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eGalaxTouchManager+

User Guide

For EETI Orion Family

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Revision History

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|------------------|------------|-------------------------|
| EUG-037-190517-1 | 2019/05/17 | First release. |
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| | | |

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1. Introduction

Orion is a powerful firmware kernel for touch system developed and designed by EETI. This kernel supports EETI's new generation touch controller ICs, including EXC80H84, EXC80H46, EXC86H80 and EXC86H128 solution families. **eGalaxTouchManager+** (or TM+) is a full featured tuning program with simplicity and efficacy tailor-made for Orion and its IC families. Engineer and user can employ TM+ to optimize the system performance for those systems designed and assembled following both EETI's Sensor Design Rule (SDR) and System Assembly Guide (SAG). This user guide will demonstrate and guide through the steps of auto tuning process and parameter configuration.

2. Preparation

2.1. System Requirements

- Available disk space: 512MB
- Operating system: Windows 7 or above

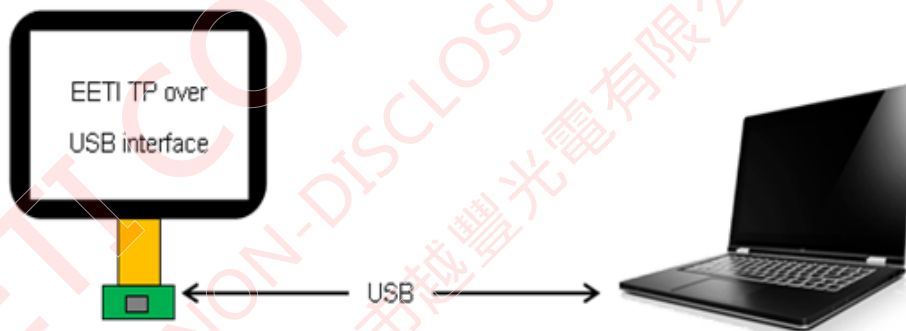


Figure 1.1: Device connection (USB interface)

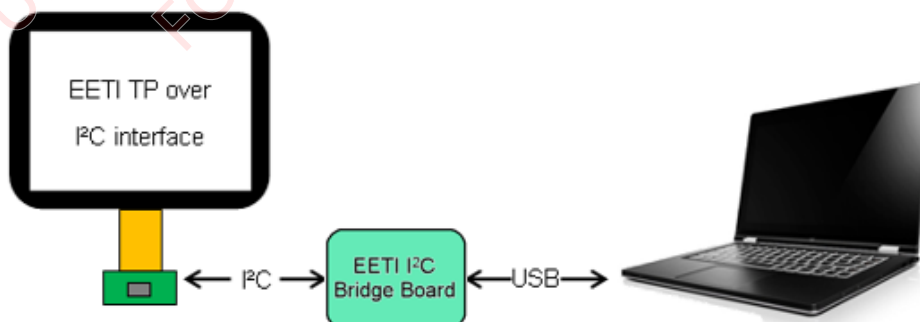
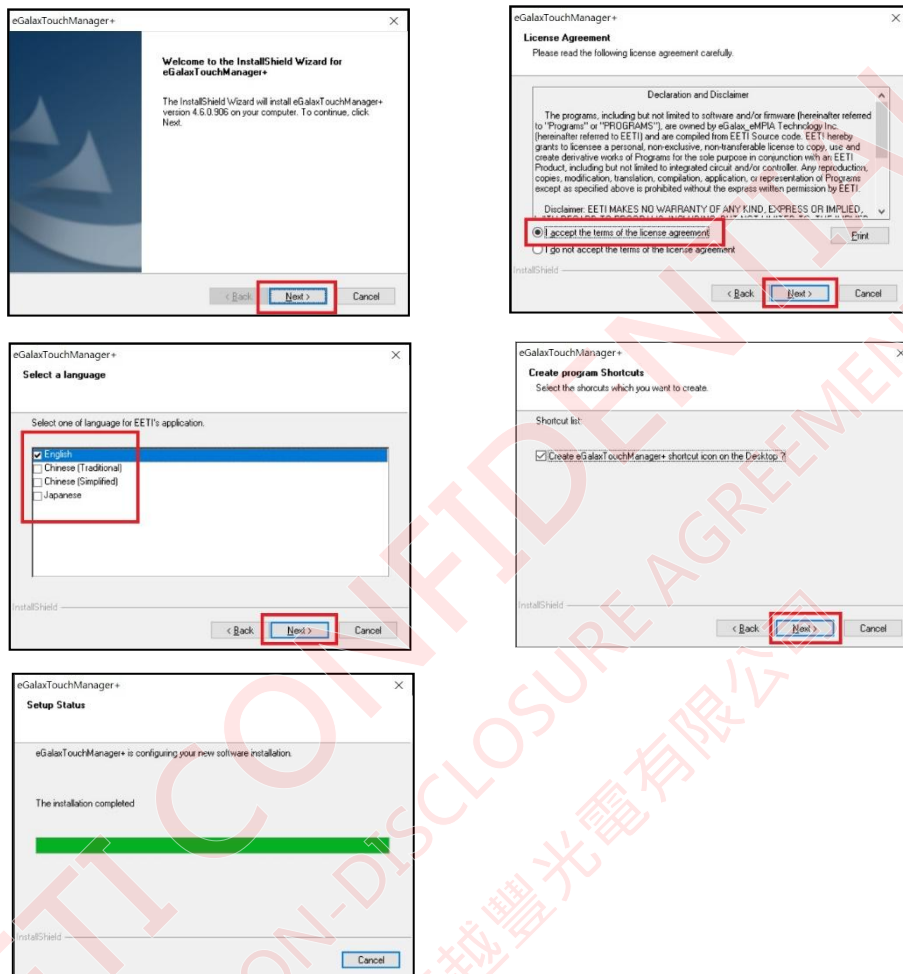


Figure 1.2: Device connection (I²C interface)

2.2. Software Installation

Go to “eGalaxTouch Manager+” folder and execute “setup.exe”. Follow the steps.



Once the installation is completed, a shortcut will be sent to the desktop.



2.3. System Setup

To minimize noise interference during the tuning process, please refer to System Assembly Guide to set up the touch sensor and controller properly.

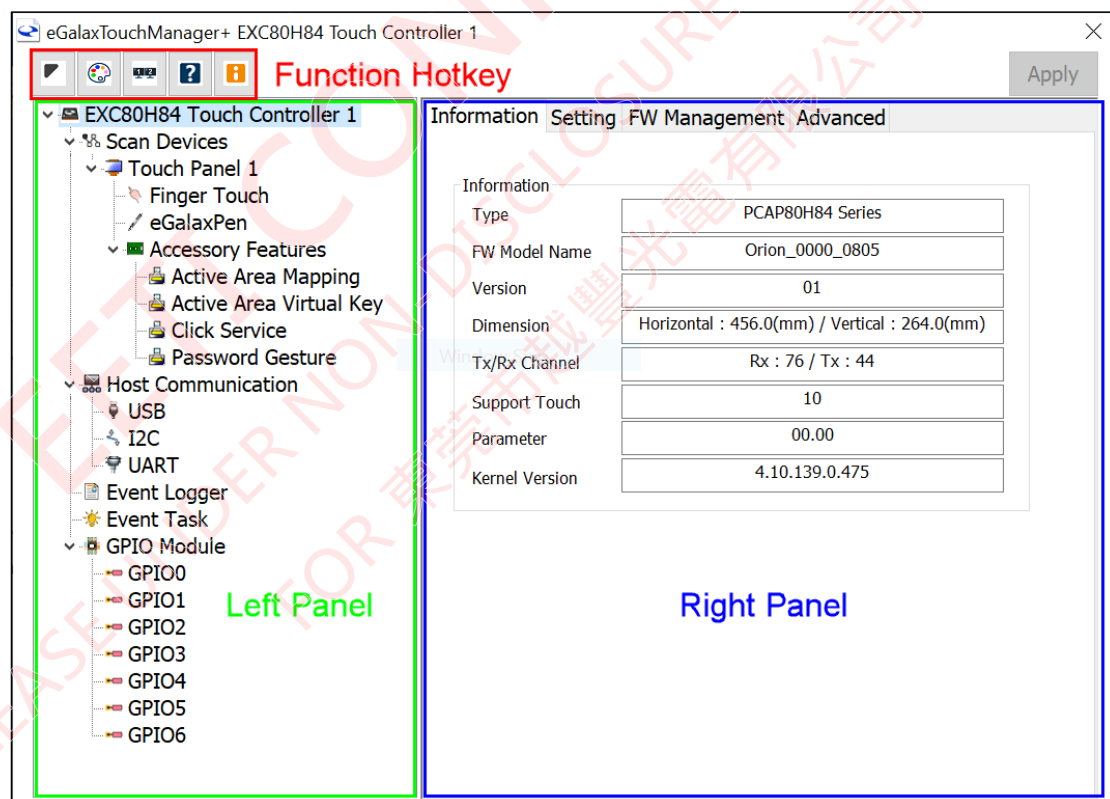
2.4. Glossary

| Terms | Definition |
|--------------------|---|
| Orion | The powerful firmware kernel for touch system developed and designed by EETI. It supports multitude of functions for a wide range of applications. |
| TM+ | eGalaxTouchManager+. A full-featured tuning programming designed for Orion and its IC families. |
| Touch controller | EETI's touchscreen controllers developed based on Orion kernel. |
| Functional devices | Functions supported by Orion and TM+ are categorized as Scan Devices, Host Communication, Event Logger, Event Task, and GPIO Module. |
| Scan devices | Scan Device refers to any device that uses touch sensing unit. |
| Scan Management | The built-in resource allocation management mechanism of Orion. User can manage any scan device performance and allocate touch controller resource effectively to reach the best overall performance via TM+. |
| Working States | Provided by Orion's Scan Management. User can define the active/idle time of each working state for power saving purpose. |
| Power Management | The built-in power conservation mechanism of Orion. User can select from 4 predefined Sleep States to save power in accordance with Host's Wake-up schedule. |
| Sleep States | Provided by Orion's Power Management. From SleepState0~3, the higher the number is, the more dormant the device is. SleepState0(SS0): Fully powered working state. SleepState1(SS1): Performance is the same as SS0. The device can remotely wake up the host*. SleepState2(SS1): Lower power consumption and lower scanning rate, and the device can remotely wake up the host. SleepState3(SS3): The deepest sleep state. At this state, device does not remotely wake up host. * A device can remotely wake up the host if: 1. The device has capability to do remote wakeup. 2. The remote wakeup is enabled in sleep settings. |

| Terms | Definition |
|--------------------|--|
| Host Communication | EETI controller supports all common protocols for communicating with Host System including USB, I2C and UART. |
| GPIO | General Purpose I/O. EETI controller IC has numbers of GPIO for customization. The system integrator may use these GPIO for system features integration for their application purpose. |

3. How to Use eGalaxTouchManager+

EETI Orion Family supports a multitude of features for a wide range of applications. It will detect the touch controller in the system automatically and list the supported functions. The main window of TM+ is shown below. On the top, there are the function hotkeys. The Left Panel is a tree-view style for controller functions. By selecting the function nodes in the left panel, the detailed settings will be displayed in the right panel.

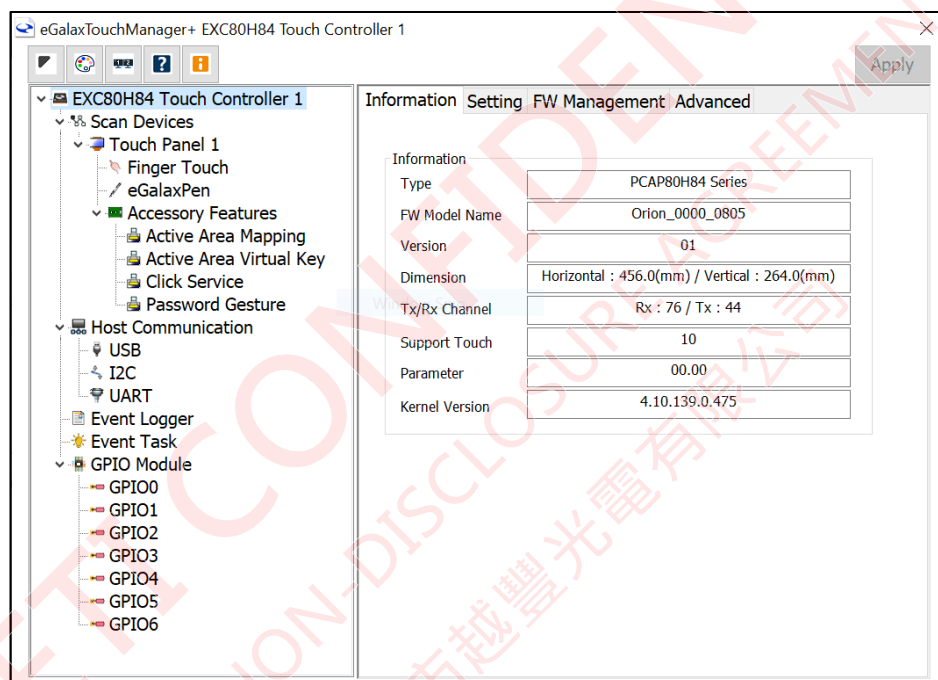


4. Controller Information

In the TM+ left panel, each connected controller will be represented into a tree-view structure. In the device root, there are controller Information, Setting, FW Management, and Advanced tabs.

4.1. Controller \ Information

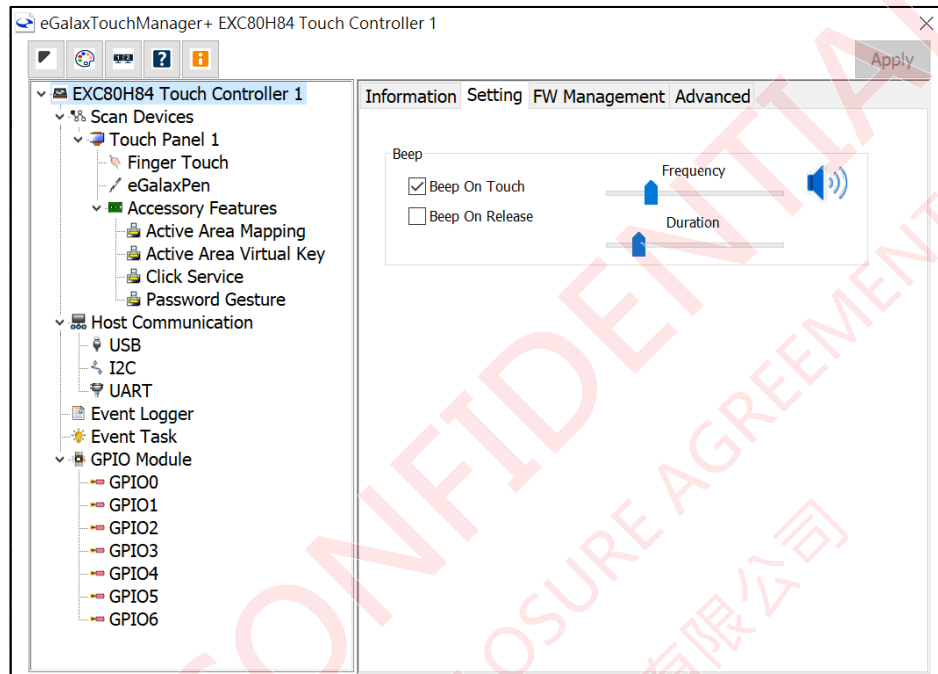
This page shows controller information and firmware information.



| Controller Hardware Information | |
|---------------------------------|---|
| Type | EETI PCAP touch controller type. |
| FW Model Name | The model name of the project. The four-digit number in the middle refers to Company ID. |
| Version | The firmware version of the project. |
| Dimension | The dimension of active area of touch sensor. |
| Tx/Rx Channel | The number of Tx and Rx channels currently in use. |
| Support Touch | The maximum number of supported touches. |
| Parameter | The minor version of parameters. |
| Kernel Version | The kernel version of the touch firmware. |

4.2. Controller \ Setting

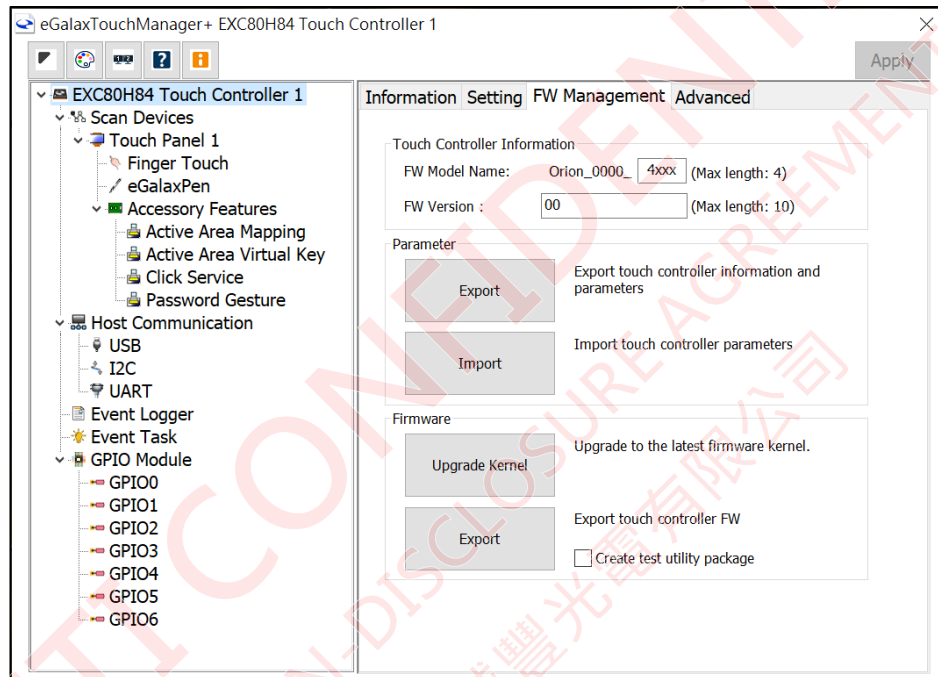
When TM+ is installed, it will set up a daemon program: **eGalaxTouchMon** running on the background. The **eGalaxTouchMon** will listen for the controller touch event and translate them into system beep sound.



| Controller Setting | |
|--------------------|--|
| Beep On Touch | Send the beep sound when a finger contacts the touch screen. |
| Beep on Release | Send the beep sound when a finger leaves the touch screen. |
| Frequency | The frequency of the beep sound. |
| Duration | The duration of the beep sound. |

4.3. Controller \ FW Management

In the firmware management page, user can modify firmware string and manage the parameters and firmware kernel. During the tuning process, user can Export the parameters for backup or Import the parameters for recovery. At the final stage of the tuning process, user can Export the firmware image and create a Test Utility package for production. The Test Utility is called eGalaxWorks.

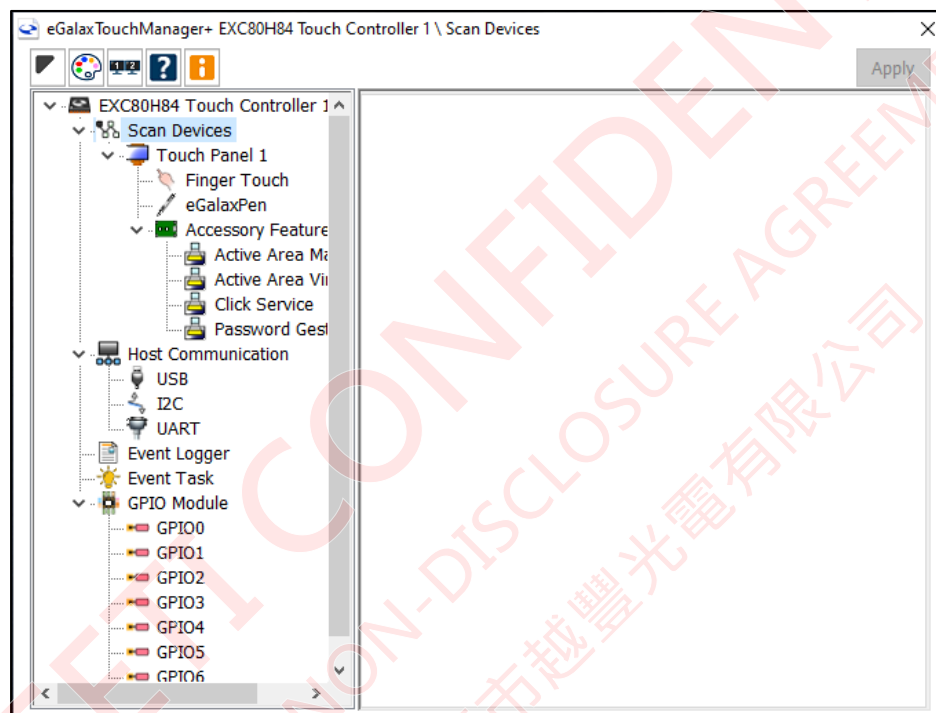


| Controller Firmware Management | |
|--------------------------------|---|
| Touch Controller Information | |
| FW Model Name | Set model name Orion_0000_ - - - - up to 4 digits |
| FW Version | Set firmware version up to 10 digits. |
| Parameter | |
| Export | Export the parameter file from the touch controller to C:\Users\[UserName]\Documents\EETI\TouchManager+Export\... |
| Import | Import the parameter file and write into the touch controller. |
| Firmware | |
| Upgrade | If necessary, the firmware kernel can be upgraded to the latest version supported by eGalaxTouchManager+. |
| Export | Export the firmware image or Test Utility Package (Check the box). C:\Users\[UserName]\Documents\EETI\TouchManager+Export\... |

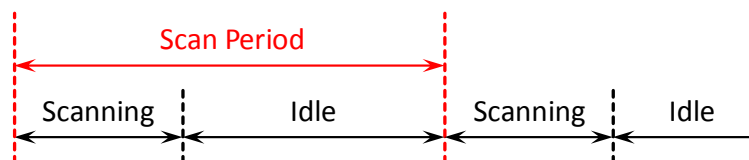
5. Devices, Categories and Settings

The support functions will be organized into categories and items under the device root. The categories are: Scan Device, Host Communication, Event Logger, Event Task and GPIO Module. These contents might vary from different combinations of touch controller and firmware kernel.

5.1. Scan Devices



EETI Orion Family touch solution provides several input sensing functions, e.g. Touch sensing, Virtual key sensing, eGalaxPen sensing...etc. From user perspective each sensing method is like a standalone **Scan Device** working separately to provide specific function. All the Scan Devices in the same category share the same sensing and scanning resource of touch controller, therefore the allocation of resources is crucial.



In order to optimize the performance and resource allocation, the two management mechanisms: **Scan Management** and **Power Management** need to be well configured. **Scan Management** handles the scan period of a **Scan Device**. **Scan Management** defines five working states: **W0~W4**, each contains “Scan period” and “Idle to next state” settings. **W0** indicates fully active state, when the **Scan Device** stays idle (no input event is being detected)

for a period of time, it will move to **W1**. If the Scan Device stays in W1 and detects no input event in the “idle to next state” period of time, it will move to **W2**. In the end it will stop at **W4**. In any working state, if the **Scan Device** detects an input event, it will switch to **W0**.

When the host enters sleep mode, **Power Management** will handle the sleep state of **Scan Device**. Orion firmware kernel supports four sleep states from **SleepState0** to **SleepState3**.

The higher sleep state is, the less power consumption and less responsive.

i. **SleepState0:**

Fully powered working state.

ii. **SleepState1:**

The performance is the same as SS0. The device can remotely wake up the host*.

iii. **SleepState2:**

Lower power consumption and lower scanning rate, and device can remotely wake up the host*.

iv. **SleepState3:**

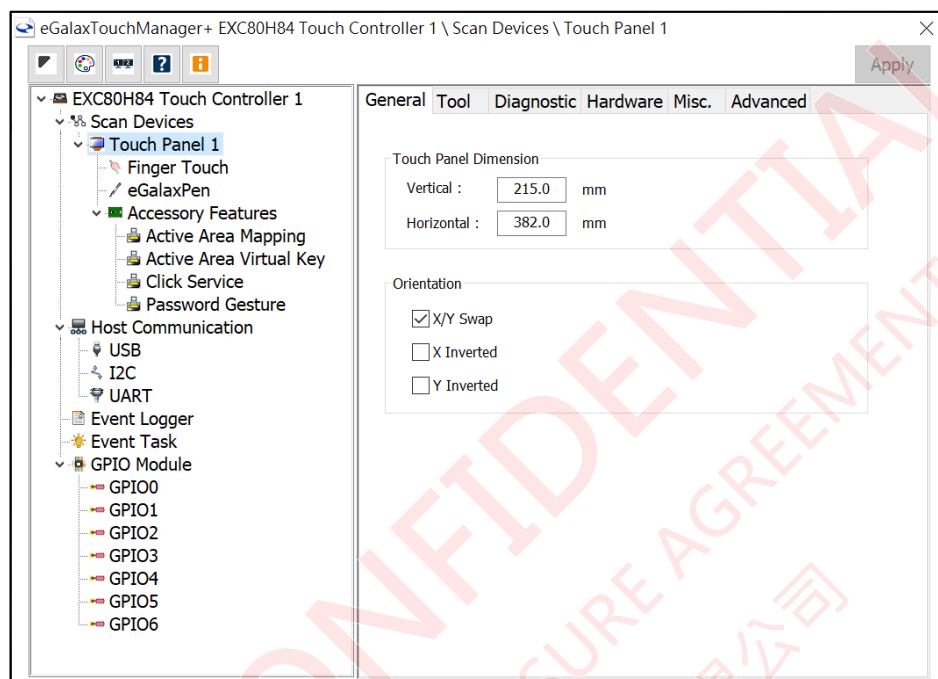
The touch controller will stop scanning the sensor and will not wake up the host remotely.

*A device can remotely wake up the host if:

1. The device has capability to do remote wakeup.
2. The remote wakeup is enabled in sleep settings of host.

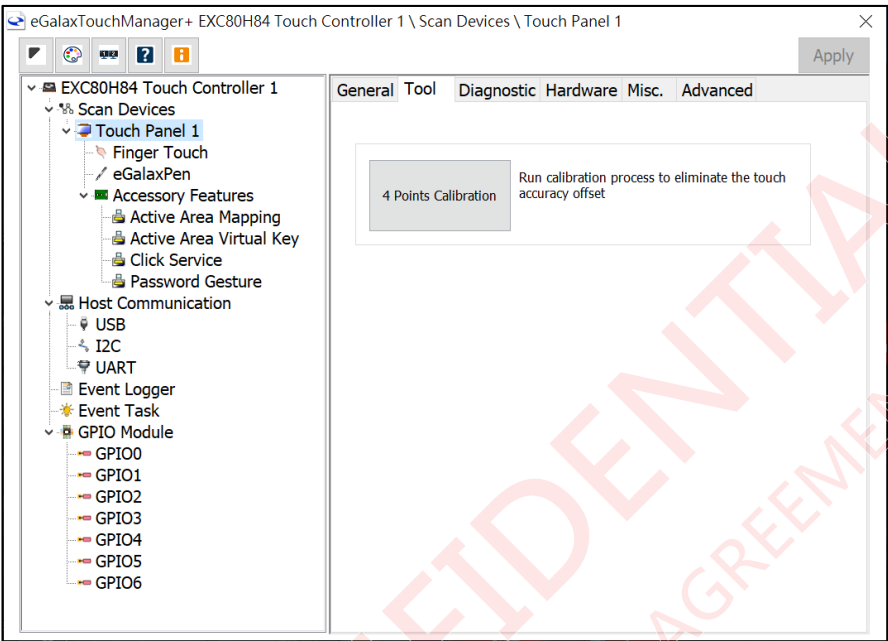
5.2. Scan Devices \ Touch Panel

5.2.A. Touch Panel \ General



| Touch Panel General Setting | |
|-----------------------------|---|
| Touch Panel Dimension | |
| Vertical / Horizontal | Set the touch sensor active area dimension. |
| Orientation | |
| X/Y Swap | Swap the X and Y coordinate. |
| X Inverted | Invert X coordinate. |
| Y Inverted | Invert Y coordinate. |

5.2.B. Touch Panel \ Tool

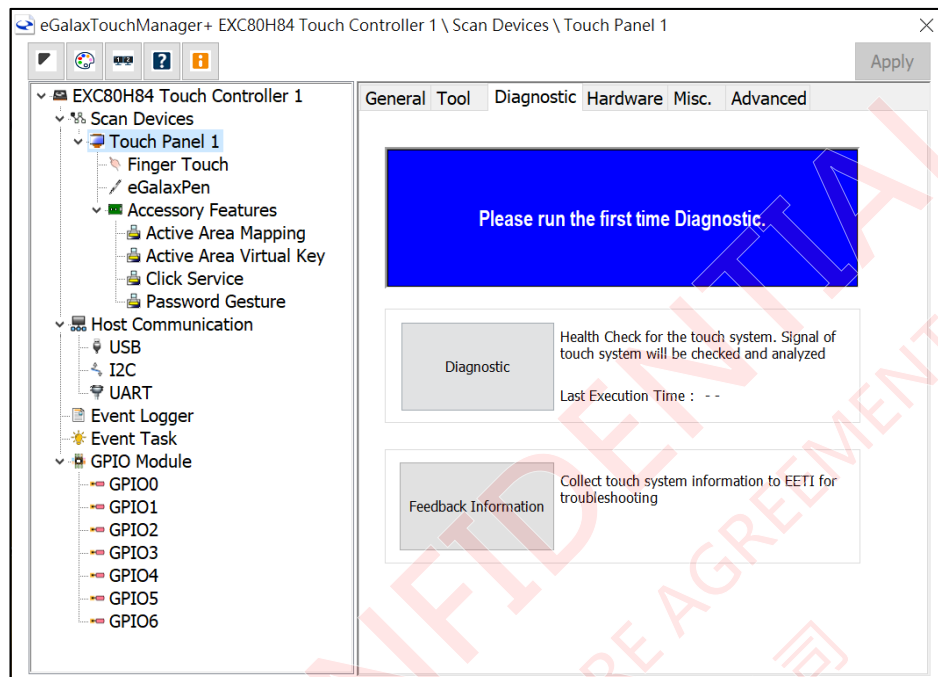


Touch Panel Tool

4 Points Calibration

Run calibration process to eliminate the touch accuracy offset.

