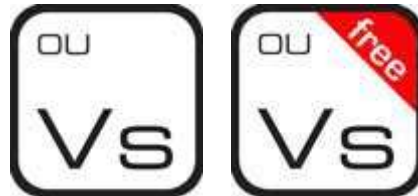


element^{OU}Vs



Virtual Element Panels For Your Tablet

User Manual v1.0.2 rev1

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Table of Contents

1. About this manual	2
2. About element-Vs	2
3. Requirements.....	3
4. Step by step guide to setting up element-Vs for the first time	4
5. The four Element panel types	5
6. The controls and how to use them	6
7. Control display area	7
8. Navigating between panels	7
9. Connection preferences	8
10. Pairing your tablet with your grading software	9
11. Using the element-Vs to extend your Element panels	10
11.1 My grading software does not support the Tangent Mapper	10
11.2 My grading software supports the Tangent Mapper	10
12. Adding more than one tablet to your grading software	10
13. Sensitivity of the controls.....	10
14. Connection lost indication – animated dots under the cog icon	11
15. Limitations of the free version.....	11
16. Firewall troubleshooting	12
16.1 Apple OS X Firewall.....	12
16.2 Microsoft Windows Firewall	13
16.3 Router firewalls.....	13
17. Ad Hoc networking with iPads	14
17.1 Apple OS X Ad Hoc network.....	14
17.2 Microsoft Windows Ad Hoc network.....	14
17.3 Connecting an iPad to the Ad Hoc network.....	14

1. About this manual

This manual applies to the element-Vs virtual control panel.

This manual does not tell you how to use the panel with your software. For that information please contact your grading software manufacturer.

If you find any errors with this manual or you have any suggestions then please contact Tangent Wave. It is only through your feedback and suggestions that we can improve our services and products.

We use the word “tablet” in this manual to refer to any touch surface supported by element-Vs.

2. About element-Vs

The element-Vs is a virtual version of the four panels that make up the Element panel series by Tangent Wave Ltd.

Communication with your grading software is via Wi-Fi. Make sure the computer running your software and your tablet are on the same network.

Every panel is presented in exactly the same layout as the real Element panels.

All the controls are mapped on the element-Vs in exactly the same way as the real Element panels. What the controls do depends on the grading software you are using the panel with. You should refer to the control mappings for the Element panels provided by your software manufacturer.

The element-Vs is fully multi-touch, so you can use different controls simultaneously.

You do not need to own the real Element panels in order to use the element-Vs.

You can use the element-Vs at the same time as your real Element panels. When you do this the controls will reflect any changes and information that happen to either real or virtual panels.

If you do not own all the Element panels you can use the element-Vs to provide virtual versions of the panels you do not own.

If your grading software supports the Tangent Mapper then you can add as many virtual panels as you want.

You can add multiple tablets and have each one representing a particular panel to build a truly virtual “glass” panel.

A free version is available. See the section **Limitations of the free version**.

3. Requirements

- Any generation Apple iPad. Any Android tablet with 7" screen or better.
- Any software that supports the Tangent Element panels and uses the Tangent Hub software. See the Applications List on the Support page of our website www.tangentwave.co.uk for a list of these.
- Wireless network - your tablet and the computer running your grading software must be on the same network. If you are using iPads it is possible to create an ad hoc network to directly link the tablets and the computer when no other Wi-Fi network is available. Android tablets do not currently support this functionality.
- You must install the latest Tangent Hub software on your computer. This is available to download from the Support page of our website www.tangentwave.co.uk.

4. Step by step guide to setting up element-Vs for the first time

Please follow the exact steps below in order to set up your element-Vs for the first time.

- 1) Install the element-Vs app on your tablet.
- 2) Make sure your tablet is connected to the same Wi-Fi network as your computer running your grading software.
- 3) Install the Tangent Hub software on your computer. You will find this on the support page of our website www.tangentwave.co.uk.
- 4) **Make sure your firewall on your computer is set to allow access to the Tangent Hub.**
- 5) Run your grading software on your computer. **Make sure Element is selected as the panel type in your grading software preferences.**
- 6) Run the Tangent Mapper application and in the menu File - Panel Configurations... click on Enable Pairing Mode. **Leave the Panel Configuration window open for now.**
- 7) Launch the element-Vs app.
- 8) You will be prompted to choose the computer running the Tangent Hub and your grading software. Make sure you choose the correct computer. If your computer doesn't appear straight away wait a few seconds – the list of available computers is updated every 5 seconds. The computer choice is saved and will be used the next time the app runs.
- 9) You can now close the Tangent Mapper Panel Configuration window by pressing Cancel and quit the Tangent Mapper.

