

# Dahua IP Camera and NVR Driver Installation and Usage Guide



Date: Monday, 13 September 2021  
Authors: Justin Bateson

chowmain   
smart home driver development

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## Overview

This package consists of three different drivers. Whether your project has one camera on a network or multiple cameras on the network and cameras connected behind an NVR our drivers have you covered:

- NVR
- PTZ Camera
- Static non PTZ Camera

## Site setups

- One or more standalone cameras connected to shared network switch without an DVR/NVR
- One or more cameras physically connected to the rear of an NVR
- One or more cameras physically connected to the rear of an NVR including one or more cameras connected to a shared network switch that are added to the NVR

-

## Features

- Onscreen user interface control on supported NVRs via remote control simulation (requires special firmware).
- Access IP camera live streams when behind an NVR
- Receive alerts on mobile devices using the Push Notification Agent.
- Access to events that you can use to program Control4 actions against via bindings on the Connections tab
- ANPR Licence Plate recognition (on supported cameras)
- Choose which stream to utilise with the driver.
- The driver will automatically update its name to reflect the device name set in the webui or the channel connected on the NVR.
- Trigger camera commands via the Programming tab.
- Ability to change the camera resolution to better match Control4's preferred resolution

## NVR

Control of NVR On Screen Display via C4 remote, when connected to a TV or video matrix:

- Grid view
- Navigate recordings and playback menu
- Changing Channels

Smart handling of events from cameras connected behind an NVR

Configurable buttons for Control4 remote

## Camera (PTZ and nonPTZ)

Ability to configure camera stream of camera (direct or behind an NVR) to work with Control4

Driver auto configuration when binding to an NVR

Live view of camera stream on Control4 Navigators

Pan, Tilt and Zoom via Control4 Navigators

Camera event handling via bindings for enhanced programming. Supported Events:

- Video Motion

- Audio Anomaly
- Audio Mutation
- Cross Line Detection
- Intelli Frame
- Traffic Vehicle Position

Programmatically set:

- Illuminator manual/auto/off and brightness level
- Flash blue and red warning lights (TiOC)
- Wiper once/continuous/off

Push Notification with Snapshots

Select PTZ camera presets

# CHANGELOG

## Version 20210913

Initial release

# Configuring the driver for a standalone camera connected to a network

## Install the driver

Add either the **Dahua nonPTZ IPC** driver or **Dahua PTZ IPC** driver to your project

## Address

2. Enter the **IP Address** of the camera
3. Change the **HTTP** and/or **RTSP** ports as required

## Authentication

1. Make sure that **Required** is ticked
2. Enter the **Username**
3. Enter the **Password**
4. Make sure that **Type** is set to *Digest*

## Advanced Properties

**PTZ Movement Duration** Adjust this if you require longer Pan and Tilt movement times

**Preferred Stream** Usually this will be the sub stream which is *1* as Dahua counts streams starting at *0*

**Preferred Channel** for a standalone camera you shouldn't need to change this

**Preferred Resolution** Once the driver has successfully connected to the camera, it will populate this field with the available resolutions for this camera. Selecting one of the options will configure the stream based on the **Preferred Channel** and **Preferred Stream**

**Event Polling** This is the time in seconds between each event heartbeat. You shouldn't need to change this

**Process Events** Allows you to disable the event notifications from the camera

**Last Communication from Device** This shows you a timestamp of the last communication between the driver and the device. You can use this as a quick verification that the driver is working

**Device Name** This will be the hostname of the camera

**Model Number** The reported model number by the camera

**Serial Number** The reported serial number by the camera

**System Version** This should be at least v2.9 for this driver to work though earlier versions may also work



# Configuring the drivers for a camera connected to an NVR

## Install and configure the NVR driver

1. Install the **Dahua NVR** driver
2. Enter the **IP Address** of the NVR
3. Enter the **HTTP Port**
4. Enter the **\*\* RTSP Port\*\***
5. Enter the **Username** for the NVR
6. Enter the **Password** for the NVR
7. Set the **Authentication Type** for the NVR. You shouldn't need to change this
8. Leave **Event Polling** as the default

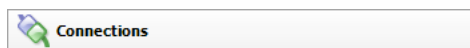
We have provided the ability to custom program a number of buttons on Control4's remotes to better suit the end user when the NVR is connected to a video endpoint like a TV or matrix switcher

