

Spotbox / ANT-37000A set-up / trouble shooting guide

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Document info

Version	date	author	Comments
0.1	28-Jan-21	David M	On-going draft
0.1a	28-Jan-21	David M	ODM use release
0.2	10-Jun-21	David M	ODM manually add camera
0.3	14-Jun-21	David M	Additional ODM info
0.4	22-Jun-21	David M	Layout and typo correction

1. Setup

1.1. The Basics

1.1.1. Correct power up

For the Spotbox to power up correctly it needs to be connected to a HDMI monitor, Ethernet port and then have the power applied, see Figure 1 for connector locations.

Figure 1 : Spotbox connectors – rear panel

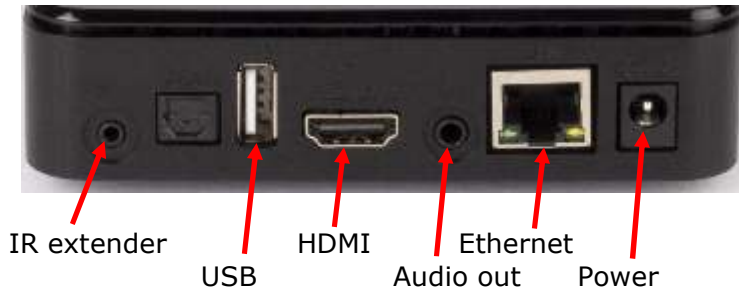


Figure 2 : Spotbox front panel

On newer Spotboxes the Antrica logo is also shown in the front located approximately here



At power on the LED, as location indicated in Figure 2, it is a bluey purple colour for about 10 seconds.

When the spotbox is booted, the LED is blinking red. The pattern is 2 blinks and then a missed blink then repeats, as indicated in Figure 3, where the red dash is the LED and black dash is a "missed" blink.

Figure 3 : front LED normal blinking pattern

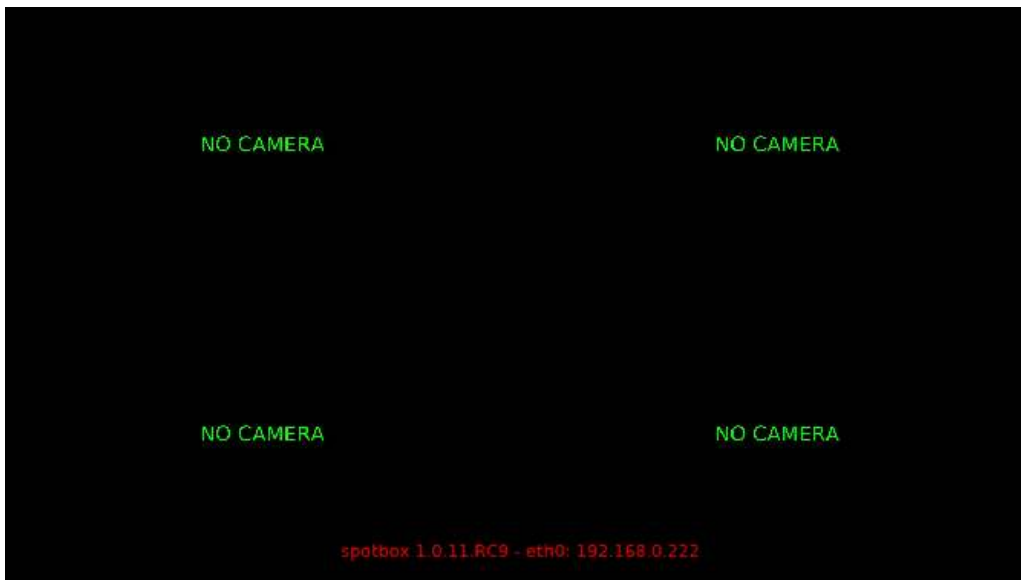


At power on the "splash" screen is so for a 1 second or so, as shown in Figure 4. Once powered up, the chosen, (or default) grid mode will be shown. In Figure 5, the default grid mode is shown.

Figure 4 : Monitor start-up screen



Figure 5 : default start screen



1.1.2. What is the IP address?

The default IP address is 192.168.0.222. This is the address for a new out-of-the-box unit or if the Spotbox has been reset.

The IP address can be seen on the bottom of the HDMI output for around 10 to 20 seconds at power up, as shown at the bottom of Figure 5. In the clearer image shown in Figure 6 the IP address is 192.168.0.222. This information can also be displayed for around 20 seconds if the "menu" button on the remote control is pressed.

Figure 6 : version and IP address – 1.0.11.RC9 & 192.168.0.222



1.1.3. Current code version

The installed code can be seen on the bottom of the HDMI output for around 10 to 20 seconds at power up, as shown at the bottom of Figure 5. In the clearer image is shown in Figure 6, where

the version is 1.0.11.RC9. This information can also be displayed for around 20 seconds if the "menu" button on the remote control is pressed.

From the web interface the code version is located at the bottom of the SYSTEM tab, as shown in Figure 7. In the example shown the version is 1.1.0. The version number is between the words "spotbox" and "- nano2". To access the web interface, see section 1.1.4

Figure 7 : version from Web page

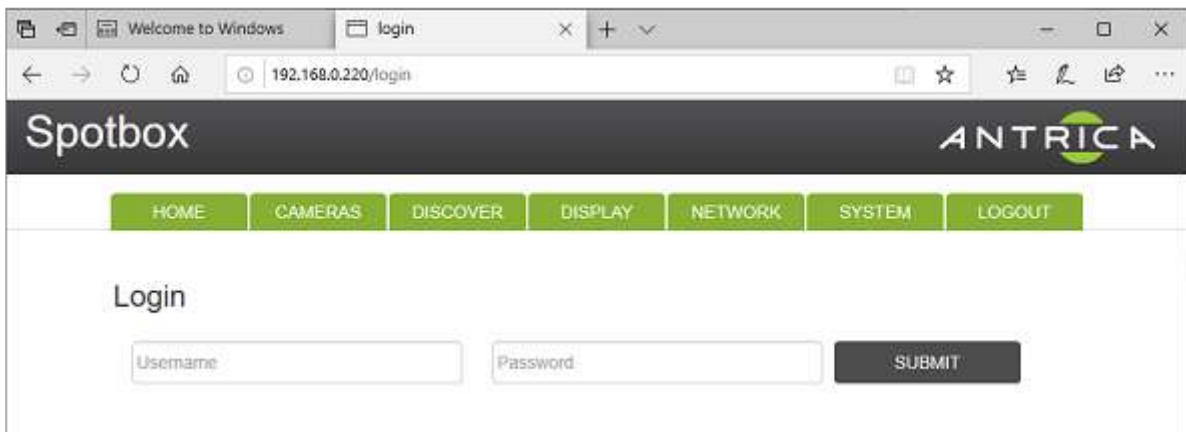


1.1.4. Access web GUI

To ensure the web interface and web pages behave correctly **please use a modern browser** like, Chrome, Firefox, Microsoft Edge or Safari. If Internet Explorer is used then some sections of the web page will not be displayed.

The default IP address is 192.168.0.222 and the default username and password are admin and admin. When the web interface is first connected to, the login page, as shown in Figure 8 is seen.

Figure 8 : Login web page



1.2. Adding an IP video stream

The maximum resolutions for each grid mode is listed in Table 1. If values later than these are used, video may be displayed but the internal processor will become overloaded and some or all videos will start to freeze or not be shown. The failing video is not necessarily the video that is at fault.

Table 1 : Maximum resolutions per viewing mode

Viewing mode	maximum resolution and frame rate
full screen or 1x1	3840 x2160 P30
2x2	1920 x 1080 P30
3x3	1280 x 720 P30
4x4	640 x 480 P30

1.2.1. Adding a RTSP stream

You will need to know the RTSP stream for camera / device. A few examples are listed in Table 3 in "Appendix 1 - Sample RTSP URL's"

The general syntax of a RTSP URL is:

```
rtsp://admin:1234@192.168.0.100:554/video1,
```

they can also be without username and password:

```
rtsp://192.168.0.100:554/video1
```