You should now see the displays on the element-Vs app update to show the controls for your grading software. If the displays do not show the controls for your software then restart your software.

Everything is now setup to use the element-Vs. Please read the remaining sections of this manual for more information on the controls.

You can also find more information in the sections **Connection preferences** and **Pairing your tablet with your computer**.

5. The four Element panel types

The four Element panels in the app are visually identical to the real panels.



Tk



Mf



Kb



Bt

6. The controls and how to use them

The functions the controls are mapped to will depend on how your Element panels are mapped to your grading software. The controls are mapped in exactly the same way and layout as the Element panels in your grading software. You should refer the user manual for your grading software for information how the Element panels are mapped.

Button:



Press on the button to select its function.

The function it controls will depend on how your Element panels are mapped to your grading software.

Knob:



Press on the knob and whilst holding your finger down move it a little way from the knob. Now rotate your finger around the knob.

When the desired value is reached remove your finger from the screen.

The function it controls will depend on how your Element panels are mapped to your grading software.

To reset a knob to its default value press once on the knob.

Ball:



Place your finger on the red ball, and whilst holding your finger down stroke your finger in the direction you want the ball to move. Repeat the process until the desired value is reached.

Note that the ball has momentum, so if you rapidly stroke your finger in a particular direction the ball will continue to rotate in that direction for a short time after you remove your finger.

The function it controls will depend on how your Element panels are mapped to your grading software.



In general this button will reset the ball control if your grading software supports that feature.

Ring:



Place your finger on the ring and whilst holding your finger down rotate it around the ring. Even if you move your finger on the screen away from the ring the ring control will still remain active so you can move until you take your finger off the screen.

Note that the ring has momentum, so if you rapidly stroke your finger in a particular direction the ring will continue to rotate in that direction for a short time after you remove your finger.

The function it controls will depend on how your Element panels are mapped to your grading software.



In general this button will reset the ring control if your grading software supports that feature.

Transport buttons:



The buttons shown above are duplicates of the “transport” buttons found on the real Mf panel. They are duplicated on every virtual panel so you have access to the transport functions no matter what panel you are viewing.

The functions they control will depend on how your Element panels are mapped to your grading software.

A and B buttons:



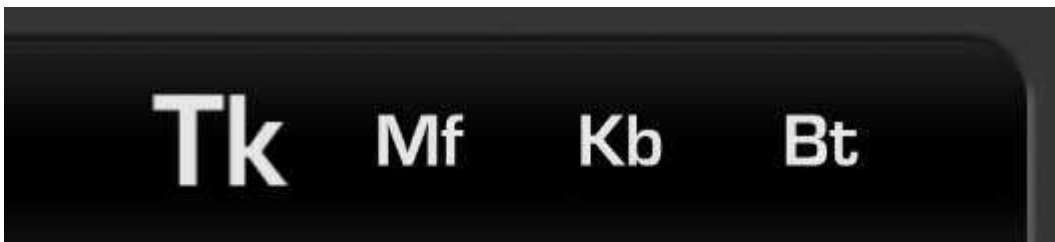
The functions these buttons control will depend on how your Element panels are mapped to your grading software.

7. Control display area



The area at the top of each panel is used to label what the controls do and provide feedback on the controls. This is the same as what appears on the real Element panels. What information is displayed will depend on your grading software.

8. Navigating between panels

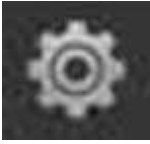


The area of the app shown above allows you to navigate between the different virtual Element panels. To select a different panel touch the name of panel you want to view. Its name will be then be highlighted. In the above example it is the Tk panel that is currently selected.

Alternatively, you can swipe across (left to right, or right to left) the main display area of your tablet.

If you have more than four panels in configured in your software then the above area can be swiped (left to right, or right to left) to show the other panels.

9. Connection preferences



The cog in the top left corner of the screen allows you to access the app connection preferences. Press on it to open the Connection Preferences window.



