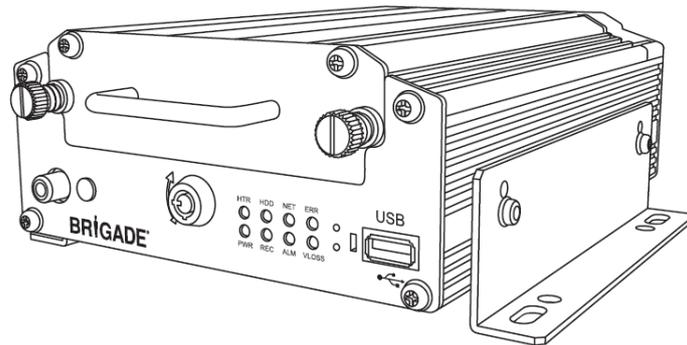


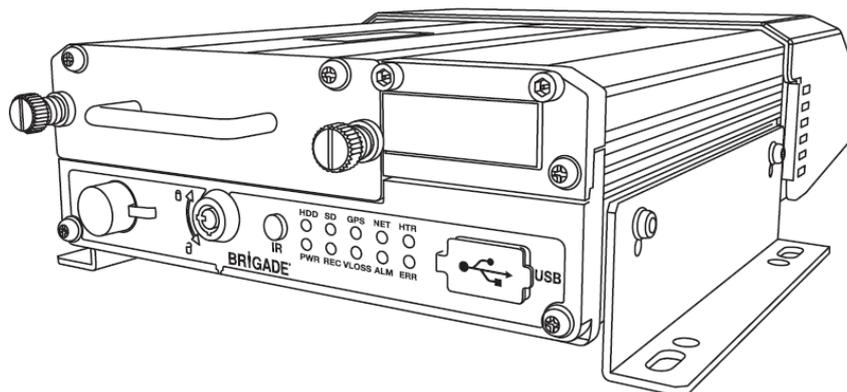


## Mobile Digital Recorder

**MDR-404GW-500**  
**MDR-404G-500**  
**MDR-404W-500**



**MDR-408GW-1000**  
**MDR-408G-1000**  
**MDR-408W-1000**



**MDR 400 Series Mobile and Wi-Fi Network Connectivity Software and Infrastructure Manual**  
**(For Operators and Information Technology Professionals)**

Please refer to <http://brigade-electronics.com/> for most up-to-date data on all products



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# 1 Introduction to MDR 400 Series Technology

Brigade's MDR-408xx-1000 and MDR-404xx-500 are advanced Mobile Digital Recorders (MDRs) designed to record and playback 8 or 4 channels. The system uses PAL or NTSC cameras in CIF, HD1 or D1 format. Information related to recording parameters, alarms and trigger status can be recorded along with speed, location and G-Force data. In addition to the above, data related to the unit itself such as voltage and temperature are recorded and plotted graphically (MDR-Dashboard 2.0 and MDR-Player 2.0).

Recordings can be searched, viewed and exported using MDR-Dashboard 2.0. This allows users to access all of the vehicle's travel information, including route tracking. Recordings can be easily exported in three different ways: as a simple audio/video AVI file playable by consumer media players; as native proprietary format (H.246) clips or as a password protected .exe file with MDR-Player 2.0 embedded.

The main storage unit is a large capacity Hard Disk Drive (HDD). The secondary storage is an internal SD (Secure Digital) card for mirror (simultaneous) recording. The SD card stores all HDD data in lower image resolution. This is useful when there is a limitation of the primary storage media (e.g. a HDD write error during a severe collision).

Mobile Network and Wi-Fi connectivity can be attained by upgrading the MDR 400 Series units. 8 channel models allow users to modular upgrade their units. These units can be upgraded by purchasing various expansion modules. 4 channel units do not have a modular design.

It is imperative that the Brigade MDR is 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.

Table 1: Description of MDR 400 Series Models:

Model	Number of Channels	HDD Capacity	SD Capacity	GPS	Mobile Network	Wi-Fi
MDR-404GW-500	4	500GB	32GB	✓	✓	✓
MDR-404G-500	4	500GB	32GB	✓	✓	
MDR404W-500	4	500GB	32GB	✓		✓
MDR-404-500	4	500GB	32GB	✓		
MDR-408GW-1000	8	1000GB	64GB	✓	✓	✓
MDR-408G-1000	8	1000GB	64GB	✓	✓	
MDR-408W-1000	8	1000GB	64GB	✓		✓
MDR-408-1000	8	1000GB	64GB	✓		

Table 2: Available Software for MDR 400 Series Products:

Windows PC Software	Mobile Phone Software
MDR-Dashboard 2.0	MDR 2.0 (Android)
MDR-Player 2.0	MDR 2.0 (iOS)
MDR Server 1.0	

**Warning: Prior to attempting this system setup, please ensure the MDR 400 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.**

## 1.1 Product Features

Table 3: Differences between MDR-404xx-500 and MDR-408xx-1000.

MDR-404xx-500	MDR-408xx-1000
500GB (1TB max) 2.5" HDD with anti-vibration mounting	1TB (1TB max) 2.5" HDD with anti-vibration mounting
Industrial grade 32GB internal SD card for simultaneous recording	Industrial grade 64GB internal SD card for simultaneous recording
Simultaneous 4 channel recording up to D1 @25fps (PAL) / @30fps (NTSC) each	Simultaneous 8 channel recording up to HD1 @25fps (PAL) / @30fps (NTSC) each or 8 channels at D1 @12fps (PAL) / @15fps (NTSC)
Display split 1/4 channels	Display split 1/4/8 channels
1x EIA/TIA 485 (RS485) for optional External G-Sensor or for Remote Status & Interface Panel	2x EIA/TIA 485 (RS485) for optional External G-Sensor and for Remote Status & Interface Panel
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
Purchase a New Full Kit for Mobile Network or Wi-Fi connectivity	Upgrade Expansion Module for Mobile Network or Wi-Fi connectivity
N/A	Built-in G-Sensor

Table 4: Features of MDR 400 Series

MDR 400 Series	
Internal anti-vibration mount for the HDD allows any mounting direction	Video quality selectable at 8 different levels for recording
Embedded super-capacitor for finalisation of recording after unexpected power interruption (up to 10 seconds)	Video/Audio compression H.264/ADPCM
Ruggedized metal case	Normal, Alarm or Timer recording modes
Individual channel configurations for recording resolution, frame rate and quality	Alarm recordings configurable for trigger, speed, G-Force, video loss, motion detection, blind detection, panic button and temperature
Anti-tampering feature – using digital code	Low voltage protection with configurable shut-down delay and minimum restart voltage
Recording operation log files for troubleshooting	Ethernet 10/100 RJ45 port for configuration and live view
GPS for location monitoring and tracking with external antenna	IR Remote control for configuration and recording/event search
GPIO: 8x trigger input; 2x trigger output (12V max. 200mA)	Shut-down delay configurable from 10min to 24hrs
USB-B interface for displaying video recordings on a Windows™ operating system	12V Output max 1A load
USB-A interface for downloading video recordings onto USB pen drive	9-36V Power Input
Scheduled and real-time recording	Operating temperature: -25°C to +60°C
Pre-alarm recording 1-60 minutes and Post-alarm recording 0 to 30 minutes	Operating relative humidity: 10% to 90%

## 2 MDR Server Requirements and Installation

MDR Server 1.0 is required software that runs on the server PC. This software enables an MDR unit to connect to the server PC. MDR Server controls the assignment of ports and its functionality.

Note: This software runs on a yearly license. When nearing the expiration date, please visit Brigade's website (<http://brigade-electronics.com/>) to download new license files.

### 2.1 MDR Server Requirements

In order to use Mobile Network and Wi-Fi connectivity features simultaneously, **TWO SEPARATE** MDR Server installations are required. There are several IT solutions that can achieve this, see the 2 examples below:

- 2 Server PCs– Hardware solution
- 1 Server PC with 2 virtual machines – Software solution such as ESXI
- 2 Static IP Addresses – Internet Provider Solution

The Mobile Network Server is accessed by the MDR externally through a firewall 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. Therefore, it is better for customers to choose one of the available technologies based on their own usage scenario. Alternatively use both network connectivity options to achieve 2 different goals such as the live capabilities of mobile networks and the low to none data cost of Wi-Fi.

**Warning: Data stored on a Mobile Network MDR Server or Wi-Fi MDR Server is NOT linked. For example, Users cannot access Mobile Network Server data when logged into the MDR-Dashboard Wi-Fi data.**

Table 5: The minimum requirements below for MDR Server 1.0 with **1-10 MDR units**

COMPONENT	MINIMUM REQUIREMENTS
CPU (Central Processing Unit)	Dual Core - 1 GHz (x86 CPU) or 1.4 GHz (x64 CPU)
RAM (Random Access Memory)	8GB
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 2008 R2 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 to the PC that runs the MDR-Dashboard 2.0 software

Table 6: The Recommended requirements below for MDR Server 1.0 with **>10 MDR units <100**

COMPONENT	RECOMMENDED REQUIREMENTS
CPU (Central Processing Unit)	Quad-Core Xeon 5504*2 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 2008 R2 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 to the PC that runs the MDR-Dashboard 2.0 software

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

### 2.2 MDR Server Installation (Mobile Network and Wi-Fi)

- Establish the IP address and MAC address of the Server PC.
  - IP address of Wi-Fi Server: 192.168.1.14 (in this example)
  - IP address of Mobile Network Server: 192.168.14.100 (Forward ports to this address)
- Wi-Fi:** Connect the router to the Wi-Fi server PC with an Ethernet cable. **Mobile Network:** Contact the IT department to set Port Forwarding on the Firewall to the Server PC as shown in below:

Table 7: Port Forwards List

#	Port Name	Port Number	Port Function (Client refers to MDR-Dashboard 2.0 / MDR 2.0 App)
(1)	Device Access to Server	5556	Message Server
(2)	Balance Server Port	7264	For Clients to connect to the server (for future clustering of servers – balance the load) – specify this port when logging in – create initial connection
(3)	Running Port	10086	Port used for internal communication – not needed to be port forwarded/opened
(4)	Operation Server Web	12003	Port used for internal communication – not needed to be port forwarded/opened
(5)	Client Access Server	12020	For Server to connect to Clients – data connection
(6)	Blackbox Data Query	12040	For Metadata – blackbox data
(7)	HTTP Data Port	12041	Port used for internal communication – not needed to be port forwarded/opened
(8)	Data Port	12042	MDR Server Feature
(9)	Playback Server / Blackbox Server	12045	For video playback from Server to the Clients
(10)	Proxy Server Client Data	12050	For the remote config (within MDR-Dashboard 2.0) feature – from Server to Client
(11)	Proxy Server Device Data	12051	For the remote config (within MDR-Dashboard 2.0) feature – from MDR to Server
(12)	Website Port	12055	For Clients to obtain the Vehicle list from Server
(13)	MDR4 Streaming Media Server	12091	MDR 400 Series Products – Playback Video
(14)	MDR5 Streaming Media Server	12092	MDR 500 Series Products – Playback Video
(15)	Transmit Server Port	17891	For MDR Server to connect to Clients - to transfer Live video

- (c) **Wi-Fi:** The router login page is accessed using the factory settings – users may find router IP, username and password underneath the router, alternatively contact the manufacturer.
- (d) **Wi-Fi:** Once logged into the router, setup the **WIRELESS NETWORK**. The MDR is compatible with **WPA, WPA2** or **WEP** security.
- (e) **Wi-Fi:** *Wireless Router Settings Figure 1* shows an example of a wireless network created. The **SSID** (Service Set Identifier) is **MDR SERVER** and **WPA-PSK** security has been used.
- (f) **Wi-Fi:** When entering the SSID into the MDR, this is case sensitive. It is advised to create SSIDs without spaces to avoid any typing errors on the MDR.

The screenshot shows the 'Wireless Settings' page. Under 'Wireless Network', 'Enable SSID Broadcast' is checked. The SSID is 'MDRServer', Region is 'Europe', Channel is 'Auto', and Mode is 'Up to 54 Mbps'. Under 'Security Options', 'WPA-PSK [TKIP]' is selected. The 'Security Options (WPA-PSK)' section has a 'Passphrase' field with a note '(8-63 characters or 64 hex digits)'. 'Apply' and 'Cancel' buttons are at the bottom.

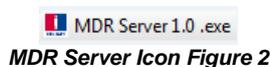
Wireless Router Settings Figure 1

- (g) **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 Server PC should have a static IP address. IP address is 192.168.14.100 (in this example). This can be permanently assigned by using the MAC address.
- (h) It is recommended to use a newly-built or clean PC.

**Warning: If this device is used to host other software that uses SQL, we do not recommend installing MDR Server 1.0 on the same PC.**

- (i) Right-click the installation file found in *MDR Server Icon Figure 2* and **RUN AS ADMINISTRATOR**. Users may be prompted to back up any data if they have previously installed MDR Server on this PC. See *MDR Server Backup prompt Figure 3* for the typical window.

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



MDR Server Icon Figure 2

Do you need to backup data? Note: this backup tool only can backup user and vehicle data information, can not backup playback data, the black box data and evidence data and so on.  
Click "Yes" means backup, click "No" means not.

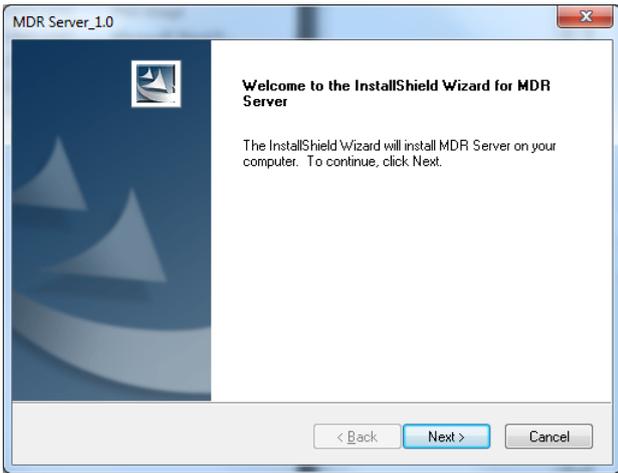
The dialog box has two buttons: 'Yes' and 'No'.

MDR Server Backup prompt Figure 3

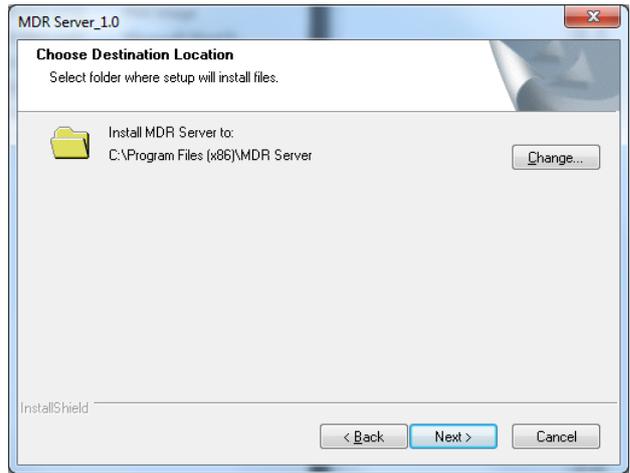
- (j) The installation window as shown in *MDR Server Installation Figure 4* will be displayed. Click **NEXT** to begin the installation.

(k) Users can configure the destination location which is shown in *MDR Server Location Figure 5*.

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

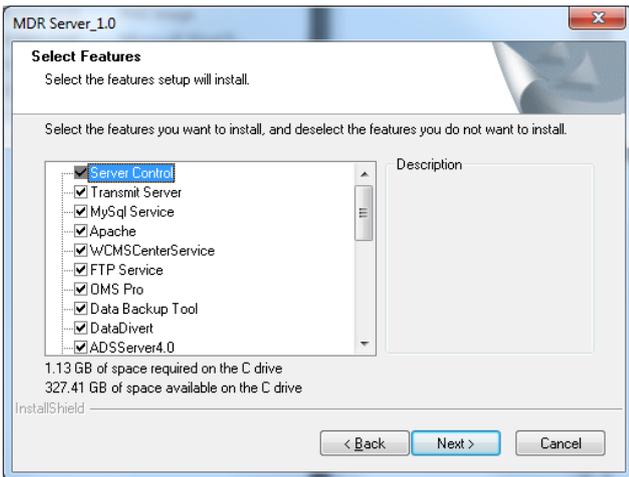


**MDR Server Installation Figure 4**

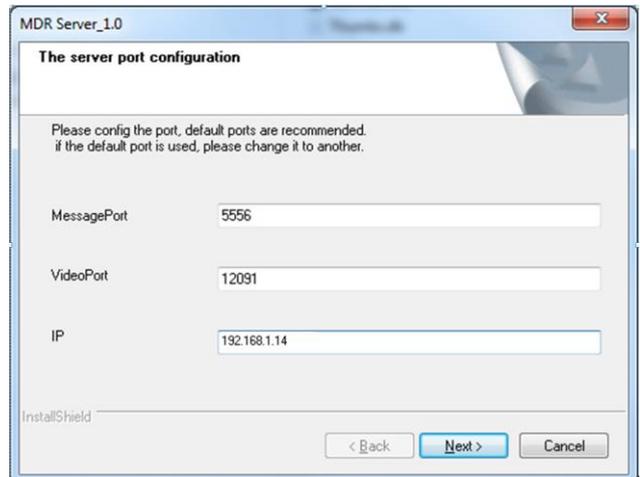


**MDR Server Location Figure 5**

- (l) The next step is to select the features the MDR server will have. *MDR Server Feature setup Figure 6* shows the services that are available. Please ensure that **ALL** services are ticked to be installed.
- (m) The default **MESSAGE** and **VIDEO** port should not be changed. If you are using these ports on your network you will have to change these within your other applications. See *MDR Wi-Fi Server Port Configuration Figure 7*.
  - IP: 192.168.1.14 (IP address of the Wi-Fi adaptor of the Server PC).
  - IP: 12.345.6.78 (Public IP address of the Firewall)



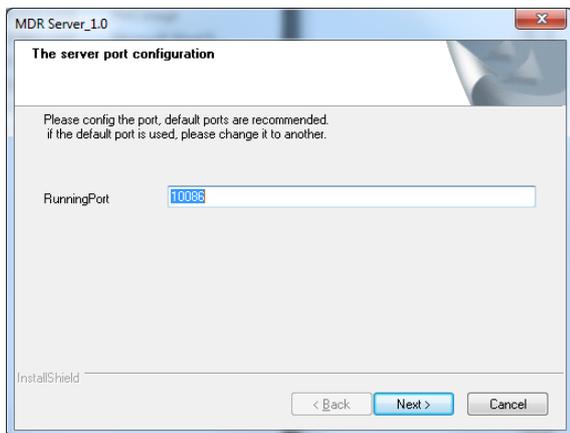
**MDR Server Feature setup Figure 6**



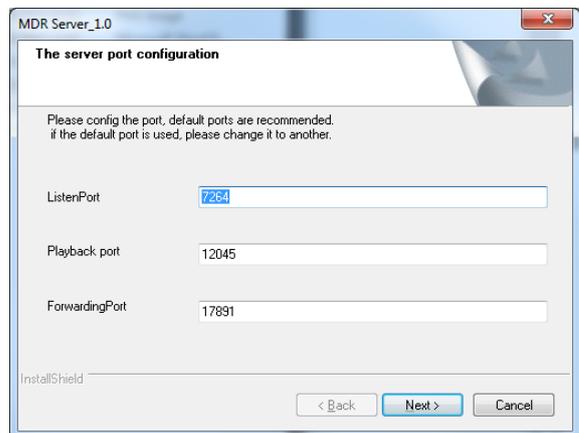
**MDR Wi-Fi Server Port Configuration Figure 7**

- (n) The port configuration shown in *Running Port Configuration Figure 8* to *Data and Blackbox Port Configuration Figure 11* is automatically populated by the software. Do not change the default ports, if you have these already in use on your network, please assign a different port in other software.

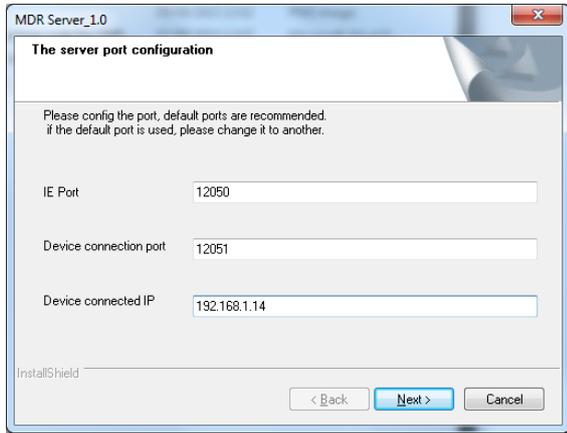
**Warning: Any changed ports MUST be noted as this is used to configure the MDR unit**



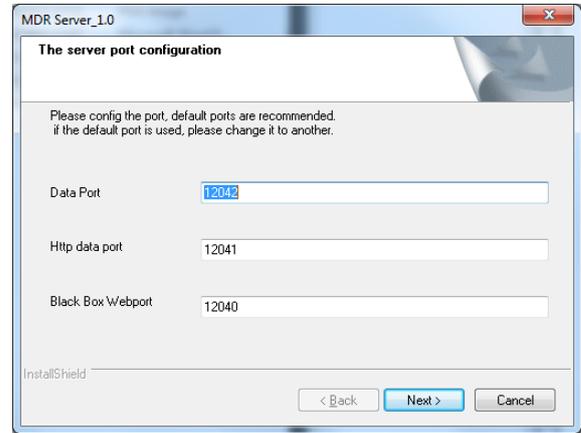
**Running Port Configuration Figure 8**



**Listen, Playback and Forwarding Port Configuration Figure 9**



**IE and Device Port Configuration Figure 10**



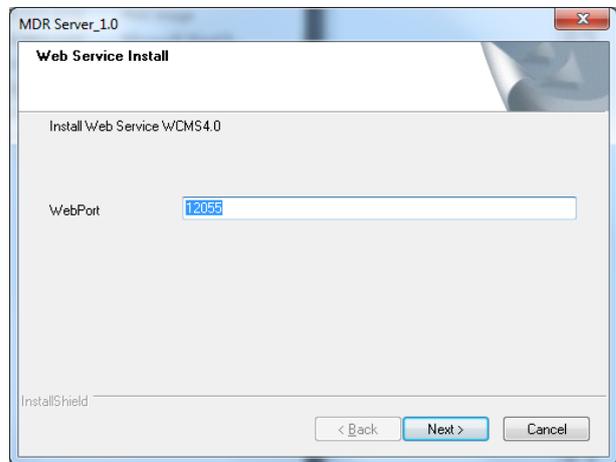
**Data and Blackbox Port Configuration Figure 11**

**Warning: DEVICE CONNECTED IP (IE and Device Port Configuration Figure 10) MUST be a STATIC PUBLIC IP address of Mobile Network Server (Firewall in some cases).**

- (o) Users can now configure the **SPEED** and **TEMPERATURE** units. See *Speed and Temperature Configuration Figure 12*.
- (p) *Web Port Configuration Figure 13* shows the settings used for the **WEB PORT**.



**Speed and Temperature Configuration Figure 12**

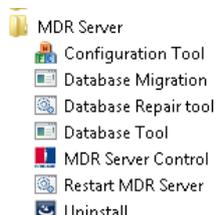


**Web Port Configuration Figure 13**

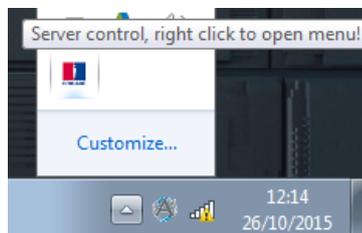
- (q) Certificate import – please cancel this step as it is not necessary for this application.
- (r) The final step of the installation is to click **FINISH**.

### 2.3 MDR Server Configuration (Mobile Network and Wi-Fi)

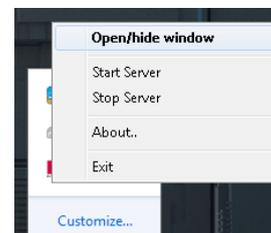
- (a) After installing the MDR Server, go to **START → ALL PROGRAMS** and confirm that the **MDR SERVER** folder is visible as shown in *MDR Server Menu Figure 14*.
- (b) In order to access the MDR Server Control window, users right-click the MDR Server icon. As shown in *Displaying MDR Server Control Figure 15*.
- (c) Users then click the **OPEN/HIDE WINDOW** option as shown in *Accessing MDR Server Control Window Figure 16*.



**MDR Server Menu Figure 14**

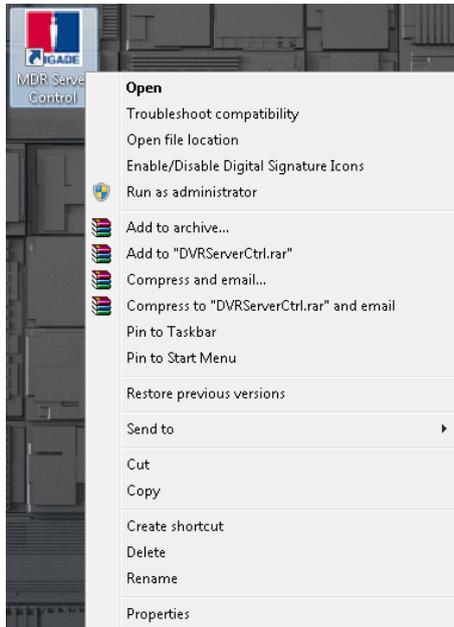


**Displaying MDR Server Control Figure 15**

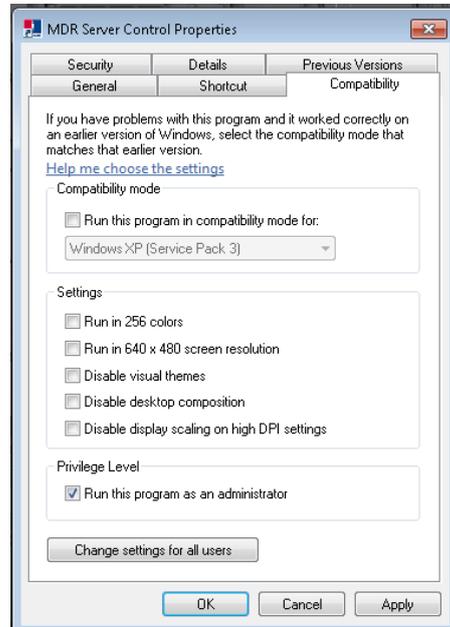


**Accessing MDR Server Control Window Figure 16**

- (d) If the software is not opened, ensure it is **RUN AS ADMINISTRATOR** as shown in *MDR Server Control Menu Figure 19*.
- (e) Use the following steps to ensure that MDR Server always runs as administrator.
- (f) Right-click MDR Server (*MDR Server Right click menu Figure 17*) then click **Properties**.
- (g) Go to the **Compatibility** tab, under **Privilege Level**, tick **Run this program as administrator**. See *Privilege Level Figure 18*.
- (h) Click **Apply** to ensure all changes are saved.

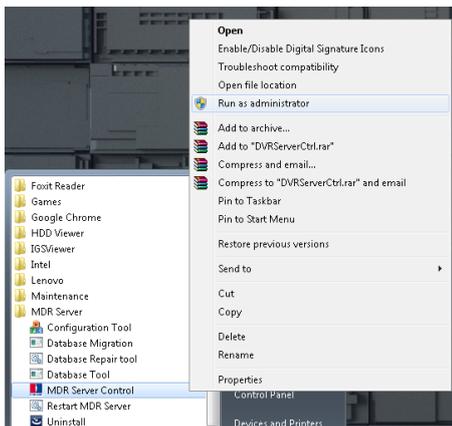


**MDR Server Right click menu Figure 17**

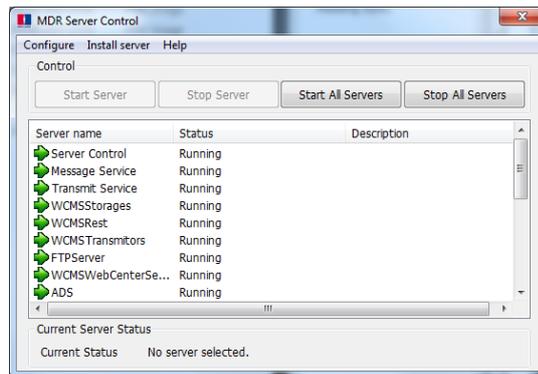


**Privilege Level Figure 18**

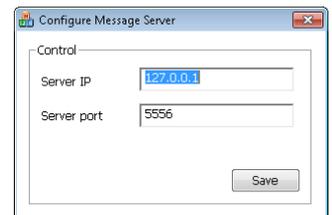
- (i) Once the window opens as shown in *MDR Server Control Window Figure 20*, click **CONFIGURE** then **CONFIGURE MESSAGE SERVER**.  
 (j) The window shown in *MDR Server Message Server Configuration Figure 21* will be displayed. The following configuration is used:
- Server IP: 127.0.0.1 (loopback IP address of the Server PC)
  - Server Port: 5556



**MDR Server Control Menu Figure 19**



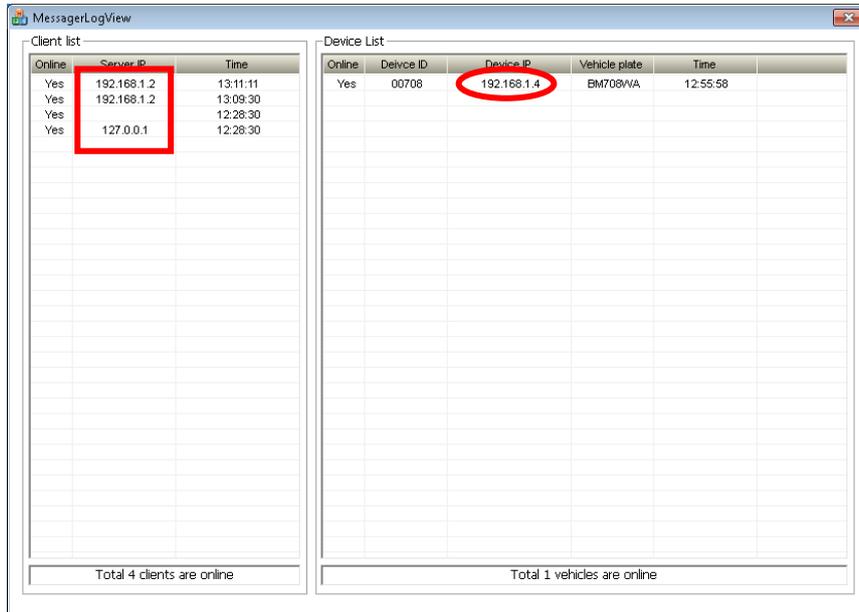
**MDR Server Control Window Figure 20**



**MDR Server Message Server Configuration Figure 21**

Note: If all MDR Server services are not running (*MDR Server Control Window Figure 20*). There are a few steps to attempt to fix this other than reinstalling the software. (1) Exit the MDR Server control window and run the application as administrator. See *MDR Server Control Menu Figure 19*. (2) Ensure that the MDR Server installation is not expired – check Brigade website for the latest license files. (3) Install the latest Microsoft .NET Framework.

- (k) Click **SAVE** on the configuration of the Message Server window.  
 (l) Double-click on **MESSAGE SERVICE** shown in *MDR Server Control Window Figure 20*. This will bring up another window which will show the current status of the network. See *MDR Server Message Logs View Figure 22*.

