MobileView 3208 User Manual

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MobileView 3208 User Manual

This document applies to MobileView 3208 Recorder

http://www.mobileviewvideo.com

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Chapter 1
Introduction

This manual provides an overview of the product and detailed instructions for the MobileView 3208 eight-channel recorder.

Read these instructions and all related documentation before installing or operating this product. The most current versions of this and related documentation are available from technical support. Contact technical support for questions or concerns.

> **Note:** Only qualified service personnel, complying with all applicable codes, should perform hardware installation.

Prerequisite

Before using this document, have a basic knowledge of the following:

- CCTV systems and components
- Electrical wiring
- Windows operating system
- TCP/IP networking
- Standard web browser use

Safety

- Ensure the recorder is stable and fastened in place when in use
- Do not operate if wires are exposed
- The recorder should be located in a ventilated area

Product Overview

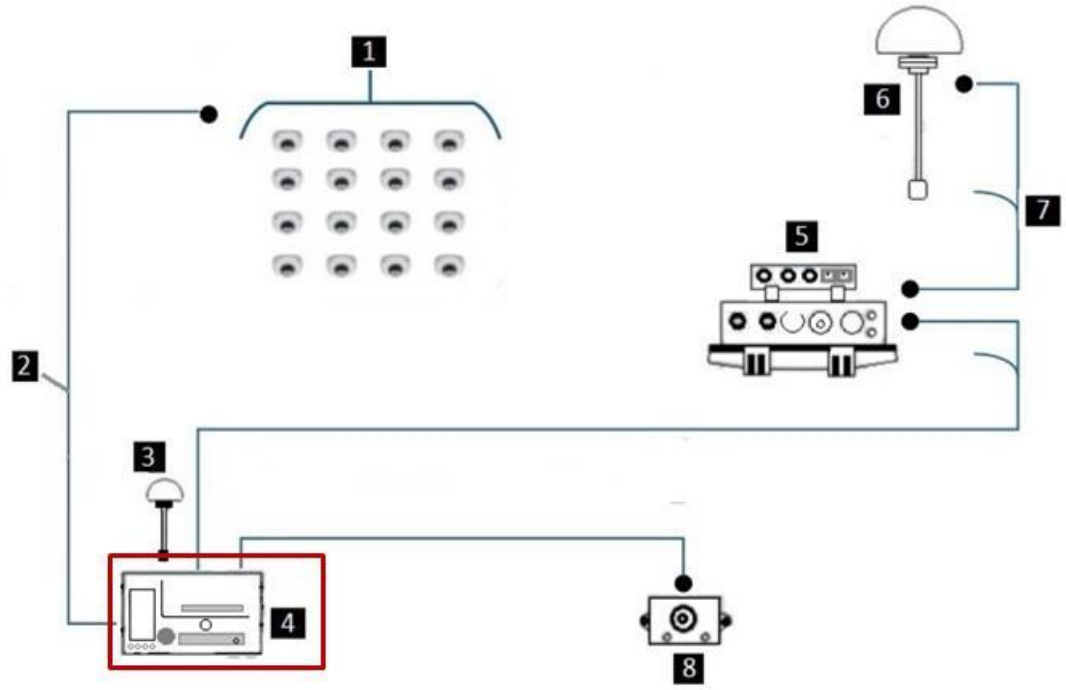
The MobileView 3208 recorder with up to eight (8) audio/visual inputs, and optional equipment such as a status/tag indicator, GPS antenna, and wireless networking devices. The 3208 NVR supports a minimum of 5Mbps for each IP channel up to eight (8) and optimizes front and rear ports and connectors to improve installation time and eliminate redundancy.

The central component of the MobileView system is a high-quality recorder. It records time-stamped data of one millisecond for up to 8 IP cameras at 6Mpx with 30 frames per second. The amount of surveillance information the recorder can store is determined by storage capacity of the main media caddy, the resolution and the frame rate settings of the cameras, and the total operational hours in a day. The recorder captures video and audio within 90 seconds of receiving the vehicle ignition signal. The recorder continues to capture data while the signal is present and for a defined period of time after the vehicle ignition signal ends. Surveillance and event-based video data is stored on a removable media caddy. When storage capacity is full, the recorder automatically overwrites the oldest data with the new data in a FIFO (first-in, first-out) order.

Recorders use MobileView Navigator to review surveillance and event-based video stored on the removable media caddy. Wi-Fi allows for automatic video transfer and downloads using the Depot Manager software. Recorders include a built-in web server to configure operating parameters.

A MobileView system consists of the recording device, cameras, and any optional equipment.

3208



Typical MobileView System Layout

1. IP Camera, 8 IP cameras (max)
2. Ethernet (CAT5) cable
3. GPS antenna
4. NVR assembly
5. (Optional) External wireless
6. Wireless antenna
7. Antenna connection cable
8. Status indicator/panic button

Product Contents

The MobileView 3208 recorders include:

- Recorder main assembly and key
- Removable media caddy and key
- Wiring harnessing
- Internal wireless (optional)

MobileView 3208 recorder supports these accessories:

- 8 IP input channels
- Status/tag button
- GPS antenna
- External wireless
- MobileView Live running on iPhone or Tablet

Inspect the package and contents for visible damage. If any components are damaged or missing, do not use the unit and contact the supplier immediately. When returning the product, use the original shipping box.

Front and Rear Panels

The recorder front panel is the primary user interface for interacting with the device and checking heath status. The rear panel contains all harness connection points.

3208 Front Panel

MobileView Recorder Front Panel

Description of front panel

No.	Name	Function Description		
1	SD Card cover	Cover is locked in place when the caddy is mounted		
2	Status Indicator	PWR	Red/Green	Power/Ignition
		REC	Green	Recording
		ERR	Red	Fault or maintenance required
		MC	Red	Media Caddy
		SD	Red	SD Card
		GPS	Green	GPS satellite lock
3	Caddy door lock	Rotate right to lock, left to unlock. Covers network and USB interfaces		
4	Thumbscrews	Tighten to ensure caddy does not fall out when key lock is unlocked		

Power Indicator

Red Solid = Main Power OK (Standby Mode)
Red Flash (1Hz) = Pending Startup (Heater or Startup Delay)
Green Solid = Power OK & Ignition ON
Green Flash (1Hz) = Power OK, Ignition OFF (Unit in Delayed Shutdown Mode)
OFF = No Power or Abnormal Voltage (Over/Under Volt condition)

Recording Indicator

Green Solid = Recoding (at least one IP stream is being recorded)
OFF = No streams are being recorded

Error Indicator

Red Solid = System Fault Exists (general fault or as programmed)
OFF = System Faults Not Exist

Media Caddy Indicator

OFF = Media Caddy OK
Red Solid = Media fault (Storage Error)
Red Flash = Caddy detected but not locked

GPS Indicator

Green Solid = GPS Signal Lock
OFF = GPS Signal No Lock

3208 Rear Panel

MobileView Recorder Rear Panel

Description of rear panel

ID	Name	Description
1	POWER	6-pin aviation plug for power supply
2	RS485	Connector for RS-485 devices
3	USB	Connector for USB devices
4	AV OUT	4-pin aviation plug for audio and video output
5	RS232	Connector for RS-232
6	WIFI	WI-FI antenna interface (2x)
7	GPS	GPS antenna interface
8	PORTS	Eight (8) rear mounted analog video audio ports
9	REAR	Network interface
10	ALARM	Alarm input/output interface

- Aviation connectors implement a screw-down knurl and relies on a high friction coefficient to remain locked in place.
- Molex connectors are from the Micro-Fit family and employ a positive latching ramp mechanism to lock the connector in place.

Reviewing Stored Images

The 3208 recorder converts information from IP inputs into digital format and stores it on the removable media caddy. This data is exported or reviewed by a Video Review Station running the MobileView Depot Manager software. The recorder connects to the Video Review Station through a network connection. The Video Review station is generally a laptop or desktop computer running a compatible Windows operating system. When connected to the recorder, users can view and export live and recorded surveillance data, check logs, and retrieve device health diagnostics. Most of these functions are available when connected to the recorder media caddy.

Refer to the help system in Depot Manager for video station requirements, a list of compatible software, and more information on how to retrieve and view images from the recorder and media caddy.

Chapter 2
Installation and Wiring

Network Video Recording System

The MobileView 3208 recorder is designed for installation on public transit vehicles, school busses and fleet vehicles.

Components of the recorder assembly

1. Recorder main housing
2. Recorder storage caddy

Locating the Recorder

Recorders are normally mounted in the vehicle's electronics enclosure. These enclosures vary in size and location, depending on the vehicle make and model and provide enough space for the recorder. For most vehicles, this is located behind the driver, and is typically lockable and climate controlled. When deciding the location of the recorder, ensure space is protected against liquid and foreign material intrusion, and provides enough ventilation to maintain an optimum operating temperature range. For HDD models, the device must maintain 0-40°C, for SSD models, 0 to 55°C. For lower temperature down to -20°C the device implements an integrated heater used to bring the temperature of the device to an operating range within 20 minutes.

Mounting the Recorder

The MobileView 3208 recorder is designed to resist shock and vibration forces commonly observed on a transit vehicle. Resistance to specific levels are only obtained when the recorder is secured to a stationary (with respect to the vehicle), vibration-resistant, horizontal surface. Mounting the recorder in a way that does not meet these requirements may result in undesired performance.

To mount the recorder:

1. On a flat, stationary, and vibration-resistant surface, use the recorder base as a template to mark and drill four mounting holes.
2. Using bolts, locking washers, and nuts, mount the recorder base plate to the vehicle surface.

Mounting the recorder

1. Mounting bolts
2. Main housing

To resist vibration, use nuts with a thread locking compound or a self-locking nylon insert. Failure to use such devices may result in insecure mounting and damage to the unit.

Tools and Materials

The list of tools and materials below is recommended for installation. This list is not complete and the installation may require different or specialty items.

- BNC crimper
- Cat 5 ethernet crossover cable
- Cat 5 ethernet patch cable
- Drill and bits, up to 5/8 in.
- Electrical connections (ends, lugs, etc.)
- Electrical tape
- Electrical voltmeter
- Extension cords
- General tools
- Heat shrink
- Hole saws, up to 1–1/8 in.
- Laptop/viewing station
- Thread-locking compound
- Molex pin crimper
- Phillips and flathead screwdrivers

- Riv-nut gun
- Socket set, up to 5/8 in.
- Solder gun with solder
- Spare BNCs
- Wrenches, up to 5/8 in.
- Spare Molex pins
- Spare terminal blocks
- Tie wraps (8 in.)
- Torx bit, secured #10
- Wire snake
- Wire strippers

Attaching Recorder Hardware

Use the following information to attach field wires directly to connectors. Harnesses provide an easy way to connect and disconnect the recorder from the vehicle for service, maintenance, or repair. Connectors must be fully seated and each screw down tightly to ensure the connector remains in place during normal operation.

> ***WARNING*:** The installer is responsible to power off the recorder before connections are made. Check all power connections for shorts and grounds before applying power. Failure to follow this recommendation may result in damage to the vehicle or the recorder, including injury to the installation personnel.

Harness connections

Harness connections to the recorder are made on the rear panel.

NVR Harness Connections

Harness connections

P1A	3208 Power input connector (12A input)
P2A	3208 RS485 connector
P3A-2	Multi-IO connector part 2
P3A-3	Multi-IO connector part 1
P4	AV Out
P7	I/O connector

Connector Removal

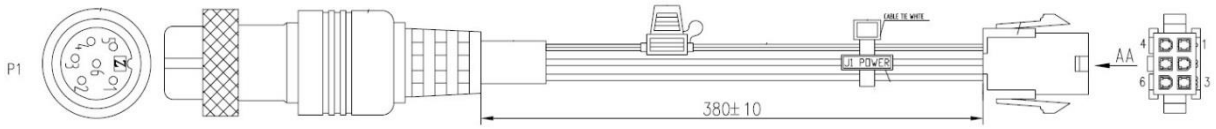
The recorders P6 and P connections employ a locking mechanism to ensure connection to the recorder during operation. Connectors are logistically difficult to remove. To remove a connector, fully disengage the locking mechanism and gently rock the connector side to side while pulling the connector away from the recorder chassis. The connector eventually pulls free.

Connections

Connectors and harnesses are used to connect power cables and other parts to the MobileView system.

P1 and P1A harness connections

The P1A harness joins a 6-pin Molex type connector to the circular P1A connector. This assembly provides dedicated termination points for main power, ground, and ignition. Common and specific usage of each termination point is provided in the following table. Looping outputs may be used to power and control other MobileView devices or additional equipment. Attach the power cable to the rear panel with six pins.



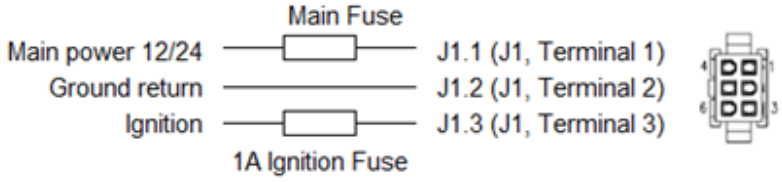
Main Power Harness

P1 Harness pinout

6-pin Molex	Color	Use	Connector
1	Red	Main PWR In(+)	P1.1
2	Red	Main PWR In(+)	P1.2
3	Black	Ignition Return(+)	P1.3
4	Black	Main PWR In(-)	P1.4
5	Black	Main PWR In(-)	P1.5
6	White	Ignition In(+)	P1.6

Power input connections

Main power, ground, and ignition are supplied from the vehicle sources to the three-terminal Molex connector labeled J1 on the P1A harness. In addition to integrated harness fuses, we recommend external inline fusing with the main power and ignition inputs displayed below. Adjust main fuse size to accommodate the installed recorder model.



P1A Main Power Connections

Connecting the Power

1. Run a three-conductor 8 AWG cord from the vehicle power, electrical ground, and ignition source locations to the recorder.

   Note: Adding inline, fast-blow fuses to the main power and ignition inputs is recommended.