*Note This is not required if you only want access to the camera behind the NVR*

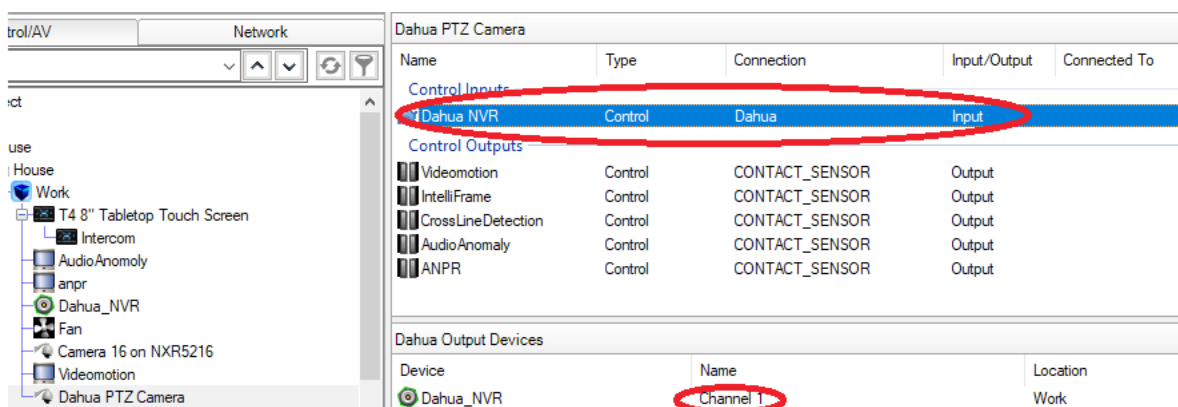
## Install and configure the camera driver

With the NVR driver configured, binding the camera driver to the NVR will auto complete the camera driver fields to simplify installation.

1. Add either the Dahua Static IPC or Dahua PTZ IPC driver to your project
2. Select the Connections tab



3. Locate and select the camera driver you added in step 1
4. Now select the Dahua NVR binding and drag it down to the corresponding binding on the NVR for the camera



5. Now go back to the System Design tab and confirm that the **Address** and **Authentication** fields are configured correctly.

6. Confirm that **Required** is ticked
7. Confirm that the **Preferred Stream** is correct (Note that 0 = Main Stream and 1 = Sub Stream )
8. Now select the **Preferred Resolution**. Once the driver has successfully connected to the camera, it will populate this field with the available resolutions for this camera. Selecting one of the options will configure the stream based on the **Preferred Channel** and **Preferred Stream**.

We recommend keeping the resolution around the 720p

### **Advanced Properties**

1. Make sure that **Authentication Type** is set to *DIGEST*

### **Address**

1. Enter the **IP Address** of the camera
2. Change the **HTTP** and/or **RTSP** ports as required

### **Authentication**

1. Make sure that **Required** is ticked
2. Enter the **Username**
3. Enter the **Password**
4. Make sure that **Type** is set to *Digest*

Please refer to the instructions for setting up a standalone camera for detailed information on each Property field

## Integrating the NVR with Control4

The NVR driver provides two main functions.

The first is to provide easy setup and access to cameras connected behind an NVR.

The second is to provide the end user with Control4 remote (T3, T4, SR-250, SR-260, Neeo) control of the NVR when it is connected to a TV or video matrix.

### Available Buttons

#### Navigation

The NVR has a couple of different views:

- Live View of one channel or a grid view of four channels
- Playback View

#### Live View

In live view, when viewing a single channel, you can change the channel using the number keys, including channels 10 and above. There is a 2 sec delay built in for the customer to enter the value of a channel that is 10 or above.

#### Playback View

To access playback view press the PLAY button on your remote. You have the ability to move around the NVR user interface with the UP, DOWN, LEFT, RIGHT, SELECT/OK/ENTER and CANCEL buttons.

### Configurable button options explained

We provide the option to program a number of different Control4 remote buttons to suite the client's preference.

Specifically, we provide the option to assign the specific grid view number to different buttons.

