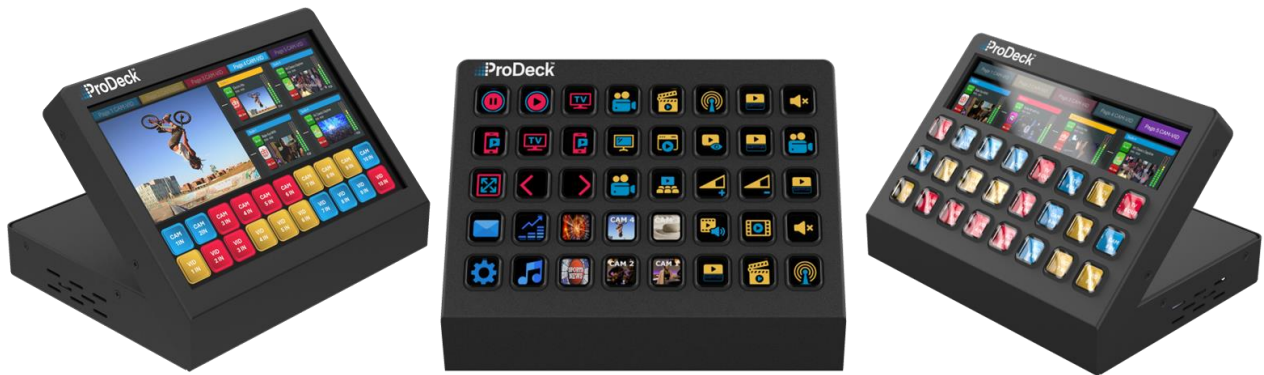


Project name	ProDeck®	
Document type	Setup Guide	
Customer	N/A	
Document revision	A	Date: 08/08/2024



Internal Approvals

Product Mgr	Doc. Control	Electr. Eng.
Bazile Peter	Filip Kaczorowski	Filip Kaczorowski
Date: 08/08/2024	Date: 08/08/2024	Date: 08/08/2024

Revision Record

Rev.	Date	Page	Chapt.	Comment	ECR no.
A	08/08/24	--	--	Initial Release	

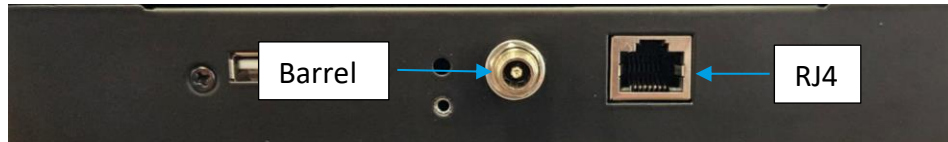
Table of Contents

1.0 FIRST STEPS	4
2.0 ACCESSING THE DESKTOP	4
3.0 DEMO APPLICATION	4
3.1 Linux autostart script	4
3.2 Windows autostart	4
4.0 VNC	6
4.1 Installation	6
4.2 Connecting to the target	7
4.3 Finding the IP of a ProDeck	8
4.3.1 Router/Switch access	8
4.3.2 Terminal	8
4.3.3 In-App	9
4.4 Using the viewer	10
4.5 Disabling VNC	11
4.5.1 Linux OS	11
4.5.2 Windows OS	12
5.0 BUTTON LAYOUT	14
5.1 40 Buttons version	15
5.2 24 Button version	16
6.0 FUTURE SUPPORT	17

1.0 First Steps

The ProDeck® has two power sources at the back of it and its down to the user which one to use. Available power ports are:

- 12V 2A lockable barrel connector
- 30W PoE RJ45 (Please ensure the power sourcing equipment, e.g switch, can supply this)



The internal electronics allow for both to be connected at the same time seamlessly switching between them if one becomes unavailable.

After the power on sequence the ProDeck® will boot into the operating system showing the demo software if available.

2.0 Accessing the desktop

The ProDeck® will be supplied with a desktop environment for easy setup and development. This allows the user to test various software options with minimal setup required as the ProDeck® will act as a standard desktop computer allowing for installation of any compatible third-party software.

If the unit starts up with a demo software plug in a keyboard or access via VNC and press **Alt+F4** to shut down the demo application and reveal the desktop.

From that point all the features of the unit will be accessible.

3.0 Demo application

If a demo software is available, it will autostart on boot to demonstrate the features of the ProDeck®. While it is nice for quick evaluation it might not necessarily be useful when developing for the ProDeck®. Here are the ways to stop the demo application from starting.

3.1 Linux autostart script

The autostart script for Linux operating system is located here:

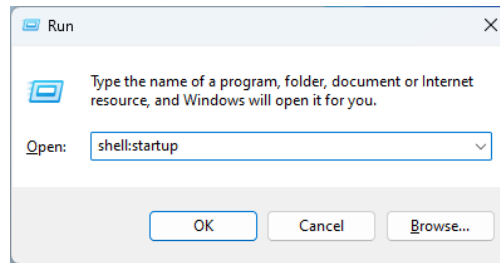
```
/etc/xdg/autostart/autostartscript.desktop
```

The script points to the location of the demo application and starts it after logging in. To stop it simply remove the script with root privileges.

