type Shift+Tab repeatedly to move backward (right to left, bottom to top) through the buttons.
- Type Ctrl+Tab repeatedly to move through the tabs in a tabbed dialog box.

When a particular control has focus or is highlighted, you can use the keyboard or VDK to toggle between the choices of that control.

- Type Enter to choose a highlighted button.
- If a check box has focus, type Space to turn it on or off.
- If a group of radio buttons has focus, use the arrow keys to change which button in the group is turned on.
- If a scrollable list has focus, use the arrow keys to move up and down in the list.
- If a drop-down list has focus, use the arrow keys to scroll through the values in the list.
- If a list of file names has focus, use the arrow keys to move from file to file.

User setup files

You can configure the appearance and selection method of the VDK to suit your requirements. This configuration (setup) can be saved to a file and reloaded later. This is useful if different users, with different VDK requirements, will be using the same PC. You are prompted to save your setup after you have made any changes.

To save your VDK setup:

- Choose Visual Dynamic Keyboard... from the Tools menu. The VDK Settings dialog box appears.
- Click on the VDK tab, if it is not already selected.
- Click on Save Current Setup . The Save Current Setup dialog appears.
- Enter the file folder and name in which to save the setup.
- Click on Save .

When you load the VDK, the previous user setup is automatically used. To load a different user setup:

- Choose Visual Dynamic Keyboard... from the Tools menu. The VDK Settings dialog box appears.
- Click on the VDK tab if it is not already selected.
- Click on Open Existing Setup . The Open Existing Setup dialog appears.
- Enter the name of the file and folder containing the saved setup.
- Click on Open .

- Click on OK in the VDK Settings dialog box. (The loaded setup will not take effect until you do so.)

Using macros and the VDK

Some of the VDK's operations rely on the HoTMetaL PRO Editor's built-in keyboard shortcuts (hot keys). Therefore, if you record custom macros you must not assign any of the built-in shortcuts to a new macro; if you do so, the VDK may perform unexpectedly. Note that the HoTMetaL PRO Editor will not warn you if you do this. The following keyboard shortcuts should not be reassigned:

F1	Ctrl+F	Ctrl+P	Ctrl+Y	Ctrl+Shift+Tab
F7	Ctrl+G	Ctrl+R	Ctrl+Z	Ctrl+Shift+A
Alt+F4	Ctrl+I	Ctrl+S	Ctrl+Tab	Ctrl+Shift+B
Alt+F6	Ctrl+K	Ctrl+T	Ctrl+F4	Ctrl+Shift+T
Ctrl+B	Ctrl+L	Ctrl+U	Ctrl+F6	Ctrl+Shift+.
Ctrl+C	Ctrl+M	Ctrl+V	Ctrl+F11	Ctrl+Shift+,
Ctrl+D	Ctrl+N	Ctrl+W	Ctrl+F12	
Ctrl+E	Ctrl+O	Ctrl+X	Ctrl+Shift+F6	

The keyboard structure

There are many different VDK keyboards, including some that are specifically for use within the HoTMetaL PRO Editor. There are five principal keyboards:

- Main – The Main keyboard (page 118).
- ABC – Alphanumeric keyboards for text entry (page 119).
- Toolbars – a keyboard for accessing the keyboards that correspond to the HoTMetaL PRO Editor toolbars (page 122).
- Menus – a keyboard for accessing the application menus (page 124).
- Desktop Manager – a keyboard that branches to other keyboards that let you resize and reposition the VDK and application windows, and switch between running tasks (page 125).

The Main keyboard is the central keyboard of the VDK; the other keyboards 'branch out' from this keyboard. There can be several levels of branching: for example, starting at the Main keyboard, you can display the Toolbars keyboard, from there the Quick Tools keyboard, and from there the Special Characters keyboard. The hierarchy and layout of the VDK keyboards reflect the organization of the toolbars and menus within the HoTMetaL PRO Editor. To move from one keyboard to another, select the key with the name of the keyboard. You can also select the Back key to move back to the previous keyboard.

Color scheme

A color code is used to group together keys having similar function.

- Yellow letters on blue – Usually used for keys comprising the main functionality of the keyboards. (for example, letters/numbers, menu items, toolbar button equivalents)
- White letters on black – Usually indicates that the key branches to one of four main Keyboards; Main, Toolbars, Menus, and ABC.
- White letters on teal – Special keys that have an impact on the next key selection. For example, the Caps key in the alphanumeric keyboard toggles between uppercase and lowercase letters in that keyboard.

Common VDK keys

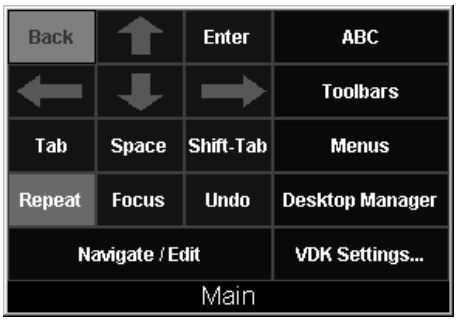
Keys common to many keyboards include:

- Back – Displays the previous keyboard.
- Main – Displays the Main keyboard.
- ABC – Displays an alphanumeric keyboard for text entry.
- Toolbars – Lets you choose one of the four keyboards that correspond to a HoTMetaL PRO Editor toolbar.
- Menus – Lets you choose one of the keyboards that correspond to an application menu.
- BackSpc or BSpc – Backspace.
- Space or Spc – Space key.
- Repeat or Rept – Repeat key. Pressing this key will cause the action of the last key used to be repeated over and over again until a switch is pressed. The repeat rate is equal to the user-defined scanning speed (page 134).

