TCxWave-x3x/x4x/x5x Touch Screen User Guide (Windows)

Contents

Introduction

The TCxWave-x3x/x4x/x5x (6140-x3x/x4x/x5x) from Toshiba Global Commerce Solutions (TGCS) has a touch screen using a PCAP multi-touch technology that may be used either as a tablet like interface (HID digitizer) with operating systems (OS) such as Windows 7, 8.1 and 10, or be used as a single-touch input for legacy type applications. In its default multi-touch mode, up to five (10 on the x4x and x5x models) distinct and independent touches may be detected. When used with Windows 7, 8.1 or 10, a broad range of gestures may be employed. For classical single touch applications, the unit may be configured for use directly without the need of an OEM driver, but for optimum performance and flexibility, an OEM driver is provided to emulate a classical HID pointer/mouse. The following table summarizes the relevant touch characteristics.

Table 1. TCxWave Model Characteristics

Model	Size	Aspect Ratio	Native* Resolution	Max Touch	OEM Driver	Comments
0x0/x1x/x2x	18.5”	16:9	1366 x 768	5	3M MT7	See TCxWave-x0x_x1x_x2x Touch Screen
x3x	15.0”	4:3	1024 x 768	5	Elo v6.9.10	
x4x	15.0”	4:3	1024 x768	10	Elo v6.9.10	
x5x	18.5”	16:9	1366 x768	10	Elo v6.9.10	

* No resolution above the native is supported

In addition to the performance characteristics similar to popular notepads and tablets, the screens do not normally need calibration (they come from the factory calibrated and do not need periodic recalibration). They also have edge to edge glass, making cleaning easier and provide the popular bezel-less look.

Note: All references to Windows 7 also apply to POSReady 7

Default Multi-Touch

The default touch configuration of the TCxWave is a HID digitizer type interface, which tablet based OS’s such as Windows 7/ 8.1/10 may employ for gestures (flicks and pinches), in addition to legacy style single touch operations. No OEM driver is required as the OS has all the necessary drivers embedded in the OS. The features

of the gestures may be configured using the OS control panel settings under ***Hardware and Sound***, using both the ***Pen and Touch*** and ***Tablet PC Settings***, as shown in Figures 1 and 2.

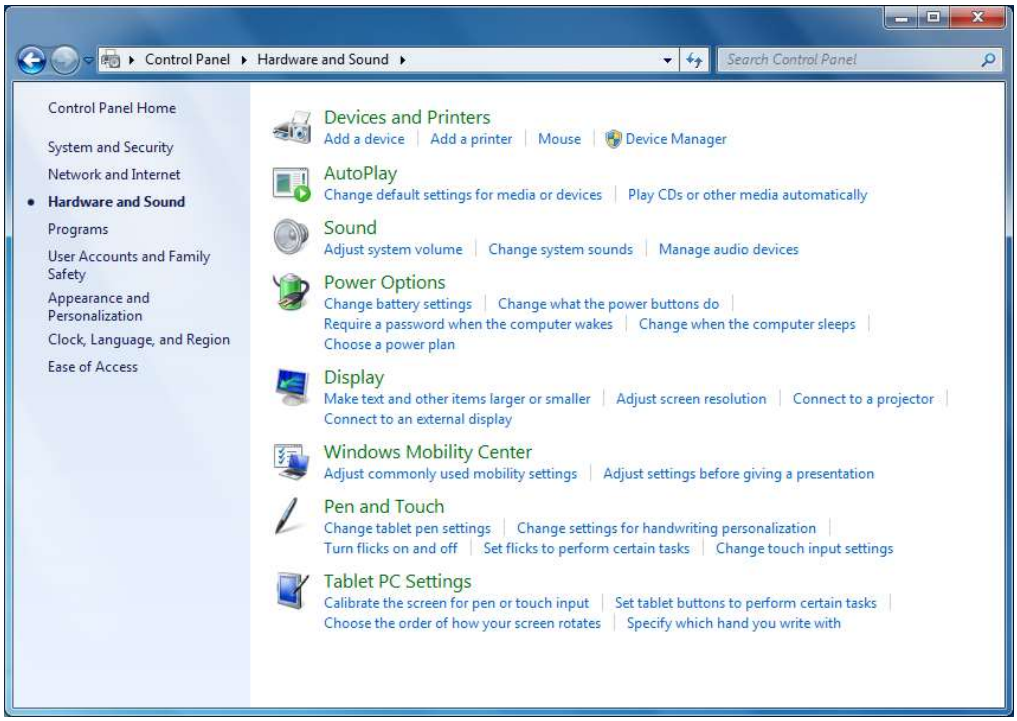

Fig 1. Hardware and Sound control panel (Windows 7)

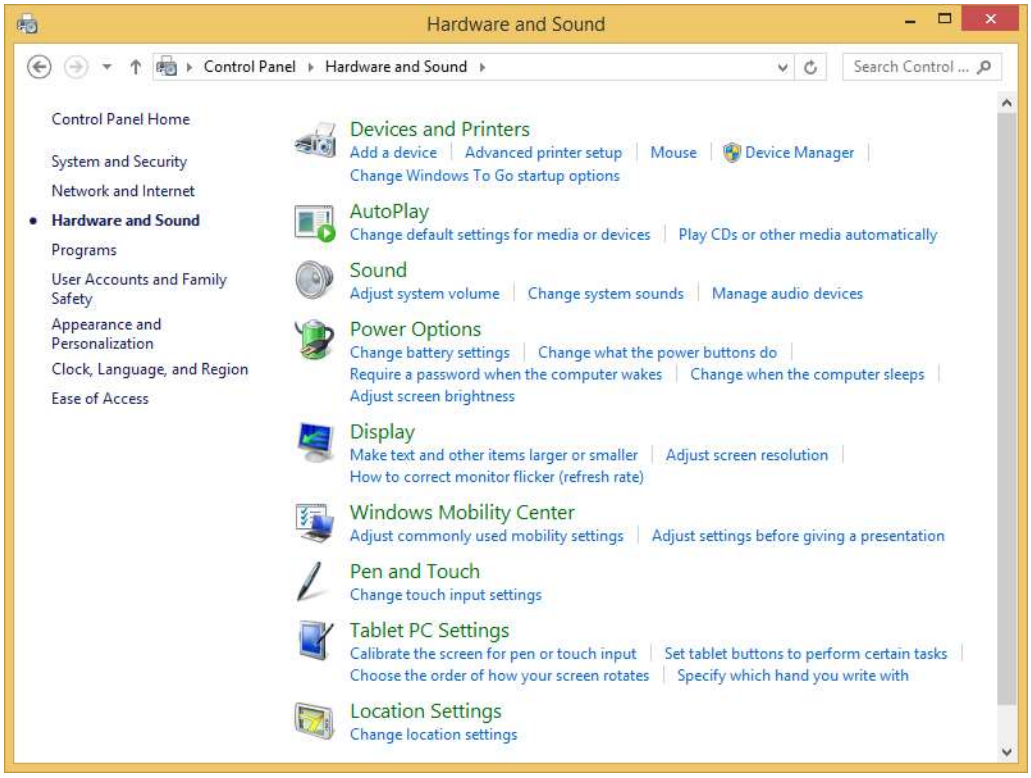

Fig 2. Hardware and Sound control panel (Windows 8.1/10)

The OS's come with default settings to meet most user needs, but may be optimized for specific applications with Windows 7 or POSReady 7. See Appendix A for detailed descriptions of various control panel settings available and Appendix B for suggestions on optimizing performance via registry settings. Optimization via the control panel settings and registry settings will be perfectly good for many applications. However, for most legacy single touch applications it is suggested that the OEM driver be installed. The OEM driver will force the touch screen to be seen to the OS as a HID pointer/mouse, as the legacy application originally expected.

Single-Touch Applications

Although the touch screen is configured for tablet like operations, single touch icon applications may also be used with the native embedded OS drivers. If one encounters issues with the OS trying to act on gestures, then drag, flicks and multi-touch gestures may be modified or turned off (see Appendix B for details). Note that the Windows native OS driver causes mouse button type behavior similar to a standard mouse, but the button click occurs only when the touch is released. Drag operations are similar to a standard mouse.

In some legacy applications one may encounter some potential issues with icon touch speed when using Windows 7/8.1/10. These OS's are gesture based and are always having to determine the intention of the touch (simple touch or is it a gesture?). That requires more processing time to determine what to do with a touch to the screen and in many cases may interpret an intended click action erroneously as a drag or flick. In many cases this may not be an issue, but if issues are observed (missing touches/drags), then this may be resolved by modifying drag and flick sensitivity or even disabling flicks and multi-touch gestures (see Appendixes A and B). If an older legacy application works better with a HID pointer/mouse interface (such as requiring an immediate button-click upon touching the screen), then the OEM touch screen driver may be loaded to force the pointer/mouse type interface (see Appendix C) with options to configure the mouse button event. The OEM driver also provides an audible beep feedback option.

Dual Monitor Setup

When a solitary touch screen unit is used, the setup is straight forward. If more than one touch screen unit is installed on the same system in the extended monitor mode, then there is the need to associate the touch screen to the correct video unit. The ambiguity is caused by the video and touch interfaces being physically independent of each other. In the case of two touch screen units installed, the system will see two video ports and two touch ports with no logical tie between them. So, without some help, the system does not know which goes with which (see Figure 3). If the displays are cloned, then the coordinates of the two are the same and it does not matter what the association is between the videos and touch screens. But if the second display is an extension of the desktop, then the coordinates of the desktop image is extended onto the second display. In this case, the touch coordinates of the corresponding touch screen needs to be extended as well, but which touch screen? This is resolved through an association process.

For Windows 7/8.1/10, the ***Setup*** button in the ***Tablet PC Settings*** control panel may be used. When you click on the ***Setup*** button, a "touch this screen" image appears on one of the monitors, as shown in Figure 4. Touch that screen to associate that touch screen to that display and the image will move to next screen to touch for association with that display. Note that an Elo driver is required for an attached SurePoint monitor (IR touch).

If the OEM touch screen driver is installed, the association is initiated by clicking on the ***Calibrate*** or ***Associate*** button in the touch screen configuration utility. That will bring up a touch target image on the principal screen (see Figure 5) and after touching or waiting 10 seconds the image will move to the second screen to be touched.

In the event one of the screens is not of the same touch controller family, a touch will not have any effect, requiring you to either press “Tab” on a keyboard or wait for the 10 second time out for the next step.

Any time the screen resolution is changed (on either screen), a re-association will be necessary if the touch OEM driver is installed (click on the ***Calibrate*** or ***Associate*** button). If no touch OEM driver is installed, no re-association is necessary. See Appendix E for examples of scenarios with dual monitors.

Note: Whenever the video mode is changed between clone and extended modes with an OEM driver installed, ***Calibrate***/***Associate*** needs to be performed again. That also applies to any ***Cursor Edge Acceleration*** or ***Touch Zones*** settings (see Elo driver in section C below).

