PERCEPT

Milestone XProtect® VMS /

IONODES PERCEPT Body Camera

Integration Guide

Document Date: March 3rd, 2022

CONTENTS

1 Introduction 3

2 High Level Diagram 3

3 Configuring the body camera before integration 4

3.1 Create a new dedicated ONVIF user (recommended) 4

3.2 Configure video profiles 5

3.3 Setup local recording on the body camera 6

3.4 Setup time synchronization on the body camera 7

3.5 Enable data transfer mode on Docking Station 8

4 Configuring the VMS before integration 9

4.1 Configure the time synchronization on the VMS 9

5 Adding the PERCEPT Body Camera to Milestone XProtect VMS 10

6 Configuring the PERCEPT Body Camera inside Milestone VMS 15

4.1 Change the configuration of the profiles on the body camera 15

4.2 Assign different profiles for different tasks 16

4.3 Enable the recording to the VMS + edge storage retrieval 17

4.4 Configure the recording rules 19

4.5 Configure the motion detection 20

4.6 Configure the dewarping for the body camera's Panomorph lens 21

4.7 Configure the sub-components for Milestone Smart Client usage 22

7 Viewing live and recorded video from the PERCEPT Body Camera inside the VMS 23

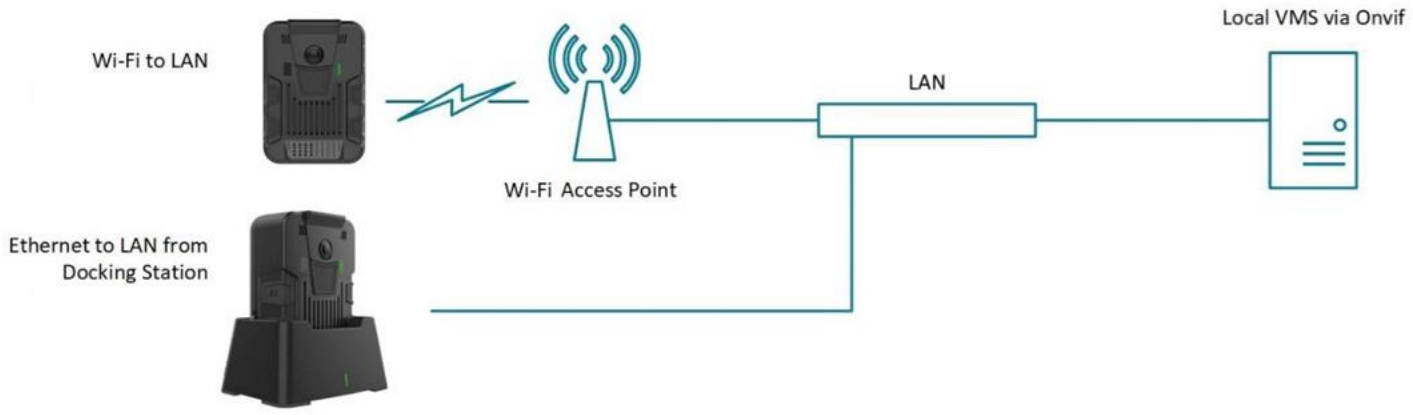
8 Using two-way audio functionality inside the VMS 25

1 Introduction

One of the key advantages of the IONODES PERCEPT Body Camera compared to other body worn video surveillance solutions is its versatile integration with Milestone XProtect VMS. It uses extensive features from ONVIF profiles G, S and T, along with flexible network configurations (LAN via docking station, Wi-Fi) for live video and edge recording retrieval.

This integration is supported as of IONODES PERCEPT firmware 10.3.0.12 and has been validated with Milestone XProtect 2021 R2 and higher. This document shows steps required for a simple integration scenario. Integrators shall adjust to their specific system.

2 Typical Deployment

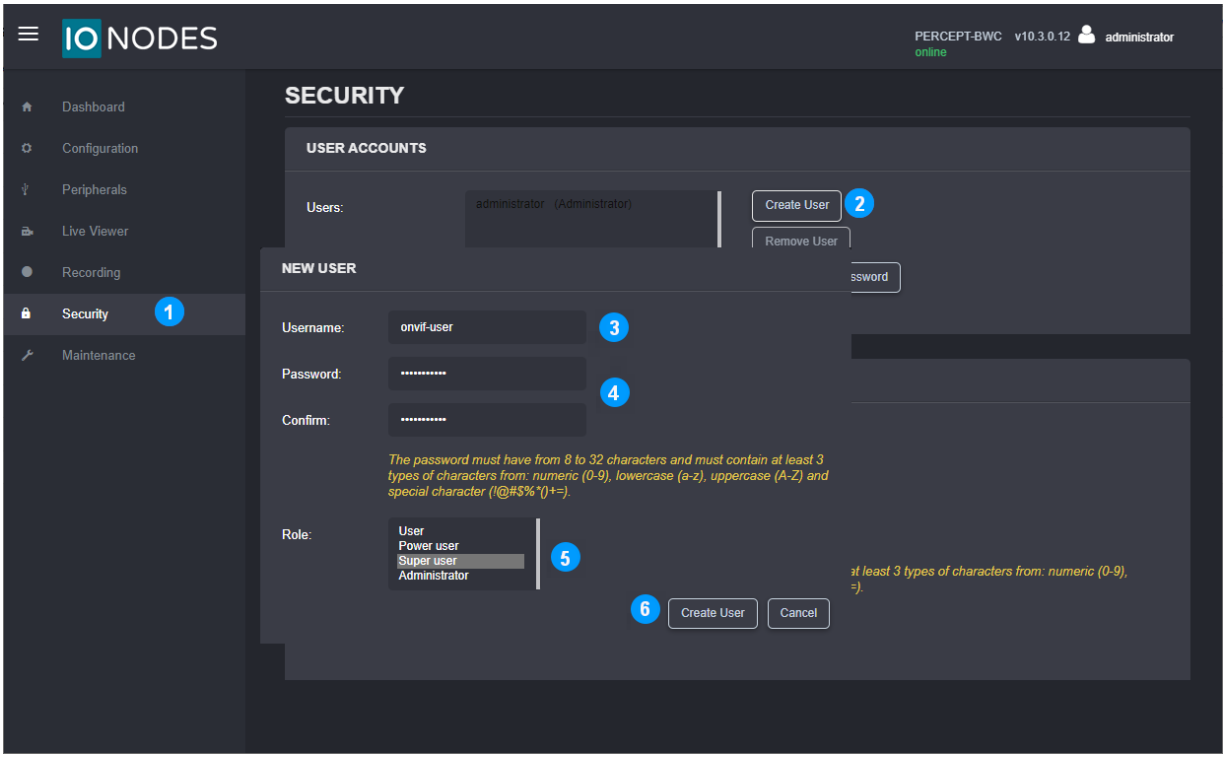


A typical deployment scenario includes the PERCEPT Body Camera, a Docking Station , a Wi-Fi access point, the LAN infrastructure and the local VMS (Milestone XProtect in this case). The PERCEPT Body Camera can record data either directly to the local VMS through Wi-Fi or to its internal memory and then use the wired Ethernet via the Docking Station to offload the contents to the local VMS.

3 Configuring the body camera before integration

Note: As a best practice before proceeding, please consider performing a reset to default factory settings and reinitialization of the PERCEPT Body Camera. This will remove any unwanted configuration left over from past usage of the device. Make sure to set it up on the same subnet as the Milestone server. For more details, please consult the PERCEPT User Manual and/or PERCEPT Quick Start Guide.

3.1 Create a new dedicated ONVIF user (recommended)

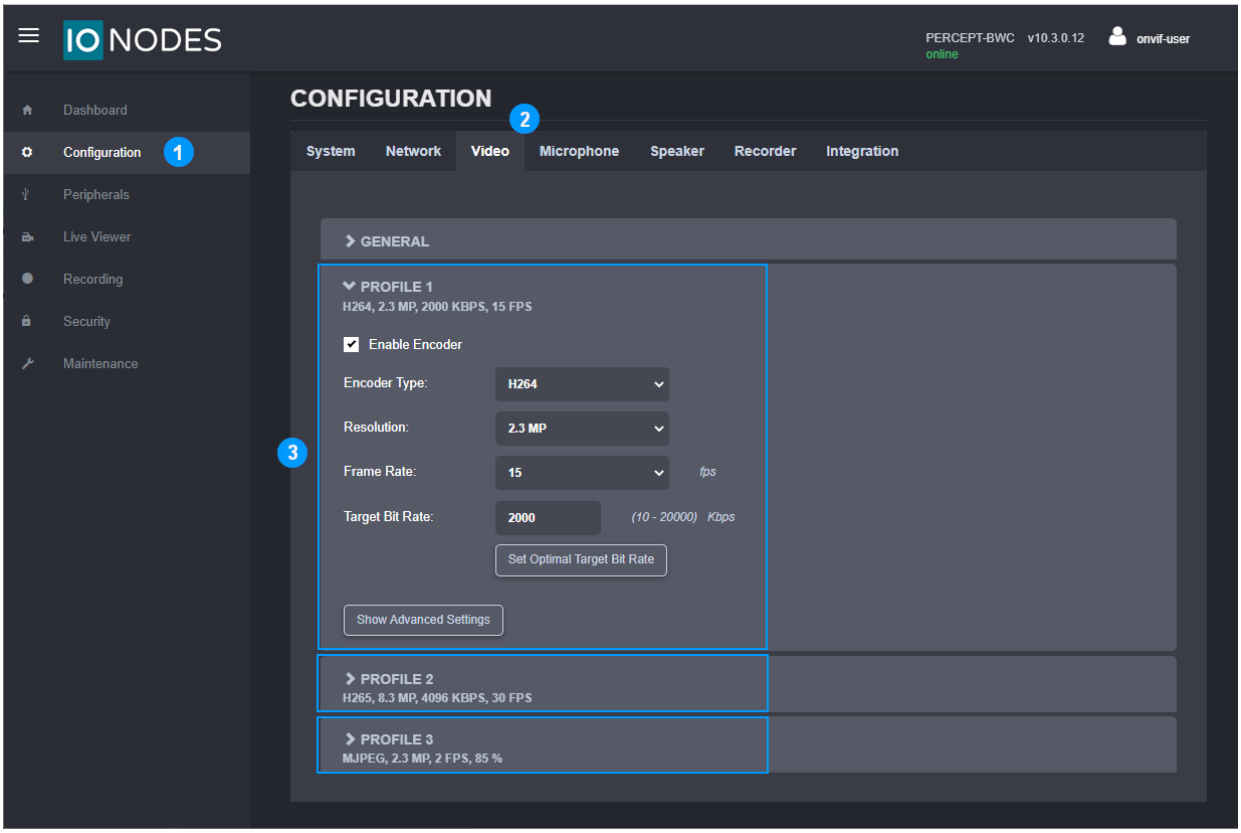


1. Once logged into the PERCEPT's Web GUI, go to the **Security** page
2. Click on the **Create User** button
3. In the **New User** pop-up window, enter **Username**
4. Enter **Password** and repeat it to confirm
5. Select **Super user** role
6. Click on **Create User**

Note: The default administrator account could also be used for integrating the body camera to the VMS. However, it is considered good practice from a security perspective to create a dedicated ONVIF user account, specifically for this purpose. The role "*Superuser*" gives the account permissions for almost everything (the only exception is managing other users on the device). This role is required to perform firmware upgrades from the VMS.