Main keyboard

The Main keyboard is the first keyboard to appear after the VDK is activated. It provides basic page and dialog box navigation. The arrow keys move the cursor around the work area. The right column consists of keys that display the ABC (alphanumeric) keyboards, the Menu keyboard, and the Toolbars keyboard. Clicking on the Navigate/Edit key displays the Navigate/Edit keyboard, which contains basic editing functions (see this page).

Click on Focus to switch between all of the active and inactive areas within the application (for example, dialog boxes, VDK, windows).



Main keyboard

Navigate/Edit keyboard

From the Main keyboard, you can switch to the Navigate/Edit keyboard, which contains all the features of the main keyboard as well as access to common editing commands (Cut, Undo, etc.), and the following navigation and highlighting keys:

- Select Element – Highlights the element containing the current selection or insertion point.
- Hilite Word L – Highlights to the beginning of the first word to the left of the insertion point.
- Hilite Word R – Highlights to the end of the first word to the right of the insertion point.
- Hilite Char L – Highlights the character to the left to the insertion point.

- ☐ Hilite Char R – Highlights one character to the right to the current cursor position.
- ☐ Hilite Line Up – Highlights from the beginning of a selection or insertion point up one line.
- ☐ Hilite Line Dn – Highlights from the end of a selection or insertion point down one line.

> **Note** Because selections across HTML tags are automatically 'balanced' to include the start- and end-tag in the HoTMetaL PRO Editor, these selection keys can result in whole elements being selected when used in the Tags On and WYSIWYG views.

Alphanumeric keyboards

There are four alphanumeric keyboards that are determined by your personal preference and the selection method you're using.

To choose an Alphanumeric keyboard:

- Choose Visual Dynamic Keyboard... from the Tools menu. The VDK Settings dialog box appears.
- Choose the Selection Method tab.
- Make a selection from the Alphanumeric Keyboard Layout list box.
- Click on OK for your selection to take effect.

The following alphanumeric keyboards are available:

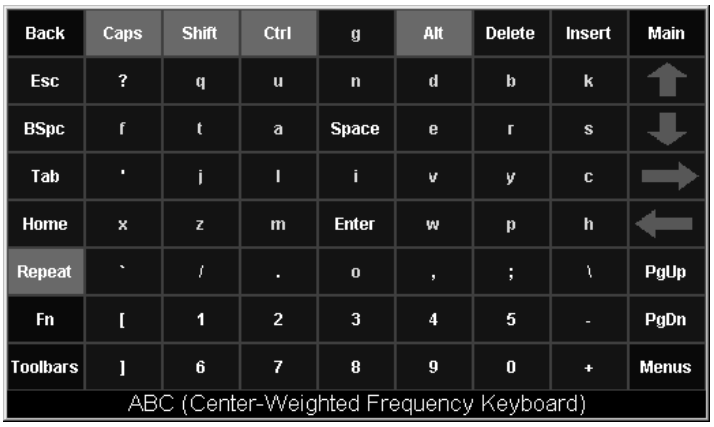
- ☐ QWERTY – An on-screen version of a standard US-English 101-key computer keyboard.

QWERTY keyboard

- ABC123 – A keyboard with letters arranged alphabetically in two rows.

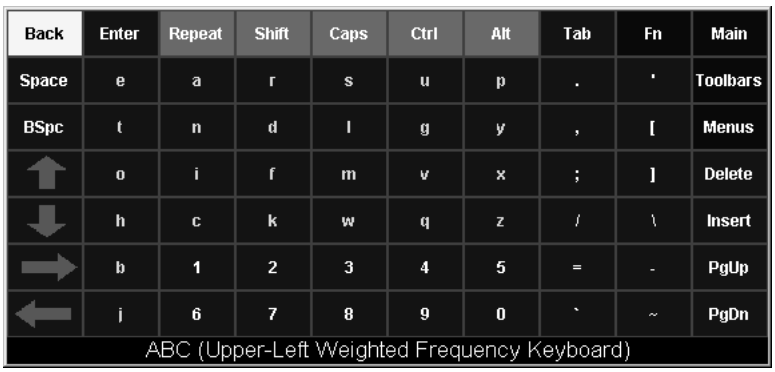
ABC keyboard

- Frequency of use: the keyboard that appears when you make this choice depends on the current selection method. If you are using Direct-click, Direct-dwell, or Five-switch directed scanning, the Center-weighted keyboard appears when you choose a frequency of use keyboard. This keyboard is organized by frequency of use, with the most common keys located in the center of the keyboard.



Center-Weighted keyboard

If you are using Automatic Scanning or Inverse Scanning, the Upper-left-weighted keyboard appears when you choose a frequency of use keyboard. This keyboard is also organized by frequency of use, with the most common keys located in the upper left corner of the keyboard.