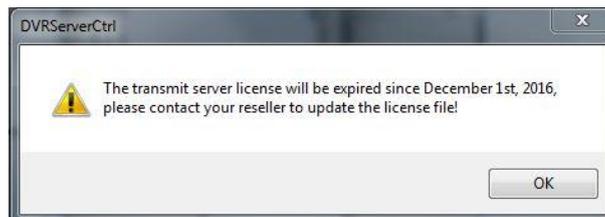


**MDR Server Message Logs View Figure 22**

(m) In *MDR Server Message Logs View Figure 22*, the IP addresses of the clients connected via MDR Dashboard 2.0 to the server. This is including the server loopback is displayed the left column. If an MDR has been configured correctly it will appear online in the right hand 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. On reconnection to a mobile network, a new public IP address is allocated.

- (n) The MDR Server has a prompt message that will appear on the Server PC to inform the System Administrator that the MDR Server is nearing its expiration date. See *MDR Server Expiry Prompt Figure 23*.
- (o) The System Administrator will need to download new 1 year license files from Brigade's website (Product Support area).



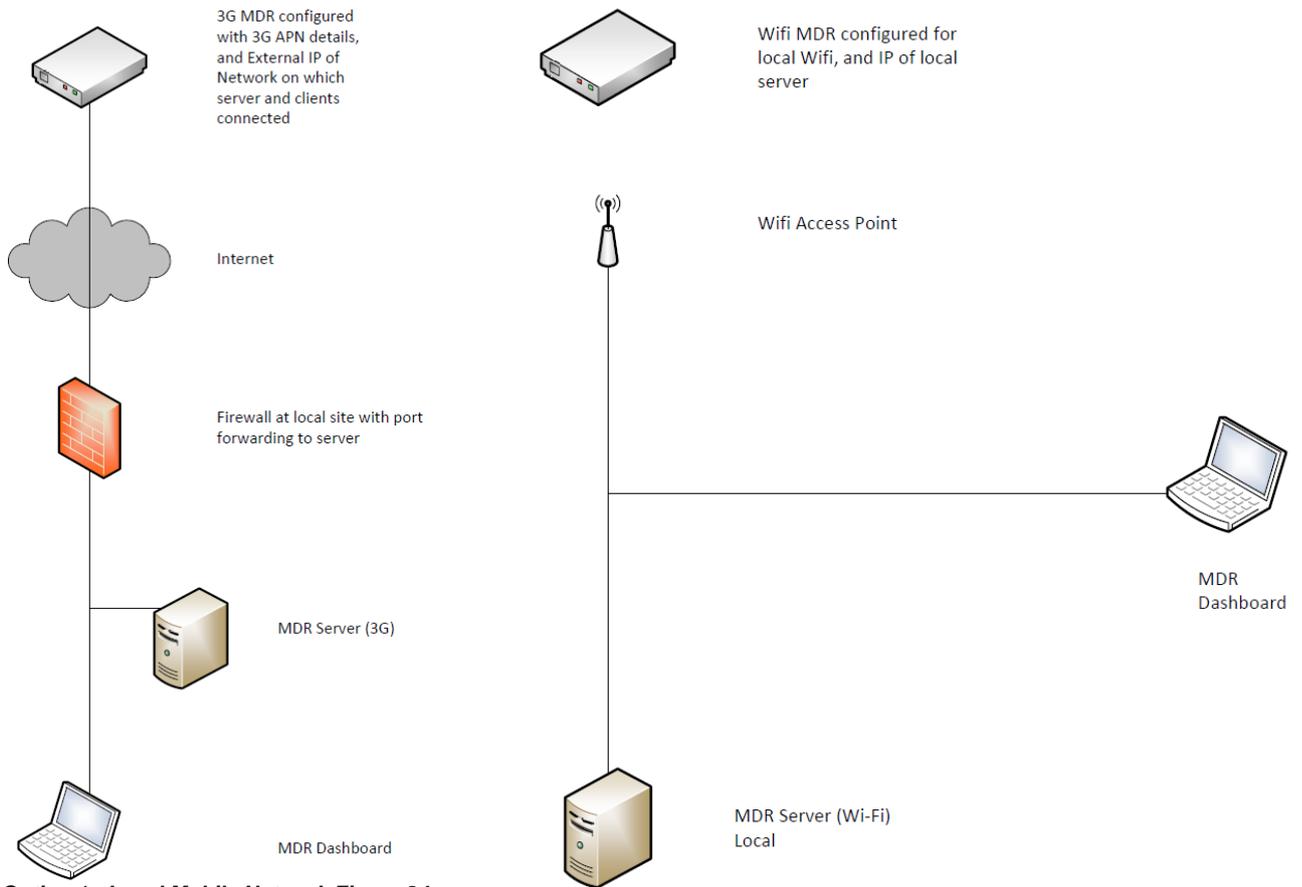
**MDR Server Expiry Prompt Figure 23**

## 2.4 Firewall Requirements

Table 8: The minimum requirements below are for the Firewall

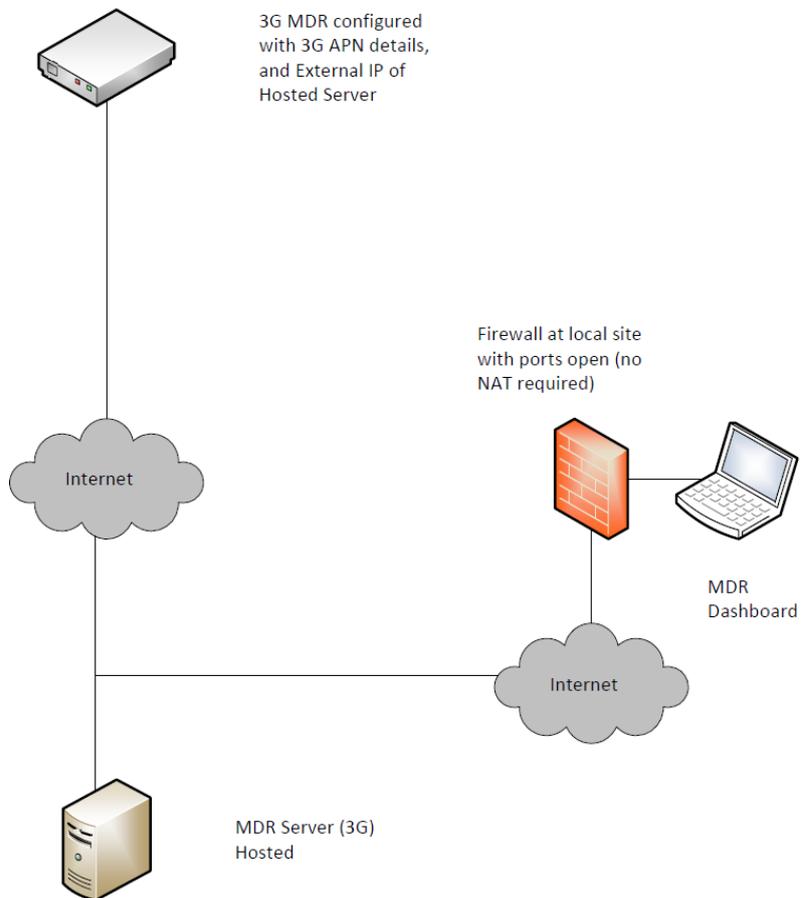
COMPONENT	MINIMUM REQUIREMENTS
Firewall Hardware	150 Mbps throughput, For any further requirements please contact your IT support
Firewall Software	For any further requirements please contact your IT support

## 2.5 Hardware Communication Options

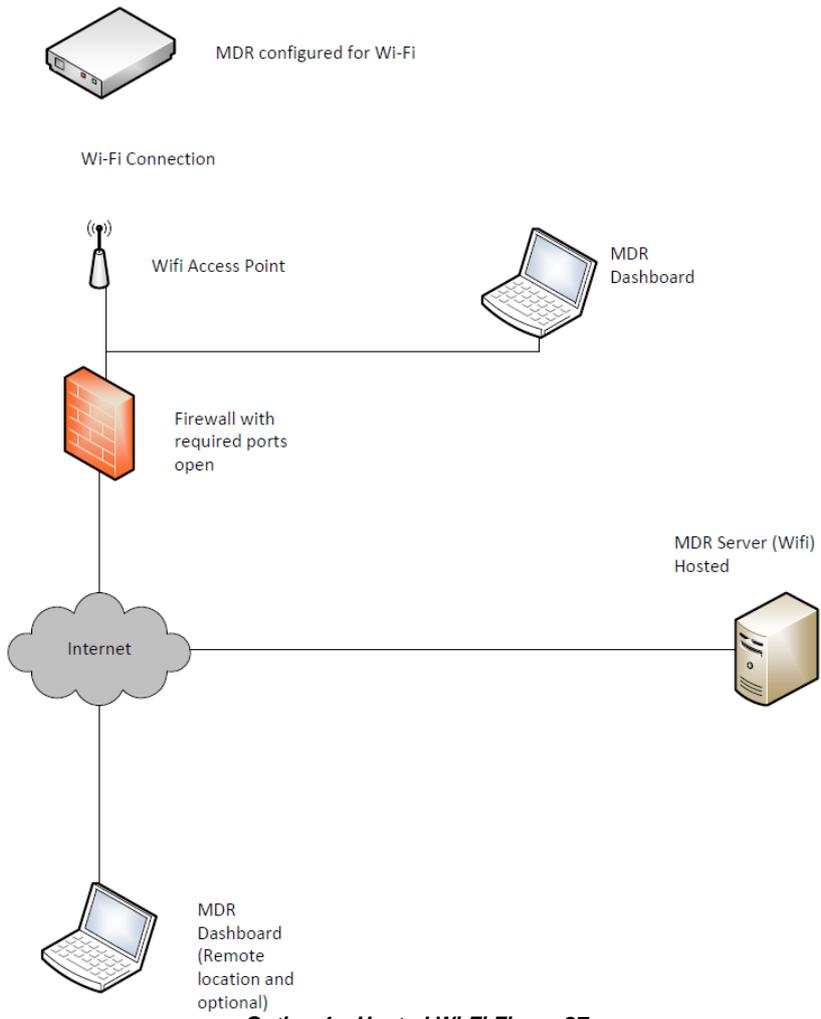


**Option 1 - Local Mobile Network Figure 24**

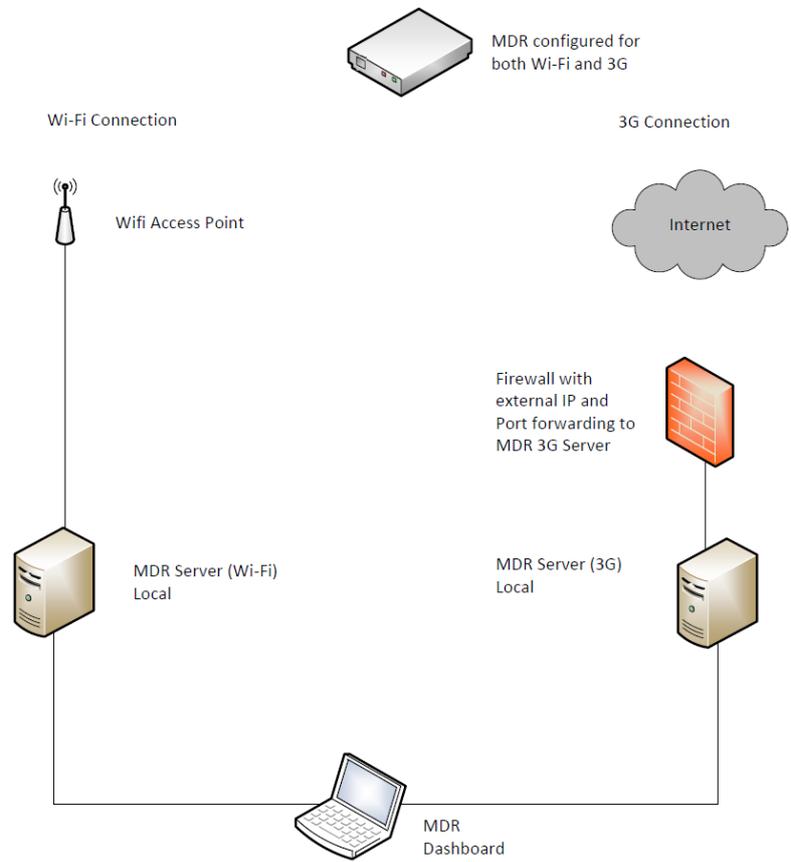
**Option 2 - Wi-Fi Only Figure 25**



**Option 3 - Hosted Mobile Network Figure 26**



**Option 4 – Hosted Wi-Fi Figure 27**



**Option 5 - Wi-Fi & Mobile Network Figure 28**

### 3 MDR-Dashboard 2.0 Requirements and Installation

MDR-Dashboard 2.0 software is used for advanced local playback, analysis, clipping, GPS tracking, vehicle information and events/log display. Remote Device and Server playback is possible with Mobile Network and/or Wi-Fi enabled MDR models. MDR-Dashboard 2.0 has the following features:

- Real-time Preview (Depending on model)
- Multi Vehicle Monitoring (Depending on model)
- Playback of Server (Depending on model) and Local Video Data
- Clipping and Downloading Data
- Evidence Management (Depending on model)
- Auto Download Scheduling (Depending on model)
- Basic Data Management
- Alarm Center (Depending on model)

Table 9: Differences between the MDR-Dashboard and the MDR-Player

MDR-Dashboard	MDR-Player
Installation Required	Executable
Full Featured	Compact – limited features
View, Clip and Export Recordings	View Recordings
Sources – HDD, SD & Clippings, Server, Remote Device, Evidence	Sources – Exported files & Clippings
View Events	No option to view Events

For more information on MDR-Player please refer to MDR 400 Series Installation&Operation Guide.

#### 3.1 MDR-Dashboard 2.0 Requirements

Table 10: Minimum requirements for MDR-Dashboard 2.0

COMPONENT	MINIMUM REQUIREMENTS
CPU (Central Processing Unit)	INTEL i3-3220 and above 1 GHz (x86 CPU) or 1.4 GHz (x64 CPU)
RAM (Random Access Memory)	4GB
Requested HDD space for software installation	367 MB
Video	Intel® HD Graphics 4000
Operating System	Windows™ 7
Web browser	Internet Explorer 10
Software	Flash Player (up-to-date)
Resolution	1280x760

Table 11: Recommended requirements for MDR-Dashboard 2.0

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	367 MB
Video	Intel® HD Graphics 5000
Operating System	Windows™ 8
Web browser	Internet Explorer 10
Software	Flash Player (up-to-date)
Resolution	1680 x 1050

#### 3.2 MDR-Dashboard 2.0 Installation

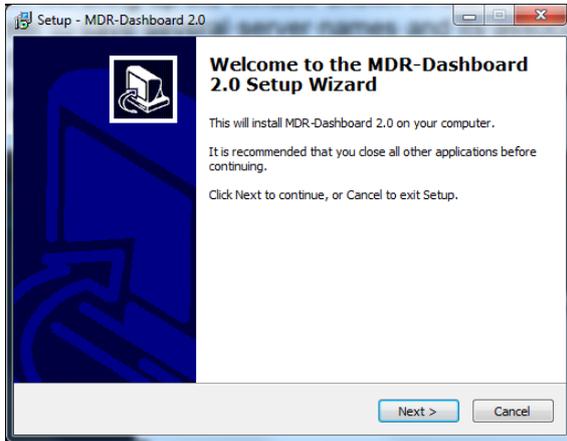
**Warning:** Installation of the MDR-Dashboard 2.0 requires the removal of MDR-Dashboard 1.x.

- (a) Install MDR-Dashboard 2.0 on the client PC. (Administrator rights are required).
- (b) Double-click the installation file shown in *MDR-Dashboard icon Figure 29*.
- (c) There may be a security warning pop-up which may be ignored. The software is verified to be virus-free. Click **RUN**.

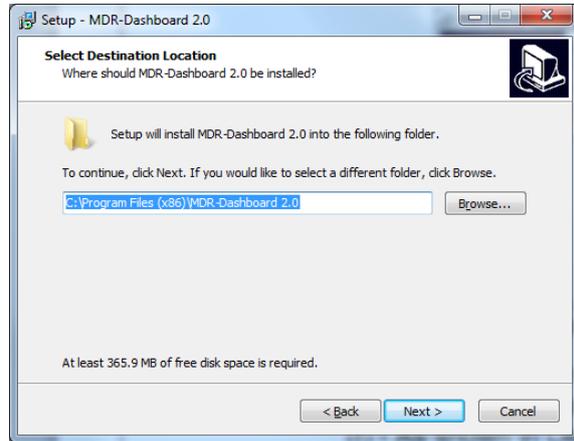


**MDR-Dashboard icon Figure 29**

- (d) The setup wizard window will then be displayed. Click **NEXT** to begin the installation. See *MDR-Dashboard Setup Figure 30*.
- (e) Users can configure the destination location (if there is not enough free disk space) which is shown in *MDR-Dashboard Location Figure 31* and *MDR Server Location Figure 5*. **It is NOT recommended to change the default location.**

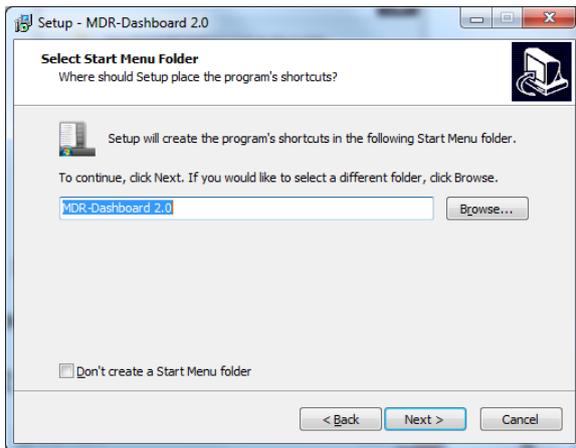


**MDR-Dashboard Setup Figure 30**

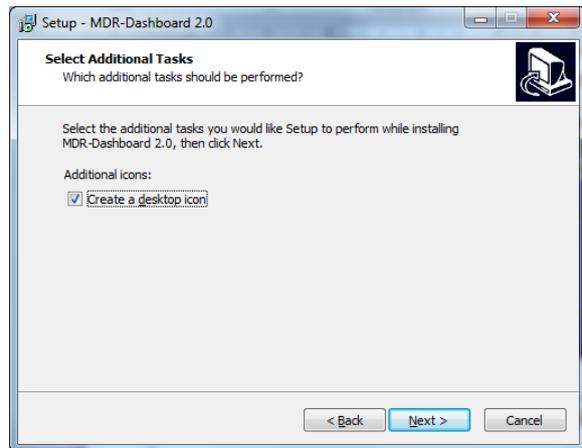


**MDR-Dashboard Location Figure 31**

- (f) Users can then choose if a start menu folder should be created as shown in *Start Menu MDR-Dashboard Figure 32*.
- (g) Referring to *Desktop Icon MDR-Dashboard Figure 33*, users can choose if a desktop icon is created.

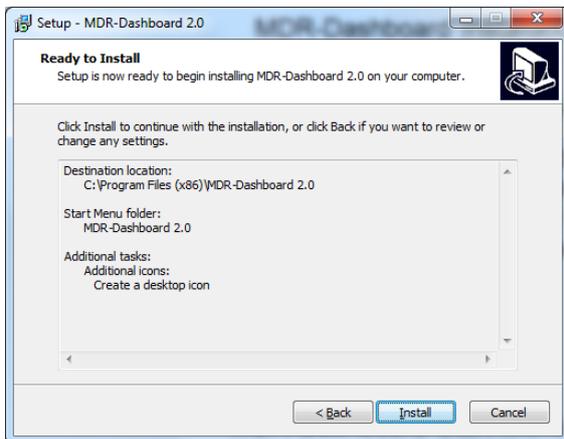


**Start Menu MDR-Dashboard Figure 32**

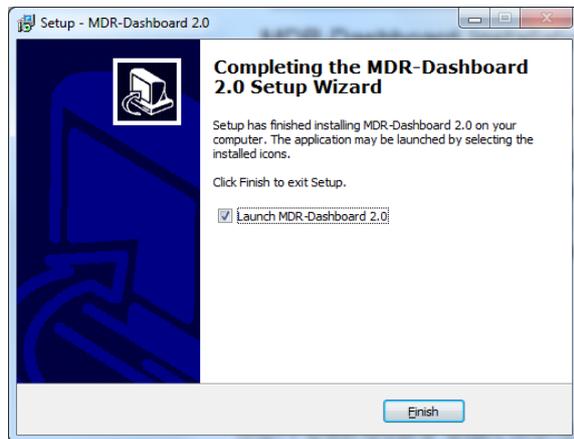


**Desktop Icon MDR-Dashboard Figure 33**

- (h) Users are now prompted to click **NEXT** to begin the installation. This is indicated in *MDR-Dashboard Installation Figure 34*.
- (i) In *MDR-Dashboard Launch Step Figure 35* depicts the final step; users may choose to launch the software.
- (j) Tick the box and click **FINISH**.



**MDR-Dashboard Installation Figure 34**



**MDR-Dashboard Launch Step Figure 35**

# 4 Wi-Fi Configuration

## 4.1 MDR Unit Configuration (Wi-Fi)

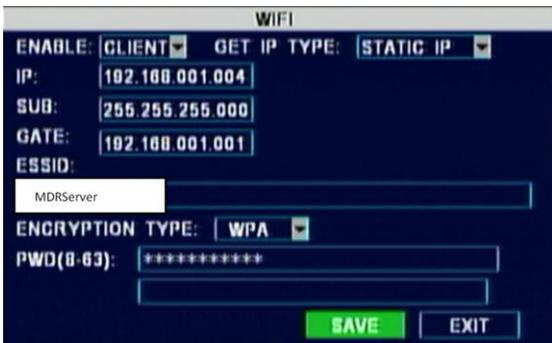
### 4.1.1 Mobile Digital Recorder Requirements

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

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

- Prior to any configuration, ensure the MDR is configured to default values **SETUP → SETTINGS → SYSTEM → CONFIGURATION → DEFAULT**.
- Browse to the Wi-Fi area by: **SETUP → SETTINGS → NETWORK → WIFI**.
- Configure the IP address by selecting it as **STATIC IP**. **DYNAMIC IP** is not recommended as this may create an unstable connection. See *MDR Wi-Fi Settings Figure 36*.
  - **ENABLE**: Set to **CLIENT**
  - **IP**: 192.168.001.004 refers to the MDR IP address (in this example)
  - **GATE**: 192.168.001.001 refers to the Routers IP address (in this example)
  - **SUB**: 255.255.255.000 refers to the subnet mask used
  - **ESSID**: MDRServer (in this example)
  - **ENCRYPTION TYPE**: WPA (in this example)
  - **PWD**: Test1234 (in this example)

Note: Enter the MDR IP addresses carefully as this uses xxx.xxx.xxx.xxx format.

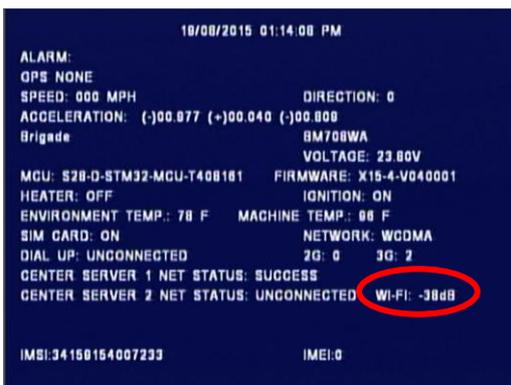


MDR Wi-Fi Settings Figure 36

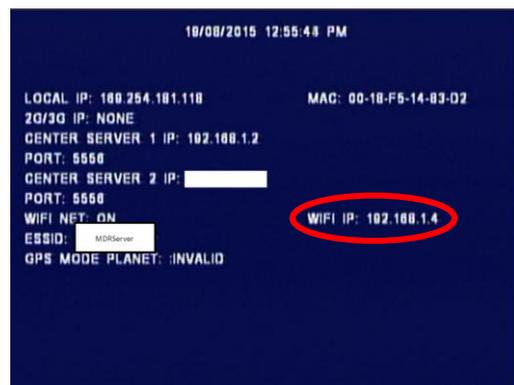


Center Server 1 Settings Figure 37

- Browse to the **SERVER** section on the MDR under Network configuration and configure **CENTER SERVER 1** as depicted in *Center Server 1 Settings Figure 37*.
- 192.168.001.014 is the IP address of the server PC hosting the MDR Wi-Fi Server.
  - **WIFI NET.** indicates the MDR will connect to the server using its Wi-Fi module. The other options are **CABLE NET** and **MOBILE NET**
  - Ports 5556 and 7264
  - **MESSAGE SERVER** and **MEDIA SERVER** must be set as **STATIC IP**
- Save all the changes and exit the menu on the MDR. The MDR will then restart to apply the recent changes.
- After restarting, check the status of the Wi-Fi connection by pressing the **ENTER** button on the remote control. See *Wi-Fi Signal Information Window Figure 38*. The **MDR IP** can be confirmed by pressing: **ENTER → DOWN ARROW**. See *Wi-Fi Information Window Figure 39*.



Wi-Fi Signal Information Window Figure 38



Wi-Fi Information Window Figure 39

- At this stage check the Wi-Fi signal only. See *Wi-Fi Signal Information Window Figure 38*.
- CENTER SERVER 1** will show as **SUCCESS** once the MDR connects to the MDR Wi-Fi Server. See *Wi-Fi Signal Information Window Figure 38*.
- On the **REGISTER INFO** page allocate a **DEVICE ID** to the MDR and take a note of it. See *Wi-Fi Register Information Figure 40*. This is a unique number used to identify this particular unit. In this example, **00708** has been chosen (this can be made up of alphanumeric characters). Brigade suggests using the vehicle registration number for device ID **WITHOUT SPACES**.



Wi-Fi Register Information Figure 40



MDR Sub-stream Settings Figure 41

- (k) Configure the **SUB-STREAM** parameters in order to reduce the bandwidth used for live video transmission. The following settings were used: bitrate of 4096Kbps on 4 channels with CIF quality and 18fps. See *MDR Sub-stream Settings Figure 41*. Brigade suggests using 512Kbps with CIF quality at 5fps.

## 4.2 MDR-Dashboard 2.0 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 server PC's ability and bandwidth. This is due to the fact that there is only one connection from the server to each MDR unit. The MDR-Dashboard 2.0 can display up to 500 online vehicles, any further vehicles are replaced by "\*\*\*".

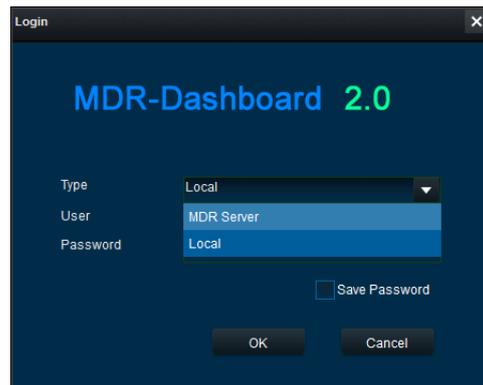
- (a) Connect the client PC to the MDR-Server Wi-Fi access point.  
 (b) The client PC can also be connected to the domain with an Ethernet cable if users require network/internet access. Alternatively, the router may be configured to have internet access.

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

- (a) This operation is performed on the client PC.  
 (b) Go to **START → ALL PROGRAMS**, click on the MDR-Dashboard icon and run it as administrator as shown in *MDR-Dashboard Start Menu Figure 42*.  
 (c) Users are then presented with the MDR-Dashboard Login Screen. See *MDR-Dashboard Wi-Fi Login Figure 43*. Using the dropdown menu, users must choose the **MDR SERVER** option.

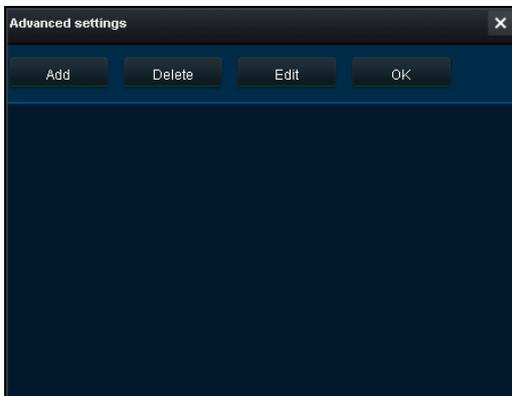


MDR-Dashboard Start Menu Figure 42

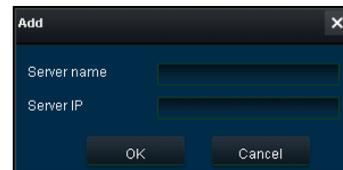


MDR-Dashboard Wi-Fi Login Figure 43

- (d) Users may type the server IP directly into *MDR-Dashboard Wi-Fi Login Figure 43* or follow the steps below.  
 (e) Click on **ADVANCED** which will bring up the window shown in *MDR-Dashboard Login Settings Figure 44*. This allows user to save several server names and their associated IP addresses  
 (f) Click on **ADD** which will display *Adding a Server Figure 45*. 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 44

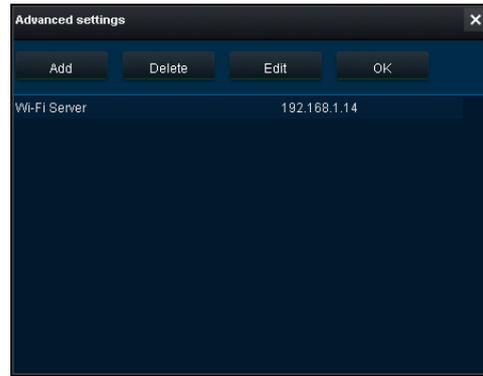


Adding a Server Figure 45

- (g) *Adding Wi-Fi Server Figure 46* indicates how the server has been named Wi-Fi Server and the IP has been entered as 192.168.1.14.  
 (h) Once the details have been entered, click **OK** and the following window shown in *Wi-Fi Server Saved Figure 47* will be displayed.  
 (i) If the incorrect **USER**, **PASSWORD** or **SERVER IP** is entered a "login failed" screen will be displayed.  
 (j) The **USER** by default is **admin** and the **PASSWORD** by default is **admin**. Users may tick the **SAVE PASSWORD** if desired.  
 (k) Choose **WI-FI SERVER** and click **OK**. Users will then be presented with *Wi-Fi Login Information Figure 48*.  
 (l) Click **OK** to login. A loading screen will be displayed similar to *Wi-Fi Loading Screen Figure 49*.



**Adding Wi-Fi Server Figure 46**



**Wi-Fi Server Saved Figure 47**



**Wi-Fi Login Information Figure 48**



**Wi-Fi Loading Screen Figure 49**

#### 4.2.2 Connecting an MDR to MDR-Dashboard 2.0 (Wi-Fi)

- (a) **Center Servers** indicate when the MDR unit has connected to a relevant MDR Server.
- (b) If the Chapter 4.1 MDR Unit procedure has been followed correctly, on the MDR, press the Enter button on the remote control and confirm the Center Server 1 has successfully connected. See *Center Server 1 Status Figure 50*.



**Center Server 1 Status Figure 50**

- (c) Once the above connection has been made, it may take a few minutes for the MDR unit to appear in MDR-Dashboard 2.0.
- (d) If the MDR automatically appeared, it will be found under a group labelled the date it was found and the MDR will be labelled as NONAME. See *Automatically Found MDR Figure 51*.



