



## **Generic IR Thermostat driver**

### Installation and Usage Guide

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**Date:** Monday, July 10, 2017  
**Authors:** Alan Chow & Sam Edwards

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## Solution Overview.

This document is provided to assist in the installation of the Chowmain Heat Pump Control system hardware elements. Split infrared controlled HVAC systems are quite common in Australia and New Zealand. The issue with these systems is that control is only one way, without any feedback what so ever. Furthermore each IR string contains code information about the mode, fan speed and set point within in. Given this you must learn every single combination of IR code to get full integration into your home automation system.

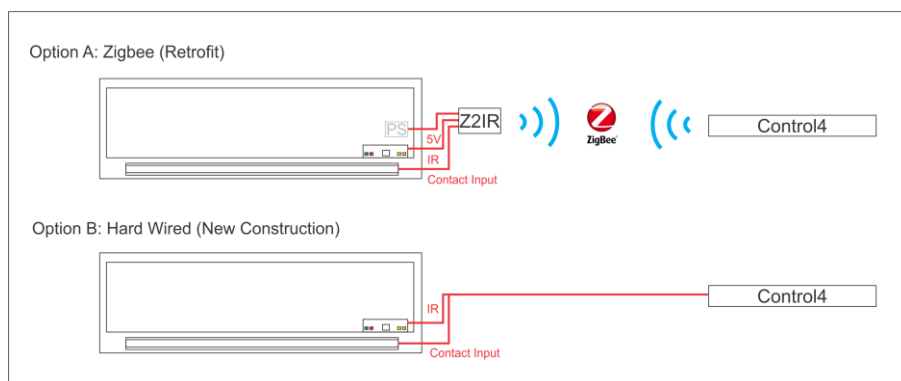
The Chowmain Generic IR Thermostat driver enables us to integrate infrared controlled HVAC systems into the Control4 system with feedback from a dry contact (to sense if it is on/off) and temperature input from the Control4 Thermostat, Axxess Motion Sensors, Card Access Contact Sensor or Relays.

This provides a total solution for what would be a one way system.

**Note: infrared codes need to be learnt in via a 3<sup>rd</sup> party IR learner such as the Global Cache IR learner, RTI IR learner or Command Fusion IR learner.**

There are two options for installation:

- Option A: 'Retrofit' via Zigbee connection,
- Option B: 'New Construction' via hard wired connection.



In both cases installation is recommended on the interior of the heat pump chassis to ensure a clean look. However if this voids the manufactures warranty a tidy exterior installation can easily be done.

## Section 1: Hardware Installation procedure.

### Option A: Retrofit - Zigbee connection.

#### Parts required:

- Card Access Zigbee to IR Module – **ZCA-Z2IR10A-ZP (includes PS & IR cabling required).**
- Temperature sensor –**Axxess, Card Access or Control4.**
- Magnetic reed switch –
- Inline USB power supply – **TBA**
- Misc. installation items – **small cable ties, adhesive double sided tape, hot glue, heat shrink.**

#### Software required:

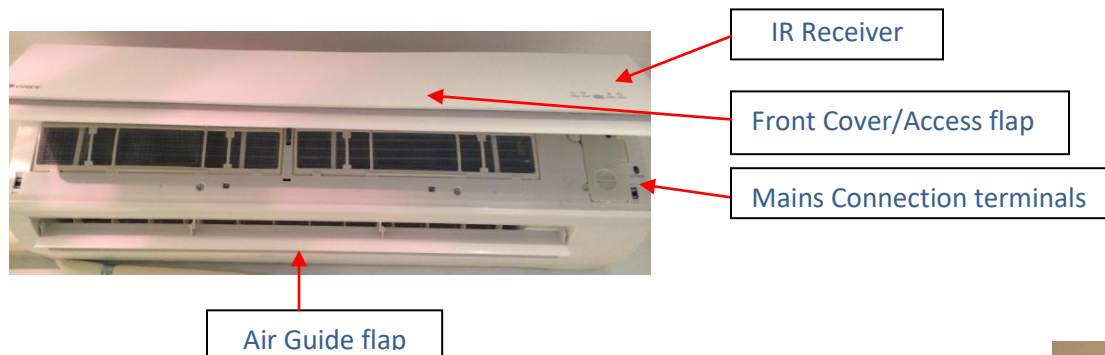
- **ComposerPro 2.5** and above.
- Card access Z2IR Contact driver - **cardaccess\_Z2IR10A\_Contact\_DriverWorks.c4i**
- Chowmain Thermostat driver - **driverworks\_generic\_ir\_thermostat.c4i**
- The associated IR code file for the Heat Pump's Make & Model.

