Pretorian
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INSTRUCTIONS

Ultimate Switchbox

Pack Contents
Carefully check the contents of the box, which are:
Ultimate Switchbox unit
Instructions for use

Product Description

Ultimate Switchbox is a highly flexible USB switch interface specifically designed for use with assistive switches. Six 3.5mm sockets are provided, the functions of which are set by selecting one of four Levels. Each socket on every Level is completely programmable to any one of over a hundred settings, which encompasses all keyboard keystrokes as well as a suite of mouse and gamepad functions.

A seventh socket is dedicated to changing Level so the user can navigate between Levels without requiring assistance. Alternatively, this may be achieved using a button on the fascia of **Ultimate Switchbox**.

The unit ships with carefully selected default settings assigned to each of the sockets on every Level, meaning that in many cases, no configuration is required. If the settings need to be changed, simply go into Learn Mode and set each one in turn

according to your exact requirements. Once changed, they are saved in internal memory and automatically recalled, even when taking the unit from device to device. As with all Pretorian products, **Ultimate Switchbox** requires no drivers- simply plug and play!

Four macros can be configured to give sequences of up to four keystrokes and these can be assigned to any socket on any Level.

Any keyboard keystroke can be configured to have 'modifier keys' assigned to it such as Shift, Control or Alt. Most functions can optionally be made to be latching.

Left click, right click, double click and drag mouse functions can also be configured together with up, down, left and right cursor movement at one of three cursor speeds. Four gamepad button settings are also available.

- Designed to allow ANY keystroke to be configured
- Modifier keys can be added to any keystroke
- Includes keyboard, mouse and gamepad settings
- Carefully selected default settings mean that in many cases no configuration is required
- Simple or Advanced configuration
- Four Levels, selectable using a dedicated switch or integral button
- Six 3.5mm jack socket inputs allow any style of switch to be used
- Seventh 3.5mm socket to allow Level to be selected by user
- Easy 'plug and play' installation, does not require driver software.
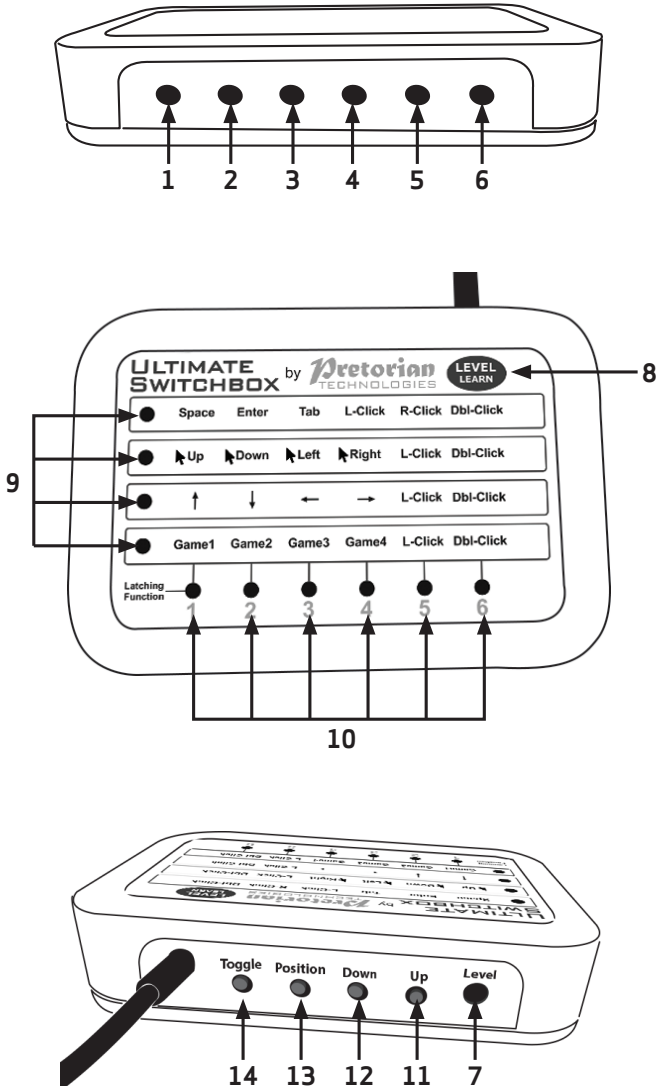
Compatibility

Ultimate Switchbox works on any USB compatible computer but is primarily intended for PCs, Macs and Chromebooks. It will work on iPads and iPhones, although some functions are not supported by iOS.

