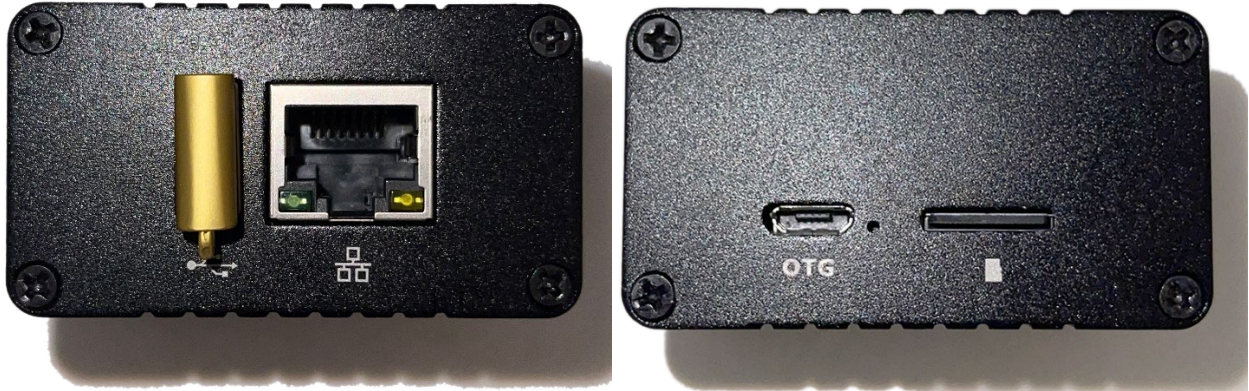# Magic Cube and Magic Cube Pro User Guide

The Innovo Hardware is a special middleware hardware that connects Elan to Home Assistant. The unit extends Elan to use hundreds of drivers only available on the Home Assistance platform using Innovo's special drivers
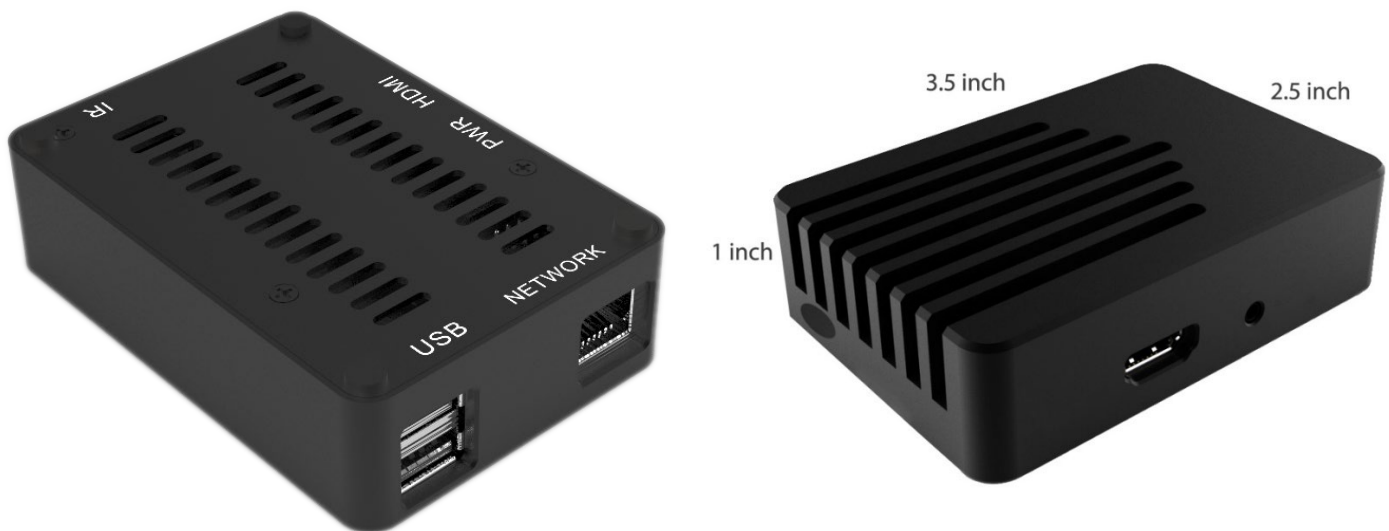

MagicCube

home / Entry Level device / industrial SD card (25 x the life of standard SD cards)

To install, plug in network, plug in included power supply into the OTG port.

What out for those big fingers while plugging in the power. The SD card is spring loaded and can be accidentally triggered. Do NOT remove the SD Card or the Gold USB key.

MagicCube Pro

Industrial level / advanced device / advanced browser / eMMC flash / 2GB RAM / HDMI output for local administration / USB output for keyboard / mouse

To install, plug in network, plug in included power supply into the PWR port. If you will administer this locally, plug in HDMI and USB Keyboard / Mouse.

Do NOT remove the SD Gold USB key. If you need to plugin Keyboard and Mouse, use a USB Hub

The Magic Cube devices allow the drives to use Secure Websockets for real-time communications between Elan and Drivers. Polling is a thing of the past with Innovo's Hardware. This means its fast, realtime fast, and uses very little resources on the Elan Controller.

Each device has the same basic software and each device is equipped with a pre-configured backup USB drive.

The device not only offers hardware to run Home Assistant, but it also offers remote desktop with a full web browser that allows you to administer any system inside the network. In essence, it's like installing a dedicated PC for remote access. The administration section is accessible from Elan's Discovery tab.

We configure each device specifically to run a secure version of Home Assistant that is compatible with our Elan Drivers. We also add Management tools including auto update and auto backup to make maintenance a lot easier.

A single Magic device is needed per LAN (regardless of of VLAN's). A Magic device can run multiple drivers and multiple instances of the same driver. Some drivers that are available as of this release are:

1. Apple TV 3, Apple TV 4, Apple TV 4K with up to OS 15.X.X
2. Lighting
    a. Insteon lights,
    b. YeeLight,
    c. Xiaomi Light,
    d. Tuya Light,
    e. Philips dynalite,
3. Climate
    a. Trane Thermostats
    b. Honeywell Thermostats
4. Many more to follow

Universal username: root , universal password: Inn0v0 (capital letter I, and zeros instead of o's)

The Base OS of the Magic devices is DietPi.

There is detailed documentation on the dietpi website for each of the below components.

In this guide we provide the minimum information required to get your system up and running for usage with our Elan Drives.

The Innovo Magic device can be administered using

1. LAN Connection using Windows Remote Desktop
2. LAN Connection using SSH with Putty or Terminal
3. Web Browser from any LAN PC / MAC / Linux
4. WAN Connection using Remote.it and RDP (Recommended setup)
5. WAN Connection using port forward (Not recommended)
    a. Forward Port 80 to access the web admin
    b. Forward Port 3389 to access it via Remote Desktop

First Launch

Plug in your unit, power it up, wait roughly 3 minutes for it to appear on the network.

IMPORTANT: The System maybe accessible but it takes a full 3 minutes for all services to start. So be patient.

You should be able to access the device using: (if you cannot access the unit using the names below, replace the name with the IP address.)

It is recommended that you setup a DHCP reservation for the Magic Cube. If the IP address changes, all drivers will stop working.

We do NOT recommend setting a static IP address on the device in case of migration. However, if necessary, use the guide at the end to set the IP address to static.

