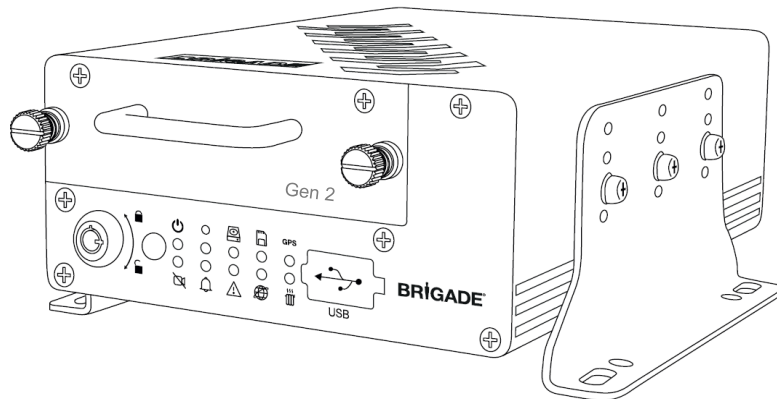


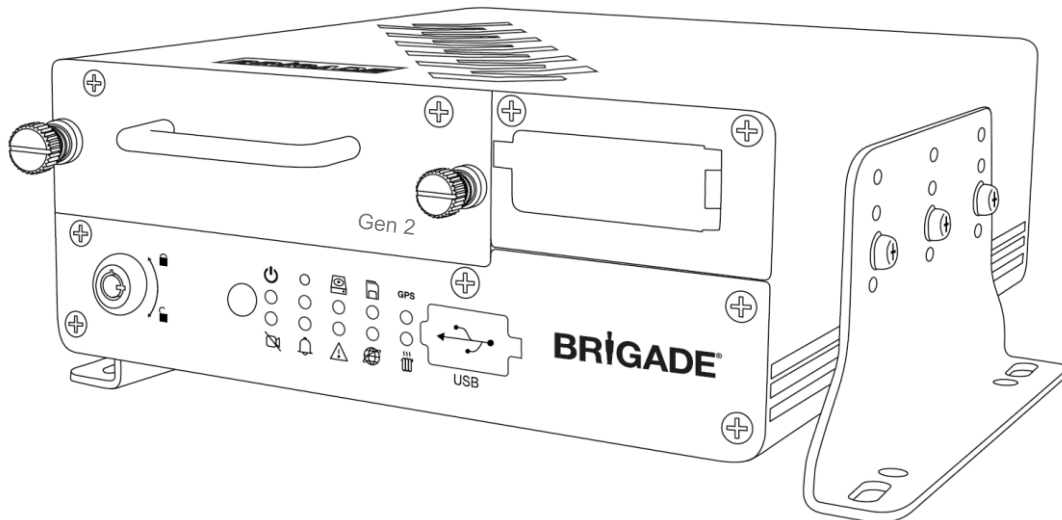


## Mobile Digital Recorder

### MDR-504XX-X-XX-XXX(XX)



### MDR-508XX-X-XX-XXX(XX)



**MDR 500 Series Network Connectivity Software and Infrastructure Manual  
(For Operators and Information Technology Professionals)**

**Please refer to [www.brigade-electronics.com](http://www.brigade-electronics.com) for most up-to-date data on all products**



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# 1 Introduction to MDR 500 Series Technology

Brigade's MDR-508XX-X-XX-XXX(XX) and MDR-504XX-X-XX-XXX(XX) are advanced Mobile Digital Recorders (MDRs) designed to record and playback 8 or 4 channels. The system uses Analog High Definition (AHD), Phase Alternating Line (PAL) or National Television System Committee (NTSC) television systems. The resolution can be CIF, WCIF, HD1, WHD1, D1, WD1 or AHD (HD/720p or FULL HD/1080p). Information related to recording parameters, alarms and trigger status can be recorded along with speed, location and G-Force data. In addition, data related to the unit itself such as voltage and temperature are recorded and plotted graphically in MDR Software (MDR-Dashboard 5.0 and MDR-Player 5.0). This information is called metadata.

Recordings can be searched, viewed and downloaded (clipped and saved locally) using MDR-Dashboard 5.0 software. This allows you to access all the vehicle's travel information, including route tracking. Recordings can be easily downloaded in three different ways: as a simple audio/video MP4 file playable by consumer media players; as native proprietary format clips or as a password protected .exe file with an embedded MDR-Player 5.0.

The main storage unit is a large capacity Hard Disk Drive (HDD) or Solid-State Drive (SSD). The secondary storage is an internal SD (Secure Digital) card for sub-stream, HDD mirror (simultaneous) or alarm recording. The SD card stores video data and frame information only in chosen image resolution and frame rate. This is useful in extreme scenarios where the primary storage media reaches its limitations (e.g. a HDD write error during a collision).

Mobile network and Wi-Fi settings found in this manual relate to wireless products as described below. These features can be attained by upgrading the MDR 500 Series units. 8 channel models allow you to modularly upgrade. These units can be upgraded by various expansion modules. 4 channel units do not have a modular design to allow for mobile network/Wi-Fi upgrades.

To complete firmware upgrades, configuration imports/exports and video downloads, a USB bus-powered hub (minimum 2 ports) is required.

It is imperative that Brigade MDRs are fitted and commissioned by competent and trained technicians. The installers are responsible for the correct setup of the overall system and must adhere to relevant regulations and legislation.

**Warning: Prior to attempting this system setup, please ensure the MDR 500 Series Installation & Operation Guide is thoroughly read and understood. Brigade will not be responsible for any failures due to incorrect installation or operation. Ensure your anti-virus software has exclusions in place to allow the MDR software package to function properly.**

Table 1: Software for MDR 500 Series Products:

WINDOWS PC SOFTWARE	MOBILE PHONE APPS
(1) MDR-Dashboard 5.0	(1) Brigade MDR 5.0 (Android)
(2) MDR-Player 5.0	(2) Brigade MDR 5.0 (iOS)
(3) MDR Server 5.0	

## 1.1 Product Features

Table 2: Differences between MDR-504XX-X-XX-XXX(XX) and MDR-508XX-X-XX-XXX(XX).

MDR-504XX-X-XX-XXX(XX)	MDR-508XX-X-XX-XXX(XX)
500GB, 1TB and 2TB (maximum) 2.5" HDD/SSD with anti-vibration mounting	1TB and 2TB (maximum) 2.5" HDD/SSD with anti-vibration mounting
Industrial grade 32GB (256GB maximum) internal SD card for mirror, sub-stream and alarm recording	Industrial grade 64GB (256GB maximum) internal SD card for mirror, sub-stream and alarm recording
Simultaneous 6 channel recording up to: Analogue: FULL HD @25fps (PAL) / @30fps (NTSC) for 4 channels  IP: 1080P @30fps for 2 channels	Simultaneous 16 channel recording up to Analogue: HD @25fps (PAL) / @30fps (NTSC) each or 8 channels at FULL HD @12fps (PAL) / @15fps (NTSC)  IP: 1080P @30fps for 8 channels
4x Select video connectors typical to camera inputs with audio	8x Select video connectors typical to camera inputs with audio
Weight: 2.2Kg	Weight: 2.75Kg

Table 3: Features of MDR 500 Series

MDR 500 SERIES	
Internal anti-vibration mount for the HDD and embedded super-capacitor for finalisation of recording after unexpected power interruption (up to 10 seconds). Individual channel configurations for recording resolution, frame rate and quality, display split 1/4/9 channels and monitor margin adjustment	Pre-alarm recording 1-60 minutes and Post-alarm recording 0-1800 seconds. (0 to 30 minutes), Normal, Alarm or Timer recording modes and flip vertical each channel, this will change live view (monitor) and recorded data
Start-up time to recording is approximately 50 seconds (recommend drivers to wait 3 minutes for recording to begin). 10 LEDs for diagnostic troubleshooting and flip doors for easy SIM/SD card access	Video quality selectable at 8 different quality levels for recording, video/audio compression H.264/ADPCM and operation log files for troubleshooting and anti-tampering feature – using digital code
Operating temperature: -40°C to +70°C. 12V Output max 1A load and 8.5-36V Power Input and I/O: 8x trigger input (trigger voltage 9V which can be set to trigger at low/high); 2x trigger output (12V max. 200mA)	Alarm recordings configurable for trigger, speed, G-Force, video loss, motion detection, blind detection, panic button, geo-fencing and SD card/HDD errors
USB-A (2.0) interface on the Docking Station (DS) for downloads, upgrades and configurations onto a USB flash drive (flash memory only, maximum 16GB) and USB-B (3.0) interface on the Mobile Caddy Unit (MCU) for displaying video recordings on a Windows™ operating system using MDR-Dashboard 5.0	Low voltage protection with configurable shut-down delay minimum restart voltage, ethernet 10/100 RJ45 port for configuration, live view, playback and video download. Mouse for configuration and recording/event search and Shut-down delay configurable from 0 seconds to 24 hours
Built-in G-Sensor and Built-in Audible Buzzer and GPS for location monitoring and tracking with external antenna and 2x EIA/TIA 485 (RS485) for optional External G-Sensor and Remote Status & Interface Panel	MCUs (Mobile Caddy Units) can be swapped between 4 and 8 channel units. Requires formatting before use.

## 2 MDR Server Requirements and Installation

MDR Server 5.0 is required software that runs on the Windows Server. This software enables an MDR unit to connect to the Windows Server. MDR Server controls the assignment of ports and its functionalities.

Note: This software runs on a **yearly license**. When nearing the expiration date, please visit Brigade's website (www.brigade-electronics.com) to download the new license file. This file needs to be copied onto the Windows Server running MDR Server 5.0. Copy this file to the following path **C:\Program Files (x86)\MDR Server\TransmitServer**.

### 2.1 MDR Server Requirements

To use mobile network and Wi-Fi connectivity features, networking expertise are required for implementation. The mobile network server is accessed by the MDR externally through a public IP (Internet Protocol) address. The Wi-Fi server is accessed by the MDR using a Wi-Fi network. This setup requires all devices (Server, Client and MDR) to be connected to a shared network. Client refers to MDR-Dashboard 5.0 or BRIGADE MDR 5.0 mobile apps. It is better for customers to use both network connectivity options to achieve different goals, live camera capabilities of mobile networks and the low data cost of downloading video data over Wi-Fi.

**Warning: If you have two separate MDR Server 5.0 software installations, video and metadata stored on each server is NOT linked.**

Table 4: The minimum requirements below for MDR Server 5.0 with 1-10 MDR units

COMPONENT	MINIMUM REQUIREMENTS
CPU (Central Processing Unit)	Quad Core – 2.2 GHz (Intel Xeon) or greater
RAM (Random Access Memory)	8GB or greater
Requested HDD space for software installation	10 GB required, 40 GB or more recommended (depending on the number of MDRs connected at one instant and the features used). Each MDR requires an additional 250MB of storage
Video	Super VGA or higher video card and monitor
Operating System	Windows Server 2012 R2 Standard or greater
Framework	Microsoft .Net Framework v3.5 SP1 or above version must be installed on both server and client**
Wireless Adaptor	Wireless Access Point 802.11 b/g/n

\*\*Client refers MDR-Dashboard 5.0 software

Table 5: The Recommended requirements below for MDR Server 5.0 with >10 MDR units <100

COMPONENT	RECOMMENDED REQUIREMENTS
CPU (Central Processing Unit)	8 Core/16 Threads or greater
RAM (Random Access Memory)	12GB
Requested HDD space for software installation	10 GB required, 150 GB or more recommended (depending on the number of MDRs connected at one instant and the feature used)
Video	Super VGA or higher video card and monitor
Operating System	Windows Server 2012 R2 Standard 32\64bit
Framework	Microsoft .Net Framework v3.5 SP1 or above version must be installed on both server and client**
Wireless Adaptor	Wireless Access Point 802.11 b/g/n

\*\*Client refers MDR-Dashboard 5.0 software

**Warning: The limitations to view several MDR video data feeds at one instant would be dependent on network speed, mobile network coverage, Windows Server's HDD (Hard Drive Disk) and RAM (Random Access Memory) capacity.**

### 2.2 MDR Server Installation

Establish the IP address and MAC address of the Windows Server.

- IP address of Wi-Fi Server
- IP address of Mobile Network Server

**Wi-Fi:** Connect the router to the Wi-Fi Windows Server with an ethernet cable or Wi-Fi network.

**Mobile Network:** Contact the IT department to setup port forwarding on to the Windows Server as shown in below:

```

COMMAND PROMPT
Ethernet adapter Local Area Connection:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . : 
Description . . . . . : Intel(R) 82579V Gigabit Network Connection
Physical Address. . . . . : D4-C9-EF-4F-F9-47
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 4:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . : 
Description . . . . . : Microsoft Hosted Network Virtual Adapter
Physical Address. . . . . : 0C-84-DC-0B-1B-1E
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Wireless Network:

Connection-specific DNS Suffix . . : Brigade.Local
Description . . . . . : Broadcom BCM943228HML 802.11a/b/g/n 2x2 WiFi Adapter
Physical Address. . . . . : 0C-84-DC-0B-1B-1E
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::a55b:264e:eb26:d3c2%13(Preferred)
IPv4 Address. . . . . : 192.168.14.238(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Monday, 21 August, 2017 8:02:59 AM
Lease Expires . . . . . : Thursday, 24 August, 2017 8:03:03 PM
    
```

Command Prompt Window Figure 1

Table 6: Port Forwards List and Services List

Port Forwards List					
#	PORT NAME	PORT NUMBER (HTTP)	PORT NUMBER (HTTPS)	PORT FUNCTION (CLIENT REFERS TO MDR-DASHBOARD 5.0 / BRIGADE MDR 5.0 APP)	CORRESPONDING PROCESS
(1)	Message Service	5556	5556	MDR registration, will be used when uploading MDR to server and issues commands from server	MessengerServer.exe
(2)	Client Balance	7264	7264	Balance the load for clustering servers - (for future clustering of servers) – specify this port when logging in – creates initial connection. Has login authentication and return IP address and ports to client.	ServiceProxy.exe
(3)	Client Access Service	12020	12020	Transfer request from client and return message (online/offline status, real-time GPS and others) from server	ClientAccessService.exe
(4)	Black box Data Query	12040	22040	Read metadata from MongoDB	ARMS.RestServer.exe
(5)	Server playback service	12045	12045	For server playback function	ServiceSTPlay.exe
(6)	Proxy Server (Remote Setting) Client Data	12050	22050	For the remote config (within MDR-Dashboard 5.0) feature – from Server to Client	HttpProxyServerNP.exe
(7)	Proxy Server (Remote Setting) Device Data	12051	12051	For the remote config (within MDR-Dashboard 5.0) feature – from MDR to Server	HttpProxyServerNP.exe
(8)	Web Service	12055	22055	Invoke page action via web services, such as evidence centre, ADS etc.,	nginxworker.exe
(9)	Evidence Service	12065	12056	Upload evidence from MDR, handle evidence, and any other feature related to evidence centre.	EvidenceService.exe
(10)	MDR4 Streaming Media Server	12091	12091	Video streaming data transmission for MDR 400 Series. To retrieve video streaming from MDR and dispatch to client after receiving the live view request from client.	DVRGTService.exe
(11)	MDR5 Streaming Media Server	12092	12092	Video streaming data transmission for MDR 500 Series. To retrieve video streaming from MDR and dispatch to client after receiving the live view request from client.	DVRGTService.exe
(12)	Transmit Server	17891	17891	Video streaming data transmission for Clients. To retrieve video streaming from MDR and dispatch to client after receiving the live view request from client.	DVRGTService.exe
(13)	FileZilla Server	21; 3001–3100	21; 3001~3100	For FTP server, retrieve related configurations when remote upgrade is used.	FileZilla server.exe
(14)	Media Server	12060	22060	For the live view function on the web client.	media_service.exe
(15)		12061	22061		
(16)		12062	22062		
(17)		12063	22063		
(18)		8090	28090		
(19)	WCMS5	12056	22056	For supporting web service.	node.exe
(20)	WCMS5REACT	3113	23113	For Evidence Centre playback	node.exe
Additional Services List (Does not require Port Forwarding)					
(1)	Message Service	12012	12012	Alarms push from MessageService to AlarmService	MessengerServer.exe
(2)	Alarm Service	12125	12125	Push real-time alarm and GPS to ClientAccessService	AlarmService.exe
(3)	Client Access Service	9528	9528	Transfer request from client and return message (online/offline status, real-time GPS and others) from server	ClientAccessService.exe
(4)	ARMStorageServer	N/A	N/A	For parsing meta data and writing into MongoDB.	ARMS.StorageServer.exe
(5)	ARMSRestServer	10086	10086	Read meta data from MongoDB	ARMS.RestServer.exe
(6)	DVRGTService	10001	10001	Video streaming data transmission. To retrieve video streaming from MDR and dispatch to client after receiving the live view request from client.	DVRGTService.exe
(7)	Apache2.2	12043	12043	Invoke page action via web services, such as evidence centre, ADS etc.,	httpd.exe
(8)	FileZilla Server	14147	14147	For FTP server, retrieve related configuration when remote upgrade.	FileZilla server.exe
(9)	DVRRTService	N/A	N/A	MDR-Dashboard guard service. To switch on/off services, and reboot services automatically after suspension.	DVRRTService.exe
(10)	MySQL5.5	3307	3307	To store basic data	MySQL5.5.exe
(11)	Monggodb_3.2	27018	27018	To store metadata	mongod.exe
(12)	WCMSWebCenterService	12993	12993	For remote upgrade function and upload MDR automatically	WCMS.Server.WindowsService.exe
(13)	AdsServer	7857~7861	7857~7861	For auto-download function.	ADSServer.exe
(14)	Redis Service	12004	12004	Cache online status, GPS, alarm and other data	redis-server.exe
(15)	PushService	N/A	N/A	For APP alarm push function	PushService.exe
(16)	OnlineServer	12035	12035	For online statistics service. Collect MDR online information.	ServiceOLStativis.exe
(17)	HttpSdkService	65531	65531	Https SDK	HttpSdkService.exe
(18)		12047	22047		
(19)	media_service	12198~12203	12198~12203	For the preview function on the web side	media_service.exe
(20)	Monggodb	27017	27017	To store user's old meta data	mongod.exe
(21)	N/A	20000	20000	For MDR server control tool	DVRServerCtrl.exe
(22)	CenterManageService	12003	12003	For internal process message management	ServiceDAMgr.exe
(23)		12000	12000		
(24)	WCMSRunning	54321	54321	For devices upgrade	WCMS.Running.exe
(25)	Nginx	8081	28081	Reverse proxy (solve security issues raised by customers)	NginxBroker.exe

Note: Ports differs depend on choosing HTTPS method or not.

**Wi-Fi:** An example of a router page is shown in *Wireless Router Settings Figure 2*. The router login page is accessed using the factory settings. You may find the router IP, username and password underneath the router, alternatively contact the manufacturer. Once logged into the router, setup the wireless network. MDR units are compatible with **WPA, WPA2** or **WEP** encryption.

**Wi-Fi:** *Wireless Router Settings Figure 2* shows an example of a wireless network created. The **SSID** (Service Set Identifier) is **MDRServer** and **WPA-PSK** security has been used. When entering the SSID into the MDR unit, this is case sensitive. It is advised to create SSIDs without spaces to avoid any typing errors on the MDR.

**Wi-Fi:** When using an access point no port forwarding is required on a basic network. If you want to access the Wi-Fi server remotely you will need to port forward to the Wi-Fi MDR Server from your firewall (a static public IP address is required).

**Mobile Network:** The Windows Server should have a static public IP address. The IP address is 192.168.14.193 (in this example). This can be permanently assigned using the server's MAC address. It is recommended to use a newly built or clean Windows Server.

**Warning: If this device is used to host other software that uses SQL, we do not recommend installing MDR Server 5.0 on the same Windows Server.**

Before starting the MDR Server installation, ensure Microsoft .Net Framework v3.5 SP1 or above is installed on your Windows Server.

Right-click the installation file found in *MDR Server Icon Figure 3* and **RUN AS ADMINISTRATOR**. You may be prompted to back up any data if they have previously installed MDR Server software on this Windows Server.

**Warning: The backup feature can only backup user and vehicle information. This cannot backup video data, metadata and evidence data.**

Choose the language for the software, as shown in *MDR Server Language Setup Figure 4*. Give the software a few minutes to prepare the setup.

**Warning: The same language used for the server software install must be used for the client software.**

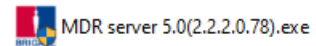
The installation window as shown in *MDR Server Installation Figure 5* will be displayed. Click **NEXT** to begin the installation.

You can configure the destination location which is shown in *MDR Server Install Mode Figure 7*. Although, this is not recommended.

**Warning: It is NOT recommended to change the default location.**

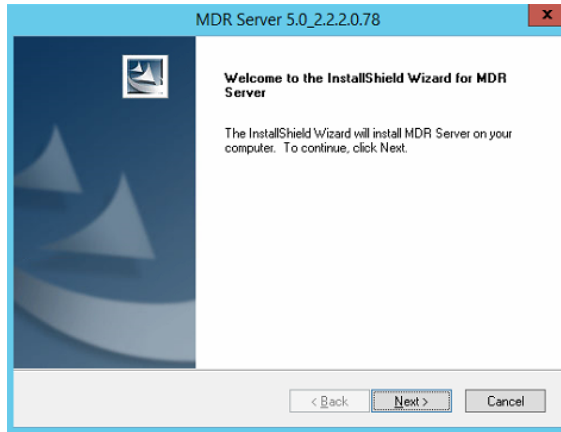
## Wireless Settings

**Wireless Router Settings Figure 2**

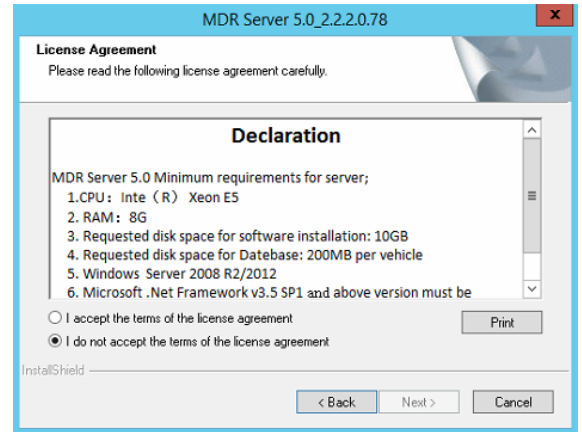


**MDR Server Icon Figure 3**

**MDR Server Language Setup Figure 4**



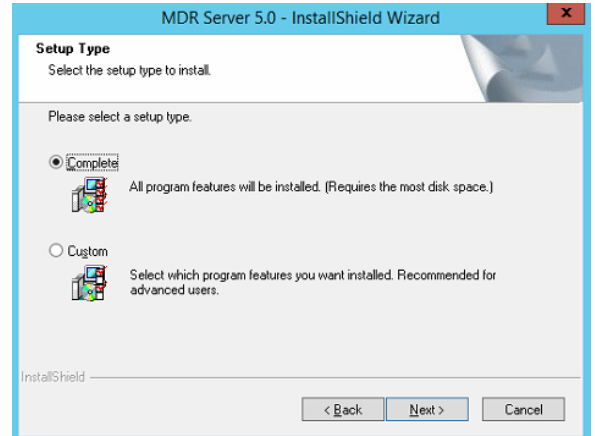
**MDR Server Installation Figure 5**



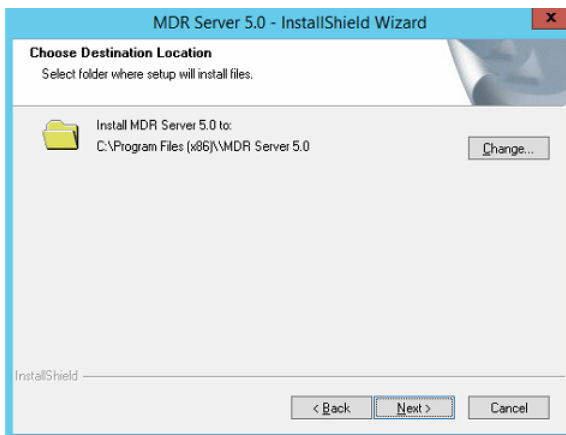
**MDR Server Declaration Figure 6**

The next step is to select the MDR Server features. *MDR Server Install Folder Setup Figure 8* shows the services that are available. Please ensure that **ALL** services are ticked to be installed.

Click **INSTALL** to start the installation. Close other software during this process.



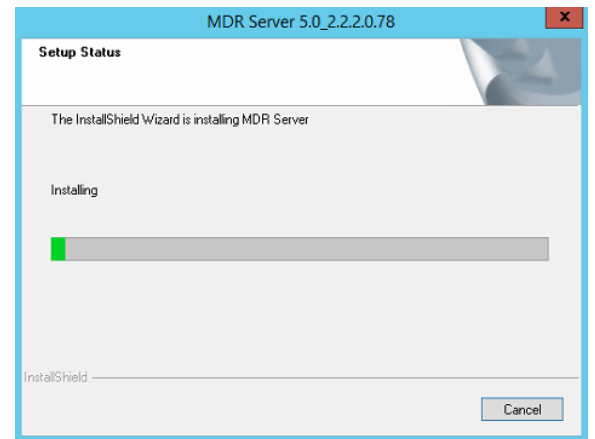
**MDR Server Install Mode Figure 7**



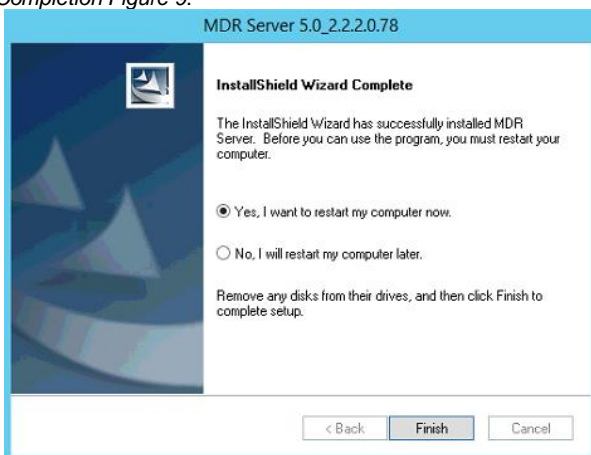
**MDR Server Install Folder Setup Figure 8**

The setup status is displayed on screen. See **Error! Reference source not found.** You will see various services being installed; this period is dependent on your server configuration. In general, allow approximately 15 minutes for your MDR Server installation.

Click **FINISH** to complete the final step of the installation. See *MDR Server Install Completion Figure 9*.



**MDR Server Setup Status Figure 10**



**MDR Server Install Completion Figure 9**

## 2.3 MDR Server Configuration

### 2.3.1 Port Configuration Tool

After installing MDR Server, the port configuration tool will be automatically opened, which is used mainly to manage an MDR Server's ports and IP address.

Do not change the default ports. If you have already used these ports on your network, please assign different ports in your other software.

**Warning: Streaming Media Server IP MUST be a STATIC PUBLIC IP address of the Mobile Network Server (Firewall in some cases).**

**HTTPS** method can be enabled by ticking the option "Use Https". HTTPS requires ports change, please refer to above port forward and service table.

**Note:** Brigade does not provide HTTPS certificate, which must be applied by individual user because it is bounded to dedicated server domain names.

After obtain HTTPS certificate, rename Keys following rules below:

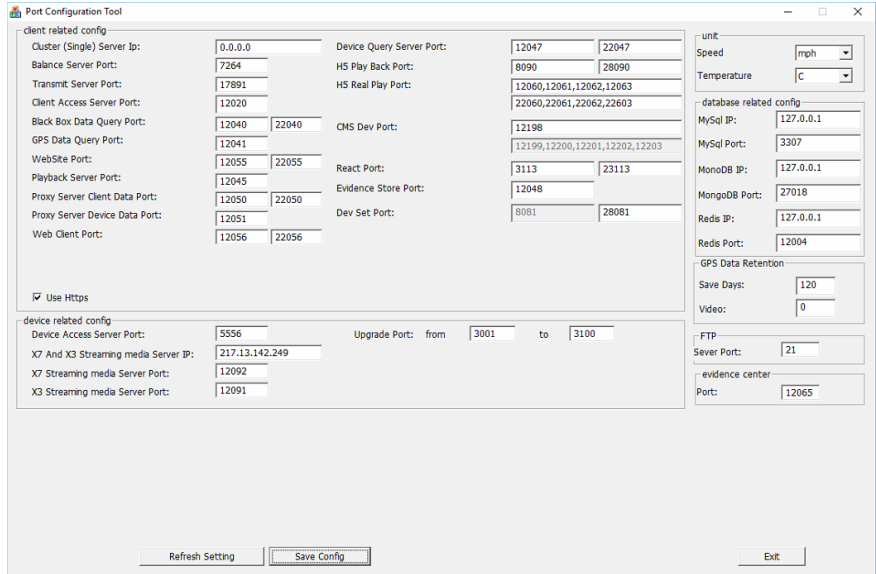
Public key of SSL certificate: certificate.pem  
 private key of SSL certificate: privatekey.pem  
 Put both keys to folder: C:\Program Files (x86)\MDR Server 5.0\nginx\keys  
 Then restart the WCMS5 Service to make it effective.

**Speed** and **temperature** units can also be changed within this tool.

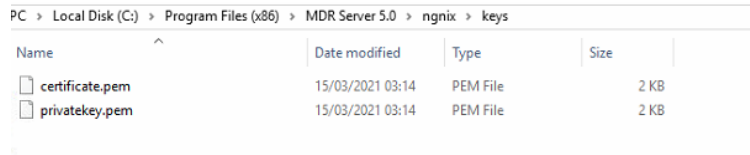
Brigade recommends to not change any of these ports unless these ports are already being used by another software.

**GPS data** that is uploaded to the server can be retained for a defined period.

**Video data** including Evidence upload and Auto-Download records also can be retained for a defined period, range from 0 ~ 1000 (days). If exceed the time setting, the oldest records will be erased automatically. Put 0 means records will be saved for unlimited time.



Port Configuration Tool Figure 11



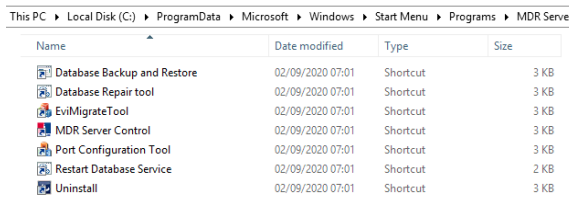
HTTPS Keys Figure 12

### 2.3.2 Server Control

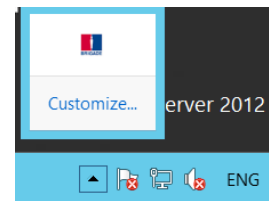
After installing MDR Server, the Server Control program usually automatically start running, if not, go to the **MDR SERVER** folder as shown in *MDR Server Menu Figure 13*.

To access the MDR Server Control window, you can click on **MDR Server Control** or right-click the MDR Server icon. As shown in *Displaying MDR Server Control Figure 16*.

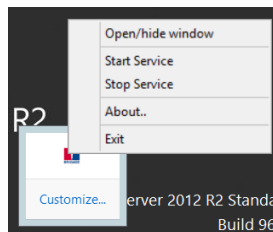
Now, click the **OPEN/HIDE WINDOW** option as shown in *Error! Reference source not found.*



MDR Server Menu Figure 13



Displaying MDR Server Control Figure 16



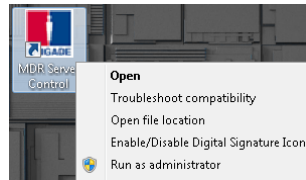
Accessing MDR Server Control Window Figure 14

If the software is not open, ensure it is **RUN AS ADMINISTRATOR** as shown in *MDR Server Control Menu Figure 19*.



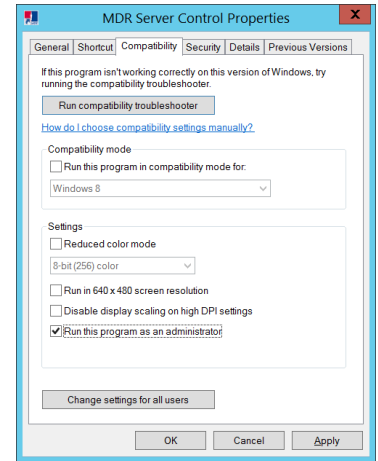
Use the following steps to ensure MDR Server always runs as administrator.

- Right-click MDR Server (**Error! Reference source not found.**) then click **Properties**.
- Go to the **Compatibility** tab, under **Privilege Level**, tick **Run this program as administrator**. See **Error! Reference source not found.**



MDR Server Right click menu Figure 15

Click **Apply** to ensure all changes are saved.

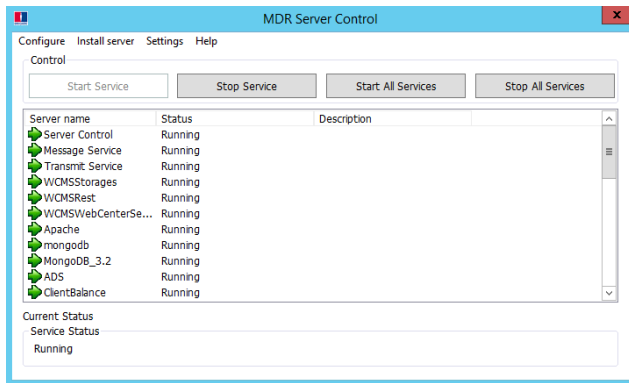


Privilege Level Figure 17

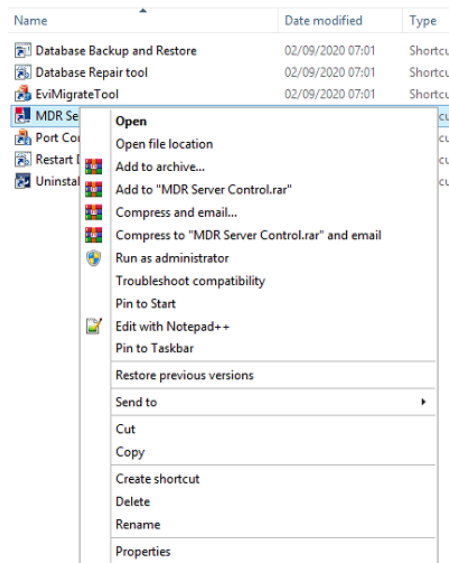
Once the window opens as shown in *MDR Server Control Window Figure 18*, click **CONFIGURE** then **CONFIGURE MESSAGE SERVER**.

The window shown in *MDR Server Message Server Configuration Figure 20* will be displayed. The following configuration is used:

- Server IP: 127.0.0.1 (loopback IP address of server)
- Server Port: 5556



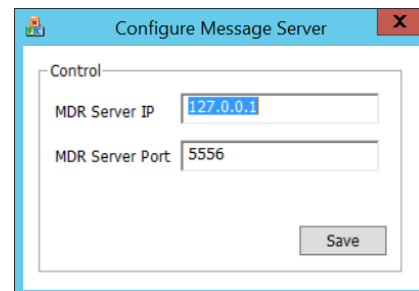
MDR Server Control Window Figure 18



MDR Server Control Menu Figure 19

Note: If not all MDR Server services are running (*MDR Server Control Window Figure 18*). There are a few steps to attempt to fix this issue:

- Exit the MDR Server control window and run the application as administrator. See *MDR Server Control Menu Figure 19*.
- Ensure that the MDR Server installation is not expired – check Brigade website for the latest license files.
- Install the latest Microsoft .NET Framework (3.5 is the minimum).
- Check the MDR Server IP in *MDR Server Message Server Configuration Figure 20*. Click **SAVE** on the configuration of the Message Server window.
- Restart the Windows Server.
- If none of the above steps work, reinstall the software.



MDR Server Message Server Configuration Figure 20

A brief description of select MDR Server Control service is shown in the table below.

(1) Server Control: manages all services. It can restart automatically everyday (setting).	(2) Message Service: creates TCP connection from server to MDR. Manages client software login states and registers MDR states. Transports commands from server to MDR and writes GPS/alarm data into mongodb using MDR5 protocol.
(3) Transmit Service: forwards media data from MDR to client software using transmit port.	(4) WCMSWebCenterService: supports MDR-Dashboard 5.0 remote firmware batch upgrades.
(5) Apache: Invoke page action via web services, such as evidence centre, ADS etc.,	(6) Mongodb: Mongo Database service, for storing GPS, alarm data and metadata from MDR 500 (MYSQL used for MDR 400).
(7) Mongodb_3.2: To store black box data	(8) ADS: Auto Download System is used to avoid too many MDR-Dashboard 5.0 connections to one Windows Server.
(9) ClientBalance: If there are more than 1 MDR Server 5.0 installations on different servers, it keeps MDR Server 5.0 in balance by assigning which clients connect to which server	(10) n9m_proxy: Works as a proxy server to set MDR parameters remotely.
(11) ARMSStorageServer: Stores metadata (from auto download function) into mongodb.	(12) ARMSRestServer: Analyses metadata file path (from auto downloads) in MYSQL database.
(13) ServiceSTPlay: For MDR-Dashboard 5.0 remote playback server data.	(14) AlarmService: For alarm service program, used internally.
(15) CommandDispatch: For transmit command	(16) ClientAccessService: For sending MDR online/offline messages to clients. For MDR-Dashboard 5.0 to receive MDR online/offline messages. For transporting orders from MDR-Dashboard 5.0 to MDR.
(17) Redis Service: Buffers MDR online/offline information for mobile app queries.	(18) PushService: For pushing alarms to mobile apps.
(19) OnlineServer: Manages MDR online/offline messages and updates clients with this information.	(20) CmdServer: commands sent to MDR Server 5.0.
(21) WCMSRunningService: For supporting MDR-Dashboard 5.0 remote firmware batch upgrades. Adds vehicles automatically to MDR-Dashboard 5.0.	(22) CenterManageService: For updating center data to related MDR-Dashboard 5.0.
(23) HttpSdkService: For enable web interface access	(24) EvidenceAnalyService: For analyse and create evidence items.
(25) FTPServer: Works as FTP server for saving data (video, snapshots, firmware etc.).	(26) WCMS5: For supporting web client.
(27) WCMS5REACT: For supporting web evidence centre playback features	(28) Mysql: Database for storing basic data such as vehicle and fleet information.
(29) EvidenceRcvServer: Receiving and transmitting Evidence files from server	(30) ServiceSTMgr: Save live view footage to server.
(31) ServiceSTWorker: Execute saving liveview to server folder.	(32) rm_media_service: For web client liveview and playback.
(33) EvidenceCmdServer: For managing evidence item uploading.	(34) EvidenceStoreService: For saving evidence item and data.
(35) FileManagementService: For managing different file save to different paths.	(36) TaskPlanService: Support delete GPS data and video data on time.
(37) NginxBroker: Reverse proxy for web functionality	(38) BasedataServer: Basic data inquiry (Java)

Double-click on **MESSAGE SERVICE** as shown in *MDR Server Control Window Figure 18*. This will open another window which shows the current state of the network. See *MDR Server Message Logs View Figure 22*.

In *MDR Server Message Logs View Figure 22*, the IP addresses of the connected clients are shown in the left column. This includes the server loopback address. If an MDR has been configured correctly it will appear online in the right column.

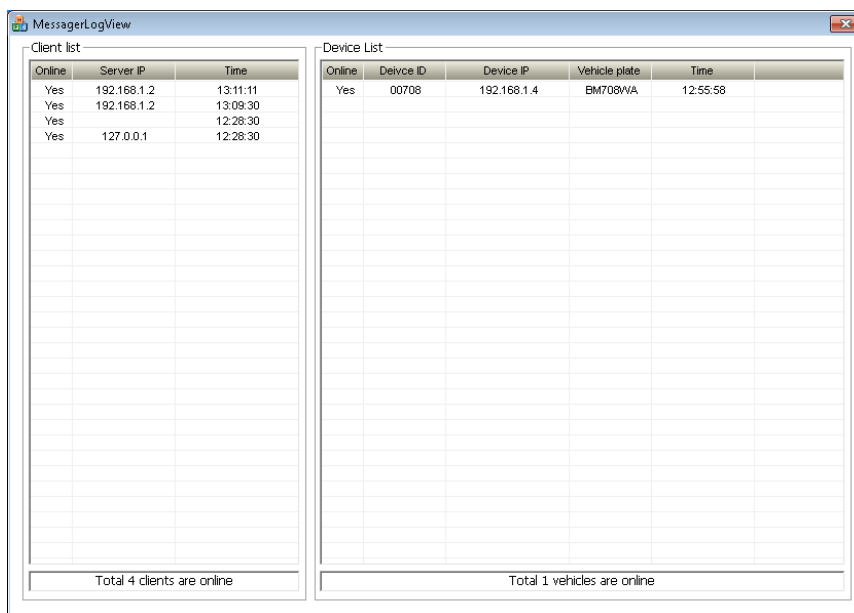
Note: IP addresses are assigned dynamically by the mobile network. In addition, the MDR toggles the mobile network periodically if no activity is detected.

MDR Server 5.0 has a prompt message that will appear on the Windows Server to inform the system administrator that the MDR Server is nearing its expiration date. See *MDR Server Expiry Prompt Figure 21*.

The system administrator will need to download a new 1-year license file from Brigade's website (Product Support area). Copy this file to the following path **C:\Program Files (x86)\MDR Server\TransmitServer**. It will overwrite the existing license file.