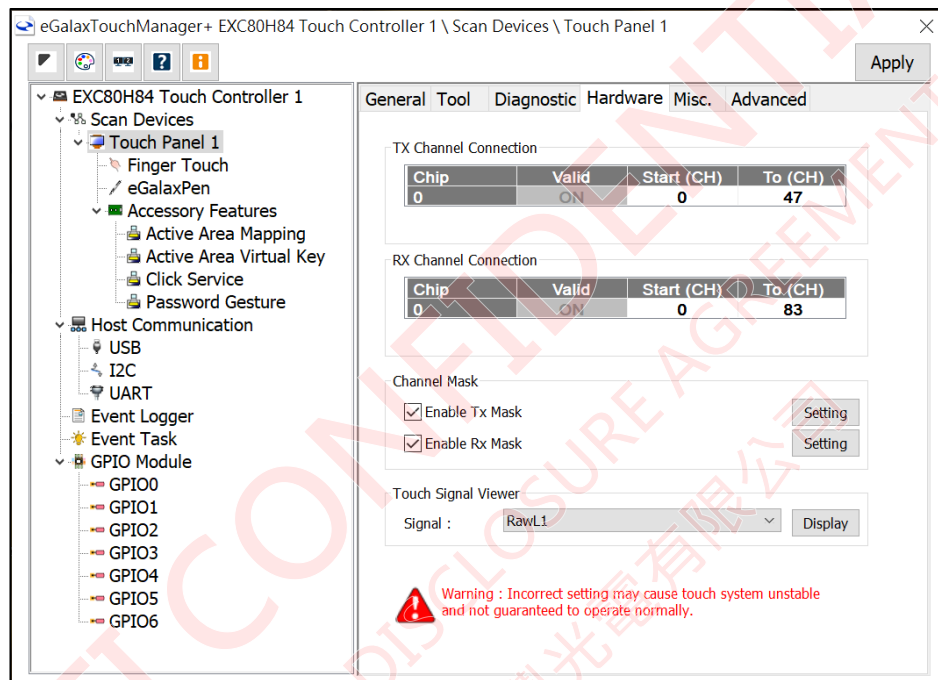
5.2.C. Touch Panel \ Diagnostic



| Touch Panel Diagnostic | |
|-----------------------------|---|
| Diagnostic | A built-in Health Check application that helps user check sensor status, parameter feasibility, and touch performance. User can run Diagnostic and send the reports to EETI for evaluation. |
| Feedback Information | <p>If user encounters any issue during the operation of TM+, such as crashing in the signal learning process, failing to apply the settings, etc., please run Feedback Information and send the report to EETI for analysis.</p> <p>The reports will be stored at C:\Users\[UserName]\Documents\EETI\TouchManager+Report\</p> |

5.2.D. Touch Panel \ Hardware

This page shows the channel connection between touch sensor and touch controller. TM+ can automatically detect the connected Tx (driving) channels and Rx (sensing) channels of the touch sensor. User might have to configure the channel connection manually for those sensors not designed following EETI's SDR.



| Touch Panel Hardware Setting | |
|------------------------------|---|
| Channel Connection | |
| Tx/Rx Channel Connection | Manual Configuration of Channel Connection |
| Channel Mask | <p>Set up the channels to be disabled.</p> <div> <div> <p>Tx Channel Setting</p> <p>Setting-0</p> <p>Channel Number: 7</p> <p><input checked="" type="checkbox"/> Finger Touch</p> <p>Policy: Policy-0</p> <p><input checked="" type="checkbox"/> APen</p> <p>Policy: Policy-0</p> <p>Exit</p> </div> <div> <p>Rx Channel Setting</p> <p>Setting-0</p> <p>Channel Number: 4</p> <p><input checked="" type="checkbox"/> Finger Touch</p> <p>Policy: Policy-0</p> <p><input checked="" type="checkbox"/> APen</p> <p>Policy: Policy-0</p> <p>Exit</p> </div> </div> |

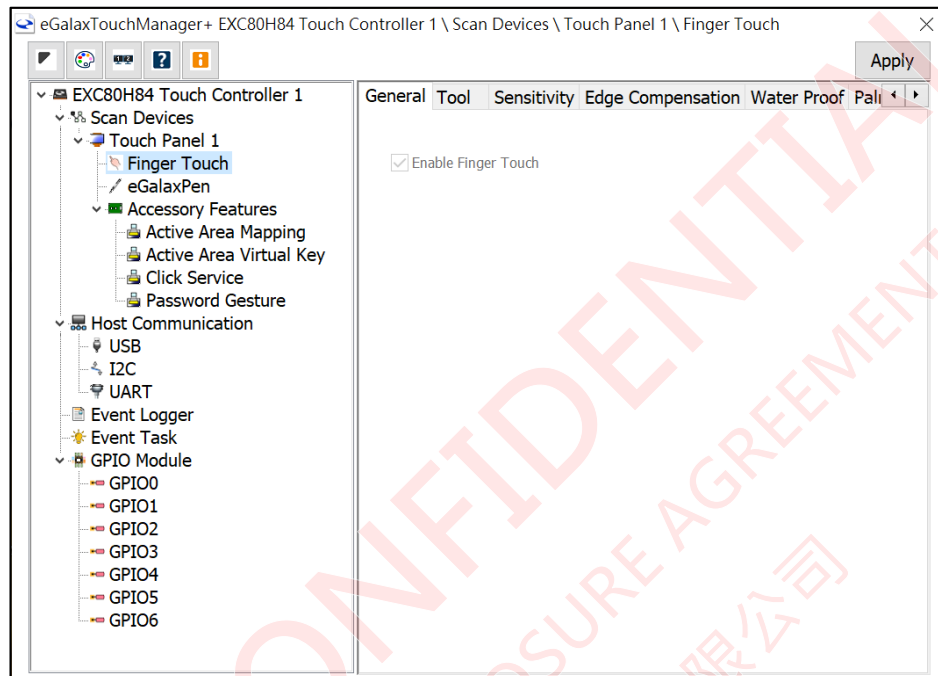
| Touch Signal Viewer | |
|---------------------|---|
| Touch Signal Viewer | The disabled channels will be highlighted in the touch signal viewer. |

5.2.E. Touch Panel \ Misc.

| Touch Panel Misc. Setting | |
|-------------------------------|---|
| Operation Mode | |
| Pen First | Pen input is the priority. Finger input will be disabled if pen is detected. |
| Finger and Pen Simultaneously | Finger inputs and pen inputs will be detected and reported simultaneously. |
| Finger and Pen Exclusively | Whichever is detected by the controller first will be the primary input. The other input will be disabled until the original input is lifted-off. |

5.3. Scan Devices \ Touch Panel \ Finger Touch

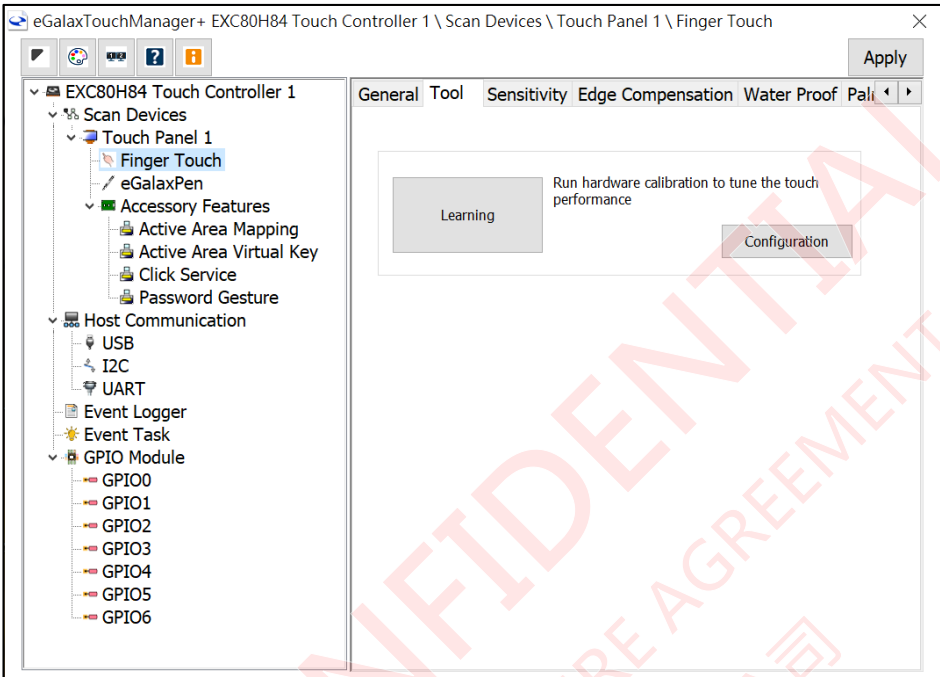
5.3.A. Finger Touch \ General

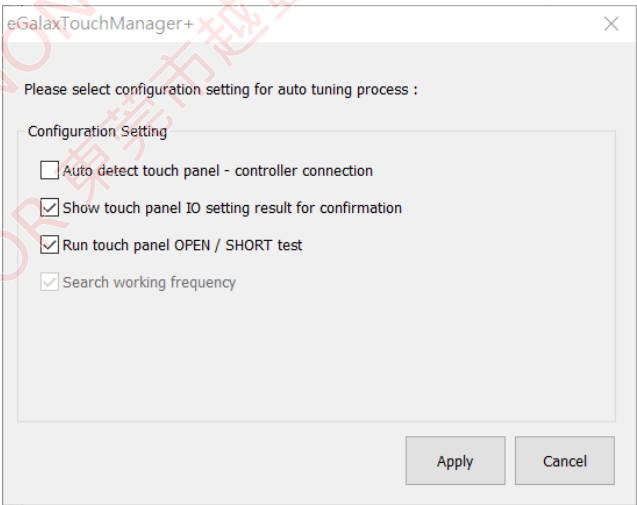


Finger Touch General Setting

| | |
|---------------------|-------------------------------|
| Enable Finger Touch | Enable Finger Touch function. |
|---------------------|-------------------------------|

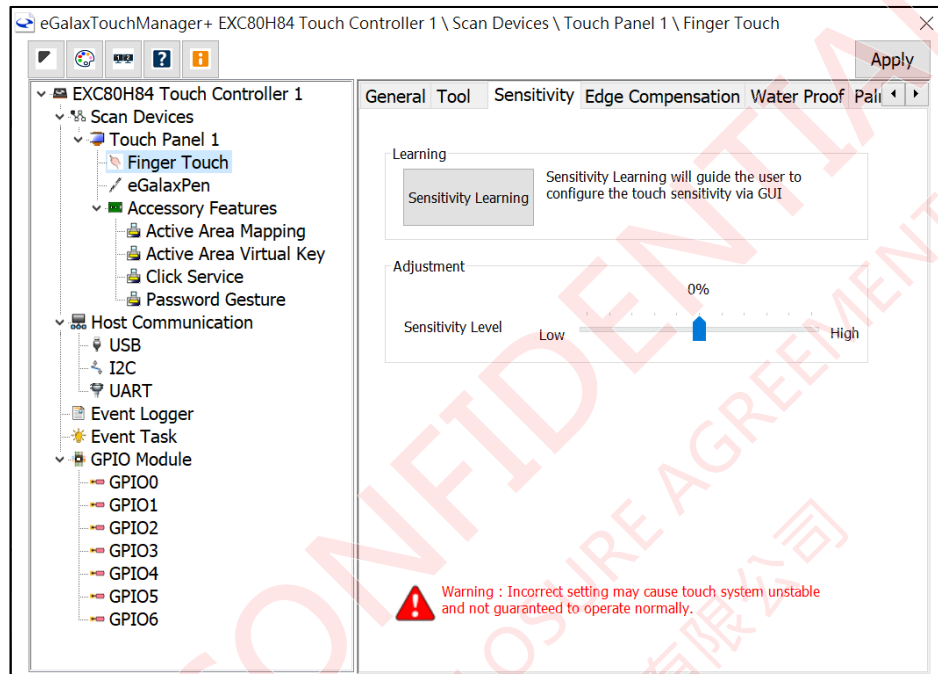
5.3.B. Finger Touch \ Tool



| Finger Touch Tool | |
|-------------------|--|
| Learning | Start a learning process that will guide user to tune hardware and sensitivity configurations of Finger Touch . |
| Configuration | <div>Manually configure the learning flow if needed.</div> <div></div> <div><ol style="list-style-type: none">1. Automatically detect the channel connections of the controller.2. Show a confirmation window of channel detection result.3. Test if there is any open or short channel.4. Automatically search the suggested working frequencies that fit your touch module.</div> |

5.3.C. Finger Touch \ Sensitivity

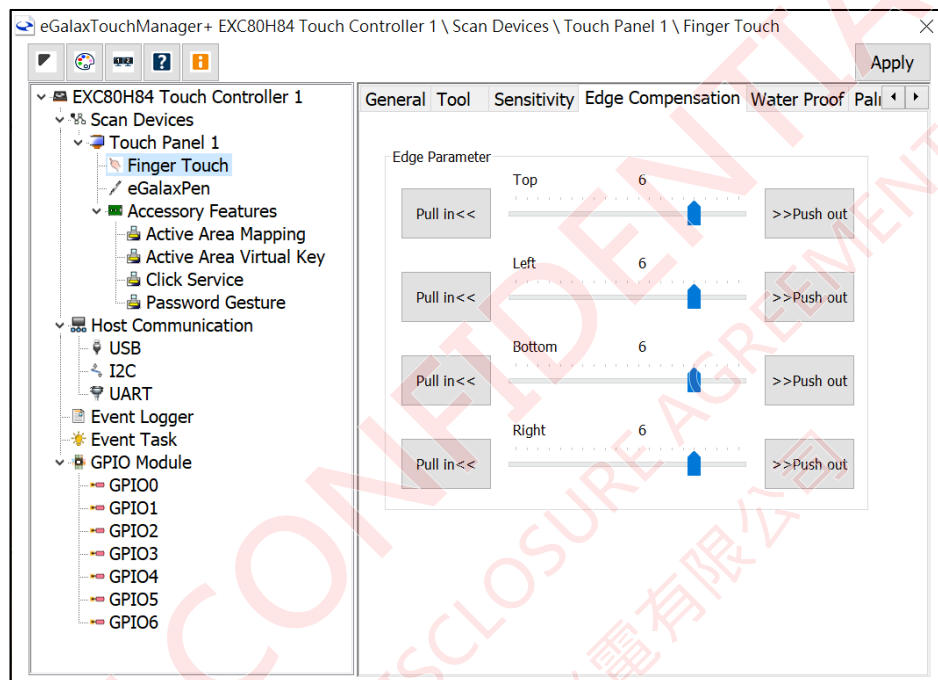
After “**Sensitivity Learning**” is completed, the touch sensitivity is set to the best level for touch system. User can restart the sensitivity learning process or adjust sensitivity here.



| Finger Touch Sensitivity | |
|--------------------------|---|
| Learning | |
| Sensitivity Learning | Start a learning process that will guide user to tune the sensitivity based on current hardware configuration. |
| Adjustment | |
| Sensitivity Level | Do sensitivity adjustment based on the current sensitivity settings. It can increase up to 50% of the base or decrease it down to -50% of the base. |

5.3.D. Finger Touch \ Edge Compensation

Due to the touch sensor design or the assembly offset, the accuracy on the edge side may not be as good as that of the center area. The edge compensation settings can improve the edge accuracy.

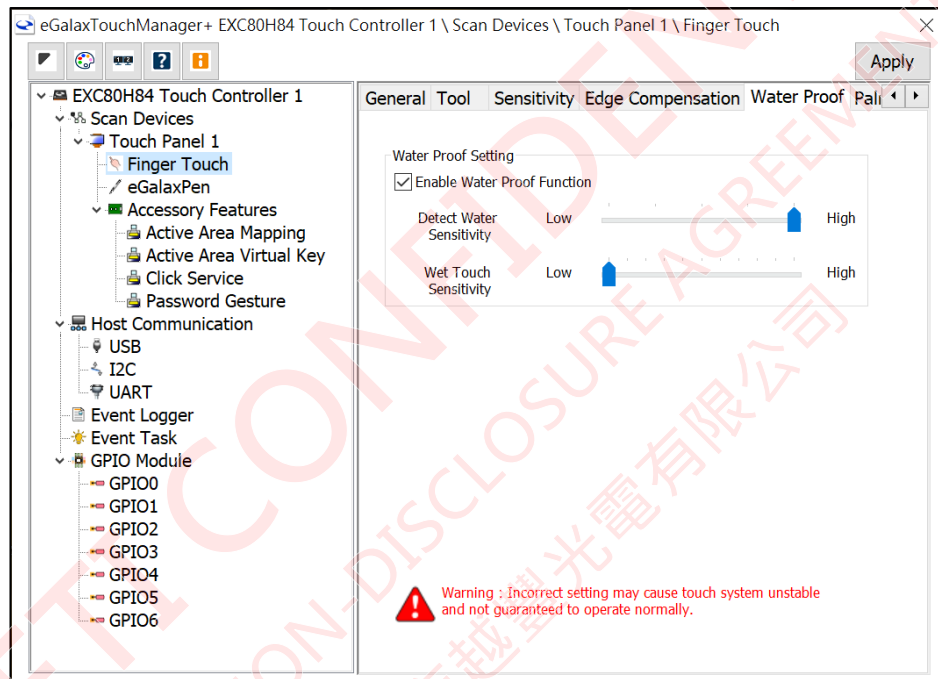


| Finger Touch Edge Compensation | |
|--------------------------------|---|
| Edge Parameter | |
| Top | <p>Increasing the compensation level can make the touch boundary close to the edge, decreasing it can make the touch boundary away from the edge.</p> |
| Left | |
| Bottom | |
| Right | |

5.3.E. Finger Touch \ Waterproof

Water can affect PCAP signal quality, causing abnormal touch behavior. EETI Orion touch solution, with built-in waterproof ability, can detect water on the touch panel, adjust the input sensitivity and then reduce the impact of water interference.

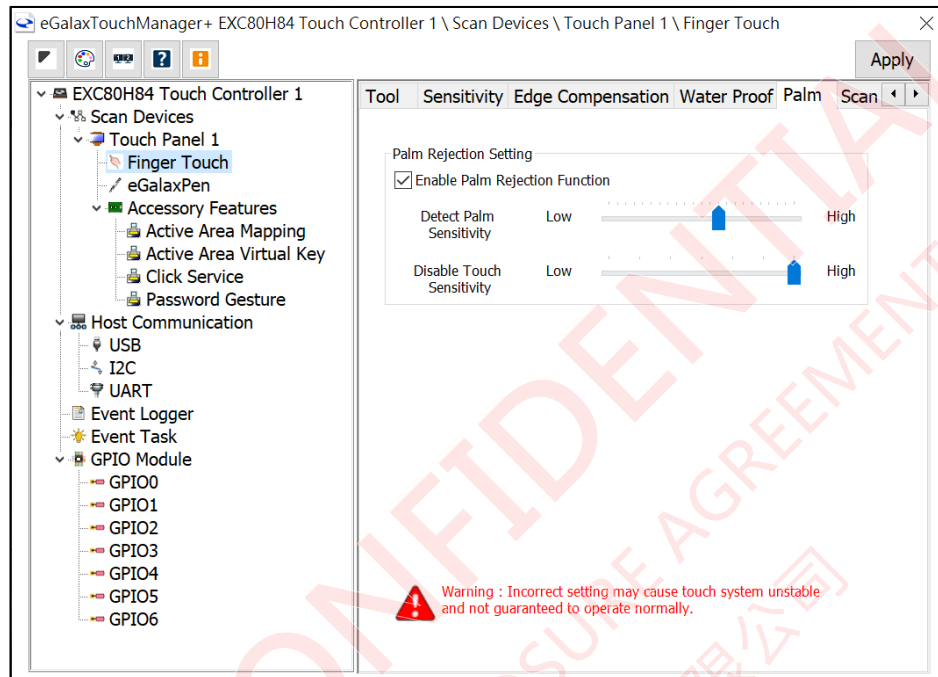
In this page user can enable/disable the **waterproof** function, adjust the sensitivity of water detection and adjust the touch sensitivity when water is detected.



| Finger Touch Waterproof Setting | |
|---------------------------------|--|
| Enable | Enable/Disable water proof function. |
| Detect Water Sensitivity | Adjust the sensitivity of water detection. |
| Wet Touch Sensitivity | Adjust the touch sensitivity when water is detected. |

5.3.F. Finger Touch \ Palm

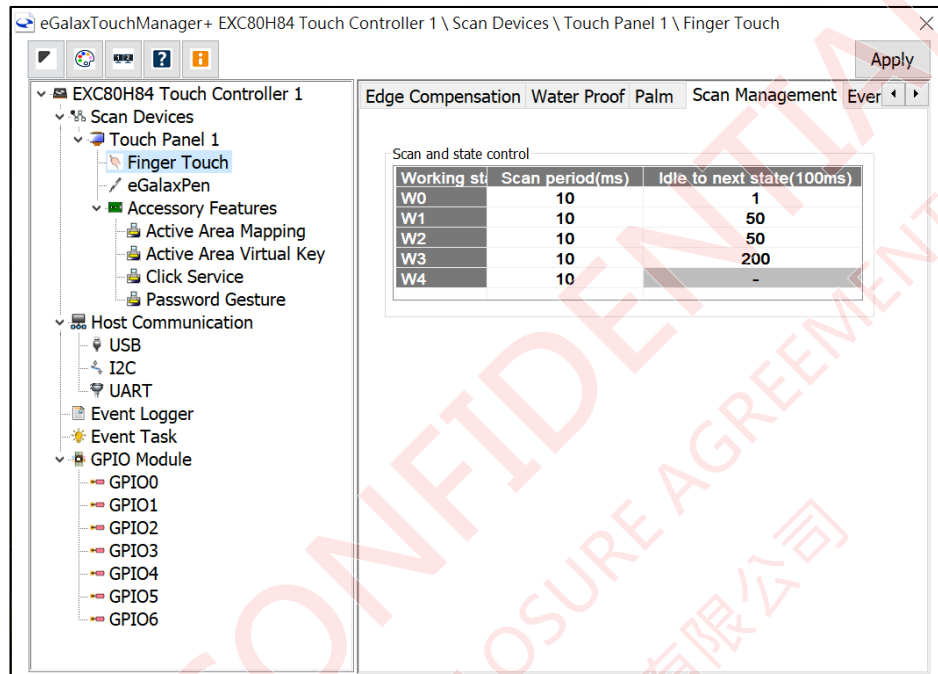
In this page user can enable/disable Palm Rejection function and adjust its sensitivities.



| Palm Rejection Setting | |
|---------------------------|---|
| Enable | Enable/Disable palm rejection function. |
| Detect Palm Sensitivity | Adjust the sensitivity for palm detection. |
| Disable Touch Sensitivity | The sensitivity for blocking an extra suspicious palm input when palm rejection is triggered. The higher the sensitivity is, the more likely a touch input with large area will be blocked. |

5.3.G. Finger Touch \ Scan Management

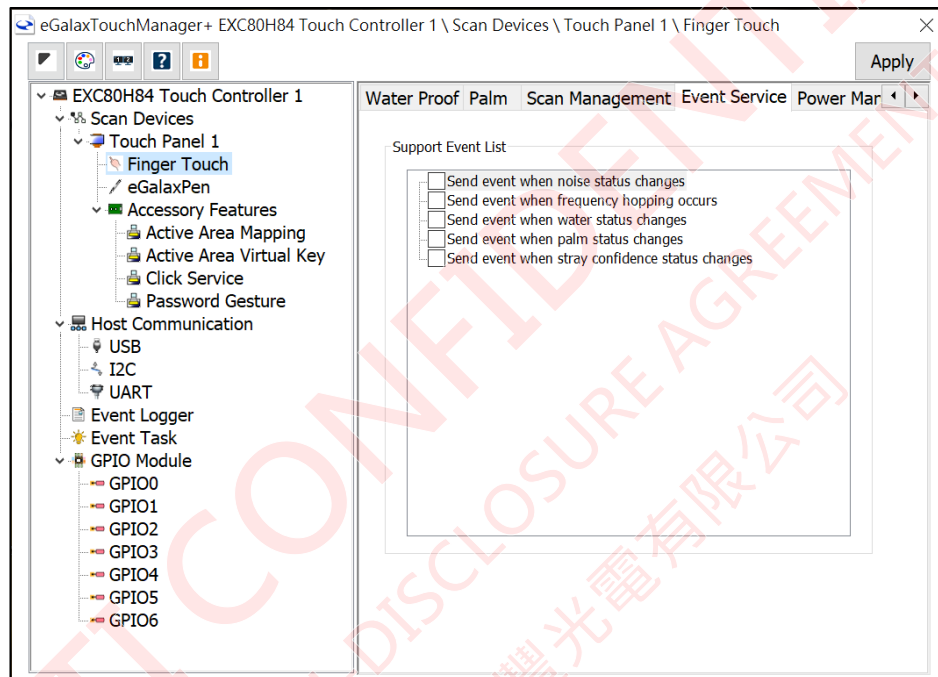
In this page, user can configure the **Scan Period** time and **Idle to Next State** time in each working state for **Finger Touch**. (Reference: [Scan Devices](#))



| Finger Touch Scan Management | |
|------------------------------|--|
| Scan and State Control | |
| Working State | From W0~W4. |
| Scan Period (ms) | Do scan measurement every Scan Period (ms). |
| Idle to Next State (100ms) | The duration (ms) of an idle device moves to next Working State . |

5.3.H. Finger Touch \ Event Service

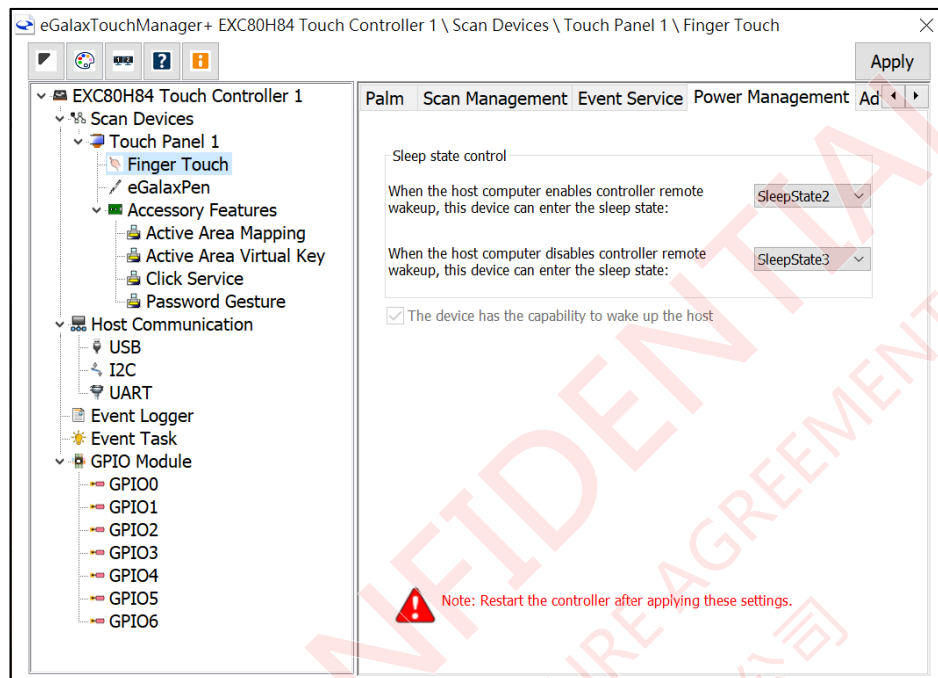
The **Event Service** provides touch device with the ability to report the selected events to the controller. E.g. Palm or water is detected, or working frequency is changed...etc. These events will be captured by the **Event Logger** and sent to the host. With TM+ the **eGalaxTouchMon** will receive these events and log them into the Windows event viewer. The 3rd party application can also capture these events by integrating EETI HID API.



| Finger Touch Event Service | |
|----------------------------|--|
| Support Event List | |
| Noise status transition | Notify the controller when entering or leaving noise condition. |
| Frequency hopping | Notify the controller when frequency hopping occurs. |
| Water status transition | Notify the controller when entering or leaving water condition. |
| Palm status transition | Notify the controller when entering or leaving palm condition. |
| Stray status transition | Notify the controller when entering or leaving stray confidence low condition. |

5.3.I. Finger Touch \ Power Management

User can select the preferred **SleepState** in accordance with Host's remote wakeup setting.