3.2 Configure video profiles

The PERCEPT Body Camera supports two (2) H.264/265 video encoder profiles and one (1) MJPEG profile. Each profile enabled in the PERCEPT web GUI will be accessible by Milestone for configurable usage.

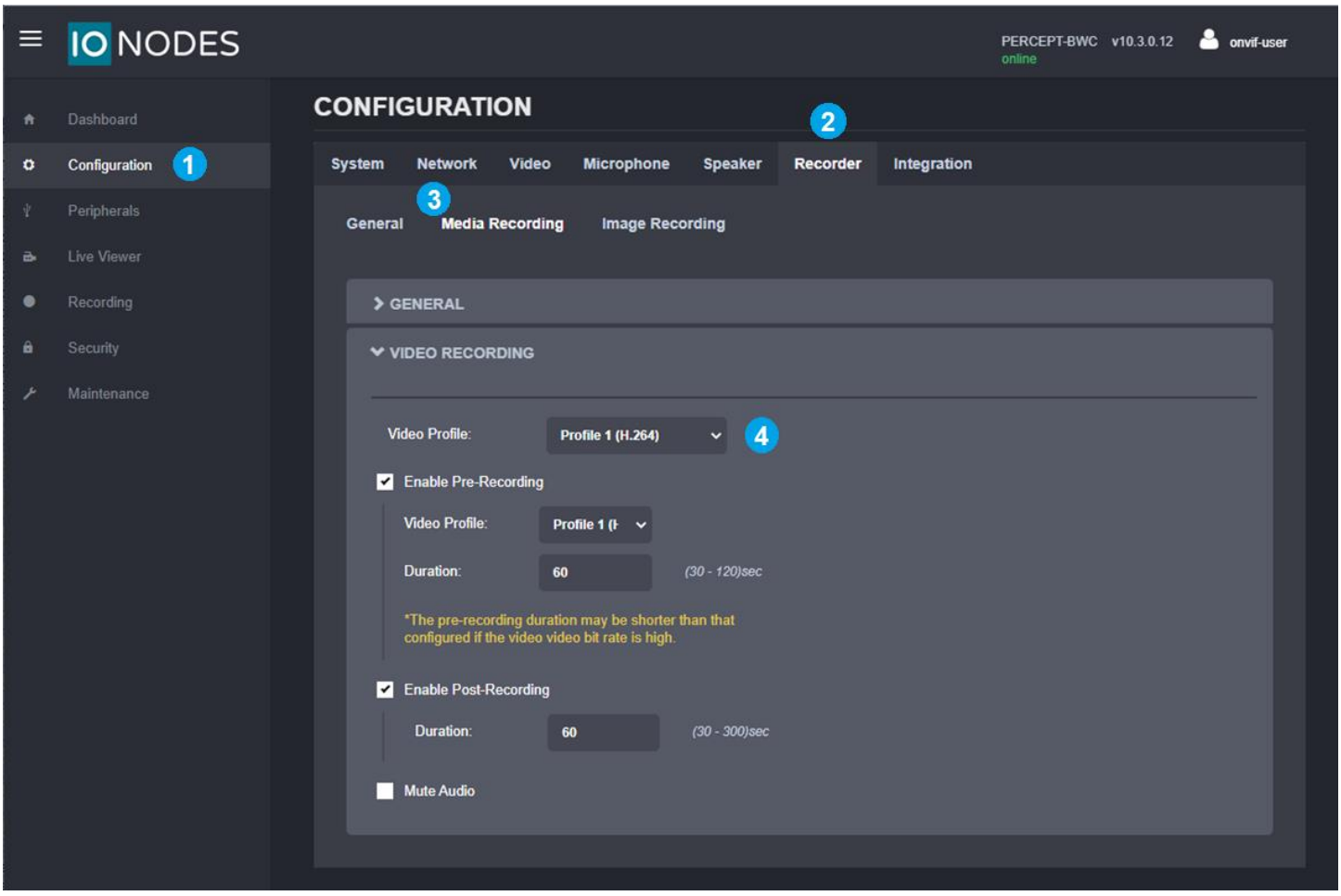


1. From the **Configuration** page
2. Select the **Video** tab
3. Enable and configure each video **Profile** as required

Note: The *Encoder Type* (codec) and enabled profiles are detected by the VMS when adding the device. These settings must therefore be configured in the PERCEPT Body Camera before adding the device to the VMS. Changing *Encoder Type* will reboot the device.

Note: Once added, modifications should only be done from within the VMS and not from the device's web interface.

3.3 Setup local recording on the body camera



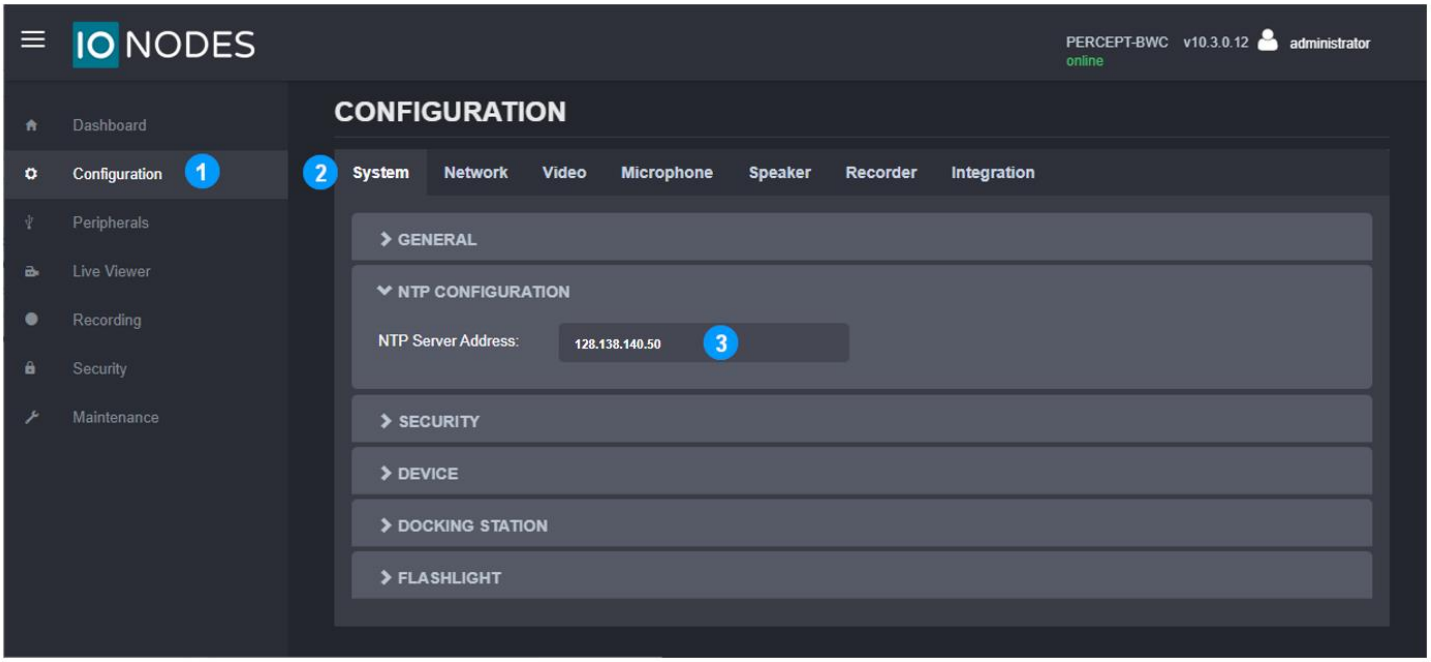
1. From the **Configuration** page
2. Select the **Recorder** tab
3. Select the **Media Recording** subtab
4. Select the **Video Profile** for edge/onboard storage recording.

Note: Profile #3 (MJPEG) is not supported for edge/onboard storage recording. To use local recording on the PERCEPT, Profile #1 or Profile #2 must be enabled.

Note: The profile configured for local recording on the PERCEPT is not required to be the same as the stream profile used for recording within Milestone VMS.

Note: Advanced recording configurations, such as grooming, pre-recording and post-recording, are outside the scope of this integration guide. Refer to the PERCEPT User Manual for advanced configuration.

3.4 Setup time synchronization on the body camera

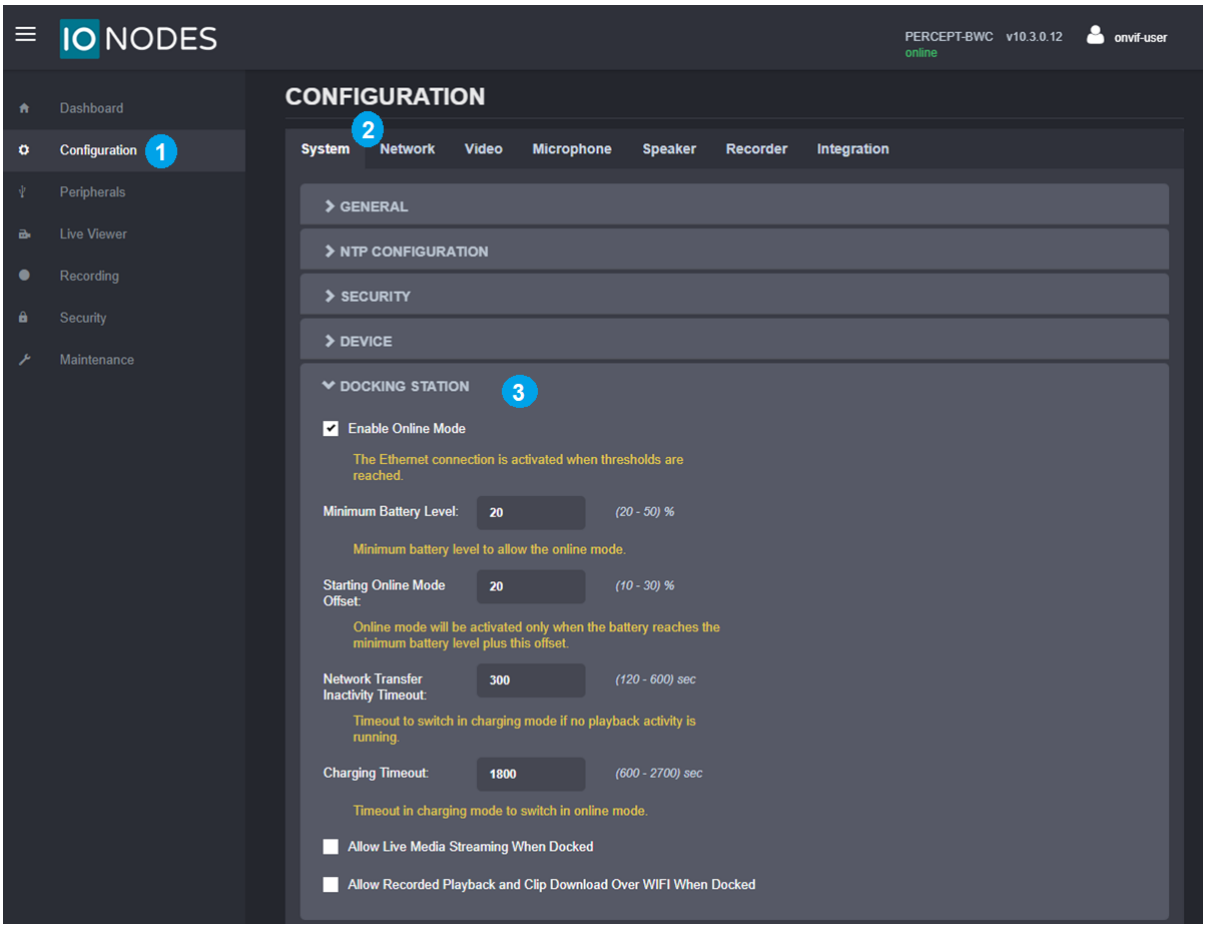


1. From the **Configuration** page
2. Select the **System** tab
3. In the **NTP Configuration** section, enter the IP address of the same network time server used by Milestone VMS to synchronize time

Note: It is possible to use an Internet-based NTP server if the body camera is connected to a network that has Internet access.