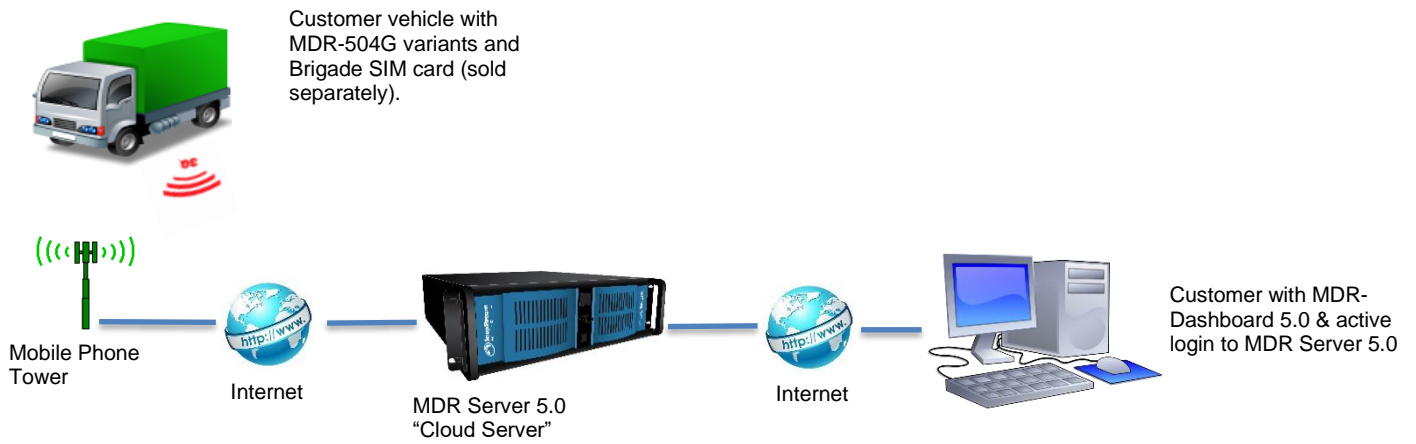
**MDR Server Expiry Prompt Figure 21**



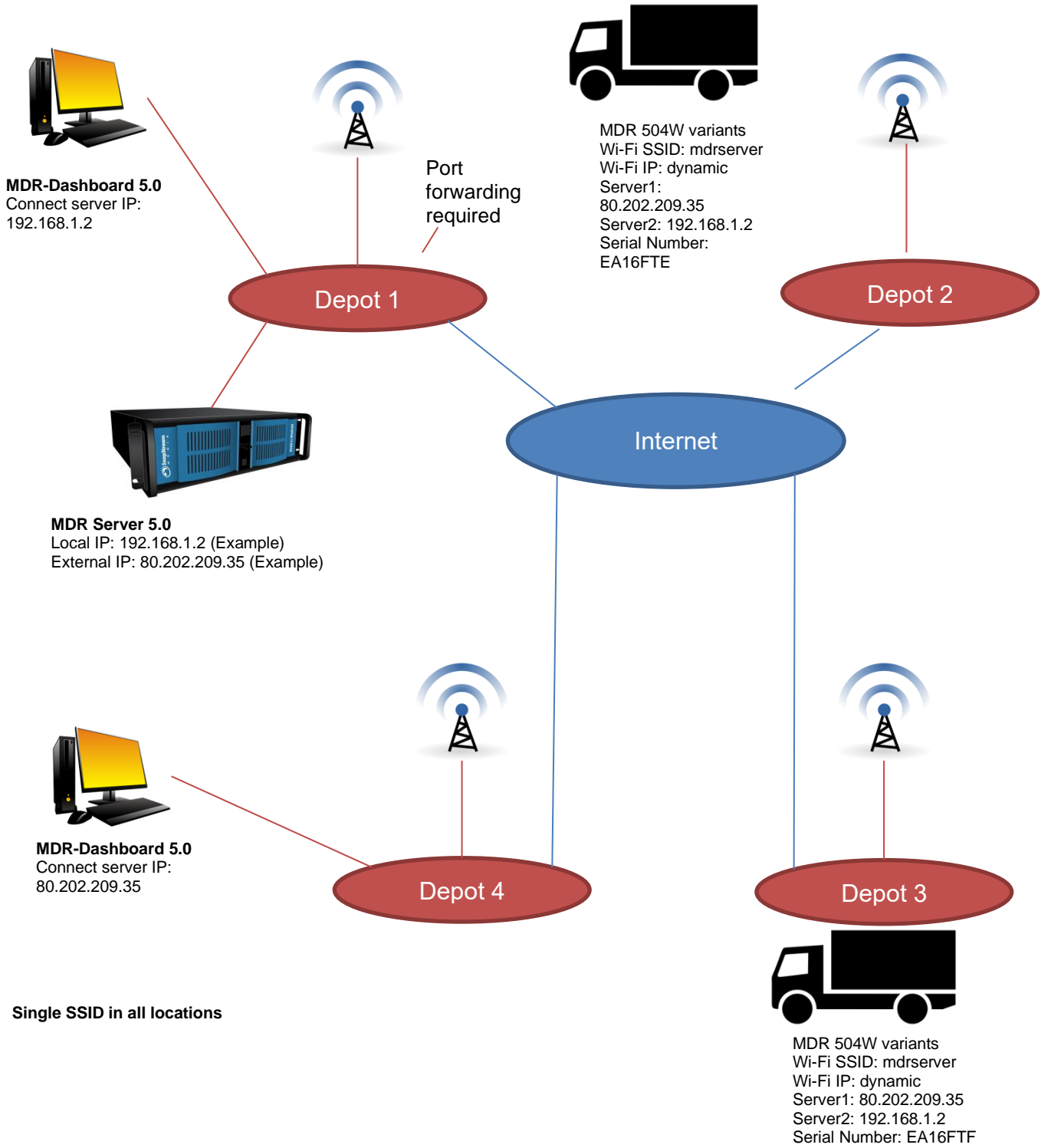
**MDR Server Message Logs View Figure 22**

## 2.4 Hardware Communication Options

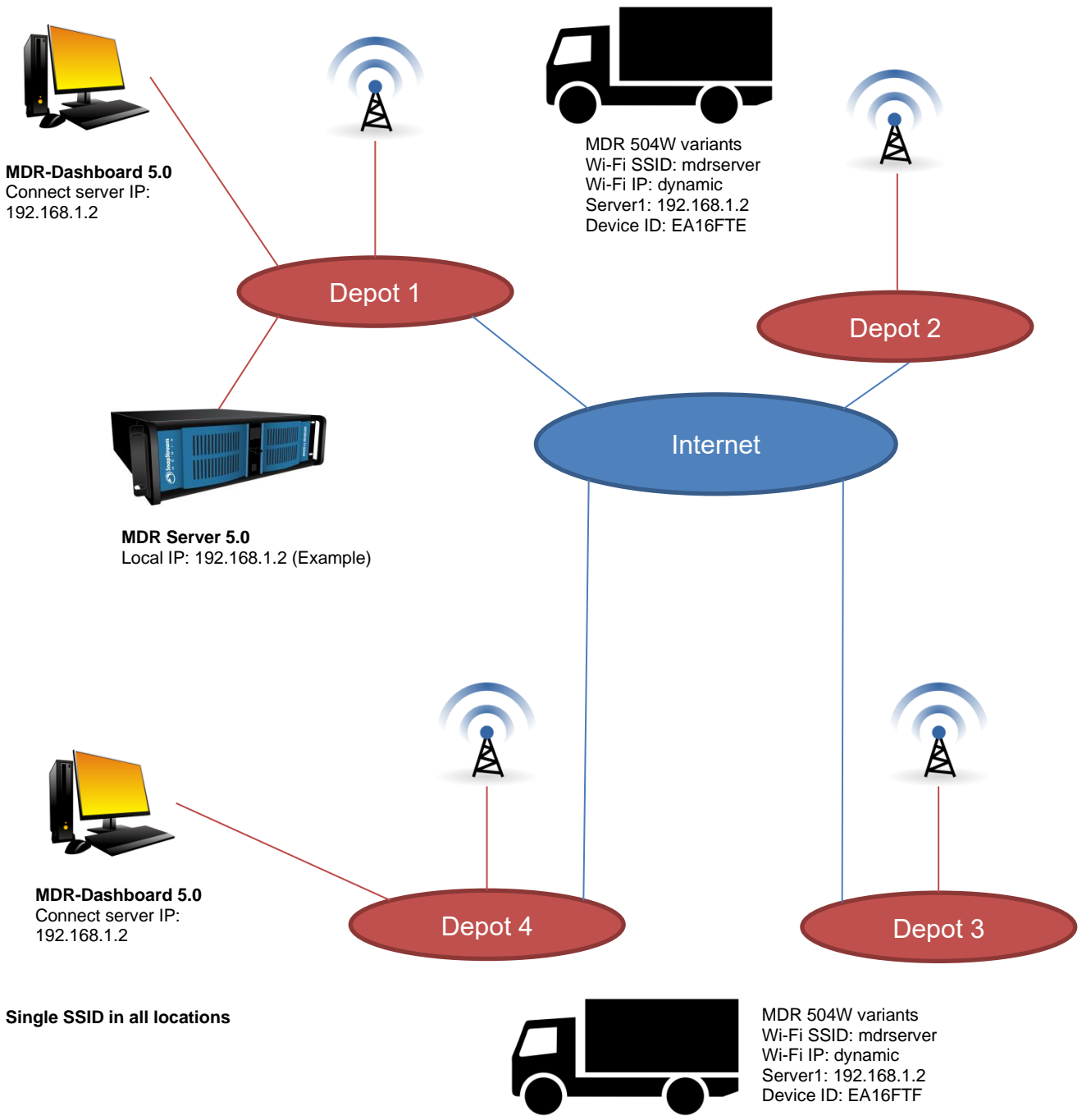
Each MDR will need its own mobile network enabled sim card. You login to MDR-Dashboard 5.0 to view live video, track vehicles in real-time and download video/metadata when required.



**Option 1 - Hosted Mobile Network Figure 23**



Option 2 – Wi-Fi only, multi depot, without VPN Figure 24



*Option 3 - Wi-Fi only, multi depot, with VPN Figure 25*

### 3 MDR-Dashboard 5.0 Requirements & Installation

MDR-Dashboard 5.0 software is used for advanced local playback, analysis, downloading, GPS tracking, vehicle information and events/log display. When an MDR is out of network range, features that are network dependent will no longer function. MDR-Dashboard 5.0 has the following features:

- Real-time Preview
- Multi Vehicle Monitoring
- Playback of MDR Server and Online MDR data
- Playback of Local Files data (network independent)
- Clipping and Downloading Data (network independent)
- Evidence Management
- Auto Download Scheduling
- Basic Data Management (network independent)
- Alarm Centre

Table 7: Differences between MDR-Dashboard 5.0 and MDR-Player 5.0

MDR-DASHBOARD 5.0	MDR-PLAYER 5.0
Installation Required	Executable
Full Featured	Compact – limited features
View and Download Recordings	View Recordings
Sources – MDR Server, HDD/SD, Online MDR and Local Files	Sources – Standard and Export Downloads

For more information on MDR-Player 5.0 please refer to MDR 500 Series Installation&Operation Guide.

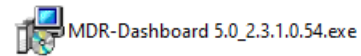
#### 3.1 MDR-Dashboard 5.0 Requirements

Table 8: Minimum requirements for MDR-Dashboard 5.0

COMPONENT	RECOMMENDED REQUIREMENTS
CPU (Central Processing Unit)	INTEL i5 and above 1.9 GHz (x64 CPU) Dual core
RAM (Random Access Memory)	8GB
Requested HDD space for software installation	446 MB
Video	Intel® HD Graphics 5000 or equivalent
Operating System	Windows™ 7, 8 or 10
Web browser	Internet Explorer 10
Software	Flash Player (up to date)
Resolution	1440*900

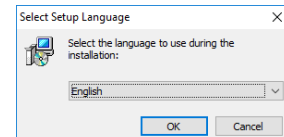
#### 3.2 MDR-Dashboard 5.0 Installation

Install MDR-Dashboard 5.0 on the client PC. (Administrator rights are required). Double-click the installation file shown in *MDR-Dashboard Icon Figure 26*.



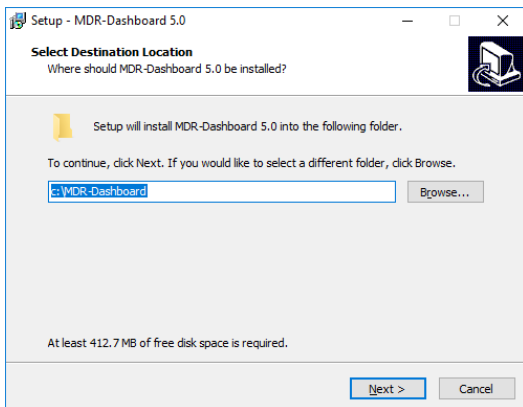
MDR-Dashboard Icon Figure 26

There may be a security warning pop-up which may be ignored. Click **RUN**. The setup wizard window will then be displayed. Click **NEXT** to begin the installation. See *MDR-Dashboard Setup Figure 28*.



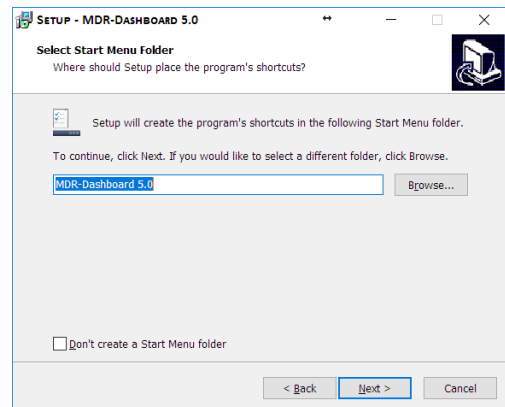
Language Option Figure 27

Choose the language for the software, as shown in Language Option Figure 27. You can configure the destination location (if there is not enough free disk space) which is shown in *MDR-Dashboard Location Figure 29*. It is **NOT** recommended to change the default location.



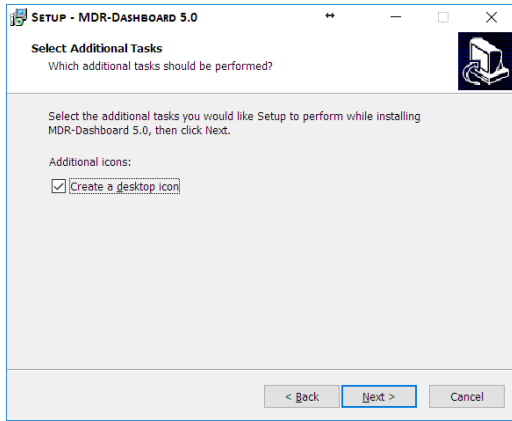
MDR-Dashboard Setup Figure 28

Referring to *Desktop Icon MDR-Dashboard Figure 30*, you can choose if a desktop icon is created.



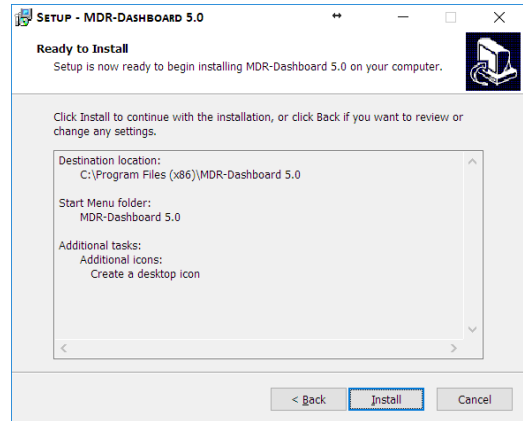
MDR-Dashboard Location Figure 29

You are prompted to click **INSTALL** to begin the installation. This is indicated in *Install MDR-Dashboard Figure 31*.



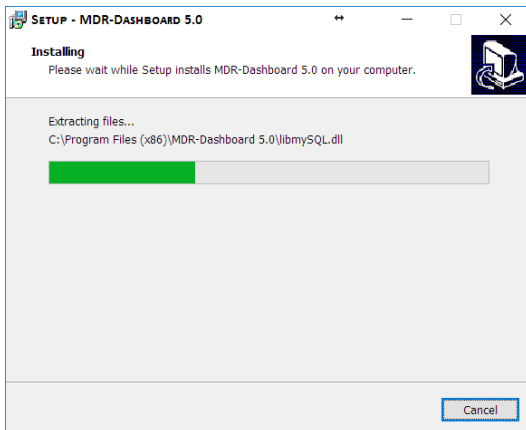
**Desktop Icon MDR-Dashboard Figure 30**

The progress of the installation is indicated in *MDR-Dashboard Installation Figure 32*.

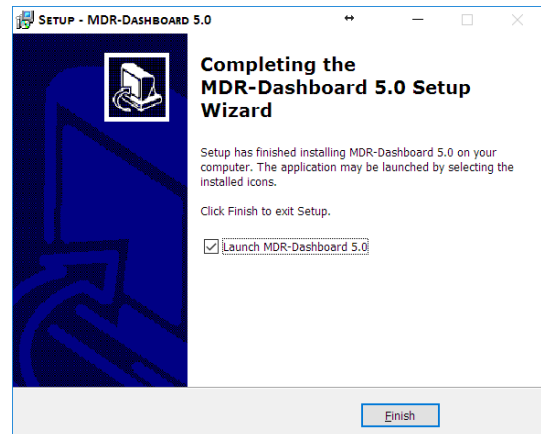


**Install MDR-Dashboard Figure 31**

*MDR-Dashboard Launch Step Figure 33* depicts the final step; you may choose to launch the software. Tick the box and click **FINISH**.



**MDR-Dashboard Installation Figure 32**



**MDR-Dashboard Launch Step Figure 33**

## 4 Wi-Fi Configuration

### 4.1 MDR Unit Configuration (Wi-Fi)

#### 4.1.1 Mobile Digital Recorder Requirements

The setup described in this installation guide requires a Wi-Fi enabled MDR.

- Wi-Fi antenna (included)
- GPS antenna (included)

Prior to any configuration, restore the MDR factory settings by following, **LOGIN** → **SETUP** → **MAINTENANCE** → **RESET** → **RESTORE**.

Brigade recommends changing the default unit password. This must be documented and controlled by the company.

Browse to this Wi-Fi network page using **SETUP** → **BASIC SETUP** → **NETWORK** → **Wi-Fi**.

**Enable** should be set to On. Once enabled, the settings below will become active, this will turn on the Wi-Fi module. See *MDR Wi-Fi Settings Figure 34*.

**SSID** is the service set identifier. It is used to identify a wireless LAN and is usually unique to an area. This is where you will enter the name of the wireless network that the MDR will connect to. This is case-sensitive.

**Encryption** refers to protocols used to protect your network. MDR supports WEP and WPA/WPA2. We suggest using WPA2, as it is the newer encryption form and thus the most secure.

**Password** is the wireless network password; this should be entered carefully as it is case-sensitive.

Browse to this Wi-Fi network page using **SETUP** → **BASIC SETUP** → **NETWORK** → **Wi-Fi** → **PAGE DOWN**.

**Static IP** is used to turn DHCP off or on. Once enabled, the settings found below will become active. Only use static IP if you are experiencing an unstable connection, this is not recommended for fleets of vehicles.


**IP Address** refers to the internet protocol address of the wireless module. This address is used to join the wireless network.

**Subnet Mask** is used to identify the network address of an IP address. By default, this is 255.255.255.000.

**Gateway** helps route network traffic and is the IP address of the network gateway.

Browse to this Wi-Fi module page using **SYS INFO** → **MODULES** → **NETWORK** → **Wi-Fi**.

**Built-in Wi-Fi status** indicates the status of the Wi-Fi network connection. The different states are DETECTED, NOT DETECTED, CONNECTING, CONNECTED, CONNECTION FAILED and OBTAINING IP ADDRESS (DHCP). Once it has successfully connected to a Wi-Fi network then the status will change to CONNECTED.

**Signal Level** will display the power level of the signal in a visual form . The more blue bars you see, the better the signal level is.

**IP Address** refers to the IP address obtained by the wireless module.

**MAC Address** refers to media access control address which is a unique identifier. This is assigned to network interfaces for communications at the data link layer of a network segment. This consists of 6 groups of 2 hexadecimal digits.

Smart Controller (SmrtCntrlr) settings are currently unused.



*MDR Wi-Fi Settings Figure 34*



*MDR Wi-Fi Settings 2 Figure 35*



*Sys Info Wi-Fi Module Figure 36*



Browse to this Server page using **SETUP → BASIC SETUP → NETWORK → SERVER.**

**Center Server** refers to the Windows Server. A maximum of 6 center servers can be saved. An MDR can connect to a maximum of 2 servers using the same protocol type.

**Add** is used to add another center server, a new blank center server page is displayed with a new server number.

**Delete** removes the currently displayed center server.

**ON** enables the current center server. MDR will attempt to connect to this server.

**Protocol Type** refers to the protocol used by the MDR unit to send its data (video and metadata) to the MDR Server. By default, this is set to MDR5. Maintenance is not currently used.

**Network Mode** refers to the network communication module used to communicate with the MDR Server. The options are Ethernet, Mobile Network and Wi-Fi. This indicates the MDR will connect to the server using its Wi-Fi module.

Browse to this Server page using **SETUP → BASIC SETUP → NETWORK → SERVER → PAGE DOWN.**

**MDR Server IP** is the public IP address of the firewall which forwards any traffic to the Windows Server, or IP address of the Windows Server hosting the MDR Wi-Fi Server. Example: 192.168.14.193 is the IP address of the Windows Server hosting the MDR Wi-Fi Server.

**MDR Server Port** is used for device access to server. By default, this is 5556.

**Media Server IP** should be the same as MDR Server IP.

**Media Server Port** should be the same as MDR Server Port. By default, this is 5556.

Save all the changes and exit the menu on the MDR. The MDR will then connect to the MDR Wi-Fi Server.

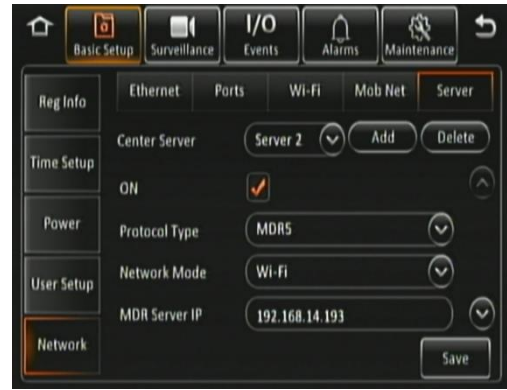
Browse to this Info page using **SYS INFO → SERVER STATUS.**

**Center Server** refers to the MDR Windows Server. It will read CONNECTED or UNCONNECTED.

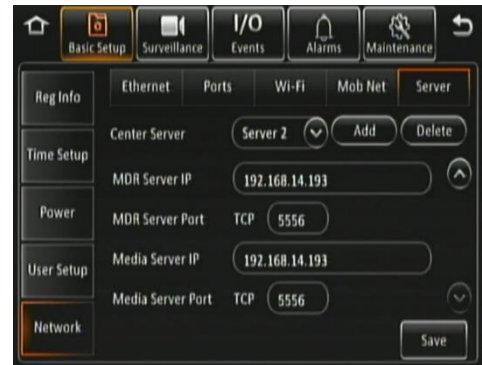
**Network Type** indicates the MDR will connect to the server using its Wi-Fi module.

**Server Protocol Type** by default, this is set to MDR5. Maintenance is not currently used.

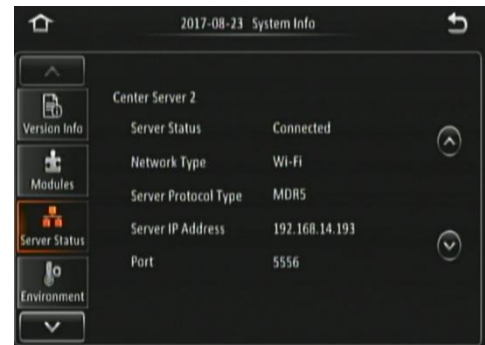
**Port** refers to MDR Server port. By default, this is 5556.



Center Server 2 Settings Figure 37



Center Server 2 Settings Figure 38



Wi-Fi Server Status Figure 39

## 4.2 MDR-Dashboard 5.0 Configuration (Wi-Fi)

This is the PC software that is installed on the client PC. Multiple MDR-Dashboard clients may connect to a single MDR server. The limitation will be on the Windows Server's ability and bandwidth. This is because there is only one connection from the server to each MDR unit. The MDR-Dashboard 5.0 can display up to 500 online vehicles, any further vehicles are replaced by "\*\*\*".

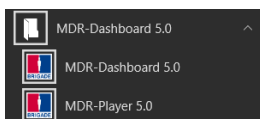
- Connect the client PC to the MDR Server Wi-Fi network.
- The client PC can also be connected to the domain with an Ethernet cable if you require network/internet access. Alternatively, the router may be configured to have internet access.

### 4.2.1 Logging into Server Mode (Wi-Fi)

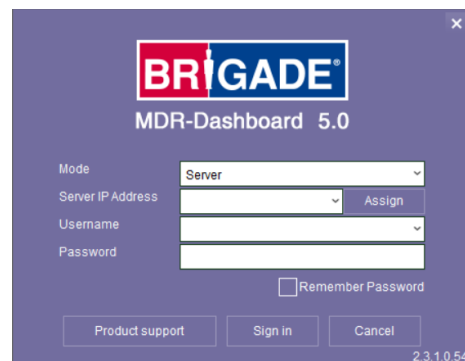
This operation is performed on the client PC. Go to **START → ALL PROGRAMS**, click on the MDR-Dashboard icon and run it as administrator as shown in *MDR-Dashboard Start Menu Figure 40*.

You are then presented with the MDR-Dashboard Login Screen. See *MDR-Dashboard Wi-Fi Login Figure 41*. Using the dropdown menu, you must choose the **SERVER** option.

You may type the server IP directly into *MDR-Dashboard Wi-Fi Login Figure 41* or follow the steps below.



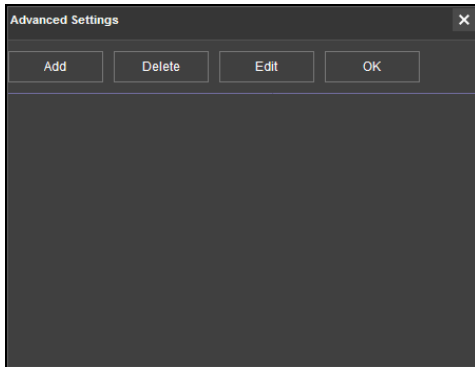
MDR-Dashboard Start Menu Figure 40



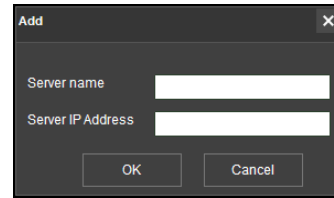
MDR-Dashboard Wi-Fi Login Figure 41

Click on **ASSIGN** which will bring up the window shown in *MDR-Dashboard Login Settings Figure 42*. This allows user to save several server names and their associated IP addresses.

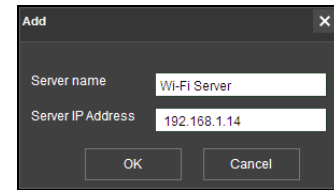
Click on **ADD** which will display *Adding a Server Figure 43*. The **SERVER NAME** can contain up to 21 alphanumeric characters. **SERVER IP** should contain numerical values and be in xxx.xxx.xxx.xxx format.



**MDR-Dashboard Login Settings Figure 42**



**Adding a Server Figure 43**



**Adding Wi-Fi Server Figure 44**

*Adding Wi-Fi Server Figure 44* indicates how the server has been named Wi-Fi Server and the IP has been entered as 192.168.1.14.

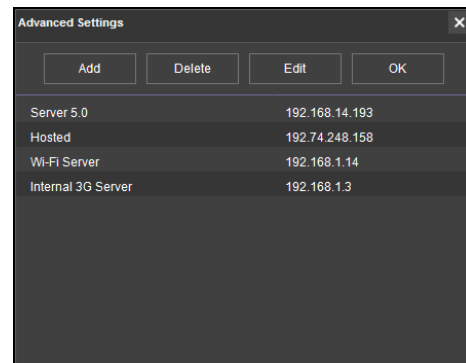
Once the details have been entered, click **OK** and the following window shown in *Wi-Fi Server Saved Figure 45* will be displayed.

If the incorrect **USER**, **PASSWORD** or **SERVER IP** is entered a "login failed" screen will be displayed.

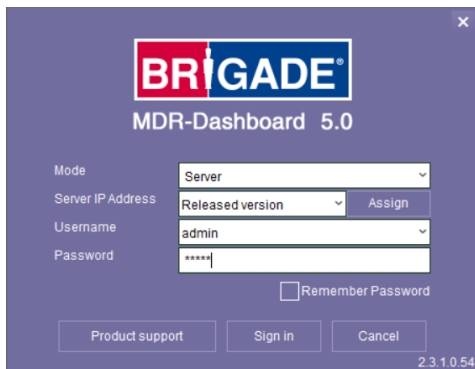
The **USER** by default is **admin** and the **PASSWORD** by default is **admin**. You may tick the **SAVE PASSWORD** if desired. Brigade recommends changing this password as sensitive data may be accessed within MDR-Dashboard.

Choose **WI-FI SERVER** and click **OK**. You will then be presented with *Wi-Fi Login Information Figure 46*.

For further resources, please click on **Product support** button. The software version number is found on the bottom right of the login window (2.3.1.XX.XX). Click **SIGN IN** to login. A loading screen will be displayed like *Wi-Fi Loading Screen Figure 47*.



**Wi-Fi Server Saved Figure 45**



**Wi-Fi Login Information Figure 46**

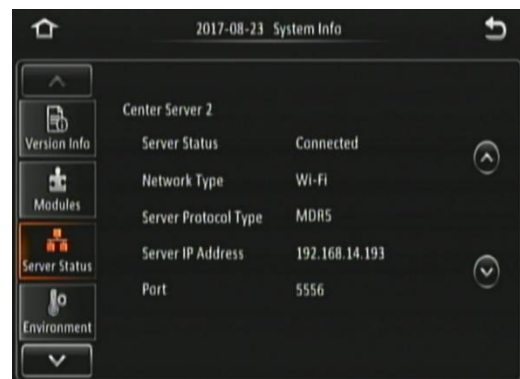


**Wi-Fi Loading Screen Figure 47**

#### 4.2.2 Connecting an MDR to MDR-Dashboard 5.0 (Wi-Fi)

**Center Servers** indicate when the MDR unit has connected to a relevant MDR Server.

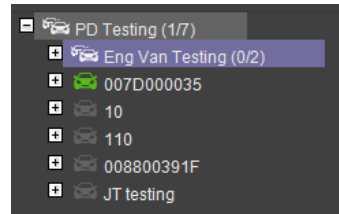
If the Chapter 4.1 MDR Unit procedure has been followed correctly on the MDR, access **SYS INFO** → **SERVER STATUS** and confirm the Center Server 1 has successfully connected. See *Center Server 1 Status Figure 48*.



**Center Server 1 Status Figure 48**

Once the above connection has been made, it may take a few minutes for the MDR unit to appear in MDR-Dashboard 5.0.

If the MDR automatically appeared, it will be found under a group labelled **TODAY'S DATE** and the MDR will be named using its **SERIAL NUM**. See *Automatically Found MDR Figure 49*.



**Automatically Found MDR Figure 49**

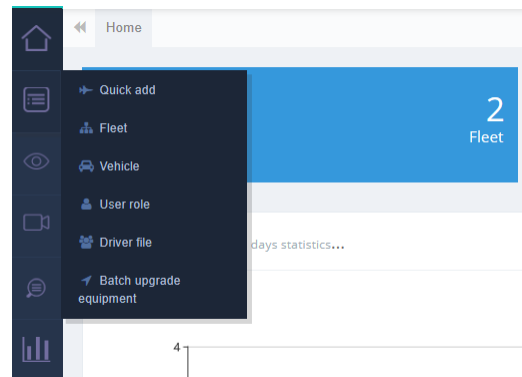
Alternatively, manually connect the MDR to MDR-Dashboard by following the steps below:

- In MDR-Dashboard 5.0, click **System Management** found on the top right of the software. It will redirect you into a web page.
- Browse to **Vehicle** as shown in *System Management Window Figure 51*
- Click **+ Add** as shown in *Vehicle Window Figure 52*



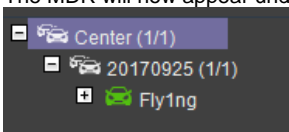
**Version Information Figure 50**

- Vehicle registration should match the vehicle's actual registration. This is your choice. The maximum is 50 alphanumeric characters.
- Ensure your **SERIAL NUMBER** from the MDR firmware is entered correctly. An example is shown in *Version Information Figure 50*.
- **PROTOCOL** by default is **MDR5** which works for all MDR 500 Series products.
- Make sure **Number of Channels** are put in correctly, this will determine how many channels are available in Live View on MDR-Dashboard client and web interface.
- **Transmit IP** and **Transmit port** are auto detected and filled in. Do not change it manually. Other information (**SIM card**, **Vehicle file** and **Equipment file**) are optional.
- Once completed click **CONFIRM**.



**System Management Window Figure 51**

- After all vehicles have been added, you will need to re-login to the MDR-Dashboard 5.0 to make the additions come into effect.
- The MDR will now appear under the group you assigned it to.



- It will appear online if the MDR is powered on or within its shutdown delay period

<input type="checkbox"/>	Operate	Parent Fleet	Vehicle Registration	Serial Number
<input type="checkbox"/>		20200902	MDR-508TEST	0088003913
<input type="checkbox"/>		20200902	MDR-504TEST	007D000F36

**Vehicle Window Figure 52**

**Add**

Vehicle Registration \*

Number of Channels \*

Serial Number \*

Transmit IP \*

Protocol \*

Transmit port \*

Parent Fleet \*

SIM card

Vehicle file

Equipment file

**Confirm**

**Add a Vehicle Figure 53**

## 5 Mobile Network Configuration

### 5.1 MDR Unit Configuration (Mobile Network)

#### 5.1.1 Mobile Digital Recorder Requirements

The setup described in this installation guide requires a Mobile Network enabled MDR.

- Mobile Network/4G antenna (included)
- GPS antenna (included)
- Standard size SIM Card (not included) - required to connect to a mobile data network.

For the Mobile Network operation of an MDR, a SIM card with a data connection is required. This must be standard size. The SIM data connection must be activated. The SIM card must be tested prior to being installed in the MDR.

Prior to any configuration, restore the MDR factory settings by following, **LOGIN → SETUP → MAINTENANCE → RESET → RESTORE.**

Brigade recommends changing the default unit password. This must be documented and controlled by the company

Browse to this Mobile Network page using **SETUP → BASIC SETUP → NETWORK → MOB NET.**

**Enable** is used to turn the mobile network module off or on. Once enabled, the settings found below will allow you to fill in your details.

**Server Type** is an auto-populated field, indicates the mobile network connection type.

**Network Type** refers to the type of mobile network connection that is used by the MDR to connect to the internet. Currently, 4G is the fastest connection speed. Set the network type to **3G** or **4G**. **MIX** can cause connectivity issues in low mobile network coverage areas.

**APN** refers to Access Point Name. This information is dependent on your mobile carrier network. Obtain APN, username, password, access number and authentication type settings from your SIM card provider.

Browse to this Mobile Network page using **SETUP → BASIC SETUP → NETWORK → MOB NET → PAGE DOWN.**

**Username** obtain from your SIM card provider.

**Password** obtain from your SIM card provider.

**Access Number** refers to the dial up phone number needed to connect to the network. By default, this is set to \*99#

**Certification** refers to the authentication mode, can be set to either CHAP (Challenge Handshake Authentication Protocol) or PAP (Password Authentication Protocol). CHAP should be chosen as this is a more secure authentication protocol. This is chosen by the network operator.

**SIM Phone Number** is not a required field. You may enter the phone number of the SIM card found inside the MDR for future reference.

Browse to this mobile network module page using **SYS INFO → MODULES → NETWORK → MOB NET.**

**Connection Type** shows the connection used to connect to network operators. The options are: GPRS/EDGE, CDMA, EVDO, WCDMA, TDSCDMA, FDD and TDD.

**Module Status** shows whether the MDR sees the presence of the mobile network module. This status will either show detected or not detected.

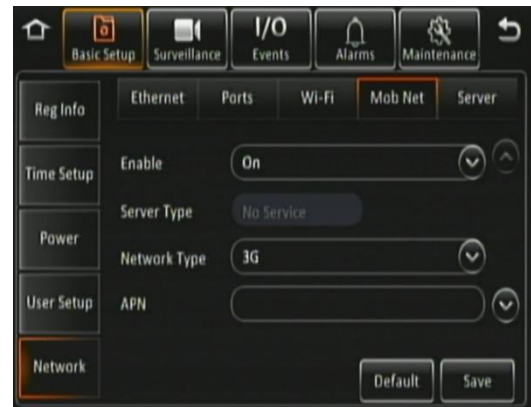
**SIM Status** shows whether the MDR sees the presence of a SIM card. The statuses are detected, not detected, available, not available and busy.

**Dial Status** indicates the SIM card's dial status, which can be dialled up, failed dial up and unknown error.

**Signal Level** will display the power level of the signal, this will be xxdBm format.

**IP Address** refers to the IP address obtained by the SIM card from the network provider.

**IMEI** refers to International Mobile Equipment Identity number. This is made up of 15 alphanumeric characters.



Mobile Network Settings Page 1 Figure 54



Mobile Network Settings Page 2 Figure 55



Mobile Network Status Figure 56

Browse to this Server page using **SETUP → BASIC SETUP → NETWORK → SERVER.**

**Center Server** refers to the MDR Windows Server. A maximum of 6 center servers can be saved. An MDR can connect to a maximum of 2 servers using the same protocol type.

**Add** is used to add another center server, a new blank center server page is displayed with a new server number.

**Delete** removes the currently displayed center server.

**ON** enables the current center server. MDR will attempt to connect to this server.

**Protocol Type** refers to the protocol used by the MDR unit to send its data (video and metadata) to the MDR Server. By default, this is set to MDR5. Maintenance is not currently used.

**Network Mode** refers to the network communication module used for to communicate with the MDR Server. The options are Ethernet, Mobile Network and Wi-Fi. This is discussed in further detail in *MDR 500 Series Network Connectivity SW&Infrastructure Manual*. This can be found on the Brigade website.

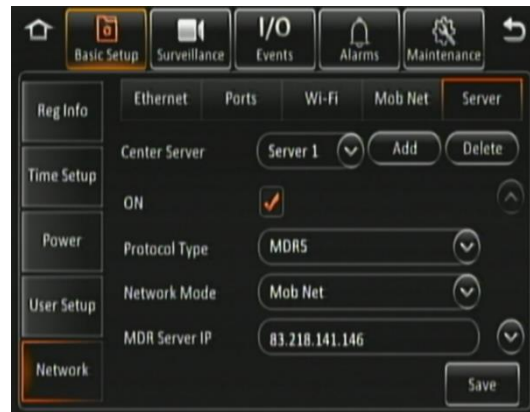
Browse to this Server page using **SETUP → BASIC SETUP → NETWORK → SERVER → PAGE DOWN.**

**MDR Server IP** Public IP address of the firewall which forwards any traffic to the Windows Server or IP address of the Windows Server hosting the MDR Wi-Fi Server.

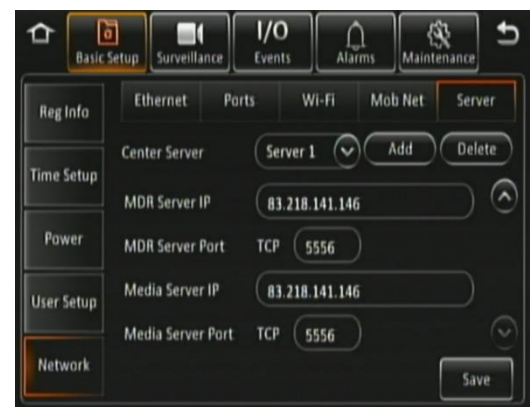
**MDR Server Port** is used for device access to server. By default, this is 5556.

**Media Server IP** should be the same as MDR Server IP.

**Media Server Port** should be the same as MDR Server Port. By default, is 5556.



Center Server 1 Settings Page 1 Figure 57



Center Server 1 Settings Page 2 Figure 58

Browse to this System Info page using **SYSTEM INFO → SERVER STATUS.**

**Center Server #** displays the current server configuration details. A maximum of 6 center servers can be stored.

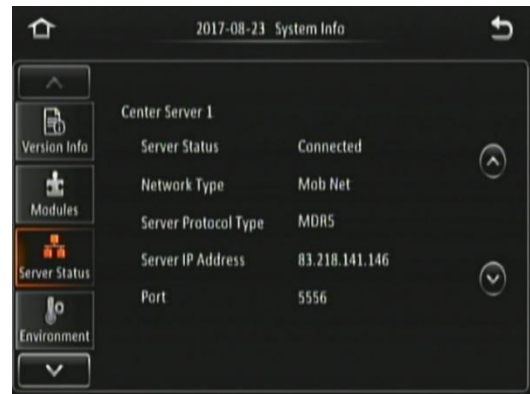
**Server Status** shows connection state of the chosen server. This can either be connected or unconnected.

**Network Type** indicates the type of connection interface the center server will use to attempt to communicate with the MDR Server. There are three options: Ethernet, Wi-Fi and Mobile Network.

**Server protocol type** shows the built-in proprietary communication protocol that will be used between the MDR unit and MDR Server. This can either be MDR5 or maintenance. Ensure that this is set to MDR5.

**Server IP Address** displays the IP address of the MDR Server. This can either be internal or external IP address.

**Port** shows the port used for communication between the MDR and MDR server.



Mobile Network Signal Information Window Figure 59

## 5.2 MDR-Dashboard 5.0 Configuration (Mob. Net.)

### 5.2.1 Logging into Server Mode (Mob. Net.)

**Mode** refers to the MDR-Dashboard 5.0 mode you would like to access. Options are **LOCAL** and **SERVER**.

**Server IP Address** displays the IP address of the MDR Server. This can either be an internal or an external IP address.

**Port** shows the port used for communication between the MDR and MDR server.

You may type the server IP directly into *Mobile Network MDR-Dashboard Figure 60* save the IP address with names. Follow the steps below:

- Click on **ASSIGN** which will bring up the window shown in *Mobile Network Advanced Settings Figure 61*.
- This allows you to save several server names and its associated IP addresses.
- Click on **ADD** which will display *Adding Mobile Network Server Figure 62*. The **SERVER NAME** can contain up to 21 alphanumeric characters. **SERVER IP ADDRESS** should contain numerical values and be in xxx.xxx.xxx.xxx format.

If you are accessing the Mobile Network server externally (outside the firewall) then use the external IP address. *External Mobile Network Server Figure 63* indicates how the server has been named Mobile Network Server External and the IP has been entered as 12.345.6.78.

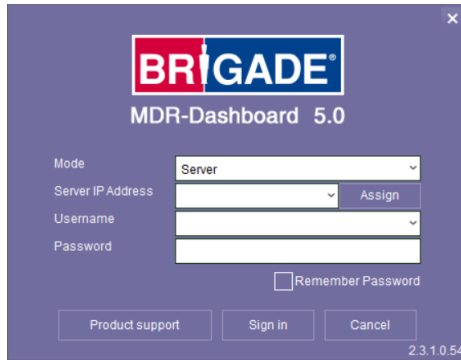
If you are accessing the Mobile Network server internally (behind the firewall) then use the IP address of the MDR Windows Server. *Internal Mobile Network Server Figure 64* indicates how the server has been named Mobile Network Server Internal and the IP has been entered as 192.168.14.100.

Choose **MOBILE NETWORK SERVER INTERNAL** and click **OK**. You will then be presented with *Mobile Network Login Figure 65*.

