

InfoDraw

Wireless Mobile Video Solutions

PMRS-102



Date: June, 2017

Manual Version 6.2.0.0

Version	Author(s)	Firmware Version	Date Completed	Main Changes
5.5	Gidon Teff & Aiko Baker	5.3.0.3	09/2015	Overall update
5.6	Gidon Teff	5.4.0.3	11/2015	Entered TMRS functions
5.6.1	Gidon Teff	5.4.0.5	3/2016	Download files feature
5.6.2	Gidon Teff	5.4.0.5	3/2016	Micro-SD FAT32 format
5.7	Gidon Teff	6.0.0.0	5/2016	New Features: Rotate, playback from event list, snapshots of recordings, USB hard drive, Automatic USB config detection
5.7.1	Gidon Teff	6.0.0.1	7/2016	SMS and Sleep update
	Gidon Teff	6.0.0.2	9/2016	
	Gidon Teff	6.2.0.0	6/2017	Geo-fences

- **Acknowledgments:** This manual is partially based on manuals and comments written by Jonathan Cain, Aiko Bakker and Jacob Noff and we appreciate their contribution to this manual.
- For reasons of simplicity all reference to the PMRS device will also apply to the TMRS device, the TMRS device has all the features the PMRS device possesses, with the addition of Wireless-LAN (WiFi) capabilities.

Read Me First

- Please read this user manual carefully before using your PMRS-102 device to ensure safe and proper use.
- The descriptions in this manual are based on the default settings of your device.
- Content and images used in this manual may differ from the actual product.
- Software images and screenshots used in this manual may differ in appearance from the actual software, depending on the software version in use.
- The stability and performance of the PMRS-102 unit's wireless data streaming may vary in different countries, due to bandwidth and reception capabilities of the available carrier wireless networks and service providers in each country.
- Every effort has been made to ensure that the information in this user manual is accurate. Infodraw is not responsible for printing or spelling errors.
- Please keep this manual for future reference.
- To get support please contact your local distributor with a detailed account of the problem you have encountered.

Safety Precautions

To prevent damage to your PMRS-102 device or injury to yourself and others, please read the following safety information prior to using your device.



WARNING

To prevent damage, electric shocks, fires and/or explosions:

- Do not use damaged power charger cords or plugs, or loose electrical sockets.
- Do not touch the PMRS-102 device or the power charger cords with wet hands.
- Do not place or use this product near water or wet locations.
- Do not twist, bend, cut or damage the power charger cords.
- Do not drop or cause an impact to the PMRS-102 device or the power chargers.
- Do not place your device on an object where it is likely to fall. If your device falls, it may get damaged.
- Do not charge the PMRS-102 device with chargers that are not approved by the manufacturer.
- Do not use the PMRS-102 device if the built-in lithium battery is damaged or leaking.
- Avoid exposing the PMRS-102 device to very hot or very cold temperatures. Extreme temperatures may cause deformation of the device and reduce the charging capacity and/or life of your device/ battery.
- Do not use or store your device in dusty or dirty areas.
- Do not allow children to use your PMRS-102 device.

When turning the unit on:

- To turn the PMRS-102 unit on, locate the ON/OFF switch on the side of the unit. **Carefully** move the switch to the ON position until it clicks and the LED lights turn on. Repeat the process to turn it off.
- Before turning the unit ON, please make sure that the GSM Antenna is connected to its appropriate antenna connector on the unit. If the SIM card is inserted into the unit and the unit is turned ON without the GSM antenna being connected, this may cause harm to the internal cellular modem. Therefore it is recommended to **keep the GSM Antenna connected all the time**.
- After turning the unit OFF, please wait until the LED's on the top of the unit shut off completely before turning the unit back ON.

When charging the unit:

- The PMRS-102 unit's maximum power input is **5V**. The chargers supplied by Infodraw provide the correct (5V) power output to the unit. **WHEN CHARGING THE UNIT, ONLY USE THE CHARGERS PROVIDED BY INFODRAW. DO NOT CHARGE THIS UNIT WITH ANY HIGHER VOLTAGE THAN 5V. THIS MAY CAUSE IRREVERSIBLE INTERNAL DAMAGE TO THE UNIT'S HARDWARE COMPONENTS.**
- Never use a damaged charger to charge the device.

When configuring the unit:

- The PMRS-102 unit has to be configured prior to operation and later on as well. The configurations are done using the Device Configurator Application on any PC, through the USB Cable provided. **MAKE SURE THAT ANY SIM CARD IN THE UNIT IS REMOVED BEFORE CONFIGURING THE UNIT THROUGH THE USB CABLE.**

Using the unit's Dip Switches:

- The PMRS-102 Unit has 4 Dip Switches used for setup and operation, located on the side of the unit. The functions of each dip switch can be found in the **Dip Switch section** of the **Unit Hardware Interfaces chapter** in this manual. Make sure you understand the functions of each dip switch, prior to using the unit.

When installing the unit in a vehicle:

- Only use Infodraw Chargers to charge the PMRS-102 Unit. Non-Infodraw chargers are not covered by the 1 Year Limited Warranty.
- When installing custom 12V Power Outlets directly into vehicle batteries, please ensure that this is done by a qualified, experienced Auto Electrician.

Copyright

© 2017 Infodraw R&D LTD. All rights Reserved.

Information in this manual is protected by copyright laws and is the property of INFODRAW. No part of this manual may be reproduced, copied, translated, or published in any form or by any means without INFODRAW's prior permission. Information in this manual is subject to change by INFODRAW without prior notice.

Table of Contents

Box Contents	10
Required Items	11
Included Software	12
Chapter 1 - Introduction	14
1-1 Document Scope:	14
1-2 Terminology:	14
1-3 Introduction:	15
1-4 System Components:	15
1-5 System Architecture:	16
Chapter 2 - Hardware Interfaces	17
2-1 Video Input/ 5V Power Output:	17
2-2 Video / 5V Power Adapter Cable:	17
2-3 Audio In/Out:	17
2-4 Audio In/Out Adapter Cable:	17
2-5 Antenna Connectors: External GSM and GPS:	18
2-6 SIM Card Slot:	19
2-7 Alarm Button:	19
2-8 USB Client (Mini USB Input):	19
2-9 Micro-SD Slot:	19
2-10 ON/OFF Switch:	19
2-11 5V Power Input:	20
2-12 Charging the Unit:	20
2-13 Dip Switches:	21
2-14 LEDs:	21
2-15 GPIO/PTZ Cable:	22
2-16 Ethernet Cable:	23
Chapter 3 - Installation	24
3-1 MRS Server:	24
3-1-1 Installing the MRS Service	24
3-1-2 Installing MRS Monitor-server Application:	27
3-2 PMRS Device Configuration:	30
3-2-1 MRS Device Configurator Installation:	30
3-2-1-1 Driver Installation for Windows XP, Vista, 7 (32Bit):	33

3-2-1-2 Driver Installation for Windows Vista & 7 (64Bit):	36
3-2-1-3 Driver installation for Windows 8 (64bit) OS	38
3-2-2 Initial Configuration of the MRS Device	39
3-3 MRS Monitor Client:	40
Chapter 4 – MRS Software Components.....	43
4-1 MRS Monitor Client:	43
4-1-1 Setting Language:	44
4-1-2 Connecting the Unit to the Server:.....	45
4-1-3 Viewing Video:.....	47
4-1-3-1 Video Properties:.....	50
4-1-3-2 Multiple Video Encoders:	53
4-1-3-3 Video Frame Text:	56
4-1-4 Other Options:	57
4-1-5 Device Location (GPS):.....	58
4-1-5-1 System Level Map:.....	59
4-1-5-2 Device Level Map:	59
4-1-5-3 Map Views:.....	60
4-1-5-4 Video Over Map:	61
4-1-5-5 GPS Location History:	62
4-1-5-6 GPS Location Settings:.....	63
4-1-5-7 Device Speed Over Map:	66
4-1-5-8 Geo-Fencing.....	67
4-1-6 Audio.....	69
4-1-6-1 Computer Audio Properties:	69
4-1-6-2 Audio Streaming:.....	71
4-1-6-3 Unit Audio Properties:.....	72
4-1-6-4 Unit Audio Controls:	73
4-1-7 Recording.....	74
4-1-7-1 Local Recorder Settings	74
4-1-7-2 Local Recording:	77
4-1-7-3 Device Recording:	79
4-1-7-4 Remote Server Recording:.....	83
4-1-7-5 Recording Snapshots	85
4-1-7-6 Recording from event log.....	85
4-1-7-7 Audio Recording:	86

4-1-7-8 Synchronized Video and Audio Recording:	87
4-1-7-9 SMB Recording (External Storage Device):	88
4-1-7-10 Recorded Files Digital Signature:.....	91
4-1-7-11 Recorded Files Encryption:.....	93
4-1-7-12 Recording History in Graphic Format:.....	95
4-1-8 VMD:	96
4-1-8-1 VMD Configuration	100
4-1-9 GPIO (Sensors and Switches):.....	101
4-1-10 SMS Alerts From Device:	104
4-1-11 Photo Snapshots:.....	107
4-1-12 Session:.....	108
4-1-13 Neighbourhood:	109
4-1-14 Communication:	110
4-2 MRS AV Player Application:	111
4-2-1 Playing Recorded Files:	112
4-2-2 Verifying Digital Signatures:.....	114
4-2-3 Decrypting Recorded Files:	115
4-3 MRS Device Configurator Application:.....	116
4-3-1 Device Identification:.....	117
4-3-2 Connection Menu:	118
4-3-3 Modem Menu:.....	120
4-3-4 Local Network Menu:	122
4-3-4-1 Connect Through LAN	123
4-3-4-2 PMRS Device as 3G Router:.....	126
4-3-5 Wireless LAN.....	127
4-3-5-1 Wi-Fi Router	128
4-3-6 SIM Menu:	129
4-3-7 VPN:	130
4-3-8 SMS Menu:.....	134
4-3-9 GPIO Menu:	136
4-3-10 Recording Menu:	140
4-3-11 GPS Menu:	142
4-3-12 PTZ Menu:.....	142
4-3-13 Licensing Menu:.....	146
4-3-14 Upgrade Menu.....	150

4-3-15 Log Menu:.....	152
4-3-16 Initial setup.....	153
4-4 MRS Service Program:.....	155
4-4-1 Administrator Menu:	157
4-4-2 Logging Menu:	158
4-4-3 User/Device Access Permissions Menu:.....	159
4-4-4 Clients Menu.....	162
4-4-5 Recordings Menu:.....	164
4-4-6 Software Updates Menu:	166
4-4-7 User Area	167
4-4-8 Sleep Management	168
4-4-8-1 Modem-Offline mode	170
4-4-9 License Menu:.....	172
4-5 MRS Monitor Server Application:	173
4-5-1 Permissions.....	174
4-5-2 Software Upgrading:.....	178
4-6 Other Clients:	179
4-6-1 Web Browser Client:.....	179
Chapter 5 - Technical Specifications	180
5-1 PMRS Unit Specifications	180
5-2 MRS Software Specifications:	183
5-3 MRS Server Technical Requirements:.....	184
Chapter 6 – Support.....	185

Box Contents

PMRS Unit

Option 1



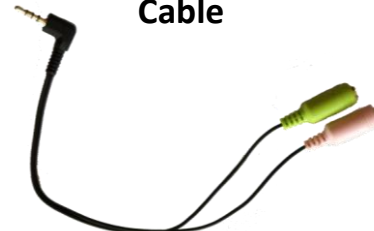
Option 2



Video/ Power Adapter



Audio In/Out Adapter Cable



GPS Antenna



GSM Antenna



5V Power Charger



USB Cable



Ethernet Cable



GPIO/PTZ Cable



- The equipment shown in this manual is compatible with the plastic form of the PMRS device. Different forms of the PMRS may have different connectors.

Video cables can have a RCA female & male connection and BNC if available.

Required Items

SIM Card (Data only) 4G/3G/ HSPA/ EDGE



A SIM Card (Data Only) from your cellular service provider is required for the unit. The PMRS-102 unit supports most 4G/3G/ HSPA/ EDGE/ GPRS SIM based cellular providers.

* It is recommended for the SIM to be of high speed (HSPA or faster) and have a large browsing package – at least 3GB.

Camera



Any analogue PAL/NTSC camera with a RCA connector for video output can be connected to the PMRS unit. The unit supports 1 camera. The unit's battery can feed power to a 5V camera for portable use.

Micro SD Card

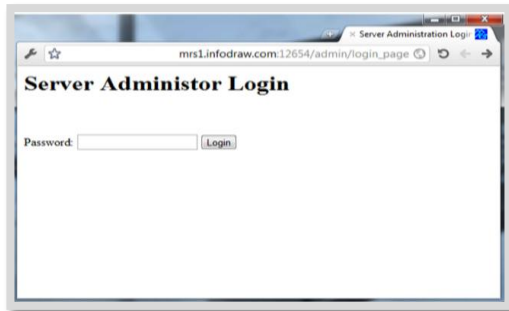


A Micro SD Card is required if you would like to record in the PMRS-102 device. The speed of the Micro SD Card will vary depending on the make. The PMRS unit supports most Micro SD Cards (SDHC).

The PMRS device supports only FAT32 format storage. Therefore, SDs that have 64GB and over will have to be Formatted (by MRS monitor) before use.

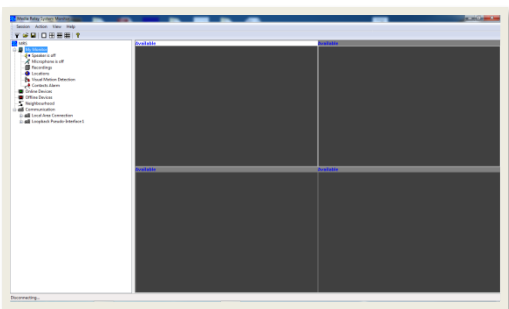
Included Software

The following software is included with the PMRS System:



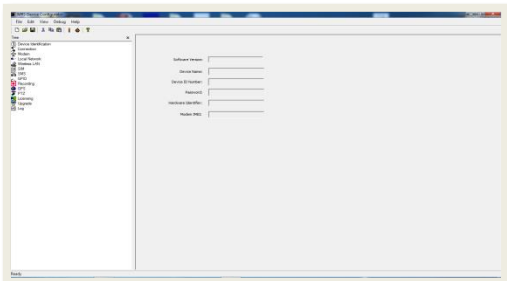
MRS Server (Windows Service Program):

This is a Web Admin Interface program and is used for setting up your server for MRS/PMRS units to connect to, setting permission and access levels for connecting clients and configuring a variety of other settings in the server. With this program, the server's settings can be accessed and changed from any location, using the web.



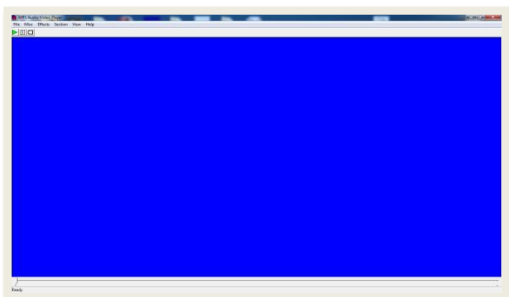
MRS Monitor (Client) Application:

This is the application through which you are able to watch the video, listen to the audio and monitor the location of your PMRS devices. In this application you are able to change the parameters of the video and audio and view the recordings you have made.



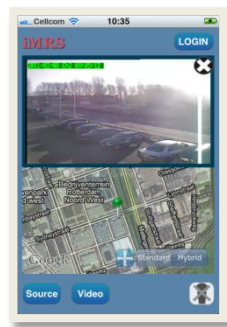
MRS Device Configurator Application:

This application is used for configuring the PMRS device parameters prior to operating the unit and for upgrading the unit's firmware. The unit is configured through a USB Cable interface on any PC (Windows XP or higher).



MRS AV Player Application:

This application is used for viewing recorded video/audio files. It is also used to verify recorded files that have a digital signature assigned to them, as well as decrypting recorded files that are encrypted with a key.

**iMRS iPhone Client:**

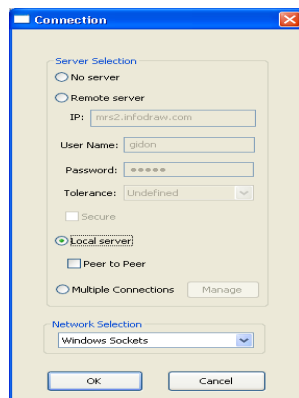
iMRS is used for monitoring video/audio/location streams from MRS/PMRS devices, on your iPhone.

* A full manual is available for download at:
<http://www.infodraw.com/support/downloads.php>

**MRS Android Client:**

MRS Android Client is used for monitoring video/audio/location streams from MRS/PMRS devices, on your Android powered mobile device.

* A full manual is available for download at:
<http://www.infodraw.com/support/downloads.php>

**MRS Monitor (Server) Application:**

This application can be used for both server and client purposes; it has the same features of the MRS monitor-client and the MRS Service program but cannot serve more than one device at one time and is not accessible through the web. The MRS monitor is easy to install and operate and is fitted to the needs of retail clients.

MRS ActiveX Control Software:

Used for integrating the MRS system with other control software.

- The MRS Software will be burned for you on a CD provided by your local distributor.

Chapter 1 - Introduction

1-1 Document Scope:

This document describes the setup configurations, the features and operational functions of the PMRS-102 Unit.

1-2 Terminology:

Below is a list of descriptions for the abbreviated terms used in this manual.

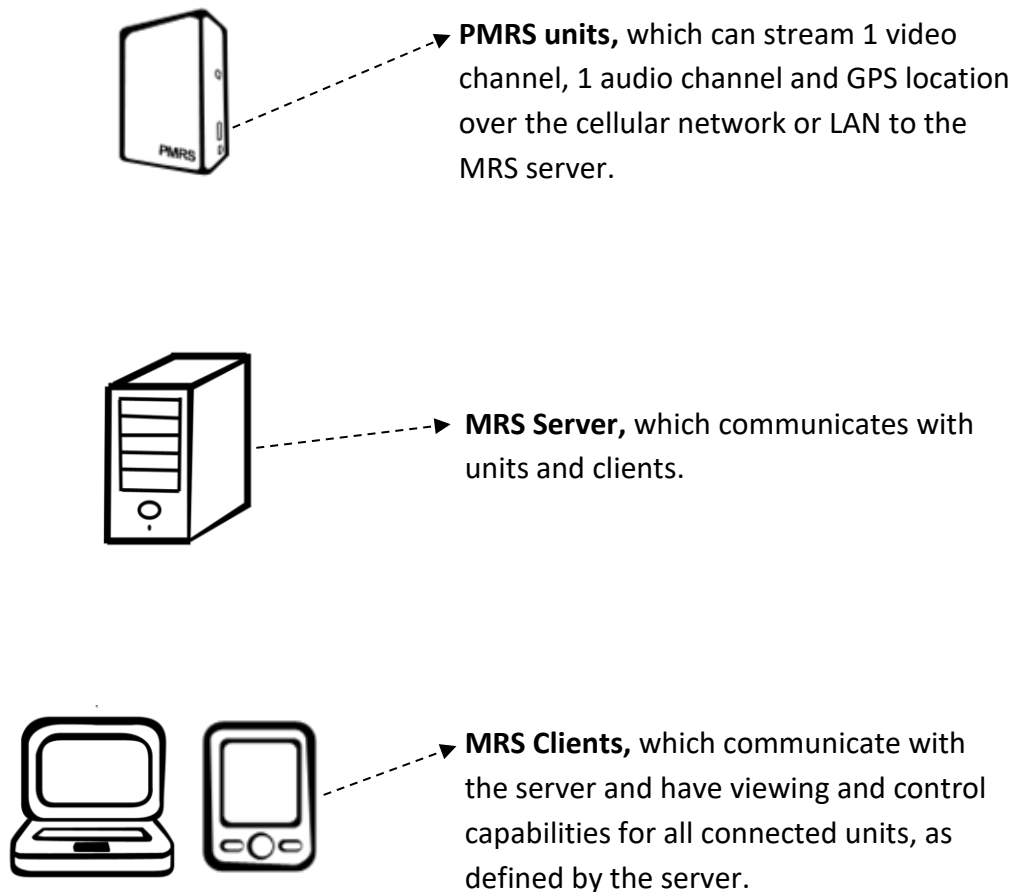
Term:	Description:
PMRS	Personal Media Relay System
IP	Internet Protocol
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
GPS	Global Positioning System
GSM	Global System for Mobile Communications
3G	3rd Generation Mobile Telecommunications
HSPA	High Speed Packet Access
EDGE	Enhanced Data rates for GSM Evolution
GPRS	General packet radio service
SIM	Subscriber Identity Module
SD	Secure Digital
PC	Personal Computer
USB	Universal Serial Bus
M2M	Multi Unit to Multi Client
TRS (TRRS)	Tip, Ring, Sleeve
PTZ	Pan, Tilt, Zoom
VMD	Visual Motion Detection
GPIO	General Purpose Input, Output
SMS	Short Message Service
APN	Access Point Name
LAN	Local Area Network
PIN	Personal Identification Number
PUK	PIN Unlock Key
LED	Light-emitting diode
TTL	Transistor–transistor logic

1-3 Introduction:

The Infodraw PMRS-102 unit is a portable handheld multimedia streaming and monitoring system from the field. It allows users to stream live video/audio/location from anywhere over wireless cellular networks (4G/3G/ HSPA/ EDGE/ GPRS) or (LAN) and can be monitored and controlled from any location upon alarm/ request. The media streaming is done using PMRS units which can be carried handheld or located either on mobile vehicles or fixed locations. The units can be monitored remotely from fixed/mobile control centres, mobile phones/PDAs or an internet web client.

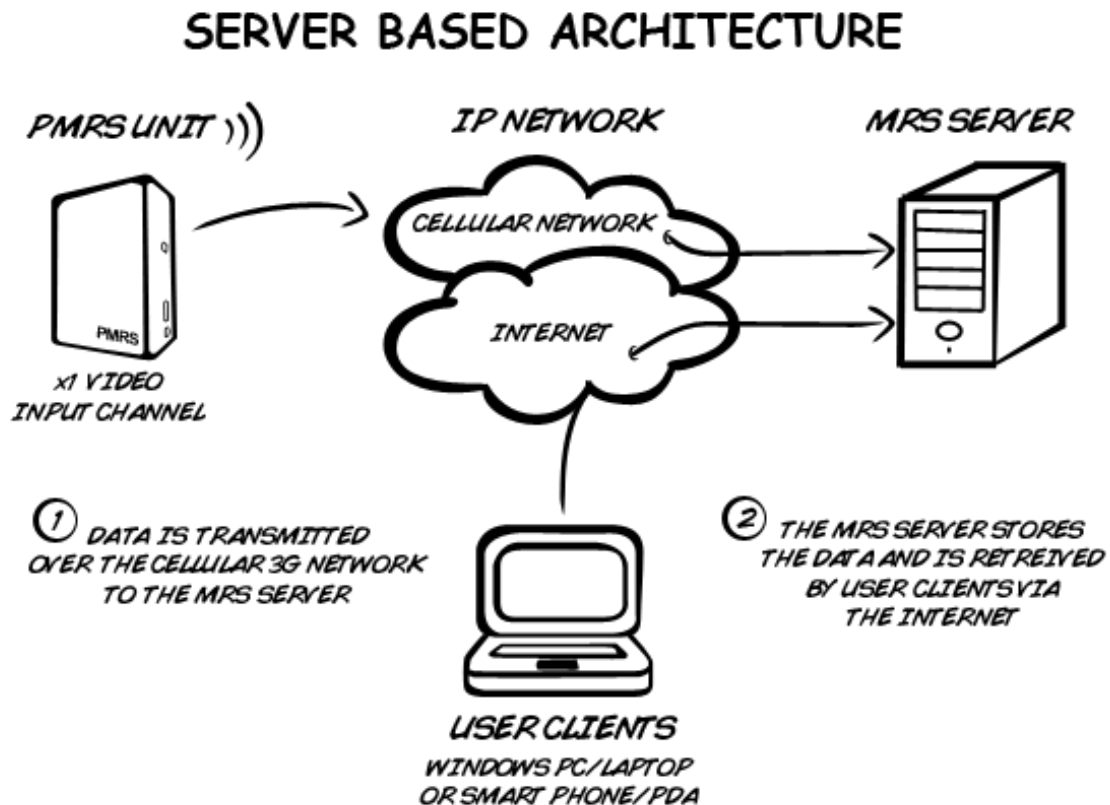
1-4 System Components:

The system consists of the following components:



1-5 System Architecture:

- **Server Based Architecture:** This architecture is based on a server with a fixed IP address. Multiple units can communicate with the server as well as multiple clients. All clients are connected to the server only and have viewing and control capabilities.



- The transmission can be in both 3G and 4G networks
- The TMRS Unit can transmit both 3G/4G Cellular and WiFi networks.

Chapter 2 - Hardware Interfaces

Listed below are the explanations of the PMRS Unit's hardware interfaces.

2-1 Video Input/ 5V Power Output:

The unit has a standard 2.5mm TRRS female input connector which supports the video input and 5V power output to the camera from the unit. The input is labelled **A/V IN** on the PMRS Unit.



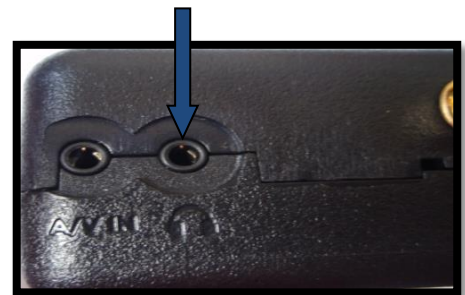
2-2 Video / 5V Power Adapter Cable:

The unit comes with a 2.5mm TRRS Male Jack splitter cable which has a RCA Connector for Video Input (Yellow connector) and a 5V DC Power Connector (black connector) for Power Output to a camera (Max 5V). The White RCA Connector in this cable has no use. Connect this adapter cable to the Video/ Power TRRS Female Input Connector shown above (**A/V IN**).



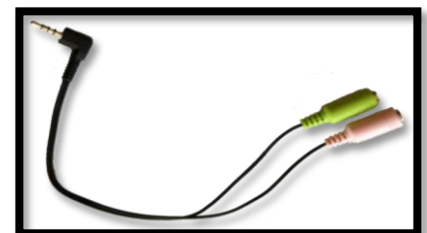
2-3 Audio In/Out:

The unit has a standard 2.5mm TRRS Female Input Connector which supports the Audio Line In and Audio Line Out of the unit. The input is labelled with a **Headphones Symbol** on the PMRS Unit and is located next to the "**A/V IN**" input. Headphones can be connected here directly.



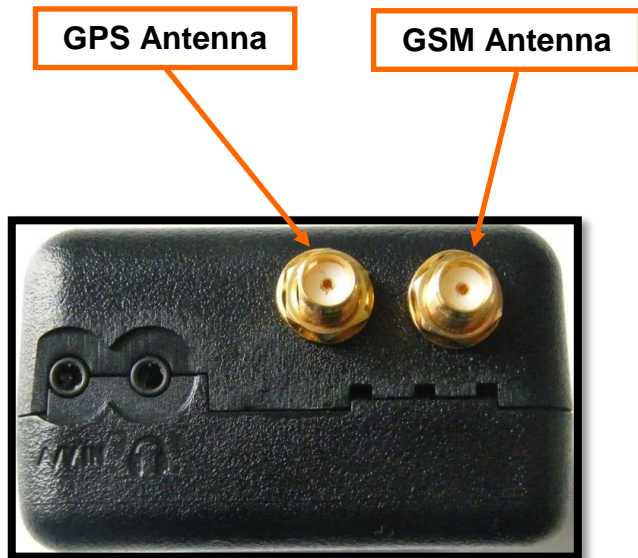
2-4 Audio In/Out Adapter Cable:

The unit comes with a 2.5mm TRRS Male Jack splitter cable which has a 2.5mm TRRS Female connector for Audio In (Pink Connector) and a 2.5mm TRRS Female connector for Audio Out (Green Connector). A microphone and speakers can be connected to this cable (pink connector for microphone, green connector for speakers). Connect this adapter cable to the Audio In/Out TRRS Female Input Connector shown above (**Labelled with Headphones**).



2-5 Antenna Connectors: External GSM and GPS:

With this antenna setup, the PMRS unit has two external SMA antenna connectors located on the top side of the unit for External GSM and GPS Antennas. The GSM antenna connector is on the right corner of the unit. The GPS antenna is in the middle of the unit.



GSM Antenna



GPS Antenna



- 1) Twist the GSM Antenna on to the GSM Antenna Base.
- 2) Connect the GSM and GPS Antennas to their appropriate antenna connectors shown above.



WARNING:

- Before turning the unit ON, please make sure that the GSM Antenna is connected to its appropriate antenna connector on the unit. If the SIM card is inserted into the unit and the unit is turned ON without the GSM antenna being connected, this may cause harm to the internal cellular modem. Therefore it is recommended to **keep the GSM Antenna connected all the time.**

2-6 SIM Card Slot:

The SIM card slot is located on the side of the unit. Pull the notch out carefully with your fingernails to insert the SIM card. Once the SIM card is inserted properly, close the notch by carefully pushing it all the way into the unit.



2-7 Alarm Button:

The PMRS unit has a built in alarm button located on the side of the unit. The button can be used in emergencies and can be set up to trigger a variety of actions on the MRS monitor ([Refer to Alarm Button Section](#)).



2-8 USB Client (Mini USB Input):

The USB client is used for configuring the device's parameters using the **Device Configurator** application. Connect the USB cable between the Mini USB Input shown here and a PC when configuring the unit.



2-9 Micro-SD Slot:

The Micro SD Slot is located on the side of the PMRS unit, next to the SIM Card Slot. Insert a Micro SD card into the Micro SD slot for recording in the PMRS device.



2-10 ON/OFF Switch:

The ON/OFF Switch is located on the side of the unit, in between the Mini USB Input and the Dip Switches. To turn the PMRS-102 unit on, **carefully** move the switch to the ON position until it clicks and the LED lights turn on. To turn the unit OFF, **carefully** move the switch back to the OFF position until it clicks and the LED lights turn off. After switching the unit off, the LED lights may take up to a few seconds to turn off.



2-11 5V Power Input:

The 5V power input is located on the side of the unit. Connect the 5V Power Charger here. DO NOT CONNECT MORE THAN **5V** INTO THIS INPUT. THIS WILL CAUSE DAMAGE TO THE UNIT.



2-12 Charging the Unit:

There are 2 ways to charge the PMRS-102 Unit:



- 1) **Using the 5V AC/DC Power Charger:** Connect the AC Charger to a wall power outlet. Connect the DC tip to the PMRS Unit's 5V Power Input shown above. The unit's battery takes about 10-12 hours to charge from flat to full charge.



- 2) **Using the 5V Car Adapter Charger:** The 5V Car Adapter Charger has a cigarette lighter interface. Connect the Car Adapter Charger to a cigarette lighter 12/24V power outlet in a vehicle (either pre-installed in the vehicle or custom installed directly into the vehicle's battery). Connect the DC tip to the PMRS Unit's 5V Power Input shown above.

Pre-installed Power Outlet



Power Outlet to be installed directly into vehicle battery



WARNING:

- Only use Infodraw Chargers to charge the PMRS-102 Unit. Non-Infodraw chargers are not covered by the 1 Year Limited Warranty.
- When installing custom 12V Power Outlets directly into vehicle batteries, please ensure that this is done by a qualified, experienced Auto Electrician.

2-13 Dip Switches:

The PMRS has 4 Dip Switches located on the side of the unit. The dip switches are for setup and operation. The functions of each switch are described below in order from left to right:



1) USB HOST/CLIENT AND CELLULAR OPERATION:

- i. Up Position = USB client (setup through PC)
- ii. Down Position = Normal cellular operation

2) USB IN/OUT:

- i. Up Position = USB out to connector (setup through PC or WIFI Dongle)
- ii. Down Position = USB in on board

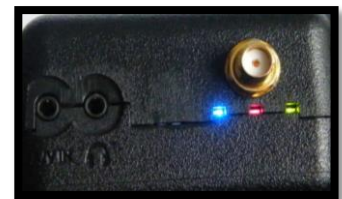
3) MICROPHONE:

- i. Up Position = Disable
- ii. Down Position = Enable

2-14 LEDs:

The PMRS has 3 LED's located on the top side of the unit. The 3 LED's indicate the following:

- 1) Green LED – External power is connected.
- 2) Red LED – Software status, blinks when software is running.
- 3) Blue LED (on) – Modem is on.



CAUTION:

- After turning the unit OFF, please wait until all the LED's on the top of the unit shut off completely before turning the unit back ON (except the green LED which can stay on if the unit is being charged).

2-15 GPIO/PTZ Cable:

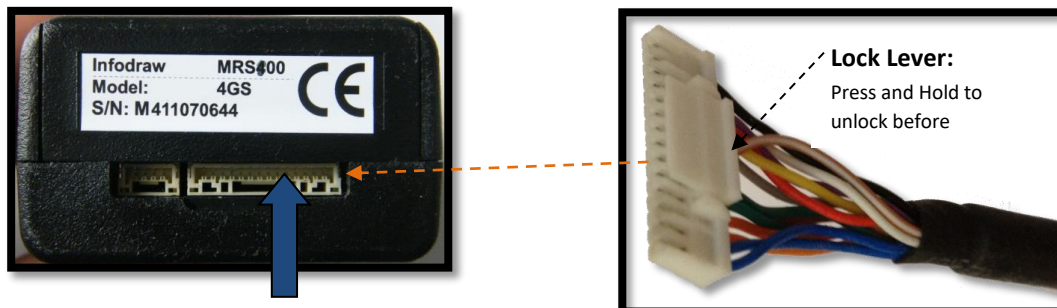
The GPIO/PTZ Cable has several different coloured wires for specific purposes such as PTZ and GPIO. The definitions of the wires are listed below:

INDEX	COLOR	FUNCTION
1	BLUE	GPIO IN 1
2	BLACK-WHITE	GPIO IN 2
3	ORANGE	GPIO IN 3
4	RED-WHITE	GPIO IN 4
5	GREEN	GPIO OUT 1
6	PURPLE	GPIO OUT 2
7	BLUE-WHITE	GPIO OUT 3
8	BROWN	GPIO OUT 4
9	PURPUL-WHITE	PTZ TX+
10	GRAY	PTZ TX-
11	YELLOW	5V
12	RED	TTL TX
13	WHITE	TTL RX
14	BLACK	GND



- If the colours you have on your cable do not fit the colours in the table please contact Infodraw for more information.

The GPIO/PTZ Cable Input is located on the bottom side of the PMRS unit.



Connect the GPIO/PTZ cable to its correct input shown above. Make sure it is firmly connected.

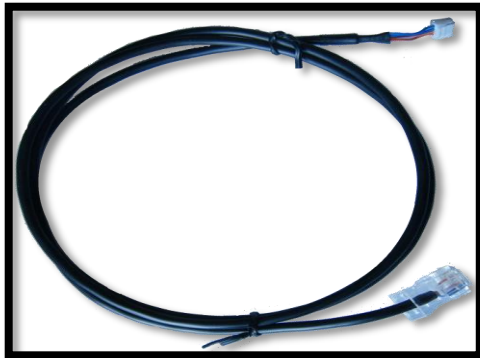


WARNING:

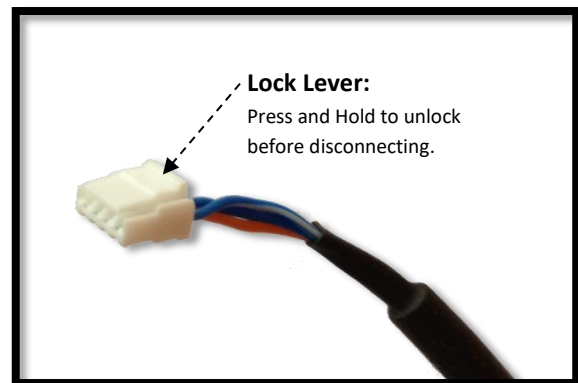
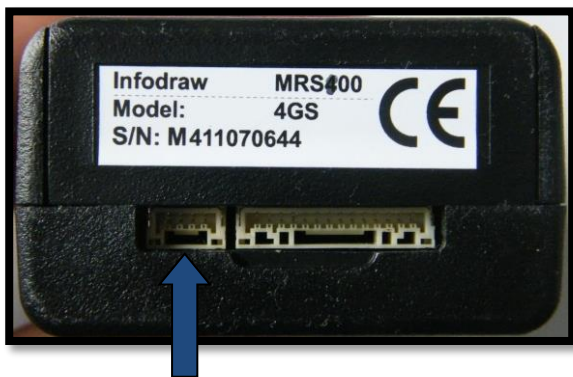
- When disconnecting the cable from the PMRS unit, do not just pull the cable. Press and hold the Lock Lever (shown here) and then pull it out.

2-16 Ethernet Cable:

The unit comes with an Ethernet cable for using the LAN Interface.



The Ethernet (Interface) Cable Input is located on the bottom side of the PMRS unit, next to the GPIO/PTZ Cable Input.



Connect the Ethernet (Interface) cable to its correct input on the PMRS unit shown above. Make sure it is firmly connected.



WARNING:

- When disconnecting the cable from the PMRS unit, do not just pull the cable. Press and hold the Lock Lever (shown here) and then pull it out.
- To enable LAN transmission go to the Ethernet tab of the MRS configurator.

Chapter 3 - Installation

3-1 MRS Server:

There are two programs through which a user can run the MRS server:

1. MRS Service Program (Web Admin Interface Server):

This is a Windows Service Program that allows the user to setup a server on any PC or dedicated server and then access and change settings in the server from any location, using the web. **(Recommended)**

2. MRS Monitor-Server Application:

This program allows the user to run the server in the same program where the video and audio are streaming. However, the “MRS Monitor” program only allows one device to work at any one time and gives full access to the server only from the computer itself and most of its features cannot be reached from the web. **This server program is fitted for small clients that have purchased only one device.**

3-1-1 Installing the MRS Service

The control centre server software can be installed on any PC using Windows XP or later. The server requires a **Fixed (Static) IP address**, which is publicly accessible, in order for the external units to connect. **Please refer to the “[Server Technical Requirements](#)” section of Chapter 4 in this user manual, for full Server Machine Technical requirements.** In order to allow communication between the server and MRS/PMRS Units and Clients, the following ports must be open in the server machine’s firewall:

12654 TCP

12655 UDP

For setting up the server on a local area network PC, follow these instructions to open the ports:

- 1) Make sure your router has a fixed (Static) IP Address. If it doesn’t, you should arrange to get one through your internet service provider.
- 2) Enter your router admin settings.
- 3) Set your local PC (server PC) to have a fixed local (Static) IP Address assigned in the router.
- 4) In the routers port forwarding settings, you need to open the above two ports and then port forward them to your local PC’s fixed local (Static) IP Address.

- 5) After opening and forwarding the ports to your local PC in your router, it is also recommended to open the 2 ports on your local PC itself, in the Windows Firewall feature. Open **“Control Panel > Windows Firewall > Advanced Settings”**. In windows XP and Vista, enter the **“Settings”** of the ‘operating internet connection’ and add the new ports. In Windows 7 enter the **“Inbound Rules”**, open the **“Action”** menu, choose **“new rule”** and follow the instructions to open the 2 ports.

If you are setting up a virtual server with a server hosting company, ask your service provider to open the above ports in the server for you. The MRS Server can also be set up on Microsoft Windows Server OS.

The MRS SERVER supports multiple units and clients. Only a single instance of the MRS SERVER software may be running on a MRS server/system at any one time. The purpose of the MRS server is to communicate with all MRS/PMRS units and clients and to stream video/audio/location from units to clients.

To setup the MRS Service Program (Web Admin Interface Server), follow these instructions:

- 1) Make sure that both MRS Service setup files (**“Setup_MRS_Service.msi”** and **“setup.exe”**) are placed in the same directory on your server machine.
- 2) Run the **“setup.exe”** file.

Locate the installed **MRS Server** folder and run the **“MRS_Service.exe”** file. This will activate the MRS Server Windows Service Program on your server machine.

The starting point for the web administration interface is the main menu page, reachable at the following address (enter this address in your web browser):

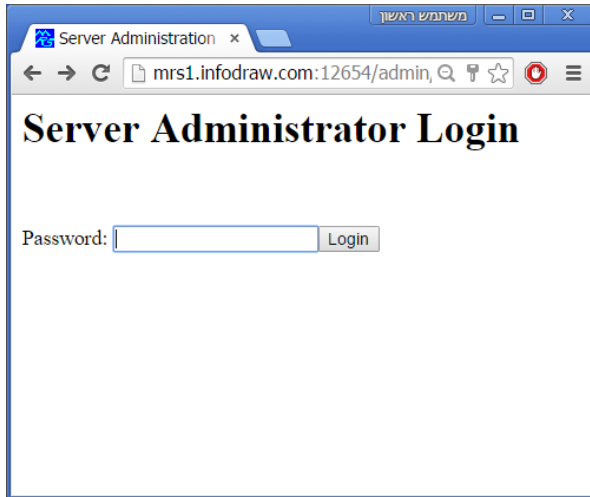
<http://serverip:12654/admin>

'serverip' is the IP address of your server. If the server is installed on the machine where the web browser is open, you may use 'localhost' or '127.0.0.1' as the address.

If a secure TLS (SSL) connection is desired, use the following address:

<https://serverip:12654/admin>

- You can create your own certificate (Recommended) or, by default, accept the certificate created by Infodraw R&D.
- A guide to create the TLS certificate is available at:
<http://www.infodraw.com/support/downloads.php>



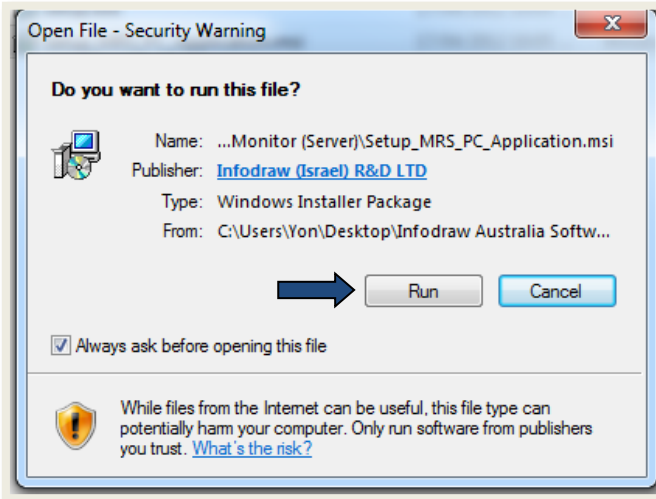
* The MRS Service program is a TCP and UDP server that serves MRS/PMRS devices and monitor clients. It's most basic functionality and prime reason for its existence is to distribute video packets from cellular MRS/PMRS devices with limited bandwidth to a number of monitor clients observing the video stream. The **MRS Service Program** under MS Windows OS takes form of a Windows Service. A Windows Service has no application-like user interface as does the MRS Monitor Server Application, so it is instead configured using a Web Administration Interface. This program allows the user to enter the server through the Web at any location.

3-1-2 Installing MRS Monitor-server Application:

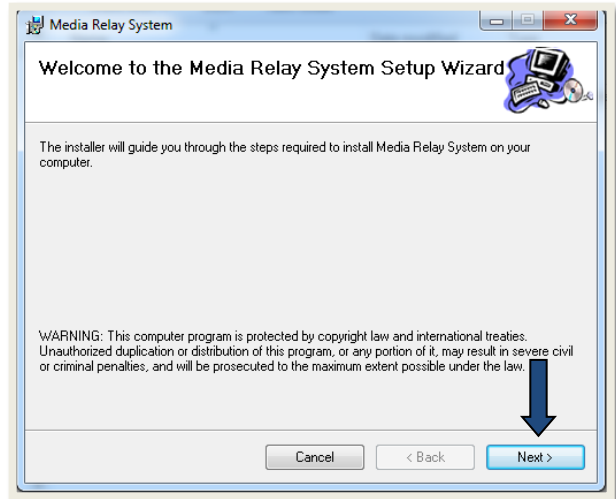
The MRS Monitor Server can be set up on any PC using Windows XP or later. This program **supports viewing only one device** at a given time.

To setup the MRS Monitor Server application, follow these instructions:

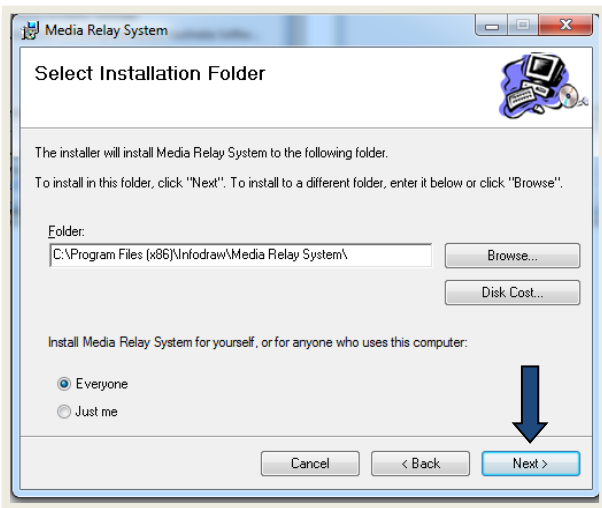
1) Run the “Setup_MRS_PC_Application.msi” file.



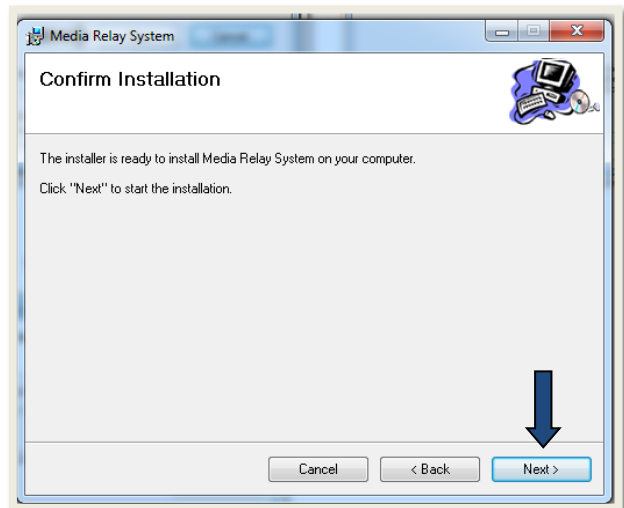
2) Click “Next”.



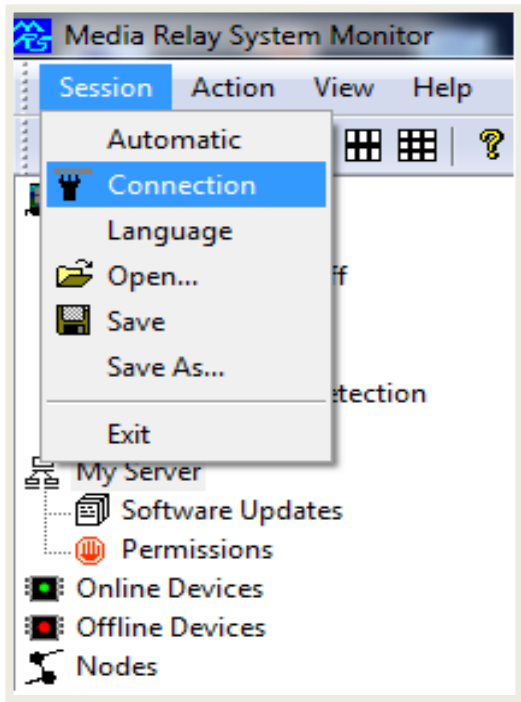
3) Click “Next”.



4) Click “Next” to begin installation.



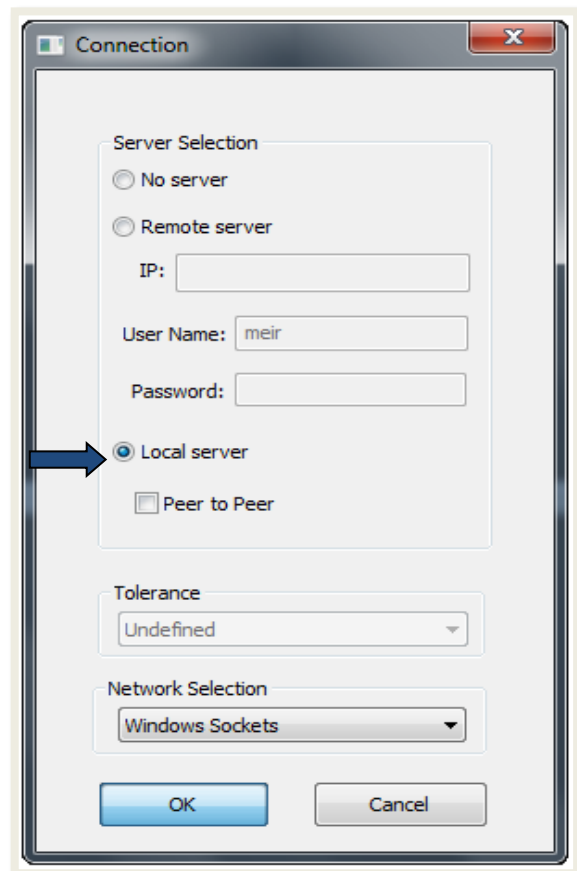
Once the “MRS Monitor Server Application” is installed and opened, to setup the PC to act as a server using Server Based Architecture, follow these instructions:



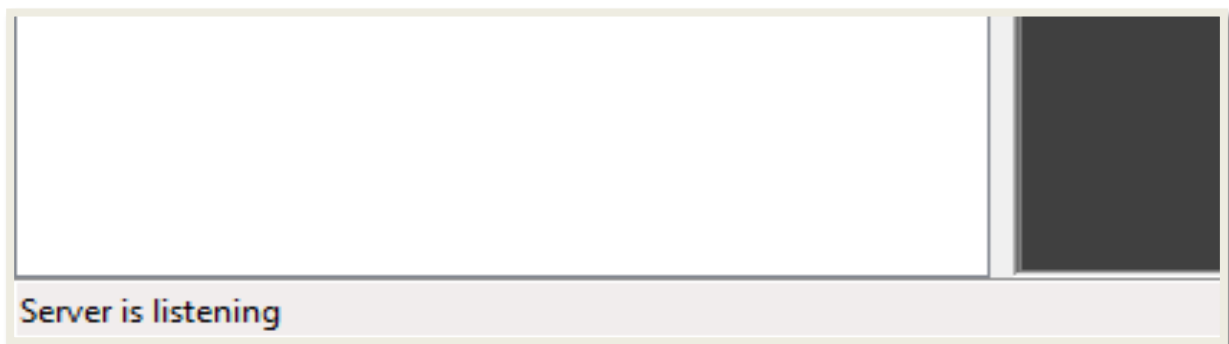
1) Open the “**session**” menu on the top left hand side.

2) Open the “**Connection**” screen.

3) Select “**local server**” and press OK.



4) Once the server is running, the status bar on the bottom left hand side of the window should show “**Server is listening**”.



Server Based Architecture is now activated. Units and Clients can now communicate with the server. This architecture is recommended for multi-unit to multi-client communication.

CAUTION: If you are connecting multiple MRS/PMRS units to the server, it is recommended **NOT** to view the video/audio/GPS streams from the “MRS Monitor Server Application” itself. The system will be more stable if the data streams are only viewed from other clients connected to the server. The server software should be used primarily as a communication program between MRS/PMRS units and MRS Clients. Therefore, when connecting multiple units to the server, it is recommended to use the **MRS Service Program (Web Admin Interface Server)**.

3-2 PMRS Device Configuration:

The PMRS unit is based on embedded hardware/software with built-in cellular network interfaces.

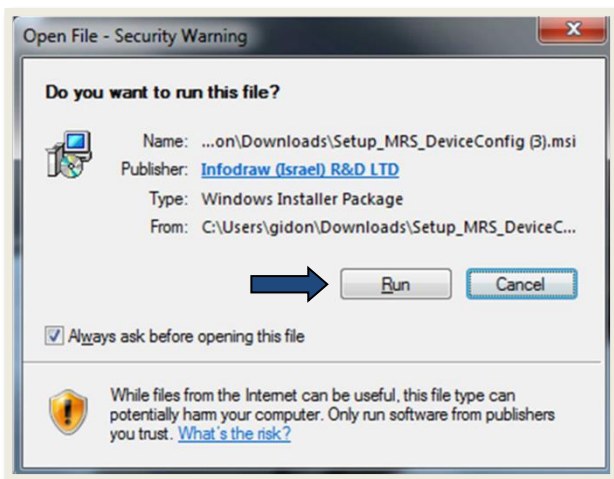
The unit must be configured prior to operation. This process includes pointing the unit's connection settings to the IP address of the server. Furthermore, the unit's cellular connection settings must adhere to those of the cellular provider in use. In particular, the cellular provider's APN (Access Point Name) must be provided. The unit is configured using the Device Configurator software, by connecting a USB cable between the unit and a computer (XP or higher).

In order for the “**MRS device Configurator**” to work and communicate with the unit, the following two elements have to be installed on your PC:

- 1) **MRS Device Configurator software.**
- 2) **MRS USB drivers.**

3-2-1 MRS Device Configurator Installation:

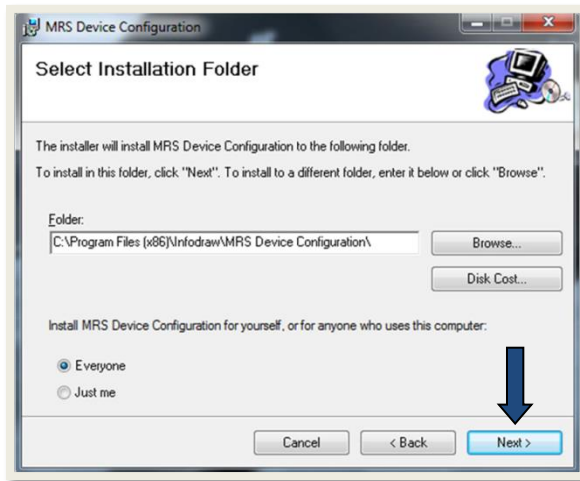
To setup the “**MRS Device Configurator Application**”, follow these instructions:



- 1) Run the “**Setup_MRS_DeviceConfig.msi**” file.

- 2) Click “**Next**”.



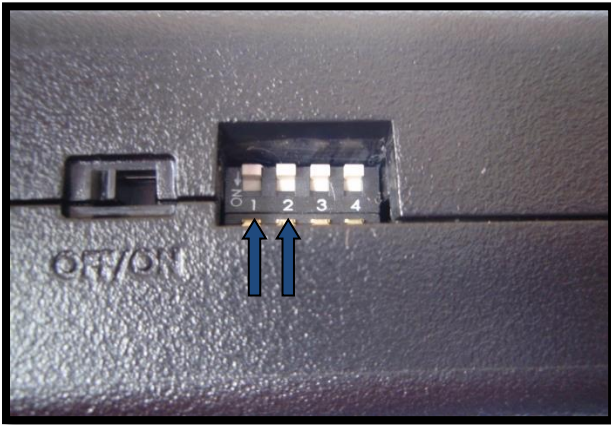


3) Click **“Next”**.

3) If you have an Anti-Virus program installed on your PC and this window appears, Click **“Run this program Anyway”**.

Setting up the Device for Configuration:

- 1) Change the 2 left dip switches (numbers 1,2 to external USB mode - up position)



- 2) Connect the USB cable between the unit (Mini USB Input) and your PC.
- 3) Turn on the unit and wait about 1 minute.
- 4) After a few seconds the system will show –

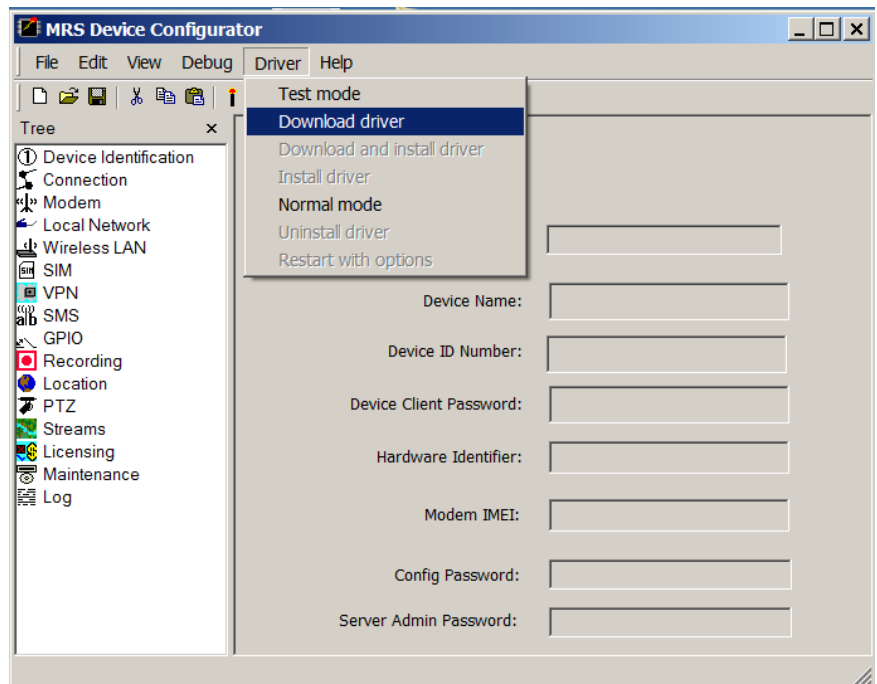


- 5) After another few seconds the system will 'detect new hardware'.
- 6) For the first time connecting the unit to a PC, the PC will detect new hardware and automatically ask for a driver. Browse for the folder where the MRS driver files are located on your PC. Point the driver setup to Infodraw MRS Driver and install.

3-2-1-1 Driver Installation for Windows XP, Vista, 7 (32Bit):

- In **Windows XP** after connecting the device and opening the *Driver* menu, choose **Download and install driver**.
- In other 32-bit Operating systems please follow these instructions:

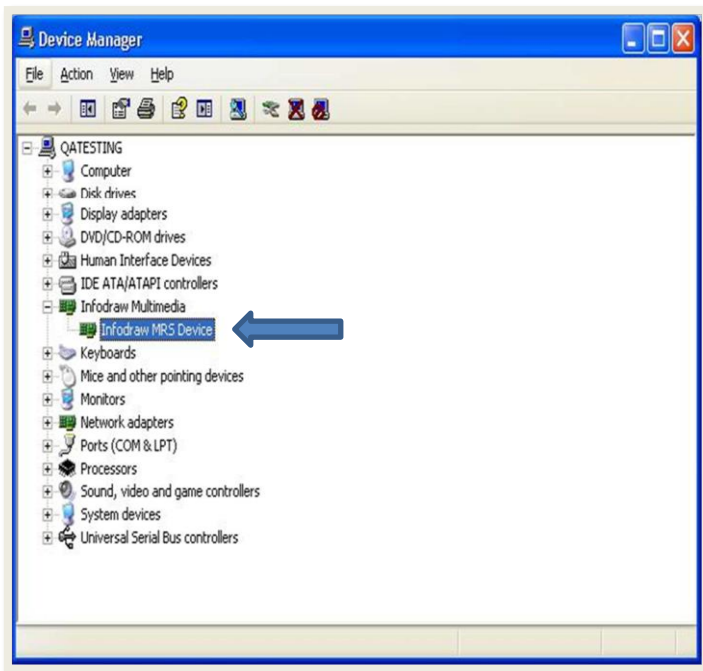
- Open the MRS device Configurator program.
- Open the Driver menu.
- Choose **Download driver**



To setup the USB Drivers on Windows XP, Vista or 7 (32Bit), please make sure that the device is activated with DIP switches 1 & 2 in an "Up" and that you have the path of the two drivers that were downloaded on your PC: **idmrs.inf** & **idmrs.sys**.



- a) Right-click "my computer".
- b) Click "properties".
- c) Enter the "Hardware" tab
- d) Click on "**Device manager**".

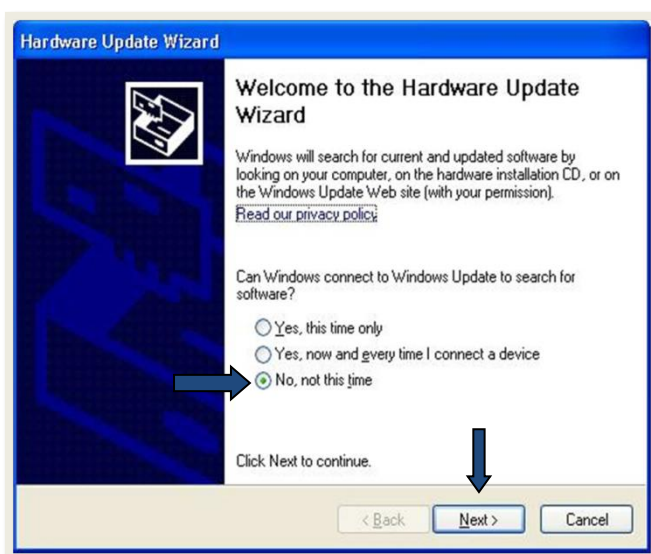


When the PC is connected to a device (With the USB cable):

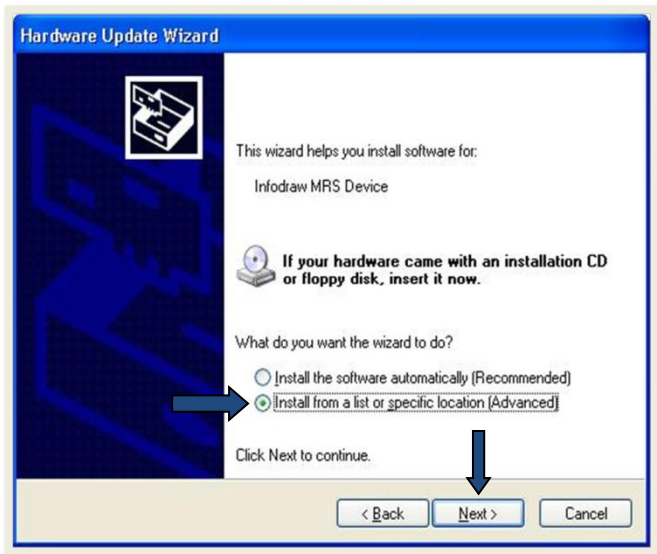
- Open the **Infodraw Multimedia** folder.
- Right-click on the **Infodraw MRS Device** file.
- Choose the **update driver** option.

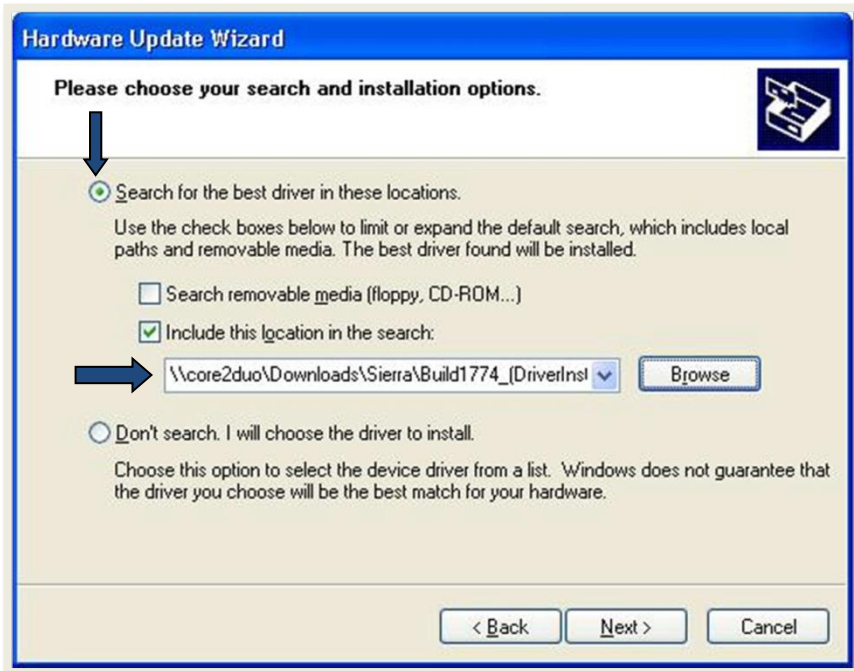
* If the device appears as an "Unknown device" - please connect the USB cable to another USB port or to a USB hub until the device is identified.

The "Hardware Update Wizard" window will pop up. Click "**No, not this time**", then click "Next".



Click the "**Install from a list or specific location (Advanced)**" option, and then click "Next".



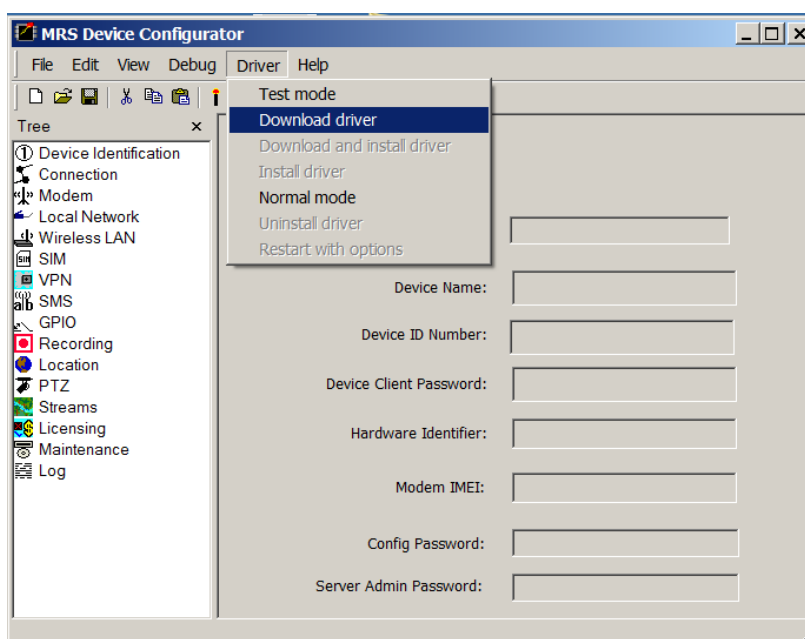
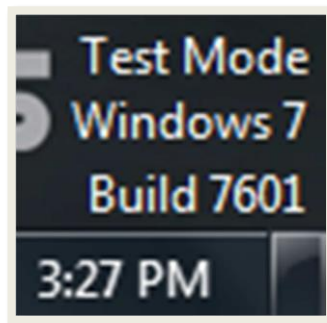
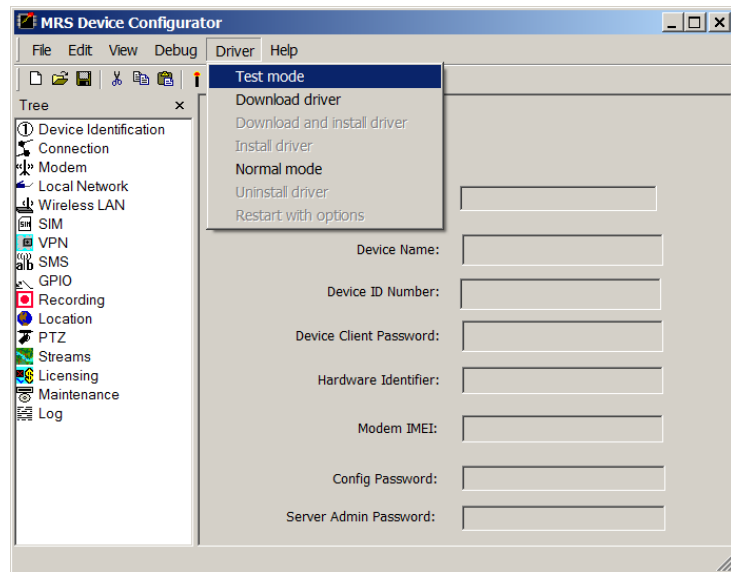


- a) Click the **“Search for the best driver in these locations”** option.
- b) Tick the **“Include this location in the search”** option.
- c) Press the Browse button and search for the folder where the MRS driver files are stored on your PC.
- d) Click **“OK”** after you have located the driver’s folder.
- e) Then click **“Next”**.