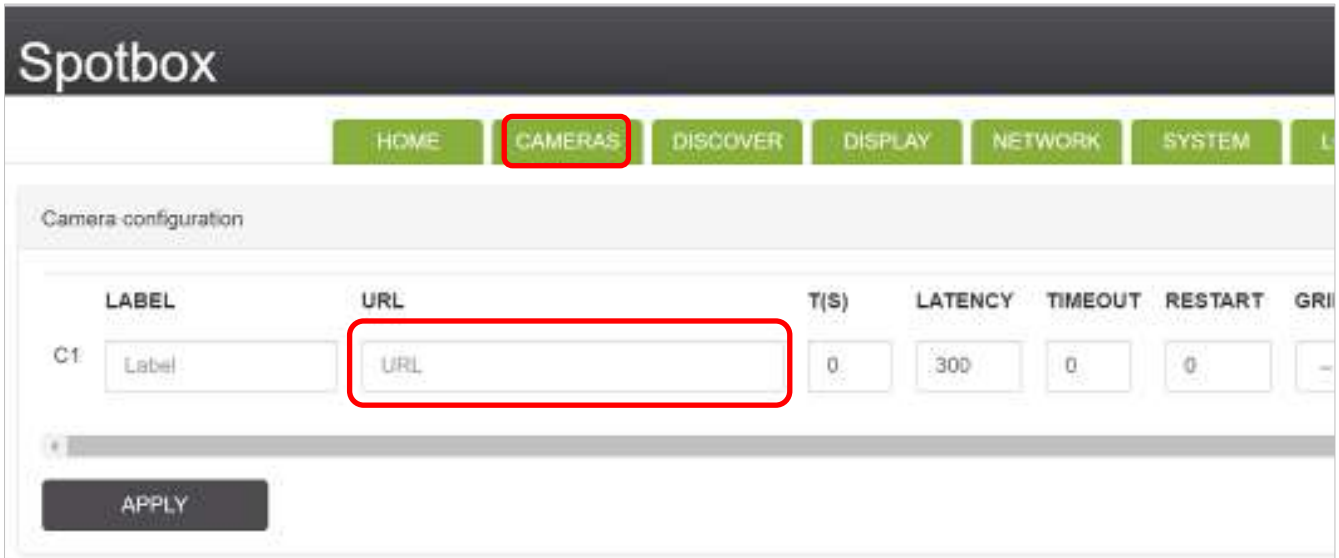
Table 2 : RTSP syntax parameters

Parameters	function
rtsp://	tells decoder to use RTSP protocol
admin	username
:	username / password delimiter
1234	password
@	password / IP address delimiter
192.168.0.100	IP address of camera
:	IP address / RTSP streaming port delimiter
554	RTSP streaming port
/video1	addition parameter required by camera to allow decoder to access stream

Note: If the "/", ":" or "@" symbols are used for either username or password then the ANT-37000A (and other decoders) may not be able to access the stream.

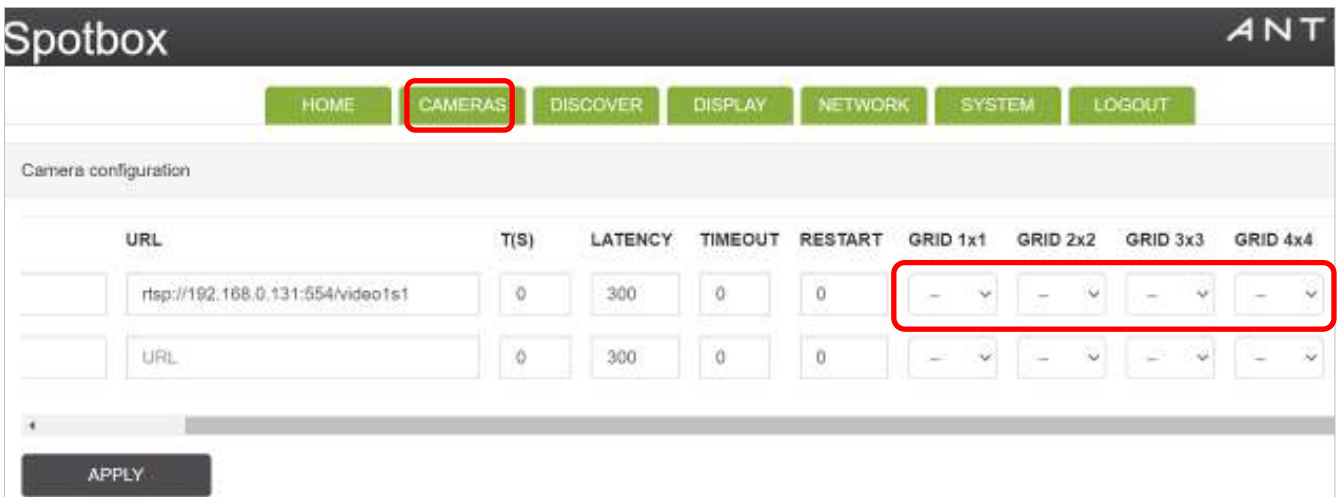
The URL can be manually added, or copy and paste, into the URL field, indicated in Figure 9. Once APPLY is clicked username and password are no longer shown in the web page.

Figure 9 : CAMERAS tab – URL location



The video will not appear on the monitor until you have selected the position with the current grid mode. The section highlighted in Figure 10 is for the position of the video within the screen. The default grid mode of 2x2 has a choice of 1 to 4 positions, As soon as one of the values is selected and APPLY clicked the video will be seen on the screen.

Figure 10 : CAMERAS tab – Grid position selection



1.2.2. Adding a ONVIF stream

1.2.2.1. Auto discovery

Go to the DISCOVER tab and in the "Network Camera" section click "Search", as indicated in Figure 11. The spotbox will discover cameras on the network, as shown in Figure 12. This search may take 10's of seconds. Enter the username and password for a camera then click "Add". The camera is now added to "Cameras" section of the DISCOVER web page, as shown in Figure 15.

If you got the CAMERAS web page the recently added ONVIF camera is show in pink, as show in Figure 13. This indicates that the spotbox is has not correctly communicated with and setup the ONVIF camera.