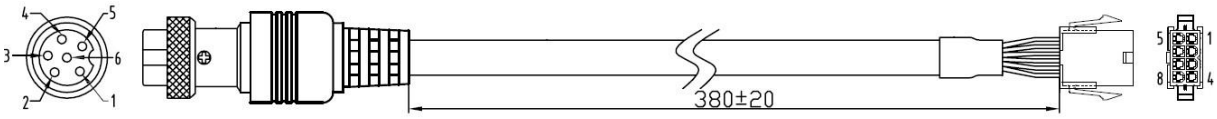
2. With the vehicle power off, connect to the vehicle power and ignition sources.
   Contact the vehicle manufacturer for information on connecting to the vehicle power source.
3. At the recorder, remove the P1A connector.
4. Terminate power, ignition, and ground wires to the proper terminal of a mating Molex connector.
5. Connect the mating Molex connector to the J1 connector on the P1A harness.
6. Before reattaching the P1A connector to the recorder, turn on the vehicle power and use a voltmeter to check each Molex terminal for proper voltage and polarity.
   Main power and ignition voltages should be nominal 12 or 24 VDC.
7. After confirming voltages and polarities are correct, remove vehicle power, plug the P1A connector into the recorder, and tighten the retaining ring.
8. Check all connections before starting vehicle power.

Battery disconnect systems

Many vehicles incorporate a source disconnect device, also called a battery disconnect or knife switch. The device removes power to noncritical systems during routine maintenance or to stop long-term battery drain. When the recorder is connected to a device, it is subject to immediate and uncontrolled loss of power. Uncontrolled power loss can negatively affect expected system performance. The recorder avoids this by implementing an internal UPS, designed to keep the system operational for 3-7 seconds after all power is lost. This allows the device plenty of time to stop any open processes and close files in preparation for power loss.

P2A harness connection

Harness P2A provides connection to the device connector P2A. Connector is a multi-pin aviation connector for RS485, 12V out.

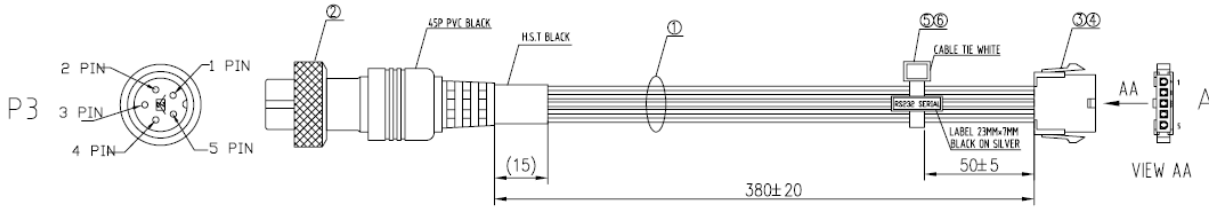


P2A Harness pinout

Pin	**Color**	**6-pin Molex**	**Jumper**	**Use**
P2A.1	White	1	3	TX485 (+)
P2A.2	Green	2	4	TX485 (-)
P2A.5	Orange	3	1	RX485 (+)
P2A.6	Yellow	4	2	RX485 (-)
		5		
		6		
P2A.3	Red	7		12VDC (+)
P2A.4	Black	8		GND (Return)

P3A harness connections

The P3A harness connects 5-pin Molex type connectors to a circular P3A connector. This provides dedicated termination points for serial devices. Common and specific usage of each termination point is provided in the following table.



P3A Serial Harness

P3 Harness pinout

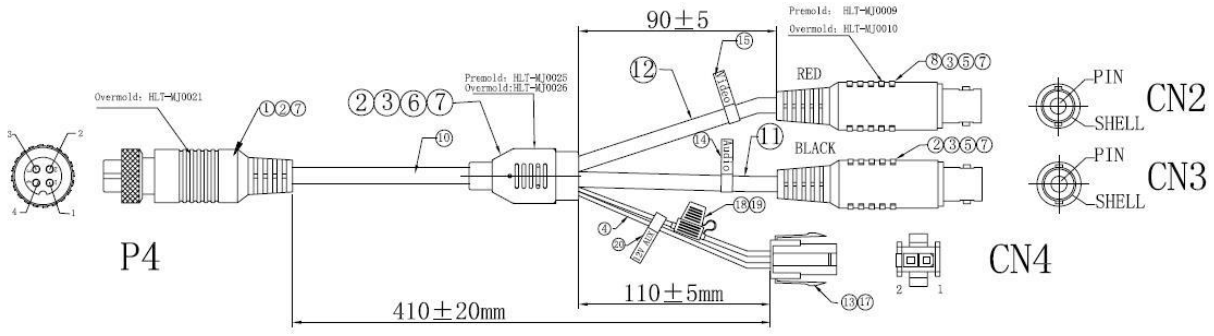
5-pin Molex	Color	Use	Connector
1	Green	RXD (Receive)	P3.1
2	White	TXD (Transmit)	P3.2
3	Yellow	12V +	P3.3
4	Black	GND	P3.4
5	Red	5V+	P3.5

Serial power connections

The recorder implements 5 VDC and 12 VDC outputs on the P3A harness to power small serial devices. Current is limited to 1A for these devices.

P4 harness connections

The P4 harness connects BNC and 2-pin Molex type connectors to the circular P4 connector. This setup has dedicated termination points for video and output to an AV monitor with limited power for the device. Common and specific usage of each termination point is provided in the following table.



P4 AV Output Harness

P4 Harness pinout

Connector	Color	Use	Connector
CN2.Pin	Orange	Video out	P4.1
CN2.Shell	Black	Ground (Return)	P4.4
CN3.Pin	Brown	Audio out	P4.2
CN3.Shell	Black	Ground (Return)	P4.4
CN4.1	Red	12V (+) out	P4.3
CN4.2	Black	Ground (Return)	P4.4

Power connections

The recorder implements 12 VDC output on the P4 harness to power an external monitor. Set the current to limited and fused to 1A for this device.

Video out connection

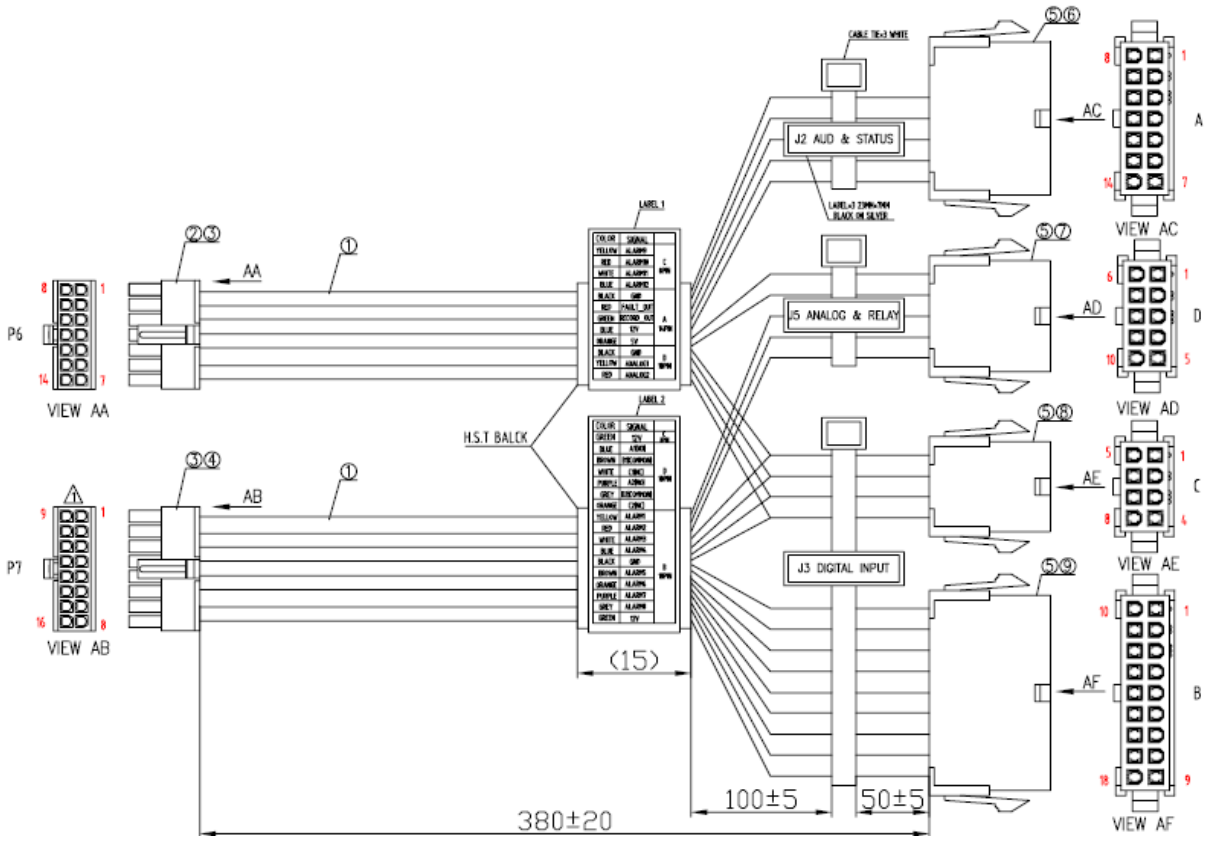
The video output displays images configured by the system MUX settings.

Audio out connection

The audio output plays audio defined by the system audio settings.

P6 and P7 Harness Connections

The P7 harness connects several multi-pin Molex type connectors (J2, J3, and J5) to the two multi-pin Molex connectors labeled P7. This setup provides dedicated termination points for digital and analog inputs, relay outputs, and status outputs along with limited power. Common and specific usage of each termination point is provided in the following tables. Each table represents the connector J2, J3, or J5.



P7 Multi-Output Harness

P7 harness pinout (J3)

Molex	Color	Use	Connector
J3-1.1	Yellow	Digital input 1	P7.8
J3-1.2	Red	Digital input 2	P7.7
J3-1.3	White	Digital input 3	P7.6
J3-1.4	Blue	Digital input 4	P7.5
J3-1.5	Brown	Digital input 5	P7.16
J3-1.6	Orange	Digital input 6	P7.15
J3-1.7	Purple	Digital input 7	P7.14

J3-1.8	Grey	Digital input 8	P7.13
J3-1.9	Black	GND	P7.4
J3-1.10	Green	12v (Digital 1)	P7.12
J3-1.11	Green	12v (Digital 2)	P7.12
J3-1.12	Green	12v (Digital 3)	P7.12
J3-1.13	Green	12v (Digital 4)	P7.12
J3-1.14	Green	12v (Digital 5)	P7.12
J3-1.15	Green	12v (Digital 6)	P7.12
J3-1.16	Green	12v (Digital 7)	P7.12
J3-1.17	Green	12v (Digital 8)	P7.12
J3-1.18	Black	GND	P7.4

P7 harness pinout (J5)

10-pin Molex	Color	Use	Connector
J5.1			
J5.2			
J5.3	White	Relay 1 NC	P7.1
J5.4	Blue	Relay 1 NO	P7.3
J5.5	Brown	Relay 1 common	P7.2
J5.6	Black	GND	P6.3
J5.7	Black	GND	P6.3
J5.8	Orange	Relay 2 NC	P7.9
J5.9	Purple	Relay 2 NO	P7.11
J5.10	Grey	Relay 2 common	P7.10

Power connections

The recorder implements 12 VDC output on the P6 harness as part of digital, analog, and status circuits. The current for these connections is limited to 1A.

Relay output

Relay contacts are shown in their de-energized state and are rated for 200 mA maximum current draw.

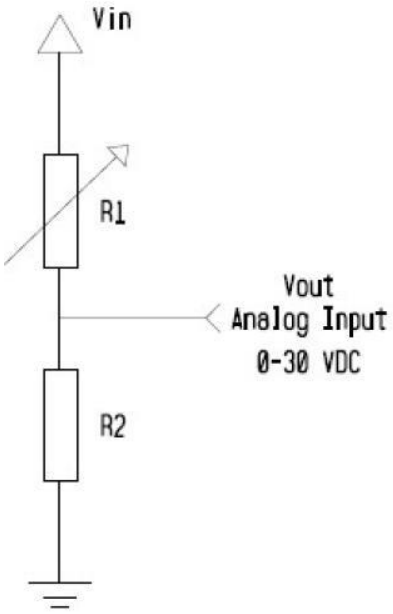
Analog input

The recorder provides two analog inputs. These inputs convert continuous voltage detected at the terminal into a separate numeric representation of the direct value. The system can be configured to trigger a response when the number rises above or below a set point. Analog input can be used to track temperature fluctuations on key vehicle systems.

Not all monitored vehicles provide a voltage output. When one is not available, use a conversion device with corresponding voltage output.

The analog to digital converter on the recorder is a 12-bit device supporting up to 4096 separate set points. Set points range from 0 to 4096 and correspond to an input voltage range of 0 to 30 VDC. If the full-scale input voltage is less than 30 VDC, only a corresponding range of the 4096 set points are available.

If the full-scale input is greater than 30 VDC, the input voltage must be reduced to a point within the supported range. Use a voltage divider network to reduce voltage.



Voltage divider, analog input

In the previous figure, a certain amount of the input voltage (Vin) is used across resistor R1. The remaining voltage (Vout) is routed and monitored by the analog input. The installer is responsible for determining the proper values of R1 and R2 based on specified voltage input variables.
The value of VOUT is determined by the following formula.

```
Vout = (R2 * Vin) / (R1 + R2)
```

Since recorder analog inputs support a maximum voltage input of 30 VDC, VOUT is always 30 VDC. For most applications, R2 is set to 10 kΩ and the value of Vin is the full scale value of the voltage input to be measured. Solving the previous equation for variable R1 allows simple calculation of its required value.

```
R1 = (R2 * Vin / Vout) - R2
```

In the previous example, to monitor a 40 VDC variable input using a recorder analog input would require an R1 of 3.3 kΩ with an R2 of 10 kΩ.

```
R1 = (R2 * Vin / Vout) - R2
R1 = (10 kΩ * 40 VDC / 30 VDC) - 10 kΩ
R1 = 3.3 kΩ
```

Caddy Swap

Swapping a caddy between models in a product family does not change normal storage operations. This includes:

- Previously recorded data will not be lost (except FIFO)
- Mass storage for new surveillance information.

Chapter 3
Configuration

MobileView 3208 recorder implements a built-in web server to provide system configuration using a web browser interface. Only Internet Explorer 11 running on Windows 7 or Windows 10 is supported.