#### Before you install:

- Ensure you have all the parts required to complete the installation.
- Ensure you have a registered electrician install the 230V components.
- Ensure you have adequate zigbee range to reliably communicate with the heat pumps location.
- Ensure you are not voiding the manufacturer's warranty.

#### Hardware installation steps:

1. Using the factory Heat Pump remote control, turn the unit ON and ensure the Air Guider (flap) is open.
2. Remove power from the heat pump by switching the associated breaker in the switch board ensuring the Air Guider remains open.
3. Open the heat pump front fascia which should expose the access panes and filters.  
(Please refer to your devices Installation manual if in doubt).



4. Open the access hatch to the incoming mains connection terminals.

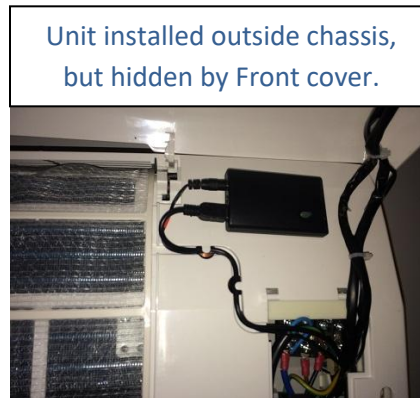


5. Test power is switched off and there is no voltage present.
6. Have you electrician install the inline power supply to the 230V terminals of the incoming feed and connect the USB output cable.
7. Slip the inline power supply into the chassis of the heat pump, ensuring it does not affect the heat pump's operation and is well clear of any moving parts. Secure with adhesive double sided tape or Velcro.
8. Connect the Card Access Zigbee to IR bridge (Z2IR) to power via micro USB connection.  
**Note: Ensure installation as per the Card Access Zigbee-to-IR Module Installation Guide.**
9. Connect the IR emitter to port 1, and the reed switch to port 2.
10. Using the supplied adhesive backed Velcro install the Z2IR module inside the chassis and ensure it does not affect the heat pumps operation and is well clear of any moving parts. We have found there is always ample room to hide these components in the chassis or behind the front cover/access flap of the heat pump. The Z2IR unit could also be easily hidden away on top.  
**Note: Ensure you have access to the unit's identification button required for project identification later. You may find it easier to remove the entire front chassis for installation. Check the Heat Pumps installation guide on this process if you are unsure. This is the identical procedure to that required when installing the heat pumps for the first time. Note: Secure cables as required to ensure tidy installation.**

Below is a couple of ways we have installed the Z2IR modules in the past.



Unit installed inside chassis



Unit installed outside chassis, but hidden by Front cover.

11. Run the IR and contact sensor cables out with the other low voltage cables exiting the enclosure.
12. Install the IR emitter near the IR sensor on the unit. If possible install this on the underside of the IR window, If not possible simply run the emitter to the exterior of the window.



**Note: in both cases ensure you remove the emitters adhesive sticker and use a drop of hot glue to secure the emitter. Secure the cable using cables ties for tidy installation.**

We want to ensure the emitter does not block the IR sensor itself as we want the customer to have the ability to continue to use their factory IR remote.

13. Install the magnetic reed switch to the inside of the Air Guide flap. Ensure the installation does not affect the operation of this part. Line up the magnet and use a multimeter to ensure the reed switch operates correctly when in open and closed position. Tidy the cables as required.  
Note: in some cases it maybe easier to install the sensor part of the reed switch on the inside of the chassis as we have done below. It is secured using its supplied adhesive tape and some drops of hot glue on the magnet and cable. This gives a cleaner appearance and reduces the chance of operation interference. (Will only work on plastic chassis parts).
14. Tidy any remaining sensor, IR and power supply cables.
15. Double check your mains connection, then power up the Heat Pump.
16. Using your ComposerPro software – Identify the Z2IR bridge.
17. Replace the panels in reverse order and wipe down any fingerprints.
18. Test your installation using the following procedure.
  - a) Test IR response – Send On and Off codes directly from the HTTP proxy on director (as per the Driver Installation procedure ‘Section 2’ in this document).
  - b) Test Contact sensor – When the unit is On or Off, check the correct status feedback in the Z2IR driver as high lighted below.