Figure 11 : DISCOVER tab

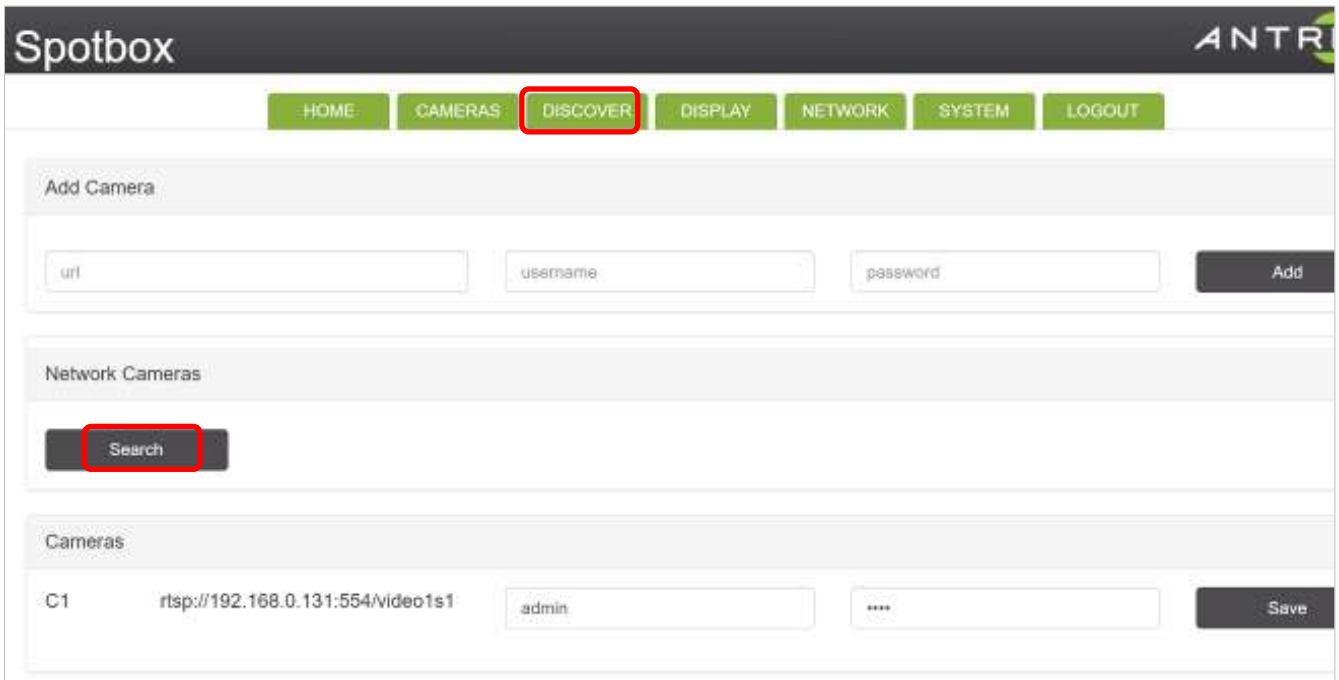


Figure 12 : DISCOVER tab - ONVIF cameras found

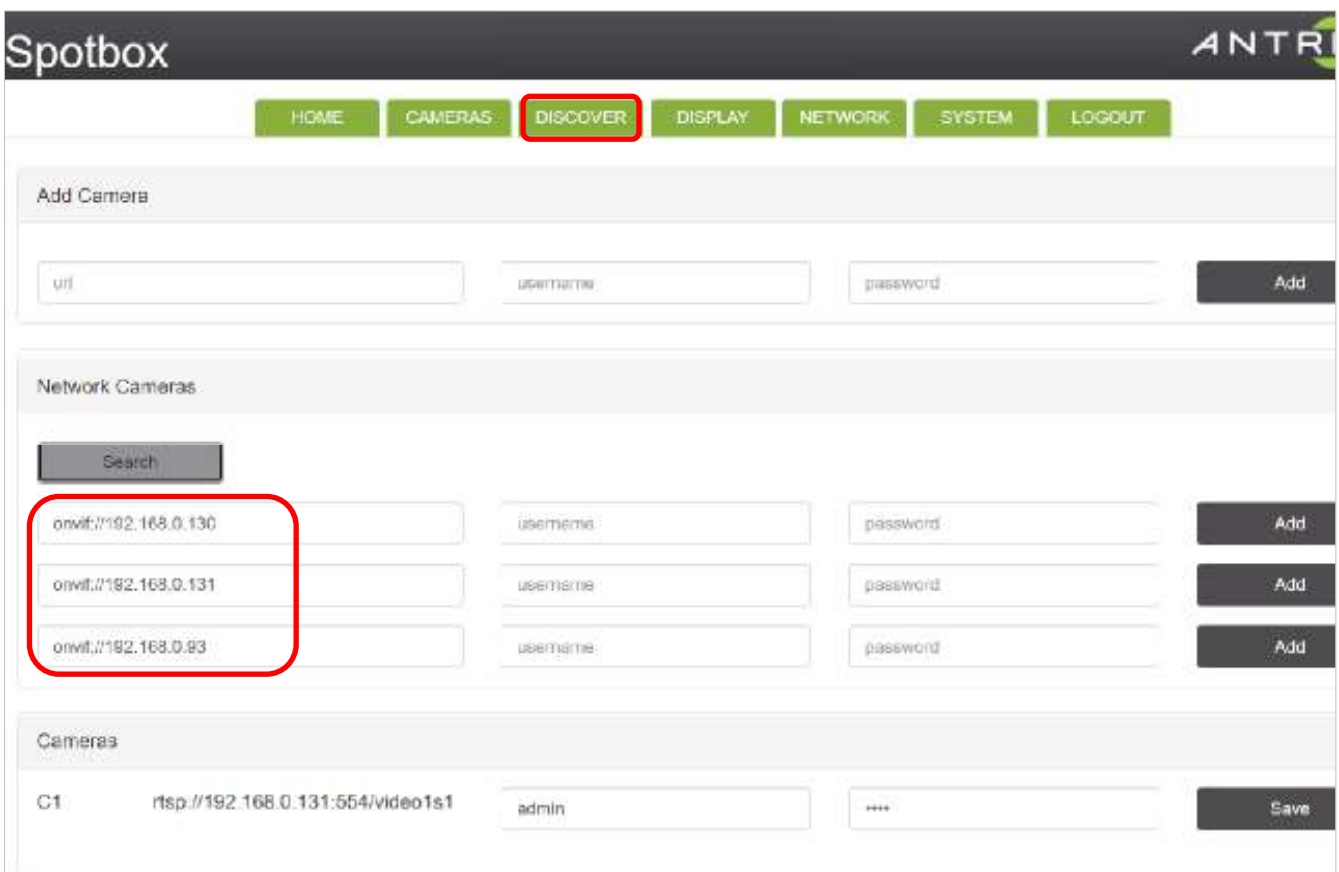


Figure 13 : CAMERAS tab - with incorrectly configure ONVIF camera



1.2.2.2. Add manually

If the ONVIF camera is not discovered, you can add it manually. In the in the "url" add the URL

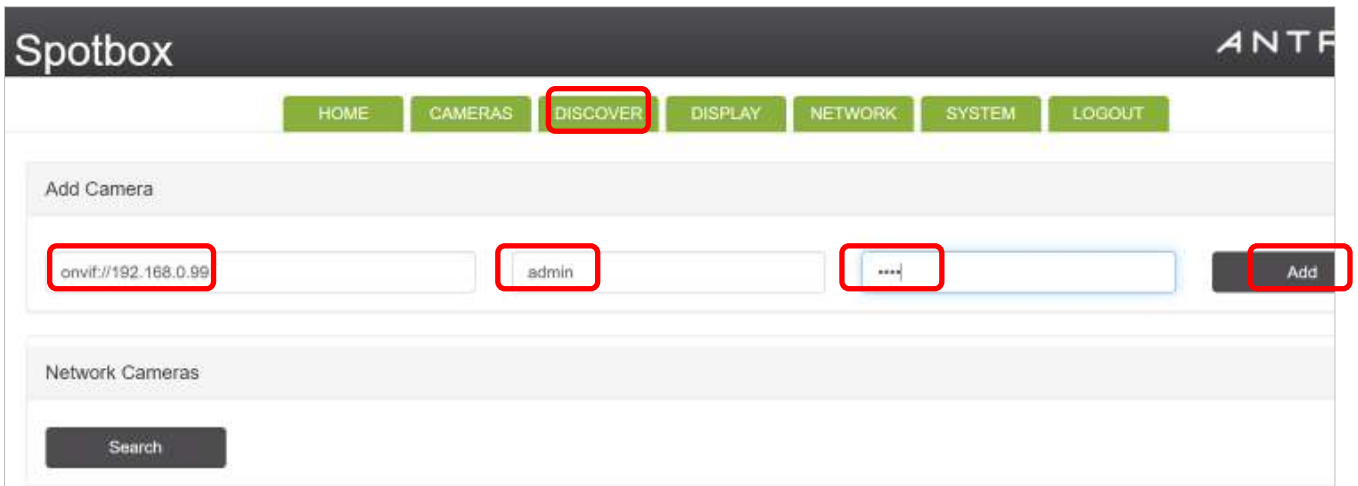
ONVIF://192.168.0.99 - where 192.168.0.99 is the IP address of the camera.

This is assuming that the default ONVIF is port 80, if the port is not then this needs to added after the IP address, as shown next:

onvif://192.168.1.168:7070

Also add the username and password, as shown in Figure 14. In this example the username is "admin" and the password has 4 digits. Click Add and then this camera will be added to the list shown in Figure 15. Once the camera is added follow the instructions in section "1.2.3 Select ONVIF profiles / Streams"

Figure 14 : DISCOVER tab - manually add ONVIF camera



1.2.3. Select ONVIF profiles / Streams

Once the camera is added, it will appear in the "Cameras" section of the DISCOVER webpage. Now the stream profiles can be extracted from the camera. To do this click the "Query" button, as shown in Figure 15. This may take a few 10's of seconds. A list of profiles will be then shown, as seen in Figure 16, all are ticked / checked by default. The list shown has multiple entries for the same resolution. This will confuse the spotbox. Only tick a profile for each required resolution. So,

in the example shown profiles 0, 1, 4 & 5 are not required, so un-tick them and click "save". In Figure 17 you can see the saved ONVIF profiles