Launch any web browser from a PC or MAC on the LAN and connect to:

http://magiccubepro.local:8005 (if you are using the Magic Pro Unit)

http://magiccube.local:8005 (if you're using the Magic Cube Unit)

You'll be presented with tiles that will take you to each service. (this is accessible if you're using any MAC or PC web browser or Remote Desktop either via LAN or port forwarded WAN connection.)
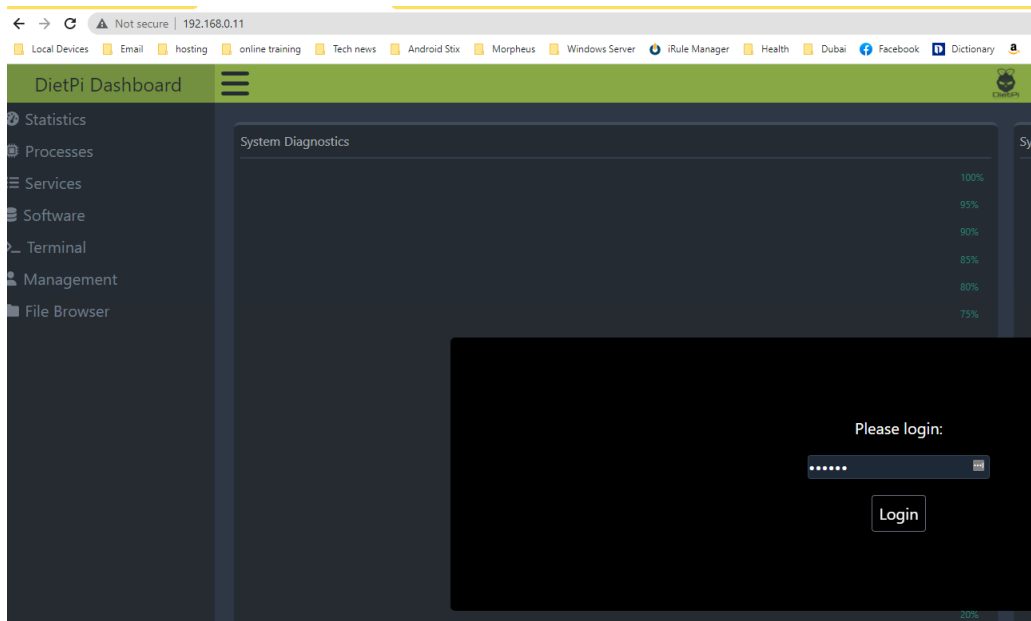

MagicCube Dashboard Admin

Reboot | Shutdown

| HOME ASSISTANT | ADMIN DASHBOARD | FILE MANAGER |

Innovo   Home
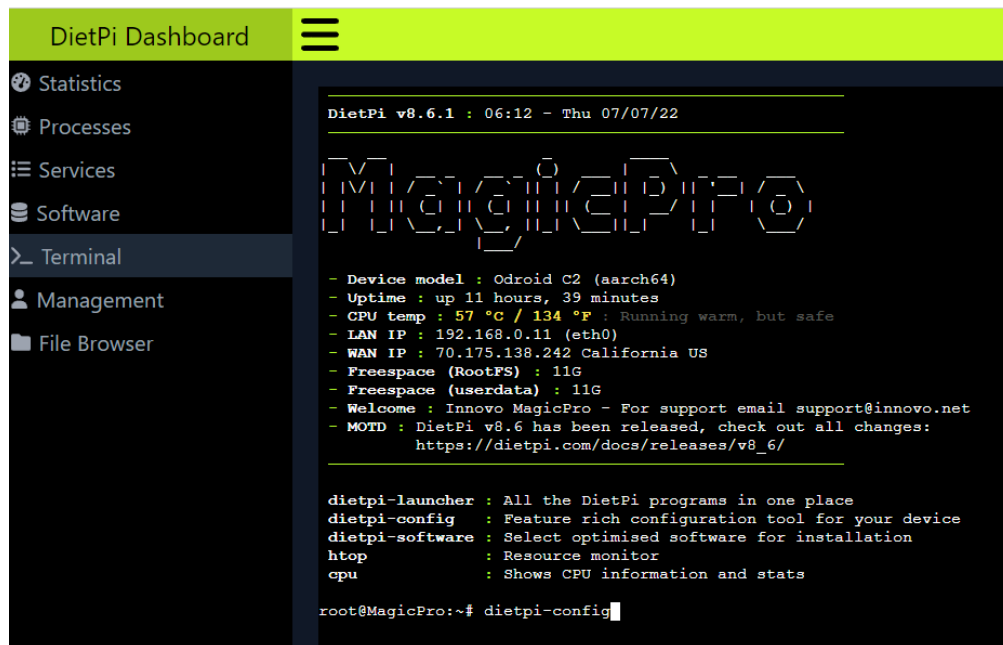
ADMIN DASHBOARD

You will see the DietPi Dashboard, this is used for general administrative tasks. Login with the same password as listed above
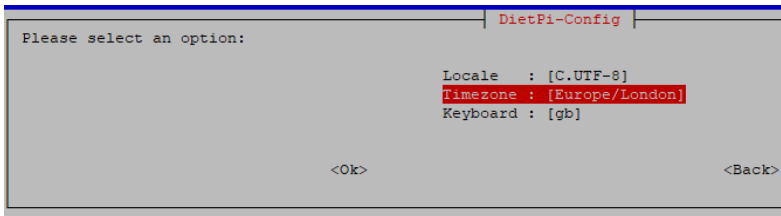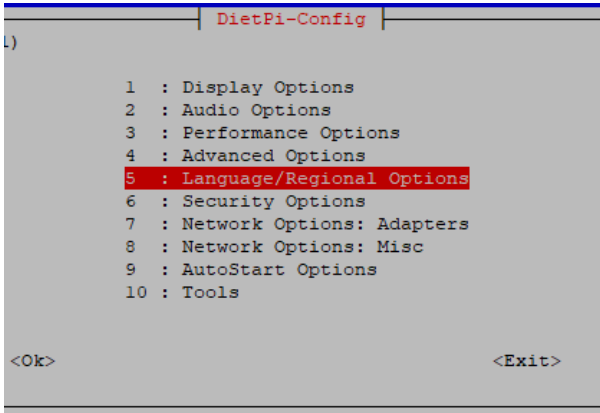

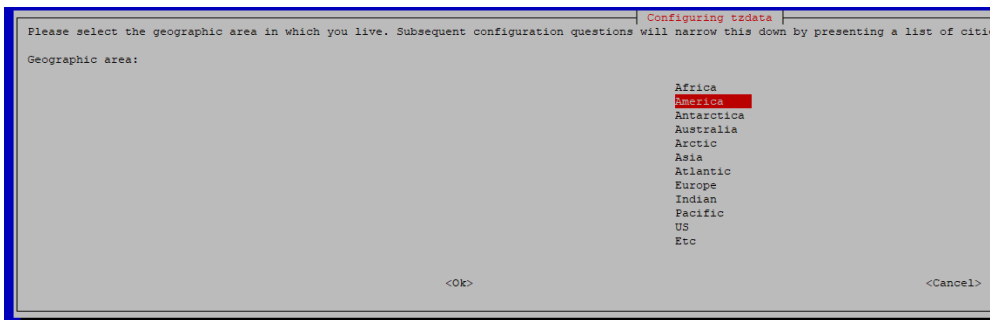Once logged in, click on Terminal on the left side of the Dashboard Menu

It is important to set the time zone information. All nightly backup and update processes happen based on time zone information.

1. From terminal type: dietpi-config [Enter]
2. Use the up /down / left / right / space bar to navigate and select
3. Choose 5   : Language/Regional option

```
L)                    ┤ DietPi-Config ├

        1  : Display Options
        2  : Audio Options
        3  : Performance Options
        4  : Advanced Options
        5  : Language/Regional Options
        6  : Security Options
        7  : Network Options: Adapters
        8  : Network Options: Misc
        9  : AutoStart Options
        10 : Tools


  <Ok>                              <Exit>
```

```
                         ┤ DietPi-Config ├
   Please select an option:

                       Locale   : [C.UTF-8]
                       Timezone : [Europe/London]
                       Keyboard : [gb]


              <Ok>                          <Back>
```

4. Select a region

```
                                          ┤ Configuring tzdata ├
   Please select the geographic area in which you live. Subsequent configuration questions will narrow this down by presenting a list of citie

   Geographic area:
                                              Africa
                                              America
                                              Antarctica
                                              Australia
                                              Arctic
                                              Asia
                                              Atlantic
                                              Europe
                                              Indian
                                              Pacific
                                              US
                                              Etc

                    <Ok>                                      <Cancel>
```

5. Select location and click OK

```
                   ┤ Configuring tzdata ├
   Please select the city or region corresponding to your time zone.

   Time zone:
                      Jamaica
                      Juneau
                      Kentucky/Louisville
                      Kentucky/Monticello
                      Kralendijk
                      La_Paz
                      Lima
                      Los_Angeles
                      Lower_Princes
```

6. Click Back, Exit, OK to save and

Remote Desktop Administration

You can also administer your device using Windows Remote Desktop Client on any Windows or Mac.

Launch RDC, put in the local name or the ip address, agree to the identity warning and login in.

You can also forward a port on your router to device. Forward requests on **TCP port 3389 and UDP port 3389** to your device's IP address.