Service laptop requirements

The service laptop must meet minimum requirements to function correctly. The minimum requirements are:

- Windows 7 or Windows 10 having all current updates applied
- Intel I5 processor
- 4 GB RAM
- 120 GB hard disk space
- Compatible Web Browser (Internet Explorer 11)
- Wired network interface card (NIC)
- Ethernet cable

Note: A dedicated graphics card is not required.

Connecting the Recorder Software

1. Plug an Ethernet cable into the recorder front RJ-45 port (for locking door).
2. Connect the other end of the cable to the computer.
3. Set the computer IP to 192.168.0.99 / 255.255.255.0.
4. Open a web browser. Use either Chrome 34 or higher, or Internet Explorer 10 or 11.
5. Enter **`192.168.0.100`** into the URL.
   - The recorder uses a self-signed certificate as untrusted.
   - Although the browser does not recommend continuing, follow the prompts to continue to the web page.
6. The login page displays.
7. Enter the username and password.
8. The landing page displays.
9. From the landing page, click the desired page containing the item to review or configure. Once the recorder has been installed, it is configured using a connected service laptop.

Opening a browser connection

Once the network connection has been established, use the following steps to open the web server built into the recorder.

1. On the service laptop, open a browser. Use Internet Explorer 11.

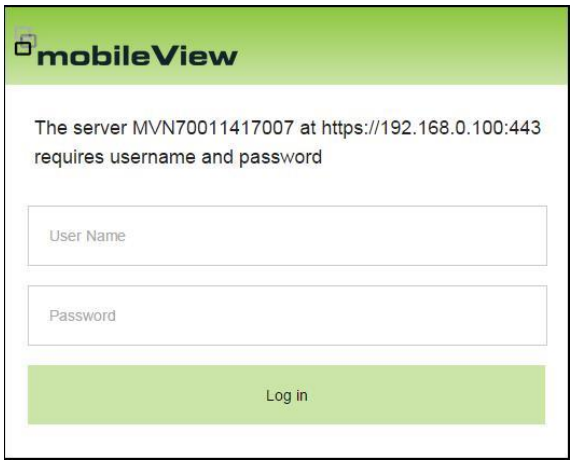
   Note: Compatible browsers require installation of extensions to support specific functions such as video display. If extensions are not loaded, graphics may not display correctly.

2. Type the IP address in the browser address bar of the recorder and press **Enter**.

   `192.168.0.100`

   The browser displays a logon page and proceeds to a warning page.

3. Follow the instructions to proceed.
   The logon page displays again.



Recorder Browser login page

***CAUTION*:** The recorder uses secure communications over port 443. It also uses a self-signed certificate residing on the device. By default, browsers consider self-signed certificates untrusted and a warning is displayed. A third-party signed certificate is also considered untrusted if connection to the trust agency is unavailable. Since the recorder is normally deployed on a private network, the trust agency is unavailable and the warning message still displays. For these reasons, the warning message is an accepted limitation of implementing secure browser communications.

General browser pages

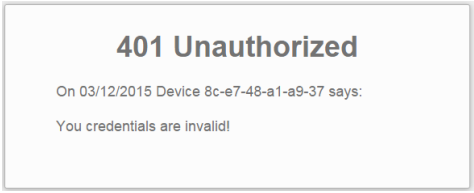
Once the recorder has been installed, configure using a connected service laptop.

Login

Once connected to the recorder, a browser logon page displays. Enter the correct username and password and click **Log in** to enter the configuration pages.

401 Unauthorized

Upon entering incorrect credentials three times, the login rejection (401 pages) displays.



User lockout

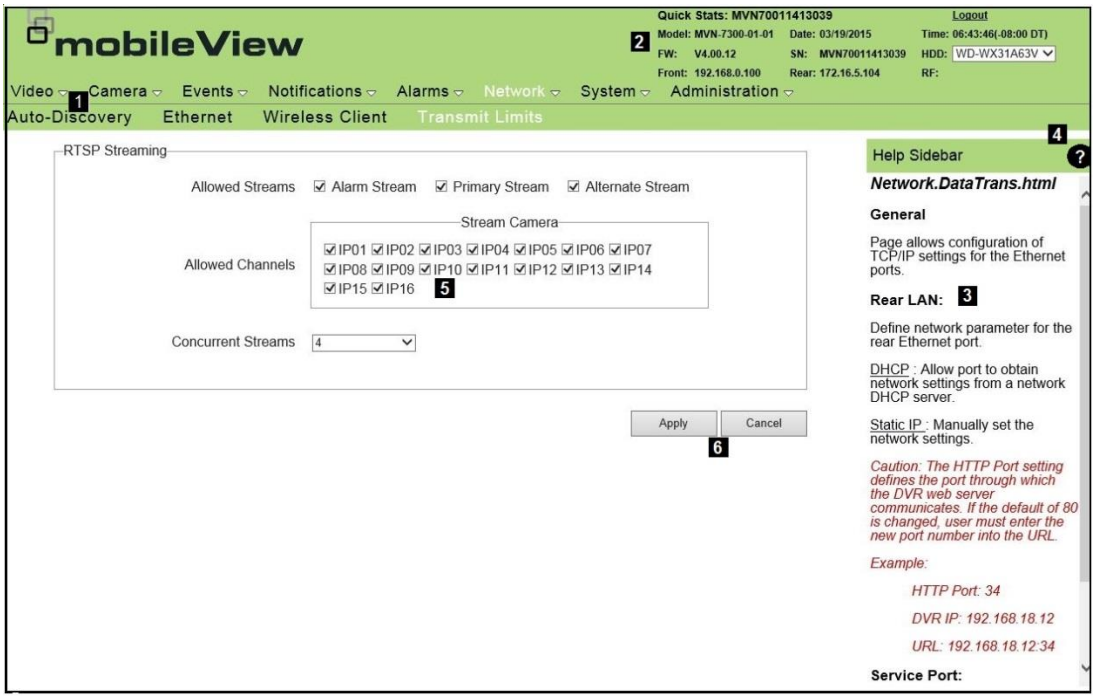
If a user enters incorrect credentials more than the allowed incorrect entries, the account locks for a period of time.

Landing Page

Upon entering valid credentials the user is presented with a landing page containing basic information about the device.

Web Page Window Layout

Upon logging in, MobileView web page layouts conform to the following example.



Web Page Window Layout

Main window legend

ID	Name	Description
1	Navigation	Click main and sub tab to open a configuration page
2	Quick Stats	Summary overview of device status
3	Help Sidebar	Short description of available configuration items
4	Extended Help	Click icon to see more information about configuration items
5	Configuration	Items available for user configuration
6	Save Options	Click to save edits made to configuration page

Configuration pages

For detailed information when using configuration pages, refer to the help side bar and extended help information when connected to the specific page. The help information is located in the same window as the configuration page.

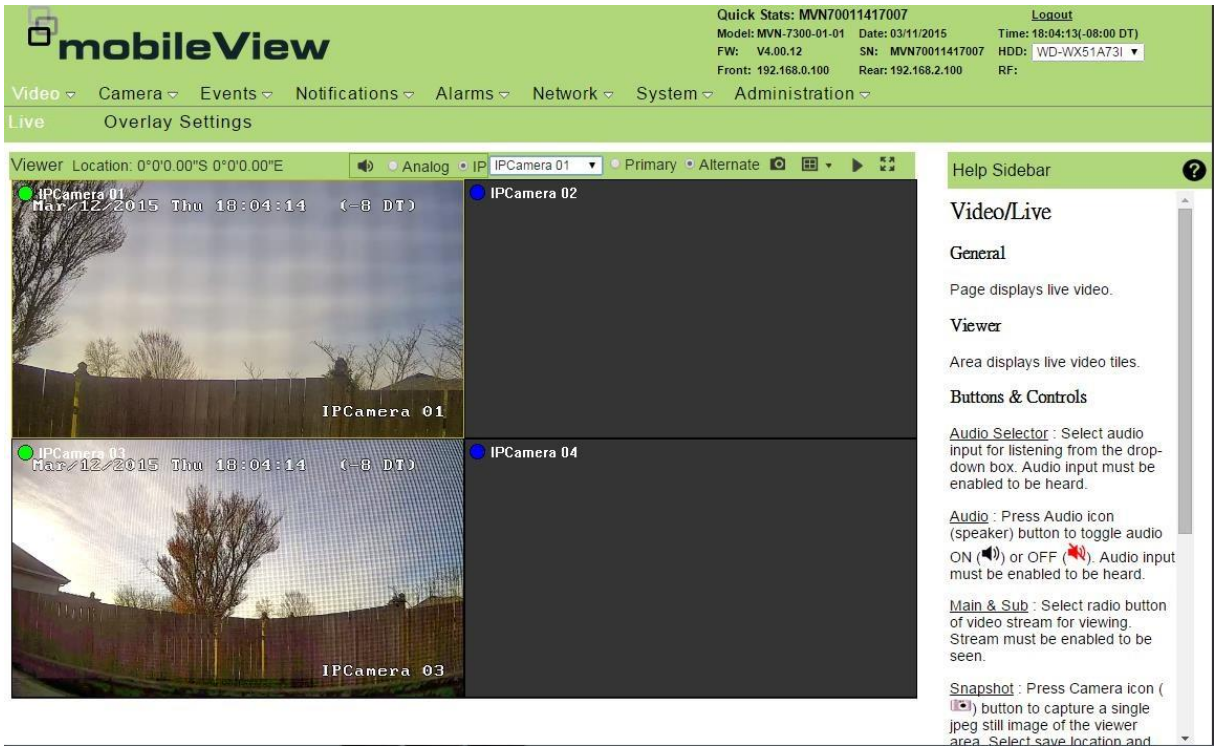
Video pages

Video configuration settings are related to viewing video on the recorder web browser only. Settings applied to these pages have no effect on surveillance information stored on the recorder.

Live

Live video and audio is displayed in a standard tiled layout. The layout may be adjusted to display one or more video tiles.

1. Click **Video**.
2. Click **Live**.



Live page

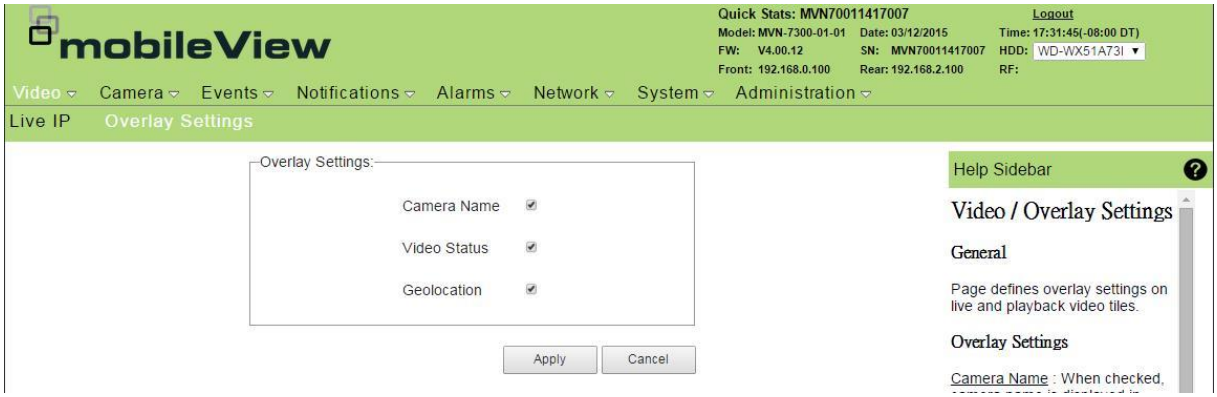
Overlay Settings

Overlay settings provides live page overlay setting options. Choose to display IP or analog channel name, video status, and geo-location on live video or within the individual video tiles when overlay is enabled.

1. Click **Video**.
2. Click **Overlay Settings**.
3. Toggle each setting on or off. A check mark displays when the option is on.
4. Click **Apply**.

When a camera name is checked, a colored video status indicator is on the live video page.

- Black: Input not enabled or configured
- Green: Normal Video
- Blue: Video Loss
- Red: Alarm/Event video



Overlay Settings page

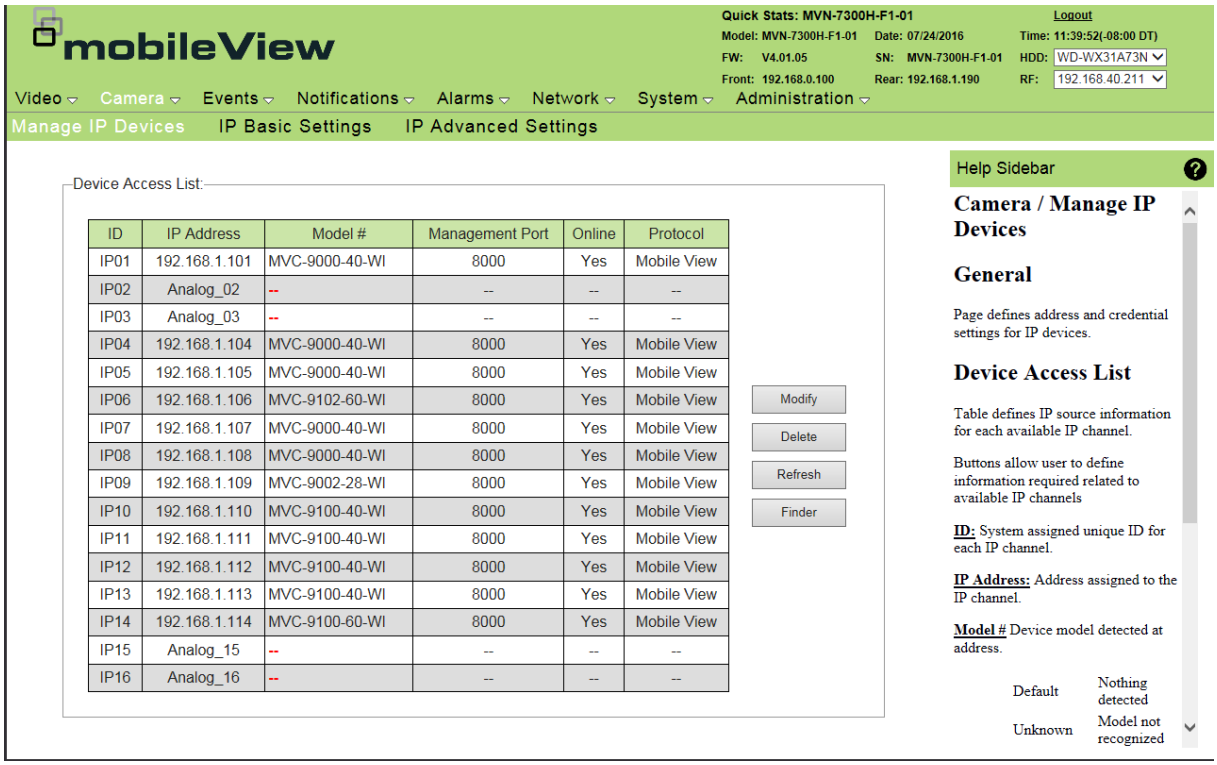
Camera Settings

Camera configuration settings refer to setting up IP channels and devices from the recorder. Live video and audio support both analog and IP. The default source for each channel is IP.

