

Oska

Oska Basics

Oska is for people who have difficulty using traditional computer input methods - that is, a keyboard and mouse - or who have problems communicating - who cannot speak, for example - or who want to create customised input systems - like people using electronic whiteboards.

Oska gives you:

- A set of [input devices](#). For example Joystick Mouse lets you use a gamepad to control the mouse, and One Switch Mouse lets you control the mouse using only one key or switch or button. You can choose one that suits you or not use any.
- [On-screen keyboards](#) that can be customised and edited to suit you. These can also be controlled in lots of different ways, like switches or mouse-wheels, or combined with an input device.

You combine the right input device with the right keyboard or set of keyboards for you to use.

(This helpfile assumes you are the end user of the Oska system. It is likely that you are setting the system up for someone else, not using it yourself. But this is how help files usually work, so we are writing it this way.)

Oska Keyboard

The Oska Keyboard is an on-screen virtual keyboard.

The Oska Keyboard works as a standard computer keyboard, but is displayed on the screen instead of being a physical thing on the desk. However, it works just like a standard physical keyboard. When you press a button on the keyboard then Oska will send the input to the current active application on your PC, just as if you had pressed the button on a physical keyboard.

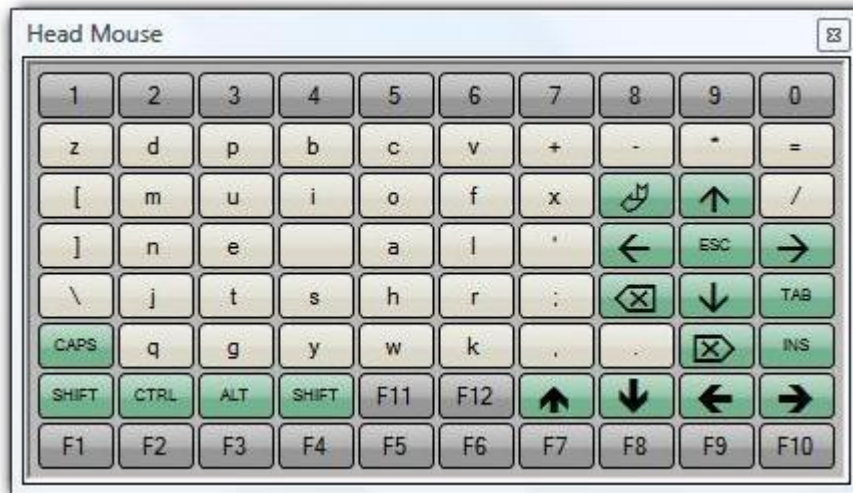
You can press a button on the keyboard in many ways, such as with the mouse or switch or one of the [Input Devices](#). Use the [Oska Settings Editor](#) to control how the keyboard operates. Oska keyboards also work on touch-screen PCs (like a Tablet PC, for example.) Simply press the buttons on the keyboard as it is displayed on the screen.

An Oska Keyboard can have any set of buttons on it, including pictures and colours, and buttons can also do things - like launch web pages or open other Oska Keyboards - as well as "type" characters. You can use the [Oska Keyboard Editor](#) to edit and create keyboards.

Oska Keyboards also support word prediction.

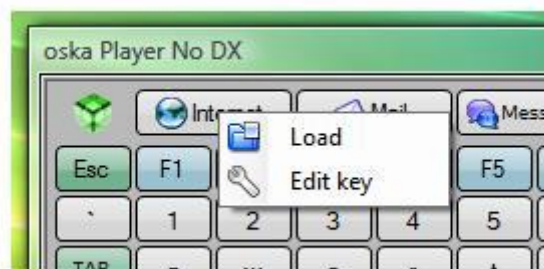
You can scale a keyboard by resizing it with the mouse. You can make it fill a second monitor by dragging it to the monitor and clicking the normal Maximize control button.

Here is an example Oska keyboard. The buttons work like the usual keyboard keys - letters, numbers, function keys, cursor keys, shift, control and so on. But the keyboard has been laid out for someone using a stick in his mouth or attached to his head to operate when displayed on a touch-screen, so all the keys are arranged around the space key so that the least movement necessary is required for most typing.



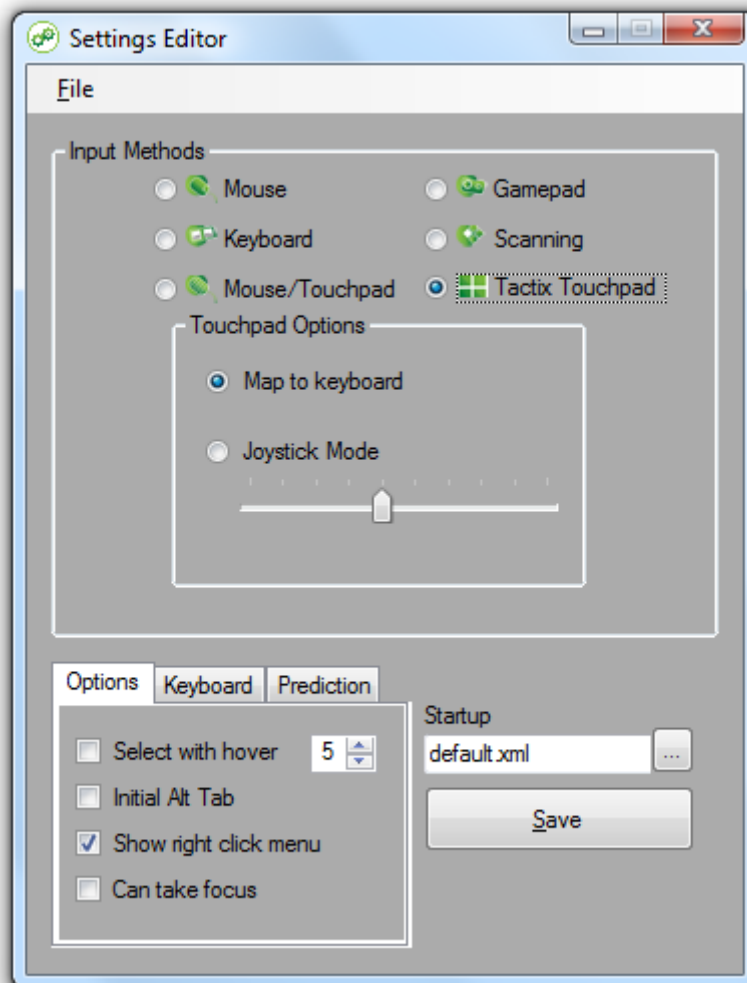
Loading a different keyboard

By default Oska loads a keyboard set by the [Oska Settings Editor](#). You can also, if the keyboard allows it, right-click on a keyboard and select Load and choose a keyboard file (a .xml file found in the Keyboards folder).



Oska Settings Editor

The Settings Editor determines how a keyboard accepts input - mouse click, scanning, joystick, etc. It also determines which keyboard is shown when Oska starts and how it can be used.



Oska settings are stored in .kst files, which are located in the parent folder containing the Keyboards folder with the keyboard .xml files. Use the File menu to select a .kst file to change. By default the .kst file in the Settings Editor folder is loaded, so usually you can simply start Settings Editor, make your changes, click the Save button, then close Settings Editor. Settings Editor must be run as an administrator if your keyboard is in Program Files or otherwise in a folder that a normal user cannot edit. The settings you choose in Settings Editor apply to every Oska keyboard in the Keyboards folder. You cannot have different settings for different keyboards in the Keyboards folder.