Installation

Simply plug your **Ultimate Switchbox** into a spare USB socket on your computer. It doesn't matter whether the computer is on or off. The first time you install **Ultimate Switchbox** the operating system may take a few seconds to build a driver. There are no driver files to load onto the computer- the computer's resident drivers are always used to help simplify installation.

Getting Started

Ultimate Switchbox is supplied set to Level 1, giving access to Space, Enter, Left Click, Middle Click, Right Click and Double Click by default- see Table 1. To change Level, you can either press a switch plugged into the Level socket [7] or press the Level button [8]. The Level button is ideal when a user needs support to change Level, whereas the Level socket may be used to empower the user to do it for themselves.

Each time the Level is changed, the Level LEDs [9] change to show the current Level.

	Socket 1	Socket 2	Socket 3	Socket 4	Socket 5	Socket 6
Level 1	Space	Enter	Left Click	Middle Click	Right Click	Double Click
Level 2	Cursor Up	Cursor Down	Cursor Left	Cursor Right	Left Click	Double Click
Level 3	Up Key	Down Key	Left Key	Right Key	Left Click	Double Click
Level 4	Gamepad 1	Gamepad 2	Gamepad 3	Gamepad 4	F7	F8

Table 1: **Ultimate Switchbox** default functions

Note that the functions listed in Table 1 are the defaults that the unit is supplied with. These may be changed at any time using Learn Mode- see below.

Any functions that may be on-going as you change Level will be cancelled automatically to prevent keys running on indefinitely. This is especially important when any function is set to latching.

Learn Mode

Learn Mode is used to set the functions of each socket as well as the functions in each Macro (where used). All are stored in the device's memory and are automatically recalled each time the unit is powered on, even when it is moved to a different computer.

Before entering Learn Mode, open a text editor on your computer such as Notepad, WordPad or Word and ensure it has 'focus' by clicking within it. Now **press and hold** the Level button [8] until all the Level LEDS [8] light, to enter Learn Mode.

Note: While you are in Learn Mode, please don't click away from the text editor and do not type anything on the computer keyboard. Note that you cannot use the Level Socket [7] to enter Learn Mode.

The moment you enter Learn Mode you will begin to see text appear in the text editor asking you to choose between Simple or Advanced configuration. Simple configuration does not allow modifiers to be added to keystrokes, nor latching to be selected. It is advisable to begin by using Simple configuration and then changing to Advanced once you have gained some familiarity.
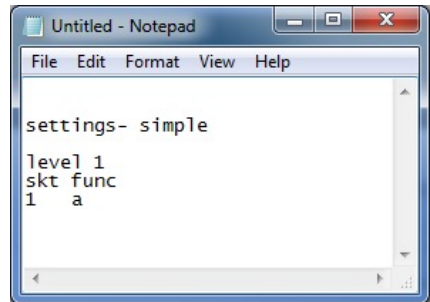
Use the Up or Down button [11,12] to choose which you would like to use and when you see the correct setting, press the Level/Learn button [8] briefly to begin making changes.