After successfully installing the drivers, begin the [initial configuration](#).

3-2-1-2 Driver Installation for Windows Vista & 7 (64Bit):

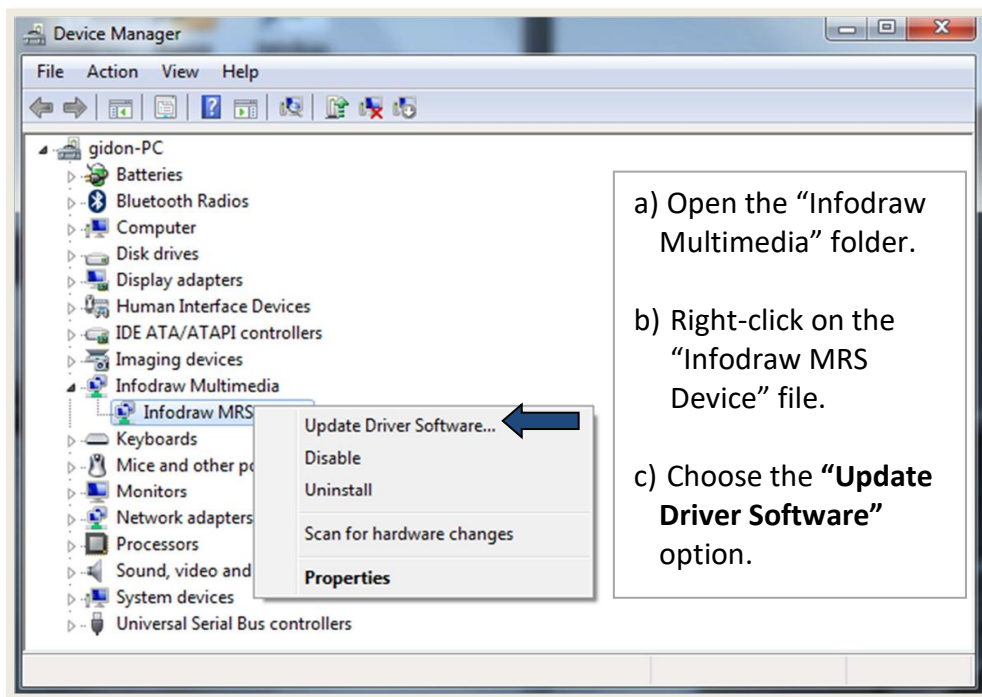
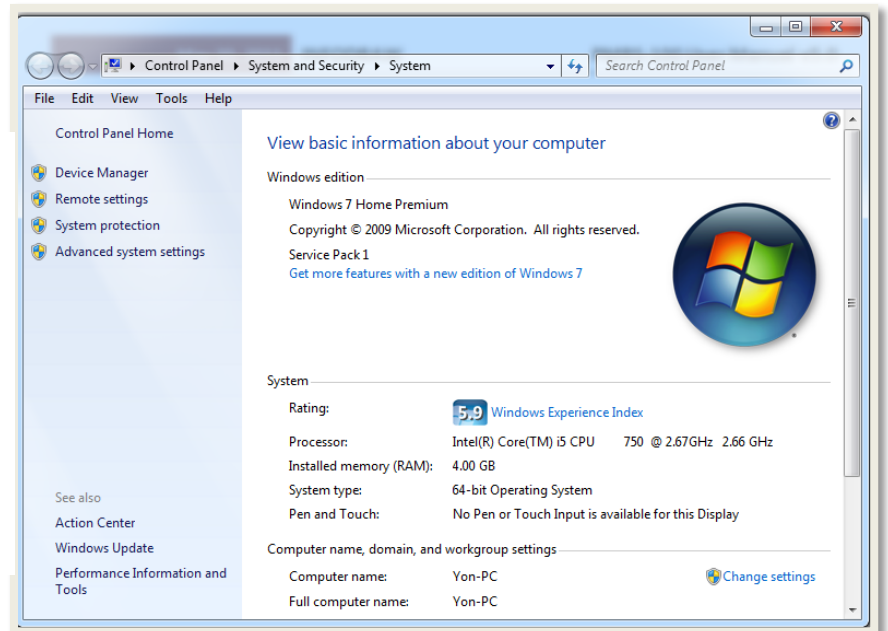
- * Open the Driver menu.
- * Choose **Test mode**
- * Restart your PC
- * After restarting, in the bottom-right side of the screen - a text should appear to show that the computer is in test mode.



- * Open the MRS device Configurator program.
- * Open the Driver menu.
- * Choose **Download driver**

- If the driver setup doesn't automatically open, follow these instructions to install the Drivers manually:

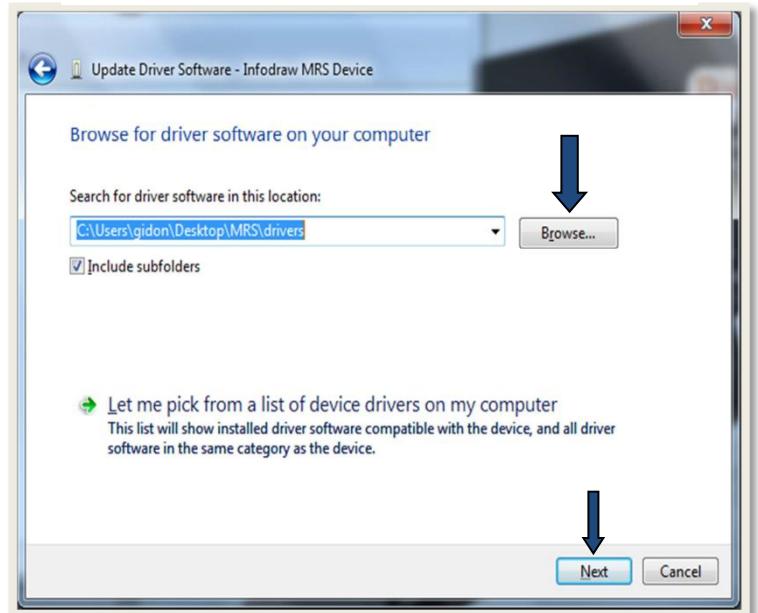
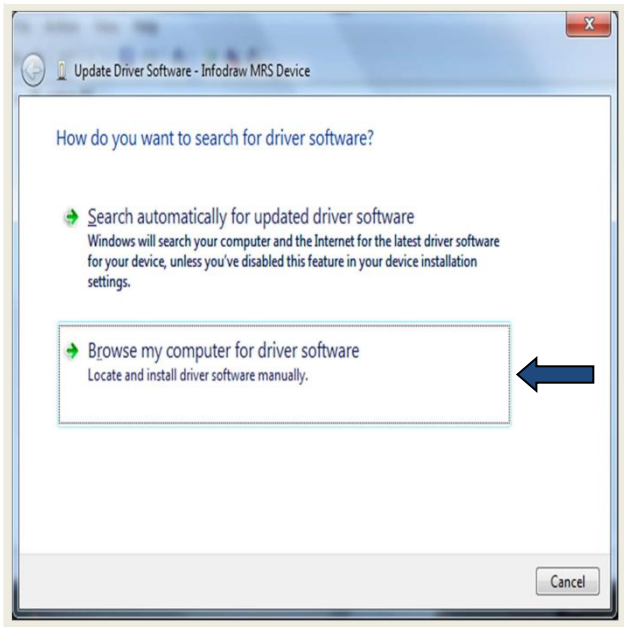
- a) On your desktop, right-click on **"Computer"**. Select the **"Properties"** option.
- b) In the **"System"** window, select **"Device Manager"** on the left hand side of the screen.



If the device appears as an "Unknown Device" - please connect the USB cable to another USB port or to a USB hub until the device is identified.

The "Update Driver Software" window will appear. Select the **"Browse my Computer for driver software"** option.

Browse your computer and choose the folder where the MRS drivers are located. Then click "Next".



After successfully installing the drivers, begin the [initial configuration](#).

3-2-1-3 Driver installation for Windows 8 (64bit) OS

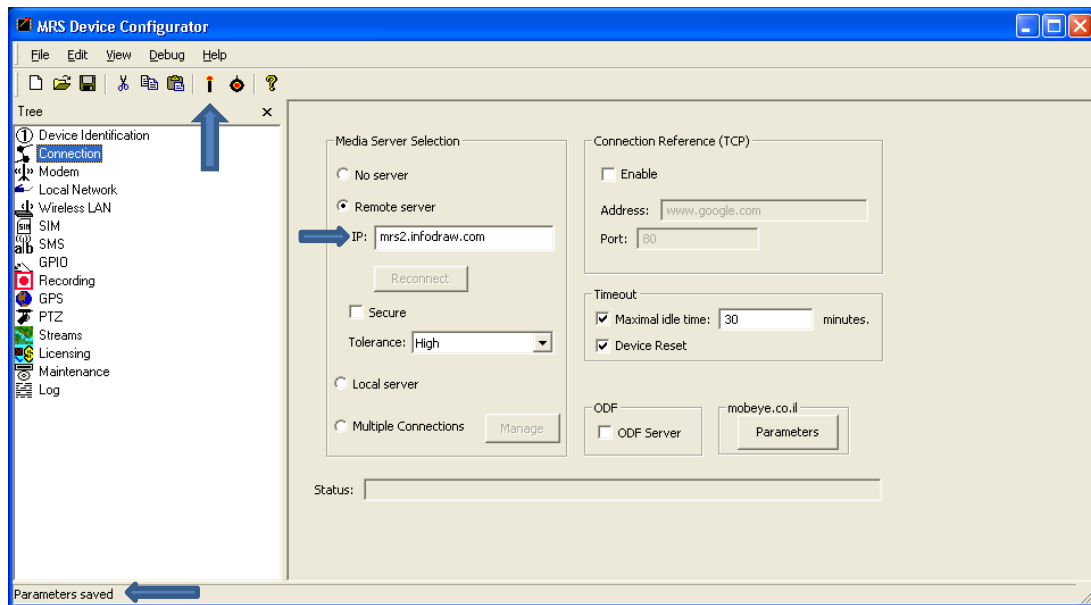
The detection of the USB in Windows 8.1 and 10 OSs is automatic. So all that needs to be done is:

- Raise DIP switches No. 1&2.
- Connect the USB cable
- Activate the PMRS device
- After successfully installing the drivers, begin the [initial configuration](#).

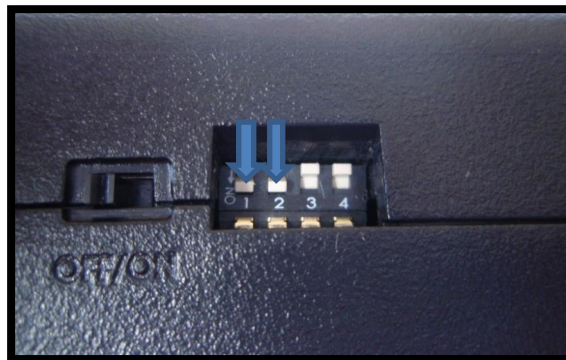
Does not apply to computers that had the MRS drivers installed in the past.

3-2-2 Initial Configuration of the MRS Device

1. After installing the drivers and activating the device in configuration mode (DIP switches 1 & 2 raised). If the installation was conducted properly, the settings on the MRS device configurator should be illuminated and the log on the bottom-left side of the program should read "**Parameters Loaded**".
2. Enable the "**Remote Server**" and type in the IP address of your server.
3. Click on the candle icon to save the changes you have made. Wait until the log in the bottom-left reads "**Parameters Saved**".



4. Deactivate your PMRS device and lower DIP switches 1 & 2 to a "down" position.

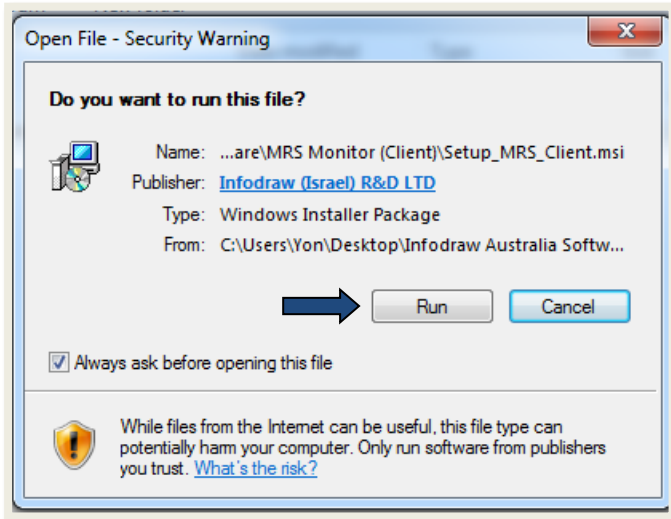


5. Install the MRS Monitor-Client, follow the instructions of the MRS monitor-client section below.
6. Activate the PMRS device.
 - For further reading go to the [MRS device configuration](#) section.

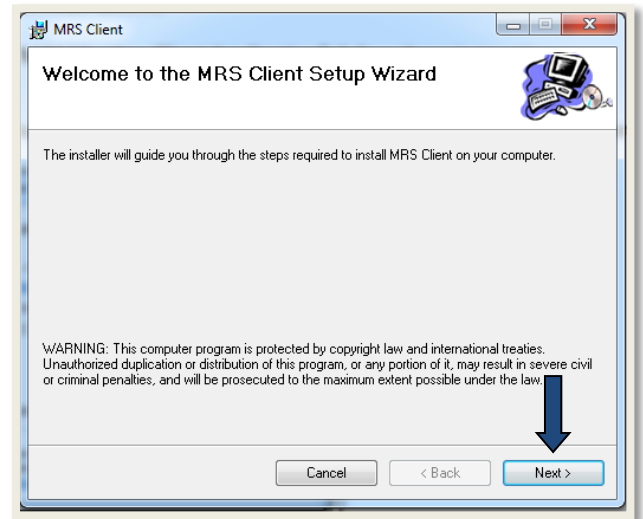
3-3 MRS Monitor Client:

The MRS Monitor Client can be set up on any PC/Laptop using Windows XP or later. To setup the “**MRS Monitor Client Application**”, follow these instructions:

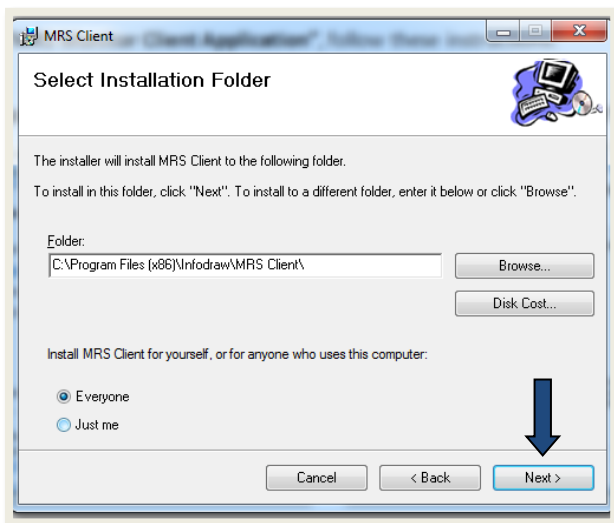
1) Run the “**Setup_MRS_Client.msi**” file.



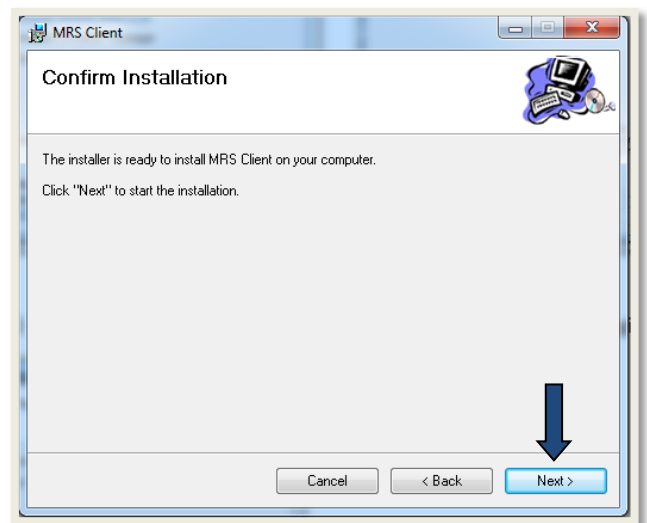
2) Click “**Next**”.



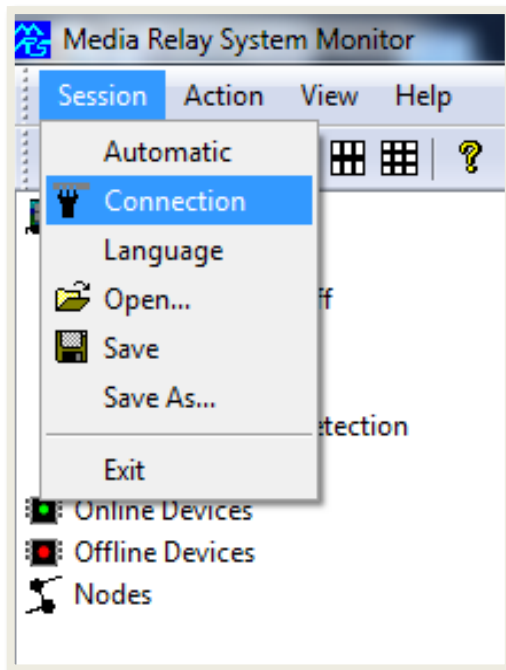
3) Click “**Next**”.



4) Click “**Next**” to begin installation.



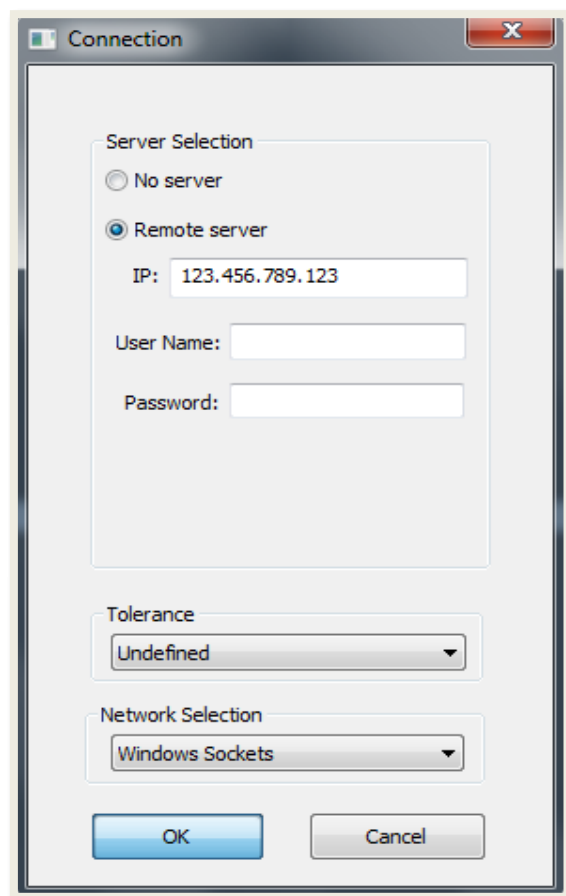
Once the MRS Monitor Client application is installed and opened, to setup the PC/Laptop to act as a client, follow these instructions:



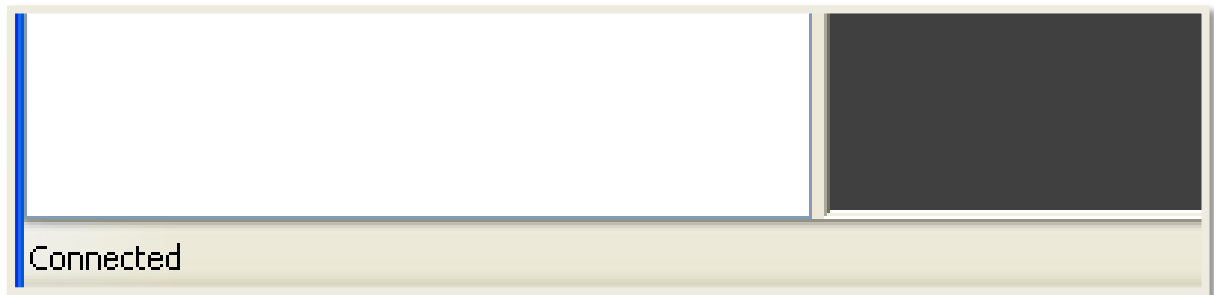
1) Open the “**session**” menu on the top left hand side.

2) Open the “**Connection**” screen.

3) Select “**Remote server**”. Enter the IP of the server and a Username and Password if required. Press “**OK**”.



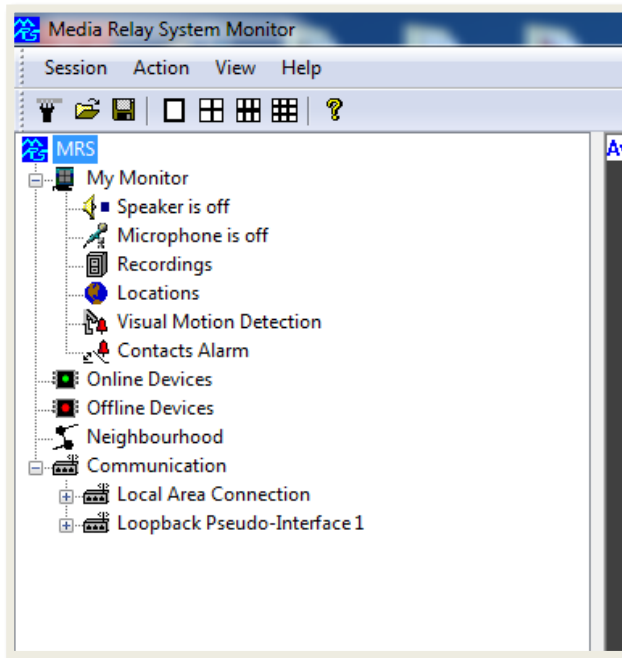
4) Once the client is connected to the server, the status bar on the bottom left hand side of the window should show **“Connected”**.



The Client is now connected and can communicate with the server. The client has viewing and control capabilities as defined on the server.

Chapter 4 – MRS Software Components

4-1 MRS Monitor Client:

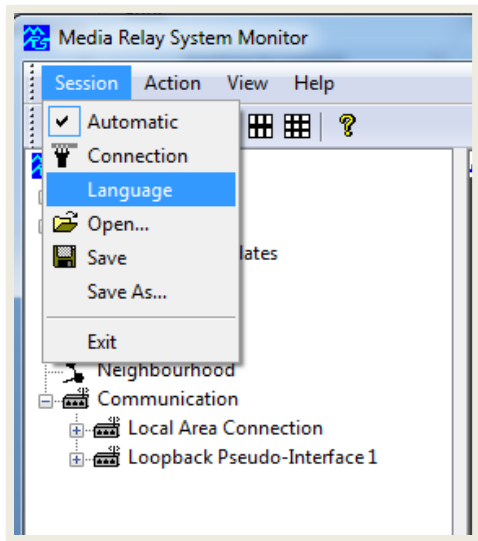


The MRS Monitor Client Application is used for connecting to the server to monitor and control MRS/PMRS units. This application has all the features of the MRS Monitor Server Application, except it has no server capabilities. Upon opening the application, you will see a tree on the left-hand side with the following features:

Item:	Description:
Speaker is off	Configure settings for your computer's speakers.
Microphone is off	Configure settings for your computer's microphone.
Recordings (web extension)	Format micro-SD remotely
Recordings (folder)	a) View Recorded video/audio files. b) Configure settings for local monitor recording files.
Locations	a) View the GPS map full screen showing all connected units on it. b) Configure trigger actions for GPS event alarms.
Visual Motion Detection	Configure trigger actions for Visual Motion Detection event alarms.
Contacts Alarm	Configure trigger actions for the Alarm button and GPIO event alarms.
Online Devices	Will display all online MRS/PMRS devices.
Offline Devices	Will display all devices that have disconnected from the server, if the device has been ticked to be remembered by the server.
Neighbourhood	Will display information about the server you are connected to such as: IP address, software version etc.
Communication	Displays network information.

4-1-1 Setting Language:

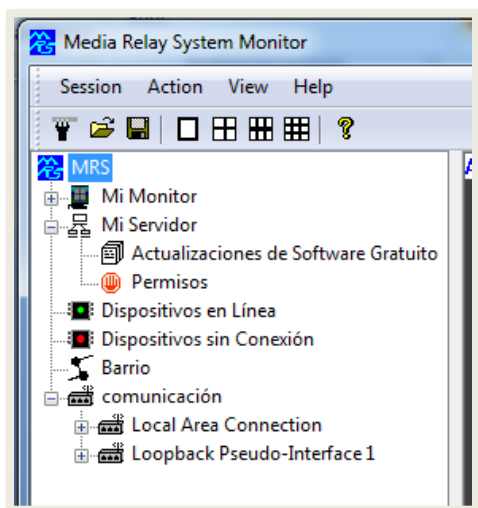
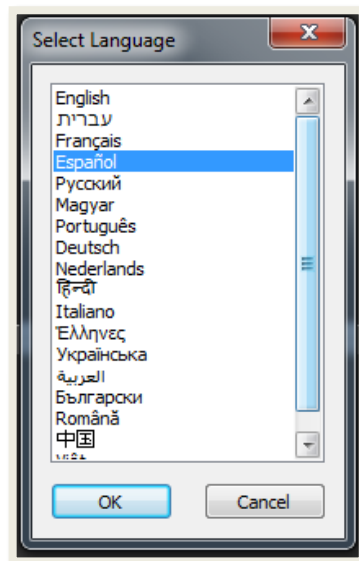
The MRS Monitor Application supports 18 different languages. Follow these instructions to change the language of the application:



1) Open the **“Session”** menu at the top left-hand corner of the screen.

2) Select **“Language”**.

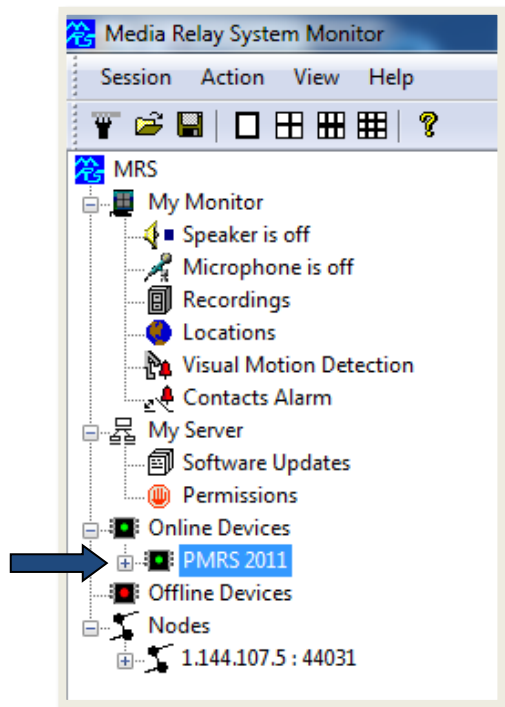
3) The **“Select Language”** window will appear. Select your desired language. Then press **“OK”**.



Your selected language will now be displayed on the MRS Monitor screen.

4-1-2 Connecting the Unit to the Server:

- 1) Insert the SIM card into the PMRS Unit.
- 2) Ensure the GSM/GPS Antennas are connected to the unit.
- 3) Ensure your server (either through the **MRS Service Program Web Admin Server** or the **MRS Monitor Server Application**) is running and working properly.
- 4) If your server is running through the “MRS Service Program”, open the **MRS Monitor Client** on another PC/ Laptop and connect to the server.
- 5) If your server is running through the “MRS Monitor Server Application”, you can either connect to it using the **MRS Monitor client** on another PC/ Laptop, or you can view the video streaming in the MRS Monitor Server Application itself.
- 6) Turn on the PMRS device.



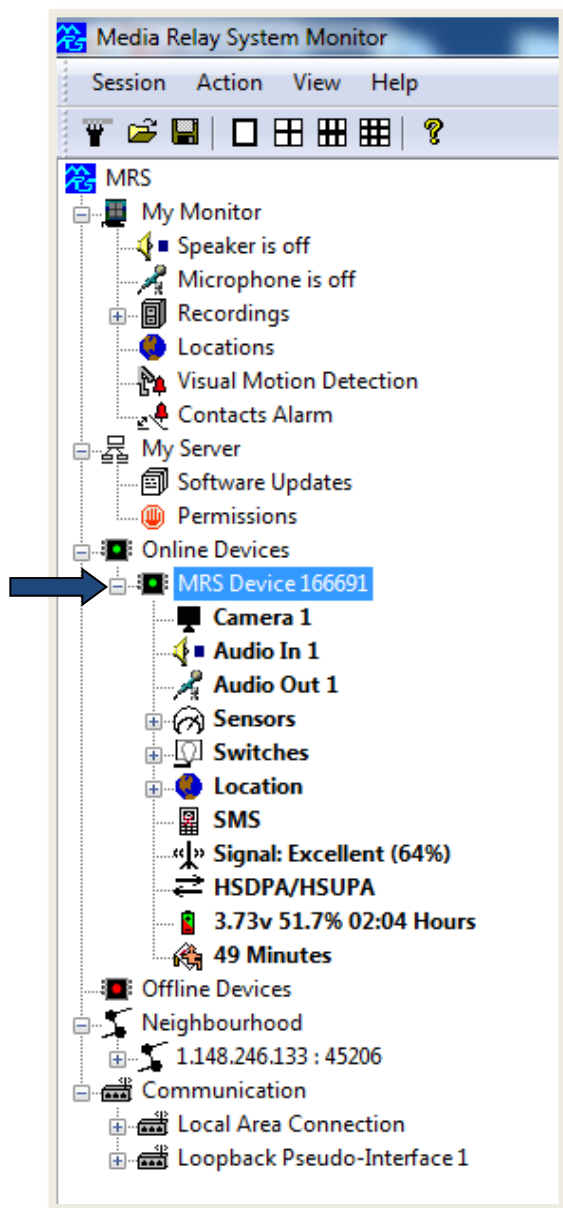
Once you turn the unit on, it should connect to the server within 1 minute.

All connected units will appear on the left hand side of the “**MRS Monitor**” screen under “**Online Devices**”.

Double clicking on the PMRS device name, will bring up a window showing the unit’s ID number and firmware version. Press “**OK**”.



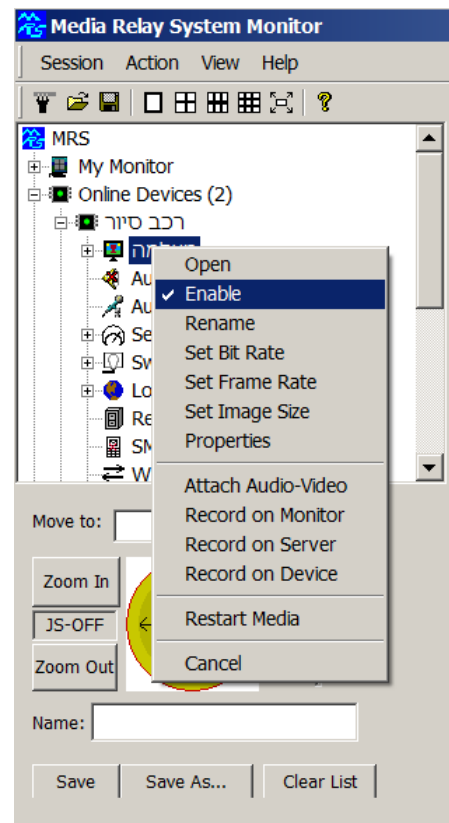
A new tree will appear under the PMRS device name on the left-hand side. The tree contains information regarding the unit's features as defined inside the unit. The descriptions of the features are listed below:



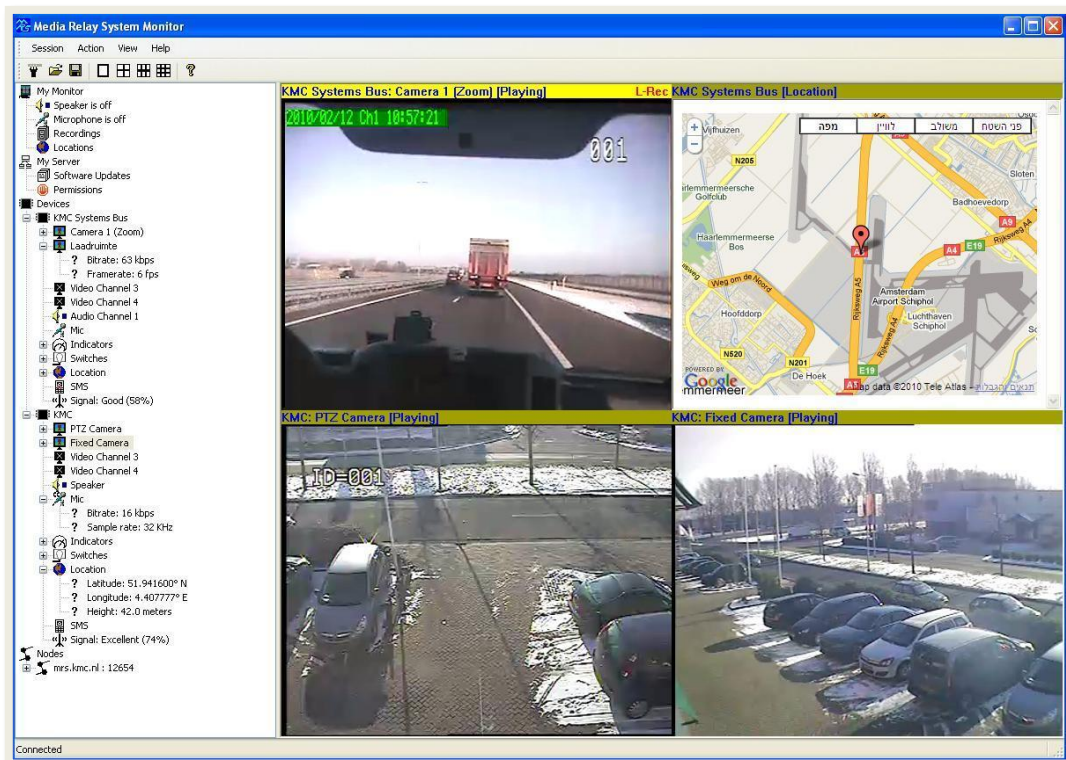
Items:	Descriptions:
Camera 1	a) Open/Close the Video channel of the unit. b) Configure settings for the Video channel.
Audio In 1	a) Open/Close the Audio In channel of the unit. b) Configure settings for the Audio In channel.
Audio Out 1	a) Open/Close the Audio Out channel of the unit. b) Configure settings for the Audio Out channel.
Sensors	View the status of Input Sensors.
Switches	View the status and control Output Switches.
Location	a) View the GPS location of that specific device only. b) Set location event alarms.
SMS	Allows you to add mobile phone numbers for SMS events, as well as determine what events will trigger an SMS.
Signal	Displays the current signal strength for the cellular network the unit is connected to.
Service Type	Displays the Cellular Service Type in use, for example: HSDPA/HSUPA
Battery Capacity	Displays the unit's remaining battery capacity in hours and minutes. Also displays if the unit is being charged.
Alive Time	Displays how long the unit has been connected to the server in days, hours and minutes.
Recordings	Download and play recordings from the Micro SD card inside the unit. The Recordings folder will appear if a Micro SD card is inserted into the unit.

4-1-3 Viewing Video:

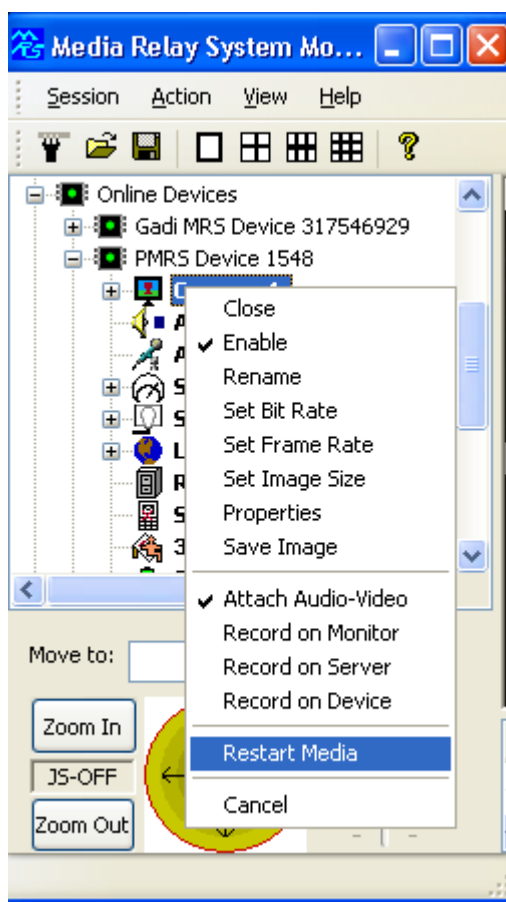
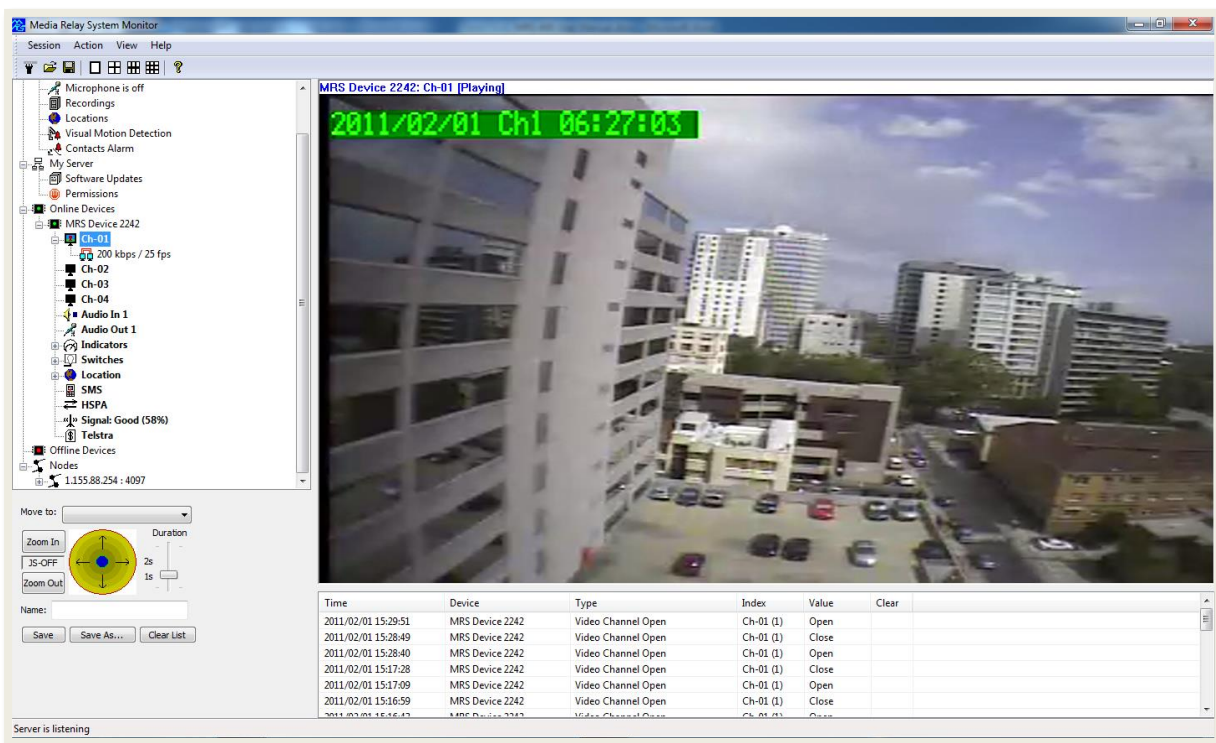
Before viewing the video channel, it must be enabled. In order to enable a specific channel, point the cursor over the channel and right click. Alternatively open the action menu at the top of the screen, then select the **“Enable”** item.



Drag & Drop a video channel on the left hand side to the desired window to open it for live video streaming. Alternatively, double click on a video channel to open it for live streaming.

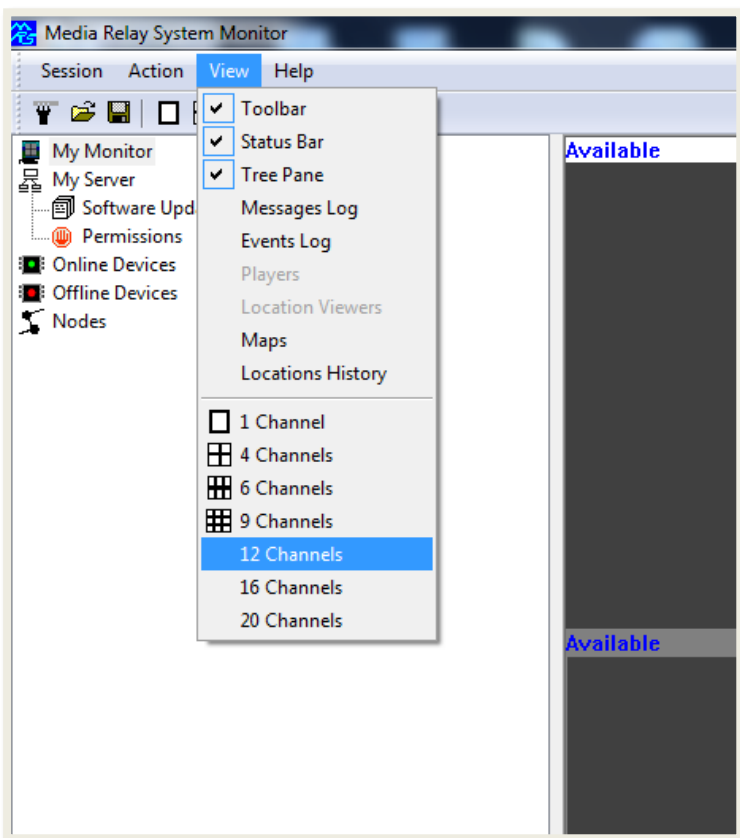
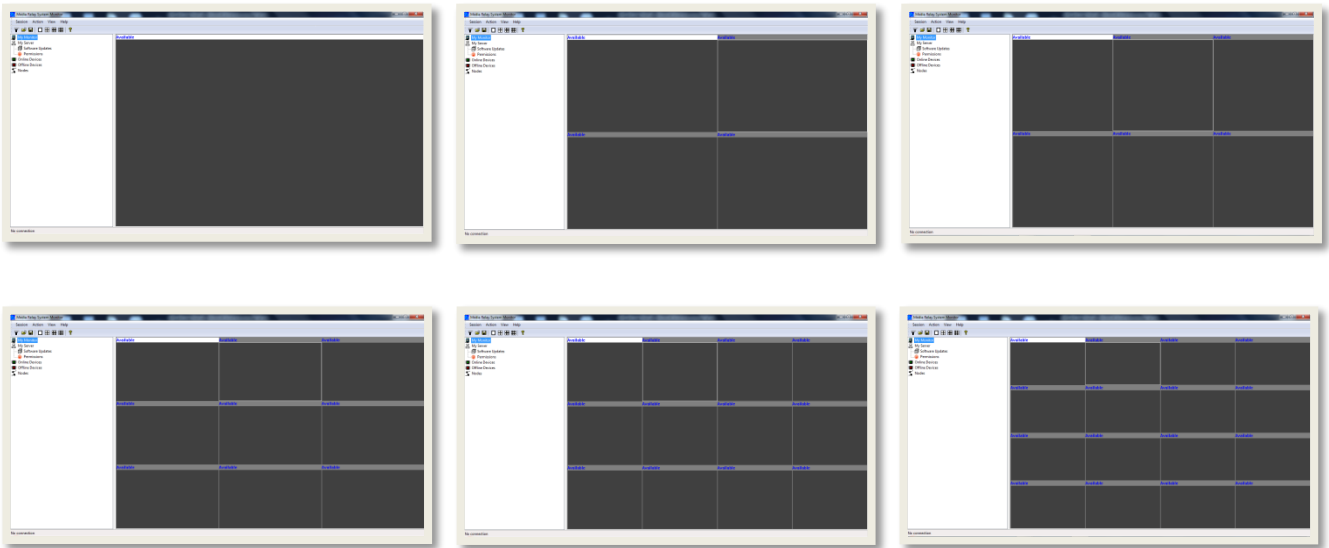


Double clicking on an open video stream expands the size to full screen. Double clicking again returns it to the previous setting.



If the video looks like it is not centred correctly, right click on the video channel and select **Restart Media** or press F5 while the cursor is on the channel. This will restart the video channel and centre it correctly.

The viewing area can be split into 1, 4, 6, 9, 12, 16 or 20 viewing channels.

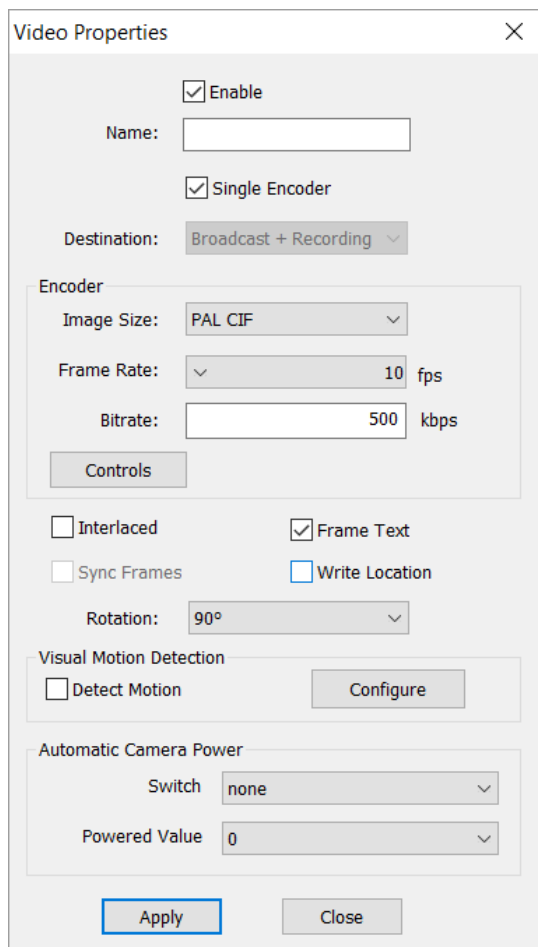


To change the number of channels viewed on the screen, open the **“View”** menu at the top of the window and select the desired number of channels.

4-1-3-1 Video Properties:

Right clicking on an open video stream, opens a small menu.
Select **“Properties”**.

Selecting a specific video channel on the left hand side of the screen and pressing **F3** brings up the same **“Video Properties”** window.



The **“Video Properties”** window will appear.

In the “**Video Properties**” Window you can adjust the settings of that specific video channel. The descriptions of the settings are listed below:

Items:	Descriptions:
Enabled	Allows you to Enable/Disable the video channel
Name	Allows you to change the name of that specific video channel.
Single Encoder	When this box is ticked, that video channel will have a single encoder (Bit Rate/ Frame Rate) for viewing/recording the video stream. When this box is Un-ticked, this enables you to assign multiple encoders to the video channel (one for viewing and one for recording.)
Destination	Allows you to apply settings for the multiple video encoders. Please view the “ Multiple Video Encoders ” section of this manual, for more information.
Image Size	This allows you to adjust the Image Size (Resolution) of the video channel. The unit supports the following Image Sizes: PAL – D1/CIF/QCIF NTSC – D1/CIF/QCIF Make sure that the settings are compatible to the camera you have (PAL/NTSC), and to the bandwidth at your disposal. For example D1 (TV quality) will require high bandwidth, CIF can be afforded with medium bandwidth and QCIF is the format more suitable to low bandwidth.
Frame Rate	Adjust the Frame Rate of the video channel to fit the bandwidth at your disposal. The Frame Rate can be set to any number from: 1 to 25 fps (for PAL). 1 to 30 fps (for NTSC).
Bitrate	Adjusting the Bit Rate of the video channel changes the quality of the video, it should be set to fit your bandwidth capabilities and your cellular package. The Bit Rate can be set to any number from 10kbit/s to 2Mbit/s.
Interlaced	DO NOT enable this feature on the PMRS-102 units.
Rotate	Rotate the video channel to a 0/90/180/270 degree angle.
Detect Motion	Tick this box to activate Visual Motion Detection. For more information view the “ Visual Motion Detection (VMD) ” section of this user manual.
Frame Text	Tick this box to enable the frame text to be displayed on the upper-left side of the video channel.
Sync Frames	This feature should always be disabled unless told otherwise.
Write Location	Tick this box to display the GPS Co-ordinates of the unit in the frame text.

The most important parameters when viewing the video streams are the **bit rate** and **frame rate**. The bit rate is based on the bandwidth supported by the mobile network in the area. The bit rate of all viewing channels must be less than the bandwidth. For example, if viewing only 1 channel and the bandwidth is 200kb then the bit rate must be less or equal to 200kb. The frame rate can be any number from 1 to 25/30 but in a low bandwidth environment such as 200kb, 10 - 15 is more suitable.

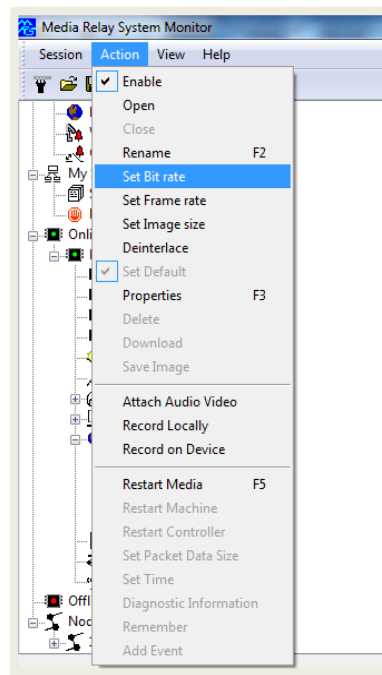
Automatic Bandwidth Control:

The unit does have automatic bandwidth control which will automatically reduce the Bit Rate and Frame Rate of the video channel, if they are set too high for the mobile network bandwidth.

CAUTION:

If the Bit Rate and Frame Rate are set excessively higher than the mobile network bandwidth, this may cause the unit to disconnect from the server.

The bit rate, frame rate and other video parameters can also be changed using the action menu (while the cursor is on the specific video channel).

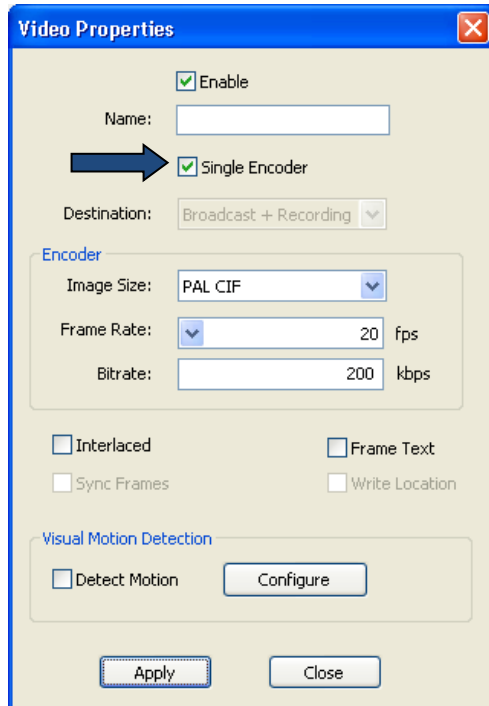
**Data Usage:**

When determining the bitrate in the video parameter please consider the SIM card package provided to you by your cellular provider, please consider the amount of data the unit will consume. The table below provides an example of a PMRS-102 unit's mobile data consumption when streaming continuously.

Bit Rate of Steaming Video Channel:	Data Usage Per Day (roughly):	Data Usage Per Month (roughly):
1 channel at 100kbit/s	1.08 GB	32.4 GB
1 channel at 200kbit/s	2.16 GB	64.8 GB
1 channel at 300kbit/s	3.24 GB	97.2 GB
1 channel at 400kbit/s	4.32 GB	129.6 GB

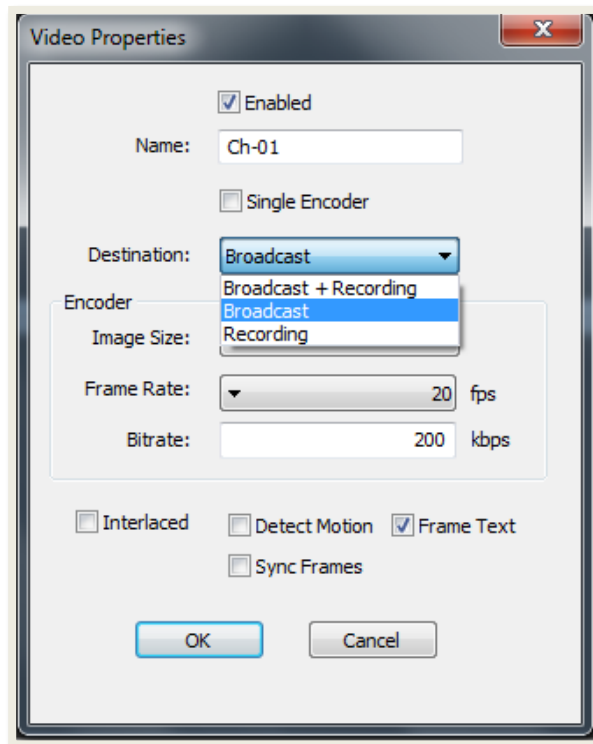
4-1-3-2 Multiple Video Encoders:

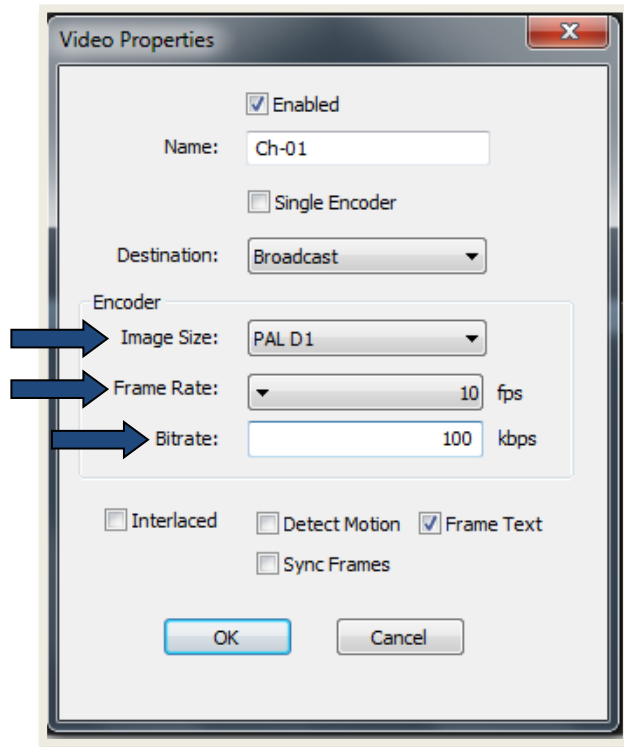
The encoder is the image size, frame rate and bit rate of the video channel. By default, the same encoder is used for viewing and recording the video channel. Different video encoders can be applied for viewing the video channel and recording the video channel. Follow these instructions to do so:



- 1) In the “Video Properties” window, un-tick “Single Encoder”.

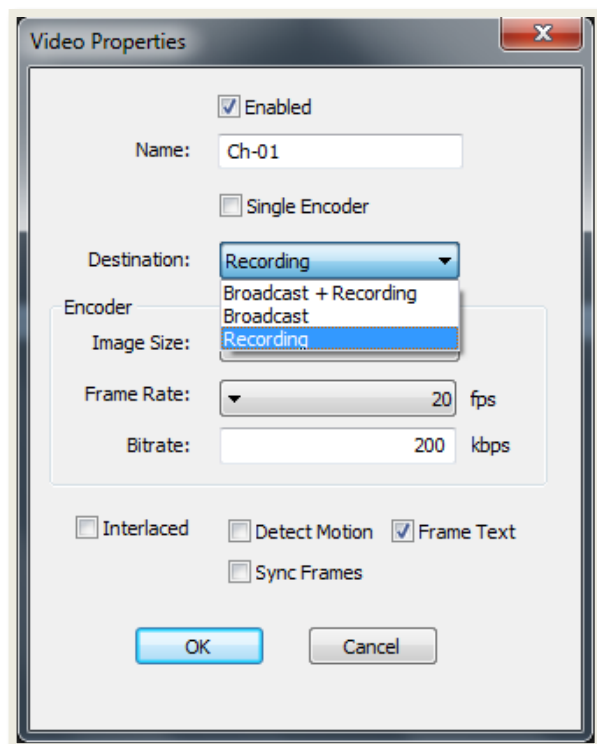
- 2) In the “Destination” list box, select “Broadcast”.

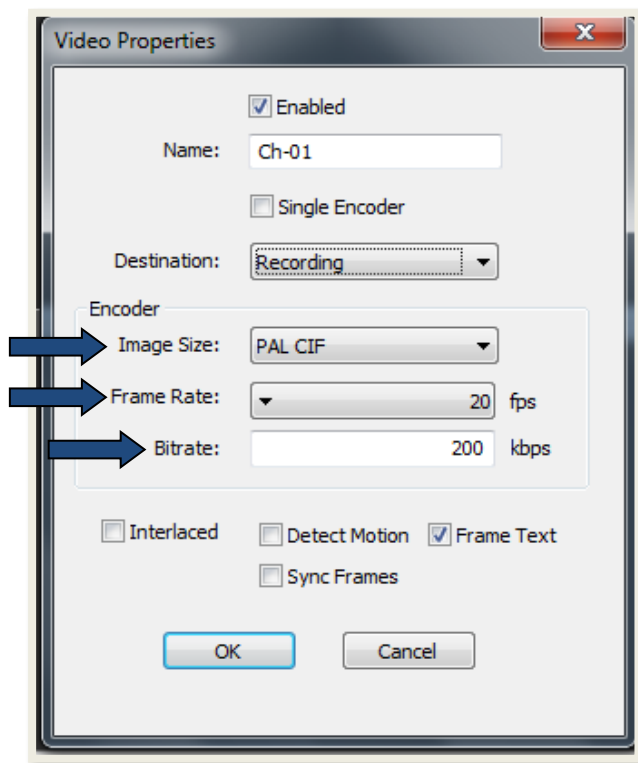




3) Enter in the desired “**Image Size**”, “**Frame Rate**” and “**Bit rate**”.

4) In the “**Destination**” list box, select “**Recording**”.

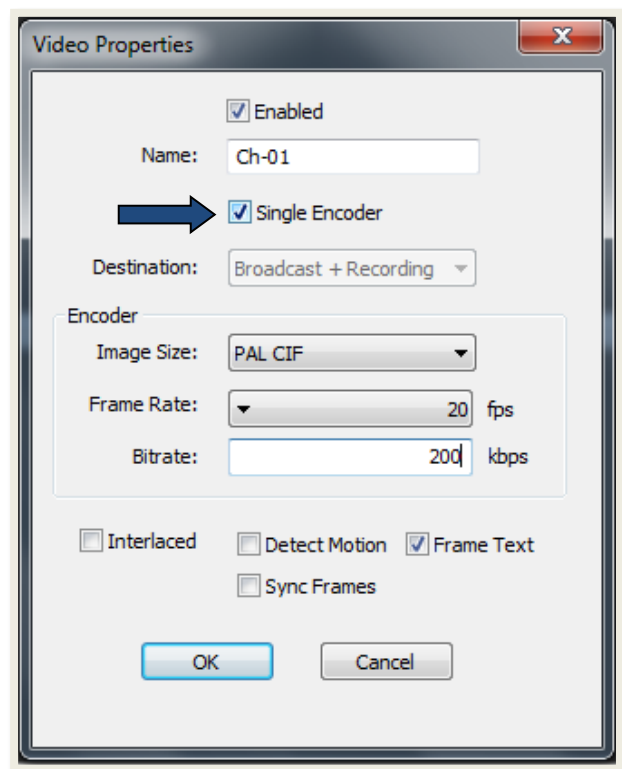




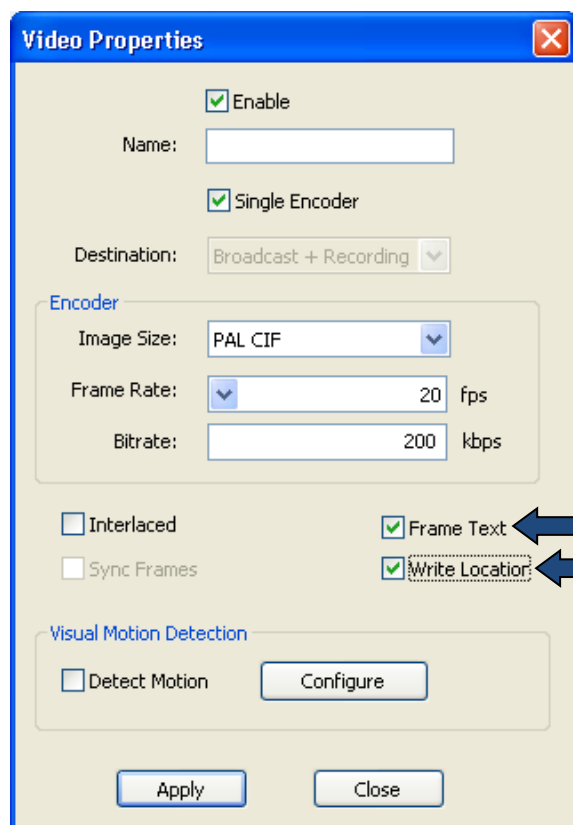
5) Enter in the desired “**Image Size**”, “**Frame Rate**” and “**Bit rate**”. Once you have finished, press “**OK**”.

The video encoder will now be different when viewing the video channel and when recording the video channel.

To switch back to a single video encoder for both viewing and recording the video channel, simply tick the “**Single Encoder**” item in the video properties window.

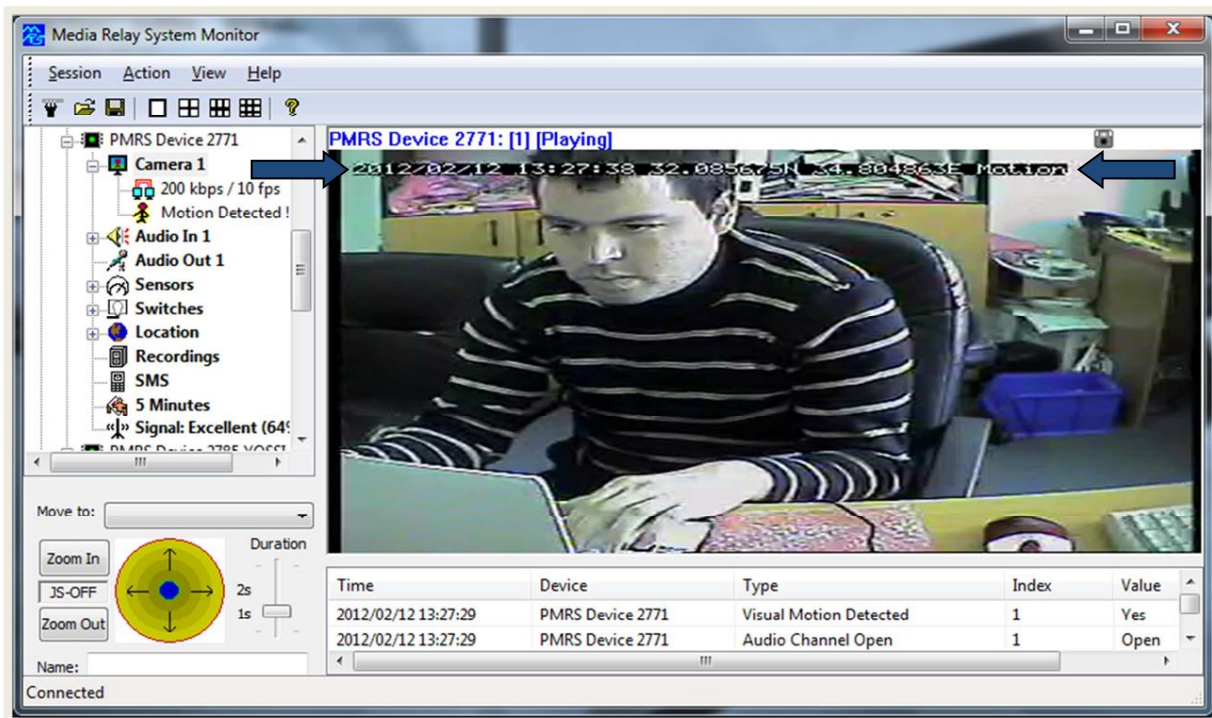


4-1-3-3 Video Frame Text:

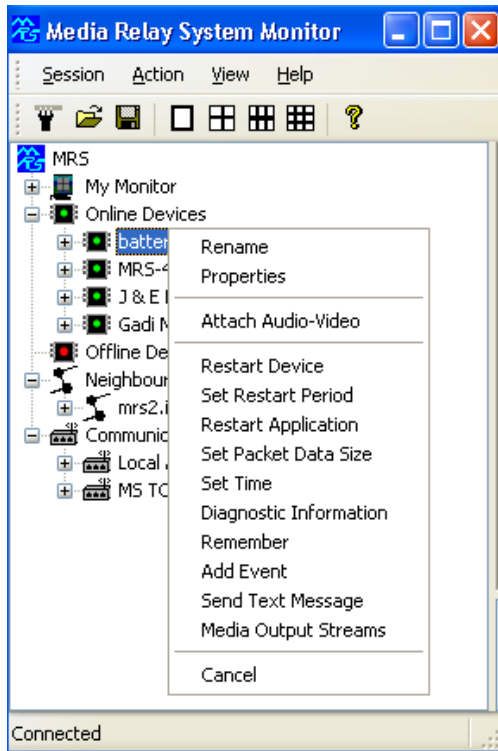


To activate the video frame text, tick the **“Frame Text”** option, located at the bottom-right hand side of the video properties window. Tick the **“Write Location”** option to include the GPS Co-Ordinates of the unit in the video frame text. Then press **“Apply”**.