SECURITY WARNING: You should open this port as needed. Do NOT leave it forwarded all the time. If you want a constant 24 / 7 opening, use our guide below for secure remote administration.
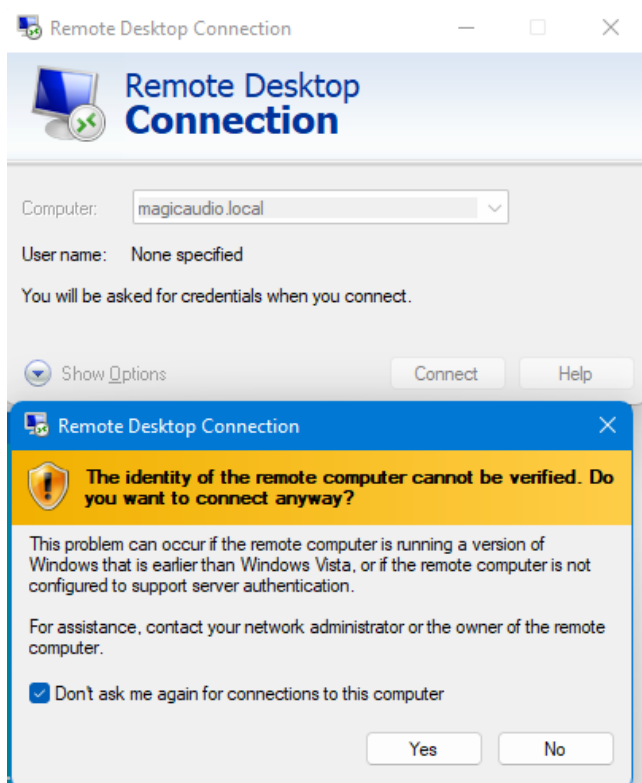
1. Using Windows Remote Desktop, connect using the LAN to your hardware device.
2. Sign in with the username: root , password: Inn0v0 (capital letter I, and zeros instead of o's)
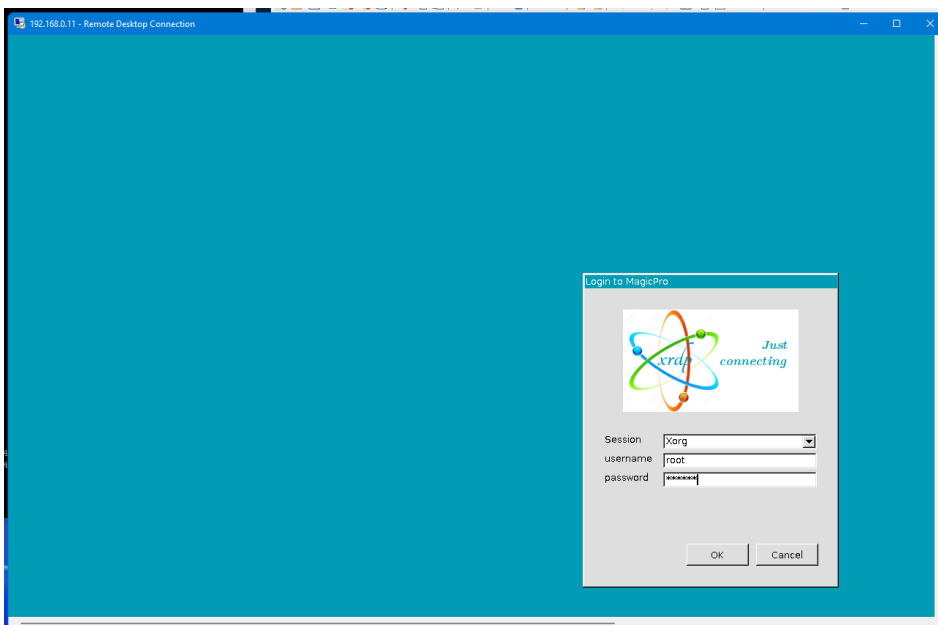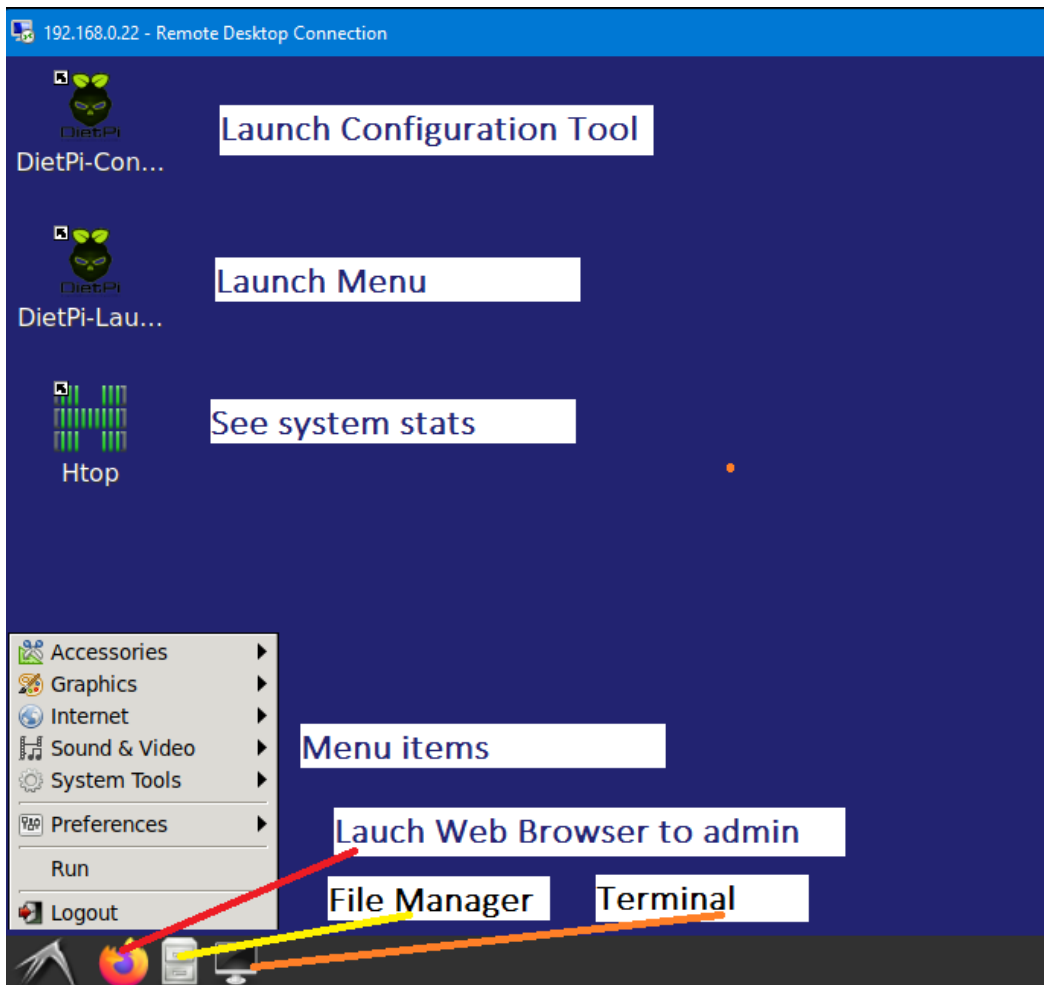
Double Click the Icon to view the configuration menu options.

Note: For Magic Cube, to access the web browser, click on the bird icon, Internet, PaleMoon (very light weight browser). For Magic Cube Pro, use the built in FireFox.