Upper-Left-Weighted keyboard

Modifier keys

Modifier keys do not send keystrokes on their own. Instead, they affect the key(s) that are pressed next in sequence. When a modifier key is first selected (for example, Ctrl), two white horizontal bars appear around the key. The next character key selected (for example, A) will send the key sequence (Ctrl + A), rather than a series of key entries. The modifier is then automatically reset or deselected. Modifiers can be locked by selecting them twice. A locked modifier is indicated by a red rectangle. You can unlock a modifier by selecting the key again.

The following keys are modifier keys:

- Shift
- Ctrl
- Alt
- Caps
- Num
- Scrl

The appearance of the VDK keyboards is affected by the Shift and Caps modifiers. For example, if an alphabetic layout is displayed when the Shift modifier key is selected, the keys appears *shifted*. An 'a' appears as an 'A'.

This is how the keyboard appears when the Shift key is off:

Back	Spc	Enter	Rept	Ctrl	Alt
Shift	a	b	c	d	e
Caps	n	o	p	q	r

'Shift' modifier key off

Now the Shift key is turned on:

Back	Spc	Enter	Rept	Ctrl	Alt
Shift	A	B	C	D	E
Caps	N	O	P	Q	R

'Shift' modifier key on

Function keys

The QWERTY keyboard contains rows of function keys (F1 through F12), similar to those found on a physical keyboard. To use function keys from the ABC123 (alphabetical order) and frequency of use keyboards, click on the Fn key. This brings up a separate keyboard that contains the function keys.

Toolbar keyboards

When the HoTMetaL PRO Editor is active, the VDK provides toolbar keyboards based on the Editor keyboards. The keys on these keyboards correspond to the toolbar buttons, although in some cases the order has been changed for ease-of-use. Just as in the application, some functionality is available from both the toolbars and the menus.

The Tables Toolbar and Image Mapping Toolbar keyboards contain additional navigational keys, as well as keys that correspond to the toolbar buttons. This additional keys are necessary to duplicate the functionality of these toolbars from the VDK.

Clicking on some toolbar keys displays a special editing keyboard that helps to carry out the task associated with that key; see page 126 for more information. If a toolbar button brings up a dialog box, the VDK will either display one of these special editing keyboards, or it will

revert to the Main keyboard to facilitate dialog box navigation. This functionality is not available when you choose commands from the menu keyboards (see page 124).

The following toolbar keyboards are available:

- Standard Toolbar – This keyboard contains general file, search, and viewing options.
- Quick Tools – This keyboard contains keys for inserting common HTML markup such as headers, text formatting, and text alignment.
- Formatting Toolbar – This toolbar contains keys for applying text format options, and keys for inserting numbered and bulleted lists. The Style Element key brings up the Quick Tools keyboard.
- Browser Toolbar – If you have set up one or more browsers to preview Web pages, the keys on this keyboard can be used to open the current document in a browser.
- Advanced Toolbar – This toolbar contains keys to insert an ActiveX™ control, Java applet, or Design Time Control.
- Tables Toolbar – Some keys on this keyboard correspond to the HTML table editing toolbar buttons; others aid in navigation.
- Forms Toolbar – The keys on this keyboard correspond to the HTML forms editing toolbar buttons.
- Macros Toolbar – The keys on this keyboard start and stop macro recording, and run macros.
- Image Mapping Toolbar – Some keys on this keyboard correspond to the Editor Image Mapping toolbar buttons; others are used to size and place these graphical objects. To map an image using the VDK, first change to Tags On view, select the image, and then select the Select Mode key from the Image Mapping Toolbar.

Inserting elements from the toolbars

The toolbar menus contain many keys that insert a specific element; for example, the Paragraph Text key in the Quick Tools keyboard will insert a P (paragraph) element. If the document contains some highlighted text when you insert an element, the element will surround that text if the HTML rules allow it. In some cases, the element that you choose will be substituted for the current element.

Unlike the buttons in the HoTMetaL PRO Editor toolbars, the keys in the VDK toolbar keyboards will not be disabled (grayed-out) if they would perform an invalid action. If you click on one of these keys, you will get a warning message from the HoTMetaL PRO Editor, informing you that if you proceed, the markup will be invalid. (A quick way to tell if a key will perform a legal action is to check whether or not the corresponding toolbar button is grayed-out.)

The toolbar keyboards also contain keys that give you quick access to common HoTMetaL PRO Editor commands for inserting markup:

- The Insert Element key on the Standard Toolbar brings up a dialog box containing a list of all elements that can validly be inserted at the current insertion point or selection.
- The Element Style key on the Formatting Toolbar brings up the Quick Tools keyboard, which contains the most common elements.

Menu keyboards

The VDK contains keyboards for all menus so that you do not have to use the application menus directly. The menu keyboards reflect the structure of the current application. For example, using the VDK with the HoTMetaL PRO Editor creates keyboards that reflect the menu bar: File, Edit, View, Insert, Format, Tools, Table, Form, Window, and Help. These keyboards are created *dynamically* so that only menu functions available at the time appear as keys in the keyboard. Menu items that are grayed out in the regular menus will be completely absent from the VDK menu keyboards.

