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BVMS - Compatibility

Author: Wrobel Maciej (BT-VS/XSW-SEC)
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1 Document information

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1.1 Version history

Date	Description
2021-05-27	Included BVMS 11.0 information.
2021-03-29	Update in Executive Summary to align with the current SMA policy.
2021-02-10	Included BVMS 10.0.2 & 10.1.1 information.
2020-08-04	Included BVMS 10.1 information.
2020-02-27	Renamed document from "device compatibility" to "compatibility". Added Operating System compatibility.
2020-02-02	Included BVMS 10.0.1 information.

2 Introduction

Up until some years ago, new released cameras, encoders, domes and decoders that are introduced into market after a BVMS release could not be connected to an existing BVMS version because these cameras where not known to the BVMS. In the BVMS 4.5.1, a new concept was introduced. This concept treats Bosch video encoders and decoders as generic devices, and automatically recognizes specific device functionality (for example the number of streams, relays and inputs). Based on this information the, at that time, unknown device is added to the system and can be used by the operator.

This document provides a detailed description of this functionality.

3 Executive Summary

Before the BVMS 4.5.1 was introduced, compatibility control between hardware device and installed management software was limited due to a tight release control (only tested exact combination are officially supported). This tight version compatibility control is be relaxed (BVMS 4.5.1 in May 2013), solving 90% of the incompatibilities. As a consequence new Bosch IP devices or firmware will be supported by up to two years old software clients. Customers can upgrade to the latest BVMS version at the moment of first base license activation. Further upgrades are possible with valid SMA for the system. All BVMS components (including the Video Recording Manager) are included in this concept.

> **Architectural changes**
>
> The compatibility support does not include major architectural changes. An example is the introduction of H.265 (this new decoding standard needs to be explicitly implemented). Previous examples include the introduction of the panoramic cameras and the 4K cameras. Please note that the examples mentioned above are just examples, and do not represent a complete list of architectural changes.

An example: The DINION IP Thermal 8000 is released with CPP7 firmware 6.32.0099, introduced in September 2016. As a result the camera will provide basic functionality (limitations defined in this document) in BVMS 5.0 (the active version in September 2014) and newer.

4 Device compatibility concept

Bosch Security Systems has many devices and software packages which are all connected. Before the generic device functionality was introduced, inter-compatibility between devices and software was strict and published in complex matrices.

During the development of a BVMS version all existing devices, with the latest firmware, are tested. Using the generic device concept, new models, providing a similar functionality set compared to existing models, will work in preceding BVMS releases. Minor functionality enhancements (for example, more inputs) are detected automatically when the device is added to the configuration. Major technology changes, for example the introduction of the H.265 codec or major changes to the authentication behavior, requires an upgrade to the BVMS which includes this functionality.

This chapter lists the device parameters that are supported in this scenario.

4.1 Device type

When adding a device-type which is unknown to the system, the device-type (either an encoder or decoder) needs to be recognized.

4.2 Device properties and interfaces

Device-types which are unknown to the current BVMS version will be recognized by the device scan and can also be manually added to the system configuration. If a device-type is not in the list of known devices, the "auto detect" option can be used. The device must be available in the network.
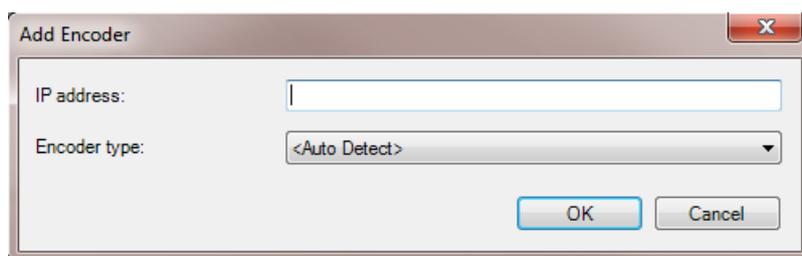
When the device is not available, the device capabilities cannot be read and the device cannot be added to the system.

