

TESLA PLATFORM DRIVER FOR CRESTRON HOME

Revision: 1.01

Date: 11 February 2025

CRESTRON HOME ONLY

This document describes the configuration of the Tesla Extension Driver for Crestron Home only. Please note that this driver will only work on Crestron Home processors running OS 4 and above.

STATEMENT OF COMPATIBILITY

The driver is compatible with **Tesla Vehicles** and **Tesla Powerwall**. Please ensure that the owner can access the devices remotely from the Tesla app before purchase. These two types of devices are licenced separately, under a subscription model, and an active subscription licence is required for each instance of a device for each Crestron Home processor.

SUBSCRIPTIONS

The subscription model is required to cover operational costs of both Ultamation's and third-party services. A single subscription licence is required per device, per Crestron Home processor. For example, if you have two properties running Crestron Home and a single Tesla vehicle with the Tesla driver running at both locations, you will require two subscriptions. This driver does not have a trial mode due to the strict authentication requirements.

MODULE DESCRIPTION

The driver includes 2 types of sub-device: vehicle and energy. The Tesla vehicle device displays data such as:

- Battery percentage
- Lock status of doors
- Open state of windows
- Temperature in the car
- Tyre pressure
- Odometer information
- Alerts.

It also includes the ability to send commands to your car, including:

- Locking/unlocking doors
 - Note – we highly suggest using the pin code feature due to this command. We do not accept any liability for use of this command, it is at your own risk.
- Opening/closing windows
 - Similarly to above, we do not accept any liability for use of this command. The command will only work when the vehicle is near the Crestron Home processor.
- Driver/passenger side temperature levels
- Preconditioning
- Seat heating/cooling

DEVICE AUTHENTICATION

This driver implements a secure OAuth framework to access your data. To associate the processor with a Tesla account please follow the steps below. For a configuration with multiple accounts, this process will need to be repeated for each account.

1. Navigate to our OAuth portal at <https://portal.ultamation.com> and select 'Tesla Car/Tesla Power Driver for Crestron Home'.
2. As shown in Figure 1, enter your information into the following fields:
 - a. **Processor MAC address:** the MAC address of the processor with the driver.
 - b. **Region:** Europe or North America must match the Tesla account's region. Unfortunately, we are currently unable to support Chinese Tesla accounts.
 - c. **(Optional) Replace Existing Processors Associations:** After logging in, this will remove **all** previous processor associations for the Tesla account in our licensing system. Typical installations should leave this box unchecked. If you change processors you will need to check this box – otherwise any installations of the Tesla driver on the old processor will still have access to Tesla device data.
3. Click "Login with Tesla", where you will be navigated to Tesla's login page. Here you will see the permissions we are requesting. The URL for this login page can be shared with a user so they can log in with their account.
4. Once the account has been authenticated, you will be redirected back to the portal displaying a result message, with a successful result shown in Figure 2.
5. On Figure 2, you will see an Authorisation code. This must be input during installation of the driver for it to function correctly.

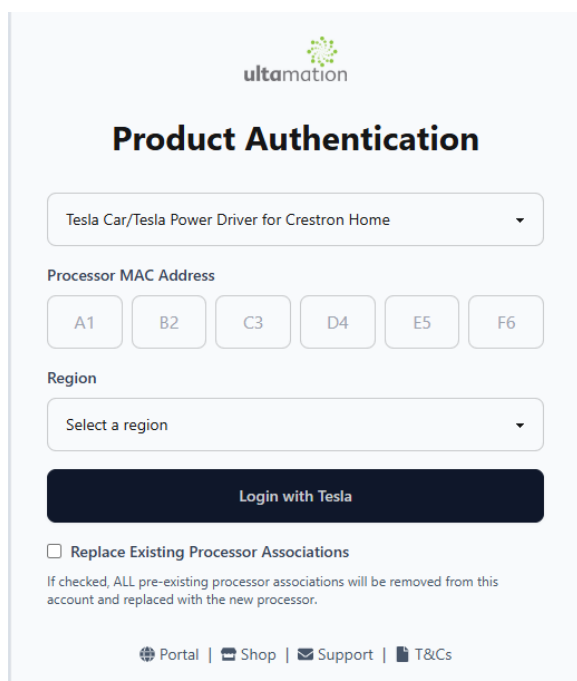


Figure 1: OAuth portal product page for Tesla.