The above shows the app Connection Preferences window. The highlighted computer is the one that the element-Vs is controlling. Any computer running the Tangent Hub software and that is on the same network will be shown in this window, providing the computer is in the Tangent Mapper Pairing Mode or has been previously paired with this tablet. The list is updated every 5 seconds. Any changes you make in this window are saved and will be used the next time the app runs.

To put the computer running your grading software into pairing mode you need to run the Tangent Mapper application on the computer. In the menu File - Panel Configurations... click on Enable Pairing Mode. Shown below is the Panel Configuration window in the Tangent Mapper application.



Leave the Panel Configuration window open whilst you are pairing the computer with the element-Vs. Pairing mode is automatically stopped when the Panel Configuration window is closed and you quit the Tangent Mapper. Both the computer and the app will remember this pairing for the next time you run them.

If you want to clear all pairings you can click on Forget All Pairings. This applies to the computer that is running your grading software and not your tablet running the app.

See the Tangent Mapper user manual in the Tangent Hub section on the Support page of our website. Also see the section **Pairing your tablet with grading software**.

10. Pairing your tablet with your grading software

- 1) On your computer which has the Tangent Hub and your grading software installed, run the Tangent Mapper application and in the menu File - Panel Configurations... click on Enable Pairing Mode. Leave the Panel Configuration window open for now.
- 2) Launch the element-Vs app.
- 3) In element-Vs click on the Panel cog icon in the top left corner of the display. This will open the Connection Preferences window.
- 4) You will see a list of all computers running the Tangent Hub and are in pairing mode or have been paired before. Make sure you choose the correct computer from the list. If your computer doesn't appear straight away wait a few seconds – the list of available computers is updated every 5 seconds. The computer choice is saved and will be used the next time the app runs.
- 5) You can now close the Tangent Mapper Panel Configuration window by pressing Cancel (there is nothing to apply) and quit the Tangent Mapper.

For more information see the section **Connection preferences**.

11. Using the element-Vs to extend your Element panels

One of the uses for the element-Vs app is extending your real Element panels by adding additional virtual panels with the app.

There are two situations depending on if your grading software supports the Tangent Mapper. If you are not sure if your grading software supports the Tangent Mapper then refer to the Applications List on the Support page of our website.

11.1 My grading software does not support the Tangent Mapper

In this case, you can only ever have the same number and type of Element panels that your application supports. So, you cannot add “extra” panels to the element-Vs beyond these.

However, if you do not own all the real panels supported by your application, then when you connect element-Vs, those panels will be there as virtual versions in the app. So for example, if you not own the real Bt panel you can use the element-Vs as a virtual Bt panel.

By default, the Tangent Hub will have all four Element types added in the Tangent Mapper, so you should not need to do anything. However, if a panel does appear in the element-Vs, then check that your grading software supports that panel, and then check that you have that panel added in the Tangent Mapper. See the Tangent Mapper user manual in the Tangent Hub section on the Support page of our website.

11.2 My grading software supports the Tangent Mapper

You can add as many Element panels to your application as you want. As the element-Vs just reflects what real Element panels you have added / enabled in the Tangent Mapper, any panels you add will appear in the app. Even if you don't own the real panels, you can still add them to the Tangent Mapper and map them just as if you had them. The panels will then appear in the element-Vs app fully mapped.

The same applies if you do not own all the Element panel types. You can add the panel to the Tangent Mapper and it will appear in the element-Vs.

See the Tangent Mapper user manual in the Tangent Hub section on the Support page of our website.

12. Adding more than one tablet to your grading software

You can add more than one tablet to your grading software. Just follow the steps in the section **Pairing your tablet with your grading software**. You can repeat this for as many tablets as you like. You can then leave each tablet on the screen to represent the panel you want it to be.

13. Sensitivity of the controls

If your grading software supports the Tangent Mapper then you can set the sensitivity of the controls in the Tangent Mapper. Note that you change the sensitivity for the equivalent real Element panel, so changes will affect the real panel and the app. If you are not sure if your grading software supports the Tangent Mapper then refer to the

Applications List on the Support page of our website. See the Tangent Mapper user manual in the Tangent Hub section on the Support page of our website.

If your application does not support the Tangent Mapper then the sensitivity of the controls can only be adjusted in your grading software. Refer to the user manual for your grading software. Note that you change the sensitivity for the equivalent real Element panel, so changes will affect the real panel and the app.