3.5 Enable data transfer mode on Docking Station

When using a PERCEPT-DCK docking station for offloading data to the VMS, the user will need to ensure that Online Mode (data transfer via Ethernet) is enabled for the docking station.



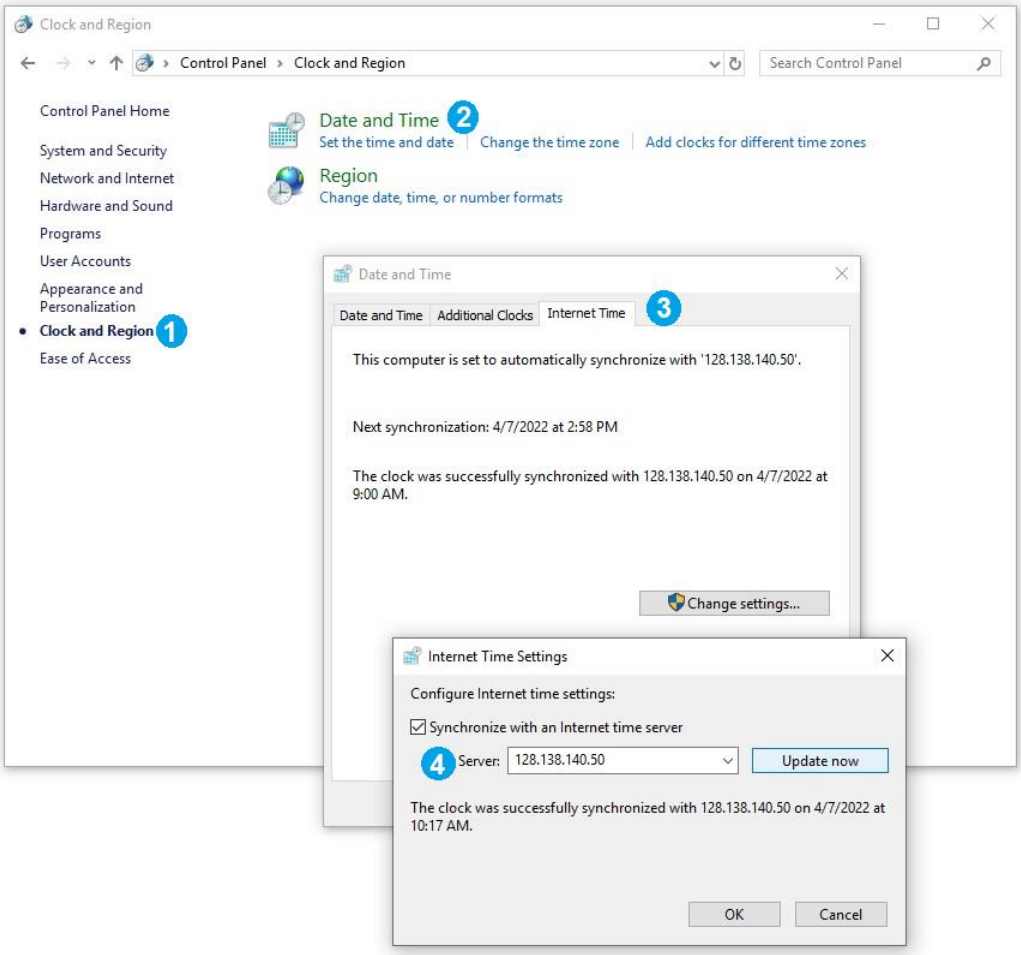
1. From the **Configuration** page
2. Select the **System** tab
3. Select the **Docking Station** subtab and make sure that "*Enable Online Mode*" is checked

Note: If the edge retrieval is enabled, it can create a bandwidth surge of more than 200Mbps when the body camera starts offloading data to the VMS. Please ensure that the network can handle the increased traffic.

For configuring advanced settings related to the behavior of the Docking Station please refer to the PERCEPT Docking Station User Manual.

4 Configuring the VMS before integration

4.1 Configure the time synchronization on the VMS



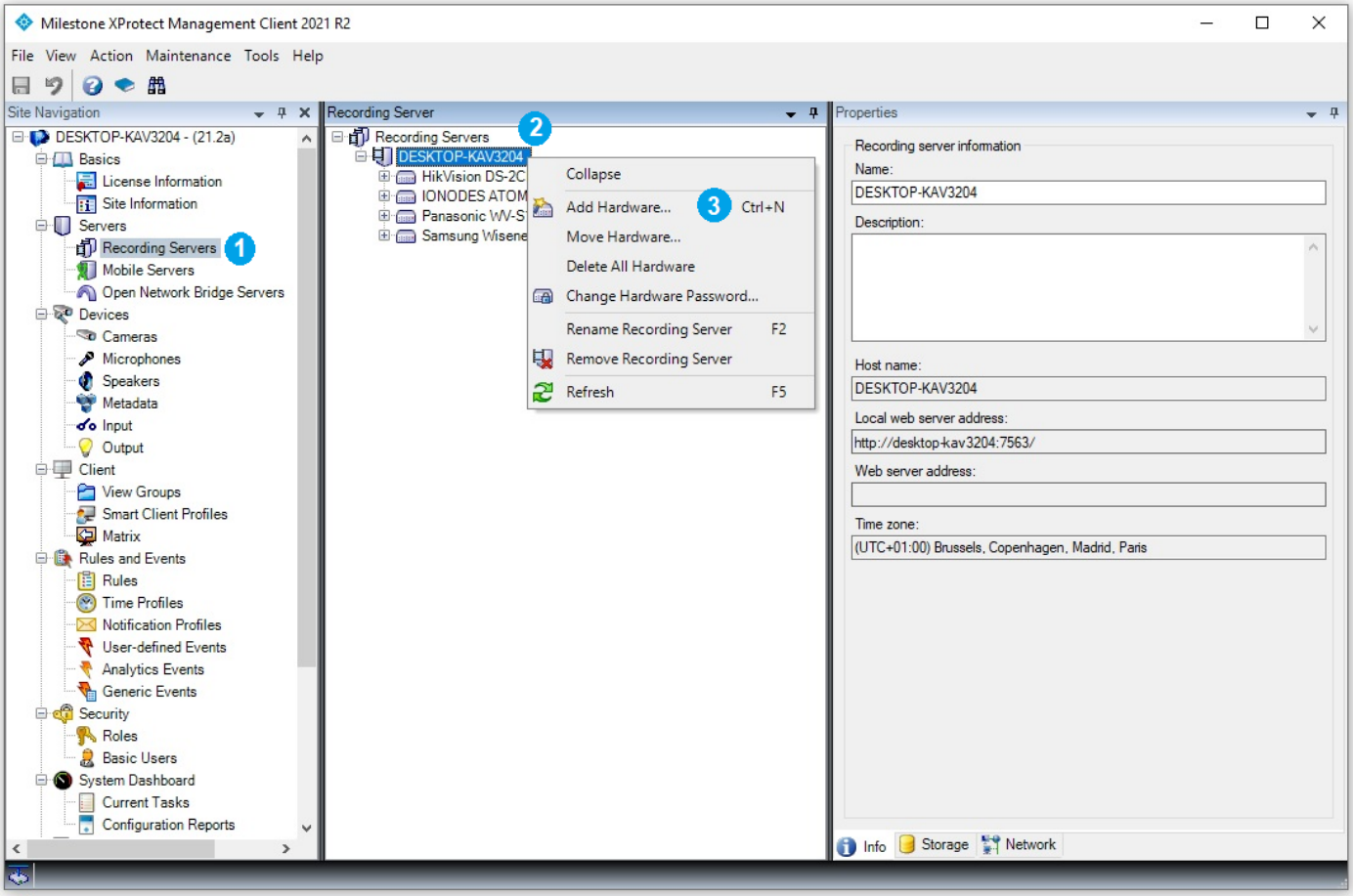
The **Milestone Recording Server** uses by default the time that is set on the workstation PC used to host it.

To change the time settings on the host PC of the Milestone Recording Server:

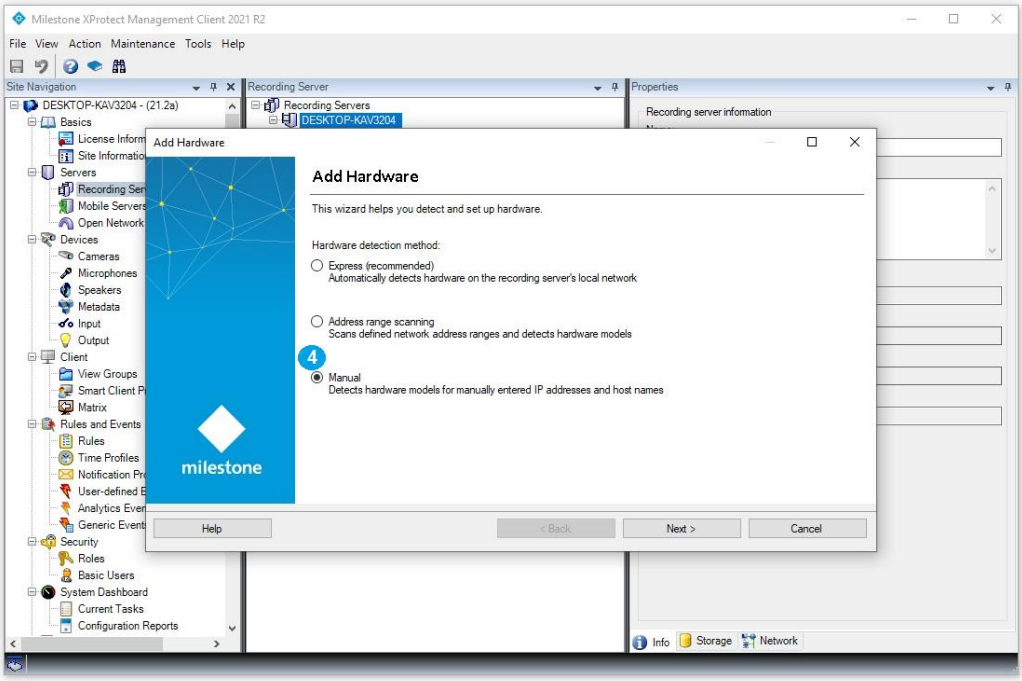
1. From the **Control Panel > Clock and Region**
2. Select the **Set the time and date** tab
3. Select the **Internet Time** and then go to **Change settings…**
4. Select the **Synchronize with an Internet time server** and make sure to use a valid online time server