After this option is enabled, the date/ time/ GPS Coordinates/ Motion Detection Status will be displayed on the upper-left side of the video channel (Shown Below).



4-1-4 Other Options:



The user can change and control the device from the MRS Monitor:

Right clicking on a PMRS device name, brings up a menu with the following options:

The descriptions are listed below:

Parameters:	Descriptions:
Rename	This allows you to change the name of the PMRS device.
Properties	This will bring up the window displaying the device's ID number and firmware version.
Attach Audio-Video	This allows you to attach the audio channel to the video channel for synchronised recording.
Restart Device	This option restarts the PMRS device remotely.
Set Restart Period	Determine the time interval between one restart and the next.
Restart Application	This option restarts the video controller.
Set Packet Data Size	Default is 1000 (recommended not to change this parameter).
Set Time	Select this option to set the time on the PMRS device to the current time.
Remember	This parameter can be ticked in order to move the unit's name to the "Offline Devices" list in case the unit gets disconnected from the server.
Add Event	This feature allows you to create a user event (custom detail) that will appear in the events log.
Send Text Message	Send an SMS to a Cell Phone.
Media Output Streams	Not relevant for the current version

4-1-5 Device Location (GPS):

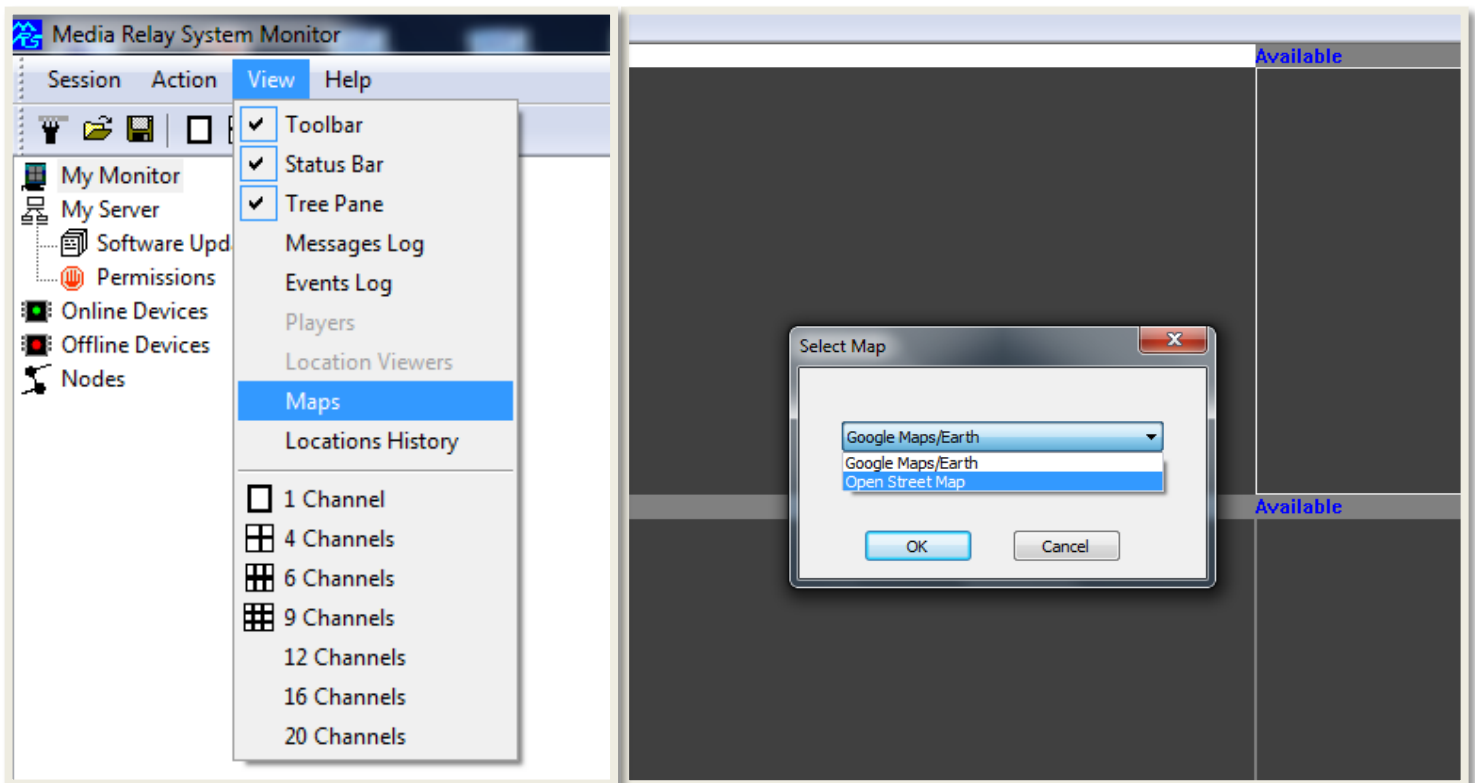
The PMRS unit has built-in GPS location functionality, which transmits the position of the unit to any connected client. To activate GPS, you need to select **“Activate GPS”** in the configuration software of the unit (**MRS Device Configurator**).

GPS usually needs clear sky (or partially) to detect position. It takes about 30 seconds for the unit to fully operate with GPS and GSM outside. The unit starts by searching for its position then connects to GSM. If the unit is located inside a building without clear sky, it will struggle to find its location. It will take about 3 minutes for the unit to give up and continue with the rest of the system (connecting to GSM). Therefore it is better to disable GPS (using the Device Configurator) for units operating inside a building without clear sky.

There are 2 options to view devices on the map:

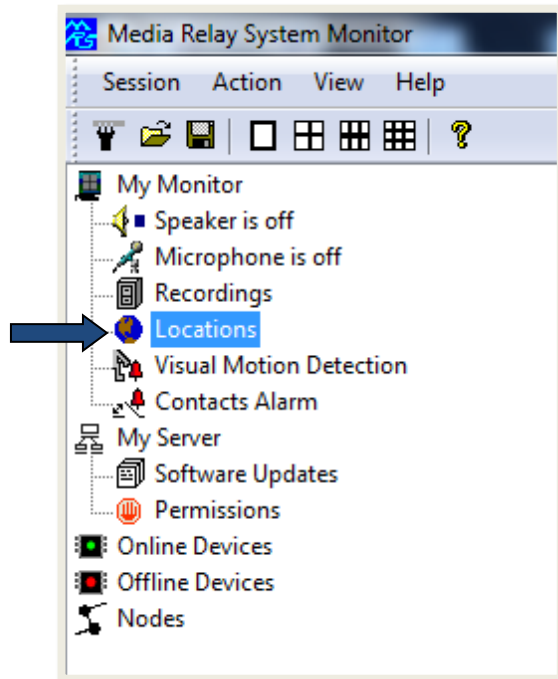
1. **System level** - All connected devices over specified full screen map.
2. **Device level** - Specific device only over a small map.

The System supports Google Maps and Open Street Maps. Google Maps is the default map used. To change to Open Street Maps, open the **“View”** menu and select **“Maps”**.

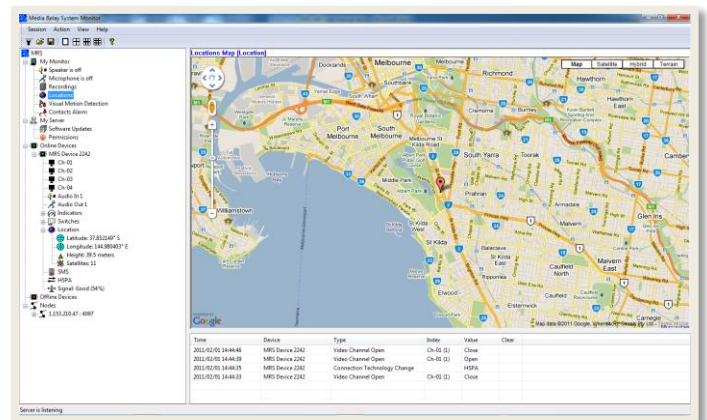


The **“Select Map”** menu will open. In the List box, select **“Open Street Map”**. Then press **“OK”**.
The Location screen will now be viewed using Open Street Maps.

4-1-5-1 System Level Map:

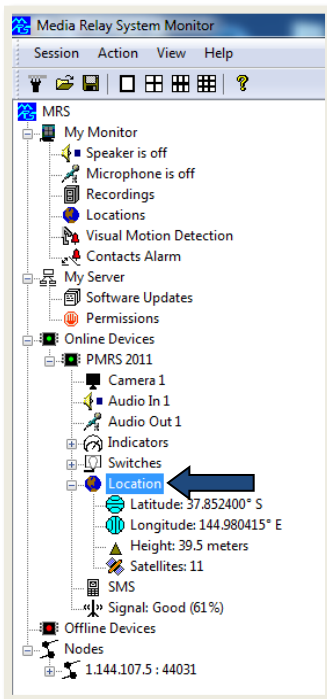


To view the system level map, double click on **“Locations”** under **“My Monitor”**.



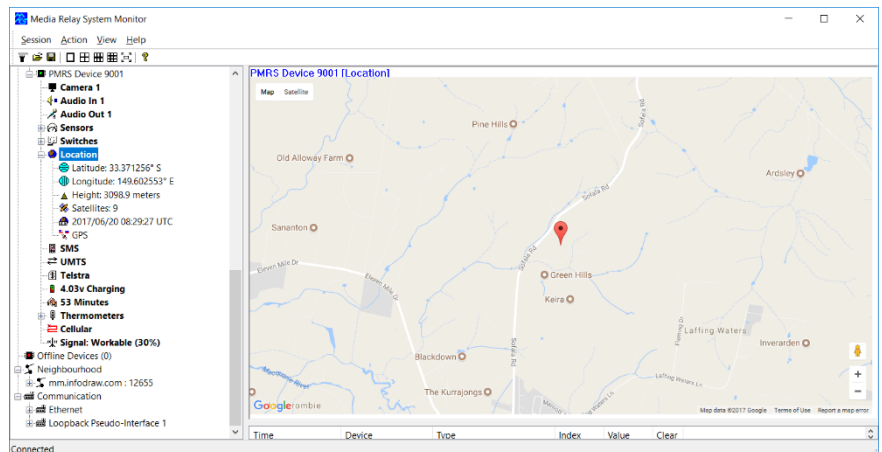
You will now be able to see all devices on one full screen map as moving icons. If there are multiple device icons on the map, the map will not be centred.

4-1-5-2 Device Level Map:



To view the device level map, double click on **“Location”** under a specific PMRS device tree.

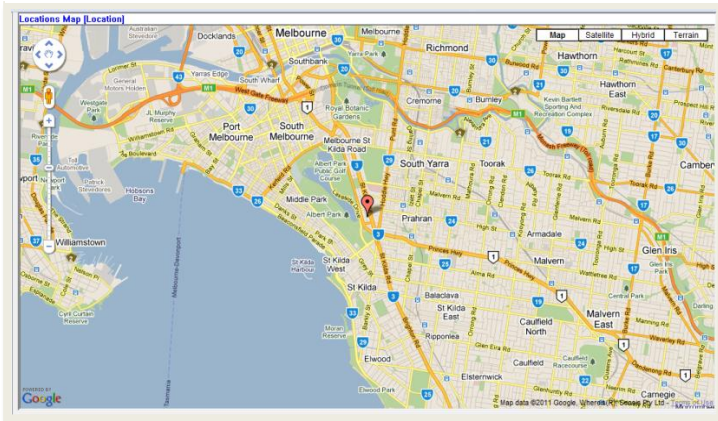
You can also open this **“Location”** tree to see the GPS Co-ordinates.



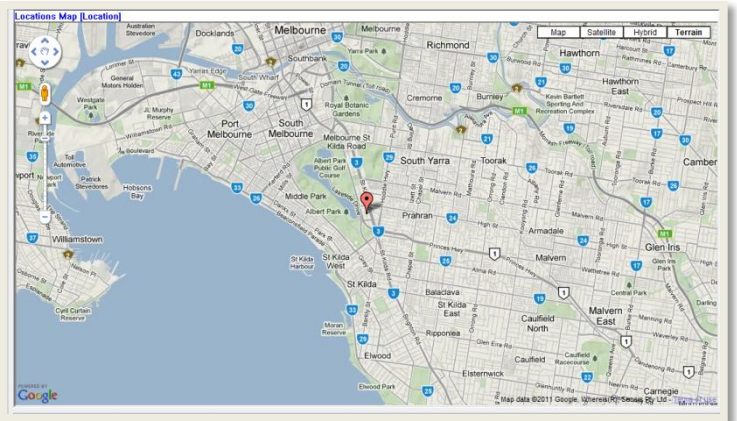
4-1-5-3 Map Views:

The GPS map can be viewed in 4 ways.

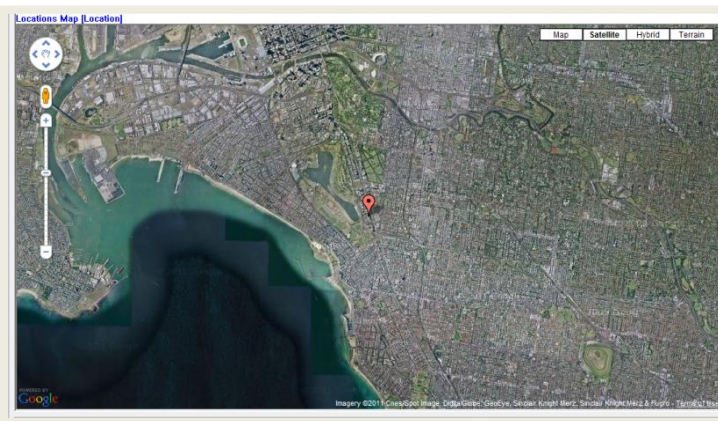
Map View



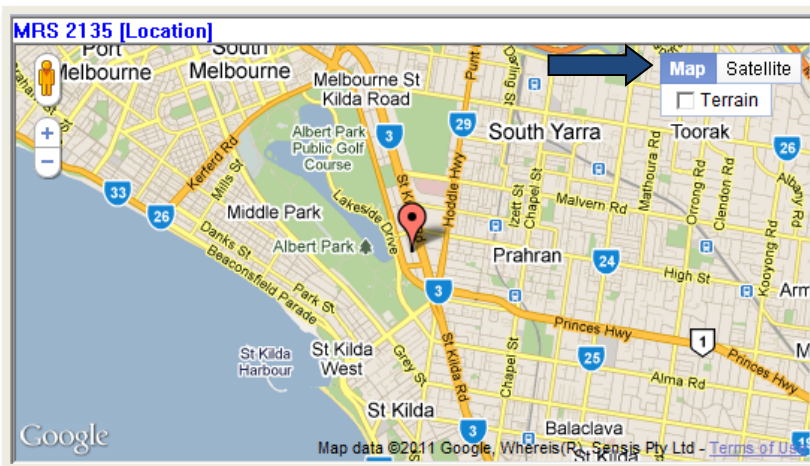
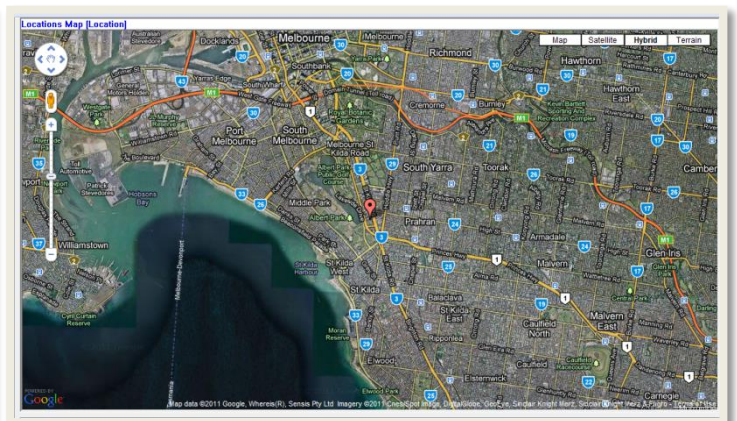
Terrain View



Satellite View



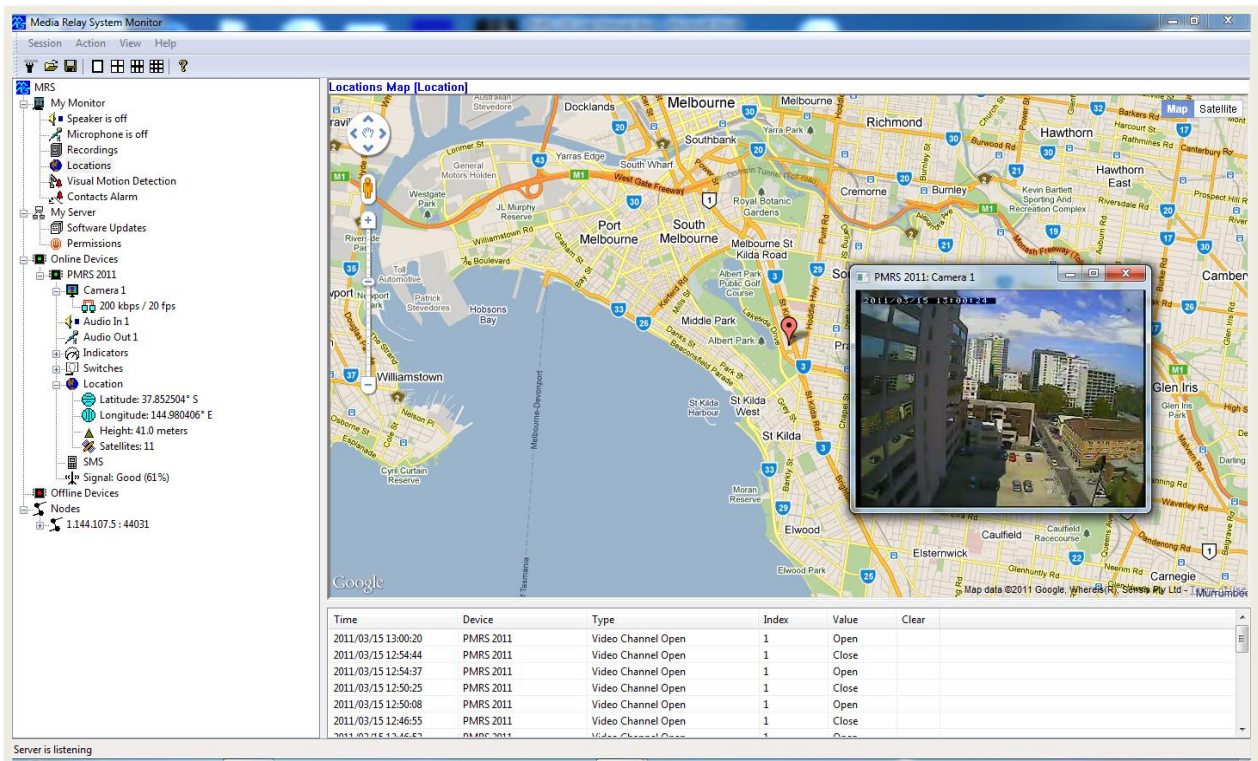
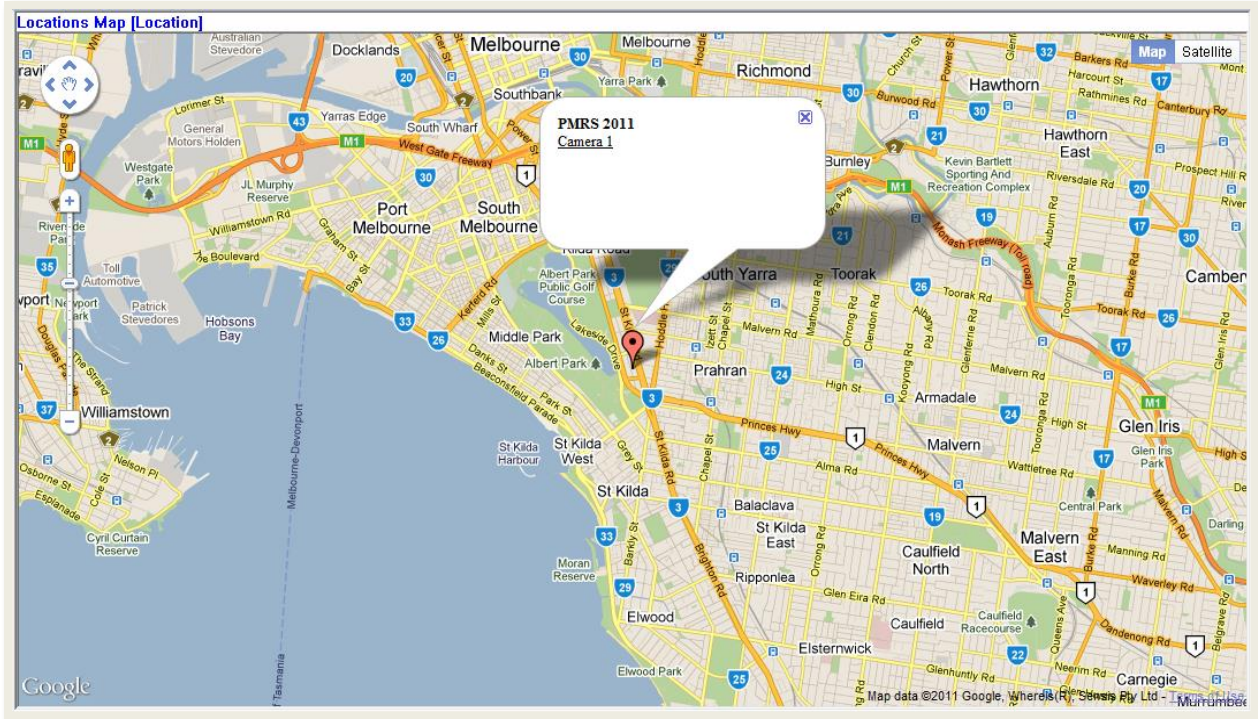
Satellite View (with labels)



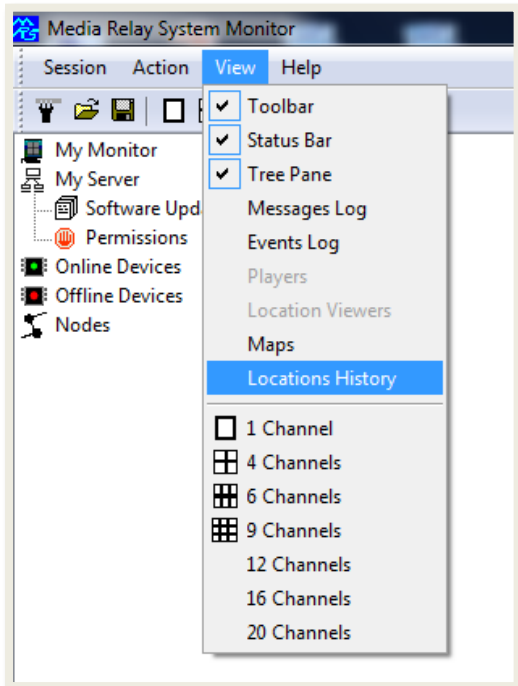
To change the view of the map, select one out of the four options on the top right hand corner of the map window.

4-1-5-4 Video Over Map:

To view a video channel over the map, click on a floating icon. A menu will appear with a list of all that device's video channels. Click on the desired channel to open the video stream over the map.

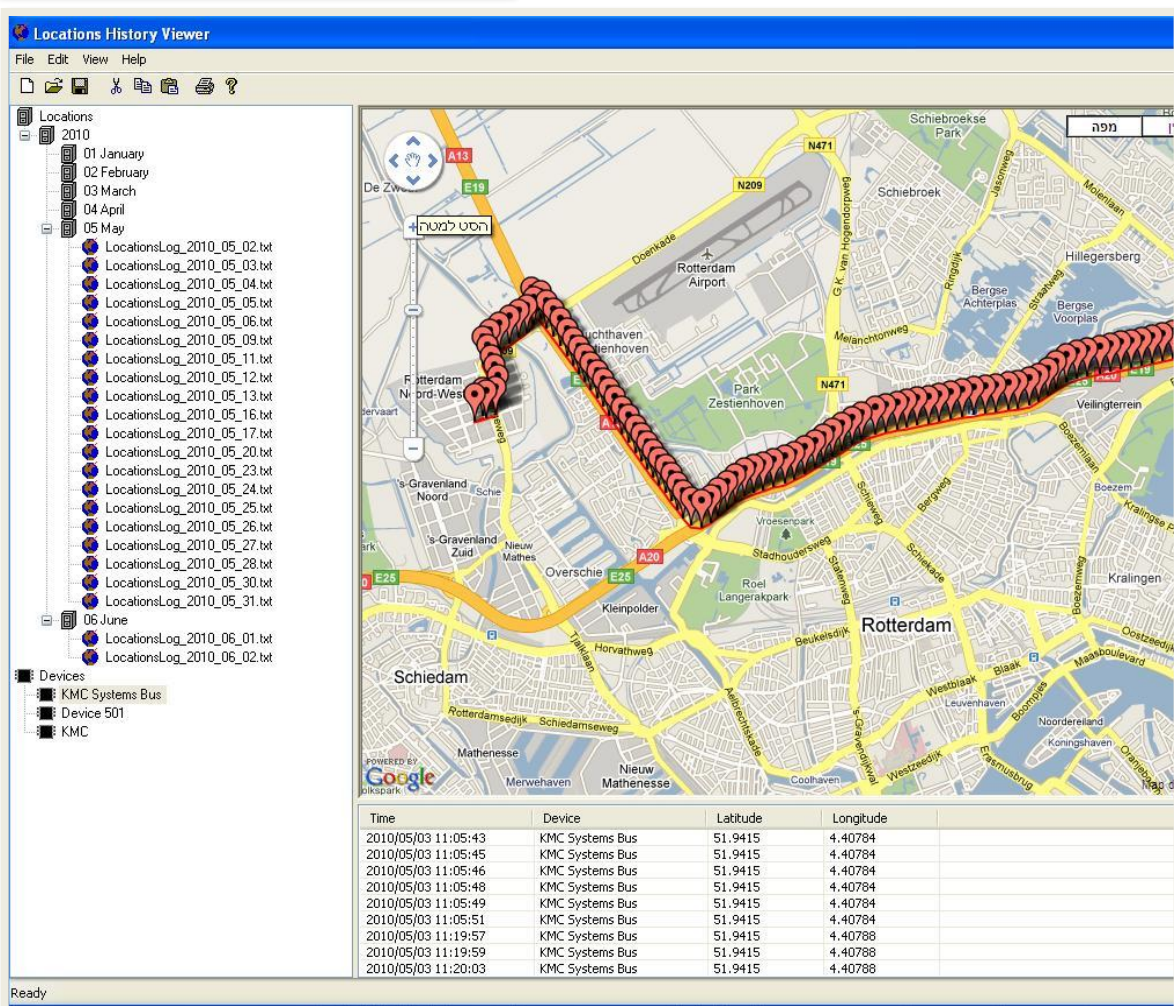


4-1-5-5 GPS Location History:



GPS Location history of all devices is stored on any connected monitor. The location history is stored per day and per device. You can view the GPS location history by opening the **“view”** menu and selecting **“Locations History”**.

The **“Locations History Viewer”** window will open. The files are arranged by date. Select a specific date in the tree. Click on a device under the **“Devices”** tree to display its location history.



4-1-5-6 GPS Location Settings:

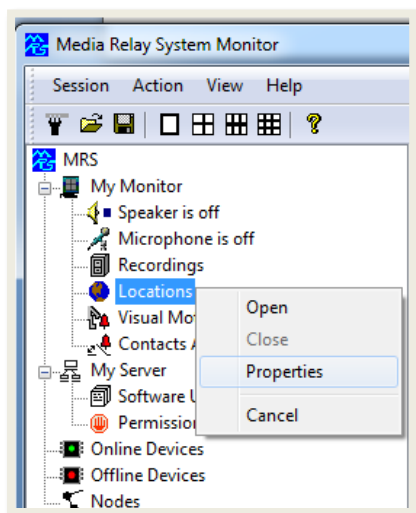
The Location settings include the event alarm settings and settings for recording location on monitor. The location event alarm that can be set for each individual device is triggered once the device moves a certain pre-set distance away from its current position on the map.

The location event trigger can be set to perform the following actions on the MRS monitor:

- Beep
- Display device location
- View default video channel
- Make a Pop-up Window appear
- Play a custom sound

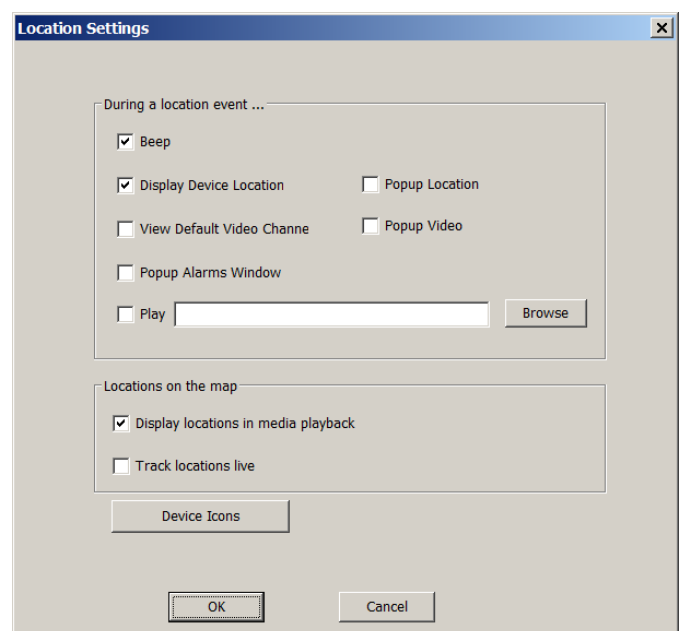
The unit can also send a SMS to any number of phones as a result of a location event trigger (refer to [“SMS Alerts from Device”](#) section).

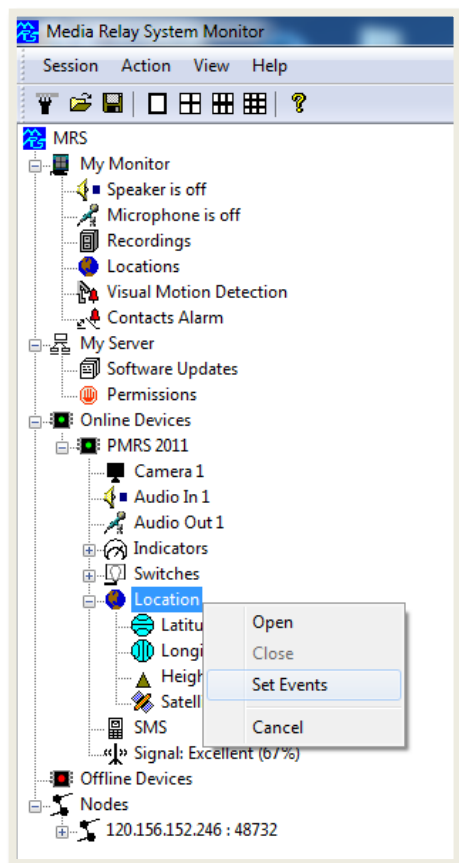
The location event trigger actions are set in the **“Location Event Settings”** window. Follow these instructions:



Right click on **“Locations”** under **“My Monitor”**. Select **“Properties”**

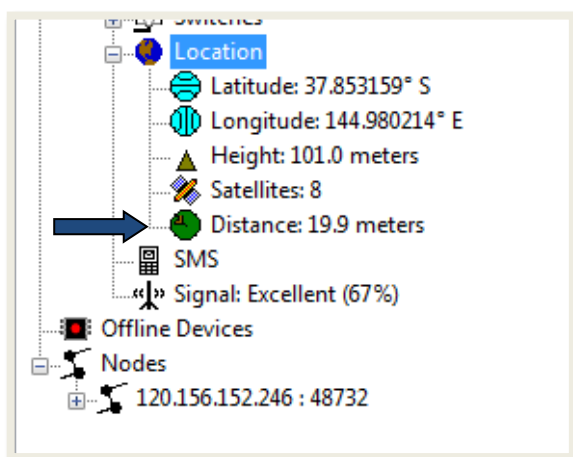
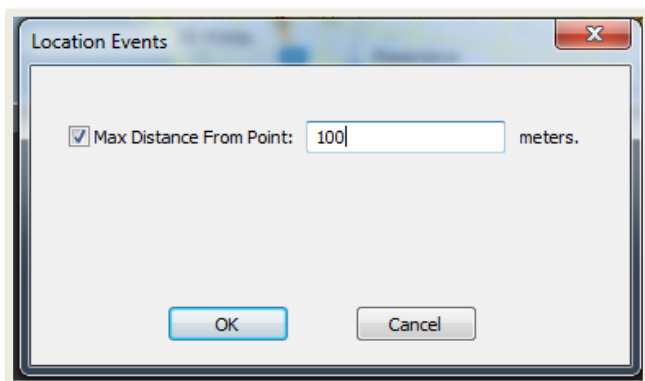
In the **“Location Event Settings”** window, select the desired trigger actions and then press **“OK”**.





To activate the location event alarm, right click on the **“Location”** icon under the specific PMRS device tree and select **“Set Events”**.

Tick the **“Max Distance From Point”** box. Enter in the desired maximum number of meters that the PMRS device can move from its current position before the alarm is triggered. Then press **“OK”**



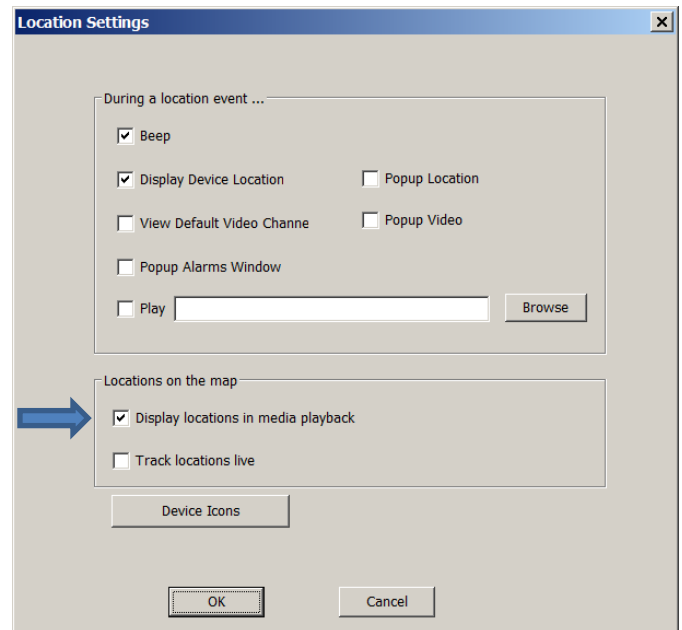
Once the Location event alarm is activated, you will see **“Distance”** under the device **“Location”** tree. The location alarm will still be active even if the GPS map is closed. Once the distance reaches the max number of meters, the alarm will trigger and the pre-set trigger actions will commence accordingly.

Recording location on Monitor

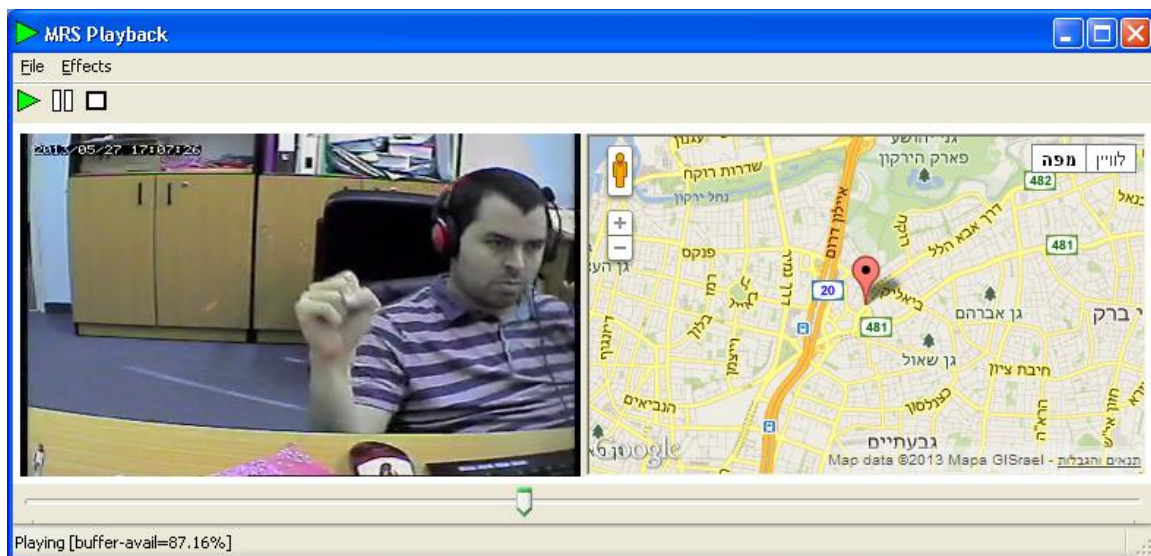
The monitor can be set to record location and to track changes in location throughout time.

Double click on the location icon under the Monitor tree.

* If you want the location of a device to be recorded in your monitor recordings enable the **"Display Locations in Media playback"**.



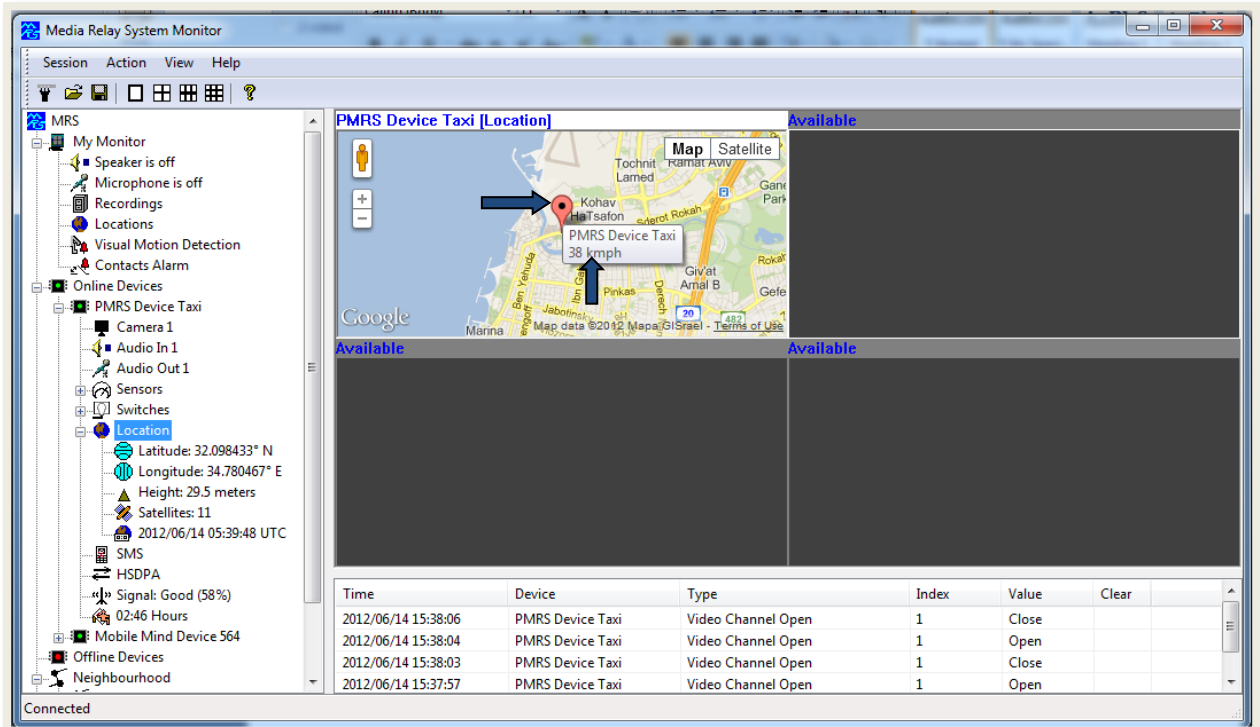
After recording on monitor, when playing the file, the recording will have a display of the location on the right hand side.



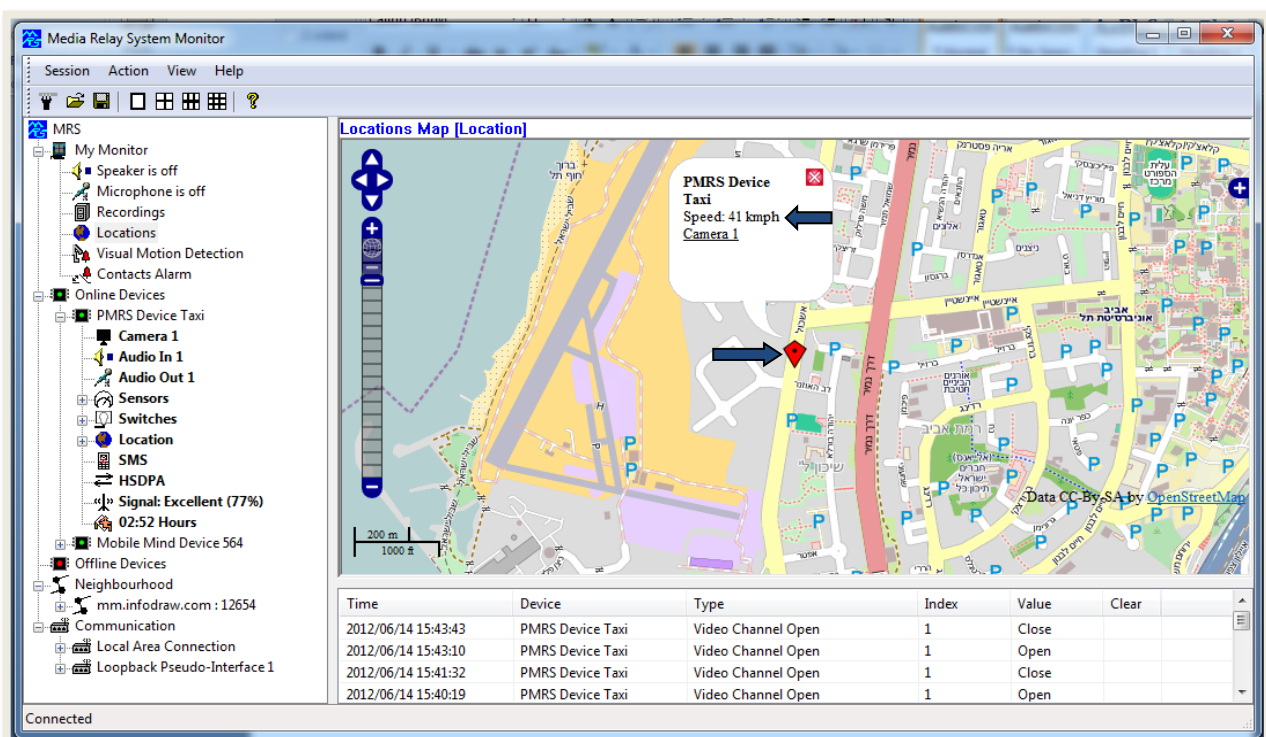
4-1-5-7 Device Speed Over Map:

The speed of each connected PMRS unit can be viewed over the GPS map in km/h. The speed will only be displayed if the unit is moving.

When using **Google Maps**, simply hover your cursor over the floating icon on the map (either the small map or full screen map) to bring up the device speed.



When using **Open Street Maps**, open the full screen map and click on the floating icon on to bring up the device speed.



4-1-5-8 Geo-Fencing

Preface: The geo-fencing feature allows users to create geographic zones from which entry and/or exit can trigger a variety of notifications.

How to create a zone:

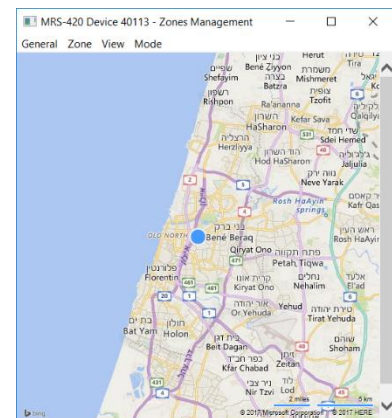
Step 1: Open the MRS monitor and connect it to the same server you have connected your PMRS device.

Step 2: open the view menu → view -> maps -> Bing maps*

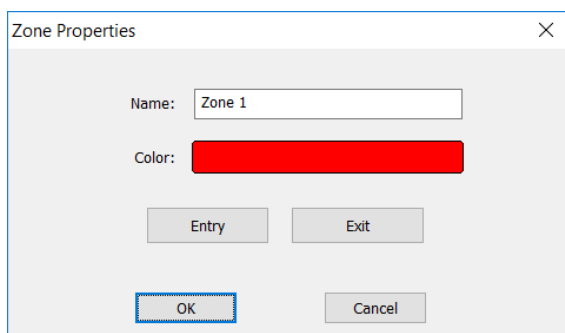
- In version 6.2.0.0 the geo-fencing feature only works properly on Bing maps

Step 3: Wait until the device gets its location.

Step 4. Open the Zones management map: Right-click on the *location* icon and choose *Zones* – a new location window will appear.



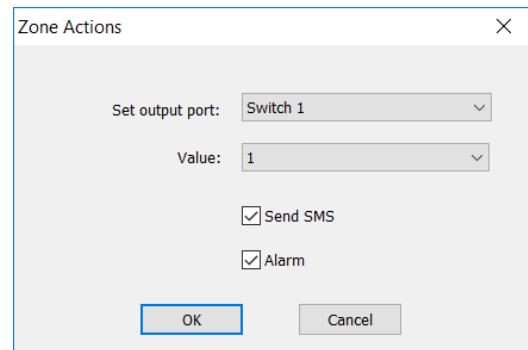
Step 5. Create the zone: Go to the *zone* menu and choose *New*



Step 6. Add notification: in the properties window decide whether you want to add notifications on entry from the geo-fence, or when the unit will exit the geo-fence and also the color that geo-fence will be painted in on the map.

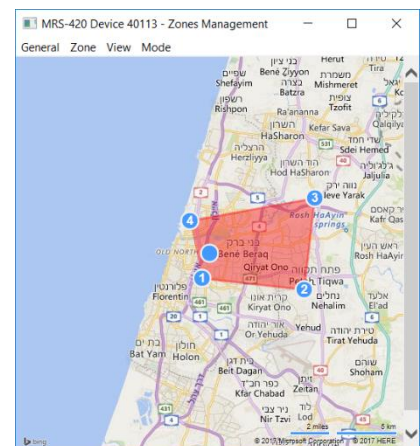
- If no notification is chosen the device will report entry and exit on the event log.

Step 7. Choose notifications: After clicking on Entry or Exit, choose which notification you want triggered and click *OK*.



Step 8. delineate the geo-fence: Mark the different boarder points of the Geo-fence, after the points are marked a geo-fence is created and it will be filled with the color that has been chosen before.

- Multiple geo-fences can be added – repeat the instructions in steps 5-7.
- The boarder points are not movable.
- To delete a boarder point go to the *Mode* menu and choose *Delete* then click on the boarder point you wish to delete.
- Delete all the geo-fences by going to the *General* menu choosing *Clear all*



Step 9. Enable the notifications and/or recordings:

- The SMS notification is enabled when entering the device tree in the MRS monitor and double-clicking on the SMS icon, and fill the contact details.
- If the alarm box is filled, every time the device leaves and/or enters the geo-fence an alarm will be triggered.
- To enable the recordings and notification triggers of the alarm fill in the trigger options desired in these locations:
 - **Recording on Device:** In the *GPIO* tab of the *MRS Configurator*.
 - **Notifications and recording on Client computer:** In the *Contacts Alarm* and menu of the *MRS monitor*
 - **Recording on server:** In the *Recordings* section of the MRS Service

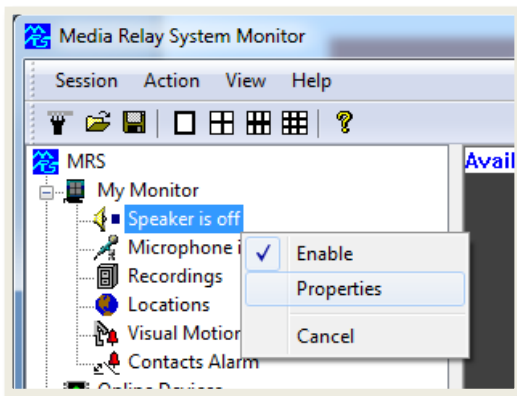
4-1-6 Audio

The PMRS unit supports Audio In/Out streaming to any connected client.

4-1-6-1 Computer Audio Properties:

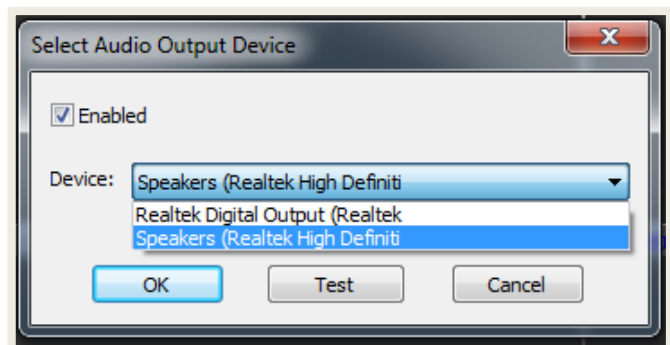
You can change the settings of your computer's speakers/microphone using the MRS Monitor application.

Speakers:



Right click on the **“Speaker is off”** item under **“My Monitor”**. Then select **“Properties”**.

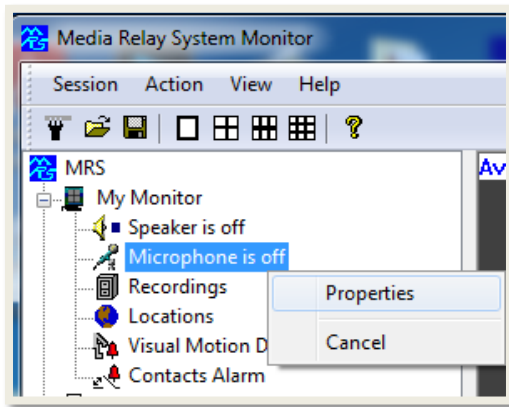
The **“Select Audio Output Device”** window will appear.



Here you can:

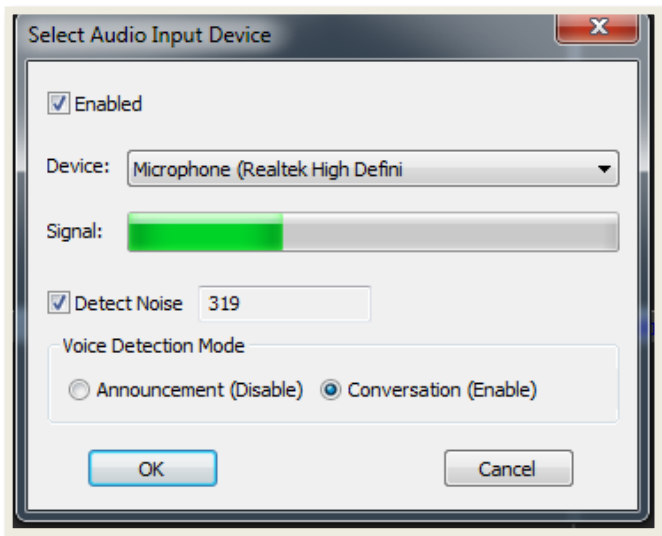
- Enable/Disable your computer's speakers, by ticking or un-ticking the box.
- Select from the **“Device”** list box, which connected speaker unit you would like to use.
- Test that speaker unit by selecting the **“Test”** button.

Once you have finished, press **“OK”**.

Microphone:

Right click on the **“Microphone is off”** item under **“My Monitor”**. Then select **“Properties”**.

The **“Select Audio Input Device”** window will appear. The descriptions of the settings are listed below.



Items:	Descriptions:
“Enabled” box	Enable/Disable your computer’s microphone, by ticking or un-ticking the box.
“Device” list box	Select from the “Device” list box, which connected microphone you would like to use.
Signal	Use the “Signal” bar to test your microphone. If the green bar is moving, then your microphone is working.
Detect Noise	This option enables you to not send noise below the detected noise level. When detecting noise you must not speak and allow the monitor to calculate the maximal noise received by the microphone.
Announcement (Disable)	If you enable this option, It means that the MRS monitor will send everything it receives from the microphone.
Conversation (Enable)	If you enable this option, It means that the MRS monitor will only send noise if its level is above the detected noise level.

Once you have finished, press **“OK”**.

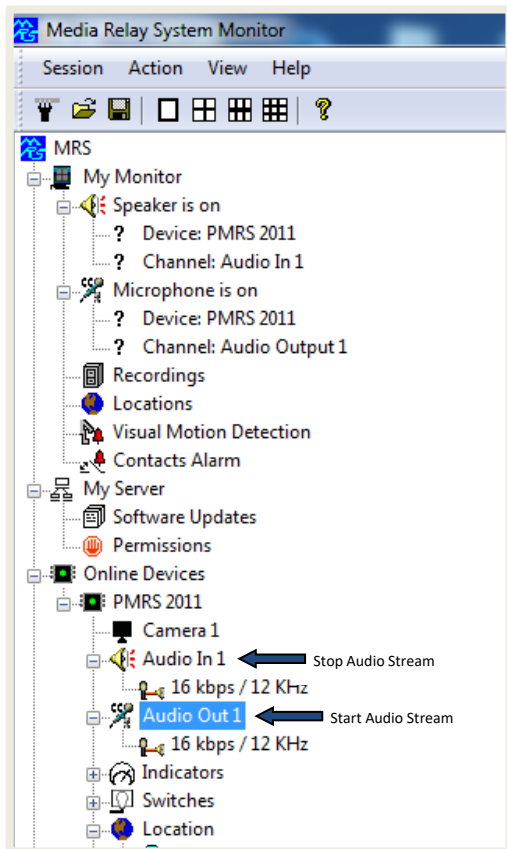
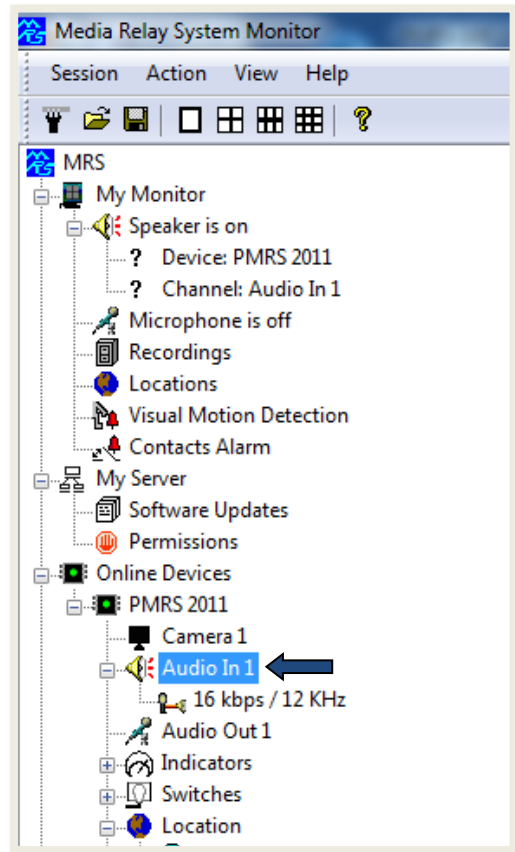
4-1-6-2 Audio Streaming:

Audio In:

Double clicking on the **“Audio In 1”** channel opens the audio stream of just the Microphone on the PMRS device to the speakers on the PC. Double clicking again on the **“Audio In 1”** channel stops the audio stream.

The PMRS unit has a built-in microphone which can be enabled by flipping **“Dip Switch 3”** on the PMRS unit to “down position”. An external microphone can also be attached to the **“Audio Input”** on the “Audio in/out splitter cable”, included with the PMRS unit.

Ensure that you have a speakers connected to the PC.



Audio Out:

Double clicking on the **“Audio Out 1”** channel opens the audio stream of the Microphone and speakers on the PMRS device to the speakers and microphone on the PC. Double clicking on the **“Audio In 1”** channel stops the audio stream.

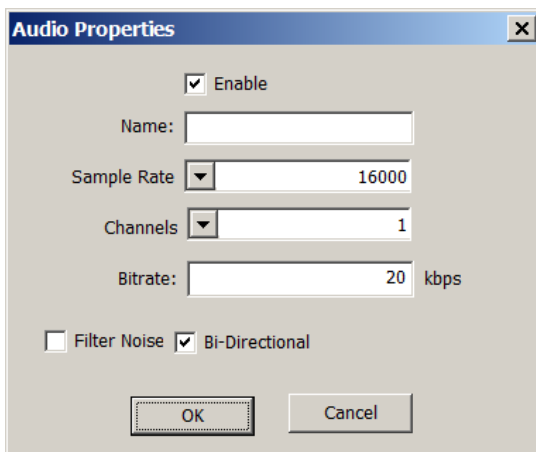
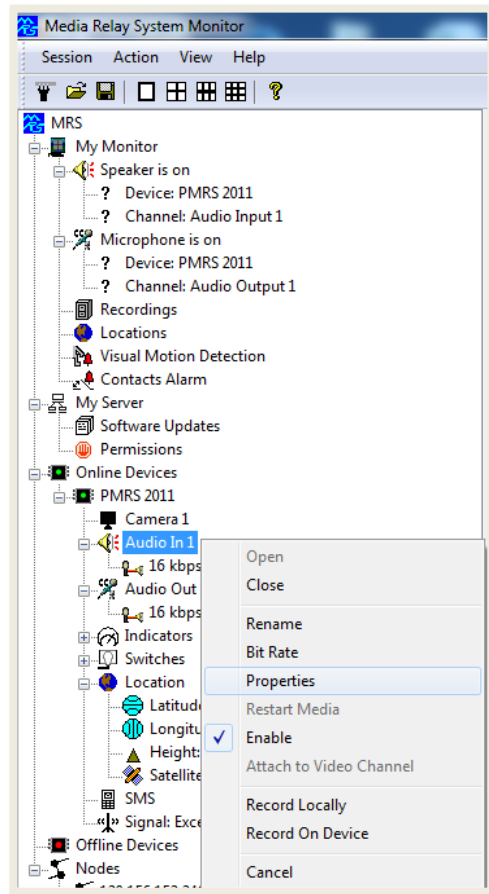
Ensure that either:

- Headphones with a microphone are attached directly into the **“Audio in/out TRRS Female Connector”** on the top of the PMRS device.
- Speakers and a Microphone are attached separately to the **Audio in/out Splitter Cable**, which is then connected to the PMRS unit.

Ensure that you have speakers and a microphone connected to your PC.

4-1-6-3 Unit Audio Properties:

Right click on the “Audio In 1” channel or the “Audio Out 1” channel and select “Properties”. This will open the “Audio Properties window”.



Here you can change the unit’s audio parameters:

Name: Allows you to rename the audio channel.

Sample Rate: Allows you to change the sample rate of the audio channel. The higher the sample rate, the better the quality of sound, but it requires more CPU resources.

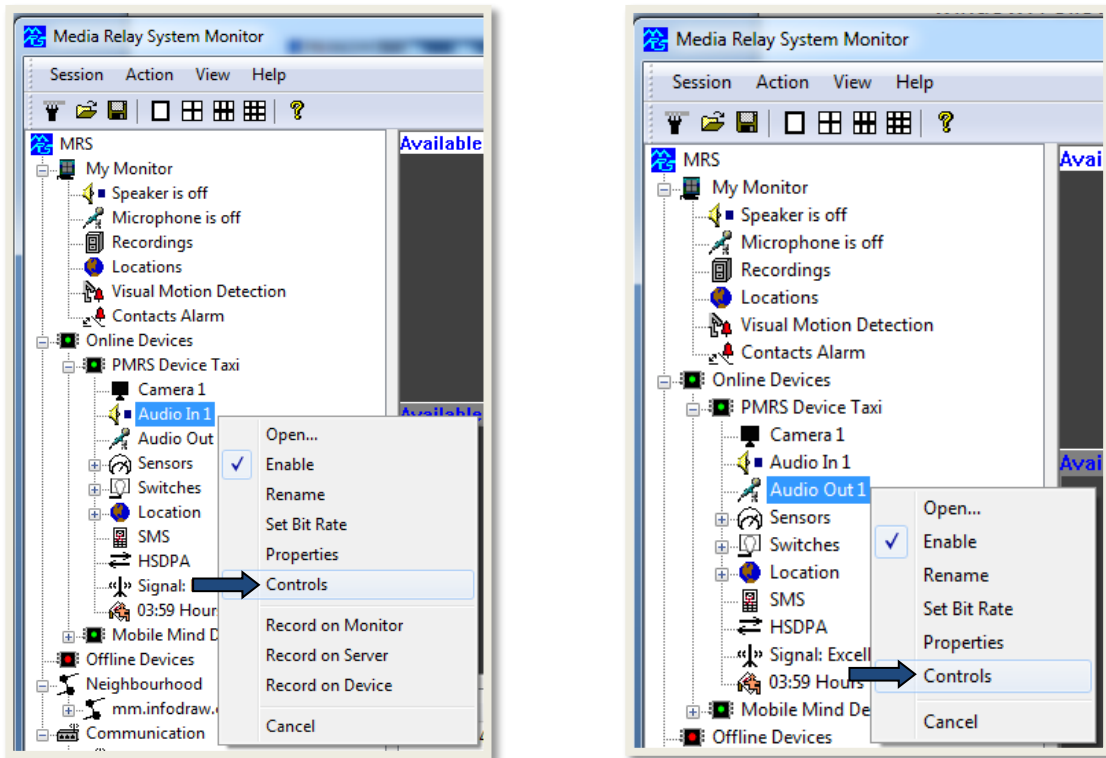
Channels: This feature allows you to choose how to hear the audio on your headphones/speakers between mono (1 channel) and stereo (2 channels).

Bitrate: Allows you to adjust the Bitrate of the audio channel. The higher the Bitrate, the better the quality of the sound will be.

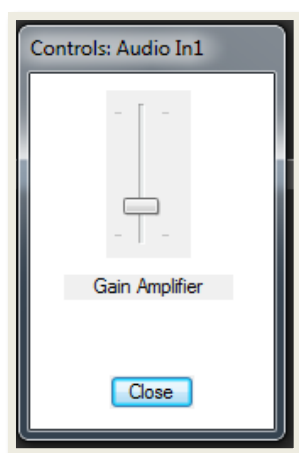
4-1-6-4 Unit Audio Controls:

You can adjust the volume of the PMRS Unit's Audio In/Out channels in the **"Controls"** window. Follow these instructions to do so:

Right click on either the **"Audio In 1"** channel or the **"Audio Out 1"** channel of the PMRS unit. Then select the **"Controls"** option.



The following windows will appear:



Here you can adjust the volume (Gain Amplifier) of the Audio Input channel of the PMRS-102 unit.



Here you can adjust the volume (Mono DAC) of the Audio Output channel of the PMRS-102 unit.

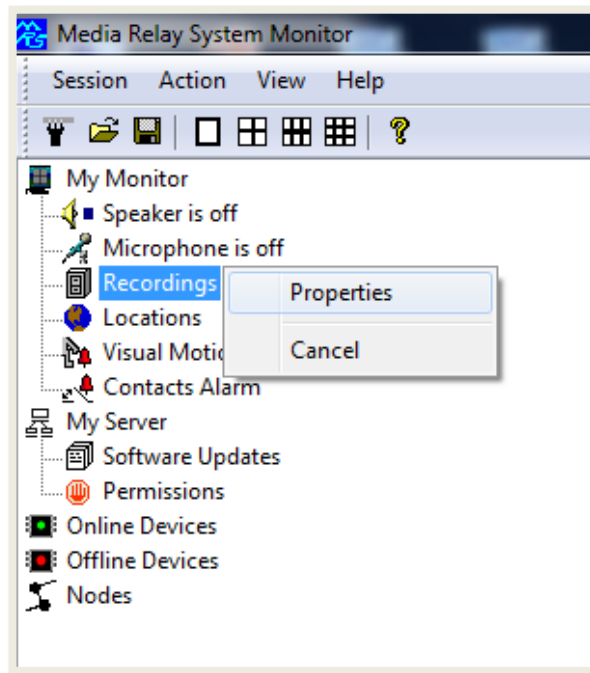
4-1-7 Recording

Recordings can be stored either inside the unit on a micro SD card (Device Recording) or on each computer that is connected to the video stream (Local Recording). Both types of recordings can be applied at the same time by activating them one by one. Recordings can be viewed using either the MRS Monitor Player, MRS AV Player Application or by using VLC player.

4-1-7-1 Local Recorder Settings

The recordings can be saved in any folder on your PC/laptop. The location of the recordings folder on your PC/laptop, as well as other local monitor recording settings can be changed in the “Local Recorder Settings” window. To access this settings window, right click on the “Recordings” item on the left hand side under “My Monitor”.

Select “Properties”.



The “**Local Recorder Settings**” window will appear. The descriptions of the “**Local Recorder Settings**” are listed below.

Items:	Descriptions:
Directory	This is the folder where all your local monitor recordings will be stored.
Browse (button)	This button allows you to change the location of the recordings folder on your PC to any desired location. Click to browse for a location on your PC where you would like the recordings to be saved.
Explore (button)	Click this button to open the recordings folder on your PC.
Local Export	Copy the recoding files from your monitor to an external folder, you can choose the time period from which to copy the files.
Server Export	Downloads recoding files from the server to your computer via archive folder (.zip or .tar)
File Size Limit	This option allows you to setup the file size limit of local recordings on your computer. When a recording file reaches its size limit, the file will split and start recording in a new file.