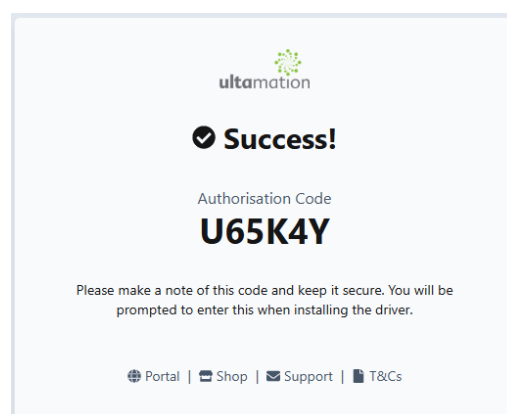


Figure 2: OAuth portal result page.

For commands to work, the user will also need to assign a public key to their vehicle. This is done as follows:

1. Go to https://www.tesla.com/_ak/portal.ultamation.com
 - a. If opened on the mobile device with the Tesla app installed that is linked to the vehicle(s), this should take you to the Tesla app, where you can then follow the on-screen instructions to assign the key to your vehicle.
 - b. If opened on a desktop, follow the on-screen instructions to pair the third-party key with the Tesla app.

REMOVING ACCESS

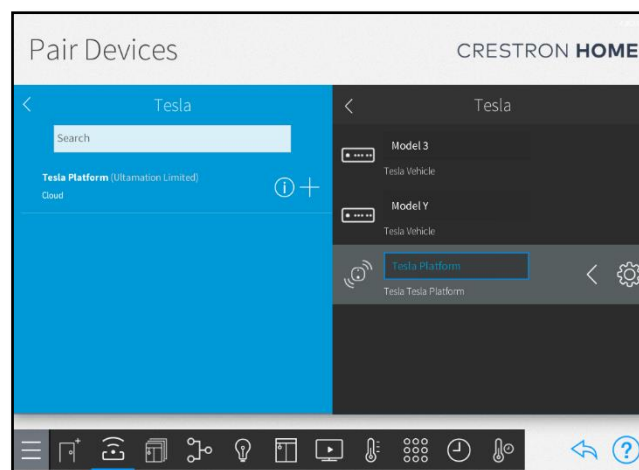
If you want to revoke access at any time, for any reason, you can do this through your Tesla account. Go to the following link for more information:

https://www.tesla.com/en_GB/support/access-third-party-apps.

INSTALLING THE DRIVER

After importing the driver, it will be found under:

Devices > Platform > Tesla



Adding the Tile

Ensure a room is selected, and then click on the '+' against the Tesla Platform.

You will be asked to provide a descriptive name for the tile, this can be anything you like. You will also be asked for an authorisation code – this is provided during the device authentication process described above.

Shortly after the driver is added, it will attempt to connect to our server to retrieve your Tesla account's access token. When the server responds, the driver will request the devices attached to the Tesla account and make these available in Crestron Home. These will be under Managed Platforms > Tesla.

The installation process for each device is different depending on if it is a Tesla Powerwall or a Tesla Vehicle device.

Vehicle

For vehicles, you will be prompted for a name – this can be whatever you like. This is what will be shown on the tile for the car.

You will then be shown 3 checkboxes:

- Visible: This determines if the device is used. This is usually ticked. You may untick it if, for example, you have bought a single licence, but own 2 vehicles. Unticking one and ticking the other provides a means of choosing which vehicle is then shown.
- Show in room page: Determines if the tile is shown in the room page it is placed in.
- Show on home page: Same as above, but for the home page.