5 Adding the PERCEPT Body Camera to Milestone XProtect VMS

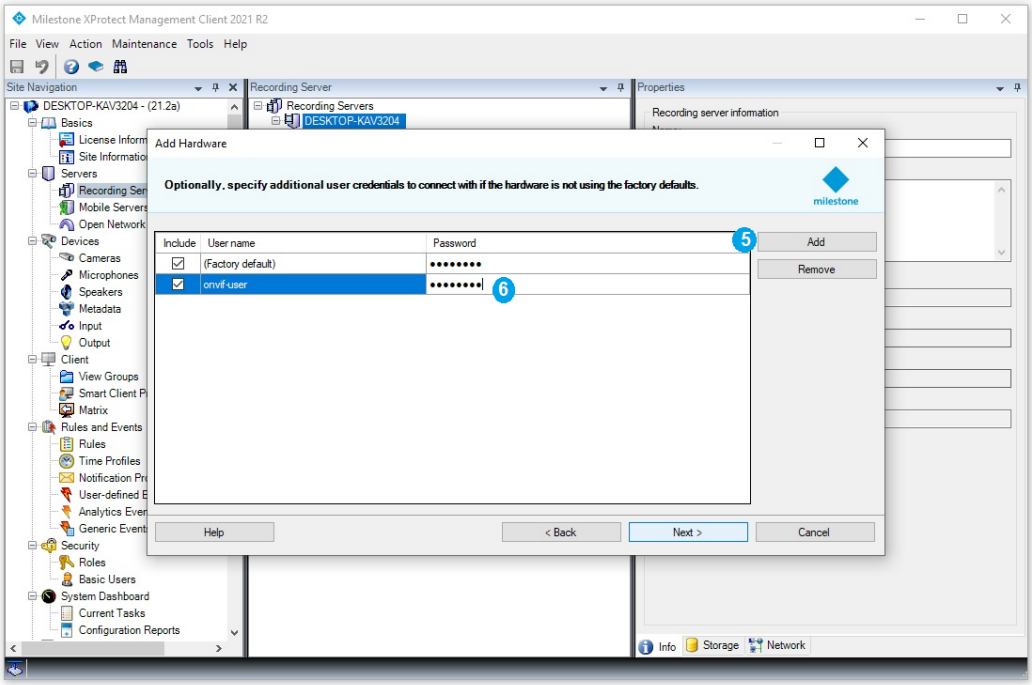
Now that the basics are covered on the PERCEPT Body Camera, it's time to add it to the Milestone XProtect VMS.



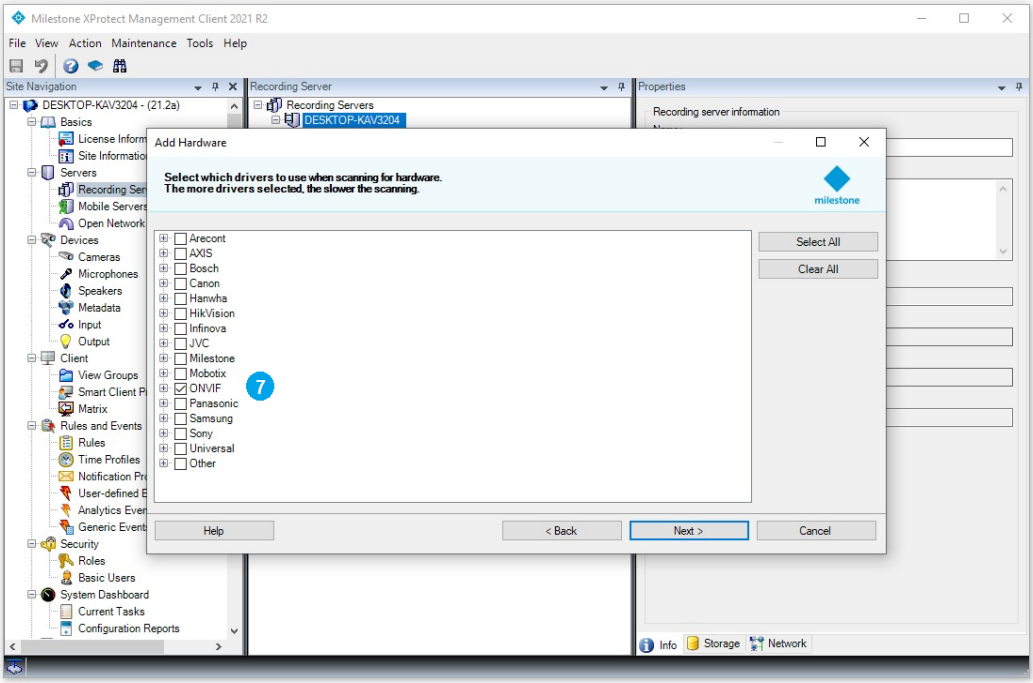
1. In the **Milestone XProtect Management Client**, click on **Recording Servers**
2. Right-click on the recording server where you want to add the PERCEPT Body Camera
3. Choose **Add Hardware** from the pop-up menu



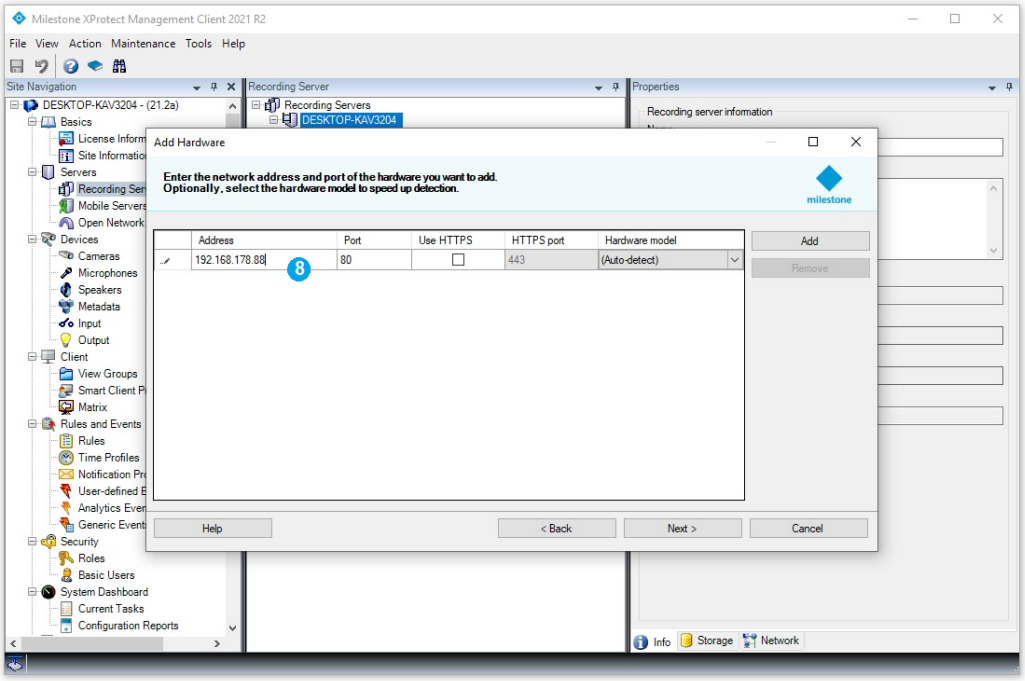
4. Select **Manual**



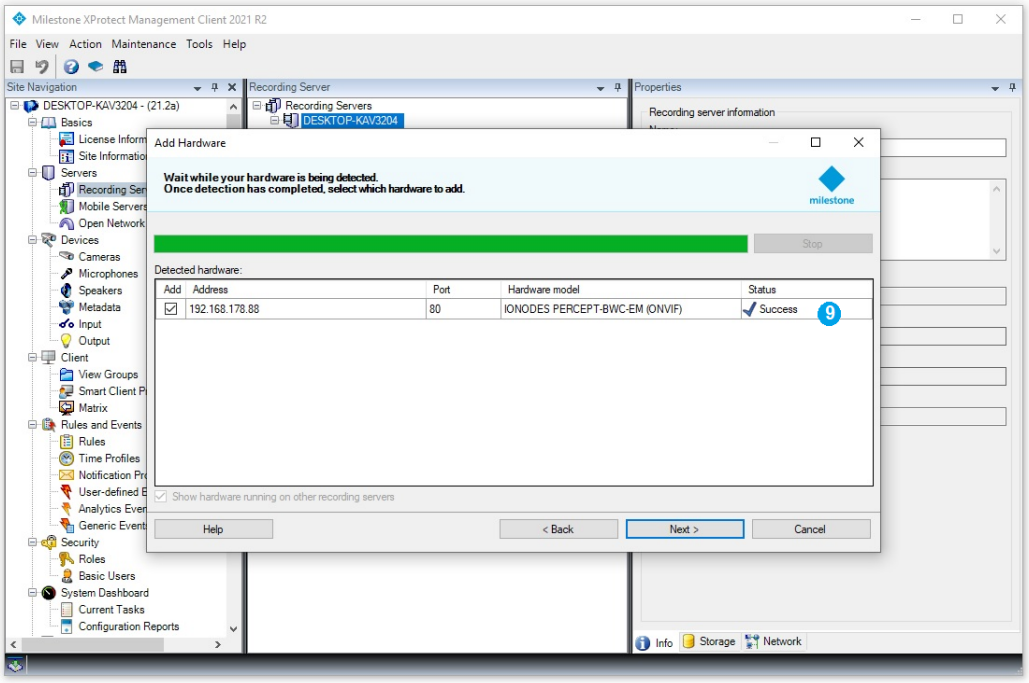
5. Select **Add** to create a new user for communicating with the body camera
6. Input the **credentials** for this user (use the ONVIF account created on the body camera)



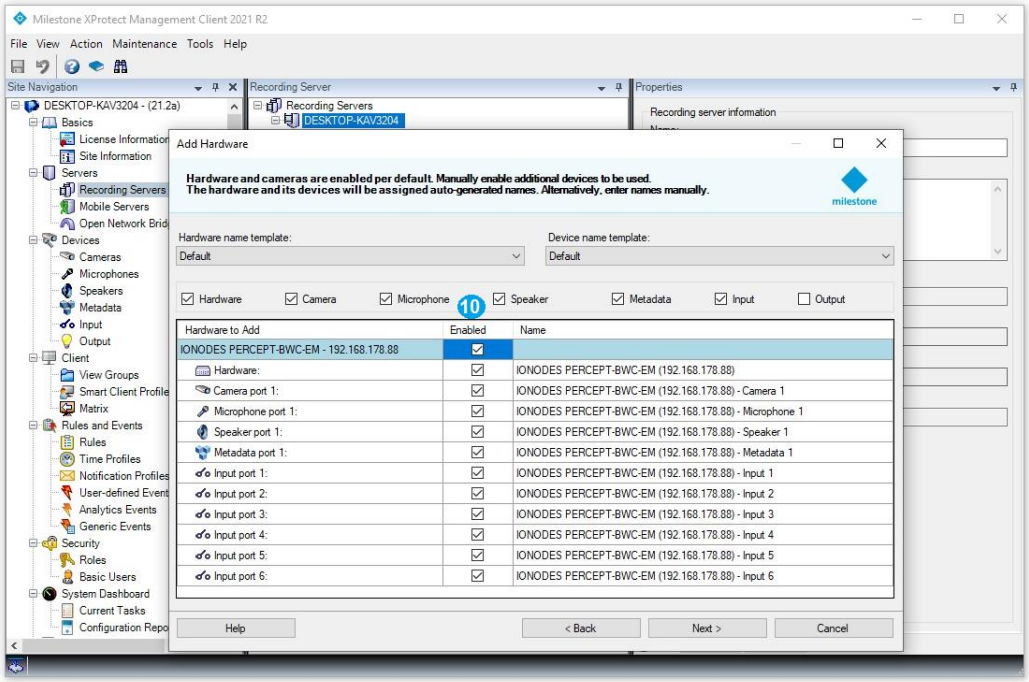
7. Select **ONVIF** in order to use the ONVIF generic driver for adding the body camera