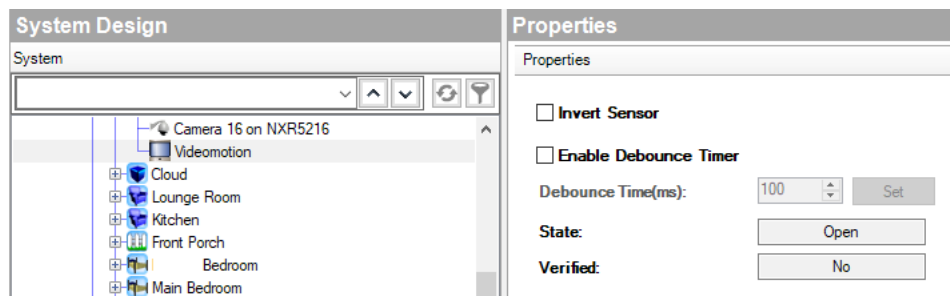
We also provide the option to choose which button will be used as *Back*

# Programming against Activated Alerts

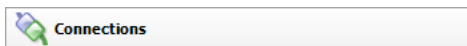
## Videomotion Detection

Dahua cameras provide a START and STOP for all actions which our driver uses to OPEN and CLOSE the contact sensor bindings so you should keep this in mind when programming against these.

1. Once the **Process Events** Properties field has been set to **Yes**, you are ready to program against the events.
2. Add a Motion Sensor from the My Drivers tab and leave the config as default



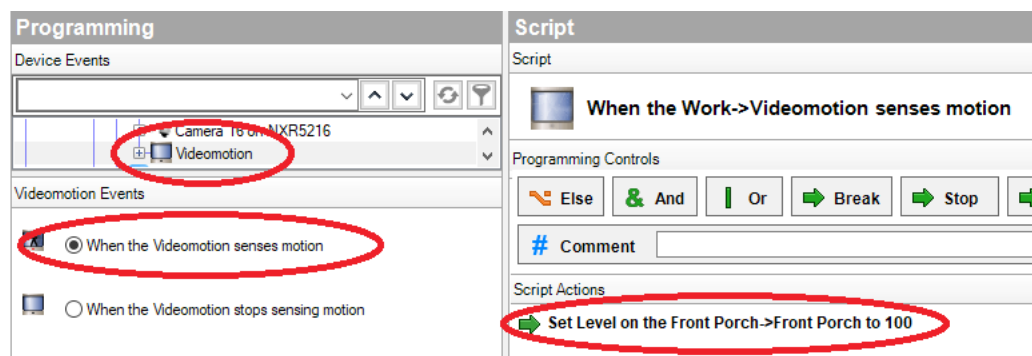
3. Select the Connections tab



4. Select your camera from tree on the left
5. Make a binding between the binding on the camera and the motion sensor (in this case, Videomotion binding on the camera to the Videomotion->Contact Sensor)

Control & Audio Video Connections				
Camera 16 on NXR5216				
Name	Type	Connection	Input/Output	Connected To
<b>Control Inputs</b>				
Dahua NVR	Control	Dahua	Input	Dahua_NVR->Channel 16
<b>Control Outputs</b>				
Videomotion	Control	CONTACT_SENSOR	Output	Videomotion->Contact Sensor

6. Select the motion sensor from the Device Events window



7.



## **ANPR License/Number Plate Detection**

The licence plate recognition works in the same manner as the above with the addition of the ANPR\_LICENSEPLATE variable.

When the camera sends a TRAFFICVEHICLEPOSITION event, it provides the detected licence plate which we pass to this variable.

Your programming should check this variable to trigger programming based on a specific license plate.

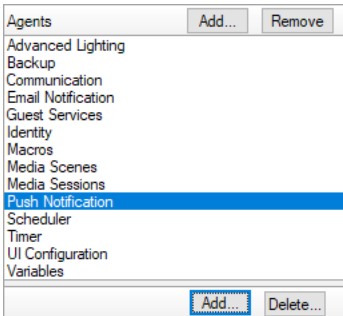
The driver will set the variable value to empty after 5 seconds.

# Configuring Push Notification Agent

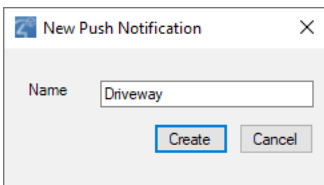
## 2. Open Agents



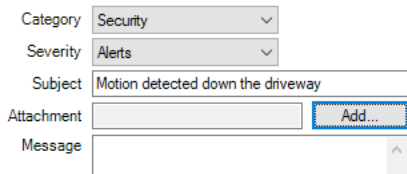
## 4. Select Push Notification and press Add... below