Manage Devices

The page defines the IP and analog channels available on the recorder along with the current network address and protocol assignments for IP device. IP addresses may be changed or deleted to suit an individual installation or device type. MobileView recommends leaving settings at their default values.

> **CAUTION:** Ensure IP addresses are in the same subnet as the camera network. The camera network is configured under Network tab on the Ethernet page.



Manage IP Devices

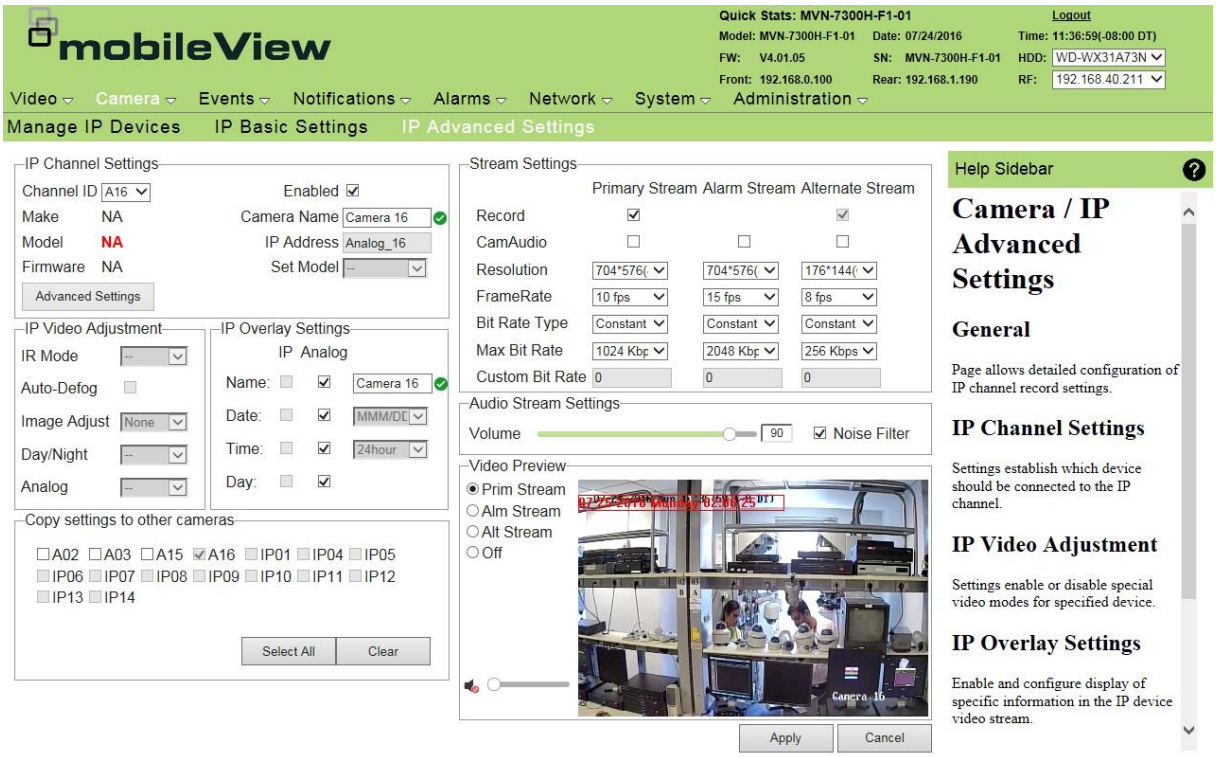
IP Basic Settings

IP basic settings provide an overview of common device settings for each configured IP channel and most settings can be modified. For detailed changes, navigate to the IP Advanced Settings page.

1. Click **Camera**.
2. Click **IP Basic Settings**.
3. A summary of the available camera channels displays. Use this window to:
   - Change the camera name.
   - Enable or disable the camera.
   - Adjust the resolution per stream.
   - Select the frame rate for each stream.
   - Copy settings to other cameras. Source and target cameras must be of the same type.
4. Click **Apply**.

IP Advanced Settings

Configure detailed camera channel and device parameters on the IP Advanced Settings page. The most common parameters are duplicated on the IP Basic Settings page but important video transmission, video adjustment, and video overlay parameters are reserved only for this advanced page.



IP Advanced Settings

Events pages

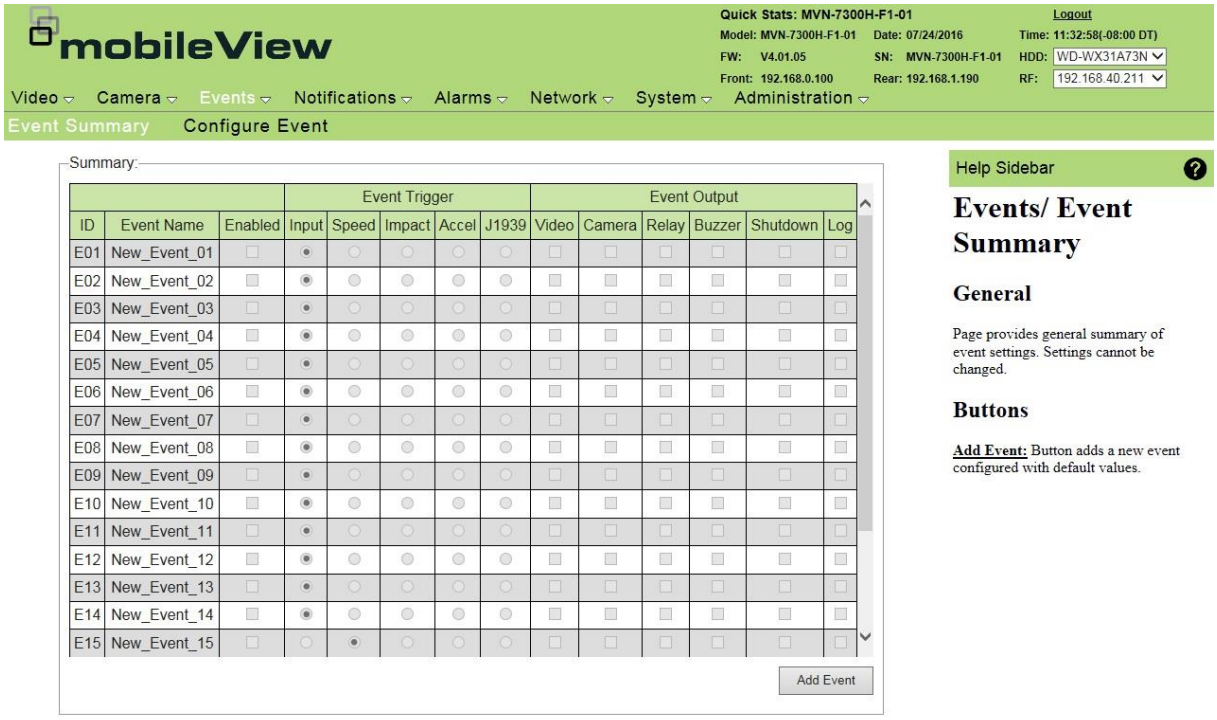
Events allow monitored input to trigger programmed responses. Responses include recording at higher resolution, frame-rate, activating outputs including alarm buzzers or warning lamps.

Display Event Summary

Events summary displays information for currently programmed events. The event settings cannot be changed. New events are added with default parameters selected.

1. Click **Events**.
2. Click **Event Summary**.

Configuring an event is performed using Configure Event.

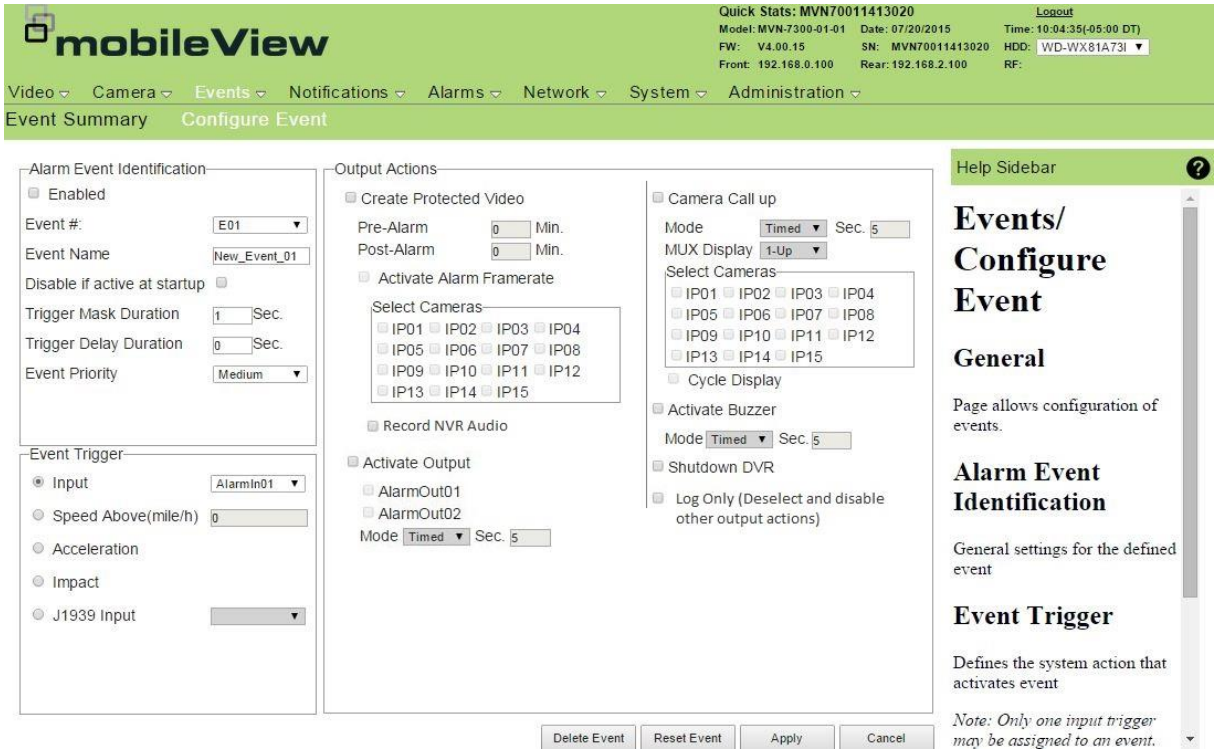


Events Summary

Configuring an Event

Once an event has been created from the Event Summary page, fully configured it on the Configure Event page.

1. Click **Events**.
2. Click **Configure Event** adds a new event with default configuration settings.
3. Use the **Event Identification** section to define how a trigger activates the event.
4. Use the **Event Trigger** section to set the event trigger input.
5. Use the **Output Action** section to define system reactions when the event has been triggered.
6. Click **Apply**.



Special Concepts

Modify an event to trigger an alarm in the following ways.

- **Disable if active at startup**: When selected, the device ignores an input if it is active during system boot. This helps eliminate undesired event activations if an input is wired or configured incorrectly. If the input changes to inactive, the input is no longer ignored.
- **Trigger Mask Duration**: Once an input triggers an event, subsequent activation of the same input can be ignored for the duration defined by the Trigger Mask Time. This feature ensures only one occurrence of the event occurs during the specified time.
- **Trigger Delay Duration**: This value requires the input remain active for the specified period before the event can trigger. This feature monitors inputs normally fluctuating between active and inactive state over a short duty cycle but lock into active state when in fully active.

Notification Pages

Notification configuration settings provide an alert for conditions requiring attention.

System Alarms

Configure system alarms and alert parameters using System Alarms. Active system alarms are displayed in MobileView Live of the Exception menu and transmitted using the J1939 interface extension when enabled. System alarms are ignored unless the Report check box is selected.