Choosing a command from one of the menu keyboards is equivalent to choosing it from one of the application menus: no special keyboards will be displayed, and the VDK will not revert to the Main keyboard if a

dialog box is displayed. That functionality is available only if you choose a command from one of the toolbar keyboards.

The Desktop Manager keyboard

The Desktop Manager is displayed by clicking on [Desktop Manager] in the Main keyboard. This keyboard branches to three other keyboards that let you resize and reposition the VDK and application windows, control the mouse from a keyboard, and switch between running tasks:

- VDK Window keyboard – Lets you resize and reposition the VDK window.
- Other Window keyboard – Lets you resize and reposition the window or dialog box that has focus in the current application. Note in particular the following keys:
  - [Restore] – Restores the current window or dialog box to its previous dimensions.
  - [Focus] – Changes the VDK focus within an application (for example, you can move the focus from a dialog box to a document window).
  - [Close Window] – Closes the current window or dialog box.
  - [Autoposition] – Positions the currently active window or dialog box above the VDK.
- Mouse Control keyboard – Lets you turn on and use mouse control to position the cursor anywhere on the desktop. You may find this useful for some applications that do not include all tasks on the command menus.
- Task Manager keyboard – Displays the Task Manager keyboard, from which you can choose any running task.

Mouse Control keyboard

The Mouse Control keyboard can be used to emulate a mouse and control cursor movement. It can be used with all of the selection methods except the Direct-click method (the Direct-click method should be used with a mouse or fully functional mouse emulator).

You can control mouse movement from the Mouse Control keyboard in the following ways:

- Direct-dwell selection – Select a mouse action (for example, left-click) from the Mouse Control keyboard and then move to the location where you want to perform the action. To perform the action, dwell on that location. The action can be repeated by dwelling again and is only reset by returning to the keyboard.
- Automatic scanning or Inverse scanning – Scan to select mouse actions from the keyboard. Repeating actions, such as mouse-up, are cancelled by clicking the switch.
- Five-switch directed scanning – This method works best with the mouse control keyboard: any five-switch input device can be used to fully emulate a mouse. Four switches direct the cursor up, down, left, and right; the fifth switch acts like a left mouse button. If this method is used with a joystick, the joystick moves the cursor in any direction, the fist joystick button returns joystick control to the keyboard, and the second joystick button acts like a left mouse button.

Special editing keyboards

The VDK has several keyboards that are used for special editing functions in HoTMetaL PRO:

- Frame Editor keyboard (the next page)
- Special Characters keyboard (page 128)
- Text Color keyboard (page 128)

These keyboards are displayed from the Toolbar keyboards only; if you choose any of these commands from the Menus keyboard, only the corresponding dialog box is displayed. For example, to display the Frame Editor keyboard, click on [Frame Editor] in the Standard Toolbar keyboard.

This displays the frame editor dialog and the Frame Editor keyboard (if you choose Frame Editor from the Tools Menu keyboard, only the frame editor dialog will be displayed).

The Image Mapping Toolbar and Tables Toolbar keyboards also include special navigational functions.

Frame Editor keyboard

The Frame Editor keyboard is used to operate the frames editor in HoTMetaL PRO Editor. Before the frames editor can be launched, the document must contain a FRAMESET; click on Convert to Frames in the Tools Menu keyboard if the document does not already have a FRAMESET.

Back	Main	Menus	ABC
Tab	Shift-Tab	Space (Select)	Enter
Prev Frame	Next Frame	Repeat	Close Editor
Frame Editor			

Frame Editor keyboard

The frame editor dialog box has two sections: a controls section in the top half of the dialog, and a graphical frames section in the bottom half. The graphical frames section contains a graphical representation of one or more frames. One frame will be active at all times; the controls in the controls section will apply to the active frame.

You can navigate through the control section using the usual keys such as Space , Tab , and the arrow keys. To move around in the graphical frames section you have to use two special keys in the Frame Editor keyboard: Next Frame and Prev Frame .

To make a frame active:

- Give focus to the graphical frames section by moving to it with the Tab or Shift+Tab key.
- Move to the desired frame by clicking repeatedly on the Next Frame key (to move to the right and down), or Prev Frame key (to move to the left and up).

To perform an action on the active frame:

- Use Tab or Shift+Tab to navigate to the desired control (for example, the button). The active frame stays active, even when you move to a different control.
- Apply the selected control.

It is not possible to select and drag a frame border from the VDK, but you can resize a frame using the following steps:

- Make the frame active.
- Move to the Size text field.
- Enter the desired size.
- Type Enter .

Special Characters keyboard

The Special Characters keyboard is equivalent to the HoTMetaL PRO Editor Special Characters... command. To display this keyboard, click on the Special Char key in the Quick Tools toolbar keyboard. Choosing Special Characters from the Insert menu displays the regular Special Characters palette, which is not accessible from the VDK.

Text Color keyboard

To display this keyboard, click on the Text Color key in the Formatting Toolbar keyboard. The Text Color keyboard has a limited palette of eight colors for quick ease of use.

Clicking on the Other... key in this keyboard brings up the standard Windows Color dialog box (you can also display this color chooser by clicking on Text Color in the Format Menu keyboard). The Windows color chooser can be operated from the VDK.