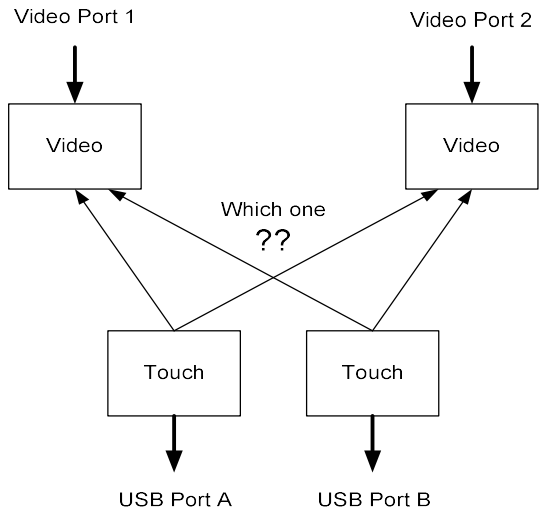

Fig 3. Ambiguous association between touch screens and video screens

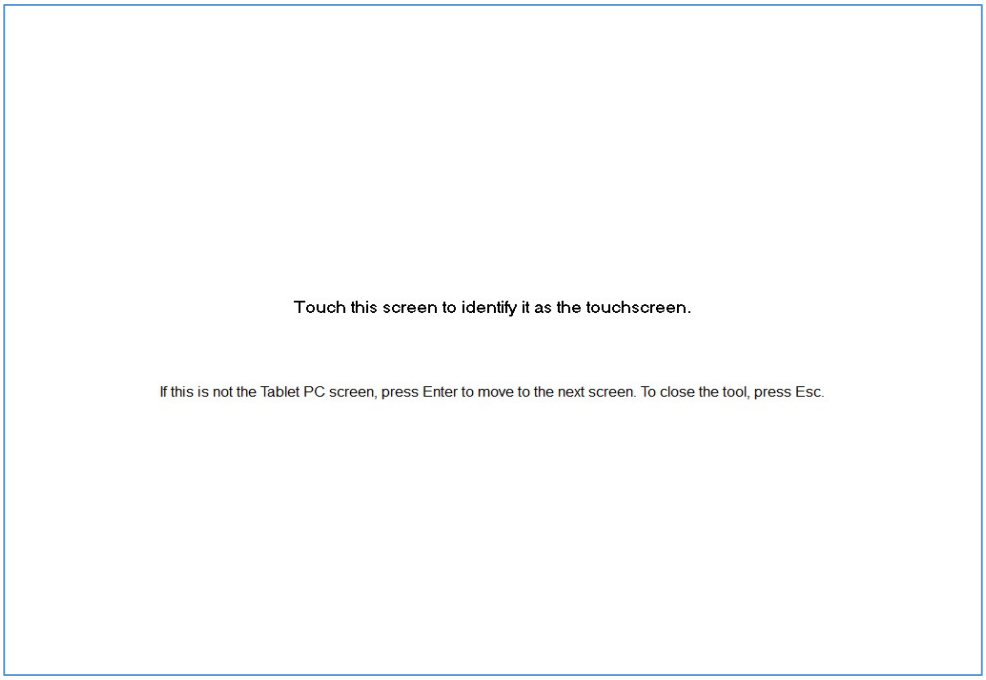

Fig 4. Association “touch screen” for Win 7/8.1/10

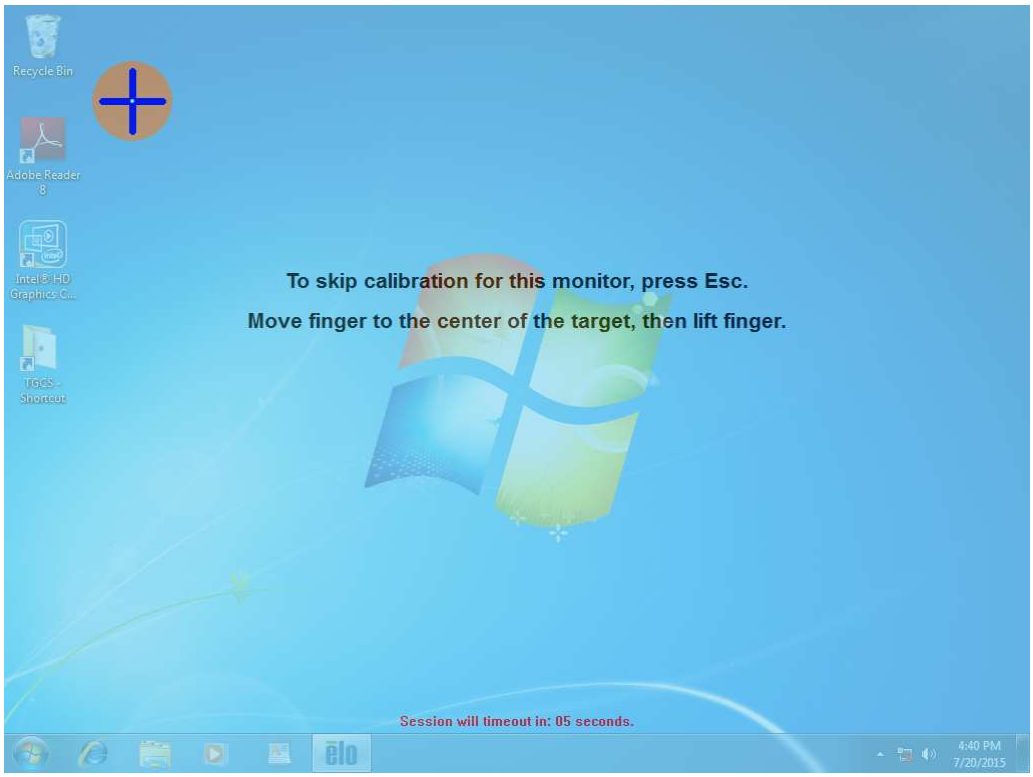

Fig 5. Association “touch screen” for Elo driver

Summary

The TCxWave-x3x/x4x/x5x touch screen is optimized for the more recent operating systems, such as Windows 7, 8.1 or 10, which have the ability to respond to gestures in addition to classical single icon touches. The recommendation is to use the embedded drivers in the supported operating systems and use the OS control panel to configure the touch responses as desired. Further performance enhancements may be achieved by selectively modifying gesture features in the OS registry. An OEM driver is provided for legacy applications that require a HID pointer/mouse interface or audible beeper. Available monitor association utilities are available in the OS control panel and the OEM driver for dual monitor setups.

Two OEM drivers exist for this model, the original Ocular driver (TCxWave-x3x) and the new improved Elo driver v6.9.10. It is recommended that the newer Elo driver be used when an OEM driver is required.

Appendix

A. Windows 7/8.1/10 Control Panel Touch Setting Options

To change the touch settings in Windows 7, 8.1 and 10, open the ***Control Panel*** and select ***Hardware and Sound*** (Figures 1 and 2). From there you may select ***Pen and Touch*** or ***Tablet PC Settings*** to configure the touch operations.

A.1 Pen and Touch Settings

Clicking the Pen and Touch will give the corresponding control panel as shown in Figures A1 and A2.

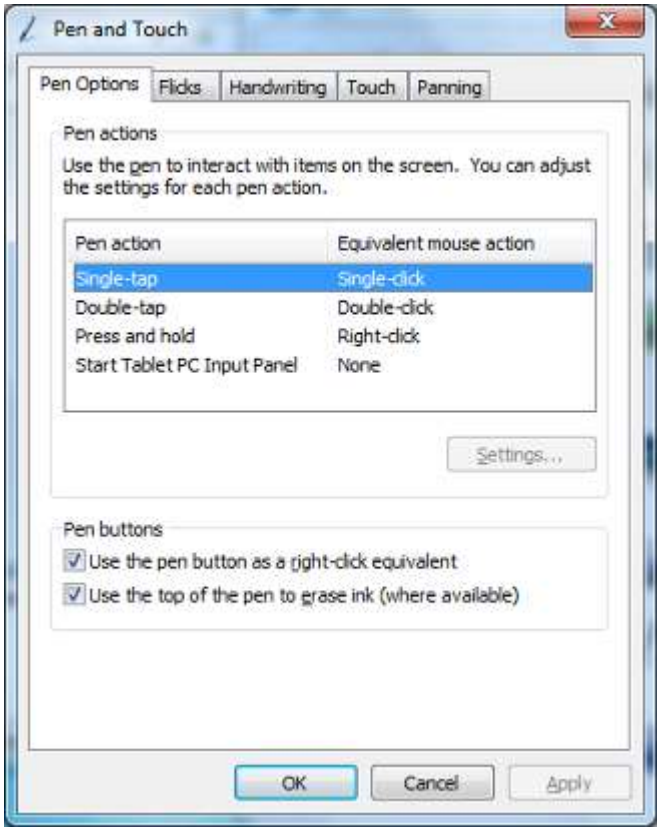

Fig A1. Pen and Touch panel, Win 7

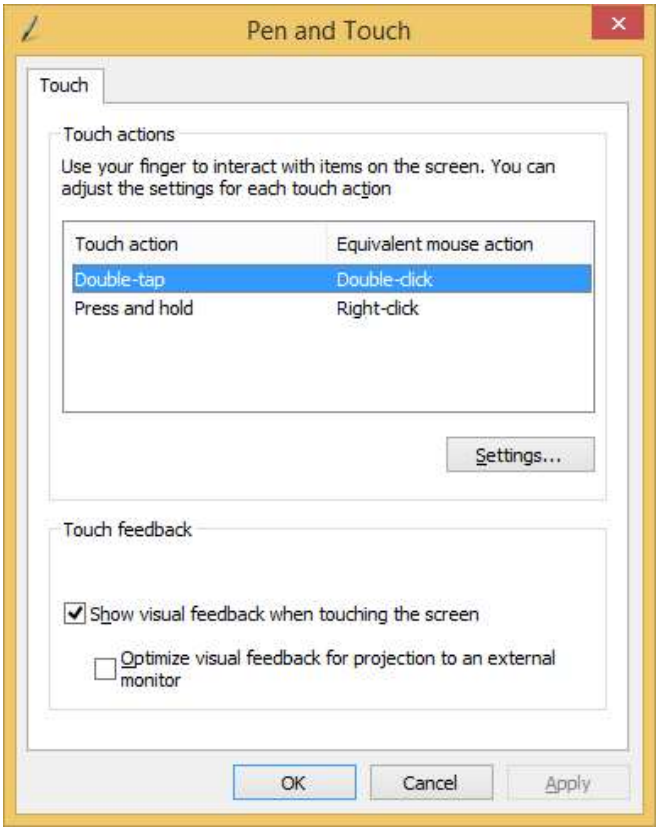

Fig A2. Pen and Touch pane, Win 8.1/10

Win 8.1/10 has less options, as it is designed with a tablet in mind, and certain gestures are a requirement, and unmodifiable from the control panel. Windows 7, which is more of a desktop design avails many options for configuring the touch functions. Only the "Touch" tab is available in Win 8.1/10.

A.1.1 Win 7 Pen and Touch Settings

For Windows 7, there are number of tabs for rather detailed configurations. The first one (***Pen Options***) is for setting up an active pen and not really applicable for most POS applications. The ***Flicks*** tab is shown in Figure A3, with the default flicks shown. Here you may adjust the sensitivity to flick motions (performance improvements), display the flick icon and adding diagonal flicks by clicking on the ***Navigational flicks and editing flicks*** radio button. All of these flicks may be edited by clicking on the ***Customize*** button to bring up the "Customize Flicks" control panel as shown in Figure A4.

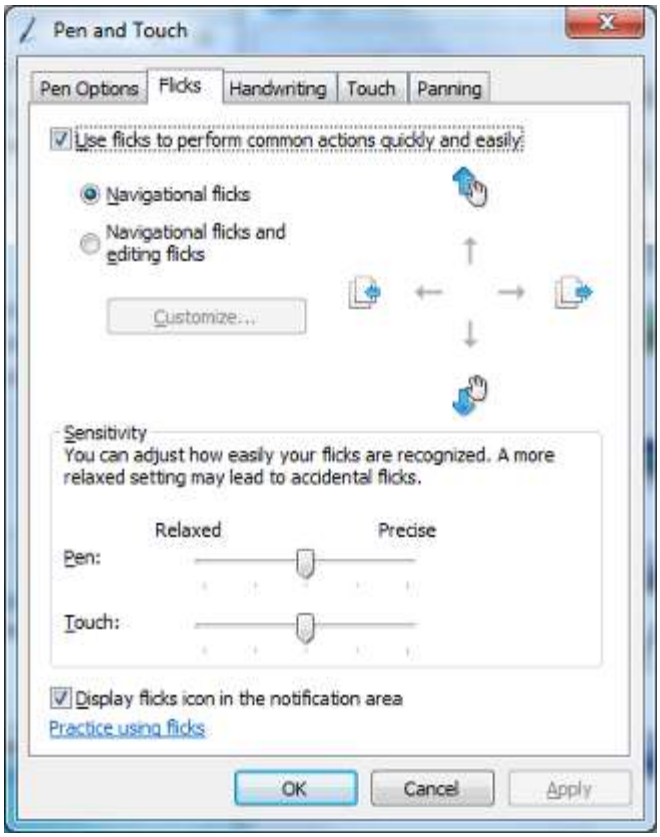

Fig A3. Flicks tab

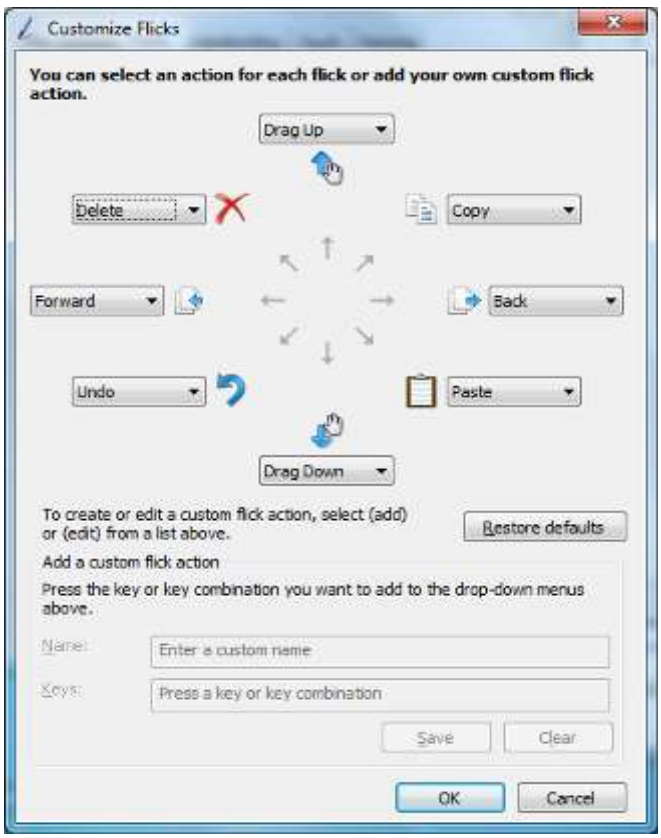

Fig A4. Custom Flicks tab

The default flick definitions are shown, but each may be modified by opening the corresponding pull down button. An example list of standard functions is shown in Fig A5, but this may be edited or others added. You may store a particular configuration by giving a name in the indicated field for future call-up.

Clearly there are many different functions that may be called with an associated flick gesture. However, consideration should be given in the selection of function and gesture direction to minimize erroneous actions from poorly executed gestures.

For purely single touch applications, one may opt to uncheck the “Use flicks to perform…” option.

The ***Handwriting*** tab is for configuring the handwriting function, including the learning characteristics during writing.

The ***Touch*** tab (Figure A6) is where you may disable multi-touch gestures, if a single touch operation is preferred. You may also redefine the “Double-tap” and “Press and hold” actions. And you may enable the touch pointer and configure it.

In the ***Panning*** tab, you may configure the panning characteristics to best suit your needs.

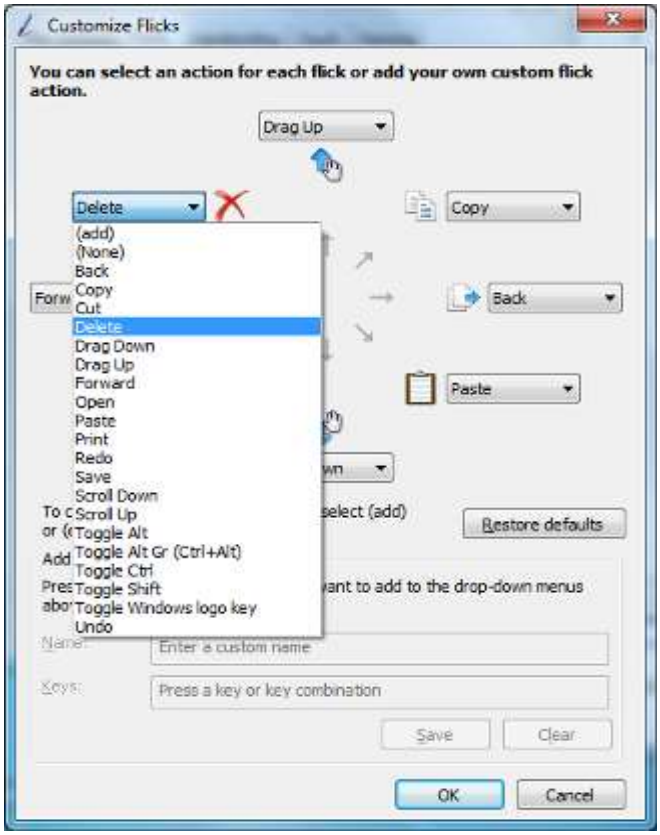

Fig A5. Customize Flicks tab

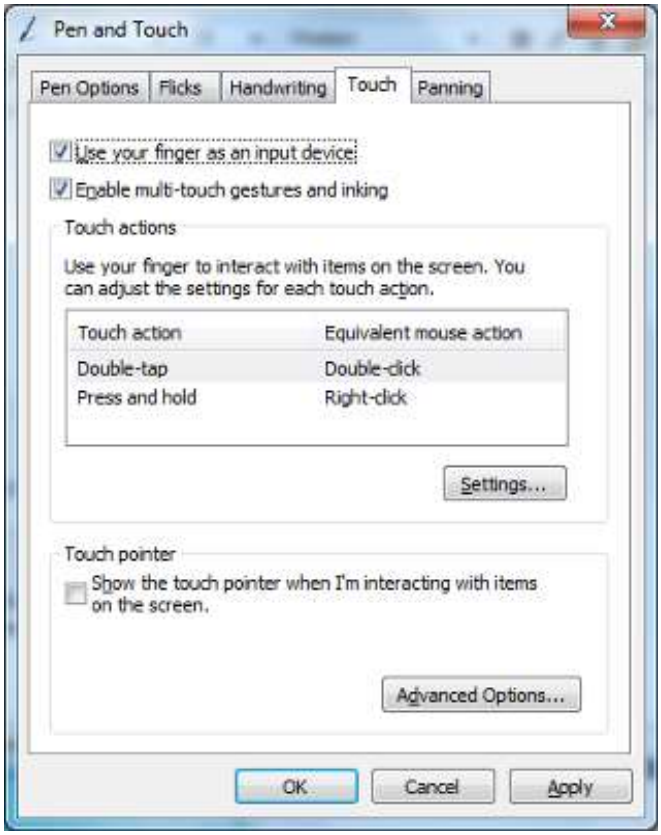

Fig A6. Touch tab

A.1.2 Win 8.1/10 Pen and Touch Settings

In Windows 8.1/10, only the ***Touch*** tab is available as shown in Figure A2 above. The only options in Win 8.1/10 is to redefine the "Double-tap" and "Press and hold" actions or to enable visual feedback. Most of the gesture definitions Win 8.1/10 are "fixed" because this tablet oriented OS is dependent on established gesture definitions for consistent user behavior. To change these definitions for performance enhancement, relevant registry entries need to be modified, as described in Appendix B.