Properties	Documentation	Lua
Device Status	Online, FWV-01.00.03	
Port 1 Mode	IR Emitter	
Port 2 Mode	Contact Input	
Port 2 Contact State	Opened	
LED Indicator Mode	ZigBee Connectivity	
Last Check-in	01/15/14 15:38:20; Status=OK	
Memory Usage P1	4 Sectors Used (99% Free)	
Memory Usage P2	0 Sectors Used (100% Free)	
Reflash Status	Reflash Idle	
Debug Mode	Off	

## Option B: New Construction – home run/hard wired connection.

### Parts required:

- Temperature sensor – ***Either Axxess, Card Access or Control4.***
- Magnetic reed switch –
- IR Emitter
- Misc. installation items – ***small cable ties, adhesive double sided tape, hot glue, heat shrink.***

### Software required:

- **ComposerPro 2.5** and above.
- Chowmain Thermostat driver - ***driverworks\_generic\_ir\_thermostat.c4i***
- The associated IR code file for the Heat Pump's Make & Model

### Before you install:

- Ensure you have all the parts required to complete the installation.
- Ensure you are not voiding the manufacturer's warranty.

### Hardware installation steps:

1. Using the factory Heat Pump remote control, turn the unit ON and ensure the Air Guider (flap) is open.
2. Remove power from the heat pump by switching the associated breaker in the switch board, ensuring the Air Guider remains open.
3. Open the heat pump front fascia which should expose the access panes and filters.  
(Please refer to your devices Installation manual if in doubt).



4. Install the IR emitter near the IR sensor on the unit. If possible install this on the underside of the IR window, If not possible simply run the emitter to the exterior of the window.



**Note: in both cases ensure you remove the emitters adhesive sticker and use a drop of hot glue to secure the emitter. Secure the cable using cables ties for tidy installation. We want to ensure the emitter does not block the IR sensor itself as we want the customer to have the ability to continue to use their factory IR remote.**

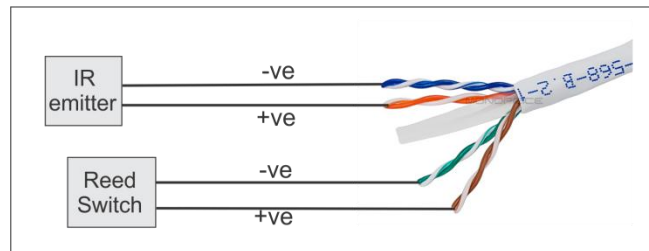
5. Install the magnetic reed switch to the inside of the Air

Guide flap. Ensure the installation does not affect the operation of this part. Line up the magnet and use a multimeter to ensure the reed switch operates correctly when in open and closed position. Tidy the cables as required.

**Note:** in some cases it maybe easier to install the sensor part of the reed switch on the inside of the chassis as we have done below. It is secured using its supplied adhesive tape and some drops of hot glue on the magnet and cable. This gives a cleaner appearance and reduces the chance of operation interference. (Will only work on plastic chassis parts).

- Splice the IR cable and Reed sensor cable to the home run cable and tidy.

**Note:** we recommend the use of +1mm stranded multi core cable (Security of HVAC keypad cable) for home run applications. However CAT6 will also suffice using the following connection below. Ensure in both applications that the connections are jelly crimped or soldered and heatshrunk to ensure reliable connection.



- Connect the Reed sensor connection and IR output connection to your Control4 Hardware.

**Note:** The Reed sensor is wired to Signal and 12V of the Control4 Contact Input.

- Using your ComposerPro software – bind the IR and contact (as per the Driver Installation procedure ‘Section 2’ in this document).
- Replace the panels in reverse order and wipe down any fingerprints.
- Power up the heat pump at the breaker.
- Test your installation using the following procedure.
  - Test IR response – Send On and Off codes directly from the HTTP proxy on director (as per the Driver Installation procedure ‘Section 2’ in this document).
  - Test Contact sensor – When the unit is On or Off, check the correct status feedback in the Z2IR driver as highlighted below.

Properties	Documentation	Lua
Device Status	Online, FWV-01.00.03	
Port 1 Mode	IR Emitter	
Port 2 Mode	Contact Input	
Port 2 Contact State	Opened	
LED Indicator Mode	ZigBee Connectivity	
Last Check-in	01/15/14 15:38:20; Status=OK	
Memory Usage P1	4 Sectors Used (99% Free)	
Memory Usage P2	0 Sectors Used (100% Free)	
Refresh Status	Refresh Idle	
Debug Mode	Off	



## Section #2: Driver Installation Procedure.

### Overview

The Chowmain Generic IR Thermostat driver enables us to integrate infrared controlled HVAC systems into the Control4 system with feedback from a dry contact (to sense if it is on/off) and temperature input from the Control4 Thermostat, Axxess Motion Sensors, Card Access Contact Sensor or Relays. This provides a total solution for what would be a one way system.