On the next page you will be shown 3 options:

- Include Commands – If this is checked, you will be able to send commands to your car. Uncheck it if you do not wish for commands to be usable on the driver.
- Include Door, Window, and Trunk commands – If this is checked, commands that may impact your vehicles' security or insurance, such as Lock/Unlock Door, Open/Close Window and Open/Close Trunk will be usable. Leave this unchecked if you are concerned about use of these commands. **From a security standpoint, we recommend that this option remains unchecked. If enabled, commands are used at your own risk.**
- PIN – this is a text field where you can enter either text or a number. If this field is populated with text or a number, commands will require the same PIN to be input to be sent. **We recommend using this, especially if you have any exploitable options enabled.**

The text field is a PIN code. If you leave this blank, you will be able to send commands simply by pressing a button. If this field has a number in it, pressing a command will take you to a PIN input screen, where the command will only be sent if the input is the same as what you have put here.

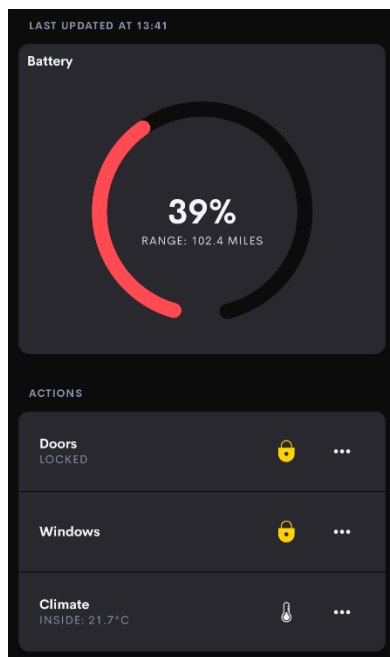
Energy

For energy devices, you will be asked for a name, which will be shown on the tile for the device. You'll be given the same 3 checkboxes as for the vehicle: 'Visible', 'Show in Room Page', and 'Show on Home Page'. Press next, and the device will be added to your system.

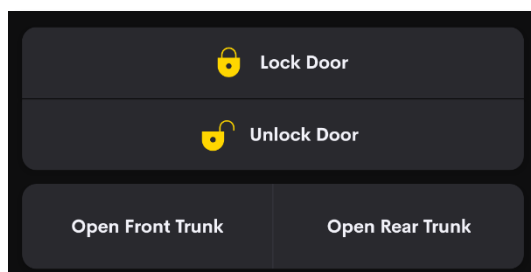
Using the Driver

Both types of devices are similar – they both have a tile that display basic info, which you can press for more detailed information.

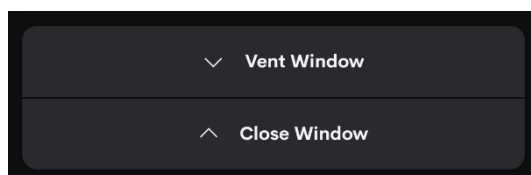
Vehicle



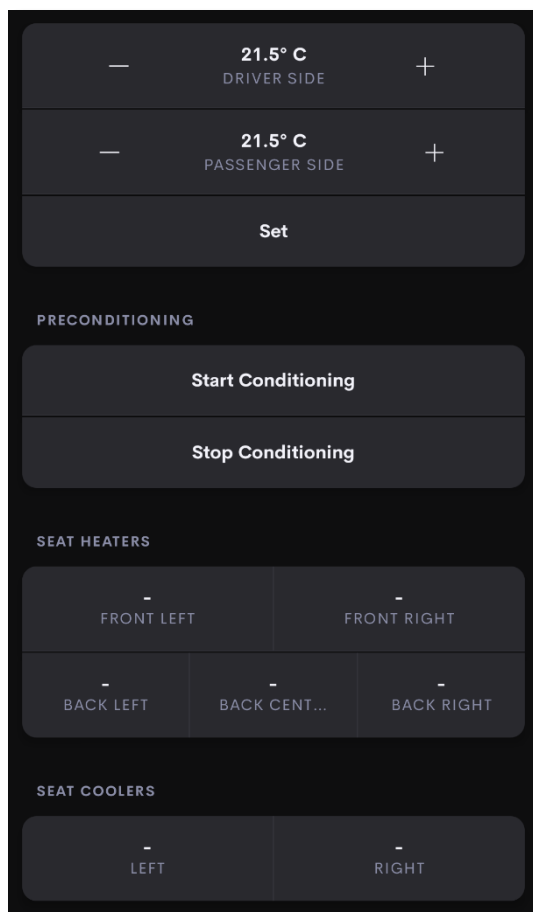
Above, you can see the top of the vehicle page. It shows battery information, and then information for doors, windows, and climate. Each of those have respective pages that can be navigated to that show commands for each aspect. Please note that commands may not work if the car is asleep – in which case the car will need to be woken for the commands to work.