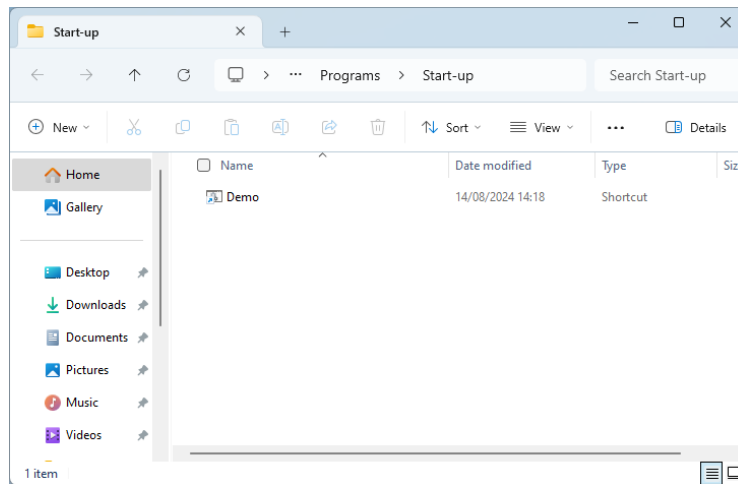
3.2 Windows autostart

The demo on Windows operating system will have a shortcut located in the autostart folder, the folder can be accessed by starting the Run command "**Windows key + r**" and typing in the command

```
shell:startup
```



To stop the application from running simply delete the shortcut from the folder that was opened.



4.0 VNC

VNC (Virtual Network Computing) needs a host server and a client computer that will make the connection. Essentially the client sends out the mouse movement and keystrokes to the server machine which in return sends the image of the screen through a network connection.


VNC is provided under GPL licence allowing everyone to work on it and improve it. This has sprung up multiple clients and other pieces of software that allow for viewing VNC servers. The most popular ones would be:

- TightVNC - [TightVNC: VNC-Compatible Free Remote Desktop Software](#)
- Real VNC - [RealVNC® - Remote access software for desktop and mobile | RealVNC](#)

Both offer an open-source client with few differences in the user interface. For this guide TightVNC will be used.

4.1 Installation

Firstly, download the installer file onto your machine by going to the link and selecting the appropriate option for your host machine:



Download TightVNC

Free, Lightweight, Fast and Reliable Remote Desktop Software

Highlights:

- [MightyViewer 1.4.4](#)

TightVNC:

- [Home](#)
- [News](#)
- [Download](#)
- [Change Log](#)
- [Report Bugs](#)
- [F.A.Q.](#)

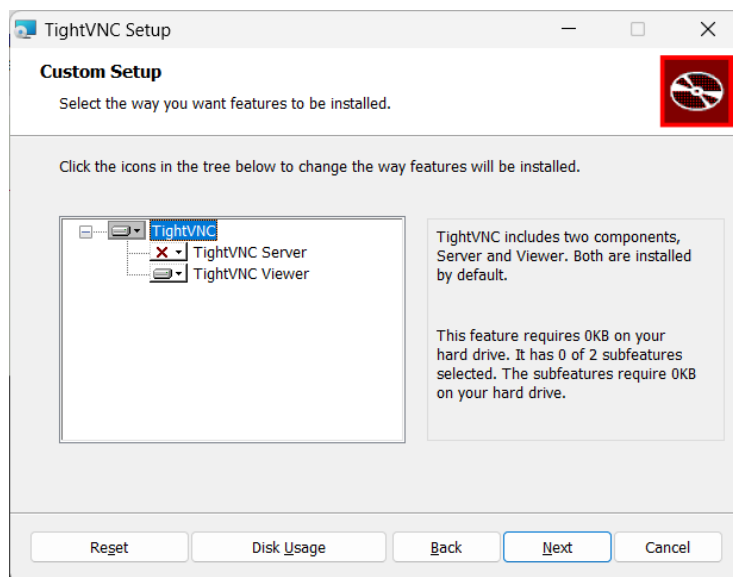
Download TightVNC for Windows (Version 2.8.84)

[TightVNC 2.8.84](#) runs on Windows XP and all later versions (see [more details here](#)).

- [Installer for Windows \(64-bit\)](#) (2,531,328 bytes)
- [Installer for Windows \(32-bit\)](#) (2,101,248 bytes)
- [download the GPL-licensed C++ source code](#) (3,017,711 bytes)

See [What's New](#) in TightVNC 2.8.84 and all previous versions.

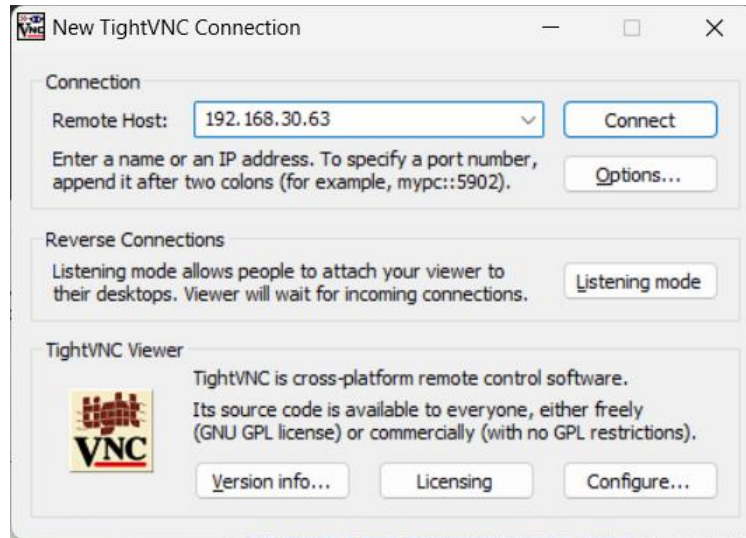
During the installation please only select the Viewer to be installed – the server is only used to connect to the host machine.