**Automatically Found MDR Figure 51**

- (e) Alternatively manually connect the MDR to MDR-Dashboard by following the steps below:



- Ensure the MDR unit DEVICE ID has a value in its Register info page

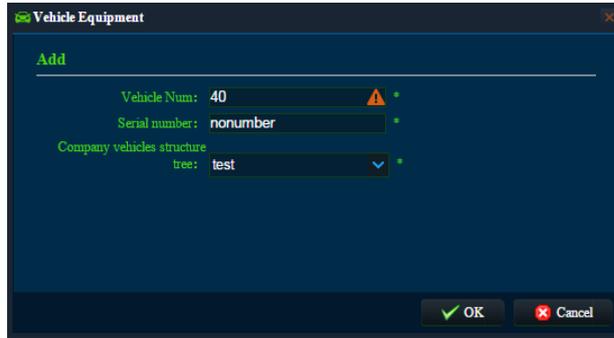
- On MDR-Dashboard, click System Management 

- Browse to 

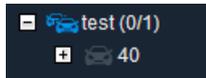
- Click 



- Enter the details in the Vehicle Equipment window
- VEHICLE NUMBER (MDR-Dashboard Add Vehicle Equipment) = DEVICE ID (MDR unit Register Info).



- Once completed click **OK**.



- The MDR will now appear under the group you assigned it to.
- It will appear online if the MDR is powered or in its shutdown delay period.

# 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.

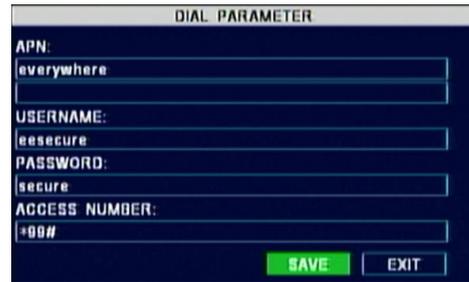
- Mobile Network/4G antenna (included)
- GPS antenna (included)
- Standard size SIM Card (not included) - required to connect to a mobile data network.

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 and tested prior to being installed in the MDR.

- For APN, username, password, access number and authentication type settings, obtain from your SIM card provider.
- Browse to **MOBILE NETWORK** by **SETUP → SETTINGS → NETWORK → MOBILE NETWORK**. *Mobile Network Settings Figure 52* will be displayed.
- MODE NUMBER** and **SUPPORTED NETWORK TYPES** are automatically populated once the SIM card has connected to a network. See *Mobile Network Settings Figure 52*.
- Set the network type to **3G**. Mixed can cause connectivity issues in low 3G coverage areas. See *Mobile Network Settings Figure 52*.



Mobile Network Settings Figure 52



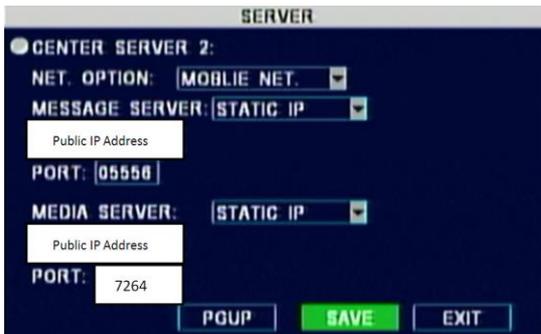
Dial Parameter Figure 53

- AUTH. 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. See *Mobile Network Settings Figure 52*.
- Browse to **CARRIER SETTINGS** and enter the **APN** settings as shown in *Dial Parameter Figure 53*.
- The IP address for the MDR will be assigned dynamically by the mobile network provider.
- Browse to **ACTIVE MODE**, set this as **ALWAYS**. This determines when it will attempt to connect to a mobile network. See *Mobile Network Active Mode Figure 54*.
- CALL/SMS** and **SENSOR** is not currently supported. See *Mobile Network Active Mode Figure 54*.

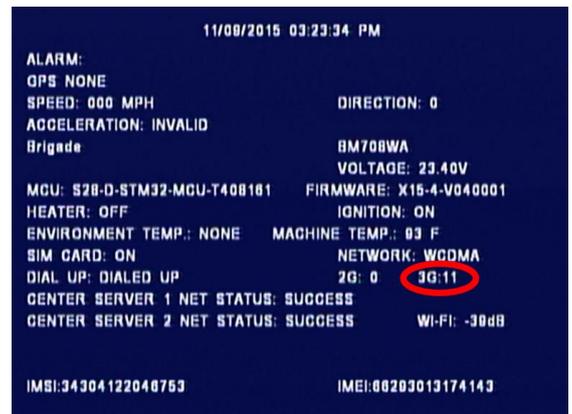


Mobile Network Active Mode Figure 54

- Browse to **NETWORK** and then **SERVER** to configure the **CENTER SERVER 2** as illustrated in *Center Server 2 Figure 55*.
  - 012.345.006.078: Public IP address of the Firewall which will forward any traffic to the mobile network Server PC (192.168.14.100). Enter the public IP address in both fields.
  - **MOBILE NET**: Indicates the Server is dialled up through a mobile network. The other options are **CABLE NET** and **WIFI NET**.
  - Ports 5556 and 7264 are forwarded to the Server PC by the Firewall.
  - **MESSAGE SERVER** and **MEDIA SERVER** must be set as **STATIC IP**.



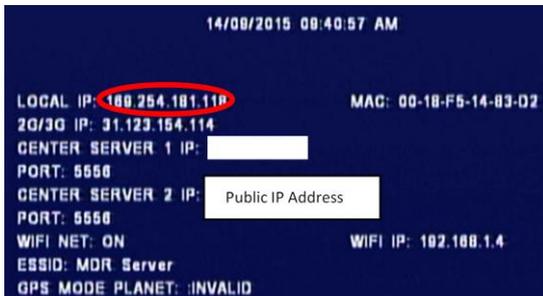
Center Server 2 Figure 55



Mobile Network Signal Information Window Figure 56

- Save all the changes and exit the menu on the MDR. The MDR will then restart to apply the recent changes.

- (l) After restarting, check the status of the mobile network connection by pressing the **ENTER** button on the remote control. See *Mobile Network Signal Information Window Figure 56*. At this stage check the Mobile Network signal only.
- (m) The Mobile Network signal value should be 9 or above to ensure a good connection. The range of the mobile signal levels are 0-31. 1-8 is poor reception, 9 -15 is good and above 15 is excellent. **DIALLED UP** means the MDR has been recognised by the network provider.
- (n) The MDR IP can be confirmed by pressing: **ENTER → DOWN ARROW**. See *Mobile Network Information Window Figure 57*.
- (o) **CENTER SERVER 2** will show as **SUCCESS** once the MDR connects to the MDR Mobile Network Server.
- (p) On the **REGISTER INFO** page allocate a **DEVICE ID** to the MDR and take a note of it. See *Mobile Network Register Information Figure 58*. This is a unique number used to identify this particular unit. In this example, **00708** has been chosen (this can be made up of alphanumeric characters). Brigade suggests using the vehicle registration number for device ID **WITHOUT SPACES**



**Mobile Network Information Window Figure 57**



**Mobile Network Register Information Figure 58**

- (q) Configure the **SUB-STREAM** parameters in order to reduce the bandwidth used for live video transmission. The following settings were used: bitrate of 4096Kbps on 4 channels with CIF quality and 18fps. See *MDR Sub-stream Settings Figure 41*. Brigade suggests using 512Kbps with CIF quality at 5fps.

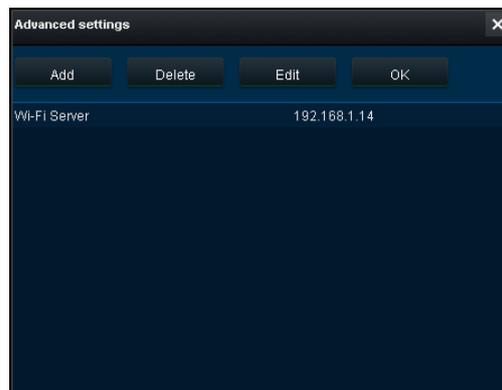
## 5.2 MDR-Dashboard 2.0 Configuration (Mobile Network)

### 5.2.1 Logging into Server Mode (Mobile Network)

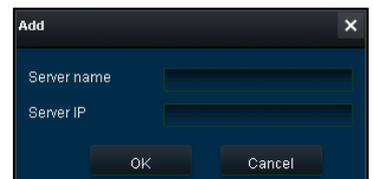
- (a) Users may type the server IP directly into *Mobile Network MDR-Dashboard Figure 59* or follow the steps below.
- (b) Click on **ADVANCED** which will bring up the window shown in *Mobile Network Advanced Settings Figure 60*. This allows user to save several server names and its associated IP addresses.
- (c) Click on **ADD** which will display *Adding Mobile Network Server Figure 61*. The **SERVER NAME** can contain up to 21 alphanumeric characters. **SERVER IP** should contain numerical values and be in xxx.xxx.xxx.xxx format.
- (d) If you are accessing the Mobile Network server externally (outside the firewall) then use the external firewall IP address. *External Mobile Network Server Figure 62* indicates how the server has been named Mobile Network Server External and the IP has been entered as 12.345.6.78.
- (e) If you are accessing the Mobile Network server internally (behind the firewall) then use the IP address of the MDR server PC. *Internal Mobile Network Server Figure 63* indicates how the server has been named Mobile Network Server Internal and the IP has been entered as 192.168.14.100.
- (f) Choose **Mobile Network SERVER INTERNAL** and click **OK**. Users will then be presented with *Mobile Network Login Figure 64*.
- (g) If the incorrect **USER**, **PASSWORD** or **SERVER IP** is entered a "login failed" screen will be displayed.
- (h) The **USER** by default is **admin** and the **PASSWORD** by default is **admin**. Users may tick the **SAVE PASSWORD** if desired.



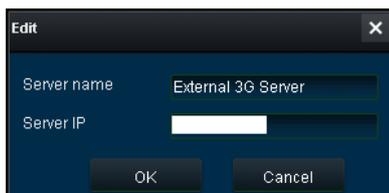
**Mobile Network MDR-Dashboard Figure 59**



**Mobile Network Advanced Settings Figure 60**



**Adding Mobile Network Server Figure 61**



**External Mobile Network Server Figure 62**



**Internal Mobile Network Server Figure 63**



**Mobile Network Login Figure 64**

## 5.2.2 Connecting an MDR to MDR-Dashboard 2.0 (Mobile Network)

- (f) **Center Servers** indicate when the MDR unit has connected to a relevant MDR Server.
- (g) If the Chapter 4.1 MDR Unit procedure has been followed correctly, on the MDR, press the Enter button on the remote control and confirm the Center Server 1 has successfully connected. See *Center Server 1 Status Figure 65*.



**Center Server 1 Status Figure 65**

- (h) Once the above connection has been made, it may take a few minutes for the MDR unit to appear in MDR-Dashboard 2.0.
- (i) If it does not appear then please follow the manual steps below.
- (j) If the MDR automatically appeared, it will be found under a group labelled the date it was found and the MDR will be labelled as NONAME. See *Automatically Found MDR Figure 66*.



**Automatically Found MDR Figure 66**

- (k) Alternatively manually connect the MDR to MDR-Dashboard by following the steps below:



- Ensure the MDR unit DEVICE ID has a value in its Register info page

- On MDR-Dashboard, click System Management



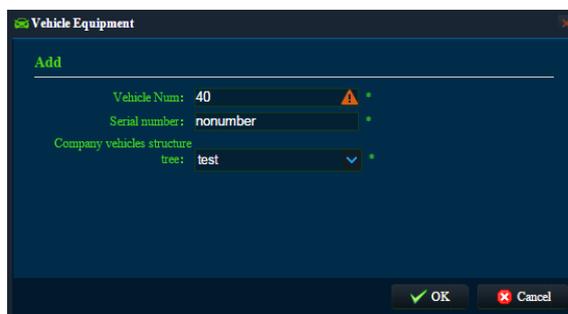
- Browse to **Vehicle Device Information**



- Click **Add to**



- Enter the details in the Vehicle Equipment window
- VEHICLE NUMBER (MDR-Dashboard Add Vehicle Equipment) = DEVICE ID (MDR unit Register Info).



- Once completed click **OK**.



- The MDR will now appear under the group you assigned it to.
- It will appear online if the MDR is powered or in its shutdown delay period.

# 6 MDR-Dashboard 2.0 Operation

Usage scenarios must be clearly defined in order to meet and surpass the users' 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

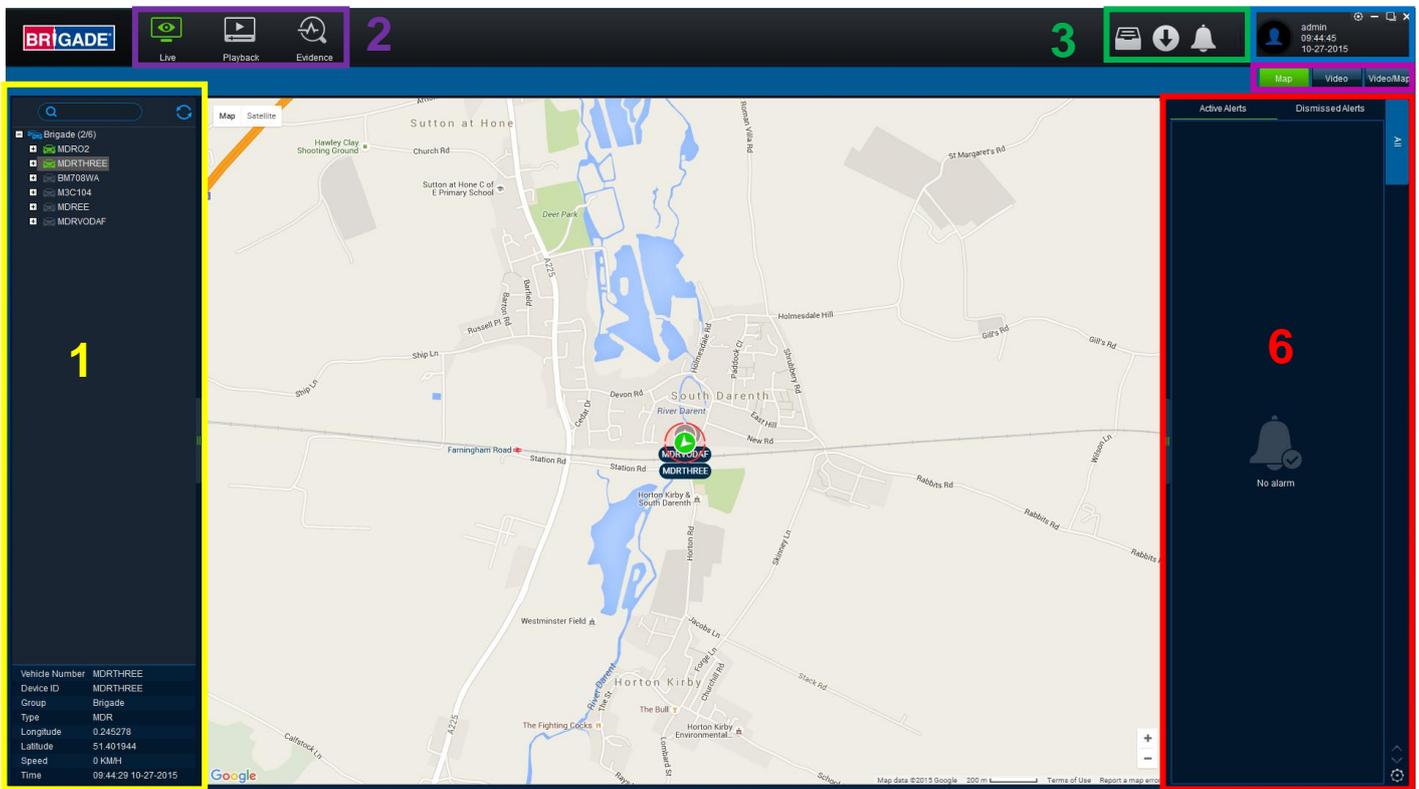
Mobile Network	Wi-Fi
Vehicles are away from company site	Vehicles must be in AP range and in an ON or shutdown delay (post-record) state
Remotely monitor vehicle operation (stream live MDR data).	Download data without physically going to the vehicle(s).
Instant alerts of events & alarms for immediate action.	Automatic alerts of events & alarms when vehicle returns within Wi-Fi range.
Instantly download MDR data to store and view events.	Automatic download of MDR data to store and view events 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)	N/A

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

(a) Users are presented with the following window, *Live MDR-Dashboard Figure 67*.

(b) MDR-Dashboard 2.0 consists of several key areas such as:

- Vehicle State (Area 1)
- Type of operation (Area 2)
- Downloads, Alarms and System Management (Area 3)
- User and System settings (Area 4)
- View Settings (Area 5)
- Real-time Alarm Log (Area 6)



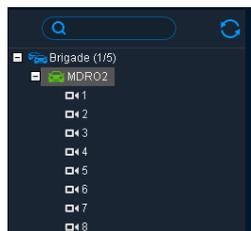
Live MDR-Dashboard Figure 67

## 6.1 Vehicle State (Area 1)

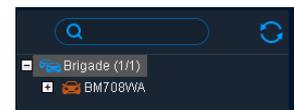
This area will list the state (online or offline) of vehicles which have been configured. An example of an offline vehicle is shown in *Offline Vehicle Figure 68*. Camera channels may be expanded in order to choose a camera for viewing. If an MDR is offline the camera channels cannot be accessed. Also the vehicle icon is greyed out to indicate its offline state. An online vehicle example is shown in *Online Vehicle Figure 69*. The vehicle icon may display as a red icon if it is in an alarm state. See *Alarm Vehicle Figure 70*.



Offline Vehicle Figure 68



Online Vehicle Figure 69



Alarm Vehicle Figure 70

- (a) The fleet **BRIGADE** may be right-clicked to show a sub-menu. See *Fleet Menu Figure 72*. This allows the list of vehicles in that fleet to be **EXPANDED** or **COLLAPSED**.
- (b) Use the **REFRESH** button  to update data for online vehicles. See *Fleet Menu Figure 72*.
- (c) In order to view the latest vehicle list please **LOGOUT** and **LOGIN** again.
- (d) **SEARCH** is used to find specific vehicles based on the vehicle registration number. 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. See *Fleet Menu Figure 72*.
- (e) Quick information of the selected vehicle is shown below the tree structure in Area 1. Quick information consists of Vehicle Number, Device ID, Group, Type, Longitude, Latitude, Speed and Time. An example is shown in *Quick Information Figure 71*.
- (f) The vehicle menu shown in *Vehicle Menu Figure 73* can be accessed by right-clicking the vehicle. This has the following options:
  - Settings
  - Quality
  - GPS Config

Vehicle Number	MDRTHREE
Device ID	MDRTHREE
Group	Brigade
Type	MDR
Longitude	0.245278
Latitude	51.401944
Speed	0 KMH
Time	09:44:29 10-27-2015

**Quick Information Figure 71**



**Fleet Menu Figure 72**

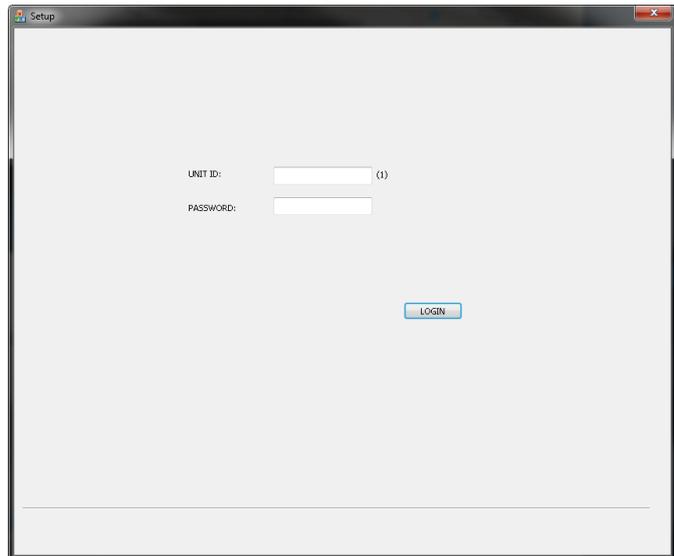


**Vehicle Menu Figure 73**

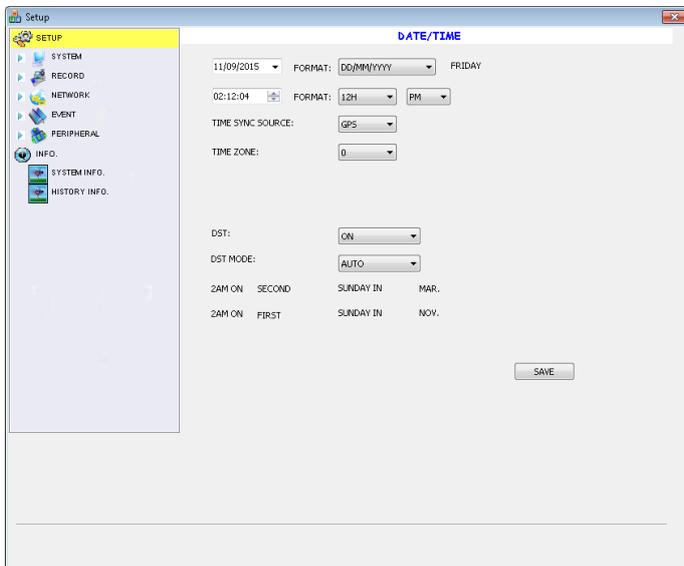
- (g) **SETTINGS** are used to access ONLINE MDR units' settings. Once **SETTINGS** is accessed, *Connect to Device Figure 74* is displayed.
- (h) Depending on the speed of the connection to the MDR, *Vehicle Settings Menu Setup Login Figure 75* is displayed after 1-3 minutes.
- (i) See *Vehicle Settings Menu Setup Figure 76*, users can configure MDR settings related to: System, Record, Network, Event, and Peripheral. Users can read MDR information related to: System and History
- (j) **QUALITY** is used to switch between **SUB-STREAM** or **MAINSTREAM**.
- (k) *GPS Config Figure 77* is used to configure the interval with which the MDR uploads GPS information to the server.



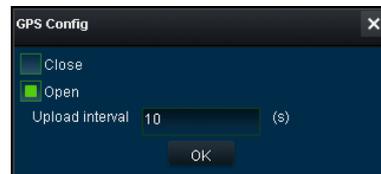
**Connect to Device Figure 74**



**Vehicle Settings Menu Setup Login Figure 75**



**Vehicle Settings Menu Setup Figure 76**



**GPS Config Figure 77**

## 6.2 Type of operation (Area 2)

Users 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.

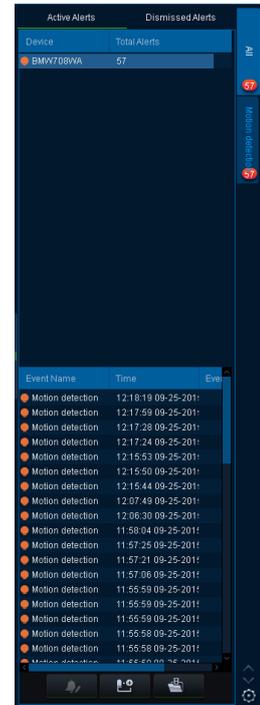
Note: Local data and server data can be accessed when the MDR-Dashboard 2.0 is in server mode. When the MDR-Dashboard 2.0 is in local mode there is limited functionality. See MDR 400 Series Installation&Operation Guide.

### 6.2.1 Live View

- (a) Users access live operation by clicking on the **LIVE** icon. See *Live Operation Type Figure 78*.
- (b) Choose a suitable view - **MAP**, **VIDEO** or **VIDEO/MAP**. See *View Type Figure 80*. The various views are discussed further in *View Settings (Area 5)*.
- (c) The *Live Control Bar Figure 81* is displayed when the **VIDEO** view is used. Users can mute, snapshot, scroll, expand to full screen or change window view.
- (d) When users right click a video channel, the sub menu shown in *Live Channel Sub-Menu Figure 82* will be displayed.
- (e) **OPEN VIDEO** is used to display all channel information and live video. See *Live Channel Sub-Menu Figure 82*.
- (f) **CLOSE VIDEO** is used to stop video displaying but show vehicle registration number and channel name. See *Live Channel Sub-Menu Figure 82*.
- (g) **CLEAR HISTORY** is used to remove all data from the channel; this channel can no longer be opened. See *Live Channel Sub-Menu Figure 82*.
- (h) **MAIN STREAM** is not supported for MDR 400 Series.
- (i) **SUB-STREAM** is not supported for MDR 400 series.
- (j) **SUB-STREAM SETTINGS** is not supported for MDR 400 series.

Note:

- A maximum of 36 channels can be viewed at one time.
  - To access a cleared channel, double-click the vehicle to refresh all channels.
  - Live view always accesses **SUB-STREAM** which may have video stuttering. This is due to a limitation in available bandwidth.
- (k) 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 79*.



### 6.2.2 Playback

- (a) Users access playback operation by clicking on the **PLAYBACK** icon. See *Playback Operation Figure 83*.



- (b) *Playback Options Figure 84* will then be presented to users. There are 4 playback options:

- Server
- HDD
- Device
- Directory



(c) In each **PLAYBACK** mode users can clip recordings. During playback, users click on the clipping icon, shown in *Playback Bar Figure 85*.



**Playback Bar Figure 85**

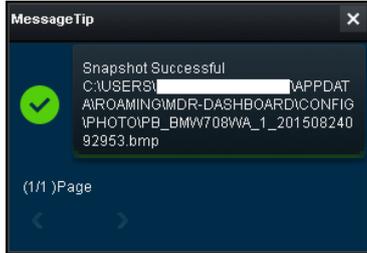
(d) Users are then presented with the tool bar shown in *Clipping Toolbar Figure 86*. This is used to either **Play**, **Screenshot**, **Map Screenshot**, **Evidence Snapshot**, **Screenshot all channels** or **screenshot select**.



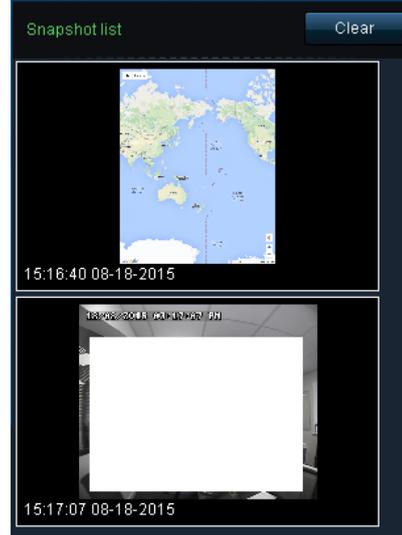
**Clipping Toolbar Figure 86**

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

(f) Once the **SCREENSHOT** button is clicked, a screenshot of the video image is stored locally under `C:\Users\username\AppData\Roaming\MDR-Dashboard2.0\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 87*.

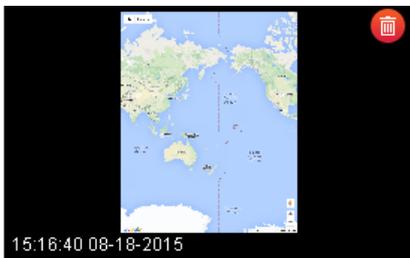


**Screenshot pop-up Figure 87**

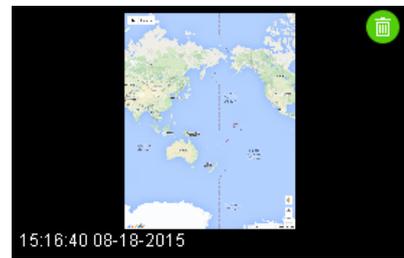


**Snapshot list Figure 88**

(g) **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 88*. Items can easily be deleted from the snapshot list by using the delete (trash can) icon. See *Snapshot list Delete icon Figure 89*. The delete icon turns green when the mouse hovers over it. See *Snapshot list Active Delete icon Figure 90*.



**Snapshot list Delete icon Figure 89**

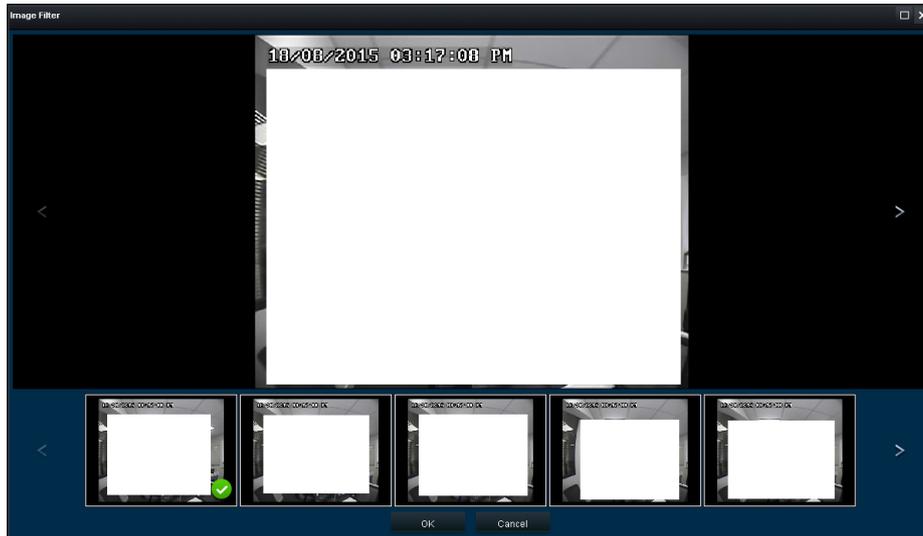


**Snapshot list Active Delete icon Figure 90**

(h) **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 88*.

(i) **SCREENSHOT ALL CHANNELS** is used to screenshot all channels which then appears in the Snapshot list as shown in *Snapshot list Figure 88*.

(j) **SCREENSHOT SELECT** is used to give users the option to choose from several automatically generated video screenshots based on the current time marker (15:17:08 shown in *Screenshot Select Figure 91*). Once a screenshot is chosen, it will appear in the Snapshot list as shown in *Snapshot list Figure 88*.

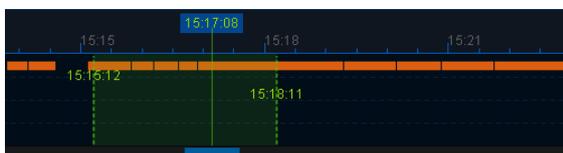


**Screenshot Select Figure 91**

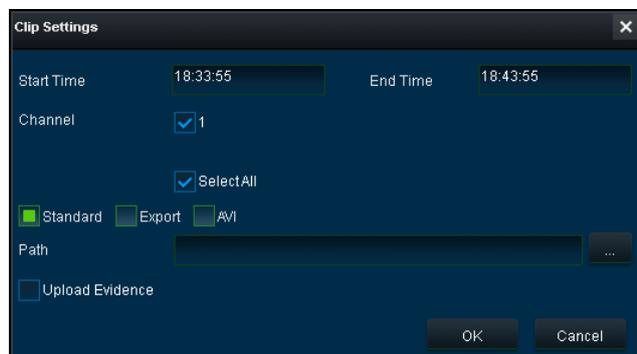
- (k) Once satisfied with the snapshot list, users will then position the clipping markers to the start and end time of the desired clip. Click **OK**. As shown in *Clipping Markers Figure 92*.
- (l) The clip settings window will now be presented to users. This is shown in *Clip Settings Figure 93*. Users can manually set the **START TIME** and **END TIME**. The channel selection is chosen here if there is more than one channel available. There are 3 different ways to clip:
  - **STANDARD** - Users must set the desired **PATH** before clicking **OK**. These H.264 files are opened manually by MDR-Dashboard 2.0 / MDR-Player 2.0 and are stored locally.

Note: If the **EVIDENCE** feature is used, the video clipping will be uploaded to the server. This is only available in the device playback mode. See section 6.2.6 Evidence for more information.