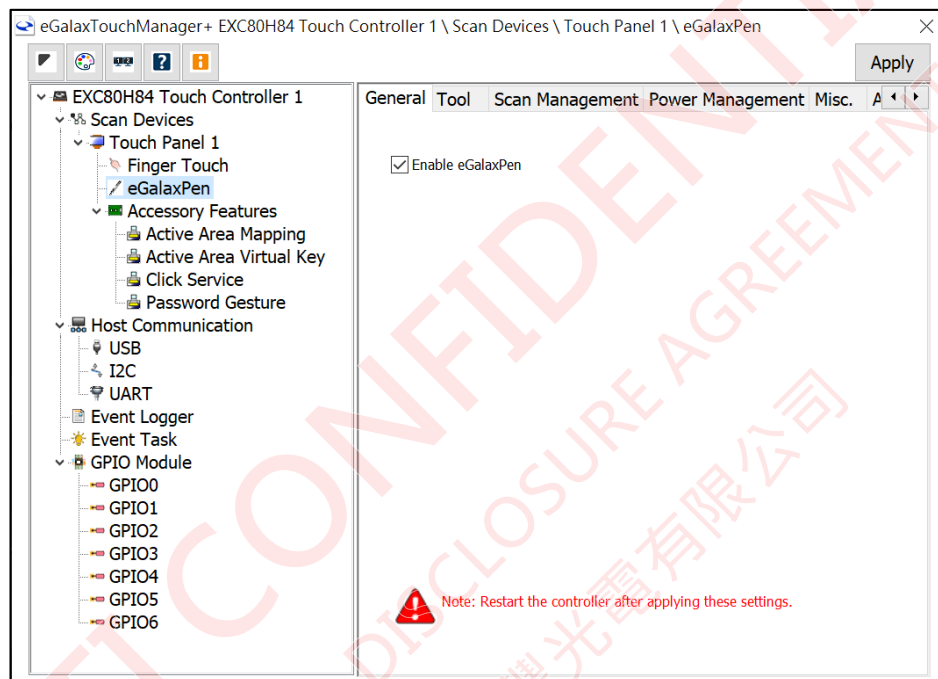


| Finger Touch Power Management | |
|---|---|
| Sleep State Control | |
| Host allows device to do remote wakeup | Select from SleepState1 ~ 3. |
| Host disallows device to do remote wakeup | Select from SleepState1 ~ 3. |
| Capability to remote wakeup the host | Empower the device to remotely wake up the host. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

5.4. Scan Devices \ Touch Panel \ eGalaxPen

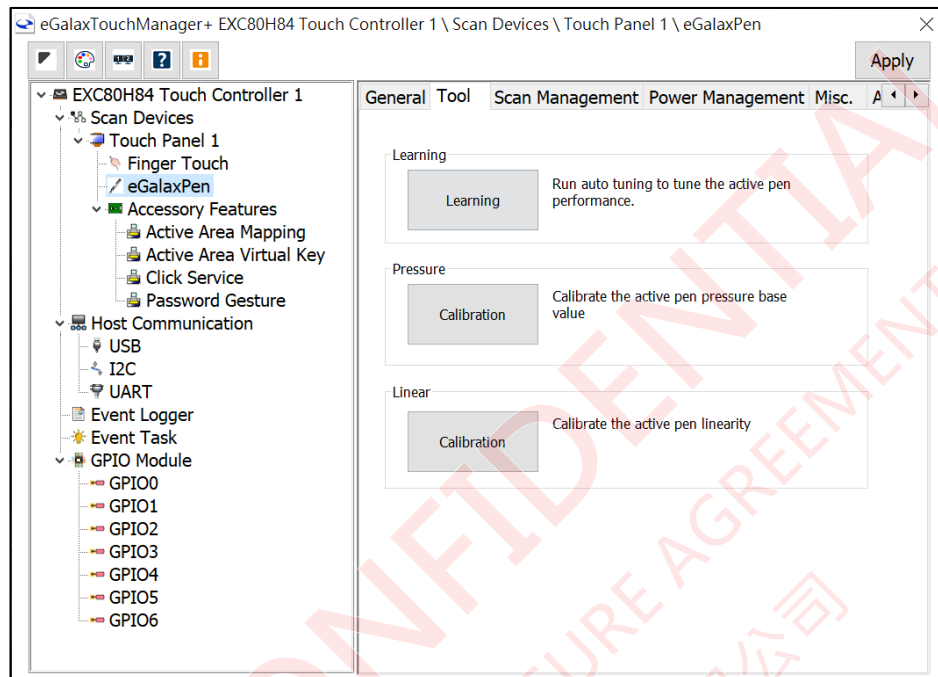
If the controller supports eGalaxPen, the **eGalaxPen** node will be shown here. Below pages are the hardware and software settings for eGalaxPen.

5.4.A. eGalaxPen \ General



| eGalaxPen General Setting | |
|---------------------------|---|
| Enable eGalaxPen | Enable/Disable eGalaxPen function. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

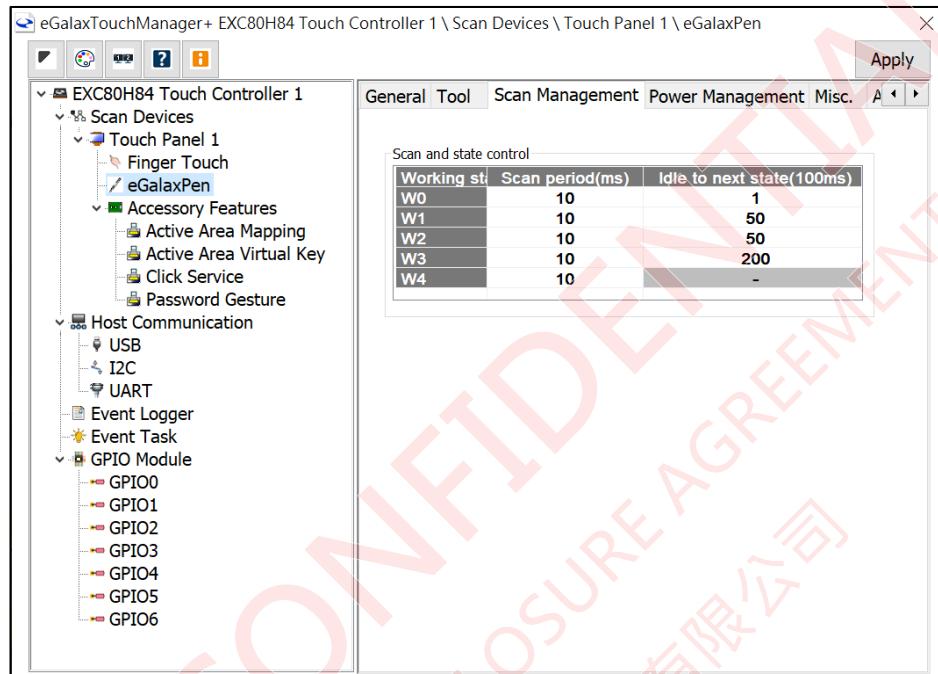
5.4.B. eGalaxPen \ Tool



| eGalaxPen Tool | |
|-----------------------------|---|
| Signal Learning | Start a signal learning process that guides user to tune both hardware and sensitivity settings of eGalaxPen . |
| Pressure Calibration | Start a pressure calibration process that guides user to tune the pressure base of eGalaxPen . |
| Linear Calibration | Start a linear calibration process that guides user to tune the linearity of eGalaxPen . |

5.4.C. eGalaxPen \ Scan Management

In this page, user can configure the **Scan Period** time and **Idle to Next State** time in each working state for **eGalaxPen**. (Reference: [Scan Devices](#))

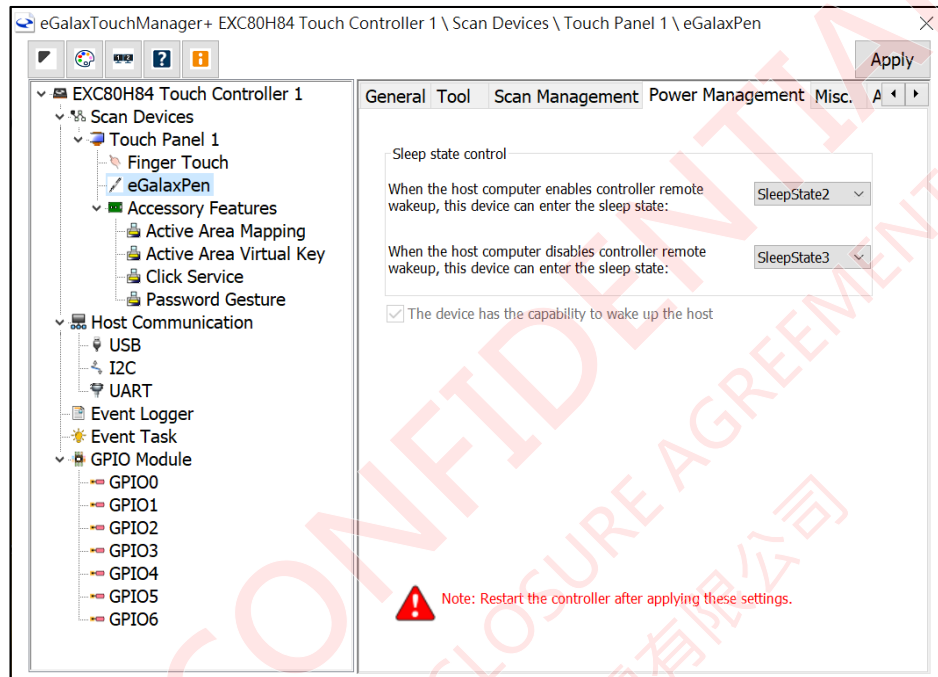


| eGalaxPen Scan Management | |
|----------------------------|--|
| Scan and State Control | |
| Working State | From W0~W4. |
| Scan Period (ms) | Do scan measurement every Scan Period (ms). |
| Idle to Next State (100ms) | The duration (ms) of an idle device moves to next Working State . |

5.4.D. eGalaxPen \ Power Management

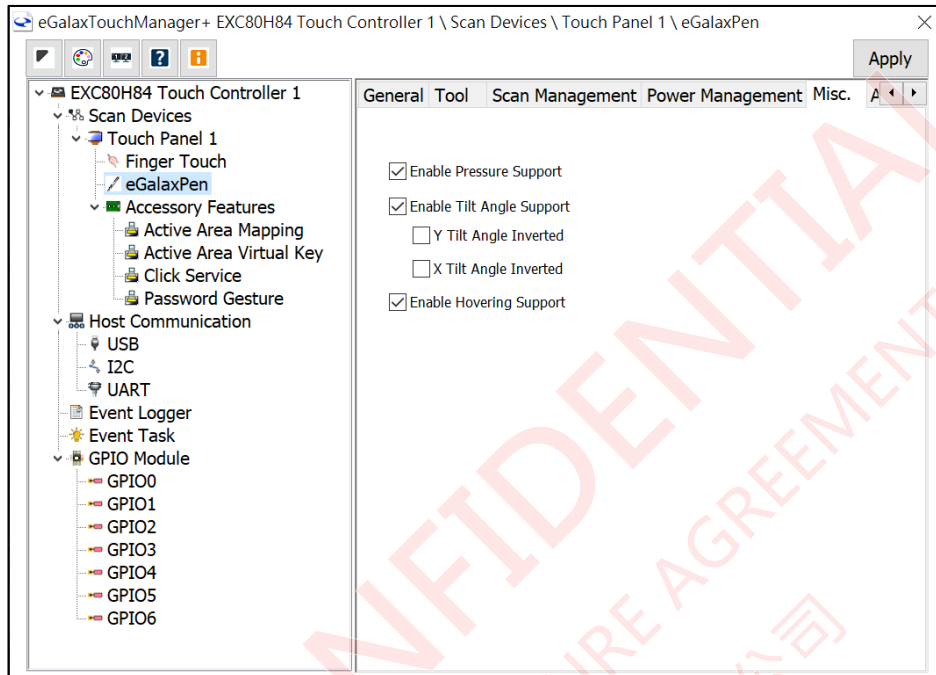
User can select the preferred SleepState in accordance with Host's remote wakeup setting.

(Reference: [Scan Devices](#))



| eGalaxPen Power Management | |
|---|---|
| Sleep State Control | |
| Host allows device to do remote wakeup | Select from SleepState 1 ~ 3. |
| Host disallows device to do remote wakeup | Select from SleepState 1 ~ 3. |
| Capability to remote wakeup the host | Empower the device to remotely wake up the host. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

5.4.E. eGalaxPen \ Misc.

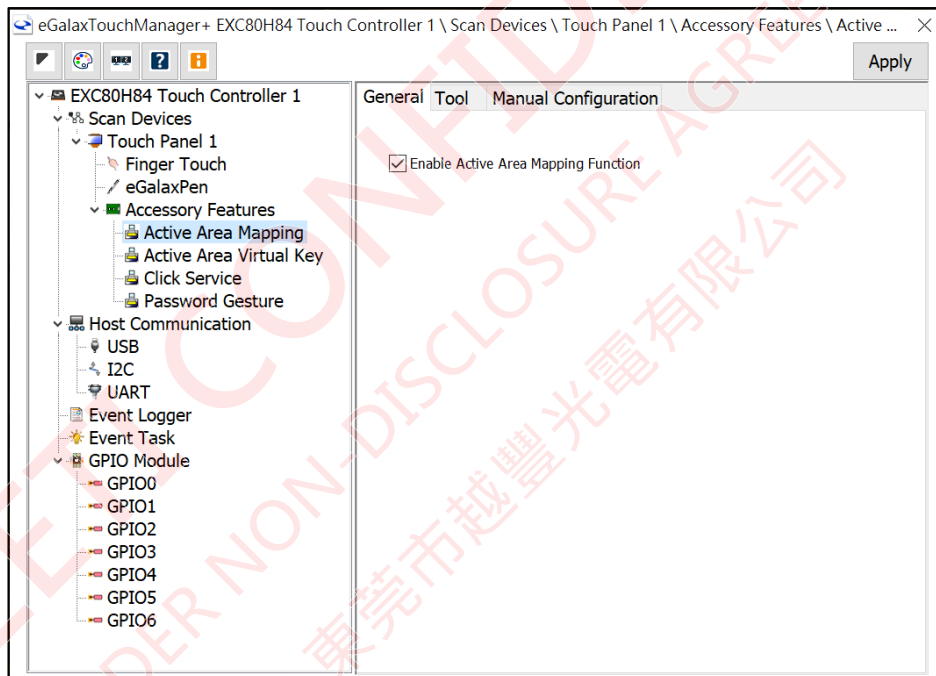


| eGalaxPen Misc Settings | |
|-------------------------|---|
| Enable Pressure | Enable/Disable pressure information of eGalaxPen . |
| Enable Tilt | Enable/Disable tilt angle information of eGalaxPen . |
| Y Tilt Angle Inverted | Reverse Y tilting angle |
| X Tilt Angle Inverted | Reverse X tilting angle |
| Enable Hovering | Enable/Disable hover detection of eGalaxPen . |

5.5. Scan Devices \ Touch Panel \ Accessory Features

The **Accessory Features** is a category for the customized functions or special services:

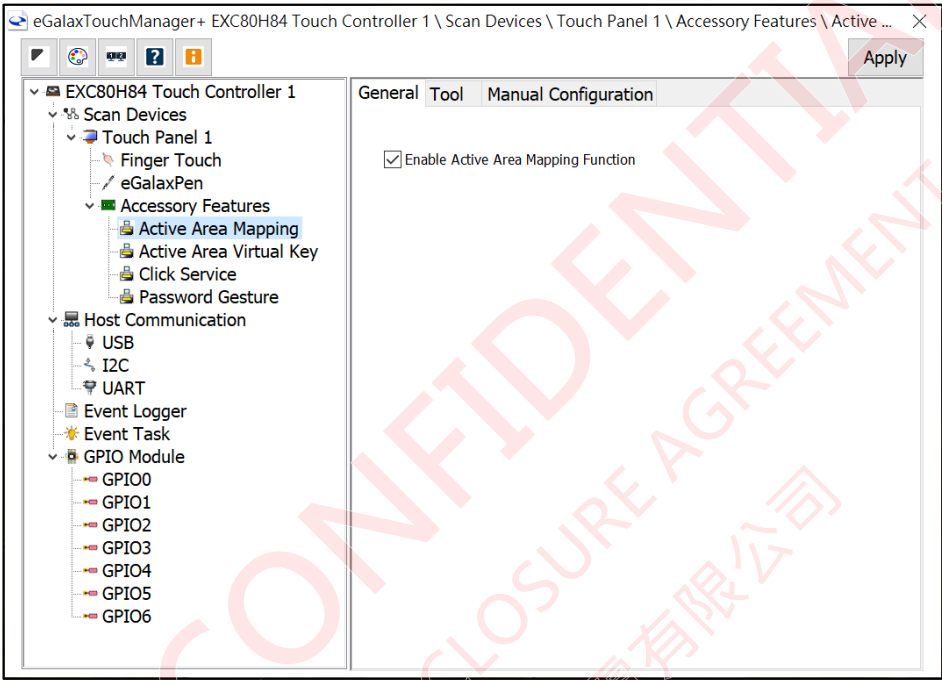
- **Active Area Mapping:** User can redefine the working area of touch sensor or redefine the touch resolution of a working area.
- **Active Area Virtual Key:** User can create sub areas to represent software key buttons.
- **Click Service:** User can modify the touch behavior to click only or enhance double click performance.
- **Password Gesture:** User can use the whole touchscreen as a virtual number pad to key in password.



5.5.A. Accessory Features \ Active Area Mapping

User can redefine the working area of touch sensor, or redefine the touch resolution of a working area.

i. Active Area Mapping \ General

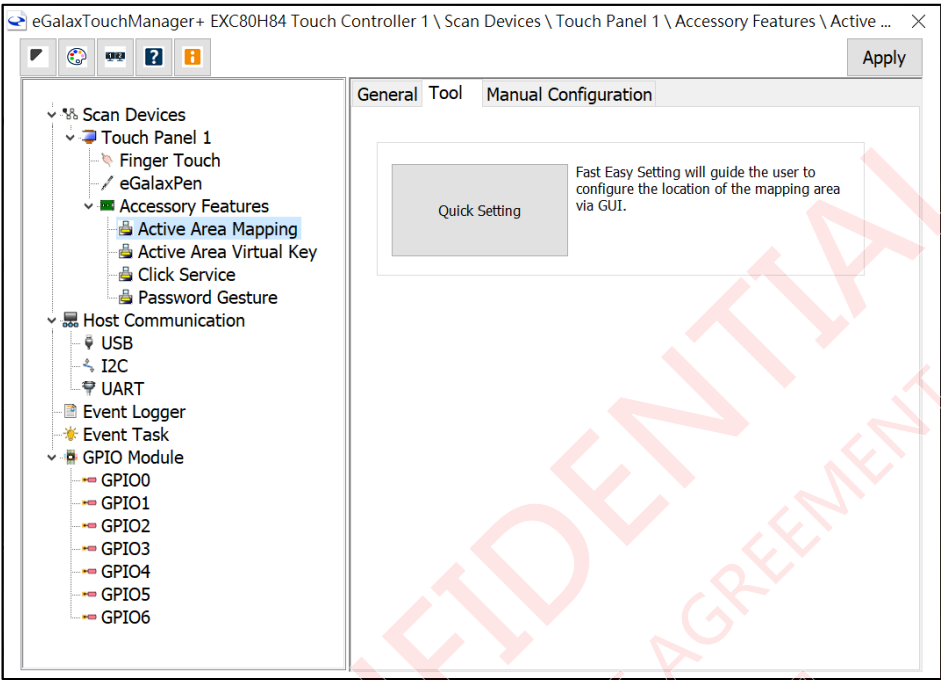


Active Area Mapping General Setting

Enable Active Area Mapping

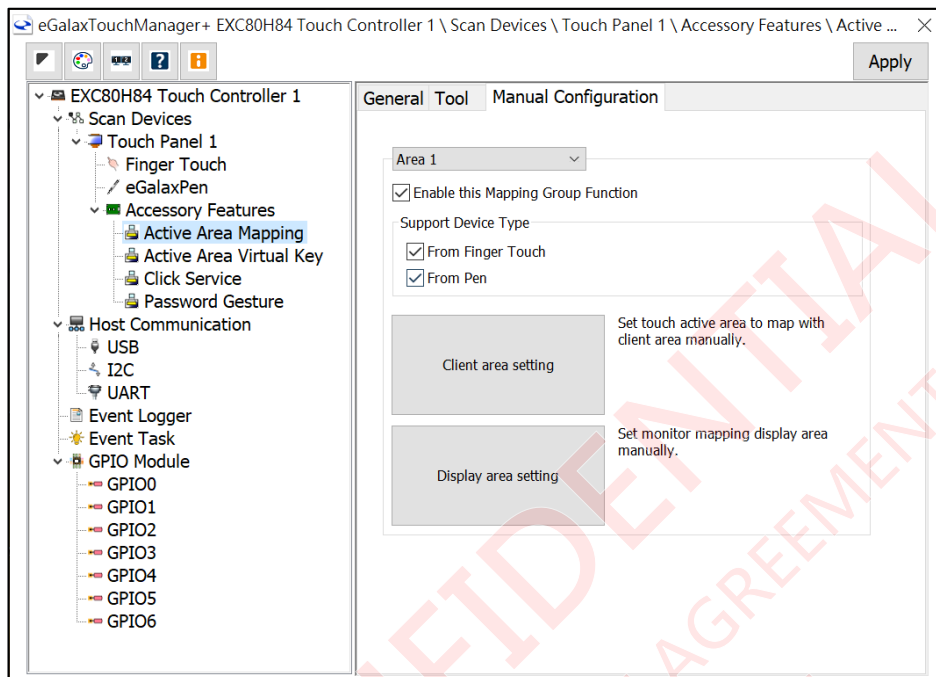
Enable/Disable Active Area Mapping function.

ii. Active Area Mapping \ Tools

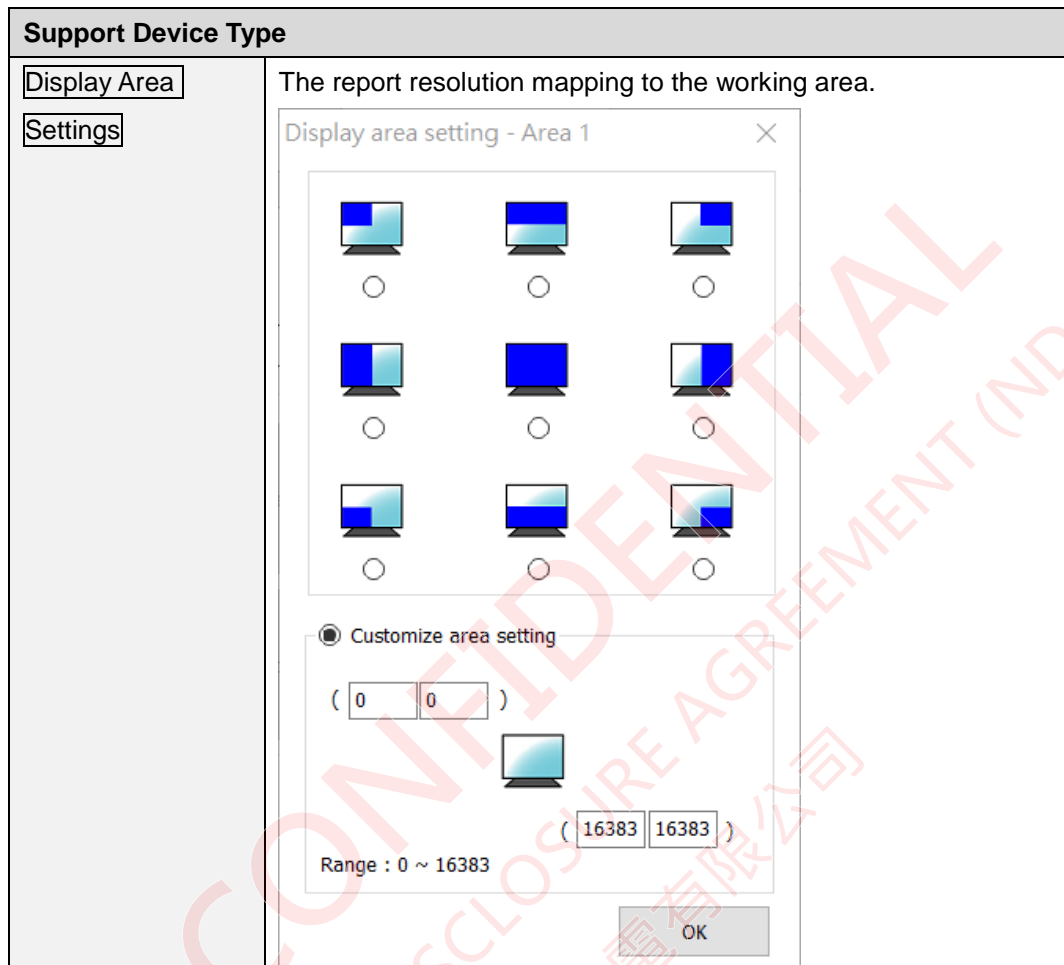


| Active Area Mapping Tool | |
|--------------------------|---|
| Quick Setting | Start a quick setting process that will guide user to configure the working area. |

iii. Active Area Mapping \ Manual Configuration



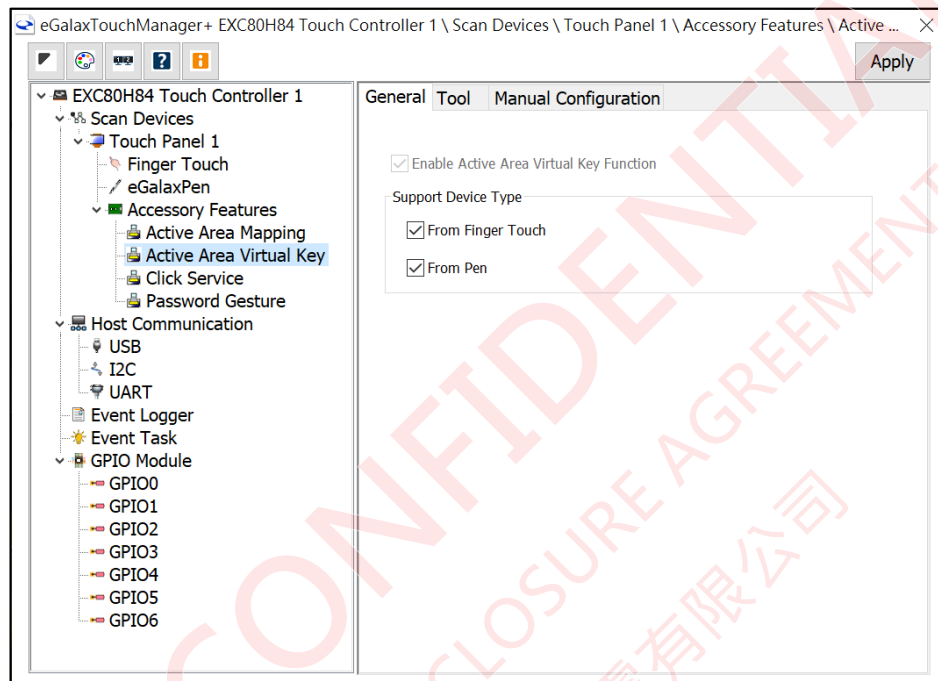
| Active Area Mapping Manual Configuration | |
|--|--|
| Area List | Select the working area for below configuration. |
| Enable | Enable/Disable this working area. |
| Support Device Type | |
| From Multi-touch | Make the working area able to receive Finger Touch input. |
| From Pen | Make the working area able to receive eGalaxPen input. |
| Client Area Setting | The four-corner positions of this working area. |
| | |



5.5.B. Accessory Features \ Active Area Virtual Key

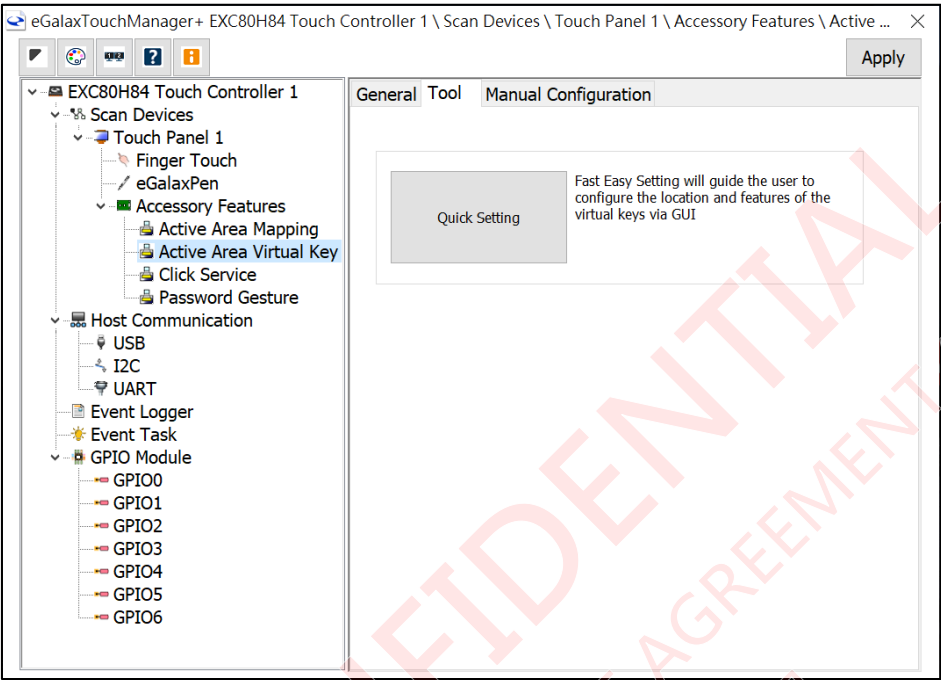
User can create sub areas to represent software key buttons. EETI Orion firmware kernel supports up to 96 virtual keys. Each virtual key can be named with any four characters.

i. Active Area Virtual Key \ General



| Active Area Virtual Key General Settings | |
|--|--|
| Enable | Enabl/Disable Active Area Virtual Key function. |
| Support Device Type | |
| From Finger Touch | Make the virtual key area receive Finger Touch input. |
| From Pen | Make the virtual key area receive eGalaxPen input. |

ii. Active Area Virtual Key \ Tool



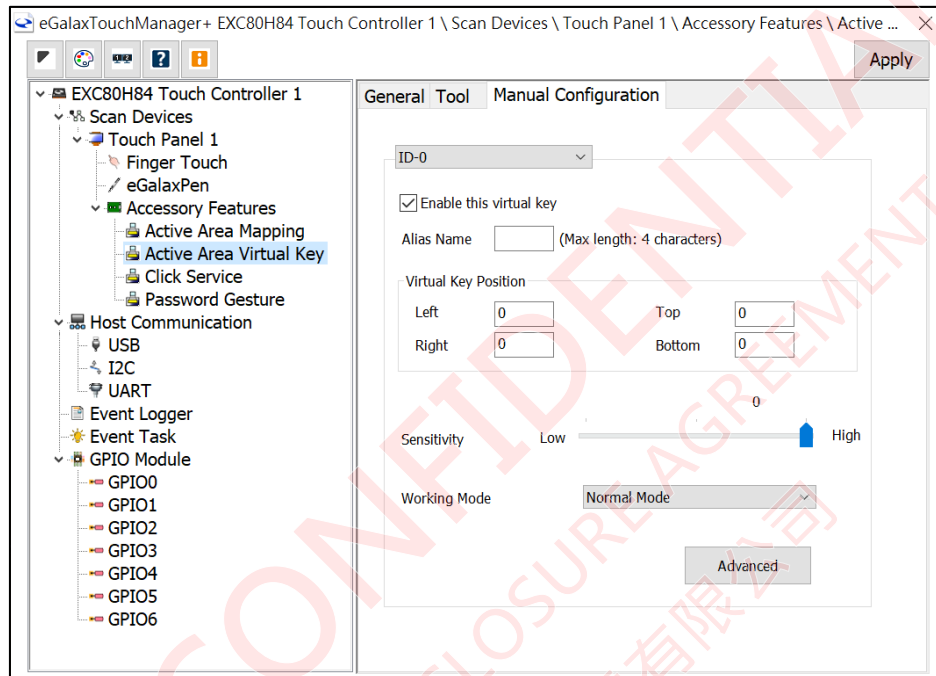
Active Area Virtual Key Tool

Quick Setting

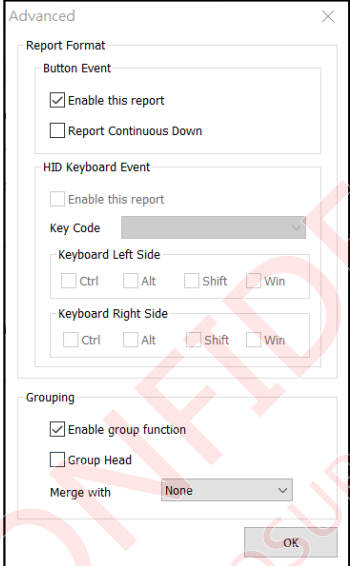
Start a [quick setting process](#) that will guide user to configure virtual key locations and features.

iii. Active Area Virtual Key \ Manual Configuration

User can define each virtual key's dimension and location by entering its left, right, top, and bottom boundaries. User can also configure the sensitivity level of each virtual key individually and select the desirable touch mode: normal, click on touch, or click on release.