There are five other options apart from the choice of input method:

Show right click menu

If this is enabled then you can right-click on a running Oska keyboard to bring up a context menu with an Open option. This lets you manually load another different .xml keyboard file. This is useful if you are developing Oska keyboards or you are using Oska to provide helpful shortcut keyboards, for example.

Can take focus

By default Oska does not work like a normal window. Clicking or otherwise interacting with it does not change your current working window. If this is enabled then you will be able to Alt+Tab to the Oska keyboard or click on it or select it in the Windows taskbar. This is useful if you are using Oska as a kiosk application or a program launcher or a helpful toolbar, for example.

Startup

This sets the keyboard .xml file that will be loaded from the Keyboards folder when Oska starts. Settings Editor will remember a different keyboard for each input method option, so you only have to change input method to get a new keyboard (or you can set them all to be the same.)

Keyboard position

"Full screen" means that Oska will automatically scale to fill the whole of the first or second monitor, as selected. "Resizable" means that the keyboard can be resized with the mouse like any other window.

Prediction

Word prediction requires that the keyboard has prediction keys assigned to show the word suggestions. Predictions will be shown from the prediction dictionary indicated in the "Dictionary" box, which must be in a folder called "prediction" in the folder containing the keyboard .xml file itself. "Learn new words" means that Oska will remember which words have been typed and add them to the prediction dictionary. "Learn word frequency" means that Oska will remember which words are selected and move them up the prediction list. "Capitalise on keys" means that Oska will make the words shown on the keyboard prediction list all UPPERCASE.

There are five input method options in the Settings Editor, plus the ability to toggle whether input goes to the keyboard or to Windows.

- [1 Mouse](#)
- [2 Keyboard](#)
- [3 Gamepad](#)
- [4 Scanning](#)
- [5 Mouse/Touchpad](#)
- [6 Tactix Touchpad](#)
- [Toggling keyboard and screen](#)

1 Mouse

Point and Click

You move the mouse cursor to a button and click on it to press it. Suitable for use with One Switch Mouse or for a touch screen.

Point and Hover

You move the mouse cursor over a button. After a few seconds the button is pressed for you. You don't have to keep the mouse cursor completely still, just keep it over the button – this is useful if you have problems stopping movement. To do two letters in sequence, like "tt", hover over the button, wait for it to be pressed, then move away to another button and back and it will be pressed again.

You can change how long you need to hover over a button with the combo box to the right. This shows the seconds delay until the button is pressed. Increase it if you find buttons are pressed when you don't want them to be and decrease it if you want the buttons to be pressed faster.

2 Keyboard

Cursor keys + Enter

You move around the keyboard using the cursor keys. When you press the Enter or Return key the selected button is pressed.

While this is operating you cannot use the cursor keys or enter normally in Windows if you choose this option because the Oska keyboard is using them – you will have to use cursor key buttons (up/down/left/right) and the enter key on the Oska keyboard.

Numeric Keypad

You must use a keyboard that is nine buttons wide and nine buttons tall or a keyboard that is three buttons wide and three buttons tall.

- For a three-by-three keyboard (9 keys), the nine keys on the numeric keypad press the corresponding button on the Oska keyboard. So "7" on the keypad presses the top-left button and "3" on the keyboard presses the bottom-right button. One press on the keypad means one button press on the keyboard.
- For a nine-by-nine keyboard (81 keys), a key on the numeric keypad first selects the 9 key subsection (top-left, bottom-right) and then a second key presses the button in that subsection just like for a three-by-three keyboard. So you need to press the keypad twice to press a button on the keyboard, but you can have nine times as many keys.

3 Gamepad

Map to keyboard

You move the joystick around and it maps directly to the keyboard: the top-right-most position of the joystick will select the top-right-most button on the keyboard. Press the gamepad "fire" button to press the button.

This will require fine control for a keyboard with many keys, so may be more useful for a keyboard with fewer keys.

Map to grid

- Choosing "5" means you move around the keyboard using the joystick just like using the cursor keys, and press the gamepad "fire" button to press the currently-selected button. You can use this with any keyboard.
- Choosing "9" or "8" means you select the section of the keyboard and the button to press with one or more moves of the joystick and/or the gamepad "fire" button. You must use a nine-by-nine keyboard, not a standard QWERTY layout.
 - "9" means you use the joystick and the fire button to press one of 81 keys on the keyboard. You start in the centre three-by-three block. Move the joystick to select a different block or leave it centred and press the fire button to select the centre block. You are now in the three-by-three block and you again move the joystick to select one of the eight non-central buttons or press fire to press the centre button.
 - "8" means you use only the joystick to press one of 64 buttons on the keyboard. First, you move the joystick from the centre to select which of the eight blocks of eight buttons to use. Second, you move the joystick to press one of the eight keys in that block. So you move the joystick twice to select any key, but you need only to move the joystick – not click the gamepad "fire" button as well.

4 Scanning

You press a key by using one or two switch input devices to select a number of keys or one key. Select "1" or "2" from the right to identify how many switches you are using.

- If you choose two switches then you use one switch to move your selection and another to make it. So you press one "movement" switch to move along each column until you get to the column with the button you want to press. Then you press the "select" switch to select the column. Now you press the "movement" switch again to move down the column until you get to the button you want to press, and you press the "select" switch to press it. Now you start again with the columns.
- If you choose one switch then you don't have separate "movement" and "select" switches. You only have a "select" switch. The Oska keyboard does the "movement" for you every few seconds, so you wait until it gets to the column you want, then you press your "select" switch, then wait until it goes down to the button you want, then you press your "select" switch again to press it. The slider determines how fast the movement happens.

You can make the keyboard do rows, then columns (instead of columns then rows) by unchecking "Columns then rows".

Oska accepts three switch inputs.

- "Mouse buttons" makes the left mouse button the "movement" switch and the right mouse button the "select" switch.
- "Joystick buttons" makes Button A, the first "fire" button, the "movement" switch and Button B, the second "fire" button, the "select" switch.
- "Key switches" makes "1" the "movement" switch and "2" the "select" switch.

If you select only one switch then the "movement" and "select" switch still work the same but the selection is also changed every few seconds so you only need to use the "select" switch. The "Speed" slider lets you control how fast the selection changes.

While you have keys or buttons operating the keyboard you cannot use them normally in Windows.

5 Mouse/Touchpad

You control the keyboard using the mouse or touchpad, but the mouse is locked to the keyboard so you can't use it on the normal Windows desktop. You have a button on the Oska keyboard that lets you lock and unlock the mouse, see "Toggling keyboard and screen". Locking the mouse to the keyboard makes it easier to use the keyboard with the mouse – for example, you can't "slip off" the keyboard or lose the mouse pointer.

- With "Mouse X & Y" you simply select a key with the mouse and click to press it.
- "Mouse Wheel" and "Mouse X" and "Mouse Y" all work like switches – see the Scanning section for more explanation. The movement type is your "movement" switch and you click for your "select" switch.

The "Sensitivity" slider lets you adjust how much mouse movement is required to move the selection on the keyboard. So if you can't move very much, increase the sensitivity so you can move easily all over the keyboard with tiny movements.

The "Mouse button" checkboxes let you select which mouse buttons operate the keyboard. Mouse buttons that are not checked won't operate the keyboard, but can then

be used on the Windows desktop if you unlock the mouse from the keyboard. See "Toggling keyboard and screen".

6 Tactix Touchpad

You control the keyboard using a Tactix Touchpad, a USB-connected external mousepad from Claro Software.

Map to keyboard

The Tactix Touchpad is directly related to the keyboard, so when you press on the Touchpad the key at the same relative position on the Oska keyboard is pressed. You can press anywhere on the Oska keyboard by pressing the corresponding point on the Tactix Touchpad.