Figure 15 : DISCOVER tab - "Cameras" section

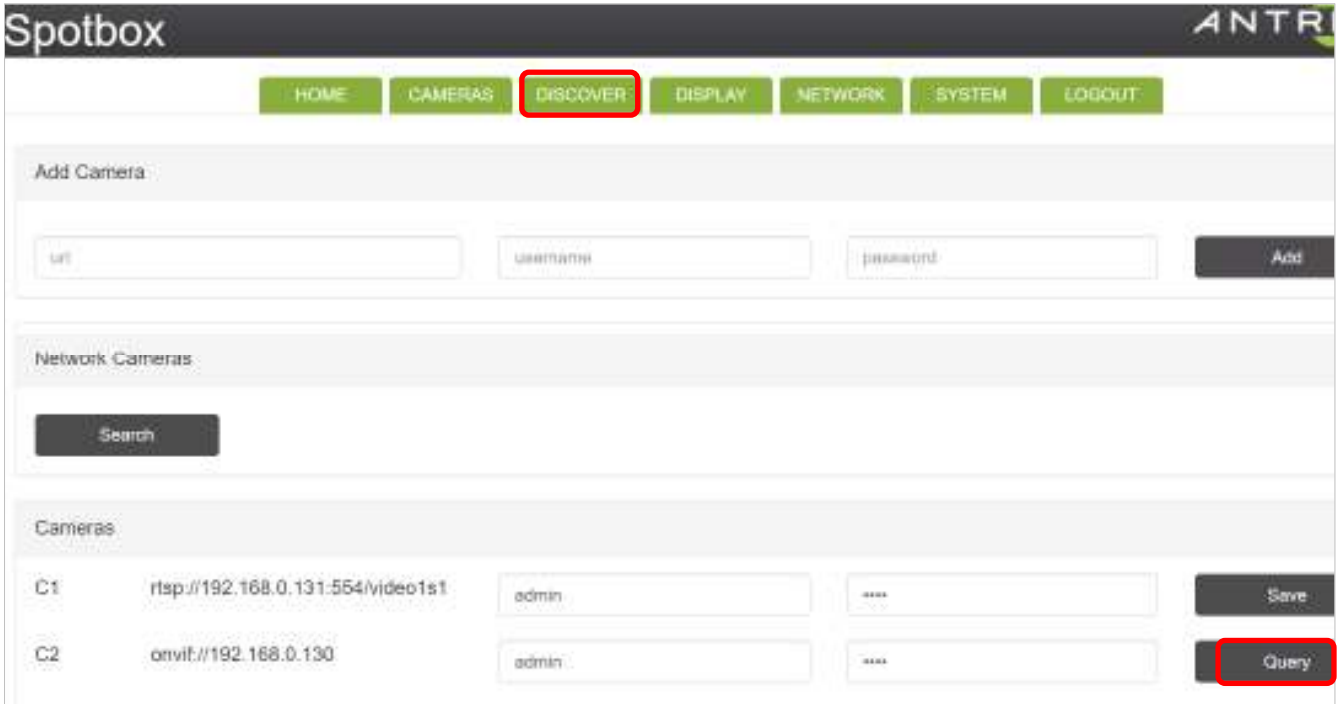


Figure 16 : DISCOVER tab - ONVIF profiles discovered

Camera ID	URL	Username	Password	Action																																													
C1	rtsp://192.168.0.131:554/video1s1	admin	****	Save																																													
C2	onvif://192.168.0.131	admin	****	Query																																													
<table border="1"> <thead> <tr> <th>Profile Name</th> <th>Codec</th> <th>Resolution</th> <th>Frame Rate</th> <th>Selected</th> </tr> </thead> <tbody> <tr> <td>0_PROFILE_WITH_AUDIO</td> <td>H264</td> <td>1920x1080@30</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>1_PROFILE_WITH_AUDIO</td> <td>H264</td> <td>1280x720@30</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>2_PROFILE</td> <td>H264</td> <td>1920x1080@30</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>3_PROFILE</td> <td>H264</td> <td>1280x720@30</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>4_PROFILE_WITH_AUDIO</td> <td>H264</td> <td>720x576@25</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>5_PROFILE_WITH_AUDIO</td> <td>H264</td> <td>640x480@30</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>6_PROFILE</td> <td>H264</td> <td>720x576@25</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>7_PROFILE</td> <td>H264</td> <td>640x480@30</td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table>					Profile Name	Codec	Resolution	Frame Rate	Selected	0_PROFILE_WITH_AUDIO	H264	1920x1080@30		<input checked="" type="checkbox"/>	1_PROFILE_WITH_AUDIO	H264	1280x720@30		<input checked="" type="checkbox"/>	2_PROFILE	H264	1920x1080@30		<input checked="" type="checkbox"/>	3_PROFILE	H264	1280x720@30		<input checked="" type="checkbox"/>	4_PROFILE_WITH_AUDIO	H264	720x576@25		<input checked="" type="checkbox"/>	5_PROFILE_WITH_AUDIO	H264	640x480@30		<input checked="" type="checkbox"/>	6_PROFILE	H264	720x576@25		<input checked="" type="checkbox"/>	7_PROFILE	H264	640x480@30		<input checked="" type="checkbox"/>
Profile Name	Codec	Resolution	Frame Rate	Selected																																													
0_PROFILE_WITH_AUDIO	H264	1920x1080@30		<input checked="" type="checkbox"/>																																													
1_PROFILE_WITH_AUDIO	H264	1280x720@30		<input checked="" type="checkbox"/>																																													
2_PROFILE	H264	1920x1080@30		<input checked="" type="checkbox"/>																																													
3_PROFILE	H264	1280x720@30		<input checked="" type="checkbox"/>																																													
4_PROFILE_WITH_AUDIO	H264	720x576@25		<input checked="" type="checkbox"/>																																													
5_PROFILE_WITH_AUDIO	H264	640x480@30		<input checked="" type="checkbox"/>																																													
6_PROFILE	H264	720x576@25		<input checked="" type="checkbox"/>																																													
7_PROFILE	H264	640x480@30		<input checked="" type="checkbox"/>																																													

Figure 17 : DISCOVER Tab - saved ONVIF Profiles

Cameras			
C1	rtsp://192.168.0.131:554/video1s1	<input type="text" value="admin"/>	<input type="password" value="****"/>
C2	onvif://192.168.0.131	<input type="text" value="admin"/>	<input type="password" value="****"/>
	2_PROFILE	H264	1920x1080@30
	3_PROFILE	H264	1280x720@30
	6_PROFILE	H264	720x576@25
	7_PROFILE	H264	640x480@30

Trouble shooting

2. Confirm ONVIF profiles are present

2.1. ONVIF Device Manager (ODM)

Using a third-party tool, such as ONVIF Device manager to confirm the camera has ONVIF profiles. ONVIF Device manager (ODM) version 2.2.250 is free to download from <https://sourceforge.net/projects/onvifdm/files/onvifdm-v2.2.250/>

If the camera you require is not found it maybe that ONVIF is not setup, or there maybe network or other issues. If you cannot find the camera with ODM then the Spotbox cannot be expected to find the camera.

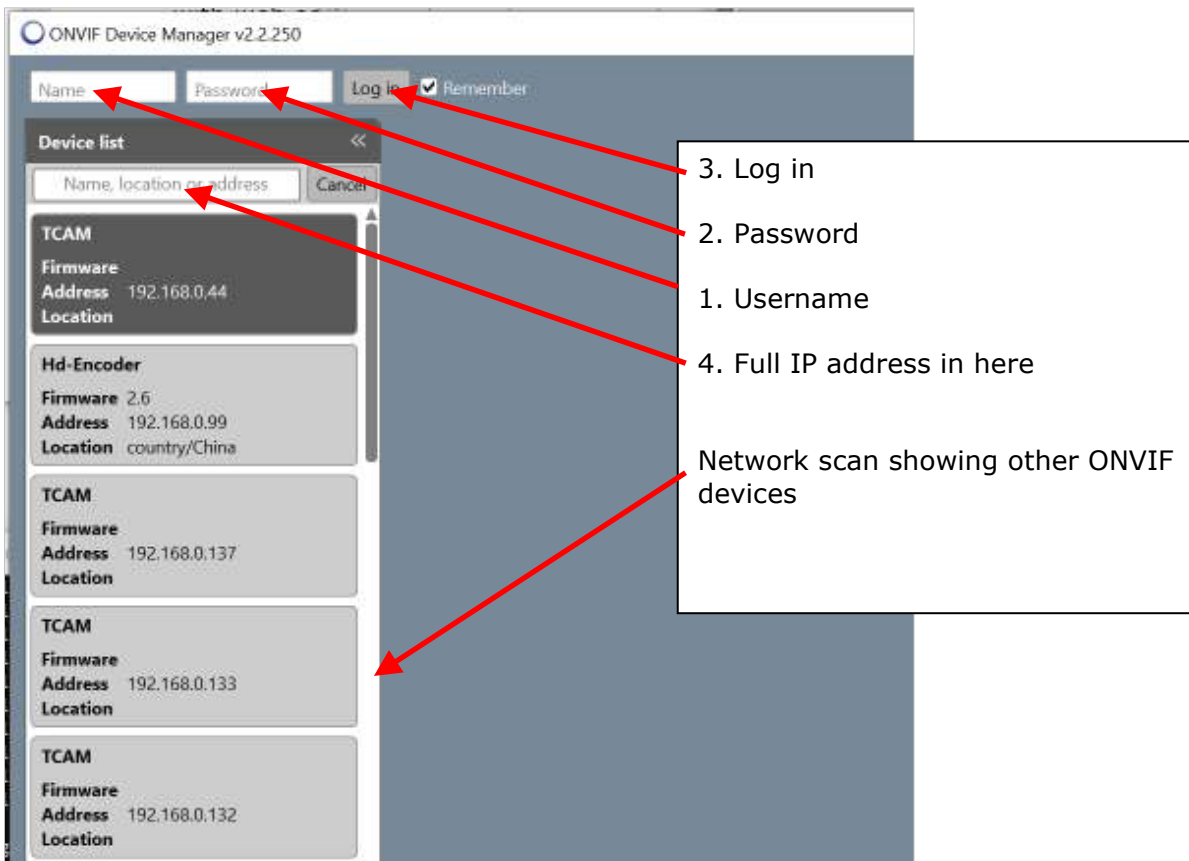
2.1.1. Detecting camera

2.1.1.1. Auto Scan – default mode

Once installed run ODM. It will scan the network and find **most** Camera with ONVIF profiles. Input username, password click "Log in" and input full IP address of camera in the field shown in Figure 18.