When the device is available, the BVMS configuration client will automatically read the: device-type, audio capabilities, pan-tilt-zoom functionality, and device family from the encoder. Additionally the number of video input channels, alarm inputs, relays, serial ports and audio input channels are retrieved.
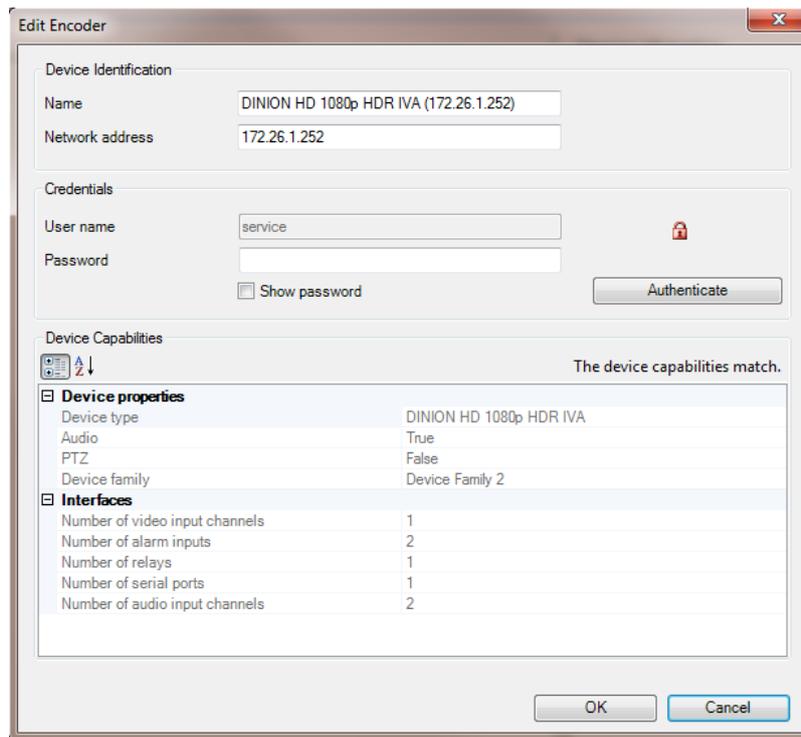
4.2.1 Encoder capabilities

After an encoder is added, this information can be reviewed in the "Edit Encoder" dialogue, which can be opened by right clicking on the encoder. When an encoder is replaced (the same IP address is re-used) by a different model, this dialogue must be used to re-scan the device capabilities.

> **Persistency of device capabilities**
>
> The device capabilities are read and compared to the device capabilities persisted in the configuration. Four cases can occur:
>
> 1. While retrieving the device capabilities the message "Retrieving device capabilities..." is shown.
> 2. The device capabilities match the capabilities persisted within the configuration: no message is shown.
> 3. The device capabilities differ from the capabilities persisted within the configuration: the message "The device capabilities changed. Apply changes?" is shown. Clicking on the confirmation button shows a message box with the text "If you apply the device capabilities, the event settings for this device may change. Check these settings for this device." With OK the device capabilities read from the device are overtaken to BVMS.
>
> 1. If the device-type changed the device family is set to "Device family 1" if only 1 stream is supported by the device.
> 2. If the device-type changed the device family is set to "Device family 2" if 2 streams are supported by the device.
> 3. If the device-type does not change the device family is preserved.
>
> • The device capabilities could not be read: the message "Retrieving device capabilities failed." is shown.
> The BVMS management server shall never automatically correct a mismatching configuration of "Compatible devices".

4.3 Stream properties

The parameters to configure the I-Frame Distance, I-Frame Quality and P-Frame Quality may change from encoder type to encoder type. Within the BVMS all not known device-types are linked to the default recording profiles. Customers can adjust these settings by creating a new profile.

4.4 Camera configuration

The camera configuration tabs in the <u>BVMS configuration client</u> are tightly connected to a specific camera firmware version. When trying to add an unknown camera to the BVMS, Bosch recommends taking the following steps:

- Download and install the latest version of the Bosch Configuration Manager from http://downloadstore.boschsecurity.com.
- Pre-configure the camera settings (IVA, network, imaging, etc...) using the Bosch Configuration Manager. It could be possible that the BVMS Configuration Client is not able to configure all settings.
- Add the camera to the BVMS using the BVMS Configuration Client.

4.5 Upgrade BVMS

A valid Bosch Software Assurance PRO allows the system to be upgraded to the latest version. There will be no impact on device configuration and devices do not have to be re-configured after a system upgrade.