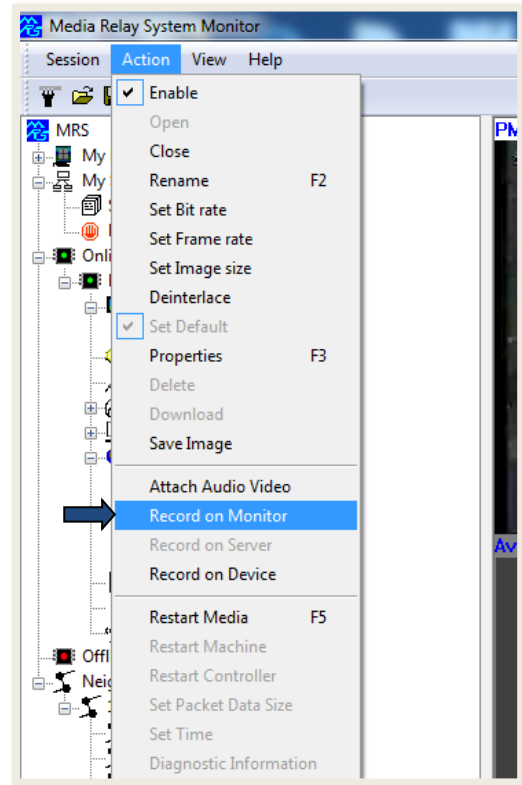
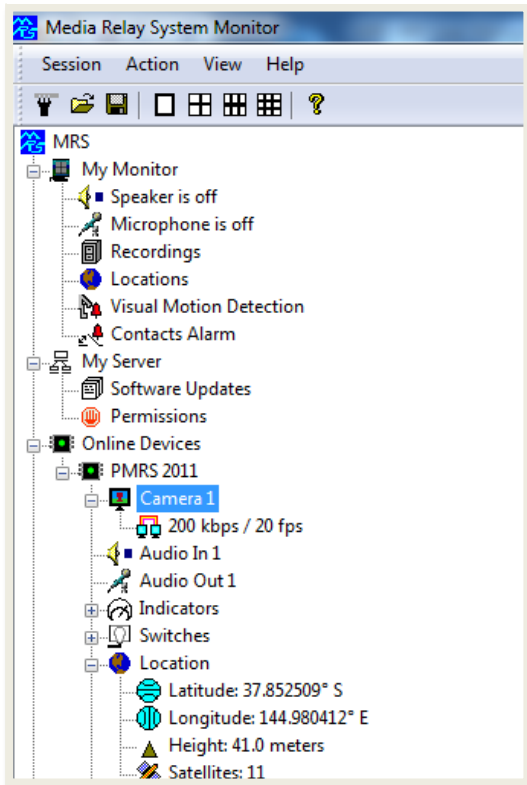
Delete old files to free space	If you tick "Delete old files to free space" , then the oldest recorded files in the folder will be overwritten when the total folder storage capacity goes under 10%.
Sign media Files	Tick this option to produce a digital signature on each Local Monitor recording file, to prove the integrity of that recording. For more information, please view the " Recorded Files Digital Signature " section of this user manual.
Use names in media files	Have the name of the device appear on the title of every recording file made from that device.
Record Locations	This option allows you to choose whether the MRS monitor records GPS information.
Record Events	Documents events such as activating or deactivating of devices as well as alarms and location events on an attached log in the recordings folder.
Record media traffic	Records to monitor every time a video or audio channel is opened.
File Format (video, audio, video + audio).	Determine the file type created for the recordings made on the monitor.
Minimal Event Recording Time	Determine the amount of recording time after an event is triggered.
File Encryption	This option allows you to encrypt the recording files on your computer with a code. For more information, please view the " Recorded Files Encryption " section of this user manual.

4-1-7-2 Local Recording:

To record a video channel locally on your PC/laptop, follow these instructions:

1) Select the channel that you want to record by clicking on the channel name under the PMRS device on the left hand side.

2) Open the Action Menu and enable the recording by clicking on **"Record on Monitor"**.



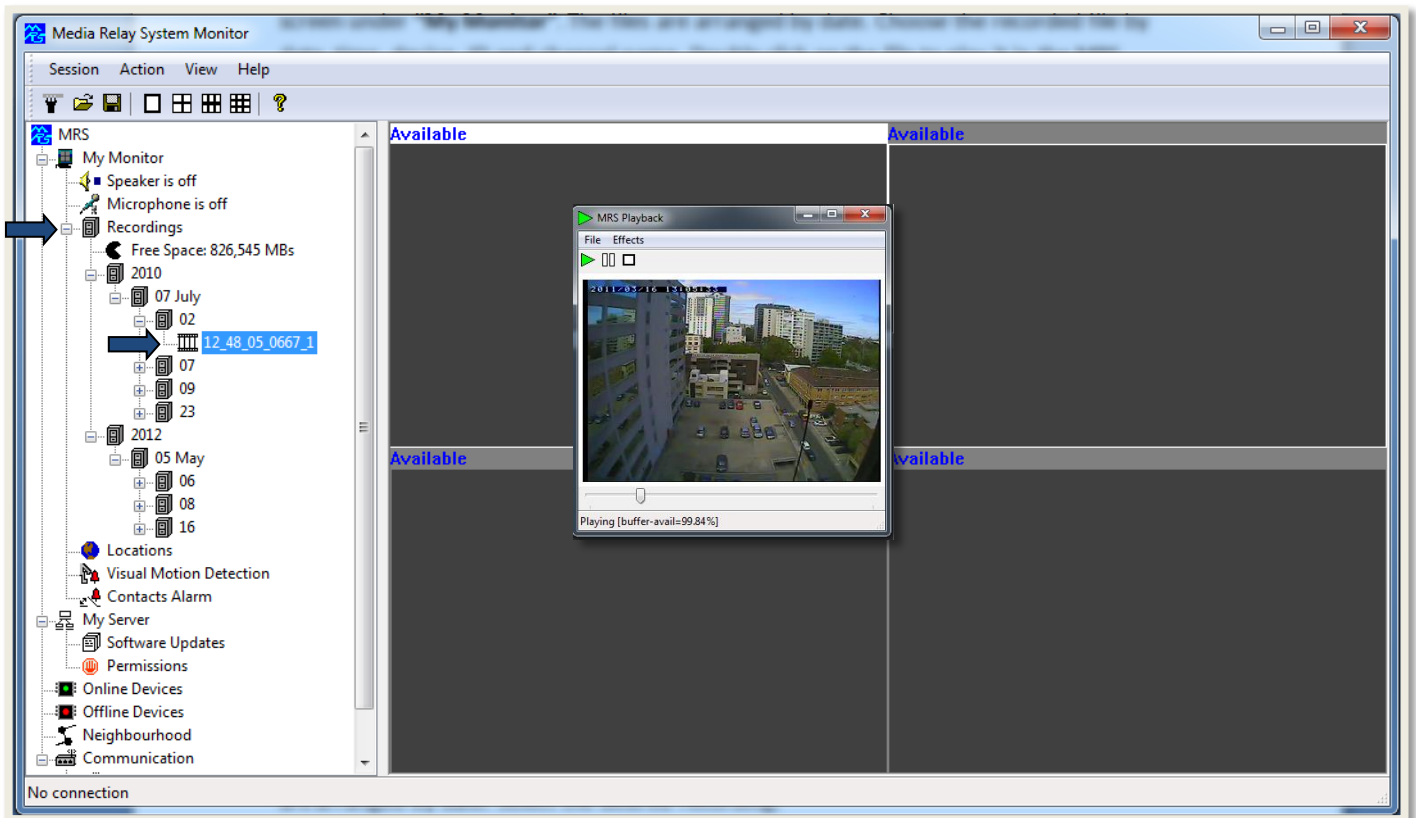
Alternatively, right click on an open video stream and select **"Record on Monitor"**.

Repeat the same process and select **"Record on Monitor"** to finish the recording.

After you enable the recording action, the corresponding message will appear at the top of the video channel (**"M"**). This message means that local recording has commenced successfully.



To view and play local recordings, open the **"Recordings"** tree on the left hand side of the screen under **"My Monitor"**. The files are arranged by date. Choose the recorded file by date, time, device- ID and channel name. Double click on the file to play it in the MRS Monitor player.



Alternatively, to play recordings, locate and open the recordings folder on your PC/laptop. The files are arranged by date. Select the desired recording. Open it in either the **MRS AV Player Application** or in **VLC Player**.

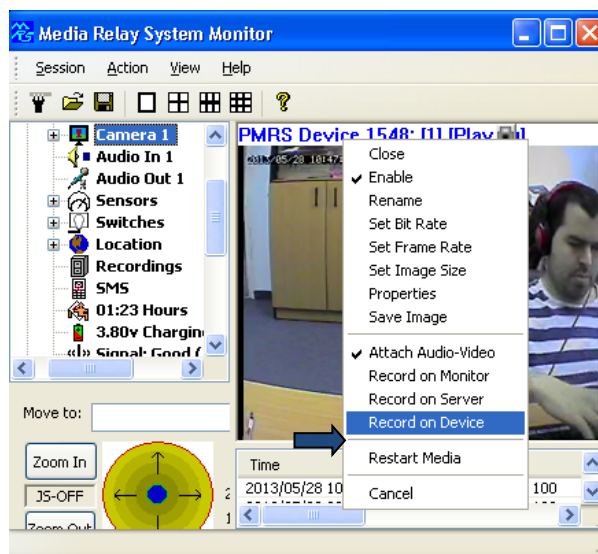
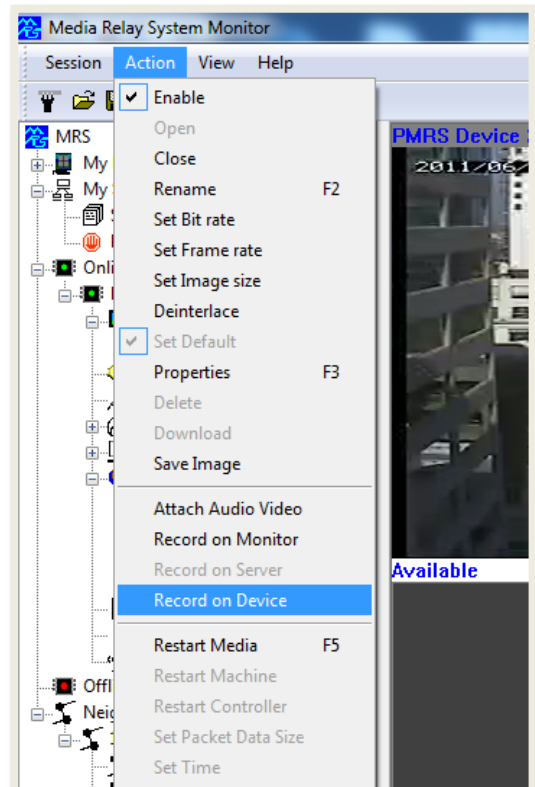
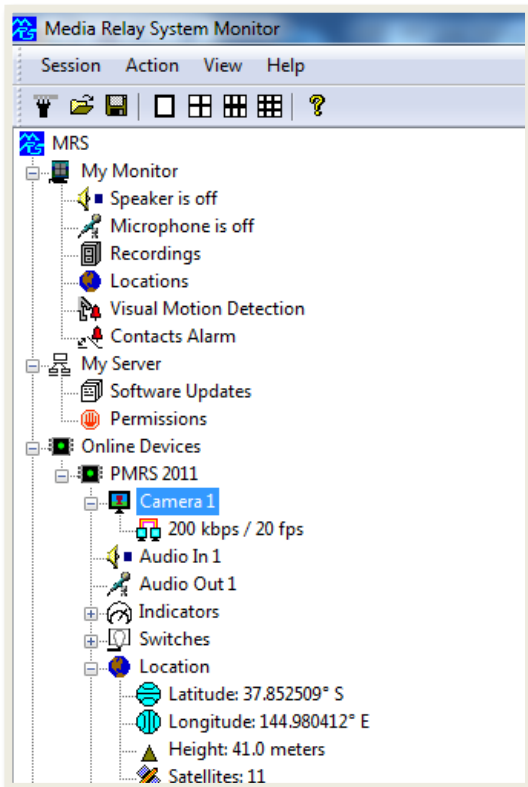
4-1-7-3 Device Recording:

Attention: Micro-SDs 64GB and above have to be formatted to FAT32 format to work.

To record a video channel on the Micro SD card in the PMRS device, follow these instructions:

1) Select the channel that you want to record by clicking on the channel name under the PMRS device on the left hand side.

2) Open the Action Menu and enable the recording by clicking on **"Record on Device"**.



Alternatively, right click on an open video stream and select **"Record on Device"**.

Repeat the same process and select **"Record on Device"** to terminate the recording.

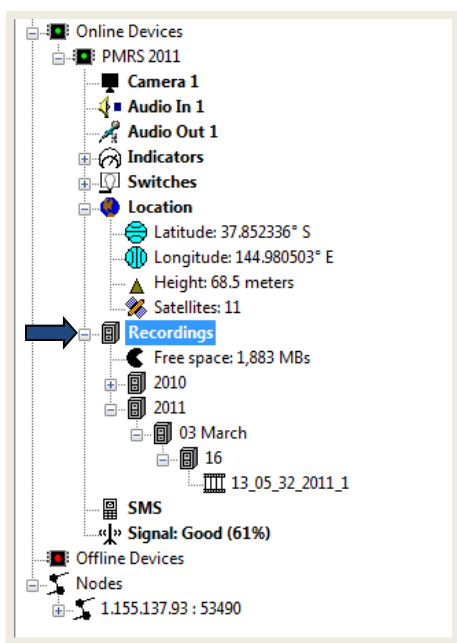
After you enable the recording action, the corresponding message will appear at the top of the video channel ("**D**"). This message means that device recording has commenced successfully.



Once device recording is enabled, the channel will record all the time even if there is no connection with the server. (The bit rate of the Micro SD is limited according to the manufacturer).

There are two ways to view the device recordings:

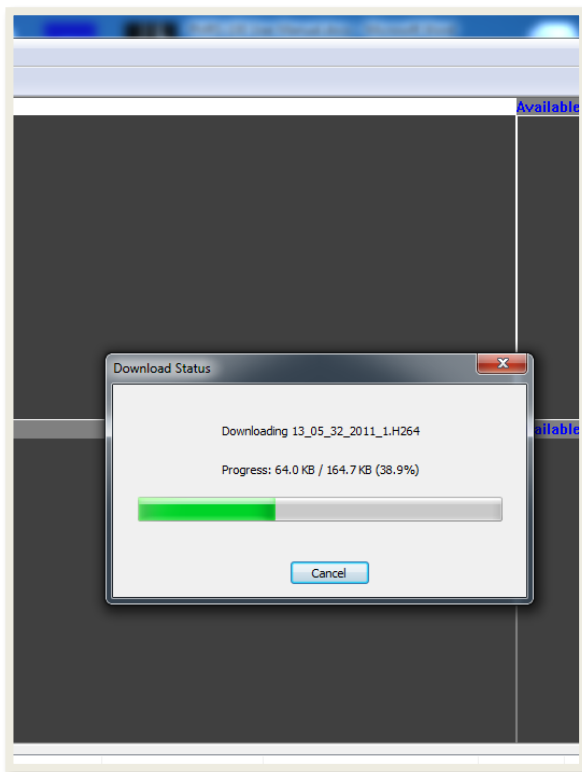
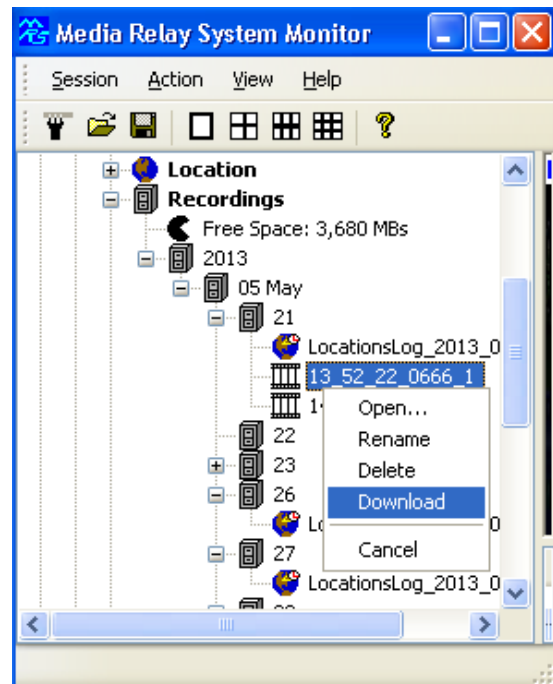
- 1) Remove the Micro SD card from the PMRS unit. Insert the Micro SD into a compatible SD adapter then insert it into a PC. Copy the files onto your PC to view them.
- 2) Download the device recordings from the Micro SD card to your PC remotely over the cellular network. To download the files remotely, follow these instructions:



When a Micro SD card is inserted into the PMRS unit, the "**Recordings**" icon will appear on the left hand side under the specific PMRS device tree.

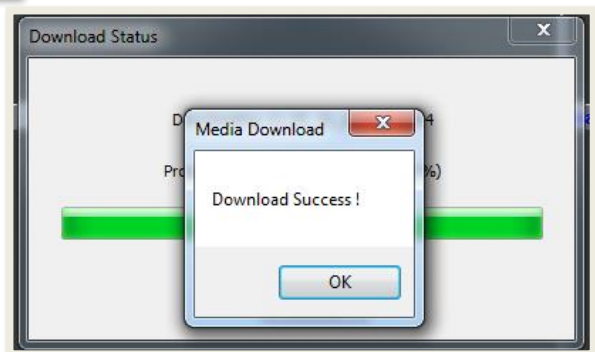
Open the "**Recordings**" tree. The files are arranged by date and time.

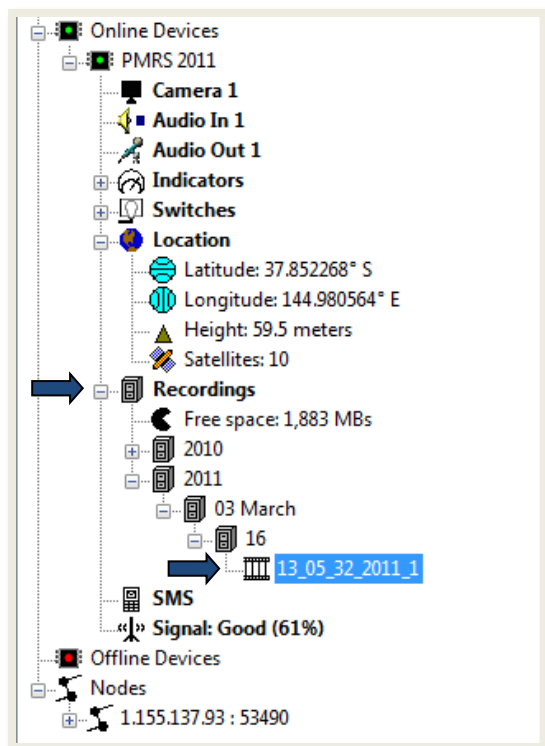
Right click on the desired recording and select **"Download"**.



The recorded file will download to your PC/laptop over the cellular network.

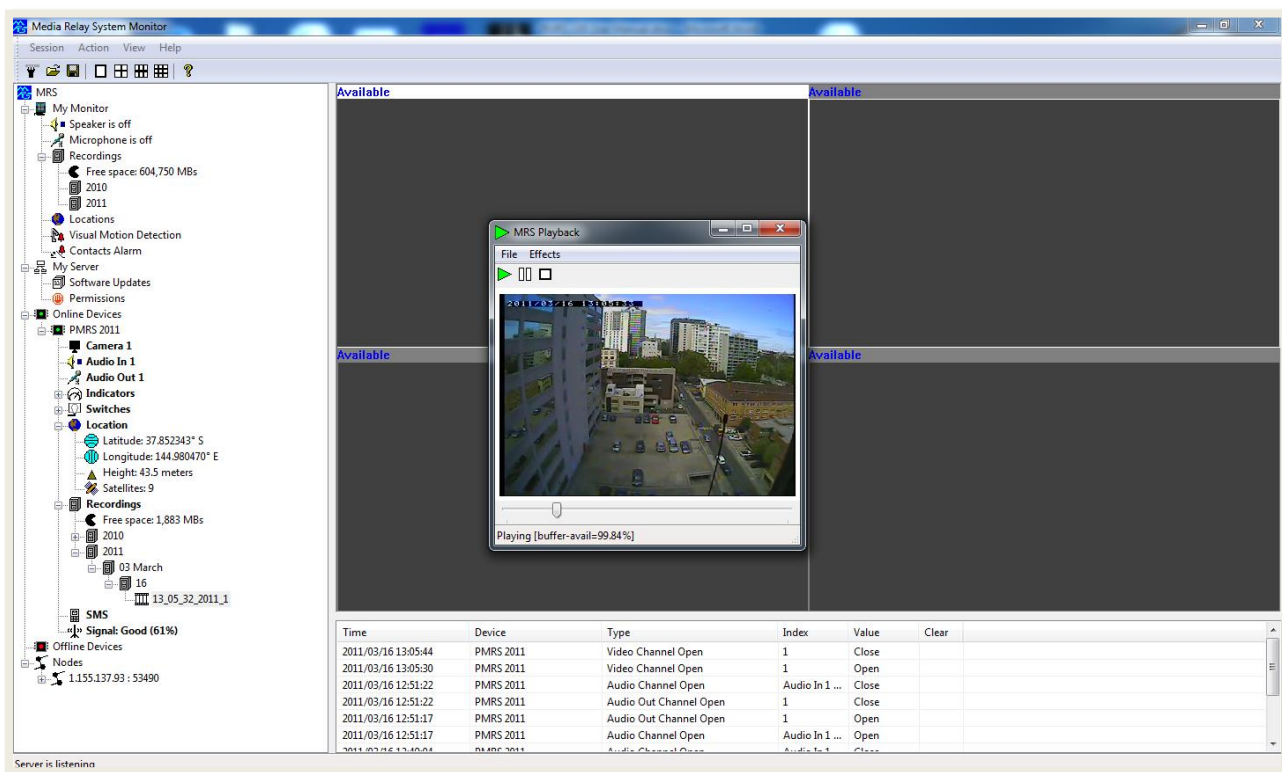
Once the file has downloaded successfully, you will see this message.





To play the file, simply locate it in the **“Recordings”** tree again and double click on it to play it in the MRS Monitor Player.

The device recorded file will also be saved in your recordings folder on your PC/laptop. Alternatively, to play recordings, locate and open the recordings folder on your PC. The files are arranged by date. Select the desired recording. Open it in the MRS AV Player Application or in VLC Player.

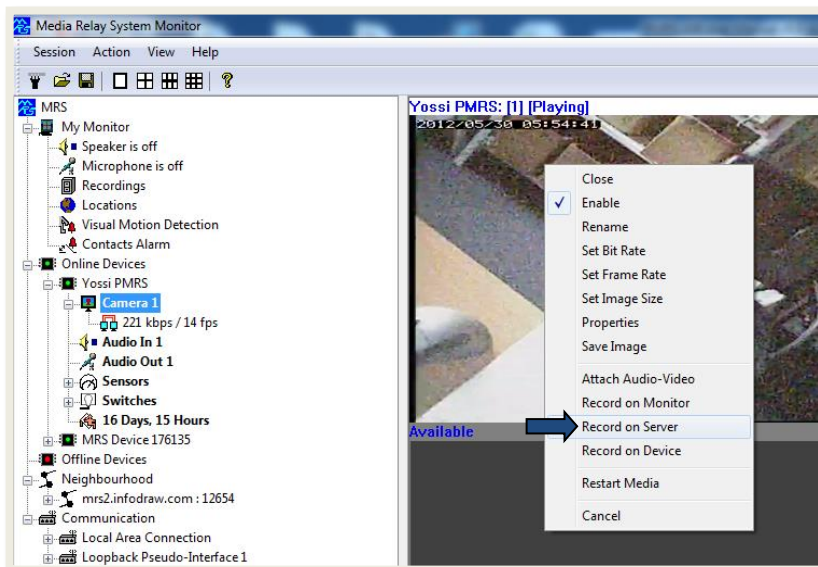
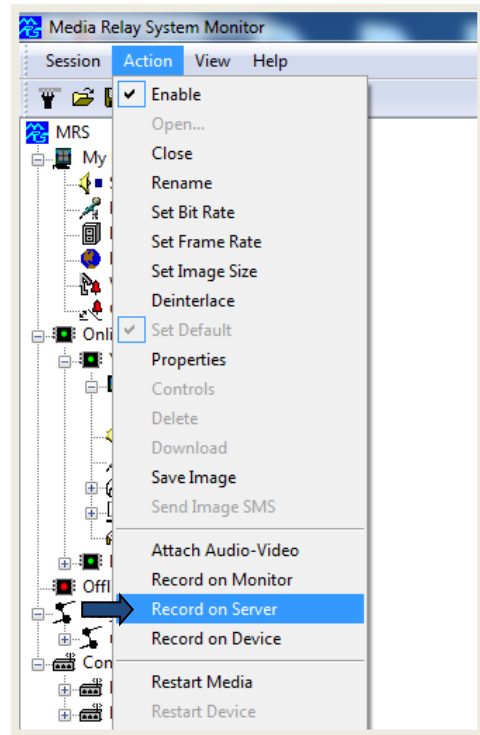
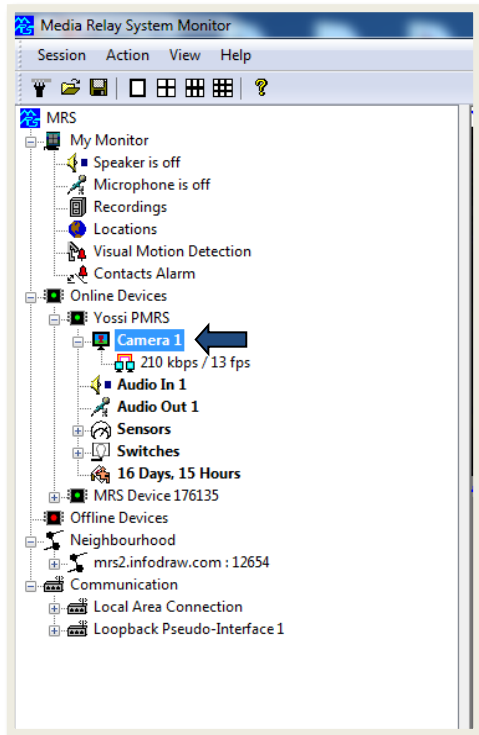


4-1-7-4 Remote Server Recording:

Video/audio streams can be recorded on the server machine, remotely from any location, using the **MRS Monitor Client Application**. Follow these instructions to do so:

1) Select the channel that you want to record by clicking on the channel name of a PMRS device that is connected to the server.

2) Open the Action Menu and enable the recording by clicking on "**Record on Server**".



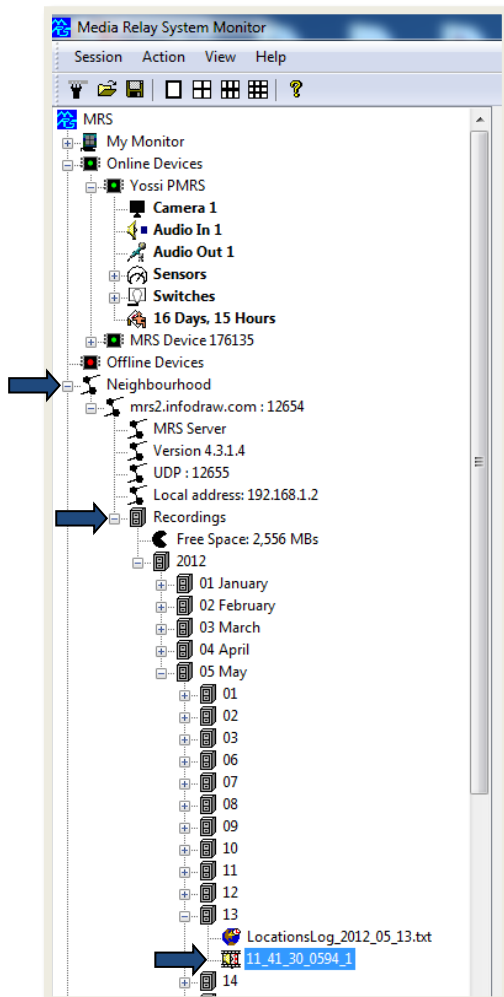
Alternatively, right click on an open video stream and select "**Record on Server**".

Repeat the same process and select "**Record on Server**" to finish the recording.

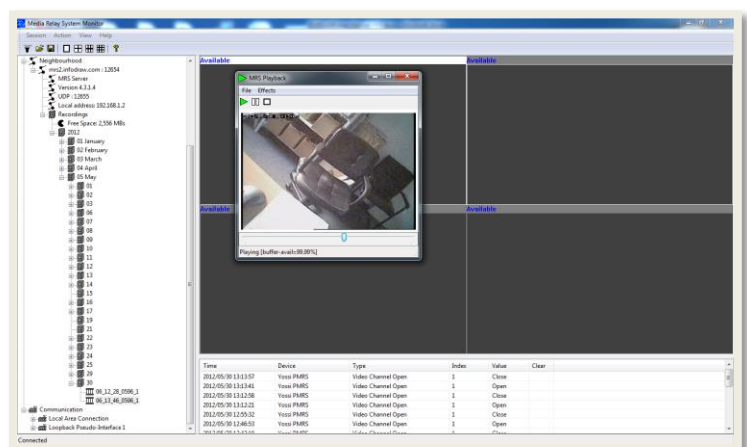
After you enable the recording action, the corresponding message will appear at the top of the video channel ("**S**"). This message means that Server recording has commenced successfully.



The recorded files will be stored in the Server's Local Recordings folder and can be accessed and viewed from there. The server recordings can also be viewed from any location, using the MRS Monitor Client Application. Follow these instructions to do so:



- 1) In the MRS Monitor Client Application, open the "**Neighbourhood**" tree on the left hand side.
- 2) Open the "**Recordings**" tree. This tree contains all server recordings. The files are arranged by date and time.
- 3) Locate the recorded file you wish to view. Double click on it to play it in the MRS Monitor Player.
- 4) The AV player will upload and will play the recording you have created.



4-1-7-5 Recording Snapshots

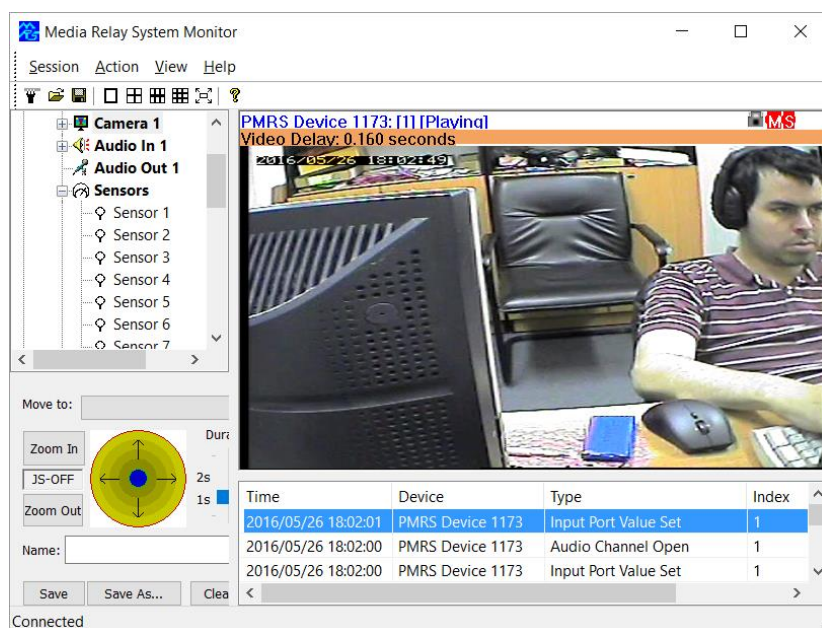
When recording, the monitor provides Snapshots beneath the video channel every 3 seconds.

Clicking those snapshots will activate a playback that will commence from the point the snapshot was taken and will continue until the recording that existed from the activation of the playback - ends.



4-1-7-6 Recording from event log

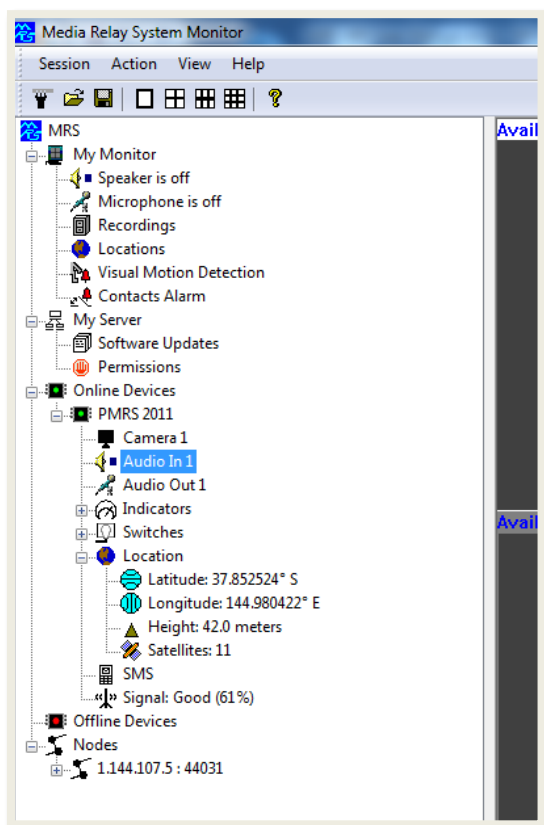
Double clicking event will activate the playback with the recording that was triggered.



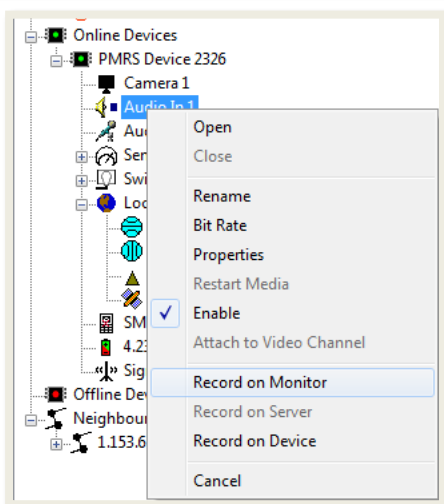
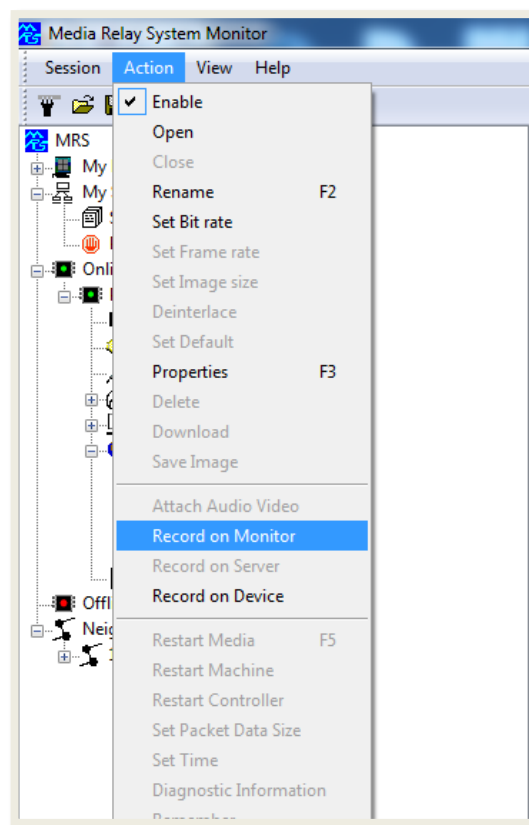
4-1-7-7 Audio Recording:

To record the audio channel on the PMRS device, follow these instructions:

1) Select the audio channel for recording by clicking on the **“Audio In 1”** channel name of the PMRS device on the left hand side.



2) Open the Action Menu and enable the recording by clicking on **“Record on Monitor”**, **“Record on Device”** or **“Record on Server”**.



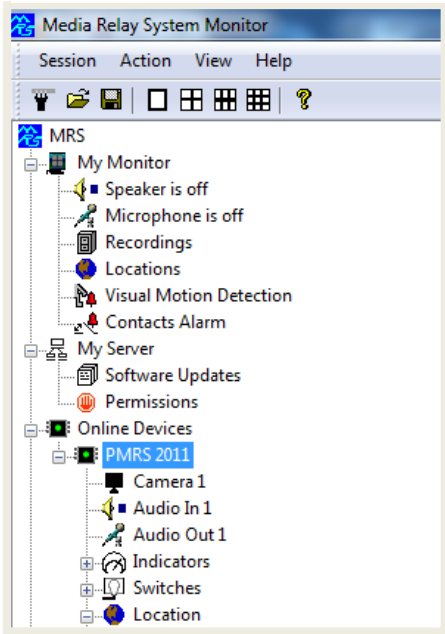
Alternatively, right click on the **“Audio In 1”** channel and select **“Record on Monitor”**, **“Record on Device”** or **“Record on Server”**.

Repeat the same process and select **“Record on Monitor”**, **“Record on Device”** or **“Record on Server”** to finish the recording. View the audio recordings the same way as video recordings are viewed.

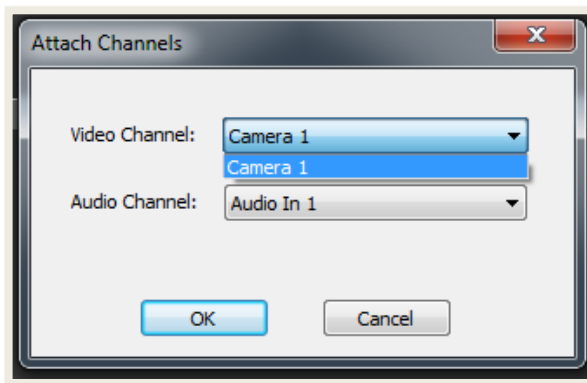
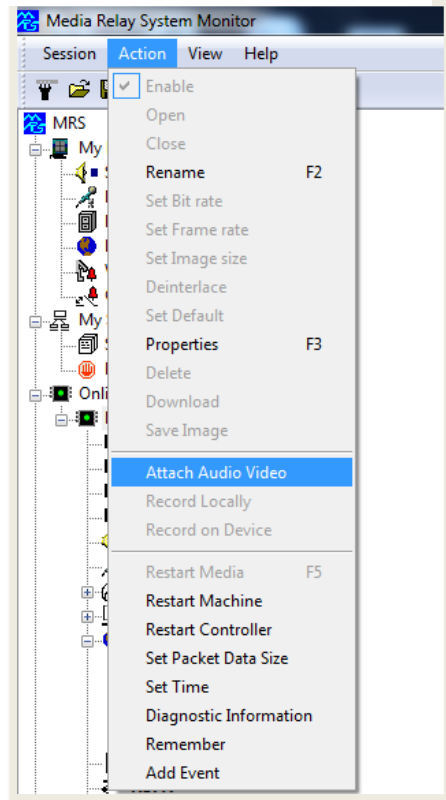
4-1-7-8 Synchronized Video and Audio Recording:

To record video and audio together, follow these instructions:

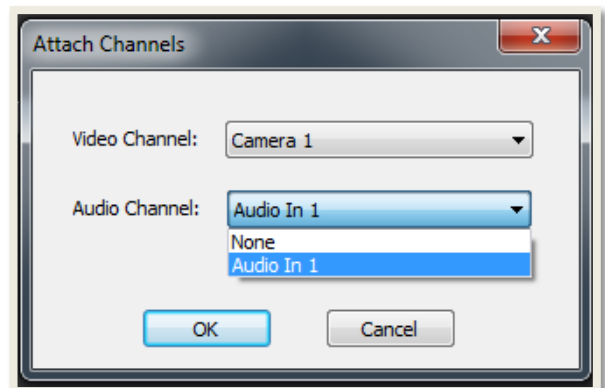
1) Select the PMRS device on the left hand side of the screen.



2) Open the “Action” menu and select “Attach Audio Video”.



3) The “Attach Channels” menu window will open. Select the video channel from the “Video Channel” list box.



4) Select the Audio channel from the “Audio Channel” list box. Then Press “OK”. Once you record that video channel, the recorded file will have synchronised audio in it.

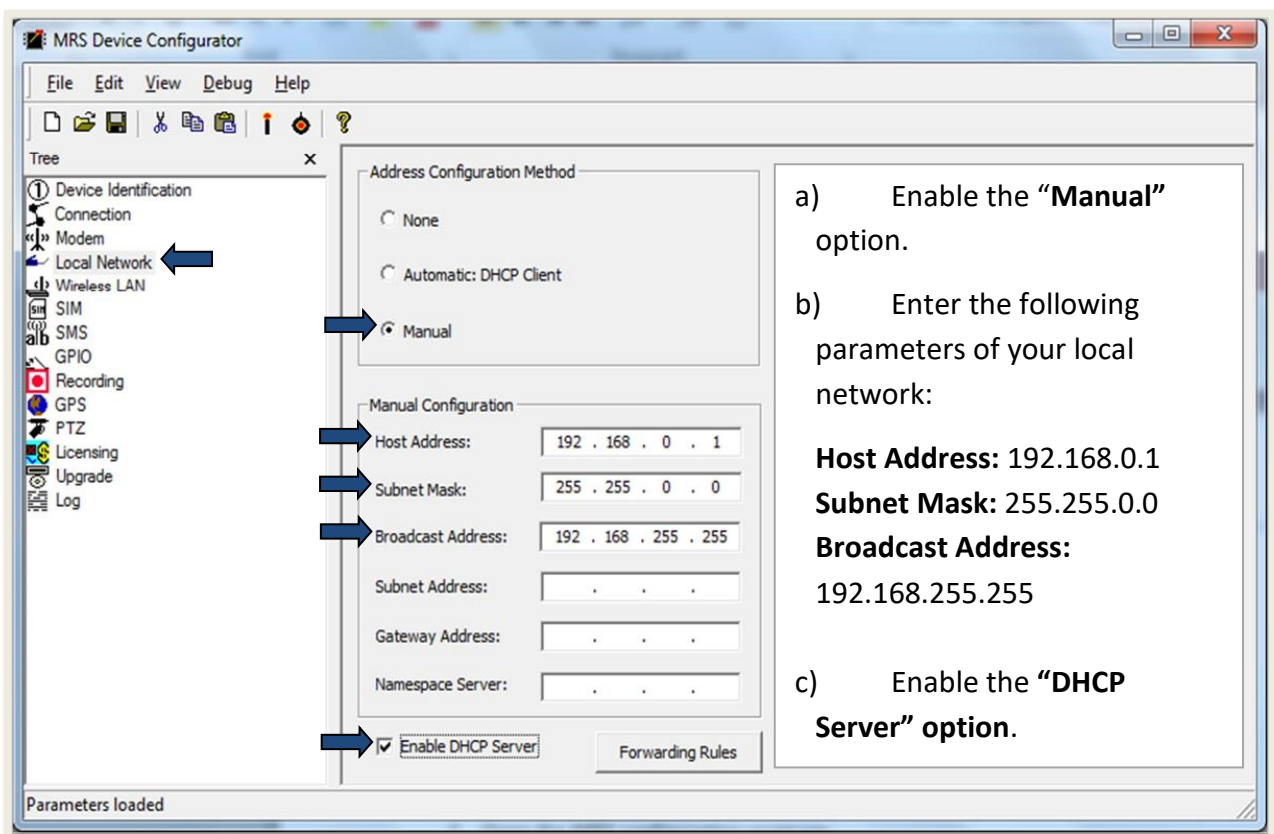
4-1-7-9 SMB Recording (External Storage Device):

The PMRS unit is able to record in the device (Device Recording) on two formats:

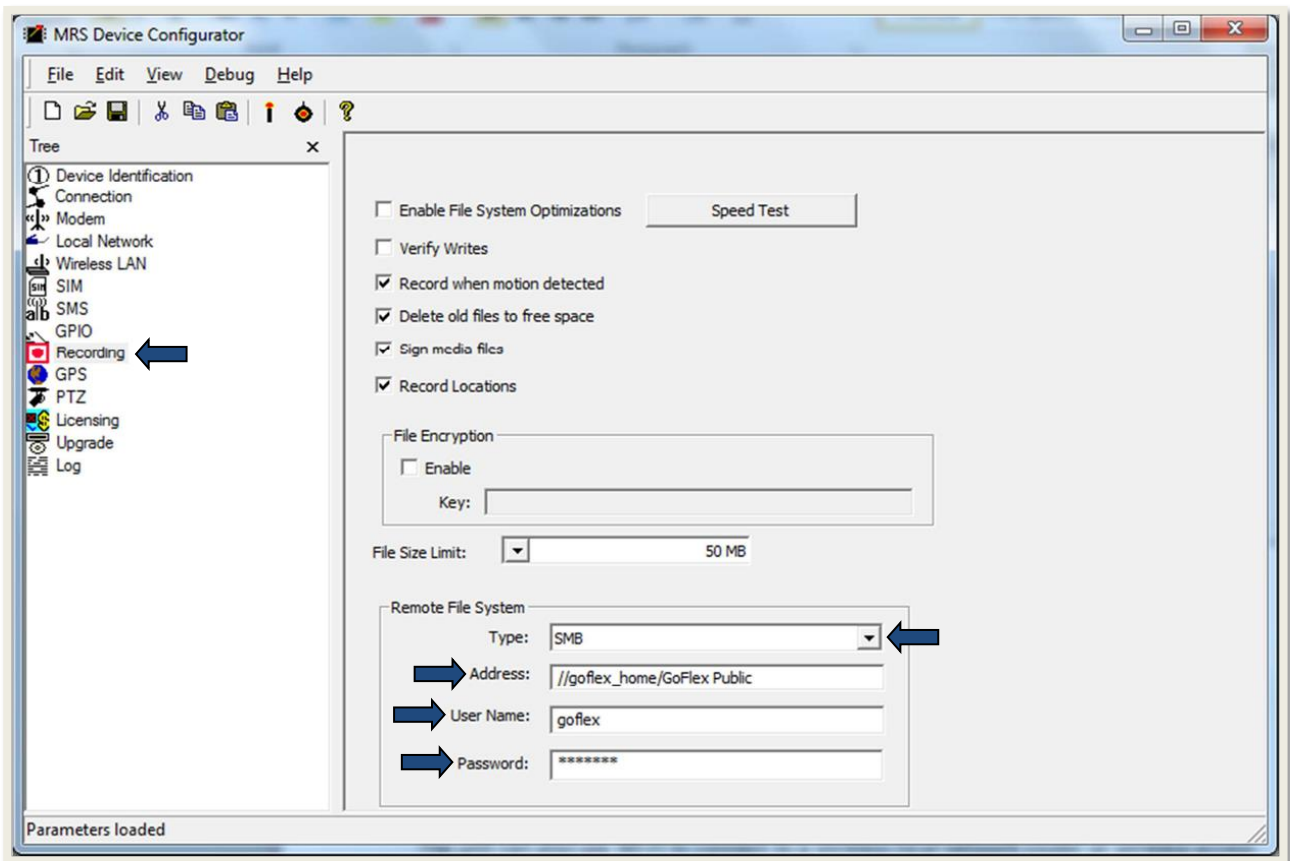
- 1) On a Micro SD card, which is inserted into its slot in the device.
- 2) On an **External Network Storage Device** that can be connected to the PMRS Unit's LAN interface. An external network storage device, like a portable hard-drive, can add greater recording space and allow for higher quality device recording than on the Micro SD card. The External Network Storage Device must have an **Ethernet** input for the PMRS unit to be able to connect to it. Ethernet external network storage drives can be purchased from your local IT store.

In order to communicate with the external network storage device, a **Local Area Network** needs to be created in the PMRS unit. Follow these instructions to do so:

- 1) Open the **"Device Configurator"** Application.
- 2) Turn the PMRS unit off.
- 3) Ensure the 2 left dip switches on the PMRS unit (numbers 1,2 are in up position).
- 4) Ensure the SIM card is **NOT** inserted into the unit.
- 5) Connect the PMRS unit to the PC using the USB Cable. Then turn it on.
- 6) Once connected to the PC, the unit's parameters will load automatically on the **"Device Configurator"**.
- 7) Go to the **"Local Network"** menu of the Device Configurator.

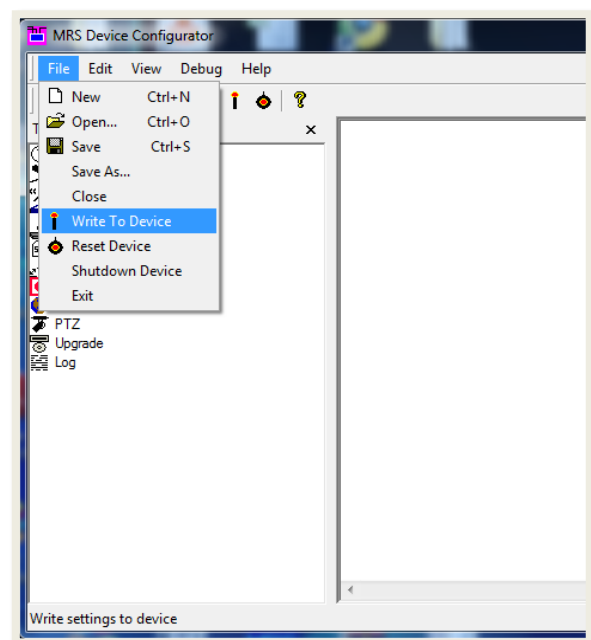


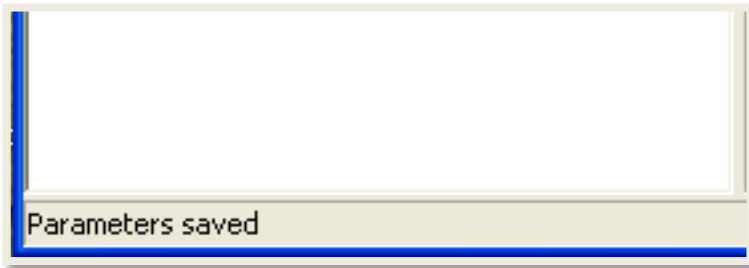
8) Go to the “**Recording**” menu of the Device Configurator.



- Under “Remote File System”, Change the “type” to “**SMB**” from the list box.
- In the “**Address**” box, enter the address of the folder on your external network storage device that you want the recordings saved to.
- Enter the User Name for your storage device in the “**User Name**” box.
- Enter the Password for your storage device in the “**Password**” box.

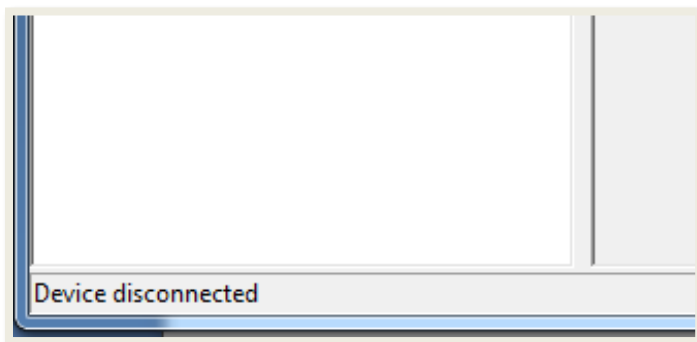
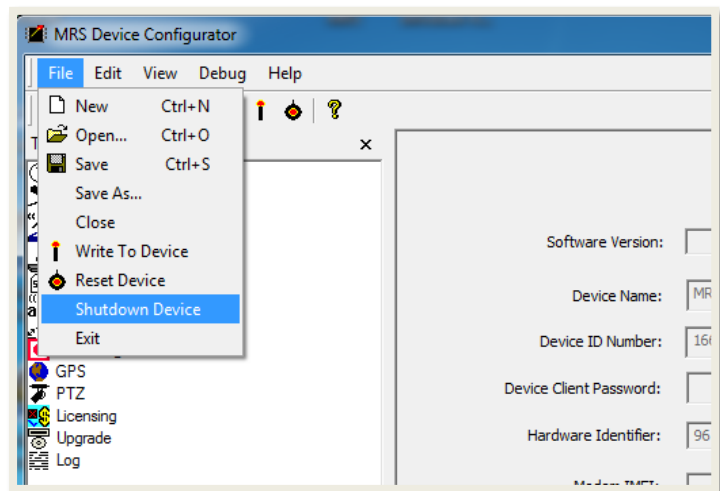
After inputting the above settings, the configuration must be saved into the unit. This is done by opening the File menu and clicking “**Write To Device**” (The candle icon).





After pressing “Write to Device”, the status at the bottom left hand side of the application will show: **“Parameters Saved”**.

After the parameters are saved, open the “File” menu and select **“Shutdown Device”**.



You will then see the following status at the bottom left-hand side of the screen: **“Device disconnected”**.

- 1) You can now unplug the USB cable from the PC and the device.
- 2) Turn the PMRS device off.
- 3) Change back the left 2 dip switches (numbers 1,2 to down position).
- 4) Make sure that the Micro SD Card is **NOT** inserted into the unit.
- 5) Connect the Ethernet cable between the PMRS unit and the External Network Storage Device.
- 6) Insert the SIM card into the PMRS unit.
- 7) Ensure the GSM/GPS Antennas are connected to the unit.

Once you activate the PMRS unit, you will be able to record on the **External Network Storage Device** the same way as you record on the Micro SD Card (View **“Device Recording”** section for more information).

4-1-7-10 Recorded Files Digital Signature:

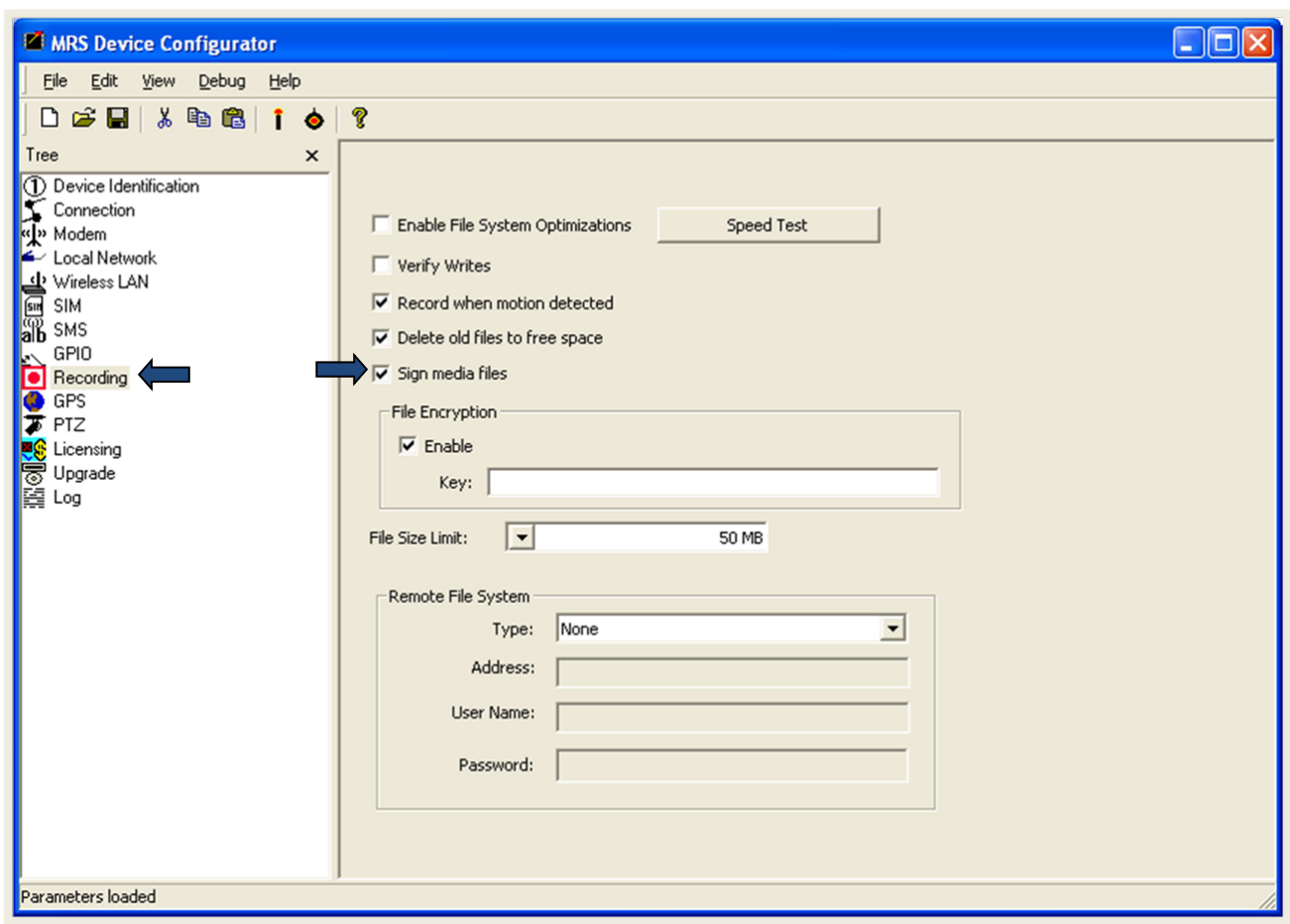
A digital signature can be added to the recorded video to guarantee the integrity of the files. This can be enabled in:

- 1) The Device Configurator Application for **“Device Recordings”**.
- 2) The MRS Monitor server/client Application for **“Local Monitor Recordings”**.

As a result of enabling the Digital Signature there will be an extra file written on the same location as the video files with the extension “.sig”.

For Device Recordings:

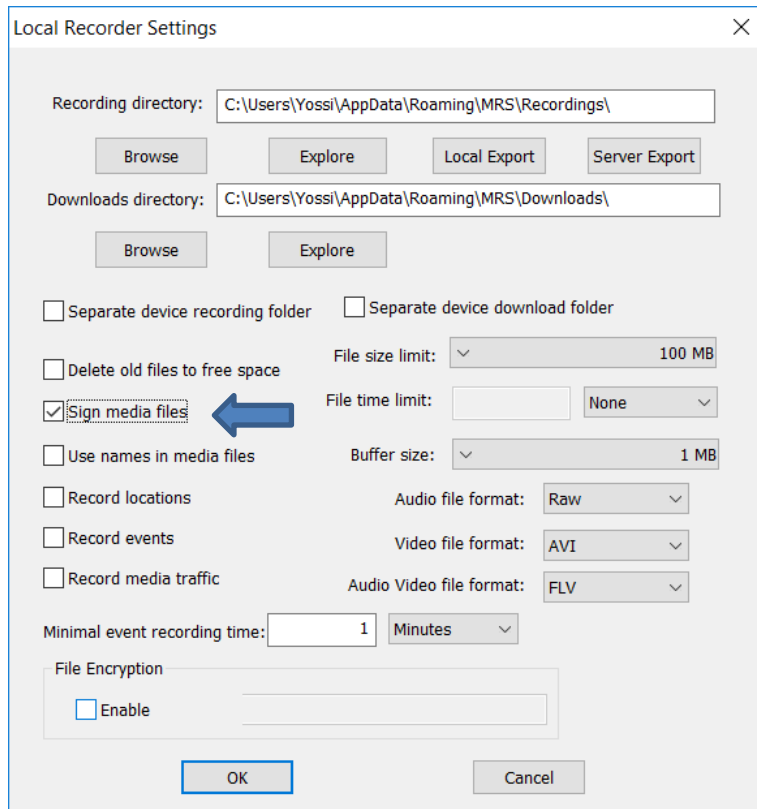
- a) In the Device Configurator, go to the **“Recording”** menu tab.



- b) Enable the option **“Sign media files”**.
- c) Write to Device.

For Local Monitor Recordings:

- a) In the MRS Monitor Application, right click on the **“Recordings”** item on the left hand side under the **“My Monitor”** tree. Select **“Properties”**.
- b) The **“Local Recorder Settings”** will appear.



- c) Enable the option **“Sign Files”**.
- d) Press **“OK”**.

After you enable this option (in either the Device Configurator or the MRS Monitor) and record a video file, the integrity of that file can be checked with the **“MRS AV Player Application”**. For more information, please view the [“MRS AV Player Application - Verifying Digital Signatures”](#) Section of this user manual below.

4-1-7-11 Recorded Files Encryption:

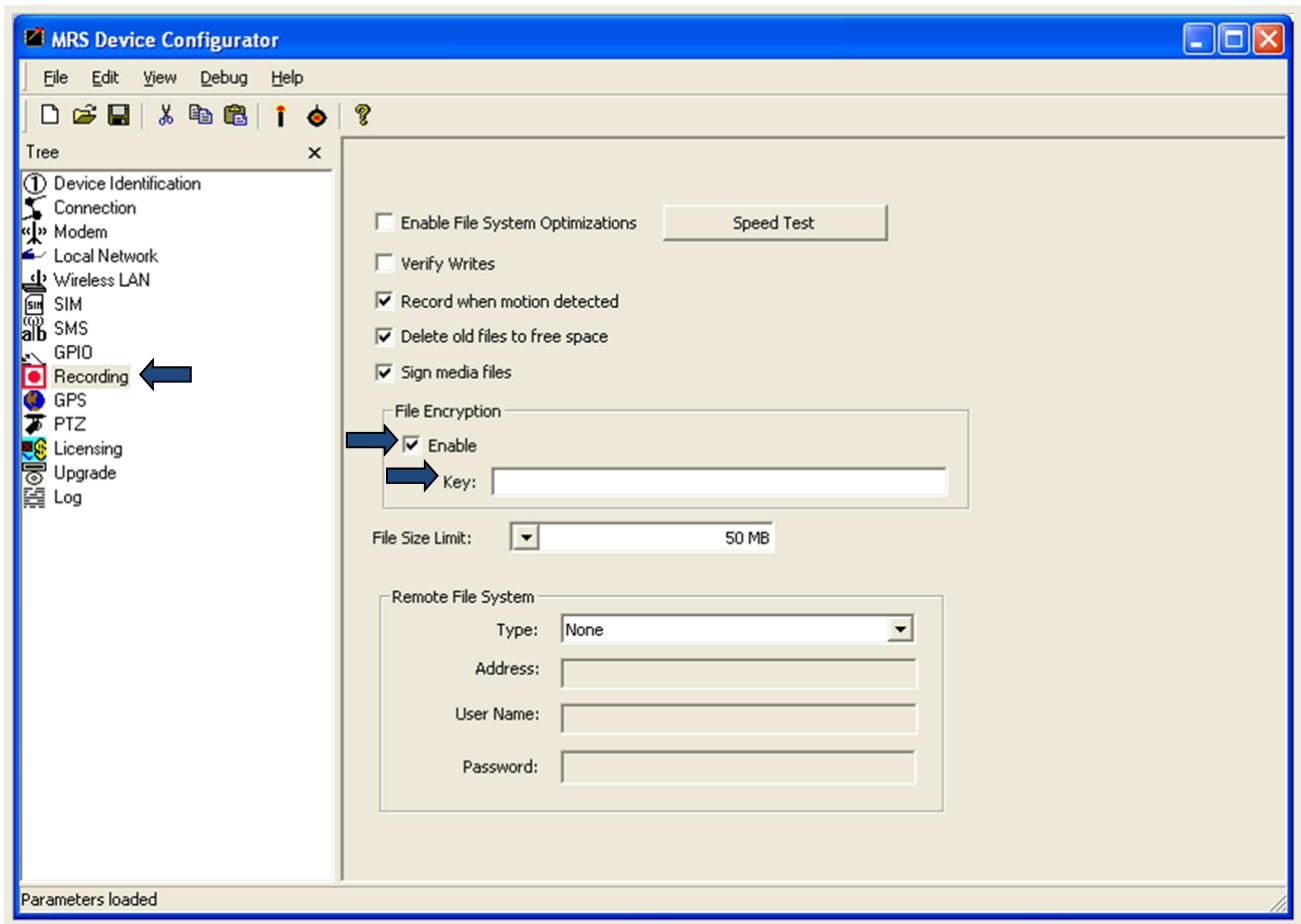
The recorded files can be encrypted with a user defined encryption code.

This can be enabled in:

- 1) The Device Configurator Application for **“Device Recordings”**.
- 2) The MRS Monitor server/client Application for **“Local Monitor Recordings”**.

For Device Recordings Encryption:

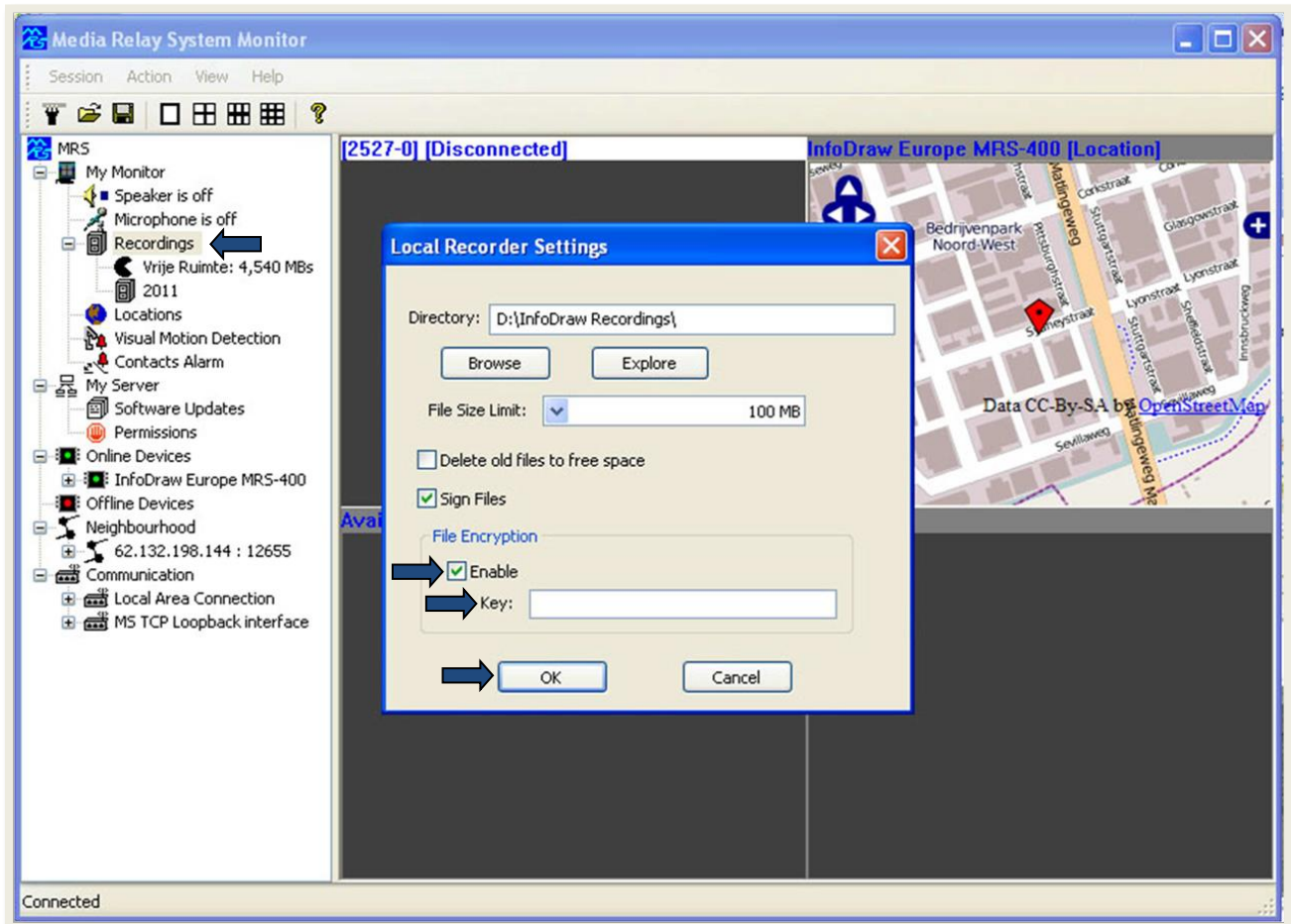
- a) In the Device Configurator, go to the **“Recording”** menu tab.