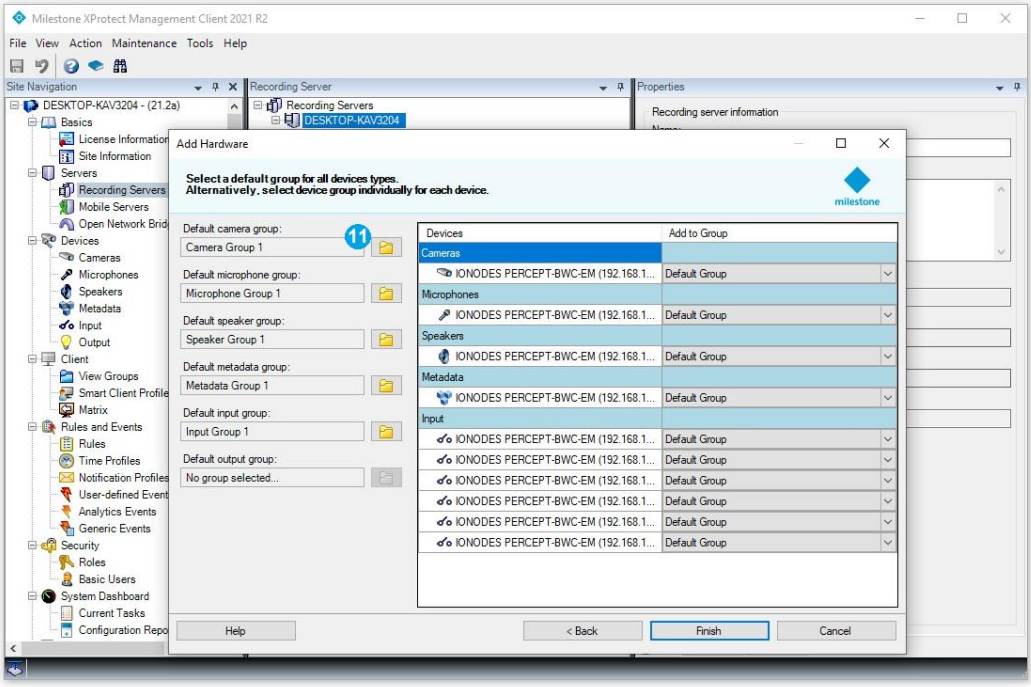
8. Input the **IP address** of the body camera



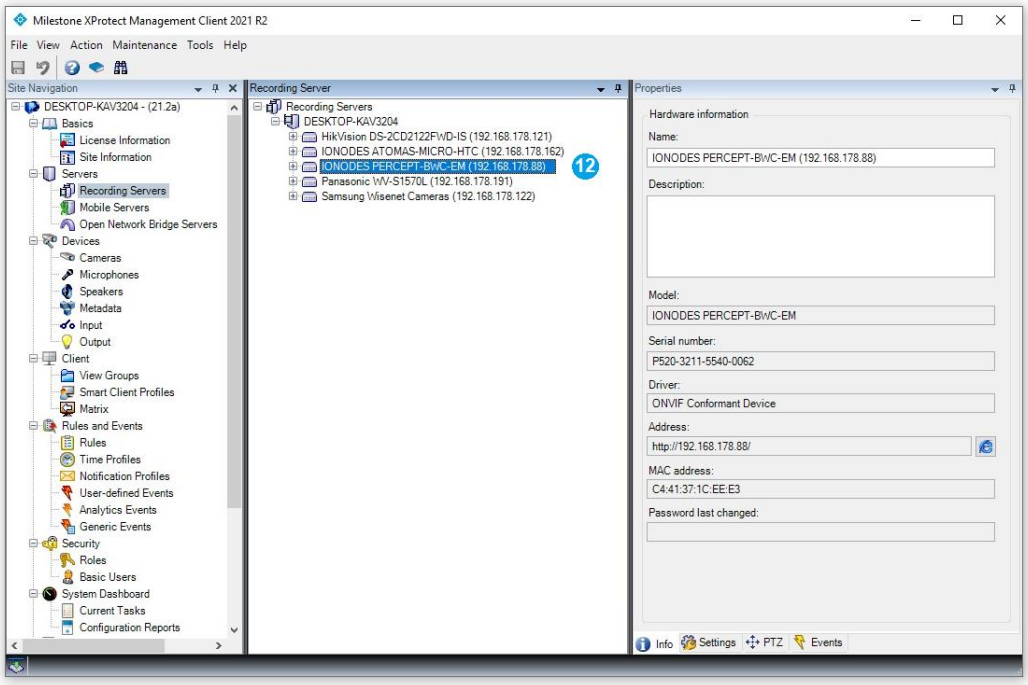
9. Milestone will show a successful connection to the body camera if the IP address and credentials are ok



10. Select which sub-components of the body camera should be enabled within Milestone



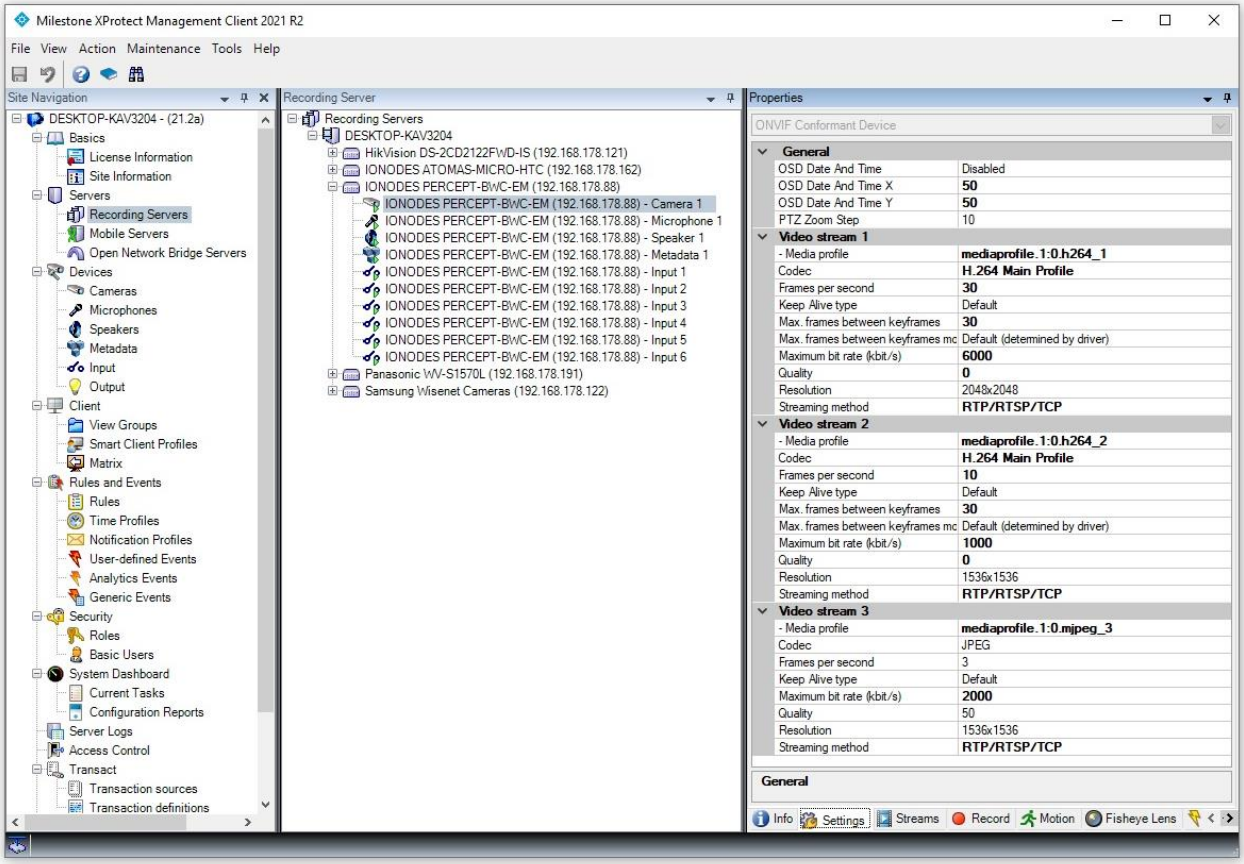
11. Assign each sub-component of the body camera to a group (the group needs to be created inside Milestone VMS if not done already)



12. The Body camera should appear just as a regular IP security camera inside Milestone

6 Configuring the PERCEPT Body Camera inside Milestone VMS

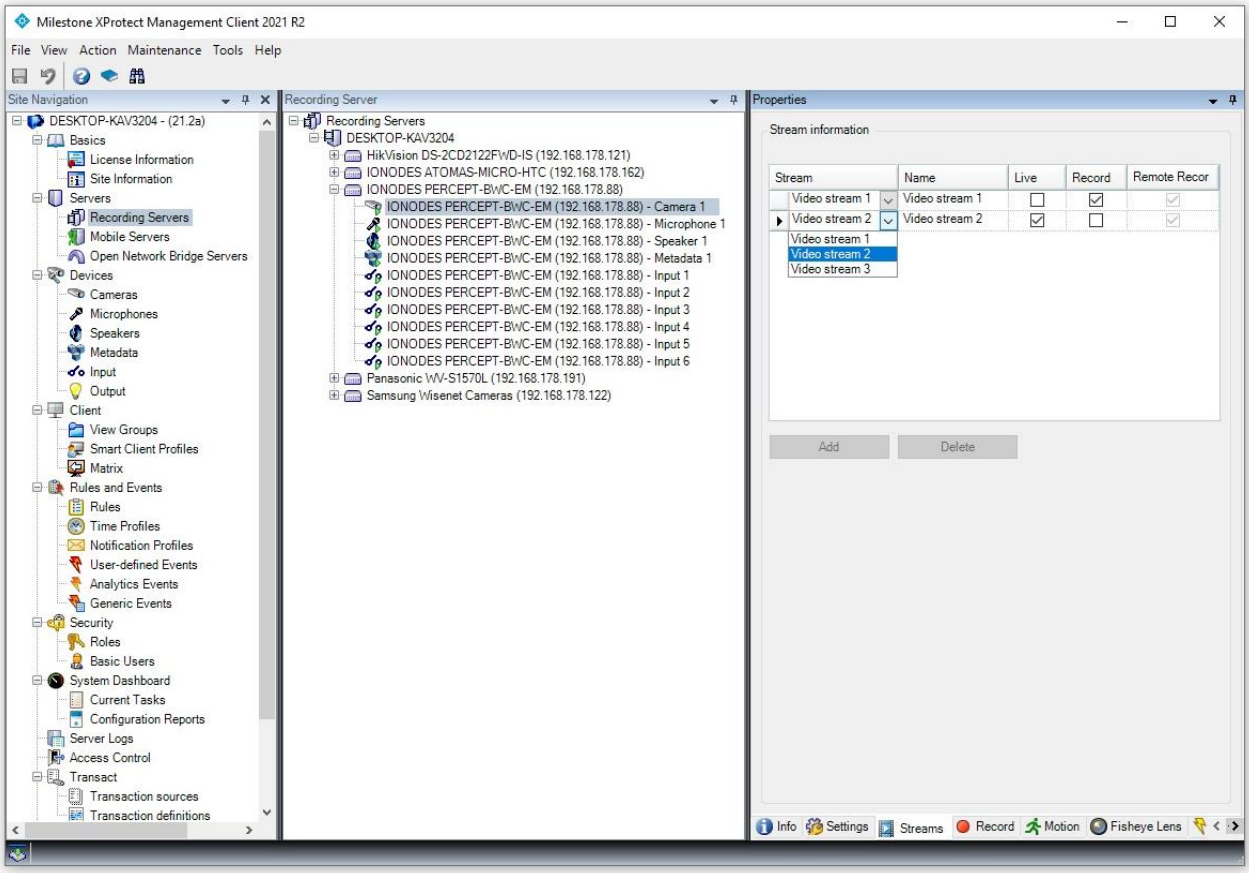
4.1 Change the configuration of the profiles on the body camera