Set Up Home Assistant

1. From a web browser on your MAC or PC, go to (Note that the Innovo device uses HTTPS for Home Assistant not HTTP. This enables the drivers to use Web Sockets for real time communication.

   https://ip.address.of.Magic:8123 or use the https://devicename.local:8123

2. You will receive a warning that this site is unsafe. Proceed and trust the site.
3. You will then see the setup screen.
4. Enter Home assistant username and password. This is different that the system username and password.
5. Name the Home, DETECT Location, Choose Units, Set Currency then Click Next
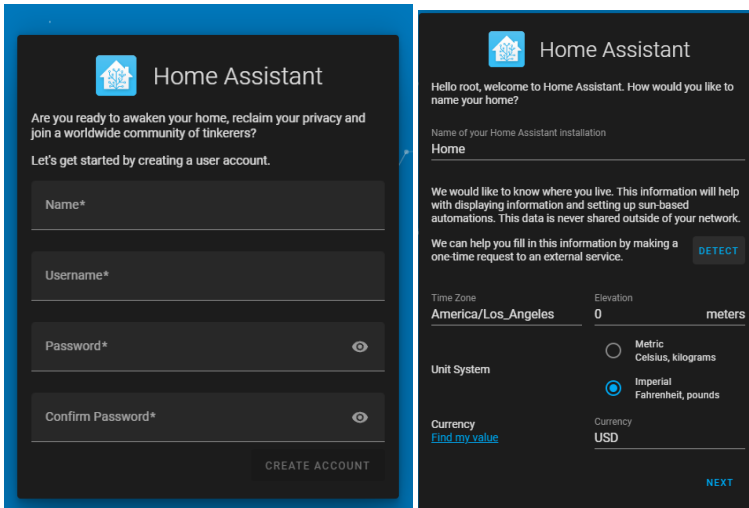

Note:

If after clicking next, the Home Assistant screen is taking longer than 30 seconds, Refresh the Page.

If you get Failed to save: click Ok

The system will continue with the setup and ask you to login. This will not affect the installation
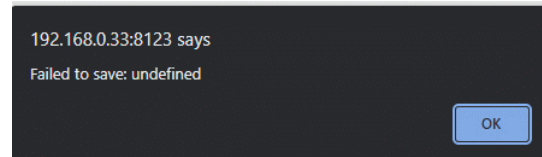
6. You can choose to opt in to Home Assistant reporting or you can opt out. Click Next.
7. Home Assistant will show all discovered devices on the network. At this point you don't need to add any integrations. Follow the Integration Note for the driver you're trying to install in Elan.
8. Click Finish.
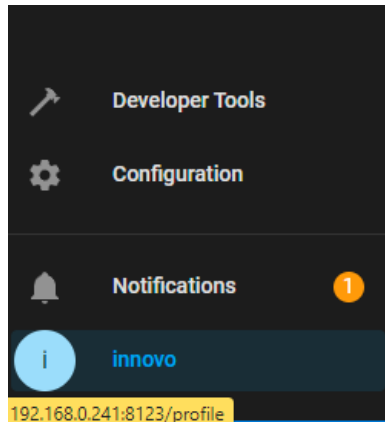9. You are now ready to install the Elan Drivers.
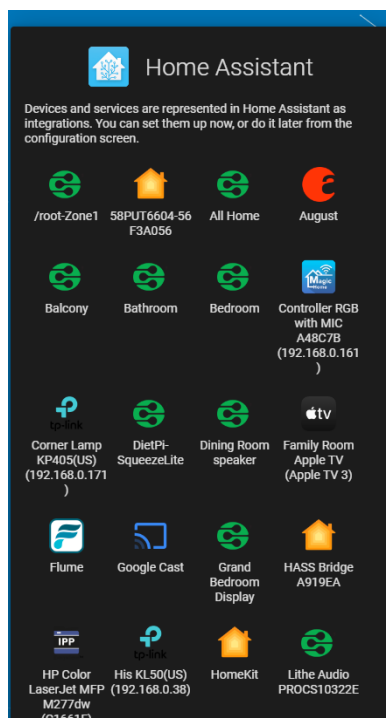
Setup Token in Home Assistant

To use the device in any Elan Driver, you need to setup a long lived token. Create the toke and save it somewhere safe, you will need to connect the drivers.

- Login to Home Assistant, click on the name you gave the device all the way bottom right of menu

- Scroll to the bottom of and click on CREATE TOKEN.
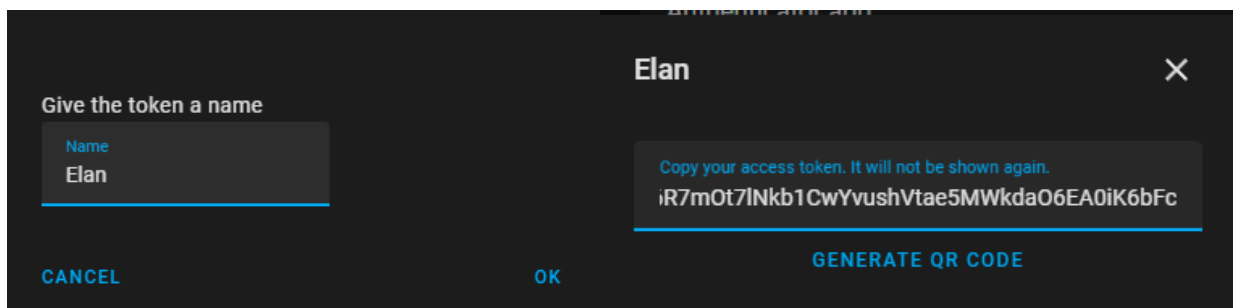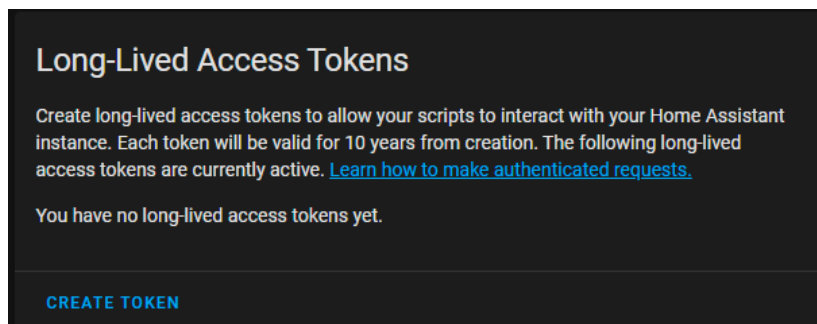
- Token Example:

> eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJpc3MiOiJiMDI3OGJlOGU2Yjk0OTM1YjlmZTU3OTAwMWE1NDhlMCIsImlhdCI6MTY1MTUwNDEwMSwiZXhwIjoxOTY2ODY0MTAxfQ.4X_6R7mOt7lNkb1CwYvushVtae5MWkdaO6EA0iK6bFc

> IMPORTANT, the token will only appear once and if you click off the page, it will disappear, so highlight (Ctrl + A) then copy. If you miss it, delete the token and create a new one.