14. Connection lost indication – animated dots under the cog icon

If three animated “dots” appear under the cog icon in the top left corner of the tablet display then this means the Wi-Fi connection has been lost to your grading software.



Check your wireless network, and check that the element-Vs is paired to a computer running the Tangent Hub and your grading software. Refer to the section **Pairing your tablet with your grading software** for more details on pairing.

15. Limitations of the free version

After you have used the free version for 1 hour you will be reminded that it is the free version and you should consider buying the app. You can then continue to use the app again the following day.

16. Firewall troubleshooting

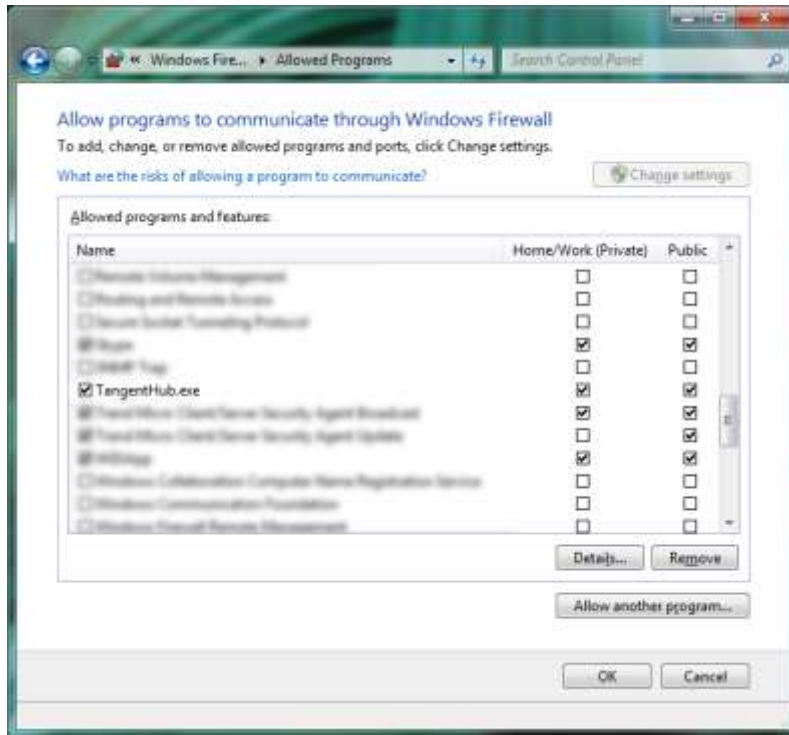
If you have problems setting up the element-Vs app the most likely cause is the firewall on your computer. Setting guides for Apple OS X and Microsoft Windows are included below. For Linux computers you must refer to guides specific to your Linux distribution which are outside the scope of this document.

16.1 Apple OS X Firewall



- 1) Run 'System Preferences', select 'Security & Privacy' and click on the 'Firewall' tab.
- 2) If necessary, click on the padlock icon and enter your password to unlock the firewall settings.
- 3) Click on the 'Firewall Options...' button.
- 4) Make sure 'Block all incoming connections' is not checked.
- 5) Make sure 'Automatically allow signed software to receive incoming connections' is checked.
- 6) Make sure 'Enable stealth mode' is not checked.
- 7) Scroll down the table of applications to the entry for 'TangentHub'.
- 8) If there is no matching entry click on the '+' button.
 - a. Navigate to '/Library/Application Support/Tangent/Hub/TangentHub' and click 'Add'.
- 9) Make sure the 'Allow incoming connections' option is selected for 'TangentHub'.
- 10) Close the option sheet with the changes in place by clicking 'OK'.

16.2 Microsoft Windows Firewall



- 1) Click on the Start menu and search for and open 'Windows Firewall'.
- 2) Click on 'Allow a program or feature through Windows Firewall' in the sidebar.
- 3) Scroll down the table of 'Allowed programs and features' to the entry for 'TangentHub.exe'.
- 4) If the program name or either of the 'Home/Work (Private)' or 'Public' network types are not checked, click on the 'Change settings' button and then click on the checkboxes as required to enable the program and both types.
- 5) If there is no matching entry click on 'Allow another program...'
 - a. In the window that opens click the 'Browse' button and navigate to 'C:\Program Files (x86)\Tangent\TangentHub.exe' and click 'Open'.
 - b. Click on the 'Network location types...' button.
 - c. In the window that opens select both 'Home/Work (Private)' and 'Public' network types and click 'OK'.
 - d. Complete the process by clicking on 'Add'.
 - e. Confirm there is now an entry in the 'Allowed programs and features' table for 'TangentHub.exe' with both network types checked.
- 6) Close the window with the changes in place by clicking on 'OK'.