To choose a color:

- Move to the color palette using Tab or Shift+Tab .
- Move to the desired color using the direction (arrow) keys.
- Type Space to select the color.
- Type Enter to apply your choice.

You can also click on [Define Custom Colors] and define a color in the custom color chooser.

Text Color keyboard

VDK selection methods

The Selection Method tab of the VDK Settings dialog is used to choose one of the methods available for making selections using the VDK. You may wish to try several of the methods to determine which is best suited to your specific needs and hardware. The following section describes the advantages of each of the following:

- Direct-click selection (the next page)
- Direct-dwell selection (page 131)
- Automatic scanning (page 132)
- Inverse scanning (page 134)
- Five-switch directed scanning (page 136)

To change the method of selecting keys on the VDK keyboard:

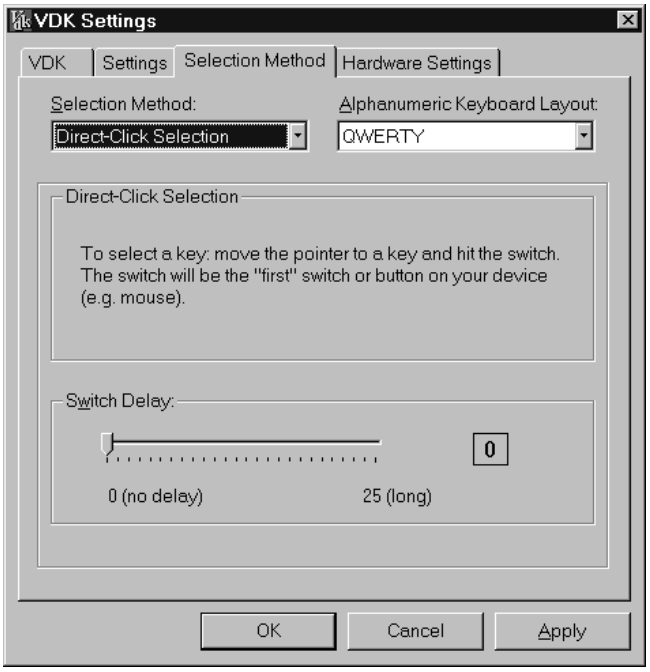
- Choose Visual Dynamic Keyboard... from the Tools menu. The VDK Settings dialog box appears.
- Click on the Selection Method tab, if it is not already selected.
- Make a choice from the Selection Method drop-down list.
- The middle part of the dialog box changes depending on which selection method you choose. Use this section to set various parameters, as described in the sections below on the different selection methods.
- Click on the [OK] button when done.

This dialog also lets you choose the Alphanumeric keyboard layout.

Direct-click selection

Direct-click selection is an access method useful for users who can move the mouse pointer more effectively than they can input text from a keyboard. This access method is often used with a headpointer or trackball.

With this selection method a keyboard is displayed on-screen and you can select any key by pointing to the key with the mouse cursor and then selecting it with a mouse button or a switch input.



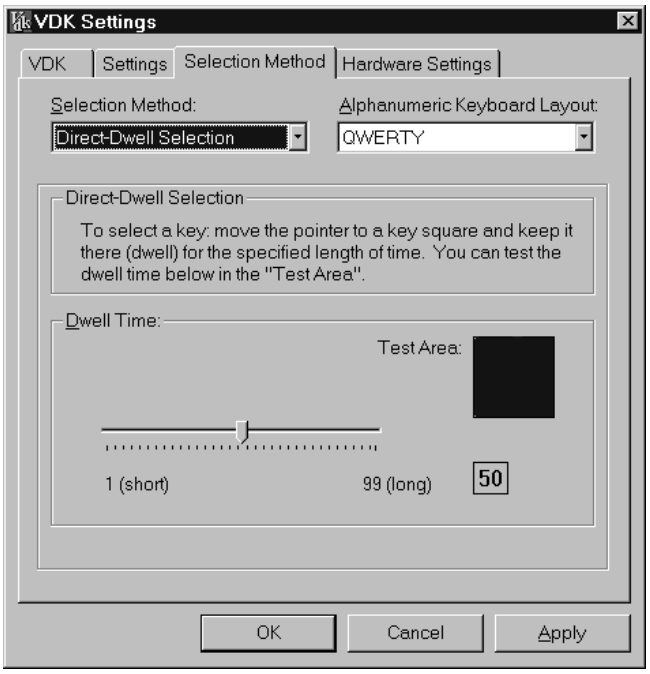
Direct-click selection settings

Switch delay

This controls the length of time that you have to click on a key in order for the click to be regarded as 'intentional'. This is useful for users who tend to accidentally activate a switch or button, or activate it more than the intended number of times. The switch must be held down past the switch delay threshold in order for the key to be activated. There is no switch delay after a repeating key is selected. Switch delay values can be between 0 (none) and 25, inclusive. These values are relative, and do not correspond to a specific unit of time.

Direct-dwell selection

Direct-dwell selection is useful for users who can move the mouse pointer but have difficulty performing a mouse click. Using this selection method, you can select any key on the current VDK keyboard by moving the mouse pointer over the desired key and keeping it there for a certain length of time (called the *dwell time*).