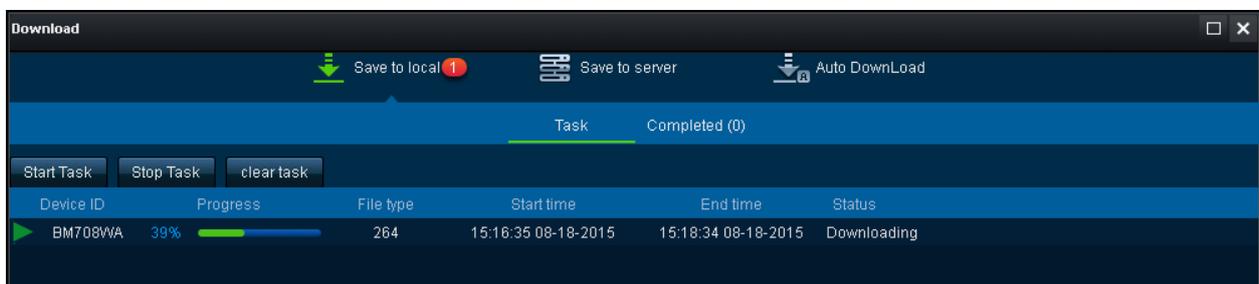
- **EXPORT** - Users must set the desired **PATH** and **FOLDER** name before clicking **OK**. This option creates an executable (.exe) file including the MDR-Player 2.0 with the embedded video. These files may be password protected. Evidence option is not available. These files are stored locally.
  - **AVI** - Users 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.
- (m) Users can check the progress of their clippings under **DOWNLOAD** → **TASK** (Area 3). See *Standard Clipping Figure 94*. Once the task is completed, users can view the status under **DOWNLOAD** → **COMPLETED**. See *Completed Clippings Figure 95*.



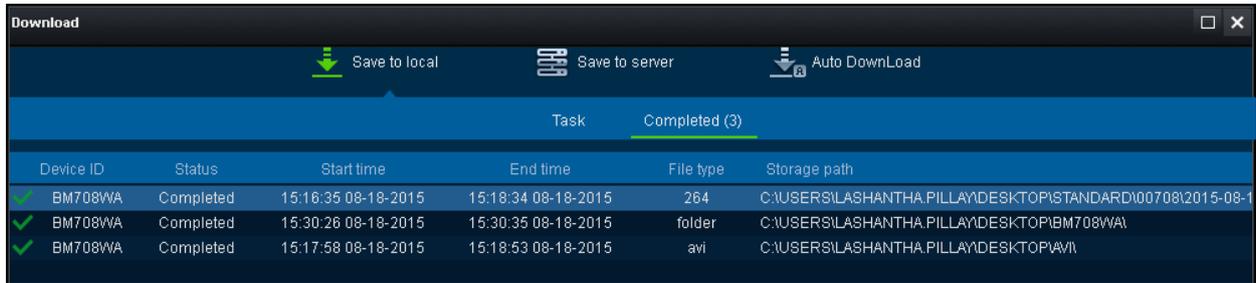
**Clipping Markers Figure 92**



**Clip Settings Figure 93**



**Standard Clipping Figure 94**



Completed Clippings Figure 95

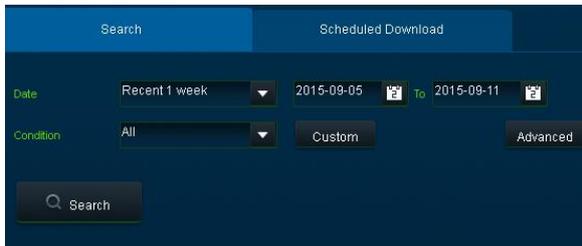
### 6.2.3 Server

- (a) Users can search the server for MDR recordings. These searches can be based on dates, speed and events. See *Server Search Figure 96*.
- (b) Users can schedule data downloads from the MDR to the server based on time, dates and video channels. See *Server Download Figure 97*.
- (c) Once a user creates a scheduled download, a windows pops up to indicate this has been added successfully. See *Server Download Pop-up Figure 98*.

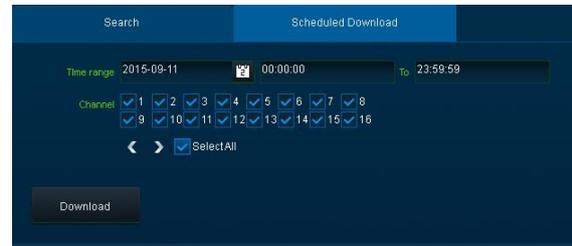
Table 13 of Scheduled Downloads vs Auto Downloads

Scheduled Download	Auto download
Download is a once off process	Can be set as a recurring download
Setup based on time	Setup based on time, alarms or events
Not Applicable	Configurable to downloads metadata and/or video

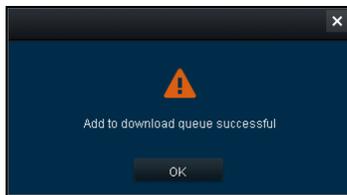
- (d) This scheduled download appears under the download window. Users click on **DOWNLOAD** as shown in *Server Download Notification Figure 99*.
- (e) *Server Download Queue Figure 100* shows the download under **SAVE TO SERVER** with the details. This download type is known as **APPOINTMENT**. This download can be deleted by using **CLEAR TASK**.



Server Search Figure 96



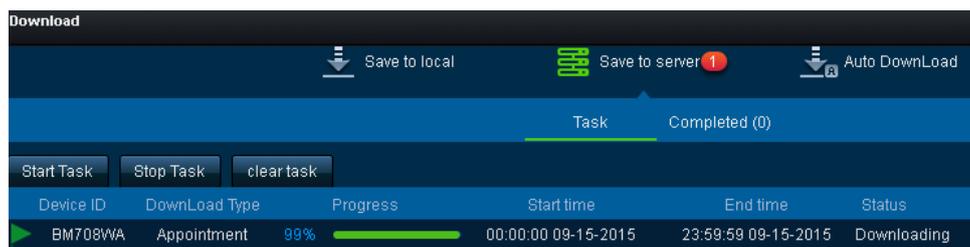
Server Download Figure 97



Server Download Pop-up Figure 98



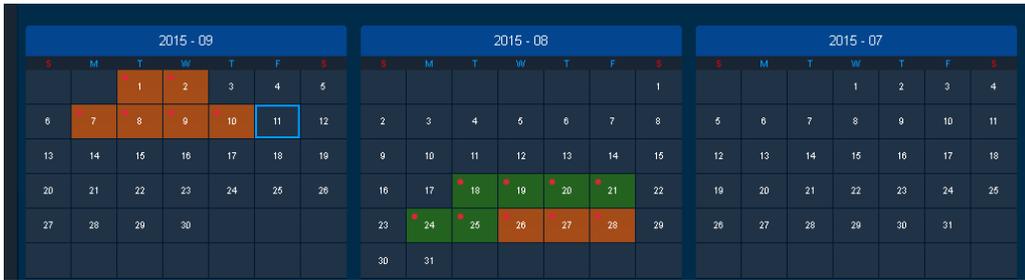
Server Download Notification Figure 99



Server Download Queue Figure 100

### 6.2.4 Device

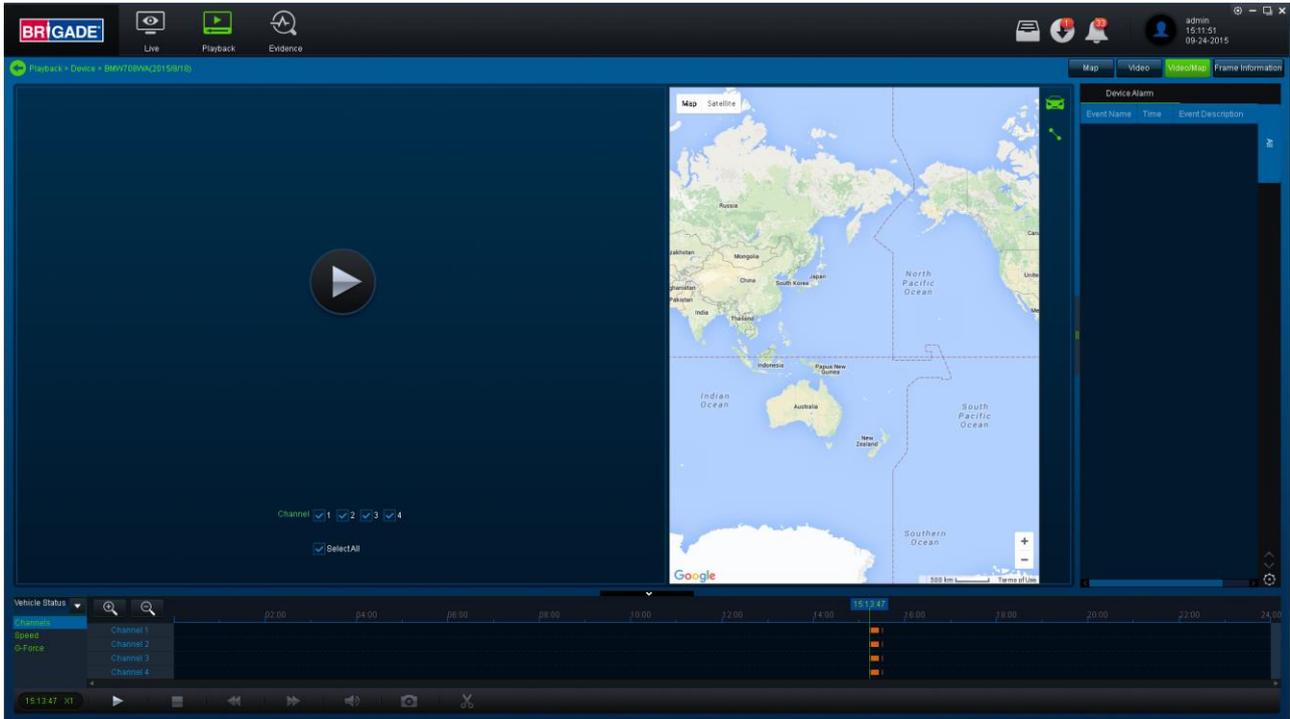
- (a) This is used to remote access an MDR unit's HDD content.
- (b) Double-click the online vehicle icon **BM708WA** in order to open the calendar view as shown in *Device Calendar View Figure 101*.
- (c) Ensure that the **DOWNLOAD BLACKBOX** option is ticked as shown in *Blackbox data Figure 102*. This is found on the bottom left of the calendar view.
  - Green dates represent normal recordings (18/19/2015 - 25/08/2015)
  - Orange dates represent alarm recordings (01/09/2015 – 10/09/2015)
  - Red dot only (no colour) represents only blackbox data
  - Blue outline represents the current day's date (11/09/2015)



Device Calendar View Figure 101

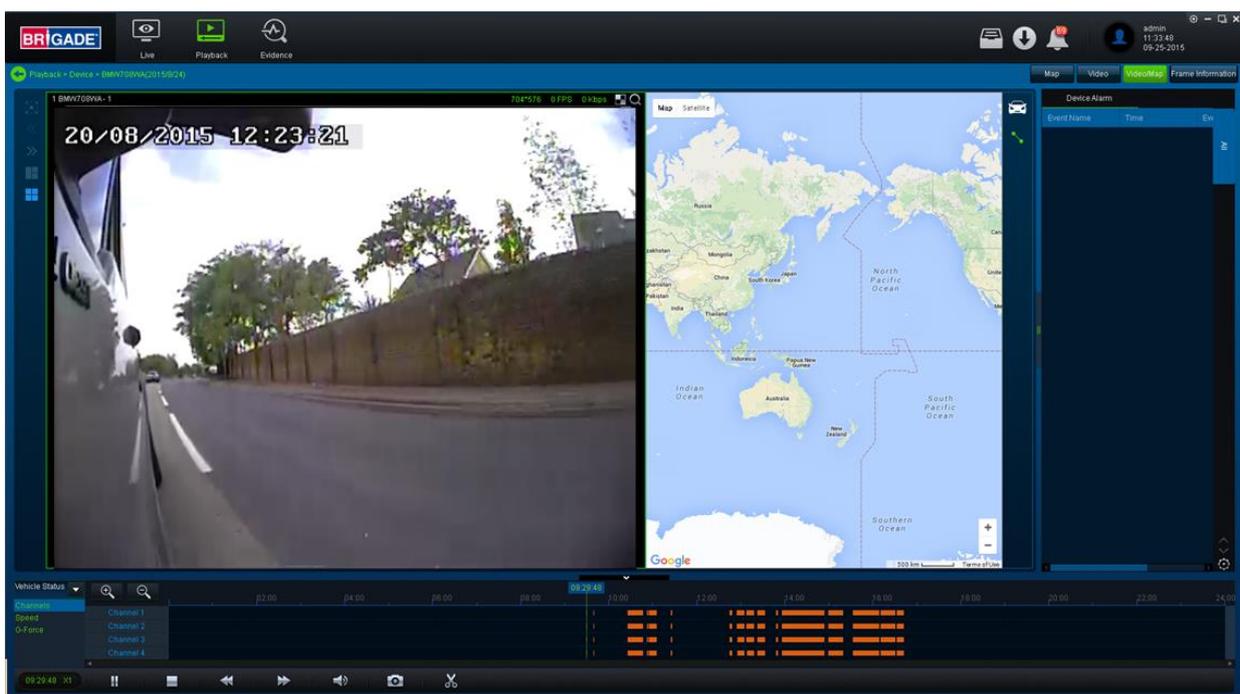
Download Blackbox  
**Blackbox data Figure 102**

- (d) Double-click the desired date and choose which camera channels to view. See *Channel Selection Figure 103*.  
 (e) Then click the **PLAY** button located above the channel selection. See *Channel Selection Figure 103*.



Channel Selection Figure 103

- (f) Once users click **PLAY**, the video will be displayed as shown in *Playing a Video Figure 104*.  
 (g) Users may view graphical data related to the recording such as:
- Vehicle Status – Channels, Speed and G-Force.
  - Device Status – Device temperature, Environment temperature and MDR voltage.

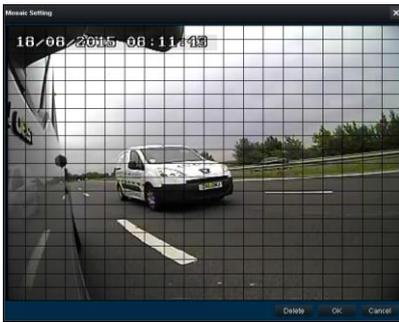


Playing a Video Figure 104

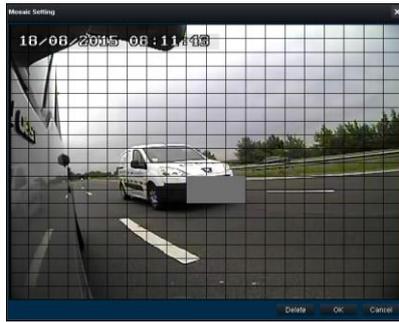
(h) Each camera channel has two additional features, **BLUR**  and **ZOOM** .

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

(i) Users can use blur to create a mosaic setting of an area which will be blurred throughout video playback. See *Creating Mosaic for Blur Figure 105*, *Setting the Blur Area Figure 106* and *Blur Activated Figure 107*.



*Creating Mosaic for Blur Figure 105*



*Setting the Blur Area Figure 106*



*Blur Activated Figure 107*

(j) **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 108* and *Zoom area Figure 109*.



*Choosing Zoom Area Figure 108*



*Zoom area Figure 109*

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

(l) To view further information regarding the recording users can access **FRAME INFORMATION** and **EVENT** as shown in *Extended View Settings Figure 110*.



*Extended View Settings Figure 110*

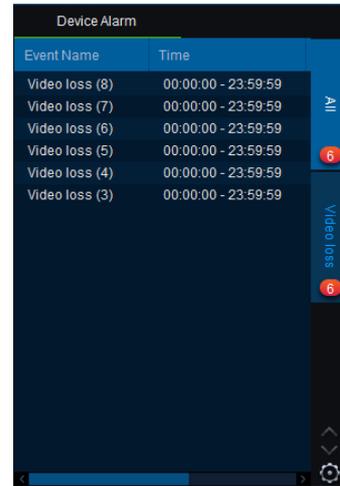
(m) See *Frame Information Figure 111*. **FRAME INFORMATION** consists of:

- Firmware version
- MCU version
- Company name
- Vehicle number
- G-Force
- GPS
- Speed
- Satellite
- Satellite precision
- Voltage
- Temperature
- Trigger Activity Indicator

(n) See *Event Information Figure 112*. Event information consists of device alarms which have event names and times.



Frame Information Figure 111



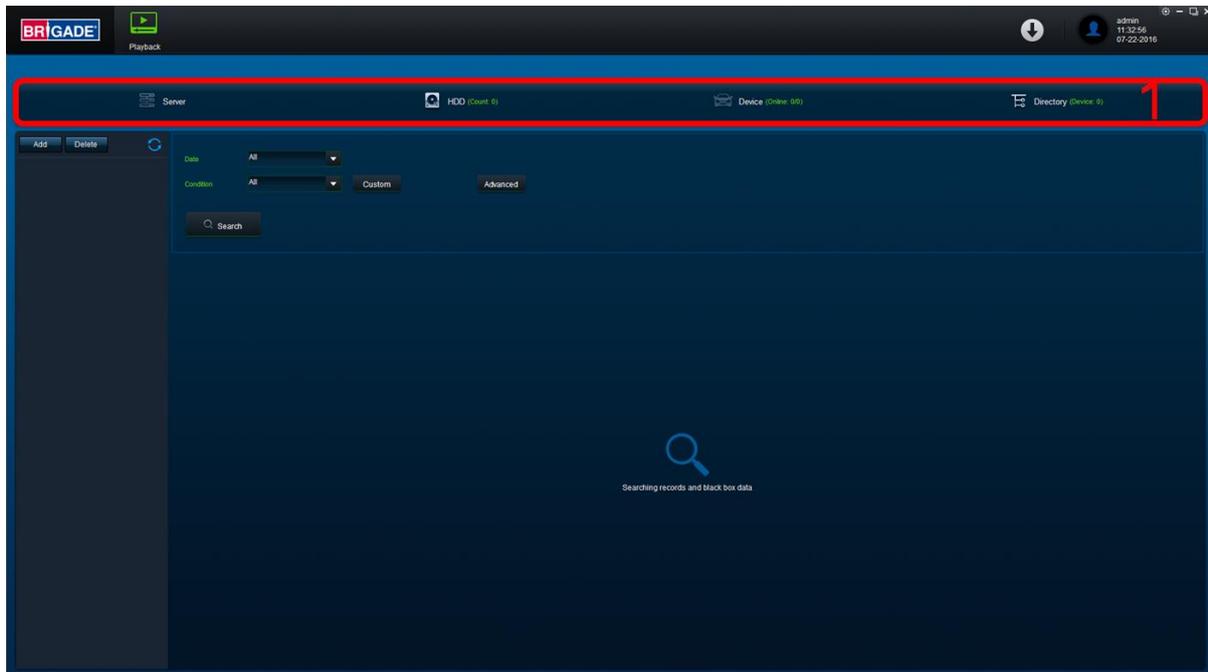
Event Information Figure 112

## 6.2.5 HDD and Directory Playback

### 6.2.5.1 Directory Playback

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

(a) In order to read exported files click on the Directory tab found on the Data Source Access (area 1). See *Data Source Figure 113*.

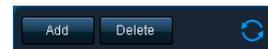


Data Source Figure 113

(b) Users click on the **DIRECTORY** tab as shown in *Directory Tab Figure 114*.



Directory Tab Figure 114

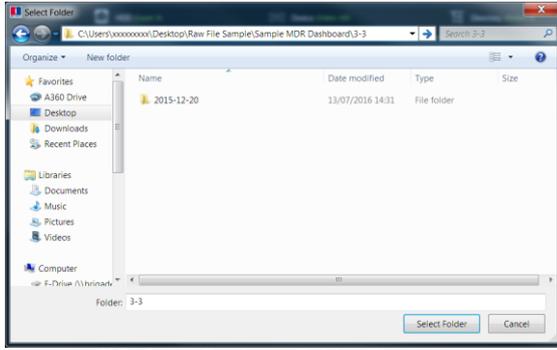


Directory Add Figure 115

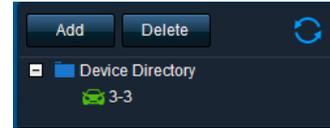
(c) Click the **ADD** button as shown in *Directory Add Figure 115*. Browse to the relevant folder and click **SELECT FOLDER**.

(d) This brings up a Windows™ Explorer dialogue box (*Windows Explorer Folder Figure 116*) which allows users to select the folder that contains the recordings. Select the MDR Vehicle name, in this example 3-3.

(e) Once the folder has been successfully loaded, it will appear as shown in *Device Directory Figure 117*.

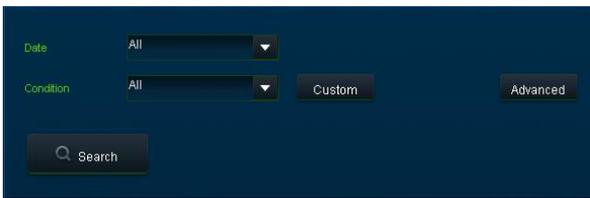


**Windows Explorer Folder Figure 116**

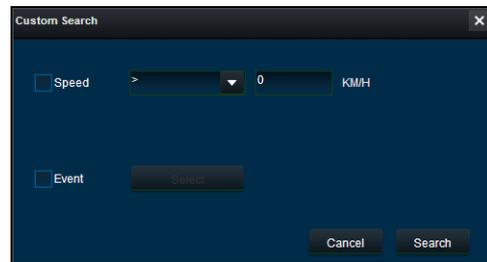


**Device Directory Figure 117**

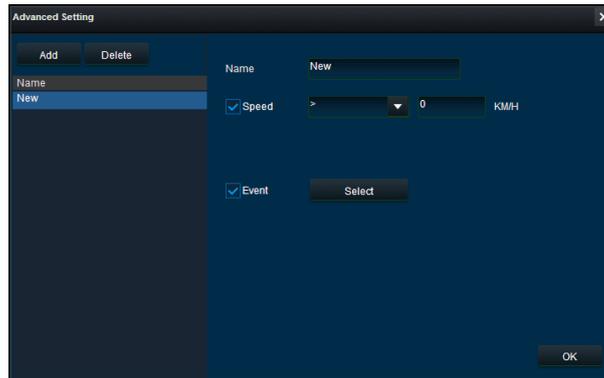
- (f) If there was a directory specified previously, click the refresh icon  to get the directory to appear. This will be a green icon to indicate it is available for browsing.
- (g) Double-click the vehicle icon. This will display **ALL** calendar events. A typical example of a calendar is shown in *HDD Calendar Figure 121*.
- (h) The directory will now appear in the left pane as shown in *Device Directory Figure 117*.
- (i) Multiple directories can be specified. Directories may be searched. See *Directory Search Figure 118*. Custom and Advanced searches can be configured. See *Custom Search Figure 119* *Windows Explorer Folder Figure 116* and *Advanced Search Settings Figure 120*.



**Directory Search Figure 118**



**Custom Search Figure 119**



**Advanced Search Settings Figure 120**

### 6.2.5.2 HDD Playback

- (a) Double-click the vehicle icon . This will display ALL calendar events.
- (b) Each colour represents:
  - Green dates represent normal recordings (16/08/2015 – 20/08/2015)
  - Orange dates represent alarm recordings (04/08/2015 – 06/08/2015)
  - Red dot only (no colour) represents only blackbox data
  - Blue outline represents the current date (22/09/2015)
- (c) A typical example of a calendar is shown in *HDD Calendar Figure 121*.



**HDD Calendar Figure 121**

- (d) In order to refine the data displayed, users should setup the search criteria. Custom and Advanced searches can be created. *HDD Search Figure 122.*
- (e) Ensure that the **DOWNLOAD BLACKBOX** is always ticked. See *Blackbox Setting Figure 123.* This will ensure that all metadata (graphical) is shown with playback video.

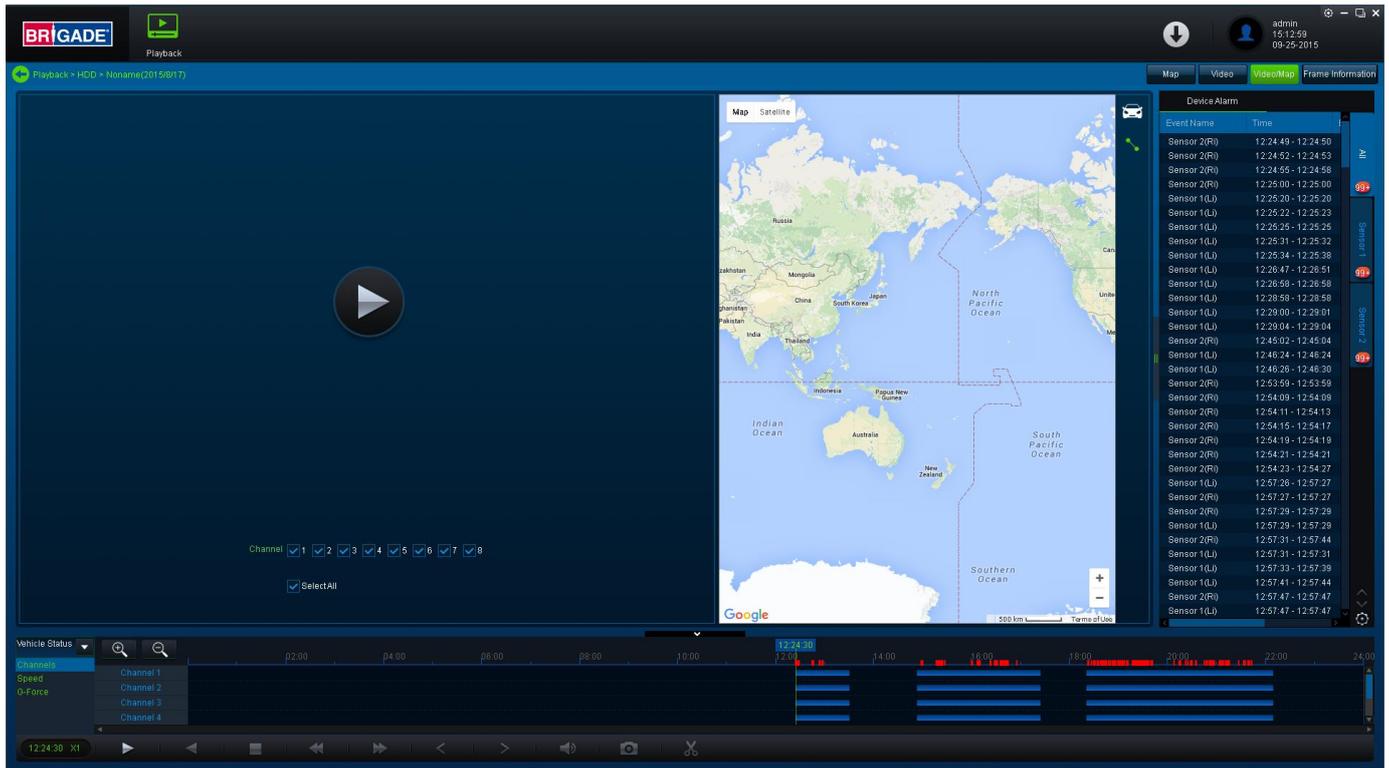


**HDD Search Figure 122**



**Blackbox Setting Figure 123**

- (f) Users double-click on the relevant calendar date. This will then display the pre-playback screen. See *Pre-playback Figure 124.* Users can choose which channels to view during playback.



**Pre-playback Figure 124**

- (g) Users can access different view settings such as, **MAP, VIDEO** and **VIDEO/MAP**. See *View Options Figure 125.*
- (h) 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 126.*

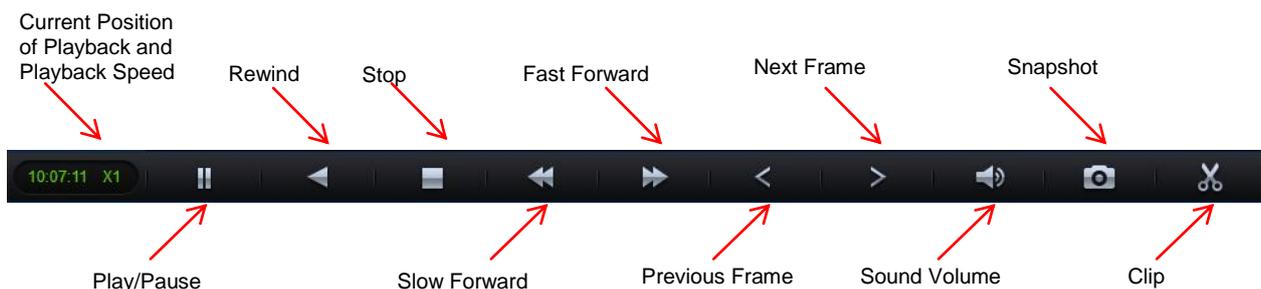


**View Options Figure 125**



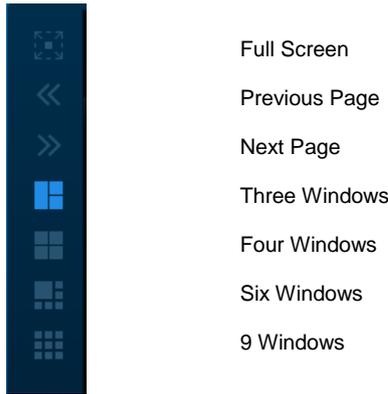
**Return to Calendar Figure 126**

- (i) Choose which channels to playback. 
- (j) Click the Play button  in order to display the data.



**MDR-Dashboard 2.0 Controls Panel Figure 127**

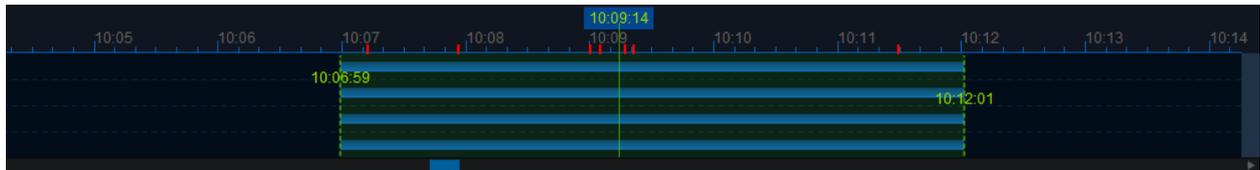
- (k) **Fast Forward** options (1x, 2x, 4x, 8x, 16x, 32x). Maximum **Slow Forward** option is x1/32.
- (l) Double-clicking an individual channel to make it full screen. There are other video viewing options as shown in *Video View Options Figure 128*.



**Video View Options Figure 128**

**6.2.5.2.1 Exporting Videos**

- a) Click on the **CLIP** button
- b) Green clip markers appear (broken vertical lines). See *Clipping a Video Figure 129*.
- c) Select the start and end time for the clip, users may also adjust the times by typing in the *Clip Settings Figure 130*.
- d) Once satisfied click on the **OK** button



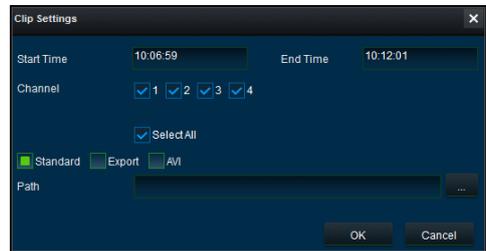
**Clipping a Video Figure 129**

The following window will appear to choose the channels, clipping time (when unhappy with the markers) and the kind of exporting function. There are three types of exporting:

- Standard
- Export
- AVI

The **STANDARD** option cuts the clip and creates a folder structure containing the video files in original proprietary format (H264) onto a local storage device (e.g. HDD).