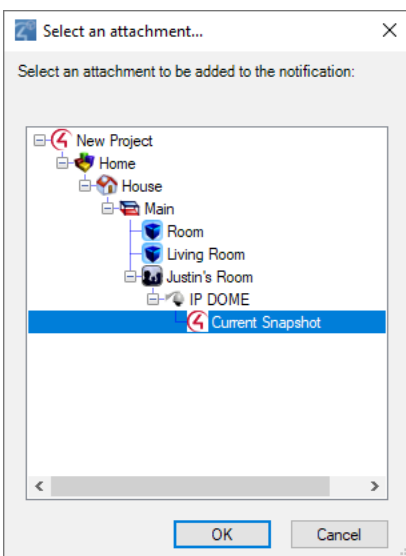
## 5. Enter the name of the notification and press Create



## 6. Add the Subject line and press Add... to select the snapshot



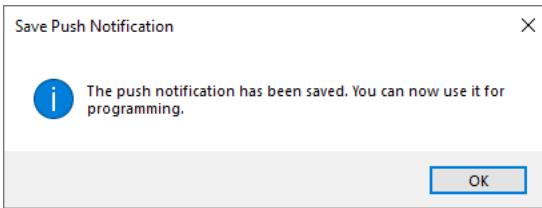
## 7. Expand the tree to your camera and select Current Snapshot



## 8. Select Save



## 9. Press OK



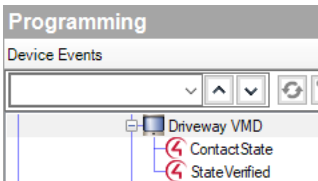
# Send Push Notifications when a binding is triggered

Once you have successfully set up Bindings on the Connections tab you can tie that in with the Programming tab

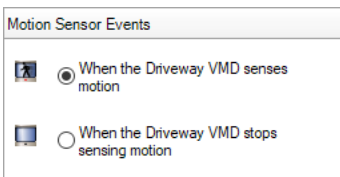
## 1. Select Programming



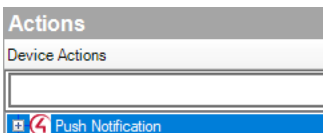
## 2. Under Device Events select your Driveway VMD motion sensor



## 3. Select When the Driveway VMD senses motion




## 4. Now, under Actions select Push Notification



## 5. Select Driveway from the Push Notification

Push Notification Actions

 Send Push Notification "Driveway"

Commands    Conditionals    Loops

Push Notification: Driveway

Category: Security


Severity: Alerts

Subject: Motion detected down the driveway







6. Now drag the green arrow across to the Script Actions

**Script**

Script


 When the Justin's Room->Driveway VMD senses motion

Programming Controls

 Else     And     Or     Break     Stop     Delay 5

# Comment

Script Actions

 Send Push Notification "Driveway"



## FAQ

### What cool things can we do with this driver?

- The driver's Auto setup functionality makes configuration of the cameras quick and easy.
- This driver provides the ability to attach snapshots to Control4 Push Notifications (4sight required). Tie this in with the camera's motion events and your customer can get notified (with an image) if the camera detects motion.
- This camera provides live feedback of events which is useful if you want to tie in lighting to motion and other events.

### What products will this work for?

This will work with Dahua's range of IP cameras that support System Version 2.82.

The driver zip file contains firmware for the following list of NVRs:

- NVR5208-4KS2
- NVR5216-4KS2
- NVR5232-4KS2
- NVR5208-8P-4KS2
- NVR5216-8P-4KS2
- NVR5232-8P-4KS2
- NVR5216-16P-4KS2E
- NVR5232-16P-4KS2E
- NVR5416-4KS2
- NVR5432-4KS2
- NVR5464-4KS2
- NVR5208-8P-4KS2E
- NVR5216-8P-4KS2E
- NVR5416-16P-4KS2E
- NVR5432-16P-4KS2E
- NVR5464-16P-4KS2E

- NVR5816-4KS2
- NVR5832-4KS2
- NVR5864-4KS2
- NVR5816-16P-4KS2E
- NVR5832-16P-4KS2E
- NVR5864-16P-4KS2E
- NVR5816-R-4KS2
- NVR5832-R-4KS2
- NVR5864-R-4KS2
- NVR5816-R-16P-4KS2E
- NVR5832-R-16P-4KS2E
- NVR5864-R-16P-4KS2E
- NVR5216-16P-I
- NVR5216-8P-I
- NVR5864-I
- NVR5432-16P-I

# Troubleshooting

## Snapshot test failures

**URL not verified: The remote server returned an error: (500) Internal Server Error.**

If the stream resolution is over a certain size, the device fails. This is a limitation of the device and not Control4 or the driver.