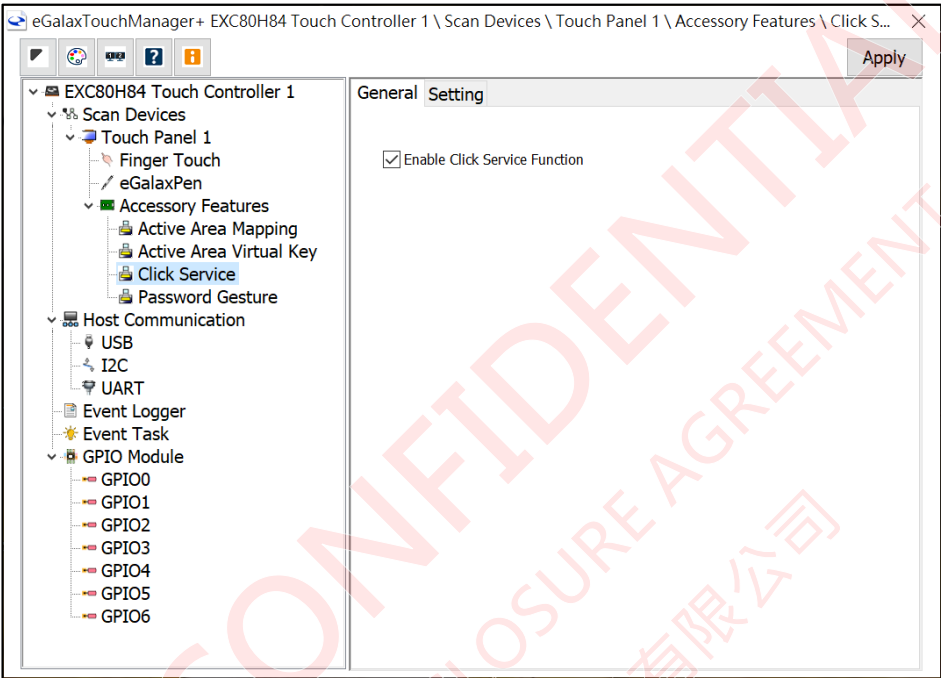
| Active Area Virtual Key Manual Configuration | |
|--|---|
| ID List | Select Virtual Key ID from 0~95. (The actual number of virtual keys is dependent on the controller module.) |
| Enable | Enable/Disable this Virtual Key. |
| Alias Name <input type="text" value="----"/> | Name the virtual key. (Max 4 characters) |
| Virtual Key Position | |
| Left/ Right/ Top/ Bottom | The boundaries of the virtual key area. |
| Sensitivity | The touch sensitivity of the virtual key. |
| Working Mode | There are three working mode settings for virtual key area: Normal: Keep registering Down events when finger is pressing and register an Up event after finger lifts off. Click on Touch: Register touch event only at the time of touch down. Click on Release: Register touch event only at the time of touch lift-off. |

| Virtual Key Position | |
|----------------------|---|
| Advanced | <p>The advanced configuration of the selected key.</p> <p>User can select the AA-Key report format* and enable grouping function.</p> <p>*If user wants to set the AA-key to report HID key code, please contact EETI for customized FW.</p>  |

5.5.C. Accessory Features \ Click Service

User can modify the touch behavior to click only or enhance double click performance.

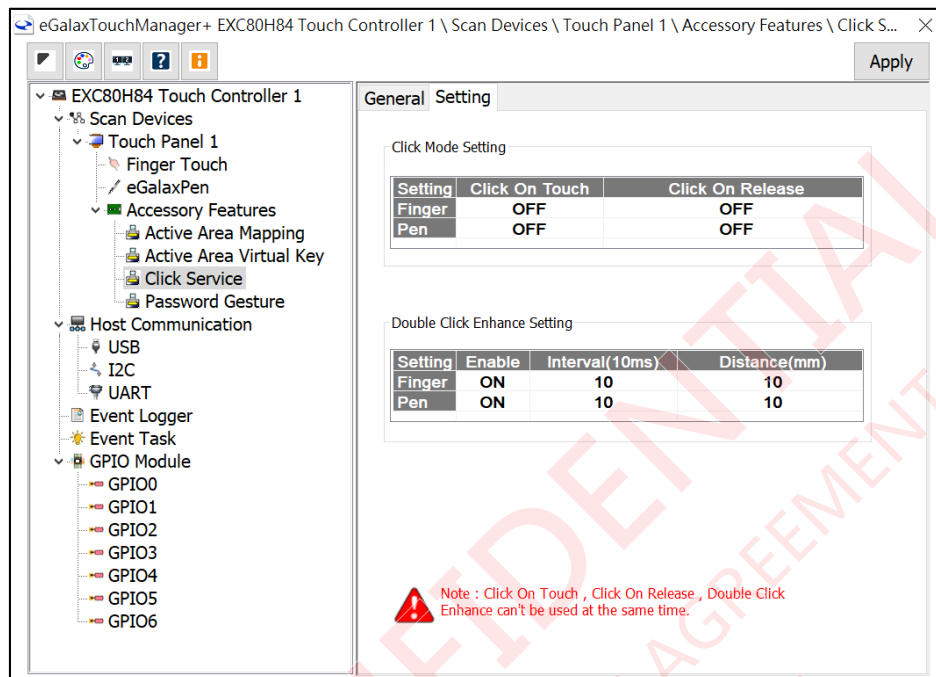
i. Click Service \ General



Click Service General Setting

| | |
|--------|--|
| Enable | Enable/Disable Click Service function. |
|--------|--|

ii. Click Service \ Setting

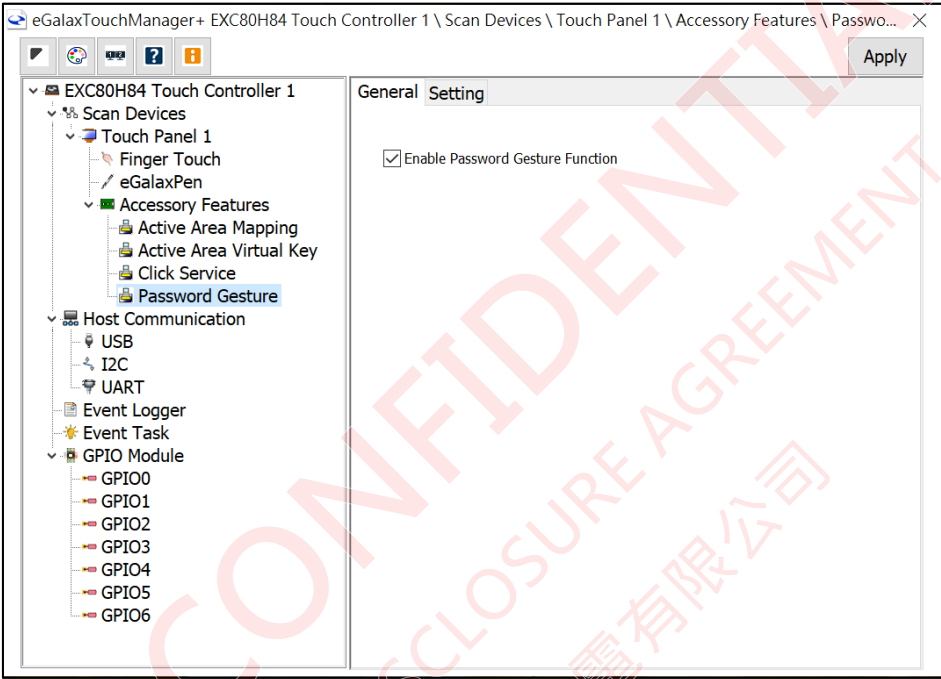


| Click Mode Setting | |
|------------------------------|--|
| Click On Touch | At the time of finger touch down, report the Touch down and Lift off event as a click operation. |
| Click On Release | At the time of finger lift off, report the Touch down and Lift off event as a click operation. |
| Double Click Enhance Setting | |
| Enable | Enable/Disable double click enhancement. |
| Interval(10ms) | The duration between two clicks. |
| Distance(mm) | The distance between two clicks. |

5.5.D. Accessory Features \ Password Gesture

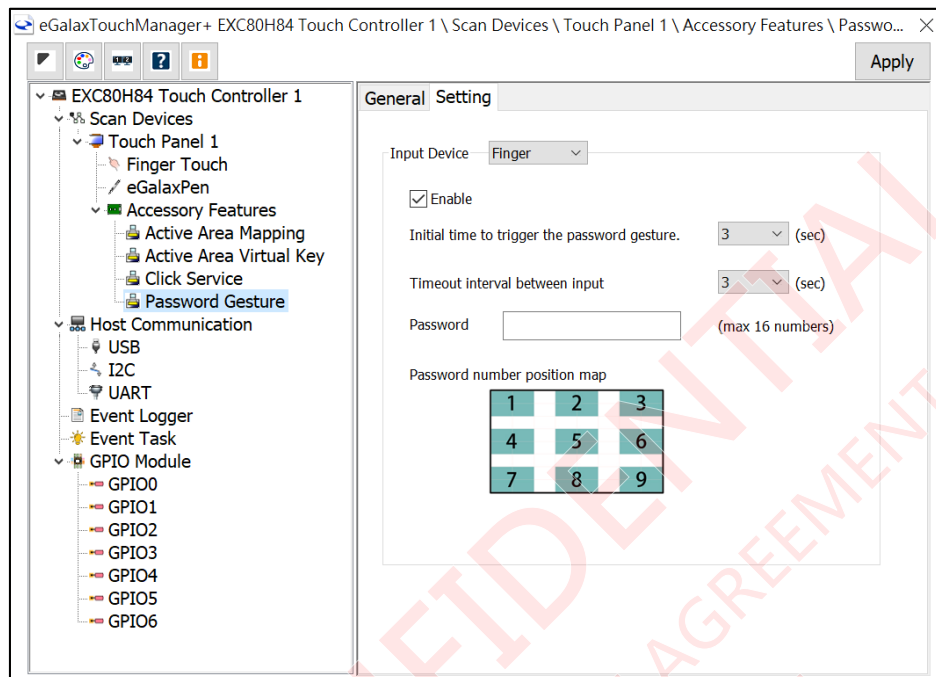
Password Gesture can turn touch panel into an invisible keypad that allows user to type in the password to trigger a certain action. Please also refer to [Event Task](#) to set up the action.

i. Password gesture \ General



| General | |
|----------------|--|
| Enable/Disable | Click or unclick to enable or disable Password Gesture function. |

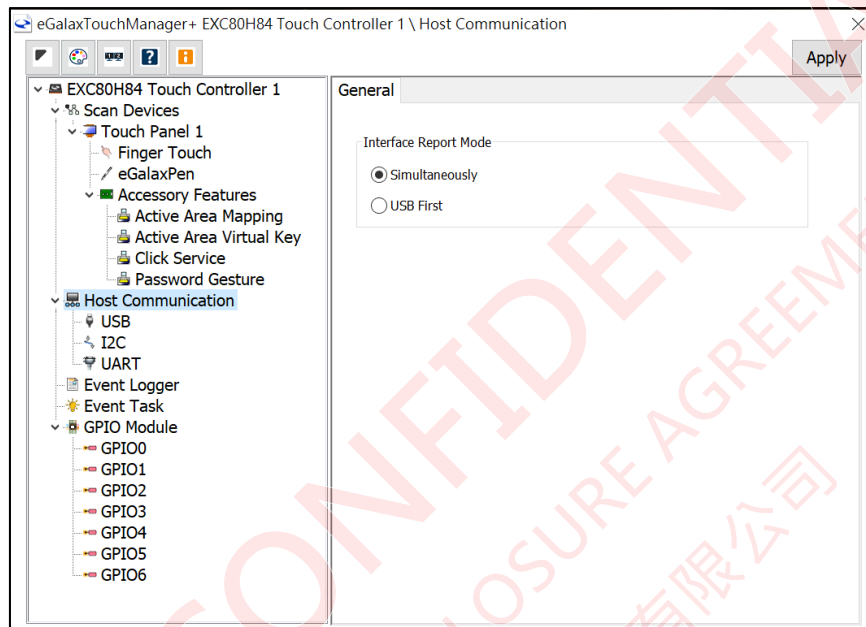
ii. Password Gesture \ Setting



| Setting | |
|--|--|
| Input device | Select Finger or Pen |
| Enable | Enable Finger or Pen |
| Initial time to trigger the password gesture | Keep touching down on the touch screen for this period to initialize the keypad. |
| Timeout interval between input | The inter-digit timeout of the password input. |
| Password | Set password (maximum : 16 numbers) |

6. Host Communication

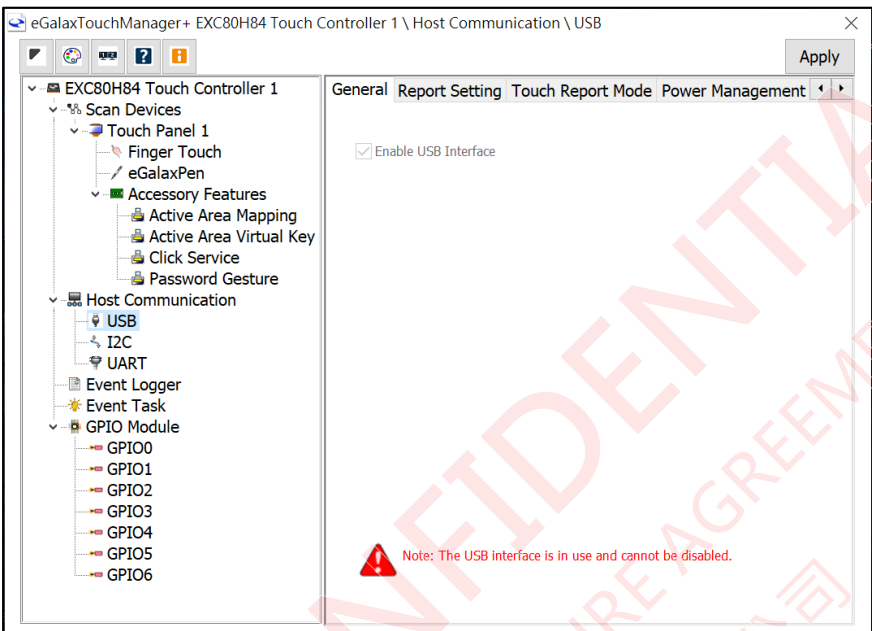
Orion touch controller supports multiple interfaces: USB, I2C, and UART. User can define the number of touches and pens for each enabled interface. Each interface has its own power management policy.



| General | |
|-----------------------|---|
| Interface Report Mode | |
| Simultaneously | The touch controller can transfer data over USB, I2C, and UART interfaces at the same time. |
| USB First | The touch controller transfer data only over USB even when other interfaces are connected. |

6.1. Host Communication \ USB

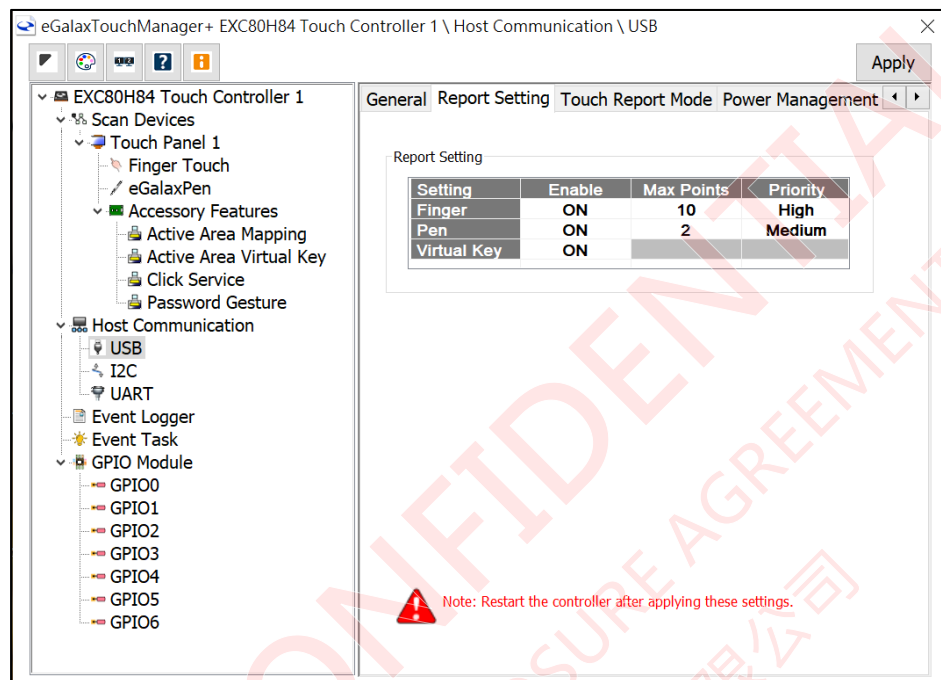
6.1.A. USB \ General






| USB General Setting | |
|---------------------|---|
| Enable USB Function | Enable/Disable USB function. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

6.1.B. USB \ Report Setting

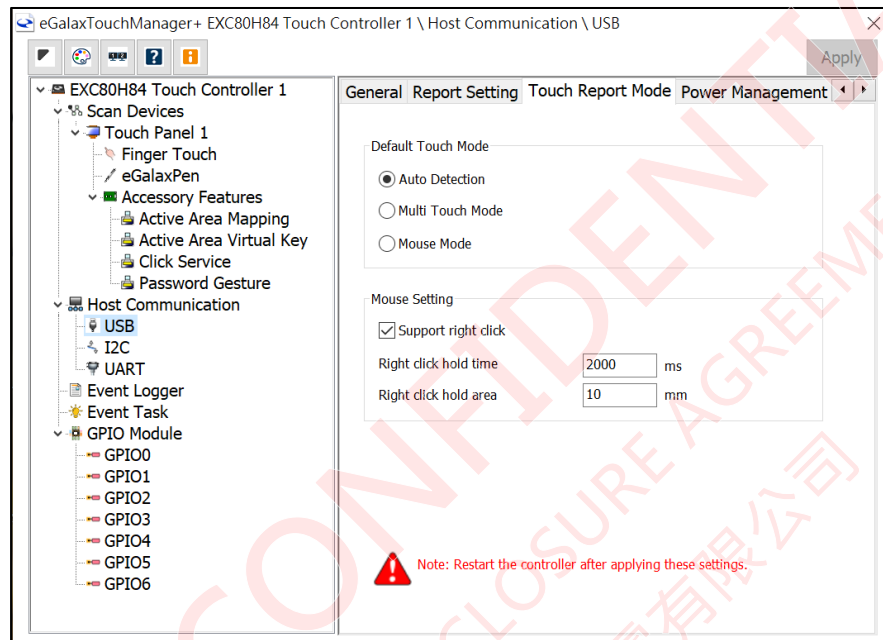
Once USB is enabled, user can configure the max points of finger touch, max number of pens, and their priority.



| USB Report Setting | | | | | | | | | | | | | | | | | |
|--------------------|--|------------|----------|------------|----------|--------|----|----|------|-----|----|---|--------|-------------|--|--|--|
| Report Setting | <p>Use the drop-down lists to enable feature device function, select the number of support touches, and the priority of the feature devices.</p> <div><p>Report Setting</p><table><tr><th>Setting</th><th>Enable</th><th>Max Points</th><th>Priority</th></tr><tr><td>Finger</td><td>ON</td><td>10</td><td>High</td></tr><tr><td>Pen</td><td>ON</td><td>2</td><td>Medium</td></tr><tr><td>Virtual Key</td><td>ON </td><td></td><td></td></tr></table><div><div>ON</div><div>OFF</div></div></div> | Setting | Enable | Max Points | Priority | Finger | ON | 10 | High | Pen | ON | 2 | Medium | Virtual Key | ON  | | |
| Setting | Enable | Max Points | Priority | | | | | | | | | | | | | | |
| Finger | ON | 10 | High | | | | | | | | | | | | | | |
| Pen | ON | 2 | Medium | | | | | | | | | | | | | | |
| Virtual Key | ON  | | | | | | | | | | | | | | | | |
| Note | <p>Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings.</p> | | | | | | | | | | | | | | | | |

6.1.C. USB \ Touch Report Mode

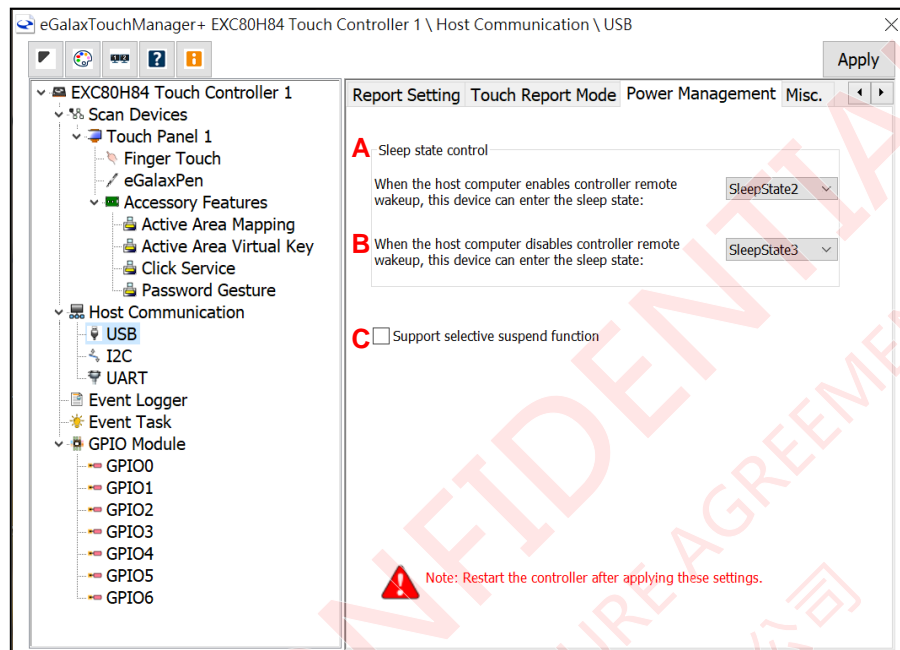
By default, EETI touch controllers communicate with the host through USB HID inbox driver. User can select multi-touch mode, mouse mode or whichever is preferable. Touch sensor can be emulated as a mouse device and support mouse right click. User can configure **Right click hold time** and **Right click hold area**.



| USB Touch Report Setting | |
|--------------------------|---|
| Default Touch Mode | |
| Auto Detection | Touch device reports in mouse mode at startup, and it can be switched to Multi Touch Mode if receiving the mode switch command from host system. |
| Multi-Touch Mode | Always report in multi-touch mode. |
| Mouse Mode | Always report single touch as a mouse device. |
| Mouse Setting | |
| Support right click | Enable/Disable mouse right click function. |
| Right click hold time | The time for a constant touch to trigger mouse right click. |
| Right click hold area | The area of a constant touch to trigger mouse right click. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

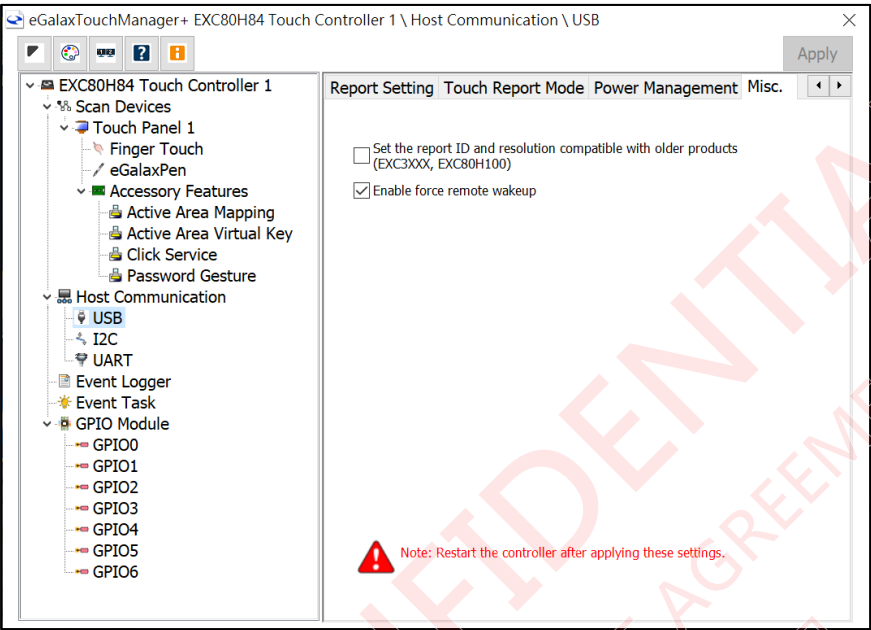
6.1.D. USB \ Power Management

User can select the preferred SleepState in accordance with Host's remote wakeup setting for USB interface.



| USB Power Management | |
|----------------------|---|
| Sleep State Control | |
| A | Select from SleepState 1 ~ 3. |
| B | Select from SleepState 1 ~ 3. |
| C | Enable/Disable selective suspend function. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

6.1.E. USB \ Misc.