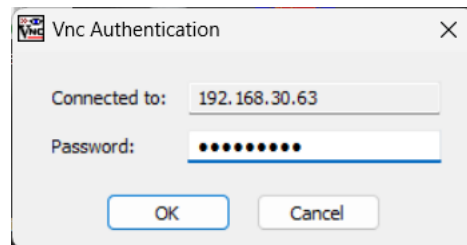
4.2 Connecting to the target

After installation, to connect to the device start up the TightVNC Viewer software and type in the IP address of the machine that you'd like to connect to into the "Remote Host:" window and then press "Connect"

Please make sure that the client and the host machines are connected on the same network.



The software will then ask for password, by default password its: *densitron*



4.3 Finding the IP of a ProDeck

The IP address is not static and will change depending on the network its connected to. Here are some ways to find out the IP address of a unit running VNC server.

4.3.1 Router/Switch access

Networking will be done through a switch or a router that will allow multiple devices to be connected at the same time.

An easy way to check what's the IP address of connected devices is accessing the Router/Switch and checking the list of connected devices

DHCP Clients List

This page displays information of all DHCP clients on the network.

ID	Client Name	MAC Address	Assigned IP	Lease Time
1			192.168.0.108	01:57:26
2			192.168.0.100	01:55:03
3			192.168.0.101	01:25:20
4			192.168.0.109	01:32:46
5			192.168.0.105	01:43:04
6			192.168.0.114	01:47:30

4.3.2 Terminal

This method requires a physical access to the device with a keyboard. Open the terminal (Alt+T) and type in the following command:

ip address

This will print out the following message with the enp1s0 being the connection on the ethernet cable.

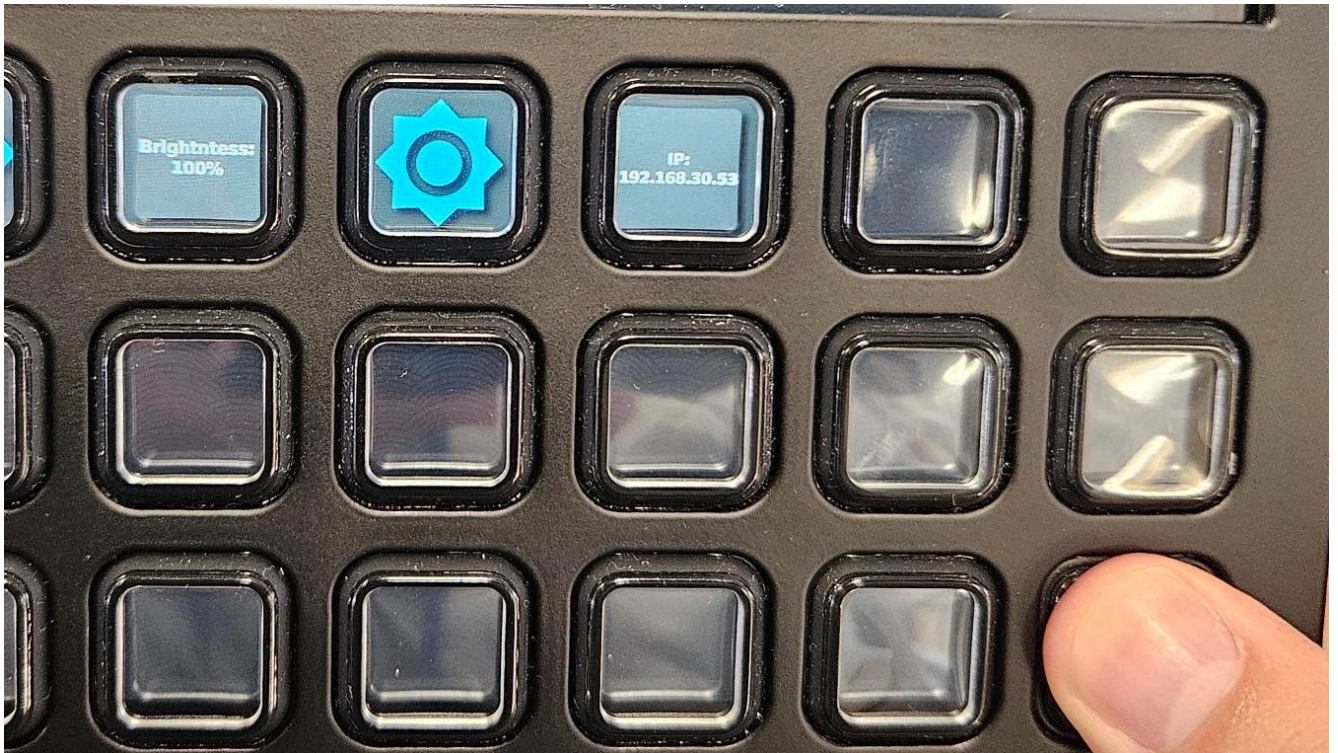
```
densitron@densitron-upadln01:~$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
   link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
   inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
   inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp1s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
   link/ether 00:14:c6:0d:79:f4 brd ff:ff:ff:ff:ff:ff
   inet 192.168.30.53/24 brd 192.168.30.255 scope global dynamic noprefixroute enp1s0
       valid_lft 687602sec preferred_lft 687602sec
   inet6 fe80::1f94:84fb:eb63:f000/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
densitron@densitron-upadln01:~$
```