5 Implemented functionality

Cameras, encoders, and decoders that are currently not known to the BVMS can be operated with:

1. Live video: the operator can display the live stream of the device.
2. Playback: the operator can access the recorded stream of the device.
3. Export: the recorded video can be exported to the supported file formats.
4. Protect: the recorded video can be protected.
5. Pan-tilt-zoom: the operator can control the camera using pan-tilt-zoom commands. This is also possible for fixed cameras with a serial port and an external pan-tilt-zoom component connected.
6. Events: currently known events (connection state, input state, relay state, motion detection, recording mode, reference image check, storage state, video analytics 01 - 16, video loss, video signal too bright, video signal too dark, video signal too noisy) can be used. Other events require an upgrade to the correct BVMS version in which the device-type is known.

5.1 Technical support

The BVMS release notes lists the firmware versions which are used in the system tests. These firmware versions are fully compatible with the released version. New Bosch IP devices or firmware will be <u>supported</u> by up to two years old software clients (taking the limitations mentioned earlier into account), based on the release date of the firmware and the BVMS version. When a support case is raised, and the difference between the BVMS release and firmware release is larger than 2 years, the technical support team will require the system to be upgraded to the recommended firmware and/or BVMS version before further troubleshooting is offered.

5.1.1 Cameras

BVMS	CPP3	CPP-ENC	CPP4	CPP5	CPP6	CPP7	CPP7.3	CPP13
minimum	5.74.0010	5.53.0004	6.44.0020	6.30.0059	6.44.0020	6.44.0020	6.44.0020	7.70.0052*
10.0	5.74.0010	5.54.0004	7.10.0074	6.30.0059	7.10.0074	7.10.0074	7.10.0074	7.70.0052*
maximum	latest	latest	latest	latest	latest	latest	latest	latest
minimum	5.74.0010	5.54.0004	6.44.0020	6.30.0059	6.44.0020	6.44.0020	6.44.0020	7.70.0052*
10.0.1	5.75.0011	5.54.0012	7.10.0076	6.31.0010	7.60.0204	7.60.0204	7.60.0204	7.70.0052*
maximum	latest	latest	latest	latest	latest	latest	latest	latest
minimum	5.74.0010	5.54.0004	6.44.0020	6.30.0059	6.44.0020	6.44.0020	6.44.0020	7.70.0052*
10.0.2	5.75.0011	5.54.0012	7.10.0076	6.31.0010	7.60.0204	7.60.0204	7.60.0204	7.70.0052*
maximum	latest	latest	latest	latest	latest	latest	latest	latest

minimum	5.75.0011	5.54.0004	6.51.0026	6.31.0010	6.51.0026	6.51.0026	6.51.0026	7.70.0052
10.1	5.75.0011	5.54.0012	7.10.0076	6.31.0010	7.61.0023	7.61.0023	7.61.0023	7.70.0052
maximum	latest	latest	latest	latest	latest	latest	latest	latest
minimum	5.75.0011	5.54.0004	6.51.0026	6.31.0010	6.51.0026	6.51.0026	6.51.0026	7.70.0052
10.1.1	5.75.0011	5.54.0012	7.10.0076	6.31.0010	7.61.0023	7.61.0023	7.61.0023	7.70.0052
maximum	latest	latest	latest	latest	latest	latest	latest	latest
minimum	5.75.0011	5.54.0004	6.51.0026	6.31.0010	7.10.0074	7.10.0074	7.10.0074	7.70.0052
11.0	5.75.0011	5.54.0012	7.10.0076	6.31.0010	7.80.0128	7.80.0128	7.80.0128	7.75.0006
maximum	latest	latest	latest	latest	latest	latest	latest	latest

> In order to connect CPP13 cameras to BVMS 9.0, 10.0, 10.0.1 and 10.0.2, the system needs to be patched with the Inteox camera patch.