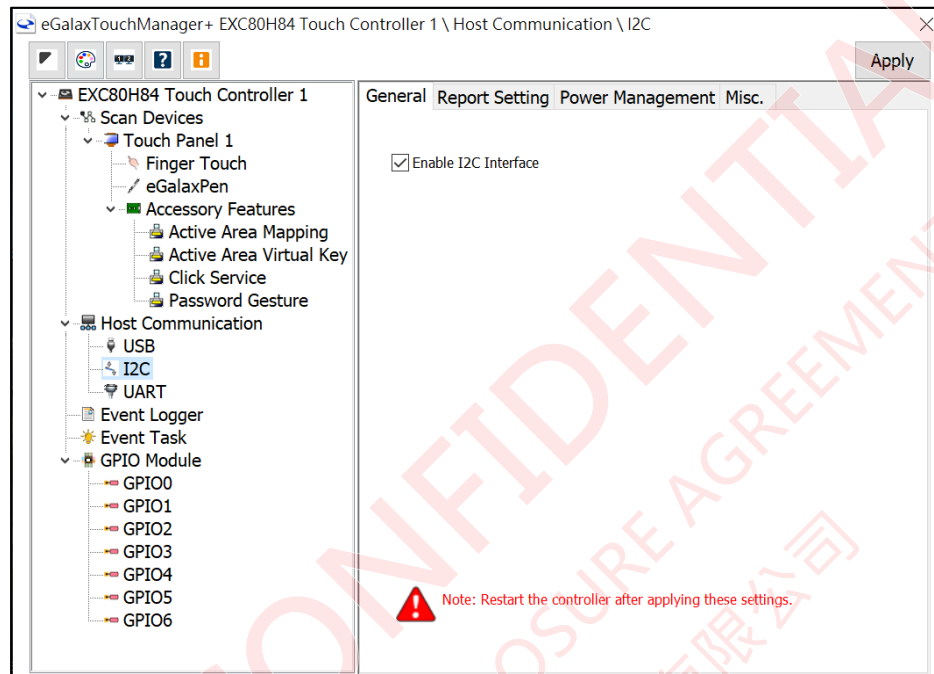


| USB Misc Setting | |
|----------------------------|---|
| Protocol Compatibility | Enable/Disable the old product compatible protocol. |
| Enable force remote wakeup | Enable/Disable force remote wakeup. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you <u>Apply</u> the settings. |

6.2. Host Communication \ I2C

6.2.A. I2C \ General

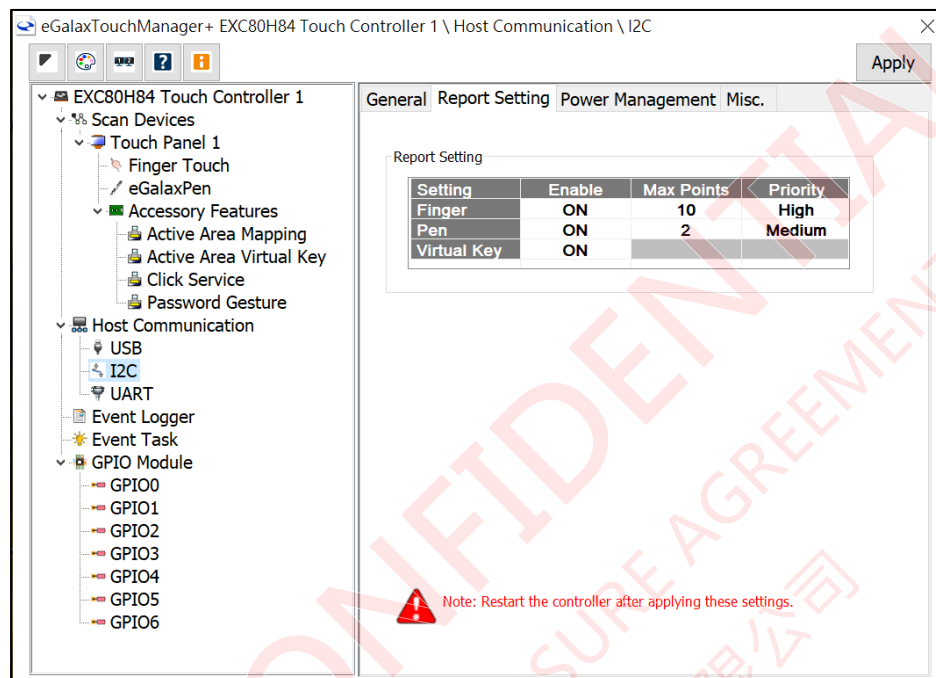
In the General page of I2C, user can enable I2C interface.



| I2C General Setting | |
|---------------------|---|
| Enable I2C Function | Enable/Disable I2C Function. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

6.2.B. I2C \ Report Setting

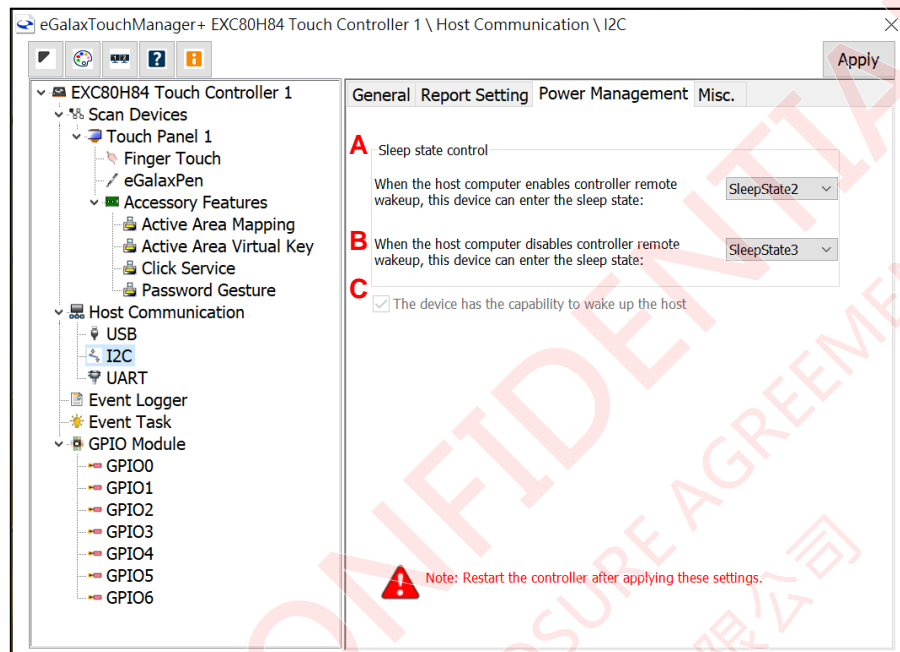
Once I2C is enabled, user can configure the max points of finger touch, max number of pens, and their priority.



| I2C Report Setting | | | | | | | | | | | | | | | | | |
|--------------------|---|------------|----------|------------|----------|--------|----|----|------|-----|----|---|--------|-------------|----|--|--|
| Report Setting | Use the drop-down lists to enable feature device function, select the number of support touches, and the priority of the feature devices. | | | | | | | | | | | | | | | | |
| | <div><div>Report Setting</div><table><thead><tr><th>Setting</th><th>Enable</th><th>Max Points</th><th>Priority</th></tr></thead><tbody><tr><td>Finger</td><td>ON</td><td>10</td><td>High</td></tr><tr><td>Pen</td><td>ON</td><td>1</td><td>Medium</td></tr><tr><td>Virtual-Key</td><td>ON</td><td></td><td></td></tr></tbody></table></div> | Setting | Enable | Max Points | Priority | Finger | ON | 10 | High | Pen | ON | 1 | Medium | Virtual-Key | ON | | |
| Setting | Enable | Max Points | Priority | | | | | | | | | | | | | | |
| Finger | ON | 10 | High | | | | | | | | | | | | | | |
| Pen | ON | 1 | Medium | | | | | | | | | | | | | | |
| Virtual-Key | ON | | | | | | | | | | | | | | | | |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. | | | | | | | | | | | | | | | | |

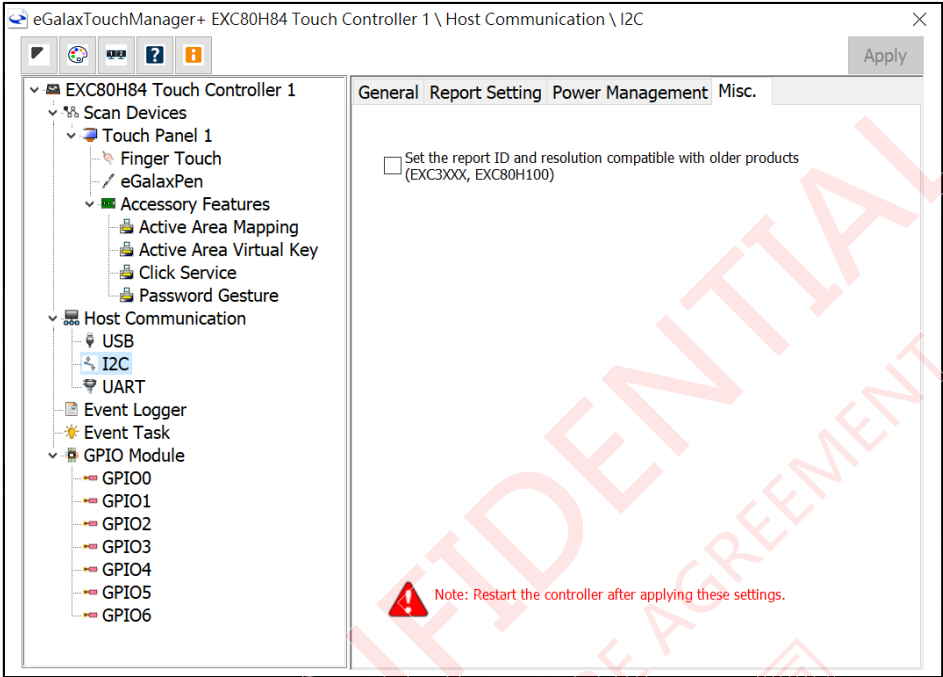
6.2.C. I2C \ Power Management

User can select the preferred SleepState in accordance with Host's remote wakeup setting for I2C interface.



| I2C Power Management | |
|----------------------|---|
| Sleep State Control | |
| A | Select from SleepState 1 ~ 3. |
| B | Select from SleepState 1 ~ 3. |
| C | Empower the device to remotely wake up the host. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

6.2.D. I2C \ Misc.

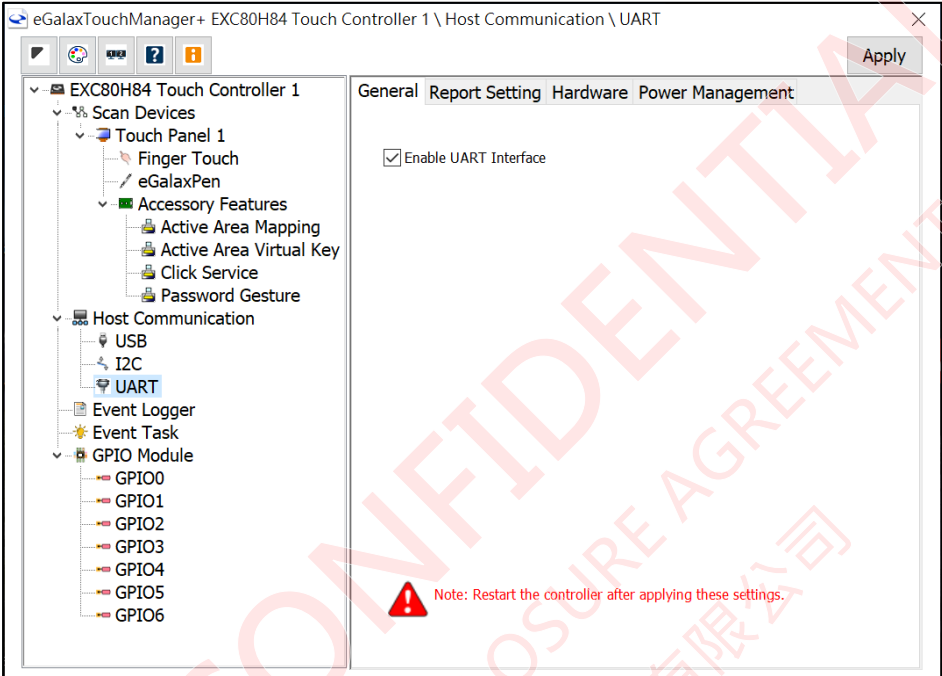


| I2C Misc Setting | |
|------------------------|---|
| Protocol Compatibility | Enable/Disable the old product compatible protocol. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you <u>Apply</u> the settings. |

6.3. Host Communication \ UART

6.3.A. UART \ General

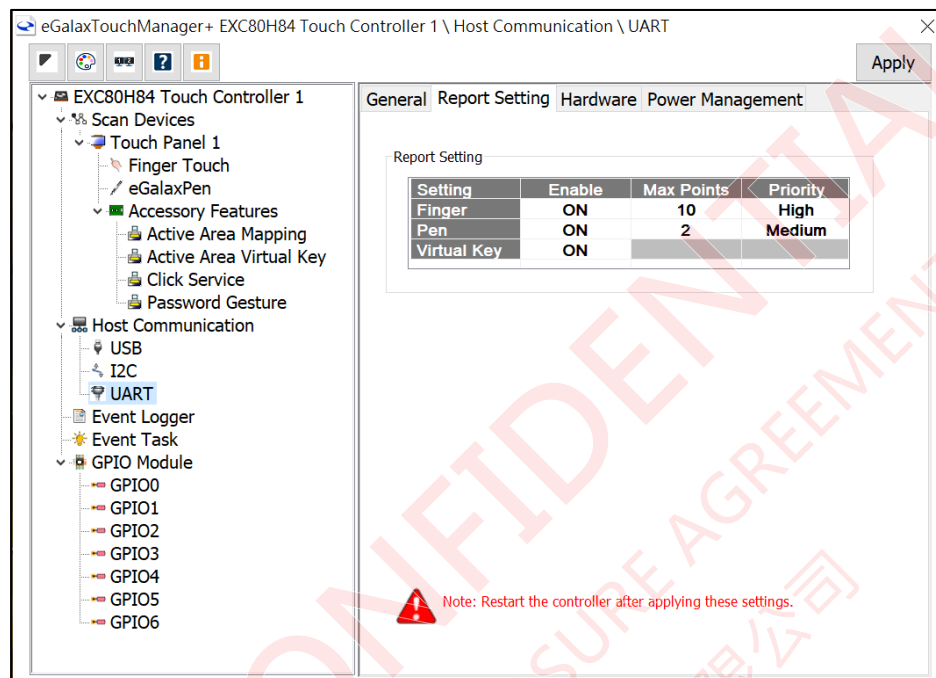
In the General page of UART, user can enable UART interface.



| UART General Setting | |
|----------------------|--|
| Enable | Enable UART Function. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

6.3.B. UART \ Report Setting

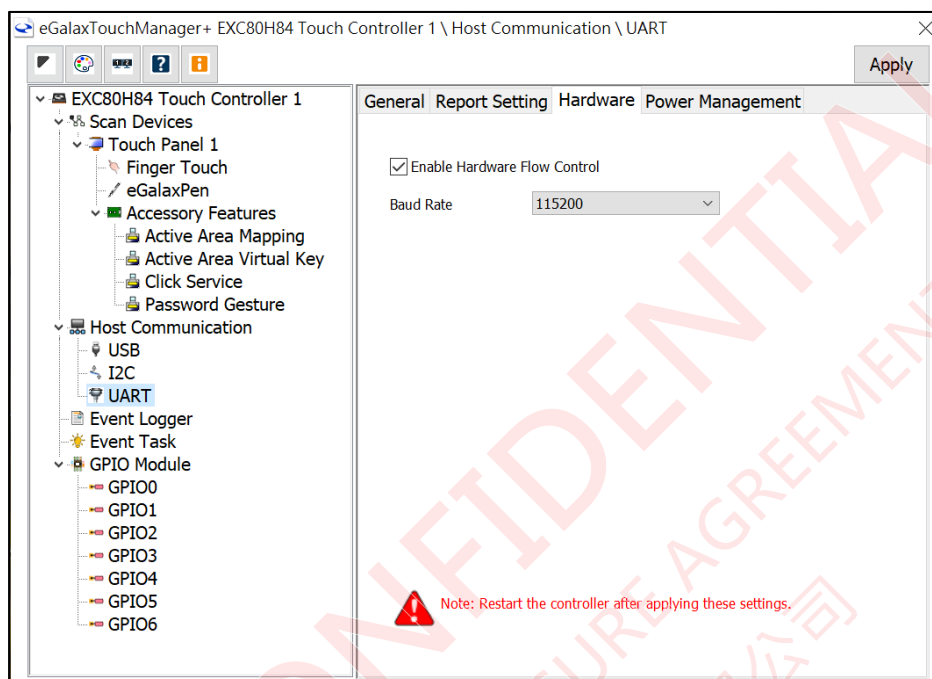
Once UART interface is enabled, user can configure the max points of finger touch, max number of eGalaxPens, and their priority.



| UART Report Setting | | | | | | | | | | | | | | | | | |
|---------------------|---|------------|----------|------------|----------|--------|----|----|------|-----|----|---|--------|-------------|----|--|-----|
| Report Setting | <p>Use the drop-down lists to enable feature device function, select the number of support touches, and the priority of the feature devices.</p> <div><p>Report Setting</p><table><tr><th>Setting</th><th>Enable</th><th>Max Points</th><th>Priority</th></tr><tr><td>Finger</td><td>ON</td><td>10</td><td>High</td></tr><tr><td>Pen</td><td>ON</td><td>2</td><td>Medium</td></tr><tr><td>Virtual Key</td><td>ON</td><td></td><td>Low</td></tr></table></div> | Setting | Enable | Max Points | Priority | Finger | ON | 10 | High | Pen | ON | 2 | Medium | Virtual Key | ON | | Low |
| Setting | Enable | Max Points | Priority | | | | | | | | | | | | | | |
| Finger | ON | 10 | High | | | | | | | | | | | | | | |
| Pen | ON | 2 | Medium | | | | | | | | | | | | | | |
| Virtual Key | ON | | Low | | | | | | | | | | | | | | |
| Note | <p>Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings.</p> | | | | | | | | | | | | | | | | |

6.3.C. UART \ Hardware

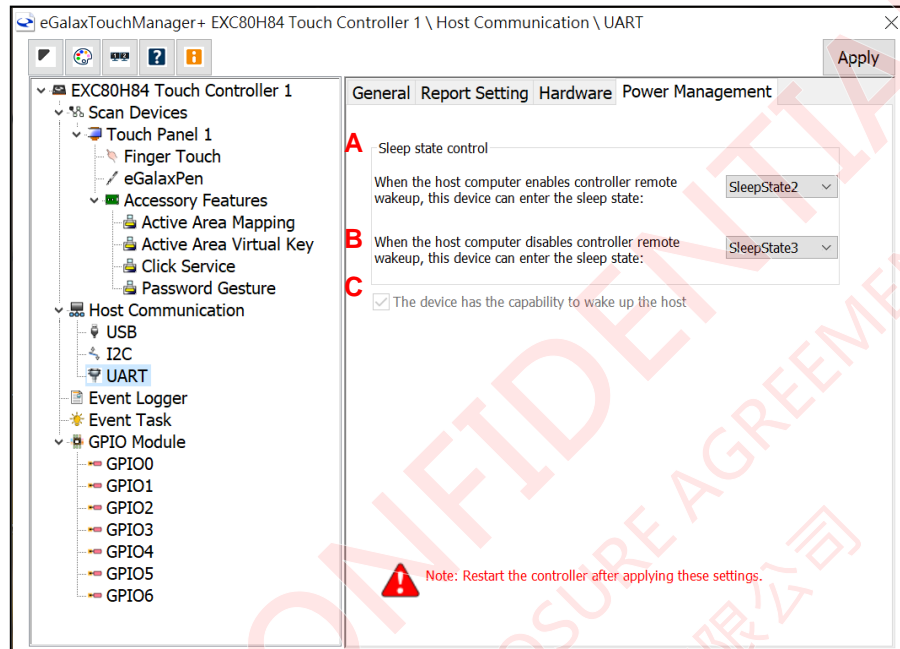
User can enable Hardware Flow Control and select the desirable baud rate.



| UART Hardware Setting | |
|-----------------------|---|
| Enable | Enable/Disable Hardware Flow Control function. |
| Baud Rate | Available UART Baud Rate: 9600, 19200, 38400, 57600, 115200. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

6.3.D. UART \ Power Management

User can select the preferred SleepState in accordance with Host's remote wakeup setting for UART interface.

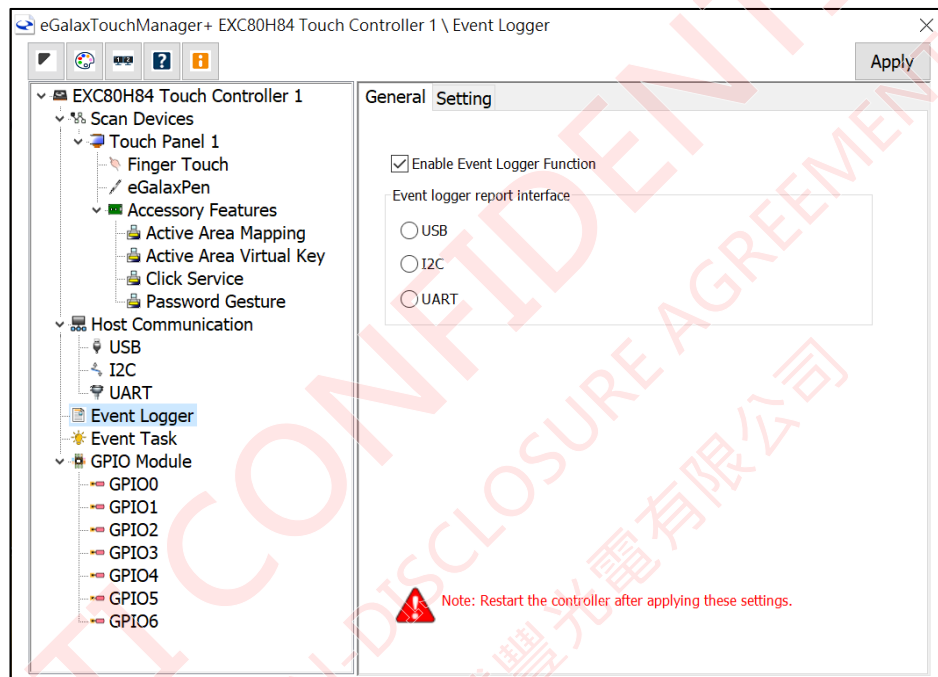


| UART Power Management | |
|-----------------------|---|
| Sleep State Control | |
| A | Select from SleepState 1 ~ 3. |
| B | Select from SleepState 1 ~ 3. |
| C | Empower the device to remotely wake up the host. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you Apply the settings. |

7. Event Logger

When eGalaxTouchMon is enabled, the **Event Logger** will capture the events sent from **Event Service** of **Scan Device**. It will log the events into the Windows event viewer. The 3rd party application can also capture these events by integrating with EETI HID API.

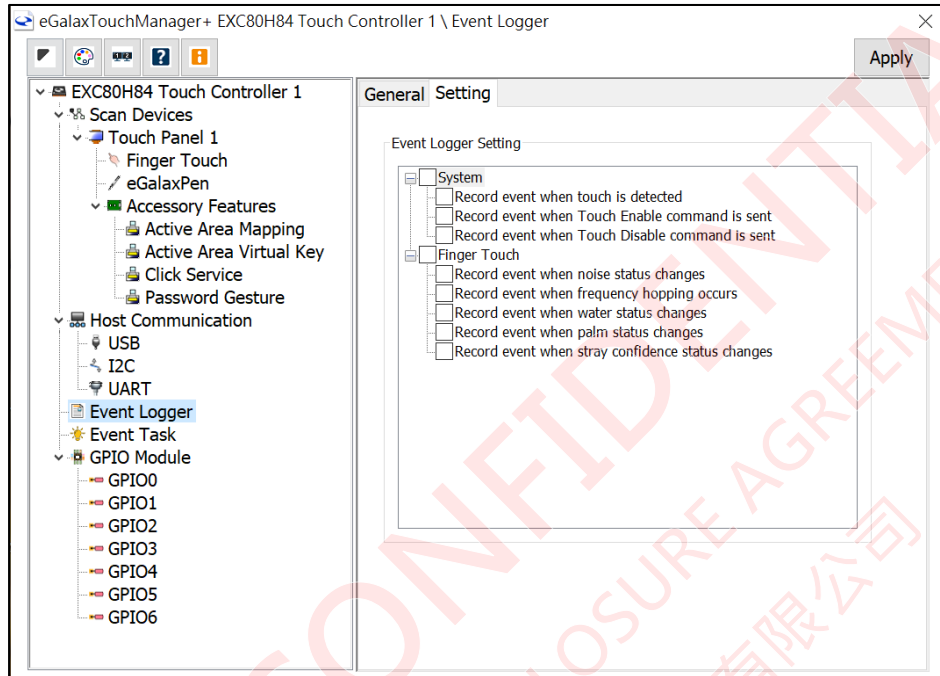
7.1. Event Logger \ General



| Event Logger General Setting | |
|-------------------------------|---|
| Enable Event Logger | Enable/Disable Event logger function |
| Event logger report interface | |
| USB | Enable/Disable the Event Logger capture the events from USB interface. |
| I2C | Enable/Disable the Event Logger capture the events from I2C interface. |
| UART | Enable/Disable the Event Logger capture the events from UART interface. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you <u>Apply</u> the settings. |

7.2. Event Logger \ Setting

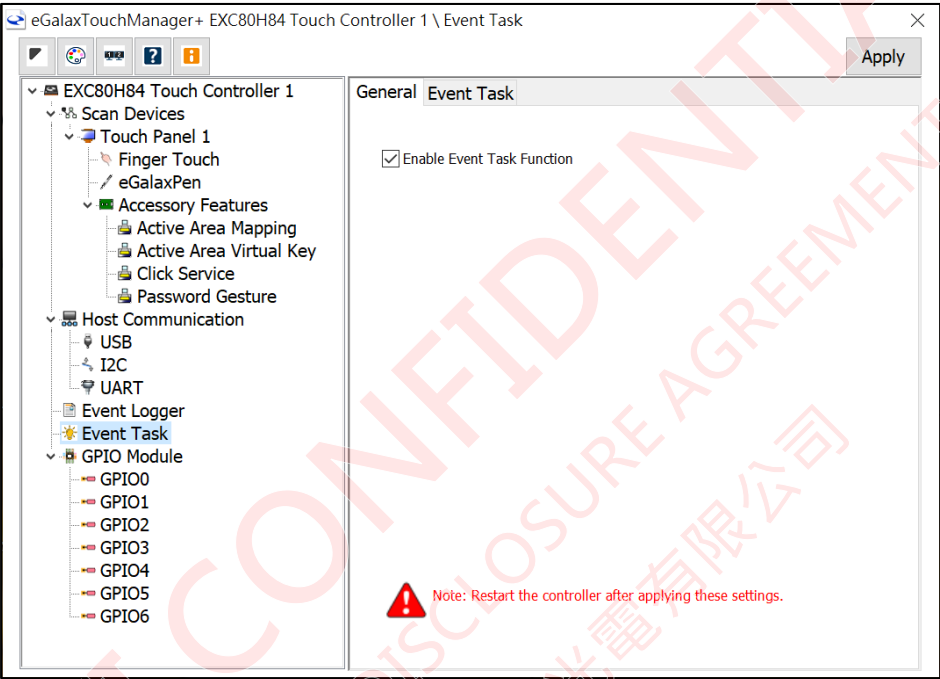
User can select the events that Event Logger can capture. The events need to be enabled in the [Event Service](#) settings of Finger Touch.



8. Event Task

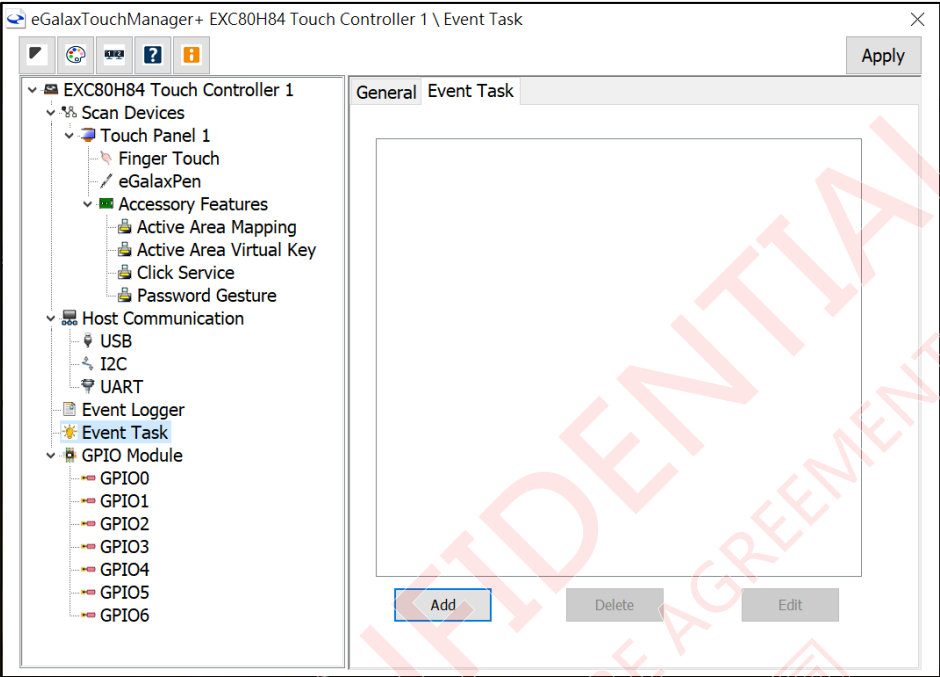
eGalaxTouchManager+ empowers user to use one or combine up to three events to execute a certain action.