In this case the IP address is 192.168.30.53

4.3.3 In-App

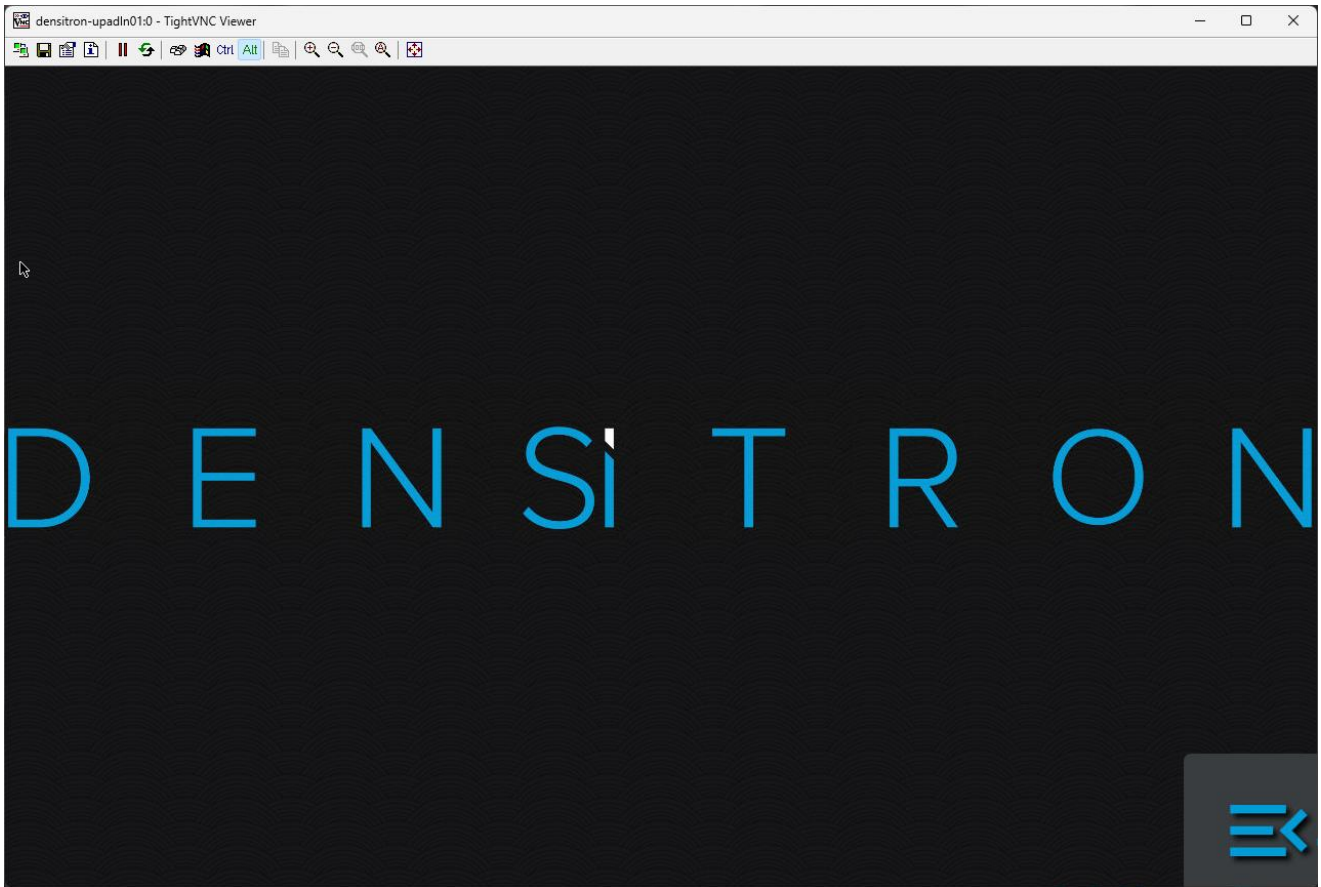
The IP address is not necessarily confidential information about a device. Often times the application running on a product will display that information in a settings page.

For example, pressing the menu button and holding it down on a ProDeck® will bring up the setting window in the demo that can be used to adjust the brightness and it also displays the IP address.



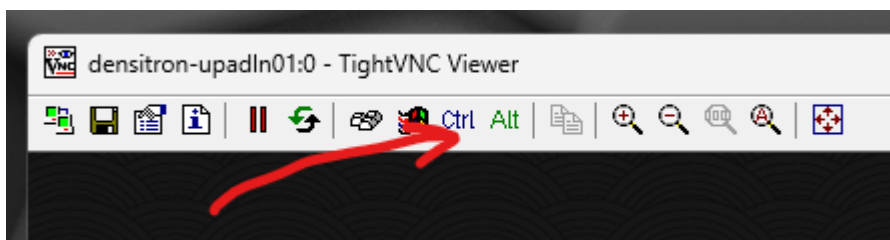
4.4 Using the viewer

If everything is set up correctly a window will appear showing what's displayed on the host machine.