5.1.2 Decoders

BVMS	CPP-ENC	VJD 3000	VJD 7000	VJD 7513	VJD 8000		
minimum	5.97.0005	5.93.0023	54.8.2	9.51.0058	8.10		

10.0	5.97.0007	5.97.0005	54.8.2	9.51.0058	9.51.0058
maximum	latest	latest	latest	latest	latest
minimum	5.97.0005	5.97.0005	54.8.2	9.51.0058	9.10.0029
10.0.1	5.97.0013	5.97.0013	54.8.2	9.60.0017	9.60.0017
maximum	latest	latest	latest	latest	latest
minimum	5.97.0005	5.97.0005	54.8.2	9.51.0058	9.10.0029
10.0.2	5.97.0013	5.97.0013	54.8.2	9.60.0017	9.60.0017
maximum	latest	latest	latest	latest	latest
minimum	5.97.0013	5.97.0013	54.8.2	9.51.0058	9.10.0029
10.1	5.97.0013	5.97.0013	54.8.2	9.60.0017	9.60.0017
maximum	latest	latest	latest	latest	latest
minimum	5.97.0013	5.97.0013	54.8.2	9.51.0058	9.10.0029
10.1.1	5.97.0013	5.97.0013	54.8.2	9.60.0017	9.60.0017
maximum	latest	latest	latest	latest	latest

minimum	5.97.0013	5.97.0013	54.8.2	9.51.0058	9.50.0073
11.0	5.97.0013	5.97.0013	54.8.2	10.01.0036	10.01.0036
maximum	latest	latest	latest	latest	latest

5.2 Specific technology introduction

Time	Topic	Description
Q3-2017	H.265	BVMS 8.0 (released in October 2017) will decode Bosch H.265 cameras. When Bosch H.265 cameras are connected to previous versions of the BVMS these need to put into H.264 mode and can then still be used.
Q3-2017	Security	This specific firmware release introduces a password enforcement policy on the Bosch cameras. BVMS 8.0 (released in October 2017) will handle FW 6.4x or newer cameras. When Bosch FW6.4x cameras, or newer, are connected to previous versions of the BVMS the passwords of those cameras needs to be pre-configured using external tools (for example, the camera web-interface or Bosch Configuration Manager). Once the cameras are added, the pre-configured password can be used to authenticate the system to the camera.
Q3-2017	Storage	The DSA E2800 series requires a minimum firmware level on the devices. CPP3 devices cannot be used in a system enabled for multi-pathing. DSA E2800 units are only supported by Bosch camera firmware version 6.32 and later, VRM Video Recording Manager version 3.70 and later, and Configuration Manager version 5.51 and later. Dual controller systems require Bosch camera firmware version 6.43 and later, VRM Video Recording Manager version 3.71 and later, and Configuration Manager version 5.53 and later.
Q3-2019	ONVIF	Video Streaming Gateway 7.0 requires BVMS 10.0 or newer.
Q3-2019	Security	Encrypted recording requires BVMS 10.0 or newer combined with device firmware 7.10 or newer. Devices produced before January 2014 (with Crypto-Coprocessor version older than 3) might not be able to encrypt their recordings. Devices which are not able to run firmware 7.10 can be connected to the Video Streaming Gateway to enable them to encrypt recordings.
Q3-2019	Security	When the secure communications flag is set, the firmware published in the BVMS release notes is the <u>minimum</u> firmware that is supported. Older firmware might not support all functionality when the secure communication option is used. Secure connectivity to decoders is only working for Videojet Decoder 8000 and other Videojet Decoder released after June 2019. Secure connectivity to encoders is only working for CCP4, CPP6, CPP7 and CPP7.3 devices and newer. CPP3, CPP-ENC and CPP5 devices might work, but communication issues will not be investigated when the secure communication flag is set in the configuration.