The **Settings** tab from the **Camera** sub-component inside Milestone allows the user to modify the configuration of each video profile that is exposed by the PERCEPT Body Camera. The following parameters can be changed:

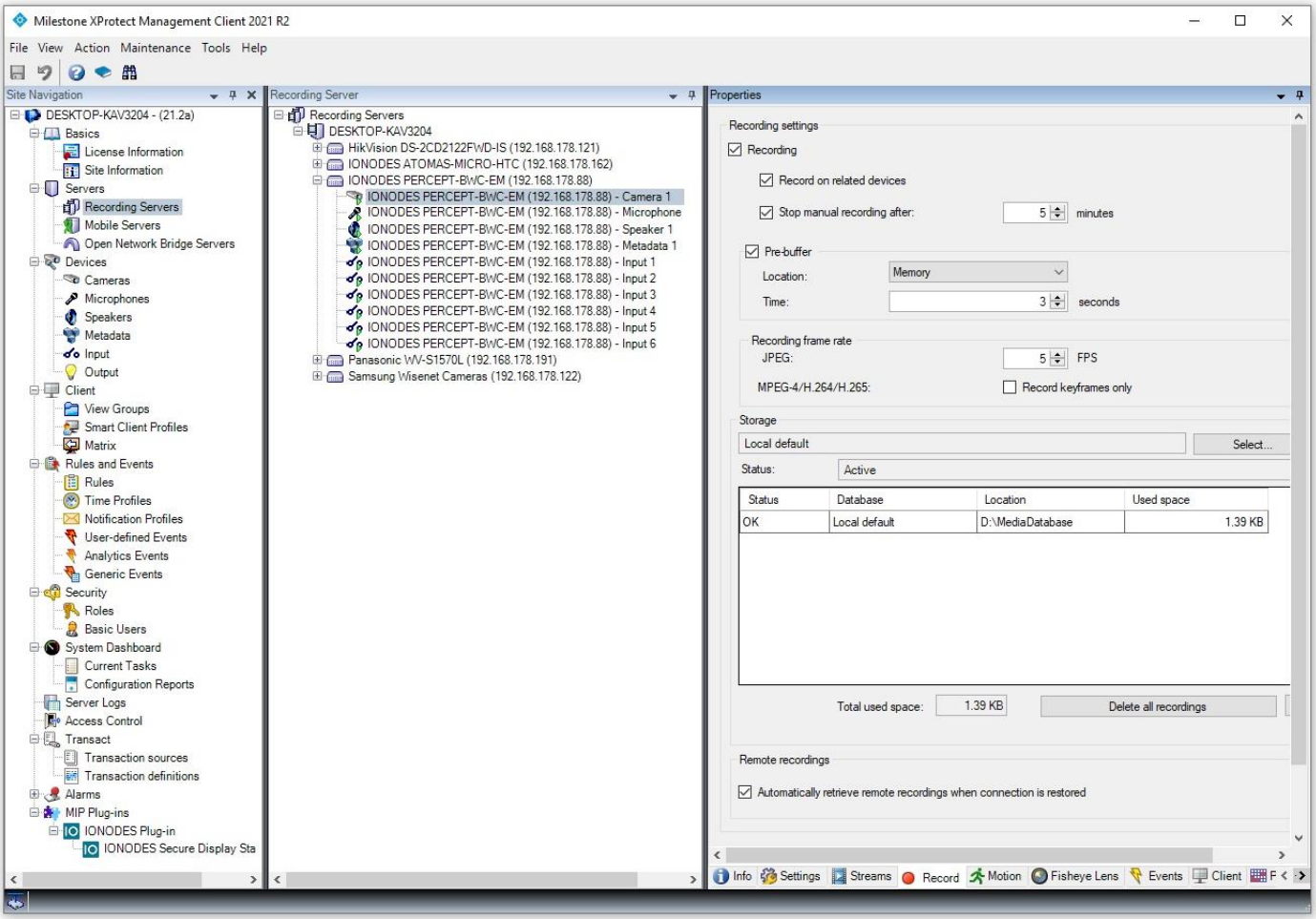
- Codec type (only for Profiles 1 and 2, as Profile 3 is always using MJPEG)
- Frame rate
- Maximum bit rate
- Quality (only for the MJPEG codec)
- Resolution
- Streaming method

4.2 Assign different profiles for different tasks



The **Streams** page from the **Camera** sub-component inside Milestone allows the user to assign different streams (from the ones already exposed to Milestone) for different purposes. For example, the user can have a higher quality stream for recording and a lower quality stream for live viewing.

4.3 Enable the recording to the VMS + edge storage retrieval



The **Record** page from the **Camera** sub-component inside Milestone allows the user to enable or disable recording to the VMS. This setting only affects the VMS, so recording to the body camera's internal memory can still be performed by using its onboard function buttons or by triggering the recording manually from the body camera's web interface Live View section, just as explained in the PERCEPT Quick Start Guide and User Manual.

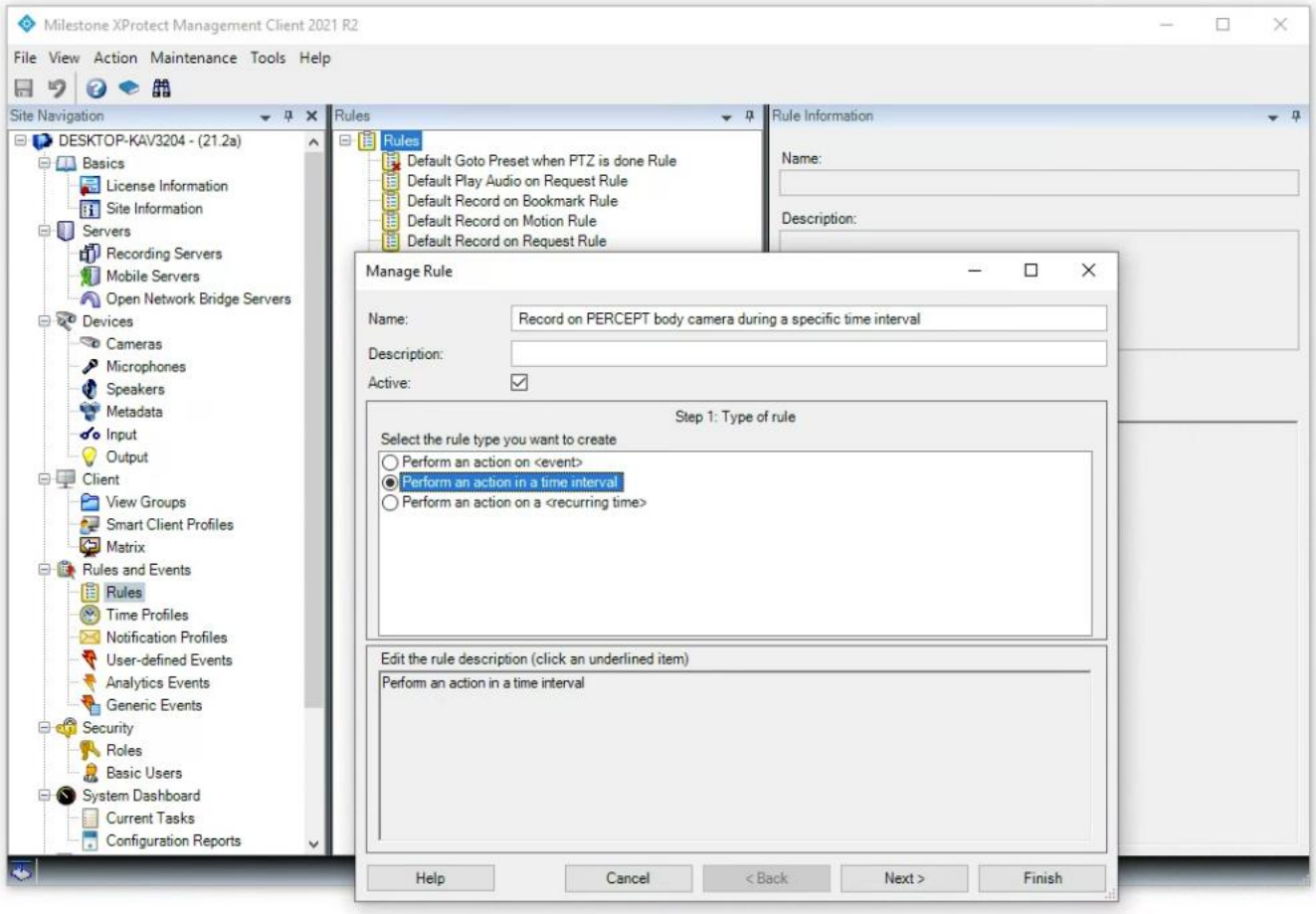
Retrieval of remote video (clips stored on the body camera's internal memory) can be enabled via the option **Automatically retrieve remote recordings when connection is restored** on the bottom of the page.

How does the trickling process (retrieving edge recordings) work?

- When the network connection between the body camera and the Milestone Recording server is restored, the VMS will automatically query the body camera for new recordings and start trickling only the clips from the interval where the connection was down
- There is no way to control the trickling process from within Milestone and there is no indication on the current progress
- Any clips recorded to the internal memory of the body camera while the connection to the Milestone Recording server was still active (for instance the user manually triggered a recording by pressing the buttons on the body camera) will not be synchronized to the VMS
- Any clips recorded to the internal memory body camera dating from before the body camera was added to the VMS will also not the synchronized to the VMS
- Once the trickling is done, you'll be able to see the clips in the Milestone Smart Client, Playback section (same as for the clips recorded by Milestone VMS directly)

Note: Please note that availability of edge storage feature is dependant on Milestone VMS licensing (XProtect Professional+ or higher version is required).