## H.264 test failures

**Address port verification failed: Timeout**

This is likely due to the NVR/IPC being configured with a different RTSP Port to what the driver is using. Sometimes you'll get more information re the endpoint actively refused the connection on this port

```
Testing H264 ...
Verifying address:port ...
Address port verification failed: Timeout
Test failed.
```

**URL not verified: Your GStreamer installation is missing a plug-in**

This is likely caused by the camera stream being set to H.265 in

```
Address port verified.
Verifying URL ...
URL not verified: Your GStreamer installation is missing a
plug-in.
Test failed.
```

# Licensing

- How does the trial period work?

All Chowmain drivers are free to use for a set trial period. When the trial expires the driver will cease to function until you purchase a licence and apply it to the driverCentral project.

- Where do I buy a Licence from?

This driver is developed by Chowmain software & Apps and is distributed by driverCentral, Inc <https://www.drivercentral.io/chowmain-ltd>

To purchase a driver:

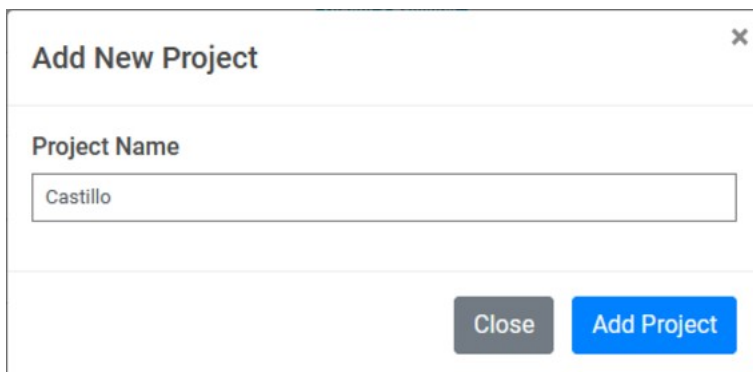
1) On driverCentral, purchase a license and register it to your project

1) If the driver is not already installed in your project, download it and install it

1) If necessary, use the cloud driver's Action: "Check Drivers" to force the licence to download into the project

# Creating a Project on Driver Central

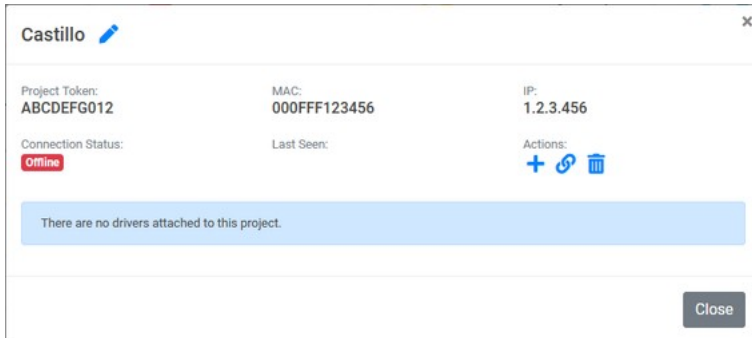
1. Visit <http://www.drivercentral.io>
2. Log into your driver Central dealer account
3. Click **Portal**
4. Click **New Project**
5. Enter the project name