Configuring Alarm Triggered Record

To configure alarm triggered recording:

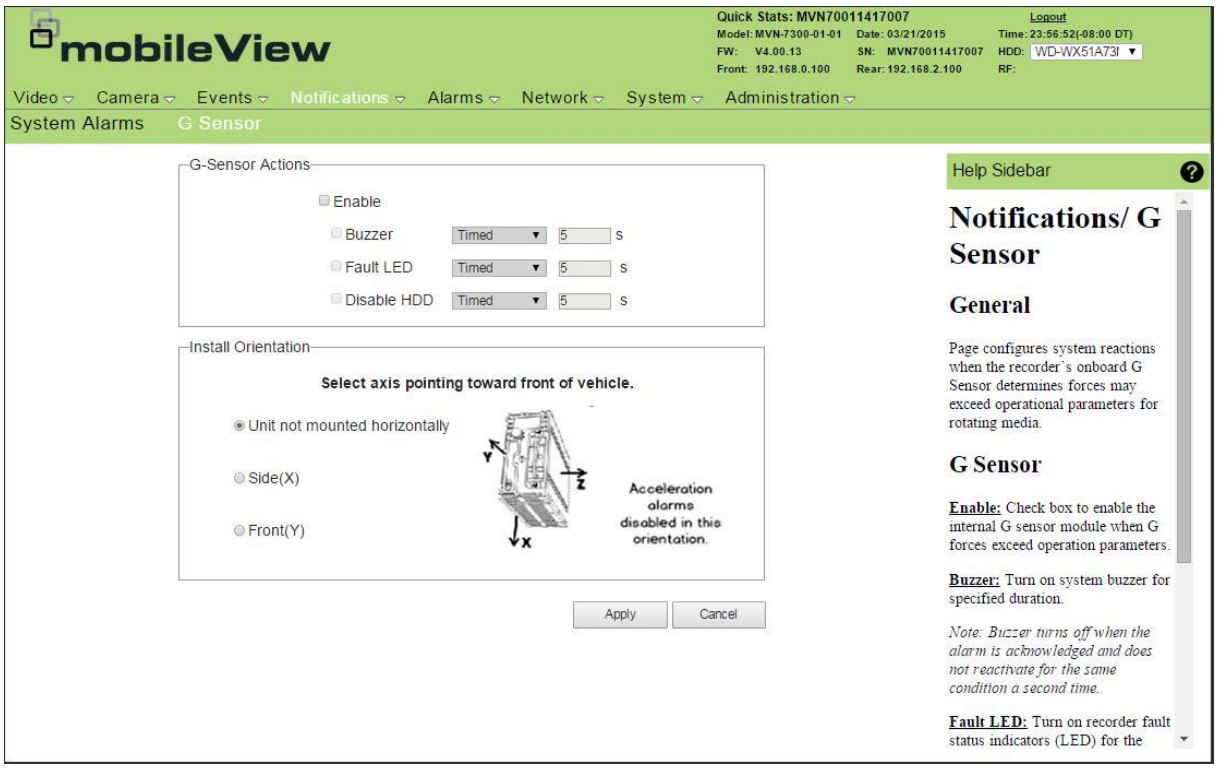
1. Click **Notifications**.
2. Click **System Alarms.**
3. Select **System Reactions** for each alarm
4. Click **Apply** to save the settings and click **OK** to exit.

After configuring alarm input, open the Record Settings interface to set an alarm triggered record.

G Sensor

The G Sensor option configures device reaction for excessive accelerations. It also defines how the device is mounted in a vehicle.

- **G-Sensor Actions**: Configure how the device reacts when acceleration forces detected by the onboard G-Sensor exceed values considered safe for rotating storage media (HDD). The goal is to alert the operator that a high acceleration event was sensed and prevent data loss by disabling drives. Results are not guaranteed.
- **Install Orientation**: Define device mounting orientation on the vehicle. Establishing orientation is required for proper performance of direction based acceleration alarms



G Sensor

Setting up G Sensor Alarm

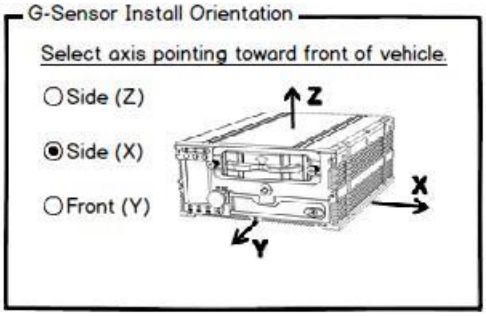
To configure how the system will react when the G sensor parameters are exceeded, perform the following.

1. Click **Notifications**.
2. Click **G Sensor**.
3. Click **Enable**.
4. Identify alarm output.
5. Click **Apply**.

Setting up Install Orientation

To define how the recorder is installed on the vehicle, perform the following:

1. Click **Notifications**.
2. Click **G Sensor**.
3. Click an option in the **G-Sensor Install Orientation**. Choose the option that best describes the orientation of the recorder. The arrows point towards the front of the vehicle.



4. Click **Apply**.

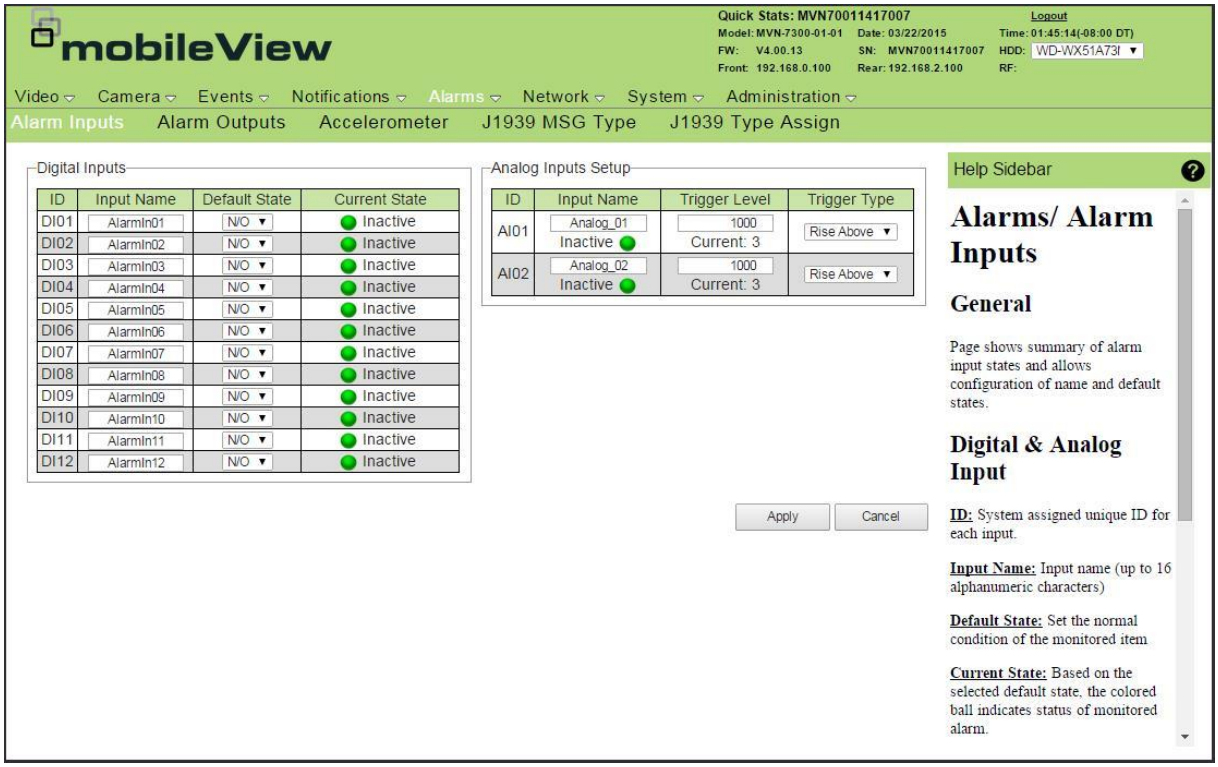
Alarm Settings

The Alarms option includes configuration settings related to inputs and outputs monitored by the device. These include digital inputs (alarm inputs), relay outputs (alarm outputs), acceleration alarms, and J1939 message alarms.

Alarm Inputs

Use the Alarm Inputs option to configure when digital (discrete) and analog (variable) inputs are considered active. The active state of an input is used to trigger events. The page also automatically updates the current activation state of each input according to the configuration setting.

- Digital Inputs: Digital inputs are relays or switches having a defined normal state of open (OFF) or closed (ON). Digital inputs monitor for the presence (closed) or absence (open) of a voltage. Voltage range and values are shown below.
    - 0VDC – 5V = Open (Off)
    - 5VDC – 6V = No state guarantee
    - 6VDC – 36V = Closed (ON)
    - 40V = Max voltage before damage

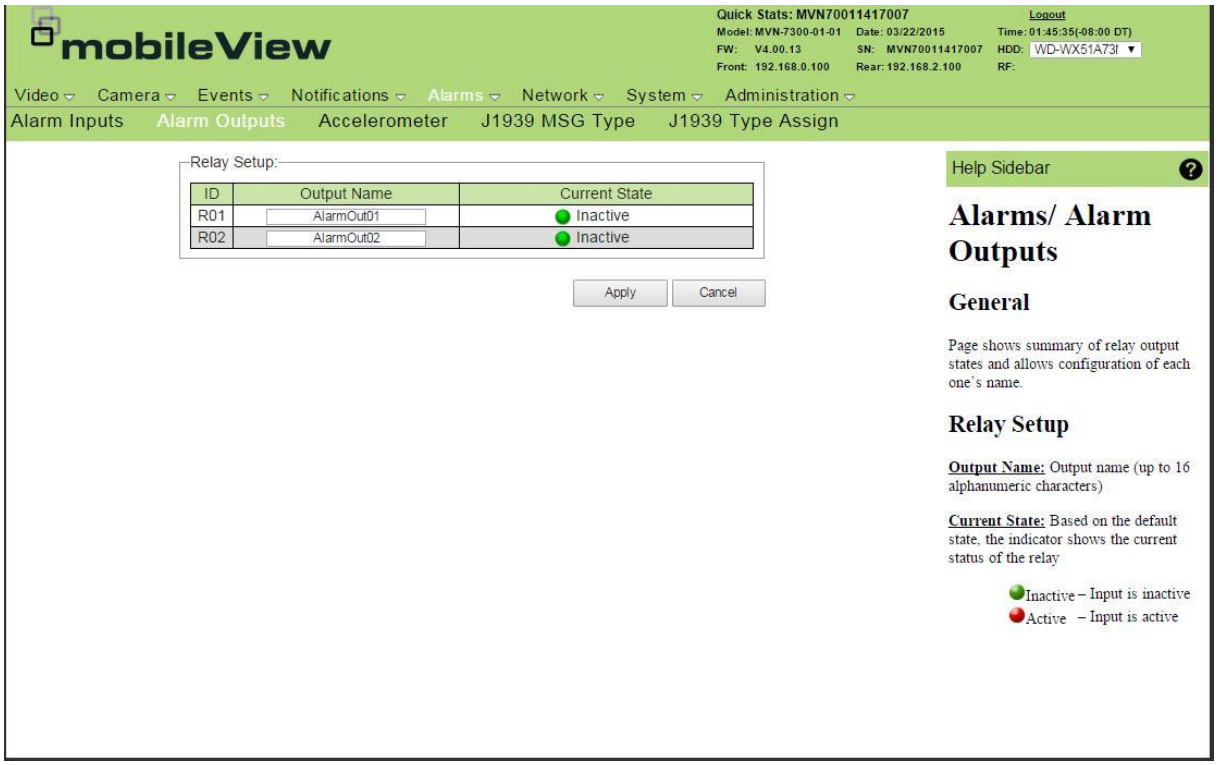


- Analog Inputs: Analog inputs are sensors without a single defined ON or OFF state such as pressure, lever position, and fuel level sensors. These devices have a set value triggering an action. Analog inputs activate when the current value is higher or lower than the set value.

Alarm Inputs

Alarm Outputs

Use the Alarm Outputs option to enter a descriptive name for each relay output. The current state of the output is also displayed and dynamically updated.



Alarm Outputs

Accelerometer

The Accelerometer option configures how acceleration alarms are processed. Acceleration alarms are also called Driver Behavior alarms since they are generally activated based on how an operator drives. Each alarm represents a fixed acceleration profile. **Hard Turn** for example represents a lateral (sideways) acceleration over a long period of time while **Swerve** represents the same lateral acceleration over a short period of time. Hard brake uses a front to rear acceleration profile. Click the check box to trigger an event or turn on the recorder fault LED.

> **CAUTION:** Because acceleration alarms are dependent upon motion in defined directions, device mounting orientation must be considered and configured. The Notifications G Sensor section has additional information.

J1939 Message Type

J1939 messages can be grouped into types. Assign a 16 character descriptive name to each message type. Message types can be used as a trigger for an event. The descriptive name entered here is used wherever message type is referenced. Click **Apply** when completed.

> **Note:** Only J1939 messages representing digital values (On/Off) can be used to trigger an event.

J1939 Type Assignment

Categorize J1939 messages into types. Up to 4 message types are allowed as shown in the drop-down list next to each message. Messages of the same type can be used to trigger an event. Assign a type to each message. Click **Apply** when completed.

Note: J1939 messages representing digital values (On/Off) are preceded with (D). Although digital and non-digital messages can be assigned to the same type, only digital messages can be used to trigger an event.

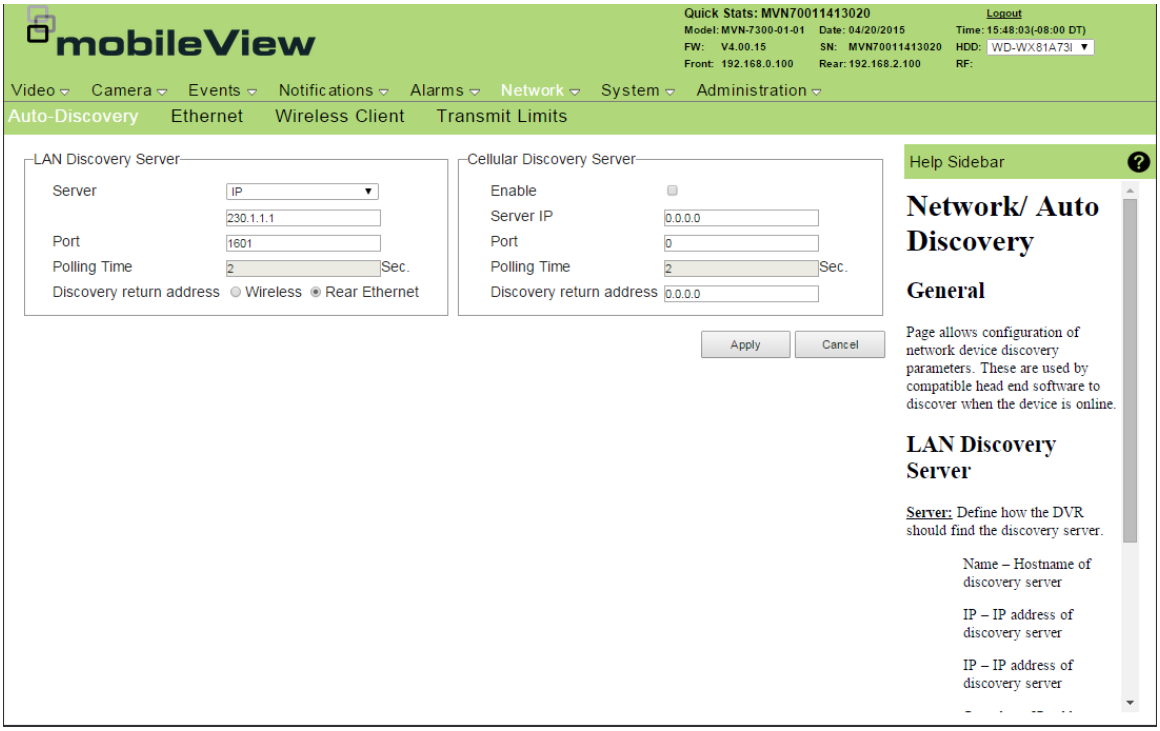
Network Settings

The network configuration settings are correlate to networking and remote devices accessed over networks.