8.1. Event Task \ General

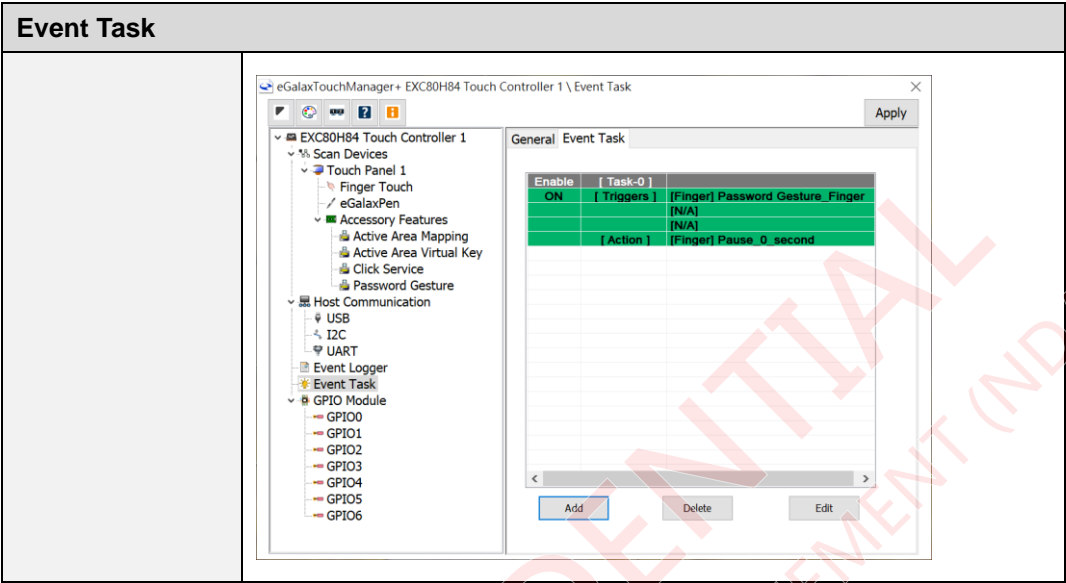


| General | |
|------------------|---|
| Enable / Disable | Enable/Disable Event Task function. |
| Note | Modifications made on this page will only take effect after the controller is restarted. Please restart the controller by right-clicking on the root node: "Touch Controller" and clicking "Restart" after you <u>Apply</u> the settings. |

8.2. Event Task \ Event Task



| Event Task | |
|-------------------|---|
| Add | Add event task |
| Event task Editor | <p>There are three “triggers”. Select one or multiple triggers to execute the action selected from the box at the bottom.</p> <div><p>Event Task Editor</p><p><input checked="" type="checkbox"/> Enable</p><p>Triggers</p><div><div>[N/A] [GPIO] Sensor [System] Power On [System] Key [Finger] Password Gesture [Finger] Touch Detected</div>+<div>[N/A] [GPIO] Sensor [System] Power On [System] Key [Finger] Password Gesture [Finger] Touch Detected</div>+<div>[N/A] [GPIO] Sensor [System] Power On [System] Key [Finger] Password Gesture [Finger] Touch Detected</div></div><p>Action</p><div>[N/A] [GPIO] Driver [Finger] Change Senario [Finger] Pause [System] Enable Scan [System] Disable Scan [System] TP Rotation [INTFS] Switch Report</div><p>OK Cancel</p></div> |

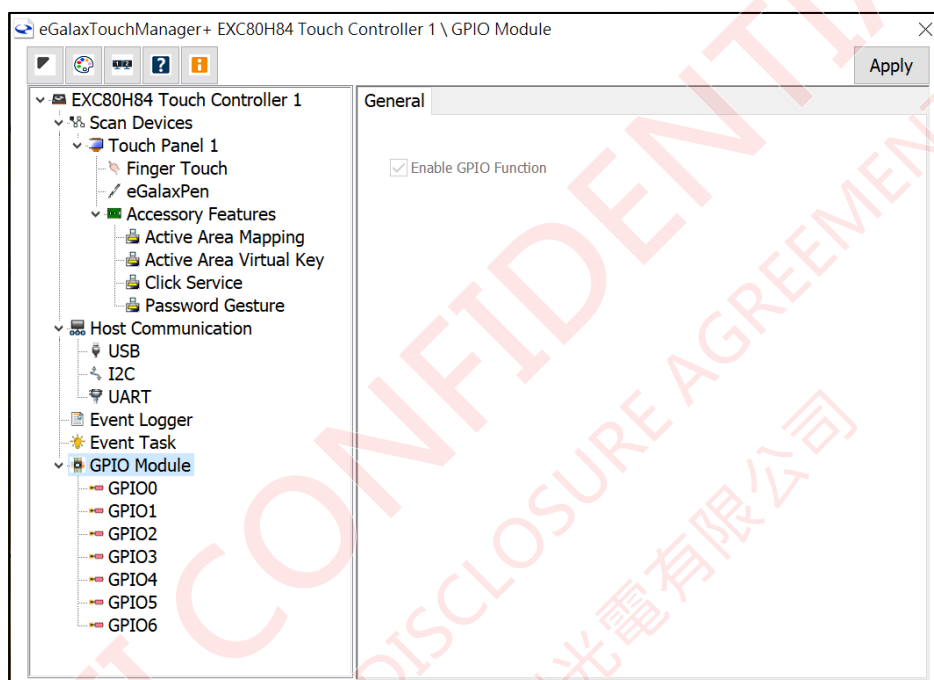


9. GPIO Module

EETI touch controllers have numbers of GPIO for driving or sensing signal.

9.1. GPIO Module \ General

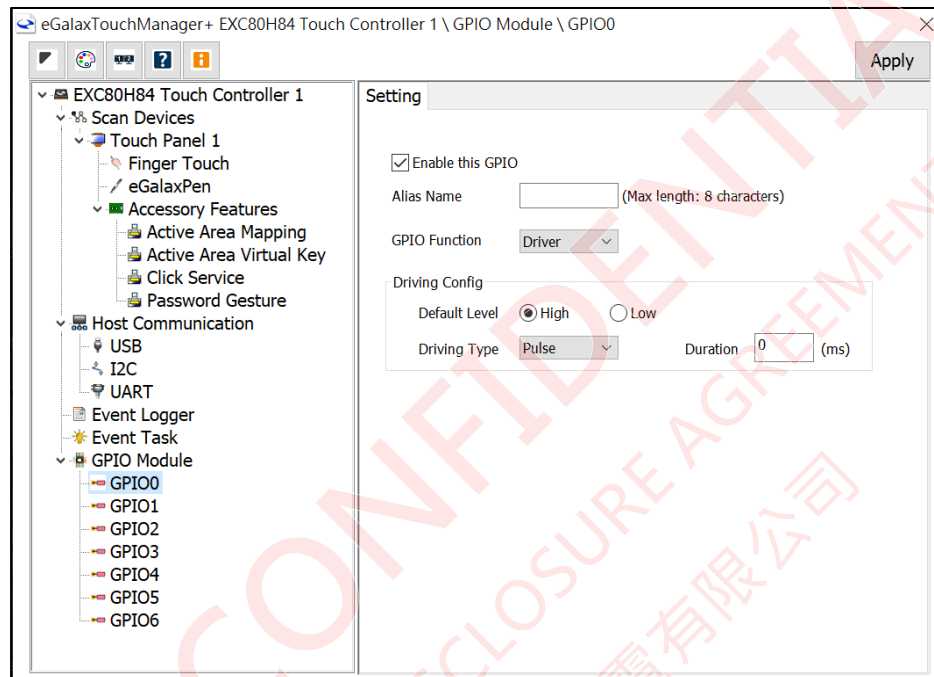
User can enable GPIO setting in this page.



| GPIO Module General Setting | |
|-----------------------------|-------------------------------|
| Enable GPIO Function | Enable/Disable GPIO function. |

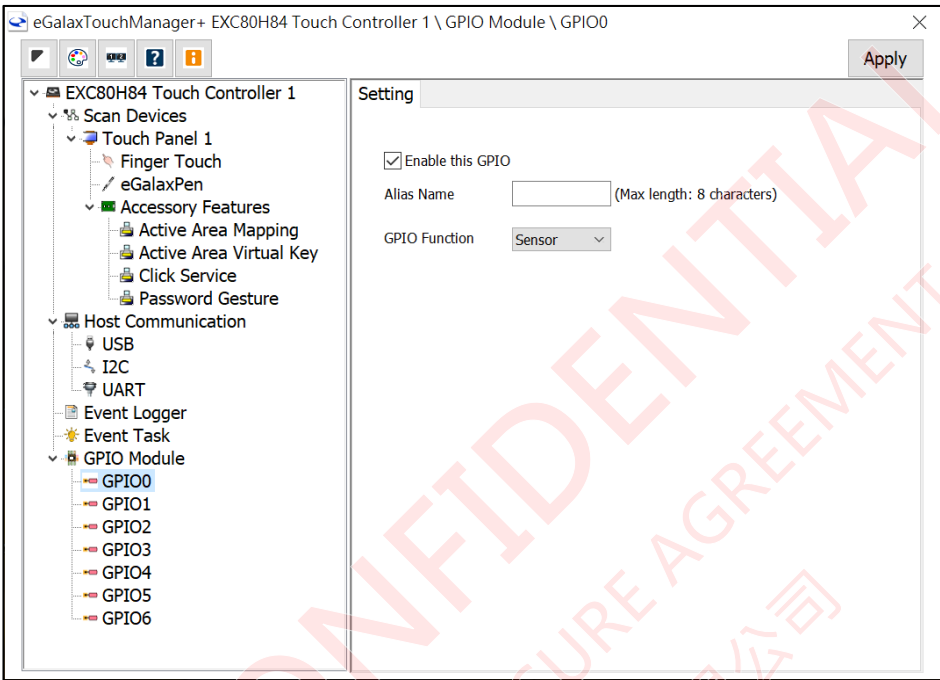
9.2. GPIO \ Setting \ Driver

There are up to 7 GPIO pins on the Orion family controllers. User can select GPIO from 0 to 6, name and configure each selected one individually. EETI touch function and notifying the host system when a touch is or is not disabled. EETI can customize the function of each GPIO pin. Please contact EETI FAEs for more information.



| GPIO Setting | |
|--|---|
| Enable | Enable/Disable this GPIO functon. |
| Alias Name <input type="text" value="----"/> | Name the GPIO (Max 8 characters) |
| GPIO Function | Define the GPIO to be Driver. |
| Driving Configuration | |
| Default Level | Select the default level to be High or Low when IC powers on. |
| Driving type | Level - pull the pin to high/low until the triggers end. Pulse - pull the pin to high/low for the predefined duration. |

9.3. GPIO \ Setting \ Sensor



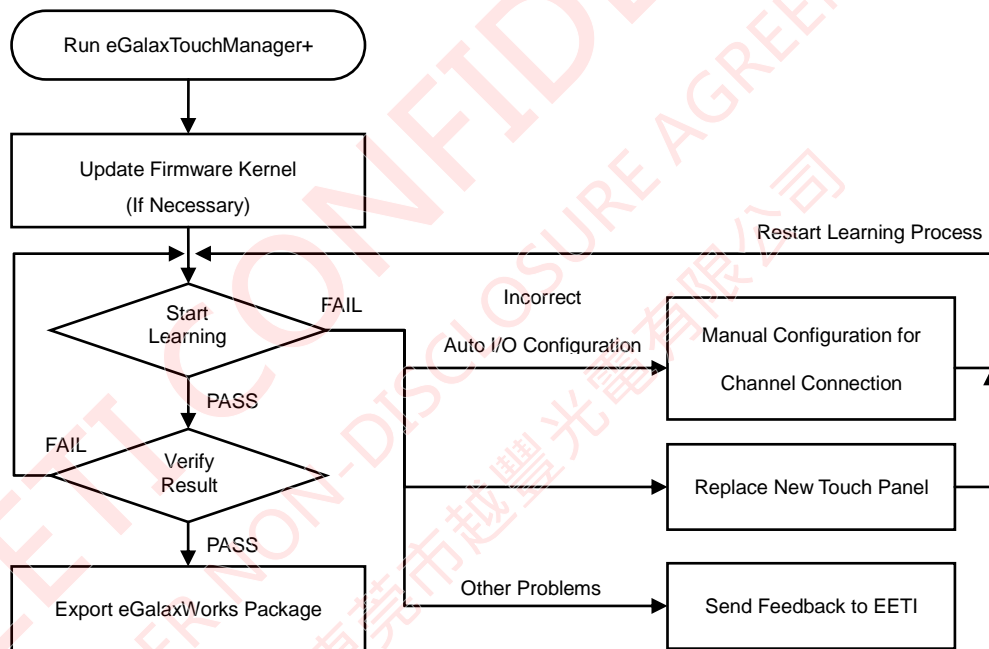
| Setting | |
|--|------------------------------------|
| Enable | Enable/Disable this GPIO function. |
| Alias Name <input type="text" value="----"/> | Name the GPIO (Max 8 characters) |
| GPIO Function | Define the GPIO to be Sensor. |

10. Quick Setting

This Chapter will guide you through auto-tuning procedure to fine tune the touch system. Please check if the system hardware is set correctly. Once auto-tuning procedure is completed, eGalaxTouch Manager+ will generate Firmware, Sensor Tester, and signal test tool.

We recommend using an 8Φ conductive stick as the tuning medium rather than finger to have consistent contact area and touch report threshold.

10.1. Finger Touch Learning

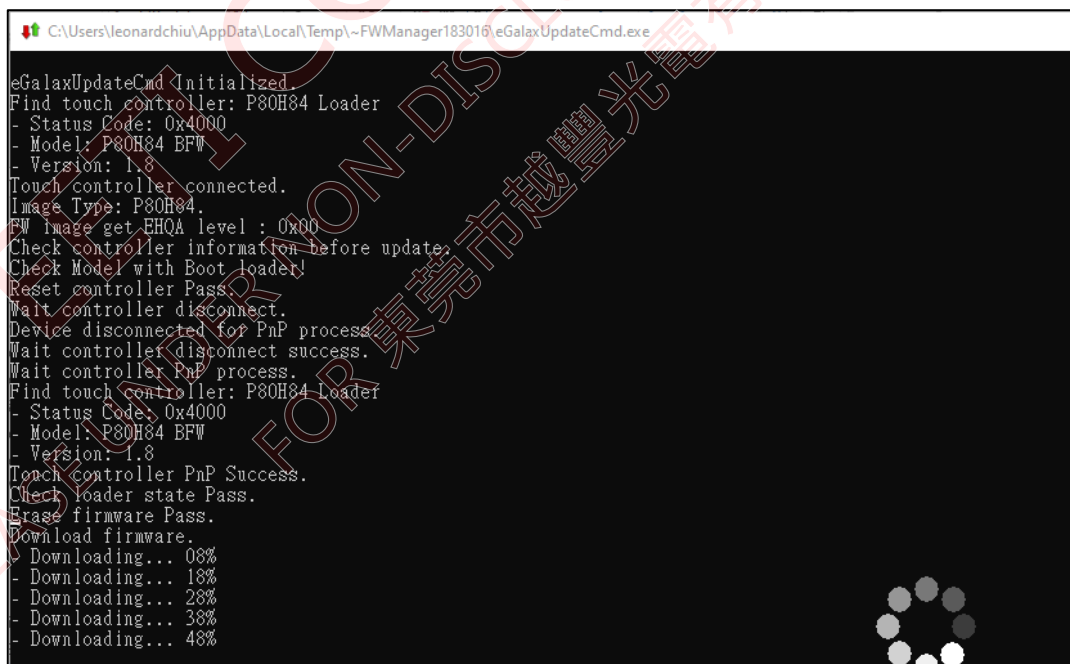
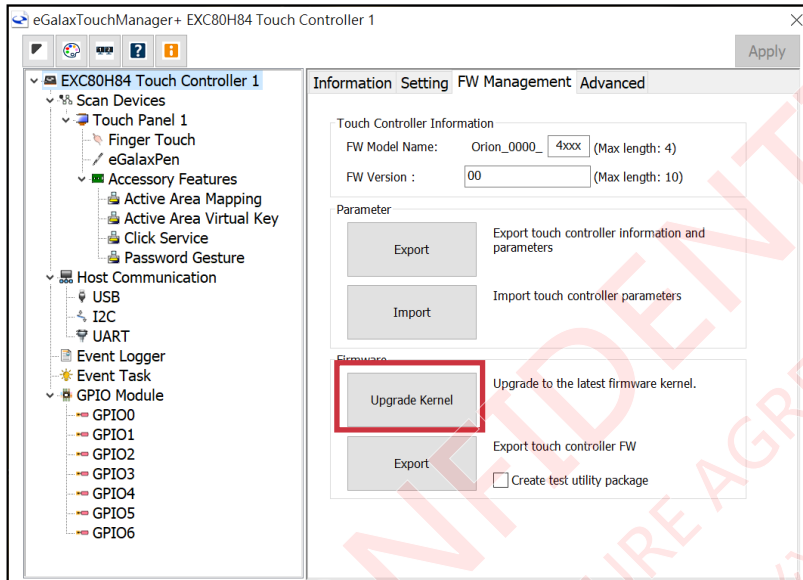


10.1.A. Execute eGalaxTouchManager+.exe



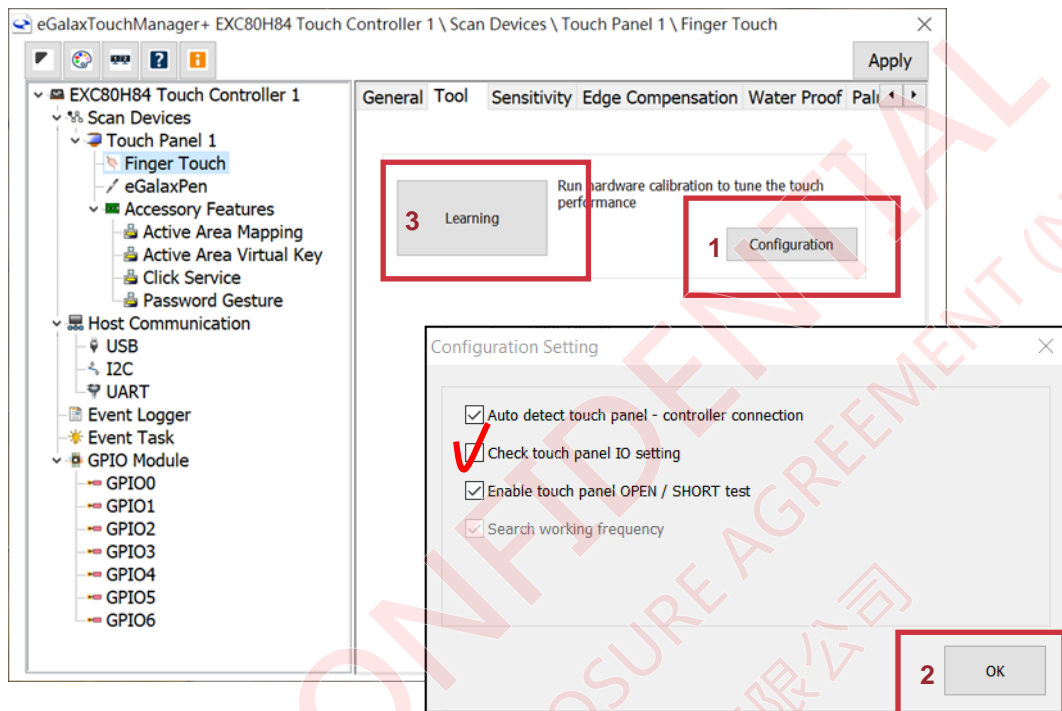
10.1.B. Update Kernel

Select “EXC80H84 Touch Controller 1”, go to “FW Management” tab, and click Upgrade Kernel button.



10.1.C. Start “Learning” for Finger Touch

Select “Finger Touch” from the left panel. Go to “Tool” tab on the right panel.



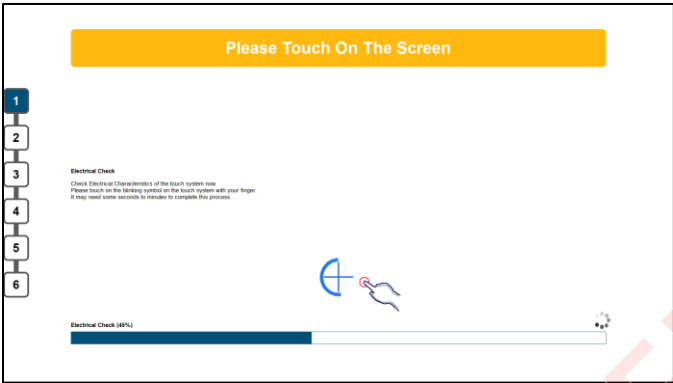
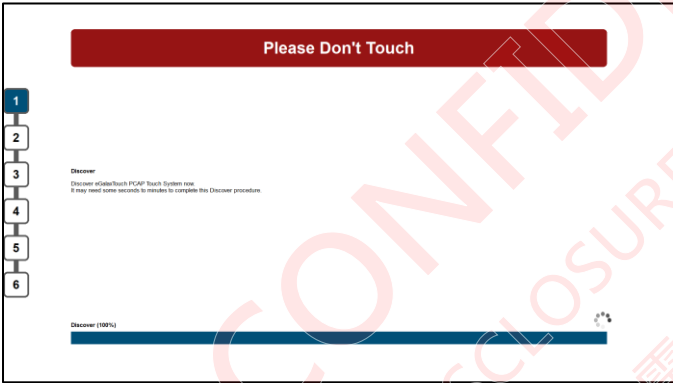
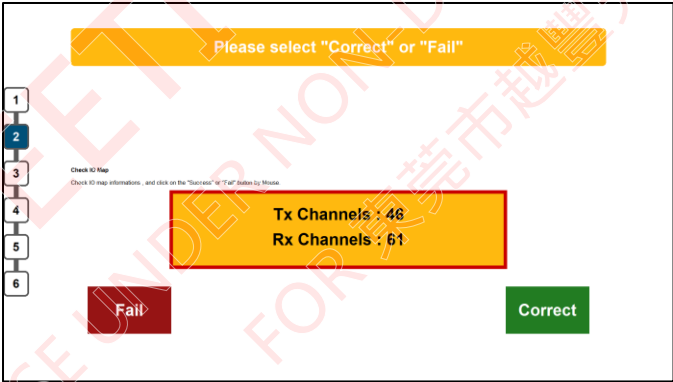
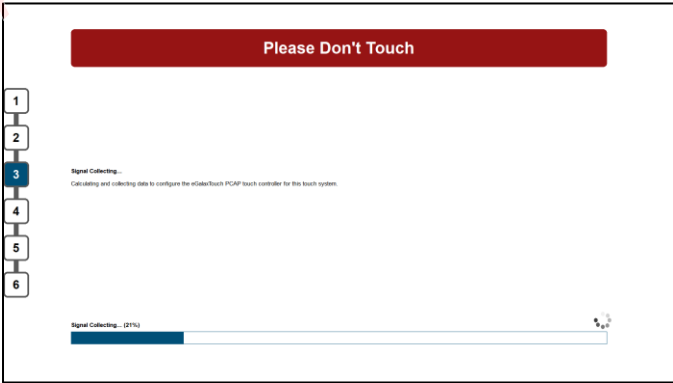
Before Learning process, please check if all the Tx and Rx channels connections are correct.

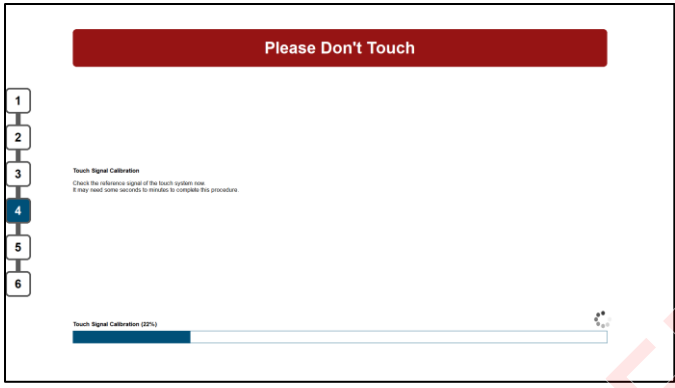
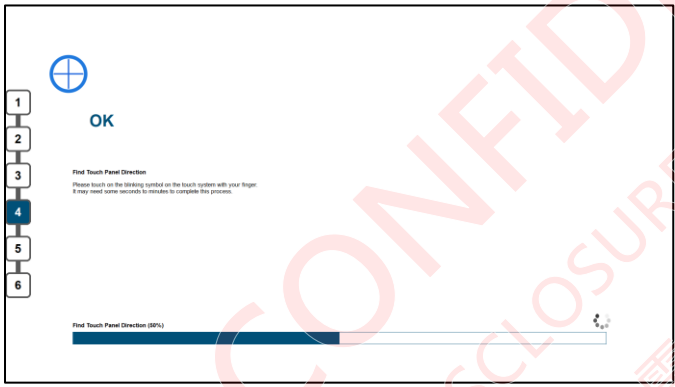
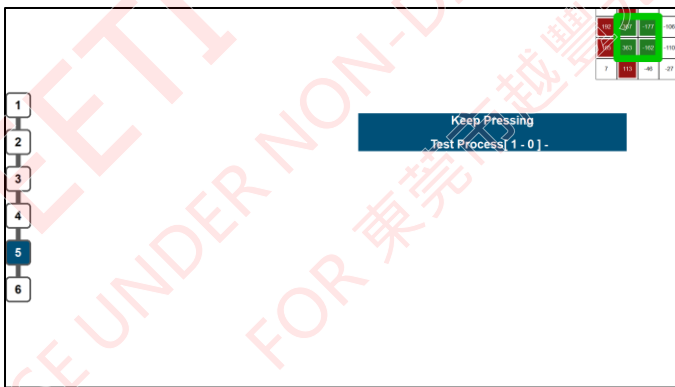
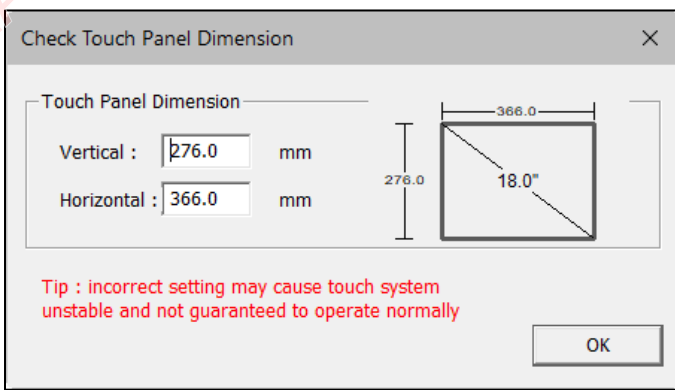
Click Configuration and check all the boxes for the first time tuning.

Click OK. TM+ will detect touch panel and controller connection, check touch panel IO setting and run touch panel open/short test automatically.

Now, please click **Learning** and follow the steps.


| Screenshot | Comment |
|------------|---|
| | <p>TM+ is discovering the touch system. Do not touch during this process.</p> |

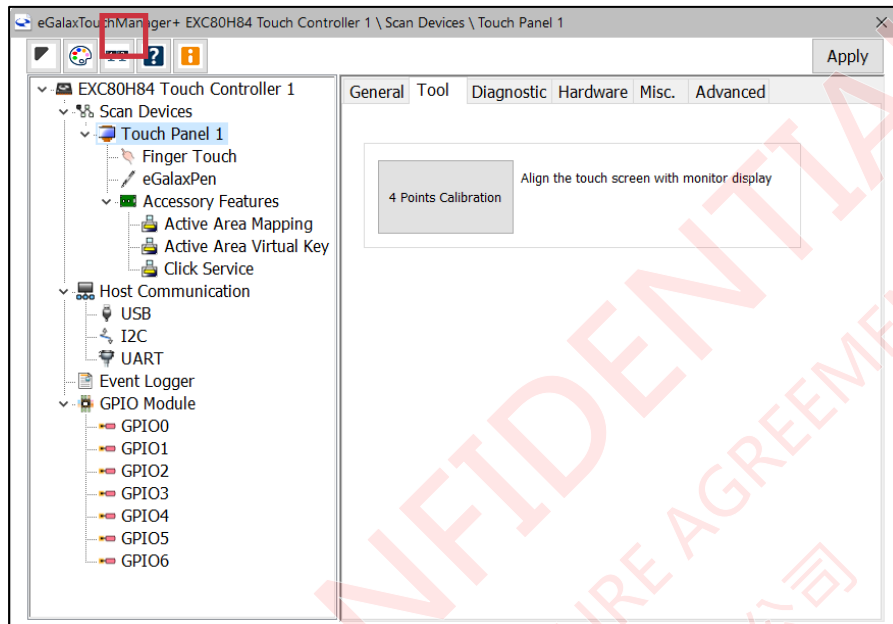
| Screenshot | Comment |
|---|--|
|  | <p>TM+ is checking the electrical characteristic of the touch system.</p> <p>Please touch on the target and hold still until this process is completed.</p> |
|  | <p>Please lift off the finger and do not touch before TM+ completes discovering the touch system.</p> |
|  | <p>The number of driving and sensing channels will be shown on the screen. Click Correct to continue.</p> <p>If the numbers are not correct, please click Fail and refer to "Touch Panel – Hardware" to configure the channels connection.</p> |
|  | <p>TM+ is collecting the background signal. Do NOT touch the screen at this stage.</p> |

| Screenshot | Comment |
|---|--|
|  | <p>TM+ is calibrating the touch signal. Do NOT touch the screen at this stage.</p> |
|  | <p>Please touch the target shown on the screen. TM+ is detecting the touch panel orientation.</p> |
|  | <p>Please press on the target and hold still until data collection is completed. TM+ is calibrating the finger touch signal at this stage, so user MUST touch all four targets with consistent force</p> |
|  | <p>TM+ calculates possible values by reference the Tx & Rx channels and typical channel pitch. Please input the correct dimension of touch panel in this step.</p> |

| Screenshot | Comment |
|------------|---|
| | TM+ is saving and writing data into the touch controller. Please do NOT touch the screen until the process is completed. |
| | Signal learning is completed. Draw Test screen will pop out. User can test finger touch performance and accuracy here. Please touch Keep Changes before the timer ends, <u>or the signal learning settings will not be saved.</u> |

10.1.D. Check result

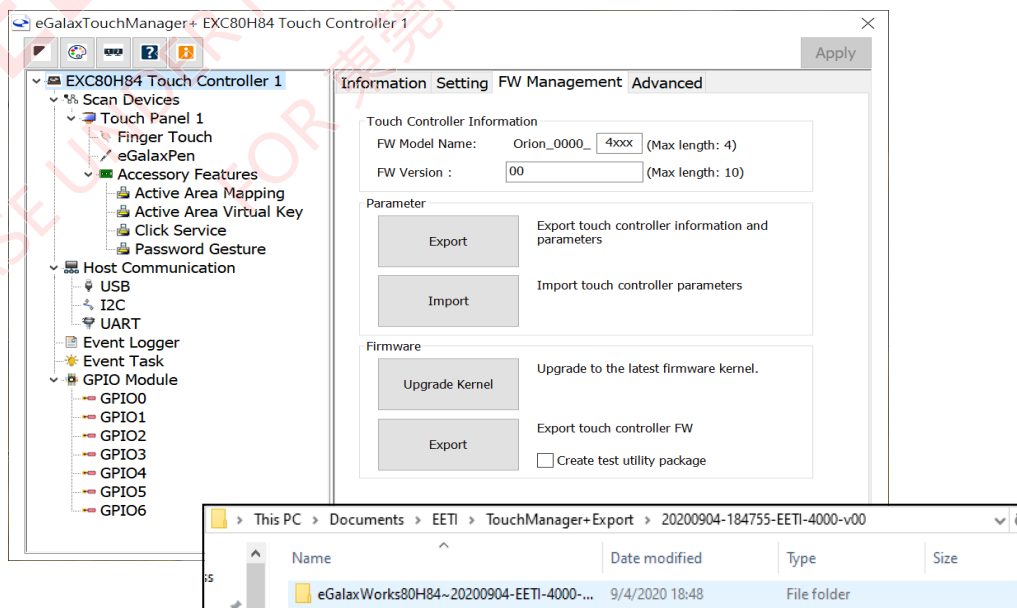
Click  to open Draw Test page and validate the touch performance.