A.2 Tablet PC Settings

From the ***Hardware and Sound*** control panel, clicking on ***Tablet PC Settings*** will bring up the Tablet PC Settings control panel as shown in Figures A7 and A8 below. On the ***Display*** tab you may associate two monitors to their respective touch panels by clicking on the ***Setup*** button. That will bring up the "Touch…screen" image as shown in Figure 4 above. Touch that panel to associate the touch screen with that video and the image will pass to the next monitor where you touch to do that association.

Normally calibration is not required, as the TCxWave models come from the factory already calibrated and generally never need recalibration. But if there is a need to refine the calibration for a specific application, the Windows calibration feature is provided by Microsoft. To invoke a calibration, first select the screen from the pull-down list and click on ***Calibrate***, which will cause the screen as shown in Figure A9.

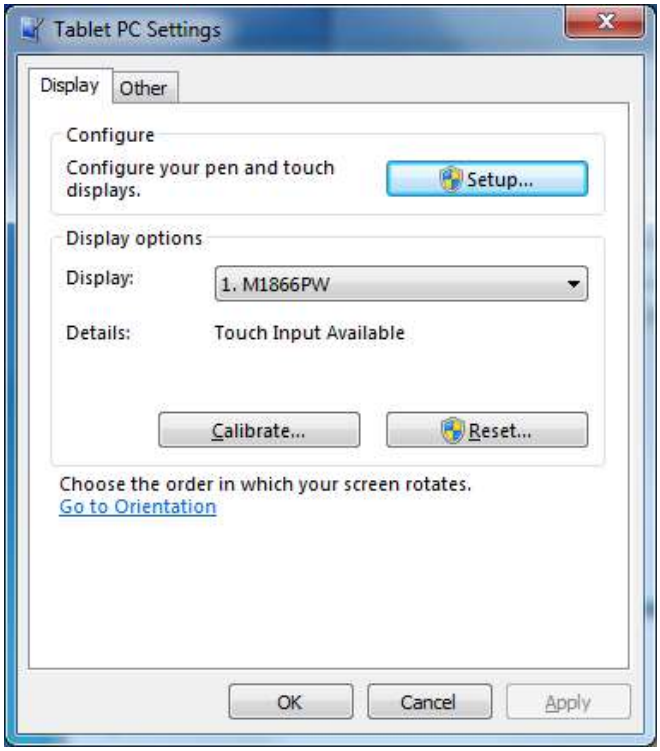

Fig A7. Tablet PC Settings panel, Win 7

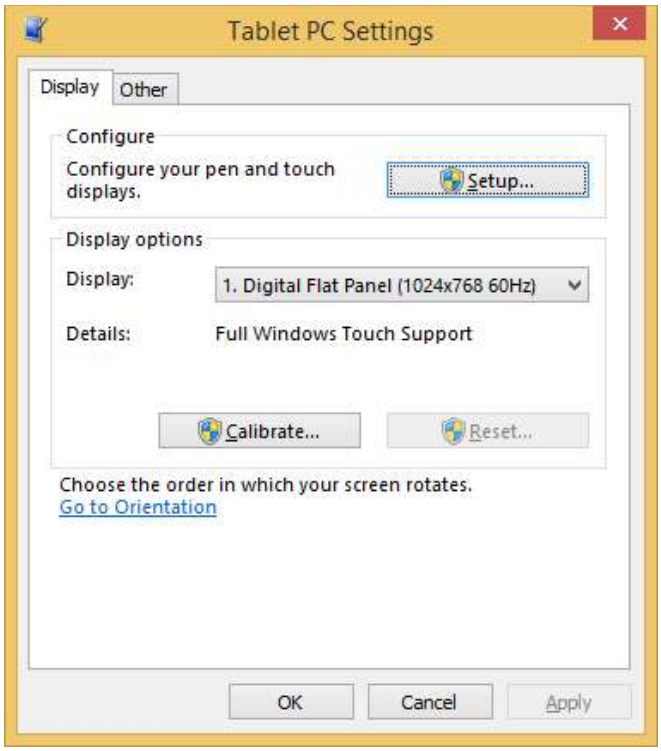

Fig A8. Table PC Settings panel, Win 8.1/10

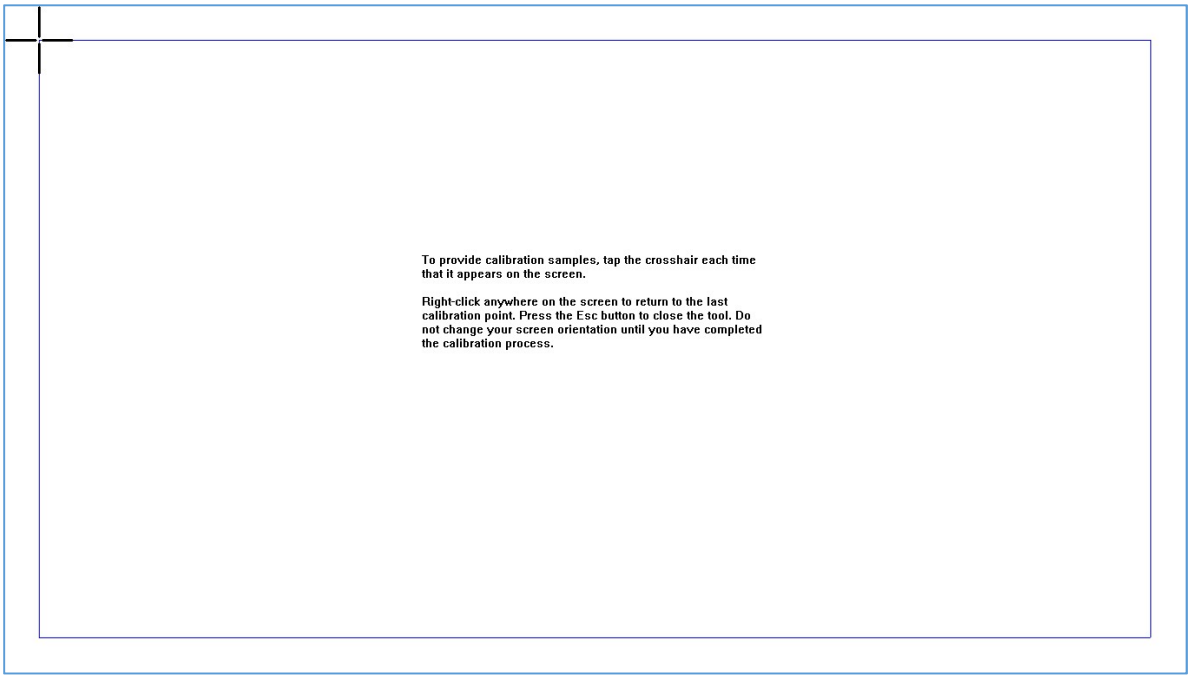

Fig A9. Calibration screen

Touch the crosshair as it moves from position to position. There are up to 16 different positions (4 in each corner) that need to be accurately touched. For good success, you need to align your stylus up on each

crosshair before touching and do not linger on the point. The method is somewhat tedious, but can give good results with practice. If the results are not acceptable, you may click on the ***Reset*** button to return to factory calibration.

Again, the factory calibration is generally quite good for most POS applications, and it is not recommended that the calibration routine be exercised unless it is really necessary.

The "Other" tab basically allows setup of left handed users, as shown in Figures A10 and A11.

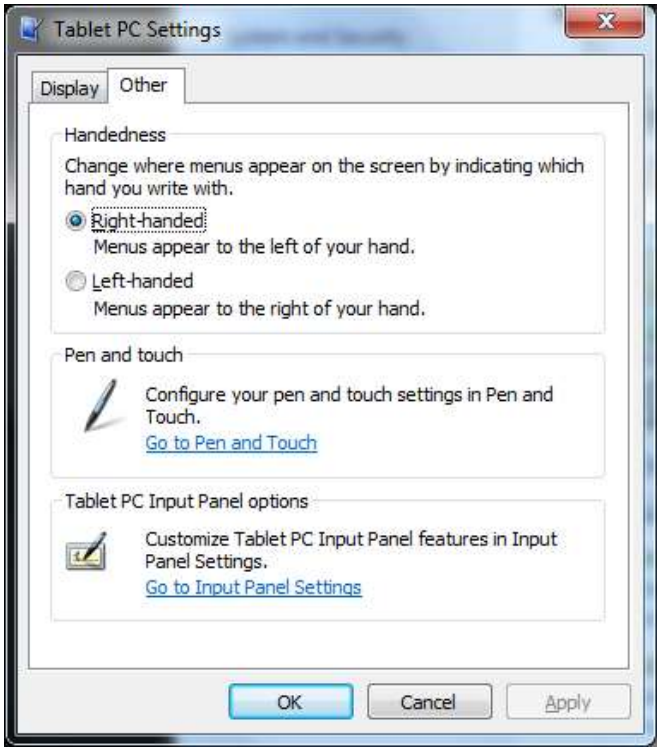

Fig A10. Other tab, Win 7

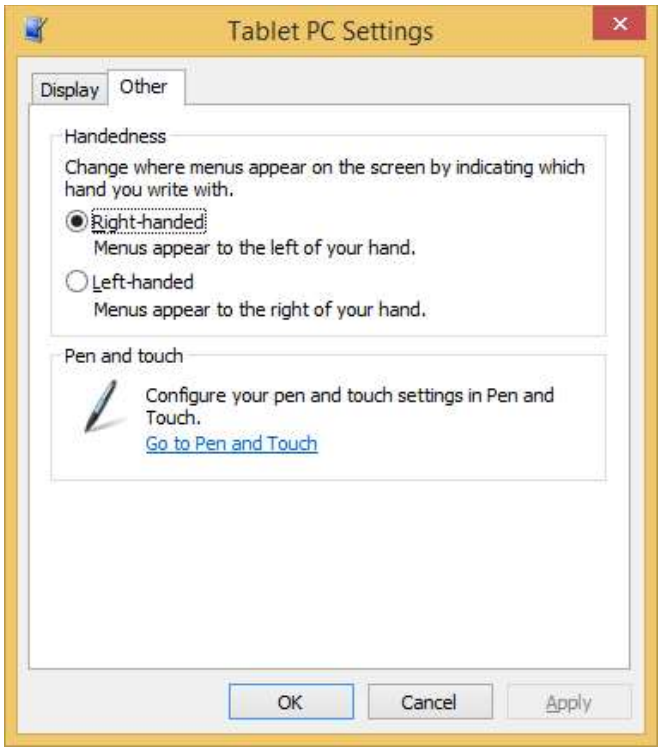

Fig A11. Other tab, Win 8.1/10

B. Optimizing Performance in Win 7/8.1

The default touch settings in Windows 7 (including POSReady 7) and Windows 8.1/10 are for tablet type use, with flicks and gestures enabled. In some POS applications, flicks and gestures are not used, and in some cases there may be performance issues because the tablet features are enabled in their default settings. For example, rapid touches of icons in sequence may not be as fast as on older single-touch monitors, because the OS has overhead to look for gestures. Also some attempts at a touch for a "click" action may be interpreted by the OS as drag or flick instead. In these cases, it may be desirable to modify the sensitivity or even disable the flicks and multi-touch features.

In Windows 7 you may disable flicks and multi-touch gesturing via the ***Control Panel***. To disable Flicks, one may open the ***Pen and Touch*** settings control panel, and under the ***Flicks*** tab (Figure A3), click off the "Use Flicks…" option. Under the ***Touch*** tab, one may click off the "Enable multi-touch gestures…" option, but it may not stick (may need a registry entry to affect this more permanently). These modifications will effectively result in a more classical single touch response and most likely solve the performance issues.

In Windows 8.1/10, there are no options to disable flicks and gesturing from the control panels. For these two cases, one may consider registry modifications.

Warning: modifying the registry should be done with great care, as an inadvertent change could cause serious functional issues. Precautionary steps:

1. Backup the entire registry before attempting any changes, enable recovery if something goes wrong
2. Use CMD batch files with reg.exe or similar to modify the registry to insure secure changes.

B.1 Drag

Dragging objects is a common action in typical Windows applications, but may not be for a typical POS application which is oriented to "clicks" when the screen is touched. However, the OS will check to see if the finger has moved a certain amount when in contact with the screen which may define the action as an attempted drag and not a click. In many cases, one would want to minimize the drag detection. The default setting is to test for a movement of 4 pixels (1 mm) and is set in the registry under:

\ HKEY_CURRENT_USER\Control Panel\Desktop

as the parameters DragHeight and DragWidth. The default values are 4, but may be set to something like 20 to 50 (5 to 13 mm) for a less sensitive detection of a drag action. This should improve the touch and click operation. To effectively turn drag off, make the value somewhat large, such as 1000.