**Note infrared codes need to be learnt in via a 3<sup>rd</sup> party IR learner such as the Global Cache IR learner, RTI IR learner or Command Fusion IR learner.**

### Features

- Inbuilt Web server for control, setup and backup of IR codes.
- Ability to test IR codes via the Web setup page.
- Heat, Cool & Auto HVAC modes supported.
- Low, Medium, High & Auto Fan modes supported.
- 16 – 30 degrees of Set Point supported.
- Temperature Feedback from Axxess Motion Sensor, Control4 Thermostat, Card Access Contact Sensor or Card Access Contact Relay.
- Power State Feedback via dry contact input.
- Ability to save Presets
- Ability to schedule Thermostat



## Change Log

### Version #20160524 - 24-MAY-2016

- Changed to single setpoint
- Updated HVAC states to reflect what is happening.
- Implemented Presets & Scheduling
- Added ability to remove HVAC modes and Fan modes (useful for systems that only have Heat or Cool only)

### Version #20160301 - 01-MAR-2016

- Fixed init issue caused by heatmiser thermostat

### Version #20160129 - 29-JAN-2016

- Fixed issue with special heatmiser driver where it was listening into the wrong variable.

### Version #20151215 - 15-DEC-2015

- Added support for special heatmiser driver

### Version #20151020 - 20-OCT-2015

- Made improvements to licencing algorithm. Should resolve issues on OS 2.8 systems with intermittent internet connections.

### Version #20151012 - 12-OCT-2015

- Updated to supprt Control4 Thermostat V2 as temperature input.

### Version #20150818 - 18-AUG-2015

- Implemented Dealer Demo Licencing

### Version #20150407 - 07-APR-2015

- Resolved issue where logs on 2.6 systems would fill out controller storage causing system stability issues. This only effects systems where people have set the debug logs to 'print and log' or 'log' and have forgotten about it over longer periods of time.

### Version #20150401 - 01-APR-2015

- Rectified issue where licence data gets wiped on IR file restore.

### Version #20141118 - 18-NOV-2014

- Converted from C4I to C4Z

### Version #20140923 - 23-SEP-2014

- Added Fake Temperature feedback option which sets the temp to the set point value when on or 0 when off

### Version #20140818 - 18-AUG-2014

- Added Egauge and Saturn South Energy monitoring. This is used to determine if the HVAC unit is on or off

### Version #20140624 - 24-JUN-2014

- Added Card Access Contact Sensor Remote Sensor for input device

Version #20140522 - 22-MAY-2014

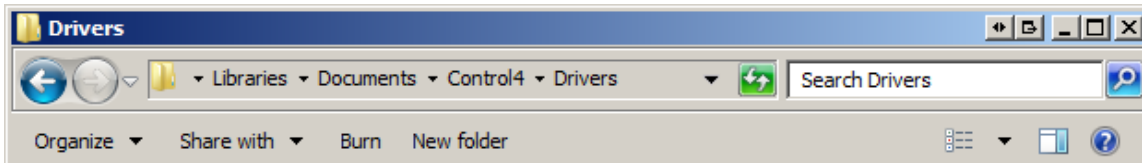
- Initial Release

## Driver Installation

1. The driver you have downloaded will be in a zip file. Double click on this file to open it in your preferred zip program (WinZip, WinRar, etc.).



2. Extract the c4i file to the My Documents\Control4\Drivers directory. If you are using Windows 7 or 8 this will be extracted to the Libraries\Documents\Control4\Drivers directory.

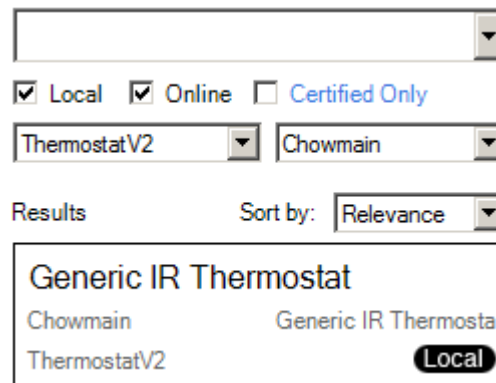


3. You are now ready to add and configure the driver via the Composer Pro software.

## Adding the driver to your project

**IMPORTANT** – Before undertaking the installation of the driver please follow the licencing steps outlined at the end of this document.