Time	Topic	Description
Q3-2019	Security	BVMS 10.0 or newer can decrypt UDP communication. Earlier BVMS versions are not capable of decrypting UDP traffic. When a camera is added to BVMS 10.0 UDP encryption is turned on for all clients. In this situation older BVMS clients cannot decrypt the video, which results in a black cameo in Operator client and an "Error: Frame cannot be parsed!" on Configuration Client tabs. When using BVMS Enterprise combining different BVMS versions it is recommended to update all systems to the latest BVMS version or disable UDP encryption. When adding a camera to a BVMS 9.0 (or older) system which has previously been added to a BVMS 10.0 system, UDP encryption needs to be disabled in the camera configuration itself. Disabling UDP encryption needs to be done in the BVMS Configuration Client (disable "Secure Connection" in the Edit Encoder dialogue) and in the camera configuration itself. Alternatively the camera can be operated in TCP mode.
Q3-2019	Security	The "+" character cannot be used in device passwords from camera firmware 7.1 onwards. BVMS 10.0 and earlier BVMS versions do not display a proper warning message that the device declines the new password.
Q3-2019	Configuration	Due to a breaking change the IVA configuration needs to be done from the Configuration Manager and cannot be done from BVMS 10.0 or earlier BVMS versions.
Q4-2019	Streaming	The Bosch 3000i cameras are detected in BVMS as CPP7.3 cameras and are assigned with the default profile "*balanced standard*". The balanced standard profile includes B-frames. Even though these cameras will stream B-frames, Bosch cannot guarantee the performance of these cameras when video profiles including B-frames are assigned. It is recommended to assign one of the "*PTZ Optimized*" or "*Image Optimized*" profiles to these cameras. These profiles do not include B-frames.
Q4-2019	Security	Camera firmware 7.11 or newer requires VRM 3.82.0045 (or newer) for encrypted recording. BVMS 10.0 includes VRM 3.82.0038 and needs to be manually upgraded if cameras with firmware 7.11 (or newer) are used, and encrypted recording is used.
Q1-2020	Configuration	When a decoder running FW 9.60 or newer is added to BVMS 10.0 or older, the BVMS Configuration Client detects this decoder as an encoder. Please use the Configuration Manager to pre-configure the decoder before adding it to the BVMS configuration.
Q2-2020	Inteox Cameras	Inteox (CPP13) cameras need to be pre-configured using Configuration Manager 7.20 or newer. Additionally, BVMS 9.0, 10.0, and 10.0.1 will have patches that allow these versions to work with Inteox (CPP13) cameras. BVMS 9.0, 10.0, and 10.0.1 are able to use these cameras based on the functionality described in this document. BVMS is not able to use the third stream of these cameras at this moment.

6 Operating systems compatibility concept

The overview below relates Windows version to specific BVMS releases. We distinguish two levels of compatibility:

1. The tested operating systems (also listed on the datasheets. These versions are tested extensively).
2. The compatible operating systems are tested for selected use-cases and we are confident they are usable in production environments.

If you run into an issue on a compatible operating system, our after sales support teams will investigate this issue to determine the root-cause. It might be recommended to upgrade your Windows version if we determine the root-cause is related to this. For Windows Server based operating systems, we always recommend to use the tested versions.

Windows Version	Tested BVMS versions	Compatible BVMS versions
Windows Client editions		
Windows 10 Professional (64-bit) October 2020 update (20H2)	11.0	
Windows 10 Professional (64-bit) April 2020 update (2004)	11.0	10.0.2, 10.0.1, 10.0, 10.1.1, 10.1
Windows 10 Professional (64-bit) April 2020 update (2004)	10.1.1, 10.1	10.0.2, 10.0.1, 10.0
Windows 10 Professional (64-bit) November 2019 update (1909)	10.1.1, 10.1, 10.0.2, 10.0.1	10.0
Windows 10 Professional (64-bit) May 2019 update (1903)	10.0.2, 10.0.1, 10.0	10.1.1, 10.1
Windows 10 Professional (64-bit) October 2018 update (1809)	10.0.2, 10.0.1, 10.0	10.1.1, 10.1
Windows 10 Enterprise (64-bit) LTSC build 1809	10.1.1, 10.1, 10.0.2, 10.0.1, 10.0	9.0
Windows 10 Professional (64-bit) Spring Creators update (1803)	9.0	10.0
Windows 10 Professional (64-bit) Fall Creators update (1709)	9.0	
Windows 10 64-bit creators update (1703)	n/a	9.0, 8.0
Windows 10 64-bit anniversary update (1607)	8.0, 7.5, 7.0	
Windows 10 Enterprise (64-bit) LTSB 2016 (1607)	8.0, 7.5, 7.0	
Windows 8.1 64-bit	8.0, 7.5, 7.0	
Windows 7 SP1 64-bit		7.0, 7.5, 8.0
Windows Server editions		
Windows (Storage) Server 2019 (64-bit)	11.0, 10.1.1, 10.1, 10.0.2, 10.0.1, 10.0	
Windows (Storage) Server 2016 (64-bit)	11.0, 10.1.1, 10.1, 10.0.2, 10.0.1, 10.0, 9.0, 8.0	

|		
Windows (Storage) Server 2012 R2 (64-bit)	11.0, 10.1.1, 10.1, 10.0.2, 10.0.1, 10.0, 9.0, 8.0, 7.5, 7.0	
Windows Server 2008 R2 SP1 64-bit	8.0, 7.5, 7.0	