- b) Tick the **“Enable”** box under **“File Encryption”**.
- c) In the **“Key”** box, enter in your desired encryption code for Device Recordings. The longer the code, the harder it is to break.
- d) Save to the Device.

For Local Monitor Recordings Encryption:

- a) In the MRS Monitor Application, right click on the **“Recordings”** item on the left hand side under the **“My Monitor”** tree. Select **“Properties”**.
- b) The **“Local Recorder Settings”** will appear.



- c) Tick the **“Enable”** box under **“File Encryption”**.
- d) In the **“Key”** box, enter in your desired encryption code for Local Monitor Recordings. The longer the code, the harder it is to break.
- e) Then press **“OK”**.

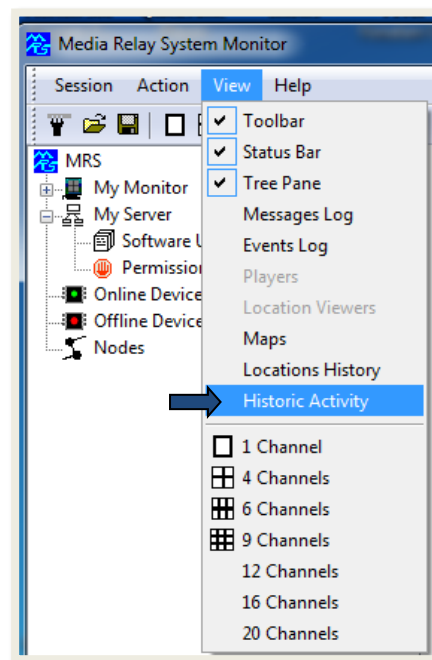
After you enable your encryption code (in either the Device Configurator or the MRS Monitor) and record a video/audio file, you will have to fill-in the defined key in the **“MRS AV Player Application”** in order to view the recording. For more information, please view the [“MRS AV Player Application – Decrypting Recorded Files”](#) Section of this user manual below.

You will also be able to view the encrypted recording files in the MRS Monitor Application, if your encryption code is inserted in the **“Local Recorder Settings”** window. If you don't want anyone to be able to view the encrypted recordings in the MRS Monitor Application, simply remove your encryption code from the **“Local Recorder Settings”** window.

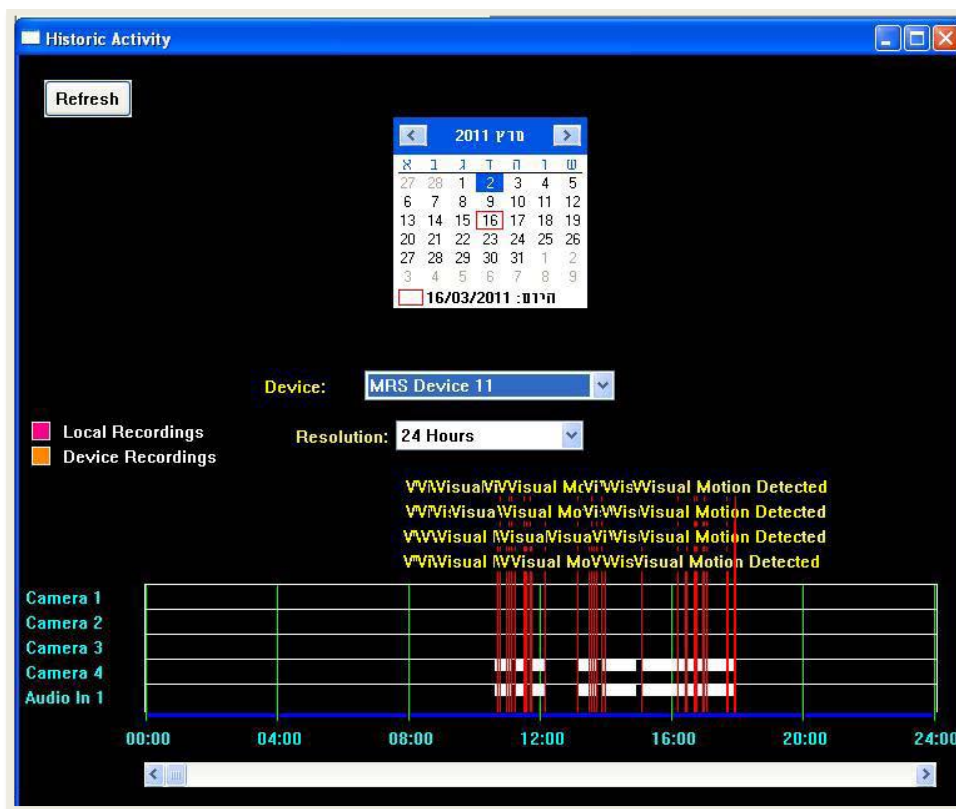
4-1-7-12 Recording History in Graphic Format:

All recordings can be viewed graphically per day and per device in the “**Historic Activity**” window of the MRS Monitor Application.

Open the “**View**” menu and select “**Historic Activity**”.

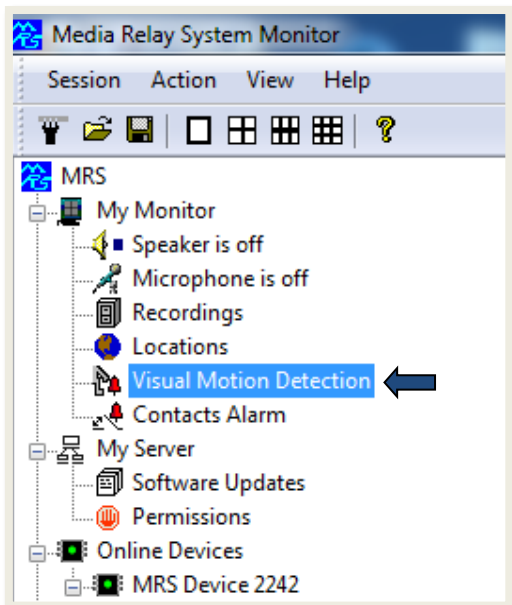


Recorded events triggered from GPIO alarms/ VMD/ location alarms, or user events are marked as vertical lines on the graph. Every recording can be viewed by double click on the required portion in the graph.

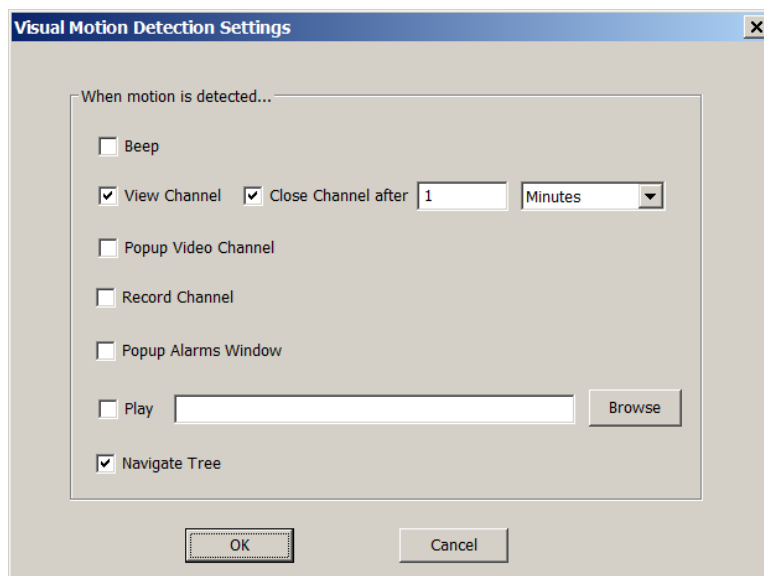


4-1-8 VMD:

The PMRS unit supports VMD (Visual Motion Detection) which can be configured for individual video channels. VMD is used to alarm viewing clients and to send SMS (refer to the [“SMS Alerts from Device”](#) section).



VMD can be setup to trigger a variety of actions, once motion is detected. To configure these settings, double click on the **“Visual Motion Detection”** icon on the left hand side of the screen.

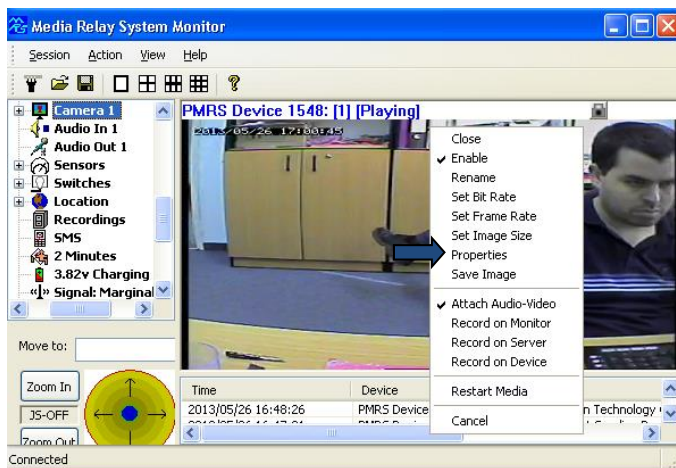


The **“Visual Motion Detection Settings”** window will open. Select the desired actions that will trigger when VMD is activated. Then press **“OK”**. The descriptions of these trigger actions are listed below.

Trigger Actions:	Descriptions:
Beep	Enable this option to cause a beeping sound on the MRS Monitor Application, once motion is detected.
View Channel	Enable this option to cause the video channel to automatically open for live streaming, once motion is detected.
Close Channel After	Allows the user to determine the amount of time the channel will be viewed after VMD is triggered.
Popup Video Channel	The video channel will appear on the screen (in a separate window after motion is detected).
Record Channel	Enable this option to cause that video channel to automatically start recording on monitor, once motion is detected.
Popup Alarms Window	Enable this option to cause a popup window to appear on the MRS Monitor Application, once motion is detected.

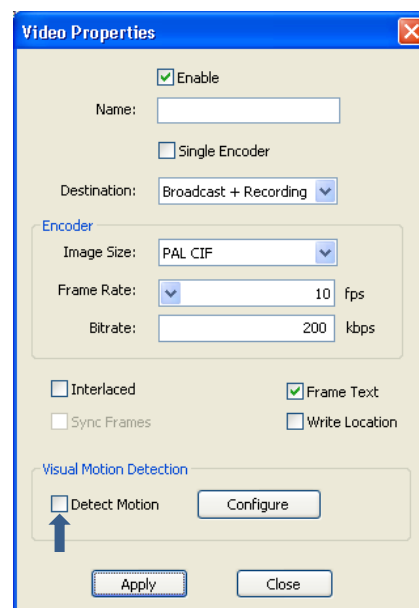
Play	Use this option to play a custom sound, once motion is detected. Click the “Browse” button to search for an audio file on your PC. (.wav, .mp3, .wma formats are supported.)
Navigate tree	If this box is ticked, the monitor will open, in the device tree, the monitor will automatically open the device from which motion was detected.

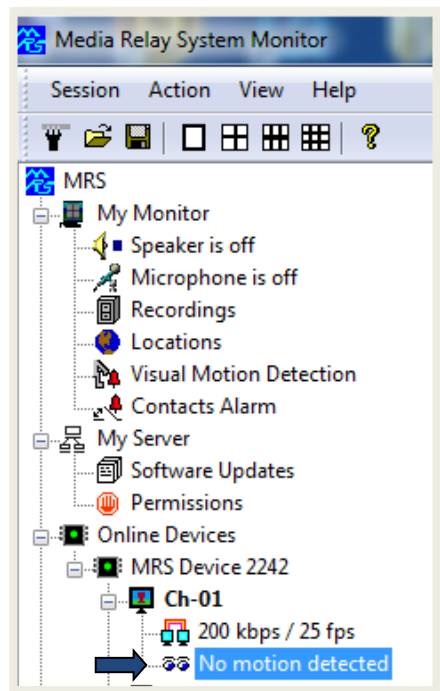
To activate VMD on a video channel, follow these instructions:



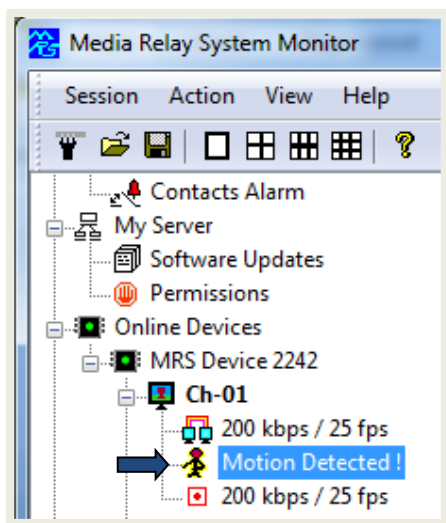
Right click on an open channel's video stream and select properties.

In the **“Video Properties”** window, select **“Detect Motion”**. Then press **“Apply”**



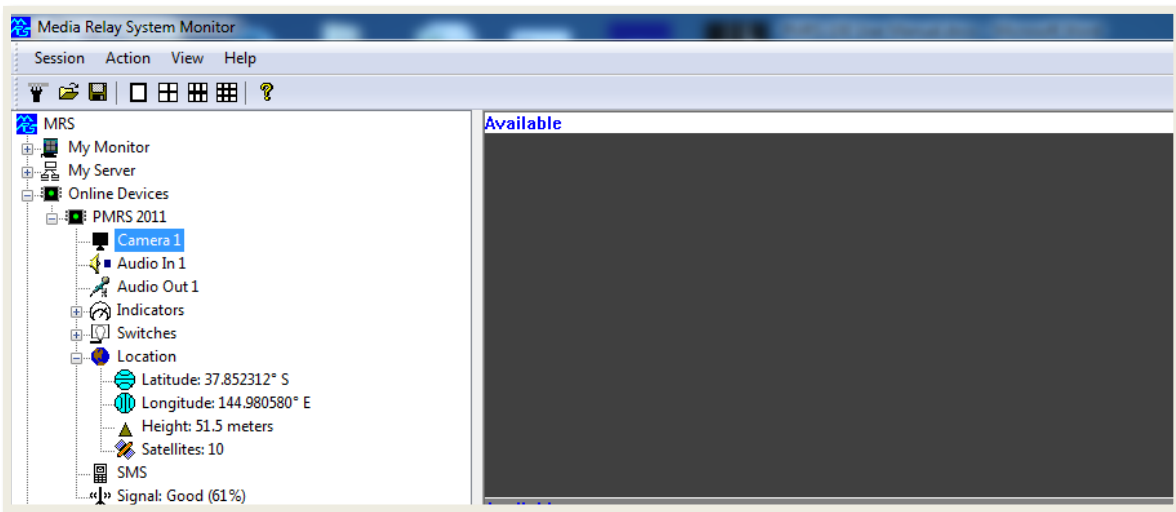


Under the video channel's name, the following message will appear: **"No motion detected"**. This means VMD is now activated.



Once there is motion past the camera, the following message will appear under the video channel's name on the left hand side of the screen: **"Motion Detected!"**

Motion Detection will still be active even if the video channel is closed. Once motion is detected, the trigger actions predefined in the VMD settings menu will commence accordingly.



When VMD is triggered, the settings that were previously set for VMD in the MRS Device Configurator (Device), Monitor and MRS Service, are carried out.

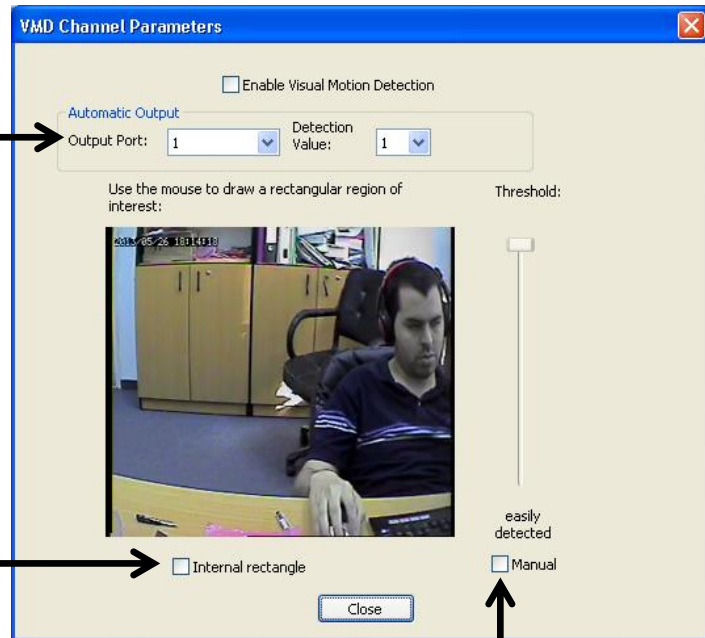


4-1-8-1 VMD Configuration

To configure the VMD, enter the properties menu after right-clicking.

Output Port: in order to activate a switch when VMD is triggered change the Output port to the switch you choose to activate and change the Detection value to 1.

Internal Rectangle: To create a limited space when motion could be detected, manually draw a rectangle, on the video channel and click on the "Internal rectangle" box.



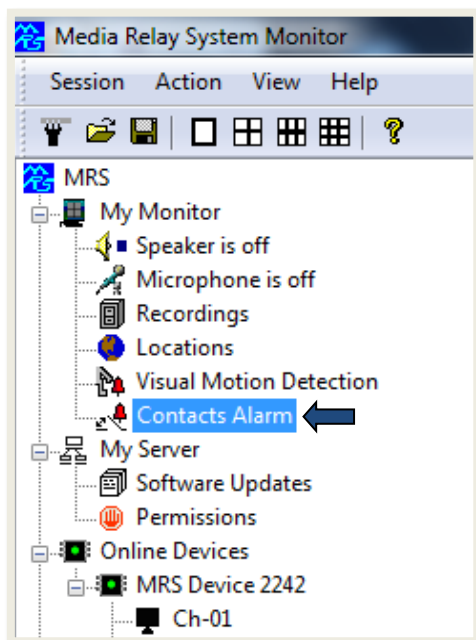
Manual Threshold: enabling the manual threshold, allows manual change of the VMD sensitivity on a spectrum. To carry out this action fill the "Manual" box.

4-1-9 GPIO (Sensors and Switches):

The PMRS unit has 5 input and 4 output ports. The GPIO ports are at **TTL** level. The GPIO connections are built in to the PMRS unit. The first input port is the alarm button which is imbedded in the side of the device. The rest of the ports are reachable through the **GPIO/PTZ cable** wires (for colour definitions refer to the [“GPIO/PTZ Cable”](#) section of this user manual).

The GPIO ports can be set up to trigger a variety of alarms including live video streaming, video/audio recording, GPS tracking etc. These features are set on the MRS monitor. The unit can also send a SMS to any number of phones as a result of a GPIO trigger (refer to the [“SMS Alerts from Device”](#) section of this user manual).

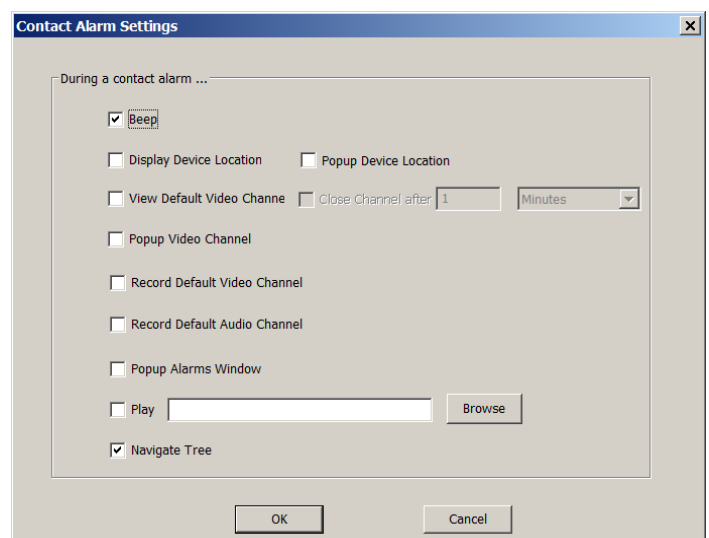
The GPIO trigger actions are set in the **“Alarm Settings”** window of the MRS Monitor. Follow these instructions:



Double click on the **“Contacts Alarm”** item on the left hand side of the screen under **“My Monitor”**.

The **“Alarm Settings”** window will open. Select the desired actions that the GPIO ports will trigger when activated. Then click **“OK”**.

The descriptions of these trigger actions are listed below:



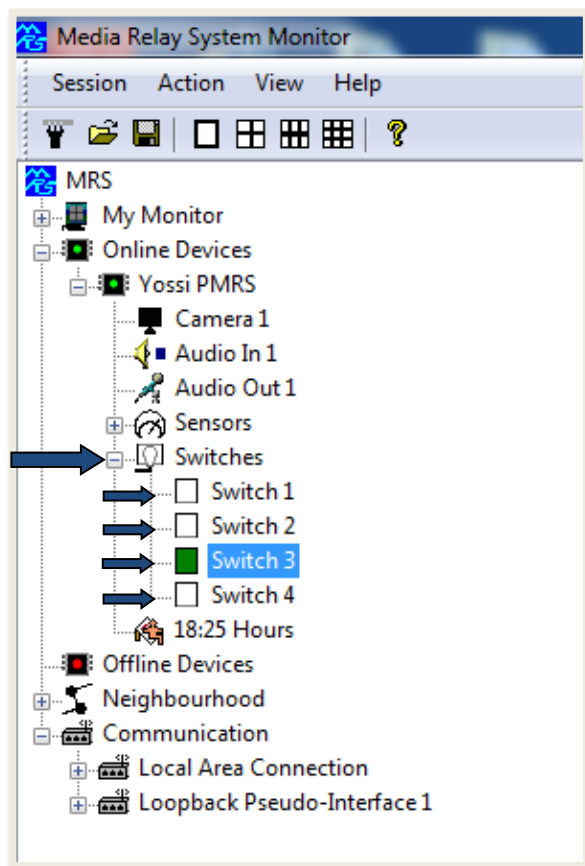
GPIO Trigger Actions:	Descriptions:
Beep	Enable this option to cause a beeping sound on the MRS Monitor Application, once a GPIO alarm is activated.
Display Device Location	Brings up the unit location on the GPS map, once a GPIO alarm is activated.
Popup Device location	Opens new window with device location when alarm is activated.
View Default Video Channel	Enable this option to cause the video channel of the PMRS unit to automatically open for live streaming, once a GPIO alarm is activated.
Popup Video Channel	A new window with the video channel will open, when alarm is triggered
Record Default Video Channel	Enable this option to cause the video channel to automatically start recording, once a GPIO alarm is activated.
Record Default Audio Channel	Enable this option to cause the audio channel of the PMRS unit to automatically start recording, once a GPIO alarm is activated.
Popup Window	Enable this option to cause a popup window to appear on the MRS Monitor Application, once a GPIO alarm is activated.
Play	Use this option to play a custom sound on the MRS Monitor Application, once a GPIO alarm is activated. Click the “Browse” button to search for an audio file on your PC. (.wav, .mp3, .wma formats are supported.)
Navigate tree	If enabled, the monitor will automatically point and open the device that had triggered the alarm.

Output switches: The PMRS unit has 4 GPIO Output Switch ports. External peripheral devices (such as alarms, external sirens etc.) can be connected to these output ports and then set to trigger a variety of actions once activated. The GPIO Output Switch ports are at **TTL Level**.

To connect peripheral devices to the Output Switch Ports on the PMRS unit, you must close a connection between the following wires on the “GPIO/PTZ cable”:

- Port 1) Output 1 wire and GND wire.**
- Port 2) Output 2 wire and GND wire.**
- Port 3) Output 3 wire and GND wire.**
- Port 4) Output 4 wire and GND wire.**

ON/OFF switching of these ports is done in the “MRS Monitor Application”. Follow these instructions:



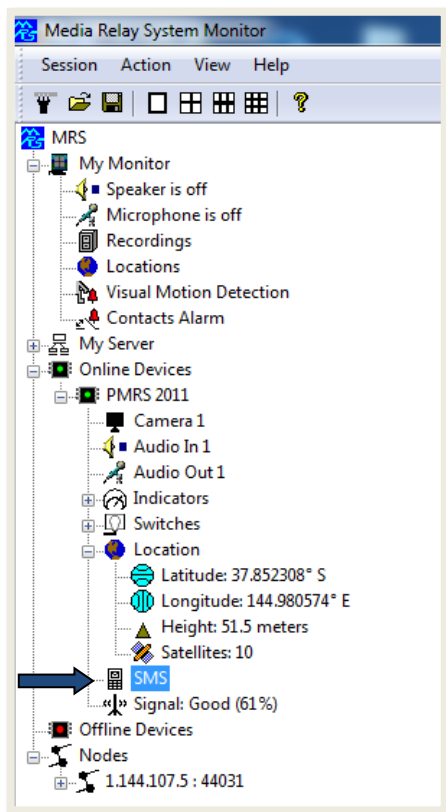
The statuses of the Output signals are viewed in the PMRS device tree on the left hand side under “**Switches**”.

- Switch 1** = Output 1
- Switch 2** = Output 2
- Switch 3** = Output 3
- Switch 4** = Output 4

Double click on a “**Switch number**” to turn it ON/OFF.

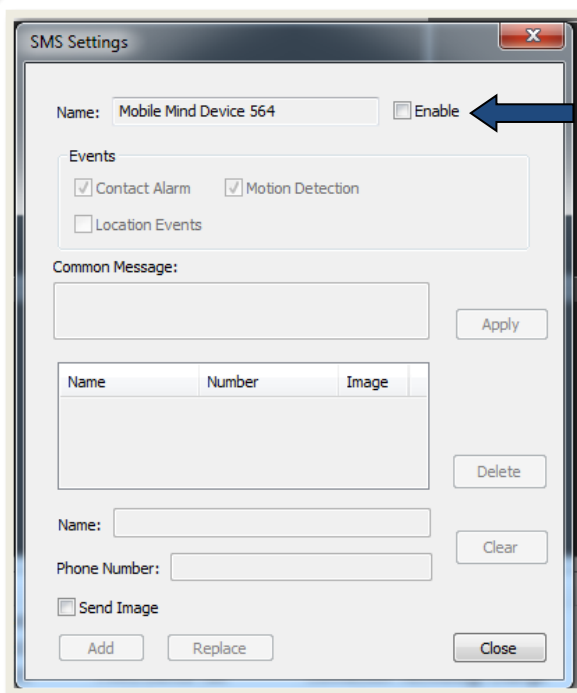
4-1-10 SMS Alerts From Device:

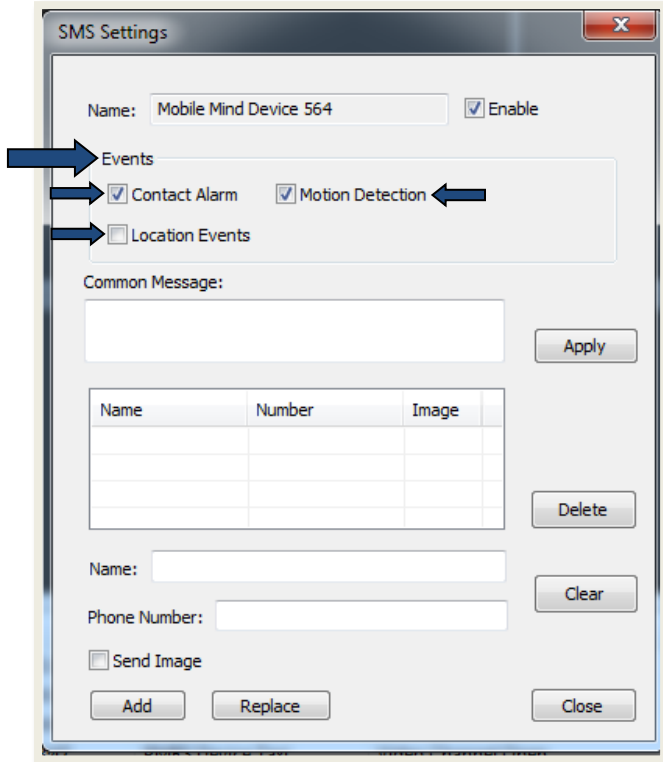
The unit can send a SMS alert to any number of mobile phones as a result of a VMD trigger, GPIO trigger or a location event trigger. Messages can be written in any language. The contact details must be supplied in the SMS settings window, located on the left hand side of the screen. Follow these instructions to activate SMS alerts:



Open the “SMS Settings” window by double clicking on the “SMS” item on the left hand side under the PMRS device tree.

In the “SMS Settings” window, firstly select the “Enable” option on the top right hand side. This will enable SMS alerts from that PMRS device.





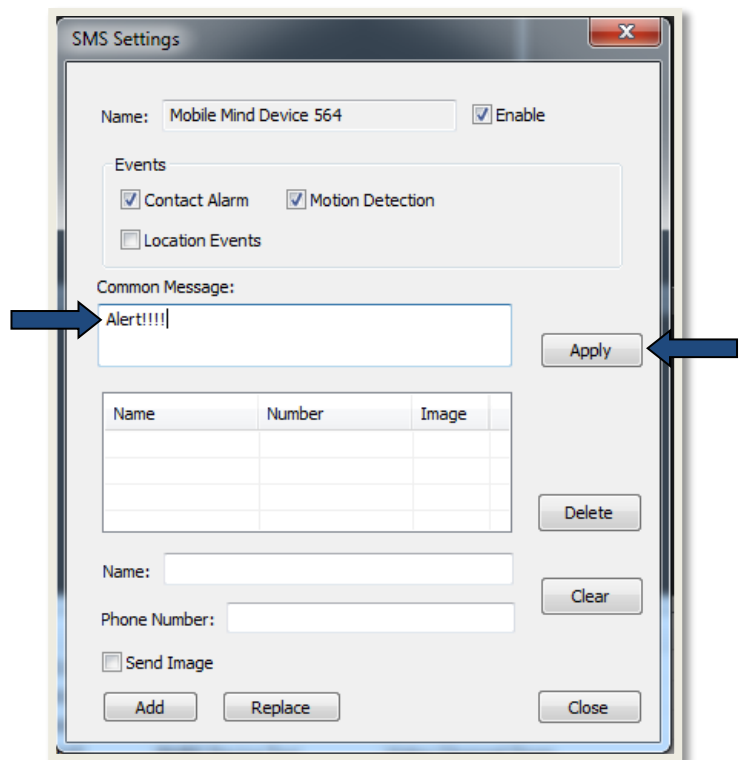
Under “**Events**” select the desired triggers from which an SMS will be sent.

Contact Alarm = GPIO events

Motion Detection = VMD events

Location Events = GPS events

In the “**Common Message**” box, write a message that you would like to receive on your mobile phone. Once you have finished, click “**Apply**”.



SMS Settings

Name: MRS Device 111 ☒ Enable

Events

☒ Contact Alarm ☒ Motion Detection

☐ Location Events

Common Message:

ALERT!!!!

Apply

Name	Number	Image

Delete

Name: Yon

Phone Number: 0412345678

☐ Send Image

Add Replace Close

Insert a **"Name"** and **"Phone Number"** at the bottom of the window.

If you own a Smartphone, enable the **"Send Image"** option to attach a still-picture of the video stream to the SMS.

Once the details are inserted, press the **"Add"** button to add the mobile to the list. Repeat the process to add another mobile.

Your new name and phone number will appear in the list box. To delete a mobile number, select the name and press the **"Delete"** button.

Once you have finished, click **"Apply"** and then click **"Close"**.

SMS Settings

Name: MRS Device 111 ☒ Enable

Events

☒ Contact Alarm ☒ Motion Detection

☐ Location Events

Common Message:

ALERT!!!!

Apply

Name	Number	Image
Yon	0412345678	No

Delete

Name:

Phone Number:

☐ Send Image

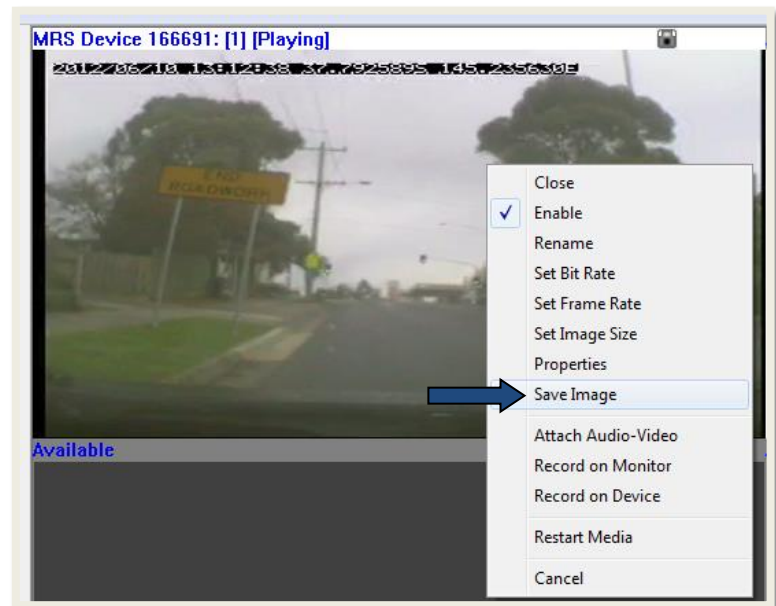
Add Replace Close

SMS alerts are now activated. A SMS will now be sent to the assigned mobile phone(s) as a result of any trigger defined in the **"SMS Settings"**.

4-1-11 Photo Snapshots:

Photo stills can be taken of any open video stream on the MRS Monitor Application. Follow these instructions to do so:

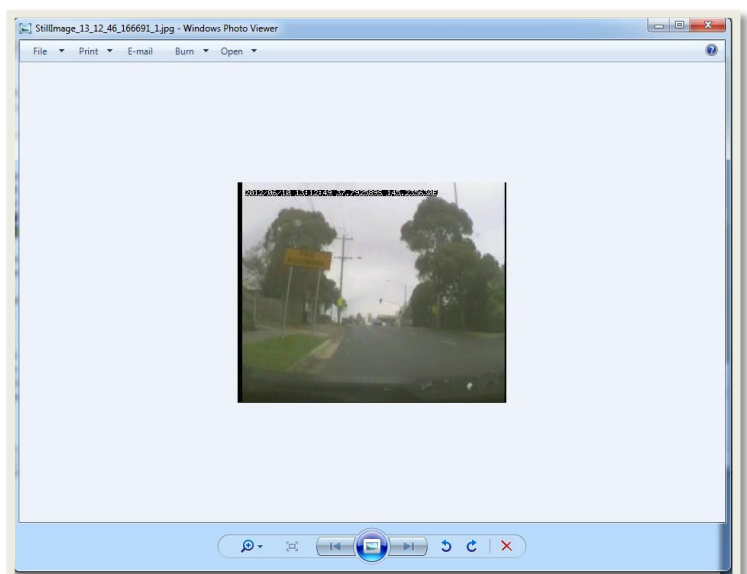
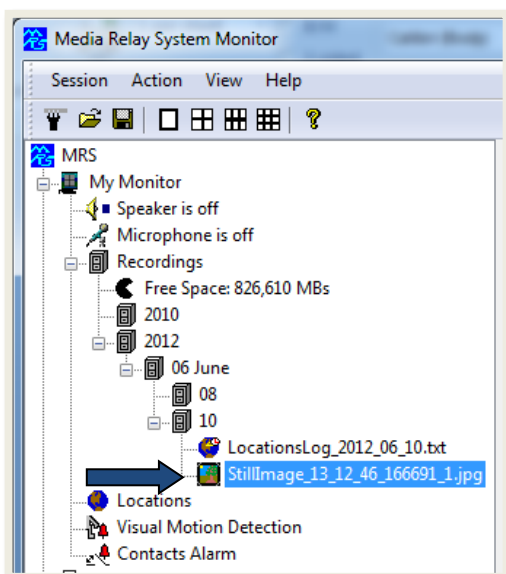
Right click on an open video stream and select **“Save Image”**.



This will save an image of the video stream in **.jpeg** format to your local recordings folder. You can access and view the images the same way video recordings are viewed. Follow these instructions:

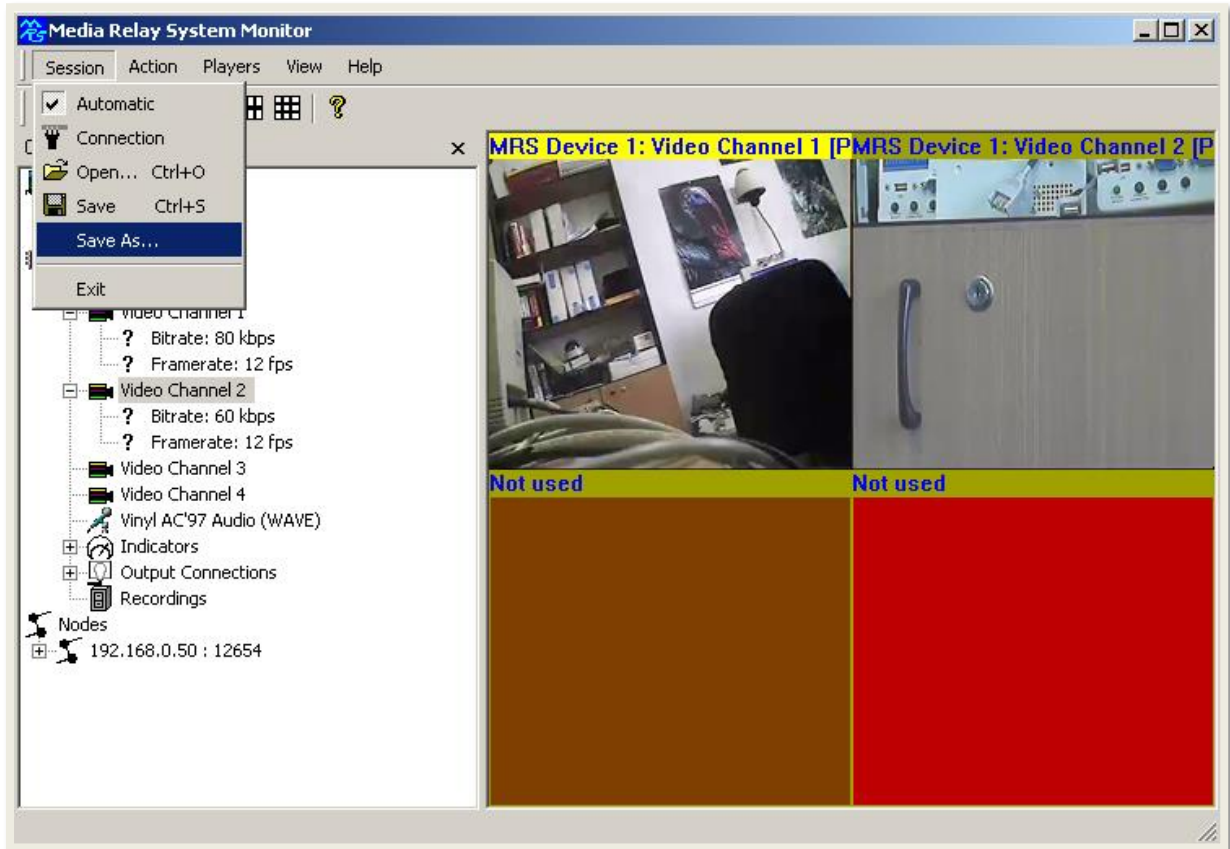
Open the **“Recordings”** tree on the left hand side under **“My Monitor”**. Double click on the desired saved image to open it.

The image will then open in Windows Photo Viewer. Alternatively, to view the saved image, locate your recordings folder on your PC and double click on the image file to open it.

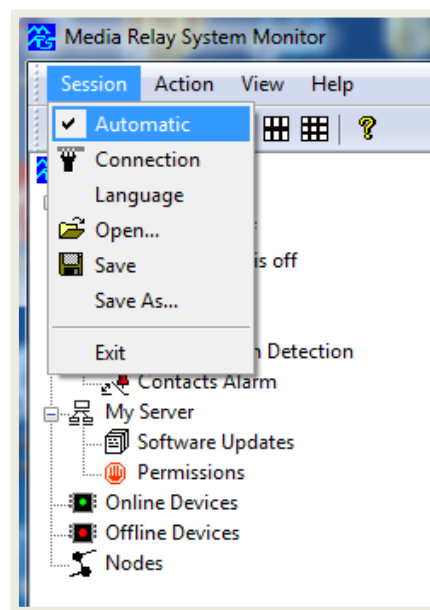


4-1-12 Session:

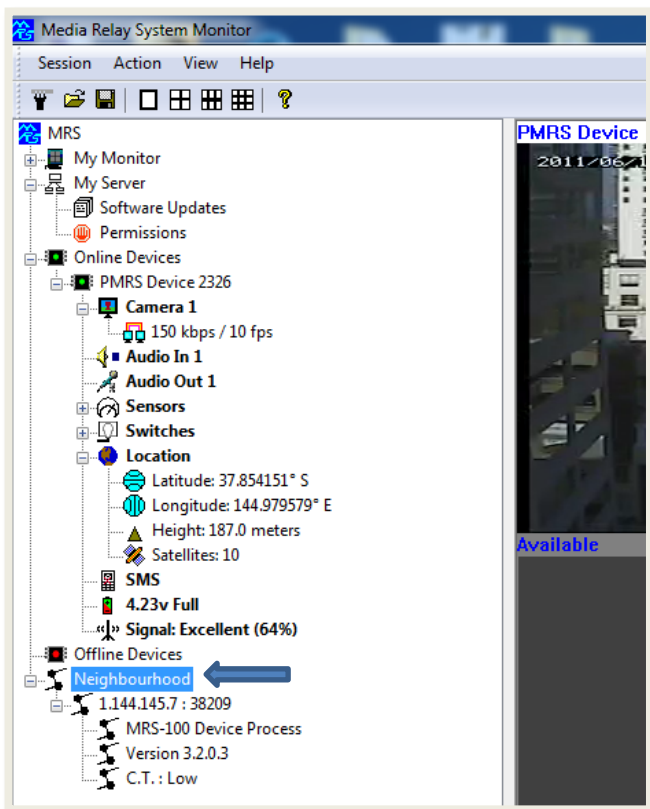
A session is set of parameters which defines the current state of the MRS monitor application. A session includes any open channels and channel parameters. A session can be saved to a file and reloaded at any time. To do so, open the **“Session”** menu and select **“Save As”**.



Users can enable the **“Automatic”** button in the **“Session”** menu which will save the current settings of the last session when exiting the program. After restarting, the program will load the last updated session which was saved automatically when exited.



4-1-13 Neighbourhood:



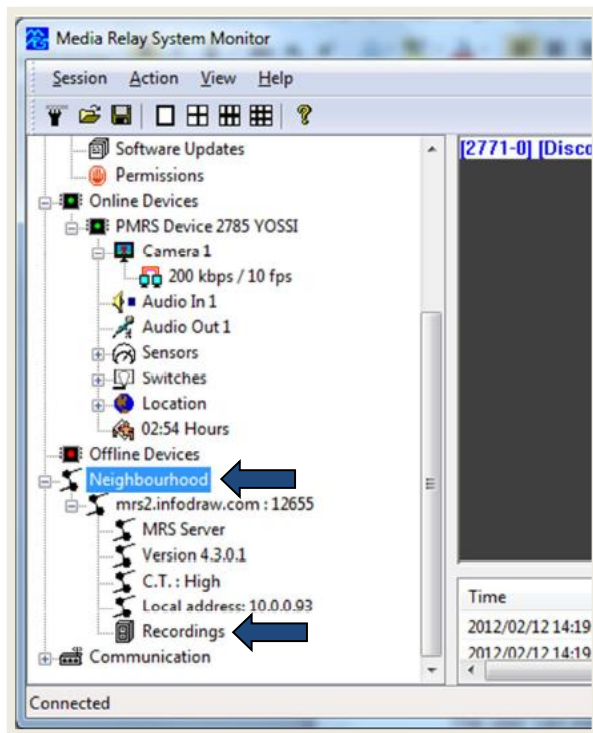
In the MRS Monitor Server Application:

In the MRS Monitor Server Application, the user can view details of all connected MRS/PMRS devices and clients under the “**Neighbourhood**” tree. The details include IP addresses, Software Versions and Tolerance (CT).

In the MRS Monitor Client Application:

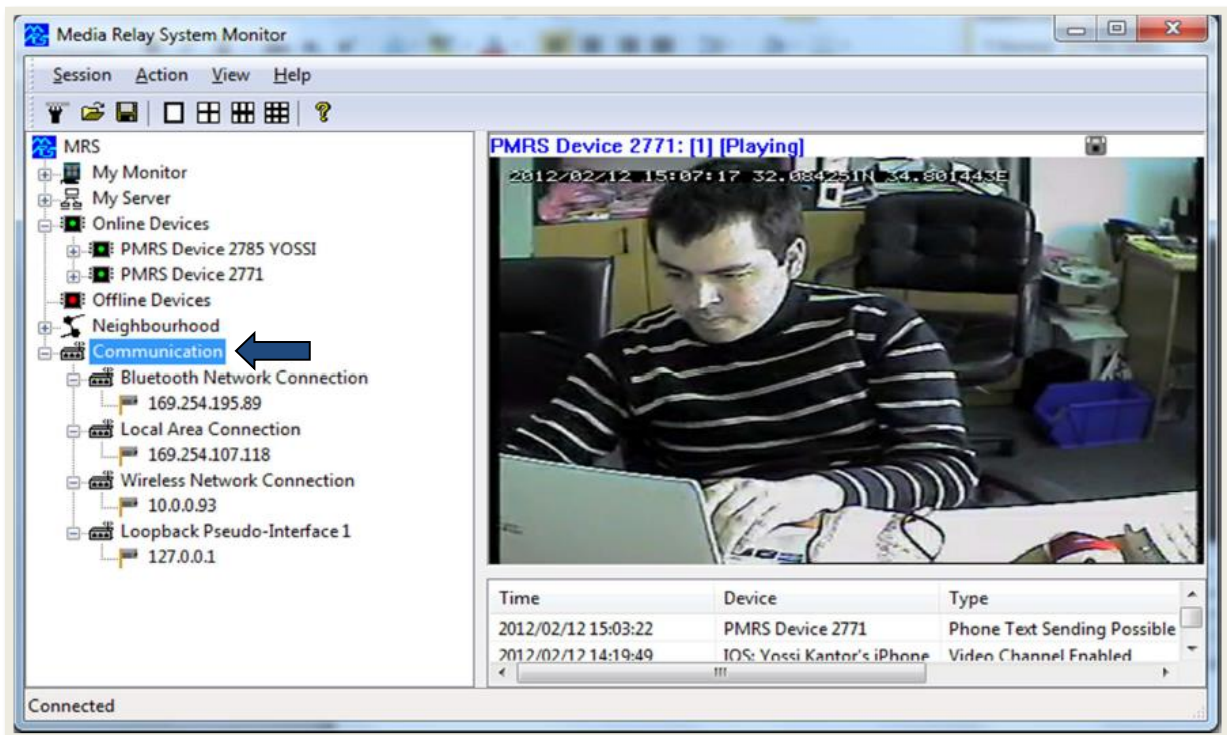
In the MRS Monitor Client Application, the user can view details of the server under the “**Neighbourhood**” tree. The details include the IP address, Software Version and Tolerance (CT).

You can also access the server’s recordings folder by double clicking on the “**Recordings**” tree.



4-1-14 Communication:

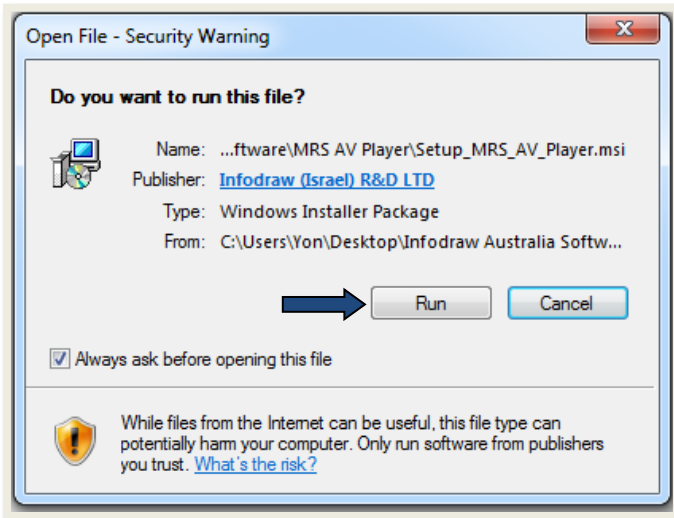
The communication node allows users to see their available connections: **Bluetooth, Local area, wireless and its loopback (computer ID).**



4-2 MRS AV Player Application:

The MRS AV Player Application is used for viewing recorded video/audio files, verifying digital signatures on recorded files and decrypting recorded files.

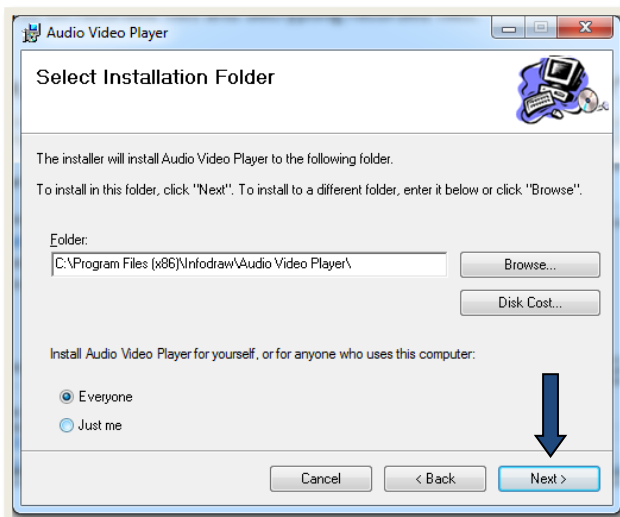
1) Run the “Setup_MRS_AV_Player.msi” file.



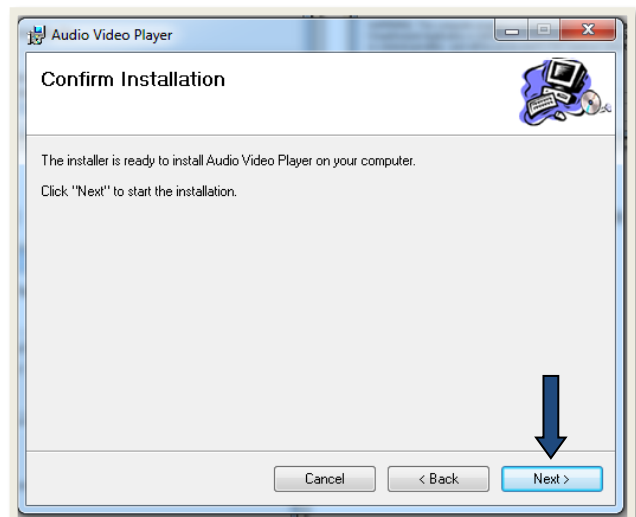
2) Click “Next”.



3) Click “Next”.



4) Click “Next” to begin installation.



4-2-1 Playing Recorded Files:

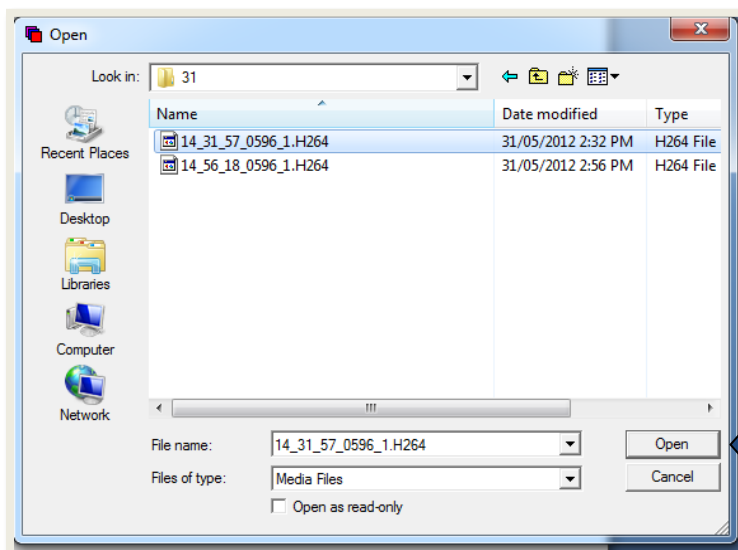
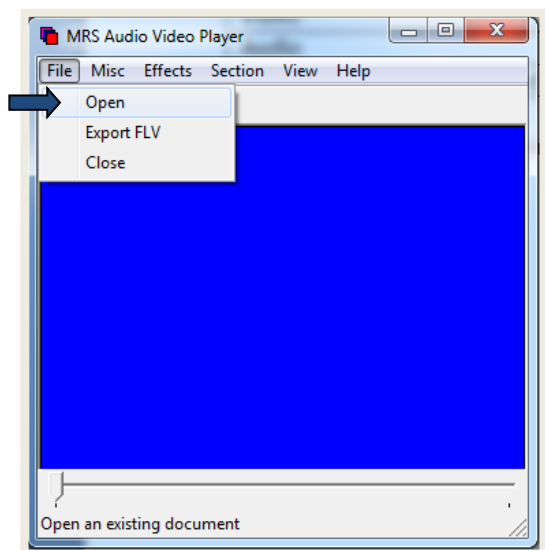
There are three formats that recorded files are saved in:

Recording Type:	Format:
Video	H264
Audio	AAC
Synchronized Video and Audio	FLV

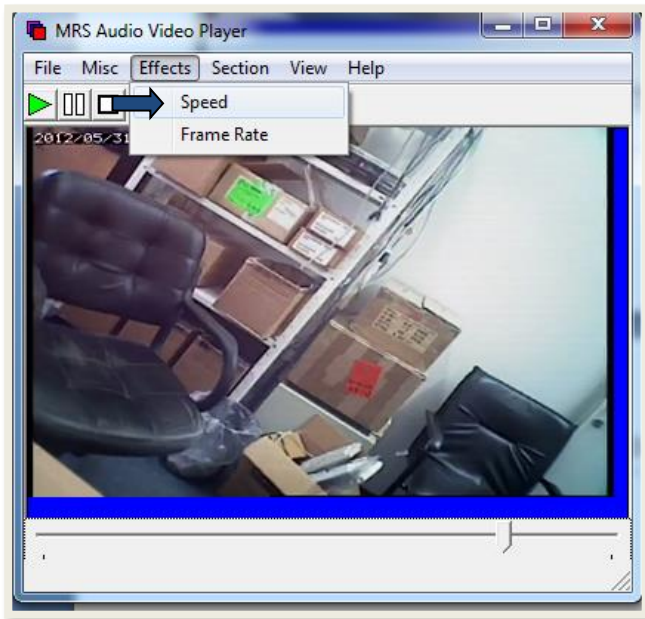
- If you want to convert H264 file to a FLV file (which is identifiable to most players), open the "file" menu and click on the **"Export FLV"** option.

Once the MRS AV Player is installed and opened, follow these instructions to play recorded files:

- 1) Open the **"File"** menu and select **"Open"**.
- 2) Browse your PC for the recordings folder. The recorded files are arranged by date and time. Select the desired recording. Then press **"Open"**.

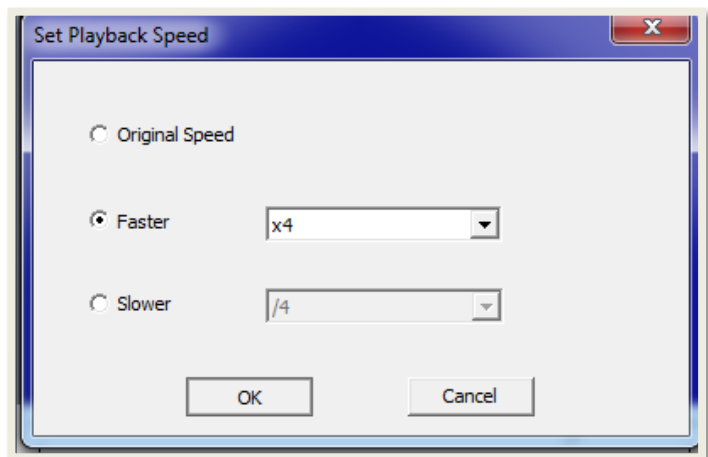


- 3) The Recorded file with then commence playing in the MRS AV Player.



The recording playback can be speeded up or slowed down. To do so, open the **“Effects”** menu and select **“Speed”**.

The **“Set Playback Speed”** window will appear. The descriptions of the settings are listed below:



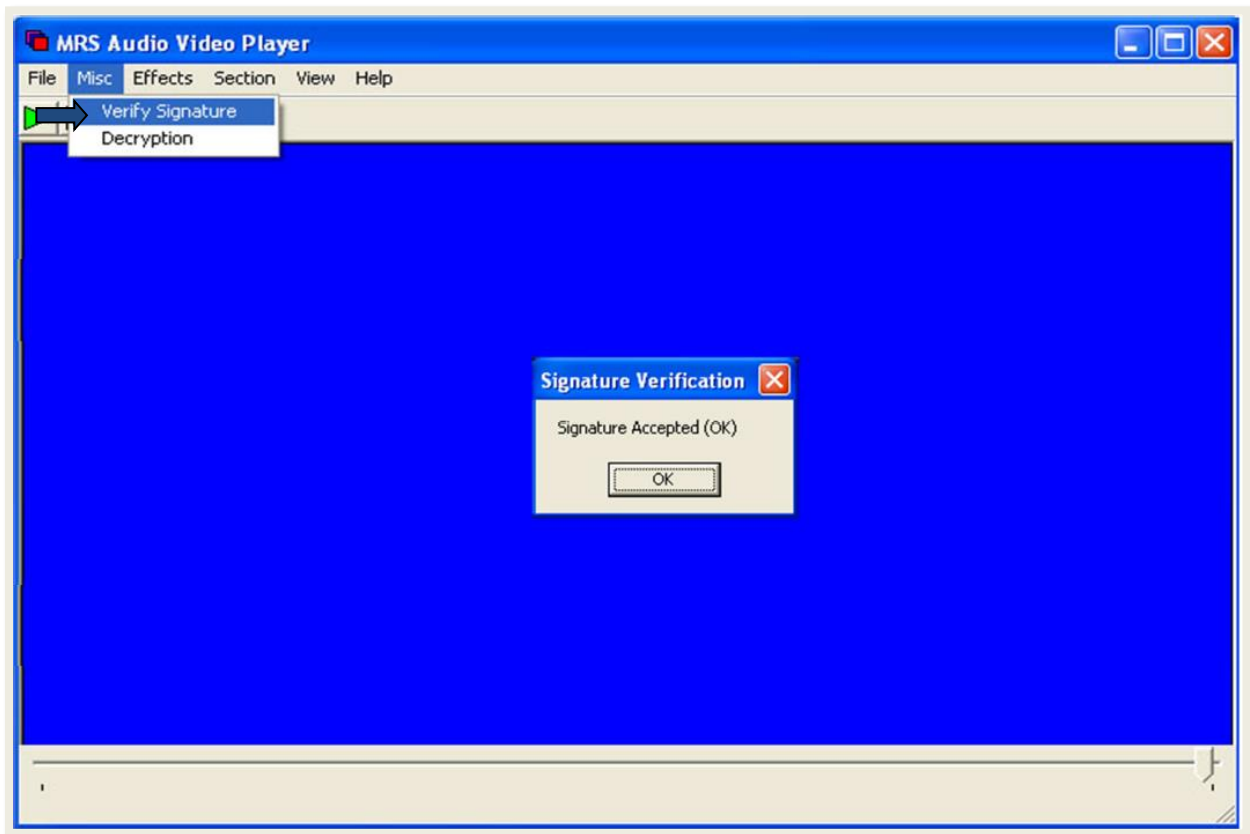
Settings:	Descriptions:
Original Speed	Enable this option to keep the recording at its normal speed.
Faster	Enable this option to speed the recording playback up. In the list box, select how fast you want the recording to speed up. Choose from: x2, x3, x4, x6, x8, and x10.
Slower	Enable this option to slow the recording playback down. In the list box, select how slow you want the recording to slow down. Choose from: /2, /3, /4, /6, /8, and /10.

After you have finished, press **“OK”**. The recording playback will now speed up or slow down accordingly.

4-2-2 Verifying Digital Signatures:

The digital signature authenticates the recording as one that was recorded by the MRS system (a MRS/PMRS device, an MRS Monitor application or a MRS Service). If a digital signature has been assigned to a recorded file, it can be verified in the MRS AV Player Application. Follow these instructions:

Once the recorded file is opened in the MRS AV Player, open the “**Misc**” menu and select “**Verify Signature**”.



This will result in a message “**Signature Accepted (OK)**” or “**Signature Rejected (BAD)**”

Signature Accepted means that the AV Player authenticated the recorded file as part of the MRS system successfully.

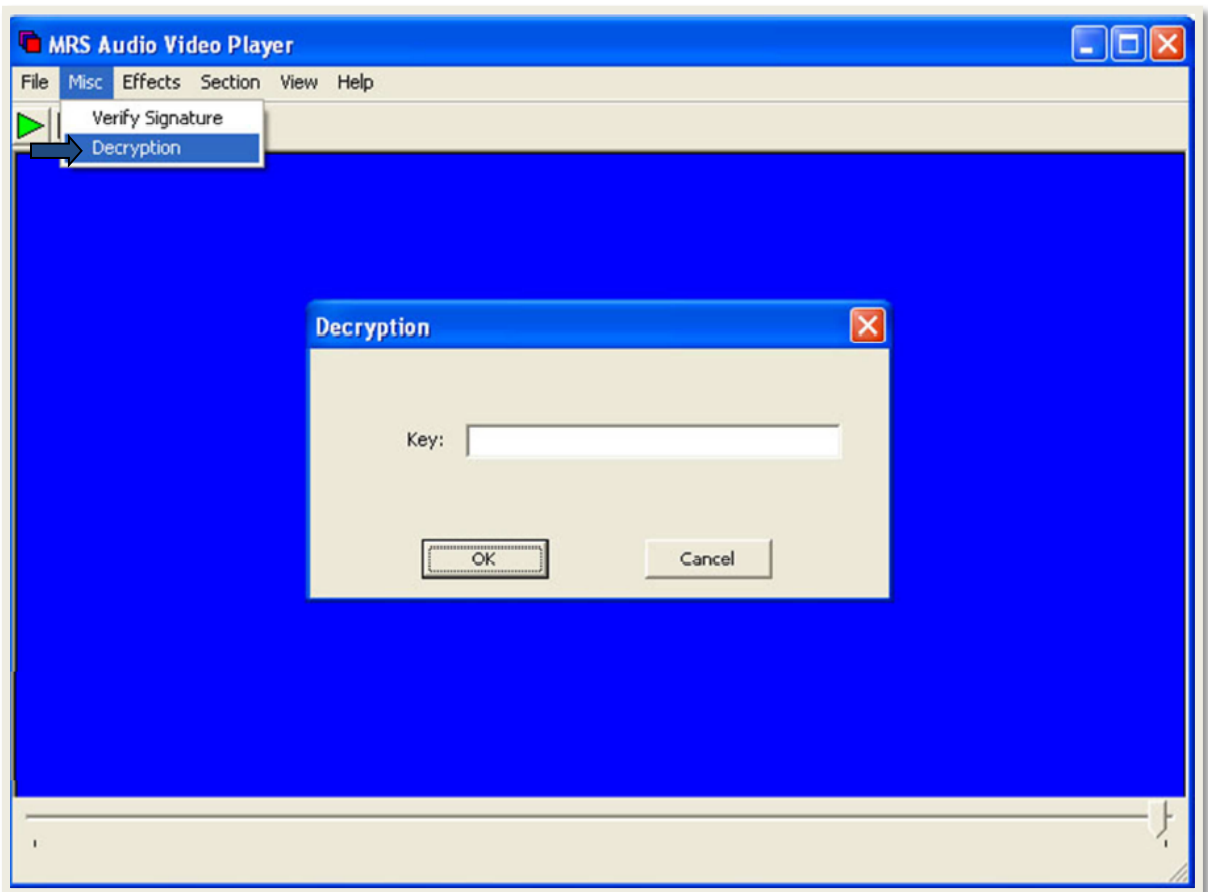
Signature Rejected means that the AV Player did not authenticate the recorded file as part of the MRS system successfully.

4-2-3 Decrypting Recorded Files:

If a recorded file is encrypted with a code, it must be decrypted in the MRS AV Player before you can view it. Follow these instructions to do so:

Once the recorded file is opened in the MRS AV Player, open the **“Misc”** menu and select **“Decryption”**.

The **“Decryption”** window will appear. In the **“Key”** box, enter in your encryption code for that recording. Then press **“OK”**.