settings- advanced
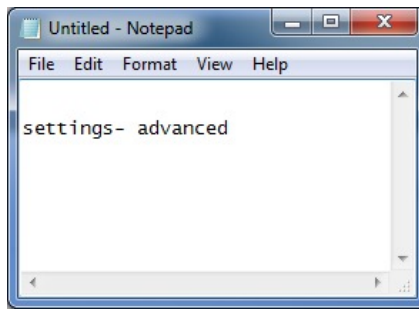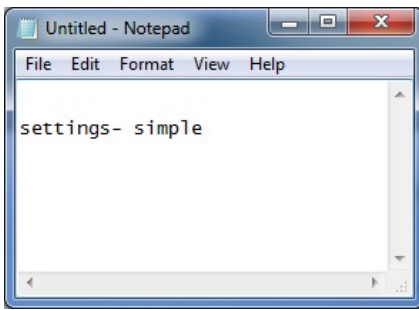
Please then follow the instructions below according to which configuration type you have chosen.
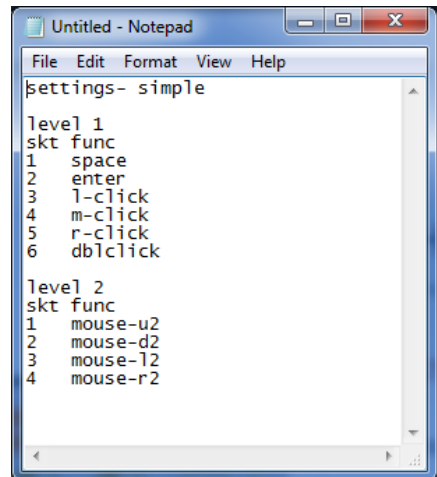
Simple Configuration

The settings are listed beginning at socket 1 of the Level the unit is currently set to. The Up and Down buttons [11,12] are used to change the setting for any socket. All settings are listed in Table 2. You do not necessarily need to make any changes- if the current socket is set as you wish, simply press the Level button [8] to go to the next socket.

```
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settings- simple

level 1
skt func
1    a
```

Once the correct function appears, press Level/Learn button [8] briefly to go to the next socket. Once you reach socket 6, a further press of Level/Learn will take you to Socket 1 of the next Level. Once you reach Level 4, socket 6 the next press will take you to the Macro settings if any have been selected, or back to Level 1, socket 1 if not. If you are configuring Macros, please see below for detailed instructions.

You may continue configuring the settings for as long as you wish and when you are happy with them, press and hold Level/Learn [8] to exit learn mode. The Level LEDs [9] will be extinguished except for the one showing the current Level. You will see 'leaving learn mode' appear in the text editor. You may close the text editor at this point and there is no need to save changes in the editor when asked.

If you do not make any changes in Learn Mode for a period of two minutes, the unit will automatically exit Learn Mode, although any changes to the socket functions will be saved in memory as if you had exited manually.

```
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File   Edit   Format   View   Help
settings- simple

level 1
skt func
1    space
2    enter
3    l-click
4    m-click
5    r-click
6    dblclick

level 2
skt func
1    mouse-u2
2    mouse-d2
3    mouse-l2
4    mouse-r2
```

An introduction to Modifiers

Modifier keys are the keys that are used on all keyboards to modify the basic key functions. This includes Shift, Ctrl, Alt and Gui (the Windows key ⊞ on a PC or Command key ⌘ on a Mac).

Advanced Configuration allows you to choose which, if any, Modifier keys are sent at the same time as the basic keystroke. This can be useful in many situations, for example to cut and paste using Ctrl-C and Ctrl-V or to close an application using Ctrl-Alt-Delete, all by pressing a single switch.

Ultimate Switchbox allows you either to allocate a switch to be a dedicated Modifier key or alternatively add Modifiers to a particular key so that they will be sent simultaneously with that key. Which you will need very much depends on the situation and the user's needs. For example, if you set one switch to Shift (which you can do either in Simple or Advanced Configuration) and another switch to 's', this allows you to send either lower case 's' if you press one switch, or capital 'S' if you press both.

When setting any switch to be a dedicated Modifier, you can choose between Momentary Modifiers, which will apply as long as the switch is held down, or you can set them to be Latching, which means that they will remain active until they are next pressed. This can be useful when the user can't press more than one switch at a time. The Latching LEDs [10] adjacent to each socket will show when a latch is on.

Equally useful are Sticky Modifiers, which stay set once pressed either until another switch is pressed and released, or the sticky watchdog timer times out. This is set to 20 seconds and is included to prevent sticky modifiers remaining set for long periods when no further switches are pressed to cancel them. You can also cancel a Sticky Modifier by pressing the sticky modifier switch a second time. Again, the Latching LEDs [10] will show when a Sticky Modifier is on.