Example CMD line strings:

REG.exe ADD "HKCU\Control Panel\Desktop" /v DragHeight /t REG_SZ /d 20 /f

REG.exe ADD "HKCU\Control Panel\Desktop" /v DragWidth /t REG_SZ /d 20 /f

Example Drag20.reg file contents that may be executed by double clicking on it:

Windows Registry Editor Version 5.00

[HKEY_CURRENT_USER\Control Panel\Desktop]

"DragHeight"="20"
"DragWidth"="20"

B.2 Flick

Another motion related action is the "Flick" and the parameter in the registry that controls the sensitivity of flicks (also found in the Pen and Touch control panel) is "TouchFlickTolerance" which by default is set to the hex value 0x32. This may be increased to make the touch less sensitive to detecting a flick action, to something like 0x50. The parameter to enable/disable Flicks is the "FlickMode" which by default is set to the value "1" for flick enable. It may be changed to the value "0" which will turn off flicks. These parameters are found under:

HKEY_CURRENT_USER \software\Microsoft\Wisp\Pen\SysEventParameter

Examples of CMD line strings:

De-synthesize flick response:

REG.exe ADD "HKCU\Software\Microsoft\Wisp\Pen\SysEventParameters" /v TouchFlickTolerance /t REG_DWORD /d 0x50 /f

Disable flicks:

REG.exe ADD "HKCU\Software\Microsoft\Wisp\Pen\SysEventParameters" /v FlickMode /t REG_DWORD /d 0 /f

Example FlickOff.reg file contents that may be executed by double clicking on it:

Windows Registry Editor Version 5.00

[HKEY_CURRENT_USER\Software\Microsoft\Wisp\Pen\SysEventParameters]

"FlickMode"=dword:00000000

B.3 Multi-touch Gestures

Other gestures are dependent on more than one touch event, such as pinching, expanding, rotating, etc. For many POS applications these gestures are not used and performance may be enhanced by not burdening the OS with this possibility (turn multi-touch off). The parameter in the registry that enables/disables multi-touch gestures is “MultiTouchEnabled”, which is by default set to the value “1” for normal multi-touch gesturing. It may be changed to the value “0” to disable the multi-touch gesturing. This parameter is found under:

\HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Wisp\MultiTouch

Example of CMD line string:

REG.exe ADD "HKLM\Software\Microsoft\Wisp\MultiTouch" /v MultiTouchEnabled /t REG_DWORD /d 0 /f

Example MultiTouchOff.reg file contents that may be executed by double clicking on it:

Windows Registry Editor Version 5.00

[HKEY_CURRENT_USER\Software\Microsoft\Wisp\MultiTouch]

"MultiTouchEnabled"=”0”

Note: The above actions typically require administrative privileges to have effect. Also the system may need to be rebooted for the registry changes to take effect.

Tip: If the OEM driver is installed, one need not worry about the ***Flick*** or ***Multi-touch*** modes, as the OEM driver forces a HID mouse interface and the ***Pen and Touch*** and ***Tablet PC Settings*** will not be available in the ***Control Panel***.

C. OEM Touch Screen Driver

An OEM Windows touch screen driver is provided for those single touch applications where button click configuration is required and/or an audible beep is required. It is also an alternative to resolving rapid single touch performance issues, plus adding features. The OEM driver is configured to convert the native HID digitizer into a HID pointer (mouse), with single-touch only capability. It is intended to emulate the popular configurations found on older touch solutions, such as the button click configuration, double-click speed/area settings and a momentary right click option. The list below summarizes the benefits of using the driver.

- Classical pointer/mouse operation/performance (faster input speeds for single touch applications)
- Different mouse button modes (click-on-touch, click-on-release, mouse/drag emulation)
- System beeper
- Right button function

Depending on the application, an OEM driver may or may not be appropriate. Some scenarios are shown below.

Table C.1 Scenarios for an OEM driver

Attached Monitor	Type of Application	Driver	Comments
None or TCx Display	Gesture based	None	Native function of touch screen
	Single touch Microsoft default	None	Configure flicks/multitouch for performance
	Single touch click option	Yes	Elo v6.9.10 Driver preferred
SurePoint 2xx/5xx	Single touch only	Yes	Elo v6.9.10 Driver preferred

Earlier installations may have an Ocular driver, but it is recommended that the newer, improved Elo driver be used on future installations (may also be retrofitted to older installations by first uninstalling the Ocular driver and any associated beeper service utilities). If a SurePoint 2xx/5xx monitor is attached, the Elo driver must be used (uninstall any Ocular driver before installing the Elo driver).

Note: Before installing the OEM driver, any driver that was previously used must be uninstalled completely before installing the new driver. This also applies to any previous Elo driver, when the new Elo driver is to be installed. Only one driver may access any given controller. Any TGCS BeepService driver should also be uninstalled. Reboot the system after uninstalling all previous drivers to clear out any residual files or registry entries. See sections below and the appendix for more details on uninstalling older drivers.

C.1 Elo Touch Screen Driver (preferred)

The Elo driver is configured by TGCS to act as a HID pointer/mouse. It is a full featured driver with button configuration options, double-click settings, system beeper and a right click option. Each touch screen may be configured separately, except for double-click parameters which are common to all attached touch screens.

Note: Any Ocular driver that was previously used must be uninstalled before installing the Elo driver. This also applies to any previous Elo driver or any third party driver that interacts with the Atmel controller. Only one driver may access any given controller. The TGCS BeepService driver should also be uninstalled. Reboot the system after uninstalling all previous drivers to clear out any residual files or registry entries. See the section F on ***Uninstalling Older Drivers (tips)*** for detailed methods.

Unzip the "EloTouch_v6.9.10_TGCS.zip"to create an install folder wherein will reside three subfolders (***32Bit***, ***64Bit*** and ***Common***) and three executables ***EloSetup.exe***, ***silent_install.cmd*** and ***silent_uninstall.cmd.*** In the ***Common*** subfolder one may find among other files to be installed the following important files:

UserManual.pdf
ReleaseNotes.rtf
EloOptions.ini

The ***UserManual*** is the Elo document that describes the various features of the driver configuration utility (a pdf file reader is required). This document is intended to complement the Elo manual. The ***ReleaseNotes*** tracks changes that have occurred. The ***EloOptions*** file defines the default settings for the driver, as established by TGCS. The original default from Elo is the ***EloOptions_orig*** file, and is maintained for reference only.

C.1.1 Setup

The ***EloOptions*** file found in the ***Common*** folder of the install package will define the initial settings of the driver when it is installed. It may also be used with another utility ***EloDriverDefaults*** to modify settings after installation (see separate document on EloOptions). The following settings are predefined by TGCS as a default for settings at installation, but may be edited to fulfill specific needs.

Table C2. EloOptions setup default settings

Parameter	Value	Action	Comments
ForceMouse	1	Makes the touch a HID pointer	Applicable to PCAP
MaxTouch	0	No driver limit on multiple touch	Applicable to PCAP
MouseMode	1	Click on release	0 = click on touch 6 = mouse/drag mode
ExternalSpeaker	0	No touch beep on external speaker	1 = external speaker
MotherboardBeeper	1	Touch beep on motherboard speaker	0 = no motherboard speaker
IRMonitorBeeper	1	Touch beep on local monitor beeper (IR touch monitor only)	0 = no local speaker
BeepDuration	100	Touch beep duration in ms	
BeepFrequency	800	Touch beep frequency in Hz	
DoubleClickSize	80	Double click area in pixels per side	
DoubleClickSpeed	500	Double click speed in ms	
IrUTR	0	Unintentional Touch Rejection	IR touch monitors only
IrAutoCalibration	1	Auto calibration for IR touch	IR touch monitors only
CustomMapping_1PCap1IR	0	No auto association for IR as secondary display to PCAP	1 = auto associate IR touch as secondary to PCAP touch
IRBeamMonitoring	0	IR blocked beam monitoring	IR touch monitors only
IRBeamLogging	0	IR blocked beam logging	IR touch monitors only
IRBeamStatusScanInterval	20	Interval to detect blocked beam	IR touch monitors only
CalibrateWithSilentInstall	1	Calibration will start as needed at end of silent install	0 = no calibration at end of silent install
HardwareHandshaking	0	No hardware handshaking (RS232 interface only)	1 = hardware handshaking enabled
MouseExtraInformation	31	Use by GetMessageExtraInfo() to differentiate mouse from touch	Special feature for custom API's
EdgeAcceelerartion	N/A	Not enabled	Edge Acceleration
CopyEloCPShortcut ToDesktop	1	Copy Elo control panel shortcut icon to desktop	
CopyEloAlignmentShortcut ToDesktop	0	No alignment shortcut icon on desktop	
BaseMode	0	Reserved for Elo	Do not change
AutoSizing	0	Not used by TGCS touch screens	
AutoInvokeCalibration	1	Auto Initiate calibration process	
DriverCalibration	0	Calibration fixed by controller	1=manual calibration
TargetRadius	40	Calibration target radius	pixels
TimeOut	10	Time-out to exit calibration	seconds
Transparent	1	Transparent calibration screen	
VerifyCalibration	0	For digitizer mode only	Not used

More details may be found in the separate document on EloOptions, including advanced usage.

Note: If the image is to be cloned from a master unit, be sure the ***EloOptions.ini*** file is edited for the preferred parameters before installing the driver on the master unit. The driver installation will create default registry values which will be used for each instance of installation. That is, the settings done via the GUI on the master unit will not carry forward to cloned units (the cloned units will pick up the default parameters defined by ***EloOptions.ini*** file only).

C.1.2 Normal Installation (user interactive)

From the "EloTouch_v6.9.10_TGCS" folder click on ***EloSetup.exe***. After giving the administrative privilege, the Elo license agreement screen will appear as shown in Figure C.1.1. If you click on "Yes, I agree…" then the install progress screen will appear as shown in Figure C.1.2.

When the installation is complete, the image shown in Figure C.1.3 will appear. Click OK and the touch screen will be ready to use. Depending on the mix of attached touch monitors an alignment process may start automatically to associate the touch screen to the monitors.

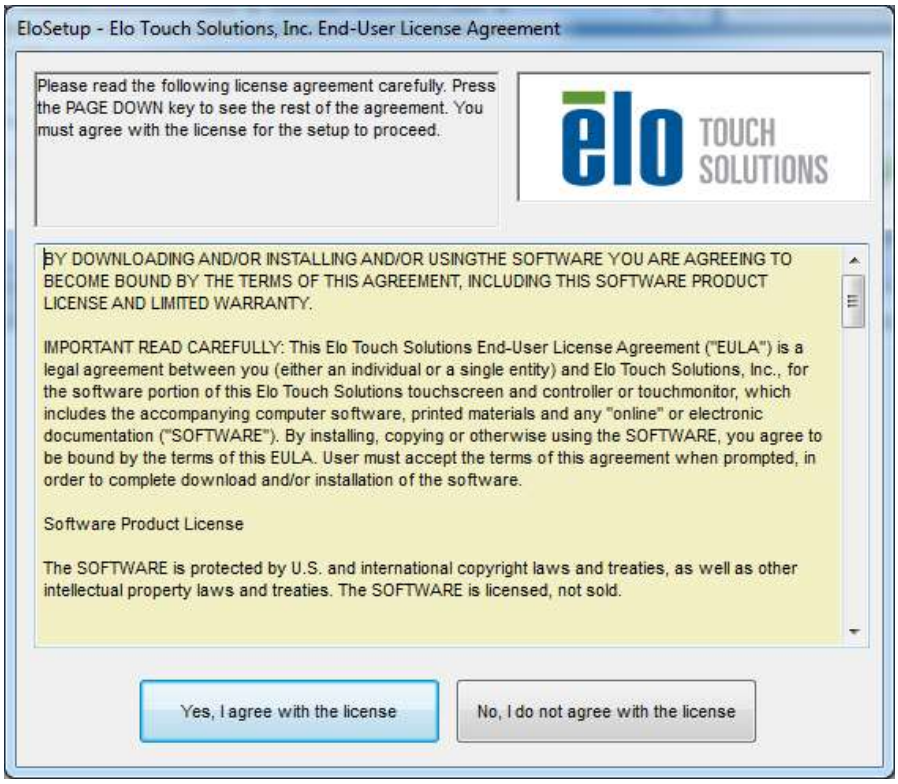

Fig C.1.1. Elo license agreement

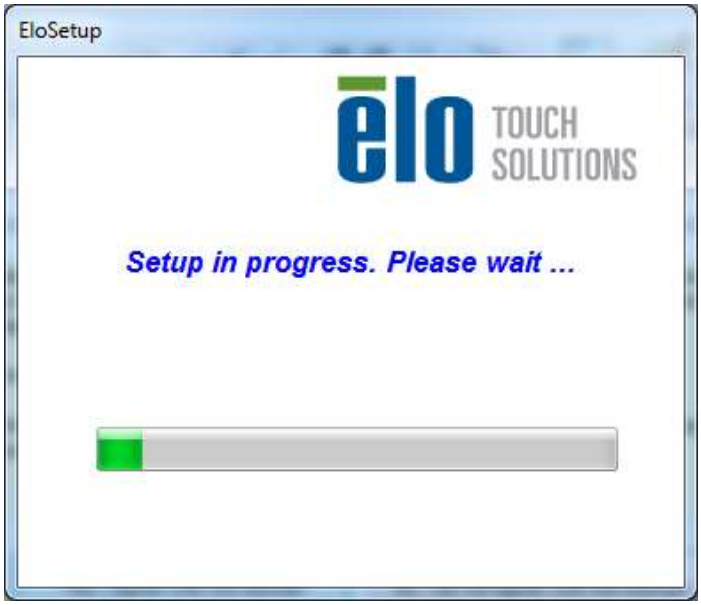

Fig C.1.2. Elo install progress screen

Fig C.1.3. Install complete screen

C.1.3 Silent Install

To install the driver with no user interaction, execute the ***silent_install.cmd*** file from the "EloTouch_v6.9.10_TGCS" folder using administrative privileges. A CMD window will appear with a statement that it will close when the installation is complete (may take about a minute to complete).

C.1.4 Uninstalling Driver

To uninstall the Elo driver, open the Microsoft ***Control Panel*** and select either ***Uninstall a program*** or ***add/remove programs*** (for Win 10, open ***Settings/System/Apps & features***), then selecting the Elo driver and choosing ***uninstall*** or ***remove***. When finished, it is advisable to do a reboot to remove any residual files or registry entries before starting the install process on the new driver.

To silently uninstall the driver, run the ***silent_uninstall.cmd*** file found in the "EloTouch_v6.9.10_TGCS" install folder, using administrative privileges. A CMD window will appear with a statement that it will close when the installation is complete. The process may take about a minute to complete.

The ***silent_uninstall.cmd*** may also be used to uninstall older drivers that are at least v6.x. Drivers older than that may run the command ***EloSetup.exe /S /U*** from the ***Elo Touch…*** folder under "Program Files."

C.1.5 Elo Driver Configuration

The initial driver configuration will be determined by the values in the text editable "EloOptions.ini" file. Modifications to this file are for advanced users and is treated in a separate EloOptions document. Modifications may be made with a GUI interface by clicking the ***EloConfig*** shortcut icon on the desktop or the ***EloConfig*** application found under Start/All Programs. The main menu appears as shown in Figure C.1.4 below. The first button option ***Restart Windows Touch Service*** is for those rare cases when touch may not be working. It basically resets the touch service to get touch back to working. This option applies to Windows 7 and POSReady 7 only. For other OS's this may be grayed out (not used).

Fig C.1.4. EloConfig main menu

Calibrate

The ***Calibrate Touch Screens…*** button is for aligning the touch screen and association of multiple monitors. The Elo driver is designed to work with many different technology touch screens and Elo's default calibration method is via three different targets. But the TCx Display touch screen alignment is preset at the factory and needs no manual alignment, so only one target will appear to allow the association process. During the calibration process, the touch is associated with the corresponding monitor at the same time any calibration inputs are taken by touching the targets.