- Break up the Token into three parts separated by the ".", you'll need that information for the driver.
  Example:
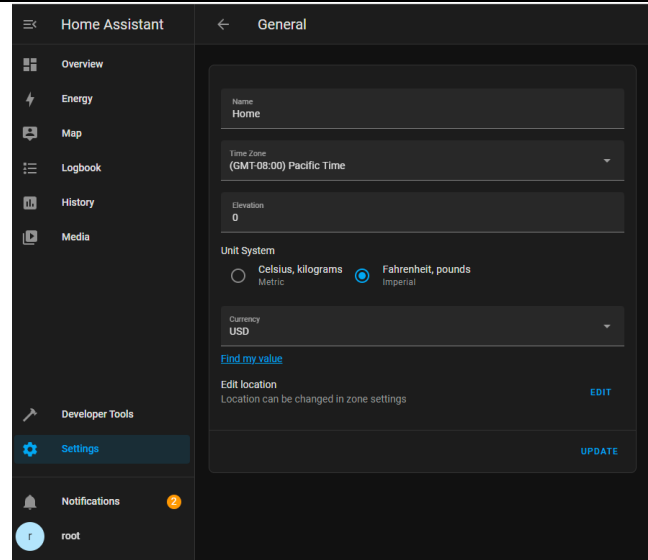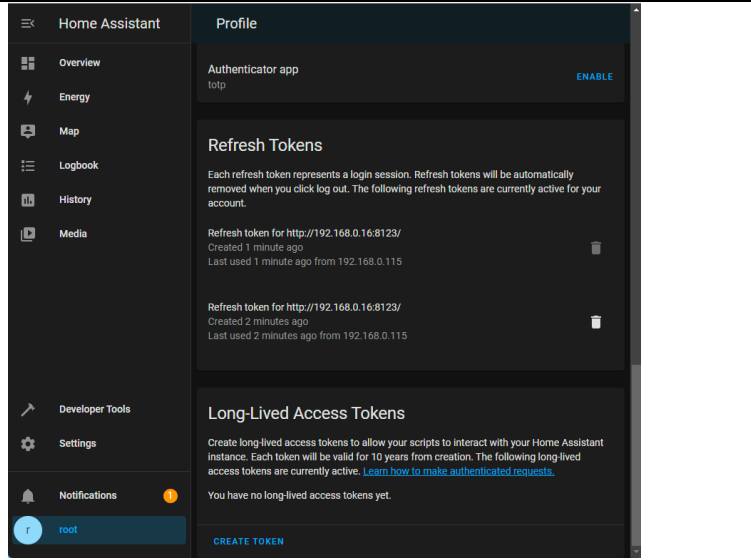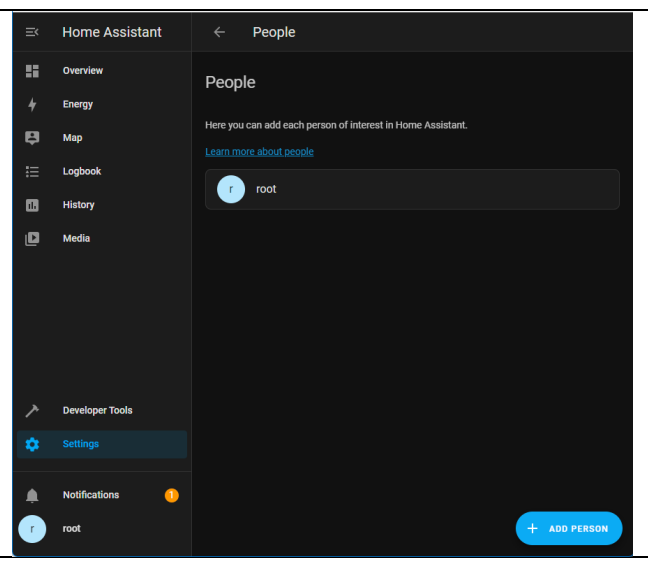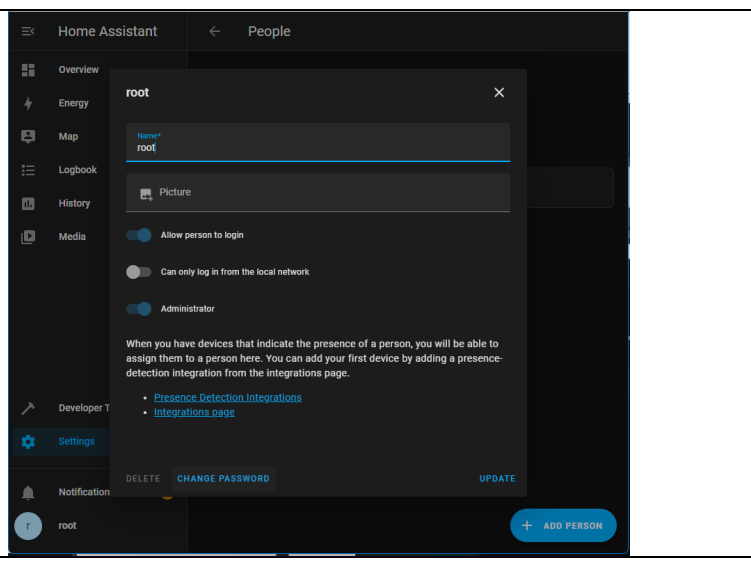 Part 1: eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9
  Part 2: eyJpc3MiOiJiMDI3OGJlOGU2Yjk0OTM1YjlmZTU3OTAwMWE1NDhlMCIsImlhdCI6MTY1MTUwNDEwMSwiZXhwIjoxOTY2ODY0MTAxfQ
  Part 3: 4X_6R7mOt7lNkb1CwYvushVtae5MWkdaO6EA0iK6bFc

IMPORTANT: REBOOT device after creating the token.

Change the USERNAME in Home Assistant

We don't recommend changing the username for Home Assistant, but if you need to do it, here are the steps.

1. Settings → System → General	2. Root → Profile
3. Settings → People, Select User	4. Settings → People →Username→Change Password

HACS (Home Assistant Community Store).

HACS extends Home Assistant to use non-official Home Assistant apps and drivers. Use it on your own risk.

The Magic Cube system comes with HACS pre-installed. However, it does have to be setup individually. It also requires that user to have a github account. For more information email support@innovo.net
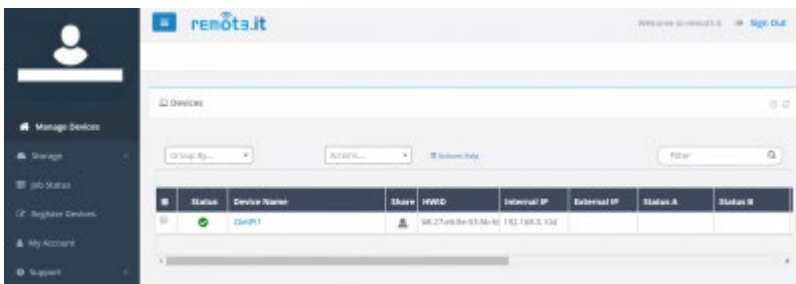
Remot3.it¶

The Magic devices include a software called Remot3.it.   Remot3.it allows you to easily access your device over the internet without the need to do any port forwarding. This is the recommended method to use when connecting over a WAN.

Remot3.it works by connecting you to a specific TCP port on your device, all of which can be customized during first run setup.

You will need to

1. Create an account on https://remote.it   This is free for the first five devices.
2. **Download and install the** Desktop **app** You will be using this to setup other devices and start connections
3. **Install and configure remote.it on your target device** (The Innovo Magic device you will be connecting to)

Examples of TCP ports for Remot3.it:

SSH port **22**. Open a remote terminal to your device.

RDP port **3389**. Monitor your BitTorrent downloads.

Webserver port **80**. Access your internal websites.

Step by Step Process

1. Once your account is created, Log into your online account at https://remote.it, click the + to add a new device.
    a. Choose Linux. On the right side, you'll be presented with a code, click on it to copy it
    b. You will paste this code into terminal on Innovo's Magic Device.
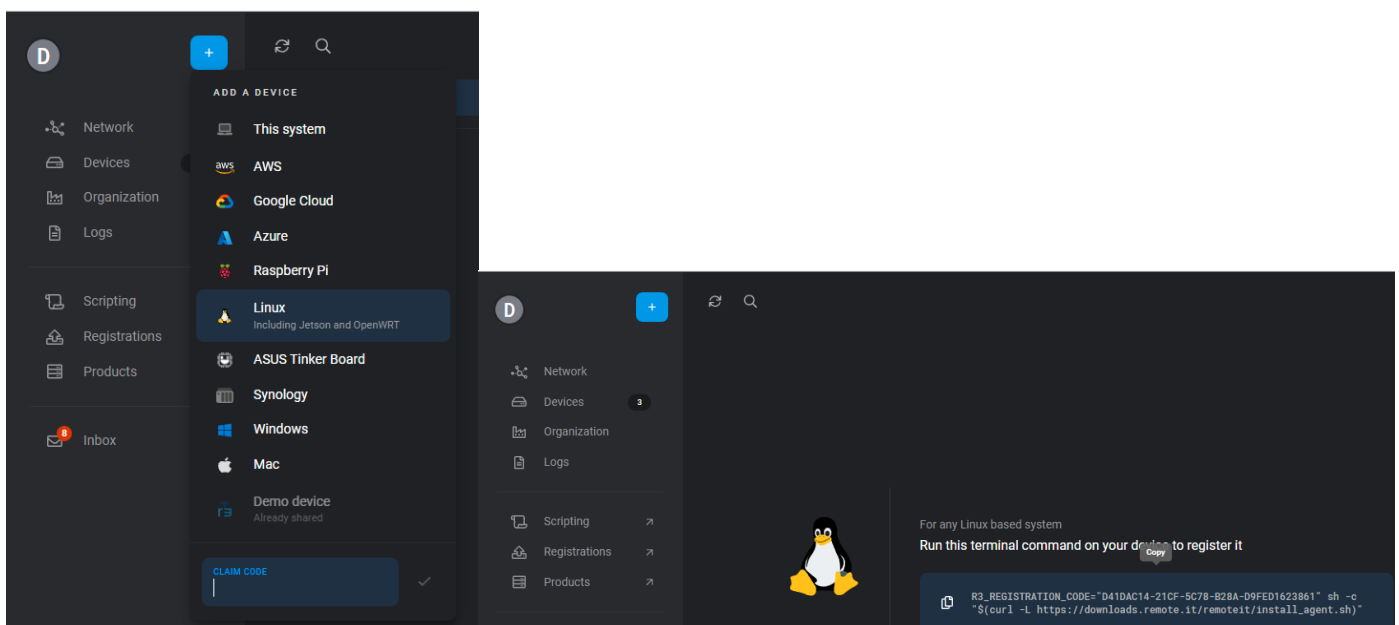
1. Open Terminal on your magic device using any of the methods above

    Paste the code from the previous step and click enter. (Use CTRL + C and CTRL + V to paste)

    The device will automatically install and connect the client software.

