



March Networks® Command™ VMS /
IONODES PERCEPT Body Camera
Integration Guide

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Contents

Contents.....2

1 Introduction3

2 Typical Deployment.....3

3 Configuring the PERCEPT Body Camera4

 3.1 Create a new dedicated ONVIF user (recommended)4

 3.2 Configure video profiles6

 3.3 Setup local recording on the body camera.....7

 3.4 Disable orientation metadata.....8

 3.5 Enable docking station data transfer.....9

4 Integrating the PERCEPT Body Camera with March Networks® Command™10

 4.1 Add the PERCEPT Body Camera10

 4.2 Configure Panomorph lens dewarping12

 4.3 Configure stream encoder(s)13

 4.4 Configure recording.....14

 4.4.1 Continuous recording.....14

 4.4.2 Edge storage Synchronization (no live recording)15

 4.4.3 Continuous recording with Synchronization16

 4.5 Considerations for docking station users17

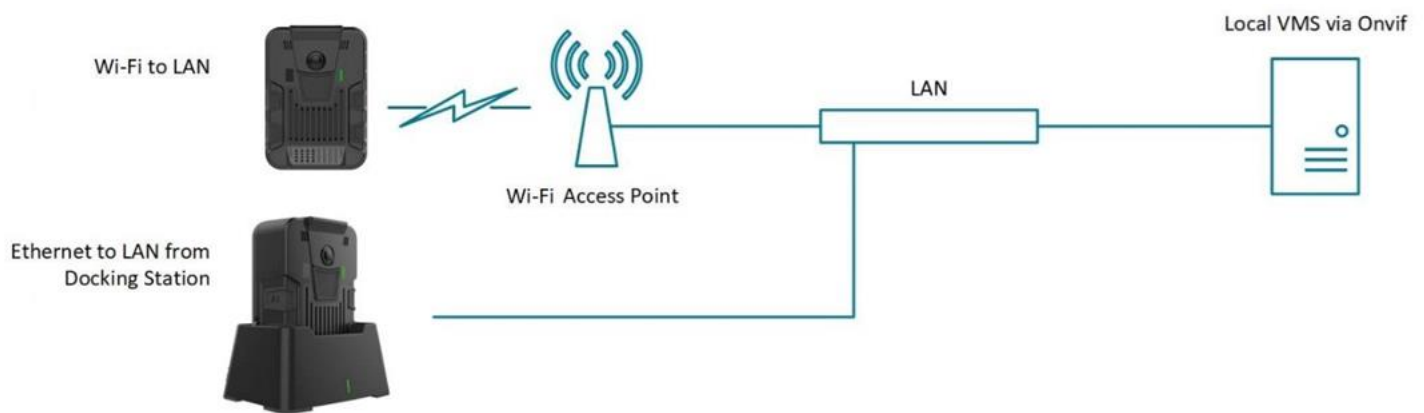
5 Viewing video from the PERCEPT Body Camera inside Command™19

1 Introduction

One of the unique features of the IONODES PERCEPT Body Camera is that it is an open platform device, allowing for integration with industry-leading solutions such as March Networks® Command™ (MNC) Video Management Solution (VMS). It implements extensive features of ONVIF profiles G, S and T, along with flexible network configurations (LAN, Wi-Fi, 4G/LTE) for live video and edge recording retrieval.

This integration is supported as of IONODES PERCEPT firmware 15.2.1.4 and has been validated with March Networks® Smart Deploy 6.11.0 and an NVR device version 6.10.0. This document shows steps required for a simple integration scenario. Integrators should adjust to their specific needs and system environment.

2 Typical Deployment



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

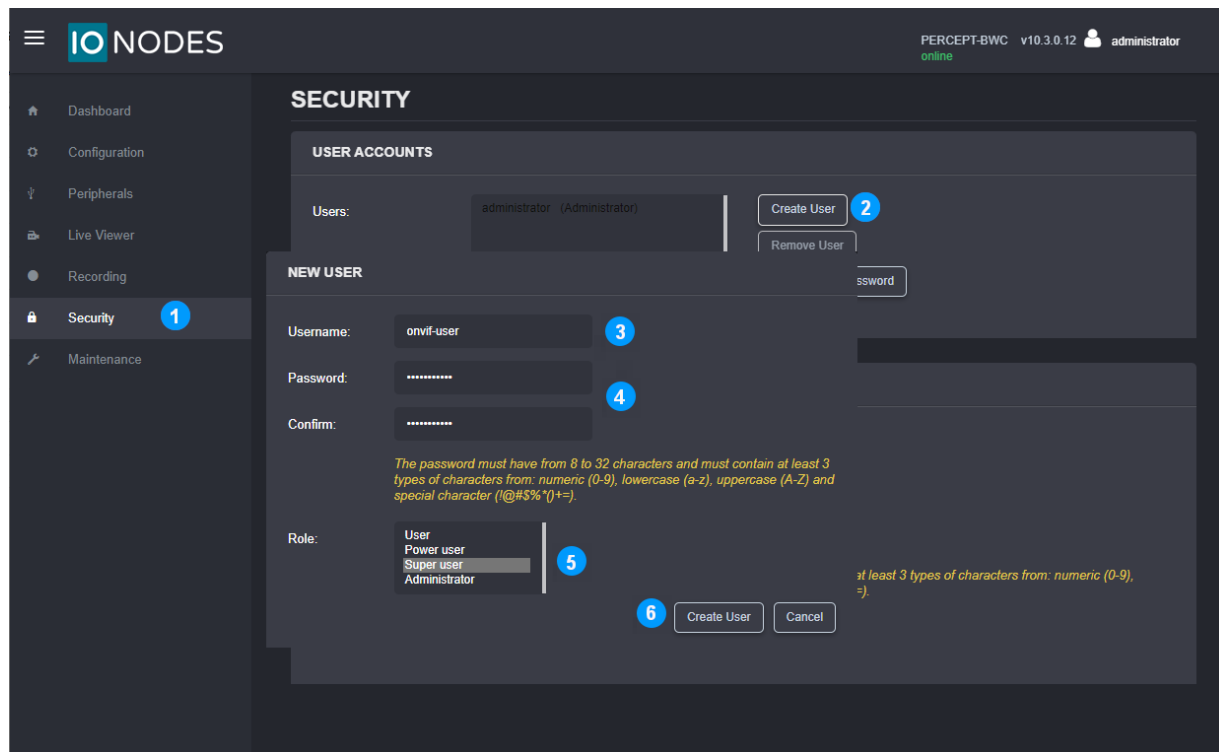
3 Configuring the PERCEPT Body Camera

To get started, you'll need to initialize the PERCEPT Body Camera's network connectivity with the Video Management System (VMS) via Wi-Fi. Refer to the PERCEPT Quick Start Guide for network initialization instructions. Network settings shall be configured for the PERCEPT Body Camera to always obtain the same IP address on its Wi-Fi and/or Ethernet interfaces. This can be achieved by setting both to the same static IP address, or by using a DHCP server with address reservation. Only one of the two network interfaces can be active at any given time, and both expose the same MAC address.

Note: Instructions in this guide assume the PERCEPT Body Camera's initial state is at factory default. If the body camera was previously used, it is recommended to reset it before integrating it with MNC.