Since the PCAP touch screen needs no alignment, the primary purpose of "calibration" is more relevant to associating the touch screens on two attached monitors in extended mode. When the ***Calibrate*** button is clicked, the desktop will get a target and instructions as shown in Figure C.1.5. When you touch and release from the target, the screen shown in Figure C.1.6 appears, requesting confirmation that the calibration is good. After clicking the ***Accept*** button, the images will appear on the secondary screen (if present) and you repeat the process to associate the touch screens with the corresponding

LCD. For a single screen setup, this is a rather benign operation, but for dual screen setups, this is necessary to properly associate the touch screens with the monitors and needs to be done after installation or after changing screen resolutions

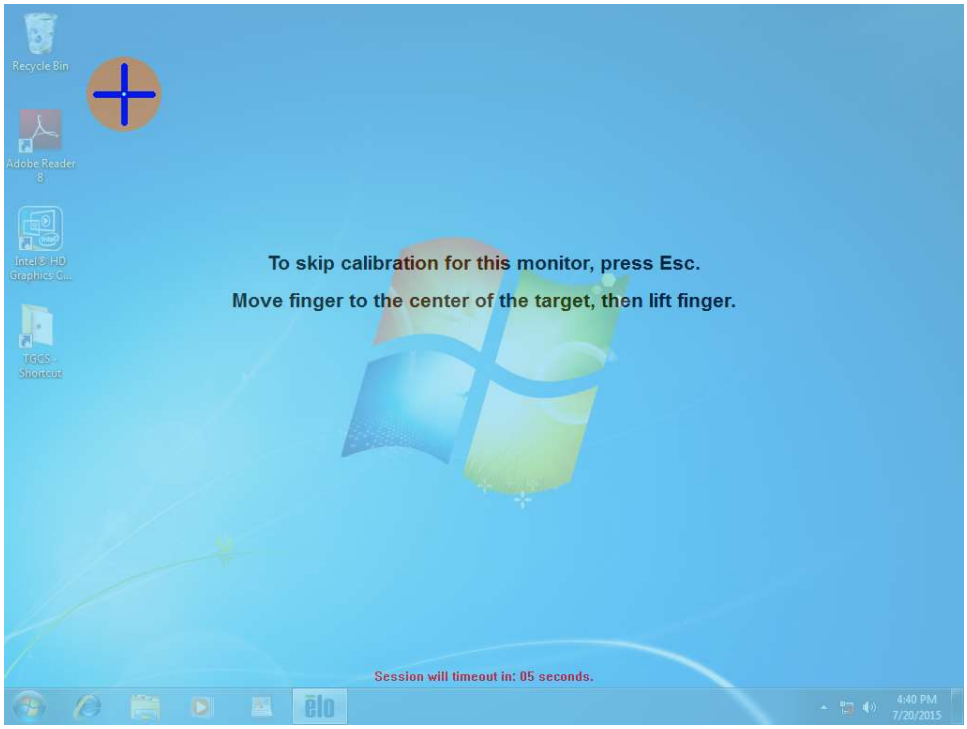

Fig C.1.5. Calibrate/Associate target

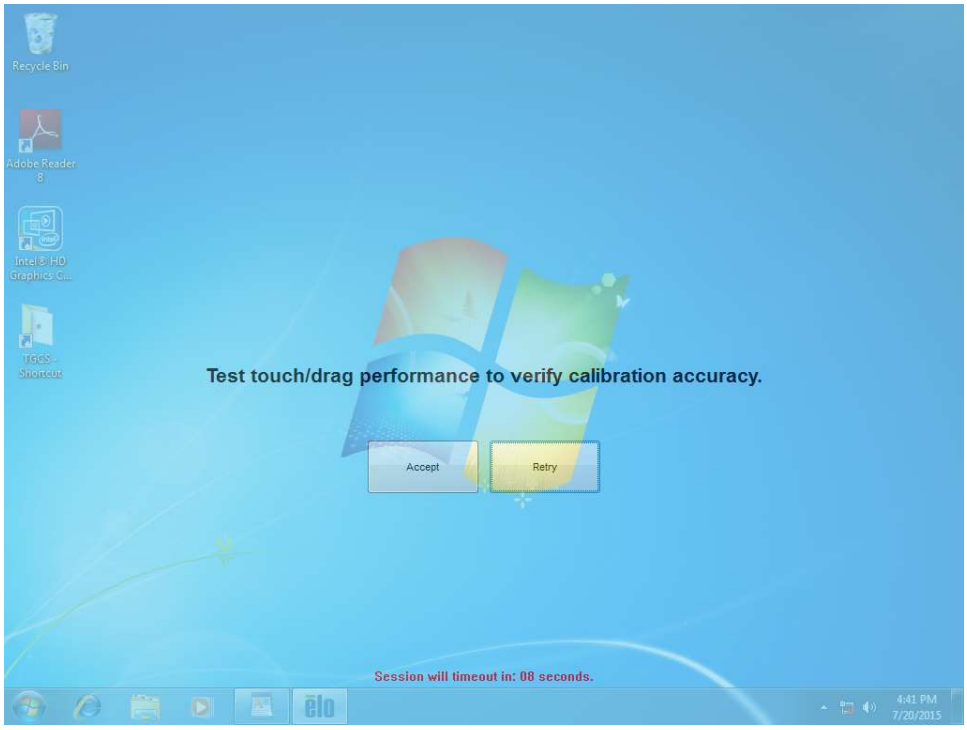

Fig C.1.6. Confirm calibration screen

Touch Screen Properties

The ***Touch Screen Properties…*** button opens the configurable properties screen as shown in Figure C.1.7. This screen shot shows only a single screen attached, as indicated by the single "Elo-1" tab at the top. An "Elo-0" means it is not calibrated yet, "Elo-1" means calibration has been completed for screen #1. If more screens are attached, then there will be more tabs as shown in Figure C.1.8 (sometimes in reverse order). The screen number corresponds to that shown by the ***Identify Monitor*** button.

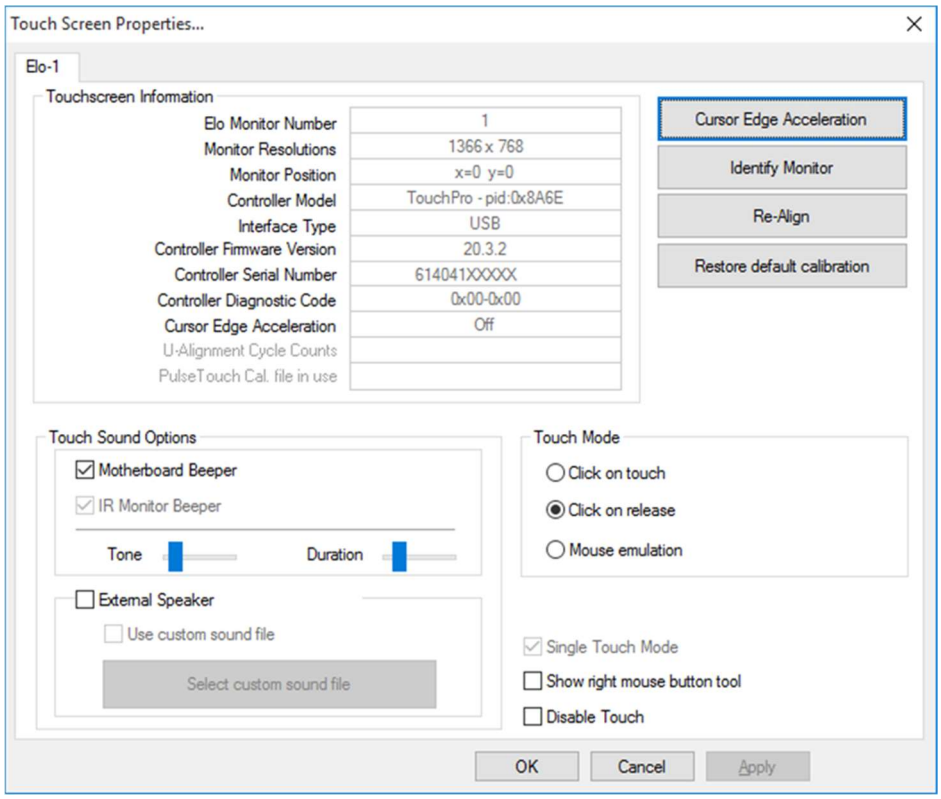

Fig C.1.7. Touch Screen Properties screen

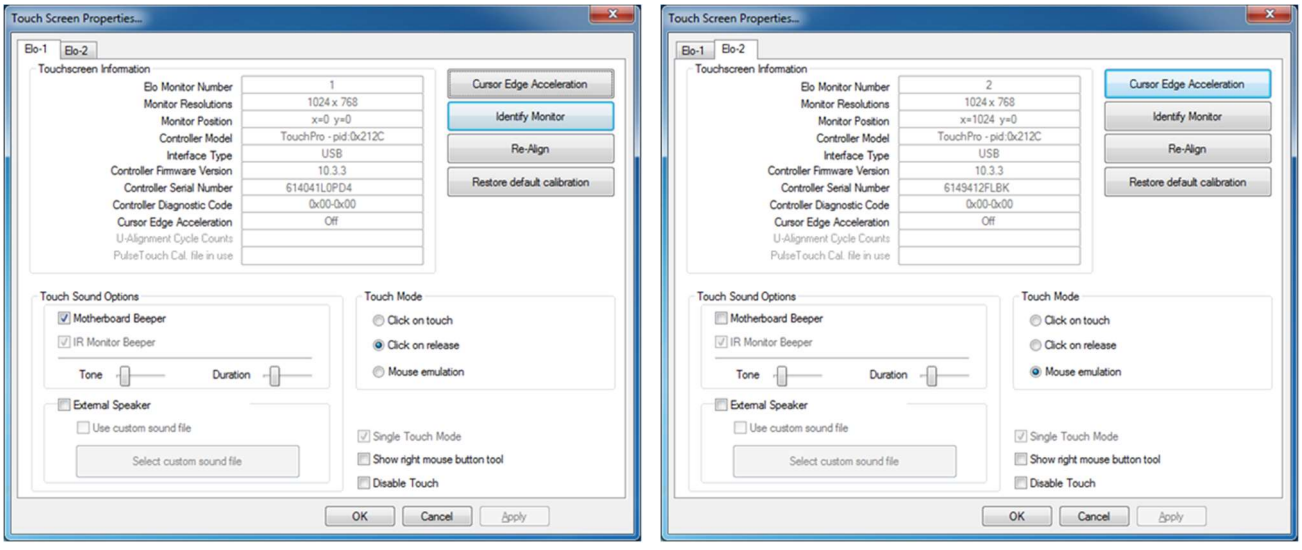

Fig C.1.8. Touch Screen Properties for dual touch cases

In the upper left hand quadrant is a list of information about the touch solution, including the monitor number (more relevant if multiple monitors are attached, typically the same as the monitor identification shown in the Windows video driver). Below that are the monitor resolution and relative pixel origin location, followed by the Elo brand touch solution (including PID) and type of interface. Next is the firmware version number as reported by the touch controller USB descriptor and the touch screen controller serial number. The diagnostics code "0x00-0x00" indicates a "good" condition.

Note: When updating firmware, the firmware version will be indicated as "v1.0_AB" for models –x3x/x4x and as "v2.0_AA" for models –x5x, which correspond to the version (v1.0 or v2.0) and the build (_AB or _AA). The driver retrieves the version and build number combined in the "bcdDevice" report in the USB descriptor information. The "bcdDevice" values will be "0x1033" and "0x2032" respectively with the "10" and "20" corresponding to the version numbers "v1.0" and "v2.0" respectively. The last two digits of the "bcdDevice" values correspond to the build number, "32" representing "AA" and "33" representing "AB." So, the report on the "Touch Screen Properties" page will read "10.3.3" for "v10_AB" or "20.3.2" for "v20_AA."

The "Touch Sound Options" show options to turn on or off the ***Motherboard*** and ***IR Monitor*** beepers, as well as the ***External Speaker***. The ***IR Monitor*** beeper is an internal monitor beeper found in the TGCS SurePoint IR based touch monitors, and is controlled by the Elo controller in such monitors. The 6149 monitors have other means of controlling the internal beeper. In this case the ***IR Monitor Beeper*** is grayed out because none is attached. For both the beeper options the ***Tone*** and ***Duration*** are adjustable with the slider bars. The defaults for these are defined in the "EloOptions.ini" file.

The "Touch Mode" is configurable, as is the ***Right Mouse Button*** tool. And the touch may be disabled. The ***Restore default calibration*** applies only to other Elo touch technologies and should be not enabled.

In the upper right hand corner are buttons to enable ***Curser Edge Acceleration*** (described below), ***Identify Monitor*** (more relevant to multi-monitor installations), to run the calibration again (***Re-Align***) on that specific monitor (again more relevant to multi-monitor cases and for other Elo technologies) and ***Restore default calibration*** (applies only to other Elo touch technologies).

Clicking on the ***Cursor Edge Acceleration*** (CEA) button will give a screen as shown in Figure C.1.9. By default, CEA is disabled. It is more relevant to bezel type displays, such as IR touch screens where it may be more difficult to touch near the edges of the screen. This function will force the cursor out toward the edges to compensate for the inability to get one's finger there. To enable this function, click on ***Select Defaults***, shown in Figure C.1.10.

In Figure C.1.10 you will see values applied to each side, and the area near the edges affected are illustrated by the green band around the edge. The width of the green band may be adjusted outward or inward by clicking on the ***Increase*** or ***Decrease*** CEA area buttons, or for individual side adjustments using the buttons in the center of each side. When satisfied, click the ***Apply*** button, or to disable click on the ***Turn Off CEA*** button and ***Close***. One may drag this app to an attached secondary display, in which case the settings for that monitor will be shown.

The ***Identify Monitor*** button will display a number on the monitor corresponding to the Touch Screen Properties tab that is open. The ***Re-Align*** button will force an alignment process (calibration) of the screen corresponding to the Touch Screen Properties tab that is open.