2. Go to the remote.it website, log into your account or click Refresh and the newly registered device will be show.
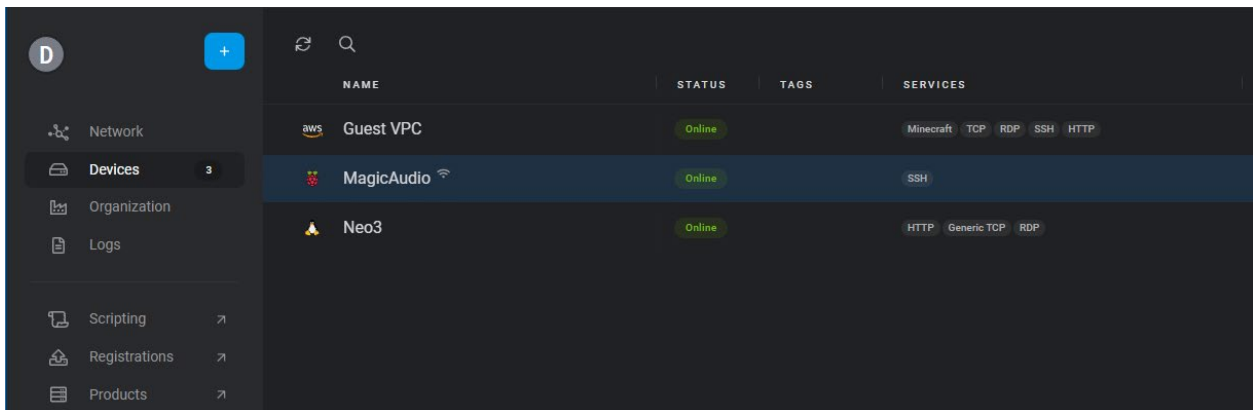
2. Once the device is added, click on the device, then next to SERVICE, click the + to add a service.
    a. From the Service Type Choose RDP and it will automatically populate the rest of the information
    b. Click Save
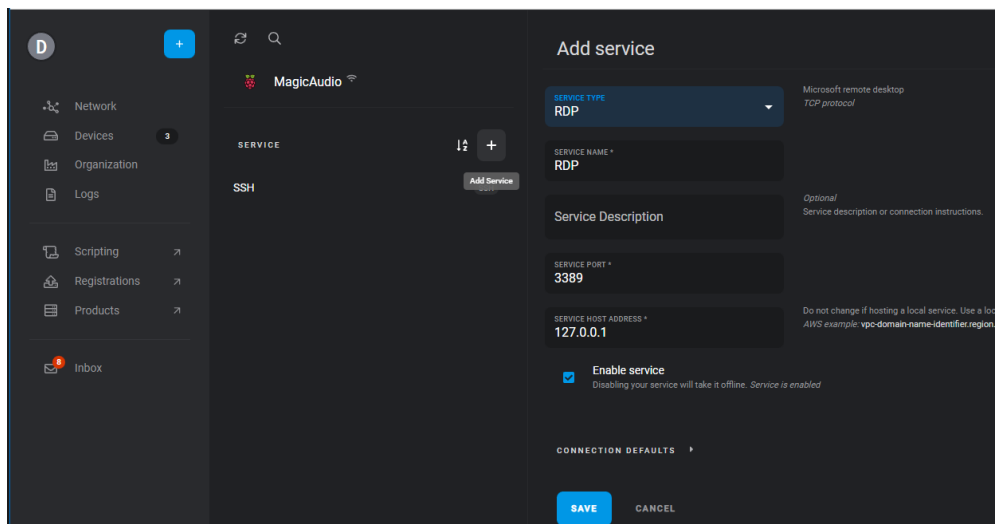
3. Rename it as needed.
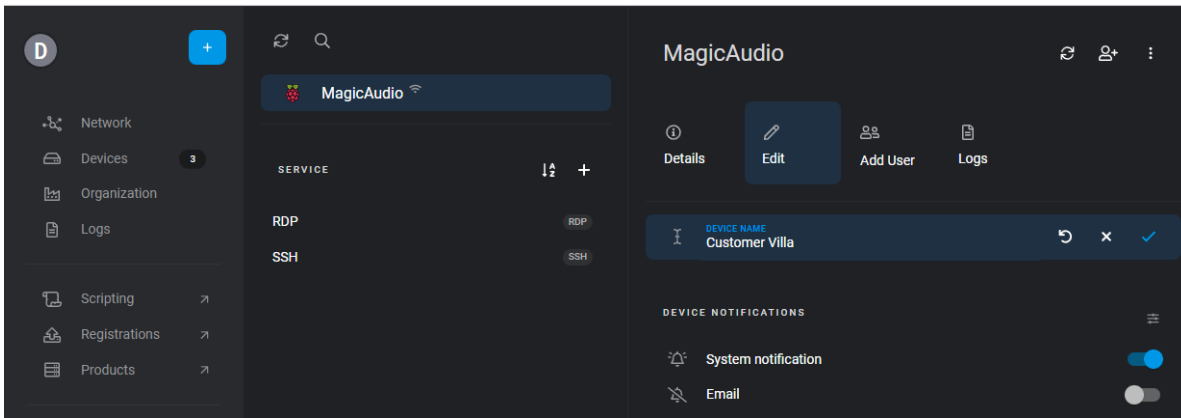
4. To Start a Remote Desktop Connection, Log into your online account, Click on the Desired Service (RDP) Then Click on ADD TO NETWORK + LAUNCH.
5. The RDP program will automatically launch and start the connection to the desktop
6. Login with your device credentials.
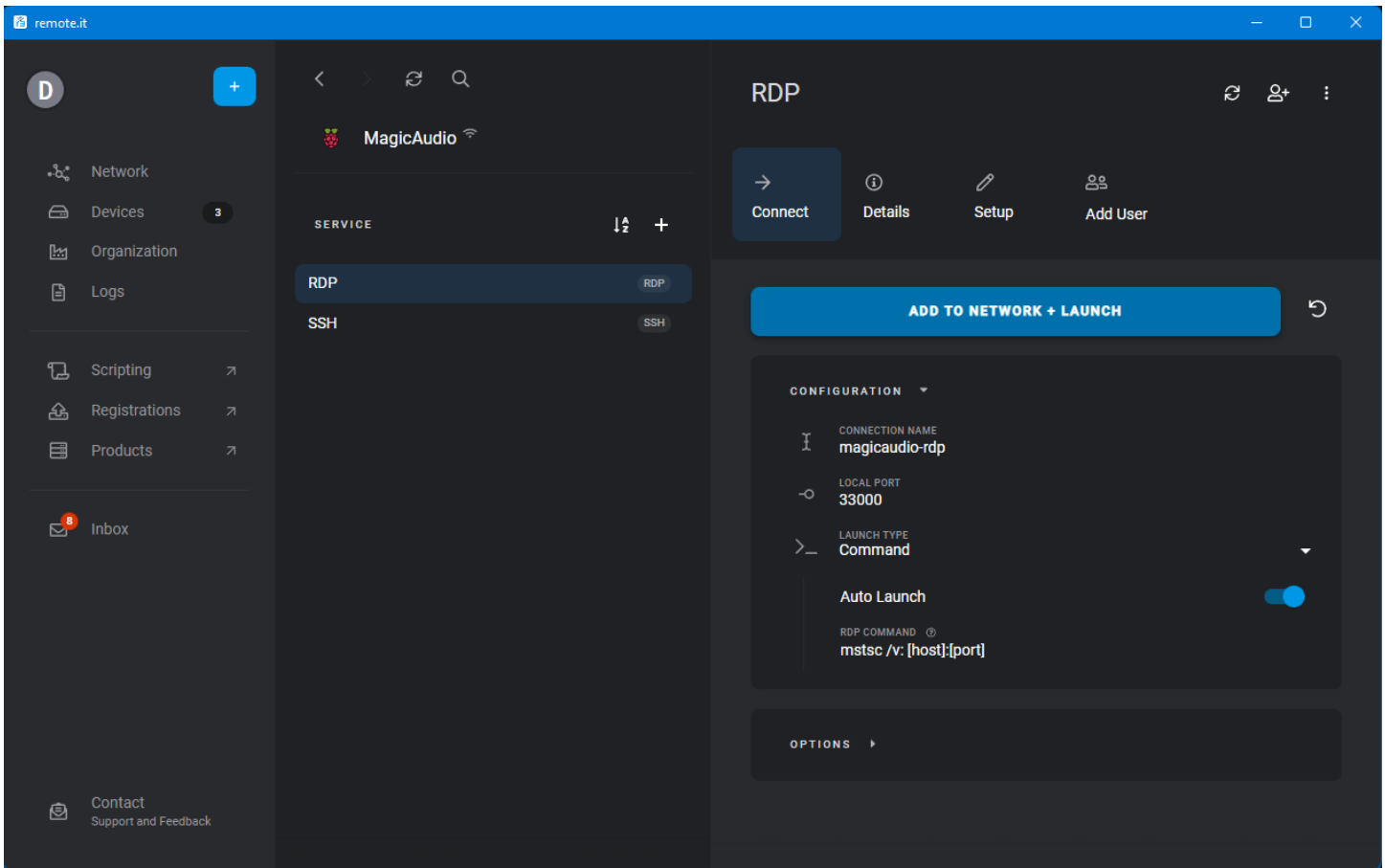
Automated Backup