1. Launch the Composer Pro application and connect to your project
2. In the 'System Design' page select the 'Search' tab on the right hand side.
3. Select 'Thermostat V2' as the Device Type and 'Chowmain'






Results      Sort by: Relevance

**Generic IR Thermostat**  
Chowmain      Generic IR Thermosta  
ThermostatV2      **Local**

4. Double click on the 'Generic IR Thermostat' driver to add it to your project
5. Click on the Connections tab.



6. Highlight the 'Generic IR Thermostat' driver on the left hand side.

Control Inputs				
 IR Sensor	Control	IR_OUT	Input	Home Controller HC250->IR OUT 4
 Contact Sensor	Control	CONTACT_SENSOR	Input	
Room Control				
 Room Selection	RoomControl	TEMPERATURE	Output	Development->Temperature
 Room Selection	RoomControl	TEMPERATURE_CON...	Output	Development->Temperature Control

7. Make the IR Sensor connection and Contact Sensor connection. Note the Contact Sensor is not mandatory and acts to give you more accurate feedback.
8. Set the Room Control connections to the room you want the Thermostat to display in.

9. Click on the System Design tab.



10. Highlight the 'Generic IR Thermostat' driver on the left hand side of the System Design page.

11. Remove any HVAC Modes and FAN Modes that do not apply to your HVAC system.

HVAC Modes	OFF, AUTO, HEAT, COOL
FAN Modes	AUTO, LOW, MEDIUM, HIGH

12. Select the device you want to get the temperature input from.

Device Input - Control4 Ther		Select
Temperature Input - CA Cont		Select
Temperature Input - CA Cont		Select
Temperature Input - Axxess	Motion Sensor (934)	Select

13. If you do not have any Temperature input devices you can use Fake temperature feedback by setting the option to Enabled (this will make the setpoint the current temperature).

Fake Temperature Feedb.	Disabled
ENERGY FEEDBACK	Enabled Disabled

14. If you are monitoring the HVAC circuit using a Saturn South or an eGauge CT device you can monitor for on and off states.

15. Set the minimum on energy usage in watts

Minimum On Level	100
------------------	-----

16. Select the Saturn South Device to monitor or enter in the eGauge IP Address and Clamp number

Saturn South Device		Select
Egauge IP Address		
Egauge Clamp Number	1	

17. Copy the Setup URL and enter it into your web browser.

Setup URL	<a href="http://192.168.1.250:50114/">http://192.168.1.250:50114/</a>
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18. Follow the Entering in IR codes section of this document.

### Guideline for learning IR codes

Control4's inbuilt IR code learner will most likely not learn the code for your Heatpump/Split system. As such a 3<sup>rd</sup> party IR learner is recommended. We recommend the use of the Global Cache IR learner, RTI IR Learner or the command fusion IR learner. Other IR learners may also work depending on the frequency range.

As Heatpump/Split system IR codes are a combination of multiple codes care must be taken when learning the codes into the system. The steps below will ensure that the code you wish to learn is correct. Follow the procedure for every IR code learnt.

1. Point the remote away from the learner and heat pump
2. Dial in the code you wish to learn.
3. Press the off button
4. Point the remote towards the learner
5. Press the on button

## Entering in IR codes

6. Visit the '**Setup URL**' in your web browser. This URL can be obtained from the driver's property page.
7. Click on the '**SETUP**' link

### GENERIC IR THERMOSTAT

Current Temp: 24 degrees

CONTROL SETUP BACKUP

MANUFACTURER:

MODEL:

SELECT AND ENTER IR HEX CODE BELOW

MODE:   IR CODE:

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8. Enter in the HVAC system '**Manufacturer**' and click on the '**Submit**' button.
9. Enter in the HVAC system '**Model**' and click on the '**Submit**' button.
10. Select the '**MODE**', '**FAN SPEED**' and '**SET POINT**' for the code you have learnt in your 3<sup>rd</sup> party IR learner.
11. Enter in the '**IR HEX code**' in the text field and click on '**Submit**'.
12. Click on '**Test IR**' to test the IR code.
13. Repeat Steps 5 to 7 for every IR code. There will be approximately 130 codes to submit.

## Backing up configuration

1. Visit the '**Setup URL**' in your web browser. This URL can be obtained from the driver's property page.
2. Click on the '**BACKUP**' link

### GENERIC IR THERMOSTAT

Current Temp: 24 degrees

CONTROL SETUP **BACKUP**

#### Restoration

Select a data file

No file selected.