If the camera is not found you can add it manually – see "2.1.1.1 add camera manually"

Figure 18 : ODM at start-up



2.1.1.1. add camera manually

Click the "Add" button at the bottom right of the ODM windows, as shown in Figure 19. A pop-up windows appears as show in Figure 20. Add the correct detail for camera / encoder / device. You will need to know the ONVIF port, by default it is port 80, but if your camera has a different port it will need to added like:

http://192.168.1.168:7070/onvif/device_service

In this example to the ONVIF port is 7070 and IP address is 192.168.1.168. Once set click "Apply", as shown in Figure 21.

If you filter by IP address you will see the added devie in the list, as shown in Figure 22.

Figure 19 : Add camera's IP manually

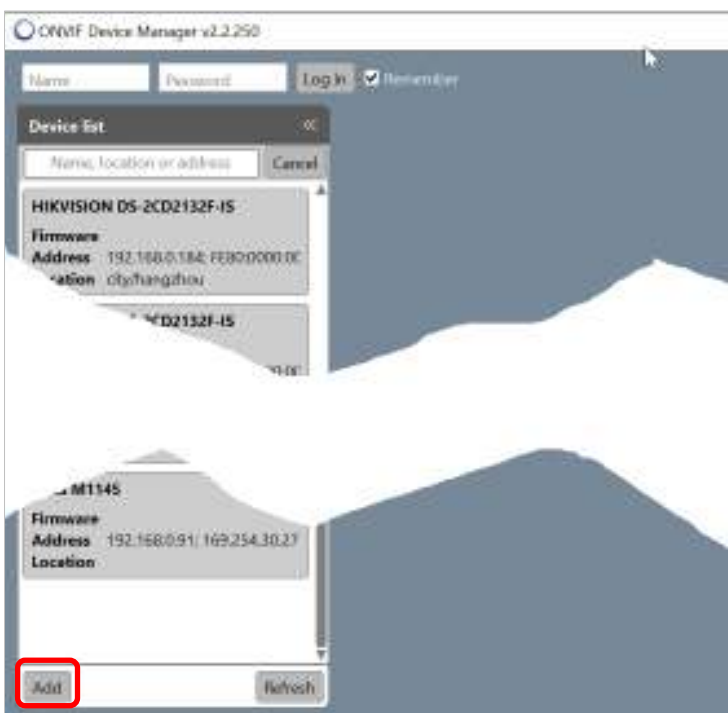


Figure 20 : Add camera's IP manually

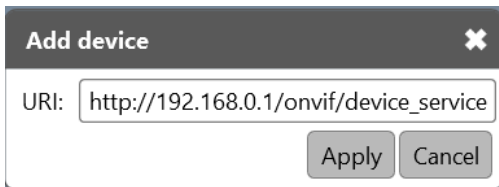


Figure 21 : Apply camera's IP manually

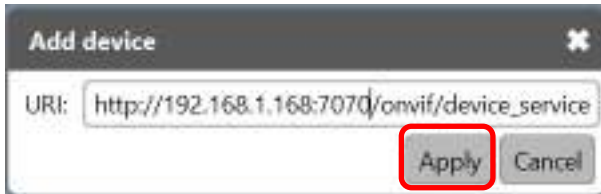


Figure 22 : manually added device in list



2.1.2. Accessing camera

Once you have accessed the camera you wish to integrate you will see a second panel appear with various parameters, as show in Figure 23 below.

Figure 23 : ODM with camera selected / 2nd information panel



Next select Profiles and expand the two video configuration tabs, as shown in Figure 24 below. The 3 ONVIF profile can be seen, these are

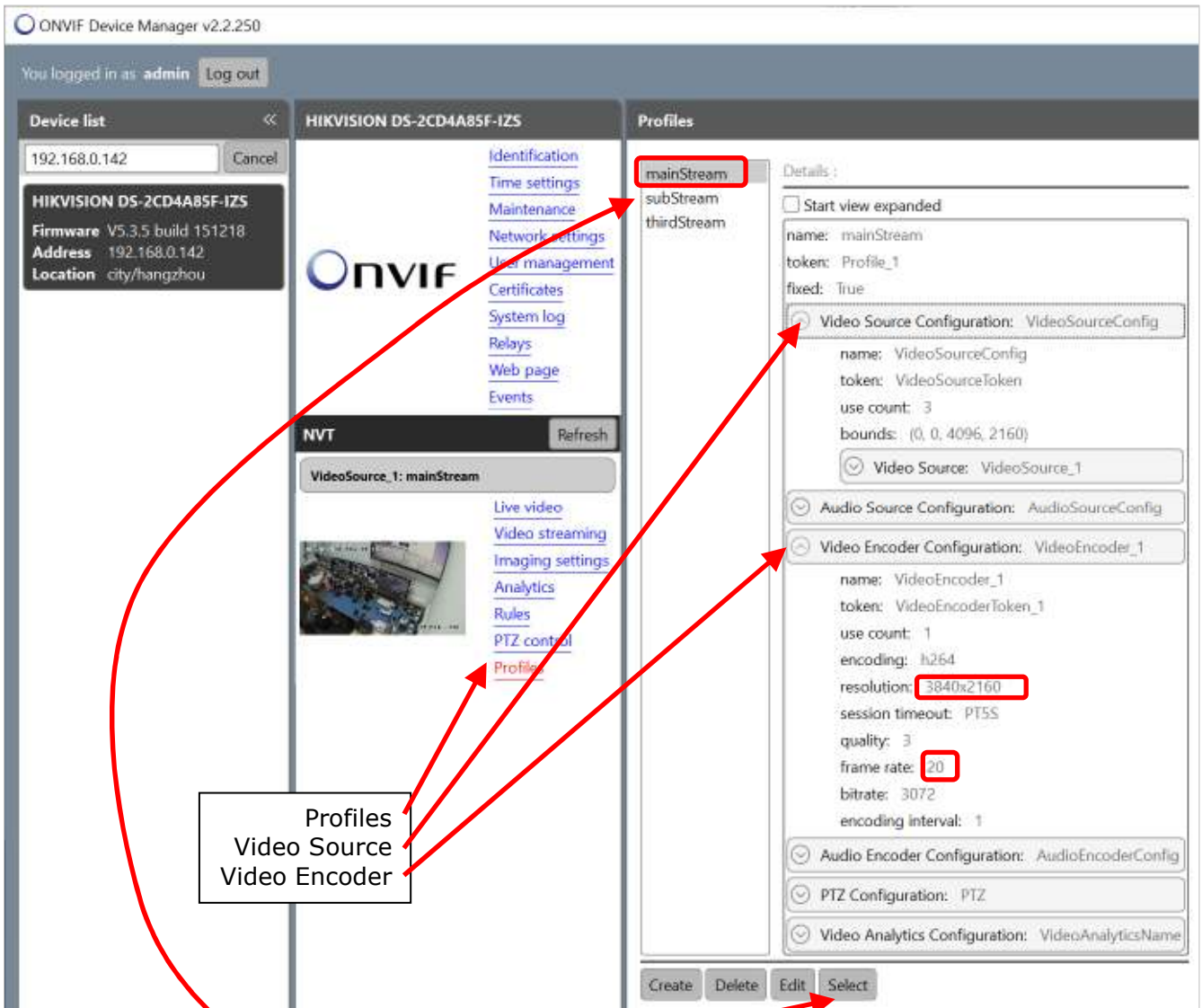
1. MainStream
2. subStream
3. thirdStream

These names are created by the camera so they may be called something else .

More details can be gathered for the profile selected. The "video Source Configuration" is the camera's sensor size. The Video encoder "Configuration" is the resolution and framerate of the mainStream Profile.

If the "Video Streaming" for the 2nd information panel is selected, alive video is shown with the resolution, frame rate and other information, as shown in Figure 25 below.

Figure 24 : Profiles / 3rd information panel



If the "subStream" is selected and then "Select" is clicked, ODM will now show the parameters for this stream. If the "Video Streaming" is clicked the "subStream" video and parameters will be shown, as can be seen in Figure 26 below.