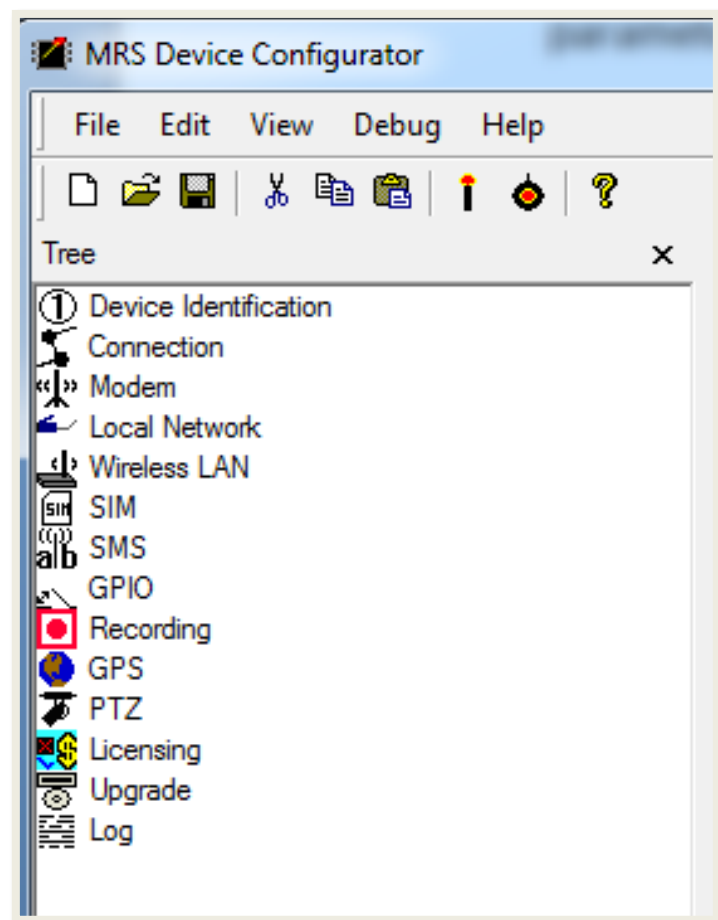


You will now be able to view that recorded file in the AV Player.

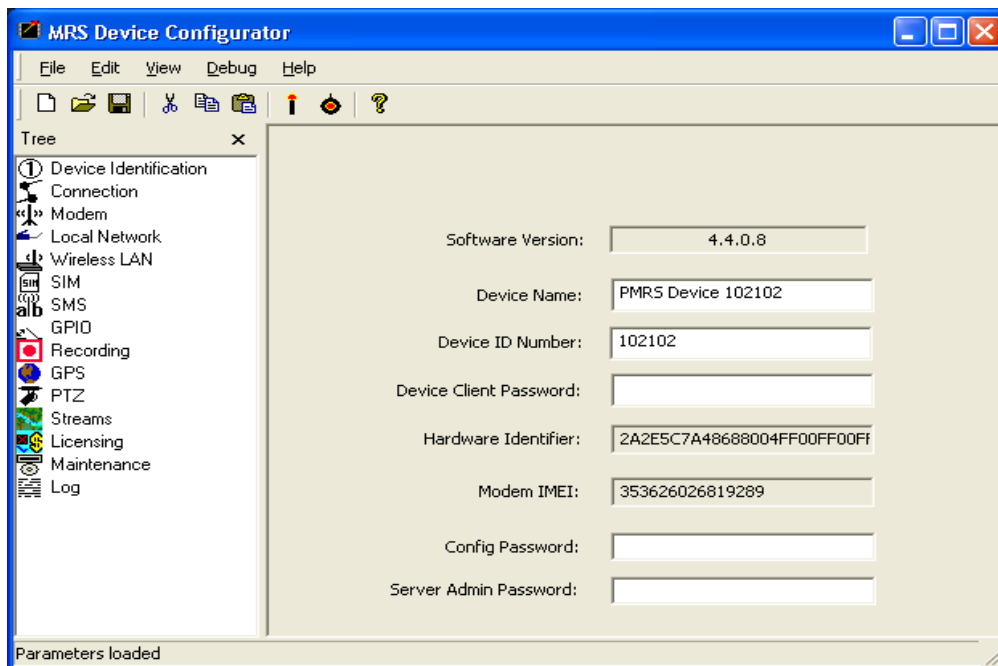
4-3 MRS Device Configurator Application:

- 1) After the MRS USB driver installation is complete, open the **Device Configurator** application. This program allows you to configure the unit through the USB cable.
- 2) Turn the PMRS unit off and then back on.
- 3) Once the unit reconnects to the PC, it will automatically load the unit's configuration parameters on the Device Configurator application.

This application communicates with the unit and has a menu with the following options:

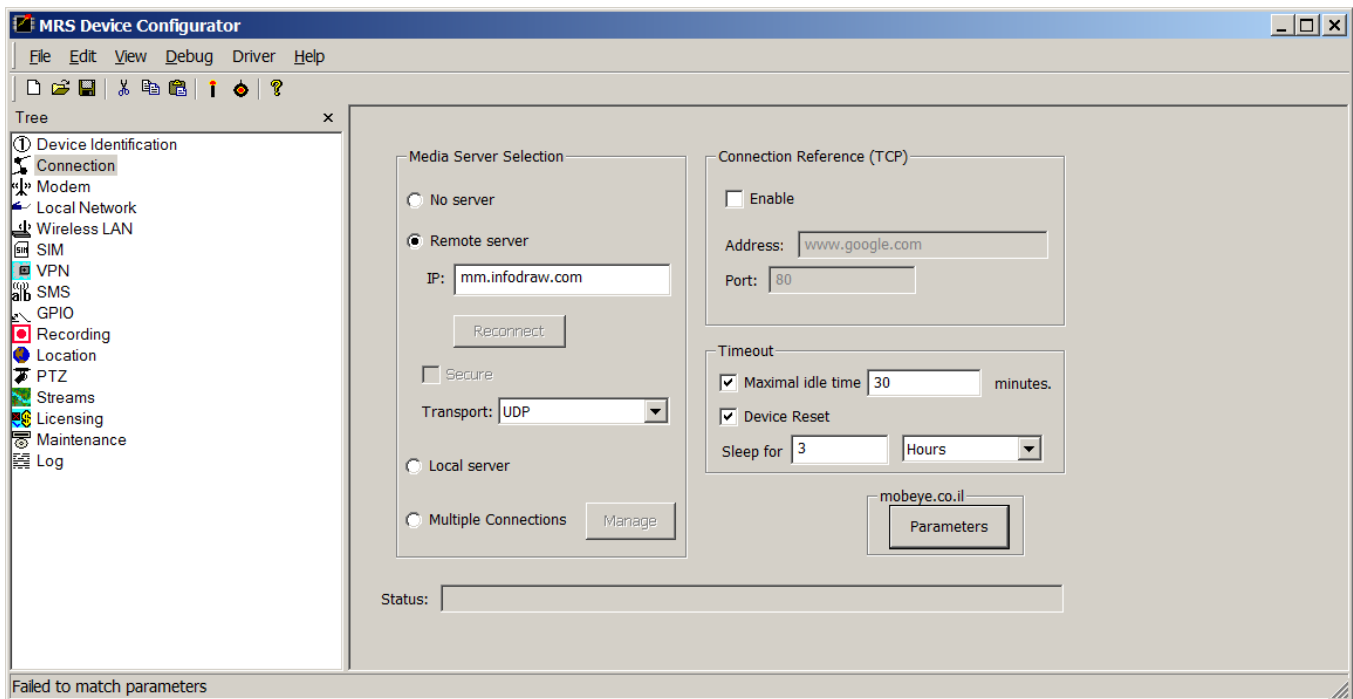


4-3-1 Device Identification:



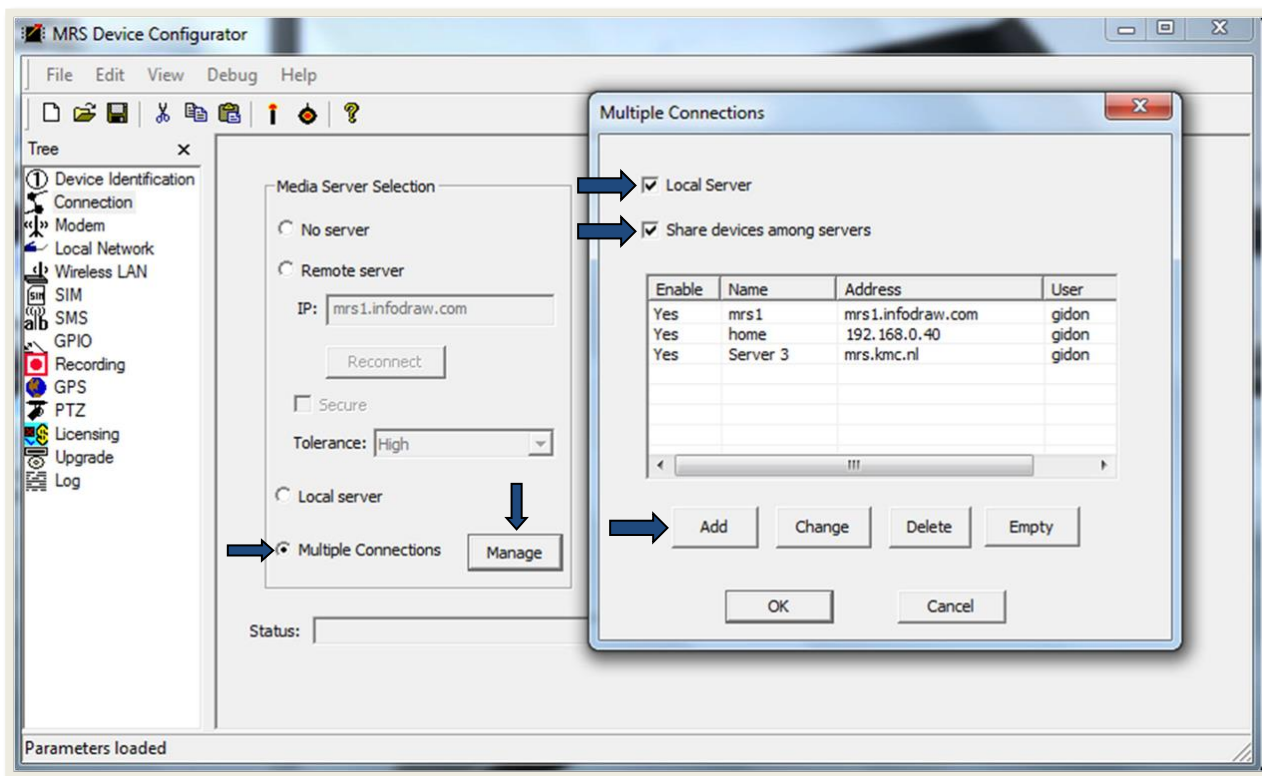
Device Identification Parameters:	Descriptions:
Software Version	This is the current version of the PMRS unit's firmware.
Device Name	This is the name of the PMRS device that will appear when connected to the server/clients. This can be changed to any desired name.
Device ID Number	This is the ID Number of the PMRS device that will appear when connected to the server/clients. This can be changed to any number above 0 and below 2 billion . Ensure that each PMRS unit that is connecting to the same server has a Unique ID Number .
Device Client Password	If a PMRS device ID has been assigned a password in the permissions feature of the server, the password will need to be inserted here; otherwise the unit will not be able to connect to the server.
Hardware Identifier	This is the hardware ID number of the PMRS unit.
Modem IMEI	This is the Identifier number of the PMRS unit's modem.
Config Password	A password can be inserted here to prevent non-authorized people from accessing the device's parameters through the USB cable. Upon connecting the PMRS unit to the Device Configurator, the Config Password will be required to continue.
Server Admin Password	This password is for the Web Admin Interface Server program if the PMRS device is acting as the server itself.

4-3-2 Connection Menu:



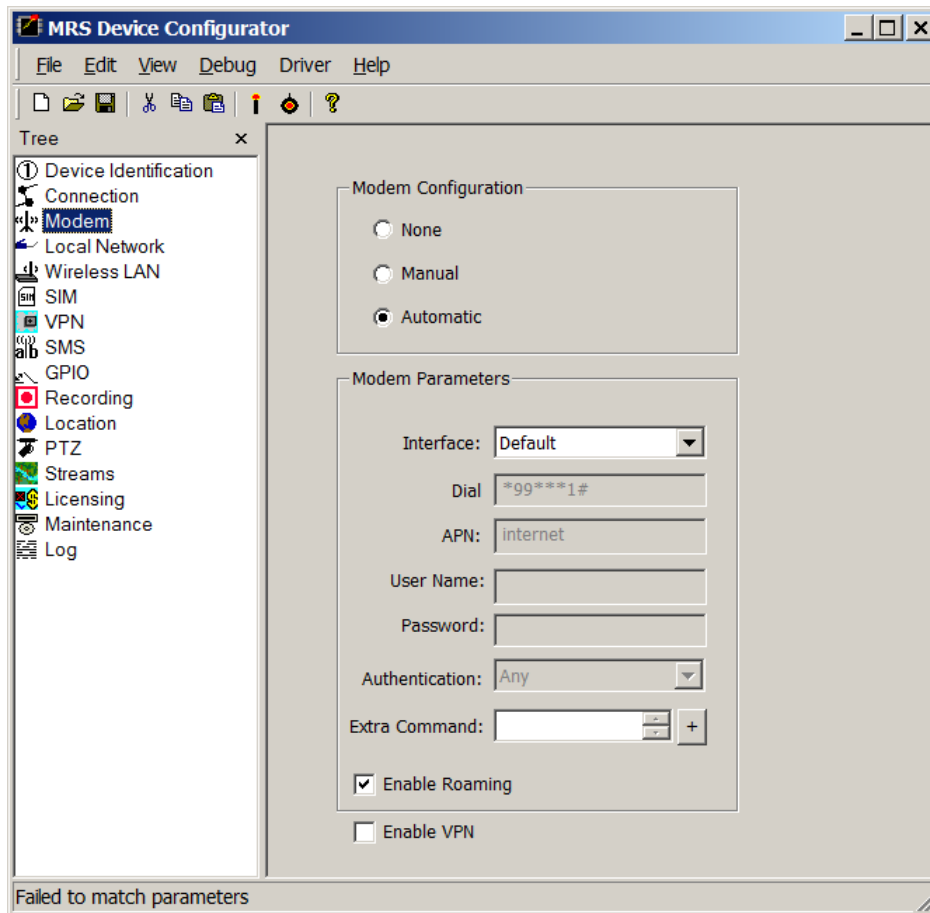
Connection Parameters:	Descriptions:
No server	If the “No server” option is checked, the PMRS unit will not connect to anything.
Remote server IP	Here you can update the IP address of your server, in the “ Remote server ” IP box.
Secure	If your PMRS unit has secure session IPSEC Encryption applied to it in the licensing menu, you must tick the “ Secure ” option to activate the encryption.
Tolerance	Keep this option set to “ UDP ”.
Local server	The PMRS unit can also act as a server by selecting the “ Local server ” option. However for this configuration, the unit will require a SIM card with a fixed, public IP address which must be obtained from your cellular provider.
Connection Reference (TCP)	Do not enable this feature at this time.
Timeout	This feature should be enabled (both “ Maximal idle time ” and “ Device Reset ”). It is designed to detect an idle time during which there is no client/server communications. When this idle time passes, the device will reset its modem connection. If there is no active modem and you have enabled the reset option, it will restart itself.

Connection Menu (continued):



Connection Parameters:	Descriptions:
Multiple Connections	<p>This feature allows the connection of the PMRS device to connect to more than one server at activation. Enable the “Multiple Connections” option and press the “Manage” button to open the “Multiple Connections Window”.</p> <p>In the “Multiple Connections Window”, press on the “Add” button to insert another server to which the PMRS device will connect to.</p> <p>The “Local Server” option allows the PMRS unit to act as one of the multiple servers. Tick to enable this option.</p> <p>The “Share Devices Among Servers” option shares all the devices that are connected to the same network as this device is, among all the servers which have been added to the list. Tick to enable this option.</p>

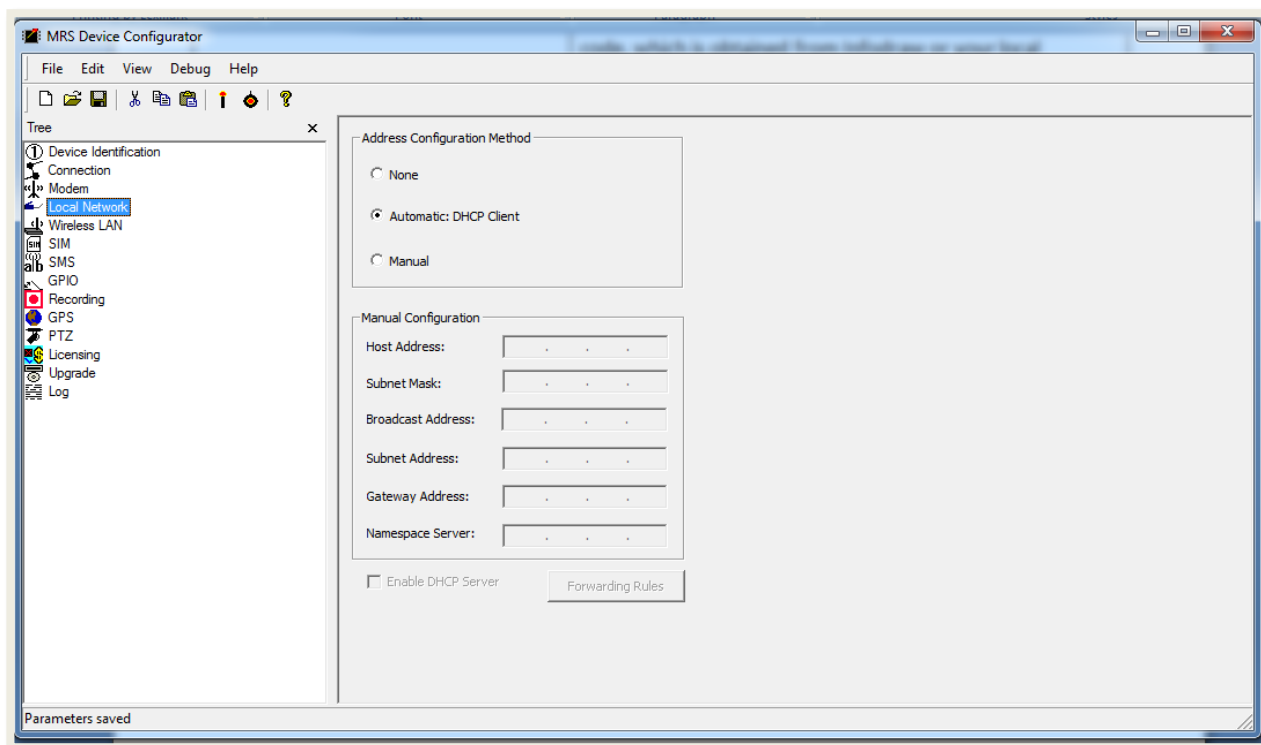
4-3-3 Modem Menu:



Modem Parameters:	Description:
None	This option turns the wireless cellular modem off.
Manual	This option allows you to configure the settings of the cellular provider in use manually.
Automatic	This option provides automatic settings of the cellular provider in use.
Hardware	Keep this parameter the same (set to Automatic).
Dial String	Keep this parameter the same.
APN	The Access Point Name (APN) of your cellular provider must be entered in this box.
User Name	Here you can enter your User Name for your cellular provider if required (usually is not required).
Password	Here you can enter your Password for your cellular provider if required (usually is not required).
Authentication	Keep this parameter the same (set to Any), unless told otherwise by your cellular provider.

Extra Command	This feature allows you to give the modem additional commands. For example you can tell the modem to only search for one cellular frequency band. To add an extra command, click the “+” button. Enter the correct lines of code, which should be obtained from Infodraw or your local Infodraw dealer. Then press “OK”
Enable roaming	Allow device to search for other available networks, when the network of the Cell provider is unavailable.
Enable VPN	Enables Open VPN capabilities

4-3-4 Local Network Menu:

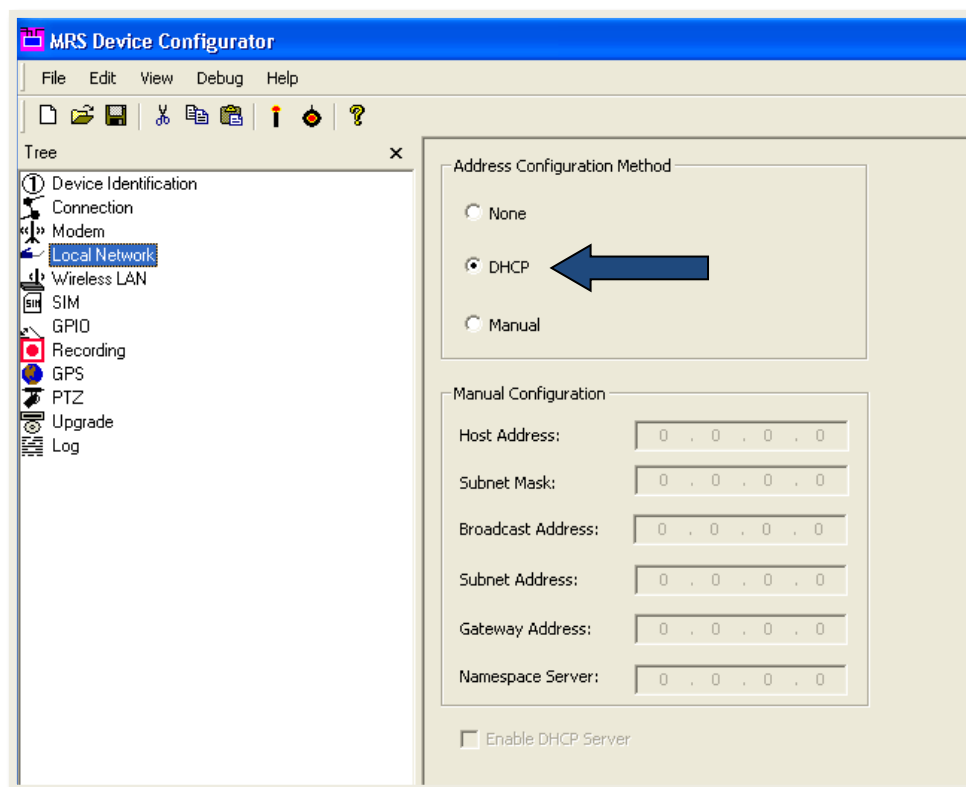


Local Network Parameters:	Descriptions:
None	This option disables the PMRS unit's LAN interface.
Automatic: DHCP Client	This option enables the LAN interface and makes the PMRS unit an automatic DHCP Client for your local network. For more information, view the " LAN " section of this user manual.
Manual (Manual Configuration)	This option also allows you to create your own local network which comes in handy when trying to connect to an external hard drive or use the PMRS device as a router. For more information, view the " SMB Recording (External Storage Device) " section of this user manual.
Enable DHCP Server	When the "Manual" option is selected, tick the " Enable DHCP Server " option to turn the PMRS device into a 3G Router. For more information, view the " Use the PMRS Device as a 3G Router " section of this user manual.

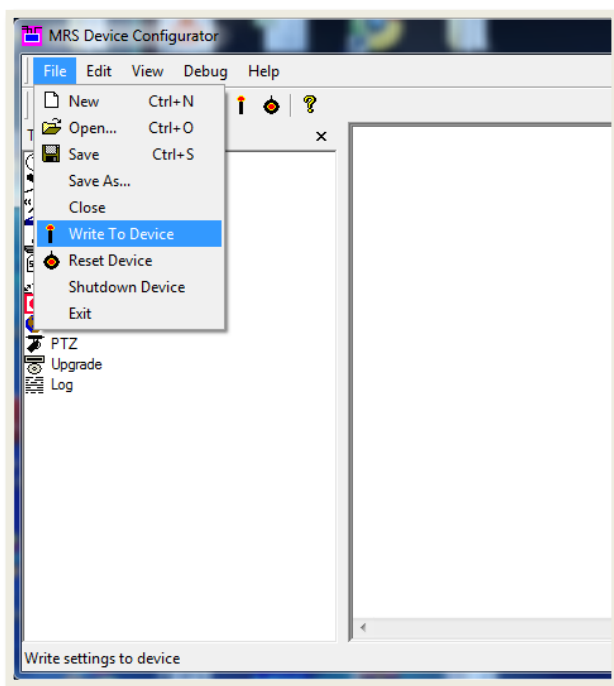
4-3-4-1 Connect Through LAN

Follow these instructions to set up the LAN function on the PMRS:

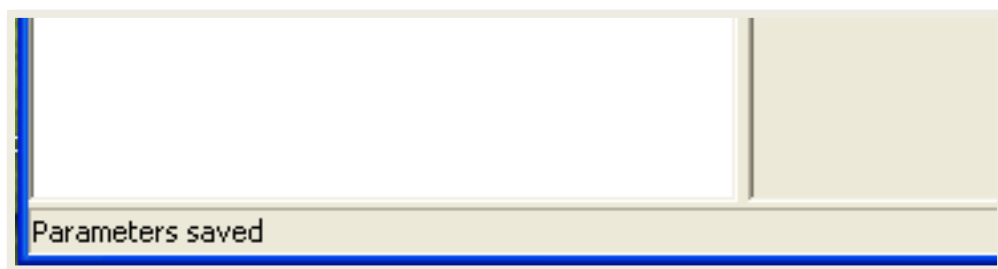
- 1) Open the “**Device Configurator**” Application.
- 2) Turn the PMRS OFF.
- 3) Ensure the 2 left dip switches on the PMRS unit (numbers 1,2 are in up position).
- 4) Ensure the SIM card is **NOT** inserted into the unit.
- 5) Connect the PMRS unit to the PC using the USB Cable. Then turn it on.
- 6) Once connected to the PC, the unit’s parameters will load automatically on the “**Device Configurator**”.
- 7) Go to the “**Local Network**” menu on the left hand side. Under the “**Address Configuration Method**” menu, select “**DHCP**”.



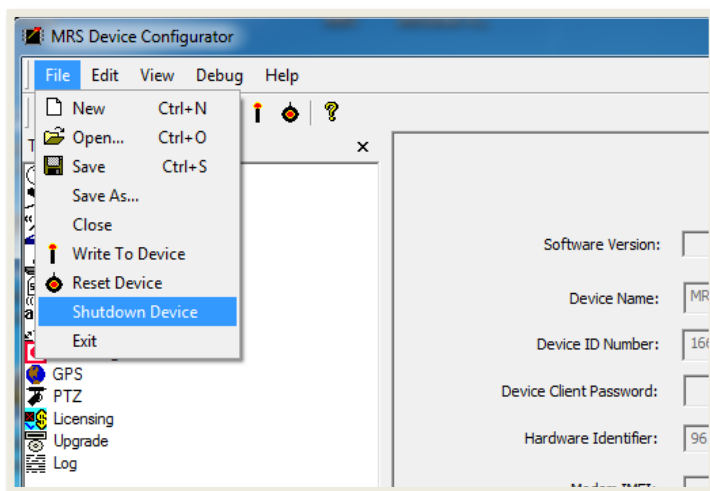
After inputting the above settings, the configuration must be saved into the unit. This is done by opening the File menu and clicking **“Write To Device”** (The candle icon).

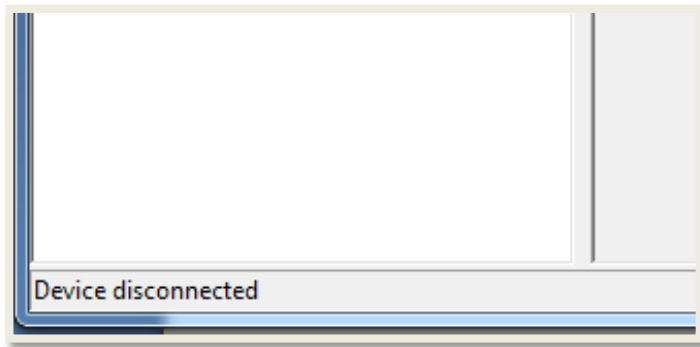


After pressing this key, the status at the bottom left hand side of the application will show: **“Parameters Saved”**.



After the parameters are saved, open the “File” menu and select **“Shutdown Device”**.





You will then see the following status at the bottom left-hand side of the screen: **“Device disconnected”**.

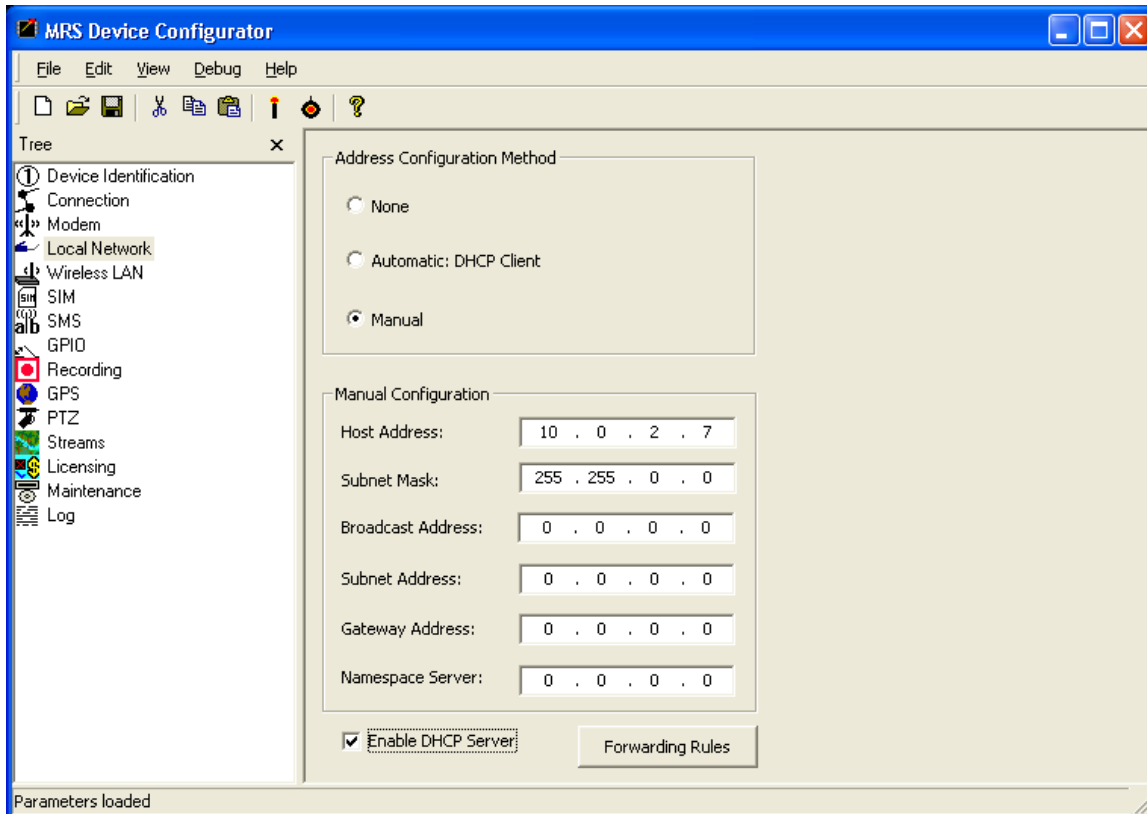
- 8) You can now unplug the USB cable from the PC and the device.
- 9) Turn the PMRS device off.
- 10) Change back the left 2 dip switches (numbers 1,2 to down position).
- 11) Connect the Ethernet cable to the PMRS unit.

You can now connect the Ethernet cable to any local network router and connect to the MRS server using the internet.

4-3-4-2 PMRS Device as 3G Router:

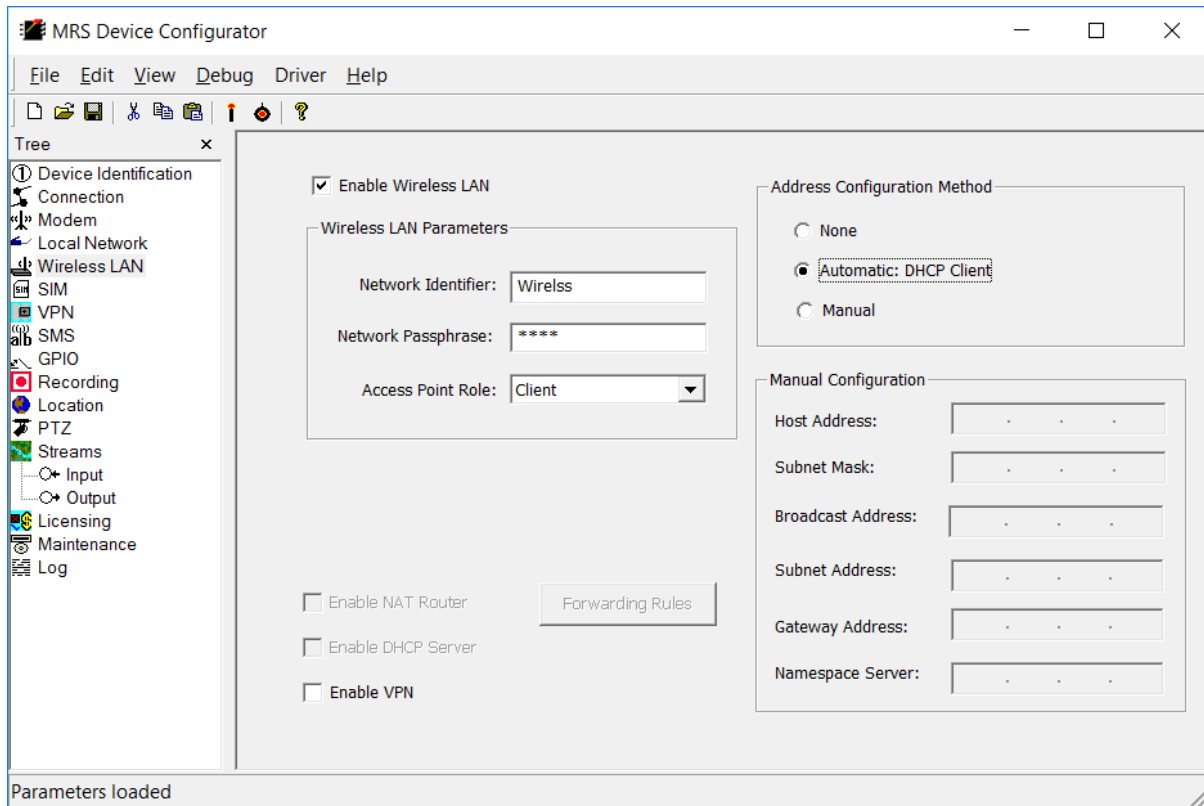
The PMRS unit can act as a 3G or 4G Router. Follow these instructions for setup:

- 1) Connect the unit to the “Device Configurator”.
- 2) Go to the LAN menu.



- 3) Select “Manual”.
- 4) Enter in the following settings:
Host Address: 10.0.0.1 or 192.168.0.1
Subnet Mask: 255.0.0.0 or 255.255.0.0
Leave the rest of the settings blank.
- 5) Tick the “Enable DHCP Server” option.
- 6) Select File>Write to Device.
- 7) Select File>Shutdown Device.
- 8) Disconnect the device and turn off.
- 9) Flip Dip Switches 1,2 to Down position.
- 10) Insert the SIM Card.
- 11) Ensure the GSM Antenna is connected to the unit.
- 12) Connect the Ethernet cable to the unit.
- 13) The PMRS unit will now act as a 3G Router. You can connect it to a laptop/PC through the Ethernet cable and you should be able to connect to the internet.

4-3-5 Wireless LAN



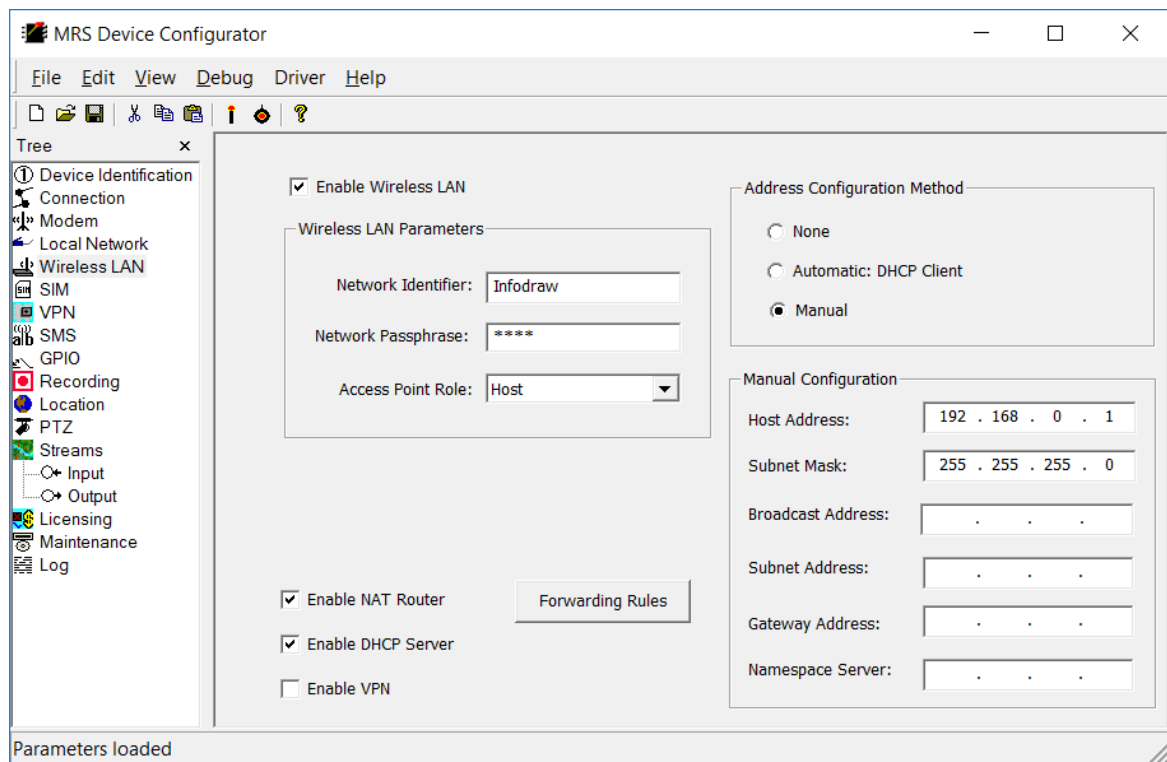
Wireless LAN Parameters:	Descriptions:
Enable Wireless-LAN	Allows your TMRS device connectivity to the WiFi network
Network Identifier	The username of the network (SSID).
Network Passphrase	The password of the network, available on PCs or smartphones connected to the network.
Address Configuration	<p>None: cannot connect to a network</p> <p>DHCP Client: Device connects to a Wi-Fi router and receives a dynamic IP (Recommended)</p> <p>Manual: Set a static IP address for your device to connect through. Suitable when another TMRS device serves as router.</p>

4-3-5-1 Wi-Fi Router

The PMRS device can also act as a WiFi router and give internet access to any WiFi enabled devices in range.

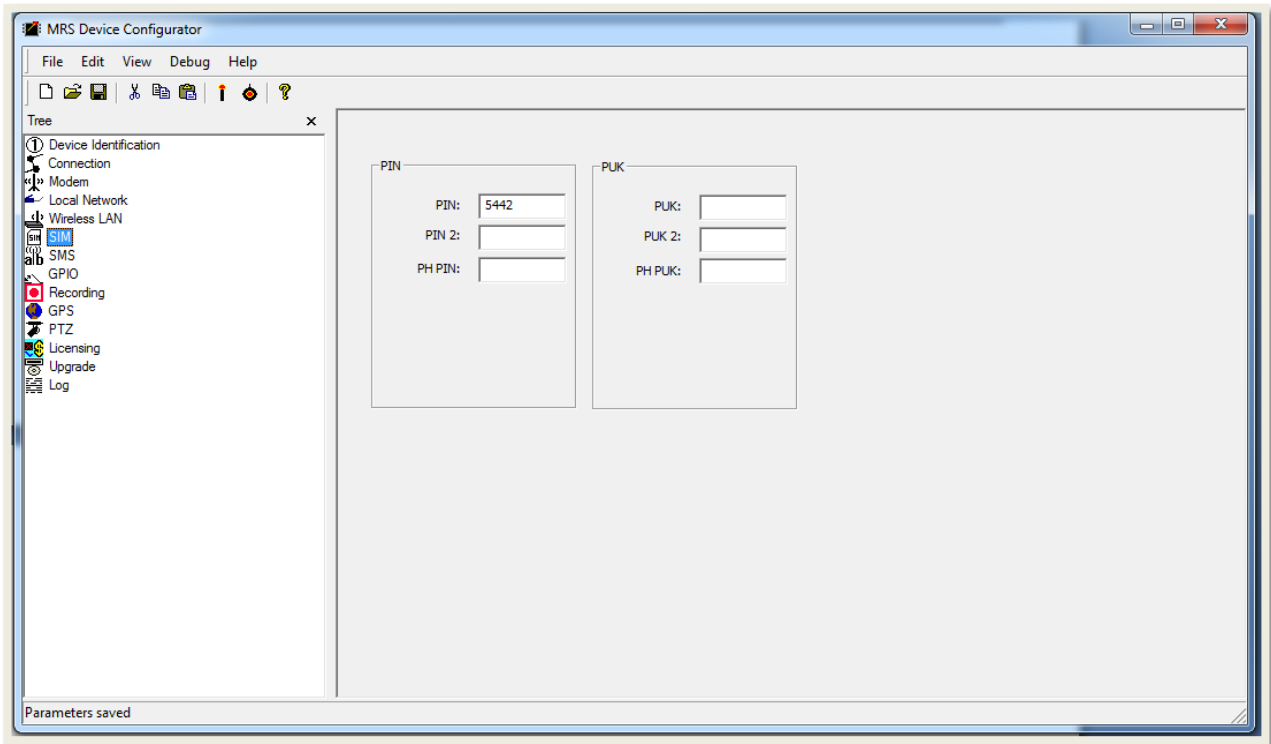
The process is simple:

1. Insert a SIM card and connect to a GSM antenna
2. Connect to the configurator:



3. Enter the Network Identifier SSID and the Passphrase.
4. In the Access Point role enter: **Host**
5. In the Configuration method enter: **Manual** and in the manual configuration enter the details of the router.
6. Check both **NAT Router** and **Enable DHCP Server**
7. Burn the changes to device by pressing the candle icon.

4-3-6 SIM Menu:



SIM Parameters:	Descriptions:
PIN	Here you can update the PIN numbers for the SIM card in use. Some SIM cards require a PIN number but most don't. The PIN number is obtained from your cellular provider.
PUK	Here you can update the PUK numbers for the SIM card in use. A PUK number will only be required if your SIM card is locked (which can happen for various reasons). If your SIM card does not work, ask your cellular provider if the SIM card is locked and how to unlock it.

4-3-7 VPN:

The PMRS unit supports OpenVPN. OpenVPN is a robust and configurable VPN (Virtual Private Network) daemon which can be used to securely link the PMRS and the MRS server on private networks using an encrypted tunnel over the Internet.

The PMRS with firmware versions 5.0.0.8 and above includes a configurable OpenVPN client version 2.3.2. This OpenVPN client is capable of connecting to an OpenVPN server using the InfoBoxx built-in cellular modem connection. It connects using the default OpenVPN settings of UDP port 1194 and creates a virtual network over this connection. This virtual network can be encrypted using TLS if provided with the authentication parameters: RSA certificate, key, and CA certificate. TLS supports a number of ciphers, including DES (40 bits), 3DES (168 bits), AES (256 bits) and RC4 (128 bits). The selected encryption cipher is a result of the negotiation between the TLS client and the TLS server.

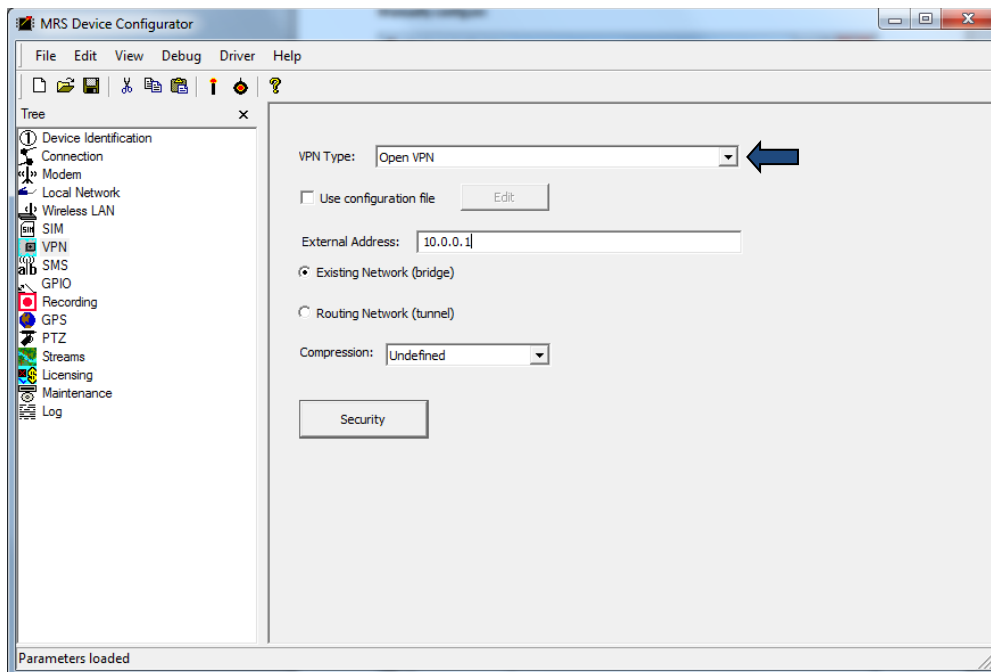
In order to have the PMRS media connection encrypted as part of the VPN, it must use the virtual network addresses instead of the internet addresses in the MRS Connection section of the Device Config Utility. Either the PMRS is a client that connects to an MRS Server using its virtual address (in the remote address field), or it is a server (local server selection) and the MRS Client will use the virtual address of the PMRS device to connect there. When using the virtual network addresses, it is possible to have a PMRS working as a server with a known virtual address even if it receives a dynamic or private address from the cellular provider. Read the OpenVPN manual for more information about configuring OpenVPN on:

<http://openvpn.net/index.php/open-source/documentation/howto.html>

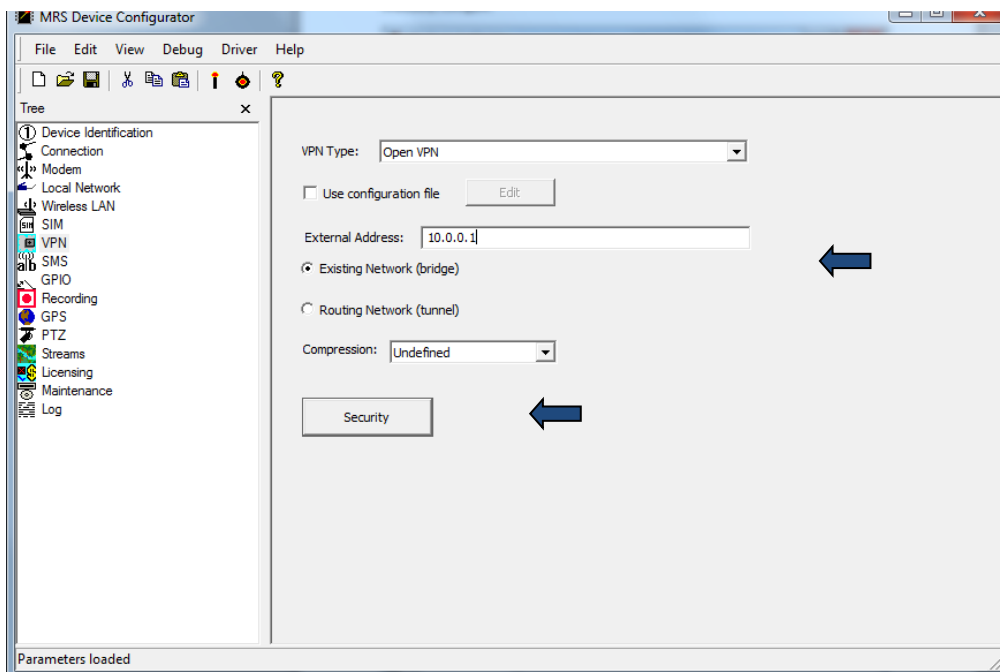
The OpenVPN Client can be configured in two ways. Manual configuration, or import from an OpenVPN client configuration file.

Manual configuration

Step 1: Open the “VPN” Tab in the Device configurator program.



Step 2: In the “VPN” window, select “VPN Type Open VPN”.

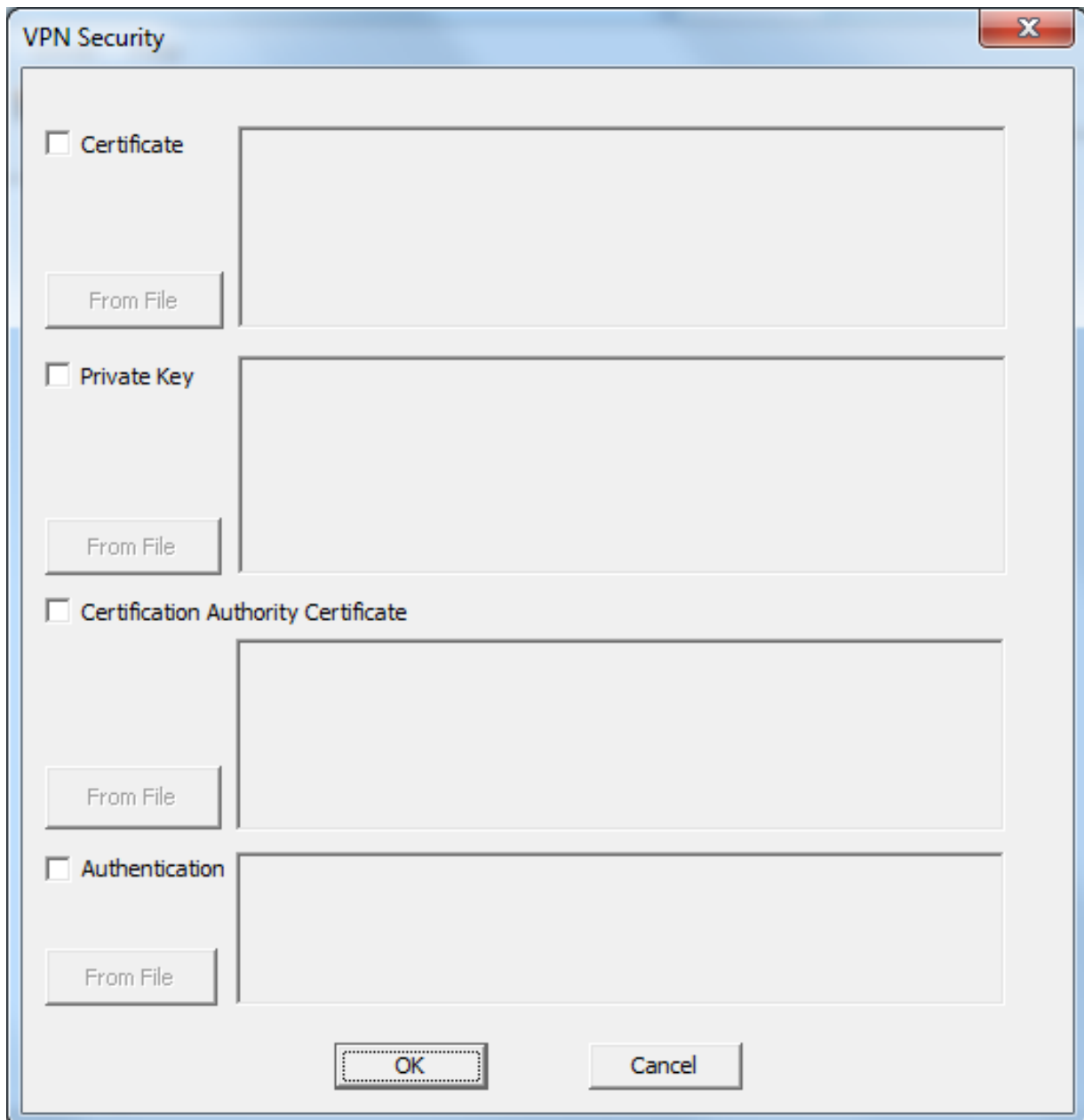


Step 3: In the “External Address” fill in the OpenVPN External server network IP Address

When select the option “Security” the next window will appear. In this window - fill in the necessary OpenVPN certificates, Private Key, CA Certificates and Authentication. It’s also possible to import these from a file.

More information about how to use this configuration can be found on:

<https://openvpn.net/index.php/open-source/documentation/howto.html>



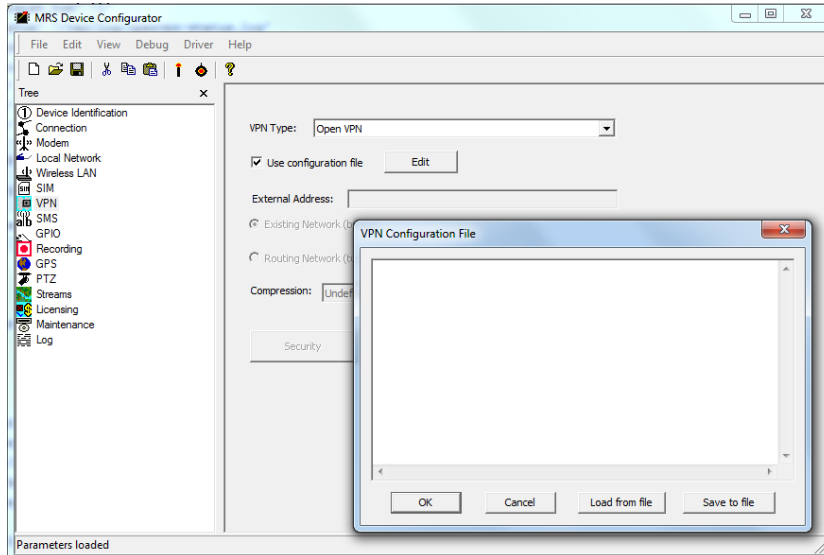
The image shows a Windows-style dialog box titled "VPN Security". It contains four sections, each with a checkbox and a text area. The first section is "Certificate", the second is "Private Key", the third is "Certification Authority Certificate", and the fourth is "Authentication". Each section has a "From File" button to its left. At the bottom of the dialog are "OK" and "Cancel" buttons.

Option	Text Area	From File Button
<input type="checkbox"/> Certificate		From File
<input type="checkbox"/> Private Key		From File
<input type="checkbox"/> Certification Authority Certificate		From File
<input type="checkbox"/> Authentication		From File

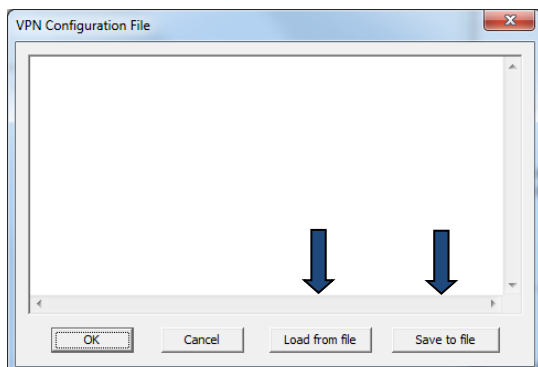
OK Cancel

Import OpenVPN Configuration file

It's also possible to import an OpenVPN configuration file, or copy paste the configuration from an OpenVPN configuration file.



Select "Use configuration file"

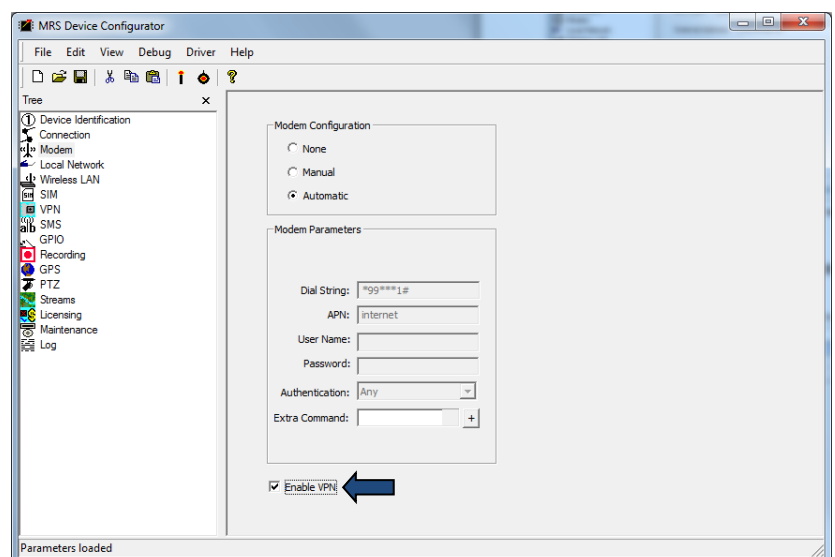


In the following window you can either copy-paste the OpenVPN Client configuration or load the configuration from a file. The OpenVPN Client configuration can also be saved by selecting "Save to file"

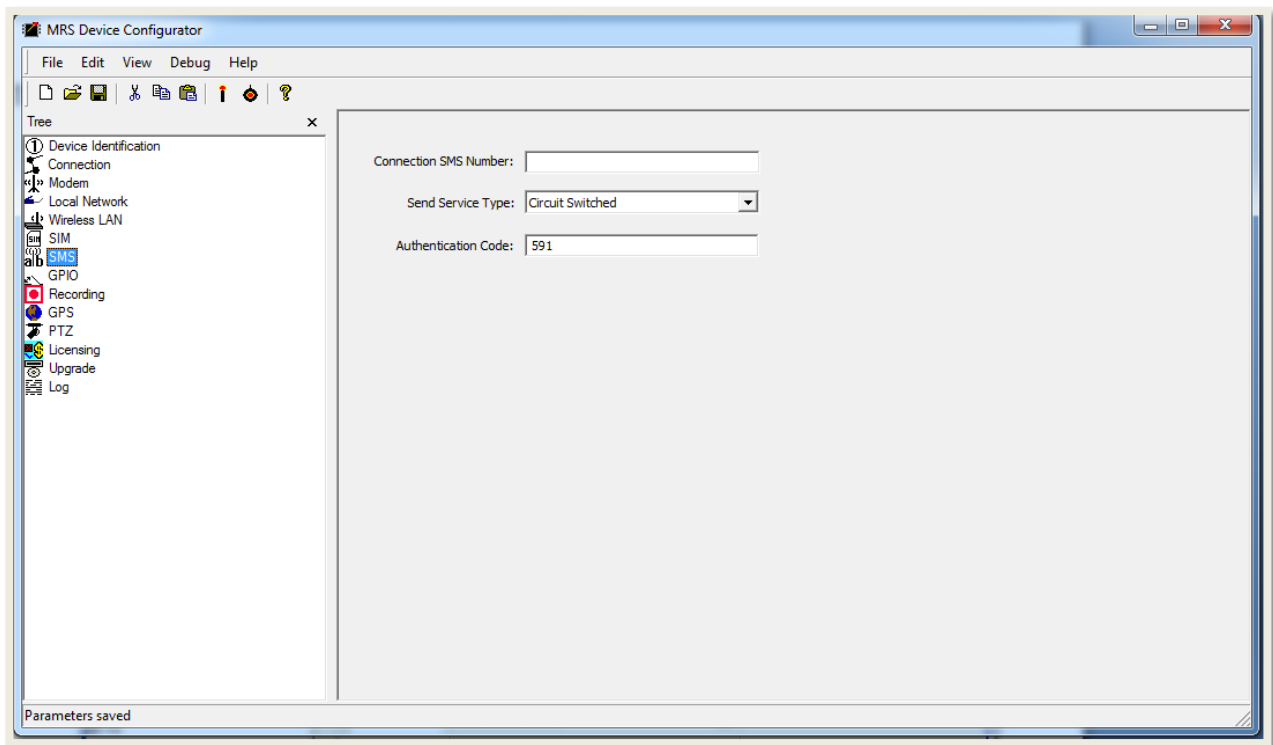
Enable OpenVPN

Open the modem tab in the Device configurator.

To enable the VPN connectivity select "**Enable VPN**" in the Modem Configuration window.



4-3-8 SMS Menu:



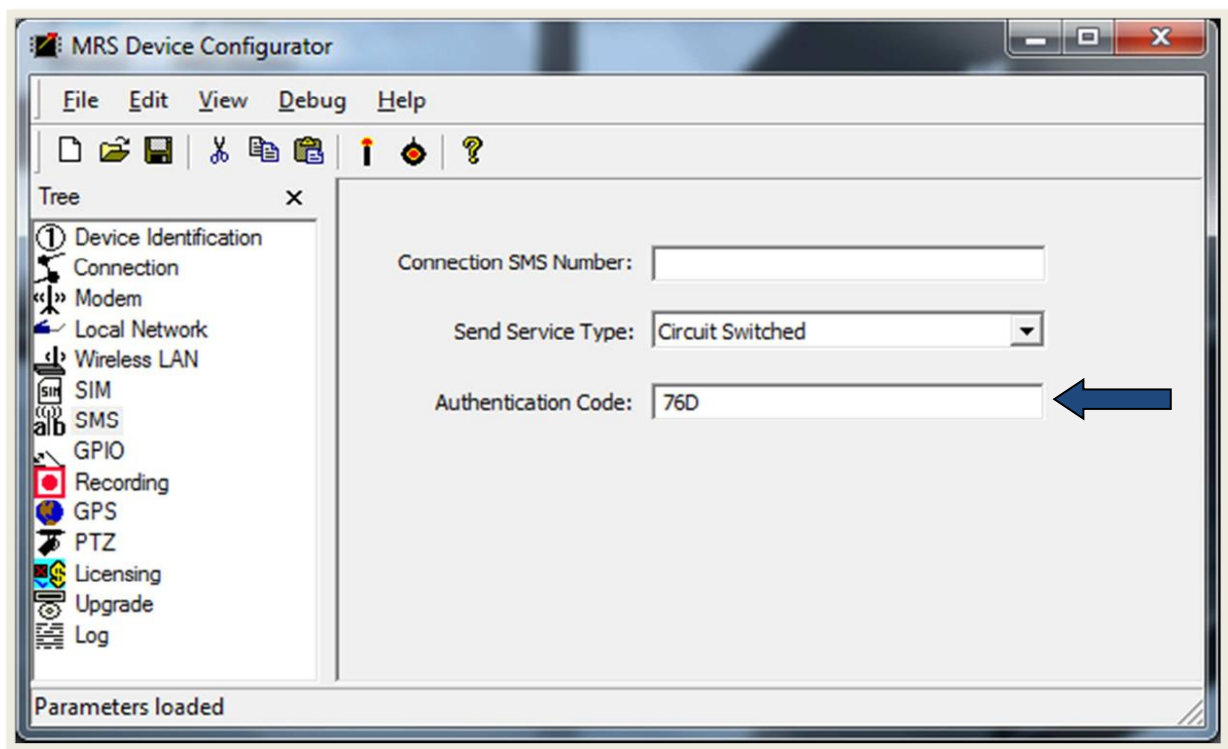
SMS Parameters:	Descriptions:
Connection SMS Number	This feature is good for when using the PMRS device as a server with a variable external IP address given by the cellular provider. Every time the device connects to the cellular network, it will send an SMS to this phone number containing the new IP address.
Send Service Type	This is a parameter defining the technology used for sending SMS messages. It depends on the cellular service provider. Keep this setting the same (set to Circuit Switched), unless told otherwise by your cellular provider.
Authentication Code	This is the code which will be required when sending commands to the PMRS device by SMS. For more information, refer to the " Sending SMS Commands to Device " section of this user manual.

Commands can be sent to the PMRS unit (SIM Card Number) remotely by SMS. There are 3 orders that can be sent:

- 1) **Reset device**
- 2) **Change Server IP**
- 3) **PMRS Status** – provides PMRS IP and battery status and signal strength.

In order to make these operations happen, follow these instructions.

- a. Attach a USB cable to the device and open the “MRS Device Configurator”.
- b. Open the “**SMS**” tab menu.
- c. In the “**Authentication Code**” box, write down a code. You will need to put this code at the start of each SMS you send to the PMRS device.

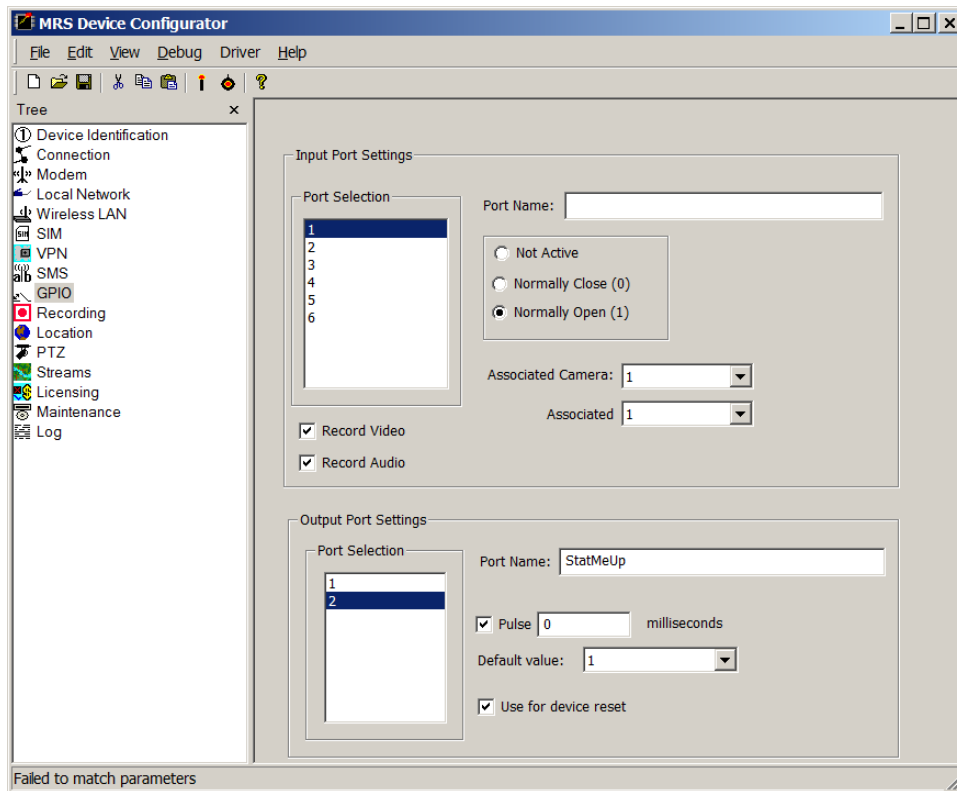


As was said above, there are 4 options to this feature.