Joystick mode

After touching the Touchpad, movement from this point moves the selected key as though you were using the cursor keys to move around the keyboard.

The "Sensitivity" slider lets you adjust how much you have to move on the Tactix Touchpad to move the currently-selected key on the Oska keyboard.

Toggling keyboard and screen

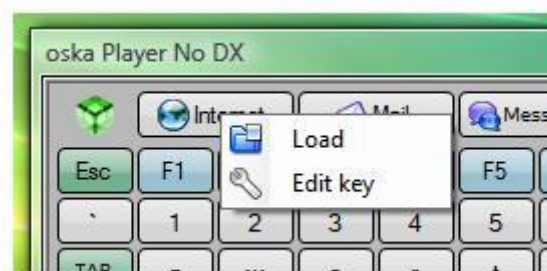
Certain input options "seize" the normal operation of the mouse – Mouse/Touchpad grid and Scanning both stop the mouse working normally in Windows because it is being used by the Oska keyboard.

You can add a button to the Oska keyboard that changes this. In the Oska Editor, select a key and right-click on "Actions", then select "Mouse control" and "Toggle keyboard/screen".

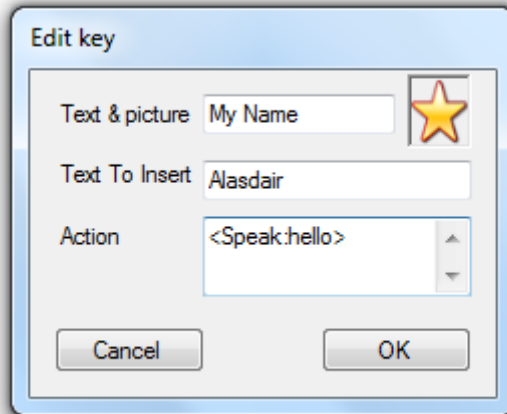
When this button is pressed then the mouse stops being used by the Oska keyboard and can be used normally on the Windows system. To get the mouse back to the keyboard then press the button again. This might be useful if you can use the mouse but with difficulty, so you want to switch to Windows use to operate a program then back to the keyboard to do some text input.

User-definable Keys

An Oska Keyboard can have buttons that are user-definable. You can then right-click on a button and the "Edit Key" option will be shown:



Select "Edit Key" and you will be able to edit what the button does when it is pressed:



Text & Picture

Enter the text to be displayed on the button into the textbox. Click on the image to the right to bring up a File dialog and use that to select the image displayed on the button.

Text to Insert

Enter the output of the button - what is typed when the button is pressed. So if "Text to Insert" contains "Alasdair" then when the button is pressed "Alasdair" will be typed. You can use any of the codes from the Insert section of the [Oska Editor](#).

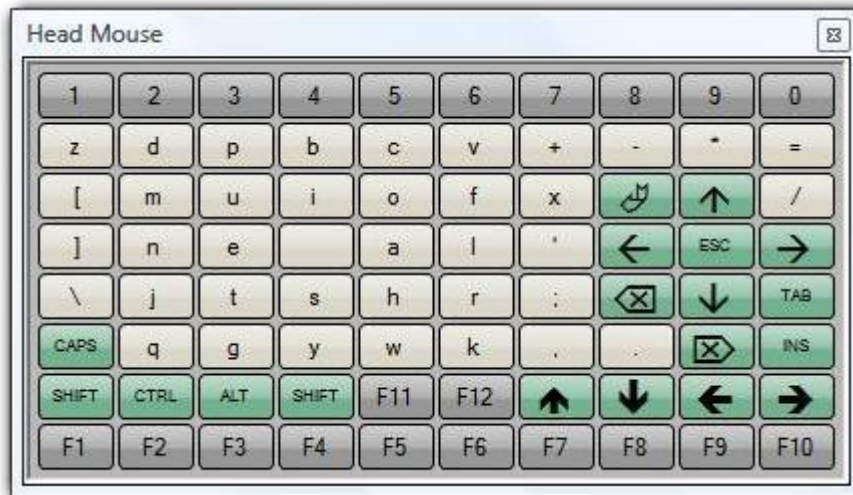
Action

Enter any additional button actions, as defined in the Actions section in the [Oska Editor](#). For example, <Speak:Hello> will cause the word "Hello" to be spoken when the button is pressed.

Note that if the Oska keyboard must be run as an administrator if the keyboard files are located in Program Files and you want the changes to be saved.

Head Pointer and Mouth Stick Guide

Head Pointer and Mouth Stick Keyboard is an Oska on-screen keyboard that has been designed for when you use a Head Pointer or Mouth Stick. You need to use it on a touch-sensitive screen - it is no use on a normal display because you cannot press the buttons with your pointer or stick.



Character keys are displayed in white with the number keys shown as grey. The keyboard works as you expect, so hitting the 'a' key on the on-screen keyboard makes 'a' appear on the screen just as if you have had pressed the 'a' key on the standard keyboard. The keys are arranged around the Space bar, which is shown as a blank key near the middle of the Keyboard. This is so that all the keys are easy to get to with the minimum of movement.



Function keys work just as normal.



The CAPS key will turn on or off Caps Lock.

To use the modifier keys – SHIFT, CTRL, ALT and right hand SHIFT – in conjunction with a key, hit the modifier and then the key that you want to use. For example, to do Control + C to copy, hit CTRL, check it has changed colour to show that its depressed, then hit the C key.





Below is the complete list of special function keys:

Key	Meaning
	Backspace
	Delete
	Escape
	End
	Home
	Escape
	Insert
	Return/Enter
	Page Up
	Page Down
	Tab

Demonstration Oska Keyboards

Oska comes with some keyboards pre-made for you, which can be used on their own or as templates for editing or creating your own keyboards.

To check out the keyboards, start Oska Keyboard from the Windows Start menu, then right-click on the Oska Keyboard when it loads and select "Load". Choose one of the keyboard .xml files from the Keyboards folder to try. Note that you may have to go into Oska Settings Editor first to change the input method to get the best use of the keyboard.

UK, Svensk and US

These are individual standard UK, Swedish and US keyboard layouts. They can be used with most input methods. They demonstrate normal input, shift and control keys, and user-definable keys (the key with the A image). They are useful for combining with one of the Oska [Input Devices](#).

katakana and hiragana

These demonstrate non-English character support, linking keyboards together (the key with the N key image), launching applications, speech, and opening to web pages.

Switch

This shows a simple but colourful keyboard with speech, as might be created as a simple communication aid. It can be combined with Gamepad input and Switch input.

UK 9x9

This is a keyboard designed for use with the number keypad or Gamepad input devices, so you should select one of these in the Settings Editor.