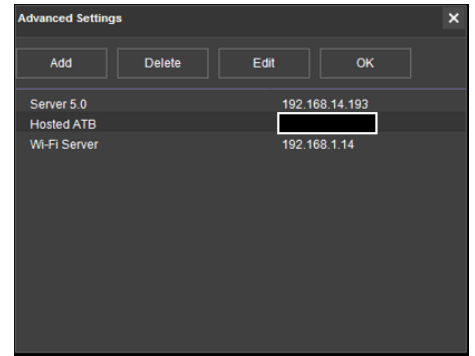
If the incorrect **USER**, **PASSWORD** or **SERVER IP** is entered a "login failed" screen will be displayed.

The **USER** by default is **admin** and the **PASSWORD** by default is **admin**. You may tick the **SAVE PASSWORD** if desired.

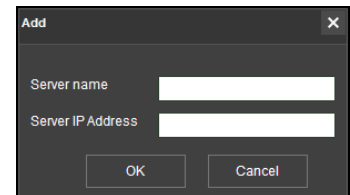
For further resources, please click on **Product support** button. The software version number is found on the bottom right of the login window (2.3.1.XX.XX).



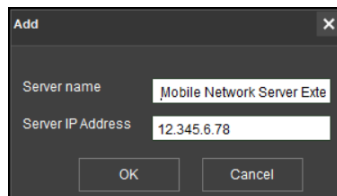
*Mobile Network MDR-Dashboard Figure 60*



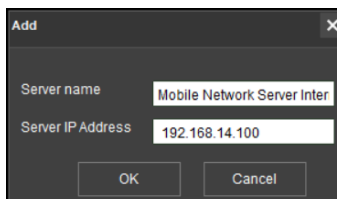
*Mobile Network Advanced Settings Figure 61*



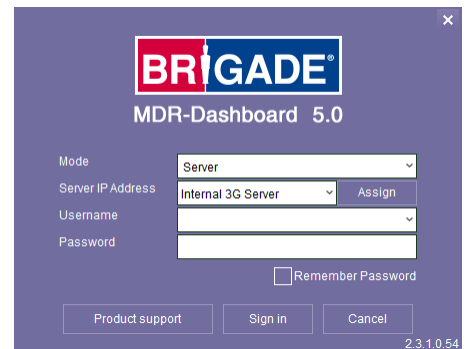
*Adding Mobile Network Server Figure 62*



*External Mobile Network Server Figure 63*



*Internal Mobile Network Server Figure 64*

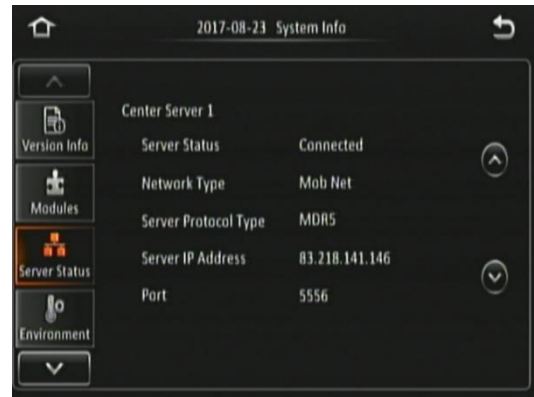


*Mobile Network Login Figure 65*

### 5.2.2 Connecting an MDR to MDR-Dashboard 5.0 (Mobile Network)

**Center Servers** indicate when the MDR unit has connected to a relevant MDR Server.

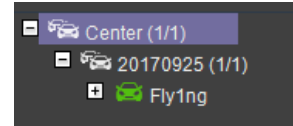
If the Chapter 4.1 MDR Unit procedure has been followed correctly, on the MDR, access **SYS INFO** → **SERVER STATUS** and confirm the Center Server 1 has successfully connected. See *Center Server 1 Status Figure 66*.



**Center Server 1 Status Figure 66**




Once the above connection has been made, it may take a few minutes for the MDR unit to appear in MDR-Dashboard 5.0.

If the MDR automatically appeared, it will be found under a group labelled **TODAY'S DATE** and the MDR will be named using its **SERIAL NUM** or **VEHICLE REGISTRATION** if populated.



**Automatically Found MDR Figure 67**

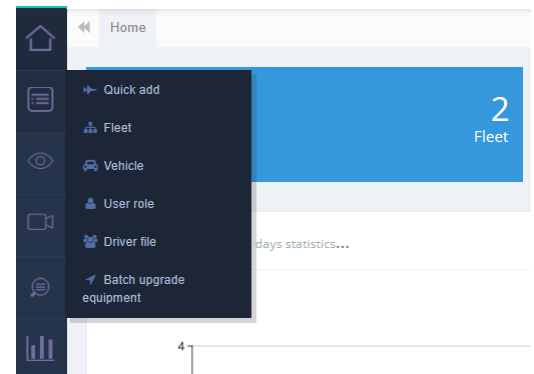
Alternatively, manually connect the MDR to MDR-Dashboard by following the steps below:

- In MDR-Dashboard 5.0, click **System Management**  found on the top right of the software. It will redirect you into a web page.
- Browse to  as shown in *System Management Window Figure 69*.
- Click  as shown in *Vehicle Window Figure 70*.



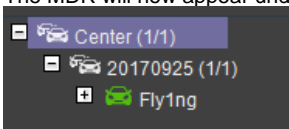
**Version Information Figure 68**

- Vehicle registration should match the vehicle's actual registration. This is your choice. The maximum is 50 alphanumeric characters.
- Ensure your **SERIAL NUMBER** from the MDR firmware is entered correctly. An example is shown in *Version Information Figure 68*.
- **PROTOCOL** by default is **MDR5** which works for all MDR 500 Series products.
- Make sure **Number of Channels** are put in correctly, this will determine how many channels are available in Live View on MDR-Dashboard client and web interface.
- **Transmit IP** and **Transmit port** are auto detected and filled in. Do not change it manually. Other information (**SIM card**, **Vehicle file** and **Equipment file**) are optional.
- Once completed click **CONFIRM**.








**System Management Window Figure 69**

- After all vehicles have been added, you will need to re-login to the MDR-Dashboard 5.0 to make the additions come into effect.
- The MDR will now appear under the group you assigned it to.



- It will appear online if the MDR is powered on or within its shutdown delay period



<input type="checkbox"/>	Operate	Parent Fleet	Vehicle Registration	Serial Number
<input type="checkbox"/>	 	20200902	MDR-508TEST	0088003913
<input type="checkbox"/>	 	20200902	MDR-504TEST	007D000F36

**Vehicle Window Figure 70**

**Add** ✕

Vehicle Registration *	Number of Channels *
<input type="text"/>	<input type="text" value="4"/>
Serial Number *	Transmit IP *
<input type="text"/>	<input type="text" value="217.13.142.246"/>
Protocol *	Transmit port *
<input type="text" value="MDR5"/>	<input type="text" value="17891"/>
Parent Fleet *	
<input type="text" value="Centre"/>	<input type="text"/>

SIM card^

Vehicle file^

Equipment file^

✔ Confirm

**Add a Vehicle Figure 71**



# 6 MDR-Dashboard 5.0 Operation

Usage scenarios must be clearly defined to meet and surpass your needs. See the table below which displays the different benefits achieved using Mobile Network or Wi-Fi.

Table 12: Mobile Network vs Wi-Fi Benefits

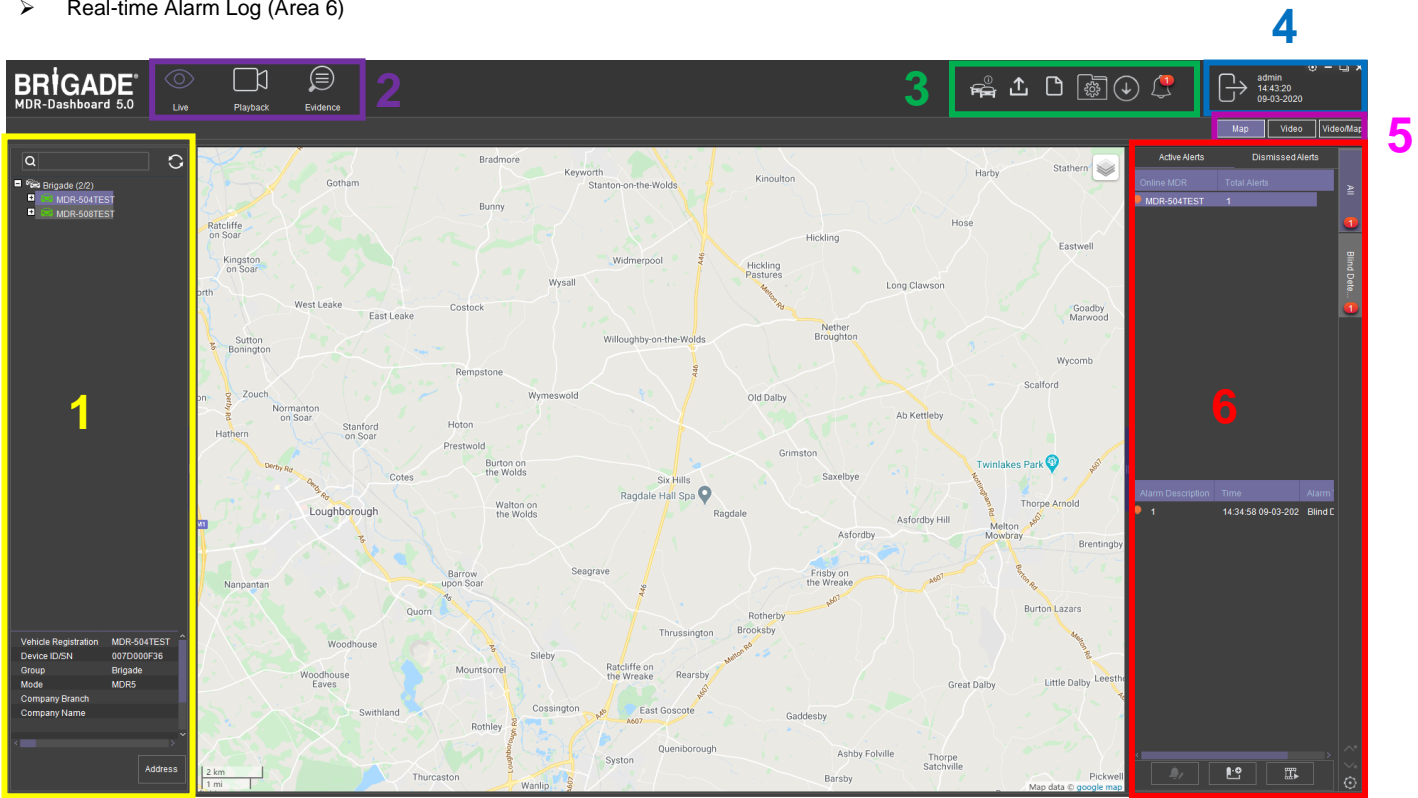
MOBILE NETWORK	WI-FI
Vehicles are away from company site	Vehicles must be in AP (access point) range and in an ON or shutdown delay (post-record) state
Remotely monitor vehicle operation (stream live MDR video).	Download data without physically going to the vehicle(s).
Instant alerts of alarms for immediate action.	Automatic alerts of alarms when vehicle returns within Wi-Fi range.
Instantly download MDR video to store and view alarms.	Automatic download of MDR video to store and view alarms when vehicle returns within Wi-Fi range.
Instantly upload evidence to the secure server.	No mobile network costs (Mobile Network).
Real-time GPS tracking (within mobile network coverage areas only)	Real-time GPS tracking (within wireless network only)

**SERVER MODE** allows you to access features such as **LIVE, PLAYBACK** and **EVIDENCE**. The following sub-chapters will explain these features and typical operation.

You are presented with the following window after logging in, *Live MDR-Dashboard Figure 72*.

MDR-Dashboard 5.0 consists of several key areas such as:

- Vehicle State (Area 1)
- Type of operation (Area 2)
- Fleet Status, MDR Upgrade, Fleet Statistics, System Management, Downloads and Alarm Center (Area 4)
- User and System Settings (Area 5)
- View Settings (Area 5)
- Real-time Alarm Log (Area 6)

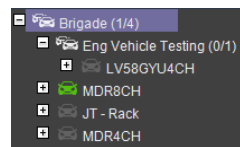


Live MDR-Dashboard Figure 72

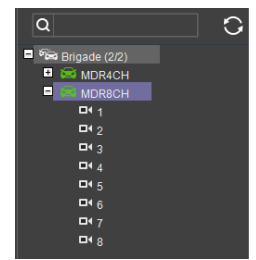
## 6.1 Vehicle State (Area 1)

This area will list the state (online or offline) of vehicles which have been configured. An example of an offline vehicle is shown in *Offline Vehicle Figure 73*. Camera channels may be expanded to choose a camera to view.

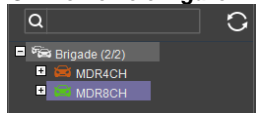
If an MDR is offline, camera channels cannot be accessed. Also, the vehicle icon is greyed out to indicate its offline state. An online vehicle example is shown in *Online Vehicle Figure 74*. The vehicle icon may display as a red icon if it is currently in an alarm state. See *Alarm Vehicle Figure 75*.



Offline Vehicle Figure 73



Online Vehicle Figure 74



Alarm Vehicle Figure 75

The fleet **BRIGADE** may be right-clicked to show a sub-menu. See *Fleet Menu Figure 76*. This allows the list of vehicles in that fleet to be **EXPANDED** or **COLLAPSED**. The 'plus' and 'minus' symbols can also be used for the same purposes.

Use the **REFRESH** button  to update data for online vehicles. See *Fleet Menu Figure 76*.

To view the latest vehicle list please **LOGOUT** and **LOGIN** again. This will help update any changes in the list.

**SEARCH** is used to find specific vehicles based on the vehicle registration number. See *Fleet Menu Figure 76*. If there is more than one vehicle registration that contains the search data these vehicles will be displayed in list form for the user to choose from.

Quick information of the selected vehicle is shown below the tree structure in Area 1. Quick information consists of:

- Vehicle Registration
- Device ID/SN
- Group
- Mode
- Longitude, Latitude
- Speed and Time/Date.
- Company Branch and Company Name

An example is shown in *Quick Information Figure 77*.

An advanced vehicle menu shown in *Vehicle Menu Figure 78* can be accessed by right-clicking a vehicle registration. This menu has the following options:

- MDR Settings
- Quality
- GPS Upload Rate
- Get Version
- IO settings
- Geo-Fence
- Remote Format
- Restart
- Network

**MDR SETTINGS** are used to access **ONLINE MDR** units' settings. Once **MDR SETTINGS** are accessed, *Brigade Loading Figure 79* is displayed.

Depending on the speed of the connection to the MDR, the login window is displayed after 1-5 minutes.

If you get the error shown in *Online MDR Settings Error Figure 80*, this means that the password you entered is incorrect.

There are two ways to fix this problem. Method one is to enter the correct firmware password, this is a temporary one-time access fix. Method two is to save the firmware password in the MDR-Dashboard **Vehicle** → **Equipment file** page, which is a permanent fix (unless someone changes the firmware login password on the MDR unit).

Method one:

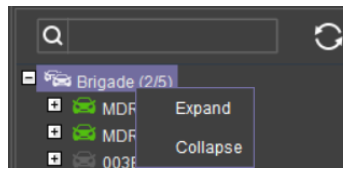
- Click Confirm
- Enter Username and Password then click Login

Method two:

- Click X to close the error prompt
- Click System Management
- Click MDR Information
- Click Update
- Enter Username and Password then click OK

See *Vehicle Settings Menu Setup Figure 82*, you can configure MDR settings related to: **Basic Setup**, **Surveillance**, **Events** and **Alarms**. This menu structure follows the MDR firmware.

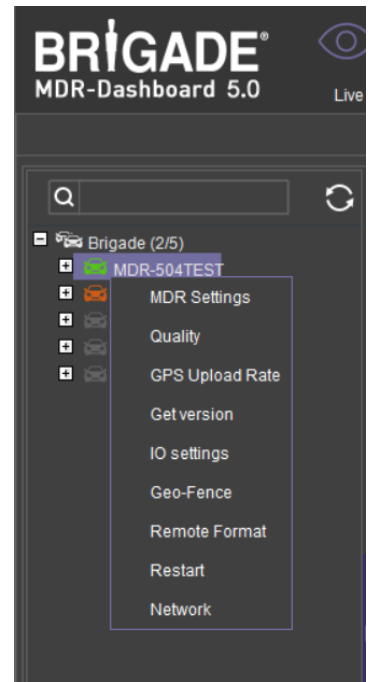
**QUALITY** is used to switch between recommended, best frame rate, normal frame rate, normal resolution and best resolution. By default, this is set to Recommended.



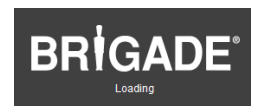
**Fleet Menu Figure 76**

Vehicle Registration	AK_Test_4
Device ID/SN	007D000FE9
Group	Brigade PD 2016
Mode	MDR5
Longitude	0.220715
Latitude	51.431650
Speed	0 MPH
Time/Date	09:32:35 06-28-2
Company Branch	
Company Name	

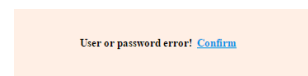
**Quick Information Figure 77**



**Vehicle Menu Figure 78**



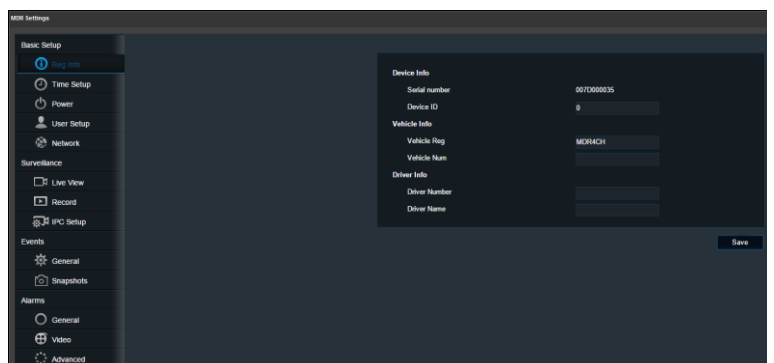
**Brigade Loading Figure 79**



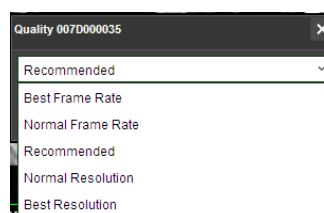
**Online MDR Settings Error Figure 80**



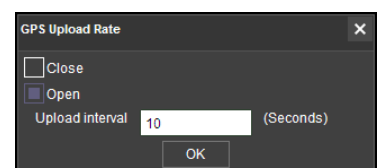
**Online MDR Settings Menu Setup Login Figure 81**



**Vehicle Settings Menu Setup Figure 82**



**Online MDR Quality Setting Figure 83**



**Online MDR GPS Upload Rate Figure 84**

**Online MDR GPS Upload Rate** Figure 84 is used to configure the interval with which the MDR uploads GPS information to the server. By default, it is 10 seconds.

**GET VERSION** is used to obtain the current firmware and MCU version installed on the MDR. See *Online MDR Get Version Figure 85*.

**IO SETTINGS** are used to remotely control the alarm outputs found on the IO cable. These outputs can be set to high or low. It can also be set to auto revert to its previous state after a defined period. By default, state is low, auto revert state is off and duration is 30 seconds. See *Online MDR IO Settings Figure 86*.

**GEO-FENCE** is used to add geo-fences. Geo-fences are used to send an alarm if a vehicle leaves or enters a geographical region. This region is setup by the user in MDR-Dashboard 5.0. Fence types are polygon, circle and line. Triggering conditions can be entry, exit and in or out.

Geo-Fence supports setup multiple zones with different trigger conditions. Every time after the setting get changed (add/delete/edit a zone) please re-issue the Geo-Fence setting to the MDR, or it will not take into effect.

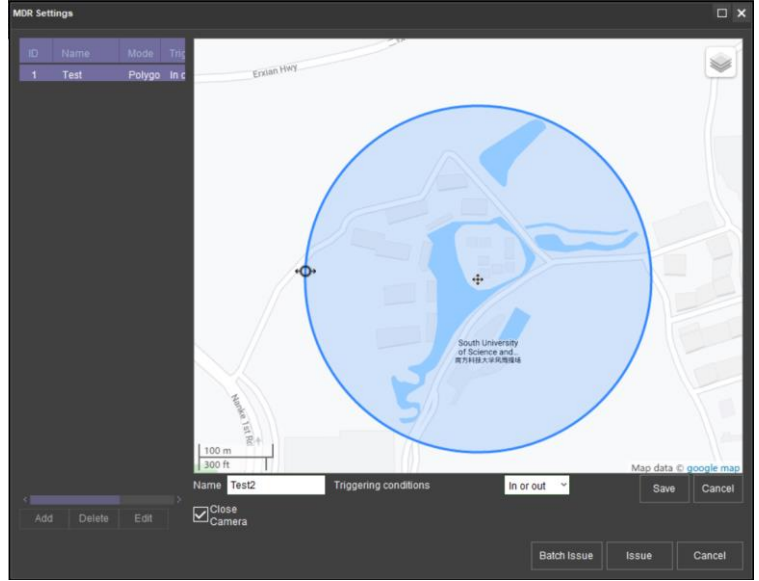
Under “in or out” condition, it supports a **close camera** feature to enable the MDR stops camera live view and recording while inside the region. All camera channels will display “Video Loss” and no records will be generated in MDR storage medium. This feature was designed for some special security requirements. See *Geo-Fence Close Camera Feature Figure 88*.

Geo-fences can be batch issued if this needs to be applied to a fleet of vehicles. See *Online MDR Geo-Fence Figure 87*.

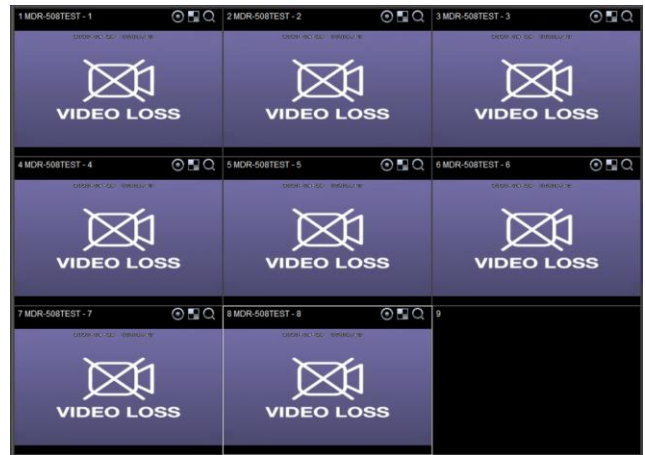
**REMOTE FORMAT** can be used to remotely format the HDD of an MDR. See *Online MDR Remote Format Figure 89*.

**RESTART** can be used to remotely restart an MDR. See *Online MDR Restart Figure 90*.

**Network** is used to display current MDR connection method: Either via Wi-Fi, 3G/4G or Local (through Ethernet cable). See *Network Figure 91*



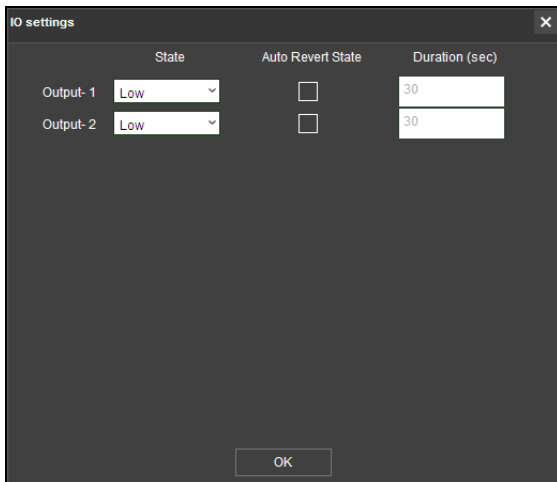
**Online MDR Geo-Fence Figure 87**



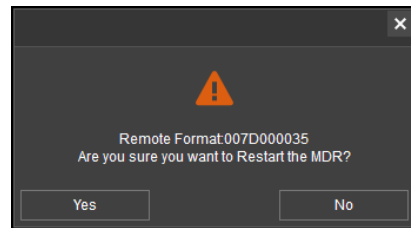
**Geo-Fence Close Camera Feature Figure 88**



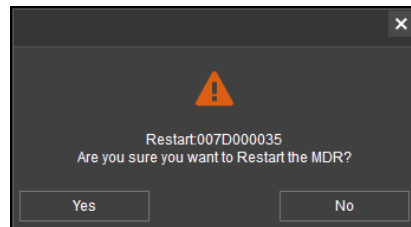
**Online MDR Get Version Figure 85**



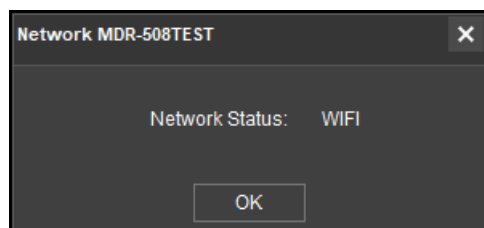
**Online MDR IO Settings Figure 86**



**Online MDR Remote Format Figure 89**



**Online MDR Restart Figure 90**



**Network Figure 91**

## 6.2 Type of operation (Area 2)

You can choose between **LIVE**, **PLAYBACK** and **EVIDENCE**. Each option has features which are discussed further in sub-sections 6.2.1, 6.2.2 and 6.2.6.







Note: Local data and server data can be accessed when the MDR-Dashboard 5.0 is in server mode. When the MDR-Dashboard 5.0 is in local mode there is limited functionality. See MDR 500 Series Installation&Operation Guide for details on local mode.

### 6.2.1 Live View

You access live operation by clicking on the **LIVE** icon. See *Live Operation Type Figure 92*.

A key feature of live operation is the real-time alarm log that shows currently occurring alarms on an online MDR. See *Real-time Alarm Log Figure 93*.

Choose a suitable view - **MAP**, **VIDEO** or **VIDEO/MAP**. See *View Type Figure 94*. The various views are discussed further in *View Settings (Area 5)*.

The *Live Control Bar Figure 95* is displayed when the **VIDEO** view is used. You can mute , snapshot , expand current video view to full screen , scroll between channels   or change channel view .

When you right click a video channel, the sub menu shown in *Live Channel Sub-Menu Figure 96* will be displayed.

**OPEN VIDEO** is used to display all channel information and live video. See *Live Channel Sub-Menu Figure 96*.

**CLOSE VIDEO** is used to stop this channel's video displaying but shows the vehicle registration number and channel name. See *Live Channel Sub-Menu Figure 96*. It can be re-opened.

**CLOSE ALL** is used to stop all video channels displaying but shows the vehicle registration number and channel name.

**CLEAR HISTORY** is used to remove all data from the channel; this channel can no longer be opened. See *Live Channel Sub-Menu Figure 96*.

**CLEAR ALL** is used to remove all data from all channels.

**MAIN STREAM** is used to access a higher quality stream from the MDR. This is based on your HDD recording settings.

**SUB-STREAM** used to access a lower quality stream from the MDR.

**SUB-STREAM SETTINGS** control the quality of sub-streams. This is based on your HDD and SD card recording settings.

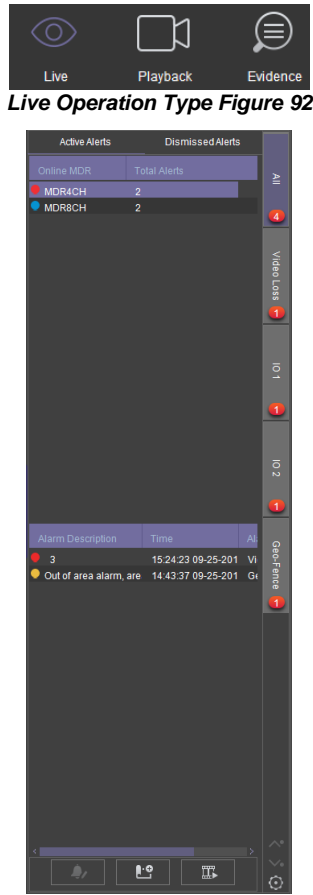
**DISPLAY SCALE** controls the aspect ratio of the video channel. The options are original size, 4:3, 16:9 and auto fit. By default, this is 16:9.

**SERVER PLAYBACK** will automatically playback MDR Server data for the MDR from the start of the current day. If there is no content, a prompt will state "No Video Found".

**DEVICE PLAYBACK** will automatically playback the MDR's HDD content from the start of the current day.

Note:

- > A maximum of 64 channels can be viewed at one time.
- > To access a cleared channel, double-click the vehicle to refresh all channels.
- > Live view may have video stuttering due to a limitation in the available bandwidth.



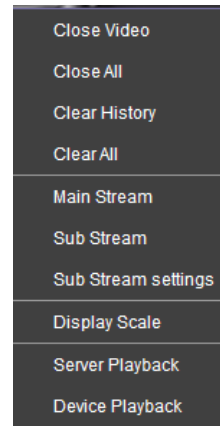
*Real-time Alarm Log Figure 93*





*View Type Figure 94*



*Live Control Bar Figure 95*



*Live Channel Sub-Menu Figure 96*

Each camera channel has three additional features, **Live Recording** , **BLUR**  and **ZOOM** .

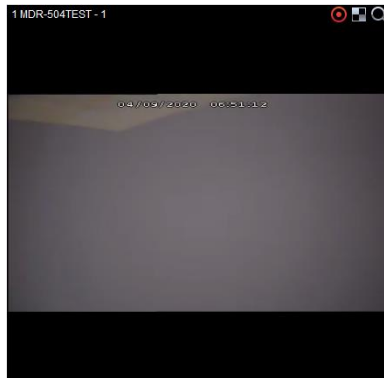
Note: **LIVE RECORDING** is available in **LIVE** mode only; **ZOOM** is available in both **LIVE** and **PLAYBACK** mode. **BLUR** is available in **PLAYBACK** mode only.

**Live Recording** used to record the present live view footage and saved in a local folder. Click the button once it turns to red indicate recording starts, click again to finish recording. The saved path can be set in MDR-Dashboard 5.0 Setting page. Folder structure is "C:/RECORD/Vehicle Registration/Date/record". Only save H.264 format no matter what is the original video format MDR is using. See *Live Recording Figure 97*

**Note:** the recording file size should be no less than 500KB or the file will not be saved.

You can use **BLUR** to create a mosaic setting of an area which will be blurred throughout video playback. See *Creating Mosaic for Blur Figure 98*, *Setting the Blur Area Figure 100* and *Blur Activated Figure 101*.

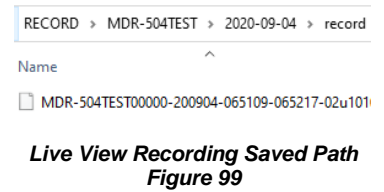
**ZOOM** is used to create a magnified view of a selected area of a camera channel. Click the magnifying glass and then choose the desired box area. This is now the only area that will be visible during playback. To exit this view, double-click the camera channel. See *Choosing Zoom Area Figure 102* and *Zoom area Figure 103*.



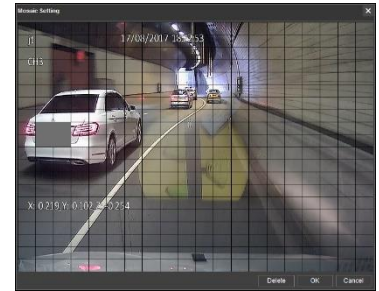
**Live Recording Figure 97**



**Creating Mosaic for Blur Figure 98**



**Live View Recording Saved Path Figure 99**



**Setting the Blur Area Figure 100**





**Blur Activated Figure 101**



**Choosing Zoom Area Figure 102**



**Zoom area Figure 103**


  is used to **ZOOM** in or out of the time scale. Maximum **ZOOM** in is 5 seconds and maximum **ZOOM** out is 24 hours.

## 6.2.2 Playback







You access playback operation by clicking on the **PLAYBACK** icon. See *Playback Operation Figure 104*.

*Playback Options Figure 105* will then be presented to you. There are 4 playback options:

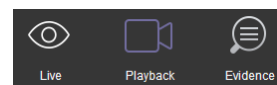
- > MDR Server
- > HDD/SD
- > Online MDR
- > Local Files

In each **PLAYBACK** mode you can download recordings. During playback, click on the clipping icon , shown in *Playback Bar Figure 106*.

You are then presented with the tool bar shown in *Clipping Toolbar Figure 107*.

The clipping toolbar is used to either Play , Screenshot , Map Screenshot , Evidence Snapshot , Screenshot all channels **ALL**  or screenshot select .

The **PLAY** function is used to play the video during clipping mode.



**Playback Operation Figure 104**



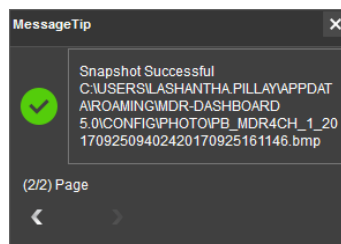
**Playback Options Figure 105**



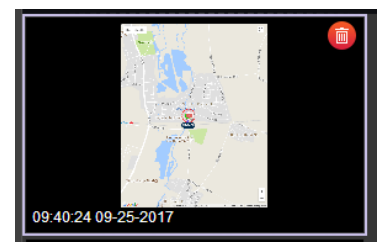
**Playback Bar Figure 106**



**Clipping Toolbar Figure 107**



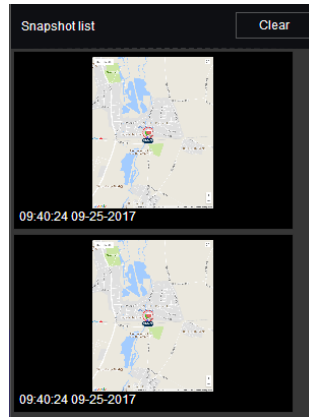
**Screenshot pop-up Figure 108**



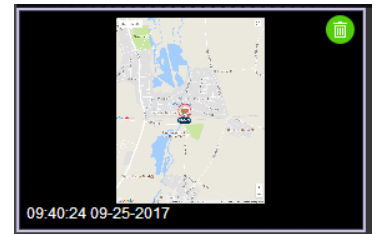
**Snapshot list Delete Icon Figure 110**

Once the **SCREENSHOT** button is clicked, a screenshot of the video image is stored locally under C:\You\username\AppData\Roaming\MDR-Dashboard5.0\config\Photo\screenshot filename. It is labelled with the vehicle ID, video date and video time. A popup message will show up next to your PC time for 6 seconds. An example is shown in Screenshot pop-up Figure 108.

**MAP SCREENSHOT** is used to take screenshot of only the current map position being displayed. Once this is clicked, the data will appear in the **SNAPSHOT LIST** as shown in *Snapshot list Figure 109*. Items can easily be deleted from the snapshot list by using the delete (trash can) icon. See *Snapshot list Delete Icon Figure 110*. The delete icon turns green when the mouse hovers over it. See *Snapshot list Active Delete Icon Figure 111*.



**Snapshot list Figure 109**



**Snapshot list Active Delete Icon Figure 111**

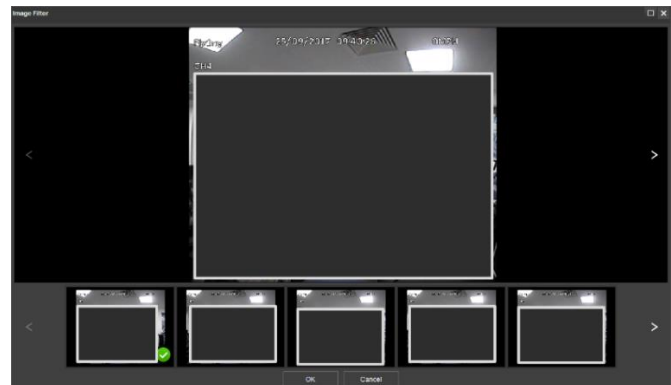
**EVIDENCE SNAPSHOT** is used to take a screenshot of the current video position. Once this is clicked, the data will appear in the Snapshot list as shown in *Snapshot list Figure 109*.

**SCREENSHOT ALL CHANNELS** is used to screenshot all channels which then appears in the Snapshot list as shown in *Snapshot list Figure 109*.

**SCREENSHOT SELECT** is used to give you the option to choose from several automatically generated video screenshots based on the current time marker (15:17:08 shown in *Screenshot Select Figure 112*).

Once a screenshot is chosen, it will appear in the Snapshot list as shown in *Snapshot list Figure 109*.

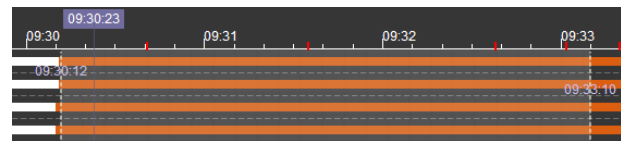
Once satisfied with the snapshot list, you will then position the clipping markers to the start and end time of the desired clip. Click **OK**. See *Clipping Markers Figure 113*.



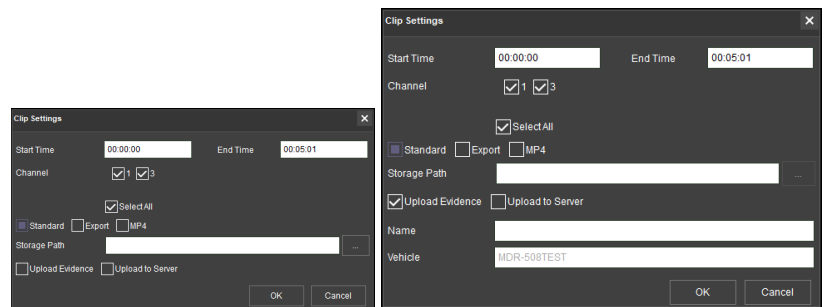
**Screenshot Select Figure 112**

The clip settings window will now be shown. See *Clip Settings Figure 114*. You can manually set the **START TIME** and **END TIME**. Choose from your available channels. There are 3 different ways to clip:

- **STANDARD** - You must set the desired **PATH** before clicking **OK**. These H.264 files are opened manually by MDR-Dashboard 5.0 / MDR-Player 5.0 and are stored locally. Standard downloads can also be uploaded as evidence.
- **EXPORT** - This file must not be larger than 1.5GB. If it is larger, it will not function. You must set the desired **PATH** and **FOLDER** name before clicking **OK**. This option creates an executable (.exe) file including the MDR-Player 5.0 with the embedded video. These files may be password protected. Evidence option is not available. These files are stored locally.
- **MP4** - You must set the desired **PATH** before clicking **OK**. These files can be played by standard media players. Evidence option is not available. These files are stored locally.



**Clipping Markers Figure 113**



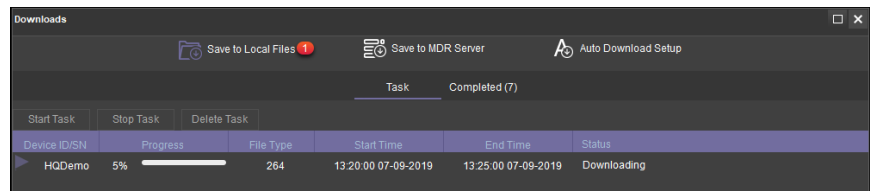
**Clip Settings Figure 114**

Note: If the **EVIDENCE** feature is used, the downloaded video will be uploaded to the server. The data is found in the Evidence tab. See section 6.2.6 Evidence for more information.

You can check the progress of clippings under

**DOWNLOAD**  **→ TASK** (Area 3). See *Standard Clipping Figure 115*.

Once the task is completed, you can view the status and storage path under **DOWNLOAD** **→ COMPLETED**. See *Completed Clippings Figure 116*.



**Standard Clipping Figure 115**

Device ID/SN	Status	Start Time	End Time	File Type	Storage Path
8CH-LP	Completed	11:00:00 05-17-2019	11:02:00 05-17-2019	exe	C:\USERS\LPADMIN\DESKTOP\MDR SW TESTING\
8CH-LP	Completed	11:50:43 05-17-2019	11:52:43 05-17-2019	exe	C:\USERS\LPADMIN\DESKTOP\MDR SW TESTING\
404RACK	Completed	11:28:00 05-20-2019	11:29:07 05-20-2019	exe	C:\USERS\LPADMIN\DESKTOP\MDR SW TESTING\
8CH-LP	Completed	10:30:00 05-20-2019	10:32:00 05-20-2019	exe	C:\USERS\LPADMIN\DESKTOP\MDR SW TESTING\
8CH-LP	Completed	13:24:18 05-20-2019	13:25:28 05-20-2019	264	C:\USERS\LPADMIN\DESKTOP\MDR SW TESTING\8CH-LP2019-05-
4CH-LP	Completed	11:54:20 05-20-2019	11:55:20 05-20-2019	exe	C:\USERS\LPADMIN\DESKTOP\MDR SW TESTING\

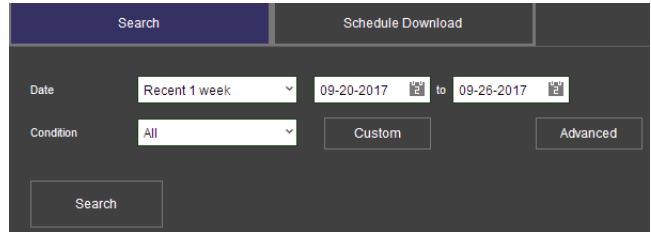
**Completed Clippings Figure 116**

### 6.2.3 MDR Server

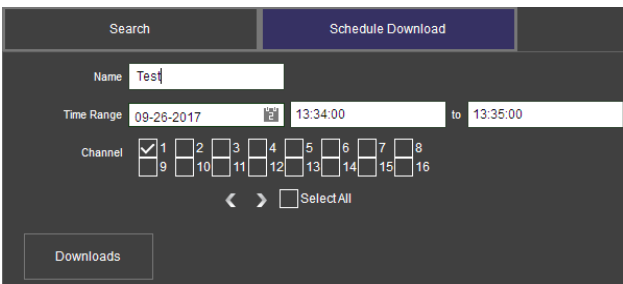
You can search the server for MDR downloads. These searches can be based on dates, speed and events. See *Server Search Figure 117*.

You can schedule downloads from the MDR to the server based on time, dates and video channels. See *Server Download Figure 118*.

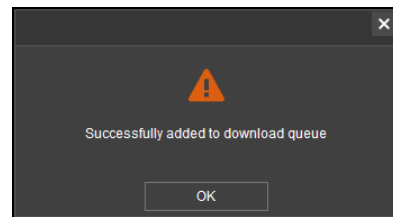
Once a user creates a scheduled download, a window pops up to indicate this has been added successfully. See *Server Download Pop-up Figure 119*.



**Server Search Figure 117**



**Server Download Figure 118**

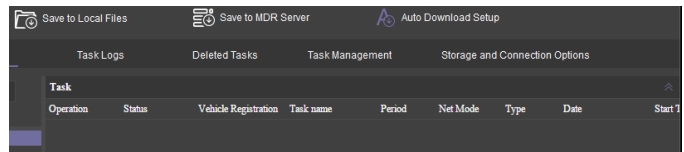


**Server Download Pop-up Figure 119**



**Server Download Notification Figure 120**

This scheduled download appears under auto downloads. You click on **DOWNLOAD** as shown in *Server Download Notification Figure 120*.