Figure 25 : ODM Video streaming – main Stream

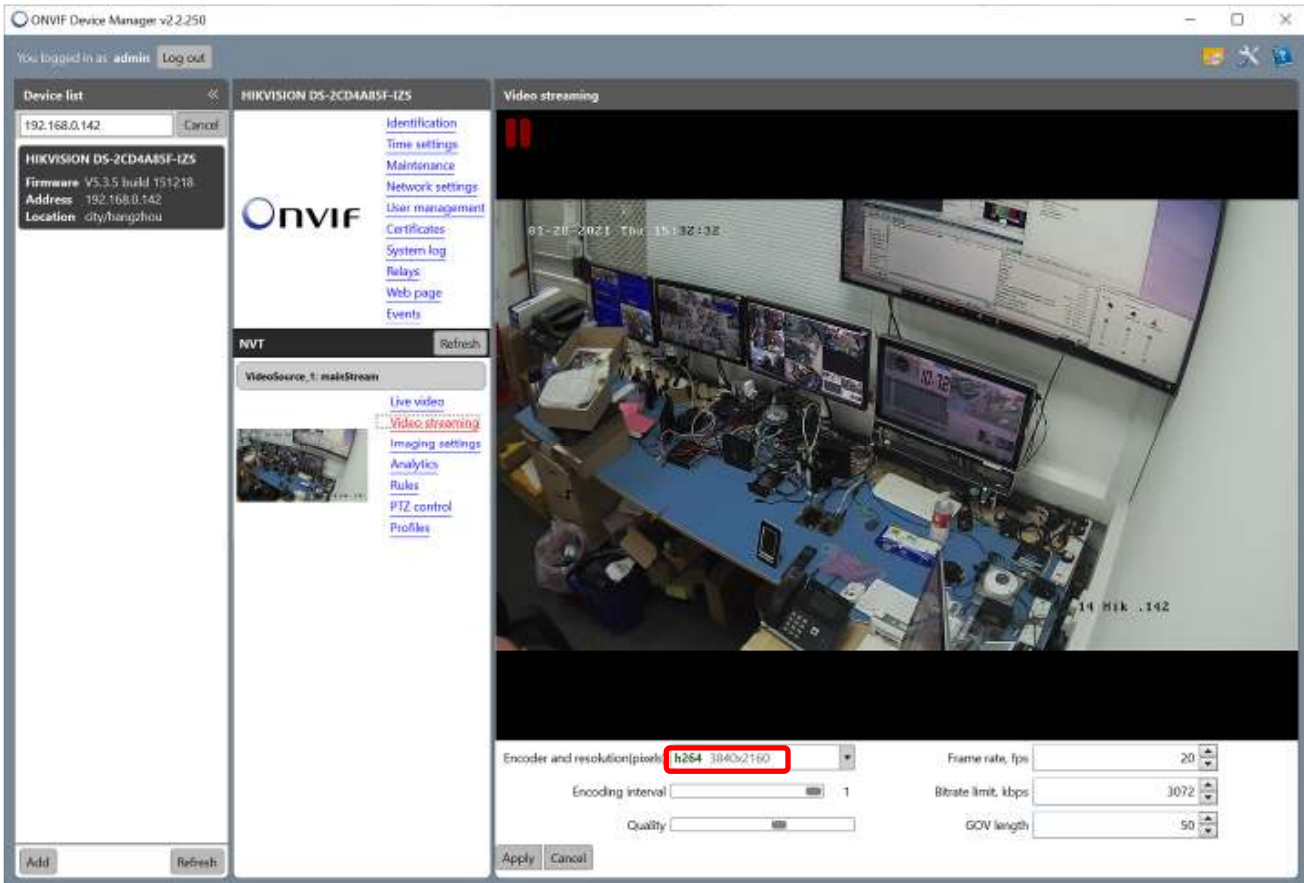
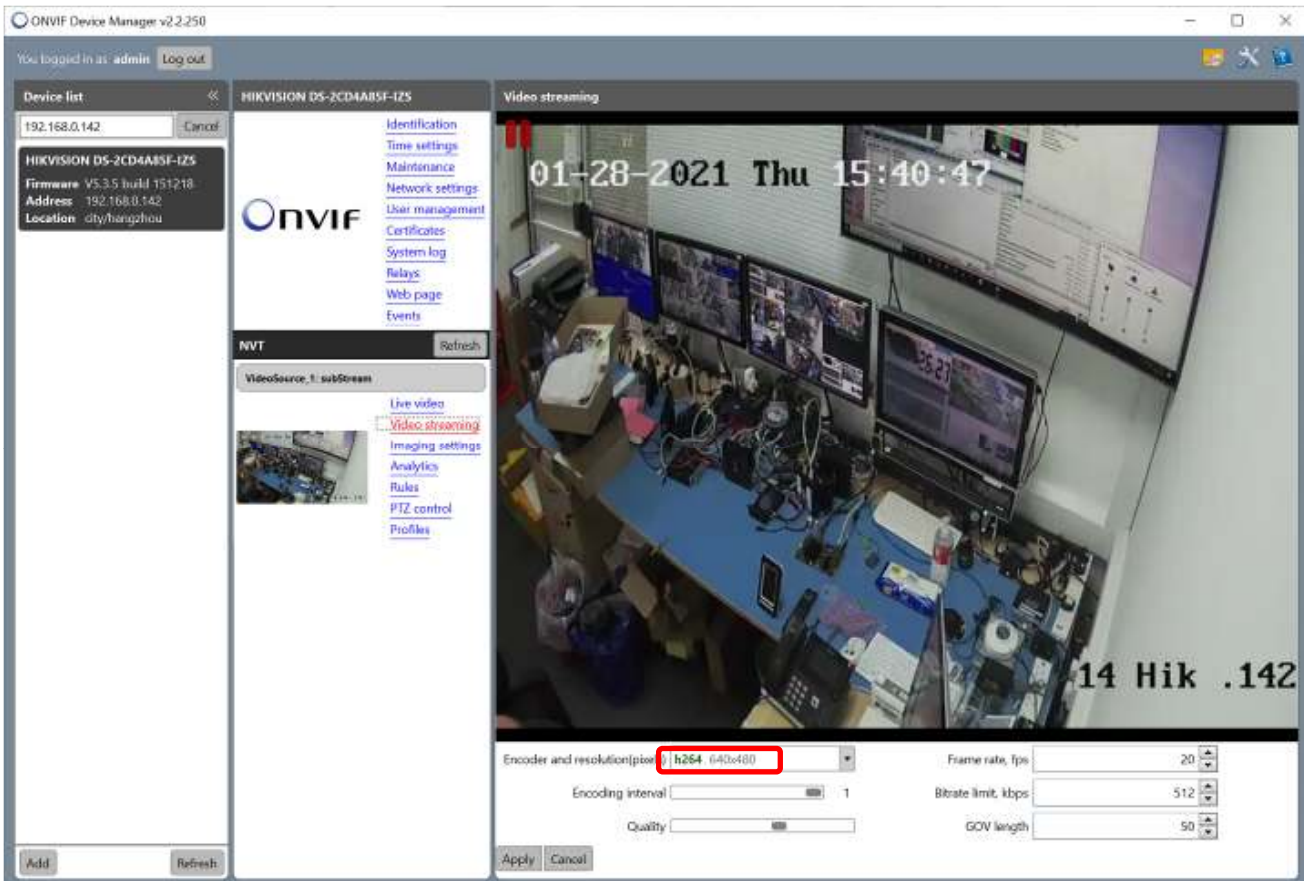


Figure 26 : ODM Video streaming – Sub Stream



If the same camera is interrogated by the Spotbox, same 3 profiles will be seen, as shown in Figure 27.