UK Mouthstick and Headpointer

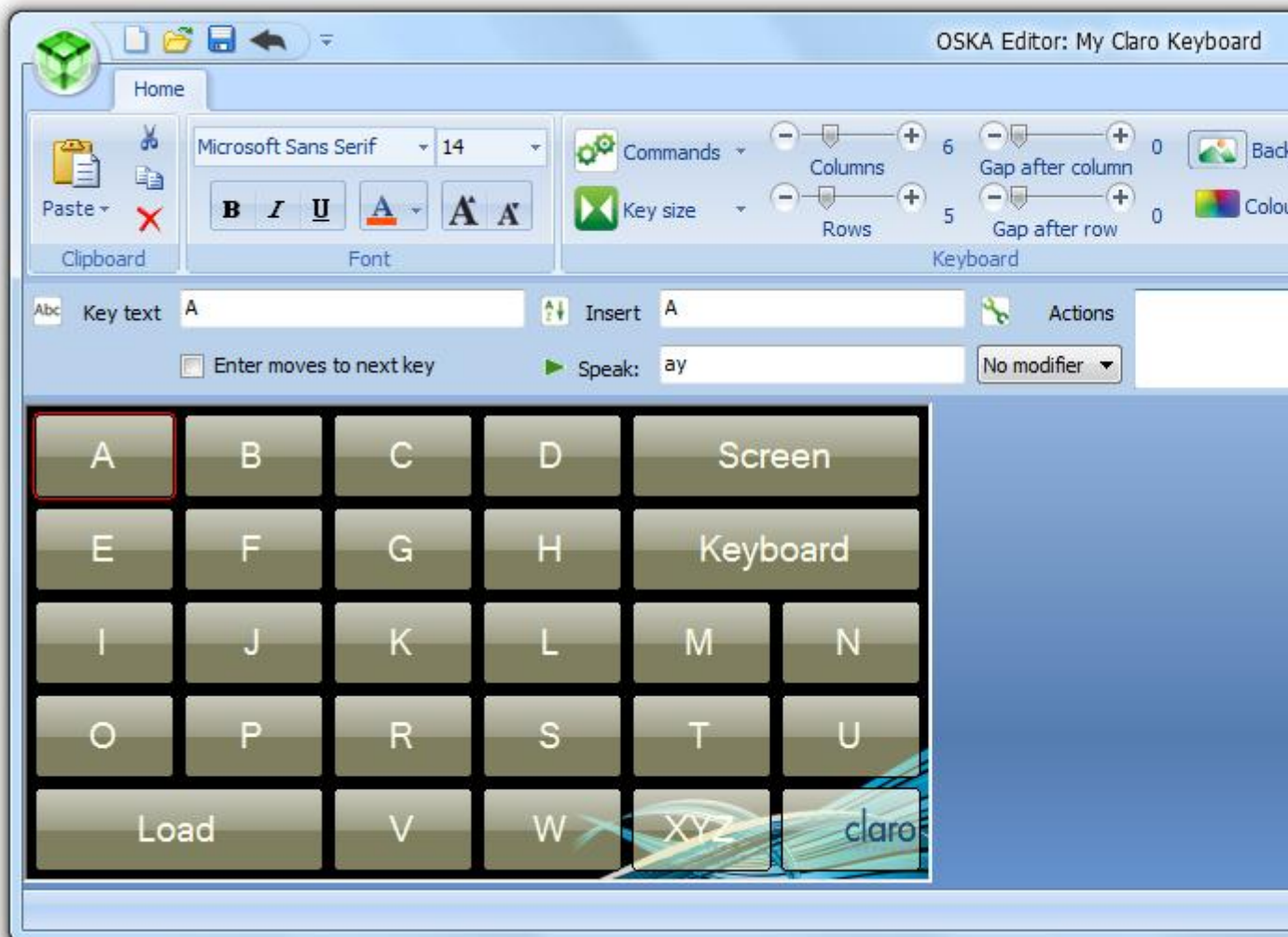
This is designed for use on a touchscreen by someone using a physical rod to hit the screen to press buttons.

Other keyboard .xml files

There are many other keyboards in the folders with English words, phrases, activities and other examples of how you might use keyboards to help learning and development or communication.

Oska Keyboard Editor

The Oska Keyboard Editor allows you to create your own keyboard.



You work on keyboard files, which are .xml files found in a Keyboards folder. There can be many keyboard files in the folder, and they can link to each other, but each will have the same input settings, as defined in the [Settings Editor](#). So you edit the keyboard content using the Oska Keyboard Editor, but not how it is used.

How to work with Oska Editor

You do not run "Oska Player.exe" to run the Oska keyboard. You must run the launcher, "Start Keyboard.exe" - it has a blue icon. This allows the launcher to configure the machine correctly for the player.

The Oska Editor must be run as administrator for you to be able to edit and save keyboards. If you are creating a new keyboard the first thing you should do is use 'Save As' to create a new file for your keyboard to avoid overwriting the default keyboard.

When you are done you have a keyboard ready for deployment or use. You can use it as it is, or set it up to work with the Vista Ease of Access centre and be deployed to another machine. Contact Claro Software for more information.

Editing a keyboard

The **Clipboard** group of the ribbon works on the currently-selected button for cut, copy and paste. You can also copy a style (colour, font name, font size, bold) to another button or every button. Use the **Font** group to change font, colour and other attributes. Copy the button. Clicking on the Paste dropdown will give you two options. Select another button and select "Apply style to key" to apply the style to that new button. Or click "Apply style to keyboard" to apply the copied style to every button.

The **Keyboard** group of the ribbon lets you configure the whole keyboard.

- **Commands** lets you change the appearance of all keys on the keyboard.
 - **Uppercase all text on keys** and **Lowercase all text on keys** change all the keys to UPPERCASE or lowercase.
 - **Copy "Key text" into "Insert" for all keys** sets every key to input the same text as appears on the key when it is pressed. Use this when you have done your first layout of a keyboard and put the alphabet and numbers on keys, then edit exceptions individually.
 - **Insert row, Insert column, Delete row** and **Delete column** change the keyboard rows and columns, copying keys from one row/column to another.
 - **Opaque all keys** toggles every key between flat colour and the translucent default.
- The **Columns** and **Rows** sliders determine the dimensions of the keyboard.
- **Gap after Column** and **Gap after Row** put in a space between sections of the keyboard, so you can visually indicate different functions - for example, having a "alphabet" section separate from a "shortcut buttons for programs" section.
- **Key Size** determines the key proportions. Select **Narrow** or **Wide** or **Tall** or select **User defined size** and choose a specific width/height for all the keys. **Key spacing** changes the key size to provide a gap between the keys that suits you. You will have to experiment to get keys the size you want.
- **Background** lets you choose an image that forms the background of the keyboard.
- **Colour** lets you choose the colour background of the keyboard if you do not have an image.

The **Keys** group of the ribbon lets you configure the currently-selected button.

- **Image** lets you select a picture for the button. You can select an image file to use, remove it, and set where the picture is positioned on the button.
 - Select **Text/image** to choose whether the image should appear above/below/left/right of the text, or if the text should appear on top of the image in the centre of the key (**Overlay**).
 - Use **Image size** to choose how an image can be scaled to fit the key. . You can make the image fit the key by selecting **Image size** and **Fit to key** or have it slightly smaller than the key by selecting **3/4 size**. You have to remove and re-add the image to make it its original size again.

- **Text** lets you set where the text is positioned on the button. So you use Image and Text in combination to lay out the image (if any) and text (if any) as you like it - text under image, below it, left or right or so on.
- **Background** lets you select an image to use as the background of a button. It is scaled automatically to fit the button size.
- **Double Width** and **Double Height** make a button larger, covering up buttons to the right or below it. This is useful if you want to have a differently-sized button, like the space bar on a conventional button.
- **User Editable** means that the user can right-click on a button and edit how it operates while the keyboard is being used. They can apply any of the Actions and the button text. See [User-definable Keys](#).
- **Colour** sets the current button colour. You can make it Silver or Invisible or Inverted by clicking on the **Colour** dropdown. You can also click on the dialog box launcher for the Keys group to individually change border, glow and highlight colours for a button.

Each button has a number of properties that control how it works. These are set in the toolbar below the ribbon. Click on a button and edit its properties. Several of the properties have a format like "<Something:xxx>" - replace the "xxx" part with the value you want to use.