These are the ways to activate each of them by SMS to the device:

1. **Reset Device:** Authentication_Code reset device
For the above device example, the SMS would be: **76D reset device**
2. **Change Server IP:** Authentication_Code "server" DESTINATION_Server_IP
For the above device example, the SMS would be: **76D server 212.68.105.7**
3. **PMRS Status:** Authentication_Code “status”
For the above device example, the SMS would be: **76D status**

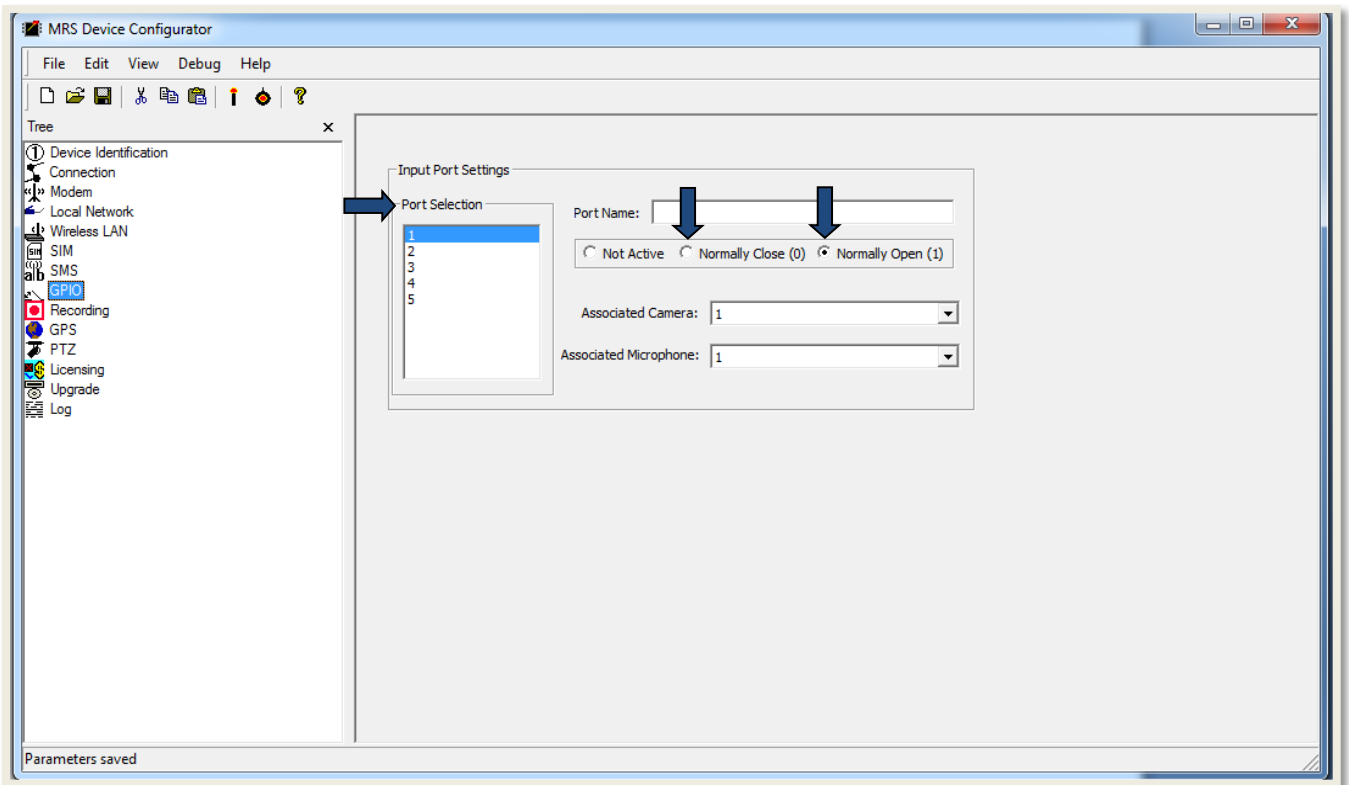
4-3-9 GPIO Menu:



GPIO Parameters:	Descriptions:
Input Port - Port Selection	Change the settings of the Input Sensors that are connected to your device. The external Input ports are at TTL level .
Port Name	Here you can change the name of the input sensor to any desired name.
Not Active	This option will disable the selected port.
Normally Close	This option changes the selected input port to Active High .
Normally Open	This option changes the selected input port to Active Low .
Associated Camera	Add or remove the camera for the selected port.
Associated Microphone	Add or remove the microphone for the selected port.
Record Video	Enable this option to record video on a Micro SD card inside the device, once an alarm button/ GPIO alarm is triggered.
Record Audio	Enable this option to record audio on a Micro SD card inside the device, once an alarm button/ GPIO alarm is triggered.
Output Port – Port Name	Choose the name of the output sensor in your PMRS device.
Pulse	The length of time the switch will be activated for.
Default Value	Weather the default state of the switch is on (1) or off (0)
Use for Device reset	Transmits a signal to a relay to cause the device to restart

The PMRS unit has 5 GPIO Input Sensor ports. An alarm button, and external peripheral devices (such as alarms, motion/impact sensors etc.) that can be connected to these Input ports and then set to trigger a variety of actions, once activated. The GPIO Input sensor ports are at **TTL Level**. The Input Sensors can be set to either “**Active High**” or “**Active Low**” in the “Device Configurator Application”. Follow these instructions to do so:

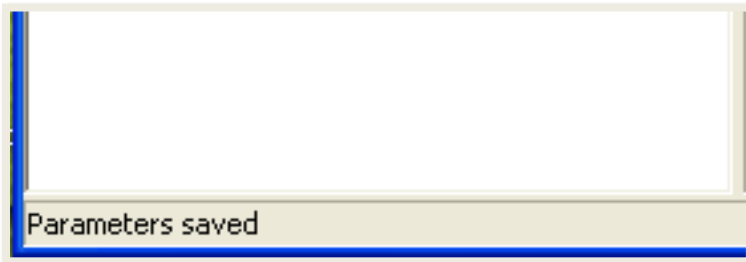
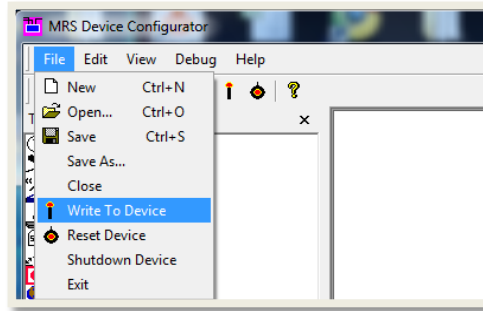
- 1) Open the “**Device Configurator**” Application.
- 2) Turn the PMRS unit off.
- 3) Ensure the 2 left dip switches on the PMRS unit (numbers 1,2 are in up position).
- 4) Ensure the SIM card is **NOT** inserted into the unit.
- 5) Connect the PMRS unit to the PC using the USB Cable. Then turn it on.
- 6) Once connected to the PC, the unit’s parameters will load automatically on the “Device Configurator”.
- 7) Go to the “**GPIO**” menu of the Device Configurator.



- 8) Select the Input Port Number.
- 9) Enable either the “**Normally open**” or “**Normally Close**” option.

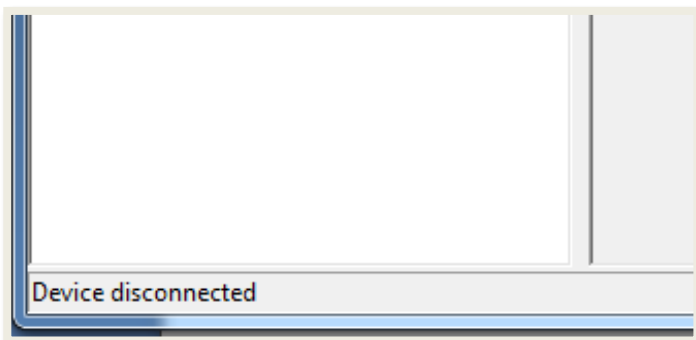
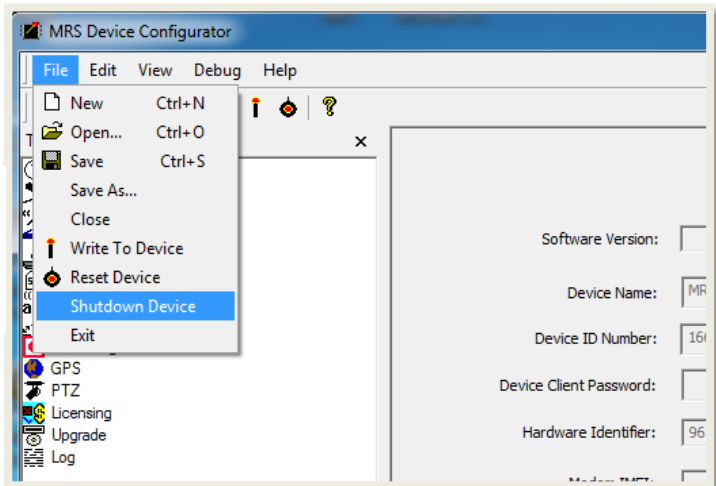
Settings:	Descriptions:
Normally Open	Active Low
Normally Close	Active High

After inputting the above settings, the configuration must be saved into the unit. This is done by opening the File menu and clicking **“Write To Device”** (The candle icon).



After pressing **“Write to Device”**, the status at the bottom left hand side of the application will show: **“Parameters Saved”**.

After the parameters are saved, open the **“File”** menu and select **“Shutdown Device”**.



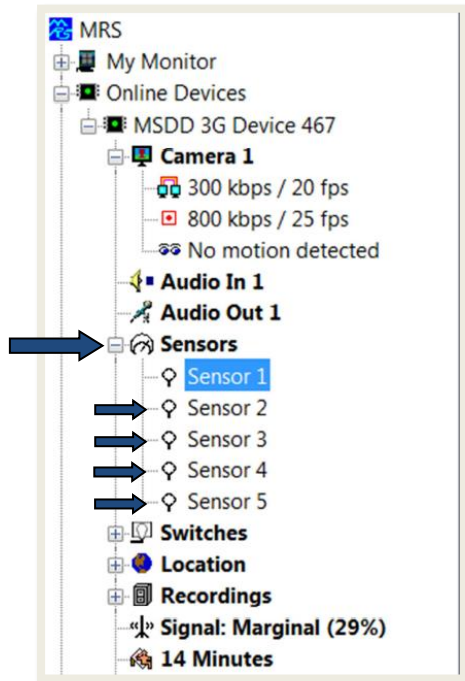
You will then see the following status at the bottom left-hand side of the screen: **“Device disconnected”**.

- 1) You can now unplug the USB cable from the PC and the device.
- 2) Turn the PMRS device off.
- 3) Change back the left 2 dip switches (numbers 1,2 to down position).
- 4) Insert the SIM card into the PMRS unit.
- 5) Ensure the GSM/GPS Antennas are connected to the unit.

Once you activate the PMRS unit, the Input sensors will be at TTL **“Active high”** or **“Active Low”** as defined in the Device Configurator.

In order to trigger an **Input** signal you need to close a connection between the following wires on the “GPIO/PTZ Cable”:

- Port 1) Input 1 wire and GND wire.**
- Port 2) Input 2 wire and GND wire.**
- Port 3) Input 3 wire and GND wire.**
- Port 4) Input 4 wire and GND wire.**



The statuses of the Input signals are viewed in the PMRS Device tree on the left hand side under “**Sensors**”.

Sensor 1 = Alarm Button

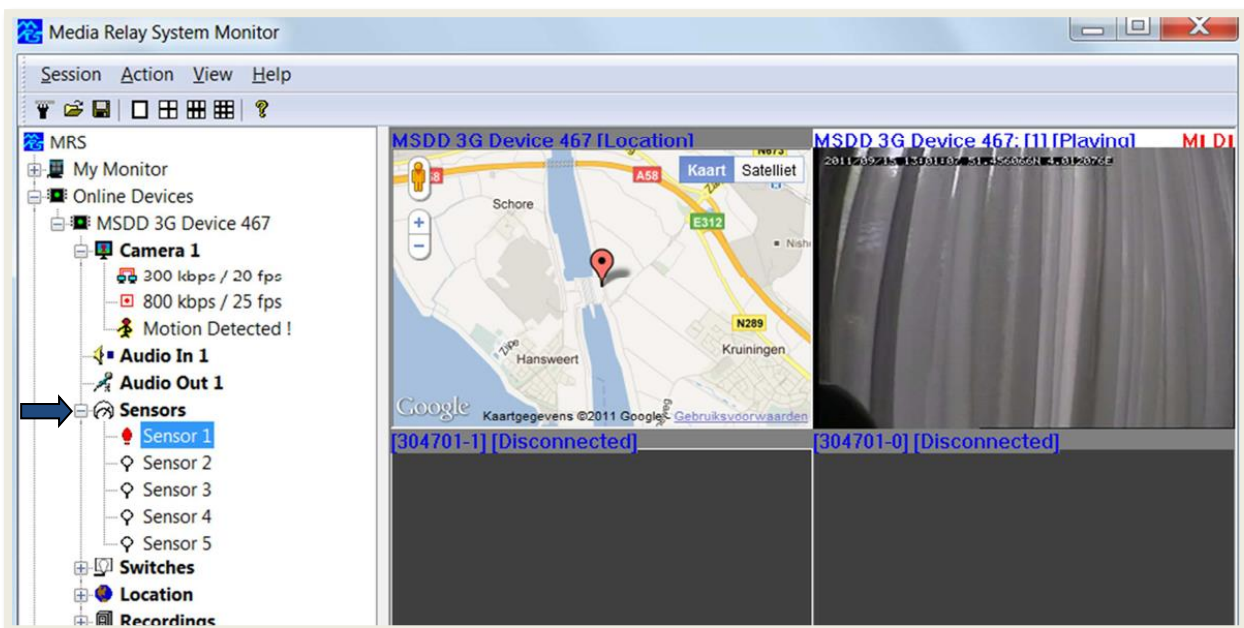
Sensor 2 = Input 1

Sensor 3 = Input 2

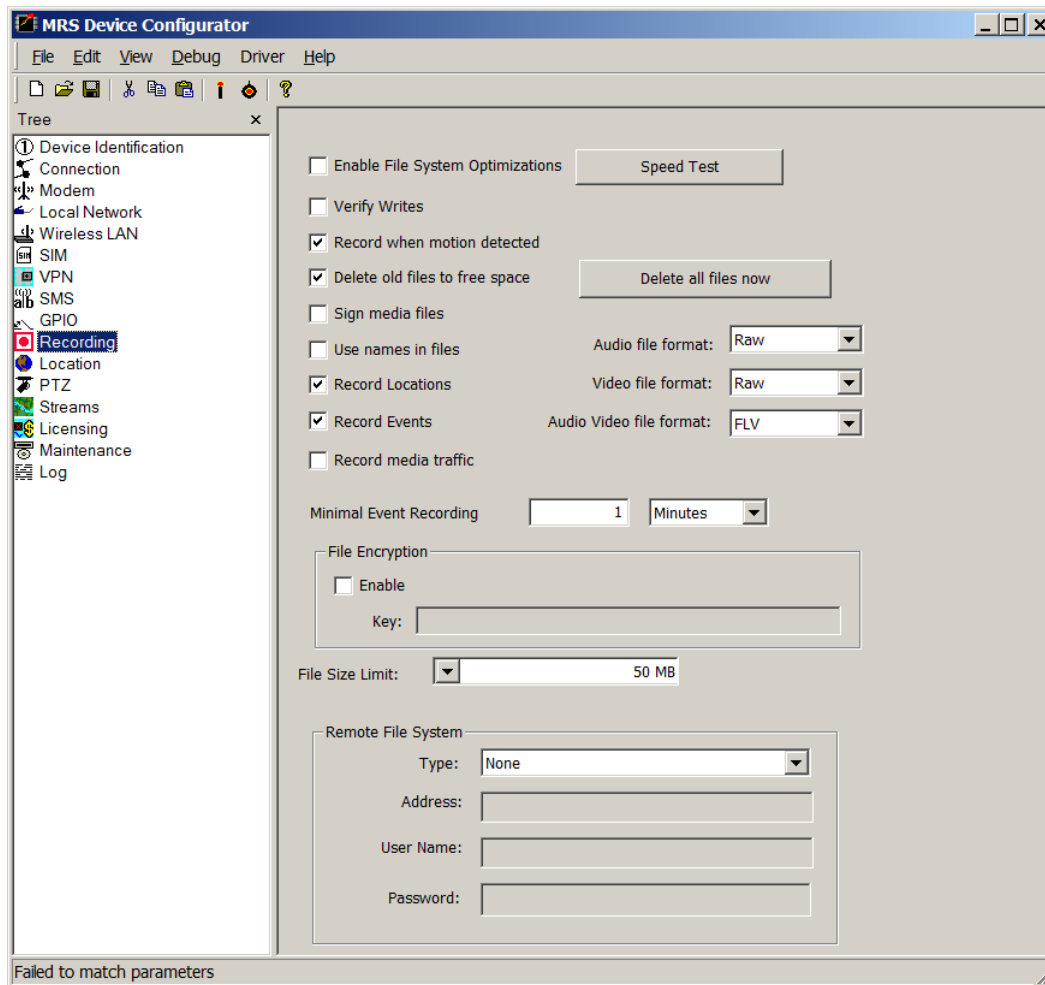
Sensor 4 = Input 3

Sensor 5 = Input 4

Once an Input Sensor is triggered, the “**Sensor number**” signal on the left hand side will light up. The pre-set trigger actions will also commence accordingly. If you selected recording as a trigger action, the message/s “**M**” “**D**” will appear at the top right hand side of the video stream.



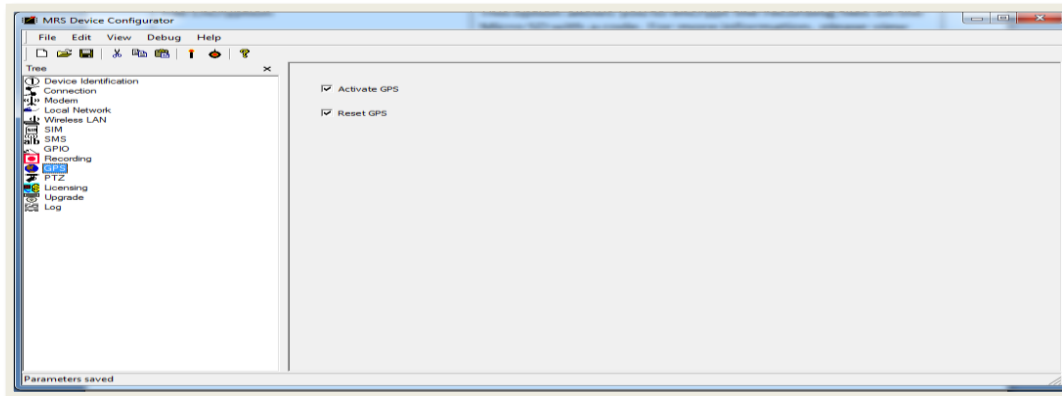
4-3-10 Recording Menu:



Recording Parameters:	Descriptions:
File System Optimizations	This feature should always be disabled unless told otherwise.
Verify Writes	This feature should always be disabled unless told otherwise.
Speed Test	Measures the speed of the of the connected storage device.
Record when motion detected	Choose whether the unit records when motion is detected.
Delete old files to free space	Deletes old recording files on the Micro SD, when the remaining storage capacity reaches below 10%.
Delete all files now	Deletes all the files of the connected storage device.
Sign media files	Tick this option to produce a digital signature on each recording file, to prove the integrity of that recording. For more information, please view the " Recorded Files Digital Signature " section of this user manual.
User names in files	Attaches the device name to the name of the recording file.
Record Locations	Choose whether the unit records GPS information or not.
Record Events	Records on the device log of events that happen to the device such as activation, deactivation and location.

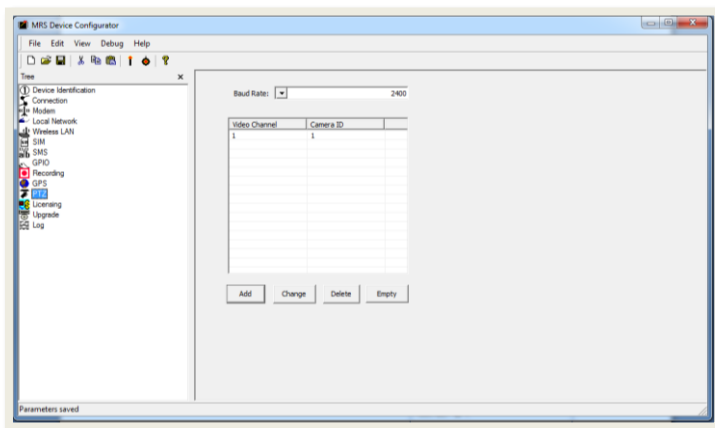
Record Media Events	Record on device all communication between the device and the monitor, Every time a video channel is opened the recording will commence.
Recording file types Video, audio and video+audio.	Choose for each kind of recording, its default type. Choose between .avi, .flv and .h264(raw).
Minimal even recording time	Determine the amount of recording time after an event is triggered.
File Encryption	Encrypt the recording files on the storage device with a password. For more information, please view the " Recorded Files Encryption " section of this user manual.
File Size Limit	Setup the file size limit of recordings on the Micro SD card. When a recording file reaches its size limit, the file will split and start recording in a new file.
Remote File System	Choosing USB will allow the user to connect to the internal USB hard drive without further configuration. The " SMB " option is for recording on external storage devices. For more information, view the " SMB Recording (External Storage Device) " section of this user manual. The " NFS " option should always be disabled unless told otherwise.

4-3-11 GPS Menu:



GPS Parameters:	Descriptions:
Activate GPS	This option allows you to enable/disable the GPS capability.
Reset GPS	This option, if enabled, resets the GPS every time the system shuts down, thus clearing the unit's memory of old satellite information.

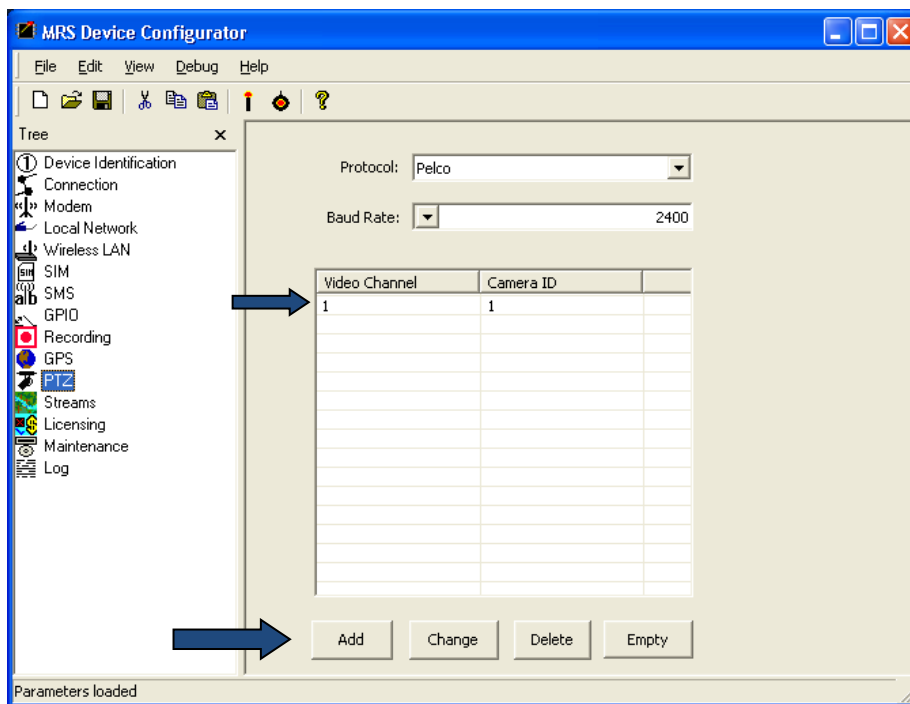
4-3-12 PTZ Menu:



PTZ Parameters:	Descriptions:
Add	Here you can setup the PTZ control of the PMRS unit. Press the “Add” button to add the “Video Channel” and “Camera ID”. As the PMRS unit only has one video channel, set the “Video Channel” and “Camera ID” both to 1 .
Baud Rate	This list box allows you to set the PTZ control Baud Rate. The unit supports the following Baud Rates: 1200/ 1800/ 2400/ 4800/ 9600/ 19200/ 38400/ 57600/ 115200/ 230400 The Baud Rate must be set the same for the PMRS unit and for the PTZ Camera.
	For more information, please view the “PTZ” section of this user manual.

The PMRS system supports PTZ control. The user can control the Pan/Tilt/Zoom of the PTZ camera according to its ability. The PMRS system supports PTZ cameras using **PELCO D** and **Visca Protocol**. Follow these instructions to setup PTZ control:

- 1) Turn the PMRS device OFF.
- 2) Remove any SIM card from the PMRS device.
- 3) Ensure the 2 left dip switches on the PMRS unit (numbers 1,2 are in up position).
- 4) Attach a USB cable to the device and open the “MRS Device Configurator”.
- 5) Turn the unit on.
- 6) In the Device Configurator, Open the “**PTZ**” tab menu.

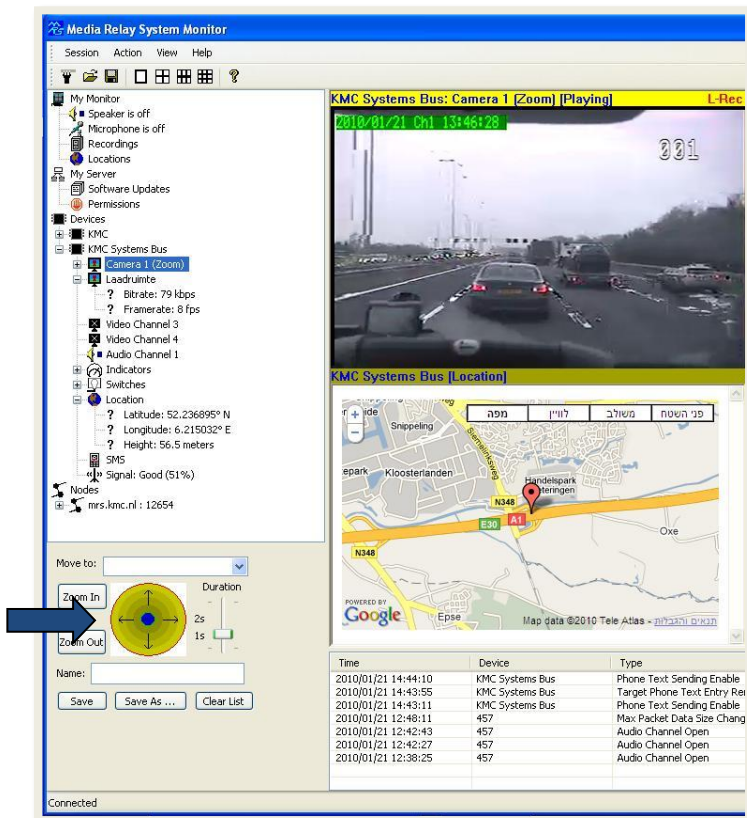


- 7) Click the “**Add**” button to add the “Video Channel” and “Camera ID”. As the PMRS unit only has one video channel, set the “Video Channel” and “Camera ID” both to **1**.
- 8) Set the PTZ Baud Rate from the “**Baud Rate**” list box. The system supports the following Baud Rates: 1200/ 1800/ 2400/ 4800/ 9600/ 19200/ 38400/ 57600/ 115200/ 230400.
- 9) Save the configuration to the device by selecting **File>Write To Device**.
- 10) After you see the message “**Parameters saved**” at the bottom of the screen, select **File>Shutdown Device**.
- 11) After you see the message “**Device disconnected**” at the bottom of the screen, turn the PMRS device **OFF**, unplug the **USB cable** and flip the 2 left dip switches on the PMRS unit (numbers 1,2) to down position.
- 12) Insert the SIM card. Ensure the GSM/GPS Antennas are connected to the unit.

After you have configured the PTZ settings of the PMRS unit in the Device Configurator, the same settings must be applied to the PTZ camera itself. On the PTZ camera, set the ID number to **1** and the **Baud Rate** to the same rate as you set the unit as.

There are 2 RS-485 wires (T+ and T-) built into the PMRS unit through the GPIO/PTZ Cable (Refer to "[GPIO/PTZ Cable](#)" section for colour definitions). These wires must be connected to the PTZ camera.

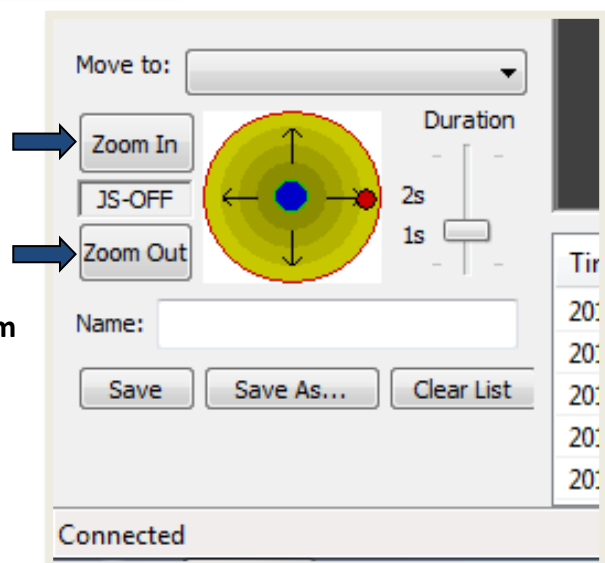
Once you have connected the PTZ camera, open the MRS Monitor Application and turn the unit ON.



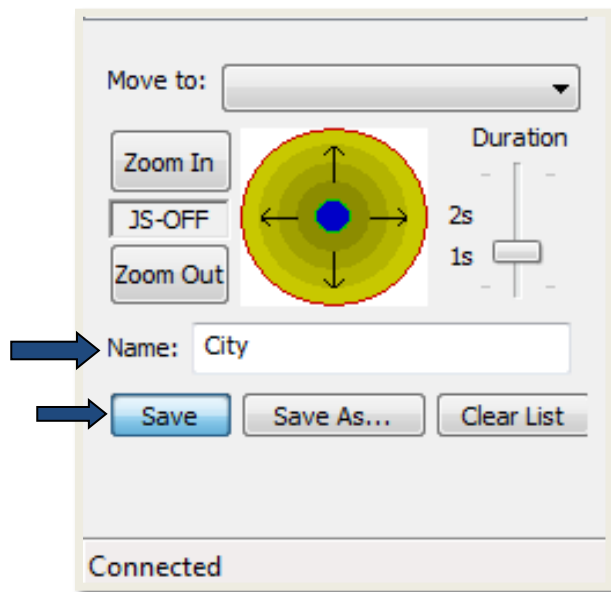
When you open the PTZ or Zoom camera video channel, PTZ control will automatically open on the bottom left hand side of the screen.

Use the yellow ball to move the camera around.

To zoom in and out, use the "Zoom in" and "Zoom out" buttons.



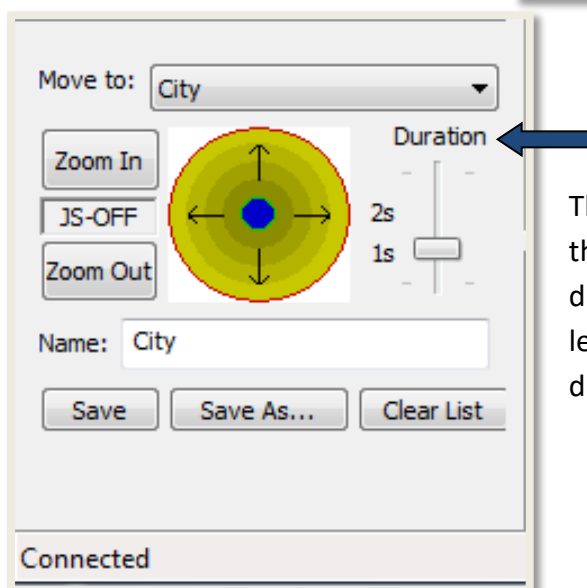
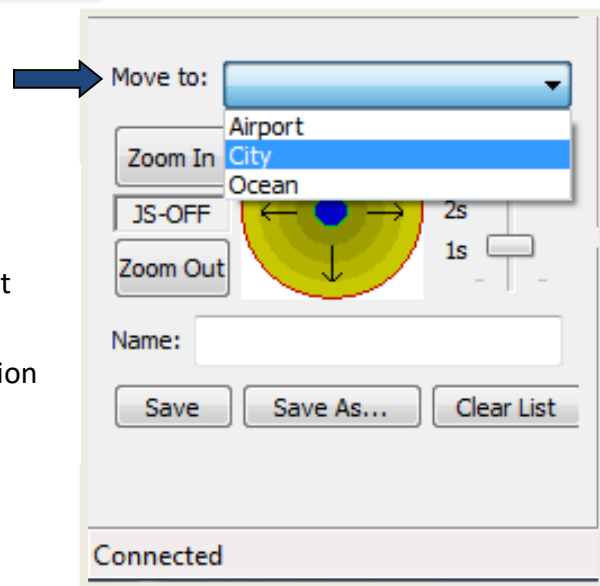
Camera positions can be saved as presets for future viewing. Follow these instructions:



Move the camera to the desired position using the yellow ball.

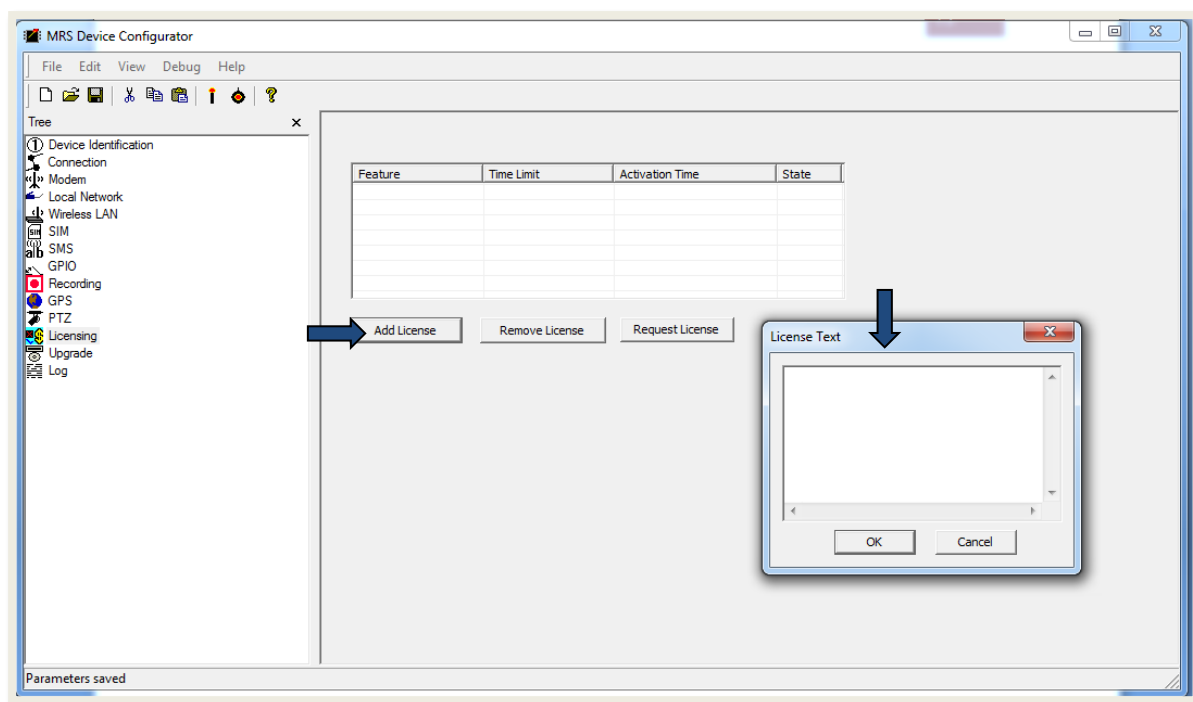
Enter in a name for that position in the "Name" box. Then press "Save".

To view the pre-set camera position, choose the pre-set name from the "Move to" list box. The camera will then automatically adjust its position to the pre-set.



The duration scale is to simulate the time of one click. Moving the duration scale up or down will lengthen or shorten the PTZ duration command accordingly.

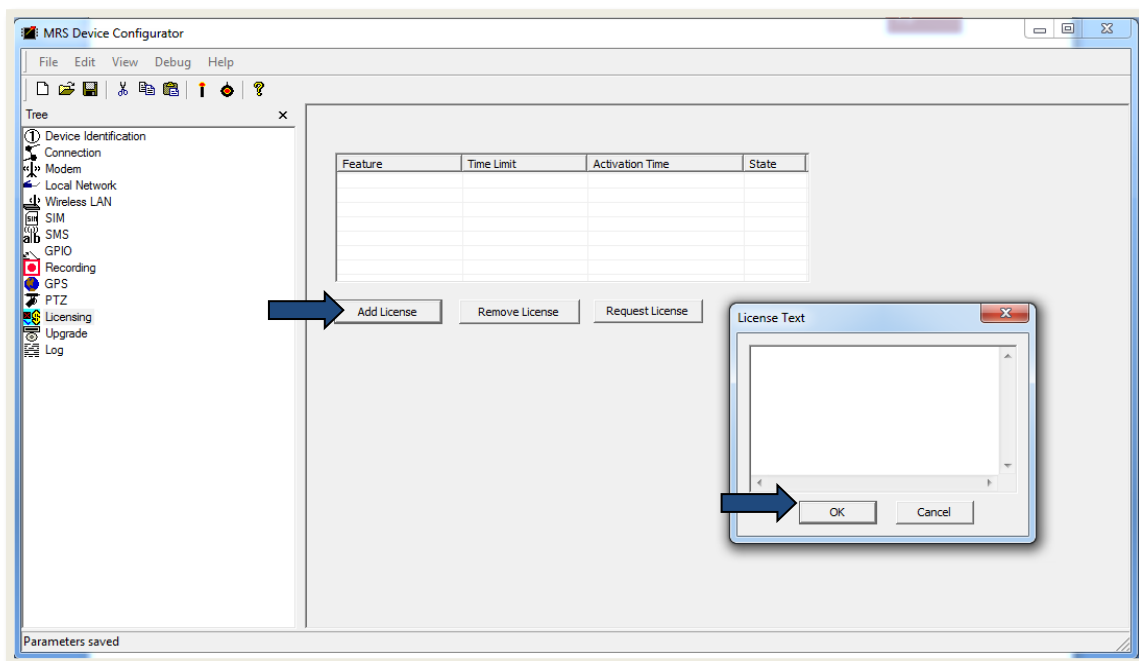
4-3-13 Licensing Menu:



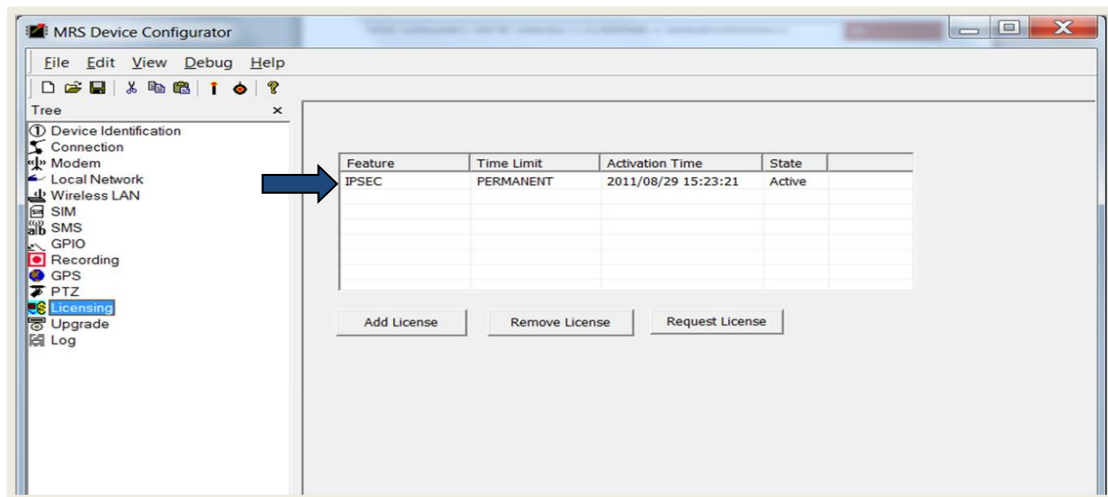
Licensing Parameters:	Descriptions:
Add License	<p>Here you can add licenses to the PMRS unit. For example: A secure session Encryption License, to secure all the transmitted data from the unit to the server/clients.</p> <p>To add a license click on the “Add License” button. The “License Text” window will appear. Insert the license code that you have received. Then press “OK”.</p> <p>If the Encryption License code is correct, it will then be listed in the licenses list (shown below). For more information about IPSEC Encryption licenses, please view the “Secure Session IPSEC Encryption” section of this user manual.</p>
Remove License	<p>To remove a license, select it from the list and press “Remove License”.</p>

If Secure Session Encryption is activated, all the data streaming between the PMRS unit and the MRS Server will be securely encrypted. A license is required for each unit you wish to encrypt. If you purchased a unit with encryption, the encryption license will already be activated. If you want to activate encryption on an existing unit that you already have, you will need to get an encryption license code. The license code is based on the 'Hardware Identifier number' of your unit. Speak to your local Infodraw dealer about obtaining Encryption License codes. To activate the encryption, follow these instructions:

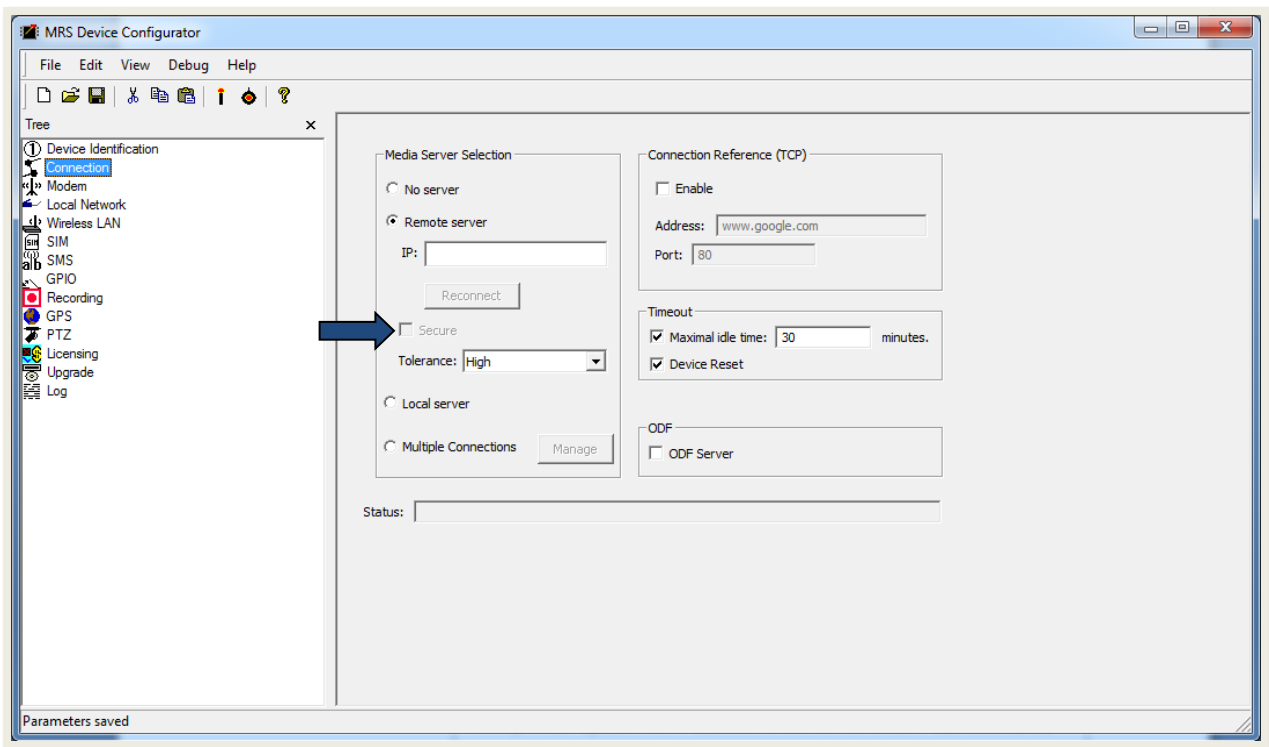
- 1) Go to the '**Licensing**' menu tab on the left hand side.



- 2) Click on the **"Add License"** button.
- 3) In the **"License Text"** window, enter in the encryption license code you have received from your local Infodraw dealer. Then press **"OK"**.
- 4) If the code is correctly entered, the **"IPSEC"** encryption will be listed as **"Active"**.

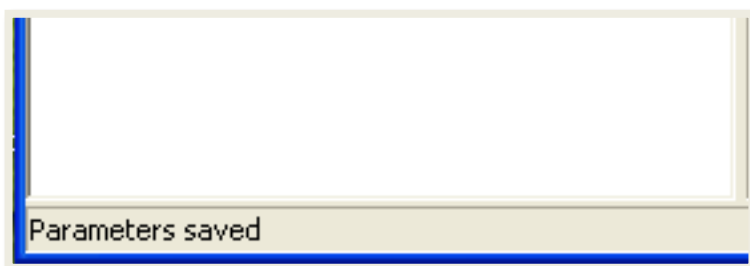
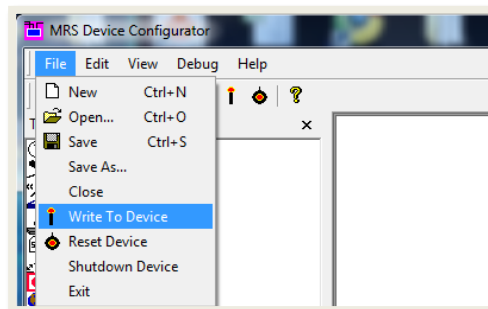


- 5) Once the license is in 'Active', go to the **“Connection”** menu tab of the “Device Configurator”.



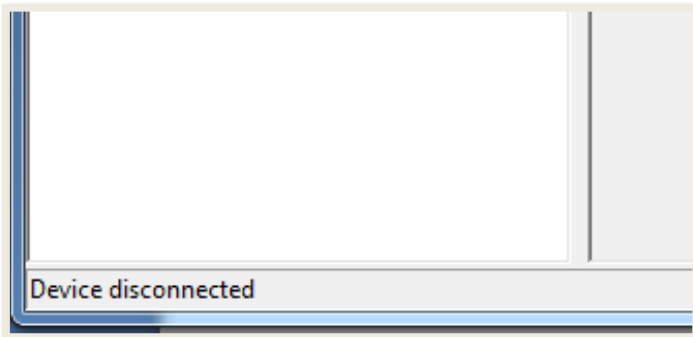
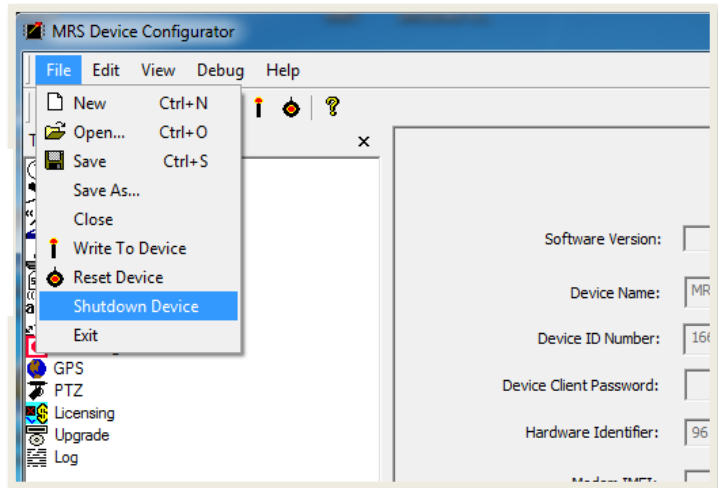
- 6) You will now be able to tick the **“Secure”** box. Tick this **“Secure”** box to encrypt the data streaming from the unit to the server.

After inputting the above settings, the configuration must be saved into the unit. This is done by opening the File menu and clicking **“Write To Device”** (The candle icon).



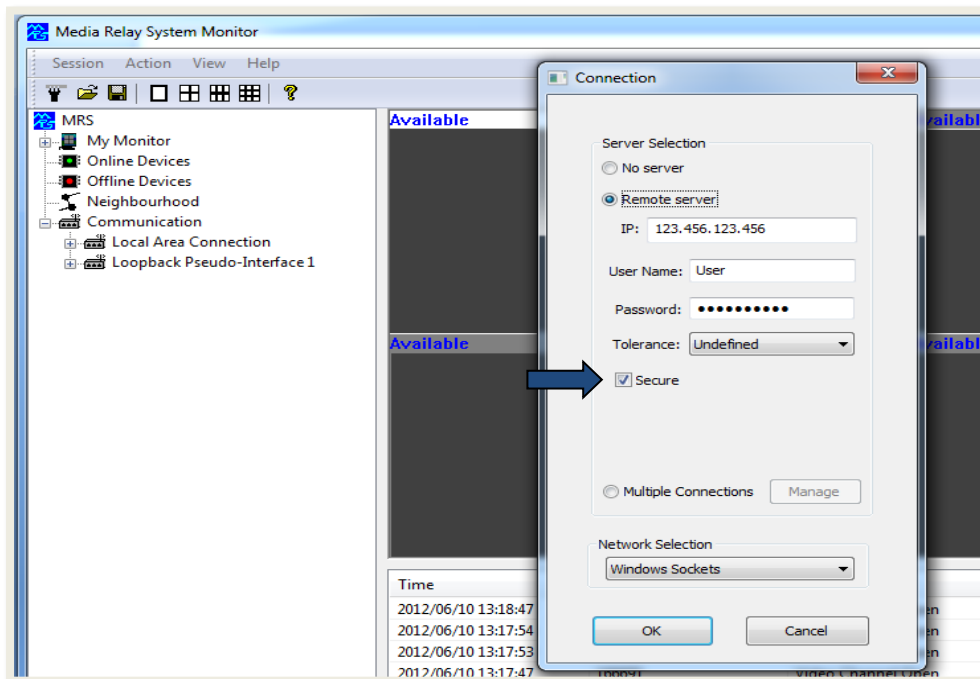
After pressing “Write to Device”, the status at the bottom left hand side of the application will show: **“Parameters Saved”**.

After the parameters are saved, open the “File” menu and select “**Shutdown Device**”.

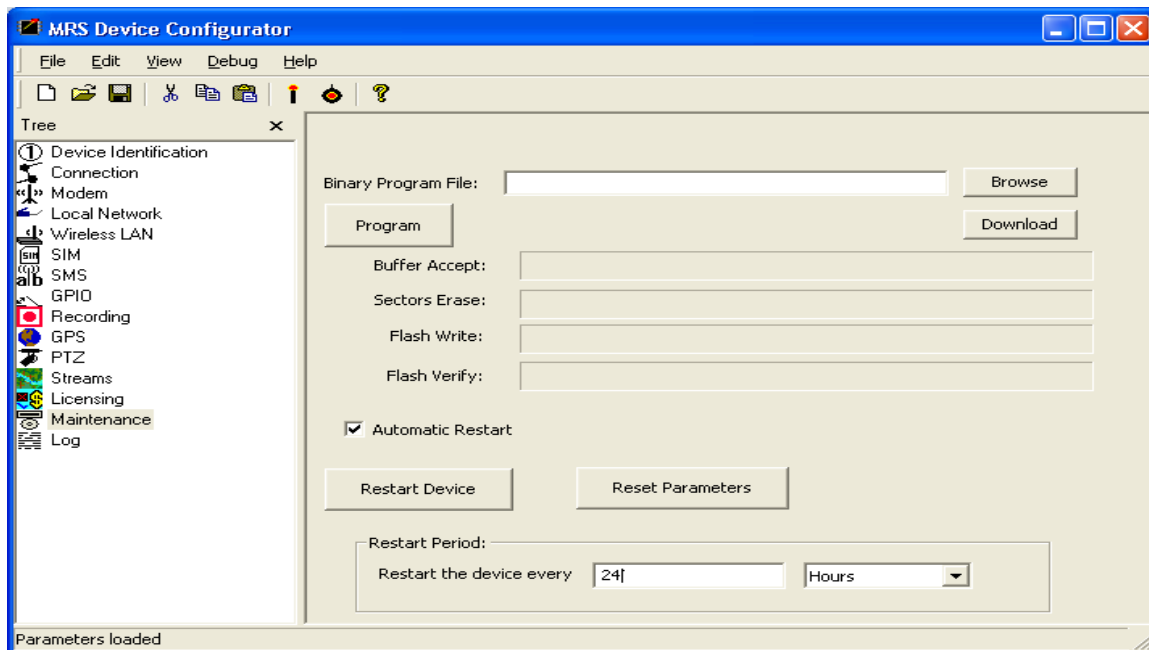


You will then see the following status at the bottom left-hand side of the screen: “**Device disconnected**”.

- When connecting to the server from the “MRS Monitor Client Application”. In the connection window, tick the “**Secure**” box before you connect. This will encrypt the communication from the MRS Client to the MRS server.



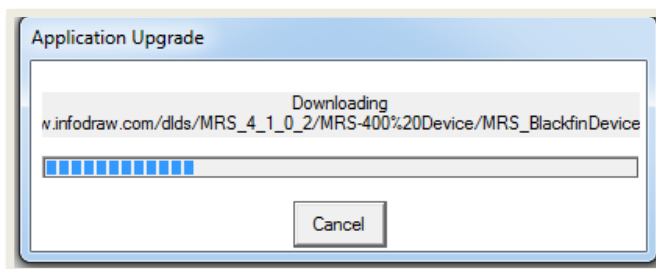
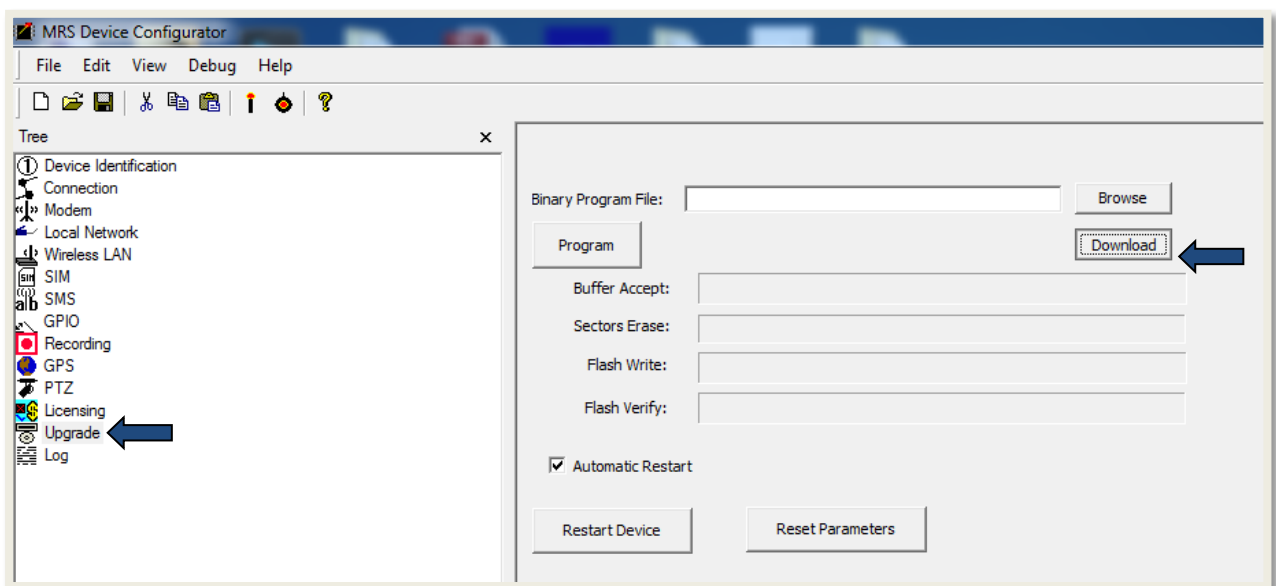
4-3-14 Upgrade Menu



Upgrade Parameters:	Descriptions:
	Here you can upgrade the unit's firmware. Use external power and not just battery power when upgrading the unit. DO NOT INTERRUPT THE UPGRADE PROCESS.
"Browse" button	If the upgrade file is stored on your PC, click " Browse ". Locate and select the PMRS upgrade file (pmrs-A_B_C_D.tgz) on your PC. Then click " Program ".
"Program" button	Click " Program " to commence upgrading the firmware. Once the unit is finished programming, click " Restart Device ". Once the device reconnects to the Device Configurator, it should now be upgraded to the new version.
"Download" button	Click the " Download " button to automatically download the latest PMRS firmware version file. Once the file is downloaded, it will automatically prompt you to commence programming. Click " Program ". Once the unit is finished programming, click " Restart Device ". Once the device reconnects, it should now be upgraded to the new version.
Automatic Restart	If the " Automatic Restart " box is ticked, the unit will automatically restart itself once programming has finished. It is recommended to keep this box ticked.
"Restart Device" button	This button restarts the PMRS device.
Restart Period	Filling in the " Restart period " details will make the device restart at set intervals - is useful when the device tends to stop working during long periods of activation.

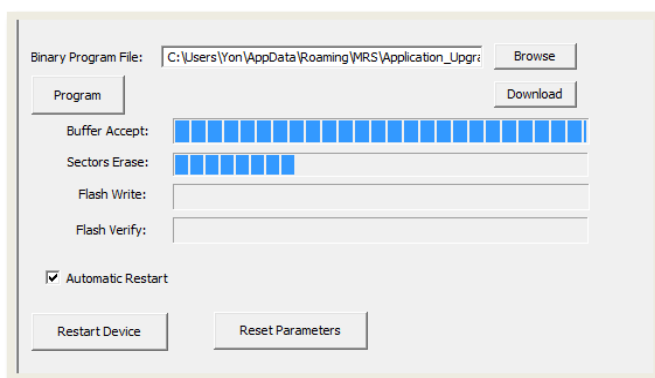
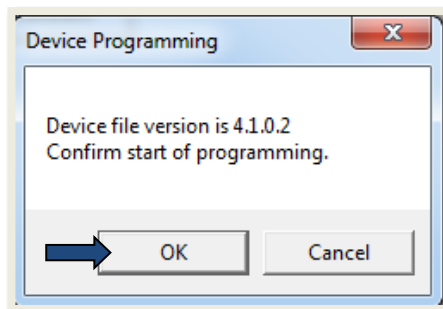
The MRS/PMRS unit's firmware can be downloaded and automatically upgraded into the unit using the **"Device Configurator Application"**. To do so, follow these instructions:

- 1) Open the **"Device Configurator"** Application.
- 2) Turn the PMRS unit OFF.
- 3) Ensure the 2 left dip switches on the PMRS unit (numbers 1,2) are in up position.
- 4) Ensure the SIM card is **NOT** inserted into the unit.
- 5) Connect the PMRS unit to the PC using the USB Cable. Then turn it on.
- 6) Once connected to the PC, the unit's parameters will load automatically on the **"Device Configurator"**.
- 7) Go to the **'Upgrade'** section and click the **'Download'** button.



- 8) A newer version (if available) of the unit's firmware will automatically download.

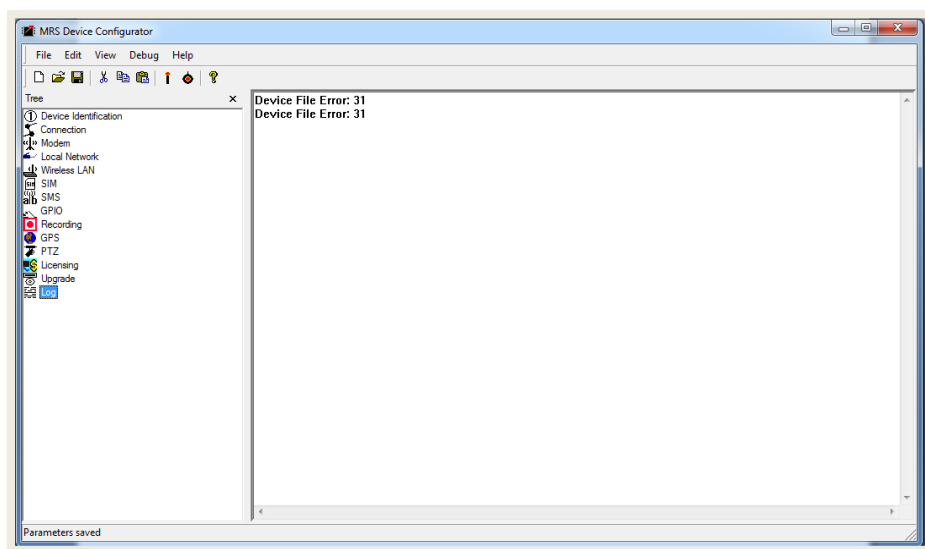
- 4) Once the firmware has been downloaded, a pop-up will appear asking you to commence programming. Click 'OK'



- 5) The firmware programming will commence. DO NOT interrupt the programming. Ensure that the unit is being charged when upgrading the firmware. Once completed, the unit will automatically restart. When the unit reloads on the Device Configurator, it will be upgraded to the new firmware version.

Warning: If upgrading is interrupted the firmware will not work properly and you would need to send it back to us for repairs.

4-3-15 Log Menu:



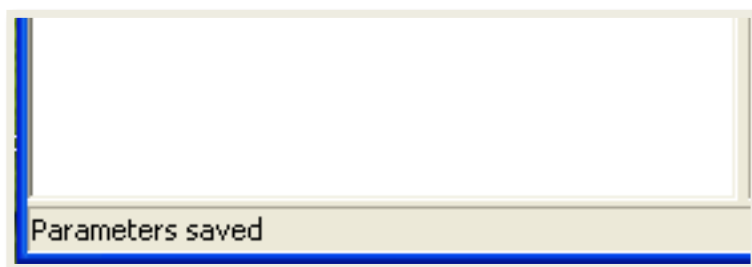
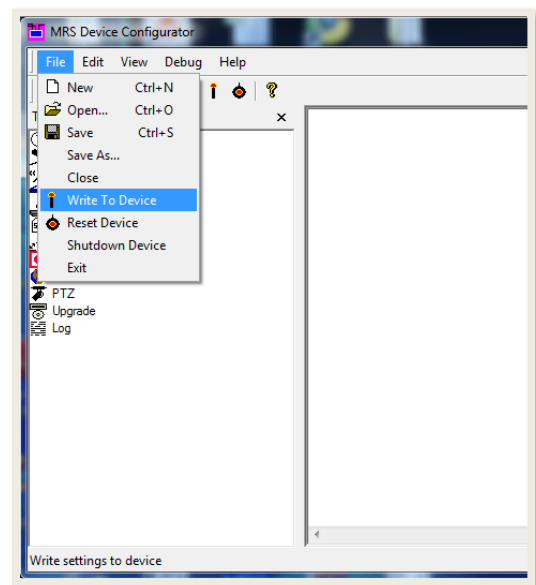
Log Parameters:	Descriptions:
Log Menu	Here you can log information while running.

4-3-16 Initial setup

For ordinary initial setup of the PMRS unit, usually you will only need to change the following parameters in the Device Configurator:

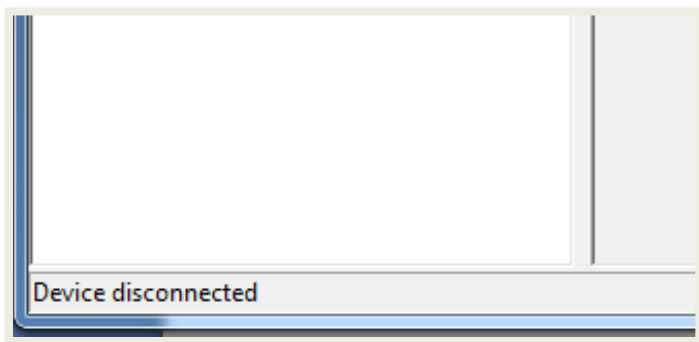
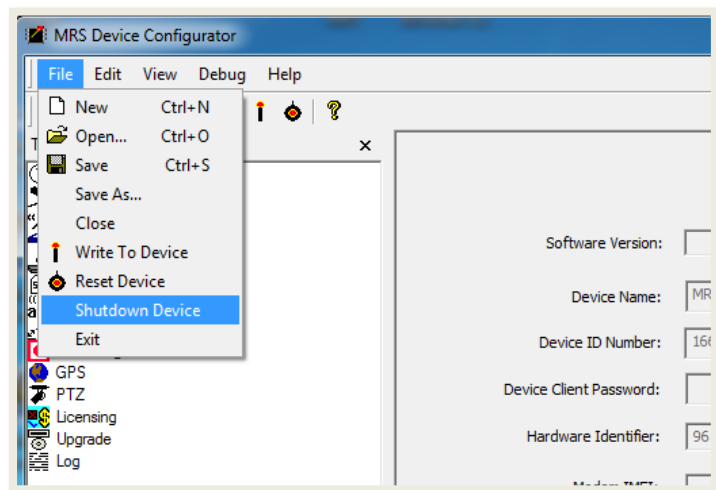
Menu:	Parameter:
Connection Menu	a) Your server's IP address in the "Remote Server" box.
Modem Menu	<p>For Automatic Modem Setup:</p> <p>a) Click the "Automatic" option under "Modem Configuration". The Automatic option supports most cellular provider APN's around the world. In most cases this will provide an automatic connection to the cellular network in use.</p> <p>For Manual Modem Setup (click the "Manual" option):</p> <p>a) Enter the APN (Access Point Name) of your Cellular Provider.</p> <p>b) A User Name and Password for your Cellular Provider may also be required (mostly for VPN users).</p>
SIM Menu	<p>a) A PIN number may or may not be required for your SIM card.</p> <p>b) A PUK number may or may not be required for your SIM card.</p>
	Please speak to your local Infodraw dealer or cellular provider for specific network connection requirements.

After inputting the necessary settings using the Device Configurator application, the configurations must be saved into the unit. This is done by opening the "File" menu and clicking **"Write to Device"** (The candle icon).



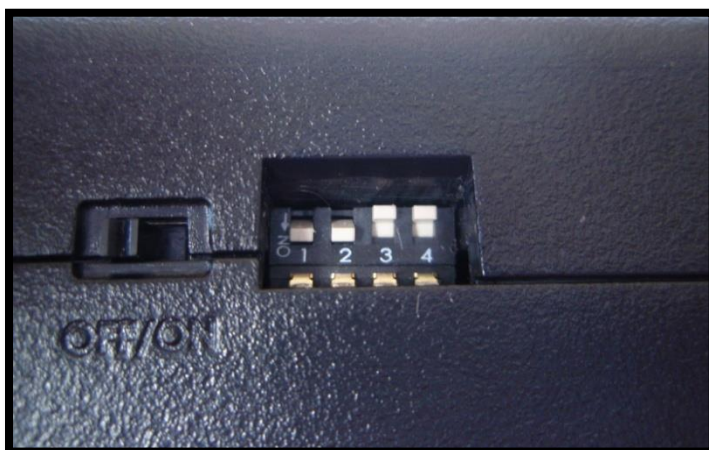
After pressing "Write to Device", the status at the bottom left hand side of the application will show: **"Parameters Saved"**.