Note: Users 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

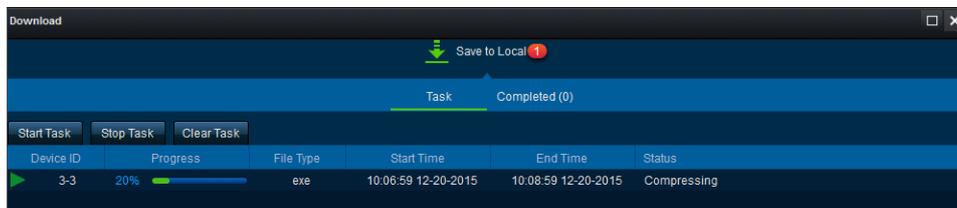


**Clip Settings Figure 130**

The **EXPORT** option allows users to export clips into a single .exe file with an embedded MDR-Player 2.0. This option is the recommended solution as it contains metadata and the Clip. It also can be password protected and played without the need of any additional player software.

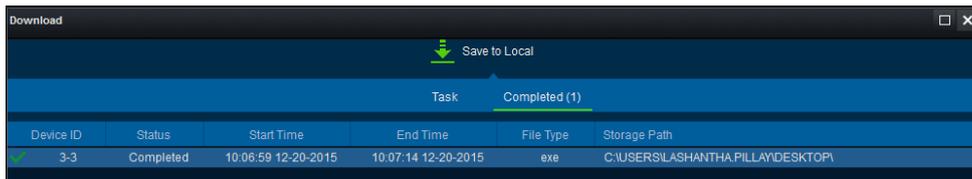
The **AVI** option creates .AVI files playable by common players such as Windows Media Player (WMP™) and Video Lan Client (VLC). The advantages of this solution are the portability of the format. The disadvantage is the lack of protection and missing metadata. These files can be played and edited by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

- (a) Users may monitor the progress of current/completed download tasks under the downloads area. Click the button.
- (b) See *Current Download Tasks Figure 131*. 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 made be deleted using the .



**Current Download Tasks Figure 131**

- (c) Completed tasks automatically move to the Completed tab, see *Completed Download Tasks Figure 132*.
- (d) Right-click a completed task to access a sub-menu as shown in *Completed Sub-menu Figure 133*.



**Completed Download Tasks Figure 132**

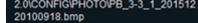


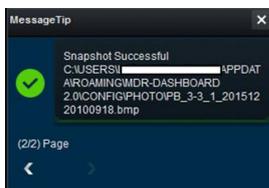
**Completed Sub-menu Figure 133**

### 6.2.5.2.2 Saving Snapshots

- (a) Click the desired channel; this will be highlighted by a green outline.
- (b) Click on the Snapshot button  in the Controls Panel.
- (c) 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 134*).



- (d) Click on the Snapshot Successful information  to access the **IMAGE FILTER**, this shows all historic locally stored snapshots. See *Snapshot Image Filter Figure 135*.



**Snapshot pop-up Figure 134**



**Snapshot Image Filter Figure 135**

## 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 is logged into **SERVER** mode.

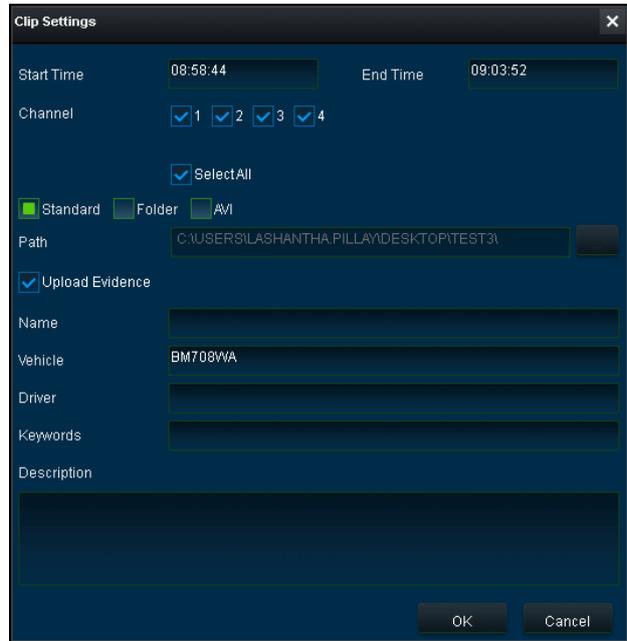
### 6.2.6.1 Evidence Upload

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

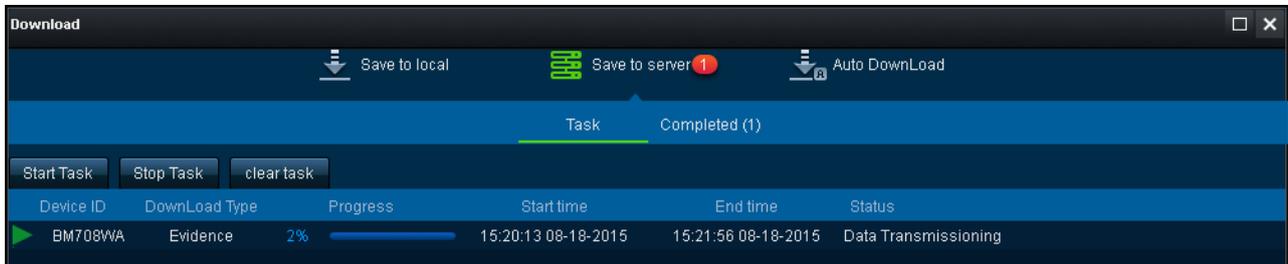


- (a) Click **PLAYBACK**  to enter playback mode.
- (b) Choose the desired data source – **SERVER, HDD, DEVICE** or **DIRECTORY**.
- (c) During playback of a video click the clipping icon  and set the clipping markers to the desired times.
- (d) Create the desired snapshot list using the evidence buttons  that will be associated with this video clipping.
- (e) Once satisfied with the clipping duration and snapshot list, click **OK**.
- (f) The Clip Settings window will now be displayed. See *Clipping Markers Figure 92*.
- (g) Ensure **STANDARD** is ticked then tick **UPLOAD EVIDENCE**. This means that the path specified under **PATH** is now void. See *Evidence Upload Figure 136*.

- (h) Fill in all details shown in *Evidence Upload Figure 136*. The following details can be completed: Name, Vehicle (automatically populated), Driver, Keywords, and Description.
- (i) Click **OK** once all details are filled in.
- (j) To confirm that this evidence upload task has been created, click **DOWNLOAD → SAVE TO SERVER**. See *Evidence Upload Download Window Figure 137*.
- (k) This task will appear under **COMPLETED** once it has finished. See *Evidence Upload Download Window Figure 137*.



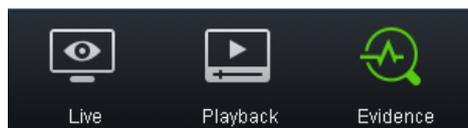
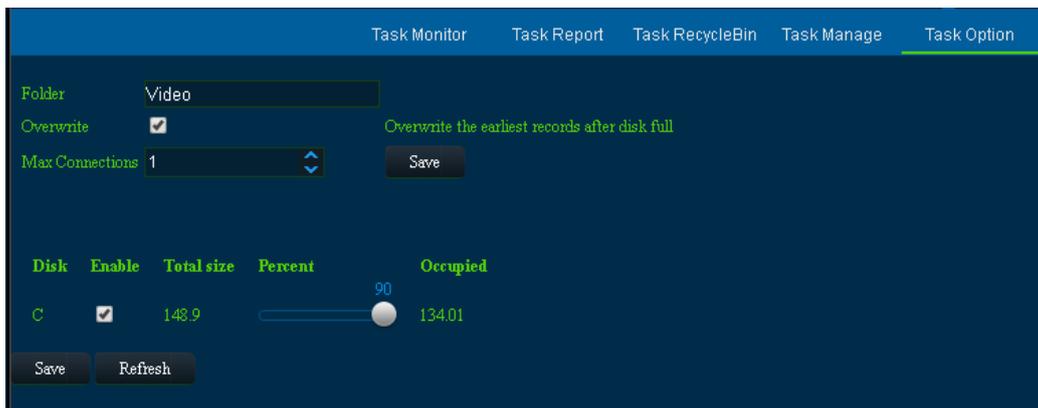
**Evidence Upload Figure 136**



**Evidence Upload Download Window Figure 137**

**6.2.6.2 Evidence Playback**

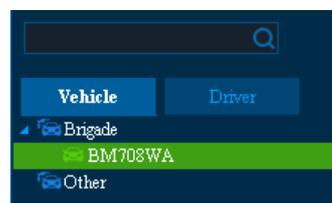
- (a) Due to the nature of evidence (contains sensitive information), it can **NEVER** be clipped or copied locally. Evidence is stored on the server and can only be accessed via MDR-Dashboard 2.0.
- (b) Users access playback operation by clicking on the **EVIDENCE** icon. See *Evidence Icon Figure 138*.
- (c) Server directory for evidence video file storage: C:\Program Files (x86)\MDR Server\WCMS4.0\EvidenceData



**Evidence Icon Figure 138**

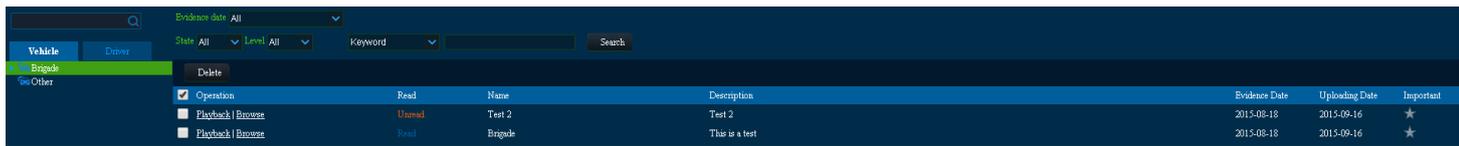
- (d) Navigate to the desired vehicle/company name (fleet) as shown in *Evidence Vehicle Figure 139*.

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



**Evidence Vehicle Figure 139**

(e) A full list of evidence is now displayed as shown in *Evidence List Figure 140*. This list can be filtered by state (read or unread), importance level (mark evidence as important using ) , keywords, name and description.

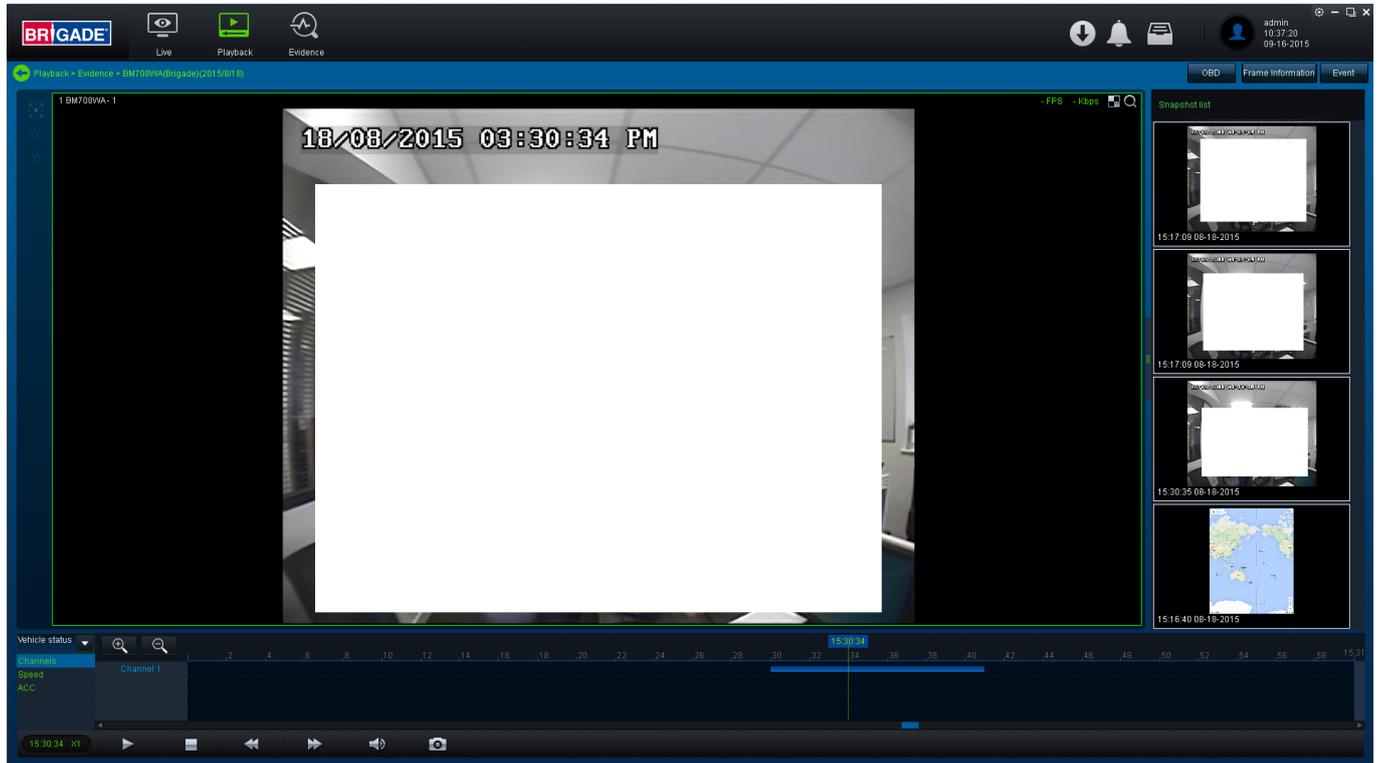


Operation	Read	Name	Description	Evidence Date	Uploading Date	Important
<input type="checkbox"/> Playback   Browse	Unread	Test 2	Test 2	2015-08-18	2015-09-16	★
<input type="checkbox"/> Playback   Browse	Read	Brigade	This is a test	2015-08-18	2015-09-16	★

**Evidence List Figure 140**

(f) Click on **PLAYBACK** operation button  which will begin the evidence playback. Please give the snapshot list approximately 10 seconds to load its data. **FRAME INFORMATION** and **EVENTS** are accessible within evidence. See *Evidence Playback Figure 141*.

(g) Click on the back arrow  Playback > Evidence > BM708WA(Test3)(2015/8/25) to return to the evidence list.



**Evidence Playback Figure 141**

### 6.2.6.3 Browsing Evidence

(a) Click on the **BROWSE** operation button  which will open an evidence report. See *Evidence Report top Figure 142*.

(b) There are several details that are displayed in this report, such as: Name, Driver, License registration number, uploading user, evidence date, creation date, keyword, description, maps and pictures.

(c) This report is easily printed using the  button found at the top of the report. There is also an area for a handwritten signature and evidence date. See *Evidence Report bottom Figure 143*.

**Evidence Reports**

# Evidence Reports

Print

Evidence Serial Number 1

Name	Brigade	License Plate	00708
Driver	Brigade29	Uploading user	admin
Evidence date	2015-08-18	Creation date	2015-09-16
Keyword	Test		
Description	This is a test		

Map

Picture

**Evidence Report top Figure 142**

**Evidence Reports**

2015-08-18 15:17:09

2015-08-18 15:17:09

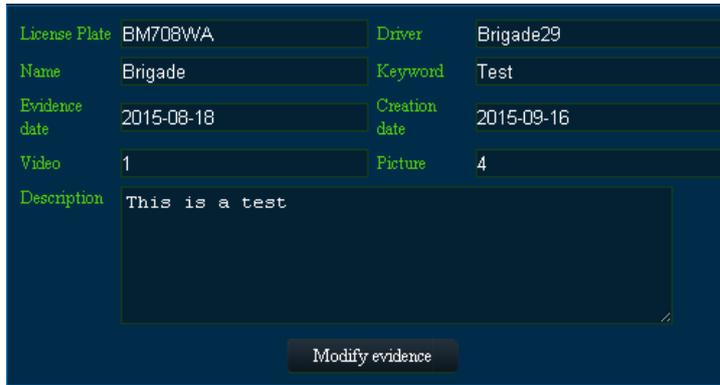
2015-08-18 15:30:35

Sign: \_\_\_\_\_

Evidence date: \_\_\_\_\_

**Evidence Report bottom Figure 143**

- (d) Uploaded evidence can be modified afterwards. This is to correct any erroneous data such as License registration number, Name, Driver, Keyword, and Description.
- (e) Users must highlight the evidence to be modified and then change the configurable data shown in *Evidence Modification Figure 144*.
- (f) MDR-Dashboard also tracks who accessed which evidence and when. This information is found under **QUERY USERS** which is shown in *Query Users Figure 145*.



**Evidence Modification Figure 144**

Query Users	Query Time
admin	2015-09-16 10:36:59
admin	2015-09-16 10:35:46
admin	2015-09-16 10:34:29

20 Page 1 of 1 Displaying 1 to 3 of 3 items

**Query Users Figure 145**

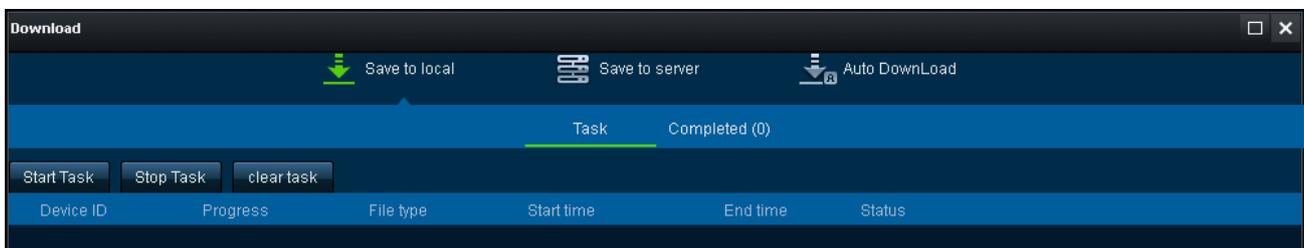
## 6.3 Downloads and Alarm (Area 3)

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

### 6.3.1 Download

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

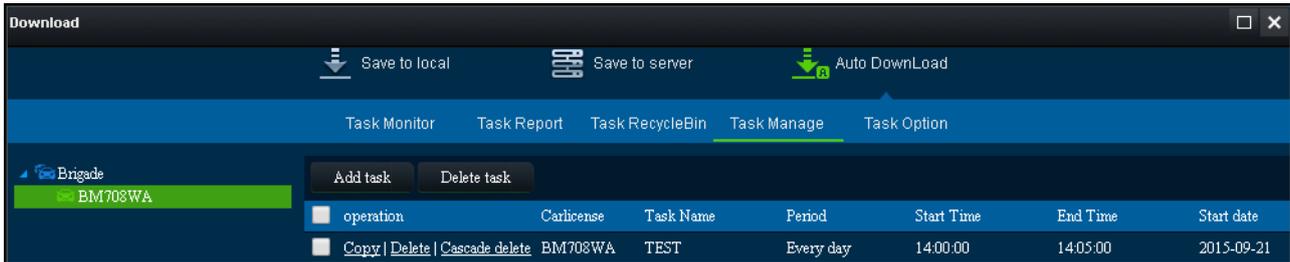
- Users click on the download icon  which will display the window shown in *Download Window Figure 146*.
- There are 3 download options: **SAVE TO LOCAL**, **SAVE TO SERVER** and **AUTO DOWNLOAD**.
- AUTO DOWNLOAD** connections to the server are limited to the number of devices that can be downloaded at a given time. If there are many devices online then downloads enter a “wait” state.
- AUTO DOWNLOAD** is more suited to a Mobile Network connection as the MDR is able to 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 connected to the Wi-Fi network point.
- Tasks appear under **SAVE TO LOCAL** when the clippings are being stored locally. 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 serve basis.
- Tasks appear under **SAVE TO SERVER** when the clippings are being uploaded as **EVIDENCE**.



**Download Window Figure 146**

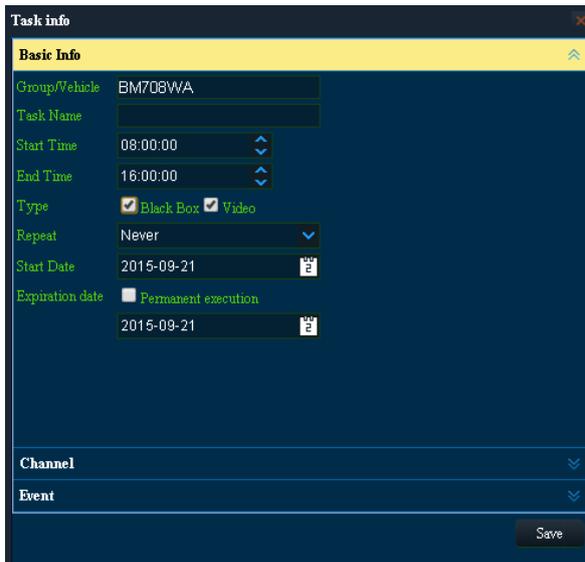
- Auto Download is setup differently to Clippings and Appointments.
  - Select the vehicle and then click **TASK MANAGE**. See *Auto Download Figure 147*.
  - Click **ADD TASK**. Users will now be presented with a **TASK INFO** window which is shown in *Auto Download Basic Information Figure 148*.
  - Users must now setup all details found under **BASIC INFO**, **CHANNEL** and **EVENT**. See the below figures, *Auto Download Basic Information Figure 148*, *Auto Download Channel Figure 149* and *Auto Download Event Figure 150*.
  - 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
  - START TIME** – this represents start time of the clipping.
  - END TIME** - this represents end time of the clipping.
  - TYPE** – choice of either Blackbox data / Video or both.
  - REPEAT** – Options to repeat this task such as Never, Every day, Weekly or Monthly

- **START DATE** – this allows users 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.
- **EXPIRATION 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** – This is NOT currently supported.
- If MDR has post alarm 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.

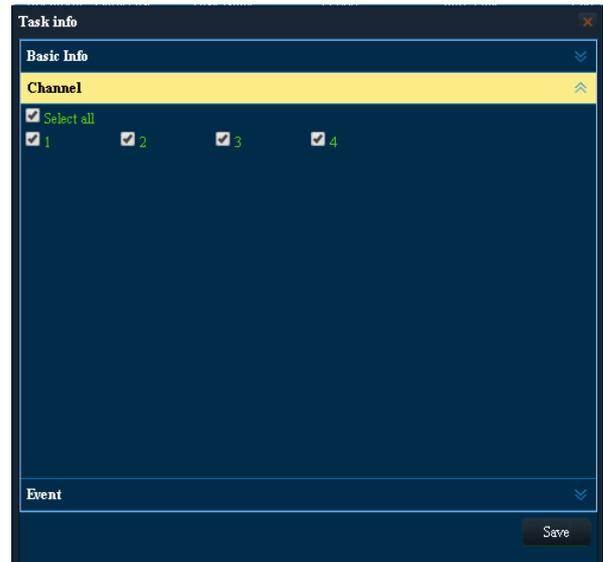


**Auto Download Figure 147**

- (i) Users can view the status of the **AUTO DOWNLOAD** tasks by clicking **TASK MONITOR**. See *Task Monitor Figure 151*. A download list is created, then the status becomes waiting, analysing, analysing finished and begins the downloading.

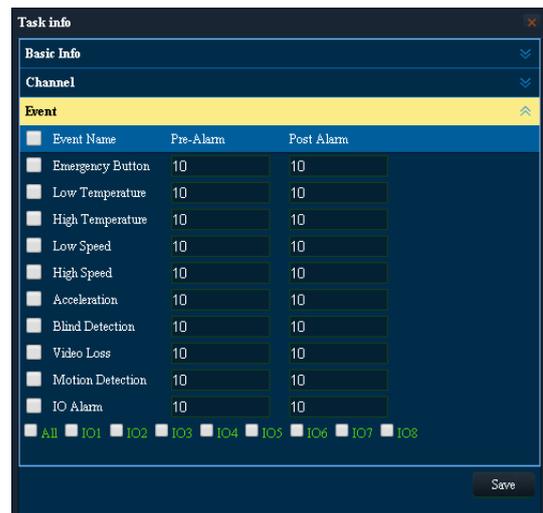


**Auto Download Basic Information Figure 148**

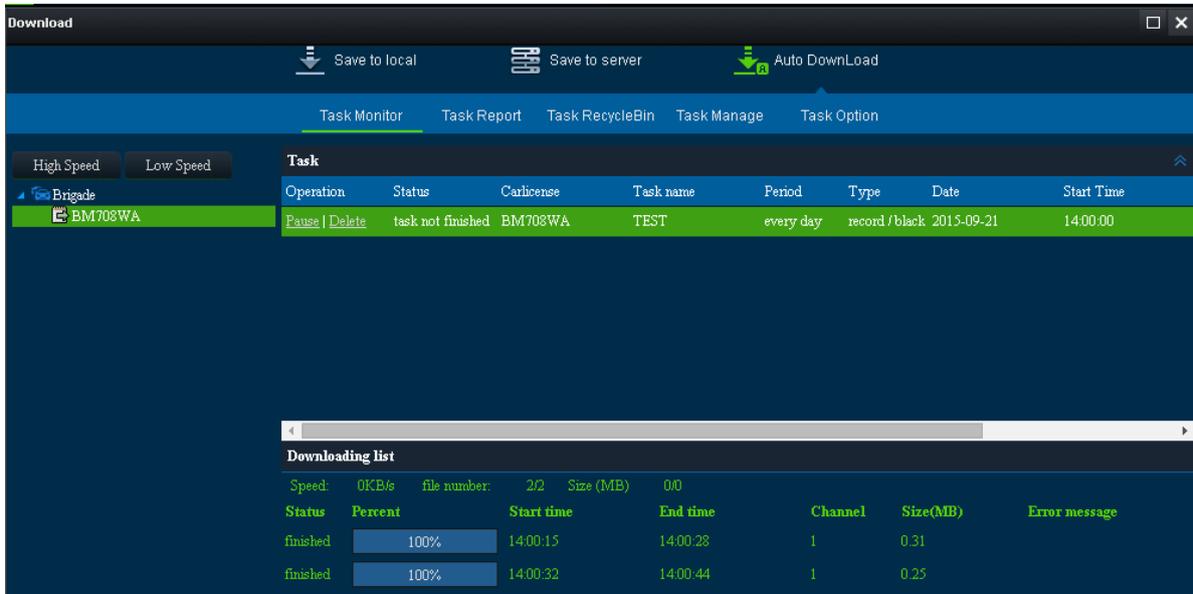


**Auto Download Channel Figure 149**

- (j) See *Task Monitor Figure 151*, **HIGH SPEED** will download files but the MDR will not record during this period. **LOW SPEED**, MDR will download files and record during the download period.



**Auto Download Event Figure 150**

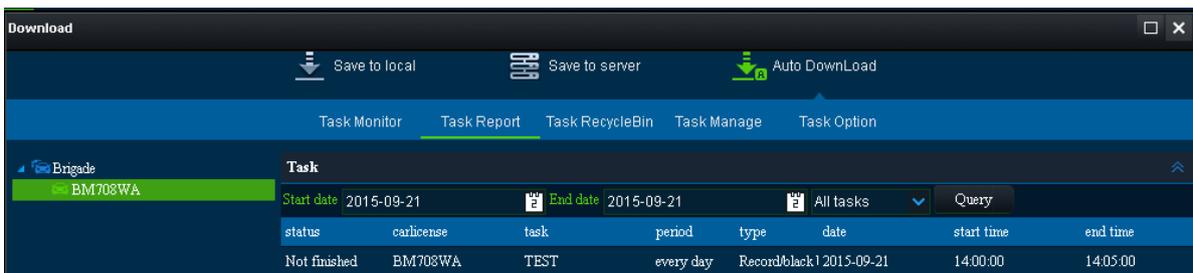


**Task Monitor Figure 151**

- (k) **TASK REPORT** is used to search all tasks based on dates and task status. See *Task Report Figure 152*.
- (l) **QUERY** is used to update the list. See *Task Report Figure 152*.

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



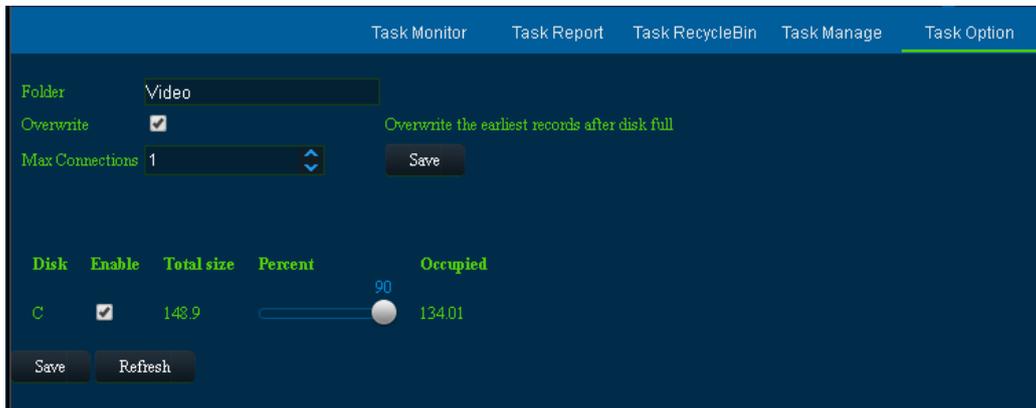
**Task Report Figure 152**

- (m) **TASK RECYCLE BIN** shows tasks that have been deleted by the user. See *Task Recycle Bin Figure 153*.



**Task Recycle Bin Figure 153**

- (n) **TASK OPTION** is used to set the folder for the **AUTO DOWNLOAD** files. See *Task Option Figure 154*.
- (o) **AUTO DOWNLOAD** files are located on the server PC.
- (p) These files are accessed via **PLAYBACK → SERVER**.
- (q) Server directory for video file storage: C:\Video\*Vehicle Name*.