3.1 Create a new dedicated ONVIF user (recommended)

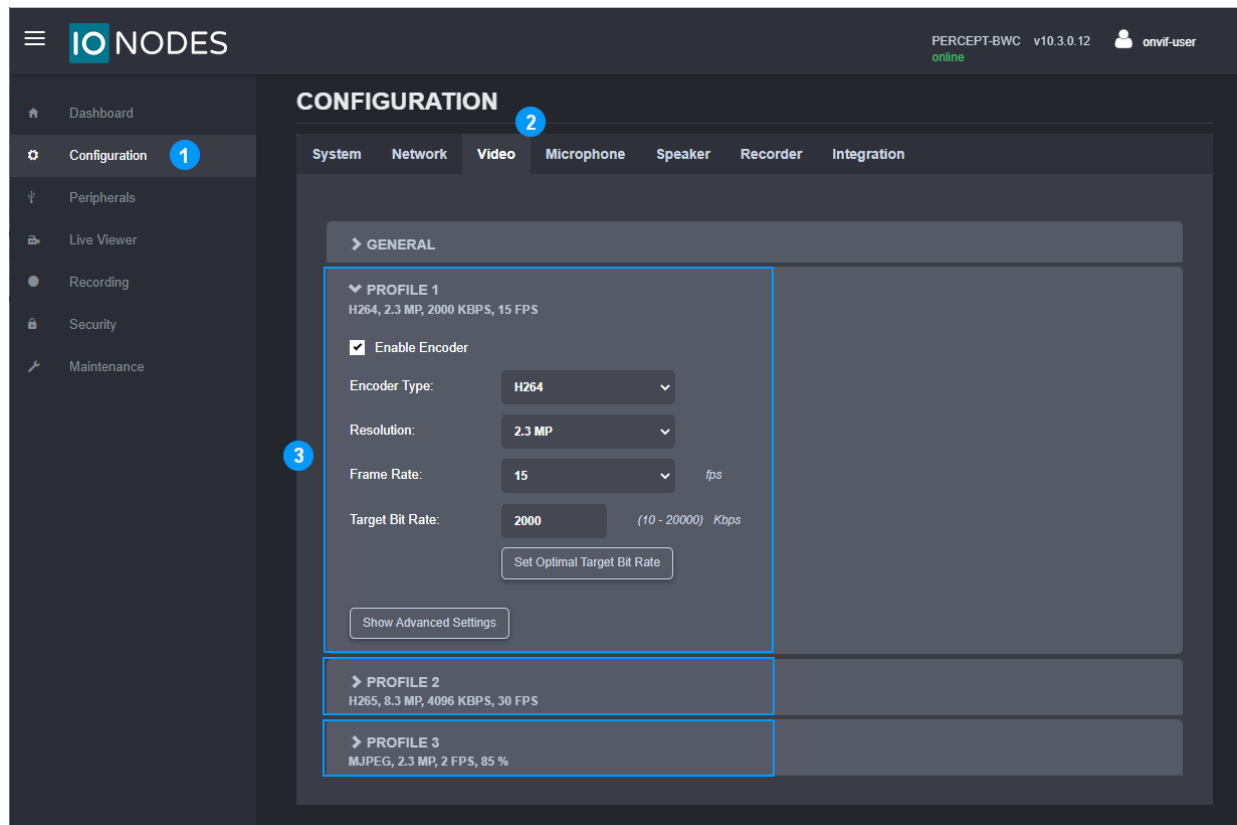
The default administrator account can be used for integrating the body camera to the VMS. However, it is recommended to create a dedicated ONVIF user account for this purpose. The role "Superuser" gives the account permissions for almost everything (the only exception is managing other users on the device).



1. Once logged into the PERCEPT Body Camera's Web UI with administrator credentials, click on 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.

3.2 Configure video profiles

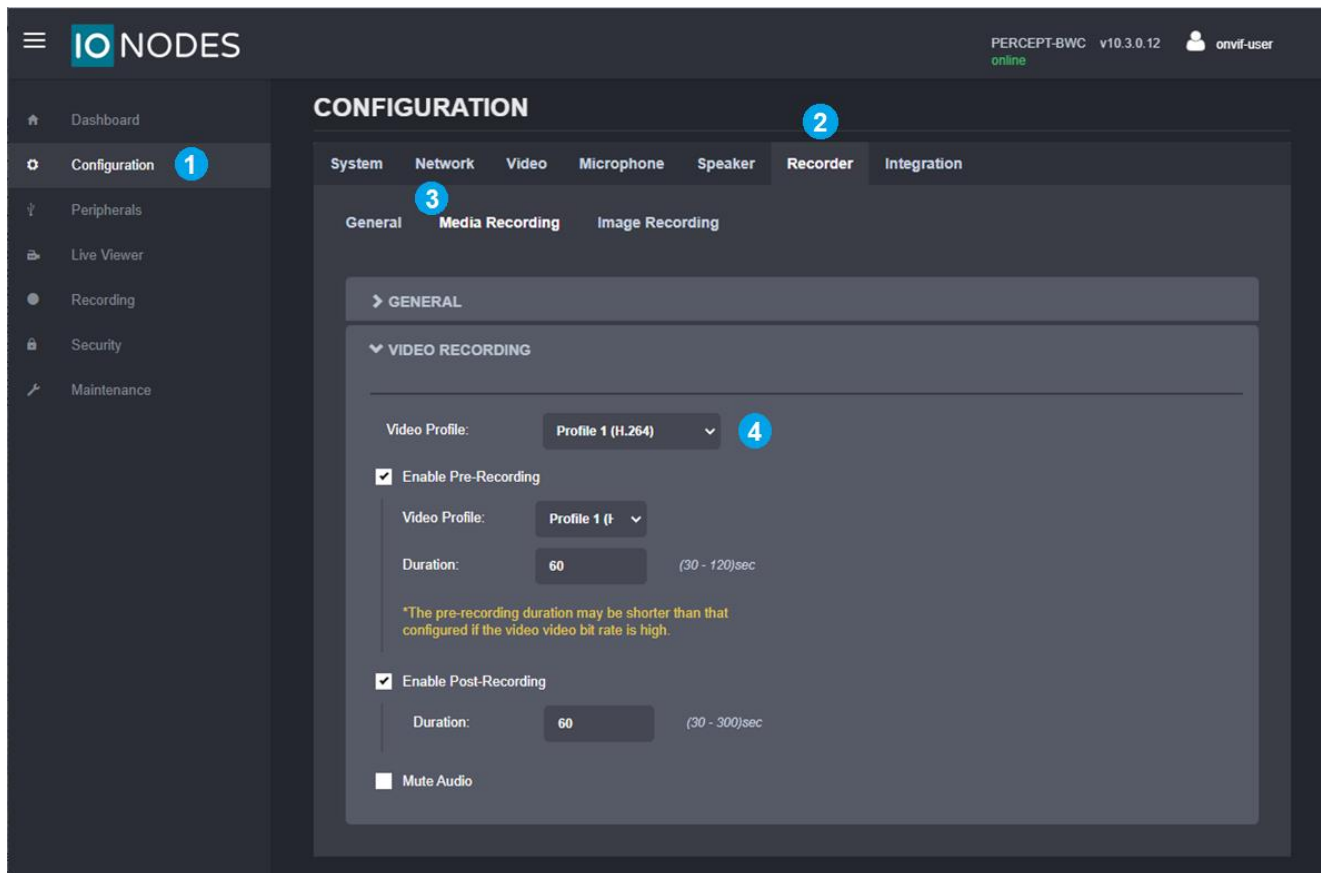
The PERCEPT Body Camera supports two (2) H.264/265 video encoder profiles and one (1) MJPEG profile. Each profile enabled in the PERCEPT Body Camera will be accessible to MNC. It is strongly recommended not to use the MJPEG profile due to its high bitrate.



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

Note: Enabling a profile or changing its *Encoder Type* requires rebooting the device.