Above you can see the commands page for doors – you can lock/unlock the doors and open the front or rear trunks.

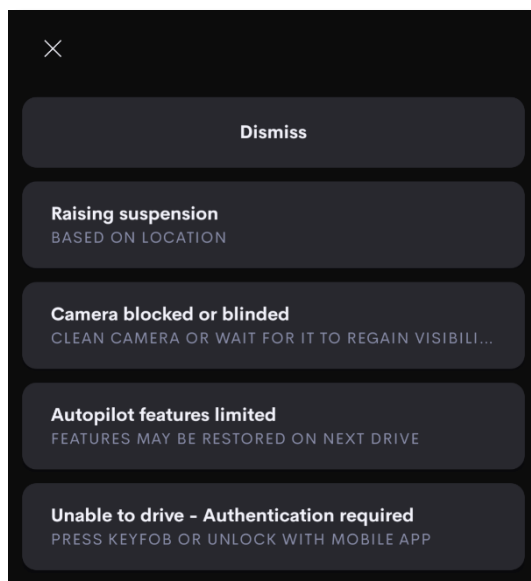


Like the door page, on the windows page you can vent or close the windows.



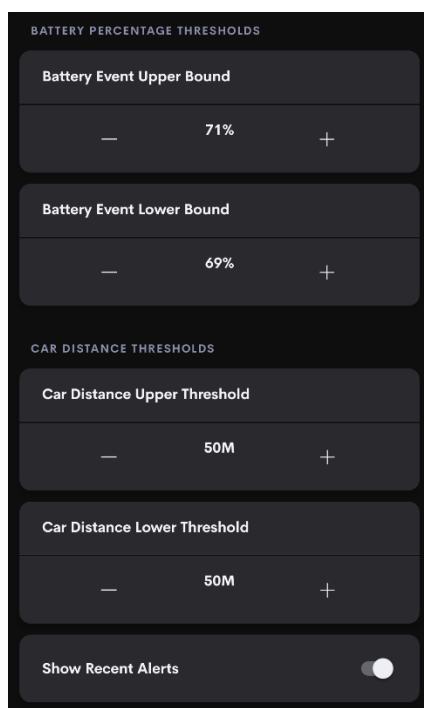
The climate page features most of the commands. You can set the temperature of the driver side or passenger side of the cabin, start or stop conditioning, and set the seat's heater or cooler levels.

Scrolling further down, you will see tyre pressure information, odometer information, and, if any alerts are active on the vehicle, you will see a button with the number of alerts shown. Tapping it will take you to a screen like this:



It will show any alerts that have user-displayable information. The dismiss button at the top of the page will make the alerts invisible and remove the button from the tile until any new alerts come in. These alerts do not contain safety-critical events. Do not rely on these events as being up to date.

Underneath the alerts button, you will find a settings button. Tapping that will take you to this screen:



This screen has multiple settings. The first 2 are the battery event bounds. These change the condition on which the 'Battery Threshold Events' are triggered. There are 2 such

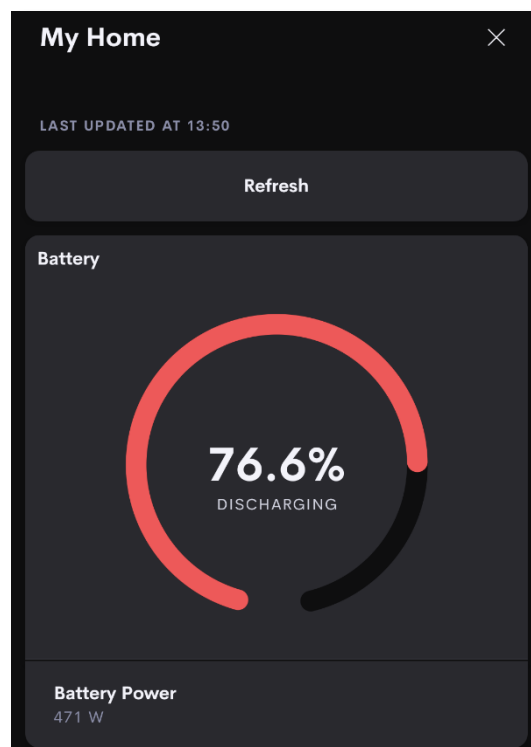
events: one for when the battery percentage goes above the upper bound, and one for when the battery percentage goes below the lower bound. For example, say you want an event to trigger when the battery is low (20%), and another event to trigger when the battery is almost full (90%). In Crestron Home, you would hook up the respective events to whichever actions you want to trigger, and then in this menu you would change the upper bound to 90 and the lower bound to 20.