**Server Download Queue Figure 121**

Table 13 of Scheduled Downloads vs Auto Downloads

SCHEDULED DOWNLOAD	AUTO DOWNLOAD
Is a one-off download	Can be set as a recurring download
Setup based on time and channel	Setup based on time, channel, alarms and events
Will download over any available network	Can be configured to either wi-fi, mobile network or both
Not Applicable	Configurable to downloads metadata and/or video

### 6.2.4 Online MDR

This is used to remotely access an MDR unit's HDD content.

Double-click the online vehicle icon to open the calendar view as shown in *Online MDR Calendar View Figure 122*.

Ensure that the **DOWNLOAD METADATA** option is ticked as shown in *Metadata Figure 123*. This is found bottom left of the calendar view.

- Green dates represent normal recordings (01/09/2017 - 13/09/2017)
- Orange dates represent alarm recordings (14/09/2017)
- Red dot only (no colour) represents only metadata
- White outline represents the date you are viewing (05/09/2017)

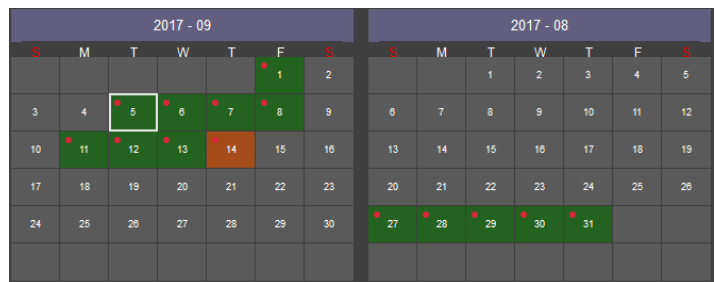
Double-click the desired date and choose which camera channels to view. See *Channel Selection Figure 124*.

Then click the **PLAY** button located above the channel selection. See *Channel Selection Figure 124*.

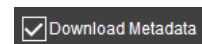
Once you click play, the video will be displayed as shown in *Playing a Video Figure 125*.

You may view graphical data related to the recording such as:

- Vehicle Status – Channels, Speed and G-Force.



**Online MDR Calendar View Figure 122**

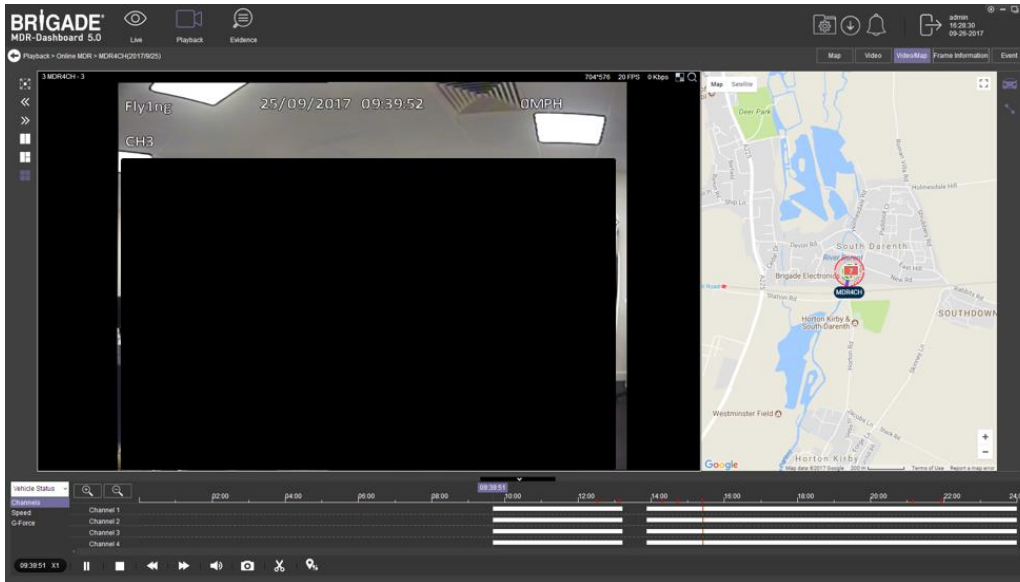


**Metadata Figure 123**

- Device Status – Device temperature, Environment temperature and MDR voltage.



Channel Selection Figure 124



Playing a Video Figure 125

Each camera channel has two additional features, **BLUR**  and **ZOOM** .

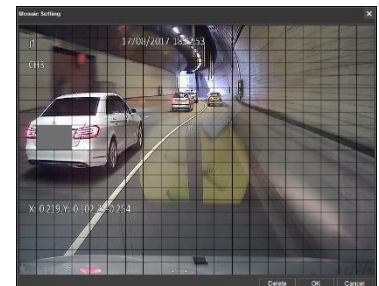
Note: **ZOOM** is available in **LIVE** mode. **BLUR** cannot be used in **LIVE** mode.

You can use blur to create a mosaic setting of an area which will be blurred throughout video playback. See *Creating Mosaic for Blur Figure 126*, *Setting the Blur Area Figure 127* and *Blur Activated Figure 128*.

**ZOOM** is used to create a magnified view of a selected area of a camera channel. Click the magnifying glass and then choose the desired box area. This is now the only area that will be visible during playback. To exit this view, double-click the camera channel. See *Choosing Zoom Area Figure 129* and *Zoom area Figure 130*.



Creating Mosaic for Blur Figure 126



Setting the Blur Area Figure 127





Blur Activated Figure 128

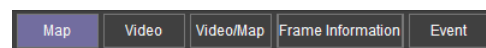


Choosing Zoom Area Figure 129



Zoom area Figure 130

  is used to **ZOOM** in or out of the time scale. Maximum **ZOOM** in is 5 seconds and maximum **ZOOM** out is 24 hours.



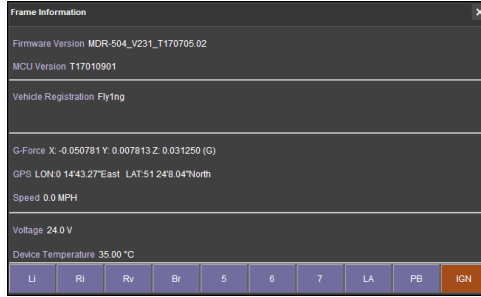
Extended View Settings Figure 131



To view further information regarding the recording you can access **FRAME INFORMATION** and **EVENT** as shown in *Extended View Settings Figure 131*.

See *Frame Information Figure 132*. **FRAME INFORMATION** consists of:

- Firmware version
- MCU version
- Vehicle Registration
- G-Force
- GPS
- Speed
- Voltage
- Device Temperature
- Trigger Activity Indicator



**Frame Information Figure 132**



**Event Information Figure 133**

## 6.2.5 HDD/SD and Local Files Playback

### 6.2.5.1 Local Files Playback

This procedure applies to recordings previously downloaded from the MDR and saved onto a USB flash drive or recordings saved onto a PC.


To read downloaded files click on the **LOCAL FILES** tab found on the Data Source Access (area 1). See *Data Source Figure 134*.

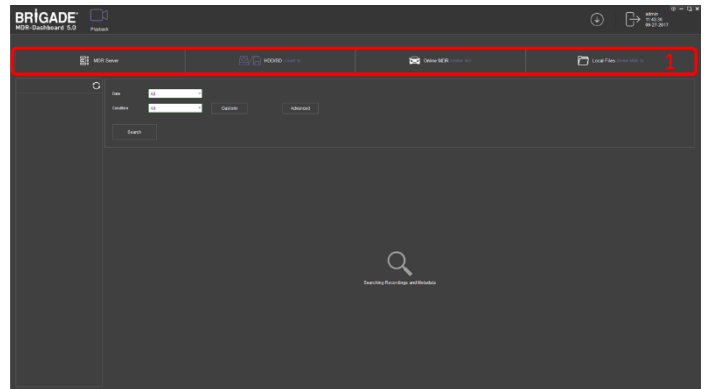
You click on the **LOCAL FILES** tab as shown in *Local Files Tab Figure 135*.

Click the **ADD** button as shown in *Local Files Add Figure 136*. Browse to the relevant folder and click **SELECT FOLDER**.

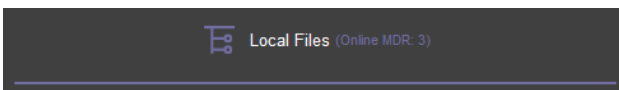
This brings up a Windows™ Explorer dialogue box (*Windows Explorer Folder Figure 137*) which allows you to select the folder that contains the recordings. Select the MDR Vehicle name, in this example 3-3.

Once the folder has been successfully loaded, it will appear as shown in *Device Directory Figure 138*.

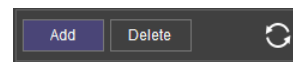
If there was a local file specified previously, click the refresh icon  to get the local file to appear. This will be a green icon to indicate it is available for browsing.



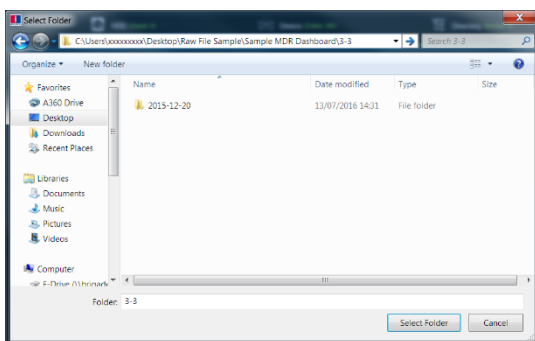
**Data Source Figure 134**



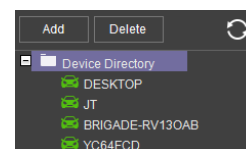
**Local Files Tab Figure 135**



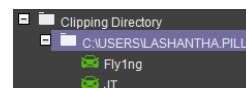
**Local Files Add Figure 136**



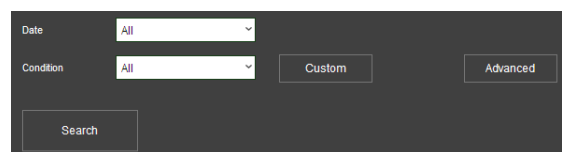
**Windows Explorer Folder Figure 137**



**Device Directory Figure 138**



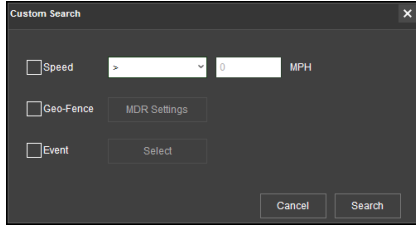
**Clipping Directory Figure 139**



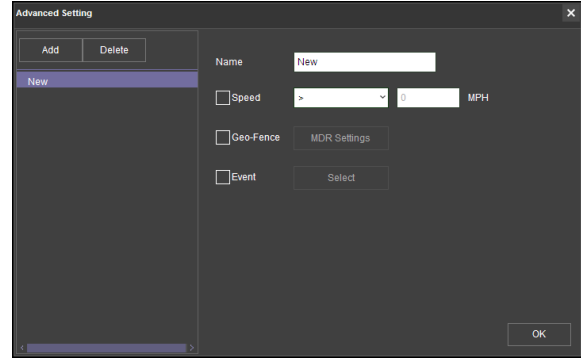
**Local File Search Figure 140**

The local file will now appear in the left pane as shown in *Device Directory Figure 138*. **DEVICE DIRECTORIES** show when a specific vehicle folder is chosen, these are added individually. If you would like to add multiple vehicles simultaneously, choose a folder top level folder that contains multiple vehicles. Using this method will result in a **CLIPPING DIRECTORY** to be added to the local file list.

Multiple local files can be specified. Directories may be searched. See *Local File Search Figure 140*. Custom and Advanced searches can be configured. See *Custom Search Figure 141*, *Windows Explorer Folder Figure 137* and *Advanced Search Settings Figure 142*.



Custom Search Figure 141



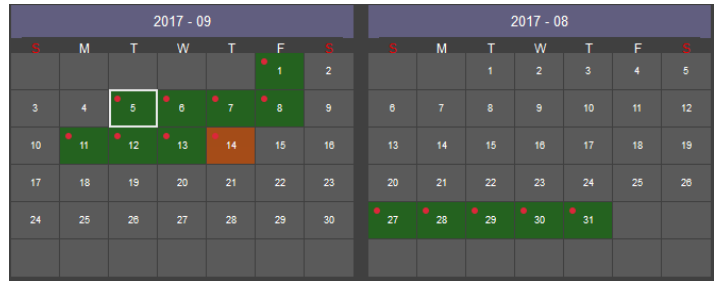
Advanced Search Settings Figure 142

### 6.2.5.2 HDD/SD Playback

Double-click the vehicle icon . This will display **ALL** calendar events. A typical example of a calendar is shown in *HDD Calendar Figure 143*.

Each colour represents:

- Green dates represent normal recordings (01/09/2017 - 13/09/2017)
- Orange dates represent alarm recordings (14/09/2017)
- Red dot only (no colour) represents only metadata
- White outline represents the date you are viewing (05/09/2017).

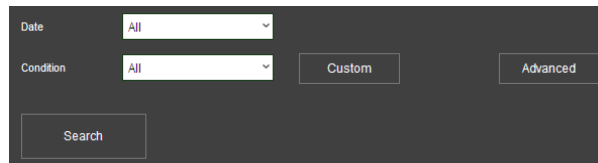


HDD Calendar Figure 143

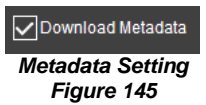
To refine the data displayed, you should setup search criteria. Custom and Advanced searches can be created. *HDD Search Figure 144*.

Ensure that the **DOWNLOAD METADATA** is always ticked. See *Metadata Setting Figure 145*. This will ensure that all metadata is shown with playback video.

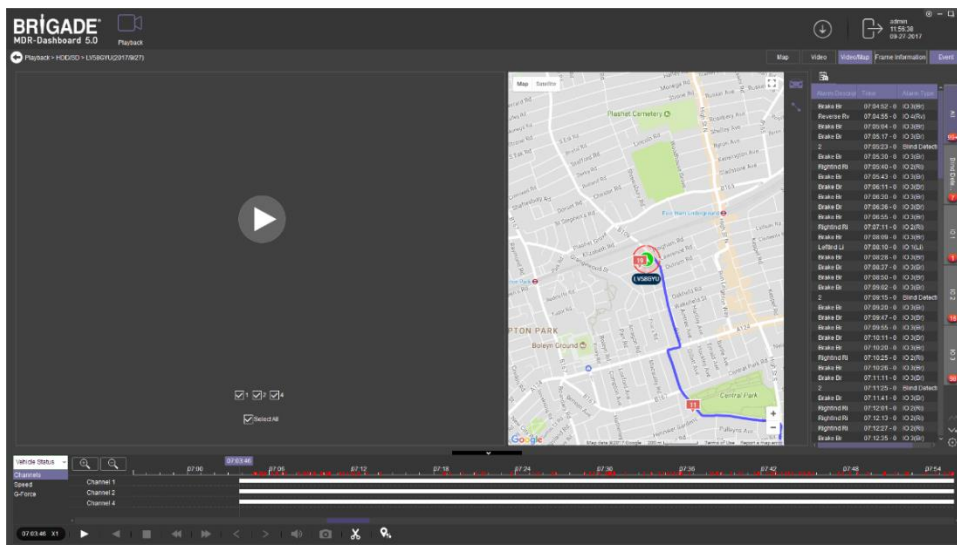
You double-click on the relevant calendar date. This will then display the pre-playback screen. See *Pre-playback Figure 146*. You can choose which channels to view during playback.



HDD Search Figure 144

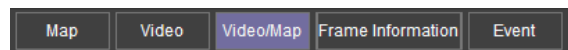


Metadata Setting Figure 145



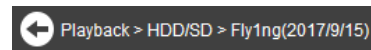
Pre-playback Figure 146

You can access different view settings such as, **MAP**, **VIDEO** and **VIDEO/MAP**. See *View Options Figure 147*.



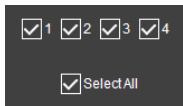
View Options Figure 147

Frame information and Event information can also be accessed from this panel. To return to the calendar view from the current



playback, click the back arrow . See *Return to Calendar Figure 148*.

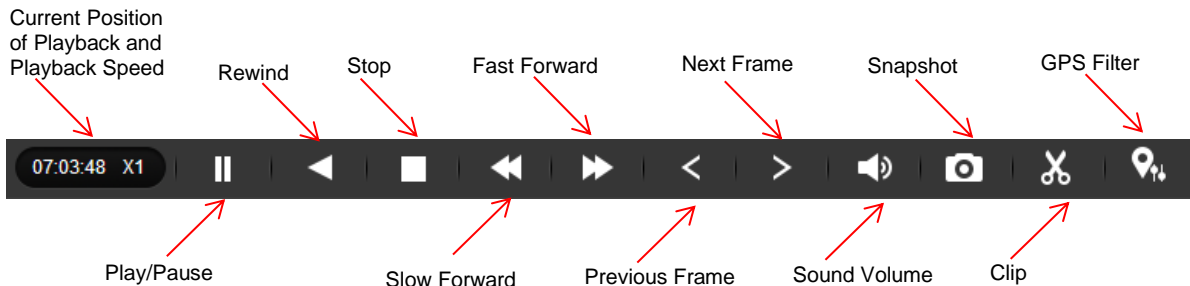
**Return to Calendar Figure 148**



Choose which channels to playback.



Click the Play button to display the data.



**MDR-Dashboard 5.0 Controls Panel Figure 149**

**Fast Forward** options (1x, 2x, 4x, 8x, 16x, 32x). Maximum **Slow Forward** option is x1/32.

Double-clicking an individual channel to make it full screen. There are other video viewing options as shown in

*Video View Options Figure 150*, such as:

- Full Screen
- Previous Page
- Next Page
- Three Windows
- Four Windows
- Six Windows
- Nine Windows



**Video View Options Figure 150**

### 6.2.5.2.1 Downloading Videos



Click on the **CLIP** button

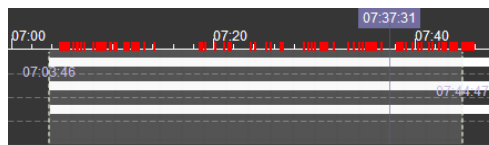
Clip markers appear (broken vertical lines). See *Clipping a Video Figure 151*.

Drag the markers to set the **START** and **END TIME** for the clip. Alternatively, click **OK** and **TYPE** the start and end times in the *Standard Clip Settings Figure 152*.

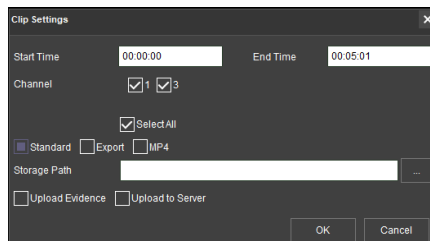
Choose the number of channels you wish to download.

Choose the type of download, there are three types of downloads:

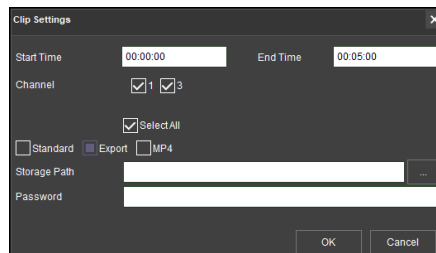
- **STANDARD** creates a folder structure containing the video files in original proprietary format (H264) onto a local storage device (e.g. USB Flash drive). Note: You are not allowed to use the same location as the original folder. Once clipped, the files will be found in a folder named with the following format: \Company\_Name-Vehicle\_Number\YYYY-MM-DD\record.
- **EXPORT** allows you to export clips into a single .exe file with an embedded MDR-Player 5.0. This option is the recommended solution as it contains metadata and video. It also can be password protected and played without the need of any additional player software. This does not require any installation. Note, this file should not be larger than 1.5GB.



**Clipping a Video Figure 151**

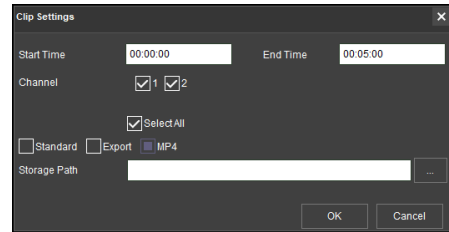


**Standard Clip Settings Figure 152**



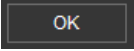
**Export Clip Settings Figure 153**

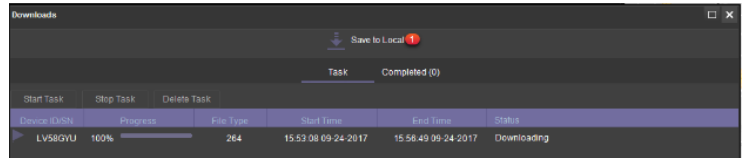
- **MP4** creates .MP4 files playable by common players such as Windows Media Player (WMP™) and Video Lan Client (VLC). The advantages of this solution are the portability of the format. The disadvantage is the lack of protection and missing metadata. These files can be played and edited by anyone. The only information contained in the video image is selected by the OSD Overlay options in the firmware. Note, these files are split per channel.



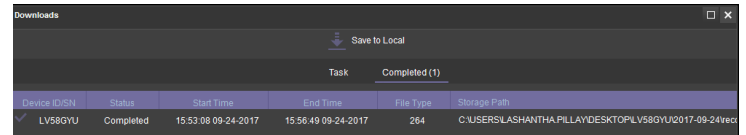
**MP4 Clip Settings Figure 154**

Choose the Storage Path using . Brigade recommends choosing your C: drive or desktop.


Once satisfied click on the **OK** button .

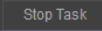
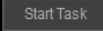
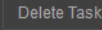


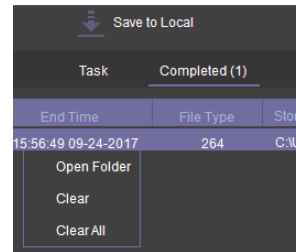
**Current Download Tasks Figure 155**



**Completed Download Tasks Figure 156**

You may monitor the progress of current/completed download tasks under the downloads area. Click the download  button.

See *Current Download Tasks Figure 155*. Task priority is a first come first serve basis. If another task has a higher priority, use  to stop a task and the  to start the priority task. If an error is made, tasks may be deleted using the  button.



**Completed Sub-Menu Figure 157**

Completed tasks automatically move to the Completed tab, see *Completed Download Tasks Figure 156*.

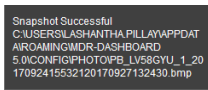
Right-click a completed task to access a sub-menu as shown in *Completed Sub-Menu Figure 157*.

### 6.2.5.2.2 Saving Snapshots

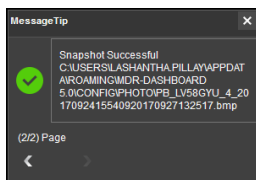
Click the desired channel; this will be highlighted by a **WHITE OUTLINE**. See *Choosing a Channel Figure 159*.

Click on the **SNAPSHOT** button  in the Controls Panel.

A pop-up window will be displayed on the bottom right corner of the desktop (next to the time/calendar) The snapshot location is also shown here (See *Snapshot pop-up Figure 158*).



Click on the Snapshot Successful information to access the **IMAGE FILTER**, this shows all locally stored snapshots. See *Snapshot Image Filter Figure 160*.



**Snapshot pop-up Figure 158**



**Choosing a Channel Figure 159**



**Snapshot Image Filter Figure 160**

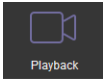
### 6.2.6 Evidence

Evidence refers to clippings, video screenshots and map screenshots that are uploaded to the server.

Note: Evidence upload is only available when MDR-Dashboard 5.0 is logged into **SERVER** mode.

#### 6.2.6.1 Evidence Upload

To create evidence packages please follow the steps described below. These files are accessible via MDR-Dashboard 5.0. It will display the video and snapshot files that were added during the clipping process.



Click **PLAYBACK** to enter playback mode.

Choose the desired data source – **MDR SERVER, HDD/SD, ONLINE MDR** or **LOCAL FILES**.

During playback of a video, click the clipping icon and set the clipping markers to the desired times.

Create the desired snapshot list using the evidence buttons

which will be associated with this video clipping.

Once satisfied with the clipping duration and snapshot list, click **OK**.

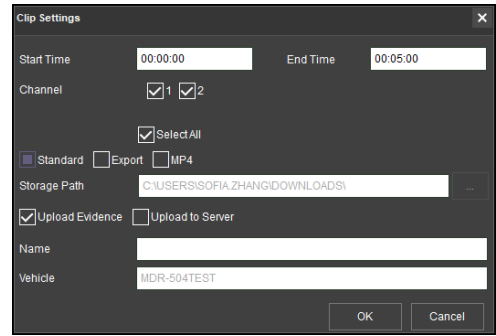
The Clip Settings window will now be displayed. See *Clipping Markers Figure 113*.

Ensure **STANDARD** is ticked then tick **UPLOAD EVIDENCE**. This means that the path specified under **PATH** is now void. See *Evidence Upload Figure 161*.

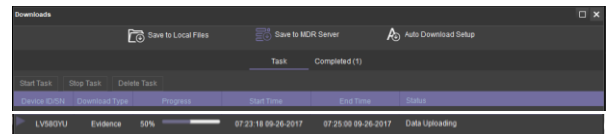
Fill in all details shown in *Evidence Upload Figure 161*. The following details can be completed: Name and Vehicle (automatically populated). Click **OK** once all details are filled in. **Name** is required fields.

To confirm that this evidence upload task has been created, click **DOWNLOAD** → **SAVE TO SERVER**. See *Evidence Upload Download Window Figure 162*.

This task will appear under **COMPLETED** once it has finished. See *Evidence Upload Download Window Figure 162*.



**Evidence Upload Figure 161**



**Evidence Upload Download Window Figure 162**

### 6.2.6.2 Evidence Centre

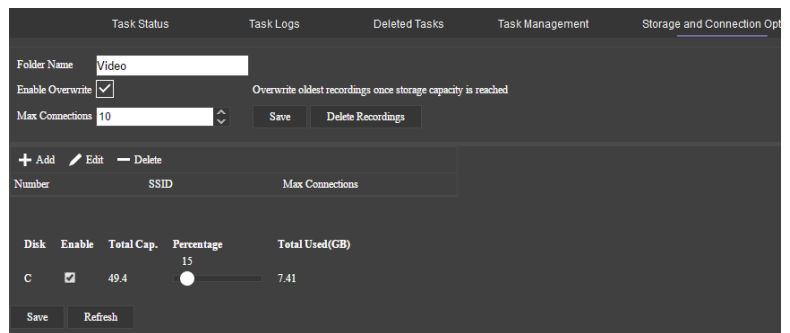
Due to the nature of evidence (contains sensitive information), it can **NEVER** be clipped or copied locally. Evidence is stored on the server and can only be accessed via MDR-Dashboard 5.0.

You access playback by clicking on the **EVIDENCE** icon. See *Evidence Icon Figure 164*.

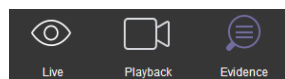
Server directory for evidence video file storage: C:\EvidenceData.

Use the search feature to navigate to the desired vehicle/company name (fleet) as shown in *Evidence search Figure 165*.

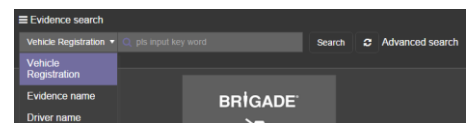
Note: The vehicle does not need to be online to access evidence. Evidence data is stored on the server.



**Storage and Connection Options Figure 163**



**Evidence Icon Figure 164**



**Evidence search Figure 165**

A full list of evidence is now displayed as shown in *Evidence List Figure 166*. This list shows each evidence as information cards and has a snapshot as a thumbnail (at the top)

**Alarm type** in blue and followed with **vehicle registration**

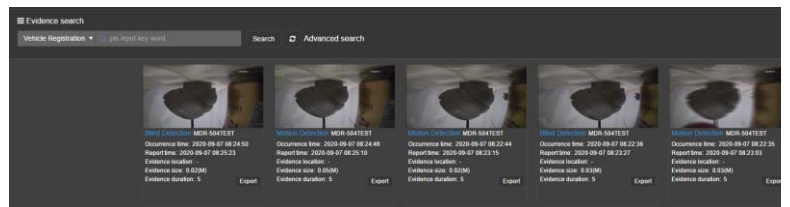
**Occurrence time:** when the alarm happened, this time obtained from the MDR device.

**Report time:** evidence upload time, this time obtained from the server

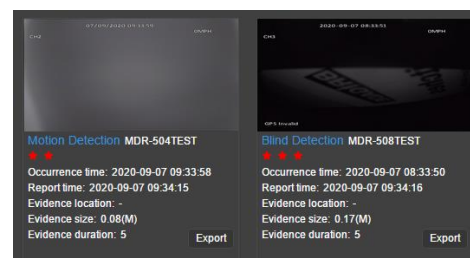
**Evidence location:** click the button to show the location, if there is no button it either means no GPS info had been ticked in alarm setting page or the vehicle did not have any GPS data at that time.

**Evidence size** including H.264 video, snapshot and an excel report.


**Evidence duration** in seconds represents how many seconds for the evidence video.




**Evidence List Figure 166**

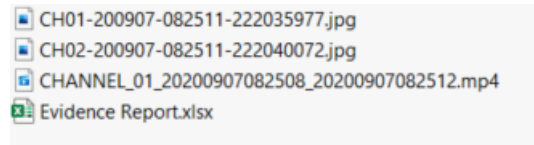


**Evidence Importance Marker Figure 167**

**Importance** displays as  which can be setup in web client->Setting->Alarm level setting. 4 available levels in total. By default, all alarms have no importance level assigned.

Click on **Export** button  which will begin to download the evidence pack in .rar format. The package contains snapshots, .mp4 video and evidence report in excel format. See *Evidence Export Content Figure 168*

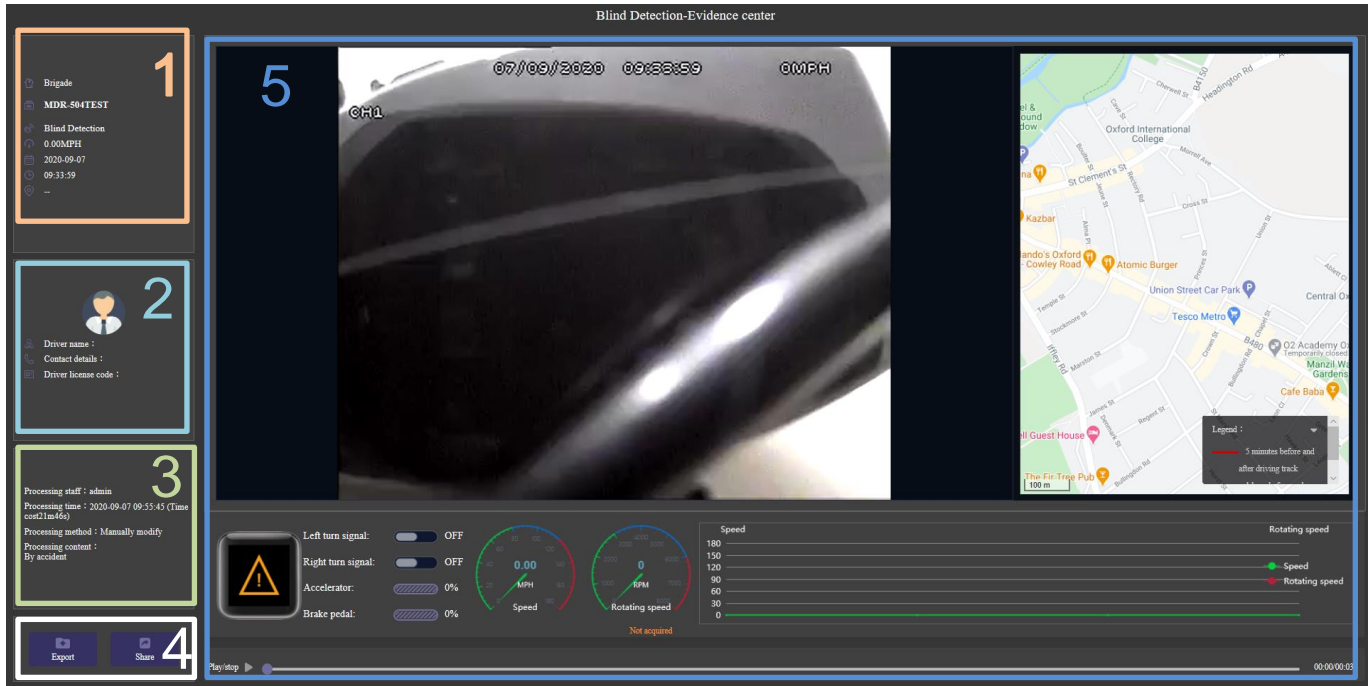
Note: The snapshot requires set up in Alarm Centre to be obtained.



**Evidence Export Content Figure 168**

### 6.2.6.3 Browse Evidence

A click on each evidence card will redirect to a web page to display the evidence information fully. See *Evidence Detail Page Figure 169*

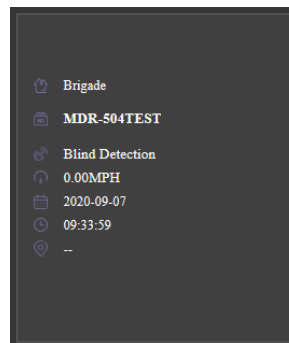


**Evidence Detail Page Figure 169**

The Evidence detail web page is sub-divided into several numbered areas as illustrated in *Evidence Detail Page Figure 169*:

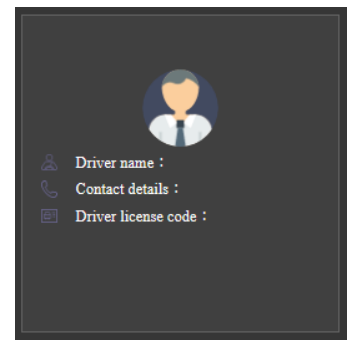
1. Vehicle Information
2. Driver Information
3. Alarm Process Status
4. Evidence Operations
5. Playback Panel

Vehicle Information detail see *Vehicle Information Figure 170*. From top to bottom is Fleet, Vehicle Registration, Alarm Type, Speed, Evidence Date and Time and Location.



**Vehicle Information Figure 170**

Driver Information as shown in *Driver Information Figure 171*. **Driver name**, **Contact details** (phone numbers) and **Driver license code** can be set in System Management -> Vehicle. It will be explained in detail in Chapter 6.6.2.5 *Driver File*



**Driver Information Figure 171**

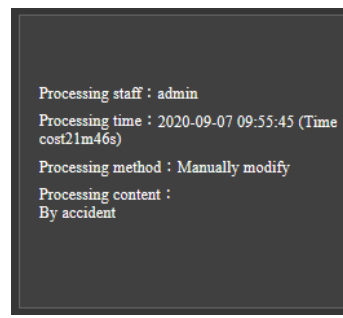
Alarm Process Status as shown in *Alarm Process Status Figure 172*.

**Process staff** logs operator's login name.

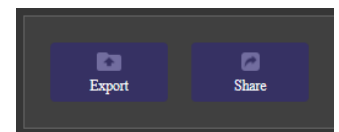
**Processing time** indicates when the alarm been processed, in brackets shows the time difference between Evidence time and process time.

**Processing method** represents how the operator handled the alarm.

**Processing content** displays the description the operator inserted when they processed the alarm.



**Alarm Process Status Figure 172**



**Evidence Operations Figure 173**

**Evidence Operations** contains two methods, Export and Share as shown in *Evidence Operations Figure 173*.

**Export** enables saving the evidence pack to the local computer. The evidence pack contents snapshots, .mp4 video and evidence report in Excel format.

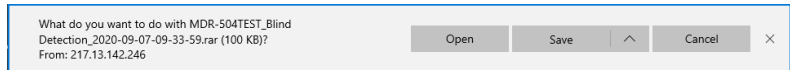
**Share** contains **QR code sharing** and **Mail sharing**.

**QR code sharing** generates a new QR code when the web page is refreshed. User can define its validity period, 1, 6, 12 or 24 hours. If the code expired, user will be unable to open the web page via scan the code. See *QR code sharing Figure 176*.

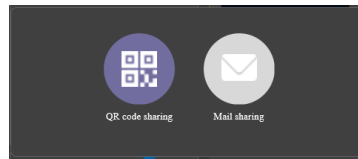
After scanning the QR code with mobile phone or tablets, it opens a web page see *QR Code Share-1 Figure 177*.

The information displayed in the mobile web page is a little different as the computer web page. It includes Video Playback (without control panel); Certain vehicle information such as Vehicle registration and driver name etc.

At the bottom, is a list that shows all alarms that have occurred within half an hour, to give user an general impression.



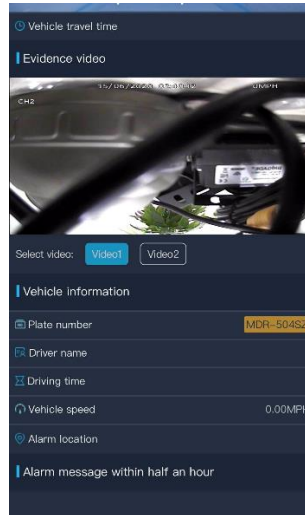
**Evidence Pack Export Figure 174**



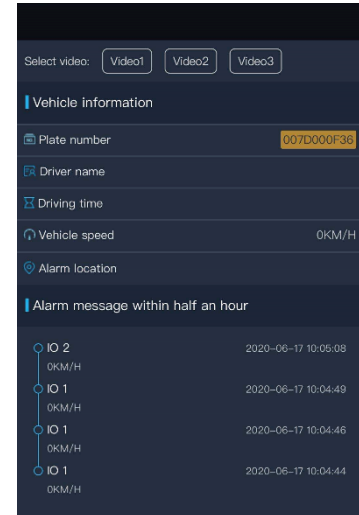
**Evidence Share Figure 175**



**QR code sharing Figure 176**



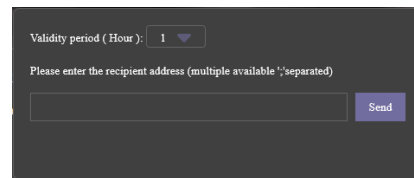
**QR Code Share-1 Figure 177**



**QR Code Share-2 Figure 178**

**Mail Sharing** allows user to send current Evidence web page link to certain email accounts. For multiple recipients use “,” to separate each account. The link will be effective for 1, 6, 12, 24 hours as set here. See *Mail sharing Figure 179*.

Note: To enable Mail Sharing you need to setup the mail setting in System Management first. For details see *Chapter 6.6.7.5*



**Mail sharing Figure 179**

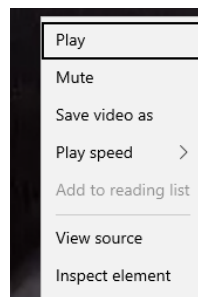
**Playback Panel** consists of Video, Map, Information Panel and Play Control.

Video play is the same as normal playback. Support right click to get more operations: Play, Mute, Save video as, Play speed adjustment.

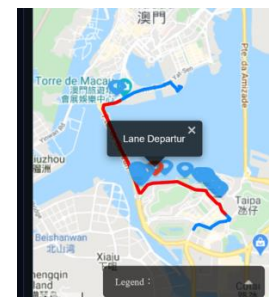
On Map, the tracking will show in 2 colours: **Red** represents 5 minutes before and after the alarm happens.

**Blue** represents an hour before and after the alarm happens.

See *Map Tracking Figure 181*.

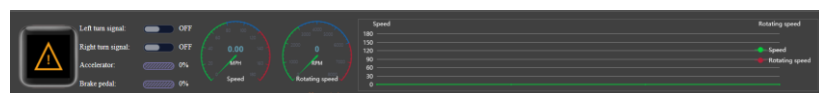


**Right Click on Video Figure 180**



**Map Tracking Figure 181**

Information Panel reserved for future feature integration, currently not in use.

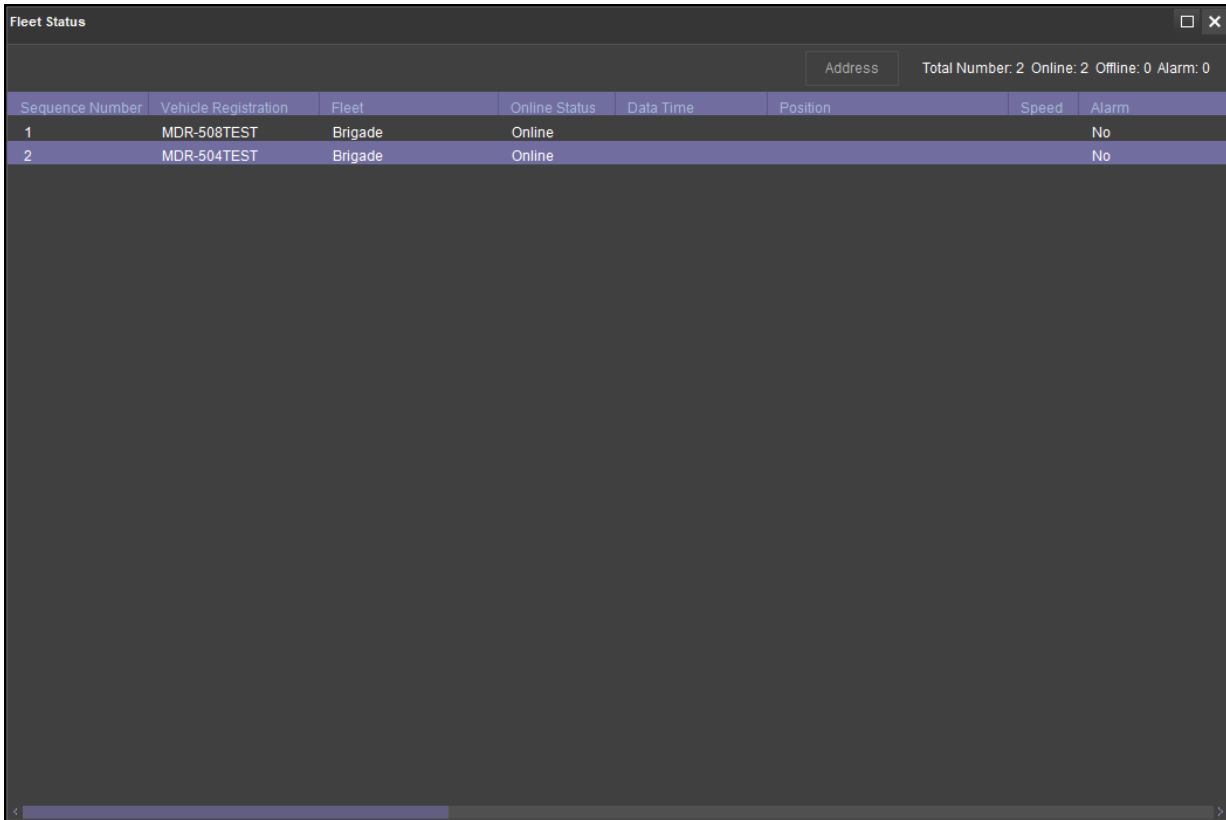


**Information Panel Figure 182**

### 6.3 Fleet Status (Area 3)

**Fleet Status** displays all vehicles in the server with direct information for online status, GPS position, speed and alarm. This feature is different from traditional vehicle fleet which mainly works for users when they try to find information for a specific vehicle with confirmed registration number or serial number. **Fleet Status** gives a rough image of all vehicles, it benefits fleet management to spot or find abnormal cases. For example, Offline vehicles on day time, high speed vehicles and no GPS vehicles, etc.