The system runs a back up every night at 1:30 a.m. During the backup the system will not be available. Backup can take anywhere between 2 minutes – 2 hours. Most backups are less than 5 minutes.

The Back up location is the Innovo Gold USB key plugged into the device.

1. Do NOT unplug this unless instructed by Innovo Support
2. If it is unplugged while the device is still running, plug it in, reboot the device. It is important to reboot the device.

Change the System Password

You can change the default password for the system, but there are several places that passwords need updating if changed from default

1. They must be changed in the Dietpi-Config menu
    a. Launch the dietpi-config menu using a method from above (terminal, or RDP)
    b. Choose 6 : Security Options
    c. Choose Passwords: Change Software and user password
    d. Follow the prompts, click OK, Back, Exit
2. They must be changed in Home Assistant (use the above guide)
3. The password must be changed for File Manager under settings

Forgot Password

If you lose the password associated with the owner account and cannot reset the password, the only way to resolve this is to delete *all* the authentication data. You do this by shutting down Home Assistant and deleting the following files from the .storage/ folder in your configuration folder:

- auth
- auth_provider.homeassistant
- onboarding
- hassio
- cloud

To do this,

1. Login to the DietPi-Dashboard by doing one of the following
    A. Use RDP to connect to the desktop then launch the web browser and Click on the Dashboard App
    B. Log in to Dashboard App directly from a LAN web browser
        I. You can access it from http://magiccube.local or http://magicpro.local or http://ip.address.of.magic
2. Click on File Manager in the left Pane.
3. Click on the \ on top to get the root directories
4. Click on the mnt folder→ dietpi_userdata →homeassistant→.storage (this is a hidden directory)
    A. You might have to click on the eye icon on the right side to show hidden files
5. Delete the files listed above. Not all might be present.
6. Restart the device and start the onboarding process again.

RESETTING HOME ASSISTANT

In case you need to reset Home Assistant, to recover password or to move locations of device, go the web interface of the device and click on the RESET HOME ASSISTANT Link. Reset takes about 30 seconds and doesn't require a reboot

<div style="background-color:#c0c0c0; padding:20px;">

HOME ASSISTANT	ADMIN DASHBOARD	FILE MANAGER

To RESET HOME ASSISTANT

</div>

TROUBLESHOOTING METHODS

Issue: Browser does not give Advanced Option to open private SSL sites.

Try: In Chrome Follow the instructions on this page to import the SSL certificate

https://peacocksoftware.com/blog/make-chrome-auto-accept-your-self-signed-certificate

In Firefox

Go to Settings or Preferences→Privacy and Security→Certificates→View Certificates → Serves →Add Security Exception →Get Certificate→Confirm Security Exception →Reload the Home Assistant Web UI
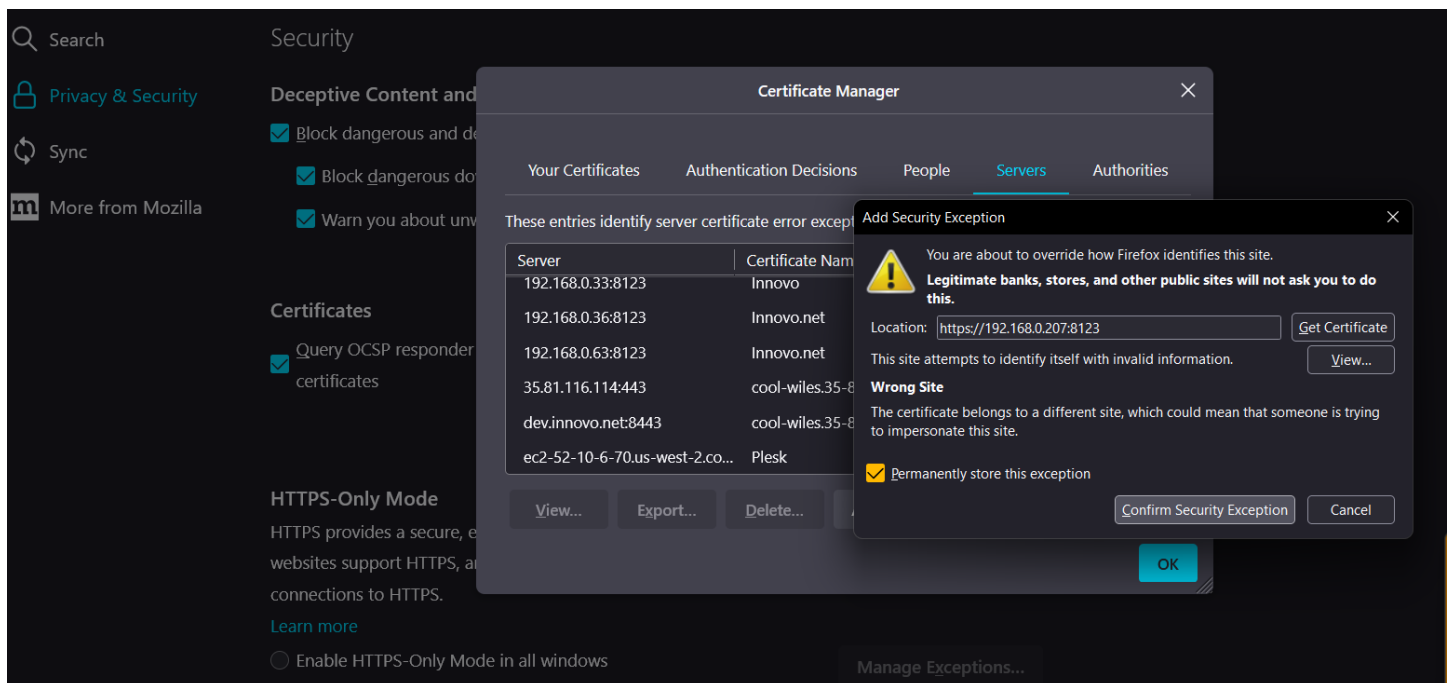
Issue: You receive an error message after entering the username / password and after hitting Detect on the Location page

Solution: Click Reload on the web browser and continue. This doesn't not affect the final install.

Issue: You don't have control.

Solution: Reboot Elan Controller, Reboot Magic Device. Wait 3 minutes for full startup. Try again.

SETTING STATIC IP ADDRESS

Access the Admin Dashboard then click on Terminal on the left side.