- **Key Text** sets the text actually shown on the button, like "A" or "Open Email" or "Hello". This isn't necessarily the text entered when the button is pressed. It can be blank (for example, you want a button with only a picture)
- **Insert** sets what text is sent to Windows when the button is pressed.
 - For a button on a keyboard that works just like a normal keyboard this will be the same as the Key Text, so for example the button with Key Text "a" will Insert "a" when pressed. But it can be any string or character in any case - just type it into the Insert box.
 - You can make a button send many other keys from the normal set of alphabetical characters. Right-click in the Insert box to see the options. Most are exactly what they state.
 - To enter a key combination like "Control + P" enter Control/Shift/Alt and then the key you want. Control will give you a "^" character, Shift a "+" and Alt a "%", so "Control + P" will be "^p"
 - "+{F10}" gives you the right-click context menu key.
 - **Low-level keyboard** gives you a Windows KeyDown or KeyUp Insert. Replace the "xxx" with the Unicode character code, in decimal, you want to send.
 - You can send a Windows Key keypress with "<KeyDown:91><KeyUp:91>".
 - You can send a Windows Key combination too, for example, Windows Key + E is "<KeyDown:91><KeyDown:69>".
 - **Nudge** sends a keypress repeatedly, so "{PGDN}" sends "Page Down" every two seconds. This is useful to let you start a document automatically scrolling through its contents, for example. Press any other button to stop nudging.
- **Actions** sets what the button does, in addition to or instead of sending some characters to Windows. Right-click to see what actions can be performed and add them to the button.
 - **Sounds** lets you play/stop playing audio files in WAV format that are located in the same folder as the keyboard executable, or use the system SAPI5 voice to speak some text.
 - **Goto Grid** lets you link keyboards together, so a button can load a different keyboard .xml file or go back to the previous keyboard file loaded.

- **Control** lets you control external programs.
 - **Increase volume** and **Decrease volume** change the system volume.
 - **Faster** and **Slower** change the speed or responsiveness of the current Oska input method. So if you have set your keyboard to use one-switch scanning then the speed of the change of the selection increases or decreases.
 - **Run program** starts a program or opens a file. The program/file must be in the same folder as the keyboard executable or set up to run in the Windows Run dialog, like notepad.exe, or you must provide the full path to the file (e.g. "C:\Users\Example\Help.doc"). You cannot provide arguments to an executable. You can launch a web page by entering the full URL, starting with "http", and the system web browser will be launched and the page loaded. You can launch another file by entering the path and it will be opened by the normal handler.
- **Mouse Control** lets you move and click the mouse. It also lets you control whether the mouse is linked to the full computer screen (as standard systems) or to the Oska keyboard (so however you move the mouse you stay on the keyboard). "Toggle keyboard/screen" switches, "Map to screen" frees the mouse to move anywhere, and "Map to keyboard" restricts the mouse pointer to the keyboard.
- **Keyboard Position** lets you move the keyboard around the screen. This is useful if the keyboard is covering something on the screen that needs to be access.
- The **modifier** dropdown lets you set a button that sends Control, Shift, Alt to the next button pressed, or does the CAPSLOCK toggle.
- The **Move to next key on <Enter>** option does not affect your Oska keyboard. It's a shortcut for when you are editing: type the Key Text and press Enter and the next button on the keyboard will be selected.
- The **Speak** textbox lets you set some text that is spoken when the key is hovered over with the mouse. Use **Sounds** to set the text that is spoken when the key is actually pressed.

How to do Shift and capital letters

By default a shift keypress will make the next button pressed be uppercase. So "a" will become "A" without you having to do anything.

However, you may want to add key combinations like "Shift+5" producing "%" (as on a standard UK keyboard, for example). What this means is that "5" maps to "%" - mapping is triggered by the shift keypress.

You have to edit these mappings by hand. Your keyboard .xml file will have a .map file with the same filename (e.g. UK.map for UK.xml) in the Keyboards folder. Open that and you'll see two sections called "Shift" and "ShiftD". Characters in "Shift" are replaced by characters in "ShiftD" - the third character in "Shift" is replaced by the third character in "ShiftD", for example.

```
<Shift>`1234567890-=[\#;' , . / \ </Shift>
<ShiftD>>! " £ $ % ^ & * ( ) _ + { } € : @ &lt; > ? | </ShiftD>
```

This is an XML file, so you must replace some characters with special sequences. "&" must be entered as "&", and "<" must be entered as "<". Although this makes the strings not match up, when the program reads the .map file it will turn the five

characters of & into one & character, so it still works. You can also add other characters with &#CODE;, where CODE is the (decimal) Unicode value for the character.

Deploying an Oska Keyboard

For many users, simply starting the keyboard for them by running "Start Keyboard.exe" will work just fine.

For advanced users you may want the keyboard to start up with the machine. For Windows XP you can create a shortcut in the Startup folder to the "Start Keyboard.exe" program (not "Oska Keyboard.exe"). For Windows Vista or 7 you can, assuming you are an administrator, replace the main .kst and .xml files in the Program Files, Claro Software, Oska folder. This will then work with the Ease of Access Center so you can have the keyboard start with the machine and even on the Secure Desktop (User Account Control.)

Key Value

This program can be found in the Oska program folder. It lets you see the numeric value of keys you press. You can use it for the <KeyDown> and <KeyUp> values in the Editor.

Creating an Oska Keyboard

In this tutorial you will learn:

- [How to start a new project and set up the keyboard](#)
- [How to add images to keys](#)
- [How to assign actions to keys](#)

Step 1: Starting a new project and setting up the keyboard

Note: It is worthwhile designing your idea and planning what you want on paper before you start a new project. This will mean you won't have to make as many adjustments later.

When you open Oska Editor it will automatically load the default keyboard.

The first step in making a keyboard is deciding how many rows and columns you will need to fit in all of the required keys.

In this tutorial we are going to make a UK QWERTY keyboard; therefore 15 columns and 7 rows should be sufficient for all of the keys and also a row for some shortcut buttons. You should also decide on the size of your keys at this stage. Keys can be wide, tall, both or neither. For this tutorial we are just going to have normal sized keys.

Set the columns and rows sliders to the appropriate settings and you should get a keyboard like this:



We are going to have a row of shortcut buttons at the top of the keyboard so we're going to create a gap between the first and second rows to make sure there's a clear distinction between typing keys and shortcut keys.

Increase the 'Gap after Row' to 1 and a gap should appear between the required rows.



Along the shortcut key row we're going to set the keys to twice the width of a normal key. Because we have an odd number of rows we need to hide the top-left key. To do this click on the top-left key and then click on 'Invisible' in the 'Colour' drop-down menu.



We also need to get rid of the text in the key. To do this, go to 'KeyText' and delete everything in the box. This should delete all text in the key and completely hide it.

Note: Hidden keys can still be selected. Do not be concerned if you can still see a red outline around a key; this will not be visible in the final keyboard.

The result should look like this:



Now we need to widen the keys along the top row. Select the left-most (visible) key on the top row and tick the 'DoubleWidth' checkbox which is found to the left of the 'Colour' drop-down.