There is a summary at the top right corner. This gives a general impression and an **Address** button to resolve GPS data into actual address info.



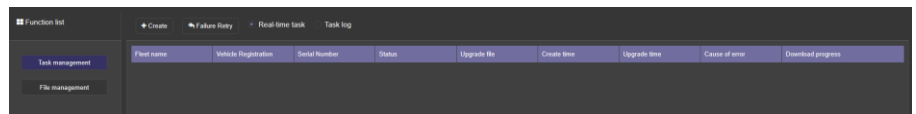
Download Window Figure 183

### 6.4 MDR Upgrade

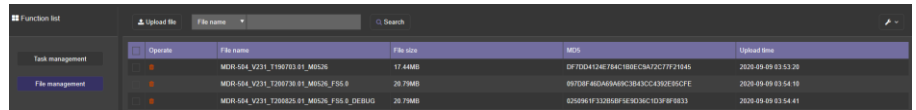
This area is used to setup **UPGRADES** for MDR units.

Click on the button opens a web page for detailed configuration.

Click to upload upgrade firmware. See *File Management Figure 185*. Previously uploaded files can be searched by their name or MD5 value.



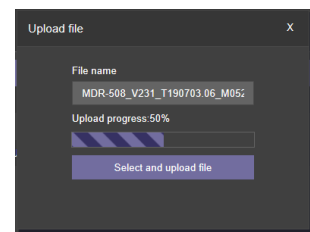
Catalogue Management Figure 184



File Management Figure 185

Click which will open the window displayed in *Upload File Figure 186***Error! Reference source not found.** The upgrade file must be located on the local PC. Choose your firmware, once completed, the file shows up in the file list.

For managing uploaded files, they can be deleted by singly or multi-select files first then click at the top right corner to perform batch delete.



Upload File Figure 186



Click **Task management** goes to manage upgrade tasks. This will display the *Batch Upgrade Equipment Figure 188* window.

Click **+ Create** to create a new upgrade task. Select the wanted vehicle/s from the list on the left by ticking the corresponding box. Make sure selected vehicles are applicable for the same upgrade file.

These upgrades can be done instantly or by appointment, which is configured using **TASK TYPE**.

Choose the **Upgrade file** from the drop-down list.

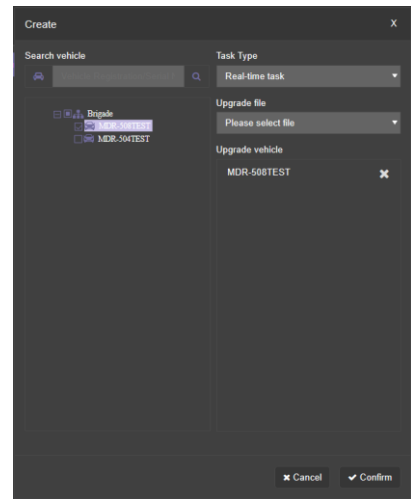
To begin the task, highlight the task and the click **Confirm**. The task will begin automatically.

If a task/s fails because of a bad network connection, after the connection has been re-built, click **Failure Retry** to re-execute all failed tasks.

When tasks begin, the MDR will start downloading the upgrade file into device, a green percentage number will be displayed on Live OSD. see *MDR Downloading Upgrade Files Figure 189*. After the download finishes, the hardware upgrade process will execute automatically.

**Note:** if the upgrade cannot be operated successfully and the Cause of the error is "RECEIVE THE UPGRADE FILE FAILED", make sure all FTP service ports have already been mapped. If re-mapping has still not solve the problem, then this maybe caused by the local network firewall strategy. Please follow steps below to troubleshoot.

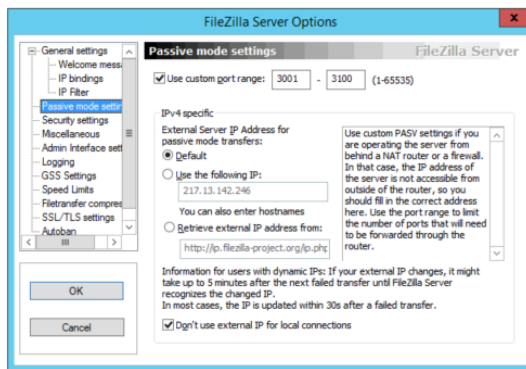
1. Go to MDR Server Control Software to stop the FTP Service first.
2. Go to C:\Program Files (x86)\MDR Server 5.0\TransmitServer\FtpServer and click the application named "FileZilla Server Interface"
3. Go to Edit->Settings->Passive mode setting, choose the mode as default, click OK to save the setting, then restart the FTP service and the remote upgrade feature should work.



**Batch Upgrade Equipment Figure 188**



**MDR Downloading Upgrade Files Figure 189**



**FileZilla Server Setting Figure 187**

Fleet name	Vehicle Registration	Serial Number	Status	Upgrade file	Create time	Upgrade time	Cause of error	Download progress
Brigade	MDR-504TEST	007D000F36	Downloading file	MDR-504_V231_T200825_01_M0526_FS5_0_DEBUG	2020-09-09 07:53:56	-	-	5%
Brigade	MDR-508TEST	0088003913	Downloading file	MDR-508_V231_T190703_06_M0526	2020-09-09 07:49:01	-	-	5%


**Upgrading Figure 190**

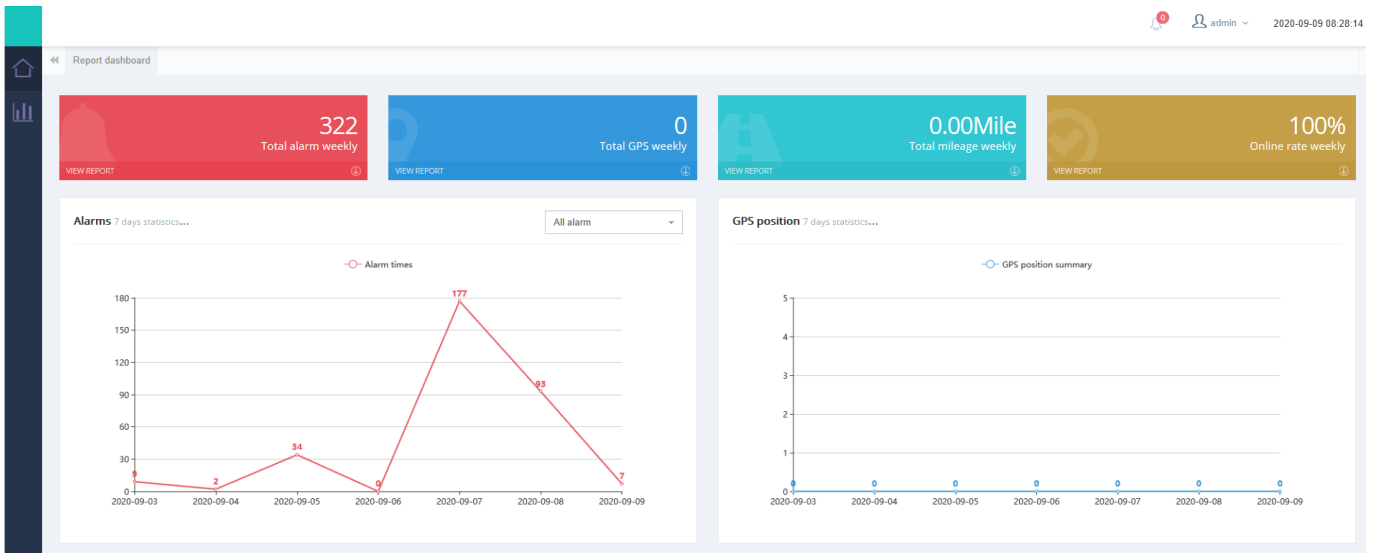
Fleet name	Vehicle Registration	Serial Number	Status	Upgrade file	Create time	Upgrade time	Cause of error	Download progress
Brigade	MDR-504TEST	007D000F36	Completed local success	MDR-504_V231_T200825_01_M0526_FS5_0_DEBUG	2020-09-09 07:50:19	-	-	-
Brigade	MDR-508TEST	0088003913	Upgrade failed	MDR-508_V231_T190703_06_M0526	2020-09-09 07:49:01	-	RECEIVE THE UPGRADE FILE FAILED	-

**Batch Upgrade Queue Figure 191**

## 6.5 Fleet Statistics

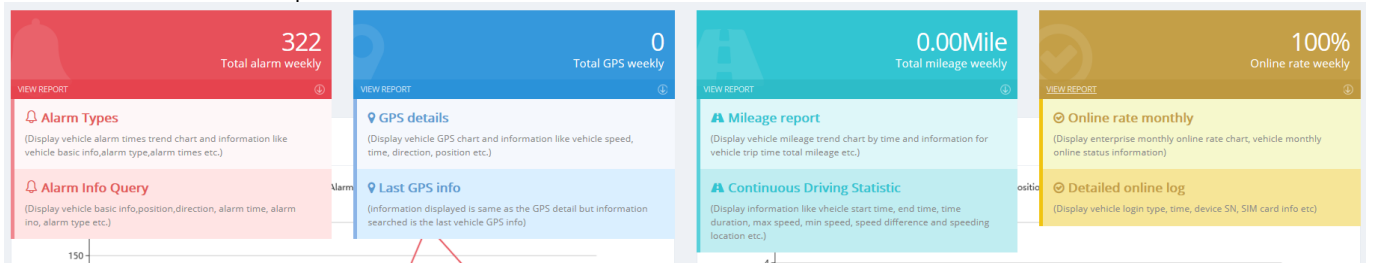
This feature provides multiple statistics for fleet management daily uses.

On MDR-Dashboard 5.0 click  to open a web page. See *Fleet Statistics Figure 192*.



**Fleet Statistics Figure 192**

The main dashboard shows the 4 most important figures including alarm, GPS info, Mileage and Online rate in the past 7 days. Each figure also has a graph to illustrate the trend. If you click the drop down arrow on each figure it will show 2 more sub-figures for quick access. These reports are also available from the left panel.



**Fleet Statistics - Sub Menus Figure 193**

Users can access to all available reports/statistics from the left side menu, click to show. Each alarm below can be searched by day/s, week/s or a user-defined period.

**GPS position statistics** including GPS position Statistics report and GPS details Report. The former provides total numbers of GPS data in a period for a fleet, the latter tells detailed speed, location, and direction information for each GPS data.

**Alarm statistics** provides total alarm numbers, alarm list for each vehicle and processing details for each alarm.

**User operation log** provides every operation for an account. Search result can be based on Web, Client and APP. Available operation including but not limited to live view, playback, alarm process, clip video, etc.

**Overspeed Report** supports setting a speed limit value and searches all vehicles in the server database to find vehicles that have exceeded this limit. These search results including not only real-time but also history information saved in server.

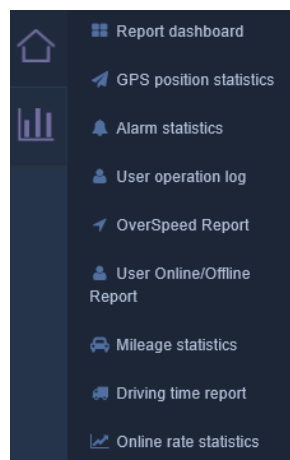
**User Online/Offline Report** provides every account login and logout details, including login IP, Time, Source (login to web or client), etc.

**Mileage Statistics** provides daily total mileage for each vehicle.

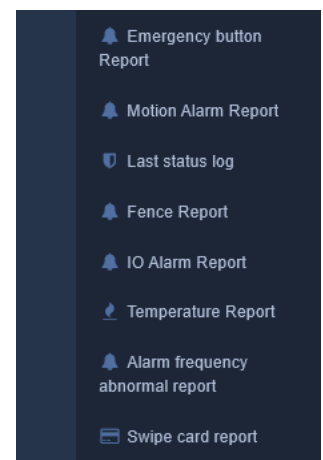
**Driving time report** commonly used for checking driver over speed status. Users can set up a minimum speed limit and minimum duration time, the report will provide all matching vehicles with detailed information. See *Driving time report Figure 202*.

**Online rate statistics** gives detailed online log for each MDR, how many days does the MDR go online and for each time, how long.

**Emergency button report, Motion Alarm Report, Fence Report (Geo-Fence), IO Alarm Report and Alarm frequency abnormal report** are sub-reports of Alarm Statistics. Only user-defined alarms can be viewed.



**Reports-1 Figure 194**



**Reports-2 Figure 195**

2020-08-12 To 2020-09-10 QSearch

GPS position statistics GPS details

Parent fleet	Plate No.	Serial No.	Speed(KM/H)	Location	Direction	GPS time
Center	Sebtemp		0		East	2020-08-14 11:44:00
Center	Sebtemp		0		East	2020-08-14 11:43:30
Center	Sebtemp		0		North	2020-08-14 11:43:00
Center	Sebtemp		12		North	2020-08-14 11:42:29
Center	Sebtemp		6		East	2020-08-14 11:42:00

**GPS Position Statistics Figure 196**

**Last Status log** shows where the vehicle was online last, it's focuses on the last uploaded GPS data and provides related information such as registration number, speed, time, etc. **Temperature Report** and **Swipe card report** are for future features, currently unused.

Parent Fleet	Vehicle Registration	Serial Number	Alarm type	Alarm content	GPS time	Location	Deal User	Deal Message
Brigade	MDR-504TEST	007D000F36	Motion Detection	1	2020-09-09 09:36:11	North	-	-
Brigade	MDR-504TEST	007D000F36	Blind Detection	1	2020-09-09 09:36:02	North	-	-
Brigade	MDR-504TEST	0088003913	Motion Detection	1	2020-09-09 08:36:10	North	-	-
Brigade	MDR-504TEST	0088003913	Motion Detection	1	2020-09-09 08:35:57	North	-	-
Brigade	MDR-504TEST	0088003913	Motion Detection	3	2020-09-09 03:58:41	North	-	-
Brigade	MDR-504TEST	007D000F36	Motion Detection	1	2020-09-09 02:40:29	North	-	-
Brigade	MDR-504TEST	007D000F36	Blind Detection	1	2020-09-09 02:39:37	North	-	-
Brigade	MDR-504TEST	007D000F36	Blind Detection	2	2020-09-09 02:39:37	North	-	-

Alarm Statistics Figure 197

Parent Role	Username	Source	Operation time	Operation type	Operation details
System Administrator	admin	Client	2020-09-04 13:41:20	Straight Preview	Close Video - Channel 4
System Administrator	admin	Client	2020-09-04 13:39:38	Straight Preview	Open Video - Channel 1
System Administrator	admin	Client	2020-09-04 13:39:38	Straight Preview	Open Video - Channel 2
System Administrator	admin	Client	2020-09-04 13:39:38	Straight Preview	Open Video - Channel 3
System Administrator	admin	Client	2020-09-04 13:39:38	Straight Preview	Open Video - Channel 4
System Administrator	admin	Client	2020-09-04 13:38:01	Straight Preview	Close Video - Channel 1
System Administrator	admin	Client	2020-09-04 13:38:01	Straight Preview	Close Video - Channel 2

User Operation Log Figure 198

Parent fleet	Plate No.	Serial No.	Speed(KM/H)	Location	Altitude(M)	Direction	Report time	Server time
			104		0	Southeast	2020-09-08 17:31:30	2020-09-09 19:31:09
			107		0	South	2020-09-09 17:30:30	2020-09-09 19:30:30
			102		0	South	2020-09-09 17:30:00	2020-09-09 19:29:30
			111		0	Southeast	2020-09-09 17:29:30	2020-09-09 19:29:00
			102		0	Southeast	2020-09-09 17:29:00	2020-09-09 19:28:30

Overspeed Report Figure 199

Username	IP	Type	Time	Costant	Source
admin	113.87.160.210	Login	2020-09-09 03:10:43	2.3 1 8.54	Client
admin	113.88.13.98	Login	2020-09-08 08:56:35	2.3 1 8.54	Client
admin	113.88.13.98	Logout	2020-09-08 08:52:59	2.3 1 8.54	Client
admin	113.88.13.98	Logout	2020-09-08 08:52:49	2.3 1 8.54	Client
admin	113.87.160.210	Login	2020-09-09 06:54:46	2.3 1 8.54	Client
admin	113.87.160.210	Logout	2020-09-07 11:57:40	2.3 1 8.54	Client

User Online/Offline Report Figure 200

Parent fleet	Plate No.	Serial No.	Start time	End time	Mileage(KM)
			2020-09-10 00:00:00	2020-09-10 23:59:59	44.50
			2020-09-10 00:00:00	2020-09-10 23:59:59	0.00
			2020-09-10 00:00:00	2020-09-10 23:59:59	0.00

Mileage Statistics Figure 201

Parent fleet	Plate No.	Serial No.	Start time	End time	Driving Time(S)	Max Speed(KM)	Min Speed(KM)	Speed Differenc	Speeding Start Location
			2020-08-14 08:06:18	2020-08-14 08:07:38	80	104	96	8	
			2020-08-14 08:08:58	2020-08-14 08:23:28	870	106	91	15	
			2020-08-14 08:56:58	2020-08-14 09:03:38	400	104	88	16	

Driving time report Figure 202

Parent Fleet	Vehicle Registration	Serial Number	SIM No.	Type	Time
Brigade	MDR-504TEST	0088003913		Offline	2020-09-09 03:11:49
Brigade	MDR-504TEST	0088003913		Online	2020-09-09 03:11:58
Brigade	MDR-504TEST	0088003913		Offline	2020-09-09 03:31:21
Brigade	MDR-504TEST	0088003913		Online	2020-09-09 03:31:29
Brigade	MDR-504TEST	0088003913		Offline	2020-09-09 03:35:11
Brigade	MDR-504TEST	0088003913		Online	2020-09-09 03:35:20

Online Rate Statistics Figure 203

Parent Fleet	Vehicle Registration	Serial Number	Speed(MPH)	Location	Direction	GPS time
Brigade	MDR-504TEST	007D000F36	0		South	2020-09-09 11:11:11

Last status log Figure 204

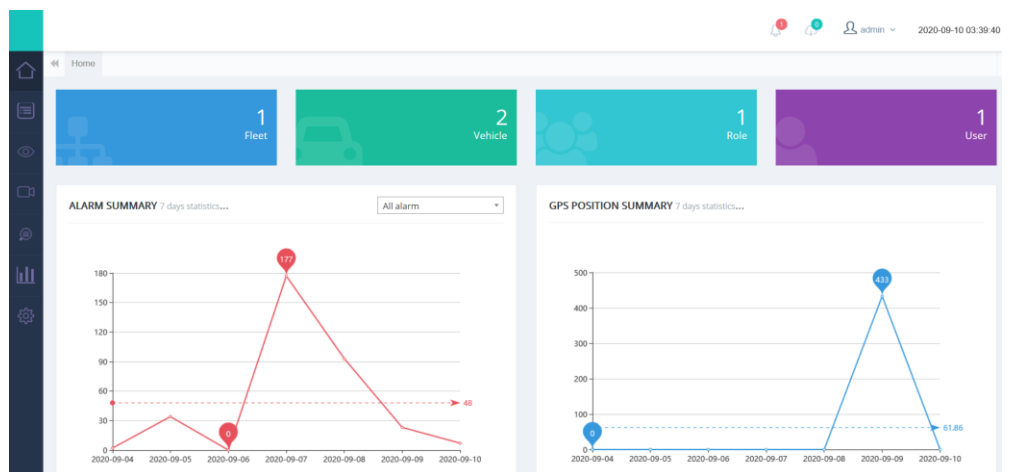
## 6.6 System Management

Browse to **SYSTEM MANAGEMENT** by clicking on the

following icon . See System Manage Figure 205.

System Management contains following features:

- Home
- Fleet Management
- Live view (web)
- Playback (web)
- Evidence
- Reports
- System Configuration (web)




System Manage Figure 205

### 6.6.1 Home

**Home** is the start-up page when user enter System Management. It contains 4 figures (Fleet, Vehicle, Role and User) and 2 graphs (Alarm Summary and GPS Data summary) to have a straight view of current fleet status in this server.

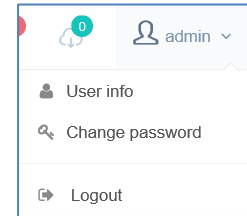
Left panel support navigation to other features interface which will be explained in following chapter.

Click  to open alarm notification window which displays previous alarms in chronological order. The time stamp follows actual MDR time, see *Alarm Notification Figure 206*. MDR-508TEST is in different time zone, therefore even though the alarms occurred seconds ago, the window shows this as 1hours ago.



1hours ago	MDR-508TEST	Blind Detection
Seconds ago	MDR-504TEST	Blind Detection
1hours ago	MDR-508TEST	Motion Detection
Seconds ago	MDR-504TEST	Motion Detection


**Alarm Notification Figure 206**




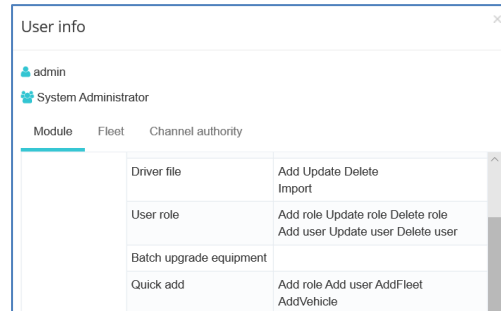
**Login Details Figure 207**

**Note:** This list will be cleared after the web page is closed.

Click [Details](#) to open alarm statistic report which has been explained in *Chapter 6.5 Fleet Statistics*.

Click  to open footage download window, this will be explained in detail in *Chapter 6.6.4 Playback (web)*.

 allows account operations, such as change password and logout. It also supports opening the current user profile to view its authority information. See *User Info Figure 208*.



**User Info Figure 208**

## 6.6.2 Fleet Management

This area is used to configure fleet details. See *Fleet Management Figure 210*.

### 6.6.2.1 Quick Add

This feature especially benefits newly setup servers as it connects all necessary setups together in one go, starts from add a new fleet, add a new vehicle and add role and users. See *Quick Add Figure 211*.



**Add fleet** Create a new fleet by typing in fleet name and chose its parent Fleet, this works for multi-layer fleets.



**Add vehicle** To add a new vehicle by input **Vehicle Registration**, it supports up to 50 characters.

**Serial number** must match the serial number shown in MDR firmware as it is the unique identifier for each MDR.

**Number of Channel** needs to input correct numbers for each MDR. MDR-504 supports 6 channels (4x analogue + 2x IP); MDR-508 supports 16 channels in total (8x analogue + 8x IP). If the correct number is not filled in, it will limit the number of channels to open in Live view.

**Parent fleet** to define which fleet to put this vehicle into.

Under Quick Add, fleet and vehicle are mandatory to add, role and user are optional. After adding a vehicle, user can choose to continue setup of a new role by ticking this **Add Role** box. See *Add Vehicle Figure 212*.



**Add role** Role are profiles which can be assigned to one or more user accounts.

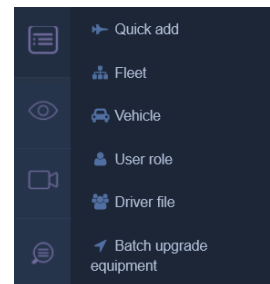
By adding a new role, user needs to create a **Role Name** and configure its **Authority** rights.

**Parent Role** defines what authority are available for roles under it.

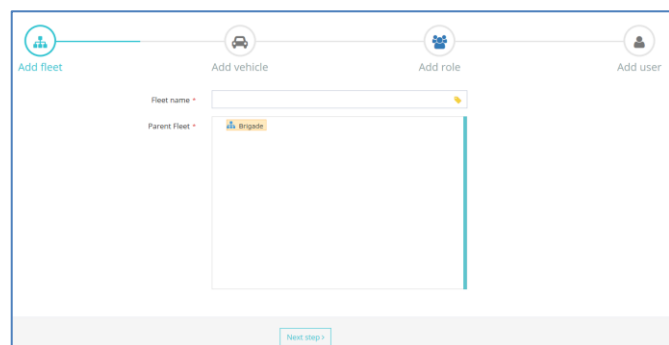
**Authority** consist of two parts: Module and Fleet. **Module** includes feature authority such as Live view, Playback, Alarm Process, etc. **Fleet** defines which fleet is under control of this role.



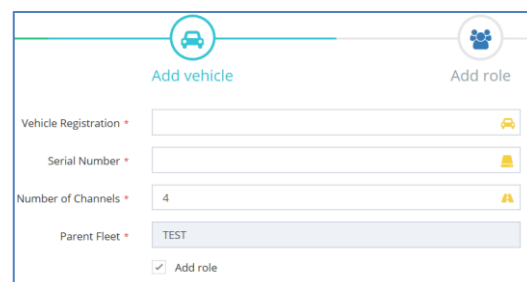
**Add user** Add User used to create a new account and assign a role to it. Enter Username, Password and Confirm Password.



**Fleet Management Figure 210**



**Quick Add Figure 211**



**Add Vehicle Figure 212**

**Add User Figure 209**

Module	Fleet	Module authority	Permission
<input checked="" type="checkbox"/>	All		
<input checked="" type="checkbox"/>	Auto download		
<input checked="" type="checkbox"/>	Data manage	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Fleet	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Add Role Figure 213**

### 6.6.2.2 Fleet

This window allows you to view, add and edit fleets in this server. Fleet name can display up to 50 characters.

Operate	Fleet name	Parent Fleet	Remark
<input type="checkbox"/>	Brigade		
<input type="checkbox"/>	TEST1	Brigade	
<input type="checkbox"/>	TEST2	Brigade	
<input type="checkbox"/>	TEST3	Brigade	
<input type="checkbox"/>	TEST11	TEST1	

**Add Fleet Figure 214**

### 6.6.2.3 Vehicle

This area gives the vehicle information and provides operations such as adding and editing existing vehicles.

Click on different fleet to reveal vehicle list under it.

By adding a vehicle click **+ Add**. Users to put in **Vehicle Registration** number.

**Serial number** must be the same as the serial number on MDR firmware.

**Protocol** is MDR5 by default, other options are MDR (for MDR 400 Series) and unknown (for future use).

Assign the vehicle to the right fleet and type in correct **Number of Channels**, this will define the number of channels to open in Live view.

**Transmit IP** and **Transmit Port** are auto-detected, please do not change it manually.

After finishing above configuration, the new MDR should be able to show up in the MDR-Dashboard 5.0 software.

There are some extra optional fields for vehicles, users can fill them in as needed.

**Note:** Those fields only for record information purpose, not related to any actual feature.

**SIM Card** section supports to save details for SIM No., IMEI, IMSI and Network module type.

**Vehicle file** section including rich details for logging detailed information such as Vehicle type, Chassis number, Fuel type, Fuel consumption etc.

**Equipment file** consists of MDR device information. Including Device name and password, installer and description etc.

**Add Vehicle Figure 215**

**SIM card Info Figure 216**

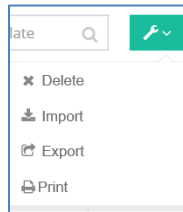
**Vehicle Info - Partly Figure 217**

Adding vehicle also support batch import from an excel sheet. See *Import Vehicles Figure 218*.

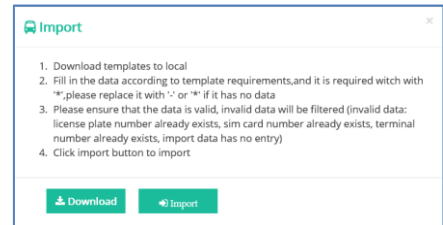
Click on **Import** to get instructions and download template.

**Note:**

1. Make sure to use “\*” or “-” to fill in all cells if there is no actual data or it will cause import fails.
2. Fleet must be already existing in the server. See example below.



**Import Vehicles Figure 218**



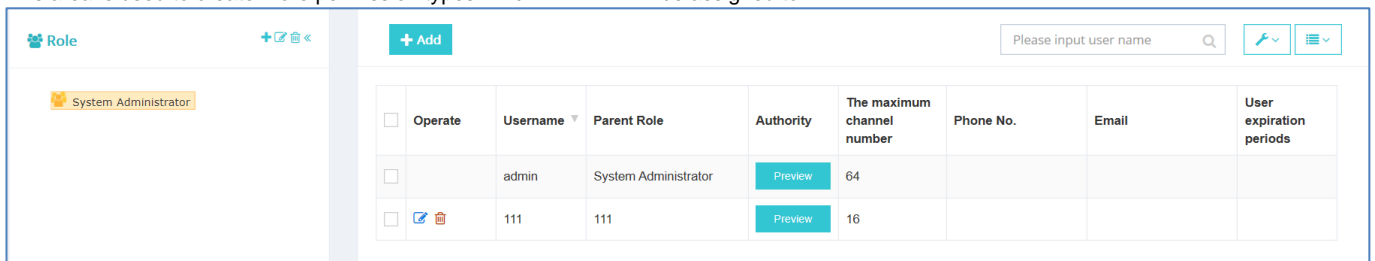
**Import Vehicles Instruction Figure 219**

Parent fleet(*)	Plate No.(*)	Serial No.(*)	Protocol(*)[MDR5/MDR/unknown]	Channels(*)	Device username	Device password	Vehicle type	Factory grade
Brigade	WWW	0088003915	MDR5	8	admin	admin	-	-
Brigade	SSS	0088003916	MDR5	9	admin	admin	-	-
TEST1	FFF	0088003917	MDR5	10	admin	admin	-	-
TEST1	AAA	0088003918	MDR5	11	admin	admin	-	-

**Import Vehicle Example Figure 220**

**6.6.2.4 User Role**

This area is used to create more permission types which **USERS** will be assigned to.



**User Role Figure 221**

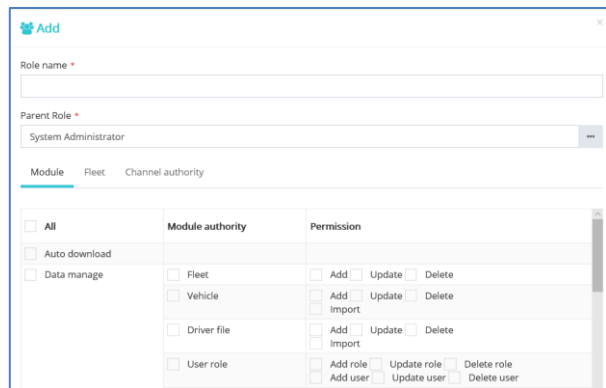
Click **+ Add** on the left to operate roles: Add, Edit and Delete.

For adding a new role, click on the **+** to open a configuration window. See *Add a Role Figure 222*.

Certain permissions are only accessible depending on your parent role. If the parent role is system administrator, then all permissions will be shown for editing.

Each role has three aspects, **Module** includes feature authority such as Live view, Playback, Alarm Process, etc. **Fleet** defines which fleet is under control of this role, **Channel** specifies each channel of each vehicle for more precise control.

For detailed authority list, see *Table 9 Role Permission List*.



**Add a Role Figure 222**

Click **+ Add** to create a new user.

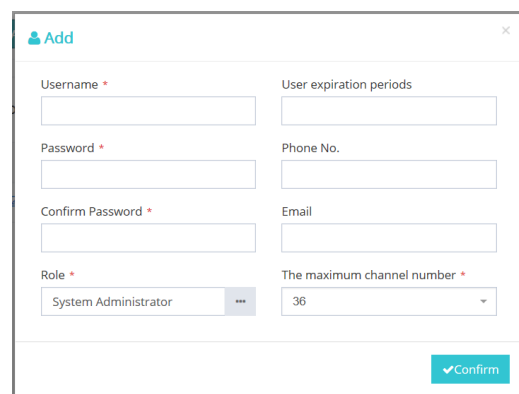
Input **Username** and **Password** accordingly. Assign correct role on this user account.

**User expiration periods** can define when the account will become invalid and unable to login anymore. Leave it blank to make the account valid permanently.

**Phone No.** and **Email** can be filled in accordingly, just for capturing information, no feature related.

**Maximum channel number** defines how many channels will be able to view simultaneously on client MDR-Dashboard. Maximum support 64 channels.

After finishing setting up the user account, click **Preview** to quickly check the account permissions.



**Add a Role Figure 223**

**Table 9 Role Permission List**

#	OPTIONS	OPERATING AUTHORITY	EXPLANATIONS
(1)	Automatic download	N/A	Auto download recording files
(2)	Fleet	(2.1) Add (2.2) Update (2.3) Delete	Allows the user to manage the vehicle group.
(3)	Vehicle	(3.1) Add (3.2) Update (3.3) Delete (3.4) Import	Allows the user to manage the vehicle.
(4)	Driver file	(4.1) Add (4.2) Update (4.3) Delete (4.4) Import	Allows the user to manage the driver information.
(5)	User role	(5.1) Add role (5.2) Update role (5.3) Delete role (5.4) Add user (5.5) Update user (5.6) Delete user	Allows the user to add/edit/delete Role permission and User accounts.
(6)	Batch upgrade equipment	N/A	Allows the user to manage and issue remote upgrade tasks for MDRs.
(7)	Quick add	N/A	Allows the user to get access to the Quick add page for operations.
(8)	System configuration (web)	Update	Allows the user to view and edit settings on web client.
(9)	Right click	(9.1) Remote Format (9.1) MDR Settings (9.3) GPS Upload Rate (9.4) Quality (9.5) Geo-Fence (9.6) Get Version (9.7) Restart (9.8) IO Settings (9.9) Network	Allows user to manage vehicle settings by right click each vehicle on client MDR-Dashboard 5.0.
(10)	System settings	Real time preview automatically closes the video	Allows user to configure auto-close video while live view on client MDR-Dashboard.
(11)	Straight Preview	(11.1) Straight Video (11.2) Stream setting (11.3) Stream switch	(11.1) Allows user to be able get live view. (11.2) Allows user to right click live view channel and set up sub-stream settings (12.3) Allows user to right click live view channel to switch between main stream and sub-stream.
(12)	Alarm strategy	(12.1) MDR-Dashboard Strategy (12.2) Alarm push Strategy (12.3) Evidence download strategy	Allows user to issue different strategy for alarm when it happens. There are 3 sections in total. They can be viewed and set in Alarm Centre in MDR-Dashboard.
(13)	Alarm query	Alarm handle	Permission to process alarms.
(14)	HDD playback	Clips	Allows user to playback video from connected HDD or SD card and make a clip of the video.
(15)	Device playback	Clips	Allows user to playback video from Online HDD and make a clip of the video.
(16)	Server playback	Clips	Allows user to playback video from MDR Server and make a clip of the video.
(17)	Local playback	Clips	Allows user to playback video from local path and make a clip of the video.
(18)	Evidence playback	N/A	Allows user to view and playback each evidence recording.
(19)	GPS position statistics	N/A	Permission for users to open and view the report.
(20)	Alarm statistics	N/A	Permission for users to open and view the report.
(21)	User operation log	N/A	Permission for users to open and view the report.
(22)	Overspeed Report	N/A	Permission for users to open and view the report.
(23)	User Online/Offline Report	N/A	Permission for users to open and view the report.
(24)	Mileage statistics	N/A	Permission for users to open and view the report.
(25)	Driving time report	N/A	Permission for users to open and view the report.
(26)	Online rate statistics	N/A	Permission for users to open and view the report.
(27)	Emergency button Report	N/A	Permission for users to open and view the report.
(28)	Motion Alarm Report	N/A	Permission for users to open and view the report.
(29)	Last status log	N/A	Permission for users to open and view the report.
(30)	Fence Report	N/A	Permission for users to open and view the report.
(31)	IO Alarm Report	N/A	Permission for users to open and view the report.
(32)	Temperature Report	N/A	Permission for users to open and view the report.
(33)	Alarm frequency abnormal report	N/A	Permission for users to open and view the report.
(34)	Swipe card report	N/A	Permission for users to open and view the report.

**6.6.2.5 Driver File**

This area supports creating and managing driver information.

	Operate	Name	Gender	Identity Type	Card ID.	Identity Number	Bind vehicle	Driving License	Phone No.
	<input type="checkbox"/>	David	♂	Driver	123456	dffaeewefsefsf	MDR-508TEST,MDR-504TEST		0065465944E

**Driver File Figure 224**

Click to add a new driver.

Fill in driver information accordingly. Identity Type supports user definition.

**Bind vehicle** supports one or more vehicles to one driver.

After finishing set up, click to save the driver information.

Driver file also supports batch imports, for example, vehicle files. Click the at the top right corner to get import instructions.

**Note:** Make sure to use "\*" or "-" to fill in all cells if there is no actual data or it will cause import fails.

**Add a New Driver Figure 226**

- Download templates to local
- Fill in the data according to template requirements, and it is required with "\*" please replace it with "-" or "" if it has no data
- Please make sure the data is valid, and invalid data will be filtered (invalid data: card ID is already exists, plate number is not exist, there are void items)
- Click import button to import

**Batch Import Driver File Figure 225**

### 6.6.2.6 Batch upgrade equipment

This area has the same content as 6.4 MDR Upgrade.

### 6.6.3 Live View (web)

The web live view is a portable version for client MDR-Dashboard live view feature. It allows the user to have a quick view of vehicle videos when they are not using installed client software. The web live view has most of the feature in client software but is also limited in certain areas.

alarm	Fleet name	Time	Vehicle Registration	Type	Content	Location	Longitude	Latitude	Speed(MPH)	Direction	Times
	Brigade	2020-09-10 10:08:04	MDR-504TEST	Blind Detection	2	Address	-	-	-	-	1
	Brigade	2020-09-10 09:07:58	MDR-508TEST	Blind Detection	3	Address	-	-	-	-	1
	Brigade	2020-09-10 10:07:58	MDR-504TEST	Motion Detection	2	Address	-	-	-	-	1
	Brigade	2020-09-10 09:08:18	MDR-508TEST	Motion Detection	3	Address	-	-	-	-	2

**Web Live View Figure 227**



The live view interface divides into 4 parts in total:

1. Fleet
2. Live view
3. Alarm Centre
4. Map

**Fleet** displays all vehicles and uses icon colour to reflect its online or offline status: green for online; grey for offline and orange for alarm vehicles.

Ticking the box in front of the vehicle enables it to show up on the map.

In the middle part there are 5 simple icons to reflect:

- Total vehicle amount in the server.
- Current online vehicles.
- Current offline vehicle.
- Current active alarms.
- Current online rates.

Info tab includes quick information for selected vehicle, detail see *Vehicle Info Tab Figure 228*.

**Live view** is a floating window on the map, which can be dragged and dropped in different places. Double click vehicle to turn on live view. While viewing the MDR channels, click any channel to enable channel audio output.

Right click one live view channel enables streaming setup, the same as client MDR-Dashboard.

Live view control panel contains audio on/off; snapshot (single channel); full screen; different channel layout. Web live view only supports 9 channels simultaneously.

is a countdown for display how long the live view will continue. Click **Ignore** to re-fill the countdown bar, **no remind** to remove the limitation and let the live view play infinitely.

**Alarm** used to display current active alarms for all online vehicles, this list will be cleared if you leave the web page.

Alarm list consists of multiple sub-parts. Basic information such as Fleet name, Vehicle Registration, etc.

Alarm related information like Alarm type and Alarm Content.

Map information like longitude, latitude and address (Click the [Address](#) to view address in text, click to display on map)

Note: Please input Google Map Key in Setting page to allow Google map convert longitude and latitude into address text, or it will show "REQUEST\_DENIED". See *Alarm Centre-2 Figure 231*. Setting see *Chapter 6.6.7.5 Push Config*.

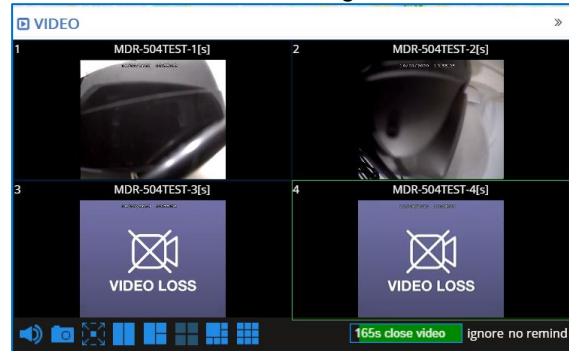
**Alarm times** window used to display concurrent alarms.

**Map** at the background. By default, vehicles will have the icon and displays its vehicle registration on top, see *Live View Map Figure 233*.

If you click on the vehicle icon a floating window will show up to provide detailed vehicle driving information, such as speed, direction, GPS upload time, Address etc. See *Live View Map Details Figure 232*.