Click Restore to upload the file

#### Backup

Click Backup to download data

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3. Click on the '**Backup**' button the save a backup of your configuration. It will automatically name it as MANUFACTURER\_MODEL.ir

**OPTIONAL** - Share your backup with Chowmain. This enables us to build our database up so people like you can easily integrate IR split systems.



## Restoring configuration

1. Visit the '**Setup URL**' in your web browser. This URL can be obtained from the driver's property page.
2. Click on the '**BACKUP**' link

### GENERIC IR THERMOSTAT

Current Temp: 24 degrees

CONTROL SETUP **BACKUP**

Restoration

Select a data file  
 No file selected.

Click Restore to upload the file

Backup

Click Backup to download data

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3. Click on the '**Browse**' button and select the backed up configuration.
4. Click on the '**Restore**' button to upload your configuration file.
5. The system will notify you if your upload is successful or has failed.

## Web control

1. Visit the '**Setup URL**' in your web browser. This URL can be obtained from the driver's property page.
2. Click on the '**CONTROL**' link

### GENERIC IR THERMOSTAT

Current Temp: 24 degrees

CONTROL SETUP BACKUP	
CURRENT TEMPERATURE: 24	
MODE:	<input type="text" value="COOL"/>
FAN SPEED:	<input type="text" value="HIGH"/>
SET POINT:	<input type="text" value="18"/>
<input type="button" value="Submit"/>	

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3. Select the '**MODE**', '**FAN SPEED**' and '**SET POINT**' you want and click on '**Submit**'.

## Licencing

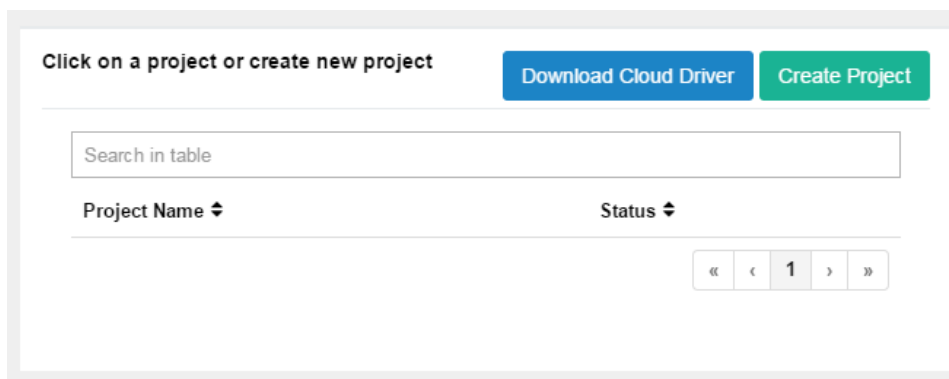
Chowmain drivers require a valid licence to use the driver. Drivers can be purchased from our distributor [driverCentral](#) however all Chowmain drivers come with a 7 day trial. We recommend that prior to purchasing a driver that you test the driver out to ensure that it will work with your hardware and will meet your requirements. The licencing procedure is broken down into 4 steps. A summary of the steps are below along however we have also provided detailed steps if the summary is not sufficient.

## Summary

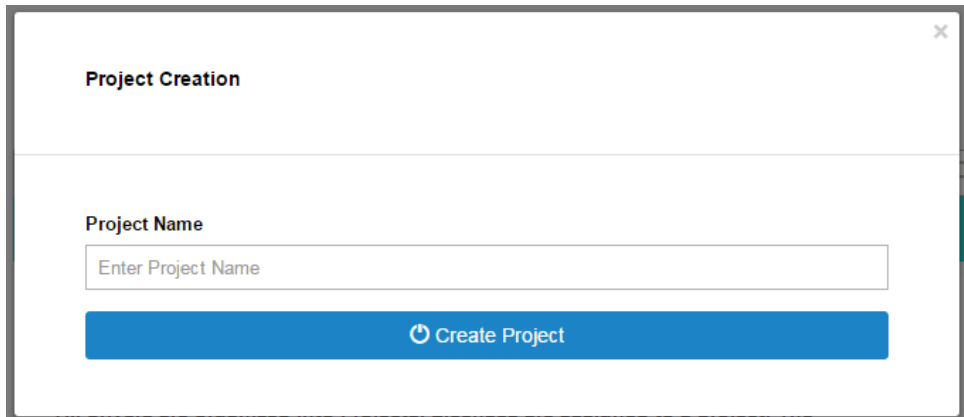
1. Create your project on the driverCentral.io website (This will generate a specific token which you will use in the next step)
2. Download, install and activate the driverCentral cloud driver in your project (Only once per project. Use the token generated in step 1)
3. (Optional) To try a driver, simply download it and install it in your project
4. To purchase a driver:
  - a. On driverCentral, purchase a license and register it to your project
  - b. If the driver is not already installed in your project, download it and install it
  - c. If necessary, use the cloud driver's Action: "Check Drivers" to force licence download to the project.