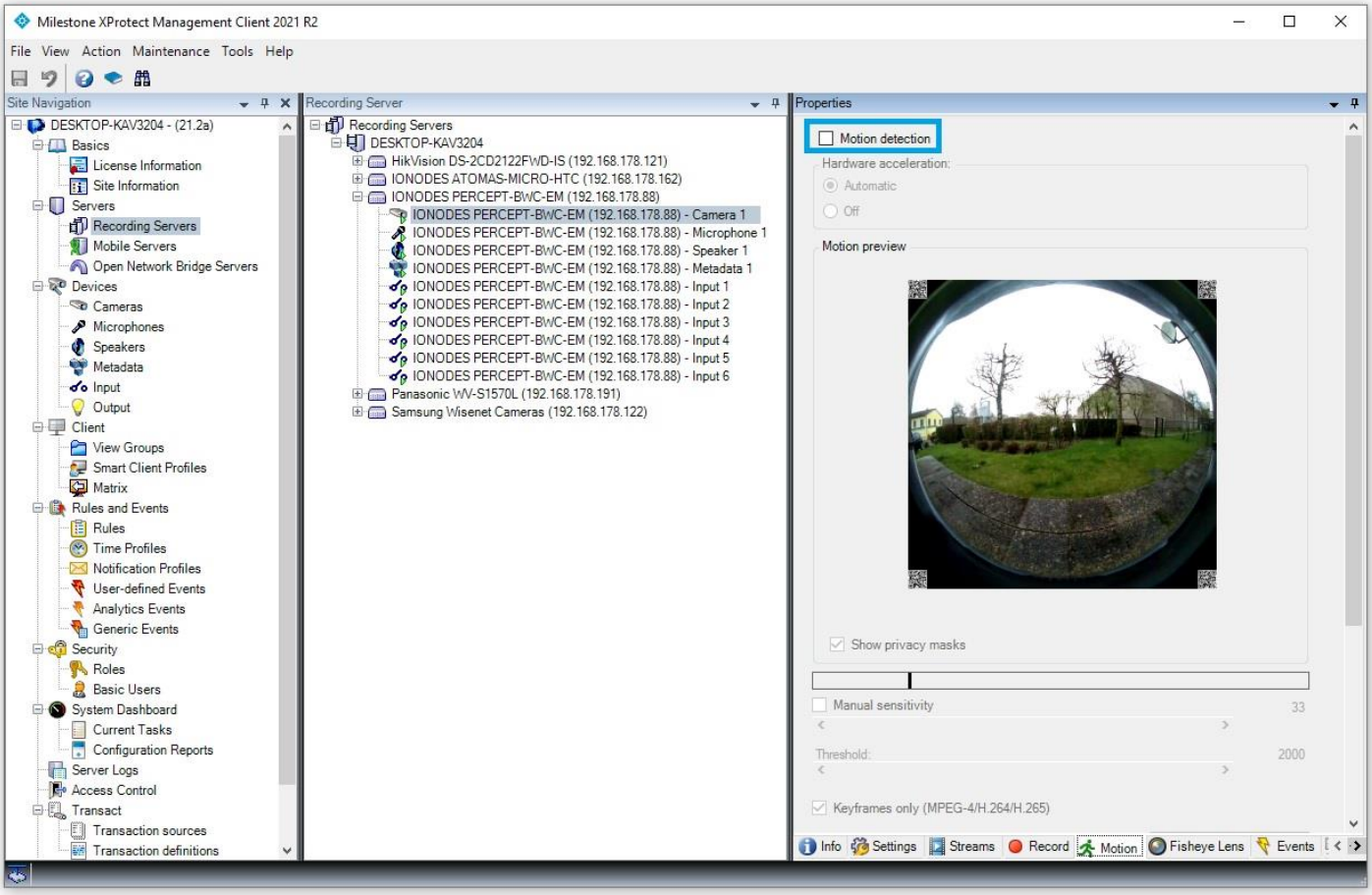
4.4 Configure the recording rules



Recording to the Milestone VMS is governed by rules. Since the PERCEPT Body Camera behaves just like a regular IP camera (with regards to recording to the VMS), it is subject to these rules. The **Rules** page from the **Rules & Events** section inside Milestone allows the user to create various rules and assign them to devices. For example, the user can define a rule to record from a body camera only during a specific time interval.

Note: Please consult Milestone XProtect VMS Administrator Manual for more information on Rules & Events.

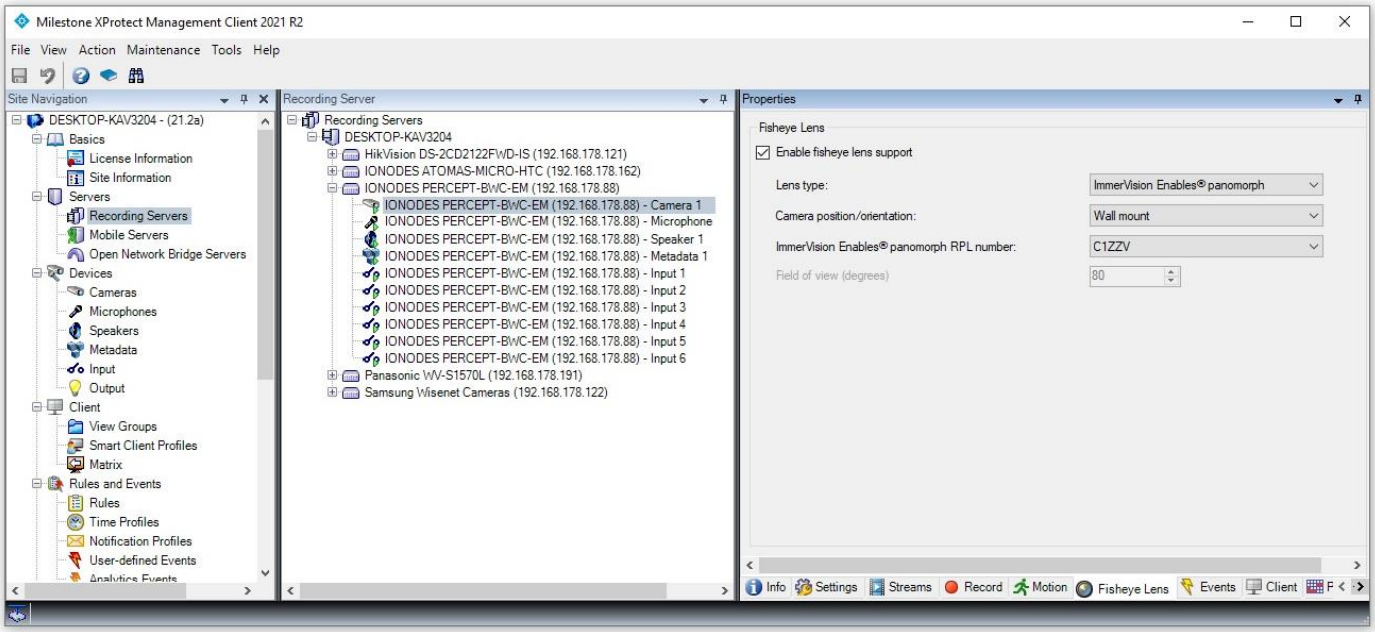
4.5 Configure motion detection



The **Motion Detection** page from the **Camera** sub-component inside Milestone allows the user to enable or disable motion detection performed by the VMS. As the PERCEPT Body Camera is a mobile device intended to always be on the move, it is recommended to disable motion detection.

Note: Enabling Motion Detection also means that the PERCEPT Body Camera is always streaming video to the Milestone XProtect (the VMS requires the video stream in order to perform the motion detection analysis) .

4.6 Configure dewarping for the body camera's Panomorph lens



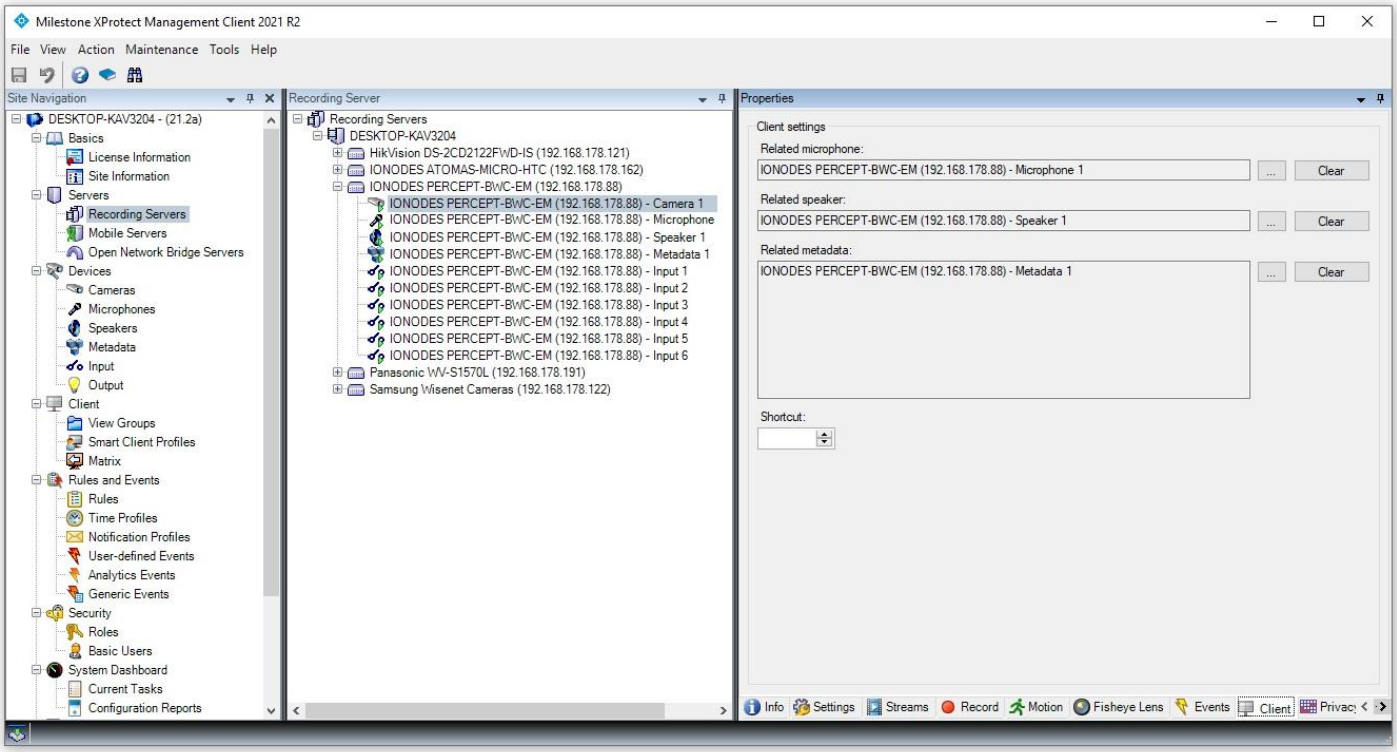
The **Fisheye Lens** page from the **Camera** sub-component inside Milestone allows the user to configure the dewarping of the video received from the body camera.