**Task Option Figure 154**

### 6.3.2 Alarm Center

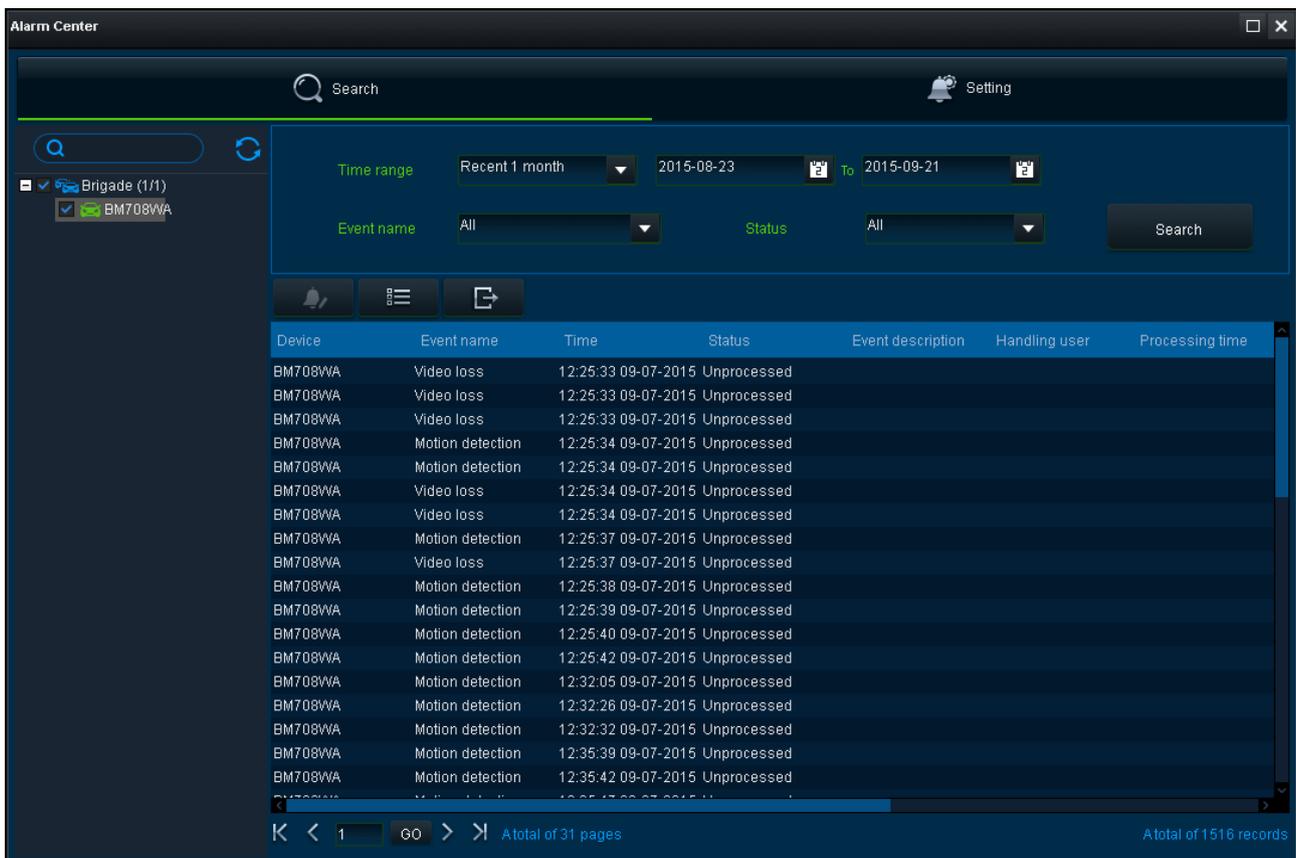
Alarm Center refers to an area which contains the following options:

- Alarm Search
- Alarm Configuration

#### 6.3.2.1 Alarm Search

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

- Users will set their search parameters and then click on the **SEARCH** button. Once clicked the MDR Server will be queried.
- See a typical list shown in *Alarm Center Search Figure 155*. 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 Center Search Figure 155*.
- Batch processing is achieved by clicking the  icon. See *Alarm Center Search Figure 155*.
- 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 Center Search Figure 155*.



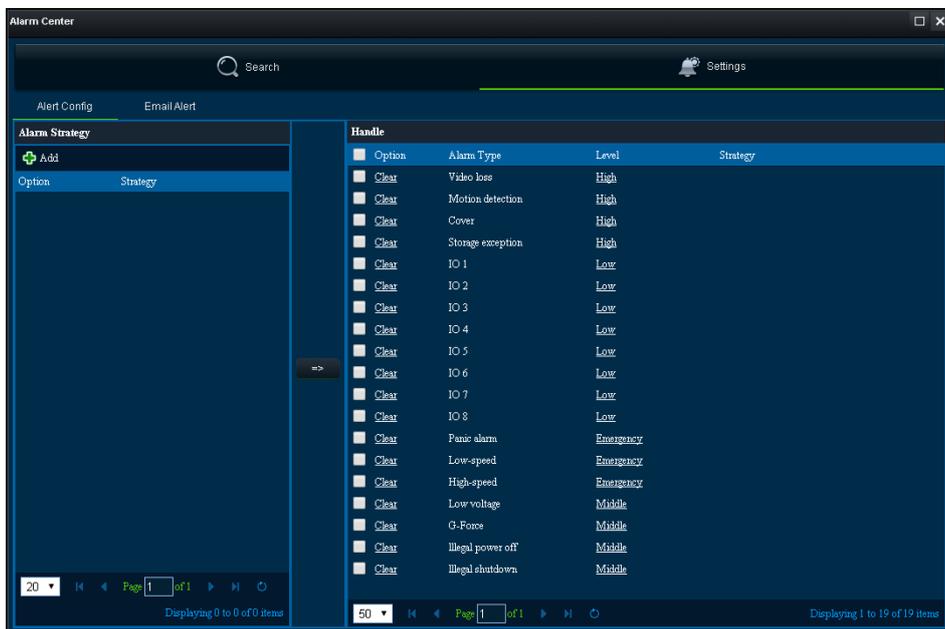
**Alarm Center Search Figure 155**

#### 6.3.2.2 Alarm Configuration

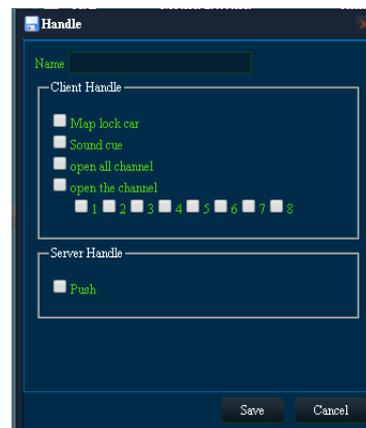
- Click the **ADD** button as shown in *Alarm Configuration Figure 156*.
- This will bring up the **HANDLE** window as shown in *Adding Alarm Handles Figure 157*.
- This lists several options which are used to handle the alarms listed in the right column of *Alarm Configuration Figure 156*.
- CLIENT HANDLE** has the following options:

- Map lock car: When there is an event, the vehicle in an alarm state will be shown in the map.
  - Sound cue: When there is an event, an alarm sound indicator will be heard in the client software (MDR-Dashboard 2.0).
  - Open all channel: When there is an event, all video channels will be opened automatically.
  - Open the channel: When there is an event, the chosen video channel will be opened automatically.
- (e) **SERVER HANDLE** has the option **PUSH**. When there is an event, a phone or tablet device will receive the alarm information. This is subject to the phone or tablet having the mobile application MDR 2.0 installed and the push switch activated.

Note: Alarm Handle acts like the main switch for app notifications – only the sys admin can view and change this option. See *Adding Alarm Handles Figure 157*.



Alarm Configuration Figure 156



Adding Alarm Handles Figure 157

## 6.4 View Settings (Area 5)

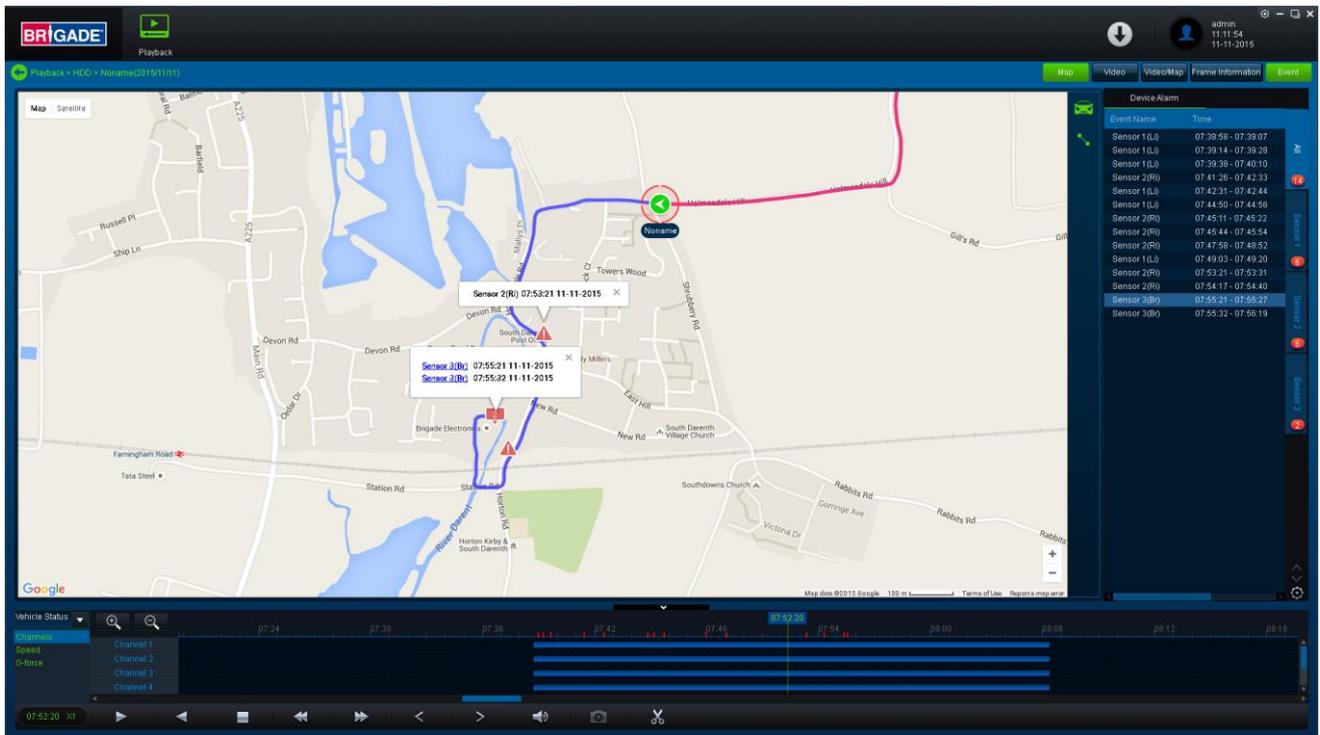
This area contains the following view options:

- Map
- Video
- Video/Map

### 6.4.1 Map

This view is accessed by clicking the **MAP** button. See *Map View Figure 158*. It will display the MDR GPS tracking data. This can be used in

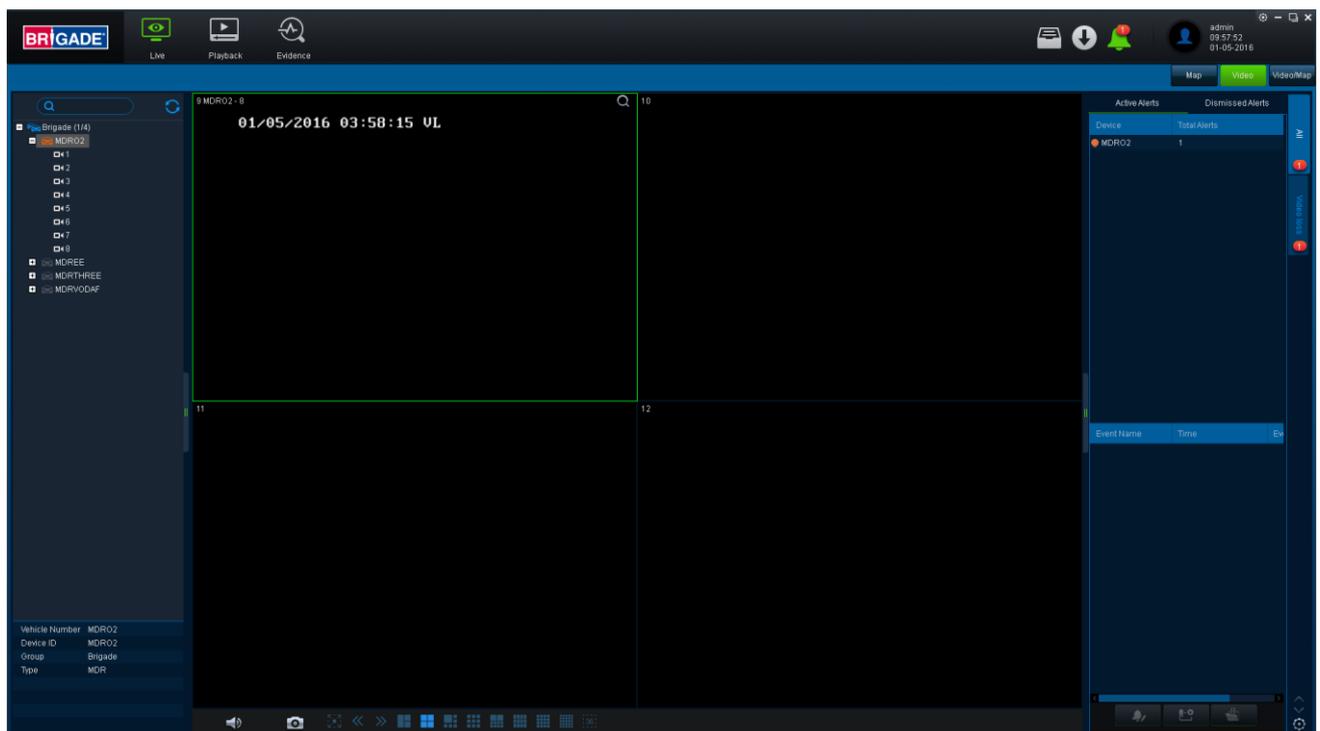
both **LIVE** and **PLAYBACK** mode. A hazard symbol  on the map will show points where an alarm was triggered. If there are multiple alarms in close succession, a box indicating the number of alarms will be shown on the map .



Map View Figure 158

## 6.4.2 Video

This mode is used to view Video data only. See *Video View Figure 159*. The order of the video channels may be changed by dragging the channel to another slot.



Video View Figure 159

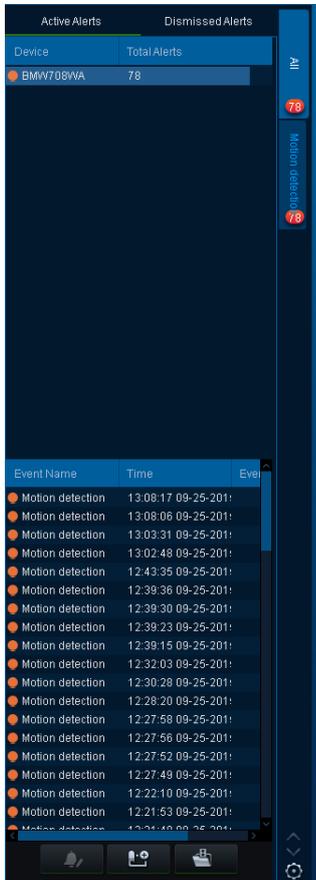
## 6.4.3 Video/Map

This view is used to access both video and map data. See *Channel Selection Figure 103* for an example.

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

- Real-time Alarm Log Figure 160* 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 161*.
- Click on LOCKING CAR symbol  in order 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 162*.

- (f) 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+".
- (g) Processing alarms refers to when a user clears an alarm (marks an alarm as dismissed) once the alarm has been reviewed.
- (h) **ACTIVE ALERTS** shows alarms that have not been processed by a user. See *Real-time Alarm Log Figure 160*.
- (i) 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 163*. Write a description of the event, for example, false alarm.
- (j) Click **PROCESS** to process an alarm event. Once processed, it will appear automatically under the **DISMISSED ALERTS** log.
- (k) **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 163*.



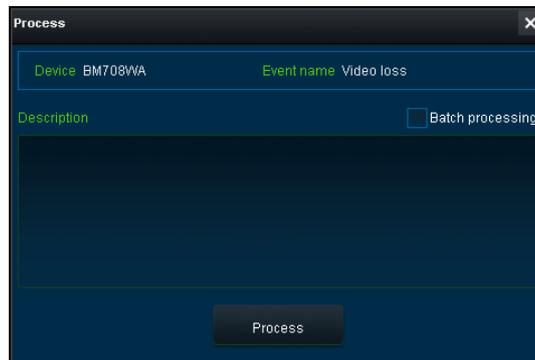
Real-time Alarm Log Figure 160



Alarm Menu Figure 161



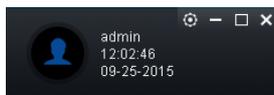
Alarm Settings Figure 162



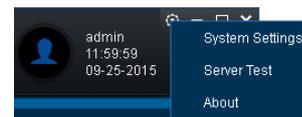
Alarm Processing Figure 163

## 6.6 User and System settings (Area 4)

- (a) The current logged in username, date (Client PC) and time (Client PC) is displayed. See *User and System Area Figure 164*.



User and System Area Figure 164



MDR-Dashboard Settings Menu Figure 165

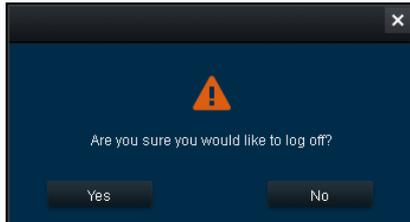
- (b) This area is used to logout. This is achieved by clicking on the silhouette icon . This brings up a confirmation window for logging out. Click **YES** or **NO** and thereafter the MDR-Dashboard 2.0 login screen will be displayed. See *Logout Screen Figure 168*.
- (c) Click on the gear icon  to display a submenu containing **SYSTEM SETTINGS**, **SERVER TEST** and **ABOUT** options. See *MDR-Dashboard Settings Menu Figure 165*.
- (d) To aid troubleshooting server connections, the **SERVER TEST** feature is used to determine which port is not functioning. See *Server Test Figure 166* and *Server Test Results Figure 167*.
- (e) The **ABOUT** option will display the window shown in *About Figure 169*. This will show the current MDR-Dashboard and Server version.
- (f) 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 169*.

Name	IP	Port	Status
addrdata	192.168.1.14	12040	Wait For Test
ads	192.168.1.14	12055	Wait For Test
clientgate	192.168.1.14	12020	Wait For Test
evidence	192.168.1.14	12055	Wait For Test
login	192.168.1.14	7264	Wait For Test
msg	192.168.1.14	5556	Wait For Test
notify	192.168.1.14	12003	Wait For Test
playback	192.168.1.14	12045	Wait For Test
remoteset	192.168.1.14	12050	Wait For Test
search	192.168.1.14	12040	Wait For Test
wcms	192.168.1.14	12055	Wait For Test

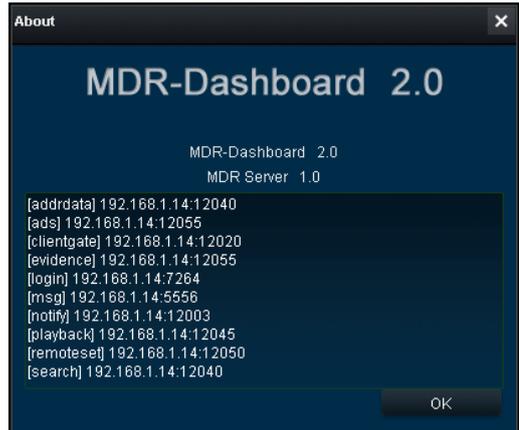
Server Test Figure 166

Name	IP	Port	Status
addrdata	192.168.1.14	12040	Test Successful
ads	192.168.1.14	12055	Test Successful
clientgate	192.168.1.14	12020	Test Successful
evidence	192.168.1.14	12055	Test Successful
login	192.168.1.14	7264	Test Successful
msg	192.168.1.14	5556	Test Successful
notify	192.168.1.14	12003	Test Successful
playback	192.168.1.14	12045	Test Successful
remoteset	192.168.1.14	12050	Test Successful
search	192.168.1.14	12040	Test Successful
wcms	192.168.1.14	12055	Test Successful

Server Test Results Figure 167

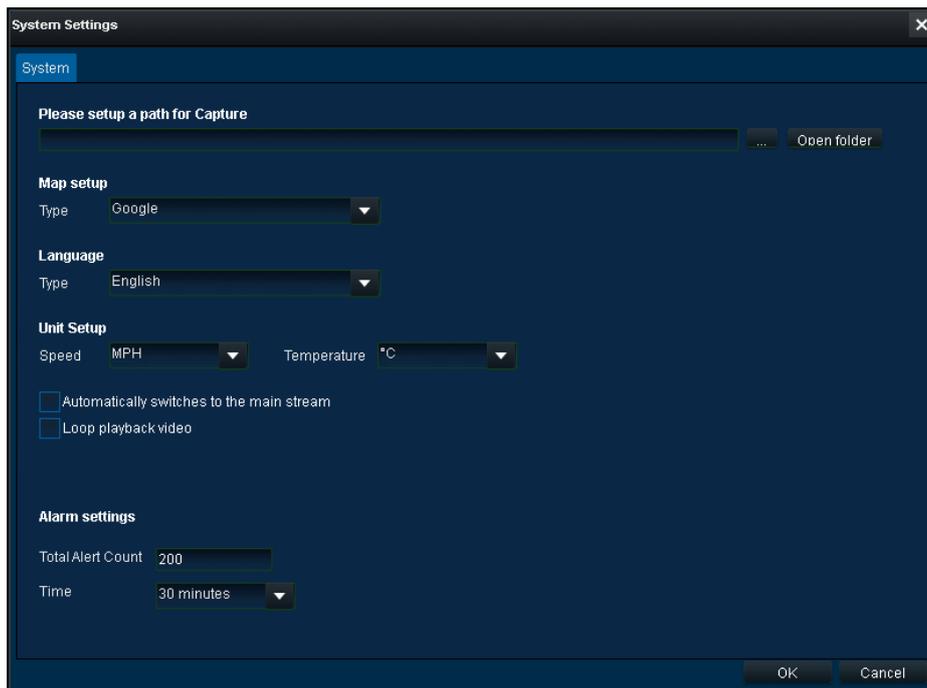


Logout Screen Figure 168



About Figure 169

- (g) Refer to the **SYSTEM** window in *System Figure 170*. This area is used to configure the following:
- Path for Screenshots
  - Map Type
  - Language – English or Chinese
  - Speed Unit
  - Temperature Unit
  - Automatically switches to the 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 Playback Video – this will play the entire selected video on repeat. This feature can be used for HDD or directory playback
  - Total Alert Count – shows the historical alarm events in the real-time alarm log area. The default amount is 200
  - Time– shows the alarm events for the past time range setting in the real-time alarm log area. The default amount is 30 minutes.

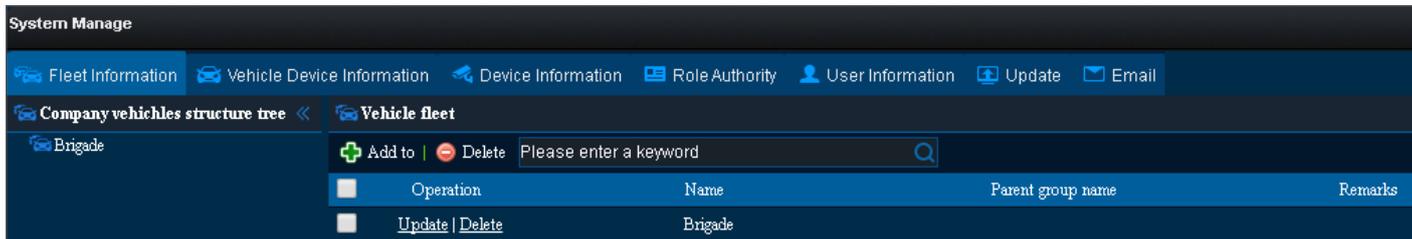


System Figure 170

- (a) Browse to **SYSTEM MANAGE** by clicking on the following icon . See *System Manage Figure 171*.

(b) System Management is used to configure the following options:

- Fleet Information
- Vehicle Device Information
- Device Information
- Role Permissions
- User Information
- Update
- Email



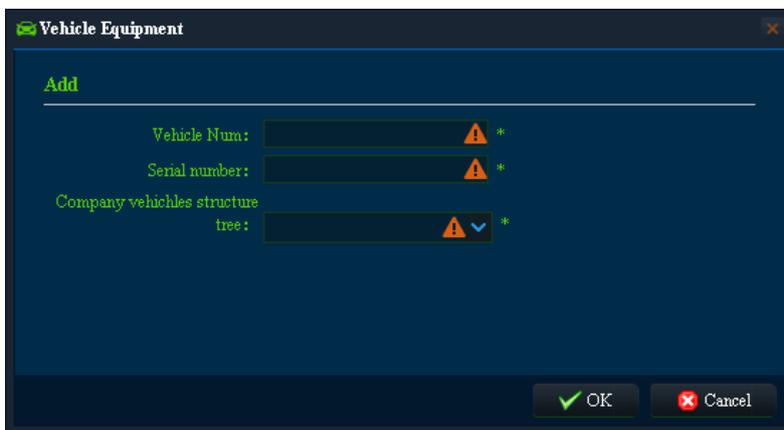
System Manage Figure 171

### 6.6.1 Fleet Information

Users can use this area to setup **VEHICLE FLEETS** (e.g. Brigade) under the **COMPANY VEHICLE STRUCTURE TREE**. This area can also be used to setup sub-groups which will be found under Vehicle Fleets.

### 6.6.2 Vehicle Device Information

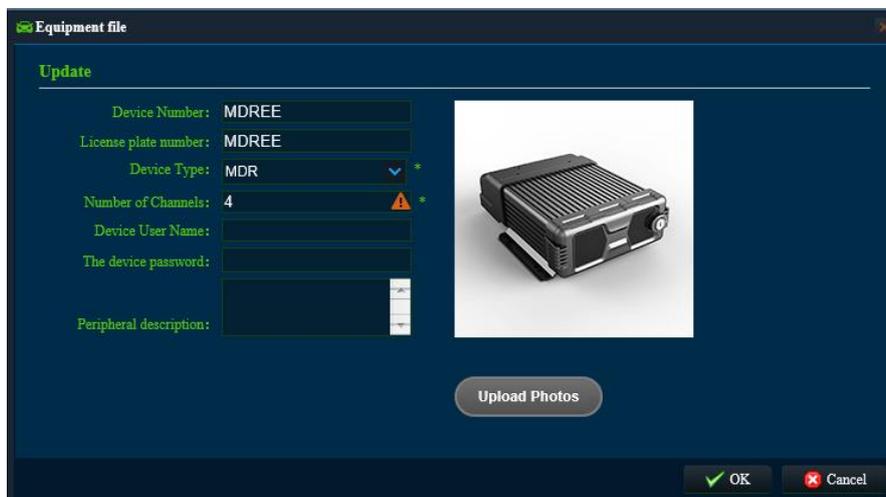
This area is used to setup **VEHICLE EQUIPMENT**. When setting up the vehicle number and serial number, users must choose where in the **COMPANY VEHICLE STRUCTURE TREE** this vehicle will live. See *Vehicle Device Information Figure 172*.



Vehicle Device Information Figure 172

### 6.6.3 Device Information

This area gives the user further information on a specific MDR unit. This is also used to **UPDATE** the **EQUIPMENT FILE** (window that contains detailed information on a specific MDR). See *Equipment File Figure 173*.



Equipment File Figure 173

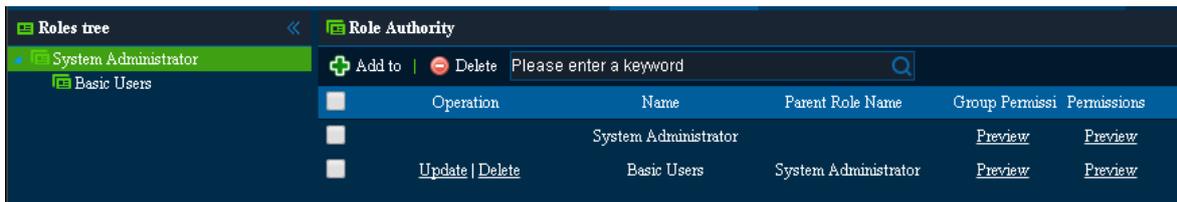
This allows users to track device number, license plates, number of channels, device username, device password, peripherals and a preview picture of the physical MDR. See *Equipment File Figure 173*. The **DEVICE NUMBER** under Device information (*System Manage Figure 171*) must match the **DEVICE ID** shown on the MDR.

Note: If an 8 channel device is not showing up as device with 8 channels, please update the **MDR NUMBER OF CHANNELS** device information. Log out and log in to confirm that this device now shows up correctly. See *Equipment File Figure 173*.

### 6.6.4 Role Permissions

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

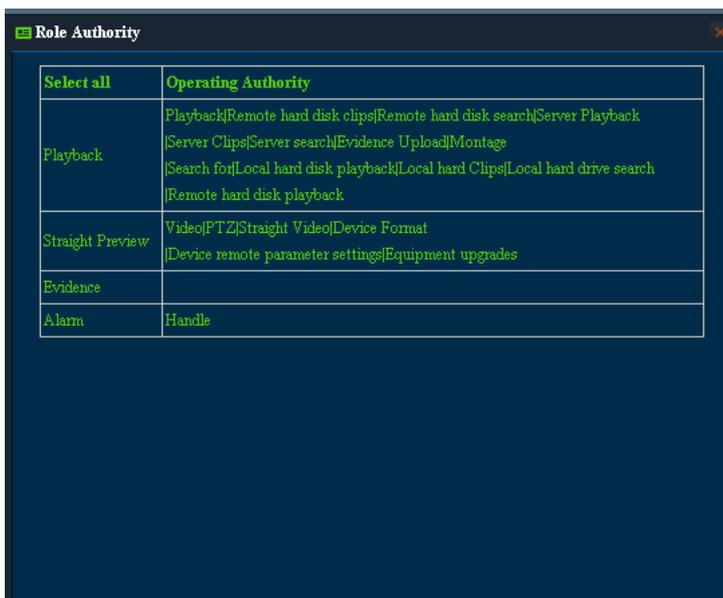
- (a) **ROLES TREE** shows the structure of permissions. See *Creating New Roles Group Figure 174*.
- (b) Clicking on **GROUP PERMISSIONS PREVIEW** shows the **ROLE AUTHORITY** window which will indicate the **VEHICLE FLEETS** and the sub-groups a role has access to. See *Group Permissions Figure 175*.
- (c) **PERMISSIONS PREVIEW** shows a quick view of the options that this role would have access to. See *Permissions Figure 176*.



Creating New Roles Group Figure 174



Group Permissions Figure 175

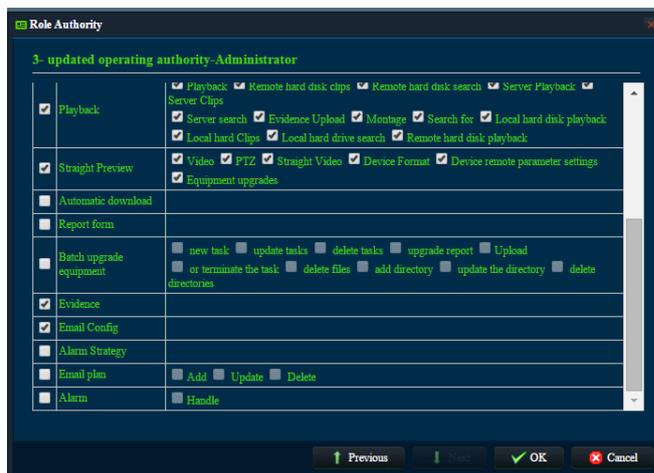


Permissions Figure 176

- (d) Certain permissions are only accessible depending on your parent role. If the parent role is system administrator then all permission will be shown for editing. See *Role Authority Details 1 Figure 177* and *Role Authority Details 2 Figure 178*.