3.3 Setup local recording on the body camera

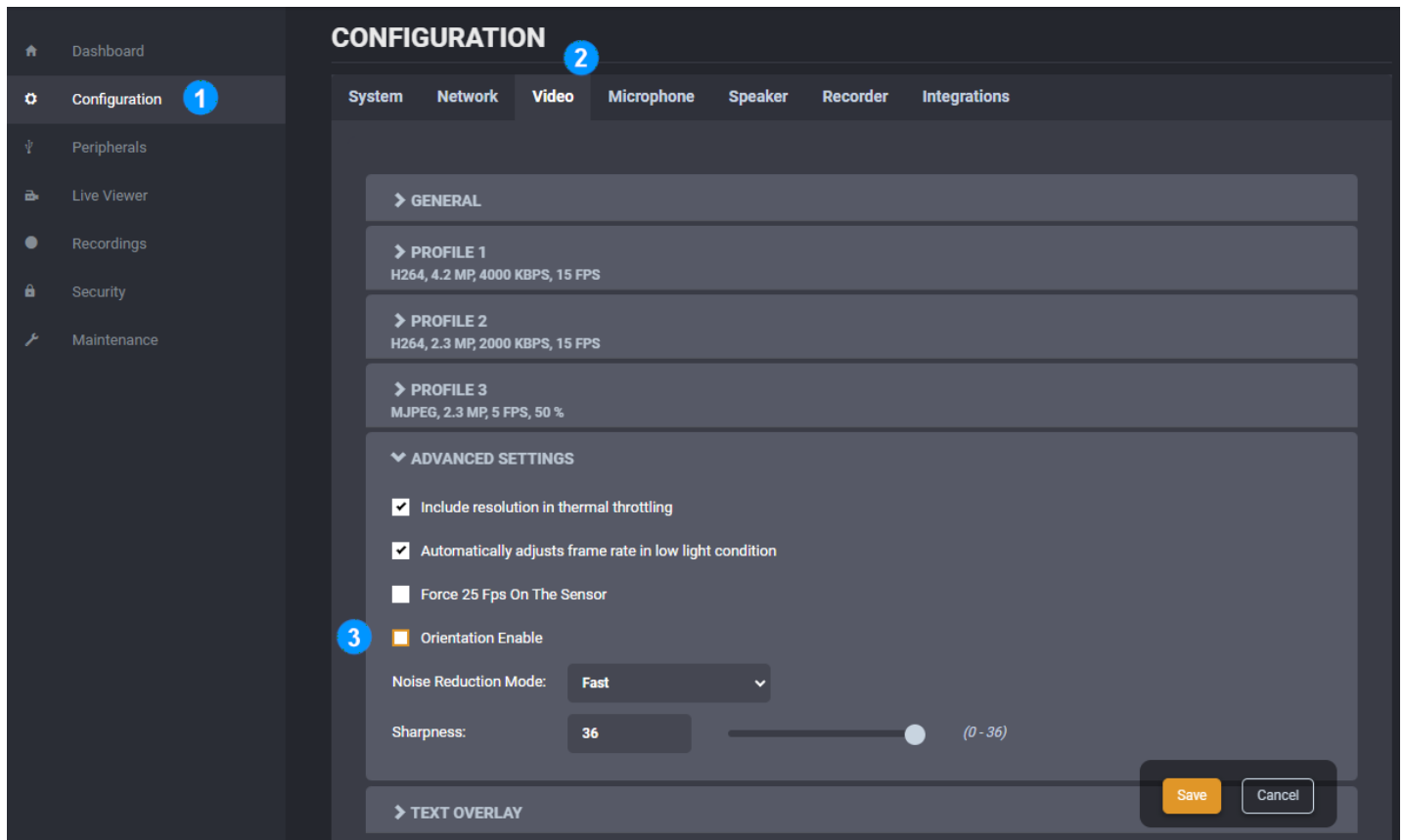


1. From the Configuration page.
2. Select the Recorder tab.
3. Select the Media Recording subtab.
4. Select the Video Profile for edge/onboard storage recording.

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

3.4 Disable orientation metadata

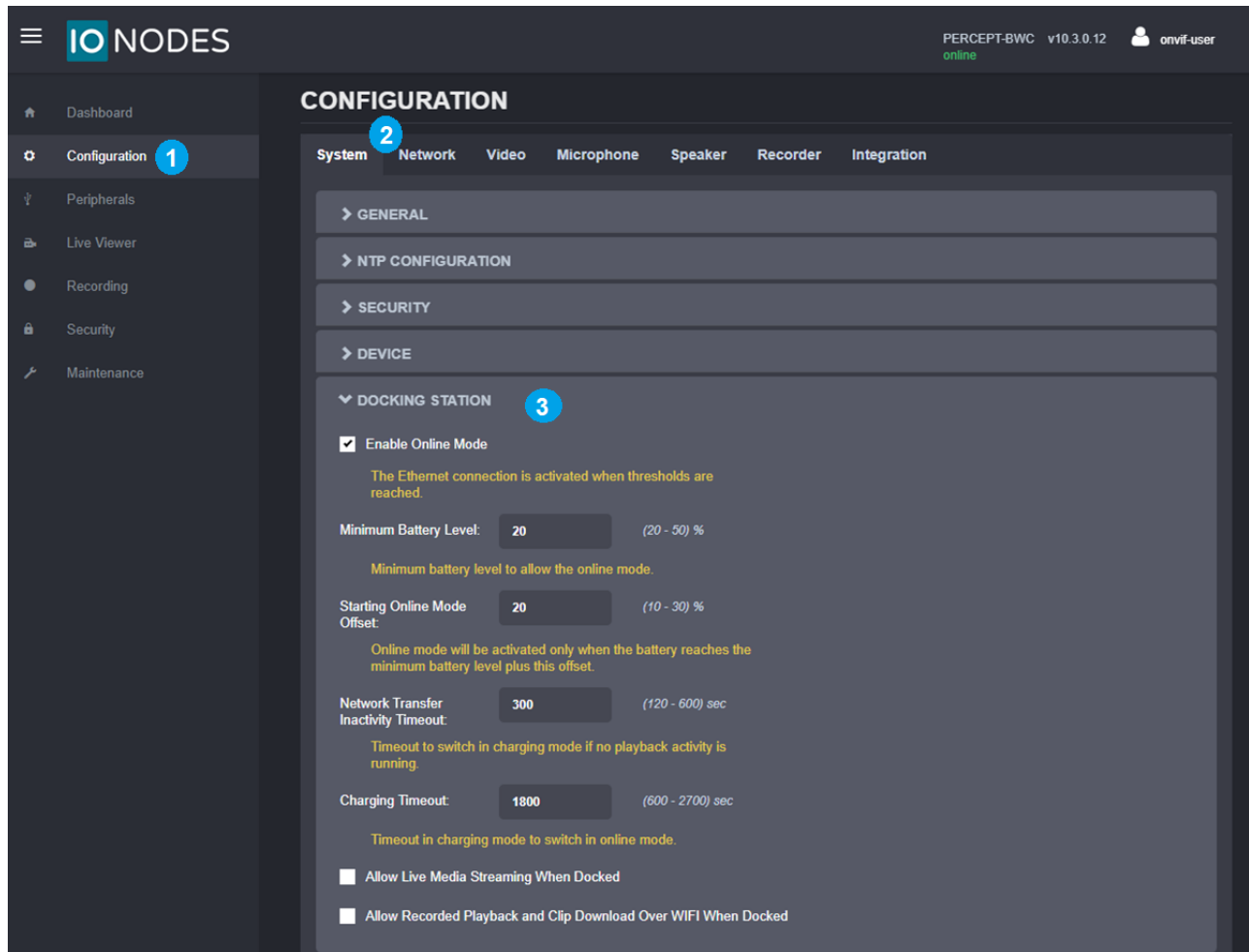
The PERCEPT Body Camera includes orientation metadata used by some video rendering software for stabilization of dewarped image. This feature is not compatible with March Networks® Command™ and must be disabled in the body camera to prevent incorrect dewarping.



1. From the Configuration page.
2. Select the Video tab.
3. In the Advanced Settings section, uncheck the Orientation Enable box.

3.5 Enable docking station data transfer

When using a PERCEPT Docking Station for offloading data to the VMS, the user needs to ensure that Online Mode (data transfer via Ethernet) is enabled.



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 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.