# 7 Appendix

7.1 Example camera configuration

The example below adds a Bosch Flexidome IP 3000i to an older BVMS system. The camera's username and password are pre-configured using the Configuration Manager.
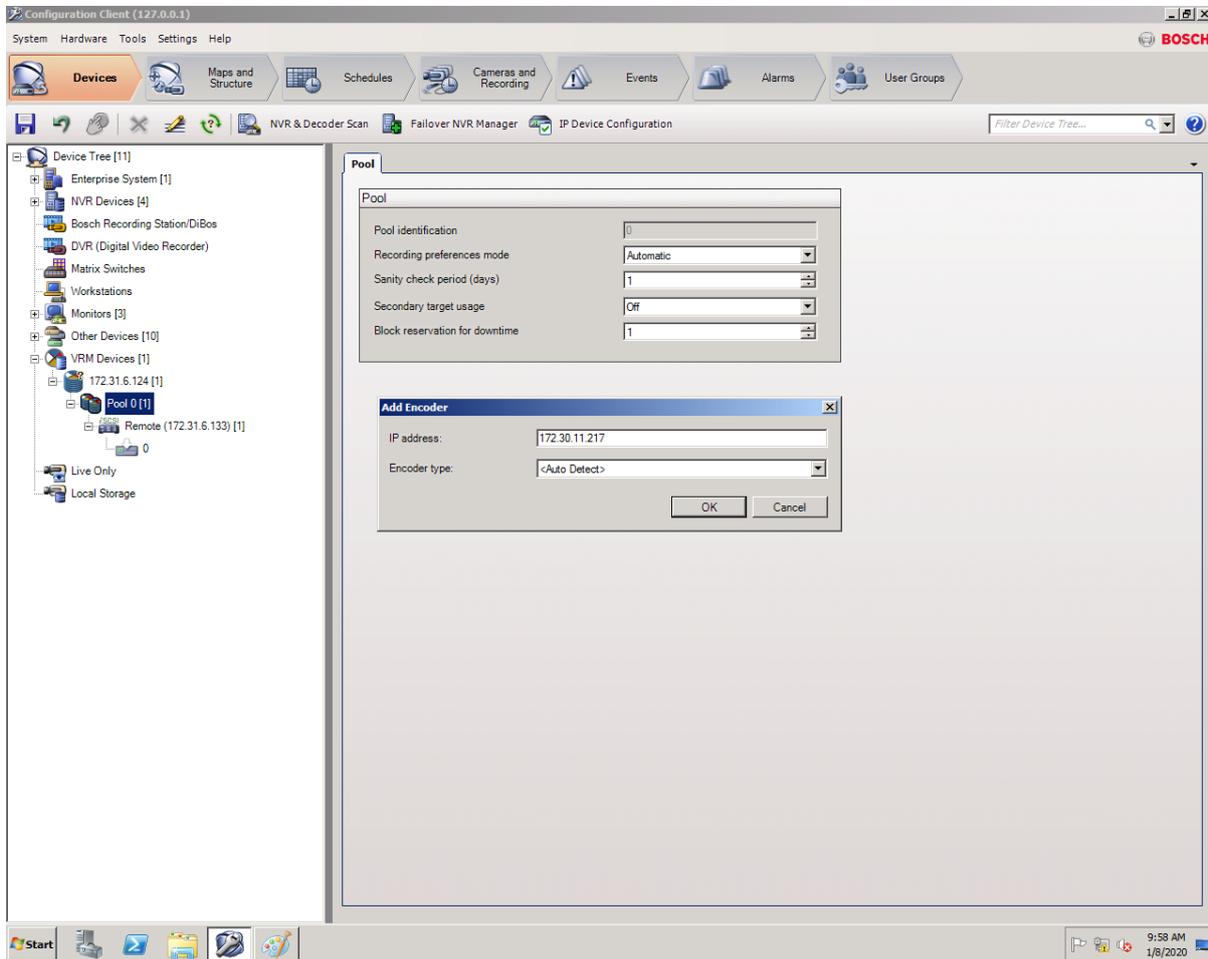
The camera can be manually added to the system. The encoder type should be on *<Auto Detect>*. After the camera has been added it might not be authenticated. Right click the camera to authenticate to the camera and enter the pre-configured username and password. Right click the camera and open the *Edit Encoder* dialogue to confirm the platform of the camera.
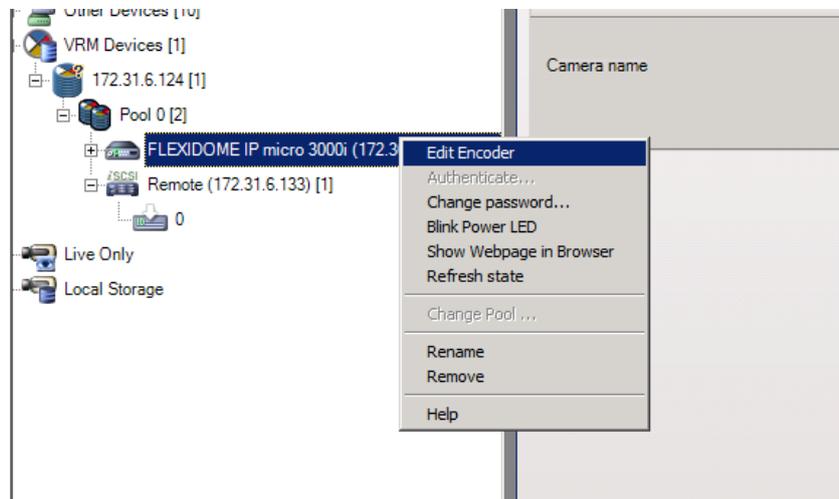