Vehicle	
Registration	MDR-508TEST
Serial	
Number	0088003913
Fleet name	Brigade
Speed	
Direction	
Time	
Longitude	
Latitude	
Location	<a href="#">Address</a>

**Vehicle Info Tab Figure 228**



**Web Live View Play Window Figure 229**

alarm	Fleet name	Time	Vehicle Registration	Type	Content
	Brigade	2020-09-14 03:21:50	MDR-508TEST	Blind Detection	2
	Brigade	2020-09-14 03:21:46	MDR-508TEST	Motion Detection	2
	Brigade	2020-09-14 04:21:43	MDR-504TEST	Motion Detection	3

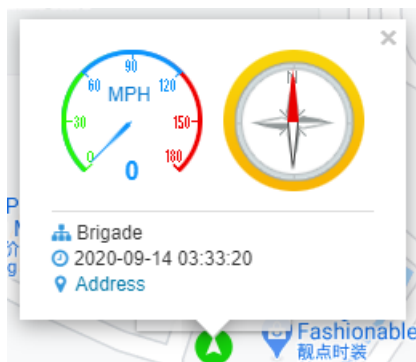
**Alarm Centre-1 Figure 230**

Location	Longitude	Latitude	Speed(MPH)	Direction	Times
REQUEST_DENIED	113.998225	22.596395	0	North	2
Address	113.998225	22.596395	0	North	2
Address	-	-	-	-	2

**Alarm Centre-2 Figure 231**



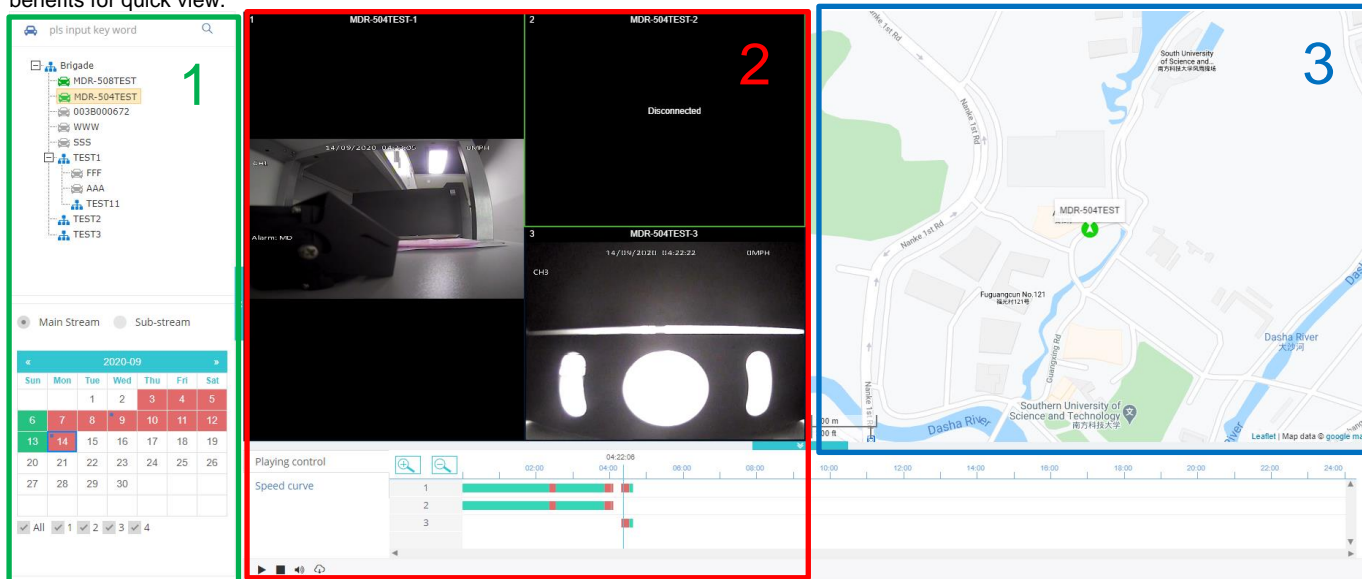
**Live View Map Figure 233**



**Live View Map Details Figure 232**

### 6.6.4 Playback (web)

The playback feature on web basically is the same as Online Playback on MDR-Dashboard 5.0 client. The web feature is more flexible and benefits for quick view.



Playback (web) Figure 234

The Playback window formed with 3 functional parts:

1. Fleet and Calendar
2. Video Panel
3. Map

**Fleet and Calendar** used to select which vehicle to playback.

User can choose to play mainstream or Sub-stream. **Main Stream** was saved on HDD and usually with higher resolution and more framerates, therefore the data is quite big. **Sub-stream** has lower resolution and less framerates, so it is more suitable to play when the network band is limited.

Calendar view can define which date has the record. **6** Green blocks mean has normal recording; **7** red block means there is alarm recording in that day. **14** Blue dots represent metadata available.

Web Playback supports 4 channels to play at the same time, so please remember to tick wanted channels at the left bottom part and limit the channel amounts. If user wants to play more than 4 channels simultaneously, please go to client software to playback.

**Video Panel** consist of video window and Play control. Video windows support double click to expand to full screen.

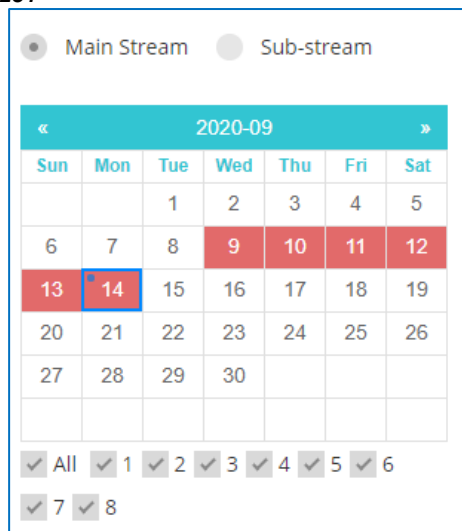
**Playing control** only supports Time duration and Speed curve. If user wants more info about Temperature and Voltage while driving, please use client software to view.

**Play control** only has Play, Pause, Stop, Audio and Clip function buttons.

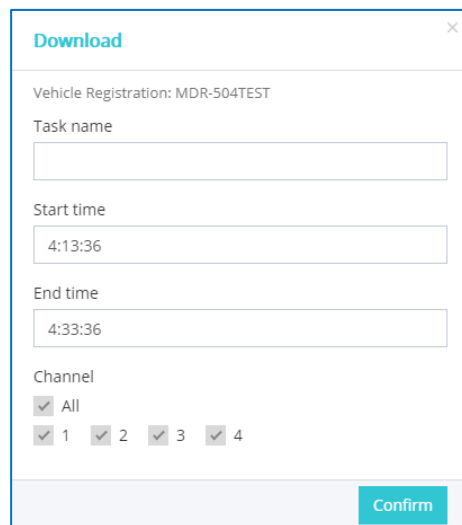
**Clip** used to download the footage as .mp4 format to computer local path. See *Playback (web) Clip Figure 237*. User can assign a task name and define the wanted period and channels to clip. After the task has been created, it will be displayed on download centre, see *Clip Downloading Figure 238*.

**File List:** The finished task will be saved in server first. User needs to click on File list to view recording files and save them to local path.

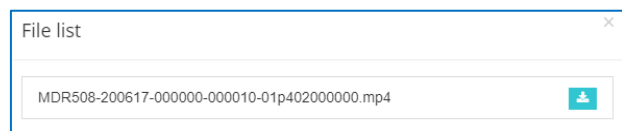
**Map** works the same as client software, to show tracking information while playback.



Playback (web) Calendar View Figure 235



Playback (web) Clip Figure 237



Clip File List Figure 236

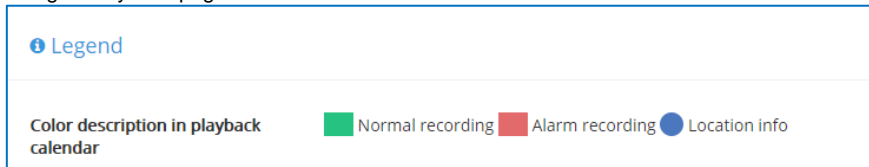


Clip Downloading Figure 238



### 6.6.7.4 Legend

For explaining colours meaning in Playback page.



**Legend Figure 243**

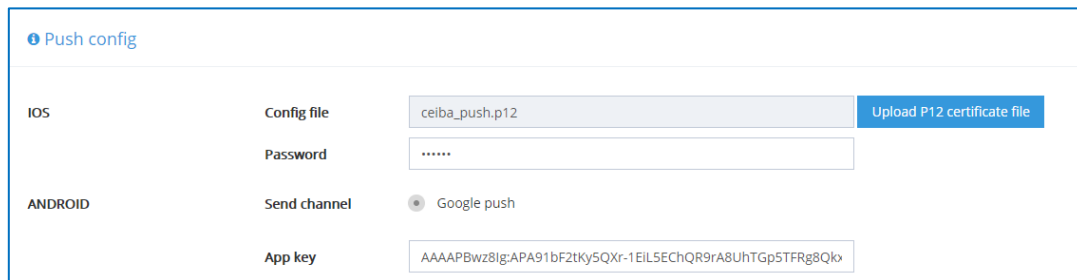
### 6.6.7.5 Push Config

The push config effective for mobile app push function. When an alarm comes in, the mobile phone will receive a push notification if it has been set up properly. The push config is separate between iOS device and Android device.

For iOS, it requires a push certificate which expires every year. Please contact your service provider if the certificate expires. For renew the certificate, users can upload the certificate file in directly and save the config to make it effective. (The password is auto detected)

**Note:** As the certificate file name is hardcoded in the program, please make sure the file name always be "ceiba\_push.p12", or it may not renew successfully.

For Android, it uses free Google Push key which works permanently. Please do not change the key value manually without consulting your service provider.




**Push config Figure 244**

### 6.6.7.6 SMTP service

This area to set up email configuration for MDR-Dashboard alarm email features.

It is advised to request your IT department to setup a Microsoft Exchange account to be used. Ensure that this is named appropriately (MDR-Dashboard 5.0) to ensure that email alerts are clearly understood.

Email testing can be completed in this area. This is achieved by entering the email address recipient and then clicking the  button. This area is used to configure the following email settings:

- Sender
- Display name
- Username
- Password
- SMTP address (Simple Mail Transfer Protocol)
- SMTP port
- Subject
- Encrypt type

Encryption has the following: Not Encrypted, SSL (Secure Sockets Layer) and TLS (Transport Layer Security)

The configuration shown in *SMTP service config Figure 245*. It may be used to send email alerts. Alternatively, you may create your own email address e.g. [Company123@gmail.com](mailto:Company123@gmail.com).

Ensure your mail filtering has an exception to allow these emails through. Usually emails take approximately 5 minutes to be delivered.

Email configuration should be tested before use.

To test your email configuration. Insert your email under **RECIPIENTS** and click the **TEST EMAIL** button.

The email will contain a "Test Success" message. If the failure message (Test failed) appears, please double check the setup in *SMTP service config Figure 245*.

SMTP service config Figure 245

Email alerts can be set up by **ALARM QUERY** →



Tick Real-time or Once a day as shown in *Alarm Notification Configuration Figure 246* **Error! Reference source not found.**

The following details must be entered to use this feature:

- **Email Send** – can choose between Real-time or Once a day.
- **Notification Time** – Choose a time for once a day notification.

**E-mail Address/s** – enter multiple email addresses using a comma (,) to separate them

Alarm Notification Configuration Figure 246

Once the details have been completed and **Save Config** has been clicked, the new alert will be added to the list shown in *Alarm Notification Configuration Figure 246*.

An example of the email received when using Send real-time is shown in *Real-time Email Figure 247*.

Vehicle Registration	Owned car group	Time	Speed	Alarm Type	Alarm Description	Latitude	Longitude
MDR4CH	Brigade	2017-09-27 16:18:41	0	Video loss	3	0.245131	51.401773

License plate number	Owned car group	Time	Speed	Alarm Type	Alarm Description	Latitude	Longitude
MDR-S0RTST	Brigade	2020-10-21 04:16:03	0	Motion Detection	1	22.564701	114.012990
MDR-S0RTST	Brigade	2020-10-21 04:15:15	0	Motion Detection	1	22.564701	114.012990
MDR-S0RTST	Brigade	2020-10-21 04:15:07	0	Motion Detection	1	22.564701	114.012990
MDR-S0RTST	Brigade	2020-10-21 04:12:25	0	Motion Detection	1	22.564701	114.012990
MDR-S0RTST	Brigade	2020-10-21 04:12:20	0	Motion Detection	1	22.564701	114.012990

Real-time Email Figure 247

An example of the email received when using **Once a day** is shown in *Once a Day Email Figure 248*. Regularly send emails will contain alarm reports in excel spreadsheet format.

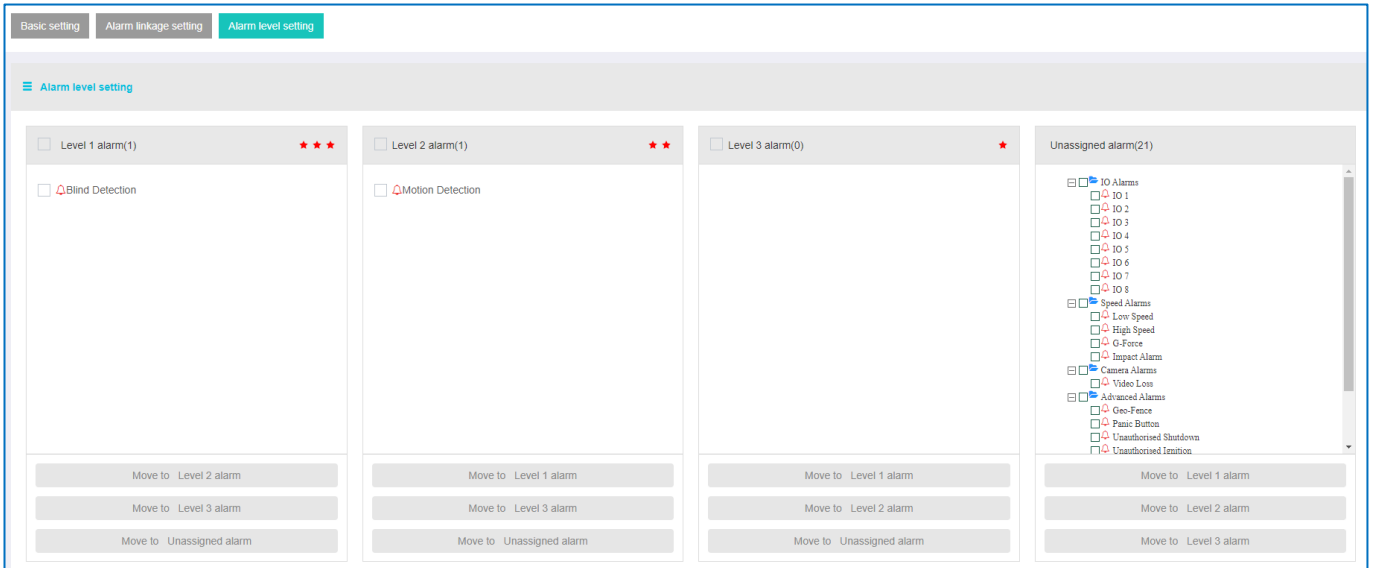
Once a Day Email Figure 248

### 6.6.7.7 Alarm linkage setting

This page has the same setup as Alarm centre in client MDR-Dashboard 5.0, please refer to 6.7.2.2 for detail information.

### 6.6.7.8 Alarm level setting

This setting is for assigning an importance value for each alarm type. All alarms have no importance by default. Users can assign Level 1 (most important **★ ★ ★**), Level 2 (Important **★ ★**) and Level 3 (somewhat important **★**) to different alarm types. This only works to show stars in Evidence centre.



Alarm level setting Figure 249

## 6.7 Downloads and Alarm

**DOWNLOAD** allows you to setup local/server downloads and auto download schedules. **ALARM** lets you access the **ALARM CENTER** which allows for searching alarms, setting alarm strategies and alarm e-mails. **SYSTEM MANAGEMENT** allows you to set **FLEET INFORMATION**.

### 6.7.1 Downloads

**Warning:** Downloads do not occur if the free space on the server disk is less than 500MB.

Click on the download icon  which will display the window shown in *Download Window Figure 250*.

There are 3 download options: **SAVE TO LOCAL FILES**, **SAVE TO MDR SERVER** and **AUTO DOWNLOAD SETUP**.

**AUTO DOWNLOAD** connections to the server are limited to the number of MDRs that can be downloaded at a given time. If there are many online MDRs then downloads enter a "wait" state.

**AUTO DOWNLOAD** is more suited to a Mobile Network connection as the MDR can transfer data regardless of location. If **AUTO DOWNLOAD** is setup with a Wi-Fi connection, the MDR will only run the auto download schedule once it is powered on and connected to the Wi-Fi network.

Tasks appear under **TASK MANAGEMENT**. Any manually setup downloads, known as Appointments, also appear here. See section 6.2.2 Playback. The number of manual downloads is unlimited.

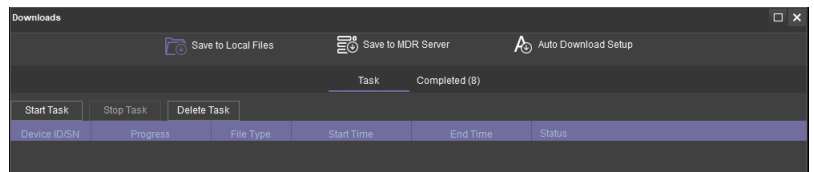
Download priority is based on a first come, first served basis.

Tasks appear under **SAVE TO SERVER** when the clippings are being uploaded as **EVIDENCE**.

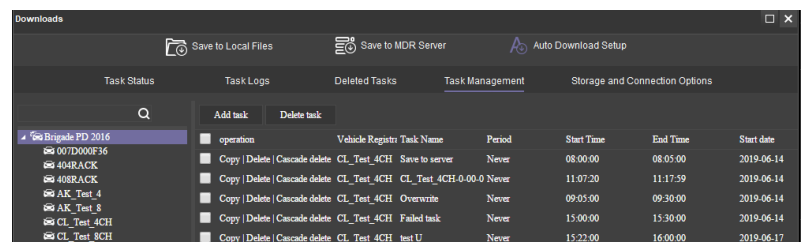
Auto Downloads are setup differently to Clippings and Appointments.

Select the vehicle and then click **TASK MANAGEMENT**. See *Auto Download Figure 251*.

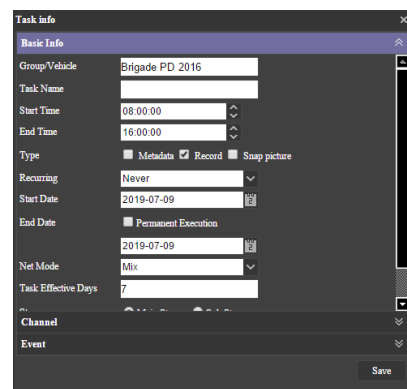
- Click **ADD TASK**. You will now be presented with a **TASK INFO** window which is shown in *Auto Download Basic Information Figure 252*.
- You must now setup all details found under **BASIC INFO**, **CHANNEL** and **EVENT**. See the below figures, *Auto Download Basic Information Figure 252*, *Auto Download Channel Figure 253* and *Auto Download Event Figure 254*.
- **GROUP/VEHICLE** - this represents the vehicle name as shown in the group list in the left pane
- **TASK NAME** - this is the User's choice - name appropriately for easy understanding



Download Window Figure 250

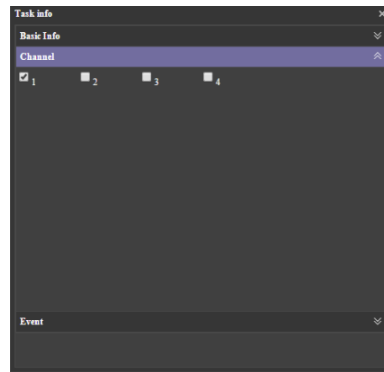


Auto Download Figure 251

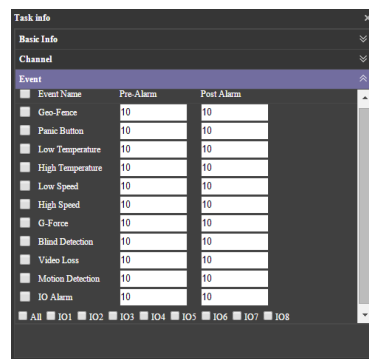


Auto Download Basic Information Figure 252

- **START TIME** – this represents start time of the clipping.
- **END TIME** - this represents end time of the clipping.
- **TYPE** – choice of either metadata / record / snap picture or all.
- **RECURRING** – Options to repeat this task such as Never, Every day, Weekly or Monthly
- **START DATE** – this allows you to set the date for when the clipping must be taken from, this can also be set in the future. Must ensure that this setup when the MDR will be powered and online.
- **END DATE** – this refers to the final date clippings will be completed
- **PERMANENT EXECUTION** – If this clipping must be completed indefinitely, tick this box.
- **NET MODE** – The options are Mob. Net, Wi-Fi and Mob. Net/Wi-Fi.
- If an MDR has post alarm set to 7 seconds and auto download and the dashboard post alarm set to 10 seconds. The auto download recording will have post alarm of 7 seconds as there is no further alarm recording to be downloaded.
- **TASK EFFECTIVE DAYS** – defines for how many days a recurring task should occur. If making a one-time clipping from one of the old days, make sure the task effective days long enough to cover today's date, or the task will fail immediately without execute.
- **STREAM** – The options are Main Stream or Sub Stream. Main Stream is higher quality.
- **VIDEO TYPE** – The options are All, Normal Video and Alarm Video.



Auto Download Channel Figure 253

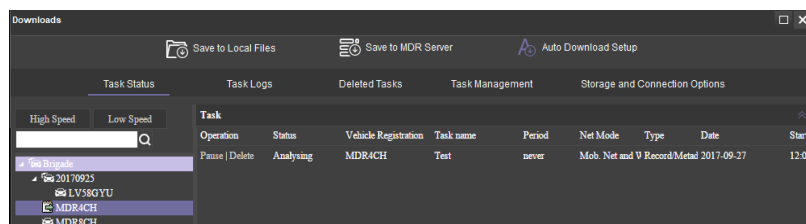


Auto Download Event Figure 254

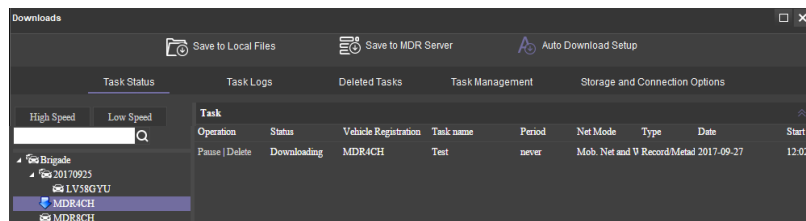
You can view the status of the **AUTO DOWNLOAD** tasks by clicking **TASK MONITOR**. See *Task Monitor Analysing Figure 255*.

A download list is created, then the status becomes waiting, analysing, analysing finished and begins the downloading.

See *Task Monitor Analysing Figure 255*, **HIGH SPEED** will download files at quicker speeds. **LOW SPEED**, MDR will download files at slower speed.



Task Monitor Analysing Figure 255

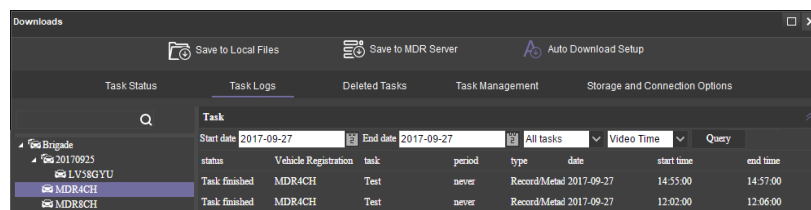


Task Monitor Downloading Figure 256

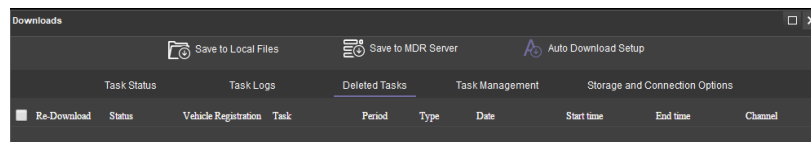
**TASK LOGS** is used to search all tasks based on dates and task status. See *Task Logs Figure 257*.

**QUERY** is used to update the list. See *Task Logs Figure 257*.

**DELETED TASKS** show tasks that have been deleted by the user. See *Deleted Tasks Figure 258*.



Task Logs Figure 257



Deleted Tasks Figure 258

**STORAGE AND CONNECTION OPTIONS** is used to set the folder for the **AUTO DOWNLOAD** files. If auto-download tasks set for Wi-Fi, the Max Connection defined how many MDR can download simultaneously, other MDR must wait until previous one complete the task. By default, the value is 20, and it can go up to 60 at most. See *Storage and Connection Options Figure 259*.

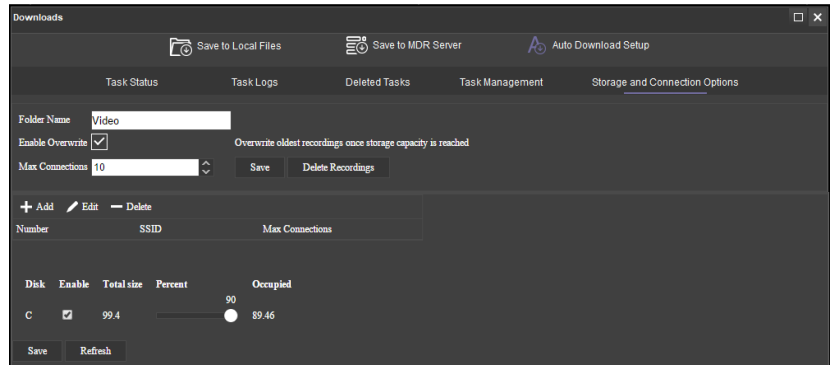
If MDR has multiple Wi-Fi connection available and fleet manager wants to control each Wi-Fi occupancy, use the Wi-Fi list in the Storage and Connection Options page to define each Wi-Fi maximum connection number.

**Note:** The Max Connection in Auto-Download section only controls MDR downloading video. For other online usage such as remote liveview and GPS upload, no limitation applied.

**AUTO DOWNLOAD** files are located on the Windows Server.

These files are accessed via **PLAYBACK** → **MDR SERVER**.

Server directory for video file storage:  
C:\Video\*Vehicle Name*.



**Storage and Connection Options Figure 259**

**Table 14: Auto Downloads Task Status Information**

STATUS	DESCRIPTION
Suspended	The task is in suspension.
Limited number of connections	Vehicle downloads has exceeded the limit of allowed connections
Parsing	Analysing in preparation to download file
Task has not been finished	Download not complete, since the time required is greater than the current MDR system
Insufficient space on the disk	There is not enough space on the server disk
Loading	Task is waiting to be downloaded
Parsing successfully	Completed analysing the file to be downloaded
Downloading	File is currently being downloaded
No record file	No file exists based on analysis. (No qualified record file)
Download successfully	Download successfully and the file has been downloaded.
Task failed	Analysis task could not be completed. (e.g. Fail to access data, abnormal data)
Task deleted	Task has been deleted by user
Download failed	Task is successfully added but the file fails to download
Task timeout	The task expired (exceed effective date)

### 6.7.2 Alarm Centre

Alarm Centre refers to an area which contains the following options:

- Alarm Search
- Alarm Settings

#### 6.7.2.1 Alarm Search

This area is used to search all alarms based on the vehicle, time range, date, event type and alarm status.

You will set search parameters and then click on the **SEARCH** button. Once clicked the MDR Server will be queried.

See a typical list shown in *Alarm Centre Search Figure 260*. The total number of alarm records is shown in the bottom right corner of the window.

Alarms are processed here. Highlight an alarm entry and



then click the **PROCESS** button to enter the relevant description. See *Alarm Centre Search Figure 260*.

**BATCH PROCESSING** is achieved by clicking the

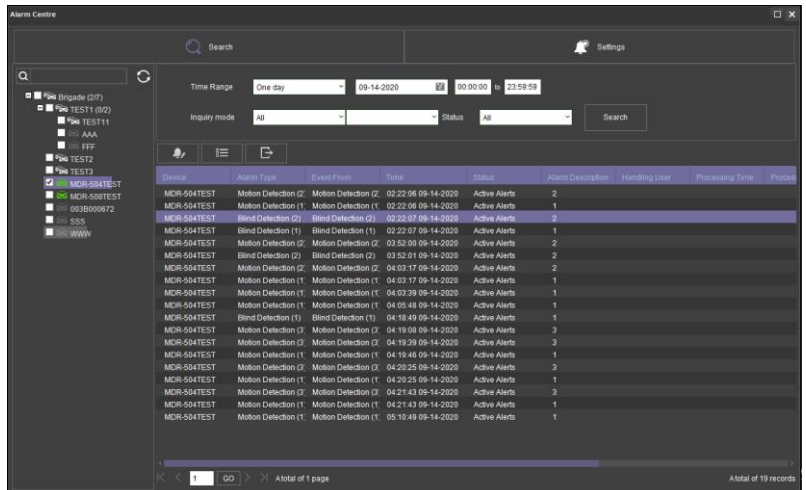


icon. See *Alarm Centre Search Figure 260*.

The entire alarm log can be exported as an excel table (.xls) to a chosen local directory. This is done by clicking



the **EXPORT ALARM** button. See *Alarm Centre Search Figure 260*.



**Alarm Centre Search Figure 260**



### 6.7.2.2 Alarm Settings

Tick a fleet group or a specific vehicle you would like to apply the alarm strategy to. Once you have ticked the vehicle/group, choose what alarm type you would like to be notified about.

**MDR-Dashboard Strategy** has the following options:

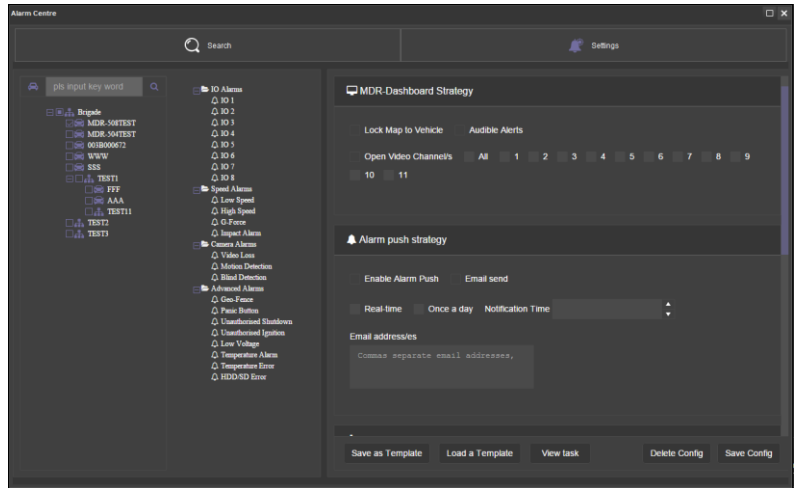
- **Lock Map to Vehicle:** When an alarm is triggered, maps will lock onto the specific vehicle on the map.
- **Audible Alerts:** An audible siren alarm will be played through your PC speakers to alert you of a triggered alarm. Note: Muted PC speakers will not be unmuted for this feature.
- **Open Video Channel/s:** If you tick a channel, MDR-Dashboard will automatically open the chosen channels in the live view.

**Alarm Push Strategy** has the following options:

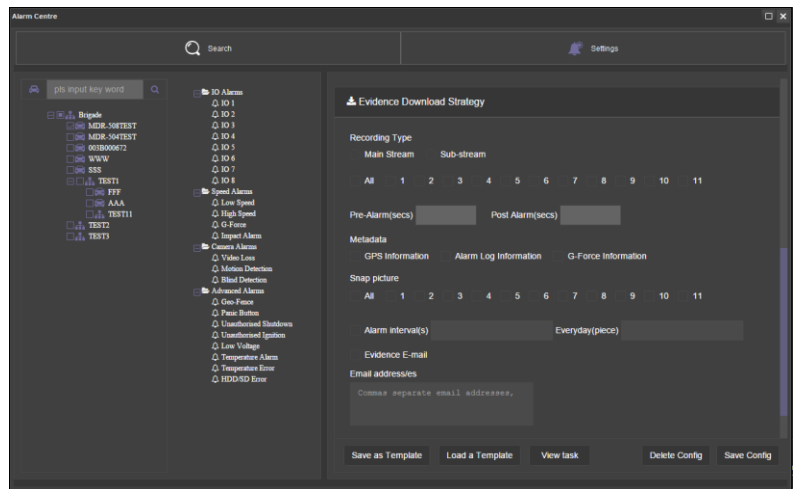
- **Enable Alarm Push:** When an alarm is triggered, notifications will be sent to your mobile apps. Note: Requires apps to be logged in and running as a background service.
- **Email send** to enable sending alarm email to email account(s).
- **Real-time:** When an alarm is triggered, email notifications will be sent to your listed email addresses instantly. Note: Requires email account to be configured.
- **Once a day:** When an alarm is triggered, email notifications will be sent to your listed email addresses at the specified time. Note: Requires email account to be configured.

**Evidence Download Strategy** has the following options:

- **Main Stream:** Downloads high quality video.
- **Sub-stream:** Downloads low quality video.
- **Tick channels** you would like to download
- **Pre-Alarm:** refers to how many seconds before the alarm you want to download.
- **Post Alarm:** refers to how many seconds after the alarm you want to download.
- **GPS Information:** tick this to download GPS metadata with the associated video.
- **Alarm Log Information:** tick this to download alarm logs (metadata) with the associated video.
- **G-Force Information:** tick this to download G-Force metadata with the associated video.
- **Snap picture** to get snapshots when alarm happens and automatically upload to evidence centre.
- **Alarm interval(s):** during the set period, no matter how many this alarm type has been triggered, it only forms 1 evidence item.
- **Everyday (piece):** If daily alarms exceed this limit, there will be no more evidence items created. Also, it will trigger "Abnormal Frequent Alarm" in alarm centre. Note: alarm display is not interrupted, it just prevents an evidence item to form.
- **Evidence email:** When an evidence item has been created, it will send the receiver an email to notify. Evidence email content see *Evidence Email Content Figure 263*.



Alarm Configuration Figure 261



Alarm Configuration (Continued) Figure 262

License plate number	Time	Alarm Type	Alarm Description	Evidence Video
MDR-S045Z	2020-06-12 07:26:25	IO 1	IO1	<a href="#">Open video</a>

Evidence Email Content Figure 263

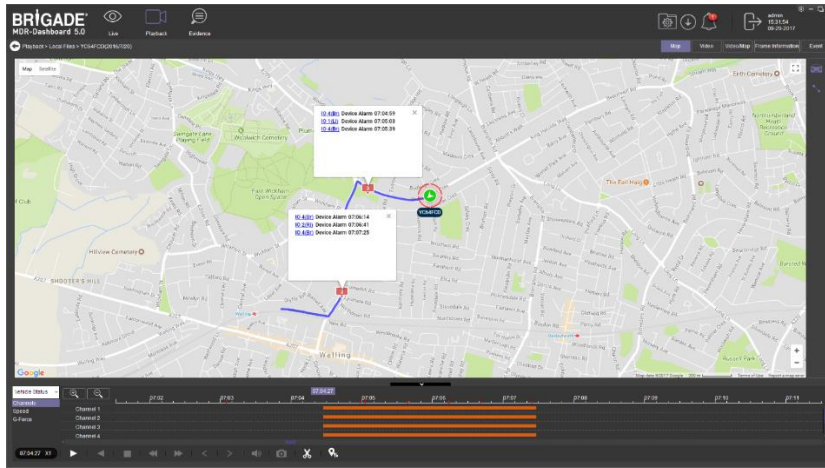
## 6.8 View Settings (Area 5)

This area contains the following view options:

- Map
- Video
- Video/Map

### 6.8.1 Map

This view is accessed by clicking the **MAP** button. See *Map View Figure 264*. It will display the MDR GPS tracking data. This can be used in both **LIVE** and **PLAYBACK** mode. A hazard symbol on the map will show points where an alarm was triggered. If there are multiple alarms in close succession, a box indicating the number of alarms will be shown on the map.



Map View Figure 264

### 6.8.2 Video

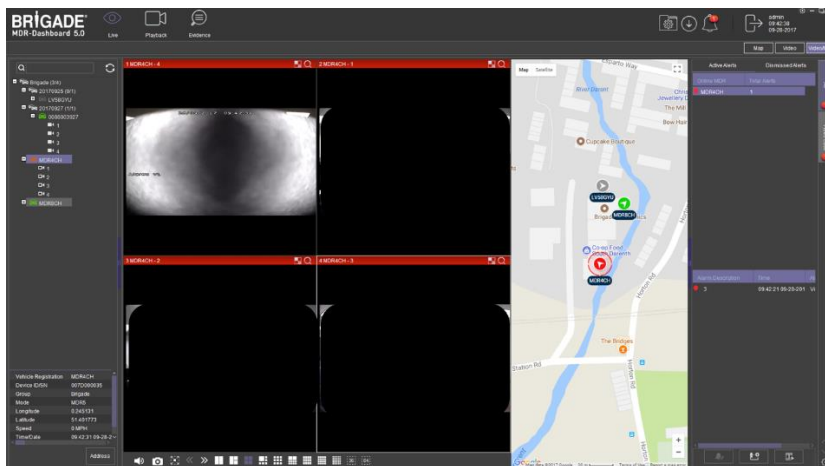
This mode is used to view video channels only. See *Video View Figure 265*. The order of the video channels may be changed by dragging the channel to another slot.



Video View Figure 265

### 6.8.3 Video/Map

This view is used to access both video and map data. See *Video/Map View Figure 266* for an example.





Video/Map View Figure 266

## 6.9 Real-Time Alarm Log (Area 6)

Real-time Alarm Log Figure 267 shows alarms that are currently occurring on all online MDRs.

At the bottom of the Real-Time Alarm Log area is a menu as shown in Alarm Menu Figure 268.

Click on **LOCKING CAR** symbol  to access the Video/Map view with the vehicle locked in the center of the map.


Use the **OPEN VIDEO** button  to access Video/Map view with the video displayed below the map.

The bottom right gear icon  represents **SETTINGS** for the alarm hierarchy. The order in which alarms will appear. See Alarm Settings Figure 269.

There is an alarm count which indicates the number of alarms that have occurred. Once this number is higher than 99, the alarm log will display "99+".

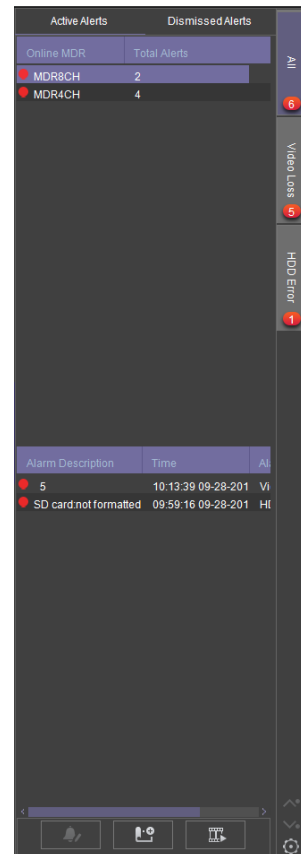
Processing alarms refers to when a user clears an alarm (marks an alarm as dismissed) once the alarm has been reviewed.

**ACTIVE ALERTS** show alarms that have not been processed by a user. See Real-time Alarm Log Figure 267.

To process an alarm, click an alarm event found in the active alert log (below Event Name), then click on the **PROCESS** button . A pop-up window will appear as shown in Alarm Processing Figure 270. Write a description of the event, for example, false alarm.

Click **PROCESS** to process an alarm event. Once processed, it will appear automatically under the **DISMISSED ALERTS** log.

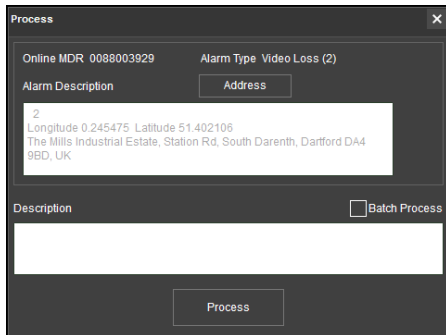
**BATCH PROCESSING** is used to process multiple alarms of the same type. This is done by ticking **BATCH PROCESSING** in the process window. See Alarm Processing Figure 270.



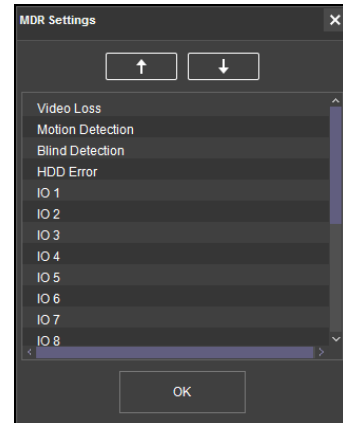
Real-time Alarm Log Figure 267



Alarm Menu Figure 268




Alarm Processing Figure 270



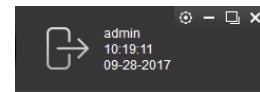
Alarm Settings Figure 269

## 6.10 User and System settings (Area 4)

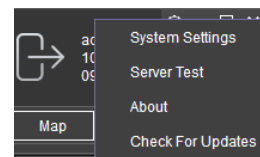
The current logged in username, date (Client PC) and time (Client PC) is displayed. See User and System Area Figure 271.

This area is used to **LOGOUT**. This is achieved by clicking on the door icon . This brings up a confirmation window for logging out. Click **YES** or **NO** and thereafter the MDR-Dashboard 5.0 login screen will be displayed. See Logout Screen Figure 275.

Click on the gear icon  to display a submenu containing **SYSTEM SETTINGS**, **SERVER TEST**, **ABOUT** and **CHECK FOR UPDATES** options. See MDR-Dashboard Settings Menu Figure 272.



User and System Area Figure 271



MDR-Dashboard Settings Menu Figure 272

**SERVER TEST** is used to aid troubleshooting server connections, the feature is used to determine which port is not functioning. See *Server Test Figure 273* and *Server Test Results Figure 274*.

**ABOUT** displays the window shown in *About Figure 276*. This will show the current MDR-Dashboard and MDR Server version.

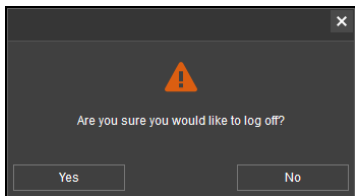
Additional information of which server ports are used will be shown in the **ABOUT** window when the MDR-Dashboard is logged in as server mode. See *About Figure 276*.

**CHECK FOR UPDATES** is used to check for software updates. This will redirect you to webpage (brigade-electronics.com/MDR-Software-Update). Here you will be able to find new MDR-Dashboard software releases.

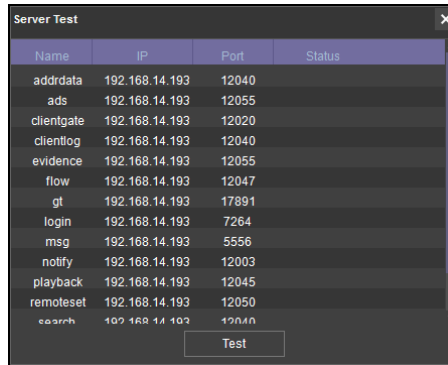
**SYSTEM SETTINGS** are shown in *System Settings Figure 277*.