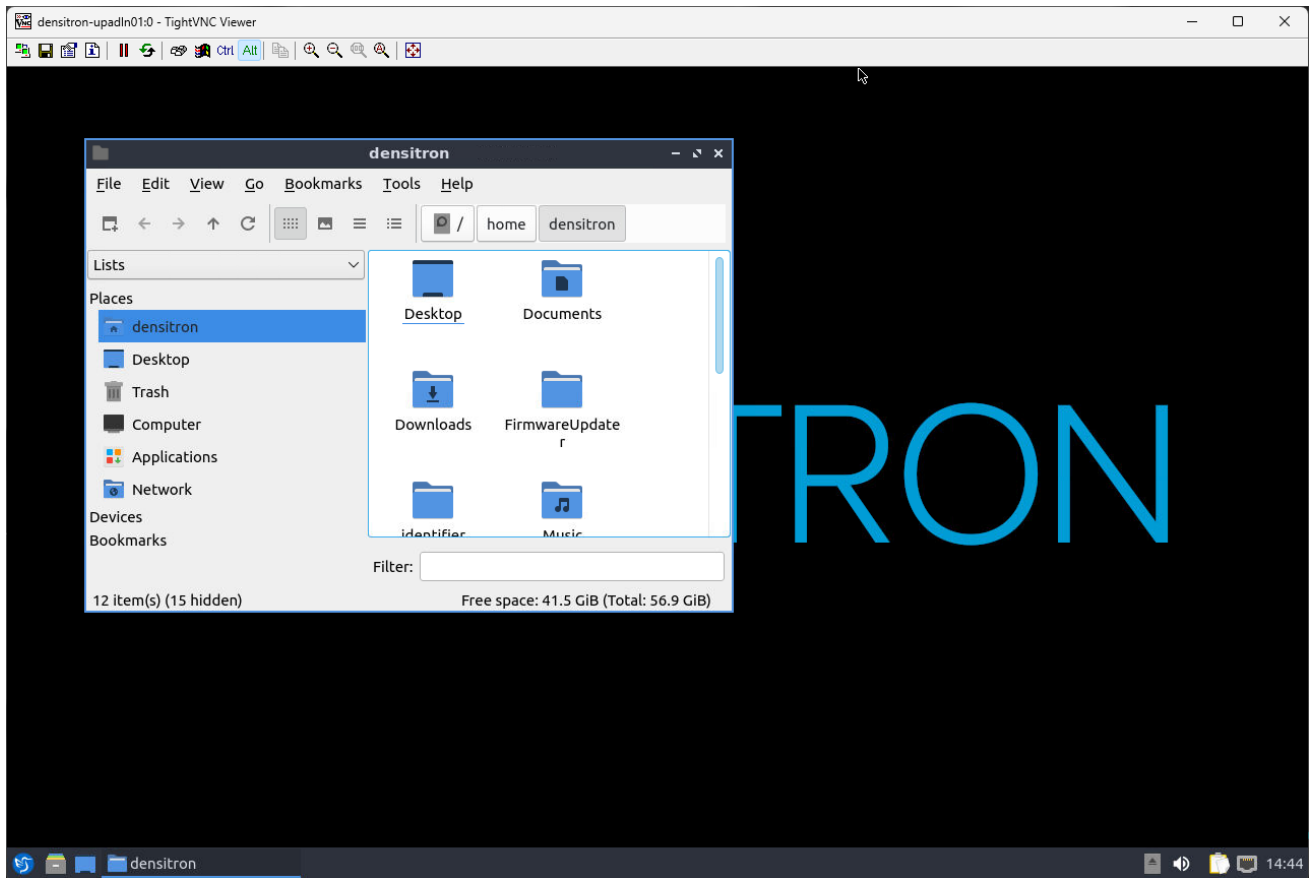


Moving the mouse over the window will also move the cursor on the unit, clicking the mouse and typing on a keyboard will have the same effect as long as the window is active.

Shutting down the demo application will require an ALT+F4 command that can be done by selecting the Alt button on the top bar and pressing F4 on the keyboard (Otherwise it can shut down the VNC)



This will show up the desktop environment.



To stop the connection simply close the window.

4.5 Disabling VNC

The VNC software allows for easy connection to the networked device, but it also allows anyone knowing the IP and the password to connect. So, it is advisable to change the default password or disabling the VNC entirely when not in use.

4.5.1 Linux OS

4.5.1.1 Changing password

Firstly log into the machine's terminal, either SSH, mouse and keyboard or even the VNC itself. And using the following command change the password:

```
sudo x11vnc -storepasswd
```

followed by the user password (Not VNC password) which is densitron by default.

```
densitron@densitron-upadln01:~$ sudo x11vnc -storepasswd
[sudo] password for densitron:
Enter VNC password:
Verify password:
Write password to /root/.vnc/passwd? [y]/n y
Password written to: /root/.vnc/passwd
densitron@densitron-upadln01:~$
```

And then enter the new password saving it into that folder. The subsequent logins will require the new software.

4.5.1.2 Stopping the VNC service

After the device is set up for deployment and will not need any VNC access disabling the service is advised to reduce its background CPU usage.

To disable it enter the following command in the terminal:

```
sudo systemctl disable x11vnc.service
```

Followed by the user password (densitron by default)

```
densitron@densitron-upadln01:~$ sudo systemctl disable x11vnc.service
[sudo] password for densitron:
Removed /etc/systemd/system/multi-user.target.wants/x11vnc.service.
densitron@densitron-upadln01:~$
```

On the next reboot the VNC service will not start up.

To enable the service again just type in the command with the disable changed to enable.