When setting a switch to a keystroke with Modifiers, you will need to use Advanced Configuration which is similar to Simple Configuration but to the right of each setting are the Modifiers and Latch settings. The nomenclature is as follows:

      c- Ctrl Modifier key

      s- Shift Modifier key

      a- Alt Modifier key

      g- Gui Modifier key

A dash indicates that the Modifier is not set, whereas the corresponding letter (s for Shift, c for Ctrl, a for Alt, or g for Gui) indicates that it is set. So, for example, socket 1 below will give shift-a, socket 2 will give alt-c and socket 3 will give z without any modifiers:

skt	func	csagl
1	a	-s---
2	c	--a--
3	z	-----

There is no limit to the combinations of Modifiers that are possible, so settings such as Ctl-Alt-c could be set as follows:

skt	func	csagl
1	c	c-a--

Similarly, Ctrl-Alt- capital C could be selected by also setting shift:

skt	func	csagl
1	c	csa--

Modifiers can be added to any keyboard keystroke but not to mouse, gamepad or Macros. Whenever you see an x, this indicates that a particular Modifier cannot be set for the selected function.

Latching functions are not strictly speaking Modifiers but are handled in **Ultimate Switchbox** as if they are. Again, latching can be set along with any of the other modifiers so latching shifted-a can be set like so:
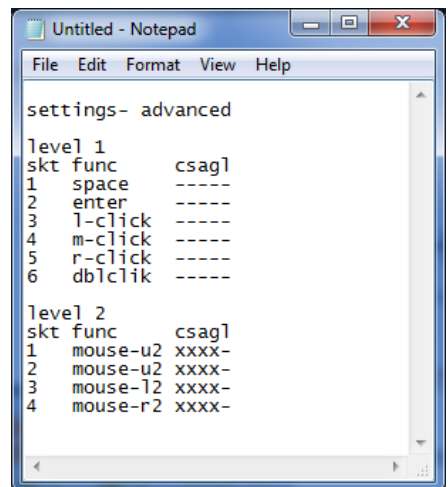
skt	func	csagl
1	a	-s--l

Advanced Configuration

Setting the basic function for each socket is exactly the same as with Simple Configuration, using the Up and Down keys [11, 12]. To change the Modifier settings, use the Position and Toggle keys [13, 14]. The Position key changes the position of the cursor and the Toggle key changes the setting immediately after the cursor position.

Items marked with an x cannot be changed. For example, Modifiers can only be added to keyboard keystrokes and not to mouse or gamepad functions, Macros or dedicated Modifier functions. Similarly, Latching cannot be applied to Macros, double left click or dedicated Modifier functions. Table 2 specifies which Modifiers can be set for each function.

Important Note: If Modifiers and/or Latching have been selected in Advanced Configuration and Simple Configuration is subsequently used to make further changes, the Modifiers/ Latching are not cancelled even though they cannot be seen. They can only be changed within Advanced Configuration and will continue to apply until then.

```
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settings- advanced

level 1
skt func      csagl
1    space    -----
2    enter    -----
3    l-click  -----
4    m-click  -----
5    r-click  -----
6    dblclik  -----

level 2
skt func      csagl
1    mouse-u2 xxxx-
2    mouse-u2 xxxx-
3    mouse-l2 xxxx-
4    mouse-r2 xxxx-
```

Function	No. of functions	Modifiers permitted?	Latching permitted?
Null (no keystroke)	1	Y	Y
Letters a-z	26	Y	Y
Numbers 0-9	10	Y	Y
↑ ↓ ← → keys	4	Y	Y
Space, Enter, Tab	3	Y	Y
All punctuation marks	12	Y	Y
Escape, Backspace, Caps	3	Y	Y
F1-F12	12	Y	Y
Macros 1-4	4	N	N
Momentary Modifier keys (Shift, Alt, Ctrl, Gui)	4	N	N
Sticky Modifier keys	4	N	N
Latching Modifier keys	4	N	N
Left Click, Middle Click, Right Click	3	N	Y
Double Left Click	1	N	N
Cursor Up, Down, Left Right, Speed 1 (lowest)	4	N	Y
Cursor Up, Down, Left Right, Speed 2	4	N	Y
Cursor Up, Down, Left Right, Speed 3 (highest)	4	N	Y
Gamepad 1-4	4	N	Y