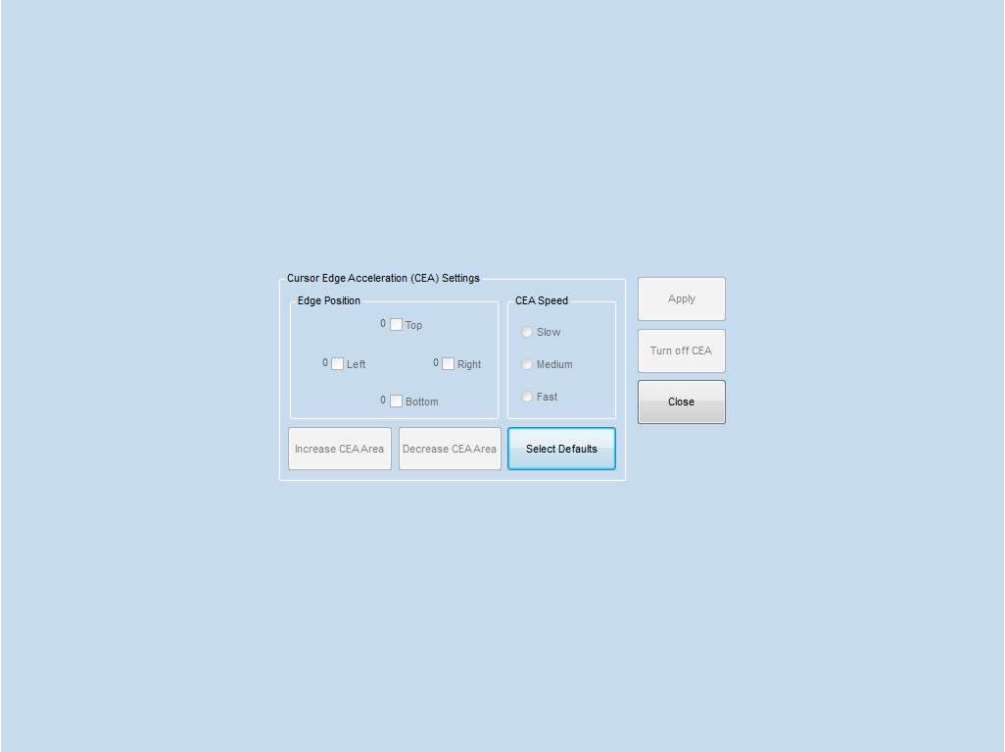

Fig C.1.9. Cursor Edge Acceleration (CEA) control panel

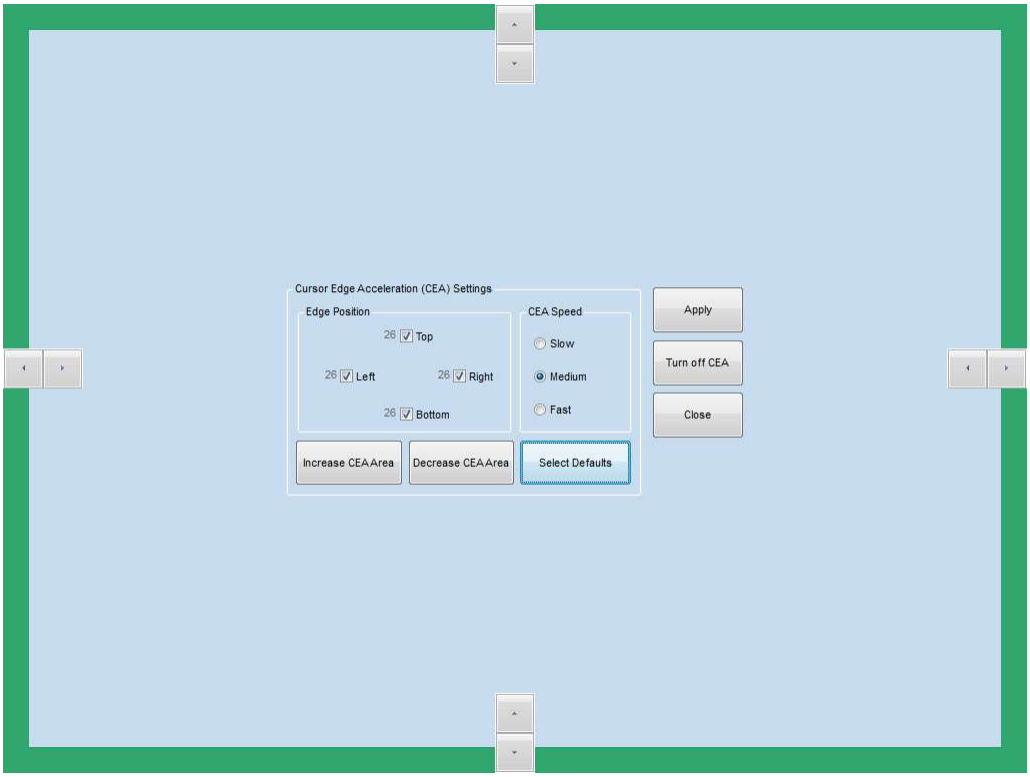

Fig C.1.10. CEA adjustments

For attached SurePoint monitors an IR Beam Monitor button may appear on the corresponding tab. See the document on "Elo Driver v6.9.10 for IR Touch Screens" for details.

Common Settings

The ***Common Settings…*** button from the main menu will bring up the control panel shown in Figure C.1.11. This is where you may modify the double click area and speed. You may also opt to hide the mouse arrow if desired. The "Spanned display mode" option is grayed out, as this is not supported on TGCS systems. When the desired settings are entered, click on ***Apply*** to make them effective.

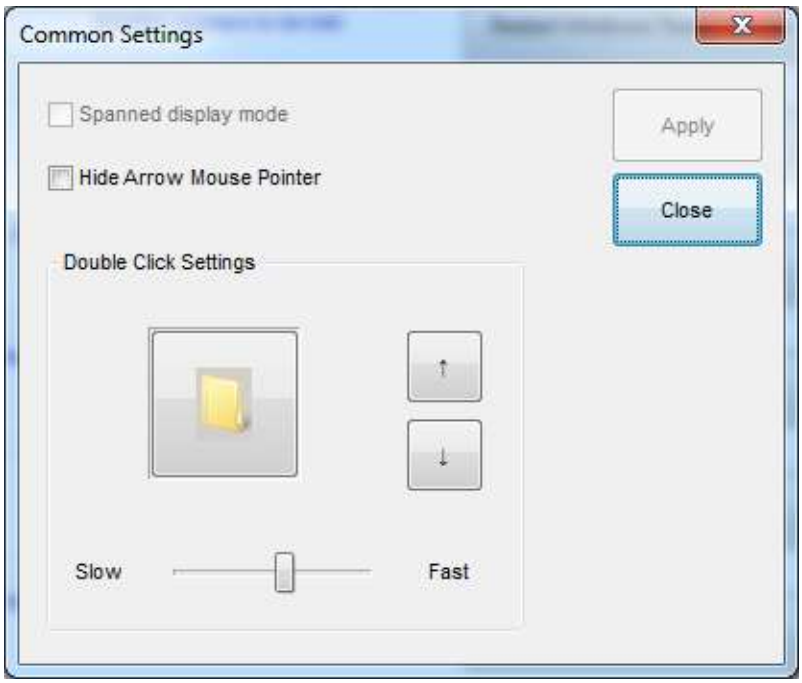

Fig C.1.11. Common settings panel

Define Touch Zones

The ***Define Touch Zones*** button from the main menu is an advanced Elo feature that will allow the mapping of touch to specific parts of the screen instead of the entire screen (default case). Please refer to the Elo manual for details.

About

The ***About*** button will bring up a panel that shows the driver version and has buttons for additional help:

Online Support links to an Elo on line support site
User Manual accesses the UserManual.pdf file (a PDF reader is required)
Component Versions gives individual driver module versions

Note that the driver version shown typically has four digits, the first three being the kernel version and fourth digit refers to revisions to the utilities associated with the drive package. The version number shown in Device Manager is only the kernel version, such that the fourth digit is typically a zero.

C.1.6 Advanced Options

The Elo driver as provided by TGCS is configured to force a HID-pointer/mouse interface. However, it may be configured for a HID-digitizer/tablet type interface to retain the native Windows gesturing features (Win 7 and later), but allowing additional features such as a system beeper and mouse click options. Included in this configuration is an option to select single touch (always selected in the default TGCS configuration).

To install the driver with this digitizer configuration, the "EloOptions.ini" file found in the "Common" folder of the install package needs to be modified before installing the driver. Under the [Setup Options] section of the file the ***ForceMouse*** value needs to be changed from "1" to "0" to enable the digitizer mode. When the driver is installed with this modification to the "ini" file, the driver simply passes through to the OS embedded driver, with added features such as beep options. The options may be selected from the ***Touch Screen Properties*** of the ***EloConfig*** utility.

More details may be found in the document on EloOptions.

C.1.7. Manual Calibration

IR touch screens have fixed electrodes/beams which do not drift. So, normally the inherent accuracy of the alignment is good for most applications, and no specific re-alignment is required. Normally the ***calibrate/re-align*** function is only used to associate touch screens with the monitor. But in those rare cases where a more refined or adjusted calibration is required, then there is a manual three point calibration utility to do that very thing. But to use it, the ***DriverCalibration*** must be enabled.

First edit the ***EloOptions.ini*** file to change the DriverCalibration in the ***[Calibration]*** section from 0 to 1, and then copy the file to the "Elo Touch Solutions" folder in the "/Program Files" folder using administrative privileges. Now when the Calibration/Re-Align commands are invoked, the three point calibration method will be applied instead of applying the pre-determined alignment values in the ***EloOptions*** file. First a target will appear in the upper left hand corner, followed by one in the lower right hand corner and finally one in the upper right hand corner. You have 10 seconds to touch target before the next target appears. The point of accuracy is where you lift the finger, not where you first touch.

C.1.8.Command Line Option

In addition to command line options to install and uninstall the driver, there are options to change the configuration or calibrate the touch screen via command line options. To re-calibrate or re-associate the touch screens via a remote command, the command "EloConfig.exe /align" may be executed from the "Elo Touch Systems" folder under the "Program Files" system folder.

Other command line options apply to changing the touch configuration using the utility "EloDriverDefaults.exe" from the "Elo Touch Systems" folder. Command line options include:

- "-r" load setup parameters to EloOptions.ini file (useful for populating the setup parameters for cloning purposes)
- "-w" apply the [Device Default] values from the "EloOptions.ini" file
- "-m" apply the [Monitor] values from the "EloOptions.ini" file
- "-I" apply the IR beam monitoring setup parameters in the "EloOptions.ini" file

The "EloDriverDefaults" must have administrative privileges to run.

More detail may be found in the "EloOptions_v6.9.10_TGCS_UG" doc, or in the Elo User Manual.

C.1.9.Language Support

The driver supports the following languages for the control panel messages

- Chinese Simplified
- Chinese Traditional
- English
- French
- German
- Italian
- Japanese
- Portuguese
- Spanish

The language will agree with that set in the Windows control panel for ***Region***, under the ***Administrative*** tab by clicking on the ***Changing system locale…*** button as shown in Figure 18. That will bring up a control panel that will allow selection of another language as shown in Figure 19. Scroll down to the language desired and click ***OK***. The system will need a restart for the new language to take effect. Not only will many of the Microsoft control panels change to the new language selected, but the Elo control panels will switch also, as long as one the languages above is selected.

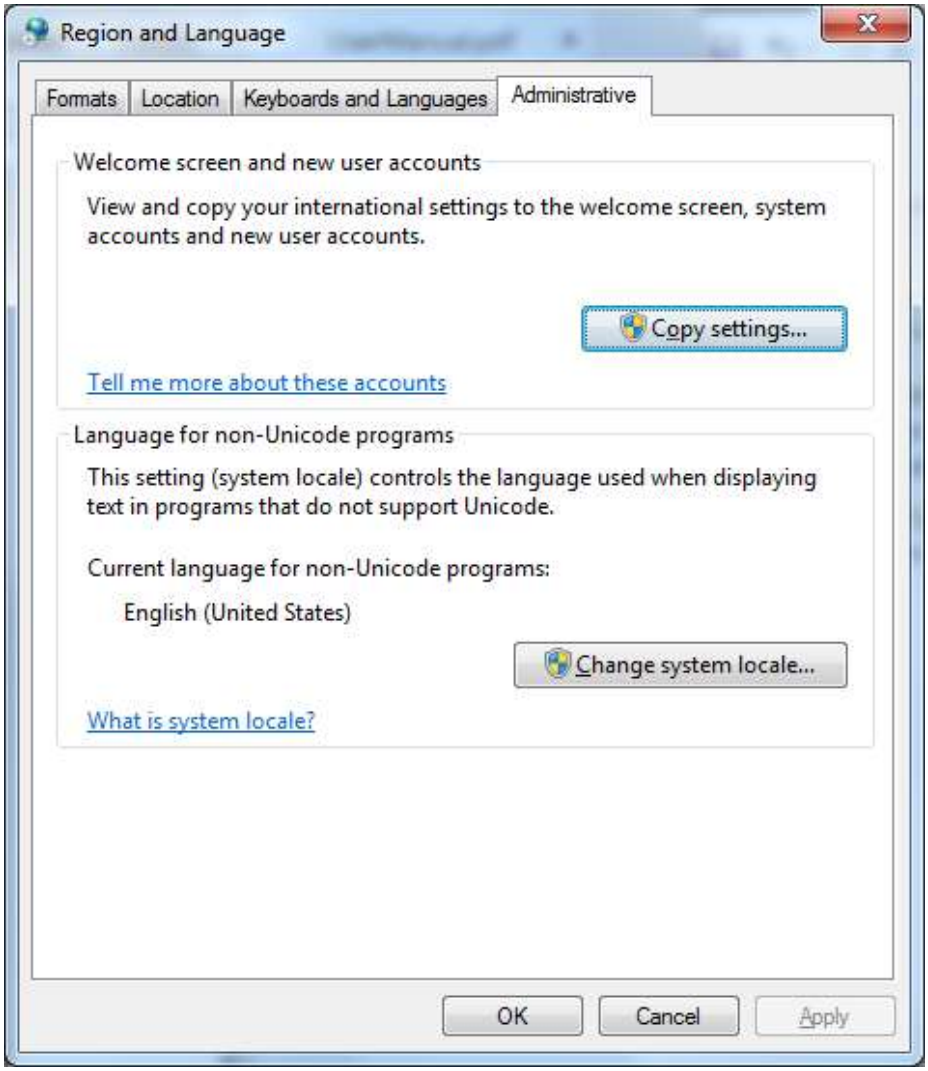

Fig 18. Region and Language control panel

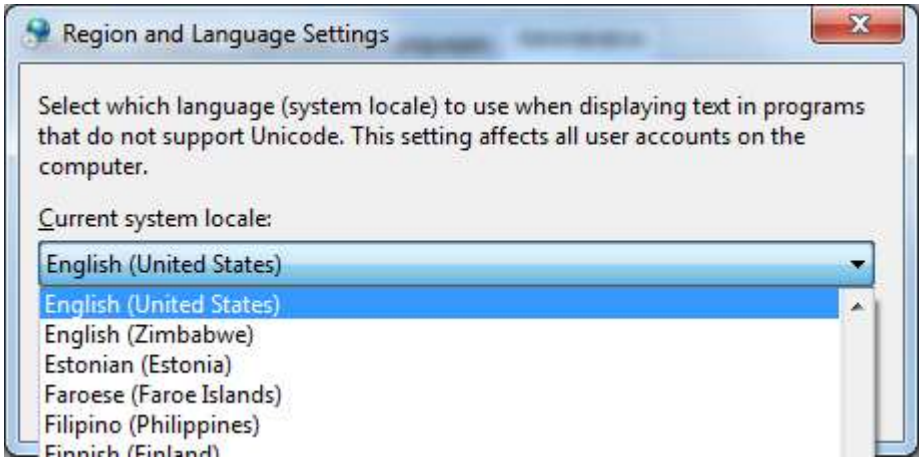

Fig 19. Locale selection control panel

C.2 Ocular Touch Screen Driver (legacy)

Some older installations may have the older Ocular driver installed. The Elo driver is a preferred solution, but for those with the legacy driver loaded, the following are instructions on configuring and uninstalling the driver.