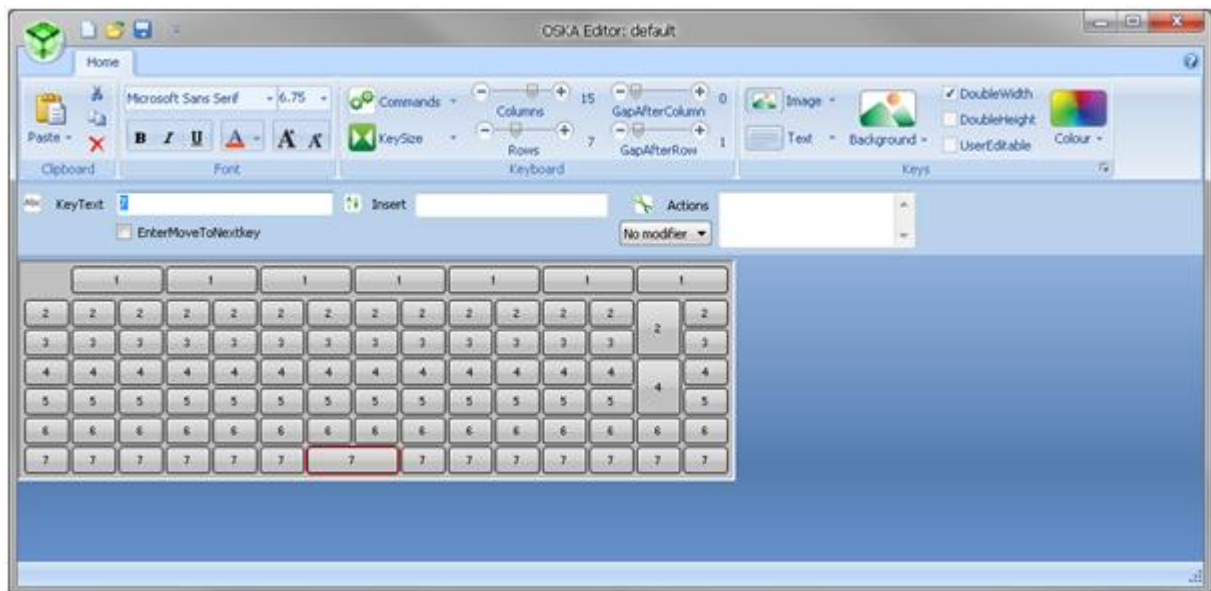
To assign this style to all of the keys along the top row you should first copy the key by either clicking on 'Copy' in the toolbar or by pressing the keyboard shortcut *Ctrl* + *C*. After this click on the next button along the top row and from the 'Paste' drop-down menu select 'ApplyStyleToKey'. Repeat this for each key in the top row and you should get this:



We're finished with the shortcut row for now so we're going to move onto creating some of the keyboards 'special' keys like Enter and Backspace.

Select the key second from the right on the second row and then tick the 'DoubleHeight' checkbox. Copy this key and paste the style to the key directly below.

To make the spacebar select the key that is seventh from the left on the bottom row and tick 'DoubleWidth'.



Now we will start adding text to some of the buttons. Select the spacebar and in the 'KeyText' box type 'Space'. This should change the text of the button.

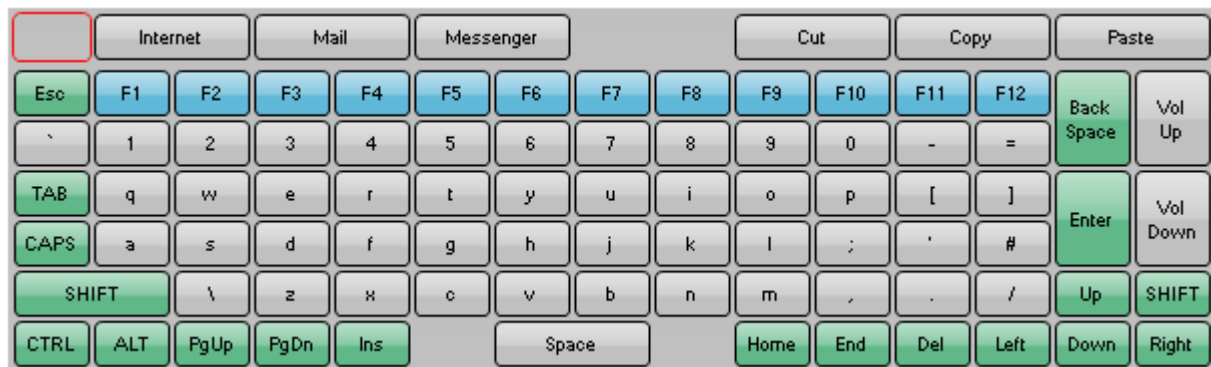
Note: If the text won't fit or is too small you can change the font by using the controls in the 'Font' area of the toolbar.

Also do this for the Enter and Backspace keys we created earlier (Backspace should appear above Enter) and you should have this:



To make the Backspace and Enter keys really stand out we're going to add some colour to them. Select the 'Enter' key and then select a green colour from the 'Colour' drop-down menu. Repeat this for 'Backspace'.

With this done you can now fill in the text for the remaining keys and set colours for important ones. The following is the design we created:



Note: If you have not recently saved your work, now would be a good time. Remember to use 'Save As' for your first save to avoid overwriting the default keyboard file.

Step 2: Adding images to keys

As well as making your keyboard look better, images can also improve the usability of your keyboard. In this section we will be adding icons to the keys in the shortcut row and the 'Vol Up' and 'Vol Down' keys.

Below are the icons used for this keyboard. A library of icons for you to user is provided with Oska. Free icons can also be found on the internet or you can make your own using image editing software.



First we will add an image for the 'Internet' key. To do this, click on the key and then select 'Browse' from the 'Image' drop-down menu. Find the image you wish to use and then click 'Open'. The image should appear on the key.

Note: Oska does not scale images. You may need to edit your images to fit them onto the keys.

To position the text and image so that they both fit use the 'Image' and 'Text' drop-downs. In the example the text is aligned to the right, the image is aligned to the left and both are centred vertically.

Continue to do this for each key that requires an image and you should get something similar to this:



Step 3: Adding actions to keys

The keyboard is looking good but so far it doesn't actually do anything; this is where actions come in.

We will start by adding actions to the alphanumeric keys on the keyboard so that they can be used to type things. The quickest way to do this is to click on 'CopyKeyText' in the 'Commands' drop-down menu. This copies all the text in the 'KeyText' into the 'Insert' text for each button. You could also go through each button individually and type the appropriate text to type in the 'Insert' box.

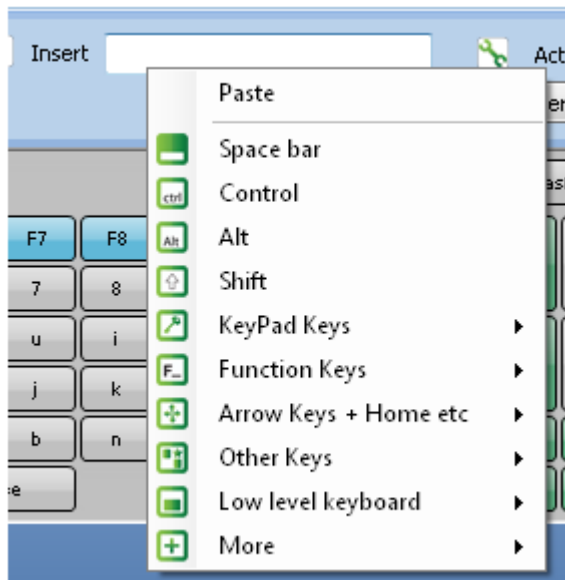
Next we will move onto adding actions to the shortcut keys. We want the first button to launch a web browser. Click on the 'Internet' button and delete the text in 'Insert' that was added when we used 'CopyKeyText'. Right-click on the textbox next to 'Actions' and select 'Control > Run Program'; this will insert the text '<Run:program name here>' into the 'Actions' box.



Replace 'program name here' with 'iexplore.exe'. When this key is pressed it will now run Internet Explorer.

Repeat this process for the 'Mail' and 'Messenger' keys, inserting the name of the process you wish to run when they are pressed.

The next buttons to add actions to are the 'Cur', 'Copy' and 'Paste' buttons. Select the 'Cur' button and delete all text from the 'Insert' box. Right-click on the 'Insert' box and a menu should appear showing all the options for keys to press.