Table 2: Available functions

Notes relating to Modifiers

USB treats all keyboards that are plugged into a computer as if they were a single keyboard. This brings with it certain restrictions that Pretorian cannot influence and, when using Modifiers, you should be aware of:

As with a standard keyboard, Modifier keys apply to ALL other keys simultaneously. Therefore, if a switch set to Latching Shift is pressed and then two sockets set to a and b are pressed consecutively, the result will be AB.

Similarly, if one switch is set to shift-c and another to z, the result of both bring pressed simultaneosuly is CZ and not Cz. These basic rules can be extended to include all Modifiers, no matter how they are configured.

Drag Lock

Drag Lock is the name commonly associated with latching Left Click and is available on many Pretorian products. To set a switch to Drag Lock on Ultimate Switchbox, set it to latching Left Click, as follows:
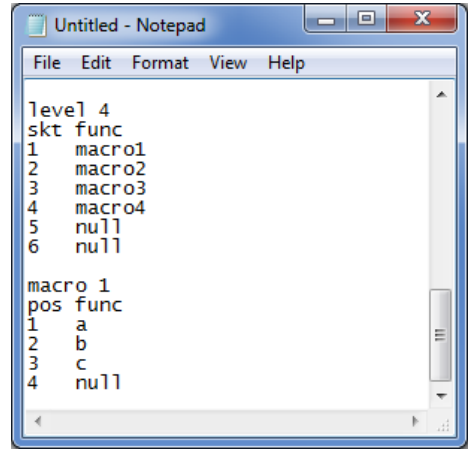
```
skt func  csagl
1  l-click xxxxl
```

Working with Macros

Four macros can be configured in Learn Mode and may be applied to any socket on any Level, meaning that they can exist on more than one Level if necessary. Each Macro can be up to four keystrokes in length and is restricted to keyboard keystrokes only. Where fewer than four keystrokes are required, simply set unused entries to 'null'. It is advisable to put any nulls at the end of the sequence.

It is important to note that in Learn Mode, the Macros will only be available for modification if a Macro has been selected as the function for one or more sockets. Please, therefore, set the sockets accordingly first.

Then, when Level 4, socket 6 is reached, pressing Level/Learn [8] once more will show the first keystroke of Macro 1, as follows. (Note that although this depicts Simple Configuration, the same process applies to Advanced Configuration.

```
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level 4
skt func
1    macro1
2    macro2
3    macro3
4    macro4
5    null
6    null

macro 1
pos func
1    a
2    b
3    c
4    null
```

When a switch is pressed that has been assigned to a macro, the unit sends each keystroke in turn. In the above example the result of pressing switch 1 on Level 4 would be 'abc'.

Legends

Your **Ultimate Switchbox** is provided with stickers which fit over the default legends, allowing you to write on any new settings you may make. A whiteboard pen is ideal for this as it can be changed easily.

Power On Settings

When the unit is powered up, either because it was previously unplugged or because the computer was powered off, all of the socket and Macro settings are recalled and also the previous Level setting, allowing the user to continue from where they left off.

Maintenance

Your **Ultimate Switchbox** has no user serviceable parts. If repair becomes necessary, the unit should be returned to Pretorian Technologies or an authorised distributor.

Warranty

Your **Ultimate Switchbox** is warranted for 24 months from the date of purchase against defects in manufacture or component failure. The unit is designed for domestic, educational, commercial and a limited range of medical applications. Use outside these areas will invalidate the warranty. Unauthorised repair or modification, mechanical abuse, immersion in any liquid or connection to any equipment other than a compatible host computer will invalidate the warranty.

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