C.2.1 Uninstall Driver

To uninstall the Ocular driver you may use one the following methods:

- open ***All Programs,*** select ***Ocular LCD, Inc/Ocular Touch Panel/Uninstall Ocular Touch Panel***
- Open ***Control Panel/Uninstall a program*** or ***add/remove programs***, select ***Ocular*** and elect to ***uninstall*** or ***remove***
- ***SilentUninstall.bat*** from the install package

Each of the first two options will take you through a few panels to confirm intentions and show progress. Figure C.2.1 shows the initial confirmation screen, which requires clicking the ***Yes*** button. This will be followed by a couple of setup progress panels as shown in Figures C.2.2 and C.2.3. After this a Windows administrative message will appear to confirm intention to remove. Enter any password that may be needed and click OK. Then the actual uninstall of driver elements will show up as shown in Figure C.2.4. A brief message will appear afterwards to the effect that the driver has been uninstalled, and tray messages will appear indicating that the Windows native drivers are being applied. After that point you may touch the screen and get the native Windows response.

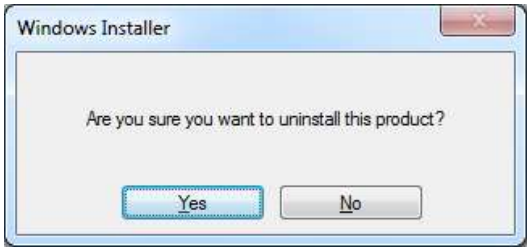

Fig C.2.1. Confirmation panel

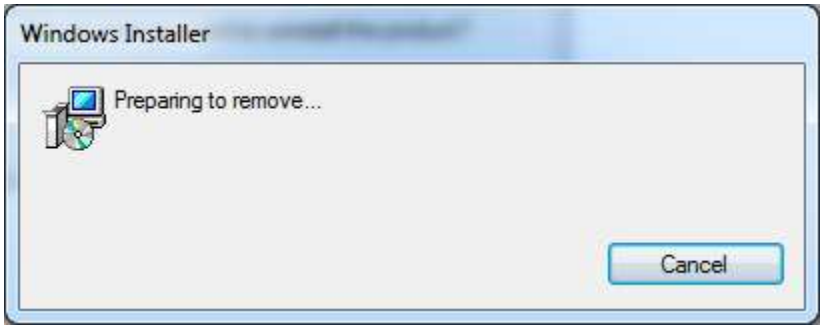

Fig C.2.2. Preparing to remove

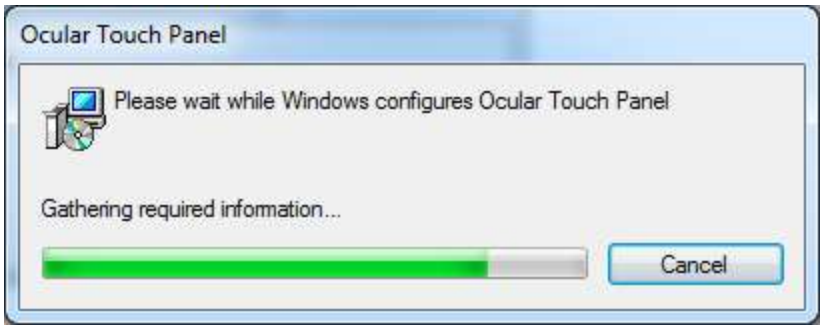

Fig C.2.3. Gathering info to remove driver

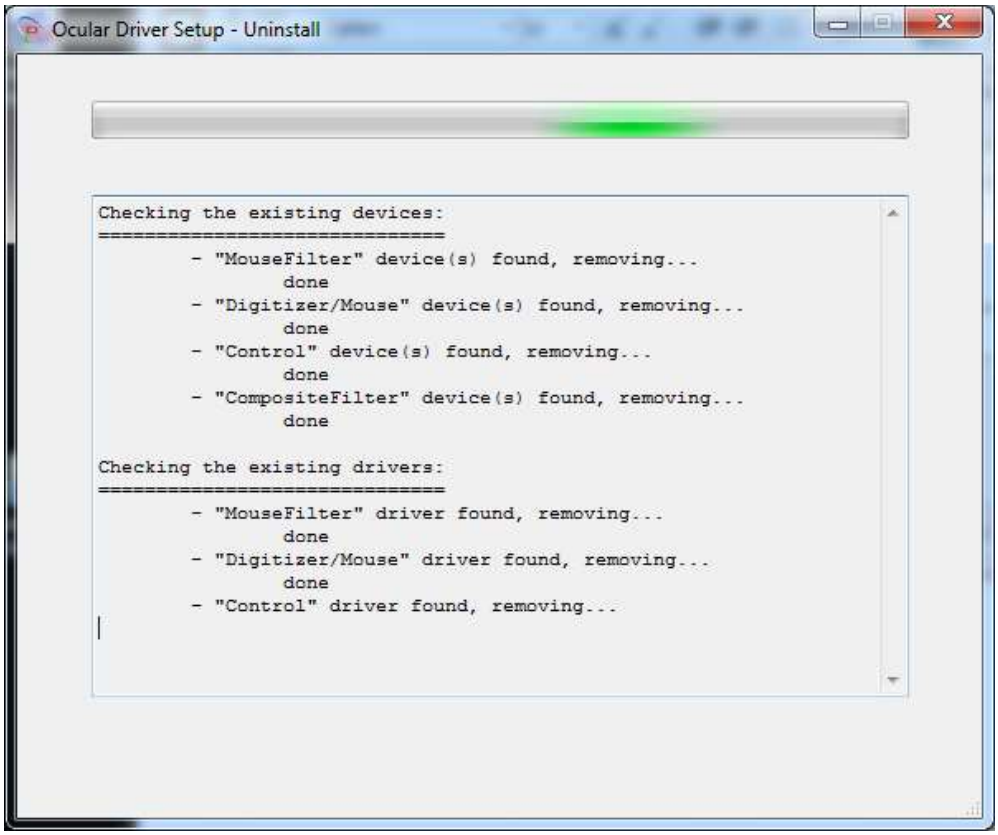

Fig. C.2.4. Uninstalling driver elements

Of course, if the ***SilentInstall*** option is used, none of the above messages will appear.

C.2.2 BeepService Removal

In addition to removing the Ocular driver, any separate beeper service driver (often found on the TCxWave that had an Ocular driver installed) should also be removed. To uninstall the ***TGCS BeepService***, you may use one of the following methods:

- Open ***All Programs*** and elect ***BeepService/uninstall BeepService***
- Open the ***Control Panel uninstall*** or ***add/remove programs***, select ***BeepService*** and choose ***uninstall*** or ***remove***

There will be three pop up screens to guide you through the process. The first pop up screen is shown in Figure C.2.5 to confirm the intention. Click on ***Yes*** and the screen shown in Figure C.2.6 will appear showing the progress. Finally the screen shown in Figure C.2.7 will appear indicating finish and requesting a reboot.

Fig C.2.5. Confirm uninstall intention

Fig C.2.6. Uninstall progress

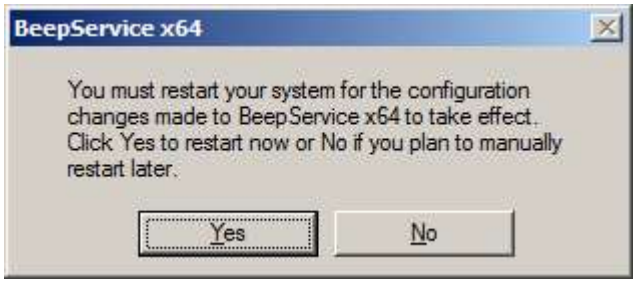

Fig C.2.7. Completion and request to reboot

C.2.3 Driver Settings

There are a few settings to optimize the mouse-like operation of touch events. To make these adjustments, open the Ocular Configuration Utility either from the touch screen tray icon or from Programs/Ocular/Ocular Configuration Utilities to get a control panel as shown in Figure C.2.8.

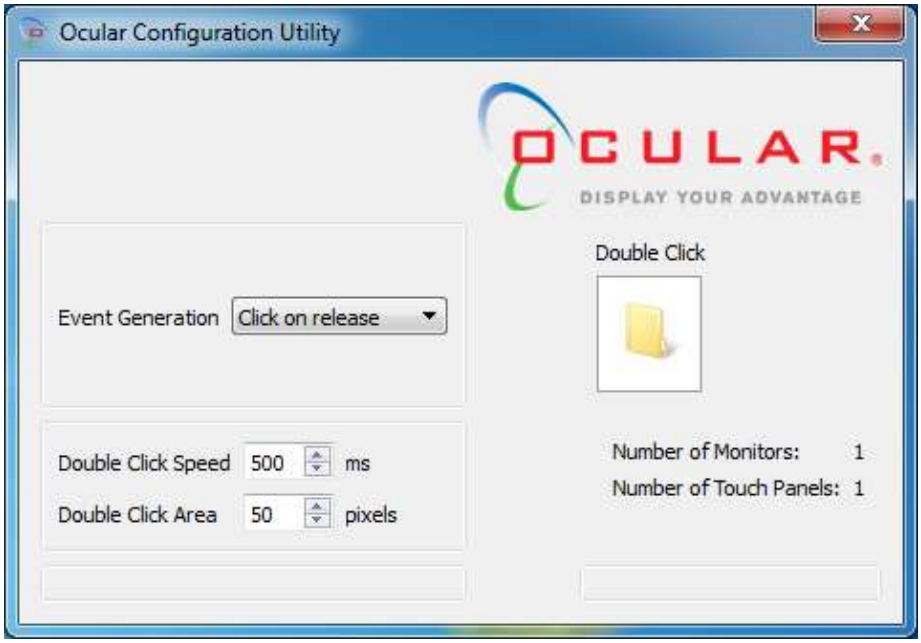

Fig C.2.8. Ocular Configuration Utility

There are basically two settings that are specific to a mouse-like touch screen:

* Mouse click mode (Event Generation)
  - ***Drag*** (standard mouse; button-down on touch, drag while down, and button-up at lift off)
  - ***Click on Touch*** (button-down with immediate button-up, or a click, when touched; no drag)
  - ***Click on Release*** (button-down with immediate button-up, or click, at lift off; no drag)
* Double-click area and speed.

The Event Generation (mouse click mode) may be selected from the pull-down list. The default is "Click-on-Release." The default double-click values are 500 ms and 50 pixels, which may be changed to optimize it to the user needs. A double-click icon is provided to test the settings. These settings will take effect immediately and persist through reboots indefinitely, until changed.

The panel will display the number of monitors and touch panels attached. If there is more than one monitor attached, an ***Associate Monitors to Touch Panels*** button appears to run the touch panel to monitor association, as shown in Figure C.2.9. Following the method described in the "Dual Monitor Setup" section above, click on the ***Associate Monitors to Touch Panels*** button. That will cause the image shown in Figure C.2.10 to appear on the primary monitor (TCxWave-x3x). Touch the monitor with that image and the image will move to the next monitor if it is a TCx Display touch screen (otherwise there will be no more images). Touch the second monitor and the touch screens will be associated with the videos.

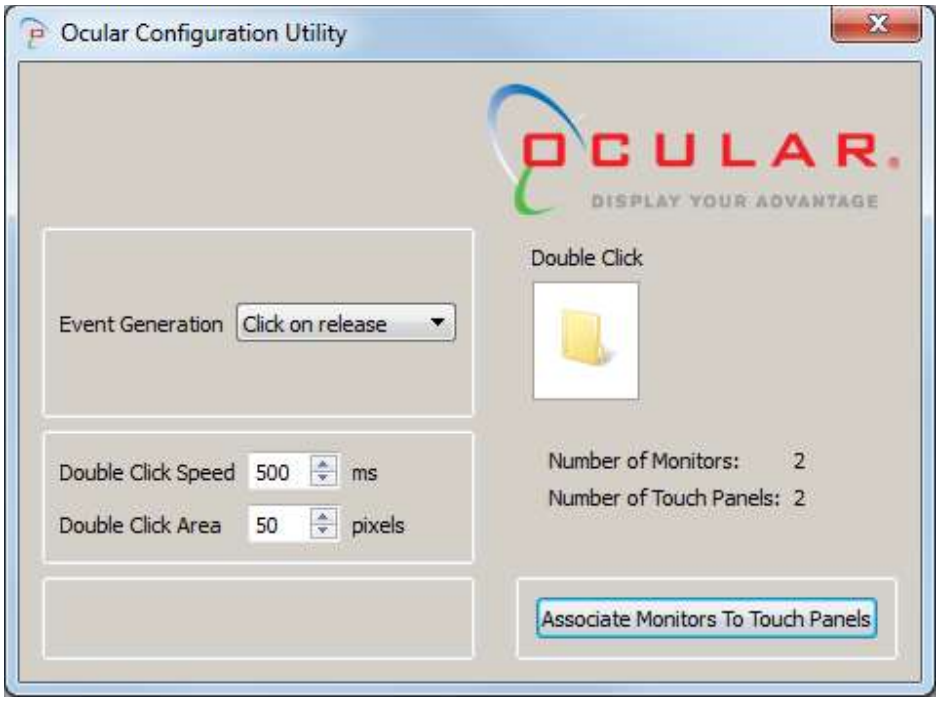

Fig C.2.9. Case of two touch screens attached

Fig C.2.10. Ocular “Touch Here” image

From the tray icon, one can initiate a right-button click option for the next touch. Any subsequent touches revert to the default left button click operation.

D. Dual Monitor Scenarios

There are a number of dual touch screen display combinations. Each touch solution has its own controller type and any specific utilities for that controller type will only apply to like controllers. For association processes, the one provided by Microsoft is controller agnostic, but if there is an OEM driver loaded, its association process may only work with like controllers. So, if the touch screens are using the embedded Microsoft drivers (no OEM driver installed), then the association process is rather straight forward, using the ***Tablet PC Settings***, ***Setup*** function. However, if the OEM drivers are installed, the association process may get a little more complicated if the touch screens have dissimilar touch controllers.

The association method varies depending on whether the attached display is in Clone mode or Extended mode, whether it is a TCx Display (PCAP touch) or a SurePoint monitor (IR touch) and whether the TCxWave has an OEM driver loaded or not.

Note: If the SurePoint monitor is attached, an Elo driver will need to be installed to work as the extended touch monitor.

A summary is shown in the table below. Each scenario is described in detail in subsections below. It is not recommended that the Ocular driver (highlighted in the table) be installed on new installations; the Elo touch driver is recommended as a replacement.

Table D1. Dual monitor scenarios (required association actions)

Attached Display	OEM Driver	Clone Mode	Extended Mode Association
TCx Display 5xx	None	No action required	Run ***Setup*** (Pen & Tablet)
	Elo v6.9.10	No action required	Run ***Calibrate***
	Ocular*	No action required	Run ***Associate***
SurePoint 2xx/5xx	None	No action required**	Load Elo v6.9.10 driver, run ***Calibrate***
	Elo v6.9.10	No action required	Run ***Calibrate***

* Ocular driver (highlighted) not recommended for new installations

** Option: may load Elo v6.9.10 for more enhanced features

D.1 TCx Display Attached, Extended Mode

The TCx Display uses a similar touch controller as the TCxWave-x3x/x4x/x5x, which means the same driver is used for both.