(e) Role Authority Details 1 Figure 177



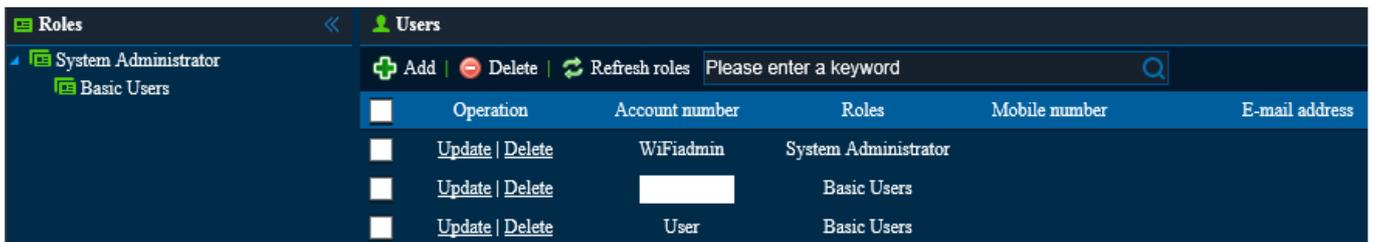
Role Authority Details 2 Figure 178

Table 15: User Permission Explanations:

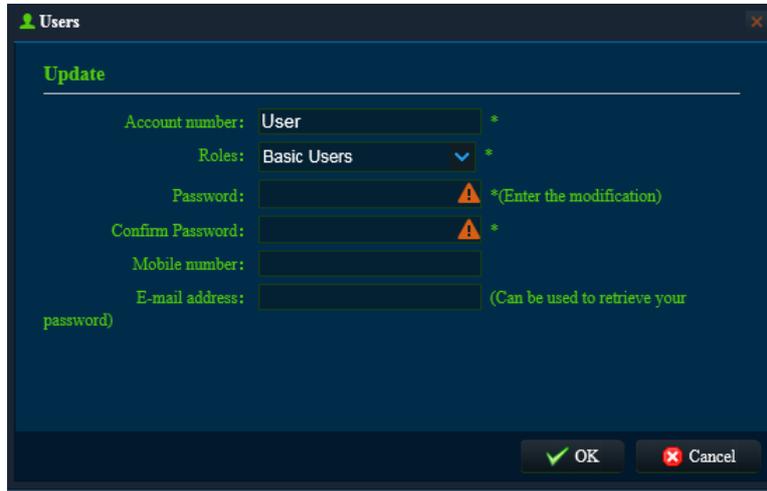
#	Options	Operating Authority	Explanations
(1)	Vehicle fleet	N/A	Allows the user to manage the vehicle group.
(2)	add vehicle	N/A	Allows the user to add/edit/delete vehicle.
(3)	Vehicle file	N/A	Edit the Device (MDR) Information settings.
(4)	Equipment file	N/A	Not supported for MDR 400 Series
(5)	add role authority	N/A	Allow user account to manage role authority(add /edit /delete)
(6)	add user	N/A	Allow user account to manage user accounts (add /edit /delete)
(7)	SIM card	N/A	Not supported for MDR 400 Series
(8)	The driver file	N/A	Not supported for MDR 400 Series
(9)	Playback	(9.1) Playback(9.2.) Remote hard disk clips (9.3) Remote hard disk search (9.4) Server Playback (9.5) Server Clips (9.6) Server search (9.7) Evidence Upload (9.8) Montage (9.9) Search for (9.10) Local hard disk playback (9.11) Local hard Clips (9.12) Local hard drive search (9.13) Remote hard disk playback	(9.1) Local directory files playback; (9.2) Remote clip MDR recording files (9.3) Remote search MDR recording file search (9.4) Remote playback MDR server recording files (9.5) Remote clip MDR SERVER recording files (9.6) Remote search MDR SERVER recording files (9.7) Evidence recording files , snaps , alarm information to the Evidence Center (9.8) Local direction files clip (9.9) Local direction files search (9.10) Local HDD/SD card playback (9.11) Local HDD/SD card clip (9.12) Local HDD/SD card search (9.13) Remote MDR recording files playback
(10)	Straight Preview	(10.1) Video (10.2) PTZ (10.3) Straight Video (10.4) Device Format (10.5) Device remote parameter settings (10.6) Equipment upgrades	(10.1) Live view (10.2) PTZ control (10.3) Live view record to local PC (10.4) MDR storage remote format (10.5) MDR paramters remote setting (10.6) MDR MCU/firmware remote upgrade
(11)	Automatic download	N/A	Auto download recording files
(12)	Report form	N/A	This feature is not supported with MDR 400 Series products
(13)	Batch upgrade equipment	(13.1) new task (13.2) update tasks (13.3) delete tasks (13.4) upgrade report (13.5) Upload (13.6) or terminate the task (13.7) delete files (13.8) add directory (13.9) update the directory (13.10) delete directories	(13.1) New auto download task creating (13.2) auto download task update (13.3) auto download task delete (13.4) MCU/firmware upgrade report (13.5) MCU/firmware files upload to the server computer (13.6) execute or terminate upgrade task (13.7) Delete MCU/firmware files (13.8) Add MCU/firmware files storage file folder in server computer (13.9) Update MCU/firmware files storage file folder in server computer (13.10) Delete MCU/firmware files storage file folder from server computer
(14)	Evidence	N/A	This gives user accounts access to the Evidence Tab, see <i>Evidence Icon Figure 138</i> .
(15)	Email Config	N/A	This gives users the ability to setup the Email Account Details, see <i>Email Configuration Figure 188</i> .
(16)	Alarm Strategy	N/A	This gives users access to the Alarm Strategy settings found in the alarm center, see <i>Alarm Configuration Figure 156</i>
(17)	Email Plan	(17.1) Add (17.2) Update (17.3) Delete	(17.1) Add email setting to send some alarm information to somebody's email address (17.2) Update email setting (17.3) Delete email setting
(18)	Alarm	(18.1) Handle	Allow user account to manage alarm message (event) , including LOCK vehicle in map , turn on/off alert voice when new alarm happen ,open channel live view . Not including PUSH authority.

### 6.6.5 User Information

This is where users setup **USER LOGIN** accounts, see *Creating New Users Figure 179*. These are the accounts that are used to login into MDR-Dashboard 2.0. If a user has forgotten their password the system administrator has the access to reset their password. Passwords can be reset in this area. See *Updating User Accounts Figure 180*.



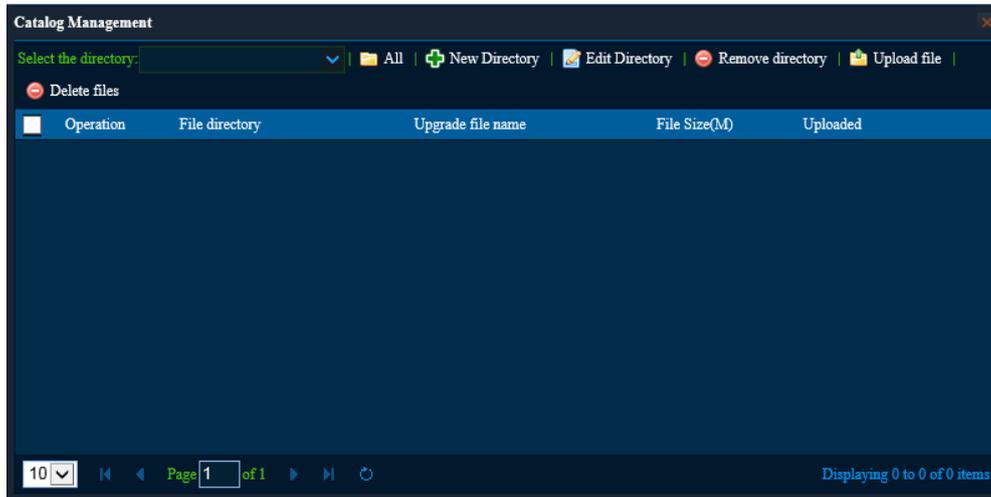
Creating New Users Figure 179



**Updating User Accounts Figure 180**

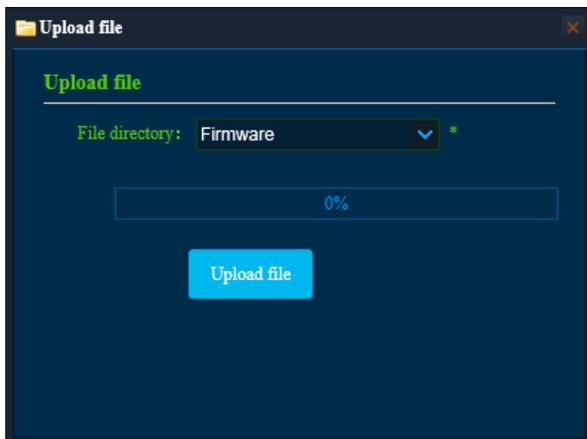
### 6.6.6 Update

- (a) This area is used to setup **BATCH UPGRADES** for MDR units.
- (b) Click on  Upgrade Document Management in order to create a new directory and upload the upgrade file. See the *Catalogue Management Figure 181*.



**Catalogue Management Figure 181**

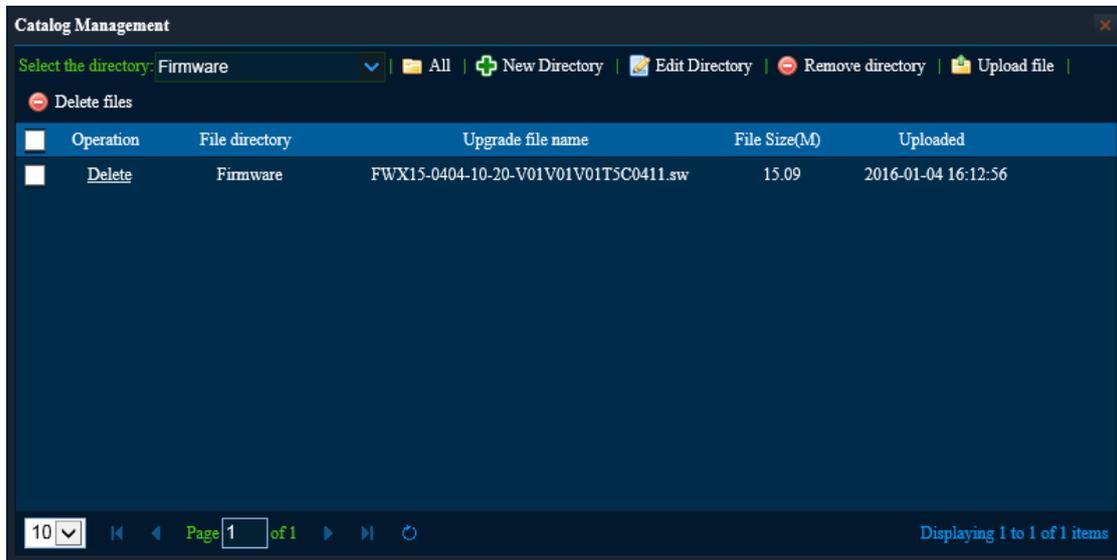
- (c) Click  New Directory which can be named as desired. See *File Directory Figure 183*. Select the newly created directory .
- (d) Click  Upload file which will open the window displayed in *Upload File Figure 182*. Ensure the correct file directory is chosen. *Batch Upgrade Equipment Figure 185*. The upgrade file must be located on the local PC to specify the **FILE DIRECTORY**.



**Upload File Figure 182**

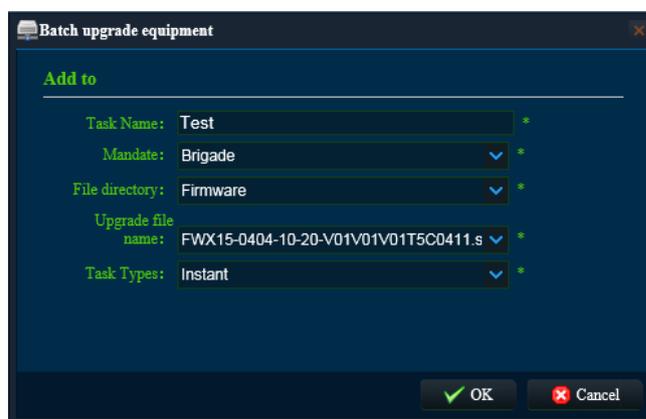


**File Directory Figure 183**

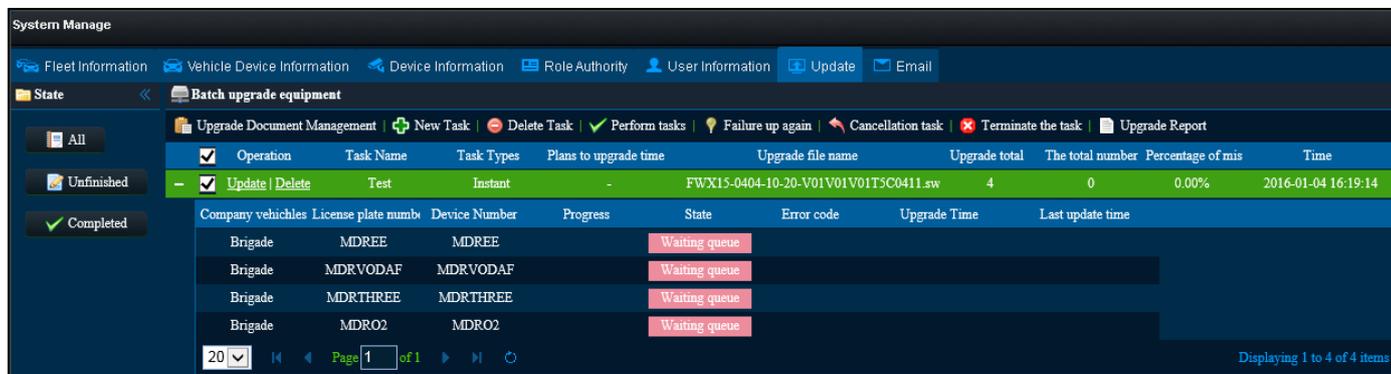


Catalog Management List Figure 184

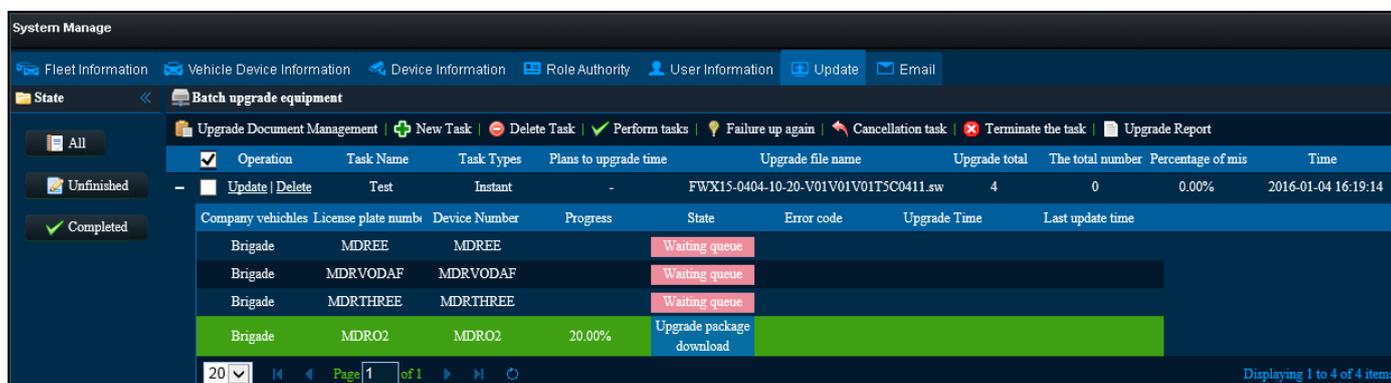
- (e) Click **New Task** which will display the *Batch Upgrade Equipment Figure 185* window.
- (f) **TASK NAME** can be chosen by the user. All other details are chosen from drop-down lists comprised of the **CATALOGUE LIST**. See *Catalogue Management List Figure 184*.
- (g) These upgrades can be done instantly or by appointment which is configured using **TASK TYPE**.
- (h) The state of the upgrades can also be determined from this area. See *Batch Upgrade Queue Figure 186* and *Batch Upgrade Status Figure 187*.



Batch Upgrade Equipment Figure 185



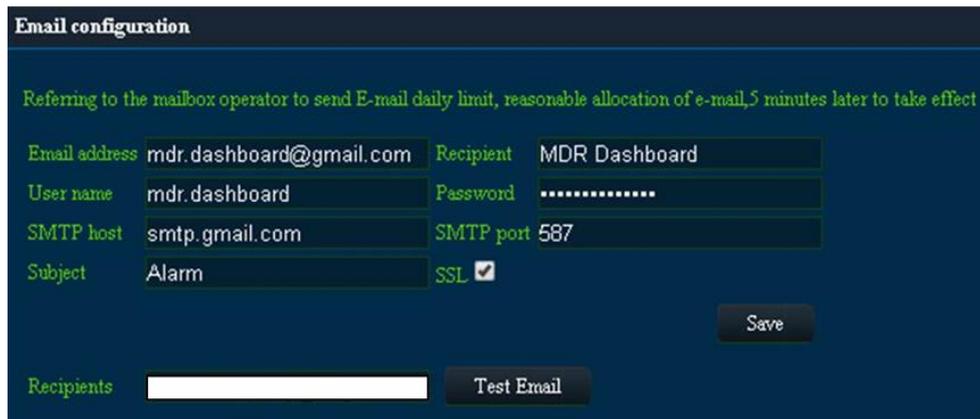
Batch Upgrade Queue Figure 186



Batch Upgrade Status Figure 187

### 6.6.7 Email

- (a) Only the **SYSADMIN** account has privileges to access this area.
- (b) Under **SYSTEM MANAGE**, browse to the **EMAIL** tab.
- (c) The sending server IP must also be allowed to relay email.
- (d) 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 2.0) to ensure that email alerts are clearly understood.
- (e) 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:
  - Email Address
  - User name
  - SMTP (Simple Mail Transfer Protocol) host
  - Subject
  - Recipient
  - Password
  - SMTP port
  - SSL (Secure Sockets Layer) activation/deactivation
- (f) The configuration shown in *Email Configuration Figure 188* may be used to send email alerts. Alternatively you may create your own email address e.g Company123@gmail.com.

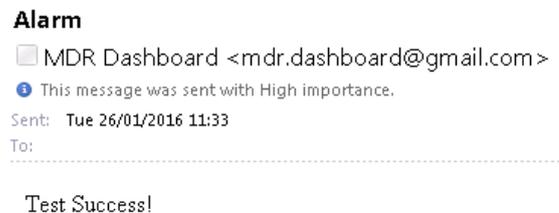


**Email Configuration Figure 188**

- (g) Ensure your mail filtering has an exception to allow these emails through. Usually emails take approximately 5 minutes to be delivered.
- (h) Email configuration should be tested before use.
- (i) In order to test your email configuration. Insert your email under recipients and click the **TEST EMAIL** button.
- (j) All emails are marked with high importance as you can see in *Alarm Email Notification Figure 189*. The email will contain a “Test Success” message as shown in *Alarm Email Content Figure 190*.

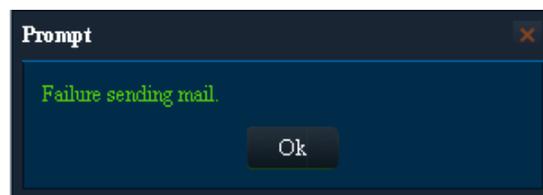


**Alarm Email Notification Figure 189**



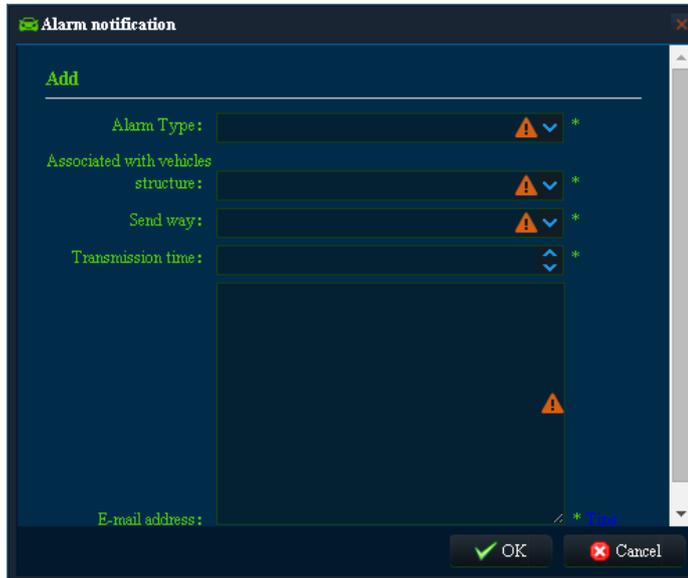
**Alarm Email Content Figure 190**

- (k) If the failure message shown in *Email Failure Message Figure 191* is displayed then please confirm all details in *Email Configuration Figure 188* are correct.



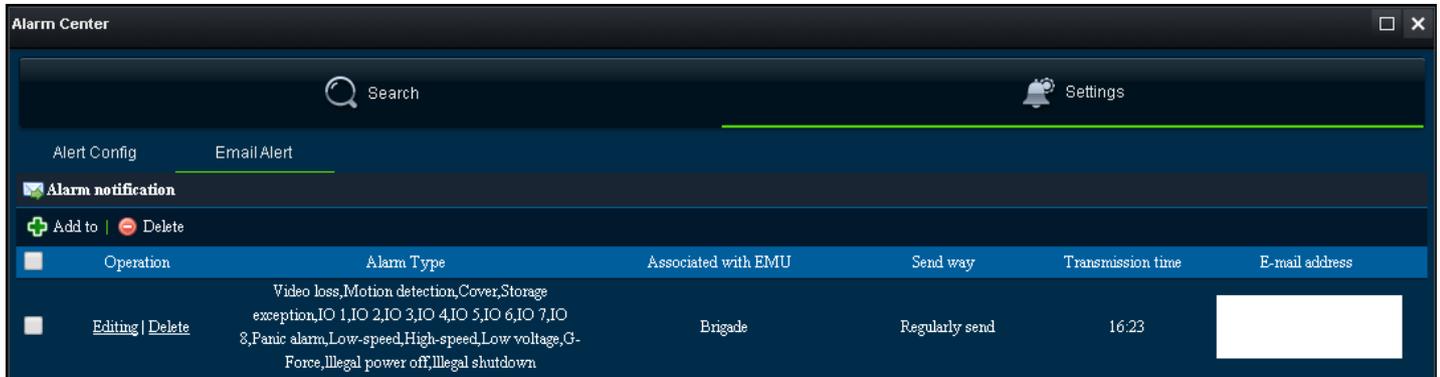
**Email Failure Message Figure 191**

- (l) Email alerts may be set up by **ALARM QUERY**  → **Settings**  → **Email Alert** .
- (m) Click  **Add to**, then *Alarm Notification Configuration Figure 192* will be displayed.
- (n) The following details must be entered in order to use this feature:
  - **Alarm Type** – can choose between all or specific events
  - **Associated with Vehicle Structure** – Choose the relevant **FLEET GROUP**
  - **Send Way** – Type of Notification **SEND REAL-TIME** or **REGULARLY SEND**
  - **Transmission time** – Enter in a 24H time for **REGULARLY SEND** email alerts option only
  - **E-mail Address** – enter multiple email addresses using a comma (,) to separate them



Alarm Notification Configuration Figure 192

(o) Once the Alarm Notification Configuration Figure 192 has been completed and OK has been clicked, the new alert will be added to the list shown in Alarm Mail Figure 193.



Alarm Mail Figure 193

(p) An example of the email received when using Send real-time is shown in Send real-time Email Figure 194.

**Alarm Send real-time**  
 DDNSInfo <DDNSInfo@163.com>  
 Sent: Wed 16/09/2015 12:03  
 To:

License plate number	Owned car group	Time	Speed	Alarm Type	Latitude	Longitude
BM708WA	Brigade	2015-09-16 13:01:20	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-16 13:01:22	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-16 13:01:22	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-16 13:01:26	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-16 13:01:27	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-16 13:01:30	0	Motion detection	0.000000	0.000000

Send real-time Email Figure 194

(q) An example of the email received when using REGULARLY SEND is shown in Regularly send Email Figure 195. Regularly send emails will contain alarm reports in excel spreadsheet format.

**Alarm Regularly send**  
 DDNSInfo <DDNSInfo@163.com>  
 Sent: Wed 23/09/2015 14:30  
 To:

Message Alarm-Report.xls (11 KB)

License plate number	Owned car group	Time	Speed	Alarm Type	Latitude	Longitude
BM708WA	Brigade	2015-09-22 15:33:01	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-22 15:33:10	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-22 15:33:15	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-22 15:34:56	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-22 15:36:06	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-22 15:38:48	0	Motion detection	0.000000	0.000000
BM708WA	Brigade	2015-09-22 15:38:50	0	Motion detection	0.000000	0.000000

Regularly send Email Figure 195

# 7 Mobile Apps

MDR 2.0 is a free mobile application, available for both Android and iOS operating systems. The MDR 2.0 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 MDR 2.0 to run on iOS

DEVICE	MINIMUM REQUIREMENTS
iPhone	iPhone 5 iOS 9.0
iPad	iPad 3 iOS 9.0
iPad mini	No Requirement
iPad Pro	Currently not supported

### 7.1.2 iOS App Installation

- On your Apple device, go to the App Store. 
- Search for "Brigade Electronics" or "MDR 2.0". See *iOS App Store Search Figure 196*.
- Click the **DOWNLOAD** button to begin the installation. See *iOS App Download Figure 197*.

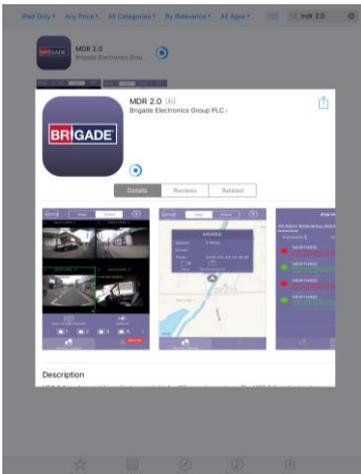


*iOS App Store Search Figure 196*

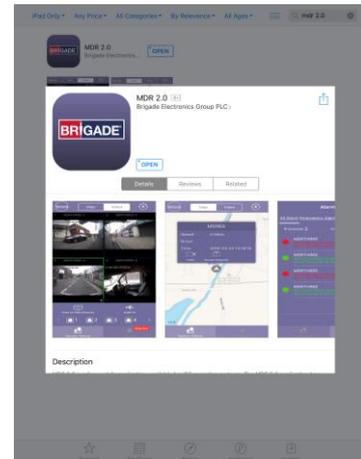


*iOS App Download Figure 197*

- The app will then begin to install. The progress will be shown as displayed in *iOS App Progress Figure 198*.
- Once the installation has completed, click the **OPEN** button. See *iOS App Completed Figure 199*.

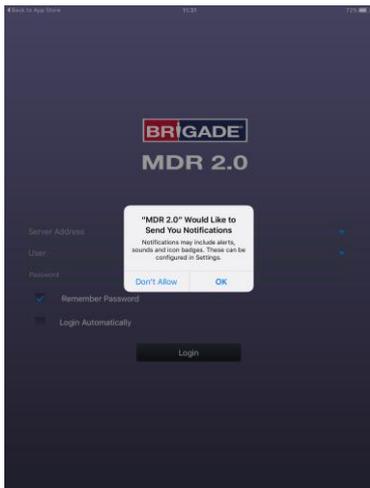


*iOS App Progress Figure 198*

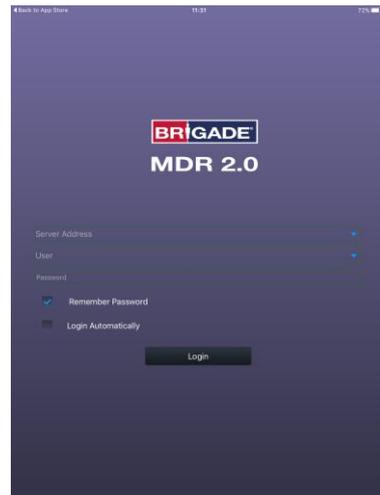


*iOS App Completed Figure 199*

- (f) In the next window, click **OK** to allow MDR 2.0 to send you notifications, this is a generic request. Sound notifications will be supported in future app releases. See *iOS App Access Figure 200*.
- (g) The login window will be displayed, see *iOS App Login Figure 201*. These login details correspond to MDR-Dashboard 2.0 login details.
- (h) It is advised to create User accounts (in MDR-Dashboard 2.0 System Management Area) for MDR 2.0 app logins so this can be tracked in the MDR-Dashboard 2.0 Alarm processing area.



**iOS App Access Figure 200**



**iOS App Login Figure 201**

### 7.1.3 iOS App Operation

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

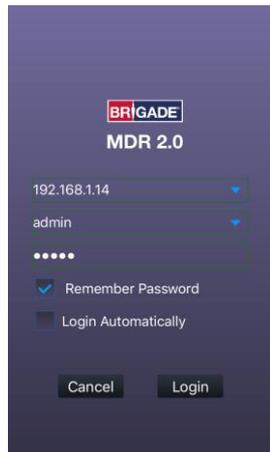
- (a) If MDR Center Server 1 and/or Center Server 2 are connected then this MDR will be available in the mobile application.
- (b) Tap the application icon as shown in *Application Icon Figure 202*.
- (c) The start-up screen as shown in *iOS Start-up Figure 203* will be displayed.
- (d) The iPhone login screen is then displayed as shown in *iOS Login Screen Figure 204*.



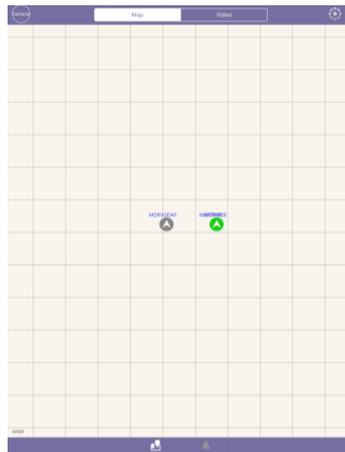
**Application Icon Figure 202**



**iOS Start-up Figure 203**



**iOS Login Screen Figure 204**



**iOS Map View Figure 205**



**iOS Group List Figure 206**

- (e) To log into the Mobile Network server, ensure the mobile device is connected to the internet using its mobile network.
- (f) Type in the Mobile Network server address (public IP address of the firewall) into MDR 2.0 eg 12.345.6.78.
- (g) 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.
- (h) Type in the Wi-Fi server address in MDR 2.0, eg. 192.168.1.14.
- (i) 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 router may be configured to have internet access if necessary, please contact your IT department.

- (j) Once logged in users will be presented with the **MAP** window as shown in *iOS Map View Figure 205*. The Map data is missing as this particular Wi-Fi network did not have internet access.
- (k) Tap on **VEHICLE** in order to bring up the **GROUP** list as shown in *iOS Group List Figure 206*. 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.
- (l) If a tickbox under **GROUP** is ticked then that vehicle will be shown on the map.
- (m) To exit the **GROUP** list, tap on **VEHICLE**. See *iOS Group List Figure 206*.
- (n) Tapping on an MDR will bring up the map sub-menu as shown in *iOS Map sub-menu Figure 207*.
- (o) Online vehicles are depicted by green icons and offline vehicles are depicted by grey icons.
- (q) The map menu can be used to access Live video from a particular online MDR (*iOS Map View Figure 205*). If the Video icon is tapped, this shows
- (r) *iOS Map sub-menu Figure 207*.

- (s) The *iOS Video Window Figure 208* has the following options:
- Tap a selected channel as shown in *iOS Video Window Figure 208* to enlarge the channel to full screen view. As shown in *iOS Video Full Screen Figure 209*.
  - Open /Close All  channels
  - Enable/Disable Audio 
  - Select Individual channels manually to view
- (t) The REMOTE SNAPSHOT  can be used to save a picture (.jpg format) of a selected live channel to the apple device. See *iOS Remote Snapshot Figure 210*.
- (u) In order to save the snapshot to your mobile device, allow MDR 2.0 access to your iOS Photos. See *iOS Typical Snapshot Figure 211* to see a typical snapshot that will be stored on your device.