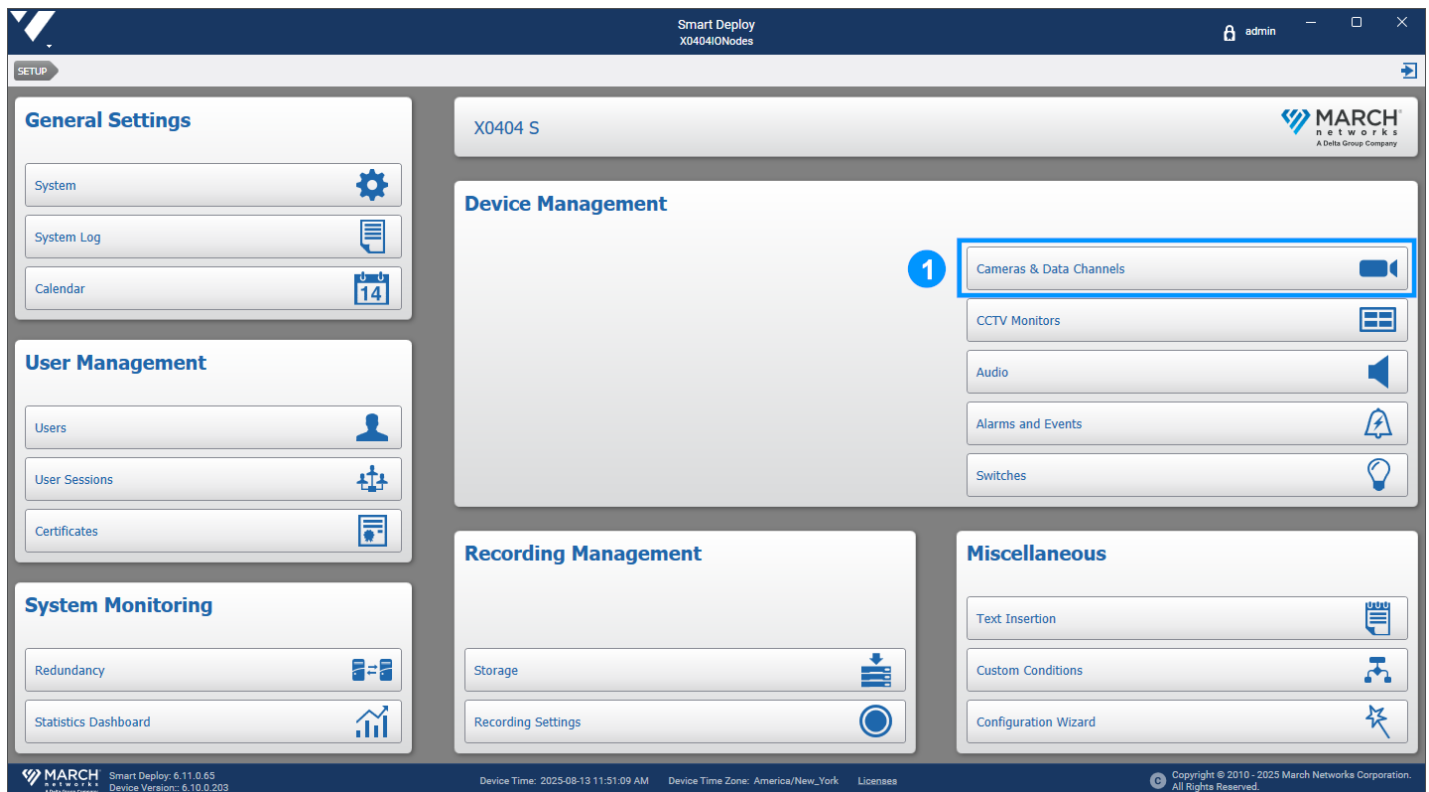
Note: For configuring advanced settings related to the behavior of the Docking Station please refer to the PERCEPT Docking Station user manual.

4 Integrating the PERCEPT Body Camera with March Networks® Command™

Now that the PERCEPT Body Camera is configured, it's time to integrate it to March Networks® Command™ (MNC). This section describes the steps to enable various features of this integration using a basic setup of MNC 6.10.0. These instructions must be adapted to each specific system.

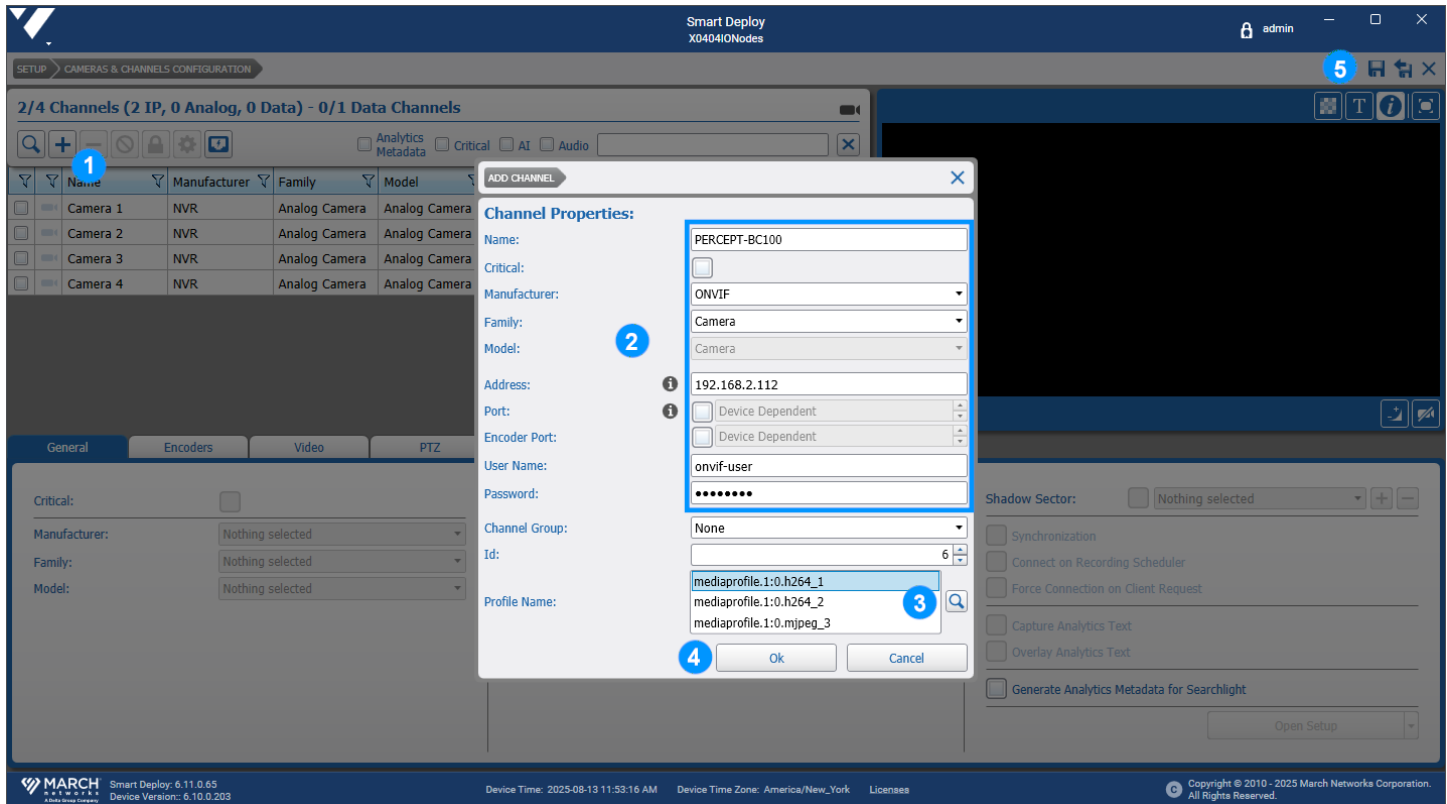
4.1 Add the PERCEPT Body Camera

Step 1 – Smart Deploy



1. In the SETUP page of MNC Smart Deploy, click on the Camera & Data Channels button of the Device Management section.

Step 2 – Add the PERCEPT Body Camera



1. From the SETUP>CAMERAS & CHANNELS CONFIGURATION page, click on the Add (+ icon) button.
2. In the ADD CHANNEL dialog, enter the PERCEPT Body Camera parameters:
 - a. Name: Display name
 - b. Manufacturer: ONVIF
 - c. Address: IP address of the camera
 - d. User Name and Password (refer to section 3.1)
3. Click on the magnifier icon to query the camera's media profiles and select the appropriate.
4. Click Ok.
5. Click the Save icon.