This area is used to configure the following:

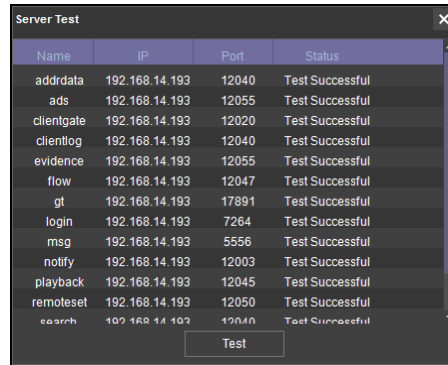
- Set Path for Snapshots
- Map Mode
- Language
- Speed Unit
- Temperature Unit
- Automatically Switch to Main Stream – tick this box to use the main stream (higher quality) or leave unticked to use the sub-stream. This is not supported for the MDR 400 Series.
- Loop Video Playback – this will play the entire selected video on repeat. This feature can be used for HDD or directory playback
- Auto-logout
- Auto-Close Video
- Skip Time Duration(seconds) – this enables user to use the key board left and right keys to skip forward and backward under Local Flies Playback. The value defines how many seconds to skip at one time.
- Total Alarms Shown – shows the historical alarms and events in the real-time alarm log area. By default, it is 200.
- Alarm Period Shown – shows the alarms and events for the past time range setting in the real-time alarm log area. By default, it is 30 minutes.
- Enable Dual Monitor Map View (Server Mode – Live view only) – this will expand the map to a separate window. This helps when monitoring multiple online vehicles.
- Automatically Open Historic Live View Channels (Server Mode – Live View only)
- Set Path for Live View Recordings



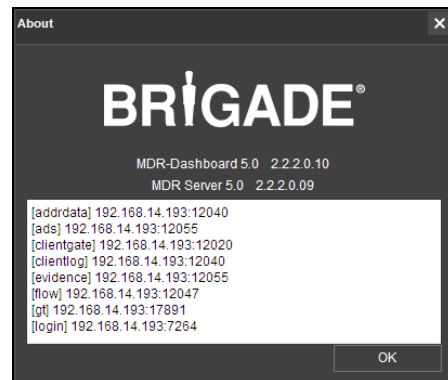
**Logout Screen Figure 275**



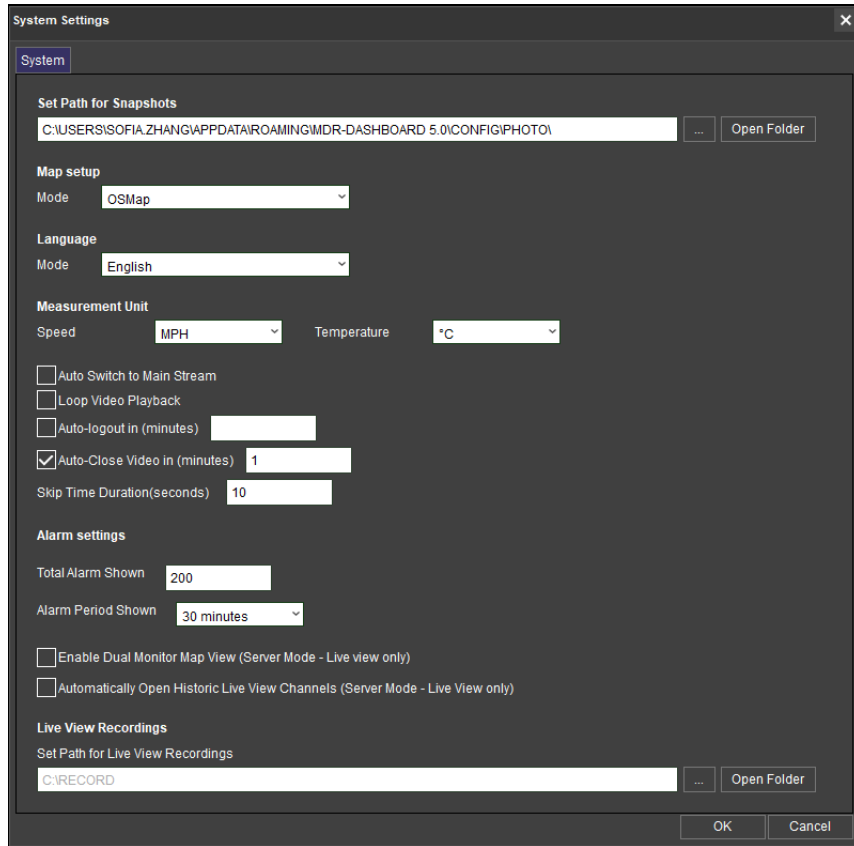
**Server Test Figure 273**



**Server Test Results Figure 274**



**About Figure 276**



System Settings Figure 277

## 7 Mobile Apps

**BRIGADE MDR 5.0** is a free mobile application, available for both Android and iOS operating systems. The **BRIGADE MDR 5.0** application has the following features:

- Live View
- Map positions of MDRs (MDR must have GPS connected and locked signal)
- Remote Snapshot one channel at a time - saved to local device

### 7.1 iOS App

#### 7.1.1 iOS App Requirements

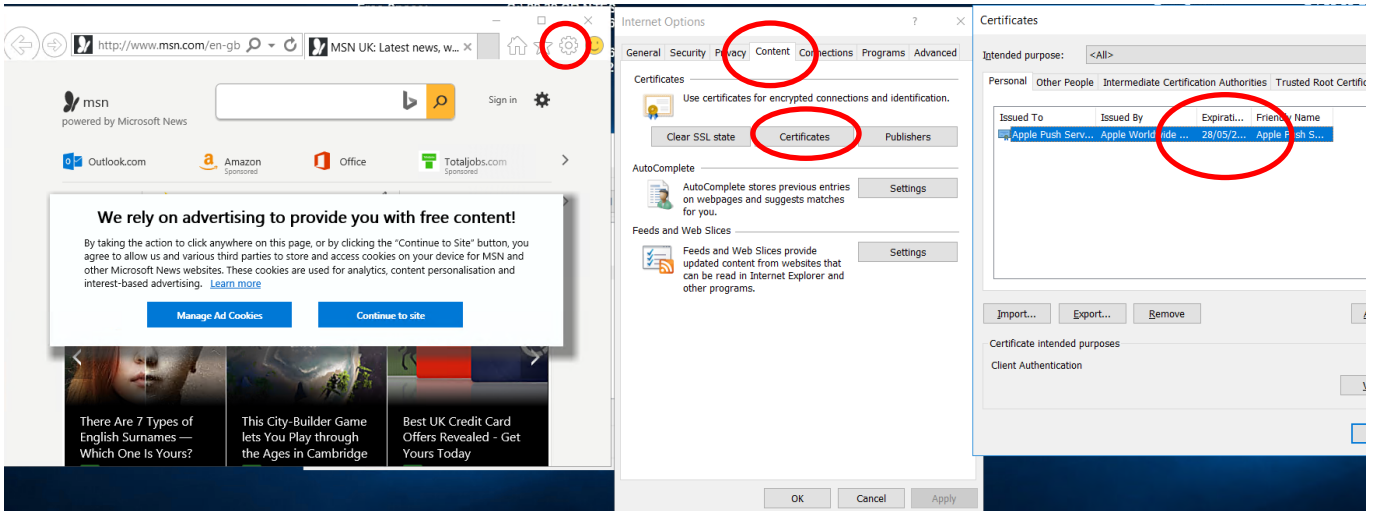
Table 16: Minimum requirements for BRIGADE MDR 5.0 to run on iOS

DEVICE	MINIMUM REQUIREMENTS
iPhone	iOS 10.3.1
iPad	iOS 10.3.1
iPad mini	iOS 10.3.1
iPad Pro	iOS 10.3.1

#### 7.1.2 iOS App Push Certificate

The iOS app runs on a **yearly Certificate** for Push function. If the Push Certificate expires, iOS mobile phone will be unable to get any notification when alarm happens, while Android phone will not be affected. When nearing the expiration date, Brigade will send out notification email with new certificate download link. Please download the certificate and copy onto the Windows Server running MDR Server 5.0. Copy this file to the following path **C:\Program Files (x86)\MDR Server 5.0\WCMS5\root\system-file\config** to replace previous one. To check the validity, please double click to open and import the certificate, just click "NEXT" and the password is "123456". After successfully importing, open the Internet Explorer Internet Option->Content->Certificates->Personal to see next expiration date.

**Note:** As the certificate name is hard coded in server program, please make sure the file name is "**ceiba2publish.p12**" before putting into the server folder.



Check iOS Push Certificate Expiration Date Figure 278

### 7.1.3 iOS App Installation

On your Apple device, go to the App Store.



Search for "Brigade Electronics" or "BRIGADE MDR 5.0".

Click the **DOWNLOAD** button to begin the installation.

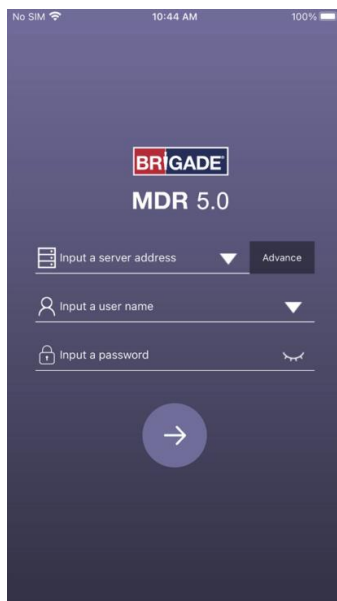
The app will then begin to install. The progress will be shown.

Once the installation has completed, click the **OPEN** button.

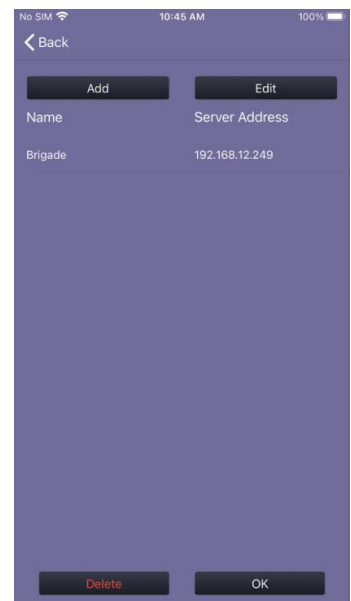
In the next window, click **OK** to allow BRIGADE MDR 5.0 to send you notifications, this is a generic request.

The login window will be displayed, see *iOS App Login Figure 279*. These login details correspond to MDR-Dashboard 5.0 login details.

It is advised to create User accounts (in MDR-Dashboard 5.0 System Management Area) for BRIGADE MDR 5.0 app logins so this can be tracked in the MDR-Dashboard 5.0 Alarm processing area.



iOS App Login Figure 279



Login Advance Setting Figure 280

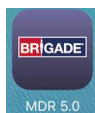
### 7.1.4 iOS App Operation

Depending on the MDR features and location, you can connect to an MDR Mobile Network Server or an MDR Wi-Fi Server.

If MDR Center Server 1 and/or Center Server 2 are connected, then this MDR will be available in the mobile application.

Tap the application icon as shown in *Application Icon Figure 281*.

The iPhone login screen is then displayed as shown.



Application Icon Figure 281



iOS Map View Figure 282



iOS Group List Figure 283

To log into the Mobile Network server, ensure the mobile device is connected to the internet using its mobile network.

Type in the Mobile Network server address (public IP address of the firewall) into BRIGADE MDR 5.0 e.g. 12.345.6.78.

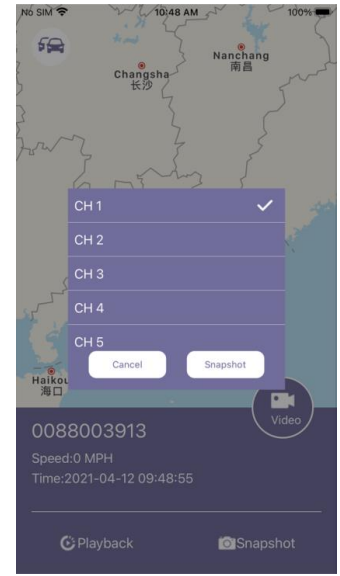
To log into the Wi-Fi server, ensure the device is connected to the SAME Wi-Fi network that the MDR Server and MDR unit is connected to.

Type in the Wi-Fi server address in BRIGADE MDR 5.0, e.g. 192.168.1.14.

The **USER** by default is **admin** and the **PASSWORD** by default is **admin**. Brigade does NOT recommend using **LOGIN AUTOMATICALLY** if there are several servers available.



iOS Map sub-menu Figure 284



iOS Remote Snapshot Figure 285

Note: When connecting to the Wi-Fi server, if the Wi-Fi network does not have internet access then the map function will appear blank. The Wi-Fi router may be configured to have internet access if necessary, please contact your IT department.

Login timeout is 30 seconds. If it takes longer than 30 seconds to establish a connection to the server, this will result in a timeout error. Please change your connection method and try again.

Once logged in you will be presented with the **MAP** window.

Tap on **VEHICLE** to bring up the **GROUP** list as shown in *iOS Group List Figure 283*. The blue icon represents the fleet group (company name). This can be collapsed or expanded. The green icon represents online vehicles. The grey icons represent offline vehicles.

If a tick box under **GROUP** is ticked then that vehicle will be shown on the map.

To exit the **GROUP** list, tap on **VEHICLE**. See *iOS Group List Figure 283*.

Tapping on an MDR will bring up the map sub-menu.

Online vehicles are depicted by green icons and offline vehicles are depicted by grey icons.

The **map menu** can be used to access Live video from an online MDR (*iOS Map View Figure 282*).

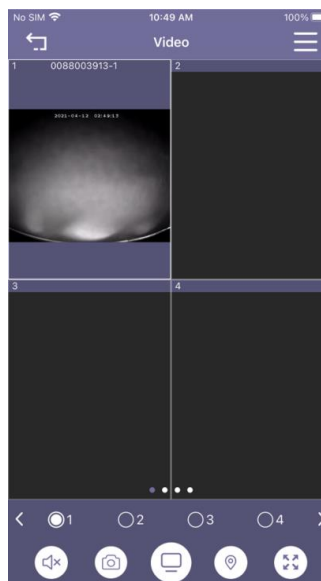
To access **video menu** (liveview), click on the vehicle from fleet will bring up a sub-menu (*iOS Map sub-menu Figure 284*). Press the "Video" button to enter the video interface. See *iOS Video Window Figure 286*.

Video menu used for online liveview. numbers at the bottom to enable/disable each channel. Control button from left to right are Mute/Unmute; Snapshot; Open all/Close all; Map View (See *iOS Video Window - Map Figure 290*); Full Screen.

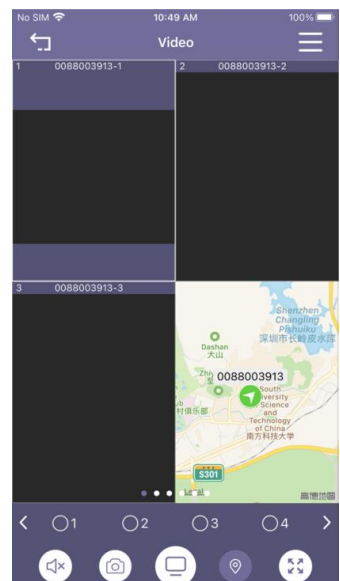
**Playback** can be accessed via map view, bottom banner "Playback" icon, which has 3 sub tabs: **Online MDR**, **Server** and **Evidence**. They are reflected the MDR- Dashboard functionality.

Remember to choose vehicle from the fleet list at left, or the Playback page will show no data at all.

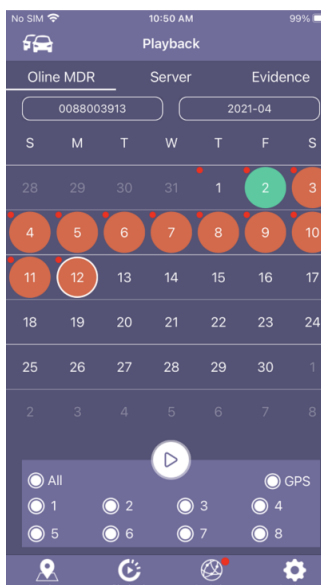
After chose a vehicle, swipe left or right to change months or simply click on the date beside vehicle registration number to fast define date range.



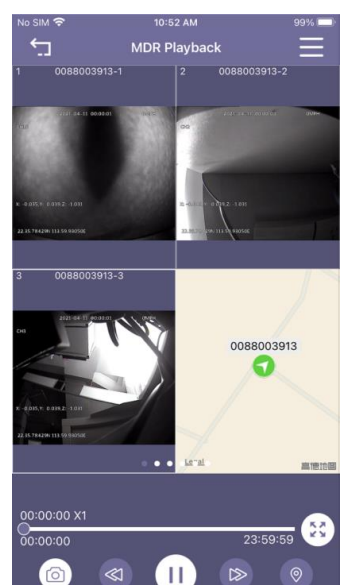
iOS Video Window Figure 286



iOS Video Window - Map Figure 290



iOS Playback Figure 287



iOS Playback Detail Figure 291

Green means has record. Red means has alarm record at that day. Small red dot represents GPS data, support show tracking on the map. Playback sub-page see *iOS Playback Detail Figure 291*.

**Evidence** support 2 search modes: **General Search**: searched by vehicle registration number and **Advanced Search**: based on alarm types and occurrence time. Searched results will be listed below and be able to playback, see *iOS Evidence –Search Results Figure 289*.

**Statistics** can be accessed by navigation button at bottom banner. It consists of 5 types of statistic information: Alarm; Location info; Mileage, Online rate and Active Alarm Centre (top right corner).

Each page gives collected data based on vehicle/fleet selection and time defined. Each statistic tab consists of chart in the middle and detail list at the bottom.

In **Alarm** tab, bottom list gives each selected vehicle total alarm amounts. By click on the to view each alarm item in detail, and support to spotted on the map.

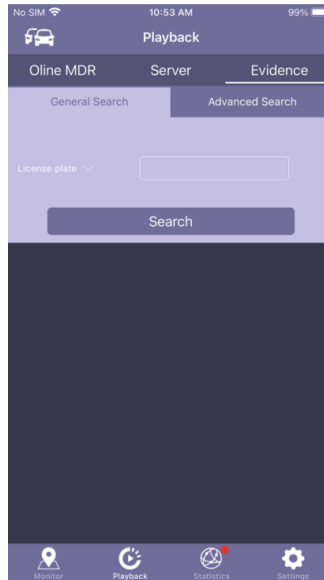
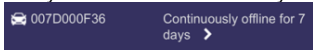


In **Location** info tab, the chart gives how many GPS data receives and bottom detail list gives each GPS data contain information.

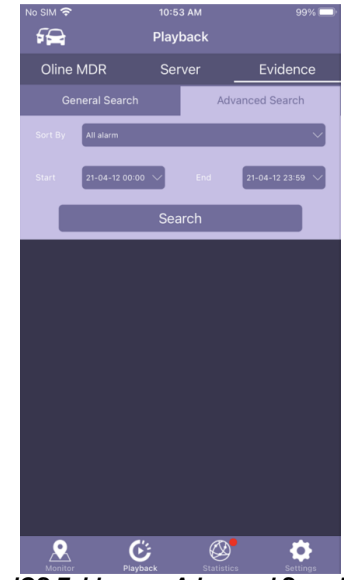
In **Mileage** tab, the bottom list provides each vehicle total mileage for each day.



In **Online rate** tab, the bottom list gives information of how long of each vehicle stay offline. No display means every vehicle on the list always online.



**iOS Evidence – General Search Figure 288**



**iOS Evidence – Advanced Search Figure 292**



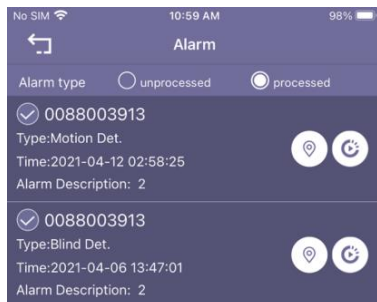
**iOS Evidence –Search Results Figure 289**



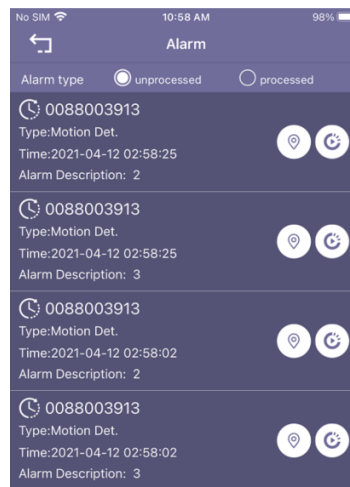
**iOS Statistics Figure 293**

**Active Alarm Centre** displays real-time alarms, which provides alarm location shows on the map and alarm footage playback.

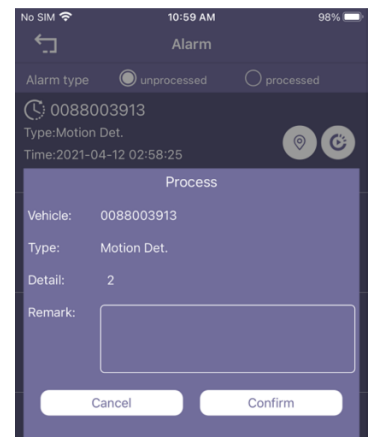
Each alarm can be processed by click on the item. Leave manage notes click confirm, the alarm will be moved to “Processed” column.



**iOS Processed Alarm Log Figure 294**



**iOS Alarm Log Figure 295**



**iOS Process Alarm Figure 296**



**Setting** can be accessed by click on the last icon on the bottom banner.

**Server IP Address** displays the IP address the app is connected to.

**Username** displays the currently logged in user.

**Push** displays push notifications from the MDR app, if it is running in the background. (phones notification bar, usually top bar).

**Sound Alert** controls whether an audible alert is played for push notifications.

**Alarm Center** allow display vehicle in the centre of the map when alarm happens.

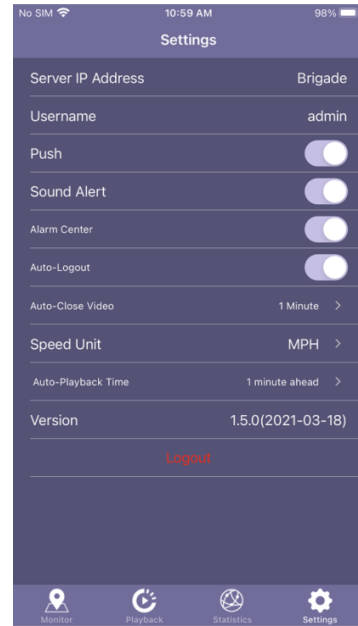
**Auto-Logout** logs out the user after 1 minutes (configurable).

**Auto-Close Video** will automatically close open video channels. This helps saves data. The options are Never, 1, 3 and 5 minutes.

**Speed Unit** controls the speed unit shown within the app, this can be mph or km/h.

**Auto-Playback Time** controls when user click on vehicle playback, the playback starts from how many minutes from now (user cannot playback now, the playback must start from an previous time).

**Version** displays the app version details.



*iOS Settings Figure 297*

## 7.2 Android App

### 7.2.1 Android App Requirements

Table 17: The minimum requirements below are for BRIGADE MDR 5.0 to run on Android

DEVICE	MINIMUM REQUIREMENTS
Android Phone	Android 7.0 Screen Resolution of 720P Screen Size of 4 inch
Android Tablet	Android 7.0 Screen Resolution of 720P

### 7.2.2 Android App Installation



Open the Google Play Store App

Search for “Brigade Electronics” or “BRIGADE MDR 5.0”.

Tap the BRIGADE MDR 5.0 app. Click the **INSTALL** button.

Click the **ACCEPT** button to allow the app access to the required device areas.

The app will then begin to install. The progress will be shown.

Once the installation has been completed. Click the **OPEN** button.

The login window will be displayed. These login details correspond to MDR-Dashboard 5.0 login details.

It is advised to create User accounts (in MDR-Dashboard 5.0 System Management Area) for BRIGADE MDR 5.0 app logins so this can be tracked in the MDR-Dashboard Alarm processing area.



*Start-up Screen Figure 298*



*Login Advance Setting Figure 299*

### 7.2.3 Android App Operation

Depending on the MDR features and location, you can connect to a MDR Mobile Network Server or MDR Wi-Fi Server.

If an MDR states that Center Servers 1 and 2 are connected then this MDR will be available in the mobile application.

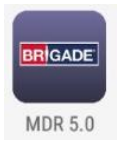
Tap the application icon as shown in *Application Icon Figure 300*.

The start-up screen will be displayed.

The Android login screen is then displayed as shown in *Android Login Figure 301*.

To log into the Mobile Network server, ensure the mobile device is connected to the internet using its mobile network.

Type in the Mobile Network server address (public IP address of the firewall) into BRIGADE MDR 5.0 e.g. 12.345.6.78.



**Application Icon Figure 300**

To log into the Wi-Fi server, ensure the device is connected to the **SAME** Wi-Fi network that the MDR Server and MDR unit is connected to.

Type in the Wi-Fi server address in BRIGADE MDR 5.0, e.g. 192.168.1.14.

The **USER** by default is **admin** and the **PASSWORD** by default is **admin**. Brigade does not recommend using **LOGIN AUTOMATICALLY** if there are several servers available.

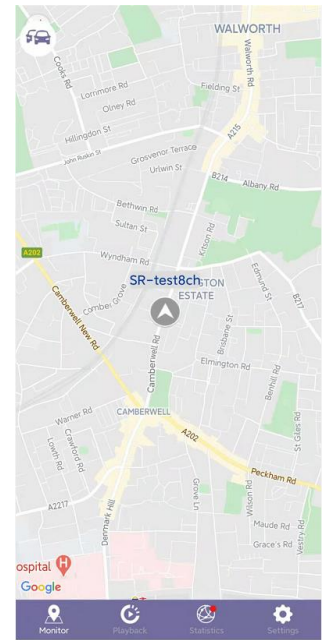
Note: When connecting to the Wi-Fi server, if the Wi-Fi network does not have internet access then the map function will appear blank. The Wi-Fi network may be configured to have internet access if necessary, please contact your IT department.

The operation of the Android application BRIGADE MDR 5.0 is explained in the above section 7.1 iOS App.

See Android Settings Figure 307, Android Snapshot Options Figure 309, **Error! Reference source not found.** and Android Settings Figure 314 for examples of Android application windows.



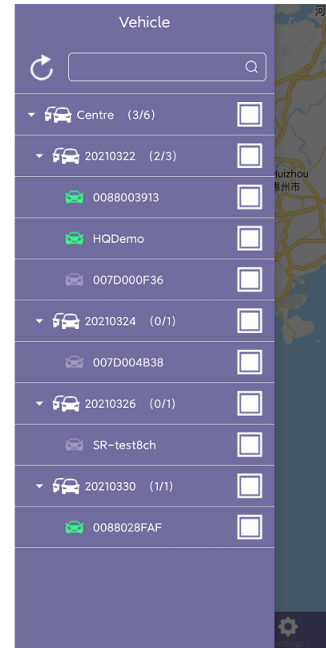
**Android Login Figure 301**



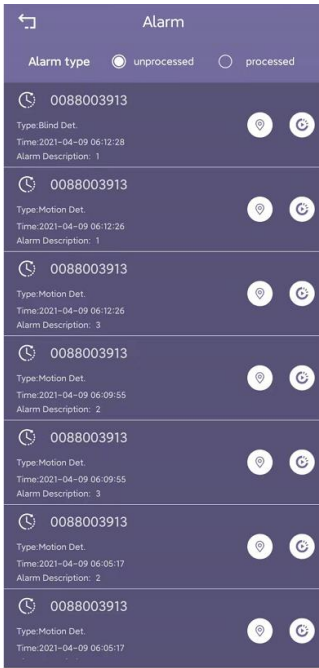
**Android Map View Figure 302**



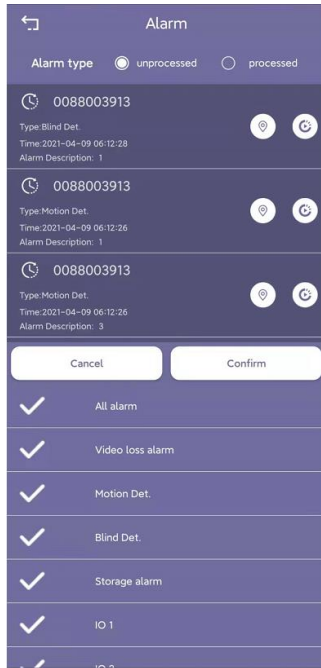
**Android Map Alarm Figure 303**



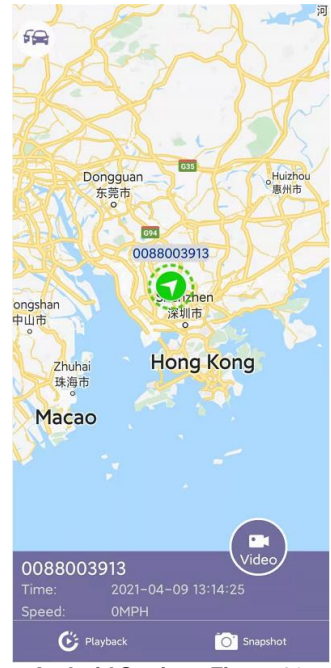
**Android Cars List Figure 304**



**Android Alarm Log Figure 305**



**Android Alarm Log Filter Figure 306**



**Android Settings Figure 307**

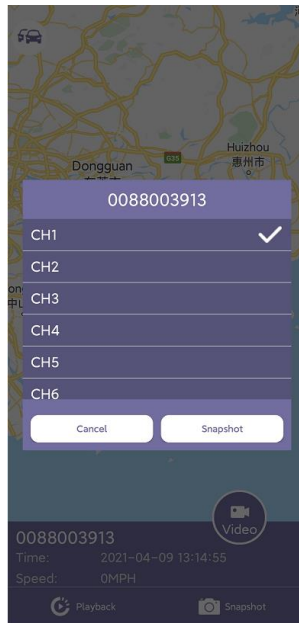
Further examples of typical android windows are shown *Android Snapshot Save Figure 311* onwards.

To view a channel area in greater detail, use two fingers in a pinch to zoom manner.

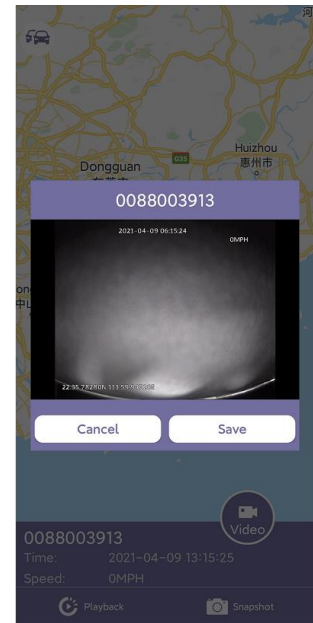
Push outwards to zoom in on a point and inwards to zoom out.



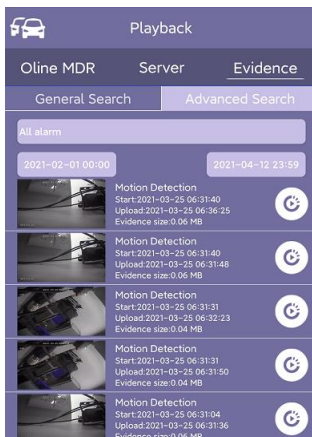
**Android Video Window Figure 308**



**Android Snapshot Options Figure 309**



**Android Snapshot Save Figure 311**



**Android Evidence Figure 310**



**Android Statistic Figure 312**

**Server IP Address** displays the IP address the app is connected to.

**Username** displays the currently logged in user.

**Push** displays push notifications from the MDR app, if it is running in the background. (phones notification bar, usually top bar).

**Sound Alert** controls whether an audible alert is played for push notifications.

**Alarm Center** allow display vehicle in the centre of the map when alarm happens.

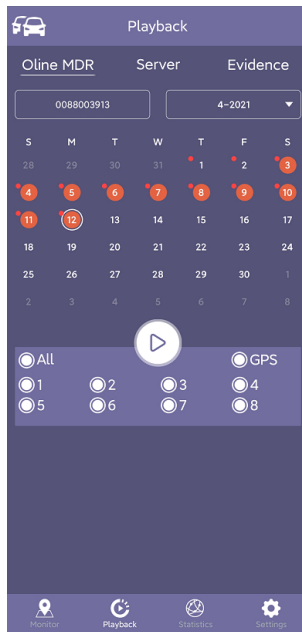
**Auto-Logout** logs out the user after 1 minutes (configurable).

**Auto-Close Video** will automatically close open video channels. This helps saves data. The options are Never, 1, 3 and 5 minutes.

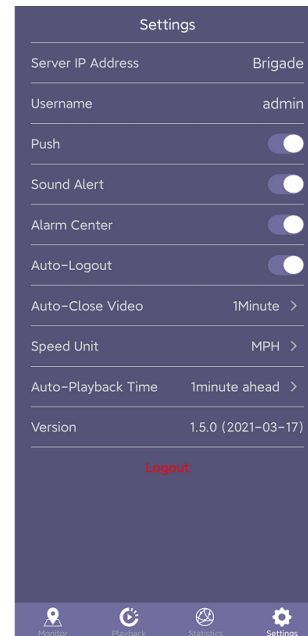
**Speed Unit** controls the speed unit shown within the app, this can be mph or km/h.

**Auto-Playback Time** controls when user click on vehicle playback, the playback starts from how many minutes from now (user cannot playback now, the playback must start from an previous time).

**Version** displays the app version details.



**Android Playback Figure 313**



**Android Settings Figure 314**

# 8 MDR Server 5.0 Advanced Features

## 8.1 Database Backup and Restore

When completing database backups and restorations please read the warnings below:


- (1) Do not operate the system and ensure there is no power cut during backing up or restoring data.
- (2) If a backup or restoration operation fails, please attempt to do it again. If it fails once more, please contact Brigade Technical Support.

Backup:

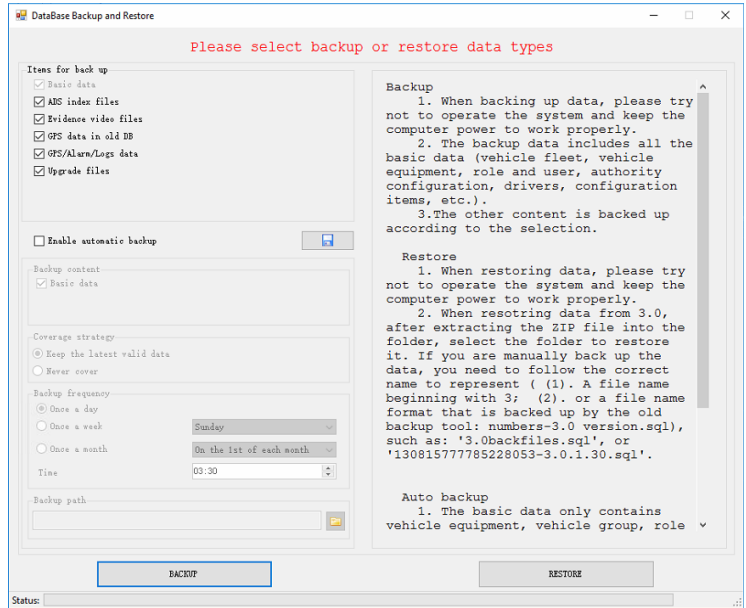
Backup items can be choosing from the list:

- (1) Basic data (mandatory): information of the vehicle system, such as fleet/group information, device information and driver information.
- (2) ADS index files: Historic Auto Download videos which are saved in the server currently.
- (3) Evidence video files: Historic uploaded Evidence files.
- (4) GPS data in old DB: old GPS data created by older version server software (before 2.2.2.0.32).
- (5) GPS/Alarm/Log data: all data for GPS info, Alarm info and logs in MongodB\_3.2 folder.
- (6) Upgrade files: uploaded MDR upgrade files.

Enable automatic backup:

Click the  to save the auto backup setting. Settings below are only for auto-backups:

- (1) Basic data: information of the vehicle system, such as fleet/group information, device information and driver information.
- (2) Operation and maintenance data and Green driving data are not in use.
- (3) Coverage strategy: either create a new file every time or covering previous backup file to keep the latest. Users to choose depend on their actual situation.
- (4) Backup frequency: Once a day, Once a week or Once a month.
- (5) Backup path: to determine a local file for saving the auto backup file.



**Database Backup and Restore Figure 315**

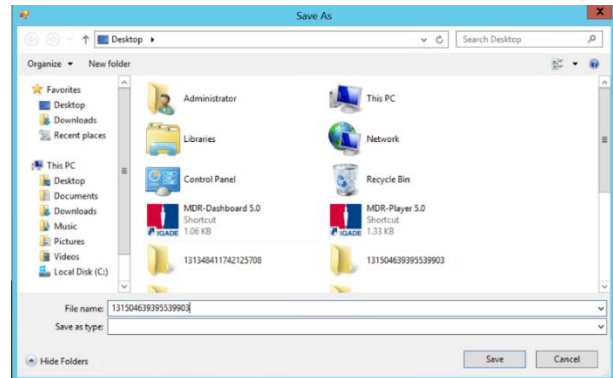
### 8.1.1 Database Backup

**Warning:** The backup folder name cannot have any spaces as this will cause an error window.

Follow the below steps to create a database backup:

- Brigade recommends backup processes to be completed after hours when the MDR Server will not be used.
- Click **BACKUP**, a windows file explorer will open.
- Choose the storage location for the backup.
- Brigade recommends creating a folder on your desktop with the creation date of the backup.
- Click **SAVE**, the backup progress bar will now be displayed.
- The period for each backup differs, this is based on content, size etc.
- Once the backup has been completed successfully, a prompt will be shown stating, "Data Backup success".

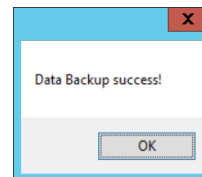
Typical Structure of an MDR Server backup is shown below. This must not be manipulated in any way. It could render the backup unusable.



**Backup Define Path Figure 316**

Name	Date modified	Type	Size
EvidenceData	21/09/2017 11:39	File folder	
mongodB_3.2	21/09/2017 11:39	File folder	
VideoData	21/09/2017 11:39	File folder	
131504639757829914-2.2.2.0.09.sql	21/09/2017 11:39	SQL File	1,163 KB
manifest_2.2.2.0.09	19/09/2017 17:59	XML Document	16 KB

**Structure of Backup Folder Figure 317**

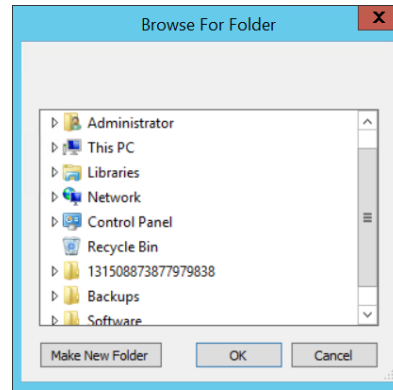


**Successful Backup Figure 318**

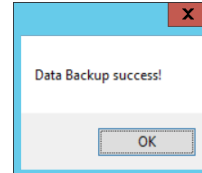
### 8.1.2 Database Restore

Follow the below steps to restore a database:

- Brigade recommends restore processes to be completed after hours when the MDR Server will not be used.
- Click **RESTORE**, a windows file explorer will open.
- Choose the location of your restoration file.
- Click **OK**, the restoration progress bar will now be displayed.
- The period for each restoration differs, this is based on content, size etc.
- Once the restoration has been completed successfully, a prompt will be shown stating, "Data Backup success".
- If you are already logged into MDR-Dashboard 5.0, you will need to logout and login with the restored MDR Server details.
- You should now see the restored data fleet structure within MDR-Dashboard 5.0.



**Restore Define Path Figure 319**



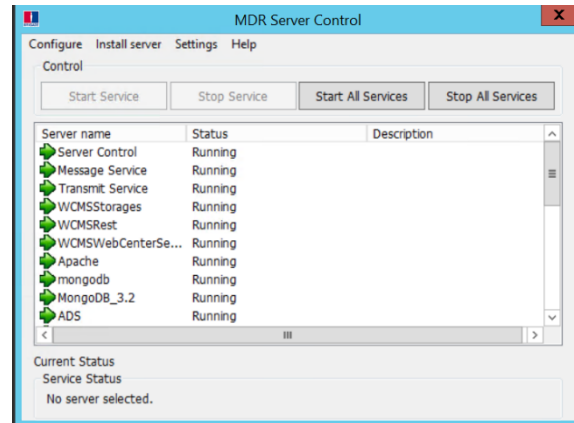
**Successful Restore Figure 320**

## 8.2 MDR Server Control

MDR Server Control is mainly used to check the status of services. It does have several other features that are discussed in further detail below.

**Configure** is used to set the MDR Server Control to autorun. This means that whenever the Windows Server is restarted, MDR Server will automatically run on start-up. The message server can also be configured here. By default, it is 127.0.0.1. This should not be changed.

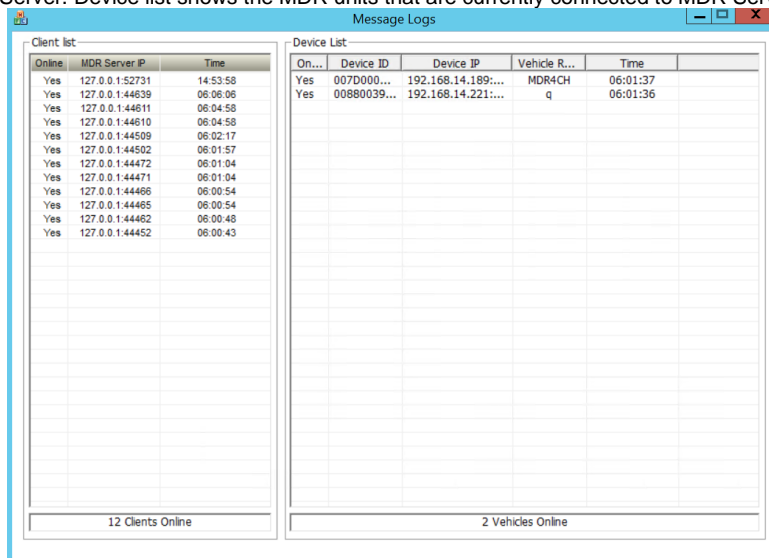
**Install Server** is used to install or uninstall a service. You can choose a specific service or all services.



**MDR Server Control Figure 321**

### 8.2.1 Message Logs

Double-clicking **Message Service** will open the message logs window. The client list will show MDR-Dashboard and MDR apps that are currently connected to MDR Server. Device list shows the MDR units that are currently connected to MDR Server.

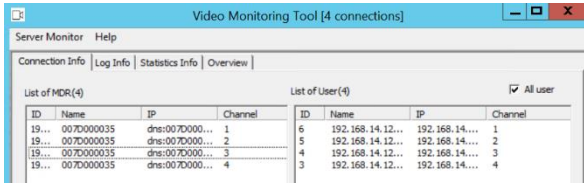


**Message Logs Figure 322**

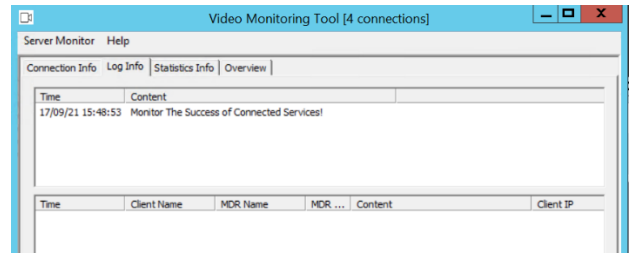
### 8.2.2 Video Monitoring Tool

Click **Settings** on the MDR Server control window then video monitoring tool to access it. Alternatively, double-clicking the **Transmit Service** will open the video monitoring tool.