The next 2 settings are very similar to the previous ones, but for car distance. There are 2 more events, one for when a car approaches a certain distance from your home (or to be precise, where the Crestron Home processor is located), and one for when a car goes away from your home to a certain distance. For example, if the above screen was set so that the car distance lower threshold was 100m, and the upper threshold was 1000m, then an event would trigger when a car that was >100m away is now 100m away or less. Another event would trigger if a car that was <1000m away from the home is now 1000m away or more.

Note: the polling period for this driver is ten minutes. This means that there can be a delay of up to 10 minutes on getting data, i.e. these events won't always trigger *exactly* when the car reaches a certain battery percentage or distance away. This is due to Tesla functional constraints.

The bottom setting toggles whether the alerts button is shown on the vehicle page.

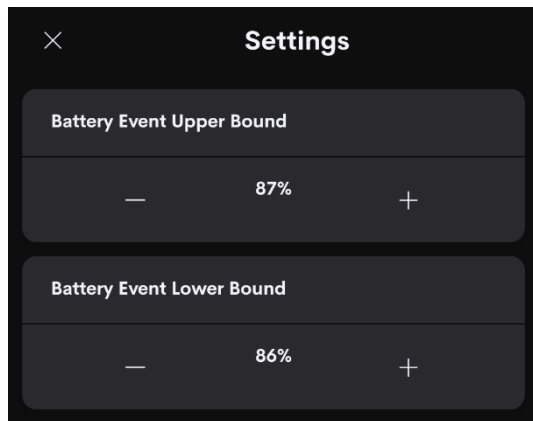
Energy



The energy page will show relevant information if available for your system, such as battery, grid, load power and solar power. At the top of the page you can see a refresh button which will request the latest data for your system, however the polling period for this device is 1 minute, so it will only ever be more than a minute out of date if there is a

broken connection between either the processor and the Ultamation servers or the Ultamation servers and the Tesla servers.

Toward the bottom of the page, you will see a toggle button which can enable or disable 'storm mode'. Below that, you can see a settings page button, which looks as follows:



The battery events here work identically to how they do on the vehicle driver, See the vehicle section for more information.

SUPPORT

If you have any issues with a driver or installation please let us know by contacting Ultamation support on support@ultamation.com and please include as much detail about your issue as possible, such a recent processor error log.

Licence verification messages are posted to the error log, so please ensure you have checked this.

LICENCE

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There is no licence key for this module. Licencing is done through our cloud service. The module is provided without any warranty with respect to the reliability of the controlled device or changes to device protocol. We will endeavour, through best efforts, to maintain the module's functionality and any bug fixes will be provided free-of-charge. Additional functionality may be released as a variation of this module and this will be a separate, purchasable, product.

The driver may include features which affect the security of the controlled device. The driver provides a mechanism to disable these features, and these are disabled by default. If you do choose to enable these features, you do so at your own risk, and it is your responsibility to inform the end user of any potential risk. Ultamation accepts no liability for the use of such functions or loss or damage resulting from their use.

Ultamation or the third party does not guarantee that users will receive any notification about events affecting any status, including safety-critical or security-related events through the driver and should always refer to the controlled device.

To the maximum extent permitted by Law, in no event will Ultamation or the third party, be liable for any use, interruption, delay or inability to use the driver. Ultamation do not collect, use, store or disclose any personal or device data.