4.2 Configure Panomorph lens dewarping

Smart Deploy
X0404IONodes

SETUP > CAMERAS & CHANNELS CONFIGURATION

3/4 Channels (3 IP, 0 Analog, 0 Data) - 0/1 Data Channels

Name	Manufacturer	Family	Model	Address	POE Port	Id
Camera 1	NVR	Analog Camera	Analog Camera	Channel1		0
Camera 2	NVR	Analog Camera	Analog Camera	Channel2		1
Camera 3	NVR	Analog Camera	Analog Camera	Channel3		2
Camera 4	NVR	Analog Camera	Analog Camera	Channel4		3
PERCEPT-BC100	ONVIF	Camera	Camera	192.168.2.112		6

PERCEPT-BC100

2025-08-13 11:57:13 AM
Codec H264 - 12 FPS - 2231 Kbps - 2048x2048 px

General | Encoders | Video | PTZ | PTZ Management | Recorder Analytics

Name: PERCEPT-BC100

Critical: ☐

Manufacturer: ONVIF

Family: Camera

Model: Camera

Address: 192.168.2.112

Port: ☐ Device Dependent

User Name: onvif-user

Password: *****

POE Port: ☐

Source Channel: Camera 1

Channel Group: None

Lens Type: Immervision Panomorph

Lens Model: RPL Number C1ZZV

Mounting Options: Wall

Secure Connection: ☐

Certificate: None

Enforce secure authentication: ☐

Shadow Sector: ☐ Nothing selected

☒ Synchronization

☒ Connect and Sync on Recording Scheduler

☒ Force Connection on Client Request

☐ Capture Analytics Text

☐ Overlay Analytics Text

☐ Generate Analytics Metadata for Searchlight

Open Setup

MARCH NETWORKS
Smart Deploy: 6.11.0.65
Device Version: 6.10.0.203

Device Time: 2025-08-13 11:55:39 AM
Device Time Zone: America/New_York
Licenses

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1. From the SETUP>CAMERAS & CHANNELS CONFIGURATION page, select the newly added camera.
2. In the central pane of the General tab, enter the camera lens properties:
 - a. Lens Type: Immervision Panomorph
 - b. Lens Model: RPL Number C1ZZV
 - c. Mounting Options: Wall
3. Click the Save icon.

Note: Image dewarping is not mandatory. When disabled, the full hemispheric image will be displayed. When enabled, it must be configured as per the above and orientation metadata must be disabled as per section 3.4.

4.3 Configure stream encoder(s)

Smart Deploy
X0404IONodes

SETUP > CAMERAS & CHANNELS CONFIGURATION

3/4 Channels (3 IP, 0 Analog, 0 Data) - 0/1 Data Channels

Name	Manufacturer	Family	Model	Address	POE Port	Id
Camera 1	NVR	Analog Camera	Analog Camera	Channel1		0
Camera 2	NVR	Analog Camera	Analog Camera	Channel2		1
Camera 3	NVR	Analog Camera	Analog Camera	Channel3		2
Camera 4	NVR	Analog Camera	Analog Camera	Channel4		3
PERCEPT-BC100	ONVIF	Camera	Camera	192.168.2.112		6

PERCEPT-BC100

2025-08-13 11:57:13 AM
Codec H264 - 12 IPS - 2231 Kbps - 2048x2048 px

General Encoders Video PTZ PTZ Management Recorder Analytics

Encoder Configured

Compression Encoder: Encoder 1

Compression Codec: Profile Dependent

Encoder Resolution: Device Dependent

Profile Name: mediaprofile.1:0.h264_1

Transport Protocol: RTP_UDP

Port: Device Dependent

Encoder Configured

Compression Encoder: Nothing selected

Compression Codec: Nothing selected

Encoder Resolution: Nothing selected

Transport Protocol: Nothing selected

Encoder Configured

Compression Encoder: Nothing selected

Compression Codec: Nothing selected

Encoder Resolution: Nothing selected

Transport Protocol: Nothing selected

MARCH NETWORKS

Smart Deploy: 6.11.0.65
Device Version: 6.10.0.203

Device Time: 2025-08-13 11:57:13 AM Device Time Zone: America/New_York Licenses

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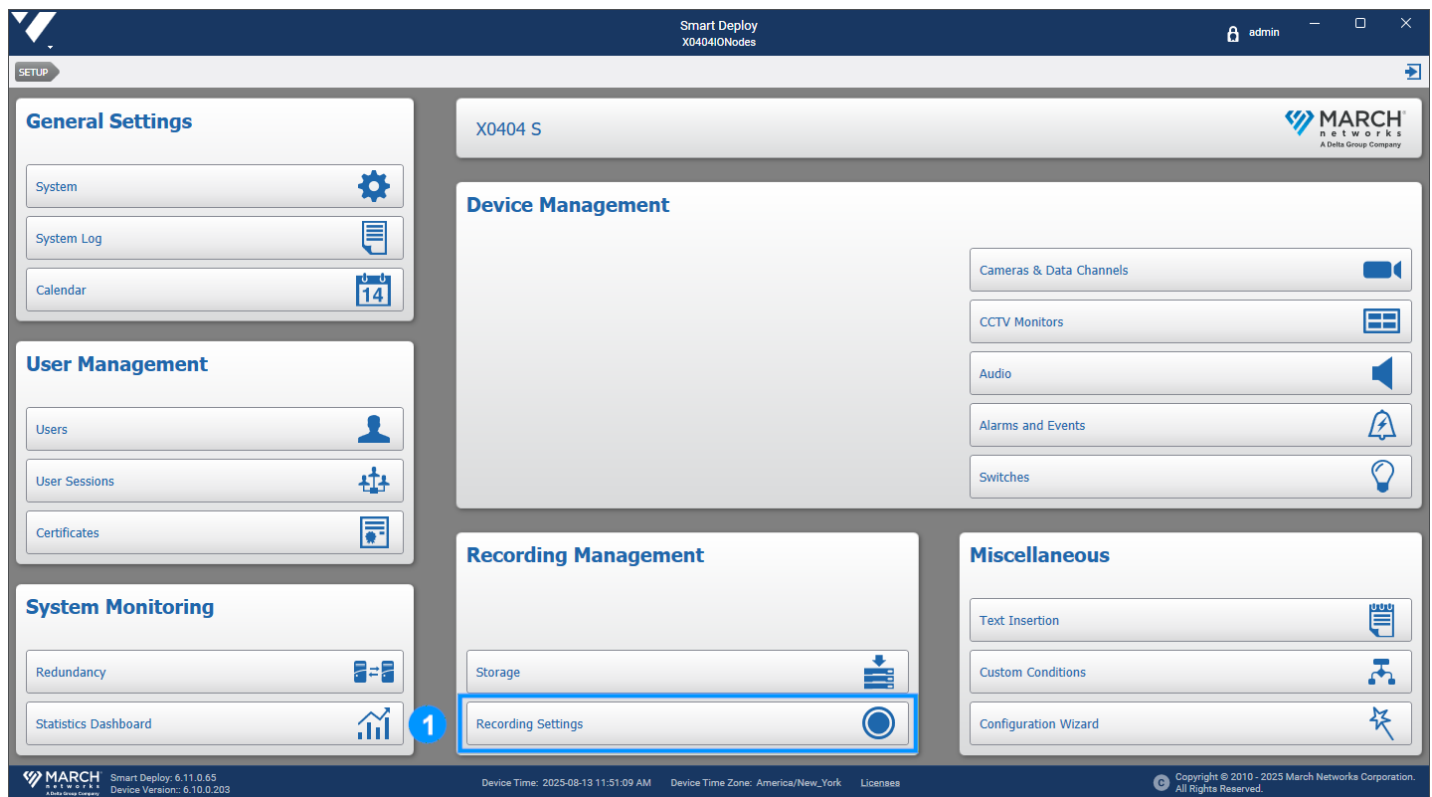
1. From the SETUP>CAMERAS & CHANNELS CONFIGURATION page, select the newly added camera.
2. In the left pane of the Encoders tab, set Profile Name to the desired profile. Set the Transport Protocol to that which better meets your system's requirements.
3. Add more encoder profiles if needed.
4. Click the Save icon.