Click on 'Control' and then type 'x'. This will cause the key to type *Ctrl* + *X* when it is pressed which is the common shortcut for cut.

Repeat these steps to insert *Ctrl* + *C* for 'Copy' and *Ctrl* + *V* for 'Paste'.

You should now be able to assign actions for all the other keys on the keyboard. Hint: the volume up and down actions are in the 'Actions' box but everything else is in the 'Insert' box.

The final thing to do is assign modifiers to the appropriate keys (i.e., Ctrl, Alt, Shift & Caps). Select the 'CAPS' key and select 'CAPS' from the modifier drop-down list next to the 'Actions' box. Repeat this for the 'Ctrl', 'Alt', and both 'Shift' keys, selecting an appropriate modifier in each case.

The keyboard is now finished. Open it in Oska Player and try it out.

Input Devices

There are many ways to operate an Oska keyboard. Some of these involve changing how the keyboard operates - see [Oska Settings Editor](#) for detailed descriptions. This covers using the mouse, the keyboard, and conventional switches.

However, Oska also includes many special and unique input devices, some using hardware and some software. These can be combined with an Oska keyboard, or used without an on-screen keyboard, or even with a different on-screen keyboard from Grid 2 or Clicker or Microsoft. They are still powerful new ways to operate the mouse or keyboard.

- [One Switch Mouse](#)
- [Joystick Mouse](#)
- [TenKey Mouse](#)
- [3D Mouse](#)

Additional Programs

You may want to use two types of additional program with any of the Oska Input Devices:

Autoclickers

This is a program that makes the mouse pointer automatically click when it stops moving for a short period. This is useful if you cannot operate a mouse button, but can move the mouse pointer. Simple ones let you do left/right/double-click, more advanced ones allow for greater configuration.





Keyboard remappers

These take input characters and remap them to other characters. This is useful if you have the input from an Input Device, like 0 or 1, and want to change this to work with a particular program that works with 1 and 2 as inputs.










One Switch Mouse

This program enables a user to control the mouse pointer using a single switch. The technique used is particularly suited to users who have good fine motor control, but poor gross motor control, such as people with muscular dystrophy. The technique is based on some ideas and developments that were originally undertaken in Japan. If used with an on-screen keyboard the user can both control the mouse and write. With practice we have seen this technique being used to control a mouse at surprisingly high speeds once a user is familiar with it and once their speed has increased.

- A. The user taps the switch quickly to select the direction for the mouse to move in

(right  , down  , left  or up ) and stops tapping when the direction is reached. After a brief pause the mouse starts to move in that direction. To change direction the user just taps the switch the appropriate number of times again. To click the mouse the user presses and holds the switch down (see below).

- B. The user holds the switch down to scan between the mouse control options:

1. Move - right  , down  , left  , up 
2. Stop - don't perform any more mouse actions until the switch is pressed again 
3. Left click 
4. Right click 
5. Double click 
6. Drag 

Running the program

You can run the program through the Start menu or through the Ease of Access Centre in Windows Vista or 7.

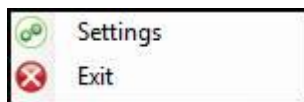
Its icon will appear in the system tray at the bottom right hand corner of your screen.



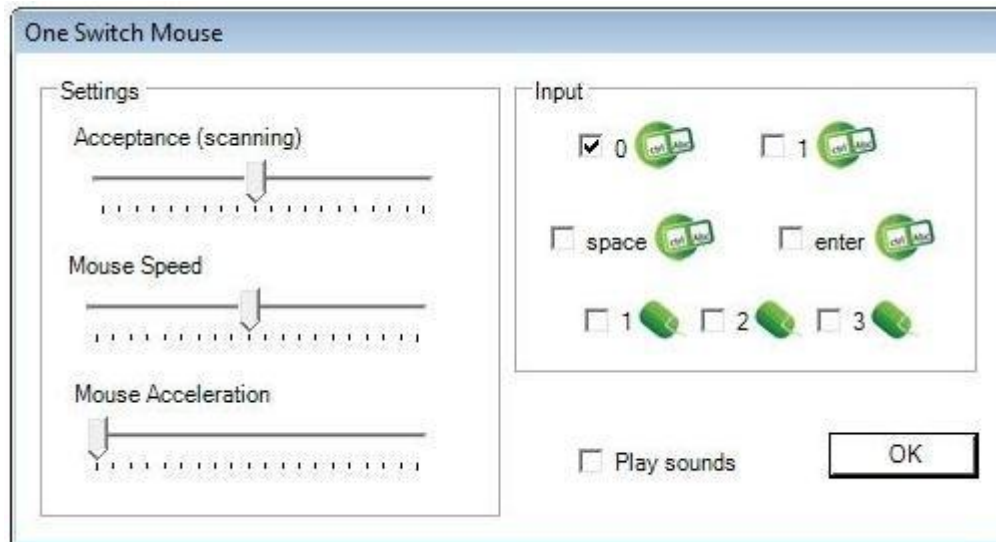
You can then operate the mouse as above.

Changing the speed of the One Switch Mouse

Right click on the One Switch Mouse icon in the system tray and you will be given two options



Choose the Settings option and the Settings dialog will be displayed.



Acceptance Speed (between 1/10th second and 2 seconds)

A switch tap (to step between directions) must be less than this value.

If you hold down a switch this is the scanning speed for the mouse options: (move, left click, right click, and double click).

With experience a 'typical' user with muscular dystrophy may tend towards being comfortable with an Acceptance Setting of 3, i.e. 3/10ths of a second.

Mouse speed

How quickly the mouse pointer moves. You may want to set this to be suitable both for the user and for the applications that they are using.

Mouse Acceleration

How quickly the mouse pointer accelerates. You may want to set this to be suitable both for the user and for the applications that they are using.

Input devices

The 'switch' used to control this software can either be the key '0' (zero), the key '1', the space bar, or enter key. Just check one of the four boxes. A switch controller box usually emulates pressing one of these keys, so make sure the selection matches your switch key.

You can also use mouse buttons: 1 (left mouse button) 2 (right mouse button) or 3 (third mouse button, sometimes the scroll wheel.)

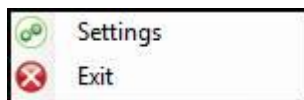
You can also use a standard joystick or gamepad: One Switch Mouse will detect it and it will just work without you having to change anything.

Play Sound

Whether to play a sound when the switch is pressed and/or scans.

Closing down the One Switch Mouse

Right click on the One Switch Mouse icon in the system tray and you will be given two options. Choose the Exit button and the program will close down.



Acknowledgements

We would like to thank Professor Takuro Hatakeyama, Waseda University, Japan whose ideas and work have inspired this system.

Joystick Mouse

Joystick Mouse enables a user to control the mouse pointer using any joystick or gamepad controller. This can be useful because these devices are cheap and easy to find, are mainstream technology so may be more acceptable to a user, and are often used in other settings (to play games!) so users have acquired the ability to use them well.

Any game controller will work. The joystick and two fire buttons are used, nothing else, no matter what the joystick looks like or how many buttons it has. You can check in Control Panel that your joystick has been recognised - if it is not there then Joystick Mouse will not work.

You must plug in the joystick before you can use it, or you will simply see a message saying "Unable to create a Joystick Device. Sample will exit" and the program will quit.

Once Joystick Mouse has been started the program icon will appear in the Windows Toolbar.