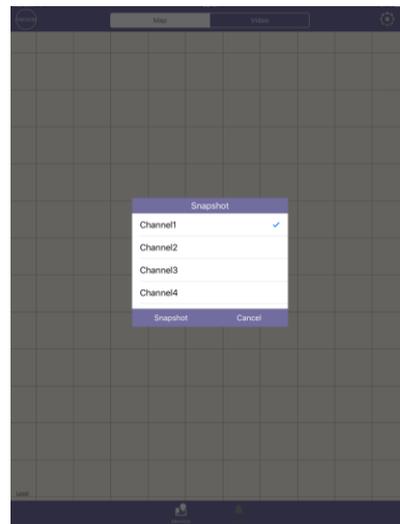
*iOS Map sub-menu Figure 207*



*iOS Video Window Figure 208*



*iOS Video Full Screen Figure 209*



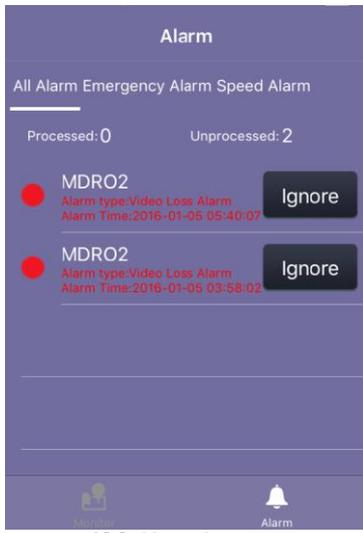
*iOS Remote Snapshot Figure 210*



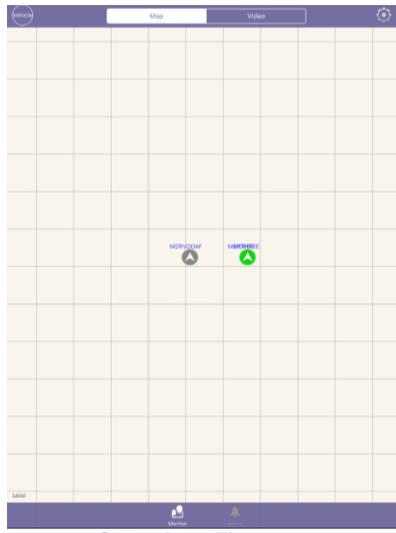
*iOS Typical Snapshot Figure 211*

- (v) Tap on **ALARM**  to view the alarm log. This will list processed and unprocessed alarms. See *iOS Alarm Log 212*.
- (w) There are three sub headings that can be chosen to filter alarms: **ALL ALARM**, **EMERGENCY ALARM** and **SPEED ALARM**.

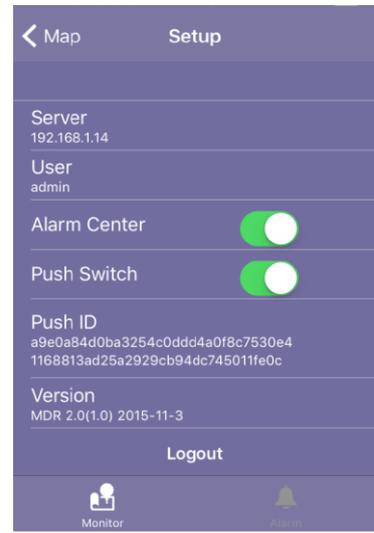
- (x) To access **SETUP** users must be on the **MAP** window. Tap the gear icon  will to open the setup menu. This is shown in *Setup Icon Figure 213*. This gives the following information:
- **Server** - IP address the application is connected to
  - **User** – user that is currently logged in
  - **Alarm Center** – If this is activated the Alarm logs will be populated with events that occur on the MDRs
  - **Push Switch** – Alerts will be sent instantaneously to this mobile device
  - **Push ID** – Identifies this mobile device
  - **Version** – explains the version of MDR 2.0 and the date of release.



*iOS Alarm Log 212*



*Setup Icon Figure 213*



*iOS Setup Figure 214*

## 7.2 Android App

### 7.2.1 Android App Requirements

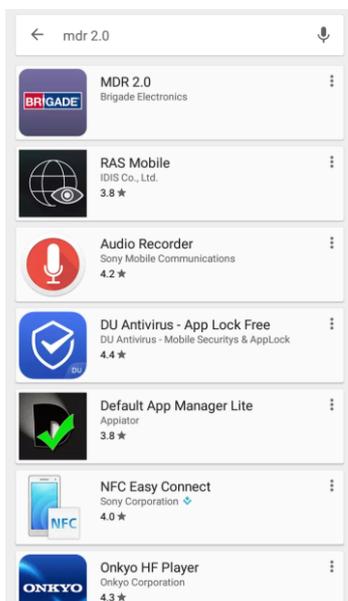
Table 17: The minimum requirements below are for MDR 2.0 to run on Android

DEVICE	MINIMUM REQUIREMENTS
Android Phone	Android 4.0 (Ice Cream Sandwich) Screen Resolution of 720P Screen Size of 4 inch
Android Tablet	Android 4.0 (Ice Cream Sandwich) Screen Resolution of 720P

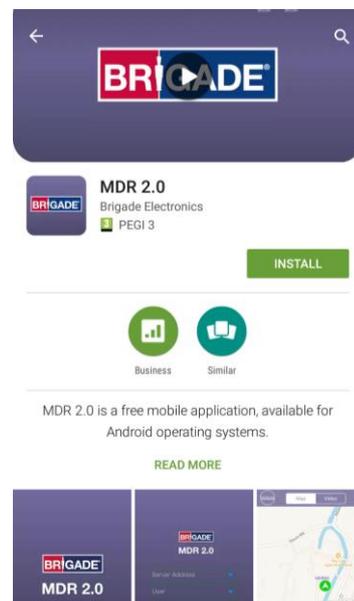
### 7.2.2 Android App Installation



- Open the Google Play Store App
- Search for "Brigade Electronics" or "MDR 2.0". See *Google Play Store Search Figure 215*.
- Tap the MDR 2.0 app. Click the **INSTALL** button as shown in *Android MDR 2.0 Install Figure 216*.



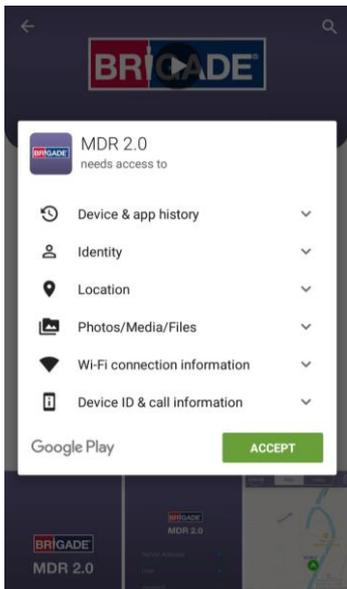
*Google Play Store Search Figure 215*



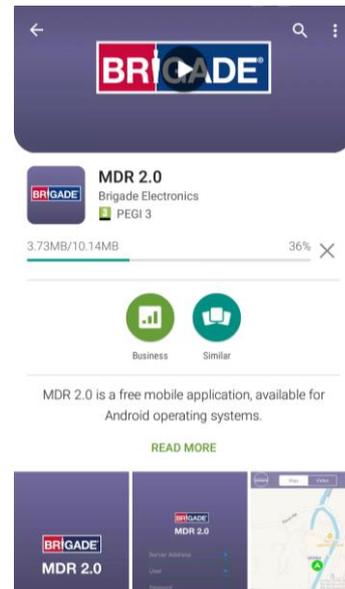
*Android MDR 2.0 Install Figure 216*

- Click the **ACCEPT** button to allow the app access to the required device areas. See *Android App Access Figure 217*.

(e) The app will then begin to install. The progress will be shown as displayed in *Android Installing Figure 218*.

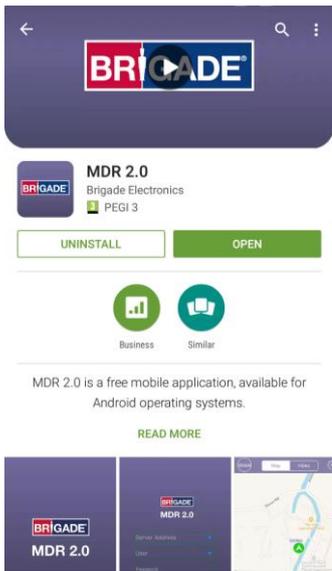


**Android App Access Figure 217**



**Android Installing Figure 218**

- (f) Once the installation has been completed. *Android Install Completed Figure 219* will be displayed. Click the **OPEN** button.
- (g) The login window will be displayed, see *Android Login Window Figure 220*. These login details correspond to MDR-Dashboard 2.0 login details.
- (h) It is advised to create User accounts (in MDR-Dashboard 2.0 System Management Area) for MDR 2.0 app logins so this can be tracked in the MDR-Dashboard Alarm processing area.



**Android Install Completed Figure 219**

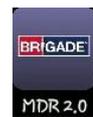


**Android Login Window Figure 220**

### 7.2.3 Android App Operation

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

- (a) If an MDR states that Center Servers 1 and 2 are connected then this MDR will be available in the mobile application.
- (b) Tap the application icon as shown in *Application Icon Figure 221*.
- (c) The startup screen as shown in *iOS Start-up Figure 203* will be displayed.
- (d) The Android login screen is then displayed as shown in *Android Login Figure 222*.
- (a) To log into the Mobile Network server, ensure the mobile device is connected to the internet using its mobile network.
- (b) Type in the Mobile Network server address (public IP address of the firewall) into MDR 2.0 eg 12.345.6.78.
- (c) 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.
- (d) Type in the Wi-Fi server address in MDR 2.0, eg. 192.168.1.14.
- (e) 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.



**Application Icon Figure 221**



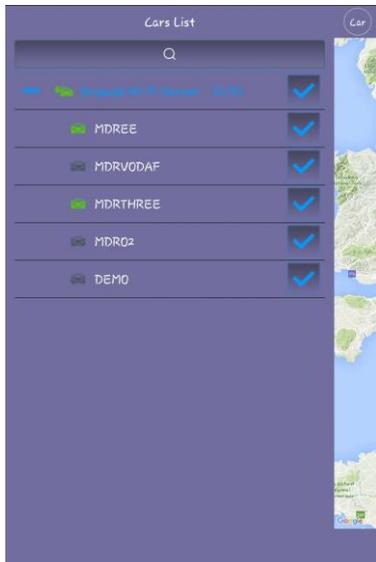
**Android Login Figure 222**



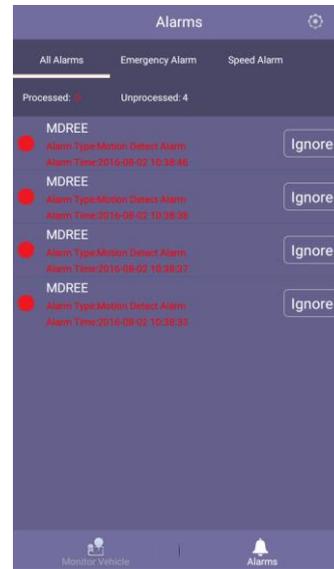
**Android Map View Figure 223**



**Android Map Alarm Figure 224**



**Android Cars List Figure 225**



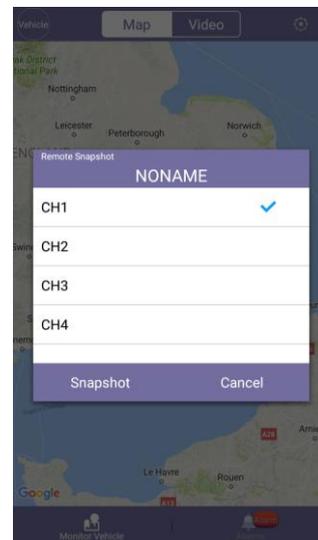
**Android Alarm Log Figure 226**

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.

- (f) The operation of the Android application MDR 2.0 is explained in the above section 7.1 iOS App.
- (g) See Android Settings Figure 227, Android Snapshot Options Figure 228, Android Video Window Figure 230 and Android Settings Figure 232 for examples of Android application windows.

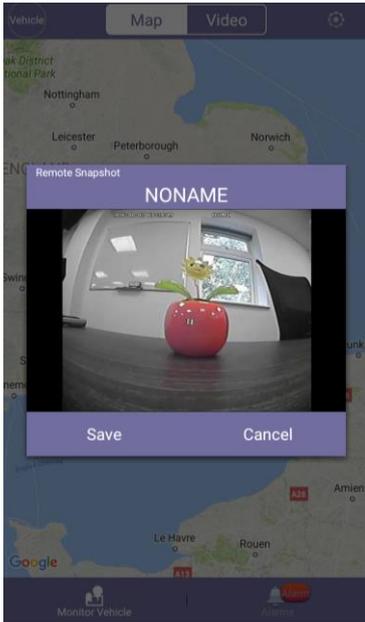


**Android Settings Figure 227**



**Android Snapshot Options Figure 228**

(h) Further examples of typical android windows are shown *Android Snapshot Save Figure 229* onwards.



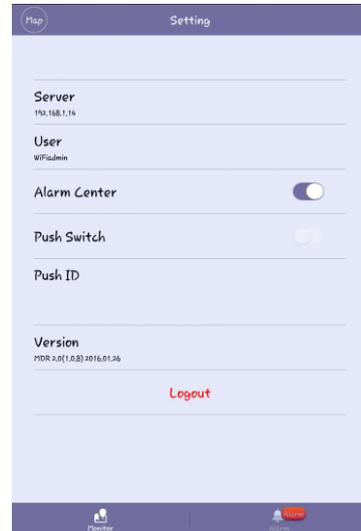
**Android Snapshot Save Figure 229**



**Android Video Window Figure 230**



**Android Snapshot Result Figure 231**



**Android Settings Figure 232**

- (i) Android MDR 2.0 has an additional feature, which is channel zoom.
- (j) Open a single channel in full screen.
- (k) Now in order to view a particular point in greater detail, use two fingers in a pinch to zoom manner.
- (l) Push outwards to zoom in on a point and inwards to zoom out. See *Android Fullscreen Figure 233* and *Android Channel Zoom Figure 234*.



**Android Fullscreen Figure 233**



**Android Channel Zoom Figure 234**

## 8 Appendices

### 8.1 Video Quality Table

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

Example: Recording file size for 1 hour @ quality level 1 with resolution D1 will be:  
 60 minutes \* 60 seconds = 3600 seconds  
 3600 seconds\*2048Kbps/8/1024=900MB

Note:

- The streaming bandwidth can vary considerably according to the level of variations in the image. Static images are more efficiently compressed than dynamic ones. The values above are for reference only.
- Frame rates are assumed to be set to maximum which is 25fps for PAL and 30fps for NTSC.
- PAL: D1 (704\*576), HD1 (704\*288), and CIF (352\*288),  
 NTSC: D1 (704\*480), HD1 (704\*240) and CIF (352\*240)

### 8.2 Normal / Alarm Recording Parameters

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

The table below summarises typical recording sizes for 1 channel at different qualities and resolutions for a one hour duration:

Quality level		1 (Highest)	2	3	4	5	6	7	8 (Lowest)
Recording data size (MB per hour) depending on resolution	D1 (Highest)	900	675	540	450	395	351	316	281
	HD1	562	422	337	281	246	219	198	176
	CIF (Lowest)	351	264	211	176	153	137	123	110

The following table is valid for both the **MDR-404xx-500** using all 4 channels and **MDR-408xx-1000** using all 8 channels. It illustrates approximate **HDD** recording times in hours:

Quality level		1 (Highest)	2	3	4	5	6	7	8 (Lowest)	fps
Recording Time onto HDD (hours) depending on resolution	D1 (Highest)	101	160	231	299	367	425	481	539	12 (8CH) 25 (4CH)
	HD1	145	204	272	340	408	466	522	580	25
	CIF (Lowest)	199	326	435	544	652	746	837	932	25

### 8.3 Sub-Stream Recording Parameters

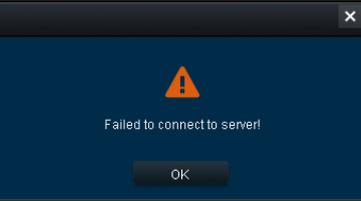
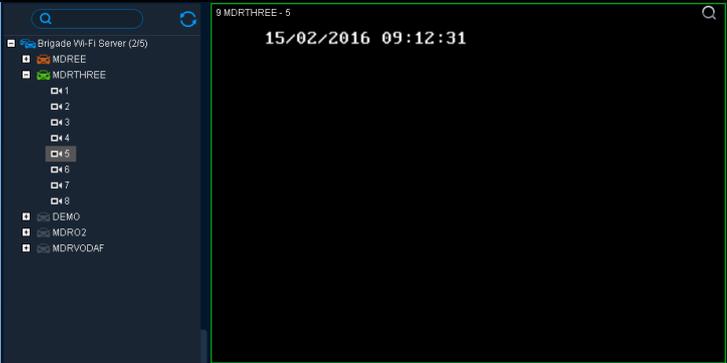
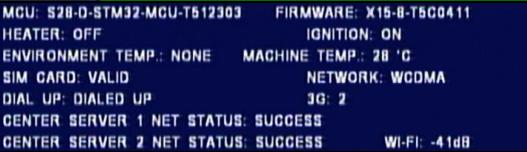
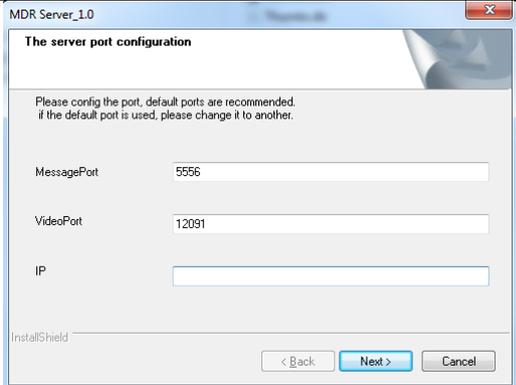
The following table is valid for both the **MDR-404xx-500** using all 4 channels and **MDR-408xx-1000** using all 8 channels. It illustrates approximate **SD** recording times in hours at CIF resolution and different frame rates. Ranges of frame rates are controlled by the sub-stream bandwidth.

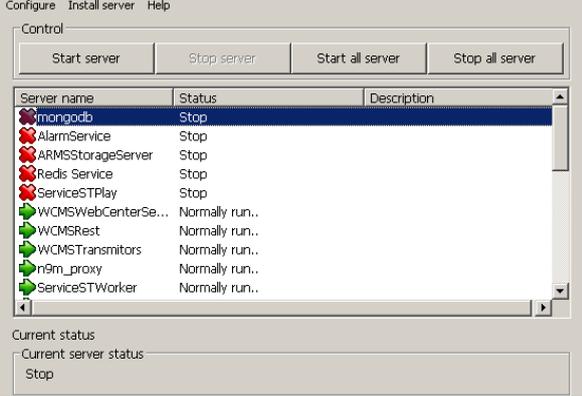
Bandwidth		4096 Kbps	3200 Kbps	1500 Kbps	500 Kbps
Recording Time onto SD (hours) depending on frame rate	25 fps (fastest)	12			
	24 fps	12			
	23 fps	13			
	22 fps	14			
	21 fps	14			
	20 fps	15			
	19 fps	15			
	18 fps	16			
	17 fps	16			
	16 fps	17			
	15 fps		20		
	14 fps		21		
	13 fps		23		
	12 fps		25		
	11 fps		27		
	10 fps		29		
	9 fps		31		
	8 fps			37	
	7 fps			43	
	6 fps			50	
5 fps				60	
4 fps				75	
3 fps				101	
2 fps				152	
1 fps (slowest)				305	

## 9 Troubleshooting

### 9.1 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 Server PC is on</li> <li>4. Confirm all services are running in the MDR Server software</li> </ol>
3	MDR shows offline		<ol style="list-style-type: none"> <li>1. Check if the MDR is out of network coverage 2. Confirm the MDR Network settings</li> <li>2. Check if the Server status window indicates it is online</li> <li>3. Confirm DEVICE NUMBER (in MDR-Dashboard settings) = DEVICE ID (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 two new license files. Go to <a href="http://brigade-electronics.com/">http://brigade-electronics.com/</a> to obtain these files. LIC_DVRGTSERVICE and LIC_DVRSTSERVICE. Copy these files to the following path C:\Program Files (x86)\MDR Server\TransmitServer. Ensure the two existing files are overwritten</li> </ol>
4	MDR dial status says connect error		<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 Server PC 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></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. Ensure that ALL Sub-stream channels are enabled on the MDR HW.</li> <li>2. Turn all channels to ON.</li> <li>3. Sub-stream is used for Live View.</li> <li>4. In MDR-Dashboard 2.0 ensure that the number of channels are set correctly – system manage &gt; device information.</li> </ol>
8	Live View and Playback functions does not work at all		<ol style="list-style-type: none"> <li>1. Ensure that the Media Server port on the MDR HW is correct</li> </ol>

## 9.2 Wi-Fi MDR unit Status Troubleshooting

#	Wi-Fi Status	Screenshot	Explanation
1	Wi-Fi Net: ON		Wi-Fi is enabled in the MDR OSD Menu
2	Wi-Fi Net; NONE		Wi-Fi is disabled in the MDR OSD Menu
3	Wi-Fi IP: 192.168.1.16		Successfully obtained an IP address from network – confirms that there is proper connection to the network
4	Wi-Fi: -38dB (example)		Users can check the Wi-Fi network signal strength by entering the SSID name. The lower the value the better the signal level.
5	Wi-Fi: 0dB		Incorrect AP details or no AP details have been entered. Also no signal level detected.

### 9.3 Mobile Network MDR unit Status Troubleshooting

#	Mobile Network Status	Screenshot	Explanation
1	SIM CARD: ON	19/08/2015 01:14:08 PM	Detected that a SIM card has been inserted
2	SIM CARD VALID	ALARM: GPS NONE SPEED: 000 MPH DIRECTION: 0 ACCELERATION: (-)00.077 (+)00.040 (-)00.800 Brigade BM708WA VOLTAGE: 23.80V MCU: S28-D-STM32-MCU-T408161 FIRMWARE: X15-4-V040001 HEATER: OFF IGNITION: ON ENVIRONMENT TEMP.: 78 F MACHINE TEMP.: 88 F <b>SIM CARD: ON</b> NETWORK: WCDMA DIAL UP: UNCONNECTED 2G: 0 3G: 2 CENTER SERVER 1 NET STATUS: SUCCESS CENTER SERVER 2 NET STATUS: UNCONNECTED WI-FI: -38dB	Detected SIM card and it is valid, this can be used to connect to a mobile network provider
3	DIAL UP: UNCONNECTED	19/08/2015 01:14:08 PM	Not connected to a mobile network provider
4	DIAL UP: DIALLED UP	ALARM: GPS NONE SPEED: 000 MPH DIRECTION: 0 ACCELERATION: (-)00.077 (+)00.040 (-)00.800 Brigade BM708WA VOLTAGE: 23.80V MCU: S28-D-STM32-MCU-T408161 FIRMWARE: X15-4-V040001 HEATER: OFF IGNITION: ON ENVIRONMENT TEMP.: 78 F MACHINE TEMP.: 88 F SIM CARD: ON NETWORK: WCDMA <b>DIAL UP: UNCONNECTED</b> 2G: 0 3G: 2 CENTER SERVER 1 NET STATUS: SUCCESS CENTER SERVER 2 NET STATUS: UNCONNECTED WI-FI: -38dB	Dialled successfully and connected to a mobile network provider
5	DIAL UP: VERIFICATION FAILED	ALARM: GPS NONE SPEED: 000 MPH DIRECTION: 0 ACCELERATION: (-)00.077 (+)00.040 (-)00.800 Brigade BM708WA VOLTAGE: 23.80V MCU: S28-D-STM32-MCU-T408161 FIRMWARE: X15-4-V040001 HEATER: OFF IGNITION: ON ENVIRONMENT TEMP.: 78 F MACHINE TEMP.: 88 F SIM CARD: ON NETWORK: WCDMA <b>DIAL UP: UNCONNECTED</b> 2G: 0 3G: 2 CENTER SERVER 1 NET STATUS: SUCCESS CENTER SERVER 2 NET STATUS: UNCONNECTED WI-FI: -38dB	Connecting to a mobile network provider failed, rejected the service
6	DIAL UP: CONNECT ERROR	ALARM: GPS NONE SPEED: 000 MPH DIRECTION: 0 ACCELERATION: (-)00.077 (+)00.040 (-)00.800 Brigade BM708WA VOLTAGE: 23.80V MCU: S28-D-STM32-MCU-T408161 FIRMWARE: X15-4-V040001 HEATER: OFF IGNITION: ON ENVIRONMENT TEMP.: 78 F MACHINE TEMP.: 88 F SIM CARD: ON NETWORK: WCDMA <b>DIAL UP: UNCONNECTED</b> 2G: 0 3G: 2 CENTER SERVER 1 NET STATUS: SUCCESS CENTER SERVER 2 NET STATUS: UNCONNECTED WI-FI: -38dB	Received an error when attempting to connect to a mobile network provider
7	DIAL UP: DIALLING	ALARM: GPS NONE SPEED: 000 MPH DIRECTION: 0 ACCELERATION: (-)00.077 (+)00.040 (-)00.800 Brigade BM708WA VOLTAGE: 23.80V MCU: S28-D-STM32-MCU-T408161 FIRMWARE: X15-4-V040001 HEATER: OFF IGNITION: ON ENVIRONMENT TEMP.: 78 F MACHINE TEMP.: 88 F SIM CARD: ON NETWORK: WCDMA <b>DIAL UP: UNCONNECTED</b> 2G: 0 3G: 2 CENTER SERVER 1 NET STATUS: SUCCESS CENTER SERVER 2 NET STATUS: UNCONNECTED WI-FI: -38dB	Currently dialling to a mobile network provider
8	2G/3G IP NONE	19/08/2015 12:55:48 PM	Has not obtained an IP address from a mobile network provider
9	2G/3G IP: 69.124.3.58	LOCAL IP: 169.254.181.118 MAC: 00-18-F5-14-83-D2 <b>2G/3G IP: NONE</b> CENTER SERVER 1 IP: 192.168.1.2 PORT: 5558 CENTER SERVER 2 IP: <input type="text"/> PORT: 5558 WIFI NET: ON WIFI IP: 192.168.1.4 ESSID: CMS Server GPS MODE PLANET: INVALID	Successfully obtained IP from a mobile network provider

### 9.4 GPS MDR unit Status Troubleshooting

#	GPS Status	Screenshot	Explanation
1	GPS: NONE	19/08/2015 01:14:08 PM	Has not detected the GPS module
2	GPS: LON 21.425 LAT 41.6548	ALARM: <b>GPS NONE</b> SPEED: 000 MPH DIRECTION: 0 ACCELERATION: (-)00.077 (+)00.040 (-)00.800 Brigade BM708WA VOLTAGE: 23.80V MCU: S28-D-STM32-MCU-T408161 FIRMWARE: X15-4-V040001 HEATER: OFF IGNITION: ON ENVIRONMENT TEMP.: 78 F MACHINE TEMP.: 88 F SIM CARD: ON NETWORK: WCDMA DIAL UP: UNCONNECTED 2G: 0 3G: 2 CENTER SERVER 1 NET STATUS: SUCCESS CENTER SERVER 2 NET STATUS: UNCONNECTED WI-FI: -38dB	GPS has valid signal and locked onto its position which is indicated using longitude and latitude
3	GPS MODE PLANET: 9	19/08/2015 12:55:48 PM	Represents the number of satellites the GPS module is connected to. In this example 9 satellites
4	GPS MODE PLANET: INVALID	LOCAL IP: 169.254.181.118 MAC: 00-18-F5-14-83-D2 <b>2G/3G IP: NONE</b> CENTER SERVER 1 IP: 192.168.1.2 PORT: 5558 CENTER SERVER 2 IP: <input type="text"/> PORT: 5558 WIFI NET: ON WIFI IP: 192.168.1.4 ESSID: CMS Server <b>GPS MODE PLANET: INVALID</b>	GPS received a signal but the GPS Data is invalid

Approvals  
 CE  
 UNECE Regulation No. 10 Revision 4 ("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.

## 10 Glossary

3G – Third Generation Mobile Network  
 AC – Adaptor Cable  
 ADPCM – Adaptive Differential Pulse-code Modulation  
 APN – Access Point Name  
 AVI – Audio Video Interleaved  
 BD – Blind Detection  
 CBR – Constant Bit Rate  
 CE – Conformité Européenne  
 CH – Channel  
 CHAP – Challenge Handshake Authentication Protocol  
 CIF – Common Intermediate Format (¼ D1 format)  
 CPU – Central Processing Unit  
 CU – Control Unit  
 D1 – D1 is full standard resolution for 25FPS (PAL) and 30FPS (NTSC)  
 DS – Docking Station  
 DST – Daylight Saving Time  
 EDGE – Enhanced Data GSM Environment  
 EIA – Electronic Industries Alliance  
 EXP – Expansion  
 FCC – Federal Communications Commission  
 FPB – Fireproof box  
 GB – Gigabyte  
 GHz – Gigahertz  
 GND – Ground  
 GPIO – General Purpose Input/output  
 GPRS – General Packet Radio Service  
 GPS – Global Positioning System  
 GSC – G-sensor Cable  
 G-Sensor - measure of acceleration/shock of the vehicle  
 GSM – Global System for Mobile Communications  
 GUI - Graphical user interfaces  
 H.264 – Video compression standard  
 HD1 – Half Definition compared to Full Definition (See D1)  
 HDD – Hard Disk Drive  
 HSDPA – High Speed Downlink Packet Access  
 HSPA – High Speed Packet Access  
 HSUPA – High Speed Uplink Packet Access  
 IC – Industry Canada  
 ID – Identification  
 IO – Input/output  
 iOS – i Operating System  
 IP – Internet Protocol  
 IR – Infra-red  
 IT – Information technology  
 Km/h – Kilometres per hour

LAN – Local Area Network  
 LED – Light Emitting Diode  
 MAC – Media Access Control  
 MB – Megabyte  
 MCU – Mobile Caddy Unit  
 MD – Motion Detection  
 MDR – Mobile Digital Recorder  
 MHz – Megahertz  
 MPH – Miles per hour  
 NET – Network  
 NTSC – National Television System Committee  
 OSD – On-screen Display  
 PAL – Phase Alternating Line  
 PAP – Password Authentication Protocol  
  
 PC – Personal Computer  
 PN – Part Number  
 PTZ – Pan, Tilt and Zoom  
 PWR – Power  
 REC – Record  
 RES – Resolution  
 RP – Remote Panel  
 RPC – Remote Panel Cable  
 S/N – Serial Number  
 SD – Secure Digital  
 SIM – Subscriber Identity Module  
 SMA – SubMiniature version A connector  
 SMTP – Simple Mail Transfer Protocol  
 SPD – Speed  
 SQL – Structured Query Language  
 SSL – Secure Sockets Layer  
 TB – Terabyte  
 TIA – Telecommunications Industry Association  
 TRIG – Trigger  
 UNECE – United Nations Economic Commission for Europe  
 UPS – Uninterruptable Power Supply  
 USB – Universal Serial Bus  
 V – Voltage  
 VBR – Variable Bit Rate  
 VGA – Video Graphics Array  
 VIC – Video Input Cable  
 VL – Video Loss  
 VOC – Video Output Cable  
 W – Watt, standard unit of power  
 WCDMA – Wide Code Division Multiple Access  
 Wi-Fi – Wireless Fidelity