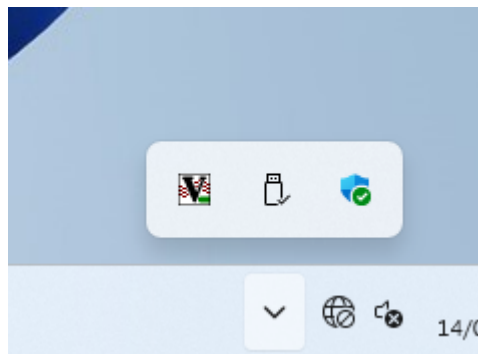
```
sudo systemctl enable x11vnc.service
```

The service will be started and accessible on the next boot.

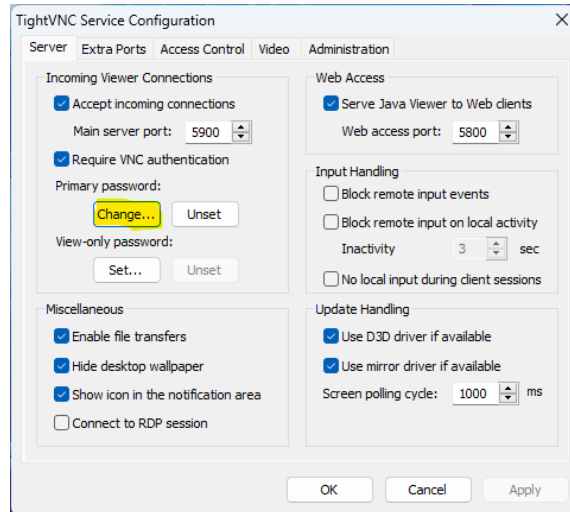
4.5.2 Windows OS

4.5.2.1 Changing password

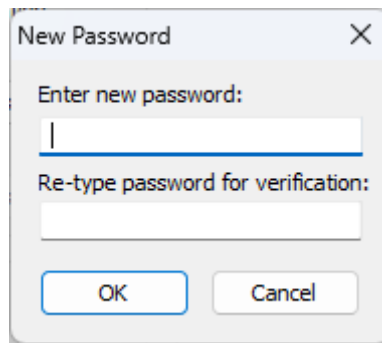
Password change will require opening the TightVNC configuration window that can be accessed from the tray menu.



Click on the change password button



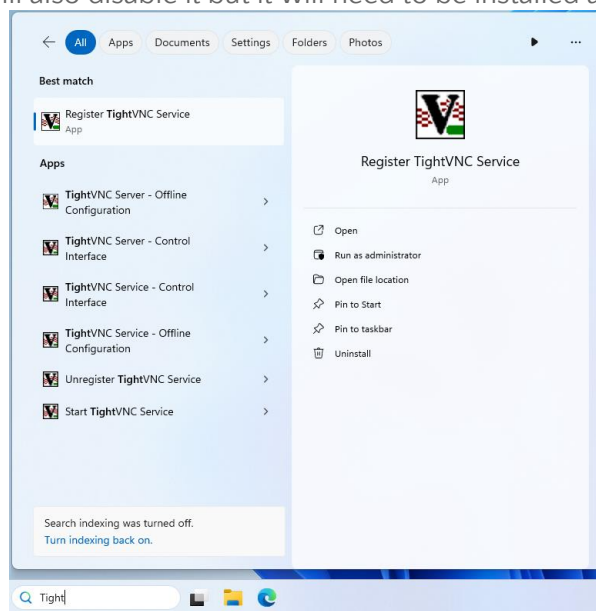
And type in the new password.



4.5.2.2 Stopping the service

To stop the service simply start the “Unregister TightVNC Service” application that can be found in the start menu.

Uninstalling the software will also disable it but it will need to be installed again if required.