16.3 Router firewalls

Some installations may also have a firewall built in to the Wi-Fi network router in which case you must make sure that it is not blocking the network traffic that the TangentHub and element-Vs need to operate. The router must allow access to the following port numbers which are listed with the relevant traffic type as some routers allow specific rules to be created for each port.

Port Number	Traffic Type
64246	TCP
64247	TCP
64248	UDP
64249	TCP

17. Ad Hoc networking with iPads

If there is no available wireless network it is possible to create a computer-to-computer ad hoc network to connect an iPad tablet and host computer. The computer must have Wi-Fi capability to support this approach and only iPads can be connected in this way as Android devices do not currently support ad hoc networking.

Guides for Apple OS X and Microsoft Windows are included below. For Linux computers you must refer to guides specific to your Linux distribution which are outside the scope of this document.

17.1 Apple OS X Ad Hoc network

- 1) Click on the AirPort status icon in the menu bar and choose to 'Create Network...'
- 2) Enter a network name and select that the network requires a password.
- 3) Select either security option of 40-bit WEP and use a 5 character password, or 128-bit WEP and enter a 13 character password.
- 4) Click 'OK'.
- 5) Wait for a minute until the MacBook assigns itself an IP address.

17.2 Microsoft Windows Ad Hoc network

- 1) Click on the Start menu and search for and open 'Network and Sharing Center'.
- 2) Click on 'Set up a new connection or network'.
- 3) Select 'Set up a wireless ad hoc (computer-to-computer) network' and click 'Next' twice.
- 4) Enter a network name.
- 5) Select security type 'WEP'.
- 6) Enter either a 5 or 13 character security key and click 'Next'.
- 7) After a short delay you should see a confirmation that the Ad Hoc network is ready to use. You can now dismiss the window clicking on 'Close'.

After creating an ad hoc network you must connect the iPad to the same network and then pair the app with the host computer.

17.3 Connecting an iPad to the Ad Hoc network

The procedure for connecting is the same as if you are using a normal Wi-Fi network, but with some additional caveats to watch out for. The steps for connecting are as follows:

- 1) On the iPad, open the 'Settings > Wi-Fi' page and look for your network name under the 'DEVICES' heading.
- 2) Ignore the warning that the network is not connect to the internet and choose 'Join Anyway'.
- 3) Enter the password you chose when setting up the ad hoc network and select 'Join'.

You can now run the element-Vs app and pair with the host computer that is running the ad hoc network.

- 1) Run the element-Vs app, ignore the warning about Wi-Fi connectivity and tap 'OK'.
- 2) Tap the cog icon in the top left to open the 'Available Connections' window.
- 3) Run the 'Tangent Mapper' application on the host computer and choose the menu 'File > Panel Configuration...'
- 4) Click on the 'Enable Pairing Mode' button.

- 5) On the iPad the host computer name should very quickly appear in the list and be automatically selected and highlighted in blue.
- 6) Close the 'Available Connections' window by tapping on the blue entry.
- 7) In the 'Tangent Mapper' application on the host computer dismiss the panel configuration window by clicking on the 'Close' button.

You can safely ignore any warnings on the iPad about the ad hoc network not being connected to the internet or about the app requiring Wi-Fi connectivity and continue. The test for network connectivity does not apply to ad hoc connections and incorrectly gives the impression that the network is not active. You might also notice that the Wi-Fi signal icon in the status bar is missing when connected to a valid and running ad hoc network.

If the host computer still does not appear in the available connections list on the app, temporarily disable the host firewall and wait to see if this fixes the problem. Once the pairing has been achieved you can restart the firewall. This problem is intermittent and has been seen on some OS X host computers whilst others work as expected.

Both the iPad and host computer must remain on the ad hoc network for the system to operate. If either device is put to sleep or rebooted the devices may select a different network in preference to the ad hoc one with no internet access. If the app fails to pair at any time check that both devices are still on the ad hoc network via the appropriate system settings. The actual pairing of the host computer hub to the iPad app should remain valid even if the ad hoc network has to be reinstated.