Auto Discovery

Auto Discovery sets the network destination for device discovery messages. Discovery messages contain limited information about the recorder and location on the network. This information is used by MobileView software to establish periodic and ongoing communications with the device.

- **LAN Discovery Server**: Discovery messages are sent to network destinations connected to the rear or wireless networks. The discovery message destination is defined by the server configuration. LAN discovery supports IP or hostname addressing methods for the server.
- **Cellular Discovery Server**: When transmitting discovery messages over a cellular network the information is sent to the public IP address of the discovery server and returned to the public IP address of the recorder.



Auto Discovery

1. Click **Network**.
2. Click **Auto-Discovery**.
3. Enter the LAN and Cellular discovery server information.
4. Click **Apply**.

Ethernet

The device contains two physical network interface cards (NIC) named Front NIC and Rear NIC. The Front NIC is dedicated for service and maintenance support and has a fixed IP address (192.168.0.100 / 255.255.255.0) that cannot be changed. The Rear NIC supports two networks, each have thei own IP addresses. Use the Ethernet option to configure Rear NIC addressing.

Assign Ethernet Ports

The Front NIC displays and cannot be changed. The Rear NIC information displays in a separate chart, some items can be edited.

1. Click **Network**.
2. Click **Ethernet**.
    - **Camera Network**: This network is designated for connection to IP cameras.
    - **Rear Network**: This network is designated for connection to user specified backend networking devices. These may include high end wireless equipment or other systems on the vehicle.
3. Make any necessary changes to the network including changing the IP address of the interface, subnet mask of the interface, gateway of the interface, and the HTTP port for the interface.
4. Click **Apply**.

Wireless Settings

The device supports a radio frequency (RF) option module. When installed, the RF option card enables wireless communications in client mode. Supported transmit options and security modes depend upon the specific wireless card included with the RF option module. These are automatically set when the card is detected during system boot.

WPA Security Modes

The system supports WPA1 and WPA2 personal security modes. To enable advanced, enterprise-level wireless security, Third party specialty wireless equipment must be added to the system and connected to the rear network.

Client Settings

Use the wireless client settings to set the configuration settings for wireless client basic settings, security settings, and network settings.

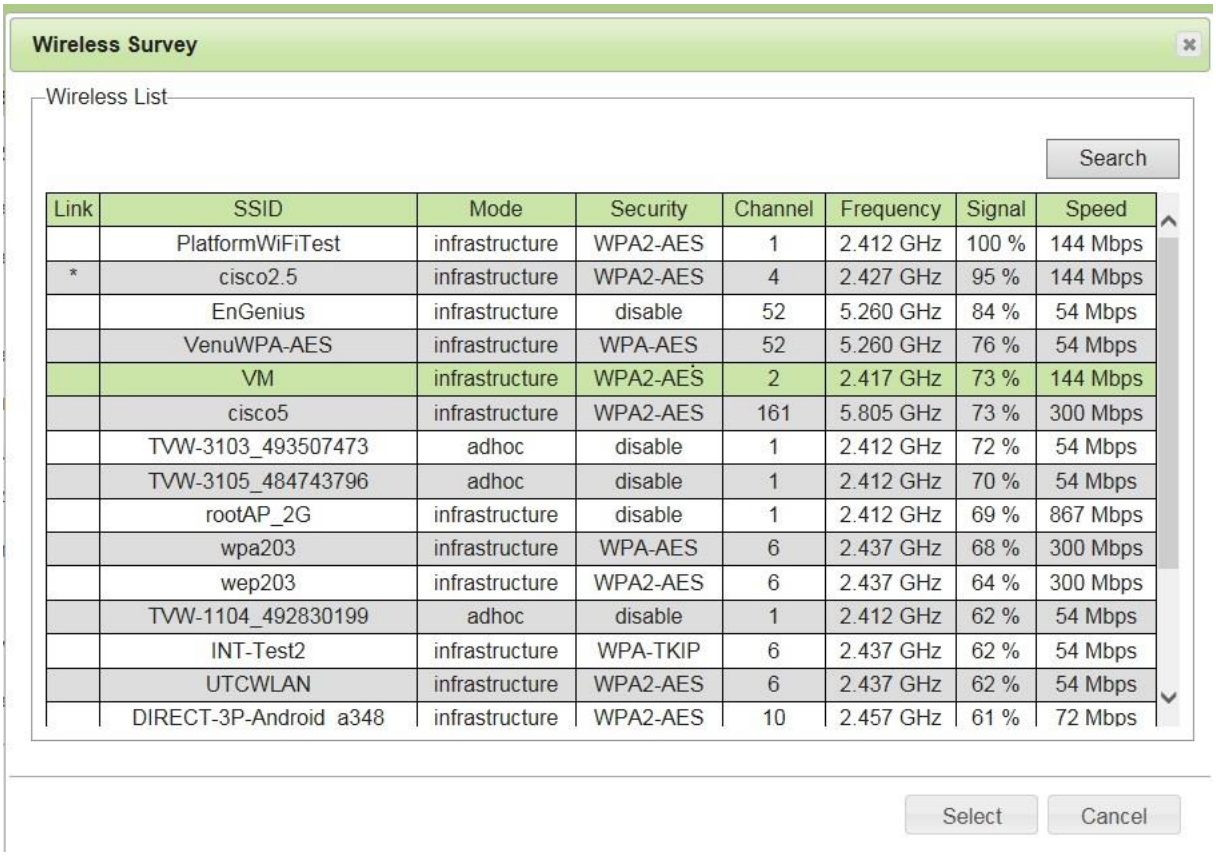
1. Click **Network**.
2. Click **Wireless Client**.
3. Make necessary changes in the Client Settings group.
    - **Wireless Network Mode**: Select the wireless network mode for the AP. Choose from Disabled, Auto, Mixed (2.4GHz Only), and Mixed (5GHz Only).
    - **Wireless SSID**: Enter the wireless SSID for the AP.
    - **Wireless Channel**: Select the wireless transmission channel for the AP.
    - **Channel Width**: Select the wireless transmission channel bandwidth for the AP.
    - **Security Mode**: Select the wireless security mode for the AP.
    - **WPA Algorithms**: Select the encryption method to use with the selected security mode on the AP.

- **Shared Key**: Enter the security key to use with selected security mode.
- **Unmask Key**: Check the box to see the shared key. Uncheck the box to replace characters with *.
- **Network Type**: Select the wireless network mode.
- **Survey**: Click **Survey** to open a new browser window containing a wireless survey.

4. Click **Apply**.

Wireless Survey

When equipped with a wireless card, the device supports basic wireless survey capabilities. Pressing the **Survey** button opens a dialog displaying information about nearby access points. Highlight the desired row and press **Select** to automatically populate client wireless settings.



Wireless Survey

Transmit Limits

Use Transmit limits to identify limits on RTSP connections. The limits include restricting allowed video streams types, IP channels, and number of concurrent connections.

System Settings

The system miscellaneous setting pages are used to configure a wide range of basic system parameters.

General System Settings

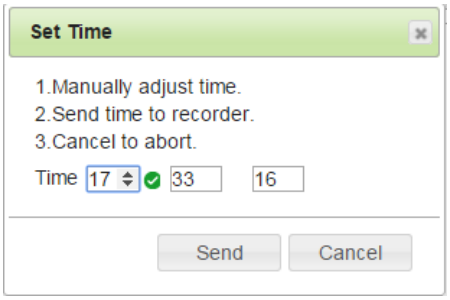
General system settings display recorder information including network name of the device, language and video mode, power settings, and LCD option settings.

Data Management

The Data Management option defines data retention and record settings.

Date and Time

Configure date and time settings for the device. Since the recorder is the master time clock, time settings are pushed to connected surveillance devices such as IP cameras.
To set recorder time, click the **Set Time** button under the Time Settings. This will open a dialog box to set the time on the recorder. Time is only updated using this dialog; time is not updated when the apply button is pressed on the main Date and Time page.



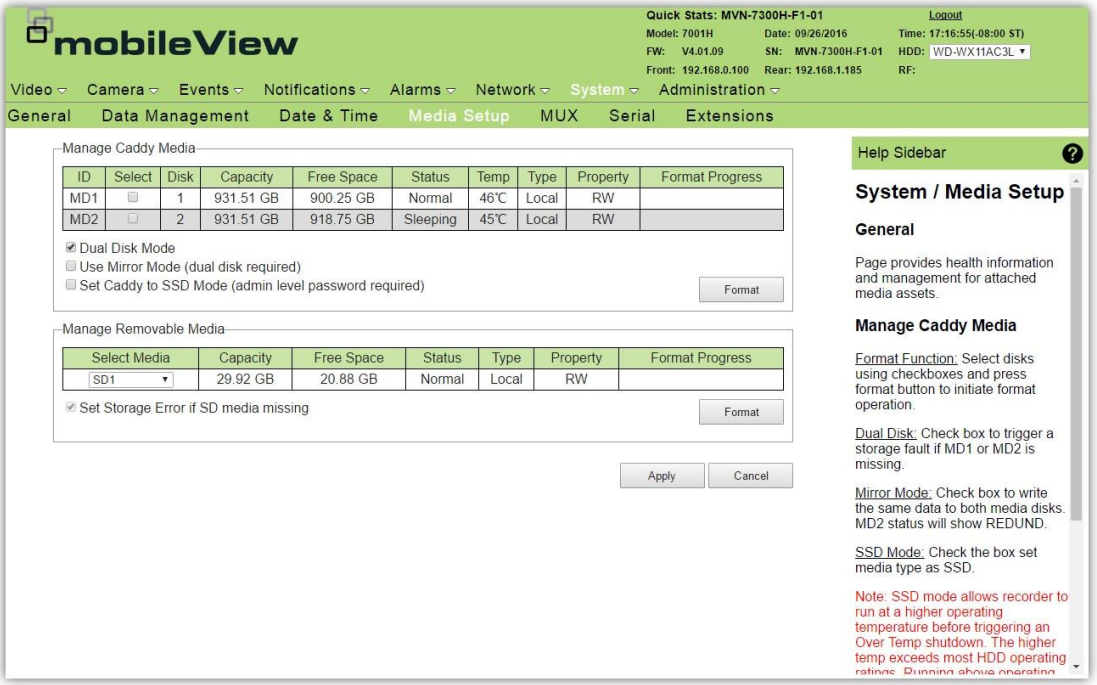
Set Time

Media Setup

Media Setup is used to configure and manage the media used on the recorder. This includes media inside the media caddy, SD media, and currently attached USB media.

NOTE: Media can only be mounted after the caddy key is in the lock position.

- **Media Caddy Format**: Media format function initializes and prepares media for use in the recorder. The format operation erases all data on the disk.
- **Mirror Mode**: Mirror mode configures duplicate recordings to both disks in the media caddy. This results in half the recording storage space but provides redundancy if a drive inside the media pack fails. If a single drive failure occurs, data remains available on the working drive. Once important data has been collected, the media caddy should be replaced.
- **SSD Mode**: Solid state drives (SSD) have higher operating temperatures than hard disk drives (HDD). Select the check box to use the SSD temperature profile instead of HDD temperature profile.
    - **SSD Temperature Profile**: 0°C to 55°C External Ambient
    - **HDD Temperature Profile**: 0°C to 40°C External Ambient
- **SD Missing as Storage Error**: The SD card is normally installed and contains the recorder log file. Check the box to trigger a storage error when the card is missing.



Media Setup

MUX

The MUX option provides configuration and management of the multiplexed video output. The MUX output is used to display available IP video channels. Setting the MUX determines what is normally displayed on the output. These settings can be temporarily overridden by events.

When setting the tile assignments, only one IP channel can be assigned per available video tile and tile assignments are individually configured for each tile layout.

1. Click **System**.
2. Click **MUX**.
3. In the MUX Setup section, define the video layout for the system and the amount of pause time when switching cameras.
4. Assign a channel for each tile.
5. Click **Apply**.

Audio Setup

The Audio Setup option provides access to IP audio output configurations. The settings that display can be adjusted and saved, but only apply if the associated IP device (camera) is present, enabled, and supports the audio function.

Serial Ports

The Serial option provides configuration for available serial ports on the recorder. Serial ports are used to connect additional peripheral devices. Currently the only supported serial device is the J1939 converter. The converter attaches to serial port COM2 using default settings.

CAUTION: Console mode is a special mode is used by MobileView support personnel to perform advanced diagnostic functions and should not be enabled during normal system operation. When enabled, the system may function erratically.

Extensions

The Extensions option enables or disables extensions and provides access to detailed extension configuration parameters. Extensions may have unique configuration layouts.

Note: Refer to System Extensions for more detailed information about available extensions.

Administration

Use the Administration options to administer access and configuration of the device.

User Accounts

The device uses controlled access with user accounts. When logged in using the Supervisor account, the page provides management of those accounts. Primary functions include add, edit, and delete user accounts. Also provided are settings to display access denied messages and user lockouts when incorrect credentials are entered. There are three levels of user accounts; Supervisor, Admin, and Operator. Each type of user account can be created, edited, and deleted.