## STEP 1 - Creating your project on driverCentral

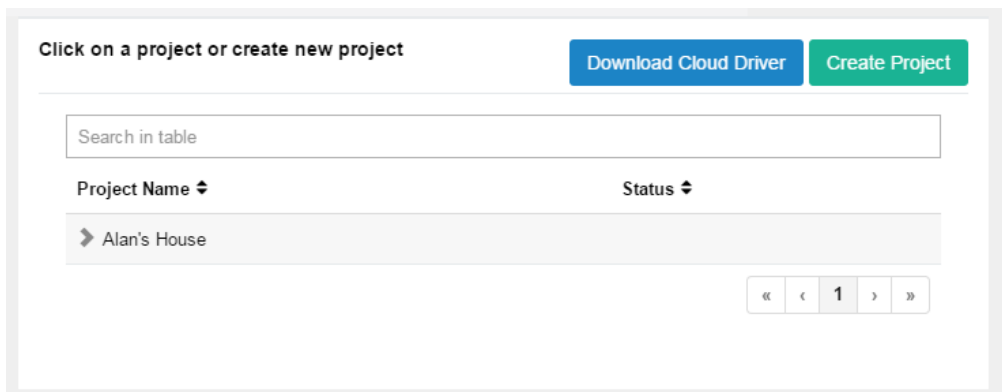
1. Visit <http://www.drivercentral.io>
2. Log into your driver Central dealer account.
3. Visit the Project Portal
4. Click on Create Project



- It will prompt you for a project name. Type in a meaningful name for your customer's project



- Click on Create Project
- Click on the project we just created to expand the project



- Take note of the Project Token as this will be used in STEP 3 when we install the driverCentral cloud driver.

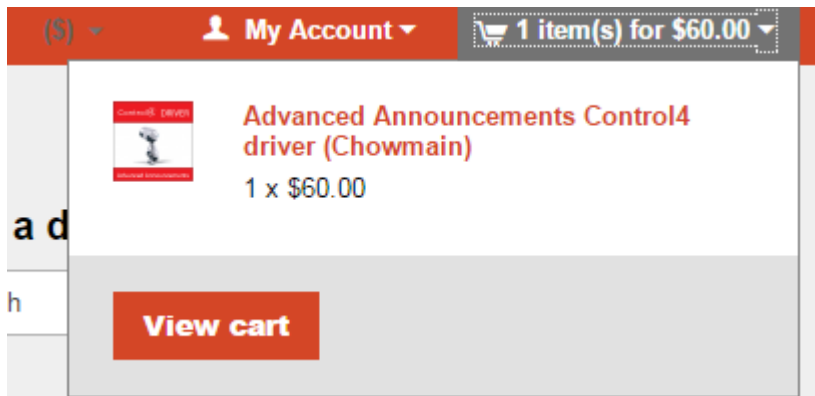
Project Name: <input type="text" value="Alan's House"/>	MAC Address: <b>Not Connected to Project</b>	Action:
Project Token: <b>ABCDEFGHIJ</b>	Last Communication: <b>Not Connected</b>	Connection Status: <b>Not Connected</b>

## STEP 2 –Purchase driver licence

1. Visit <https://www.drivercentral.io/chowmain-ltd/> and find the product/driver you want to purchase a licence for.
2. Click on the Add to Cart button