In this case the *Edit Encoder* dialogue show the platform as *Other HD*.
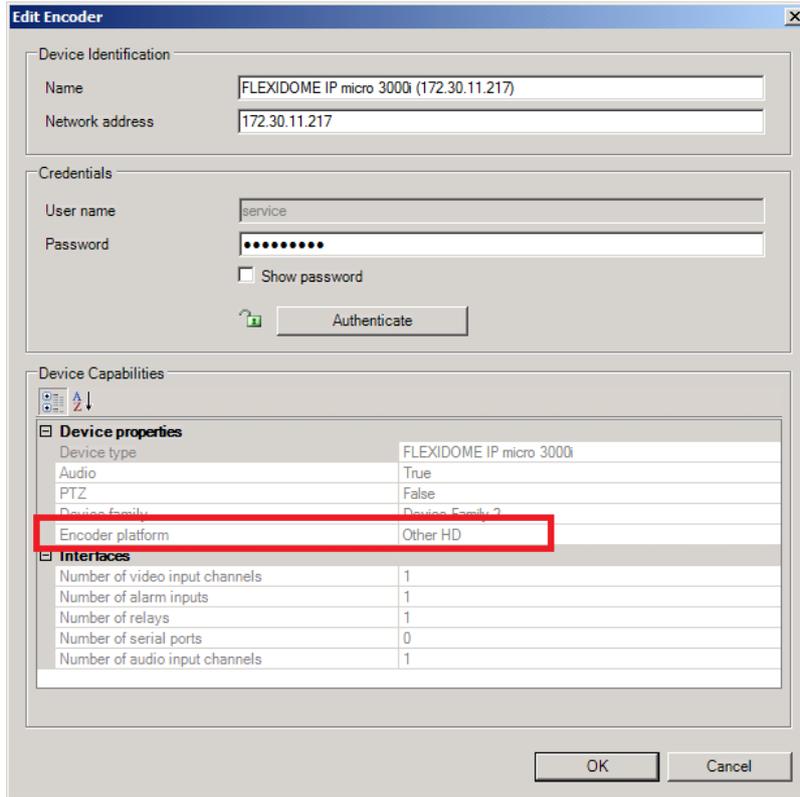
Go to the *Cameras and Recordings* page in the Configuration Client. The platform is detected as *Other HD*. Some codecs might not be recognized by the system.

The codecs match the codecs listed on the webpage of the camera. In this example Codec 63 equals 3072x1728 (5.3 MP), Codec 66 equals 2720x1530, and Codec 83 equals 2304x1293 (3 MP). Select the right codec.

If needed, the stream quality settings can be tailored to the specific platform by creating a new stream quality profile. By default, the *Other HD* profile is applied to the camera. This might not be suitable for the selected codec.