4.4 Configure recording

Recording configuration depends on specific system deployment and requirements. This subsection describes common scenarios.

4.4.1 Continuous recording

When configured for continuous recording, MNC will connect to the PERCEPT Body Camera and request the recording stream whenever the camera is within range of the Wi-Fi. This can be desirable when the body camera's intended use is within a limited area, such as a business place.



1. In the SETUP page of MNC Smart Deploy, click on the Recording Settings button of the Recording Management section.

The screenshot shows the 'RECORDING SETTINGS' page in the Smart Deploy X0404IONodes interface. The page is titled 'Record Settings' and includes a table for recording settings. The table has columns for Channel, Scheduling, Encoder, Condition, Storage Group, Estimated Time, and Estimated Size. The 'PERCEPT-BC100' camera is selected in the 'Channel' column. The 'Scheduling' column shows 'Encoder 1' and 'None' for the 'Condition'. The 'Storage Group' is 'Storage Group 1', and the 'Estimated Time' and 'Estimated Size' are 'Unavailable'.

Below the table, the 'Record Settings' section includes a checkbox for 'Enable Recording' (checked) and a selection for 'PERCEPT-BC100' on 'Sector 1'. The 'Storage Info' section shows 'Storage Group 1' and 'Storage Path Size: 882.62 GB'. The 'Audio Max Time' is set to 'Same as video'. The 'Continuous Recording Retention' section shows 'Min Time: 0 hours' and 'Max Time: None'. The 'On Condition Recording Retention' section shows 'Min Time: 0 hours' and 'Max Time: None'. The 'Prediction' section shows 'Estimated Video Retention: Unavailable'.

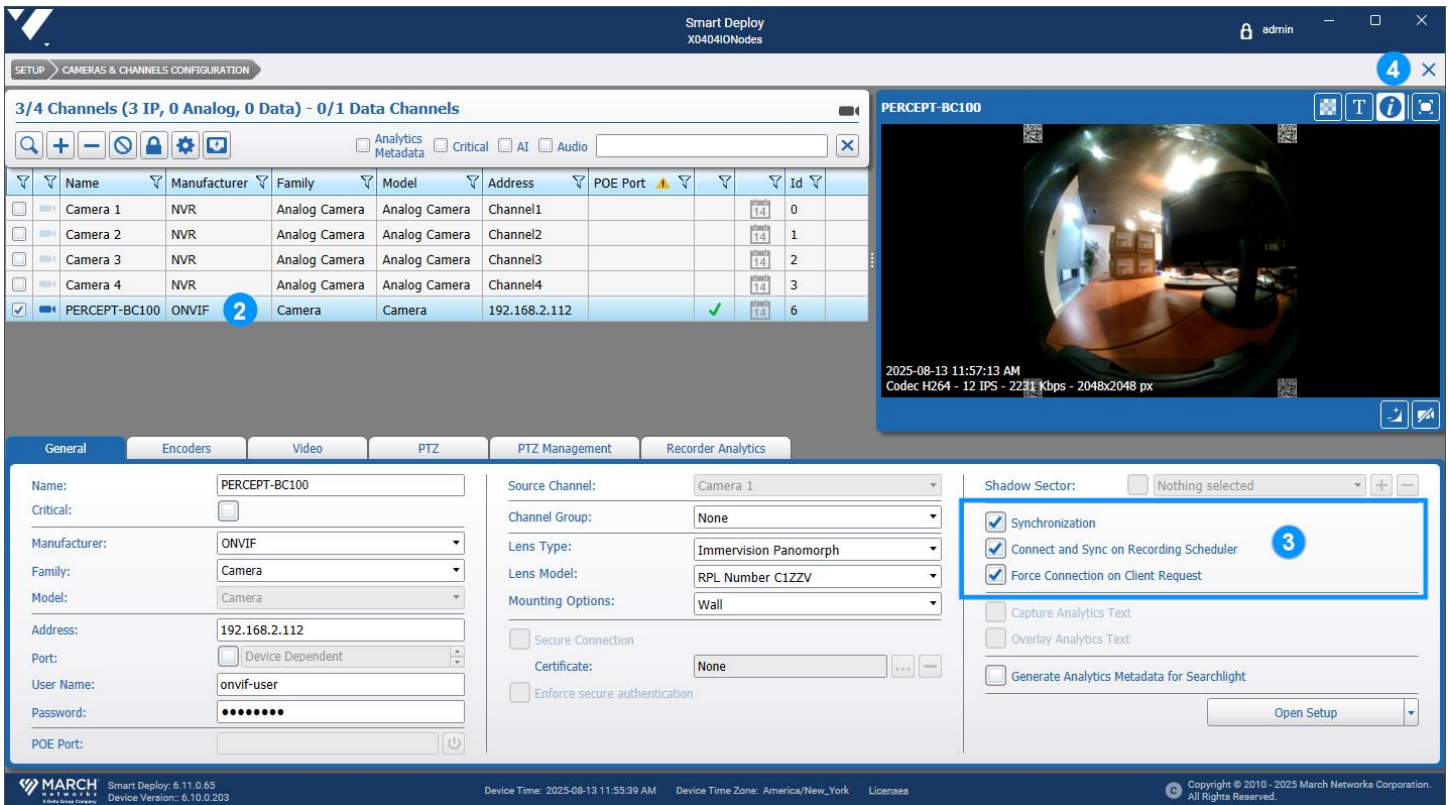
The 'Current Schedule' is set to 'Default' and 'Everyday'. A timeline for recording schedules is visible, showing a range from 00:00 to 24:00. The 'Continuous Recording' checkbox is checked, and the 'On Condition Recording' checkbox is unchecked. The 'Record Condition' is set to 'None', and the 'Pre Recording' and 'Post Recording' times are set to 4 seconds and 5 seconds, respectively.

2. From the SETUP>RECORDING SETTINGS page, select the newly added camera.
3. Check the Enable Recording box.
4. Select the desired recording schedule.
5. Check the Continuous Recording and uncheck the On Condition Recording boxes.
6. Save these changes.

4.4.2 Edge storage Synchronization (no live recording)

This configuration can be desirable if personnel is required to only record when away from the home base. However, MNC will only synchronize recordings if continuous recording is enabled, and only the recordings within the recording schedule will be synchronized. The desired behavior can be emulated by leaving the PERCEPT Body Camera's Wi-Fi disconnected and using a docking station to connect the camera to the MNC network. All recordings present on the camera's storage (typically manually triggered by the camera wearer) will be transferred to MNC.