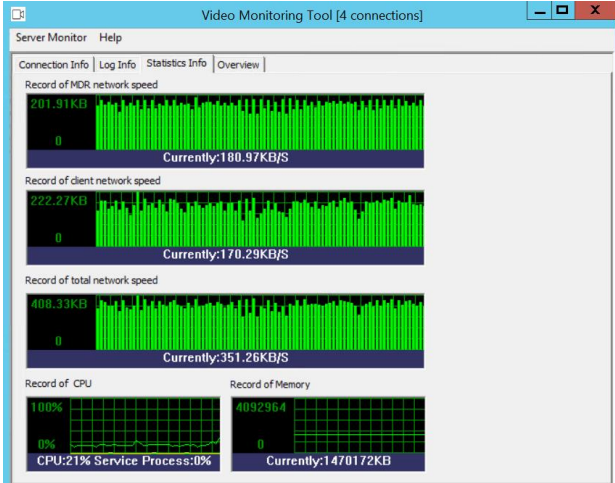
The Video monitoring tools can be used to monitor MDR/client connections to MDR Server. Network speeds can also be monitored within this tool.



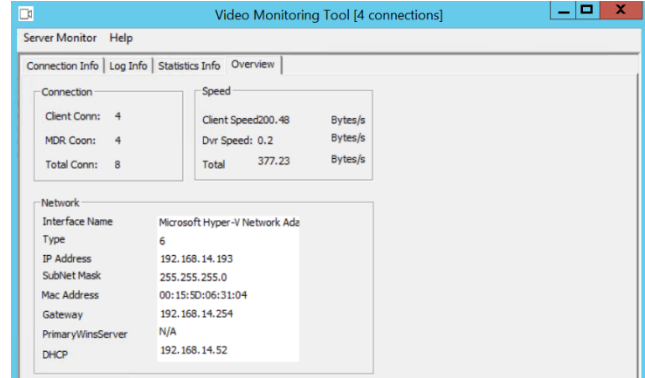
Connection Information Figure 323



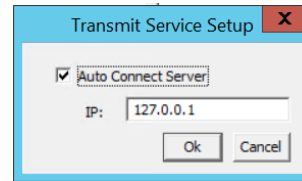
Log Information Figure 324



Statistics Information Figure 325



Overview Figure 326



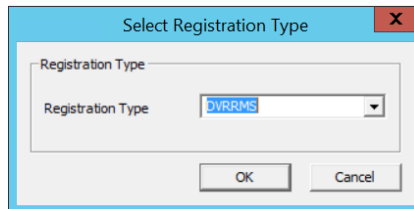
Transmit Service Setup Figure 327

### 8.2.3 License Tool

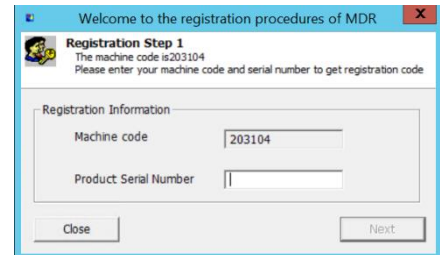
This tool is currently unused. Future purposes will be internal only (Brigade).

Follow the steps below to complete unlimited licensing:

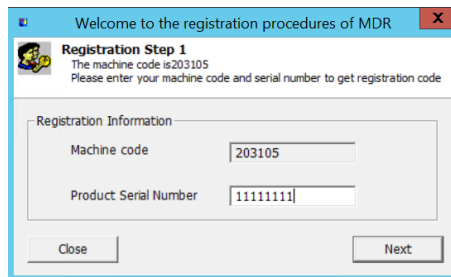
- Click **Settings** on the MDR Server control window then license tool to access it
- Choose DVRRMS and click **OK**.
- Take note of the Machine code - 203104.
- Submit this code to a Brigade engineer.
- Brigade engineer will create a registration code
- Once you have received the registration code, type in "11111111" into **PRODUCT SERIAL NUMBER**.
- Click **NEXT** then enter the registration code you received from a Brigade engineer.
- Click **REGISTER** to start the registration process.



License Tool Type Figure 328



License Registration Figure 329



Product Serial Number Figure 330

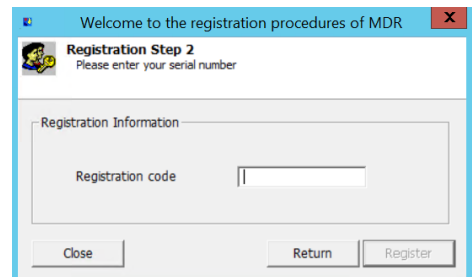


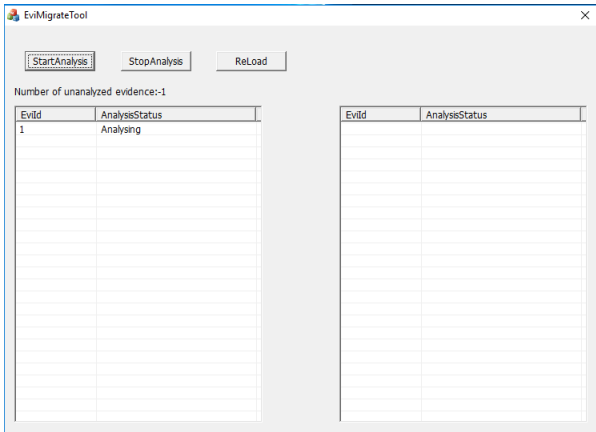
Figure 331

### 8.3 Evidence Migrate Tool

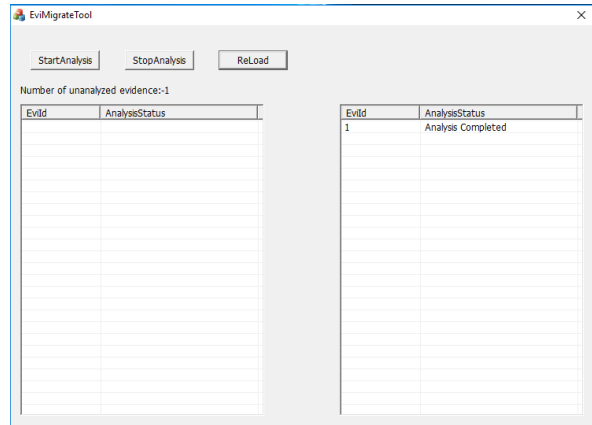
This tool is used to transfer evidence from previous version server into current version server. Because the database has been upgraded between versions, this tool is needed to migrate the evidence video on the previous server to the new server and MDR-Dashboard client.

After installing the new server and completing the restore process, open the Evimigrate tool, it will scan the folder and detect non-readable evidence items and display them as shown on the list below. The user can then click the "StartAnalysis" button to start the transition. After the process is complete, all evidence items should be listed in the right column.

Open the latest MDR-Dashboard 5.0, Evidence items created by the previous MDR-Dashboard 5.0 version, are able to be viewed and be operated on.



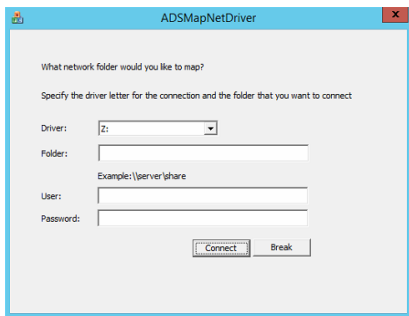
**Evidence Migrate Tool Figure 332**



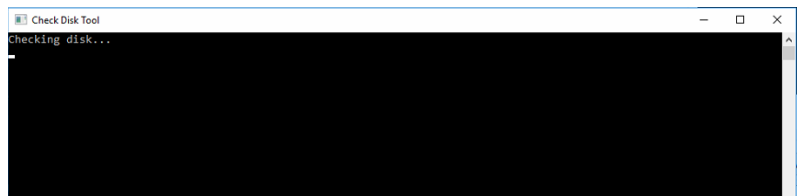
**Evidence Migrate Tool Complete Figure 333**

### 8.4 Check Disk Tool

This tool is used after user expand server storage with DAS devices (Directly Attached Storage) and NAS (Network Attached Storage). If using NAS, firstly run MDR-Server dedicated tool "ADSMNetDriver.exe" in **C:\Program Files (x86)\MDR Server 5.0\TransmitServer\AdServer** to map the network drive. Then the Check Disk Tool can be used. After running the program, restart the MDR-Dashboard client, then newly added storages will appear in the setting.



**ADSMNetDrive Tool Figure 334**



**Check Disk Tool Figure 335**

## 9 Appendices

### 9.1 Video Quality Table

Using Brigade's Resource calculator, the below tables have been compiled. Please note the following:

- The values below are for reference only
- Streaming bandwidth can vary considerably according to the level of variations in the image. Static images are more efficiently compressed than dynamic ones
- Frame rates are assumed to be set to maximum which is 25fps for PAL and 30fps for NTSC

Quality level		1 (Highest)	2	3	4	5	6	7	8 (Lowest)
Video Streaming Data Rate (Kbps) depending on resolution	D1 (Highest)	2048	1536	1230	1024	900	800	720	640
	HD1	1280	960	768	640	560	500	450	400
	CIF (Lowest)	800	600	480	400	350	312	280	250



## 9.2 Normal / Alarm Recording Parameters

**Warning:** The values shown below are for reference only.

For typical recording sizes for a one-hour duration and HDD recording times in hours versus storage capacity, please use the link below:  
<https://brigade-electronics.com/mdr-storage-calculator/>

A screenshot for 4 channels of the Mobile Digital Recorder Storage Calculator is shown below (using default settings):



## 9.3 Sub-Stream Recording Parameters

The following table is valid for both the MDR-504XX-X-XX-XXX(XX) using all 4 channels and MDR-508XX-X-XX-XXX(XX) using all 8 channels. It illustrates approximate SD recording times in hours at CIF resolution and different frame rates. Ranges of frame rates are controlled by the sub-stream bandwidth.

Note: Sub-stream and Mainstream recording onto SD card has resource limitations, the maximum bitrate is 12Mbps.

Recording Time onto SD (hours) depending on frame rate	Bandwidth	4096 Kbps	3200 Kbps	500 Kbps
	25 fps (fastest)	12		
	20 fps	15		
	15 fps		20	
	10 fps		29	
	5 fps			60
1 fps (slowest)				305

Please calculate using the following steps:

PAL: Actual Bit Rate = Actual framerate / 25 \* Bit Rate (Full framerate) \* transfer ratio

Transfer Ratio: Framerate (1-5):1.4; Framerate (6-11):1.3; Framerate (12-17):1.2; Framerate (18-22):1.1; Framerate (23-25):1.0

NTSC: Actual Bit Rate = Actual framerate / 30 \* Bit Rate (Full framerate) \* transfer ratio

Transfer Ratio: Framerate (1-6):1.4; Framerate (7-14):1.3; Framerate (15-21):1.2; Framerate (22-27):1.1; Framerate (28-30):1.0

## 9.4 Software Compatibility Matrix

No.	Firmware Version	Client Version	Server Version	Compatibility	Comments
(1)	MDR-504_V231_T200915.01_M0526_FS5.0 MDR-508_V231_T200915.01_M0526_FS5.0	MDR-Dashboard 5.0_2.3.1.0.55	MDR server 5.0(2.2.2.0.78)	Yes	
(2)	MDR-504_V231_T200915.01_M0526_FS5.0 MDR-508_V231_T200915.01_M0526_FS5.0	MDR-Dashboard 5.0_2.3.1.0.55	MDR server 5.0(2.6.3.50.29) & (2.6.3.50.30)	No	The current MDR-Dashboard cannot log in to the new server, please make sure that the MDR Server and client are compatible
(3)	MDR-504_V231_T200915.01_M0526_FS5.0 MDR-508_V231_T200915.01_M0526_FS5.0	MDR-Dashboard 5.0_2.3.1.0.66	MDR server 5.0(2.2.2.0.78)	No	When use the new MDR-Dashboard to login the current server, the ADS feature and playback of web client cannot be used.
(4)	MDR-504_V231_T200915.01_M0526_FS5.0 MDR-508_V231_T200915.01_M0526_FS5.0	MDR-Dashboard 5.0_2.3.1.0.66	MDR server 5.0(2.6.3.50.29) & (2.6.3.50.30)	Not fully compatible	Current FW does not support HDD key feature for recordings. Client can read any recording on an MCU from current FW or any previous FW.
(5)	MDR-504_V231_T210409.01_M0526_FS5.0 MDR-508_V231_T210409.03_M0526_FS5.0	MDR-Dashboard 5.0_2.3.1.0.55	MDR server 5.0(2.2.2.0.78)	Not fully compatible	Current client can read any recording on a MCU independent no matter HDD key feature enabled or not in the MDR with the "to be release FW" the recording was made.
(6)	MDR-504_V231_T210409.01_M0526_FS5.0 MDR-508_V231_T210409.03_M0526_FS5.0	MDR-Dashboard 5.0_2.3.1.0.55	MDR server 5.0(2.6.3.50.29) & (2.6.3.50.30)	No	The current MDR-Dashboard cannot log in to the new server, please make sure that the MDR server and client are compatible
(7)	MDR-504_V231_T210409.01_M0526_FS5.0 MDR-508_V231_T210409.03_M0526_FS5.0	MDR-Dashboard 5.0_2.3.1.0.66	MDR server 5.0(2.2.2.0.78)	No	When use the new MDR-Dashboard to login the current server, the ADS feature and playback of web client cannot be used.

(8)	MDR-504_V231_T210409.01_M0526_FS5.0 MDR-508_V231_T210409.03_M0526_FS5.0	MDR-Dashboard 5.0_2.3.1.0.66	MDR server 5.0(2.6.3.50.29) & (2.6.3.50.30)	Yes	
-----	--	---------------------------------	---	-----	--

Notes:

- iOS and Android apps: New apps are compatible with new and old server. While old apps not compatible with new server.
- Please ensure MDR-Server and MDR-Dashboard versions match.

#### Additional Compatible List 1 for Upgrading/Downgrading Firmware

Item	FW Version Before	FW Version After	Compatibility
1	MDR-504_V231_T200915.01_M0526_FS5.0 MDR-508_V231_T200915.01_M0526_FS5.0	MDR-504_V231_T210409.01_M0526_FS5.0 MDR-508_V231_T210409.03_M0526_FS5.0	Yes
2	MDR-504_V231_T210409.01_M0526_FS5.0 MDR-508_V231_T210409.03_M0526_FS5.0	MDR-504_V231_T200915.01_M0526_FS5.0 MDR-508_V231_T200915.01_M0526_FS5.0	Yes

#### Additional Compatible List 2 for Import Config File from Version to Version

Item	FW Version Before	FW Version After	Compatibility	Remark
1	MDR-504_V231_T200915.01_M0526_FS5.0 MDR-508_V231_T200915.01_M0526_FS5.0	MDR-504_V231_T210409.01_M0526_FS5.0 MDR-508_V231_T210409.03_M0526_FS5.0	Yes	New features settings: 1. MTU value reset to 1500 (as default) 2. HDD Key off (as default) 3. Sleep mode off (as default) 4. RTSP off (as default)
2	MDR-504_V231_T210409.01_M0526_FS5.0 MDR-508_V231_T210409.03_M0526_FS5.0	MDR-504_V231_T200915.01_M0526_FS5.0 MDR-508_V231_T200915.01_M0526_FS5.0	Yes	Nothing affected

#### Additional Compatible List 3 for mobile app compatibility between old/new server version

Item	App Version	Server Version	Compatibility	Remark
1	MDR 5.0_1.4.1_20201022	MDR 5.0_1.5.1_20210429	No	Current mobile app cannot login with new server credentials, as new server updated ports and communication interface.
2	MDR 5.0_1.5.1_20210429	MDR 5.0_1.4.1_20201022	Yes	New app is backwards compatible with previous server. New features not supported and automatically hidden (Data Centre, Playback), old features remain unaffected (Map, Live view and Alarm Centre).

## 9.5 MDR-Dashboard 5.0 Silent Installation

MDR-Dashboard 5.0 supports silent installation using PowerShell switches. Follow the steps below to complete a silent installation:

Copy the installer to a directory, such as: C:\install\MDR-Dashboard\_5.0\_2.2.2.0.22.exe

Enter the PowerShell window

Run the command: C:\install\MDR-Dashboard\_5.0\_2.2.2.0.22.exe /VERYSILENT /SP-

You can also put the command in the batch file install.bat and double-click install.bat to run it. An example is shown below

```
ECHO.
ECHO Installing MDR-Dashboard 5.0
ECHO Please wait...
start /wait %systemdrive%\install\MDR-Dashboard_5.0_2.2.2.0.22.exe /VERYSILENT /SP-
ECHO
ECHO Killing MDR-Dashboard_5.0_2.2.2.0.22.exe process
taskkill.exe /F /IM MDR-Dashboard_5.0_2.2.2.0.22.exe
ECHO
```

## 9.6 MDR-Dashboard 5.0 Additional PowerShell Switches

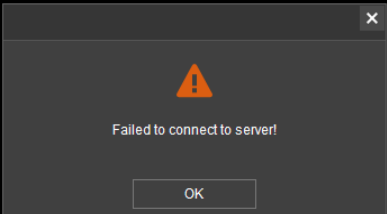
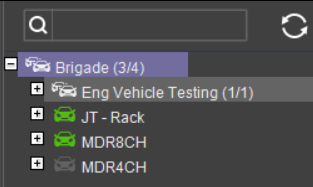
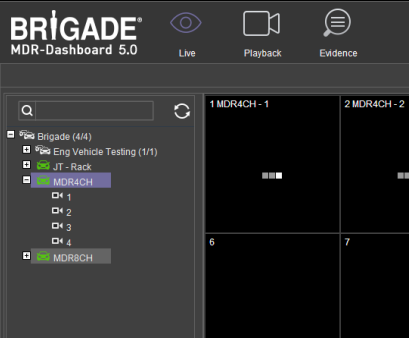

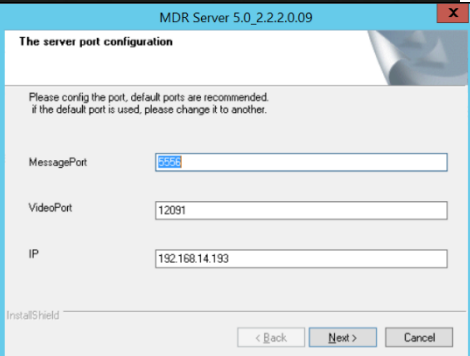
SP-	Disables the "This will install... Do you wish to continue?" prompt at the beginning of the setup. This will have no effect if the DisableStartupPrompt [Setup] section directive was set to yes.
/SILENT, /VERYSILENT	Instructs Setup to be silent or very silent. When Setup is silent the wizard and the background window are not displayed but the installation progress window is. When a setup is very silent this installation progress window is not displayed. Other prompts display as normal, for example error messages during installation are displayed and the startup prompt is (if you haven't disabled it with DisableStartupPrompt or the "/SP-" command line option explained above) If a restart is necessary and the "/NORESTART" command isn't used (see below) and Setup is silent, it will display a Reboot now? messagebox. If it is very silent it will reboot without prompting.
/NORESTART	Instructs Setup not to reboot even if it is necessary.
/LOADINF="filename"	Instructs Setup to load the settings from the specified file after having checked the command line. This file can be prepared
using the "/SAVEINF=" command as explained below. /SAVEINF="filename"	Instructs Setup to save installation settings to the specified file.
/DIR="x:\dirname"	Overrides the default directory name displayed on the Select Destination Directory wizard page. A fully qualified pathname must be specified. If the [Setup] section directive DisableDirPage was set to yes, this command line parameter is ignored.

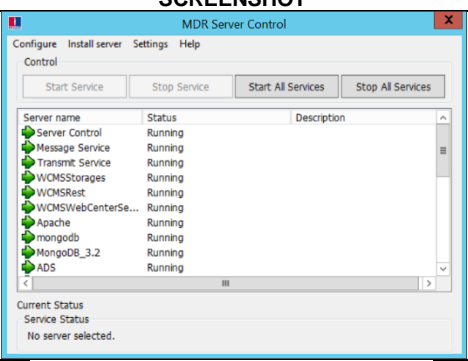
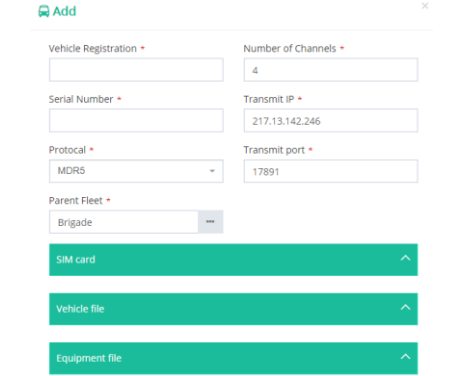

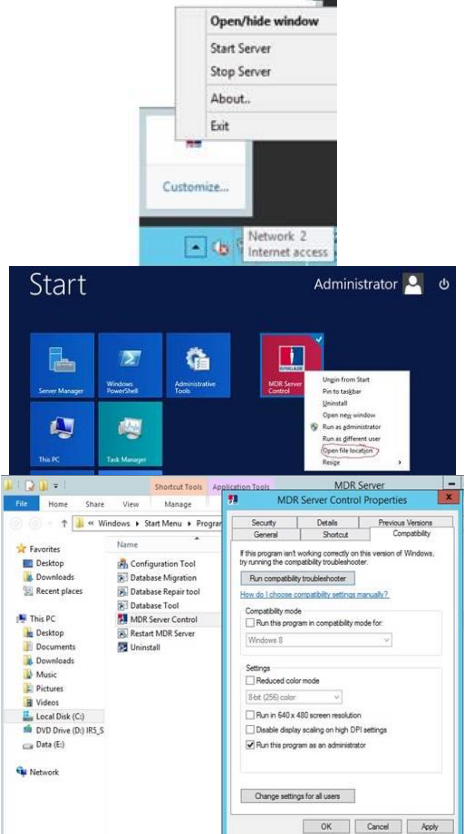
/GROUP="folder name"	Overrides the default folder name displayed on the Select Start Menu Folder wizard page. If the [Setup] section directive DisableProgramGroupPage was set to yes, this command line parameter is ignored.
/NOICONS	Instructs Setup to initially disable the Don't create any icons check box on the Select Start Menu Folder wizard page.
/COMPONENTS="comma separated list of component names"	Overrides the default components settings. Using this command line parameter causes Setup to automatically select a custom

## 10 Troubleshooting



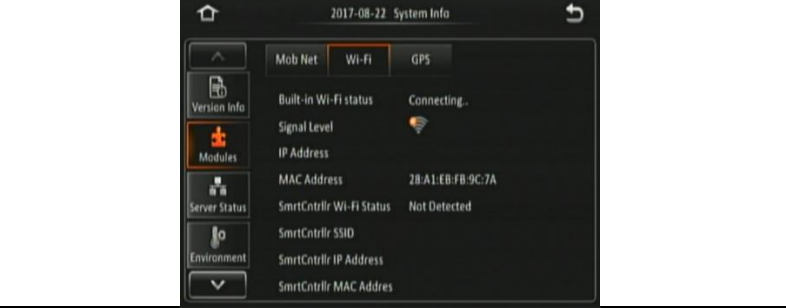
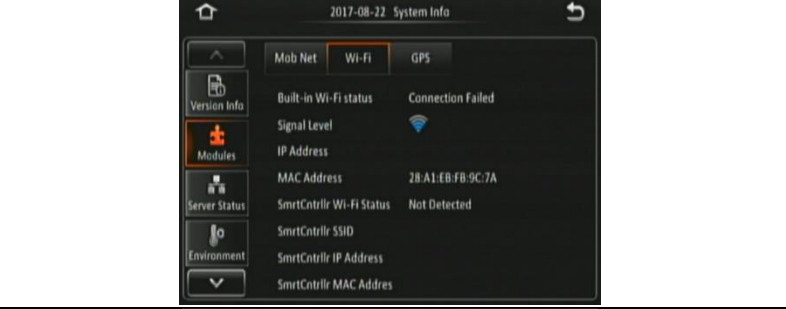

### 10.1 Mobile Network and Wi-Fi Troubleshooting

This chapter discusses various problem scenarios and their resolutions. This is not limited to the list below.

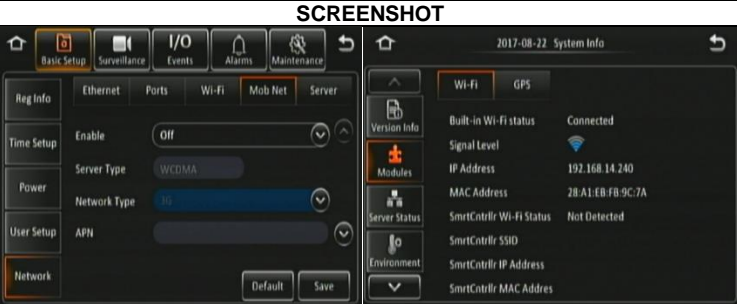

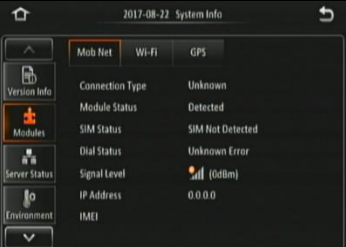
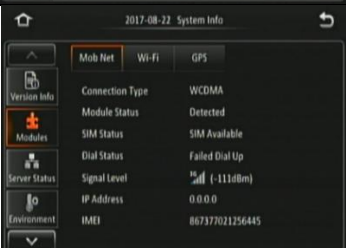
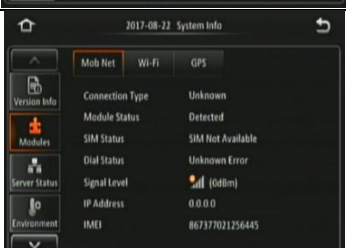



#	SCENARIO	SCREENSHOT	RESOLUTION
(1)	Unable to connect to my Wi-Fi Server		<ol style="list-style-type: none"> <li>1. Check if you are connected to the MDR Server Wi-Fi network</li> <li>2. Check your login details</li> <li>3. Check if the Wi-Fi Windows Server is on</li> <li>4. Confirm all services are running in the MDR Server software</li> </ol>
(2)	MDR shows offline		<ol style="list-style-type: none"> <li>1. Check if the MDR is out of network coverage.</li> <li>2. Confirm the MDR Network settings</li> <li>3. Check if the Server status window indicates it is online</li> <li>4. Confirm SERIAL NUMBER (in MDR-Dashboard settings) = SERIAL NUMBER (in MDR unit settings).</li> </ol>
(3)	Able to connect to MDR, but cannot see Live Video in MDR-Dashboard		<ol style="list-style-type: none"> <li>1. Check if Transmit service is running in MDR Server</li> <li>2. First attempt to stop and restart the service using the MDR Server control window</li> <li>3. If it is not running, obtain the new license file. Go to <a href="http://brigade-electronics.com/">http://brigade-electronics.com/</a> to obtain this file. LIC_DVRGTSERVICE. Copy this file to the following path C:\Program Files (x86)\MDR Server\TransmitServer. Ensure the existing file is overwritten</li> <li>4. Check network speeds, low speeds will result in video loading issues</li> </ol>
(4)	MDR Dial Status says Failed Dial Up		<ol style="list-style-type: none"> <li>1. Check if your SIM Data has been activated</li> <li>2. Confirm the APN settings in the MDR are correct</li> </ol>
(5)	All Features in Dashboard work apart from Live Video		<ol style="list-style-type: none"> <li>1. Ensure that the MDR Server SW has been installed and the Public IP address has been used as its IP during the installation process.</li> <li>2. If this was not done correctly, uninstall the SW, restart the Windows Server and re-install the SW using the correct IP.</li> </ol>

#	SCENARIO	SCREENSHOT	RESOLUTION
(6)	MDR Server services refuse to start		<ol style="list-style-type: none"> <li>1. Uninstall MDR Server</li> <li>2. Install the latest Microsoft .NET Framework from the following website: <a href="https://www.microsoft.com/net/download">https://www.microsoft.com/net/download</a> This installation will replace any current .NET installation automatically</li> <li>3. Re-install MDR Server</li> <li>4. Run MDR Server as administrator.</li> </ol>
(7)	I can only view certain channels in Live View, but I know I have 4/8 cameras		<ol style="list-style-type: none"> <li>1. In MDR-Dashboard 5.0 ensure the number of channels are set correctly – system manage &gt; Vehicle.</li> </ol>
(8)	Live View and Playback functions do not work		<ol style="list-style-type: none"> <li>1. Ensure that the Media Server Port and MDR Server Port on the MDR hardware is correct</li> </ol>
(9)	MDR Server is not running all services		<ol style="list-style-type: none"> <li>1. This applies if the server is connected to a Domain and the local PC account is not being used</li> <li>2. MDR server requires administrative rights.</li> <li>3. Close the MDR-Server Control software by right clicking the MDR Server Control Taskbar tray icon &gt; Exit</li> <li>4. Click start, right click MDR-Server control &gt; click Open file location</li> <li>5. Right click MDR Server Control &gt; click properties &gt; go to compatibility tab &gt; tick Run this program and administrator &gt; click ok.</li> <li>6. Now open the MDR server control again. You should see all services connected again.</li> </ol>

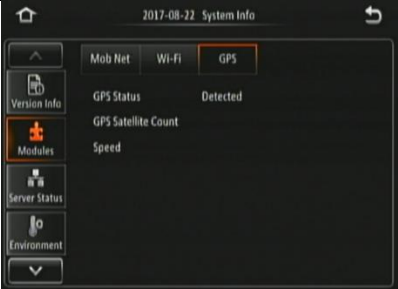
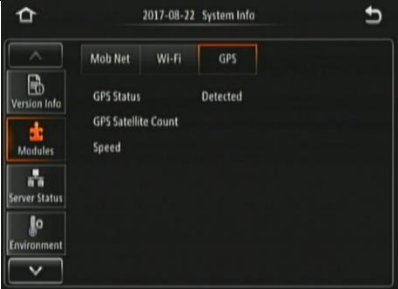

## 10.2 Wi-Fi MDR Status Troubleshooting

#	WI-FI STATUS	SCREENSHOT	EXPLANATION
(1)	Wi-Fi Enable: OFF	 <p>The screenshot shows the 'Wi-Fi' tab in the MDR OSD. The 'Enable' option is set to 'OFF'. Other settings like SSID, Encryption, and Password are visible but not fully legible.</p>	Wi-Fi is disabled in the MDR OSD Menu, this will mean the Wi-Fi tab in Sys Info will disappear
(2)	Wi-Fi Enable: ON	 <p>The screenshot shows the 'Wi-Fi' tab in the MDR OSD. The 'Enable' option is set to 'ON'. The SSID is 'AP1', Encryption is 'WPA/WPA2', and a password is entered.</p>	Wi-Fi is enabled in the MDR OSD Menu.  Requires SSID, Encryption and Password.
(3)	Built-in Wi-Fi Status: CONNECTING	 <p>The screenshot shows the 'System Info' screen with the 'Wi-Fi' tab selected. The 'Built-in Wi-Fi status' is 'Connecting'. Signal level, IP address, and MAC address are also visible.</p>	Access point details have just been entered, attempting to connect  Status keeps switching between connecting and connection failed for an incorrect password
(4)	Built-in Wi-Fi Status: CONNECTION FAILED	 <p>The screenshot shows the 'System Info' screen with the 'Wi-Fi' tab selected. The 'Built-in Wi-Fi status' is 'Connection Failed'. Signal level, IP address, and MAC address are also visible.</p>	SSID or Encryption has been entered wrong
(5)	IP Address: 192.168.14.240	 <p>The screenshot shows the 'System Info' screen with the 'Wi-Fi' tab selected. The 'Built-in Wi-Fi status' is 'Connected'. The IP address is '192.168.14.240'. Signal level, MAC address, and other details are also visible.</p>	Successfully obtained an IP address from network – confirms that there is proper connection to the network

### 10.3 Mobile Network MDR Status Troubleshooting

#	MOB. NET. STATUS	SCREENSHOT	EXPLANATION
(1)	Mob Net Enable: OFF		Mobile network is disabled in the MDR OSD Menu, this will mean the mobile network tab in Sys Info will disappear
(2)	Mob Net Enable: ON		Mob Net is enabled in the MDR OSD Menu.  Requires Network Type, APN, Username, Password, Access Number and Certification.
(3)	SIM Status: SIM NOT DETECTED		No SIM card has been inserted in the MDR unit Sim card not fitted correctly, – sticking out, upside down, dislodged
(4)	Dial Status: FAILED DIAL UP		Incorrect Network Type, APN, Username, Password, Access Number and Certification.
(5)	Dial Status: UNKNOWN ERROR		Incorrect Network Type, APN, Username, Password, Access Number and Certification.
(6)	Dial Status: DIALLED UP		Diallyed successfully and connected to a mobile network provider
(7)	IP Address: 10.14.33.5		Successfully obtained IP from a mobile network provider
(8)	Signal Level		Orange dot indicates that the mobile network antenna is not physically connected to the MDR antenna connector.

## 10.4 GPS MDR Status Troubleshooting

#	GPS STATUS	SCREENSHOT	EXPLANATION
(1)	GPS Status: NOT DETECTED		Has not detected the GPS module
(2)	GPS Status: DETECTED		GPS Satellite Count being blank indicates that the GPS antenna is not physically connected to the MDR antenna connector.
(3)	GPS Satellite Count: 1-24		GPS has valid signal and locked onto its position, the higher the value the better
(4)	Speed: 0 MPH		GPS has valid signal and locked onto its position, speed is 0 for a stationary vehicle

Approvals

CE

UNECE Regulation No. 10 Revision 5 ("E-marking")

FCC

IC



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any change or modifications not expressly approved by the responsible party responsible for compliance could void the user's authority to operate the equipment.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. For products available in the US and Canadian markets, only channels 1-11 are available. You cannot select other channels. This device and its antennas must not be co-located or operated in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedures. This device operates in the ~2.4GHz frequency range. It is restricted to indoor environments only.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. For products available in the US and Canadian markets, only channels 1-11 are available. You cannot select other channels. This device and its antennas must not be co-located or operated in conjunction with any other antenna or transmitter except in accordance with IC multi-transmitter product procedures. This device may automatically discontinue transmission if there is no information to transmit, or an operational failure. Note that this is not intended to prohibit the transmission of control or signalling information or the use of repetitive codes where required by the technology. To reduce potential for harmful interference to co-channel mobile satellite systems, this device operates in the 5150-5250 MHz band, and is for indoor use only.

# 11 EU Declaration of Conformity

**Product Types:**

Brigade Mobile Digital Recorder System MDR-504XX-X-XX-XXX(XX), MDR-508XX-X-XX-XXX(XX).

**Manufacturer:**

Brigade House, The Mills, Station Road, South Darenth, DA4 9BD, UK

This declaration of conformity is issued under the sole responsibility of Brigade Electronics.

**Objects of the declaration:**

Mobile Digital Recorder System with GPS, Wi-Fi and 4G connectivity, including accessories and cables.

The objects of the declaration described above are in conformity with the relevant Union harmonisation legislation:

Directive 2014/53/EU

**Relevant Harmonised Standards:**

**4G**

- EN 301 489-1, EN 301-489-19 and EN 301-489-52.
- EN 301 908-1; EN 301 908-2; EN 301 908-13 and EN 301 511.
- EN 303 413.

**Wi-Fi**

- EN 301 489-1 and EN 301 489-17.
- EN 300 328.

**GPS**

- EN 301 489-1 and EN 301 489-19.
- EN 303 413.

**Additional information:**

**4G**

- Operational Frequency Band: LTE: B1,B3,B7,B8,B20,B28A; WCDMA: B1,B8; GSM: 900/1800MHz
- Maximum Transmitted Power: 35 dBm EIRP

**Wi-Fi**

- Operational Frequency Band: 2412 - 2472 MHz
- Maximum Transmitted Power: 15.82 dBm EIRP

The above equipment should be installed and operated with a minimum distance of 20cm between the mobile digital recorder and any human body.

Signed for and on behalf of Brigade Electronics Group PLC

South Darenth, DA4 9BD, UK

*Thomas Schmidt*

Thomas Schmidt

Group Quality Manager



## 12 Glossary

3G – Third Generation Mobile Network	LAN – Local Area Network
4G – Fourth Generation Mobile Network	LED – Light Emitting Diode
AC – Adaptor Cable	MAC – Media Access Control
ADPCM – Adaptive Differential Pulse-code Modulation	MB – Megabyte
APN – Access Point Name	MCU – Mobile Caddy Unit
AVI – Audio Video Interleaved	MD – Motion Detection
BD – Blind Detection	MDR – Mobile Digital Recorder
CBR – Constant Bit Rate	MHz – Megahertz
CE – Conformité Européenne	MPH – Miles per hour
CH – Channel	NET – Network
CHAP – Challenge Handshake Authentication Protocol	NTSC – National Television System Committee
CIF – Common Intermediate Format (¼ D1 format)	OSD – On-screen Display
CPU – Central Processing Unit	PAL – Phase Alternating Line
CU – Control Unit	PAP – Password Authentication Protocol
D1 – D1 is full standard resolution for 25FPS (PAL) and 30FPS (NTSC)	PC – Personal Computer
DS – Docking Station	PN – Part Number
DST – Daylight Saving Time	PTZ – Pan, Tilt and Zoom
EDGE – Enhanced Data GSM Environment	PWR – Power
EIA – Electronic Industries Alliance	REC – Record
EXP – Expansion	RES – Resolution
FCC – Federal Communications Commission	RP – Remote Panel
FPB – Fireproof box	RPC – Remote Panel Cable
GB – Gigabyte	S/N – Serial Number
GHz – Gigahertz	SD – Secure Digital
GND – Ground	SIM – Subscriber Identity Module
GPIO – General Purpose Input/output	SMA – Sub Miniature Version A connector
GPRS – General Packet Radio Service	SMTP – Simple Mail Transfer Protocol
GPS – Global Positioning System	SPD – Speed
GSC – G-sensor Cable	SQL – Structured Query Language
G-Sensor - measure of acceleration/shock of the vehicle	SSL – Secure Sockets Layer
GSM – Global System for Mobile Communications	TB – Terabyte
GUI - Graphical user interfaces	TIA – Telecommunications Industry Association
H.264 – Video compression standard	TRIG – Trigger
HD1 – Half Definition compared to Full Definition (See D1)	UNECE – United Nations Economic Commission for Europe
HDD – Hard Disk Drive	UPS – Uninterruptable Power Supply
HSDPA – High Speed Downlink Packet Access	USB – Universal Serial Bus
HSPA – High Speed Packet Access	V – Voltage
HSUPA – High Speed Uplink Packet Access	VBR – Variable Bit Rate
IC – Industry Canada	VGA – Video Graphics Array
ID – Identification	VIC – Video Input Cable
IO – Input/output	VL – Video Loss
iOS – i Operating System	VOC – Video Output Cable
IP – Internet Protocol	W – Watt, standard unit of power
IR – Infra-red	WCDMA – Wide Code Division Multiple Access
IT – Information technology	Wi-Fi – Wireless Fidelity
Km/h – Kilometres per hour	

## 13 Disclaimer

Mobile digital recorder systems are an invaluable driver aid but do not exempt the driver from taking every normal precaution when conducting a manoeuvre. No liability arising out of the use or failure of the product can in any way be attached to Brigade or to the distributor.

### Dénégation

Les enregistreurs numériques portables sont une aide précieuse pour le conducteur, mais celui-ci doit toutefois prendre toutes les précautions nécessaires pendant les manœuvres. Brigade ou ses distributeurs n'assument aucune responsabilité résultant de l'utilisation ou d'un défaut du produit.

### Haftungsausschluss

Mobile Datenaufzeichnung Systeme sind für den Fahrer eine unschätzbare Hilfe, ersetzen aber beim Manövrieren keinesfalls die üblichen Vorsichtsmaßnahmen. Für Schäden aufgrund der Verwendung oder eines Defekts dieses Produkts übernehmen Brigade oder der Vertriebshändler keinerlei Haftung.

### Condizioni di Utilizzo

I sistemi di registrazione digitale mobile costituiscono un prezioso ausilio alla guida, ma il conducente deve comunque assicurarsi di prendere tutte le normali precauzioni quando esegue una manovra. Né Brigade né il suo distributore saranno responsabili per eventuali danni di qualsiasi natura causati dall'utilizzo o dal mancato utilizzo del prodotto.

### Aviso legal

Sistemas móviles grabadora digital son una ayuda inestimable driver pero no exime al conductor de tomar todas las precauciones normales al realizar una maniobra. Ninguna responsabilidad que surja del uso o fallo del producto puede de alguna manera acoplarse a la brigada o al distribuidor.

### Declinação de responsabilidade

Celular gravador digital de sistemas são uma inestimável driver de auxílio, mas não isentam o driver de tomar todas normal precaução ao realizar uma manobra. Nenhuma responsabilidade decorrente da utilização ou falha do produto pode de qualquer maneira ser anexado ao de bombeiros ou para o distribuidor.

### Verwerping

Mobiele digitale recorder systemen zijn een waardevolle hulp voor de bestuurder, maar stelt de bestuurder niet vrij van de normale voorzorgsmaatregelen bij het uitvoeren van een manoeuvre. Geen aansprakelijkheid voortvloeiend uit het gebruik of falen van het product kan op één of andere manier aan Brigade of aan de distributeur worden toegekend.

### Отказ от обязательств

Системы видеорегистрации оказывают водителю неоценимую помощь при маневрировании, но не освобождают его от обязанности соблюдения обычных мер предосторожности. В ином случае компания Brigade или дистрибьютор не несет ответственность, возникающую в ходе использования или по причине неисправности данного продукта.

### Hatırlatma

Mobil Sayısal Kayıt Cihazları sürücünün önemli bir yardımcısı olmakla birlikte, manevra esnasında sürücü bir kaza olmaması için her türlü önlemi almalıdır. Brigade veya bölgesel dağıtıcıları yapılacak yanlış bir uygulama ve sonucunda oluşabilecek maddi ve/veya manevi kayıplardan sorumlu tutulamaz.

### Uwaga

Systemy mobilnych cyfrowych rejestratorów są niezastąpioną pomocą dla kierowcy, ale jego posiadanie nie zwalnia kierowcy z zachowania szczególnej ostrożności podczas manewrów. Żadna kolizja drogowa ani jej skutki nie mogą obciążać producenta urządzenia oraz jego dystrybutorów.

Specifications subject to change. Sous réserve de modifications techniques. Änderungen der technischen Daten vorbehalten. Specifiche soggette a variazioni. Las especificaciones están sujetas a cambios. Wijzigingen in specificaties voorbehouden. As especificações estão sujeitas a alterações. Спецификация может изменяться. Brigade Electronics belirttiği özellikleri haber vermeksizin istediği zaman değiştirebilir. Specyfikacja techniczna może ulec zmianie.