Similarly, to turn it back on run the “Register TightVNC Service” application

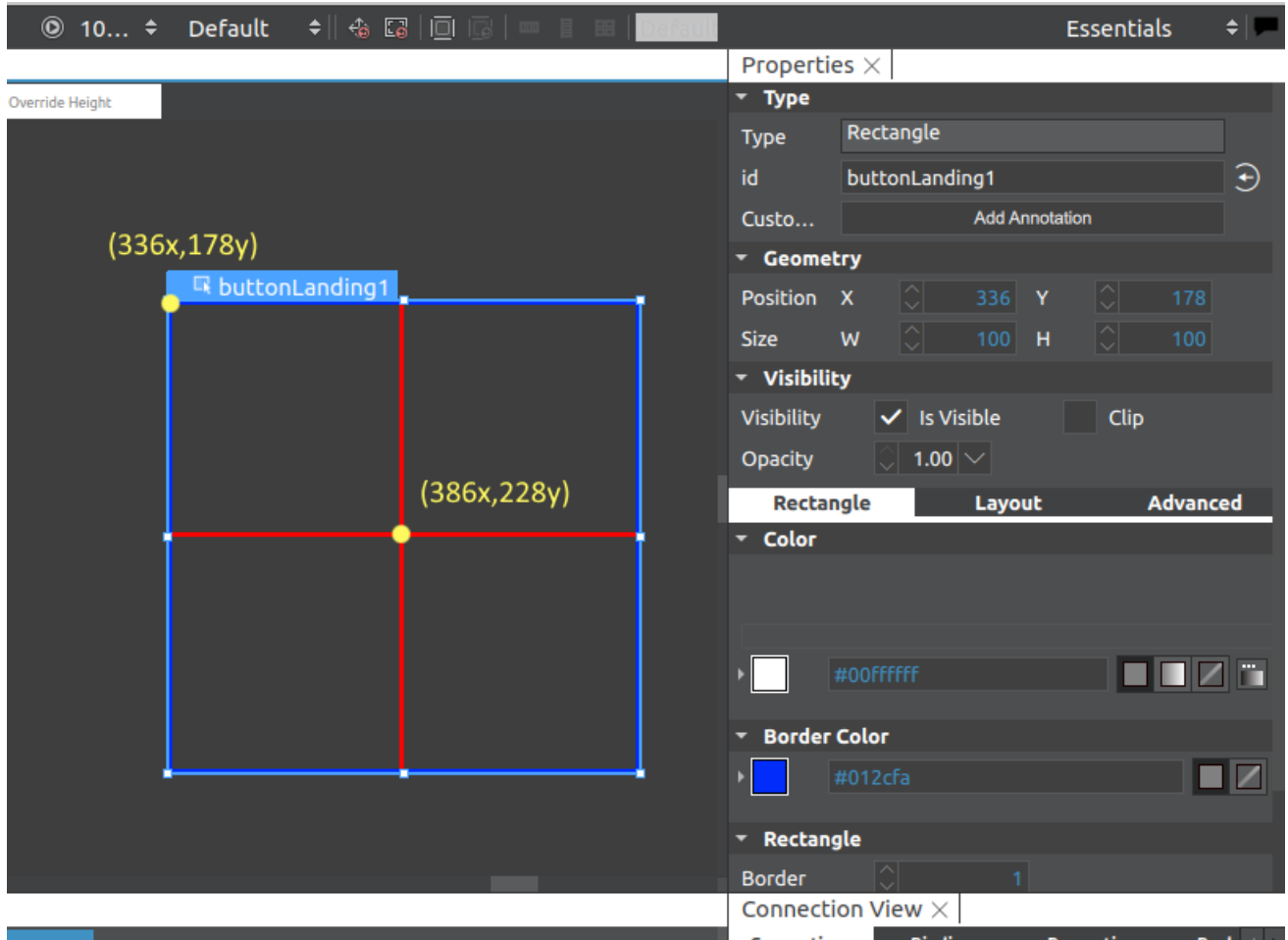
5.0 Button Layout

This layout is only valid for the samples which have serial number starting with **S510**

X-Y coordinates of the top left corner of the button's visible area when looking at it at 90°

The buttons visible area is 100x100 pixels so keep the text to that boundary

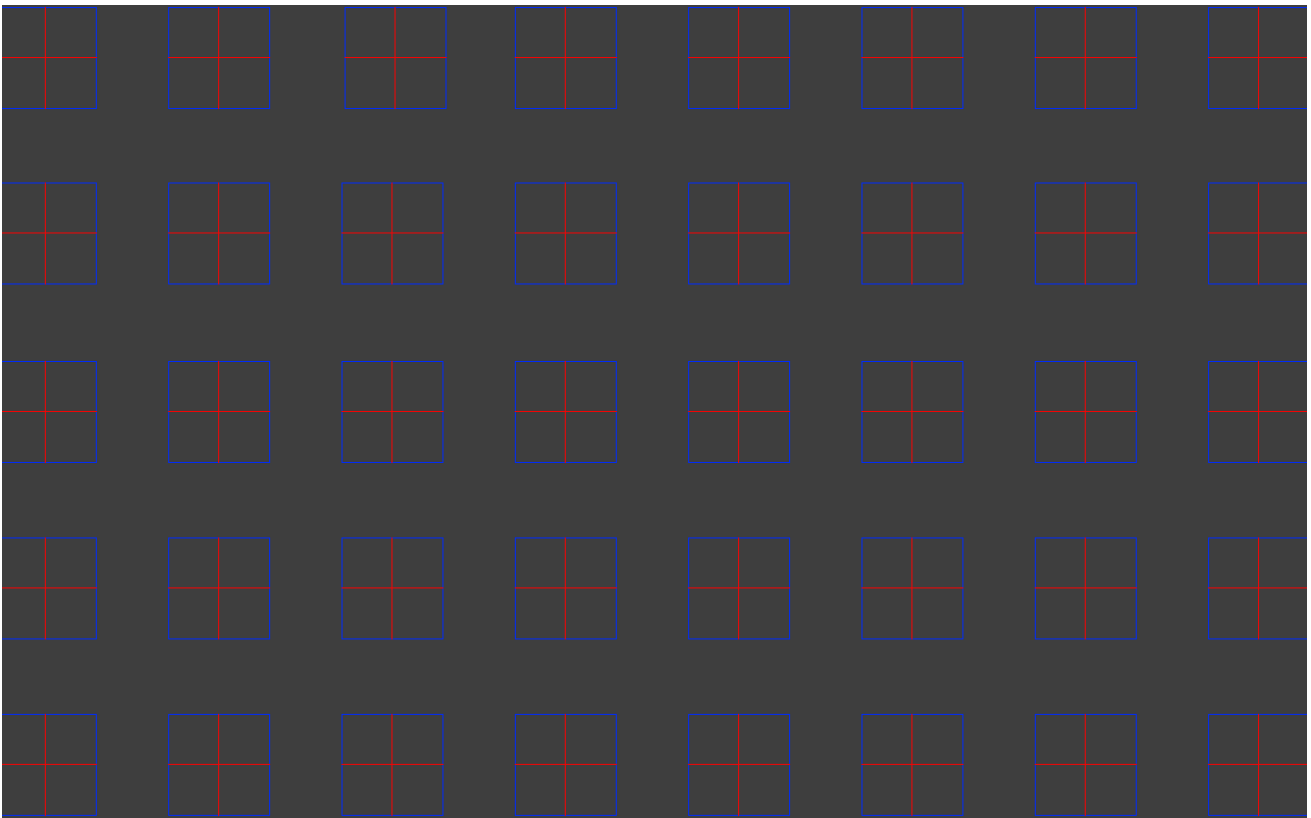
Extend graphics to 130x130 to still show the image when viewed at an angle