1. Configure continuous recording as per section 4.4.1 above.

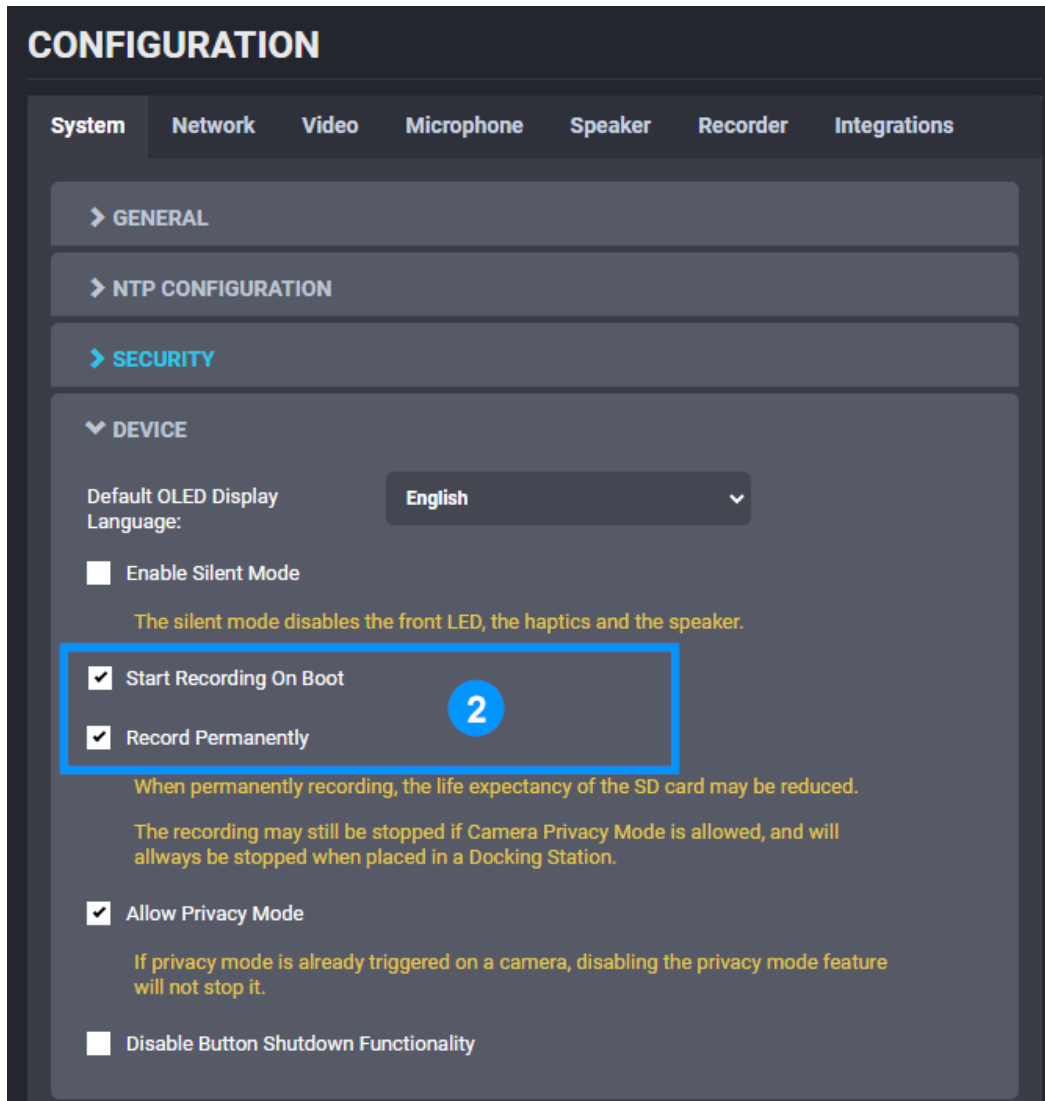


2. From the SETUP>CAMERAS & CHANNELS CONFIGURATION page, select the newly added camera.
3. In the right pane of the General tab, check the following boxes:
 - a. Synchronization
 - b. Connect and Sync on Recording Scheduler
 - c. Connection on Client Request
4. Click the Save icon.

4.4.3 Continuous recording with Synchronization

The most common use of Edge storage synchronization for fixed cameras with wired network is a mitigation measure for periods when communication is lost between the VMS and the camera. Cameras record on their local storage when communication with the VMS is lost, then the VMS retrieves these recordings when communication is restored. Instead of detecting communication loss with the VMS, the PERCEPT Body Camera has a continuous recording mode, ensuring that any video requested by the VMS will be available on-demand.

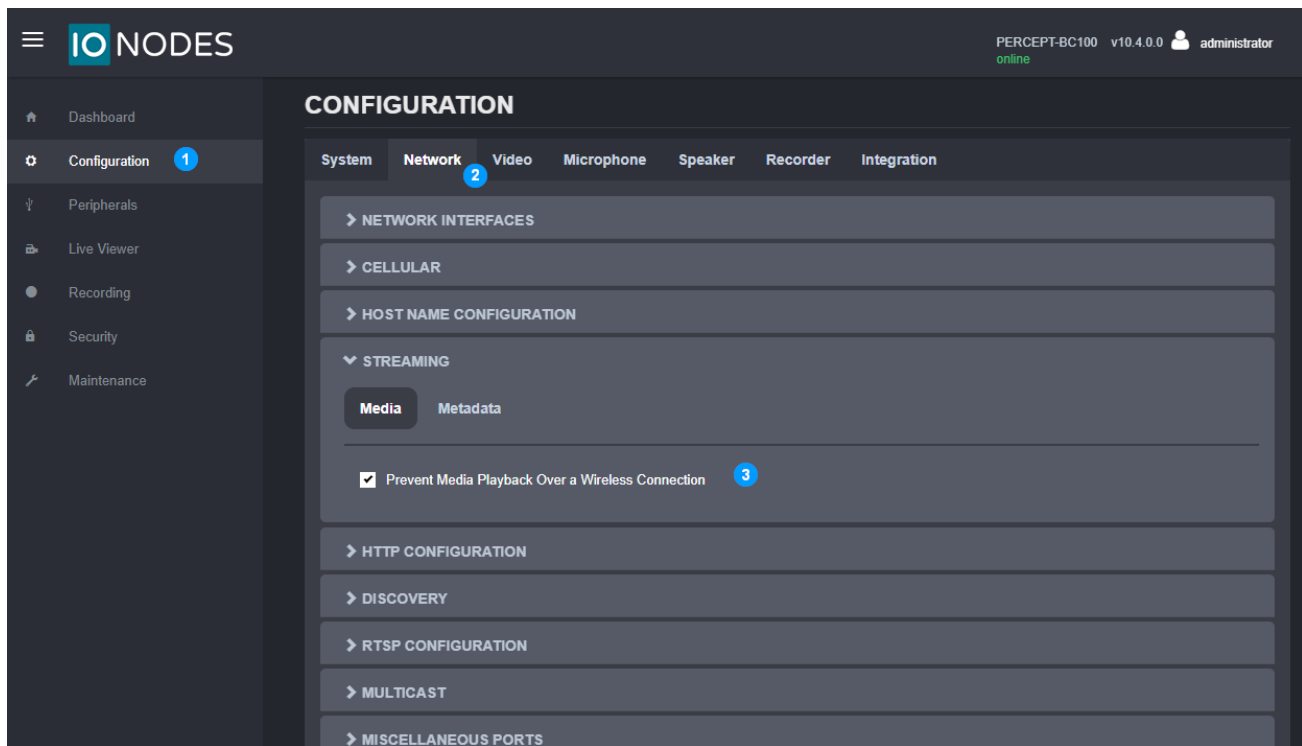
1. Configure continuous and edge recording as per sections 4.4.1 and 4.4.2 above.



2. Login to the PERCEPT Body Camera's web interface. From the Configuration page, System tab, Device section, check the following boxes:
 - a. Start Recording On Boot
 - b. Record Permanently

4.5 Considerations for docking station users

When using a PERCEPT Docking Station for transferring data to the VMS, there are additional settings to consider for optimal performance. By default, edge storage transfer over Wi-Fi is enabled. This can be disabled to prevent bandwidth strain on the Wi-Fi network.