1. From terminal type: dietpi-config [Enter]
2. Use the up /down / left / right / space bar to navigate and select
3. Select No 7 : Network Options: Adapters, then use the keyboard to navigate to OK
4. Select Ethernet then OK

```
┤ DietPi-Config ├
l)

        1  : Display Options
        2  : Audio Options
        3  : Performance Options
        4  : Advanced Options
        5  : Language/Regional Options
        6  : Security Options
        7  : Network Options: Adapters
        8  : Network Options: Misc
        9  : AutoStart Options
        10 : Tools


   <Ok>                              <Exit>
```

```
┤ DietPi-Config ├
ange:

                    ●─ Adapter Options ──────────●
        Ethernet : Available | [On] | Connected
        WiFi     : Not Found | [Off] | Disconnected
                    ●─ Additional Options ───────●
        IPv6     : [On]
        Proxy    : [Off]
        Test     : Run internet connection test


   <Ok>                              <Back>
```
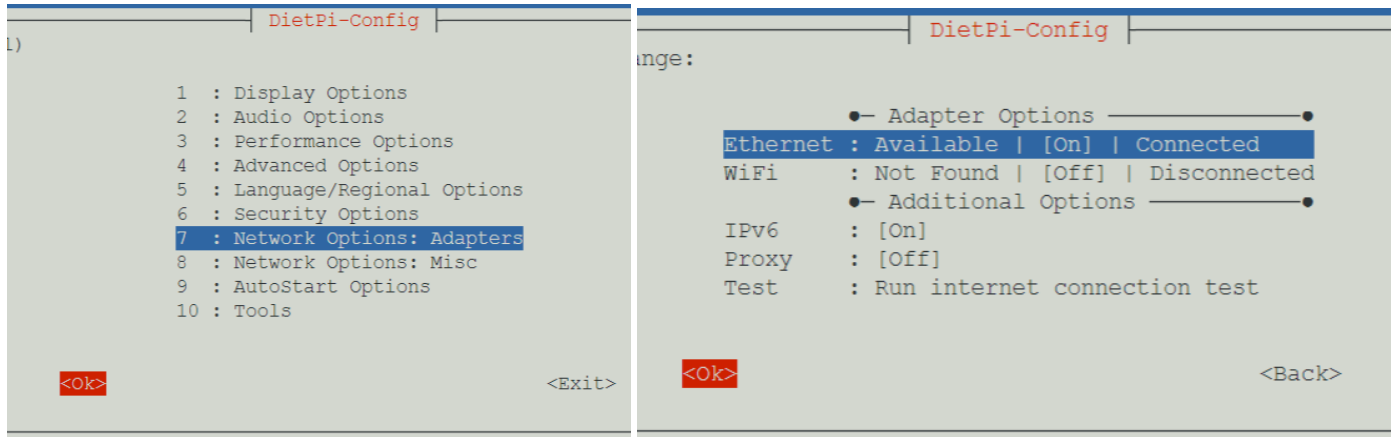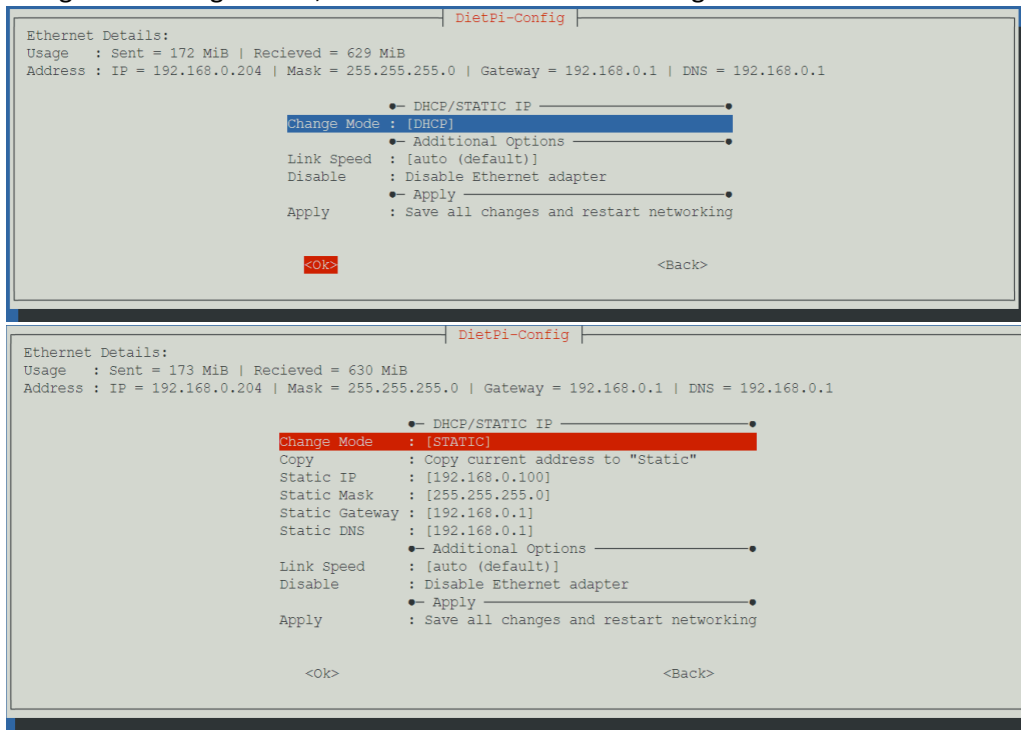
5. Navigate to Change Mode, then Enter. The field will change to STATIC.

```
┤ DietPi-Config ├
Ethernet Details:
Usage    : Sent = 172 MiB | Recieved = 629 MiB
Address : IP = 192.168.0.204 | Mask = 255.255.255.0 | Gateway = 192.168.0.1 | DNS = 192.168.0.1
                    ●─ DHCP/STATIC IP ───────────●
        Change Mode : [DHCP]
                    ●─ Additional Options ───────●
        Link Speed  : [auto (default)]
        Disable     : Disable Ethernet adapter
                    ●─ Apply ────────────────────●
        Apply       : Save all changes and restart networking


        <Ok>                          <Back>
```

```
┤ DietPi-Config ├
Ethernet Details:
Usage    : Sent = 173 MiB | Recieved = 630 MiB
Address : IP = 192.168.0.204 | Mask = 255.255.255.0 | Gateway = 192.168.0.1 | DNS = 192.168.0.1
                    ●─ DHCP/STATIC IP ───────────●
        Change Mode    : [STATIC]
        Copy           : Copy current address to "Static"
        Static IP      : [192.168.0.100]
        Static Mask    : [255.255.255.0]
        Static Gateway : [192.168.0.1]
        Static DNS     : [192.168.0.1]
                    ●─ Additional Options ───────●
        Link Speed     : [auto (default)]
        Disable        : Disable Ethernet adapter
                    ●─ Apply ────────────────────●
        Apply          : Save all changes and restart networking


        <Ok>                          <Back>
```

6. Navigate to the appropriate filed and enter the information for your IP address
7. Navigate to Apply, then OK
8. Back out all the way, Exit, then exit OK. Reboot the device.
9. If you forget the IP address and need to reset the network on the device, contact Support@innovo.net

Re-FLASHING THE MAGIC Cube PRO with a fresh OS Image

When instructed by Innovo Support to flash the eMMC card, you will need the little MicroSD adapter that was shipped with the unit. Remove the 4 screws on the bottom of the device. Using a flat tip screw driver gently inert under the eMMC card and pop up. To reattach, align the sockets and press down gently till you feel it grip.

Attach the SD Card to the Micro SD adapter and then insert it into a microSD USB adapter or directly into the PC if it has an SD card port built in.

Proceed to Flash the Device as per the instructions of Support.

RE-FLASHING THE MAGIC Cube

Remove SD card, by pushing down on the spring loaded mechanism. Insert the SD card into a PC using the appropriate adapter.

Proceed to Flash the Device as per the instructions of Support.

NOTE ABOUT DIETPI

Innovo's Magic Devices uses DietPi as a root OS. DietPi is a robust minimalist OS that uses little resources and has excellent performance.

While we use a stock DietPi installation, we do customize the OS to be ready to go on delivery. We do add special scripts and programs to make the device very compatible with Elan.

If the device fails or you need support, do not flash with a stock image from the DietPi website. Please contact support@innovo.net for recovery instructions. We fully support the device and it's OS.

DietPi comes with an extensive user manual. If you need any more advanced topics about the installed software, use the following links for details

https://dietpi.com/docs/software/

https://dietpi.com/forum/