6. Click **Add Project**
7. Click on the project we just created

Project	Status	Created
Castillo	Unassigned Project	1999-12-31 23:59:56

8. Take note of the **Project Token** as this will be used later when we install the Cloud Driver

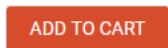


9. Click **Close**

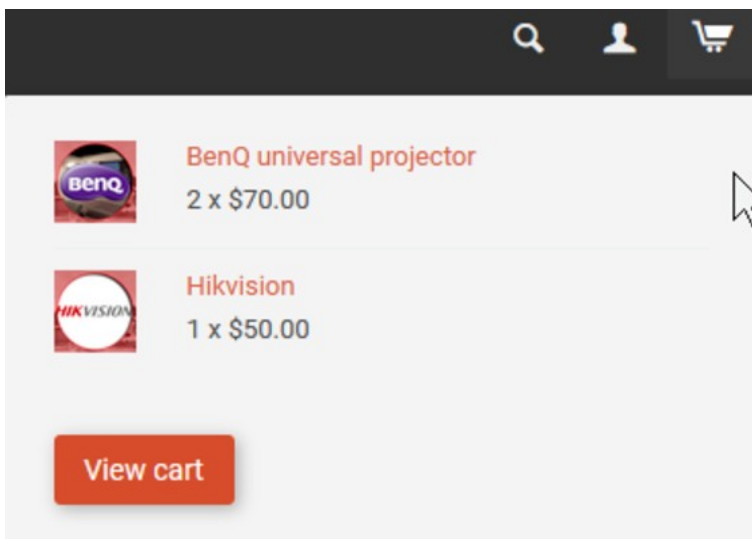
## Purchasing a Driver Licence

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

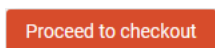
2. Click on **Add to Cart**



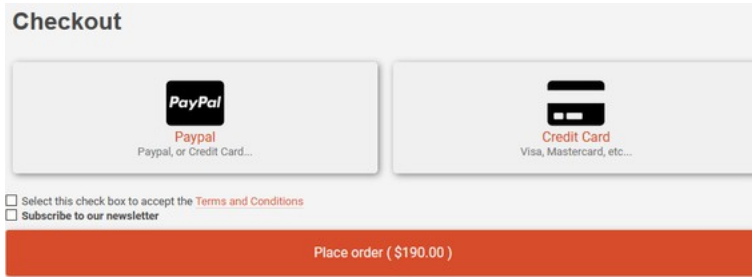
3. Now click the shopping cart icon (top right) and click **View cart**



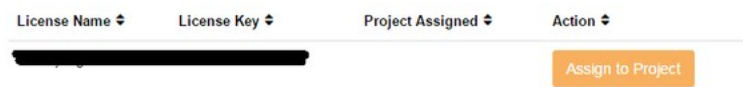
4. Confirm that your order is correct and click on **Proceed to checkout**



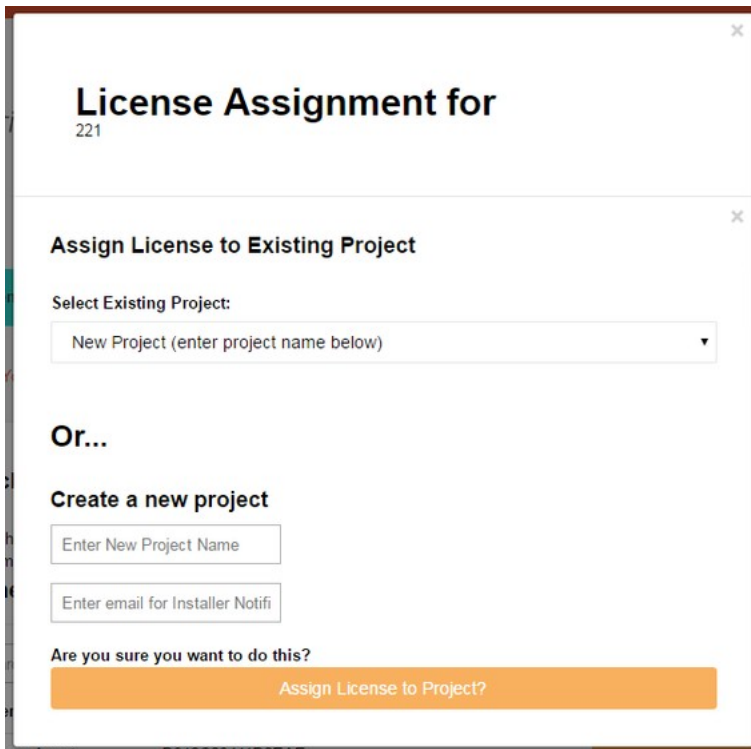
5. Choose your payment option, provide the relevant details and click **Place order**



6. You will now be at a page where you can see your purchased licence

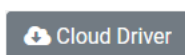


7. From here assign the licence to the project we created or if you did not follow that step create a new project



## Install the driverCentral cloud driver

1. Visit <http://www.drivercentral.io>
2. Log into your driver Central dealer account
3. Click **Portal**
4. Click **Cloud Driver**



5. Copy the C4Z driver to My Documents\Control4\Drivers directory
6. Add the driver to your project
7. Click on the driver to view it's properties

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

8. Type in the project token we took note of earlier
9. Click **Actions** tab
10. Click **Check Drivers**

## Install Chowmain driver

1. Install the Chowmain driver
2. You will notice that the Activation Status reflects a Licence Activated state
3. 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*
4. If you do not then press the Check Drivers action in the driverCentral Cloud driver again

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