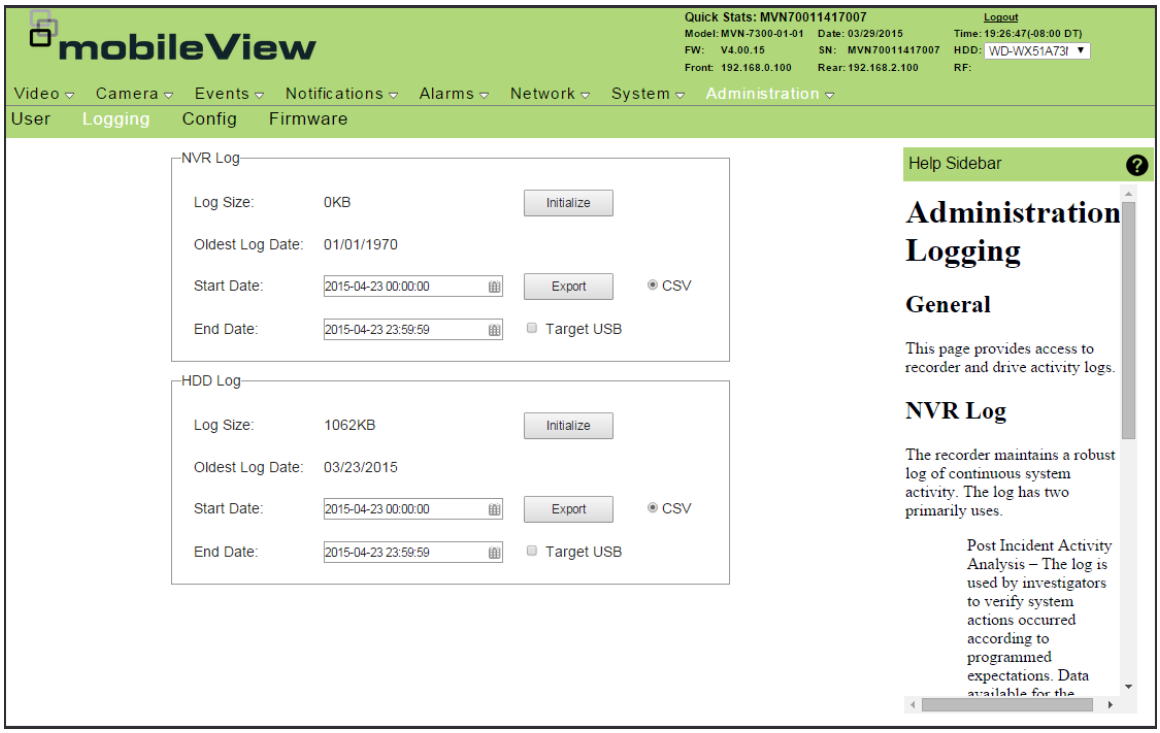
1. Click **Administration**.
2. Click **User**. Previously created user accounts display.
3. Click **Edit** to add, delete, or modify a user.
    - **User Levels**: Access rights to functions while logged into the device are controlled by user levels. Access rights assigned to user levels are fixed and cannot be edited. See the Device Web help page for the latest information about user levels and rights.
    - **Supervisor Account**: The supervisor account is a special account reserved specifically for the management of user accounts.

Logging

The device supports system and user account activity logging in two locations. The main device log (NVR Log) is written to the SD card located behind the front access door. The card must be present for the log to exist. A second log is stored on the media caddy (HDD Log). The Logging page provides access to download the logs.

- **NVR Log**: Contains historical device activity.
- **HDD Log**: Contains historical activity from when the media caddy is installed in a particular device. When the media caddy is moved to a different device, the existing log is appended with activity from the new device as it occurs.

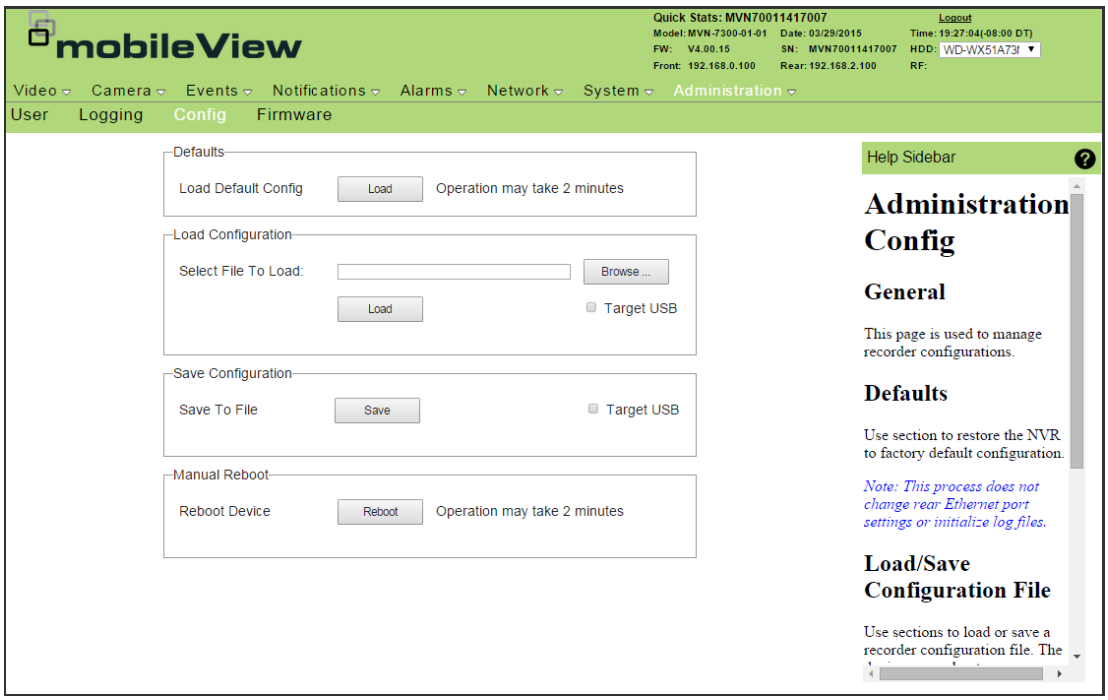
  Note: Logs have a limited size and the oldest data is overwritten with new data when the log space size is full.



Logging

Configuration

The device provides flexible configuration management. The Config window provides access to loading, saving, and resetting configuration to defaults. For remote users, an option to reboot the device is provided on this page.



Config

Firmware

Update firmware manually on the live device, manually using remote access, or set up an automated process. Use the Firmware option to update the device to a new version. Upon completion of a firmware update, the device reboots. Supported configuration settings remain intact. Any unsupported configuration settings no longer exist and new configuration items are set to their default values.

System Extensions

The following information details configuration parameters for system extensions. Extensions enable additive functionality on the device beyond generic recording surveillance information.

J1939 Extension

J1939 is a standardized communications network used for transmission of real-time diagnostic and control information on heavy-duty vehicles. The standard is managed by the Society of Automotive Engineers (SAE) and supports several thousand public and private message types. The recorder supports continuous transmission of heath diagnostic information and reception of a limited set of pre-defined messages, queries, and controls. Select the **J1939 Config** button on the Extensions page to open the J1939 configuration page.

Diagnostic Transmission

The device constantly transmits health diagnostics. The following are supported J1939 diagnostics:

- DVR General Fault
- DVR Temperature Below Operating Range
- DVR Temperature Above Operating Range
- DVR HDD Temperature Above Operation Range
- DVR PCB(s) Temperature Above Normal Operational Range
- DVR HDD Caddy Fault or Missing
- DVR Network 1 Erratic, Intermittent or Incorrect
- DVR Wireless, Erratic, Intermittent or Incorrect
- Video Channel 1 Erratic, Intermittent or Incorrect
- Video Channel 2 Erratic, Intermittent or Incorrect
- Video Channel 3 Erratic, Intermittent or Incorrect
- Video Channel 4 Erratic, Intermittent or Incorrect
- Video Channel 5 Erratic, Intermittent or Incorrect
- Video Channel 6 Erratic, Intermittent or Incorrect
- Video Channel 7 Erratic, Intermittent or Incorrect
- Video Channel 8 Erratic, Intermittent or Incorrect
- Video Channel 9 Erratic, Intermittent or Incorrect
- Video Channel 10 Erratic, Intermittent or Incorrect
- Video Channel 11 Erratic, Intermittent or Incorrect
- Video Channel 12 Erratic, Intermittent or Incorrect
- Video Channel 13 Erratic, Intermittent or Incorrect

- Video Channel 14 Erratic, Intermittent or Incorrect
- Video Channel 15 Erratic, Intermittent or Incorrect
- Video Channel 16 Erratic, Intermittent or Incorrect
- DVR Input Voltage Above Operation Range
- DVR Input Voltage Below Operation Range
- Device Fuse Fault or Missing
- Device Expansion Module Fault or Missing
- POE Module Erratic, Intermittent or Incorrect
- HDD Caddy Fan Erratic, Intermittent or Incorrect
- Accelerometer Erratic, Intermittent or Incorrect
- Device 5VDC Output Below Operation Range
- Device 12VDC Output Below Operation Range
- Event Saved

Note: DVR, NVR, and Device all refer to the recorder.

Supported Messages

The device supports monitoring of the J1939 network for specific message types listed on the Input Messages configuration tab. The list of supported messages may be updated using the Message Database tab.

Supported Queries

The device responds to a fixed set of directed queries from the J1939 network. The following are supported J1939 queries:

- Device Firmware ID by Request
- Device Make, Model, and Serial Number Request
- Device Date-Time by Request
- Device GPS Data by Request

Supported Controls

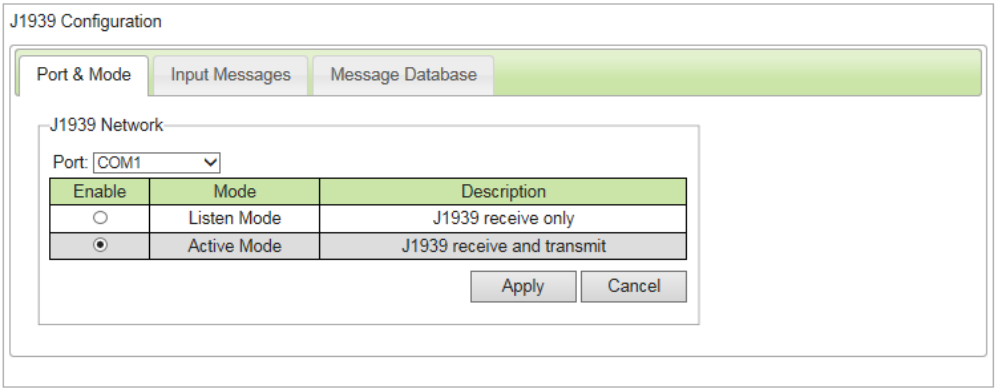
The device reacts to a single control from the J1939 network. The following are supported J1939 controls:

- Set device time to value

Configuration Ports and Mode

The Ports and Mode option sets the J1939 network transmit mode.

- **Listen Mode**: Device monitors the J1939 network but does not transmit any data onto the network.
- **Active Mode**: Device proactively transmits health status to the J1939 network and respond to queries from the network,

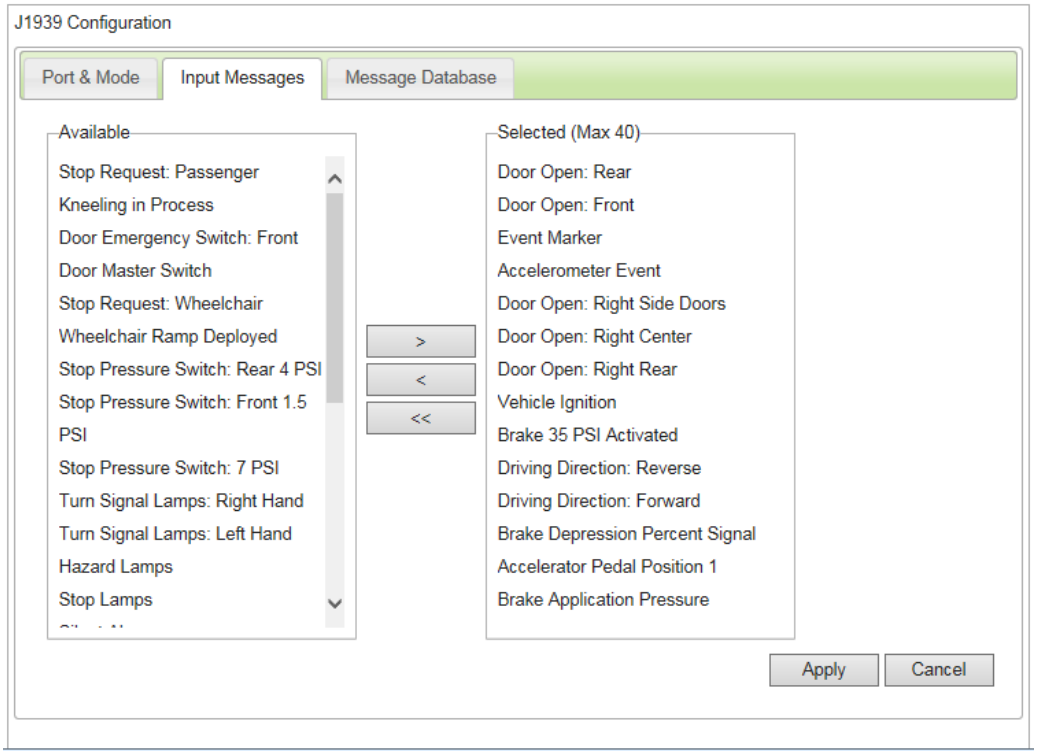


Configuration Port and Mode

Configuration Input Messages

The Input Messages option allows the user to select messages to monitor on the J1939 network.

- **Available List**: This is a listing of all messages the device is capable of monitoring.
- **Selected List**: This is a listing of messages the device actively monitors.
- **Message Selection**: Select message and use the arrow to move messages between lists.
- **Note**: Messages must be enabled on the network by a source device. For example, to capture a front door open message, a device must exist on the network that transmits the front door open message.

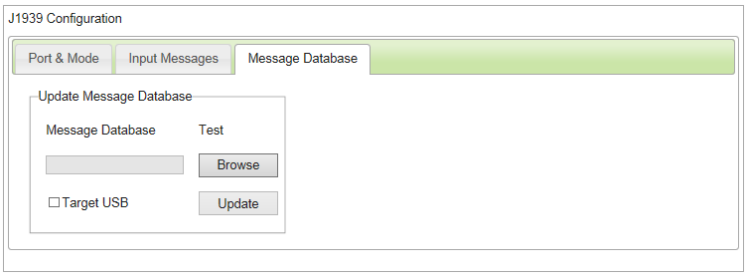


Input Messages

Configuration Message Database

The Message Database option allows updates to the list of available messages. This may be required from time to time to support custom or new message formats. These files must be created by the MobileView engineering team. Once provided, upload the file by selecting browse and selecting the file. Select **Target USB** if the file exists on a memory device connected to the front USB port.