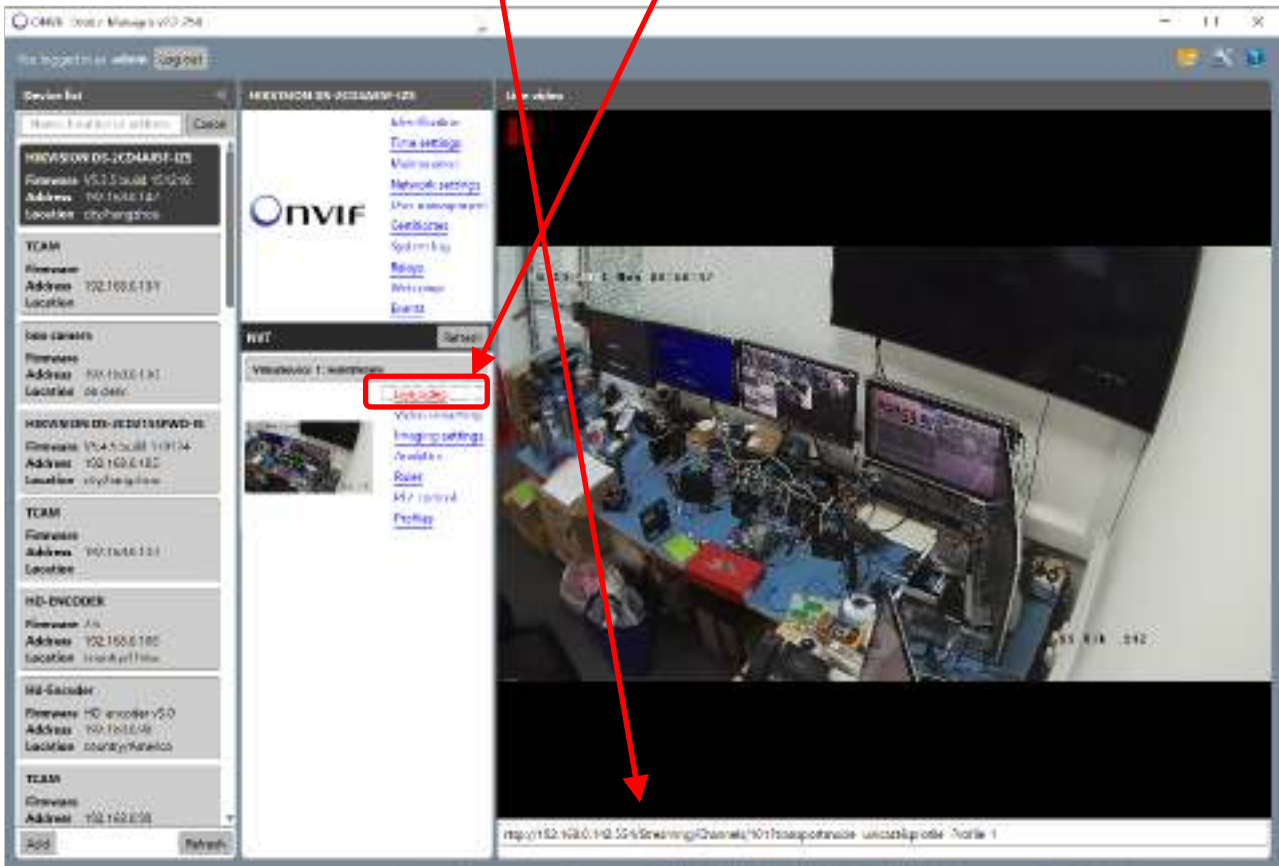
Figure 27 : Spotbox - ONVIF 192.168.0.142 camera and 3 profiles

C34	onvif://192.168.0.142	admin	*****	Save
	mainStream	H264	3840x2160@20	<input checked="" type="checkbox"/>
	subStream	H264	640x480@20	<input checked="" type="checkbox"/>
	thirdStream	H264	1280x720@10	<input checked="" type="checkbox"/>

2.1.3. Getting RTSP URL

Select a profile, as shown in Figure 24, the click "Live video". ODM will connect to the camera and show the live video, and the RTSP URL.

Figure 28 : ODM Live video



In the example shown in Figure 28 the profile is "mainStream" and URL is
 rtsp://192.168.0.142:554/Streaming/Channels/101?transportmode=unicast&profile=Profile_1
 This can truncated to everything before the first ?, i.e.
 rtsp://192.168.0.142:554/Streaming/Channels/101.

For the other 2 profiles, the URL's are:

"subStream"

rtsp://192.168.0.142:554/Streaming/Channels/102?transportmode=unicast&profile=Profile_2

"thridStream"

rtsp://192.168.0.142:554/Streaming/Channels/103?transportmode=unicast&profile=Profile_3

3. View video

3.1. view video with VLC

To view the video using VLC, free to download from <https://www.videolan.org/>

Once installed, to view a URL, from the top menu

1. Select Media
2. From the drop-down menu select "Open Network Stream" – see Figure 29
3. A pop-up window appears and then add the RTSP URL, shown in Figure 30, in this case:

rtsp://192.168.0.142:554/Streaming/Channels/101?transportmode=unicast&profile=Profile_1

Figure 29 : VLC – open Network Stream

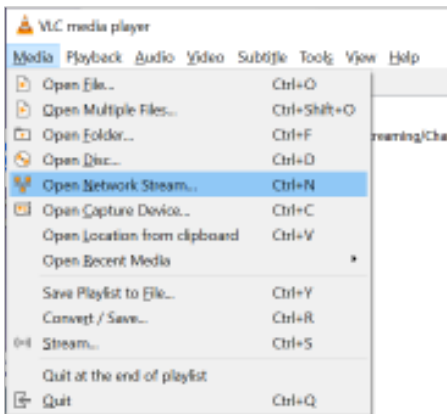
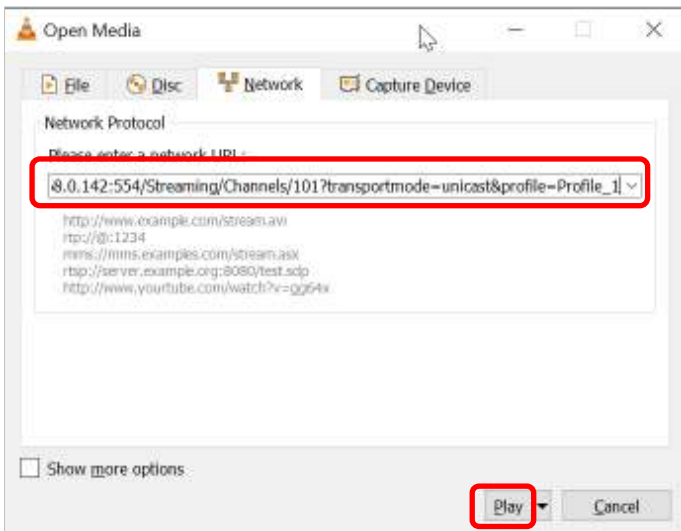


Figure 30 : VLC – add URL



4. Click play – see Figure 30
5. A pop-up windows will appear, as shown in Figure 31, asking for the username and password, this required as the username and password was not included in the URL. The following URL has the username and password included, i.e.

rtsp://**admin:a1b2c3d4**@192.168.0.142:554/Streaming/Channels/101?transportmode=unicast&profile=Profile_1

Figure 31 : VLC – add username and password



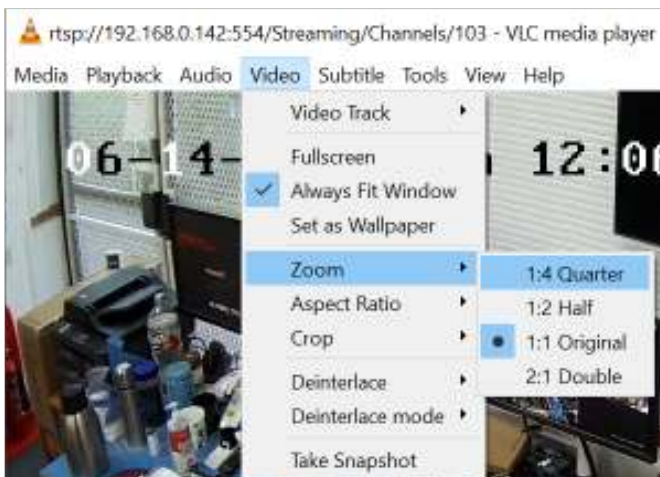
6. The video will be displayed

If the video image to too large you can zoom it down, from the top menu select video

1. Zoom
2. Sub menu 1:4 Quarter – as shown in Figure 32

This is sometime useful as the decode / display of the video may slow the PC down, especially if using remote access.