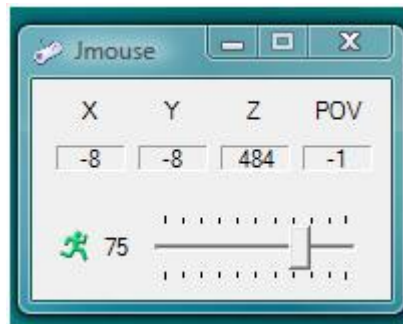
To control the mouse cursor you have to move the joystick or gamepad Controller. The mouse cursor will move in the direction that the joystick is being held.

When the joystick or gamepad controller is returned to the centre the mouse will stop in its current position.

The fire buttons on the joystick or gamepad are used to for left and right mouse clicks. These may be labelled A and B or 1 and 2 or be the trigger and the thumb button. Button one will do a left click and button two will do a right click. Press button one twice quickly to double-click and hold down button two to do a click-and-drag.

Changing the speed of Joystick Mouse

To change the speed of Joystick Mouse click on the program icon in the toolbar. The Joystick Mouse Setting screen will now appear.



To change the speed of Joystick Mouse use the slider. Moving the slider left will decrease the maximum mouse cursor speed and moving the cursor right will increase the maximum mouse cursor speed.

TenKey Mouse

TenKey Mouse lets you use the numeric keypad at the right of a computer keyboard to operate the mouse. You can also use a USB device with a numeric keypad on it - many of these are available with very small numeric keypads, suitable for people with limited movement.



When running, TenKey mouse appear as an icon will appear in the notification area (system tray) of the Windows Taskbar.



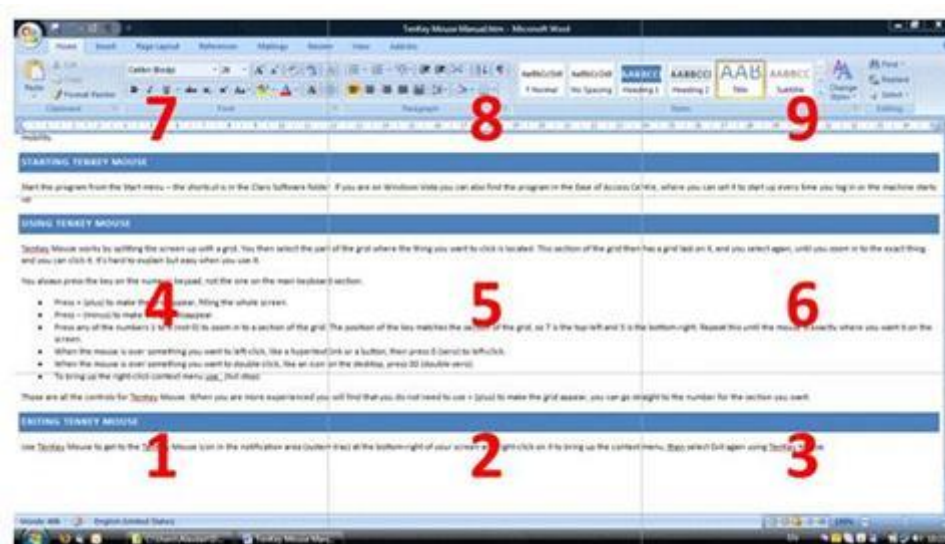
Controlling TenKey Mouse

TenKey Mouse is controlled by using the buttons found on a numeric keypad. The controls are:

- Press + (plus key) to go into **Grid mode** - the grid will appear, filling the whole screen.
 - Now press any of the numbers 1 to 9 (not 0) to zoom in to a section of the grid. The position of the key matches the section of the grid, so 7 is bottom left and 3 is bottom right.
 - Press + to go back to the whole screen at any time.
- Press * (asterisk) or / (forward slash) to go into **Mouse mode**. The grid will disappear.
 - You can now move the mouse around by pressing the number keys - 7 is "go up and left", 3 is "go right and down" and so on.
- To left-click (in either mode) press the 0 (zero) key.
- To double-click press the 0 (zero) key twice, quickly. You can also use a "00" or "000" key if you have one.
- You can right-click by pressing the "." (full stop) key.
- You can click and drag by holding down the 0 (zero) key.

Understanding how the Grid mode works

TenKey Mouse works by splitting the screen up with a grid (see picture below). This grid corresponds to the layout of a standard numeric keypad.



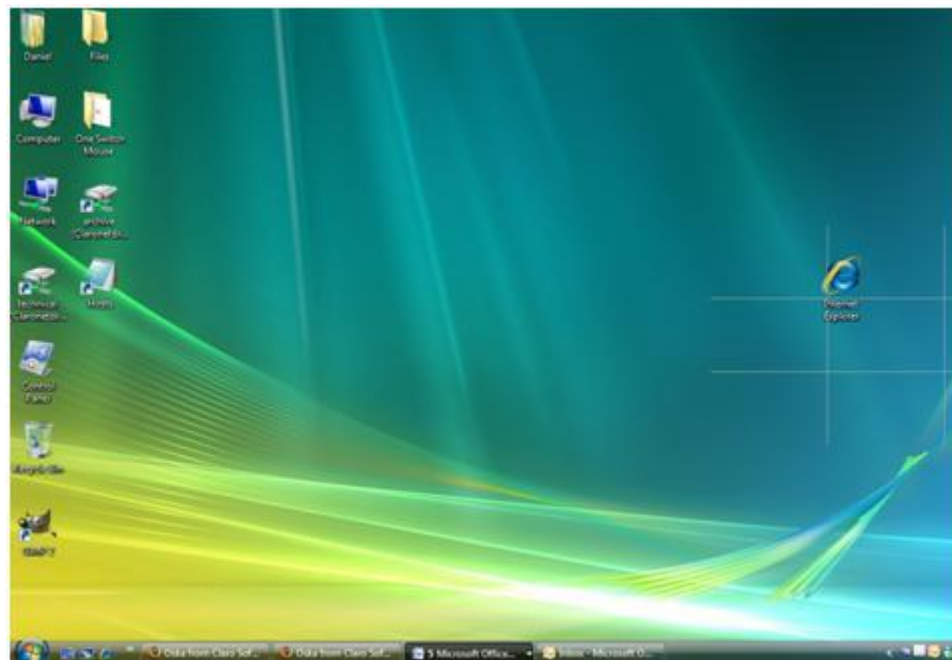
Using the numbers on the numeric keypad, you then select the corresponding part of the grid where the item is located.

In the following example, the aim is to open an internet page by clicking on Internet Explorer. With TenKey Mouse activated, you would select the middle left box by pressing

the "6" key. This is because the Internet Explorer icon is located in the middle left box of the grid.



After select the '6' key a new 3x3 grid will then be laid over that part of the screen (see image below). The mouse cursor will be moved to the middle of the middle square of the 3x3 grid. The move the mouse again you use the number keys that correspond with the new grid. In the example below the mouse cursor needs to move to the Middle Top box. To do this select the '8' key.



Again, a new 3 x 3 grid is created allowing for a greater degree of accuracy. The process of selecting a new area of the grid can continue until the mouse is exactly where you want it. In this example selecting the bottom left box will move the mouse cursor directly over the Internet Explorer icon. To do this, press the '1' key.



Once the mouse cursor is positioned exactly where it is needed, a left click is performed by clicking on the '0' (zero) key. In the example below the mouse cursor is now positioned over the Internet Explorer icon. Pressing the Zero key will activate the program.



Closing TenKey Mouse

To close the TenKey Mouse application you will need to right click on the TenKey Mouse application icon in the system tray of the Windows Toolbar. A new dialogue box will appear. Now press NumLock to stop TenKey mouse operating. Cursor up using the 8 (eight) key and press return on "Exit" to close One Key Mouse.