10.1.E. Export Production/Test tool package.

Select “EXC80H84 Touch Controller 1”, and go to “FW Management” tab. User can customize a 4 digits model number and firmware version. Click **Export FW** and check Include Test Utility Package. The test utility package directory:

C:\Users\[UserName]\Documents\EETI\TouchManager+Export\



10.2. Extra Settings

10.2.A. Manual Configuration for Channel Connection

TM+ will automatically detect the channel connections of controller and touch sensor that touch sensor must be compliant to EETI's SDR. For other sensors, please enter the Tx and Rx channels manually.

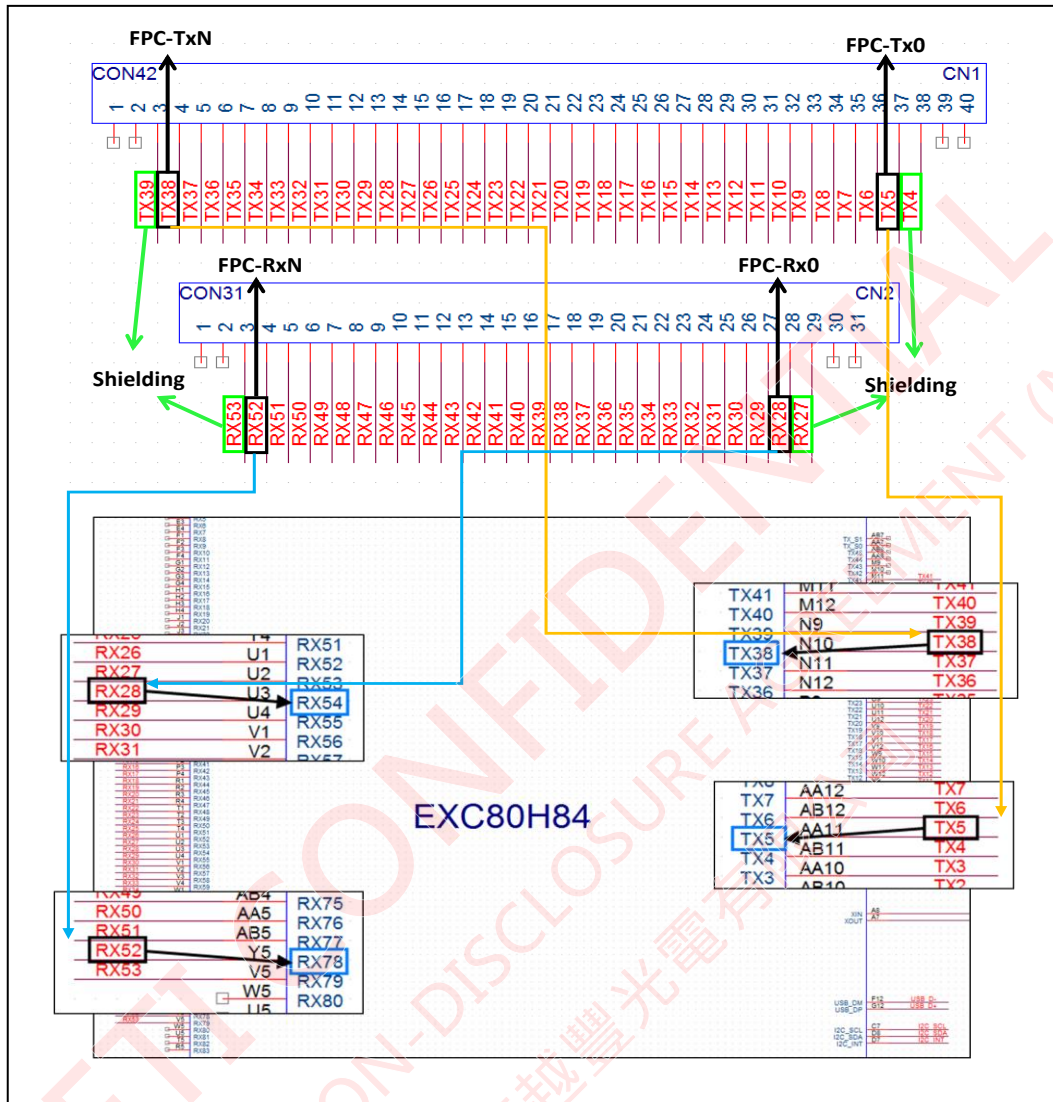
There are two ways to get the correct **Start (CH)** and **To (CH)**. One way is to check the schematic. The other method is to check the RAW data in **eGalaxTuner**.

i. From Schematic

Take the following diagram for example; please trace the valid Tx/Rx channels (not including shielding traces) down to the IC channel pins.

Set Tx Channel Connection-Start(CH)=5, To(CH)=38.

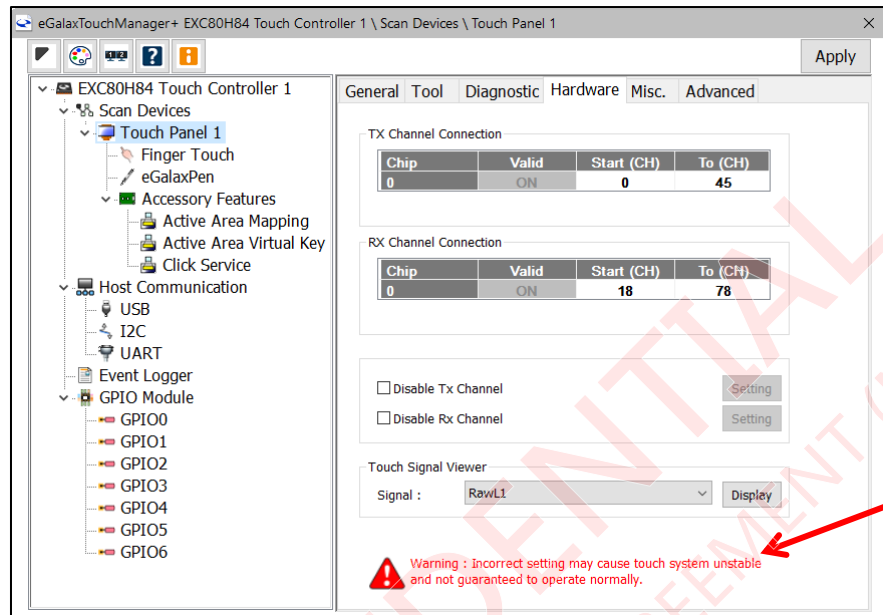
Set Rx Channel Connection-Start(CH)=54, To(CH)=78.



ii. From Image-Raw Signal

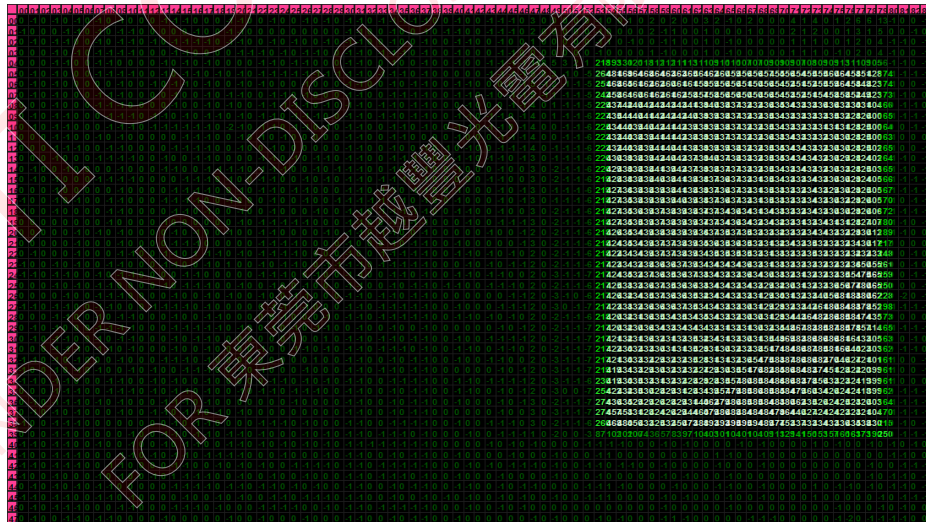
Please expand the tree menu on the left panel and select “Touch Panel 1”.

Switch to Hardware tab and click **Display** button.



Enable all the Tx and Rx channels and find the channels that can represent the boundaries of the Image.

※Please note that the channels with lower Raw Signal should be the shielding traces.



Set the Tx Channel Connection-Start(CH) =5, Rx Channel Connection-Start(CH) =54.

| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 00 | 0 | 0 | 1 | -1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04 | 1 | 3 | 1 | 218 | 114 | 130 | 111 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| 05 | 481 | 70 | 463 | 468 | 464 | 462 | 463 | 465 | 460 | 462 | 460 | 460 | 457 | 456 | 457 | 456 | 456 | 456 | 456 | 456 | 456 | 456 |
| 06 | 251 | 465 | 461 | 462 | 462 | 461 | 462 | 461 | 459 | 459 | 457 | 457 | 451 | 451 | 456 | 456 | 456 | 456 | 456 | 456 | 456 | 456 |
| 07 | 242 | 458 | 461 | 460 | 460 | 462 | 461 | 461 | 458 | 457 | 458 | 457 | 456 | 449 | 450 | 456 | 456 | 456 | 456 | 456 | 456 | 456 |
| 08 | 441 | 440 | 441 | 443 | 442 | 443 | 441 | 439 | 440 | 438 | 438 | 437 | 432 | 432 | 436 | 436 | 436 | 436 | 436 | 436 | 436 | 436 |
| 09 | 441 | 440 | 440 | 443 | 442 | 443 | 440 | 439 | 439 | 438 | 437 | 437 | 432 | 432 | 436 | 436 | 436 | 436 | 436 | 436 | 436 | 436 |
| 10 | 440 | 439 | 440 | 442 | 441 | 442 | 439 | 438 | 439 | 438 | 437 | 437 | 432 | 432 | 436 | 436 | 436 | 436 | 436 | 436 | 436 | 436 |
| 11 | 440 | 438 | 439 | 441 | 441 | 442 | 438 | 439 | 438 | 437 | 437 | 437 | 432 | 432 | 436 | 436 | 436 | 436 | 436 | 436 | 436 | 436 |
| 12 | 440 | 439 | 439 | 441 | 440 | 441 | 438 | 439 | 438 | 438 | 438 | 438 | 433 | 433 | 436 | 436 | 436 | 436 | 436 | 436 | 436 | 436 |
| 13 | 440 | 439 | 438 | 441 | 439 | 442 | 437 | 438 | 441 | 437 | 438 | 433 | 433 | 433 | 436 | 436 | 436 | 436 | 436 | 436 | 436 | 436 |
| 14 | 440 | 439 | 438 | 440 | 439 | 441 | 438 | 439 | 438 | 436 | 437 | 432 | 432 | 432 | 435 | 433 | 433 | 433 | 433 | 433 | 433 | 433 |
| 15 | 440 | 438 | 439 | 440 | 439 | 442 | 438 | 439 | 437 | 437 | 437 | 433 | 432 | 432 | 435 | 434 | 433 | 433 | 433 | 433 | 433 | 433 |
| 16 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| 17 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| 18 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| 19 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| 20 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| 21 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| 22 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| 23 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| 24 | 440 | 438 | 439 | 441 | 438 | 439 | 437 | 436 | 437 | 433 | 431 | 435 | 434 | 433 | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |

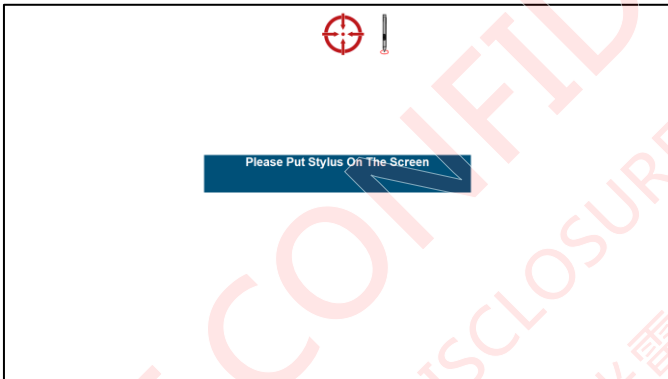

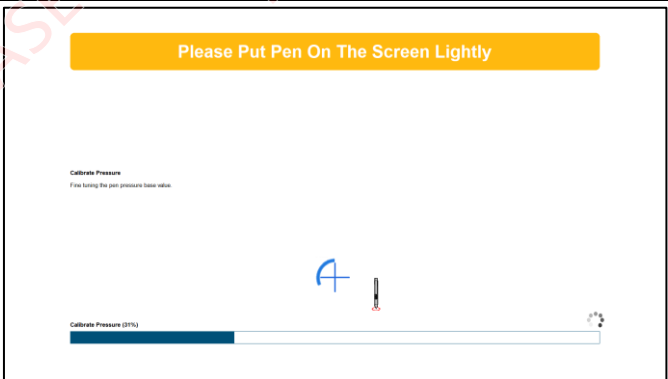
Set the Tx Channel Connection-To(CH) =38, Rx Channel Connection-To(CH) =78

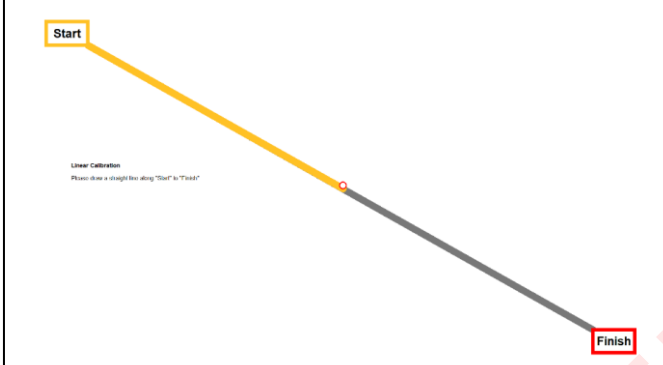


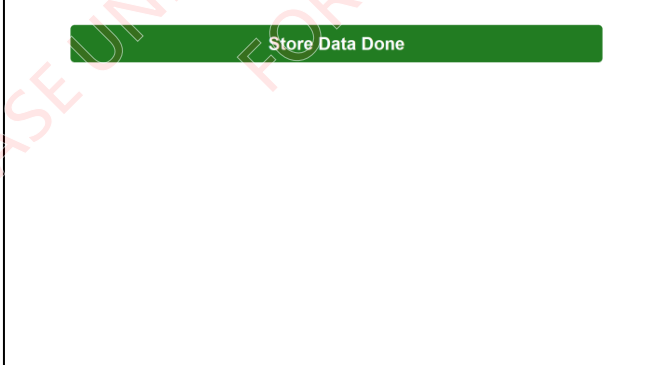
| | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 22 | 435 | 435 | 435 | 435 | 435 | 433 | 432 | 433 | 433 | 433 | 435 | 432 | 432 | 432 | 432 | 433 | 433 | 433 | 433 | 433 | 433 | 433 |
| 23 | 434 | 434 | 433 | 434 | 436 | 433 | 432 | 433 | 433 | 433 | 433 | 432 | 432 | 432 | 436 | 449 | 416 | 261 | 0 | 0 | 0 | 0 |
| 24 | 433 | 433 | 433 | 433 | 435 | 433 | 430 | 433 | 432 | 431 | 432 | 432 | 432 | 436 | 455 | 475 | 416 | 259 | 0 | 0 | 0 | 0 |
| 25 | 432 | 434 | 433 | 433 | 433 | 432 | 429 | 431 | 431 | 431 | 432 | 433 | 437 | 455 | 478 | 480 | 414 | 249 | -1 | -1 | -1 | -1 |
| 26 | 432 | 434 | 434 | 434 | 432 | 431 | 430 | 430 | 431 | 432 | 433 | 439 | 456 | 480 | 484 | 480 | 411 | 227 | 0 | 0 | 0 | 0 |
| 27 | 434 | 433 | 433 | 433 | 430 | 430 | 430 | 429 | 431 | 433 | 442 | 461 | 481 | 484 | 483 | 478 | 412 | 198 | 0 | -1 | -1 | -1 |
| 28 | 435 | 434 | 433 | 433 | 430 | 430 | 431 | 429 | 434 | 444 | 463 | 482 | 487 | 485 | 482 | 474 | 414 | 172 | -1 | -1 | 0 | -1 |
| 29 | 434 | 433 | 431 | 434 | 430 | 430 | 431 | 434 | 448 | 467 | 483 | 485 | 487 | 485 | 478 | 457 | 413 | 165 | 0 | -1 | 0 | -1 |
| 30 | 431 | 433 | 431 | 432 | 430 | 431 | 434 | 449 | 469 | 483 | 486 | 485 | 485 | 481 | 462 | 433 | 416 | 163 | 0 | -1 | 0 | -1 |
| 31 | 429 | 432 | 430 | 432 | 433 | 438 | 452 | 470 | 484 | 486 | 487 | 484 | 482 | 465 | 440 | 423 | 412 | 161 | 0 | -1 | -1 | 0 |
| 32 | 428 | 431 | 430 | 432 | 435 | 454 | 475 | 483 | 487 | 486 | 486 | 482 | 470 | 447 | 427 | 420 | 411 | 161 | 0 | -1 | 0 | 0 |
| 33 | 428 | 429 | 431 | 434 | 451 | 477 | 481 | 485 | 486 | 484 | 483 | 474 | 451 | 429 | 423 | 419 | 319 | 161 | 0 | -1 | 0 | -1 |
| 34 | 429 | 428 | 435 | 457 | 480 | 485 | 485 | 485 | 486 | 484 | 478 | 456 | 433 | 424 | 420 | 418 | 319 | 160 | -1 | -1 | -1 | -1 |
| 35 | 431 | 440 | 457 | 479 | 485 | 486 | 485 | 485 | 484 | 479 | 460 | 434 | 426 | 423 | 420 | 418 | 319 | 161 | -1 | -1 | -1 | -1 |
| 36 | 441 | 463 | 479 | 487 | 485 | 485 | 484 | 483 | 480 | 463 | 435 | 426 | 424 | 424 | 423 | 420 | 412 | 164 | -1 | 0 | 0 | -1 |
| 37 | 460 | 479 | 486 | 488 | 485 | 484 | 484 | 460 | 465 | 440 | 428 | 424 | 424 | 422 | 423 | 421 | 414 | 169 | 0 | -1 | 0 | -1 |
| 38 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 | 429 |
| 39 | 103 | 102 | 101 | 104 | 101 | 103 | 113 | 128 | 142 | 150 | 154 | 157 | 159 | 163 | 173 | 188 | 250 | -1 | -1 | 0 | -1 | -1 |
| 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 |
| 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 |
| 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 |
| 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 |
| 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 |
| 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 |


10.3. eGalaxPen Tuning

EETI controller supports eGalaxPen, an active stylus that provides comprehensive features, including pressure sensing, tilting sensing, functional buttons, etc., for user to experience a natural writing use. Through signal learning, user can easily set up and optimize the aforementioned features. This chapter represents an overview of signal learning process for eGalaxPen.

10.3.A. Signal Learning

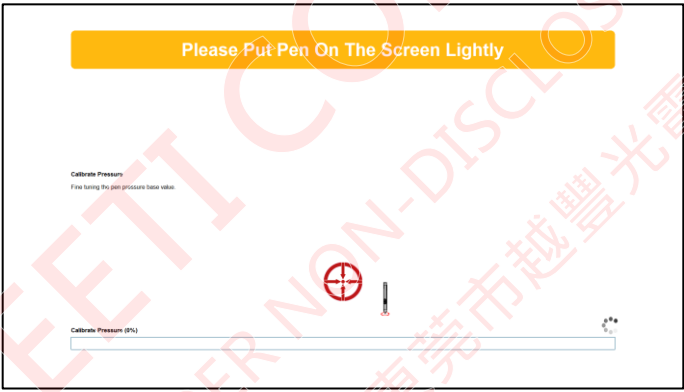
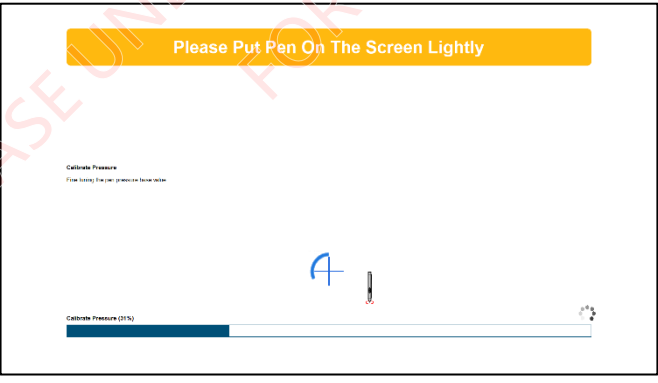
| Screenshot | Comment |
|---|---|
|  | Please put the stylus on the screen. TM+ is measuring the signal and setting the proper gain jump level. |
|  | This step is for pressure sensing calibration. Please put the pen upright to the touchscreen slightly without any extra force. |
|  | The controller is detecting and calibrating the pressure sensitivity. Please hold the pen still and do NOT move it. |

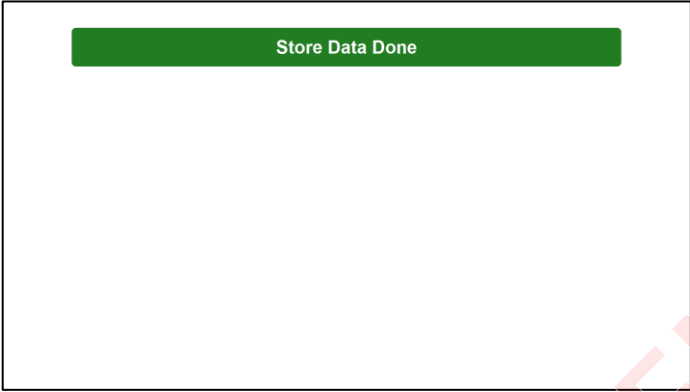

| Screenshot | Comment |
|---|---|
|  | <p>This step is for linearity calibration.</p> <p>Please use eGalaxPen to draw along the line straight.</p> <p>User can use a ruler to avoid jittering.</p> |
|  | <p>Please draw along the yellow line from the top right corner to the bottom left corner.</p> |
|  | <p>EETI controller is saving the parameters. Please do NOT touch the screen during this process.</p> |
|  | <p>Signal learning is completed.</p> |

| Screenshot | Comment |
|---|--|
|  | <p>Draw Test screen will pop out. User can test eGalaxPen performance and accuracy here. Please touch Keep Changes before the timer ends, <u>or the Learning results will not be saved.</u></p> |

10.3.B. Pressure Calibration

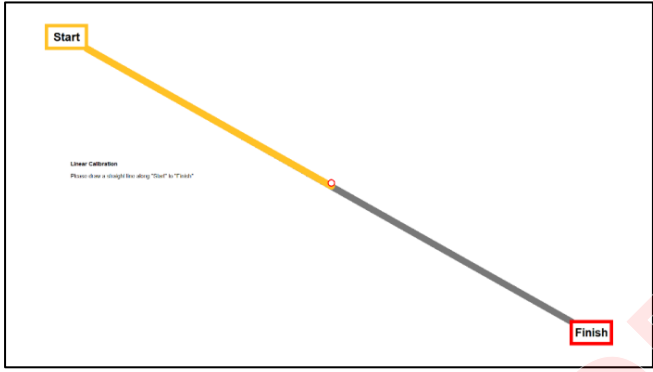
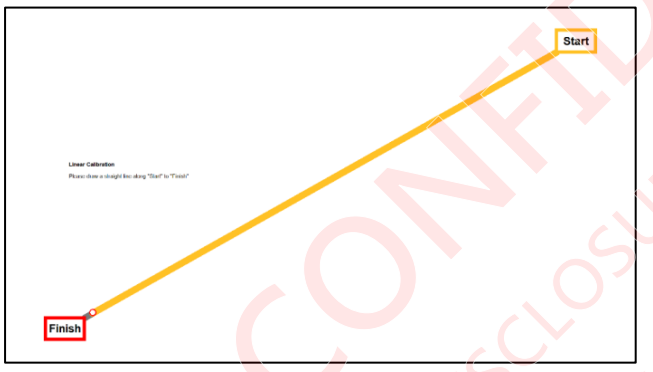


Auto pressure calibration gives you a quick re-calibration for pressures sensing.

| Screenshot | Comment |
|---|---|
|  | <p>This step is for pressure sensing calibration. Please put the pen upright to the touchscreen slightly without any extra force.</p> |
|  | <p>The controller is detecting and calibrating the pressure sensitivity. Please hold the pen still and do NOT move it.</p> |

| Screenshot | Comment |
|--|---|
|  | Pressure calibration is completed. |
|  | <p>Please touch Keep Changes before the timer ends, <u>or the calibration results will not be saved.</u></p> <p>Note: Currently the draw test window cannot show pressure on the drawing line.</p> |

10.3.C. Linearity Calibration

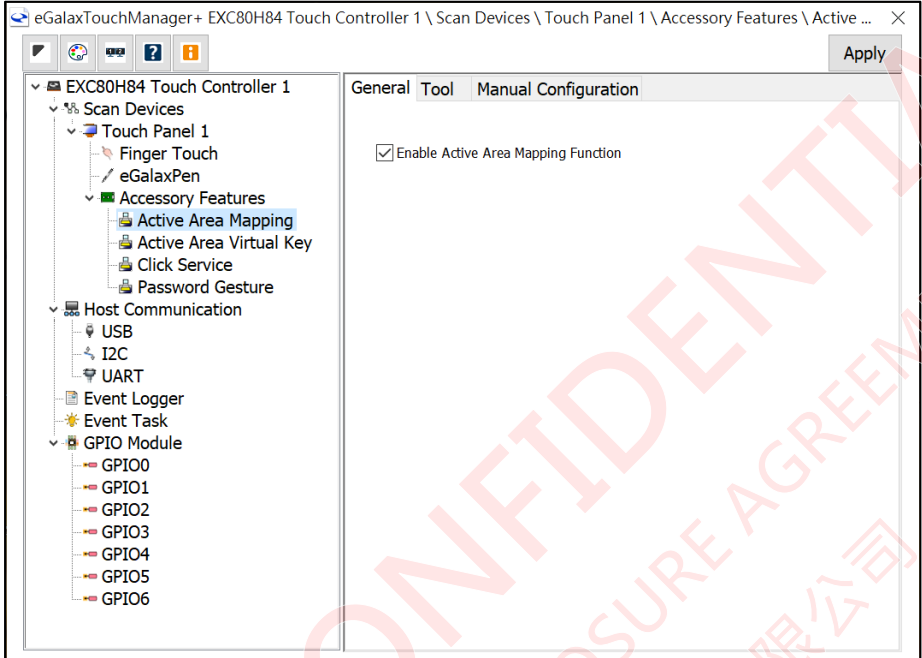
Auto linearity calibration gives you a quick re-calibration for drawing linearity.

| Screenshot | Comment |
|--|---|
|  | This step is for linearity calibration. Please use eGalaxPen to draw along the line straight. User can use a ruler to avoid jittering. |
|  | Please draw along the yellow line from the top right corner to the bottom left corner. |
|  | Linearity calibration is completed. |
|  | Please touch Keep Changes before the timer ends, <u>or the calibration results will not be saved.</u> |

10.4. Quick Settings for Active Area

10.4.A. Active Area Mapping

Click **Quick Setting** button.