Figure 32 : VLC – zoom video

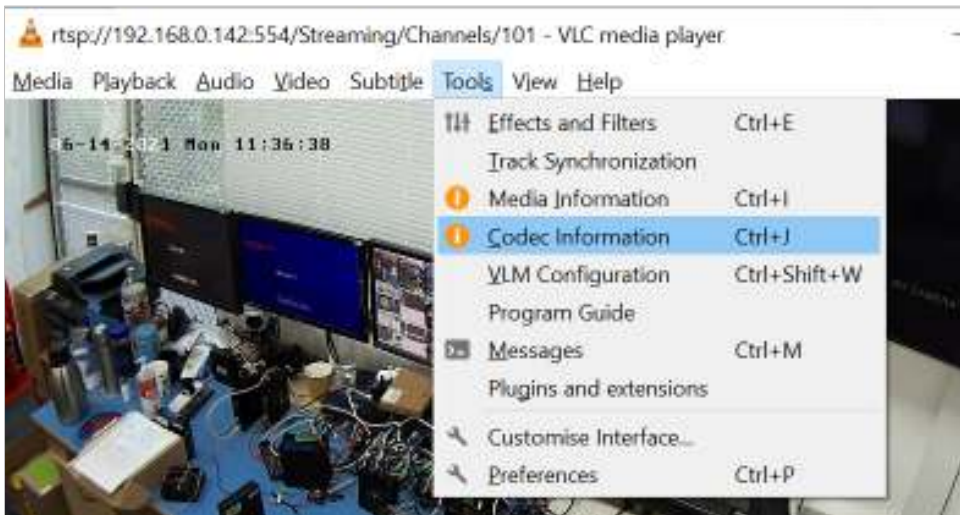


3.2. VLC - other information

Once you have a video stream playing, go to the top menu

1. Select tools
2. From the drop-down menu select "Coded Information" – see Figure 33

Figure 33 : VLC – Select Codec Information



3. A pop-up windows appears – see Figure 34 and Figure 35.

Figure 34 : VLC – Current Media information - Codec

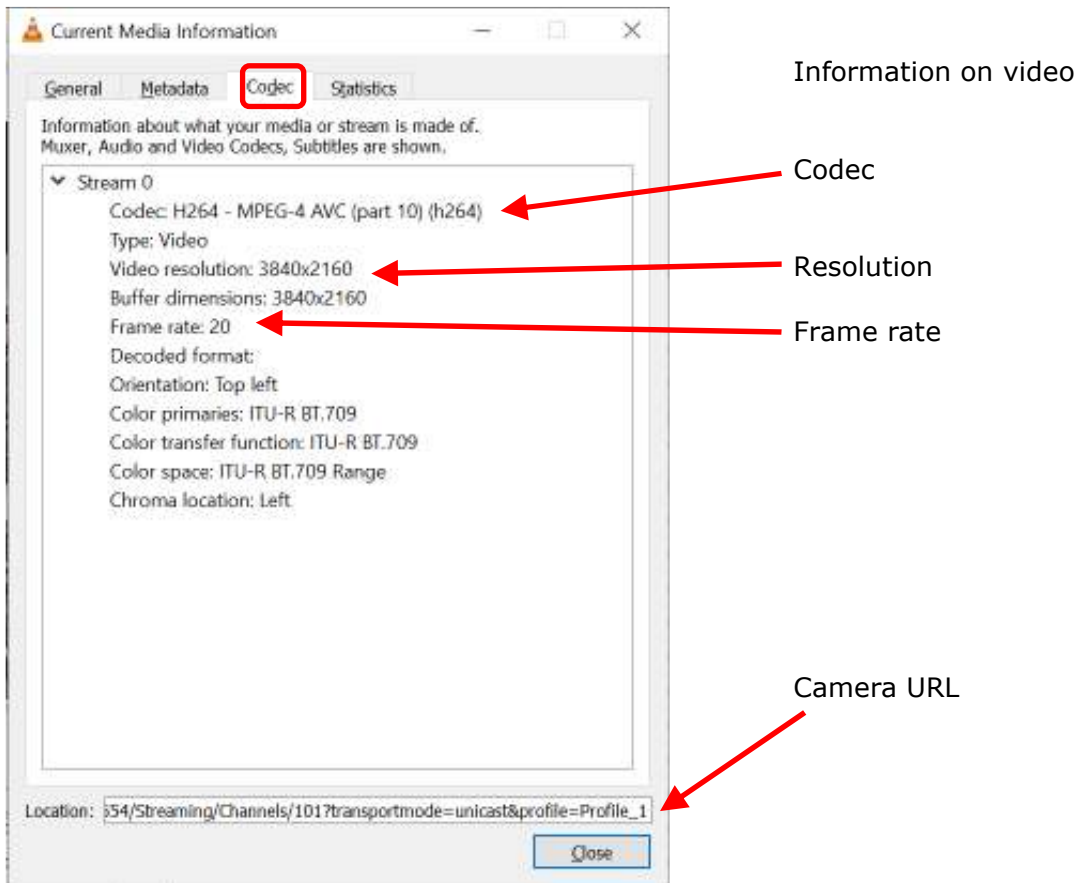
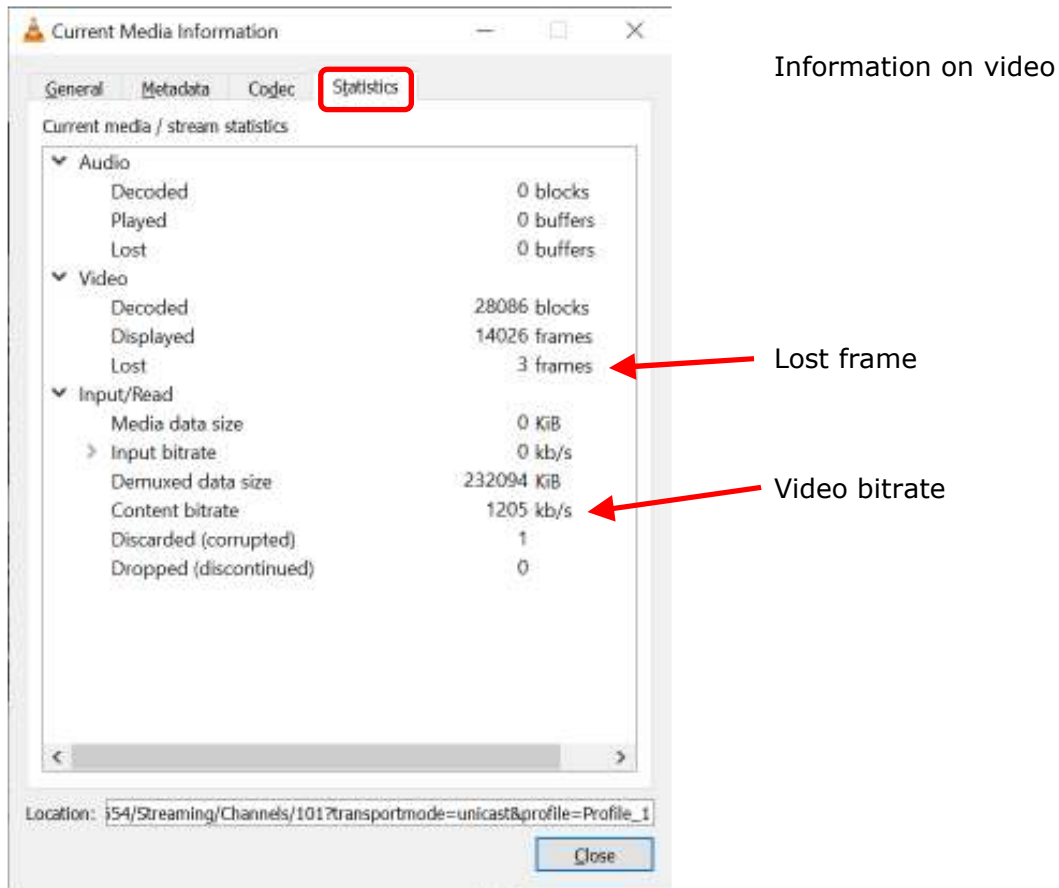


Figure 35 : VLC – Current Media information - Statistics



From the "Current Media information" Popup there are 2 useful tabs, the Codec and Statistics.

From the Codec tab, as shown in Figure 34 you can find:

1. the codec type,
2. video resolution
3. video frame rate.

From the Statistics tab, as shown in Figure 35 you can

4. display the number of lost packets. This is usually a small number due to the initial stream connection, but if this number keep increasing then there is network error
5. content bitrate.

Appendix 1 - Sample RTSP URL's

A sample list of RSTP URL's is shown in Table 3

Table 3 : example by manufacture of RTSP URL's

Brand	RTSP URL
Acti	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:7070/stream1
Acti	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:7070/stream2
Antrica	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/video1
Antrica	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/video1s1
Antrica	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/video1s2
Antrica	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/video1s3
Axis	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/axis-media/media.amp
Axis	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/axis-media/media.amp?videocodec=h264&resolution=1920x1080
Axis	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/axis-media/media.amp?videocodec=h264&resolution=640x480
Bosch	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554
Bosch	rtsp://<USERNAME>:<PASSWORD>@554/?inst=2
Bosch	rtsp://<IP ADDRESS>/video?inst=1&multicast=1
Dahua	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/cam/realmonitor?channel=1&subtype=0
Dahua	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/cam/realmonitor?channel=1&subtype=1
Dahua	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/cam/realmonitor?channel=1&subtype=2
Hikvision	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/video1
Hikvision	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/streaming/channels/103
Hikvision	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/streaming/channels/102
Samsung / Wisenet	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>/profile5/media.smp
Samsung / Wisenet	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>/profile6/media.smp
Milesight	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554
Milesight	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/third
Milesight	rtsp://<USERNAME>:<PASSWORD>@<IP ADDRESS>:554/sub
Minrray	rtsp://<IP ADDRESS>:554/live/av0
Minrray	rtsp://<IP ADDRESS>:554/live/av1
Revotech	rtsp://<USERNAME>:<USERNAME>@<IP ADDRESS>:8554/live0.264
Revotech	rtsp://<USERNAME>:<USERNAME>@<IP ADDRESS>:8554/live1.264
Revotech	rtsp://<IP ADDRESS>:554/live0.264
Revotech	rtsp://<IP ADDRESS>:554/live1.264
Revotech	rtsp://<IP ADDRESS>:8554/live0.264
Revotech	rtsp://<IP ADDRESS>:8554/live1.264