Direct-Dwell selection settings

Dwell time

After selecting the slider the left arrow key decreases the dwell time and the right arrow key increases the dwell time. This adjusts the length of time the mouse cursor must stay on the key before a selection occurs. The dwell time can be between 1 and 99, inclusive.

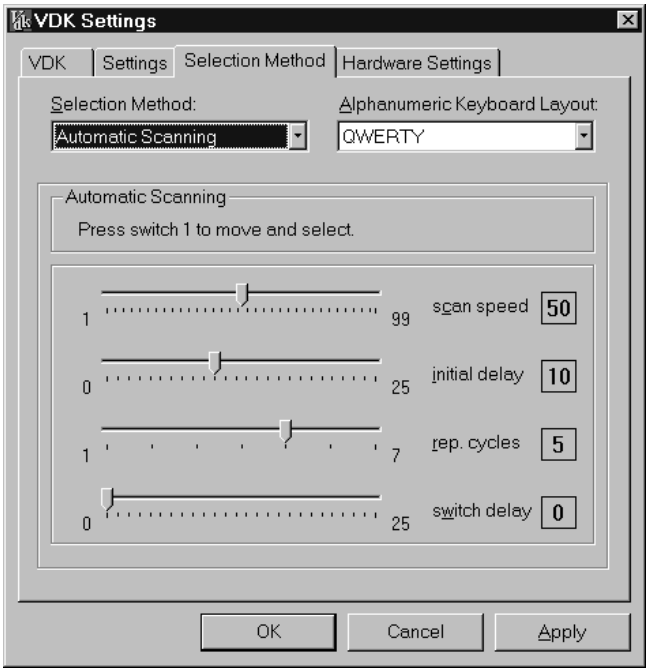
The square labeled Test Area lets you test the dwell time. Simply move the pointer over the square and the color will change to indicate when the dwell time has been used up. Moving the pointer off the Test Area will reset the timer.

To quickly increase (or decrease) the dwell time, hold down Alt+D , or click on the slide control, and hold down the right (or left) right arrow key.

> **Note** The underlined 'D' in Dwell Time indicates that it can be used in this way.

Automatic scanning

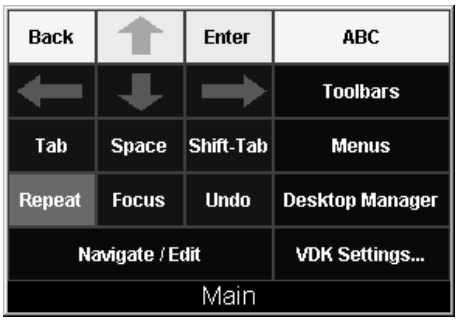
Automatic scanning involves selecting a key by first selecting the row that contains that key on the keyboard, and then selecting the key (column) within the selected row.



Automatic scanning settings

The VDK will highlight each row in succession, starting at the top row. When the highlight is on the desired row, press switch 1 or the left mouse button. Once this button is pressed, the leftmost key square of this row will be highlighted. This highlight will move along the row from left to right; when the desired key is highlighted, press switch 1 or the left mouse button to select the key.

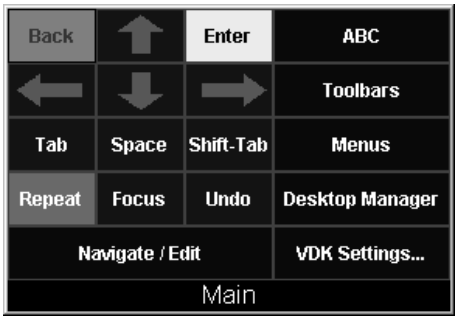
This selection method is useful for users who can accurately time the activation of a single switch.



Row scanning

If you select a row unintentionally, or for some other reason decide that you want to select a different row, there are two things you can do:

- You can press switch 2 or the right mouse button to 'reset' the scanning. The highlighting will begin again on the top row.
- If you don't select a key, the highlighting will stop automatically after a certain number of cycles from left to right along the row. When this happens, press either of switch 1 or switch 2 to restart the highlighting at the top row. (The number of cycles that occur before the scanning process stops can be adjusted in the VDK Settings dialog box).



Column scanning

Scanning speed

This adjusts the rate at which the highlighting advances over rows and columns. The higher the value, the faster the scanning. The scan speed can be between 1 and 99, inclusive.

Initial scanning delay

The 'initial scanning delay' occurs both when the top row is highlighted and when the first key in a row is highlighted. This delay makes it easier to select the first row or the first item in a row. The initial scanning speed can be between 1 and 25, inclusive.

Cycles to repeat

This sets a maximum number of cycles to be repeated. A cycle is the advancement of the highlight bar from the first to the last row or from the first to the last column. When a row is selected, the cycle counter is reset to allow the same number of possible cycles for column selection.

The number of cycles to be repeated can be between 1 and 7, inclusive. Two or three repeat cycles are enough for most users. It is strongly recommended that this setting stay below five cycles.

This limit on the number of cycles is especially useful when a row has been selected unintentionally. Waiting for the repeat cycles to finish notifies the VDK that this row is not wanted. When the cycles are complete, the VDK will 'rest' until a switch is clicked again to restart row scanning.