D.1.1 Win 7/8.1/10, no OEM driver

If there is no OEM driver installed, where touch is controlled by the Windows native drivers, then any association of touch screens to monitors is done by invoking the ***Setup*** in the ***Tablet PC Settings*** control panel (see Figures A7 and A8). Simply touch the screen that has the "Touch this screen…" image, in succession as it moves from monitor to monitor. For the clone mode, no action is required.

D.1.2 Elo v6.9.10 Driver

With the Elo v6.9.10 driver installed for the TCxWave-x3x/x4x/x5x, it is also an appropriate driver for the TCx Display. The touch-to-monitor association is accomplished by opening the EloConfig utility and clicking on the ***Calibrate*** button. A calibration target (Figure C.1.5) will appear on the primary monitor, which should be touched. A confirmation button (Figure C.1.6) will appear which should be clicked. This will repeat on the secondary monitor. For the clone mode, no action is required.

D.1.3. Ocular Driver on the TCxWave-A3x/E3x

With the Ocular driver installed for the TCxWave-A3x/E3x, it is also an appropriate driver for the TCx Display. The touch to monitor association is accomplished by opening the ***Ocular Configuration*** utility and clicking on the ***Associate***… button. A "touch here" image will appear on the primary monitor (see Figure C.2.10), which should be touched. This will repeat on the secondary monitor. For the clone mode, no action is required.

D.2 SurePoint 2xx/5xx Attached, Extended Mode

The SurePoint 2xx/5xx display uses an Elo IR touch solution. For clone mode situations, no driver is required and no action is required for USB versions. But for the extended mode and RS232 interfaces, an Elo driver must be loaded. To associate the touch to the monitor, click on ***Calibrate*** in the main menu of the ***EloConfig*** utility. A calibration target will appear on the primary monitor, which should be touched. A confirmation button will appear which should be clicked. This will repeat on the secondary monitor.

Note: The TCxWave should always be set as the primary screen. Using it as the secondary screen is not supported.

E. Touch Mode Settings

The OEM drivers have settings to define when the equivalent mouse button actions will occur. By default the setting is for Click-on-Release, where "click" means a button down, followed immediately by a button up action. The "Click-on-Release" means that when one touches the screen, one may move the cursor, but no button action occurs until the finger is released from the screen, and at that very moment a button-down followed by a button-up action occurs.

The "Click-on-Release" permits the user to correct for any finger location before any button action takes place. This is convenient for getting the finger on the correct button before committing any action. Generally this is considered the most secure use of the touch screen for icon touch actions.

However, for rapid touch inputs, the "Click-on-Touch" option may be considered. When making rapid entries, one's finger may slip off the icon before lifting, which means a "Click-on-Release" would miss that attempted touch. To correct for that scenario, the "Click-on-Touch" option may be selected. In this case the button-down with an immediate button-up (click) would occur at the very first contact point. Any movement after the first contact point and before release will be ignored.

Of course, if the icon is not touched on first contact, the entry will be missed for the "Click-on-Touch" option, just as the sliding off case with "Click-on-Release". So, it will be up to the user to decide on the preferred click option.

For those applications that require dragging of objects, the "Mouse/Drag" option is required. In this case, the mouse button will be down while touching the screen, allowing the drag of objects. The button will go to an up position when the touch is released.

F. Uninstalling Older Drivers

Before installing any of the OEM drivers, all older drivers must be completely uninstalled. Usually it is very straight forward by either invoking the ***Uninstall*** utility in the driver listing in ***Programs***, or uninstalling from the Windows ***Control Panel.*** Sometimes some extra steps may be needed to remove all vestiges of the driver that may interfere with a new driver install. Below are some tips on uninstalling the various drivers.

Elo: Uninstalling older drivers is done via the Microsoft ***Control Panel*** and selecting ***uninstall*** or ***add/remove programs*** (for Win 10, open ***Settings/System/Apps & features***), then selecting the Elo driver and choosing ***uninstall*** or ***remove***. Alternatively, for v6.x drivers, one may use the silent_uninstall.cmd executable found in the v6.9.10 driver package to uninstall the older driver. When finished, it is advisable to do a reboot to remove any residual files or registry entries before starting the install process on the new driver.

Some of the older drivers (before v6.x.x) may not completely uninstall using the normal uninstall process. In this case, any residual folders/files will need to be manually removed before attempting to install the new driver. Use the following steps to completely remove an older Elo driver and any of its residual folders/files.

1. Uninstall the Elo driver using the Windows ***Control Panel***, ***Uninstall*** or ***Add/Remove Programs*** (for Win 10, open ***Settings/System/Apps & features***)
   - select the Elo driver from the list of programs and choose ***Uninstall*** or ***Remove***
   - wait for the uninstallation to complete, confirming intentions where requested
   Alternatively, one may execute ***EloSetup /S /U*** from the ***Elo Touch…*** folder under "Program Files"
2. Reboot the system
3. Remove any residual Elo Touch folders from the ***\Program Files*** folder
   - if unsuccessful, there is probably an old driver file in use, such as ***DTCTTCH.exe***
   - open the ***Elo Touch…*** folder from the ***\Program Files***
   - find the executable files that were not removed, such as ***DTCTTCH.exe***
   - open Task Manager to the Processes tab
   - select the Elo files identified above and click on End Process
   - now delete the ***Elo Touch…*** folder
4. Remove any ***Elo Touch…*** folders from the ***\Program Data*** folder or the ***\Document and Settings*** folder
5. Open the \Windows\System32\drivers folder and search for any Elo files and delete them
6. Reboot the system to clear any residual registry entries

It has been observed that the above procedure is often needed when uninstalling the Elo driver, versions: V5.4.9 or V5.5.2.

Ocular: See sections C.2.1 and C.2.2 for step by step process to remove the Ocular driver and the associated Beeper Service. Generally this removes everything, but to be sure it is recommended that the system be rebooted to clear out any entries in the Registry and then check for and remove any ***Ocular*** folder in ***\Program Files***. If there is difficulty doing that, then open ***Task Manager*** and end any ***Ocular*** processes, and then remove the folder. The same applies to the Beeper Service.

G. Known Limitations

Right Click button in fixed position (Elo driver)

When the ***Right Mouse Button Tool*** option is selected with the Elo driver installed, it will be located in the upper left hand corner of the screen. It cannot be moved.

Wake on Touch Not Turned Off by Driver Touch Disable

When the touch is disabled using the option in the configuration control panel of the driver (Elo or Ocular), the normal touch will be disabled, but touching the screen when in standby will still wake the system; that is, wake-on-touch is still active. In those rare cases where wake-on-touch needs to be turned off, ***Device Manager*** settings may be modified to accomplish that.

Elo Driver: Open ***Mice and other pointing devices*** under ***Device Manager*** and select the ***HID-compliant mouse*** that has the PID 212C (check the ***Hardware ids*** under the ***Details*** tab). Open the ***Power Management*** tab and click off the option to ***Allow this device to wake the computer***. Then select ***Elo Touch Solutions HID mouse*** and open the ***Power Management*** tab and click off the option to ***Allow this device to wake the computer***. For the Elo driver, both actions are required.

Ocular Driver: Open ***Mice and other pointing devices*** under ***Device Manager*** and select the ***HID-compliant mouse*** that has the PID 212C (check the ***Hardware ids*** under the ***Details*** tab), and click off the option to ***Allow this device to wake the computer***.

Windows 8.1 Start Button

Click Start Button to Get Metro Function

Normally in a tablet type operation, the ***Metro*** function may be called by touching and releasing the Start button. However, if the Elo driver is installed it may require two touches to call the ***Metro*** function. This has been observed to be more prevalent if the touch mode is set to ***click on touch*** or ***mouse emulation***, and the taskbar is in the default location at the lower part of the screen. If the taskbar is moved to any of the other three sides, the ***Metro*** function is called with a single touch as normal.

Right Click Start Button for Access of Options

Normally a right button click on the ***Start*** button will bring up a menu of items to access. When the ***Right Mouse Button Tool*** is applied from the ***EloConfig Touch Screen Properties*** control panel, no such menu list can be accessed, unless the taskbar is placed on the right hand side. In principle it should work if the taskbar is placed on the left hand or top side, but the ***Right Mouse Button Tool*** icon covers up the ***Start*** button.

Clicking on Small Icons

When touching small icons, any slight movement may be interpreted as a drag. This is particularly an issue if in a mouse/drag operating mode. The default Registry values for detecting a drag is a movement of only 4 pixels (1mm), which is OK for a mouse, but often too sensitive for finger touches. To correct for this, use the method suggested in section B.1 above.

Scaling Options for Lower Resolutions on x5x Models

If the application has a 4:3 aspect ratio and used on a model x5x (16:9 native aspect ratio), for example a 1024 x 768 resolution, then the normal touch alignment will only hold for the following scaling options:

- Maintain display scaling
- Scale full screen

If other options are used (ex: maintain aspect ratio, or center image), the touch alignment may be offset. To work around this, the preset calibration may be over ridden with a manual calibration as follows:

No OEM driver (native OS drivers): Perform a manual calibration as described in section A.2 above.

Elo Driver: The Elo driver may be setup up to perform a 3-point manual calibration with one of two methods as follows:

Reinstall driver with new settings

1. Uninstall the driver as described in section C.1.4 above
2. From the driver install package in the ***Common*** folder, open the "EloOptions.ini" file.
3. Change the ***DriverCalibration*** under the ***[Calibration]*** section of the ***EloOptions*** file from the value 0 to the value 1.
4. Reinstall the driver as described in section C.1.2 above

Change settings on an installed driver

1. Change the ***DriverCalibration*** under the ***[Calibration]*** section of the ***EloOptions*** file from the value 0 to the value 1. You may need to change this outside the ***\Program Files\Elo Touch Solutions*** folder and then copy it back to that folder with administrative privileges.
2. Open the ***EloConfig*** utility and click on ***Calibration.***

On each monitor in turn, there will be three calibration targets to appear one after the other after touching each. Touch each target in the center in sequence, test the accuracy and the touch ***Accept***, as instructed on the screen. Do this for both screens.

TCxWave with Attached Monitor of a Different Aspect Ratio

If a 4:3 aspect ratio monitor (TCx Display-5Sx or SurePoint 2xx/5xx) is attached to the 16:9 aspect ratio TCxWave-x5x, or vice-versa if a 16:9 aspect ratio monitor (TCx Display-5Cx) is attached to a 4:3 aspect ratio TCxWave-x3x/x4x, there may be an inherent miss match between the active display area and the active touch screen area. Depending on the scaling used for each display, there may be an offset in one or more of the touch screens, especially near the edges of the displayed area. To work around this, the preset calibration may be over ridden with a manual calibration as follows:

No OEM driver (native OS drivers): Perform a manual calibration as described in section A.2 above.

Elo Driver: The Elo driver may be setup up to perform a 3-point manual calibration with one of two methods as follows:

Reinstall driver with new settings

5. Uninstall the driver as described in section C.1.4 above
6. From the driver install package in the ***Common*** folder, open the "EloOptions.ini" file.
7. Change the ***DriverCalibration*** under the ***[Calibration]*** section of the ***EloOptions*** file from the value 0 to the value 1.

8. Reinstall the driver as described in section C.1.2 above

Change settings on an installed driver

3. Change the ***DriverCalibration*** under the ***[Calibration]*** section of the ***EloOptions*** file from the value 0 to the value 1. You may need to change this outside the ***\Program Files\Elo Touch Solutions*** folder and then copy it back to that folder to get around administrative restrictions.
4. Open the ***EloConfig*** utility and click on ***Calibration.***

On each monitor in turn, there will be three calibration targets to appear one after the other after touching each. Touch each target in the center in sequence, test the accuracy and the touch ***Accept***, as instructed on the screen. Do this for both screens.

Wake-on-Touch with SurePoint xLx Monitor Attached Along with a USB HID Mouse

By default the TCxWave and any attached touch monitors will wake a sleeping system when the screen is touched. The same would occur for any attached mouse or keyboard. In some cases, it may be desirable to not allow an attached touch monitor to perform that action. To turn off the wake-on-touch, one needs to modify the Power Management in the Device Manager for the corresponding HID-compliant mouse. If the attached monitor is a ***SurePoint xLx*** model (VID 04E7 PID 0030) ***AND*** a USB HID mouse is also attached, one may not succeed in turning off the wake-on-touch for the SurePoint monitor. There are known issues with the Microsoft HID drivers and some processor and mouse type device combinations which prevent turning off the wake computer option (it may appear to be turned off in the Device Manager, but not actually work). The solution is to remove the USB HID mouse.

BIOS PC Beep Over Speaker Setting

If the TCxWave BIOS is enabled for "PC Beep Over Speaker," the touch driver system beeper function will not work if the "Touch Sound Options" in the "Touch Screen Properties of the Elo driver is set to "Motherboard Beeper" only. To get the speaker to sound on touch, the "External Speaker" option must be enabled in the "Touch Screen Properties," regardless of the BIOS setting. If the motherboard beeper is desired for touch sound, then the BIOS "PC Beep Over Speaker" setting must be disabled.

Orientation Settings

The Intel Graphics driver may allow the monitor several different orientations (Portrait, Landscape (flipped), Portrait (flipped)) which are not supported. The only supported setting is 'Landscape' no matter the display mode used.

Auto-Calibration when Re-attaching Touch Monitor in Extended Mode

In the case where an attached touch monitor (for example, TCx Display) setup as an extended screen is removed before the Elo driver is installed on a TCxWave-x3x/x4x/x5x and then afterwards that touch monitor is re-attached, the Elo driver will automatically initiate a calibration routine as described in Section C.1.5 above. In this case of de-attach before and re-attach afterwards, there may be a request to touch the attached monitor screen twice. Just do it and the screens will be properly associated.

Windows Hardware Lab Kit (HLK) 1809 – Signed-Driver Check (Check Logo) Test fails.

The Elo Touch driver v6.9.10 does not meet the Signed-Driver requirement of Windows HLK 1809. However, this driver is qualified as a WHQL driver, and there are no problems with the driver installation.

Windows Hardware Lab Kit (HLK) 1809 – USB Internal Device Idle Test fails.

The Elo Touch driver v6.9.10 does not meet the following requirement of Windows HLK 1809.

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USB selective suspend feature only works when you have USB devices connected to your computer, and that you have the most recent correct drivers for your USB ports.

USB devices such as webcams, printers, and scanners are not in active use every minute of the day. To reduce the overall power consumption, especially if you're a laptop or tablet user, Windows will **automatically** put a certain USB port that is not in use in a low-power state.

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However, users can enable the USB selective suspend option of the touchscreen controller **manually** if needed.