Note: The file name must be named “3208_J1939.MVB”.



Message Database

Chapter 4
Recorder Navigation

The MobileView 3208 recorder uses MobileView Live to navigate recorder operations.

Navigating MobileView Live

Use the home button on your iPhone or tablet to navigate recorder selections.

Main Menu

The top level menu displays a list of choices including Exception, Status, Maintain, and Info. Some selections have submenus with a list of additional items while others display information or selectable actions. Continue to touch a selection or press the Home button cancel the current activity.

Exception Menu

The exception menu lists monitored internal and external abnormal recorder conditions. Internal conditions are displayed on the notifications section of the System Alarms web configuration page. External conditions display when an alarm buzzer is selected to activate for an event. Active and unacknowledged conditions are listed on the exception display. All of the available options listed update automatically each time this menu is selected.

List Interaction

Exceptions are displayed in a list with a selector caret preceding each item. Unacknowledged exceptions display an asterisk "*" character. If an exception description is too long, pausing on the item allows the full text description to scroll across the display. If the number of items exceed the display range, the word "More" displays on the last line. Select the next button on the last item to display the next screen. Press next on the last item to return to the first screen. Press the back button to return to the previous screen.

Acknowledge and Silence an Exception

To acknowledge an active exception, navigate to the desired item in the list of items, press the enter key, the asterisk deletes. If the exception condition is no longer active, it is removed from the exception list. Continue to acknowledge each item separately.
If the buzzer is active for any of the exceptions, it silences for all exceptions when any active item is acknowledged. Previously acknowledged exceptions do not cause the buzzer to reactivate until the system reboots. If a new exception adds, the alarm buzzer reactivates.

1. Press **Exception**.
2. If an item is already acknowledged, it is not selectable. Choices containing an asterisk (*) identify exceptions that are not acknowledged.
3. Press on an item to acknowledge an exception.
4. A message of "Success" displays.
5. Press **Back** to return to the main menu.

Status Menu

Use the status menu to view the status of various conditions the recorder monitors.

Open Status Menu

1. Press **Status**.
2. Status choices display.

Video Status

The video status menu displays active and receiving video channels.

- **IPC-ACT**: This is a list of active IP and Analog camera channels. These channels match the device access list displayed on the cameras section of the Manage IP Devices web configuration page.
- **IPC-RCV**: This is a list of IP and Analog camera channels where the device is receiving data. This matches the online column from the device access list shown on the Cameras section of the Manage IP Devices web configuration page.
- **A or I**: The upper case "A" or "I" indicates the video channel is Analog or IP and is active or received.
- **x**: The lower case "x" indicates the IP channel is not active or not receiving.

Opening the Video Status Menu

1. After opening Status, press **Video** to open video status.
2. The video status displays and cannot be changed.

Wireless Menu

The wireless status menu displays information related to wireless devices and functions of the device.

- **GPS**: Provides current state of GPS signal.
    - **No Module**: GPS module not detected (failure condition)
    - **Sat Lock**: Positional information being received

    - **No Service**: Positional information not being received
- **WIFI**: Provides current state of Wi-Fi signal.
    - **No Module**: Wireless module not detected
    - **Not Enable**: Wireless module not enabled
    - **Failed**: Wireless module not working properly
    - **Scanning**: Wireless client scanning for access point
    - **Connected**: Wireless client connected to access point
- **Mode**: Provides current operational mode of Wi-Fi module.
    - **Not Enable**: Wireless module not enabled
    - **Client Mode**: Wireless module in client mode

Opening the Wireless Menu

1. Press **Status**.
2. Press **Wireless** to view the wireless status.
3. The status displays, automatically updates and cannot be changed.

Media Menu

The media status menu displays information related to surveillance and user storage media connected to the device internally and externally. Available storage devices are listed using a shortened name. Both SD and USB have standardized meanings.
The following information displays.

- **SD (Secure Digital)**: Represents media inserted into SD slot on front of device
- **USB (Universal Serial Bus)**: Represents media inserted into USB slot on front of device
- **EHD (External Hard Drive)**: Represents media connected to eSATA slot on front of device
- **MC1 (Media Caddy 1)**: Represents caddy inserted into main device media bay

Each status condition displays next to the media type:

- **None**: Storage device is not installed
- **Error**: Storage device is working and has a problem
- **OK**: Storage device is working and can be used
- **Fail**: Storage device is not functioning

Opening the Media menu

1. Press Status.
2. Press **Media** to open the storage status.
2. Scroll to a media option in the list and select to display extended information about the media.

G Sensor Menu

The G-Sensor status menu displays the current access values of the built-in accelerometer (gravity sensor). The values are represented using the axis.

- **X**: This is defined as side to side on the device (0G is normal)
- **Y**: This is defined as front to back on the device (0G is normal)
- **Z**: This is defined as top to bottom on the device (+1G is normal)

Opening the G Sensor Menu

1. Press **Status**.
2. Press **G Sensor** to open the G sensor status.
3. The status displays, automatically updates, and cannot be changed.

Alarm Menu

The alarm status menu dynamically displays the current state of digital and analog inputs monitored by the device.

- **Digital**: Monitored input is physically inactive/OFF (L) or active/ON (H)
- **Analog**: Current voltage level of monitored input (range = 0VDC – 30VDC)

CAUTION: Digital and analog inputs use a voltage range input. Each has expected operational values and maximum allowed values as shown.

- Digital Input
    - **Inactive/OFF State**: 0VDC – 5VDC
    - No State Guarantee: 5VDC – 6VDC
    - Active/ON State: 6VDC – 36VDC
    - Max allowed voltage = 40VDC
- Analog Input
    - Voltage Range: 0VDC – 36VDC
    - Max allowed voltage = 40VDC

Opening the Alarm Menu

1. Press **Status**.
2. Press **Alarm** to open the alarm status.
3. Alarm status displays and cannot be changed. The status automatically updates.

Other Menu

The other status menu dynamically displays general information monitored by the device.

- PWR: Main input voltage level
- IGN: State of the ignition input
- Caddy: State of media caddy lock
    - None: Media caddy does not exist
    - Lock: Caddy lock is locked
    - Unlock: Caddy lock is unlocked

Opening the Other Menu

1. Press **Status**.
2. Press **Other**.

Maintain Menu

Use the maintain menu to perform maintenance related tasks without logging in.

WARNING: Although limited, maintain actions can result in partial or complete data loss if applied incorrectly. Ensure the recorder is housed in a locked enclosure or other area accessible to authorized personnel. If this is not possible, deselect the check box on the System: General Web Configuration page under MobileView Live Setting and actions will not display.

Opening Maintain Menu

1. Press **Maintain**.
2. Press a selection.

Export CFG Menu

The exportCFG action is used to save a copy of the current system configuration. It is saved to the root directory of the memory device attached to the front USB port. The file name is set to "DeviceName_DeviceModel_mm-dd-yyyy.cfg" An error message displays if a device is not attached. If the media is not compatible with the device, it should be formatted using the Media action.

Note: The keys lock and do not respond to any operation during the exporting process.

Import CFG Menu

Connect a removable USB device containing a compatible configuration to the devices USB port. The importCFG action is used to load and apply a new configuration to the device from the root directory of the memory device attach to the front USB port. Press **ImportCFG** menu to replace the current local configuration file. Select a file from the list of available configuration files.

Note: The keys lock and do not respond to any operation during the importing process.

Export Log Menu

Connect a removable USB device to the USB port. The export log action is used to save a copy of the device log to the root directory of the USB device in comma separated variable (CSV) format. Press **ExportLog** menu to save the device log to the removable media. Open this file in Notepad or Excel. The saved file name format is fixed as "DeviceName_DeviceModel_mm-dd-yyyy.csv." If no device is attached, an error message displays. If the media is not compatible with the device, it may be formatted using the Media action.

Media Menu

The media action is used to formats and displays the current status of storage devices attached to the device. Displayed status types are defined in the status menu section under media. To format a media, press on the desired media type.
Select one of the following to format that device.

- **SDF**: SD memory device
- **USB**: USB memory device
- **EHD**: eSATA expansion memory device
- **MC1**: Media Caddy 1

A confirmation displays before format operations complete.

WARNING: Format deletes all data on the target device. Once started, the operation cannot be halted and the operation cannot be undone.

Upgrade Menu

Connect a removable USB device containing a compatible configuration to the device USB port. The upgrade action causes the device to load and apply a new operational firmware to the device. Select the file to load from the connected USB drive. Press **Upgrade** to replace the current local configuration file with the new upgrade. The upgrade file must be located in the root directory of the media file. Browse to locate the file and press the name of the file.

Shutdown

Use the shutdown option to immediately close all activity and initiate an orderly shutdown. The function is used to bypass the timed shutdown sequence during maintenance operation.. If startup conditions are present, the device restarts.

Info Menu

Use the Info option to display limited information about low level system firmware.

The topics are:

- **SN**: Displays device serial number of the recorder
- **FW**: Displays device embedded recorder firmware version
- **BD**: Embedded firmware build date
- **MV**: Displays firmware build date
- **IR**: Displays IR control ID

Chapter 5
Hardware

Hardware Specifications

The following specifications are detailed in this section:

- Video surveillance
- Digital input recording
- Network and interfaces
- Physical
- Environmental
- Electrical

Video Surveillance

Camera Channels	8 Channels Maximum Limit
Frame Rate	IP: Camera Dependent
Recording Resolution	IP: Camera Dependent
Incoming Bandwidth	40Mbps (5Mbps each IP camera)
Video Output	1CH CVBS Output, Mirroring, Aviation Connector, 1.0 Vp-p, 75 Ω; PAL 704*576 , NTSC 704*480 1x VGA with configurable resolutions
Audio	1 mono out
Storage Solution	Caddy supporting single or dual 2.5" media (HDD/SSD)
HDD Insertion	Removable
Caddy	Interchangeable, drive caddy with USB port
Geolocation and Positioning	GPS based tracking
Clock sync methods	Via GPS or network timeserver
Download Options	Manual or automated via wireless
Field Upgradable	Software and Firmware update via USB memory device

Digital Input Recording

Alarm Input	8 Digital inputs

Network and Interface

NIC	2

Standard Protocols	DHCP, NTP, DNS
Wireless	Integrated 802.11 AC, AN, BGN Wireless Client
Antenna	2 Wi-Fi SMA on pluggable module 1 GPS SMA on NVR
USB/eSATA	1 USB3.0, 1 eSATA
Serial Port	1 RS232, 1 RS422, Aviation Connector

Physical

Dimensions	8" W x 4" H x 11.42" D
Weight	~ 15 lbs.

Environmental

Temperature	-20ºC – 55ºC (-4°F - 131°F)
Humidity	10% – 95%

Electrical

Power	Input: DC +9V~ +36V; Output: DC +12V/1A, +5V/2A
Power Consumption	25W Typical (Recorder with IP cameras)

System Maintenance

To keep the system working properly, it is recommended to routinely check the following:

- Voltage
- Temperature
- Unobstructed access
- Rear panel connectors tight and secure
- Access to door
- Clean with damp cloth

Chapter 6
Use Cases

The following scenarios may be useful in a work environment.

Screen Snaps

Screen snaps of each video tile are available from the Video Live page. A screen snap records the visible items displayed at a given time. These are especially useful when setting up cameras with a customer and deciding on the angle of the camera. Once the camera is set in place, take a screen snap of the image display. Give the customer a print out of the snap and verify this is what the customer expects to view from the camera before completing the setup process.

Camera Device List

Click **Camera** and **Manage IP Devices**. All of the cameras expected to be found should display in the list. If any new cameras are set to defaults, they can be easily found and added to the list by using the finder utility. Click **Finder**. On the Device/Finder window, click **Refresh**. Any new cameras display in the list. If a camera is already in the list, it does not display in the finder.

Deciding Video Stream

When choosing a type of video stream to select, we recommended using **Alternate**. If the customer prefers still shots, alternates are sufficient. If they are requesting video, select **Primary** or **Alarm** stream.

Install a Wireless Card

A wireless card comes with a plate. Using a screwdriver, remove the plate and install the wireless card.

Glossary

- **DHCP:** DHCP is the acronym of Dynamic Host Configuration Protocol, and it is one of the TCP/IP protocol stacks. It assigns the dynamic IP address to the host on the network.
- **Dual Stream:** Dual stream is a technology recording high resolution video locally while transmitting a lower resolution stream over the network.
- **eSATA:** eSATA is the acronym for External Serial Advanced Technology Attachment and is an extension to the Serial ATA standard that enables SATA drives to be attached externally.
- **GNSS:** A satellite navigation system is a system of satellites providing autonomous geo-spatial positioning with global coverage. It allows small electronic receivers to determine their location (longitude, latitude, and altitude) to high precision (within a few meters) using time signals transmitted along a line of sight by radio from satellites. The signals allow the electronic receivers to calculate the current local time to high precision, and time synchronization. A satellite navigation system with global coverage may be termed GNSS (Global Navigation Satellite System).
- **GPS:** GPS (Global Positioning System) is a space-based global navigation satellite system providing location and time information in all weather and anywhere on or near the earth, having an unobstructed line of sight of 4 or more GPS satellite.
- **G-Sensor:** (Gravity-sensor) can sense the change of the accelerated force, shaking, free falling and lifting. Those changes of the accelerated force are sensed by the G-sensor by means of electrical signals, and link certain action according to the changes of the electrical signals. When applied in the hard disk protection, G-Sensor can check the current status of the hard disk in case of the affection of the R/W function by the sudden change of the accelerated force.
- **NTP:** NTP is Network Time Protocol, and it is a protocol synchronizing the computer time.
- **NVR:** Network video recorder.
- **USB:** Acronym for Universal Serial Bus. USB is a plug-and-play serial bus standard to interface devices to a host computer.
- **Wi-Fi:** Wi-Fi is a mechanism of the wireless connecting electronic devices. A device enabled with Wi-Fi including PC, video game console, can connect to the internet using a wireless network access point.