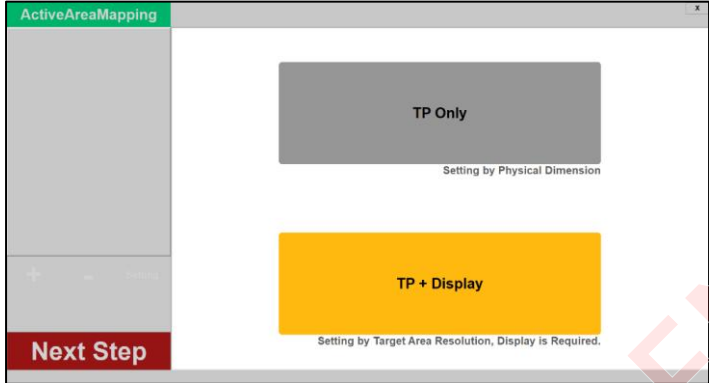
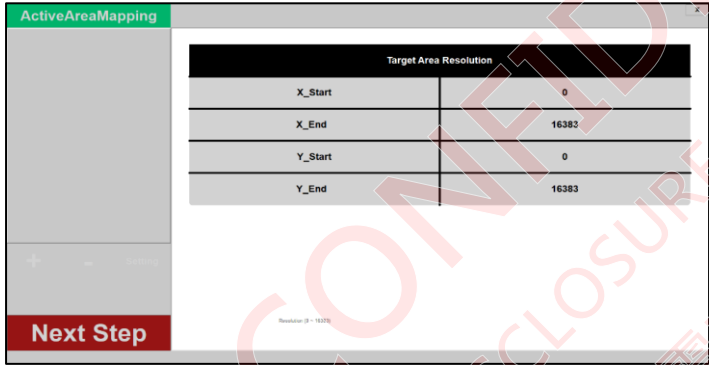

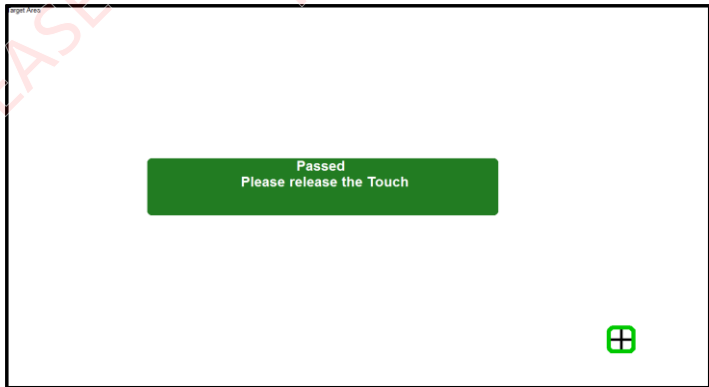


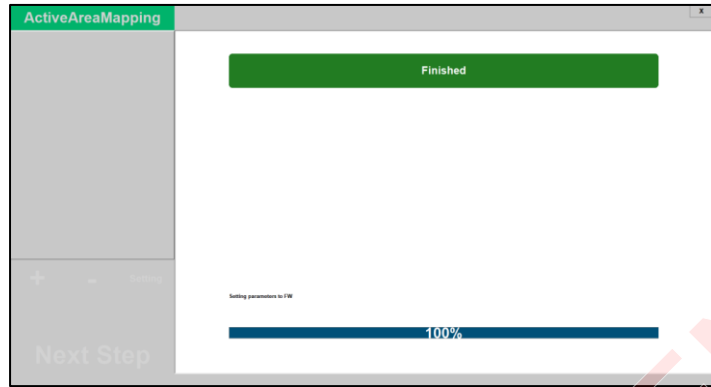
| Screenshot | Comment |
|------------|--|
| | User can define up to two active areas. Each active area's (Mapping Group) dimension and location can be configured individually. If only one active area is needed, please skip the settings for Mapping Group [2]. |

i. TP Only

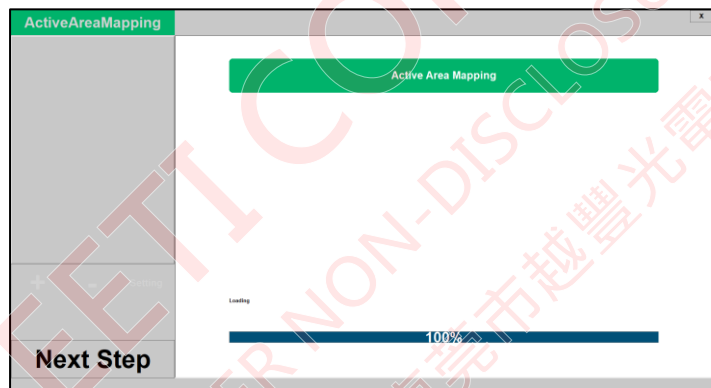
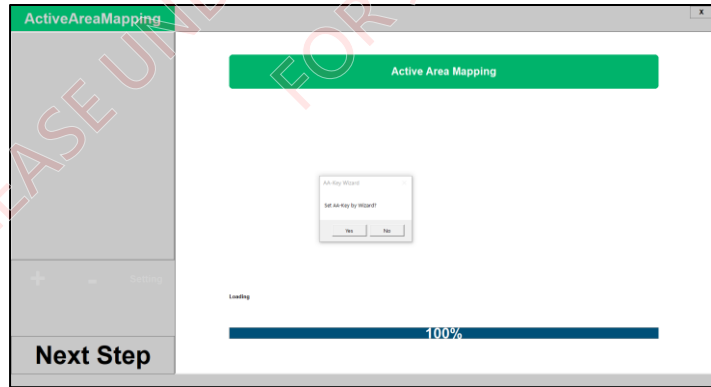
| Screenshot | Comment |
|------------|---|
| | <p>You can select TP Only or TP+Display to customize the active area.</p> <p>If you have a touch panel without display, please click TP Only.</p> <p>If you have a touch panel with display, please click TP+Display.</p> |
| | <p>Please type in the dimension of the entire TP and the dimension of the LCD area.</p> <p>Click Next Step after all information is provided.</p> |
| | <p>To align the LCD area with the TP active area, please set the OffsetX and OffsetY until it looks right.</p> <p>User can still modify the dimension here.</p> |
| | <p>Active area mapping is completed.</p> |

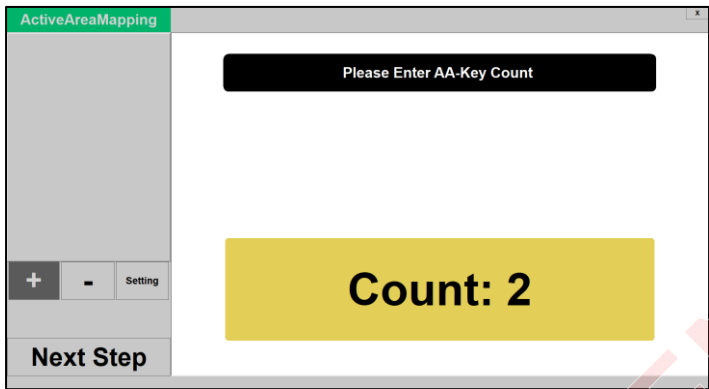
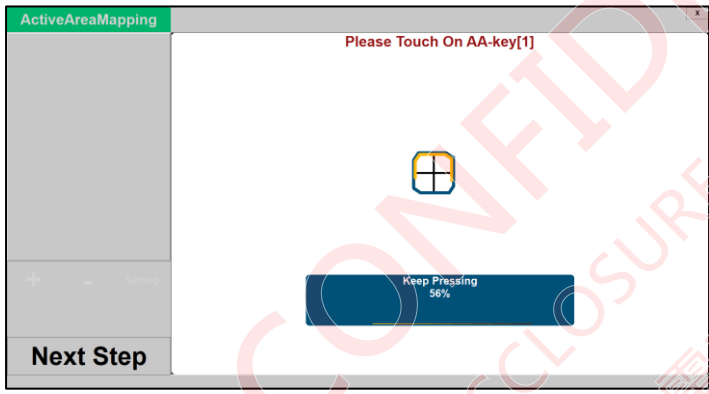
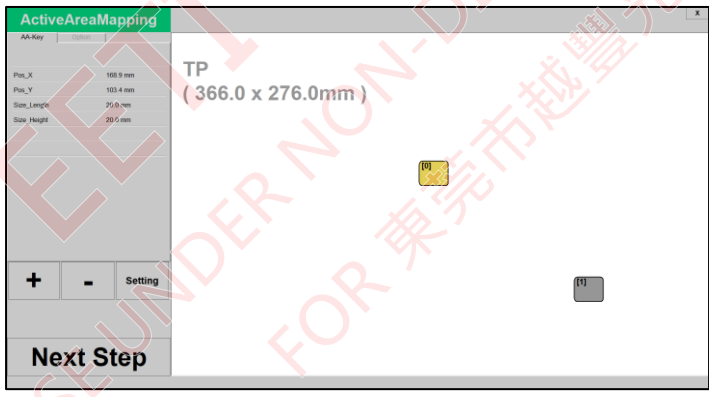
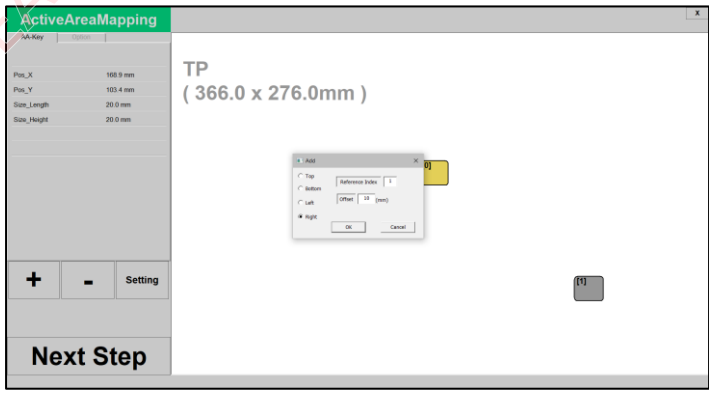

ii. TP+LCD

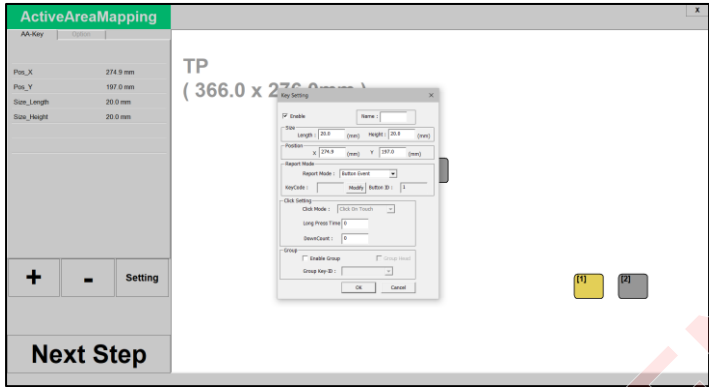
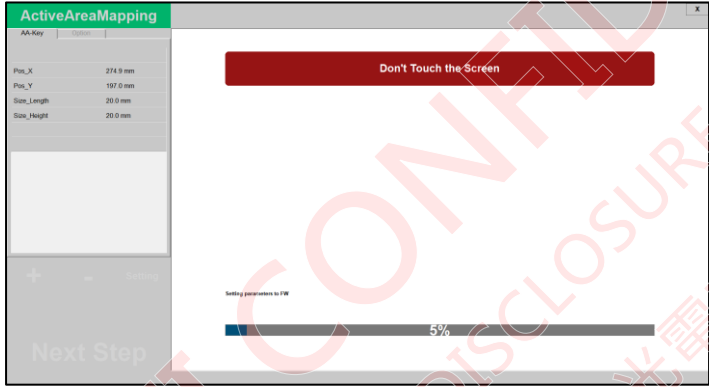
| Screenshot | Comment |
|---|---|
|  | <p>You can select TP Only or TP+Display to customize the active area.</p> <p>If you have a touch panel with display, please click TP+Display.</p> <p>If you have a touch panel without display, please click TP Only.</p> |
|  | <p>Type in the range of the LCD area in resolution where the touch function should work.</p> |
|  | <p>Press the target shown on the display to align the LCD with the active area.</p> |
|  | <p>Hold the finger still when pressing all four targets.</p> |

| Screenshot | Comment |
|---|-----------------------------------|
|  <p>The screenshot shows the 'ActiveAreaMapping' window. At the top, a green bar indicates 'Finished'. Below it, a progress bar is at 100%. The text 'Setting parameters to TM+' is visible above the progress bar. On the left, there are navigation buttons: '+', '-', and 'Setting'. At the bottom left, it says 'Next Step'.</p> | Active area mapping is completed. |

10.5. VKey Quick Setting

| Screenshot | Comment |
|--|--|
|  <p>The screenshot shows the 'ActiveAreaMapping' window. A green bar indicates 'Active Area Mapping'. Below it, a progress bar is at 100%. The text 'Loading' is visible above the progress bar. On the left, there are navigation buttons: '+', '-', and 'Setting'. At the bottom left, it says 'Next Step'.</p> | TM+ is preparing for setting up the AA-key mapping. |
|  <p>The screenshot shows the 'ActiveAreaMapping' window. A green bar indicates 'Active Area Mapping'. Below it, a progress bar is at 100%. The text 'Loading' is visible above the progress bar. A small dialog box titled 'Set AA-Key by Wizard' is open in the center, asking 'Set AA-Key by Wizard?' with 'Yes' and 'No' buttons. On the left, there are navigation buttons: '+', '-', and 'Setting'. At the bottom left, it says 'Next Step'.</p> | Run a setup wizard to guide you through the configuration process. |

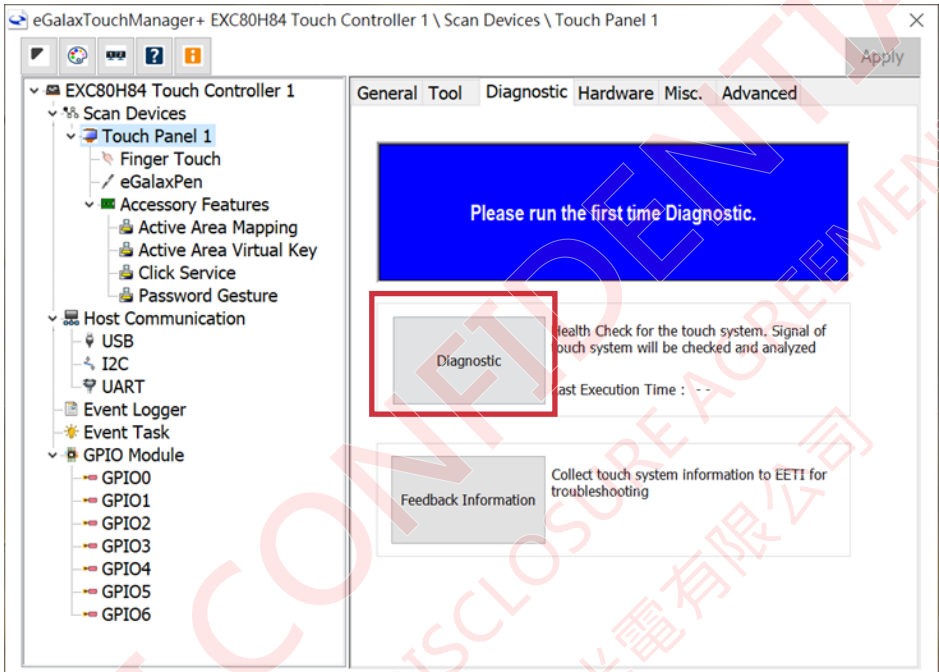
| Screenshot | Comment |
|---|---|
|  | <p>Please enter the number of the AA-Keys you are using.</p> |
|  | <p>Please press on the AA-key and hold still.</p> |
|  | <p>Fine-tune the AA-keys position by setting up the dimension and the X/Y offset.</p> |
|  | <p>Click  to add/remove an AA-key.</p> |

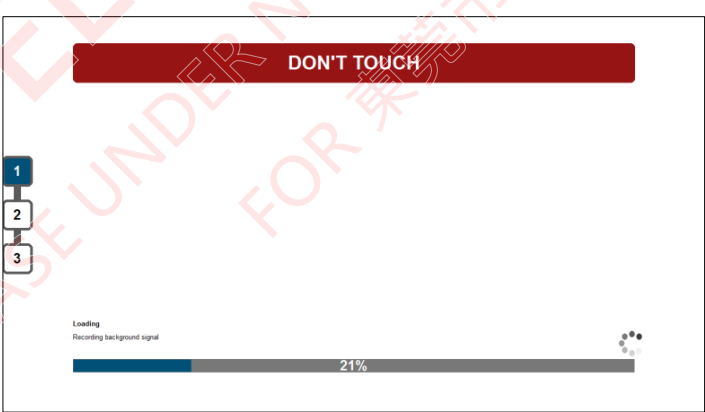
| Screenshot | Comment |
|--|--|
|  | <p>Click Setting for more configuration of the selected key, including the key Name, Size, Position, Report Mode*, Click Setting, and Group set.</p> <p>*If user wants to set the AA-key to report HID key code, please contact EETI for customized FW.</p> |
|  | <p>After all the settings are done, please click Next Step to save the settings.</p> <p>Do NOT touch the screen during this process.</p> |


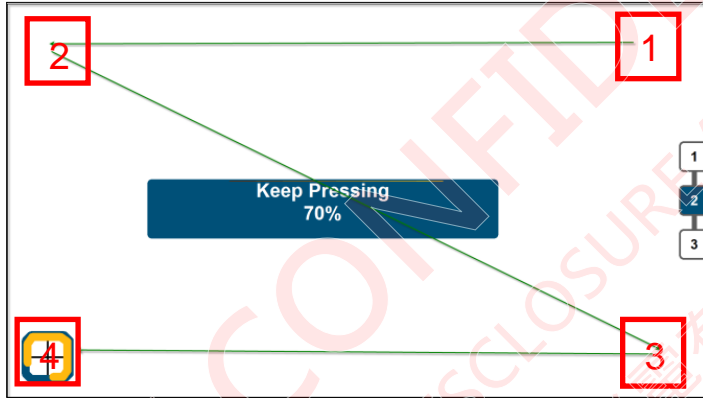
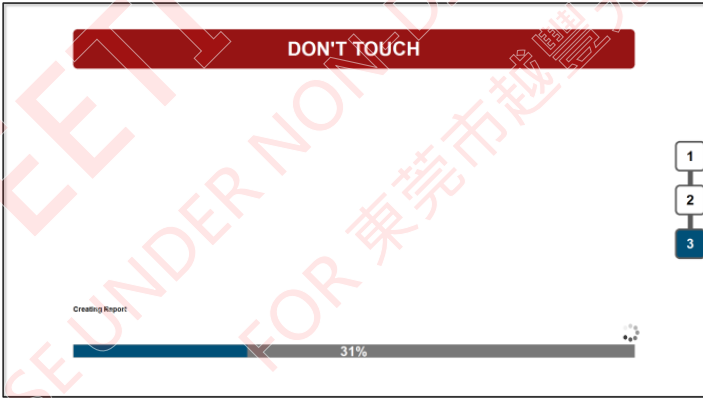
11. Extra

11.1. Diagnostic

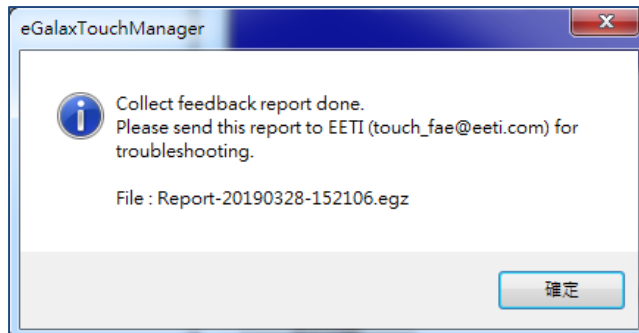
User can run diagnostics to check sensor status and parameter feasibility, and send diagnostic feedback to EETI. Go to “**Touch Panel 1**” and “**Diagnostic**” tab. Click **Diagnostic** to run diagnostics.



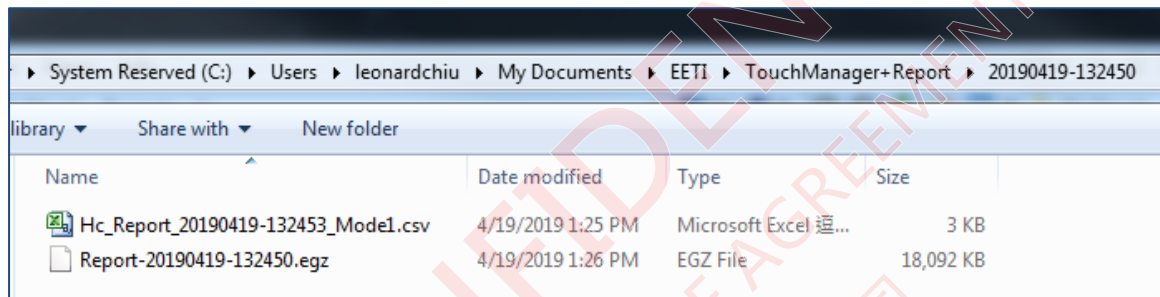
| Screenshot | Comment |
|---|---|
|  | Once Diagnostic starts, TM+ will start to record the background signal. Please do NOT touch the screen at this stage. |

| Screenshot | Comment |
|---|---|
|  | <p>Press the target and hold still.</p> <p>TM+ will collect the touch signal.</p> |
|  | <p>Press all four targets shown on the touchscreen with the same force.</p> |
|  | <p>TM+ is analyzing the touch signal and creating a report.</p> |

Once the Diagnostic is complete, you will see this message. Please send the report to EETI's FAE team.



File directory : C:\Users\[UserName]\Documents\EETI\TouchManager+Report\

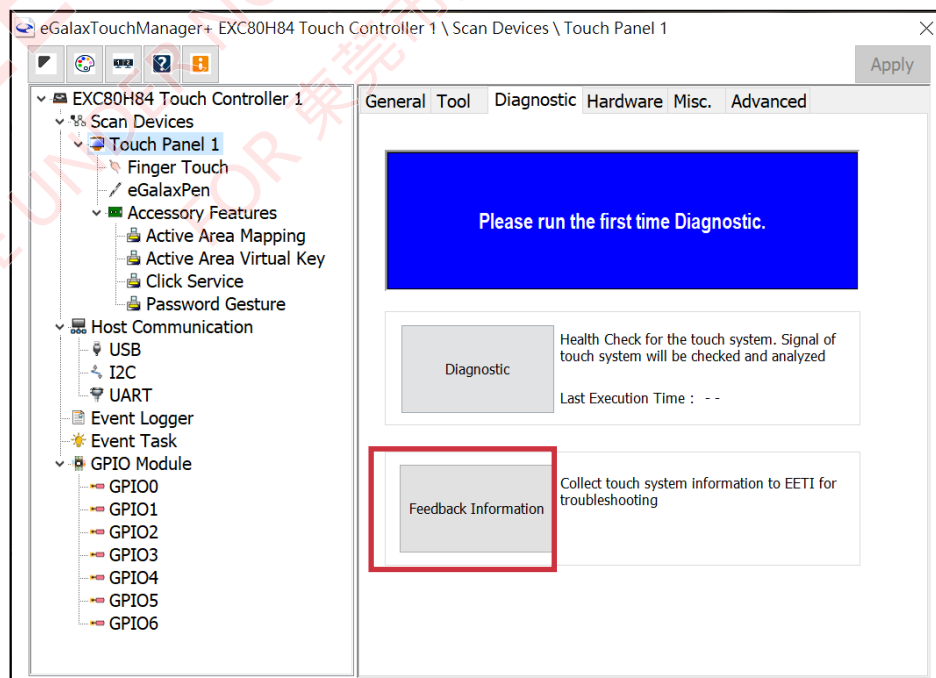


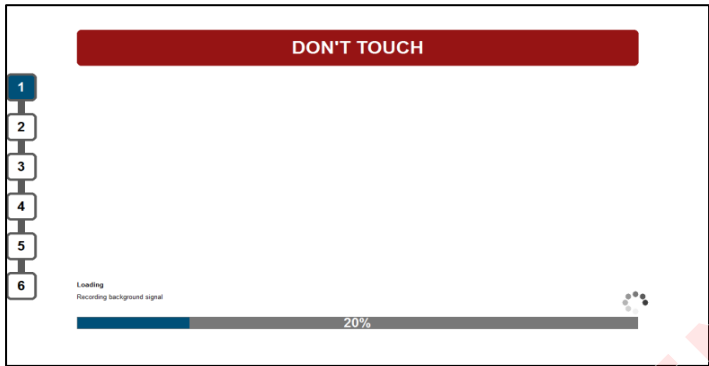


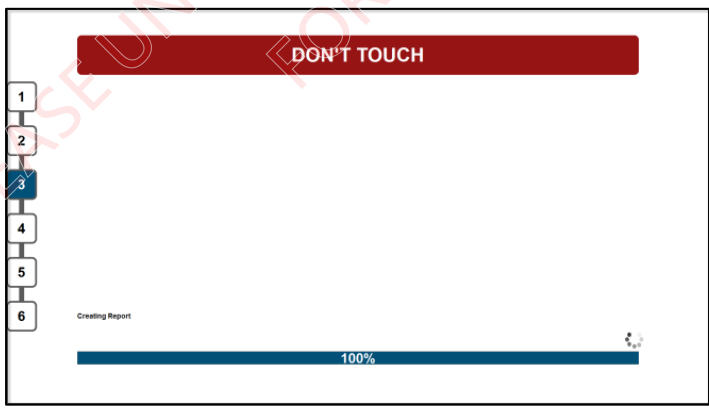
11.2. Feedback Information

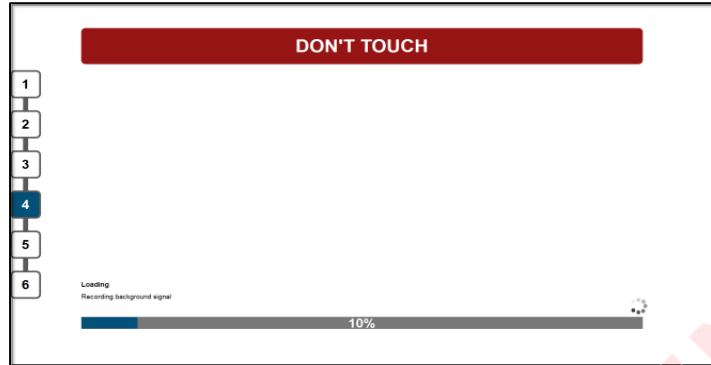
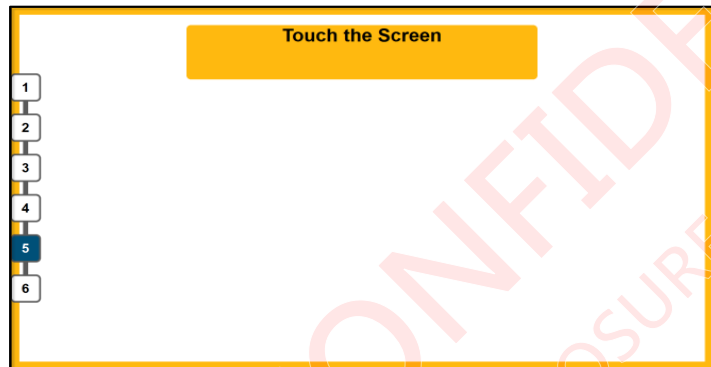

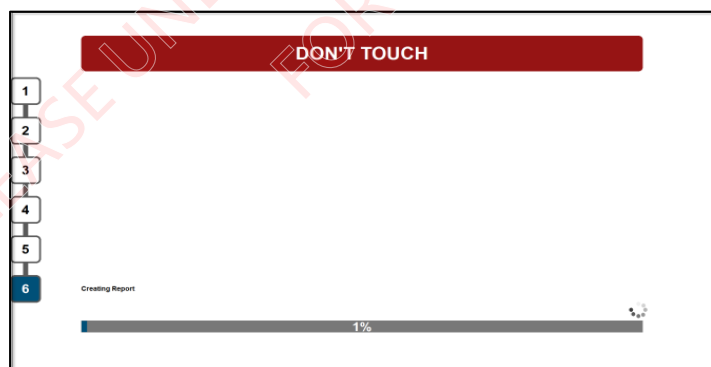
If there is any issue unsolved, user can collect touch system information and send feedback to EETI for troubleshooting.

Go to “Touch Panel 1” and “Diagnostic” tab.

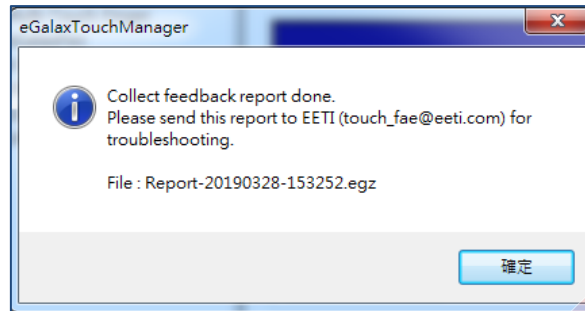
Click **Feedback Information** to collect touch system information and report to EETI.



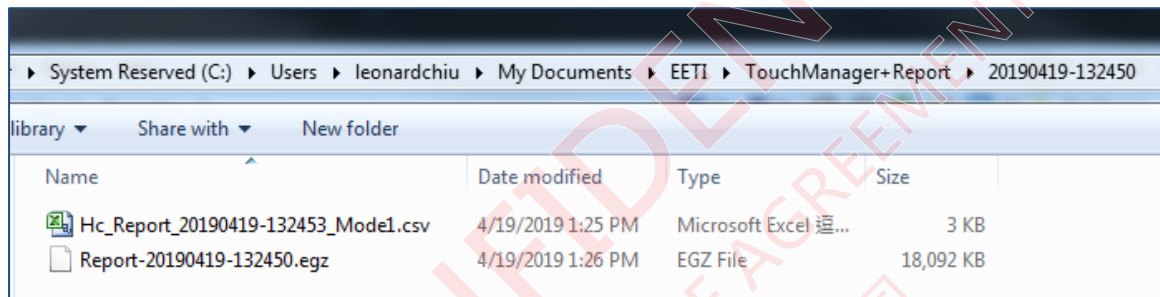
| Screenshot | Comment |
|---|---|
|  | <p>Once Feedback Information starts, TM+ will start to record the background signal. Please do NOT touch the screen at this stage.</p> |
|  | <p>Touch anywhere on the screen. TM+ will collect the touch signal.</p> |
|  | <p>Lift off your finger after the process is completed.</p> |
|  | <p>TM+ is analyzing the signal and creating a preliminary report.</p> |

| Screenshot | Comment |
|---|--|
|  | <p>Repeat the same steps. TM+ will collect the signal twice to provide more informative report.</p> <p>Please do NOT touch the screen at this stage.</p> |
|  | <p>Touch anywhere on the screen. TM+ will collect the touch signal.</p> |
|  | <p>Lift off your finger after the process is completed.</p> |
|  | <p>TM+ is now creating the final report.</p> |

After **Feedback Information** is completed, you will see this message. Please send the report to EETI FAE.



File directory : C:\Users\[UserName]\Documents\EETI\TouchManager+Report\





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