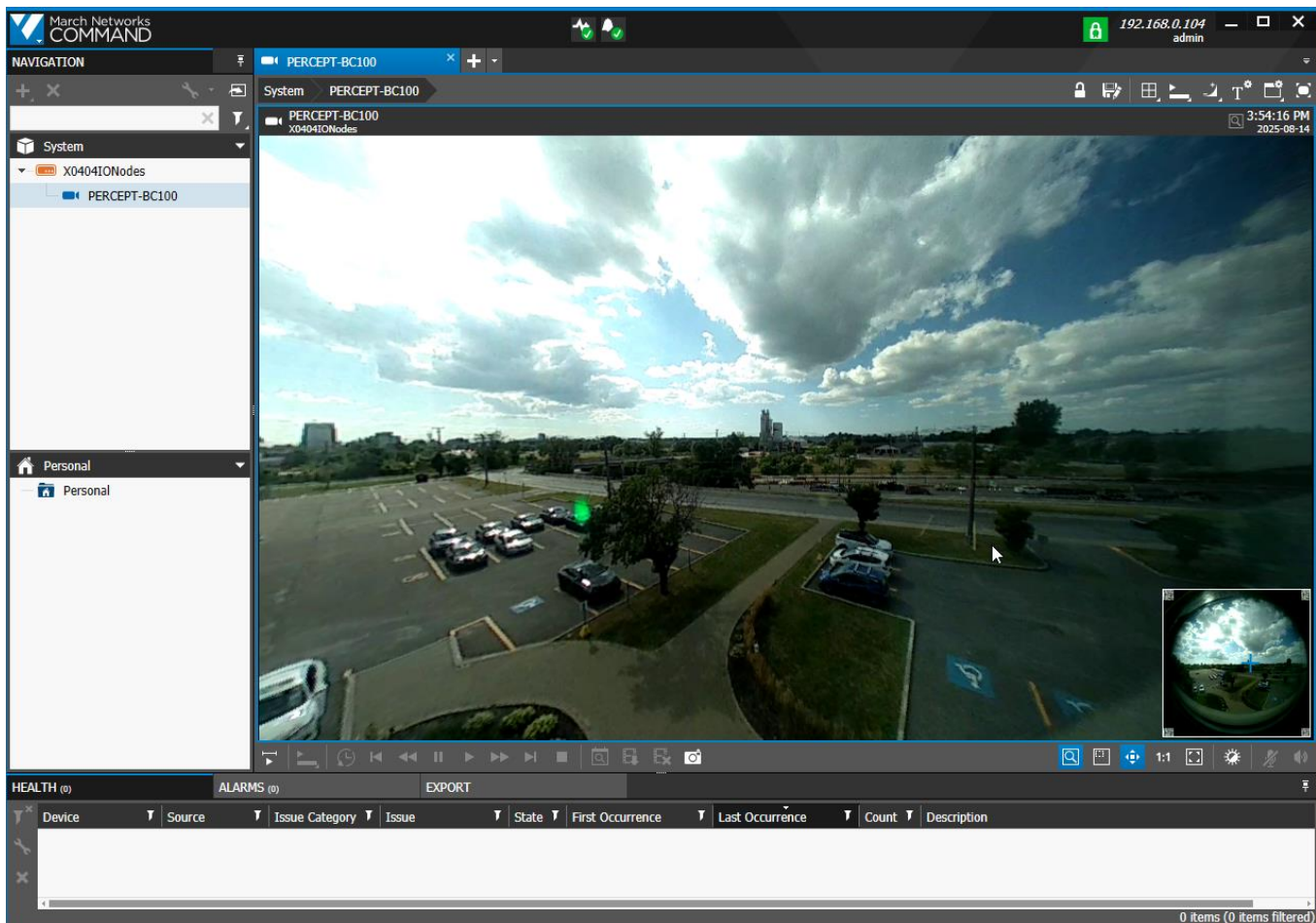


1. From the Configuration page.
2. Select the Network tab.
3. In the Streaming section, check the Prevent Media Playback Over a Wireless Connection box, then save the settings.

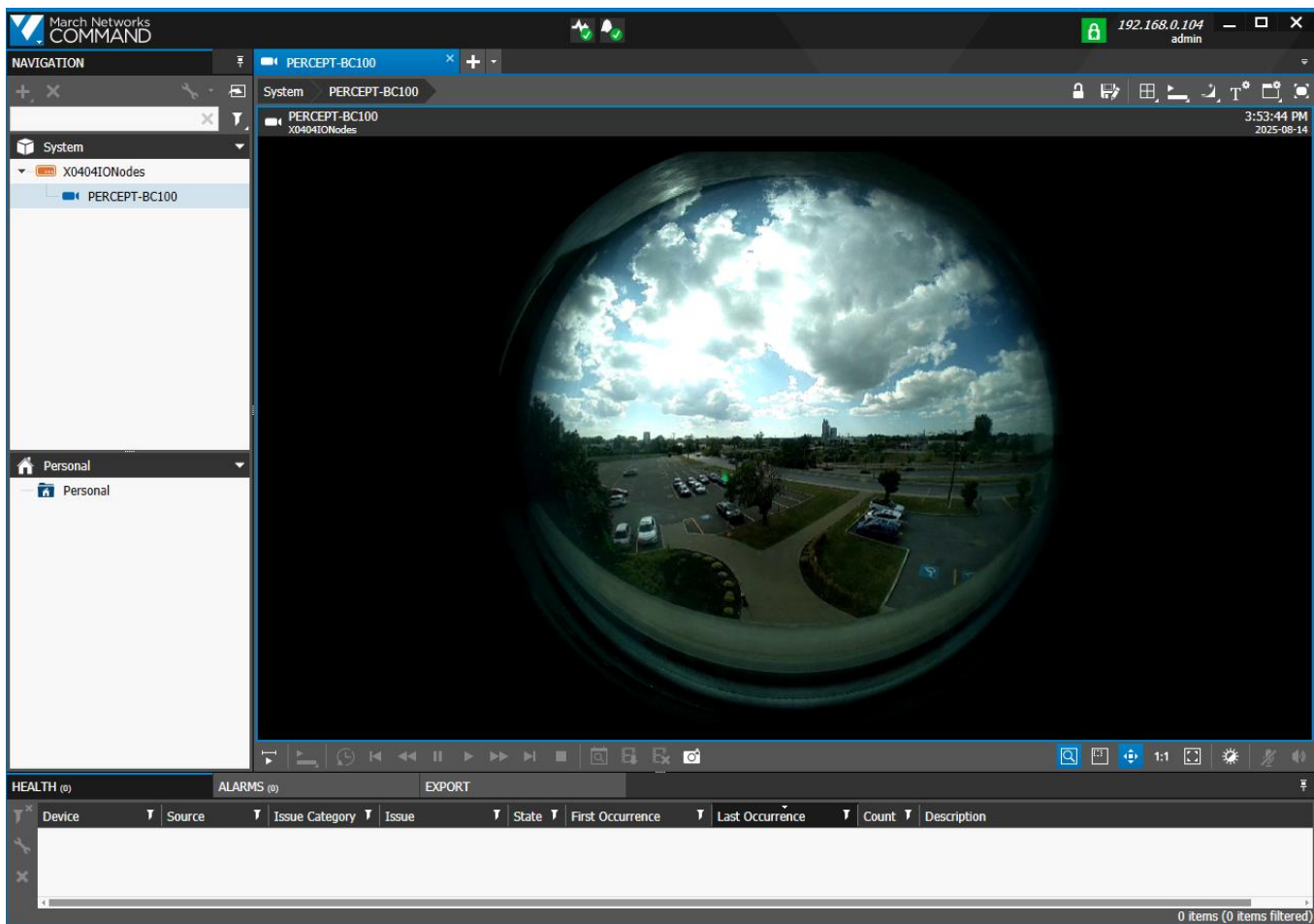
With this setting checked, the body camera ignores data transfer requests from MNC when connected over Wi-Fi.

5 Viewing video from the PERCEPT Body Camera inside Command™

The user can view live and recorded footage from the PERCEPT Body Camera from within March Networks® Command™.



When Panomorph dewarping is enabled, the user is able to navigate (zoom in/out and move) inside the image using virtual PTZ controls.



When Panomorph support is disabled or virtual PTZ is zoomed out completely, the user sees the full hemisphere captured by the camera.