5.1 40 Buttons version

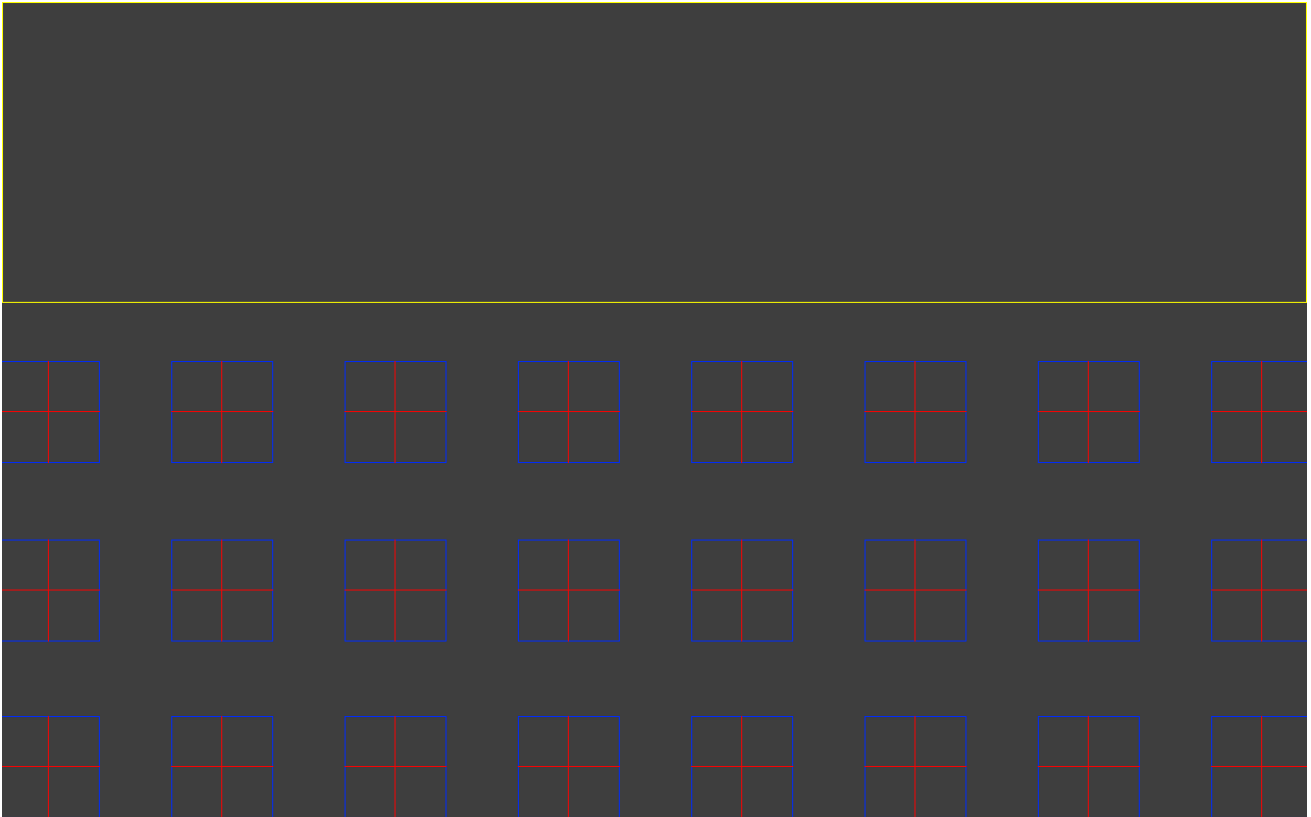
	1	2	3	4	5	6	7	8
Ax	-7	163	333	503	673	843	1013	1183
Ay	2	2	2	2	2	2	2	2
Bx	-7	163	333	503	673	843	1013	1183
By	179	179	179	179	179	179	179	179
Cx	-7	163	333	503	673	843	1013	1183
Cy	349	349	349	349	349	349	349	349
Dx	-7	163	333	503	673	843	1013	1183
Dy	522	522	522	522	522	522	522	522
Ex	-7	163	333	503	673	843	1013	1183
Ey	695	695	695	695	695	695	695	695

The top left-hand corner will be is the given coordinate so to calculate the middle +50 to both values



5.2 24 Button version

	1	2	3	4	5	6	7	8
Ax	0x,0y							
Ay								
Bx								
By								1280x,295y
Cx	-4	166	336	506	676	846	1016	1186
Cy	352	352	352	352	352	352	352	352
Dx	-4	166	336	506	676	846	1016	1186
Dy	527	527	527	527	527	527	527	527
Ex	-4	166	336	506	676	846	1016	1186
Ey	700	700	700	700	700	700	700	700



The top window is 1280x295 pixels

6.0 Future support

If you have any further questions regarding setting up the product or any other queries, please don't hesitate to contact Densitron support or your local Densitron sales or Business development manager. We will be happy to support you.

support@densitron.com

For any other Densitron products please visit:

[Densitron.com](https://www.densitron.com)