Switch delay

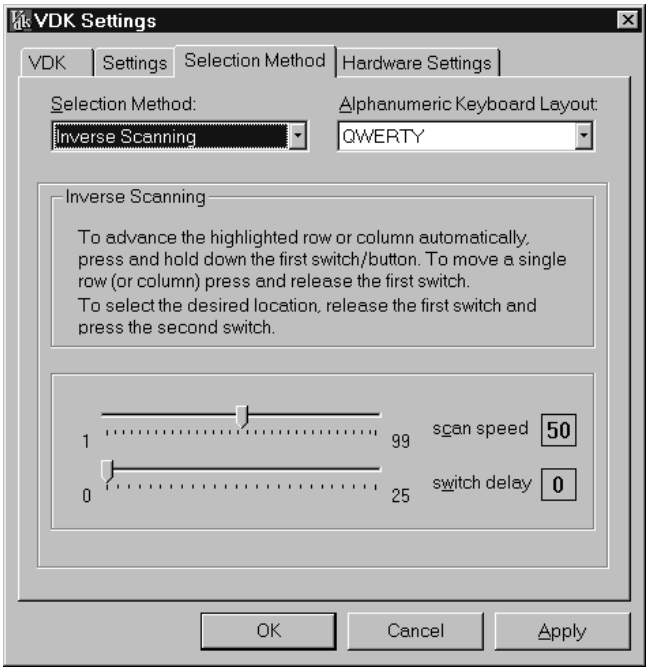
This controls the length of time that you have to click on a key in order for the click to be regarded as 'intentional'. This is useful for users who tend to accidentally activate a switch or button, or activate it more than the intended number of times. There is no switch delay after a repeating key is selected. The switch delay can be between 0 (none) and 25, inclusive. These values are relative, and do not correspond to a specific unit of time.

Inverse scanning

This selection method is useful for users who have difficulty pressing a switch at an exact moment in time.

Inverse scanning is similar to automatic scanning, because it uses row-column scanning to specify a key selection. The main difference is that scanning (moving the highlight down rows or across columns) proceeds only when you keep switch 1 pressed down. To stop the highlight movement when the desired row or column is reached, release the switch. To make a selection, press and release switch 2. If you want to

continue scanning without making a selection, press and hold switch 1 again.



Inverse scanning settings

Scanning speed

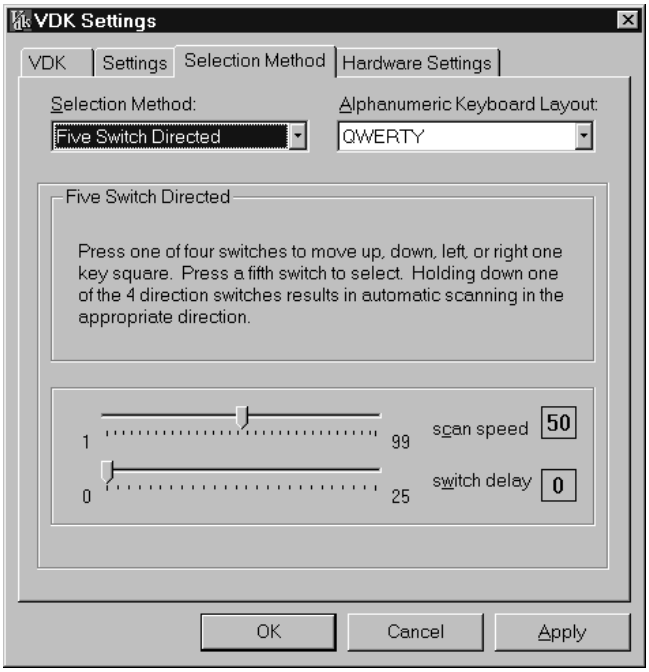
This adjusts the rate at which the highlighting advances over rows and columns. The higher the value, the faster the scanning. The scanning speed can be between 1 and 99, inclusive.

Switch delay

This parameter is for the right mouse button or switch 2 only. It controls the point at which a switch activation is regarded as 'intentional.' It is useful for users who tend to accidentally activate a switch or button, or activate it more than the intended number of times. There is no switch delay after a repeating key is selected. The switch delay can be between 1 and 25, inclusive. These values do not correspond to a specific unit of time.

Five-switch directed scanning

With this selection method, you move a highlight around the VDK keys (square by square) and then select the highlighted key. This method can be used with a joystick that has four direction switches and a selection switch. Pressing one of the direction switches moves the highlight up, down, left, or right; the fifth switch makes the selection. Holding down one of the direction switches results in continuous movement in that direction.



Five-switch directed settings

This selection method works only with a joystick; choosing this method automatically selects the Game Port Joystick hardware setting.