In order to do that, please select the following:

- Lens type: **ImmerVision Enables Panomorph**
- Camera position/orientation: **Wall mount**
- ImmerVision Enables Panomorph RPL number: **C1ZZV**

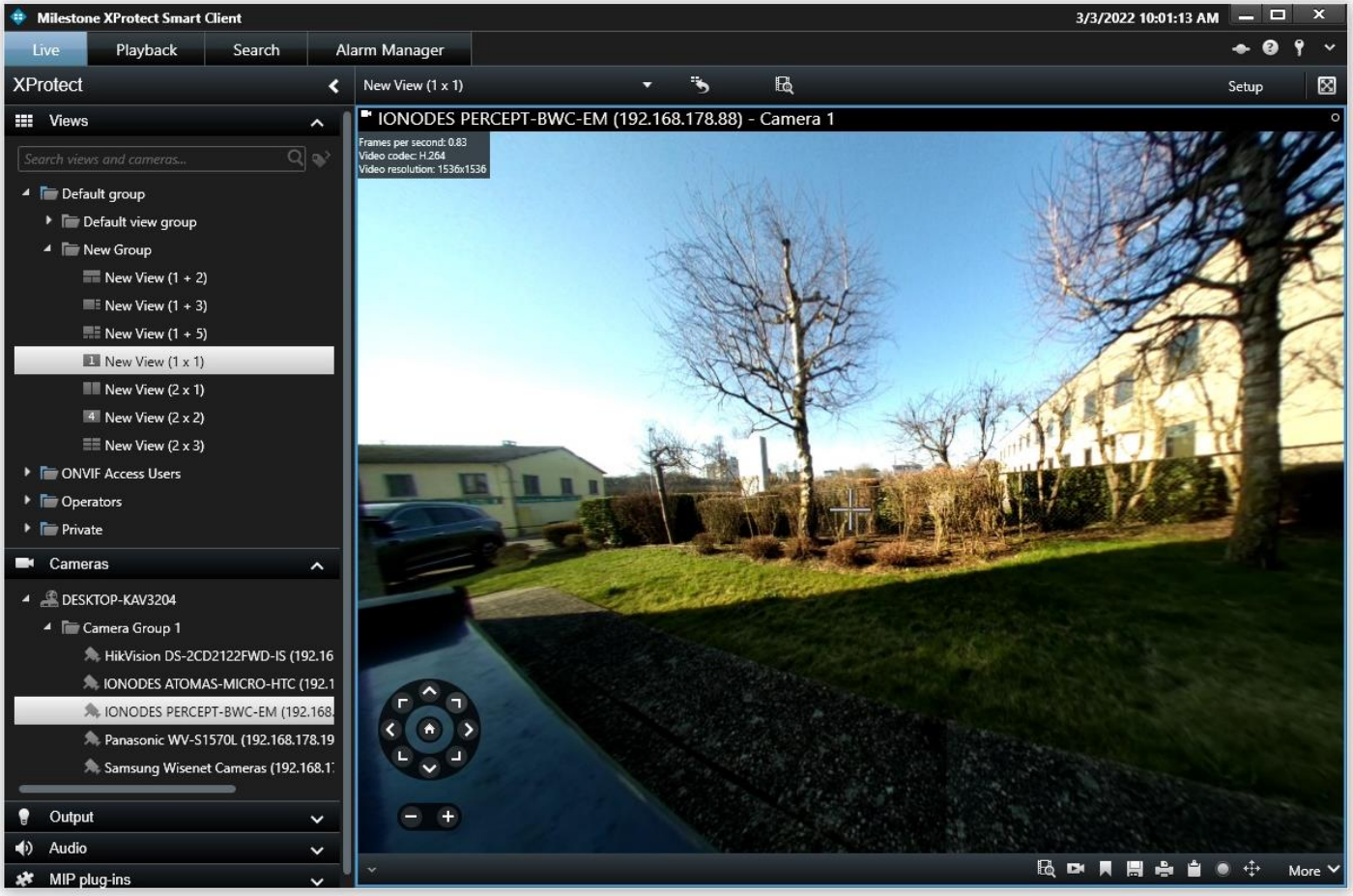
Note: If the user does not enable the Panomorph lens support, the image presented by the Milestone Smart Client will be the full hemisphere (187 x 187 degrees, Horizontal x Vertical).

4.7 Configure the sub-components for Milestone Smart Client usage



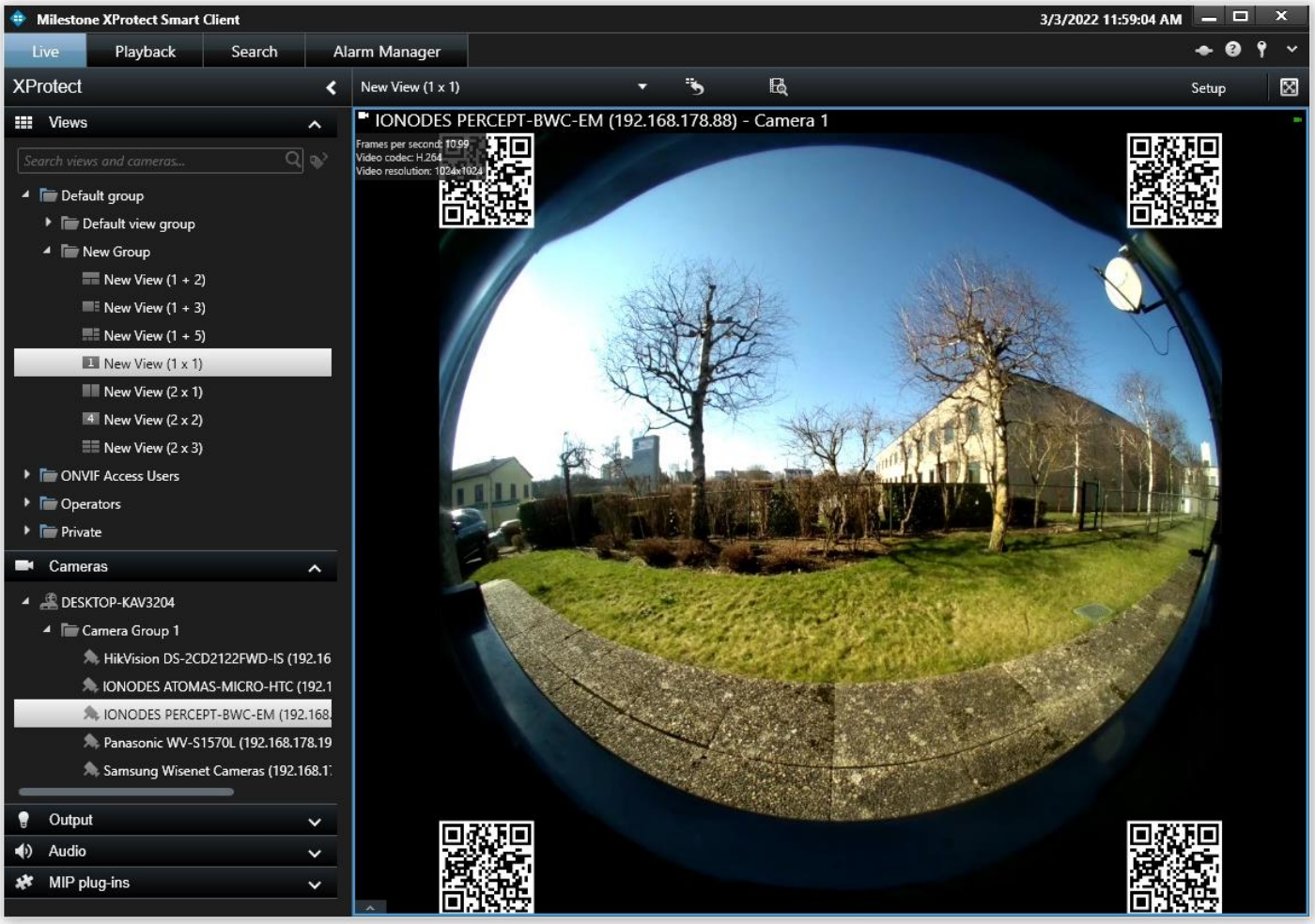
The **Client** page from the **Camera** sub-component inside Milestone allows the user to configure the related sub-components of the device (microphone, speaker and metadata engine) so that they can be used inside the **Milestone Smart Client** in addition to the video.

7 Viewing live and recorded video from the PERCEPT Body Camera inside the VMS



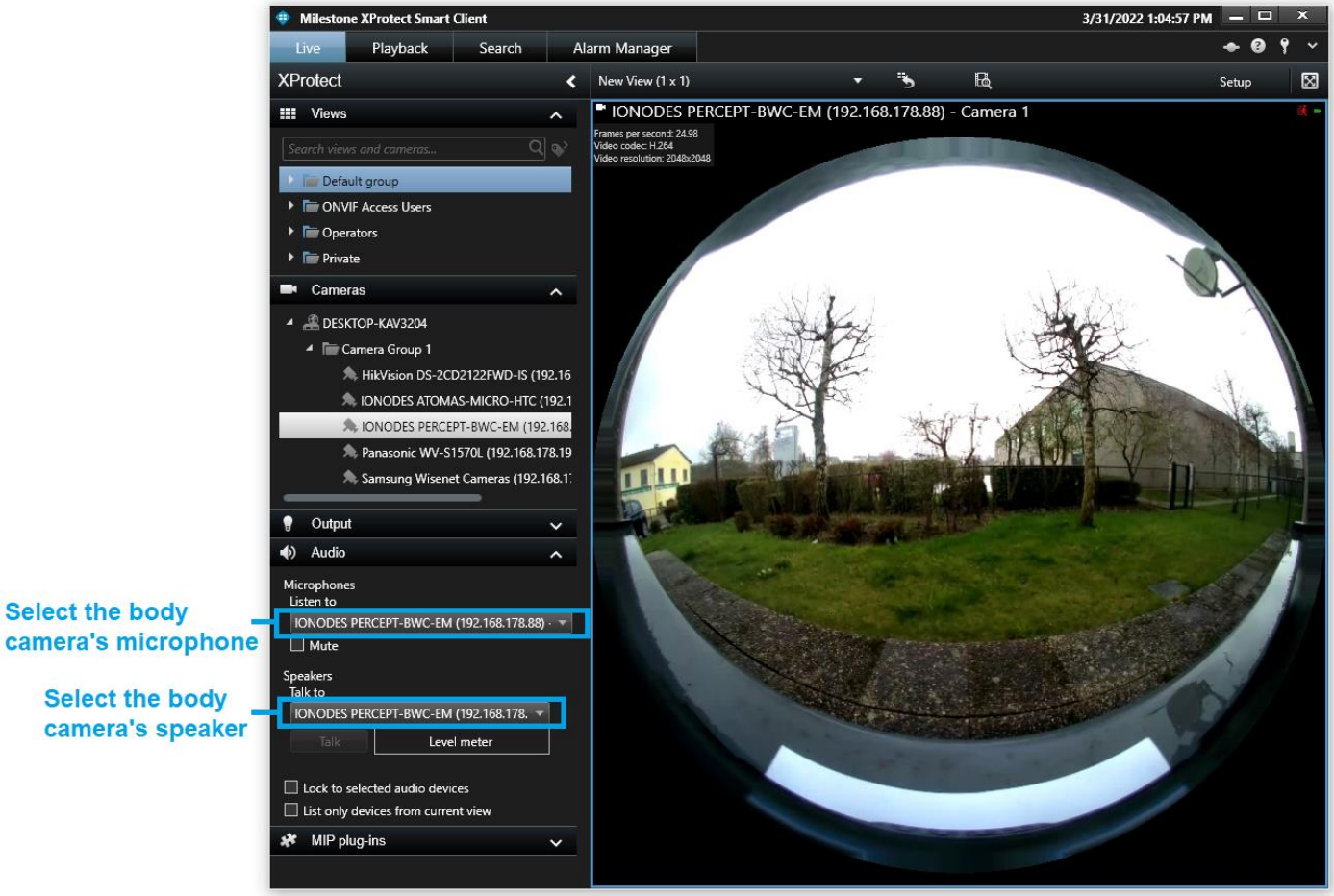
The user can view live and recorded footage from the body camera using the **Milestone Smart Client**.

When the Panomorph dewarping is enabled, the user will be able to navigate (zoom in/out and move) inside the image using the virtual PTZ controls that appear in the bottom left-hand side. While doing so, the presented image will be dewarped.



When Panomorph support is disabled, the user will see the full hemisphere captured by the camera (along with the QR Codes in the corners). A digital zoom is still possible, but the presented image will not be dewarped.

8 Using two-way audio functionality inside the VMS



The PERCEPT Body Camera's two-way audio functionality can be accessed from the **Milestone Smart Client**. In the Audio section, the user will need to select the body camera's microphone (in order to listen to it) and speaker (in order to talk to it).