3. Click on the Shopping Cart icon in the top right corner and click on View cart



4. Confirm that your order is correct and click on Proceed to checkout



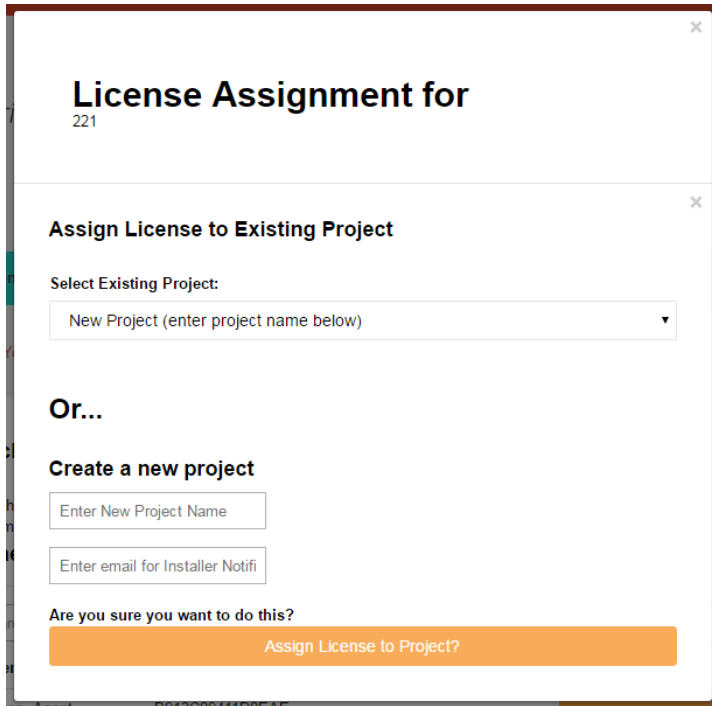
5. Follow the prompts and click on Submit my order



6. This will take you to PayPal for payment.
7. Pay via PayPal. It will automatically return to the marketplace when confirmed.
8. You will now be at a page where you can see your purchased licence.

License Name ⇅	License Key ⇅	Project Assigned ⇅	Action ⇅
[REDACTED]			Assign to Project

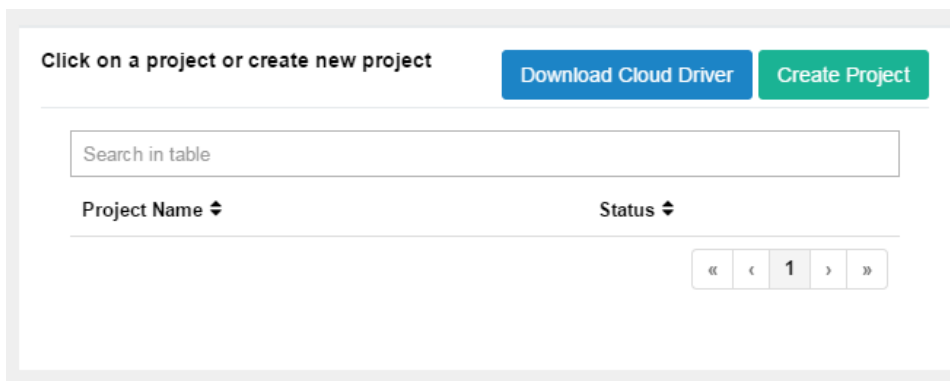
- From here assign the licence to the project we created or if you did not follow that step create a new project



### STEP 3 – Install and activate the driverCentral cloud driver

**NOTE:** Only one instance of the driverCentral cloud driver installed per project. Do not install additional cloud drivers.

- Visit <http://www.drivercentral.io>
- Log into your driver Central dealer account.
- Visit the Project Portal
- Click on Download Cloud Driver



- Copy the C4Z driver to My Documents\Control4\Drivers directory.
- Add the driver to your project.

- Click on the driver to view it's properties

<b>Cloud Status</b>	Please enter cloud project token below...
<b>Project Information</b>	(1) Total, (0) Licensed, (0) Trials, (1) Expired, (0) Updates.
<b>Driver Version</b>	1001
<b>Project Token</b>	<input type="text"/>
	Project token from driverCentral.io project portal
<b>Driver Actions</b>	<input type="button" value="v"/>
<b>Debug Mode</b>	Off <input type="button" value="v"/>

- Type in the project token we took note of in STEP 1.
- Click on the Actions tab
- Click on Check Drivers

#### STEP 4 - Install Chowmain driver

- Install the Chowmain driver
- You will notice that the Activation Status reflects a Licence Activated state.
- Any driver that does not have a purchased licence will have a trial licence activated via the marketplace. Note that there is no way to reactivate the trial so please use wisely.
- If you do not then press the Check Drivers action in the driverCentral Cloud driver again.

<b>Activation Status</b>	Update Available!!! License Activated
<b>Driver Version</b>	1002
<b>Driver Information</b>	Navigate to connections tab and make serial binding
<b>Automatic Updates</b>	Off <input type="button" value="v"/>