Scanning speed

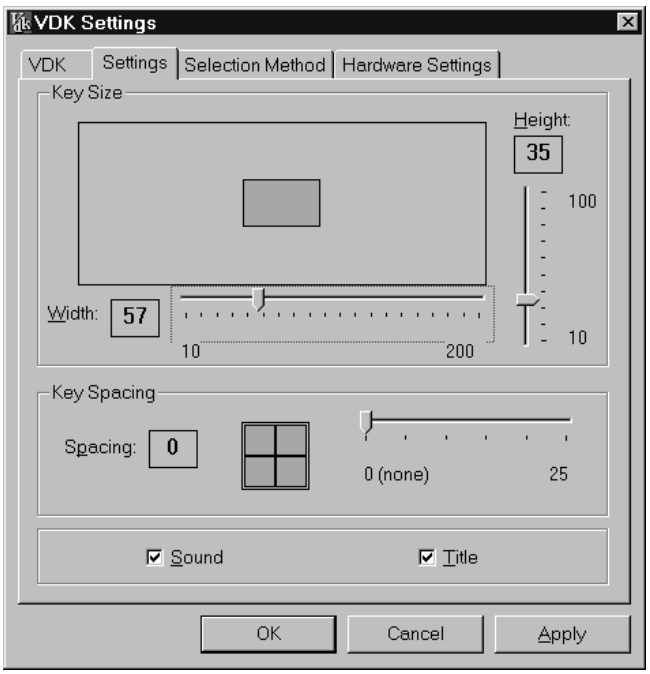
This adjusts the rate at which the highlighting advances over rows and columns. The higher the value, the faster the scanning. The scanning speed can be between 1 and 99, inclusive.

Switch delay

This parameter is for the selection switch and not for the directional switches. This controls the point at which a switch activation is regarded as 'intentional.' It is useful for users who tend to accidentally activate a switch or button, or activate it more than the intended number of times. There is no switch delay after a repeating key is selected. The switch delay can be between 1 and 25, inclusive.

VDK settings

The Settings tab of the VDK Settings dialog box is used to make changes to how the VDK looks and responds, including the size and spacing of keys on the VDK keyboards.



VDK settings

Using this dialog box, you can change the following VDK settings:

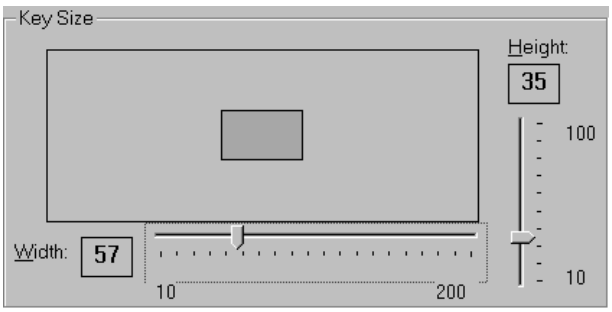
- Key size (the next page)
- Key spacing (page 139)
- Sound (page 140)
- Title bar (page 140)

Key size

All keyboards in the VDK use the same key-unit size. Changing the key size will therefore change the size of all keyboards.

There are two ways to change the key size:

1. You can use the key size control in the VDK Settings dialog box.
   - Choose Visual Dynamic Keyboard... from the Tools menu. The VDK Settings dialog box appears.
   - Click on the Settings tab.
   - Use the two sliders to change the dimensions of the keys. Sliders can be changed by tabbing to them and using the up and down arrows to change height; and the right and left arrows to change width. A preview of the key size appears in the dialog box, and it will change size as you move the sliders.
   - Click on [OK] to make the new key size take effect.
2. You can also resize the keyboard manually: this changes the key size and will affect all other keyboards.
   - Move the mouse cursor over an edge or corner of the VDK until the cursor changes into a two-headed arrow.
   - Click and drag to resize the keyboard.
   - Release the mouse when you have the desired size.



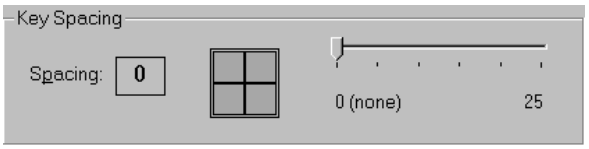
Control for changing the key size

Key spacing

The keys on the VDK can be spaced apart. You may find that spacing between keys can make the keys easier to identify and select. Changing the key spacing affects all keyboards in the VDK.

To adjust the key spacing:

- Choose Visual Dynamic Keyboard... from the Tools menu. The VDK Settings dialog box appears.
- Click on the Settings tab if it is not already selected.
- Use the key spacing slider to increase or decrease the key spacing. The slider can be tabbed to and changed using the right and left arrow keys. A preview of the key spacing appears in the dialog box.
- Click on OK to make the key spacing take effect.



Control for changing the key spacing

Sound

The VDK can make a sound as each key is selected.

To turn the sound on or off:

- Choose Visual Dynamic Keyboard... from the Tools menu. The VDK Settings dialog box appears.
- Select the Settings tab if it is not already selected.
- Click on the Sound check box to toggle the VDK sound on or off. A check mark in the Sound check box indicates the sound is turned on.
- Click on OK to make the change take effect.

Keyboard title

Each keyboard in the VDK has a title that can be displayed along the bottom of the VDK window.

To turn the keyboard title on or off:

- Choose Visual Dynamic Keyboard... from the Tools menu. The VDK Settings dialog box appears.
- Click on the Settings tab if it is not already selected.
- Select the Title check box to turn the VDK title on or off. A check mark in the title check box indicates that the title is turned on.
- Click on OK to make the change take effect.

Keyboard titles are turned on by default. As you become more familiar with the keyboard layouts, you may wish to turn the title off and save some screen space.