After the parameters are saved, open the “File” menu and select “**Shutdown Device**”.



You will then see the following status at the bottom left-hand side of the screen: “**Device disconnected**”.

- 1) You can now unplug the USB cable from the PC and the PMRS device.
- 2) **Turn the PMRS device off.**
- 3) Change back the left 2 dip switches (numbers 1,2 to down position as shown).

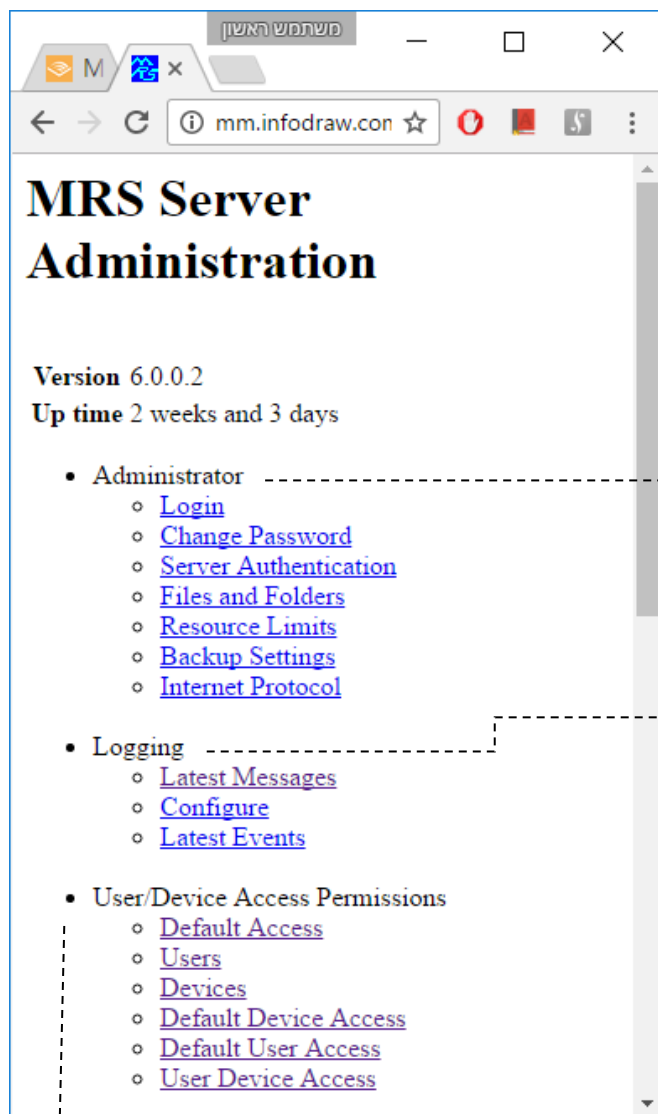


This will allow normal cellular operation.

4-4 MRS Service Program:

Main Menu

The web administration interface (or WAI) contains the following configuration pages:



Administrator Menu:

Login: Restarts the server program.

Change Password: Allows you to change the password. It is important to change the password at first activation.

Files and Folders: Displays the use of files and folders by the server.

Backup Settings: Allows the user to backup and restore the server's settings.

Internet Protocol: Displays network information.

Logging Menu:

Latest Messages: Displays the server's latest log messages – use for debugging.

Configure: Configure the server's logging parameters such as how many messages it is able to receive.

Latest events: Displays the latest I/O and VMD detections on the server.

User/Device Access Permissions Menu:

Default Access: Configure default users and device's access to the server.

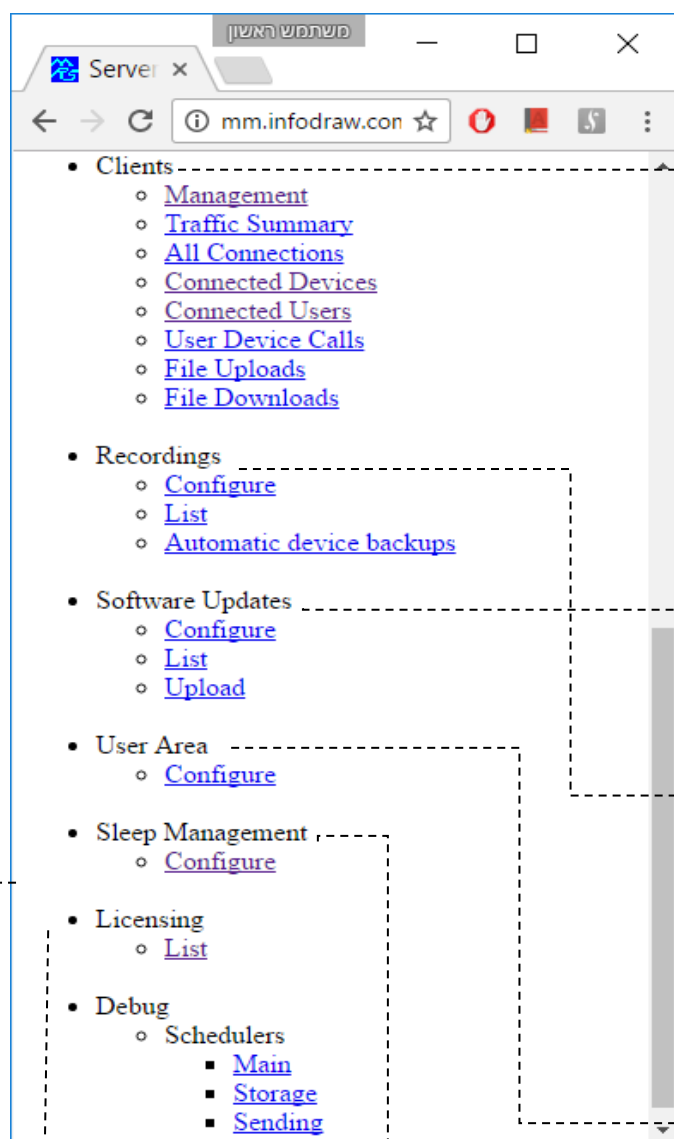
Users: Control the users list.

Devices: Control the devices list.

Default Device Access: Control the default access permitted to devices.

Default User Access: Control the default access permitted to users.

User Device Access: Control the access permitted to specific devices by specific users.

**Clients Menu:**

Management: Controls how the server manages clients.

Traffic Summary: Displays the incoming and outgoing data summary.

Connected Devices: Lists the devices which are connected to the server.

Connected Users: Lists the users which are connected to the server.

File Uploads: Lists the files which are being uploaded from the server.

File downloads: Monitors the recordings download to the server

Recordings Menu:

Configure: Configures the server's recording attributes.

List: Lists the devices with video and audio channels that are being recorded.

User Area:

Configure: Establishes a root directory to store all the user files from the user area.

Sleep management:

Configure: Setting the timing for the sleep regiment

Licensing Menu:

List: Lists server software licenses and enables adding and removing licenses.

Software Updates Menu:

Configure: Allows the user to select the folder from which to upload the upgrade file.

List: Lists the software update files for clients (devices only).

Upload: Enables uploading a software update file for clients (devices only).

4-4-1 Administrator Menu:

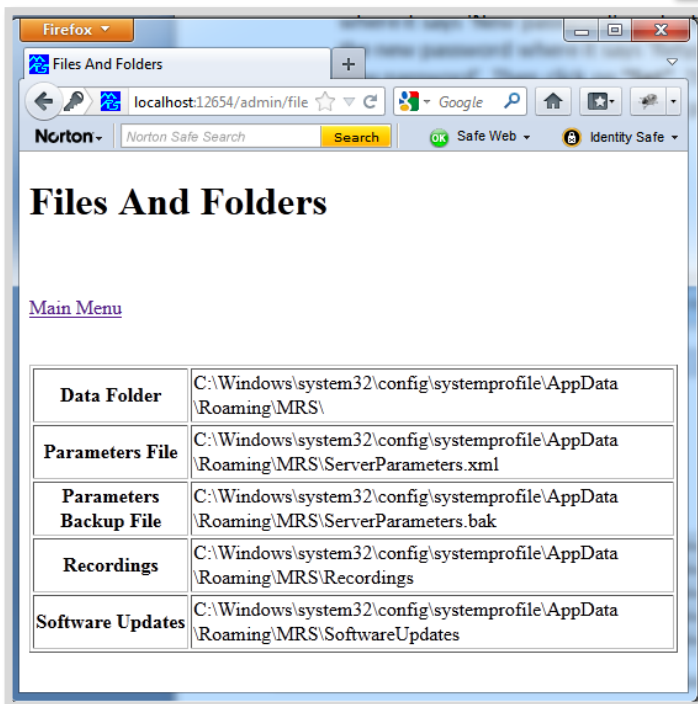
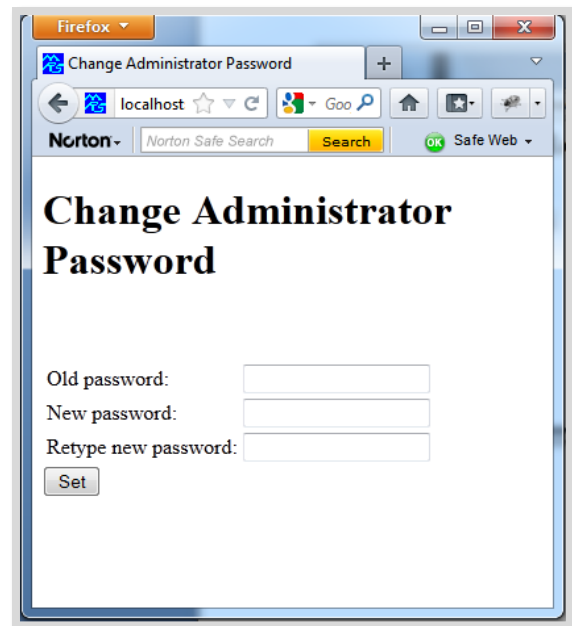


Login Page:

Enter the correct administrator's password and click on "Login". This will take you back to the main menu page.

Change Password Page:

To change the administrator password, type the current password where it says 'Old password', type a new password where it says 'New password', and retype the new password where it says 'Retype new password'. Then click on "Set". This will take you back to the main menu page.



Files and Folders Page:

The "Data Folder" is the root folder where all other folders and files are used by the server.

The "Parameters File" contains all server parameters in XML format.

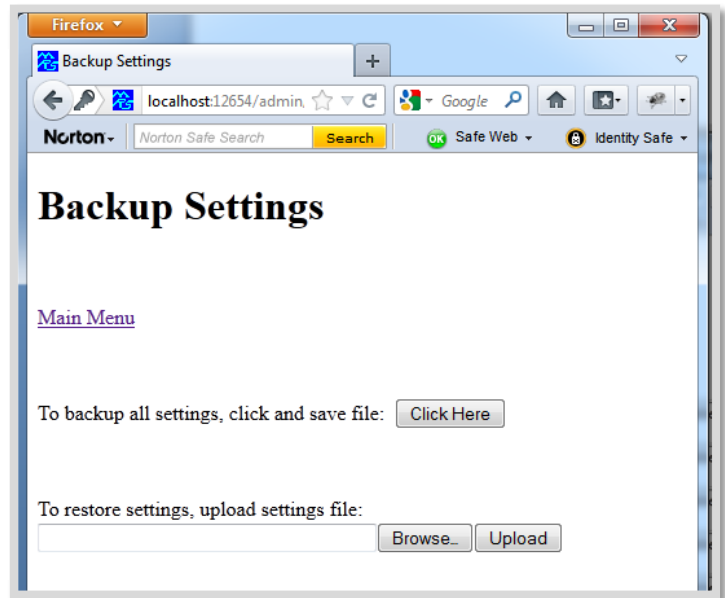
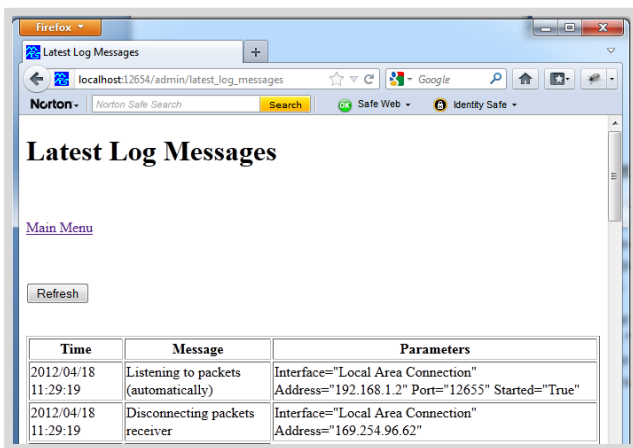
The "Recordings" folder contains all server media recordings and device locations.

The "Software Updates" folder contains all software update files to be sent to clients (devices only).

Backup Settings Page:

This page will help you save the server parameters file someplace else for backup. Click where it says **“Click Here”** to display the XML parameters file. It is then possible to save it.

If necessary, upload the backup XML file using the **“Browse”** and **“Upload”** buttons. This action will restore back the settings to the ones when you just saved the XML file.

**4-4-2 Logging Menu:****Latest Log Messages Page:**

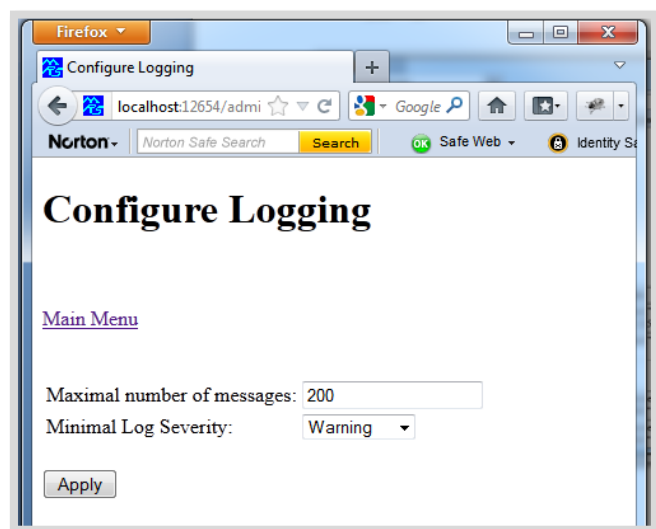
This page will let you view the server's latest log messages. It displays the time (and date), the message, and its parameters. Click on **“Refresh”** to refresh this page. Click on the **“Main Menu”** link to go back to the main menu page.

Configure Logging Page:

This page will let you change the logging parameters.

The maximal number of messages is the maximal number of messages to be kept in memory.

The minimal log severity is the minimal log severity to be displayed and kept in memory. Log messages less severe than this one will be ignored. Log severities are: Undefined, Status, Warning and Error.



4-4-3 User/Device Access Permissions Menu:

The MRS Service allows the server to decide which devices and users will be allowed access to the server, and what level of access they will enjoy.

There are 8 different access levels.

Here are the activities which are permitted to each of these levels:

Level of Permission/ Actions Permitted	Forbidden	Searchable	Aware	Location Aware	Passive	Active	Advanced	Administrative
Can view online devices & Nodes			✓	✓	✓	✓	✓	✓
Viewing Video/Audio					✓	✓	✓	✓
Viewing GPS				✓	✓	✓	✓	✓
Recording on Monitor					✓	✓	✓	✓
View recording from device					✓	✓	✓	✓
Download recording					✓	✓	✓	✓
Record on device and/or server						✓	✓	✓
Changing Video/Audio settings							✓	✓
Erasing recordings						✓	✓	✓
Renaming, Disabling Video/Audio channel								✓
Disabling VMD						✓	✓	✓
Changing VMD settings						✓	✓	✓



Default Access Page:

Here you can determine the default situation for all unlisted devices and users connecting to the server. This page will let you set how users and devices are permitted in the system when no other more specific rules apply.

Default Device Access Level:

This list box determines the access level for all unlisted devices and users - if they are enabled. The default device access level decides what a user can do with a device if no other more specific rule was specified.

The “**Allow Unlisted Users**” option, if checked, allows general access by any user not listed in the users list. This general access, however, is controlled by the default device access level. The “**Allow Unlisted Devices**” option, if checked, allows general access to any device not listed in the devices list.

For secure server administration set the default device access level to **“Forbidden”**, uncheck the **“Allow Unlisted Users”** and **“Allow Unlisted Devices”** options. Then add users and devices and set user/device access levels in the relevant configuration pages.

Users Page:

The user is the computer/laptop/smart phone that seeks to be a client of the server. In order to distinguish one user from another, a username and a password can be created through the “MRS Service” and later confirmed in the “Connection” feature of the MRS Monitor/ iPhone iMRS/ Android MRS clients.

The Users Page allows you to create new users in the server by pressing on the **“Add”** button. The **“Edit User Details”** page will appear. Fill in the user name and password. Retype the new password and click **“Apply”**.

All added User Names will appear in the list on the Users Page. Click on **“Edit”** to change a password of an existing user. Click on **“Delete”** to delete a user from the list.



Devices Page:

Each device is distinguished from another by a unique ID number which is given to it by Infodraw, but can be changed by the user. The device ID of a device can be found and changed (if desired) in the **“Device Identification”** section of the **‘Device Configuration’** program when the unit is connected to it.

The Devices Page allows you to add new devices to the list in the server by pressing on the **“Add”** button. The **“Edit Device Details”** page will appear. Fill in the device ID and password (if desired). Retype the new password and click **“Apply”**.

Click on **“Edit”** to change a password of an existing device. Click on **“Delete”** to delete a device from the list.

Default Devices Access

The Default Device Access page allows you to give an access level to registered devices.

Click **"Add"** to add a default device access directive to the list. The **"Set Default User Device Access"** page will appear. Select the device ID and default device access level from the list boxes and click **"Apply"**. The device ID's you can select, are devices that have been listed on the Devices page.

Click on **"Edit"** to change the device ID or the access permission level for a certain entry in the list. Click on **"Delete"** to delete a specific entry from the list.



- **Default User Access:** Assigns different permission levels to different users - works along the same parameters as the Default Device access.



User Device Access Page:

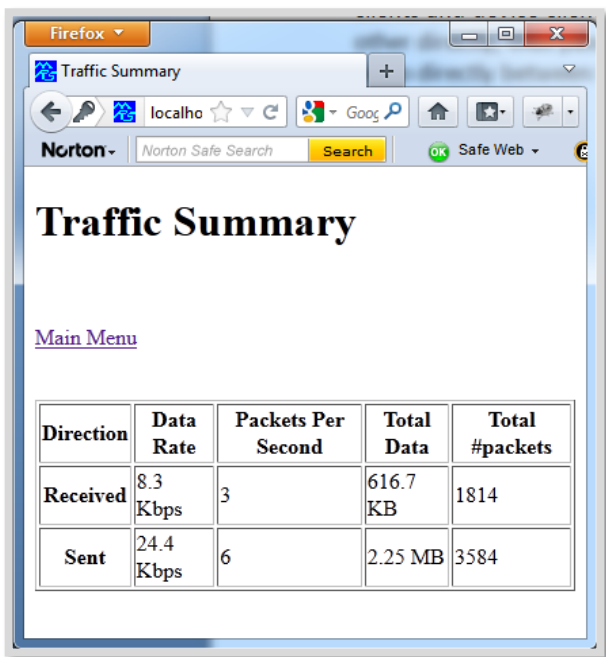
The User Device Access Page allows you to assign specific users to specific devices.

This page will list the specific device access levels certain users are permitted on certain devices.

Click **"Add"** to add a user device access level directive. The **"Set User Device Access"** page will appear. Select the user, select the device ID and select the device access level. The user is selected from the users list. The device ID is selected from the devices list.

Click on **"Edit"** to change the user, device ID or access permission level for a certain entry in the list. Click on **"Delete"** to delete a specific entry from the list.

4-4-4 Clients Menu



Direction	Data Rate	Packets Per Second	Total Data	Total #packets
Received	8.3 Kbps	3	616.7 KB	1814
Sent	24.4 Kbps	6	2.25 MB	3584

Traffic Summary Page:

This page displays a summary of the general data that passes through the server. It gives information about the received data rate and the sent data rate for observing the server's currently consumed bandwidth. Click on the "Main Menu" link to return to the main menu.

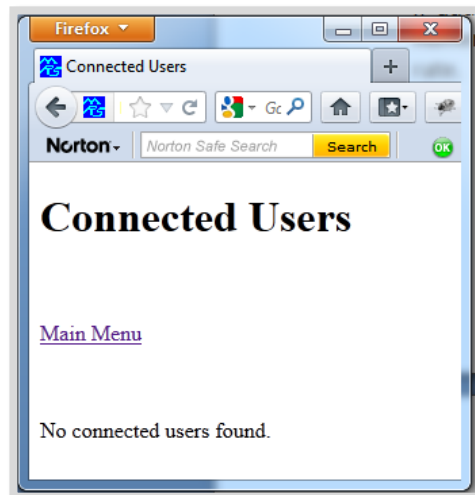
Connected Devices:

This page lists the connected devices: Their IP address as seen from the server, their numeric identifier, name and current data rate.



Connected Users:

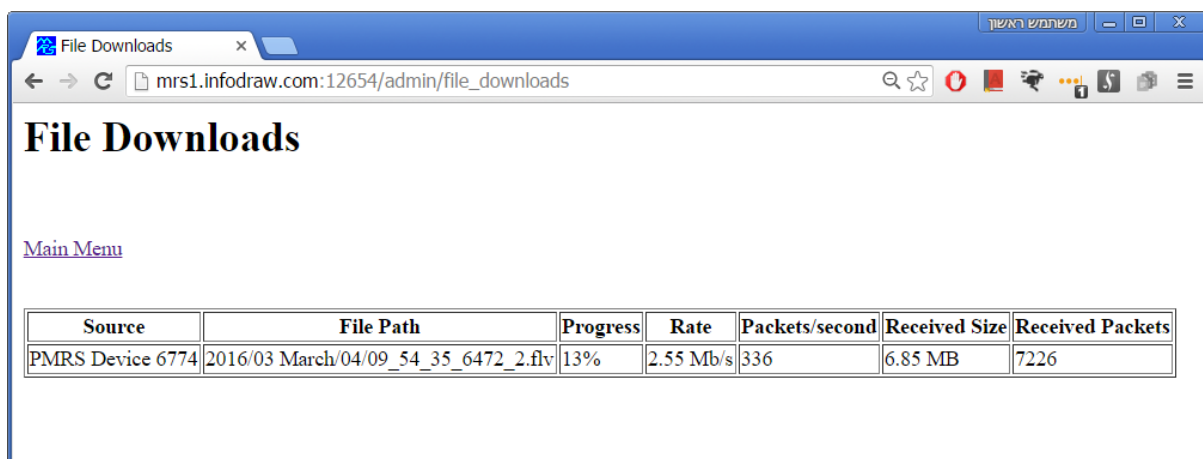
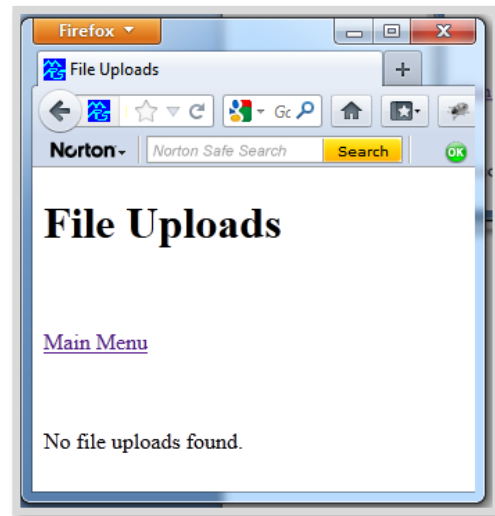
This page lists the connected Users: the user name and the amount of data that is sent and received from that user-client.



- The **User device calls** page is not relevant to PMRS devices.

File Uploads Page:

This page lists the active file uploads: Downloading client's IP address as seen from the server, file path and progress information. It is activated when upgrading the firmware of the PMRS device via Server.



File Downloads Page:

The file downloads page shows the status of recording files currently downloading from the PMRS device to the MRS server

4-4-5 Recordings Menu:

One of the features of the MRS system is the ability to record on the server. The 'Recording' section in the 'MRS Service' gives the ability to control the settings of those recordings

Configure Recordings Page:

This page lets you configure the server recording parameters.

Recording Folder: The recording folder is the root path where server recordings are kept.

Downloads Folder: This path will point to the location of the recording files which will be downloaded from the PMRS device.

File Size Limit: The file size limit is the maximal size of the media file. When a media file reaches this size, the file is closed, a new media file is created and recording continues on to the next file.

File format: choose the recording file format between .h264/.flv/.avi.

Automatic recording in motion detection: Check this option to start a recording of the video channel where motion has been detected. The recording ends after motion is not detected for a full minute.

Delete old files to free space: Check this option to automatically delete old server recordings after the free space on the storage device drops below 10%.

Sign media files: Check this option to automatically generate a signature file for every recorded media file. A signature file contains an electronic signature that can be verified with the MRS AV Player application.

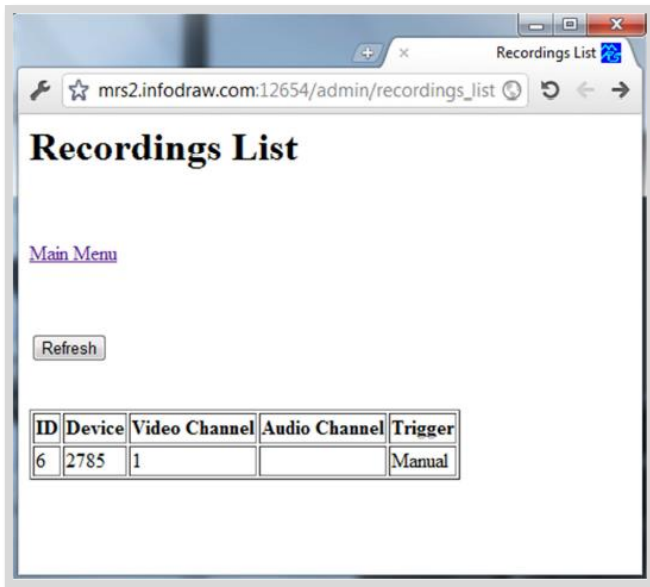
Record device locations: Check this option to automatically record all locations of devices on the server. The server can record the device's global position only when the device is connected to the server and transmits its position.

Record Video/Audio on alarm: Enable/disable recording of video or audio when alarm is triggered.

Record all media traffic: If this feature is enabled device, on activation, will automatically record its video and audio on the server.

Use Separate device recording/downloads folder: If enabled a separate folder can be created where the recordings that are made directly to the monitor and the files that downloaded from the device are kept.

Minimal event recording: defines the recording time on the server after an event has been triggered.



Recordings List:

This page lists the active or scheduled recordings on the server. A recording is considered active if the recorded capture device is connected to the server, or scheduled if the recorded capture device is disconnected from the server.

Automatic device backup:

Device: Choose the device from which to download the recording files.

Enable: Enable the downloading feature

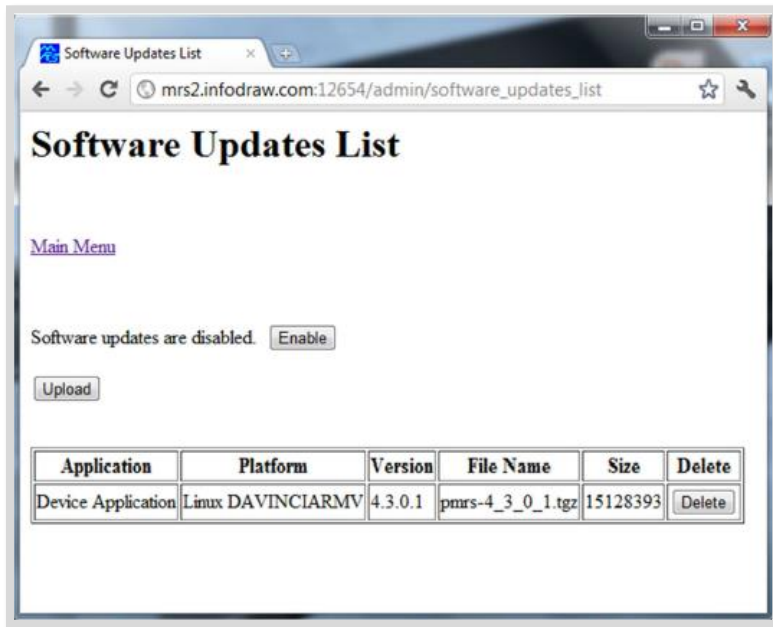
Interface: Set connection type - that when connected, will trigger the recordings download.

Order: Will the download of recording files start from old to new or from new to old.



4-4-6 Software Updates Menu:

Updating device firmware can be accomplished remotely via the server, through the "Software Updates" feature of the MRS Service program.



Software Updates List Page:

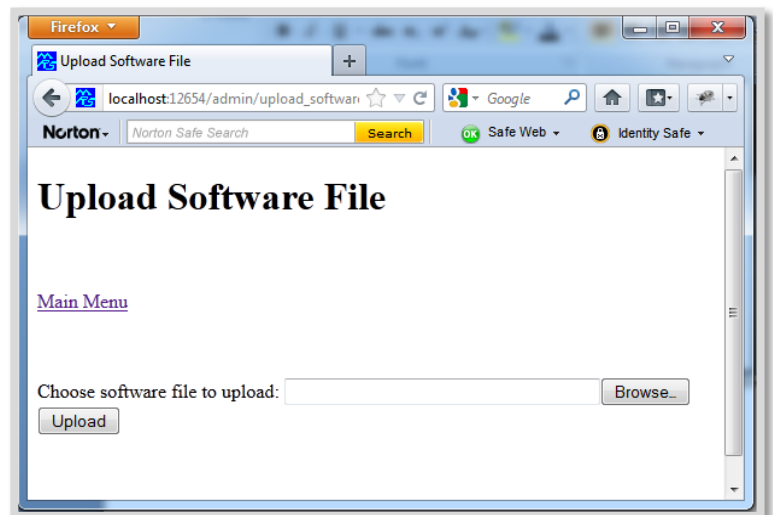
This page lists the update files to be sent to devices in order to upgrade their firmware. The software updates can generally be enabled or disabled. If enabled and a device connects to the server and there is a newer version of its firmware listed, then the server will send the relevant update to the device. The device will upgrade itself, restart, and reconnect to the server with the updated version.

Click **"Enable"** to enable software updates, **"Disable"** to disable them, **"Main Menu"** to return to the main menu, or **"Upload"** to upload a new software update file to the server.

Upload Software File Page:

Use this page to upload a new software update file to the server. The two types of supported files are:

Click **"Browse"** to select the file on your local PC. Click **"Upload"** to start uploading the file to the server.



4-4-7 User Area

File Type	Description
pmrs-202-A_B_C_D.tgz	PMRS-201 device firmware

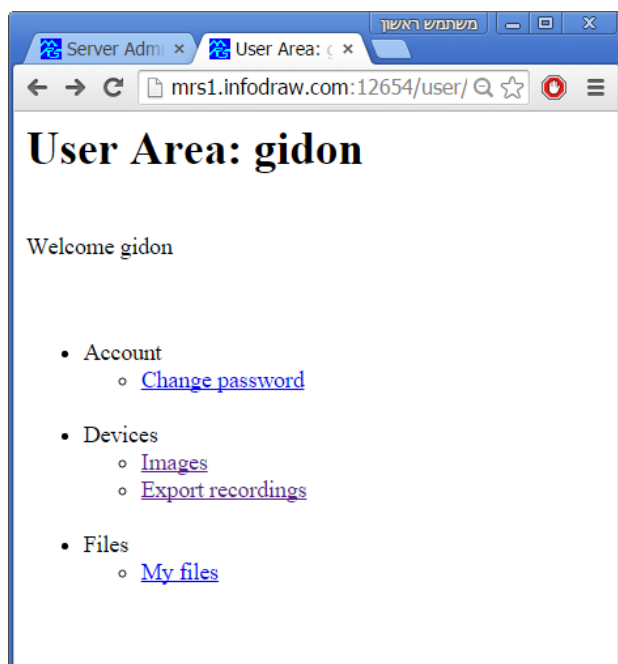
The User area allows users that are not the administrator to make changes to some server settings without the intervention of the administrator.

In order to create a User Area you have to follow these three steps:

Step 1: Create a user with a password in the MRS Service.

Step 2: Open the browser and enter: SERVER_IP:12654/user (**user** comes instead of *admin*)

Step 3: Enter the username and password you had defined for the user in the MRS Service.



User Area

Account:

Change Password: You can change your password to access the server.

Devices:

Images: You can create images to symbolize the location of your devices, to differentiate them, one from the other.

Export Recordings: Receive the recordings from the server to your computer by device name and computer are transferable via archive folder.

Files:

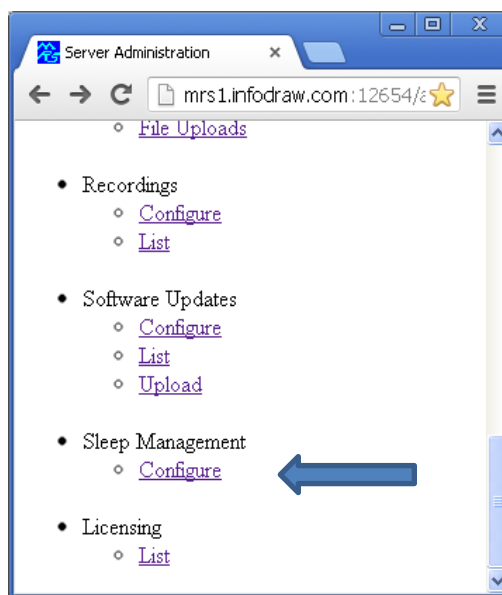
My files: Recording files made by the user.

4-4-8 Sleep Management

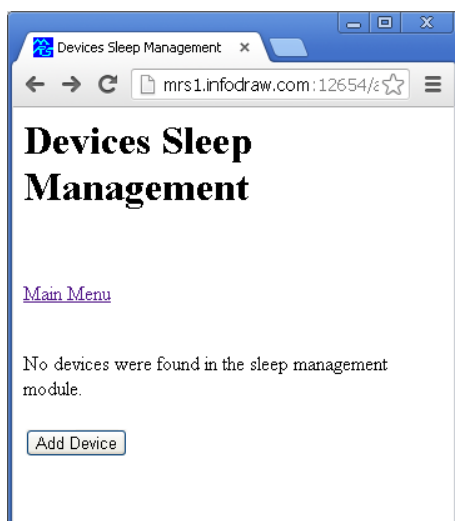
If you want your device to save power and to open remotely when you tell it to or in a pre-set date, please enact the following instructions in order to impose a sleep regiment on your PMRS device.

- This service only applies to software and firmware version 4.5.0.0 and later.
1. Activate your device and connect it to your server -in this example we connected the PMRS device to the IP address: "mrs1.infodraw.com"

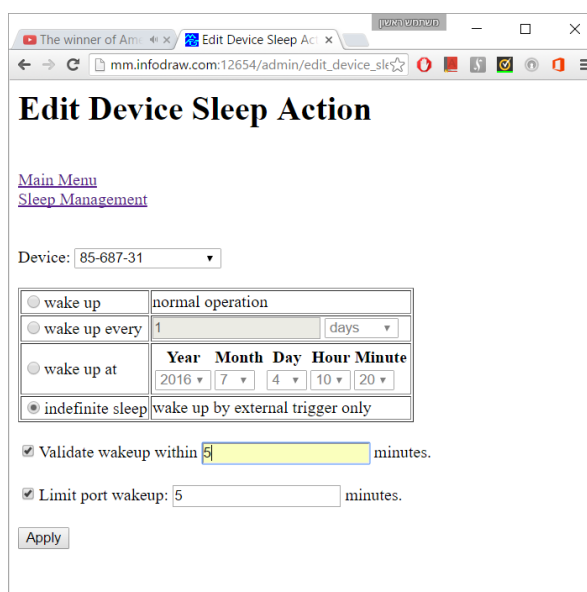
2. After connecting the device, open the MRS Service program by opening your browser and entering: SERVER_IP_ADDRESS:12654/admin
3. To configure the sleep management, under the Sleep management section - click on the configure option.



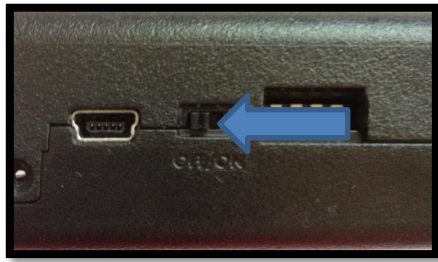
4. Click on "Add Device" to install a sleep regiment for your device.



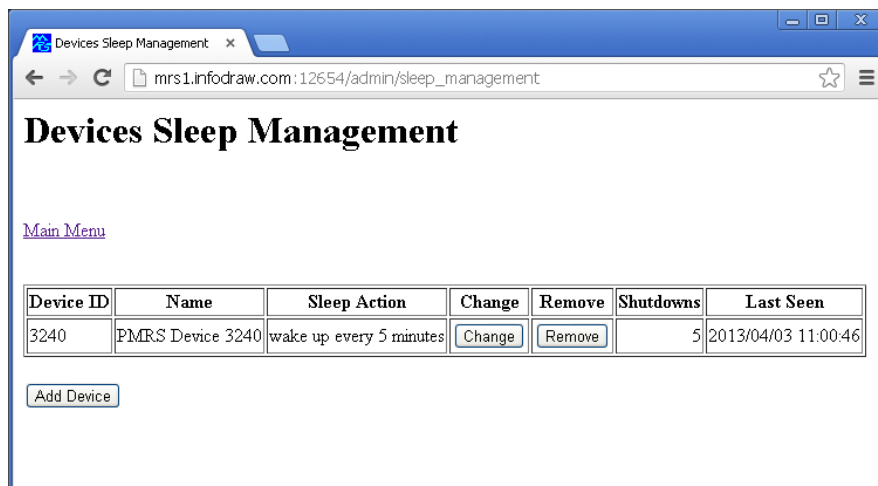
5. Enter how often you want your device to wake up to look for a signal or set a date for its awakening - apply the changes.



6. **Close the device manually.** It will go into sleep mode.



Wake up in regular intervals: device will wake up every set time and look for a signal, a window will open in the MRS Service program. If a device wakes after the pre-set time period is over (5 minutes for example) and the sleep regiment is not removed - it will return to sleep. This window will show you the sleep regime you ordered and how many times the device woke and went back to sleep mode (shutdowns) along with the last date of waking.



- a. To change the sleeping regiment, simply click on the "**Change**" option.
- b. To terminate the sleep mode and allow the device to go online, click on the "**Remove**" option and then after the pre-set time period will expire the device will activate normally.

Wake up by date: If you choose the *wake up at* option, the device will wake up at the date inserted. If you want the device to sleep again, simply set a future date and click *Apply*.

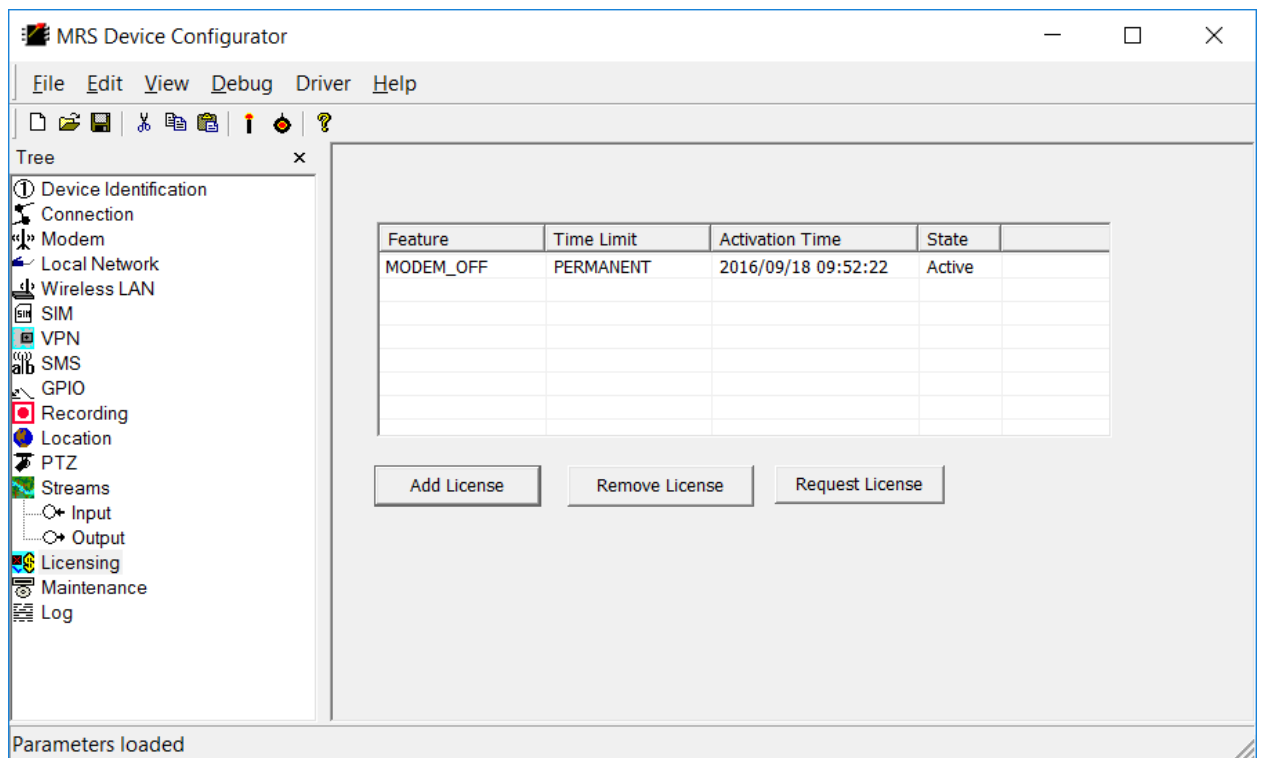
* When this sleep regiment is installed you cannot wake up the device before its due date.

Indefinite sleep: Device will go to sleep until a sensor (External signal or accelerometer activation) is triggered after which the port wakeup can be limited for a time period: 5 minutes for example, after which time the device will go back to sleep.

4-4-8-1 Modem-Offline mode

The modem-offline mode is a new feature of the MRS system, its purpose is to save power while the PMRS device continues its local recordings offline.

- This feature is a pay-to-use feature and license needs to be acquired and installed.
1. After receiving the license open the MRS Configurator and insert the license, if inserted correctly the configurator should look as it does in the picture below.



2. After connecting the device to the server, open the MRS Service program in the web browser and enter the **Sleep Management** section.
3. Click on **Add Device**
4. In the Operation Limit enter **Wireless modems Disabled** to activate the feature

משתמש ראשון

Edit Device Sleep Action

← → ↻ mrs1.infodraw.c ☆ 🔍 📄 📌 📁 📂 📅 📆 📇 📈 📉 📊 📋 📌 📍 📎 📏 📐 📑 📒 📓 📔 📕 📖 📗 📘 📙 📚 📛 📜 📝 📞 📟 📠 📡 📢 📣 📤 📥 📦 📧 📨 📩 📪 📫 📬 📭 📮 📯 📰 📱 📲 📳 📴 📵 📶 📷 📸 📹 📺 📻 📼 📽 📾 📿

Edit Device Sleep Action

[Main Menu](#)
[Sleep Management](#)

Device: PMRS Device 40001 ▼

Operation Limit: Wireless Modems Disabled ▼

<input type="radio"/> wake up	normal operation										
<input checked="" type="radio"/> wake up every	1 days ▼										
<input type="radio"/> wake up daily at	10 : 25										
<input type="radio"/> wake up at	<table border="1"> <thead> <tr> <th>Year</th> <th>Month</th> <th>Day</th> <th>Hour</th> <th>Minute</th> </tr> </thead> <tbody> <tr> <td>2016 ▼</td> <td>9 ▼</td> <td>18 ▼</td> <td>10 ▼</td> <td>25 ▼</td> </tr> </tbody> </table>	Year	Month	Day	Hour	Minute	2016 ▼	9 ▼	18 ▼	10 ▼	25 ▼
Year	Month	Day	Hour	Minute							
2016 ▼	9 ▼	18 ▼	10 ▼	25 ▼							
<input type="radio"/> indefinite sleep	wake up by external trigger only										

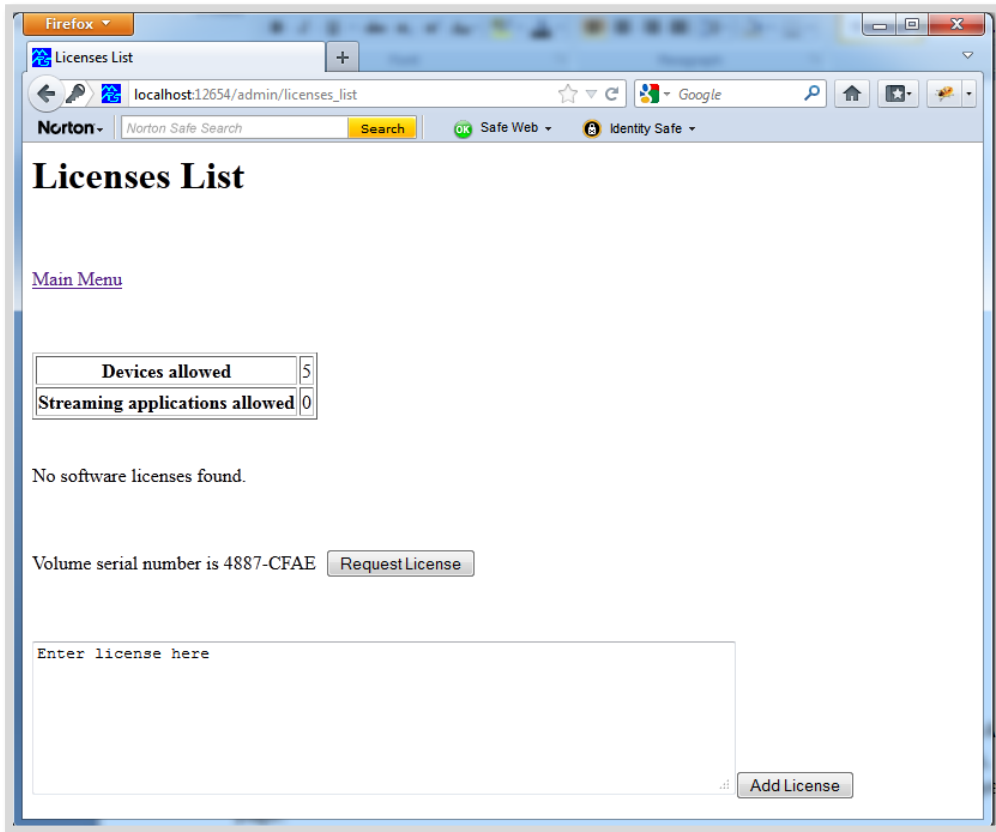
☒ Validate wakeup within minutes.

☒ Limit port wakeup: minutes.

Apply

- After these steps are taken the modem will go offline until the sleep regiment is removed or wake up time has arrived (in case of a wakeup date), but will not cancel the **local** recordings that are at play.
- There is no need to physically deactivate the device for this feature to work.

4-4-9 License Menu:

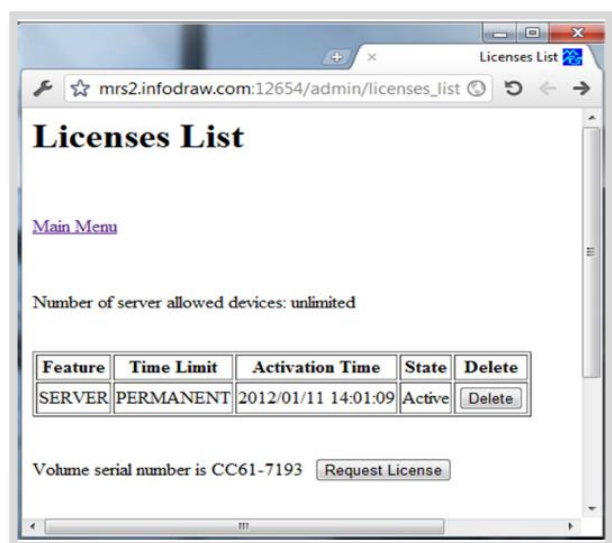


License List Page:

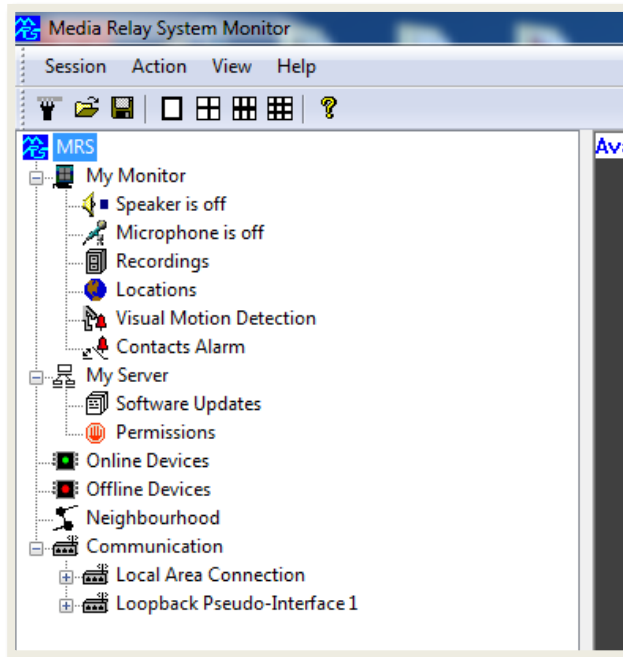
This page lists the pay-per-use server's licenses and indicates the number of allowed devices. A server without a license supports up to one device. For more than 1 device, a license is required. The license depends on the hard disk volume serial number as displayed in this page. You can obtain a license by pushing **"Request License"**. After you receive the license, copy the license text into the text area instead of **"Enter license here"**. Click on **"Add License"** to add the new license.

Once the license is added, it will appear in the list on the License List page and its state should be "Active".

Click on **"Delete"** to remove an old or non-relevant license.



4-5 MRS Monitor Server Application:



The MRS Monitor Server Application is used for monitoring and controlling MRS/PMRS units. It can also be used for setting up a server for MRS/PMRS units and clients to connect to. Upon opening the application, you will see a tree on the left-hand side with the following features:

Item:	Description:
Speaker is off	Configure settings for your computer's speakers.
Microphone is off	Configure settings for your computer's microphone.
Recordings	a) View Recorded video/audio files. b) Configure settings for local monitor recording files.
Locations	a) View the GPS map full screen showing all connected units on it. b) Configure trigger actions for GPS event alarms.
Visual Motion Detection	Configure trigger actions for Visual Motion Detection event alarms.
Contacts Alarm	Configure trigger actions for the Alarm button and GPIO event alarms.
Permissions	Set permissions and access levels for connecting units and clients.
Online Devices	Will display all online MRS/PMRS devices.
Offline Devices	Will display all devices that have disconnected from the server, if the device has been ticked to be remembered by the server.
Neighbourhood	Will display information about all connected units and clients such as: IP addresses, software versions etc.
Communication	Displays network information.

4-5-1 Permissions

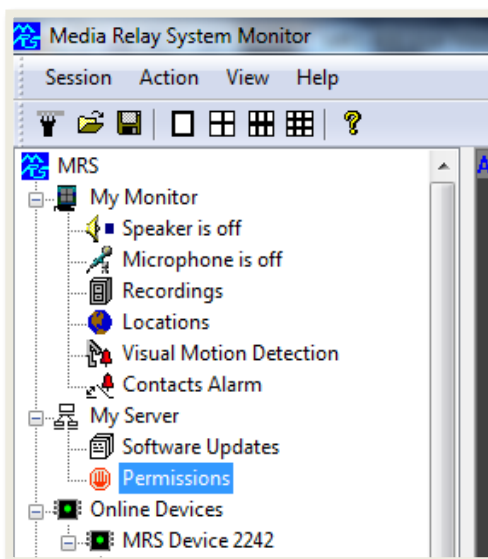
In general each device and user can be defined with a password for authentication in the server. Permission can be defined for users, devices and the connection between users and devices. This can only be done using the server software.

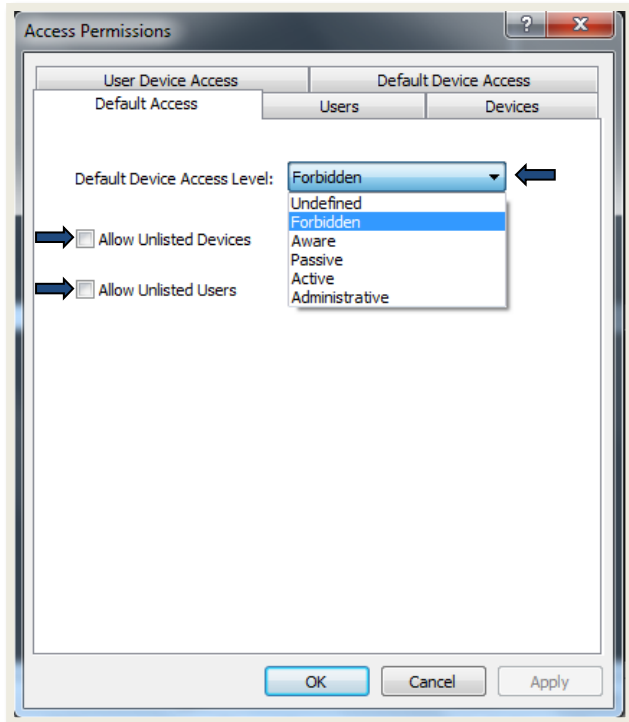
Each user can be defined with a permission access level for a specific device. There are 8 different access levels. Here are the activities which are permitted to each of those levels:

Level of Permission/ Actions Permitted	Forbidden	Searchable	Aware	Location Aware	Passive	Active	Advanced	Administrative
Can view online devices & Nodes			✓	✓	✓	✓	✓	✓
Viewing Video/Audio					✓	✓	✓	✓
Viewing GPS				✓	✓	✓	✓	✓
Recording on Monitor					✓	✓	✓	✓
View recording from device					✓	✓	✓	✓
Download recording					✓	✓	✓	✓
Record on device and/or server						✓	✓	✓
Changing Video/Audio settings							✓	✓
Erasing recordings						✓	✓	✓
Renaming, Disabling Video/Audio channel								✓
Disabling VMD						✓	✓	✓
Changing VMD settings						✓	✓	✓

Follow these instructions on how to setup user permission and access levels in the MRS Monitor Server Application:

Double click on the **“Permissions”** icon on the left hand side under **“My Server”**, to open the **“Access Permissions”** window.





Default Access Menu:

Here you can define the users default access level of all devices which have not been assigned to a specific user in the **“User Device Access”** menu or have not been assigned an access level in the **“Default Device Access”** menu.

You can also choose to allow or not allow unlisted devices and users. If you wish to assign all devices to specific users then in the **“Default Device Access Level”** list box, select **“Forbidden”**. Also un-tick **“Allow Unlisted Devices”** and **“Allow Unlisted Users”**.

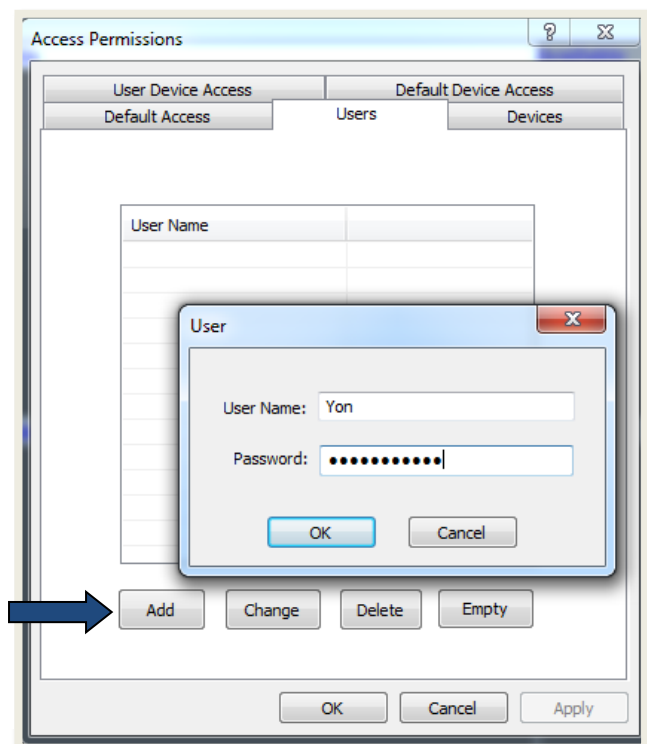
Users Menu:

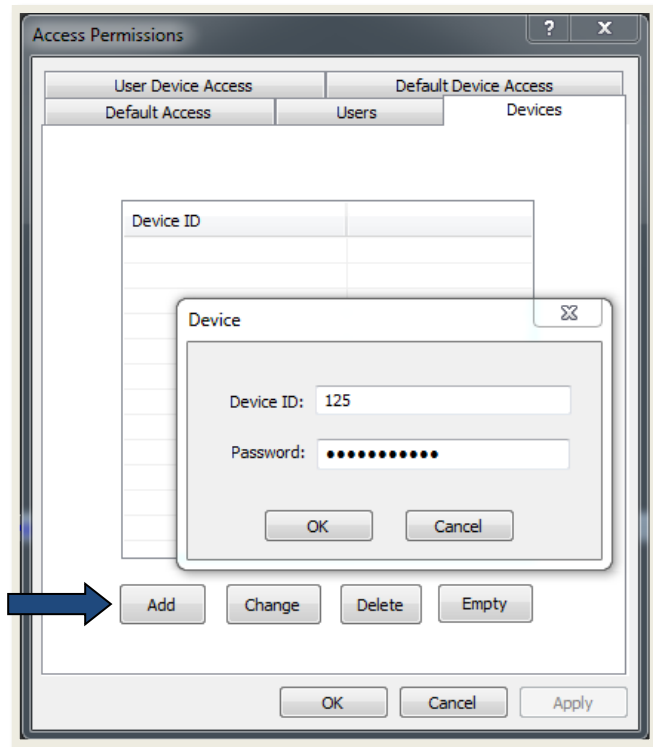
Each user can be defined in the server with a password. (The password is for authentication only).

To create a new user, select **“Add”**.

The **“User”** window will open. Enter in a user name and password. Then press **“OK”**. Your new user name will appear in the **“User Name”** list.

This password will need to be entered by that user who is trying to connect to the server from a client.





Devices Menu:

Each device can be defined in the server with a password. (The password is for authentication only).

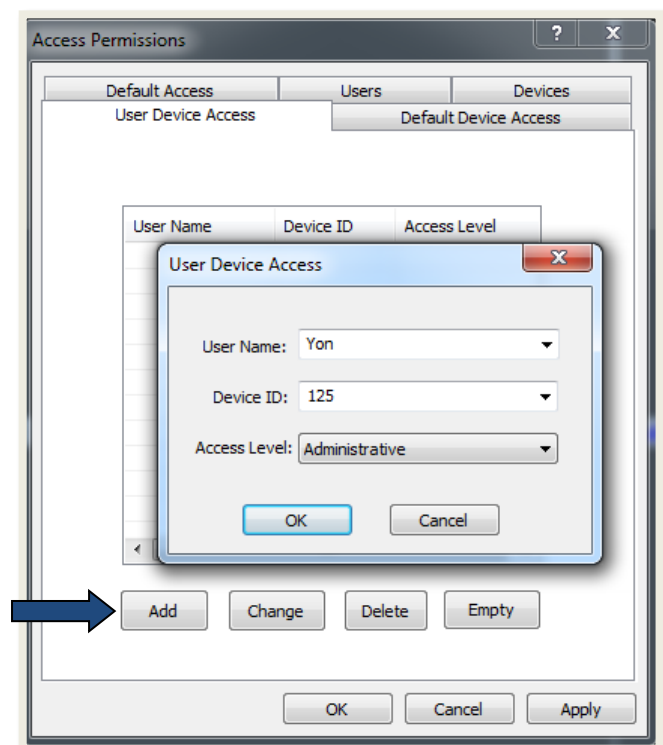
To create a new device password, select **"Add"**.

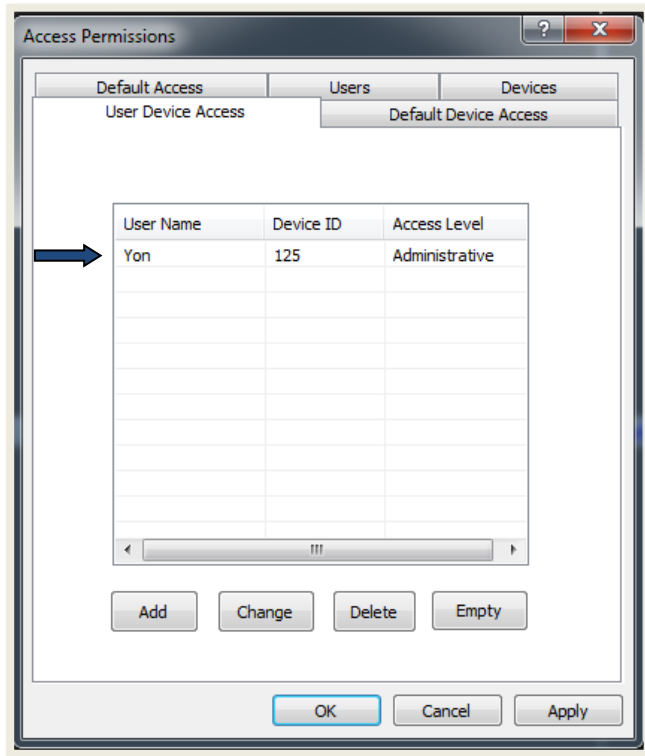
The **"Device"** window will open. Enter in the **"Device ID"** and a **"Password"**. Then press **"OK"**. Your new device will appear in the **"Device ID"** list.

This password will need to be entered in the **"Device Client password"** box, in the **"Device Identification"** menu, of the Device Configurator, in order for the unit to be able to connect to the server.

User Device Access Menu:

In this menu you can assign specific devices to specific users. Select **"Add"** to open the **"User Device Access"** window. All listed User Names and Device ID's will appear in the drop list boxes. Select the desired **"User Name"**, **"Device ID"** and **"Access Level"**. Then press **"OK"**.





Your new “**User Name**”, “**Device ID**” and “**Access Level**” will now appear in the list. This now means that this specific user is assigned to that specific device.

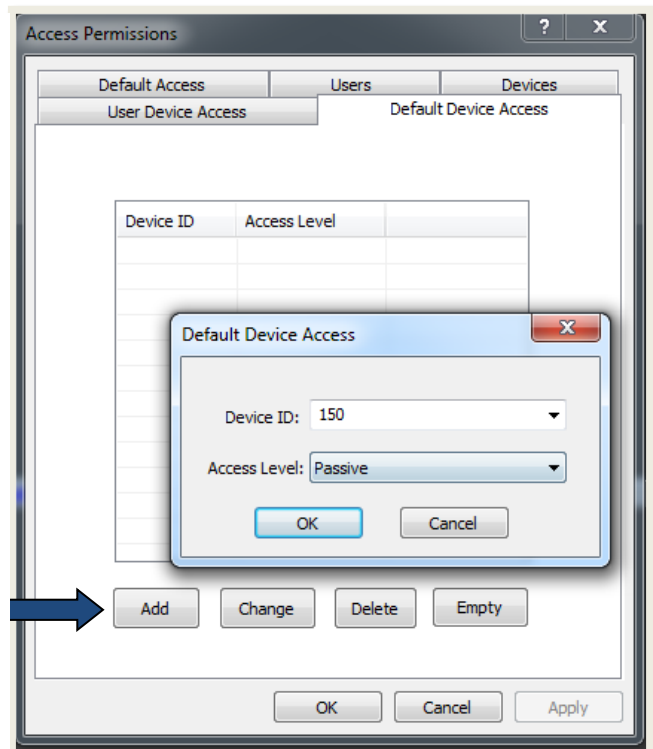
To edit the applied setting, highlight the user and select the “**Change**” button.

To delete the applied setting, highlight the user and select the “**Delete**” button.

Default Device Access Menu:

The “default device access” screen defines the access level of each device which is **not** specified in “**User Device Access**”.

To apply an access level to a device, select “**Add**”. The “**Default Device Access**” window will open. All listed devices from the “**Devices**” menu will appear in the “**Device ID**” list box. Select the desired device and apply an access level using the “**Access Level**” list box. Then press “**OK**”. Your new device will appear in the list.



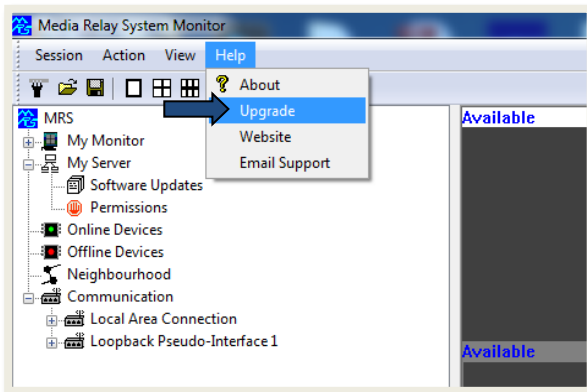
4-5-2 Software Upgrading:

The simplest ways to upgrade the MRS Software Applications and the PMRS unit firmware are listed below.

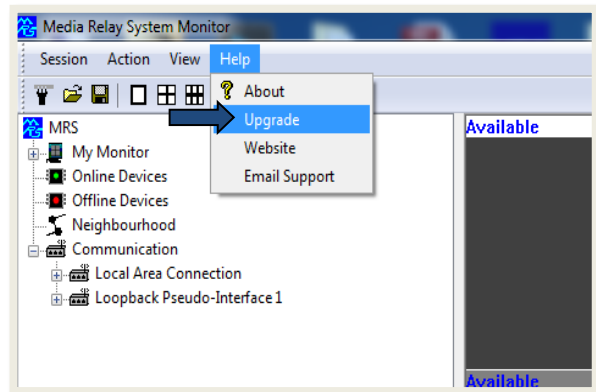
The four main applications (MRS Monitor Server, MRS Monitor Client, MRS Device Config and MRS AV Player) can be upgraded in each application. To do so, follow these instructions:

- 1) Open the 'Help' menu in each application and select 'Upgrade'.

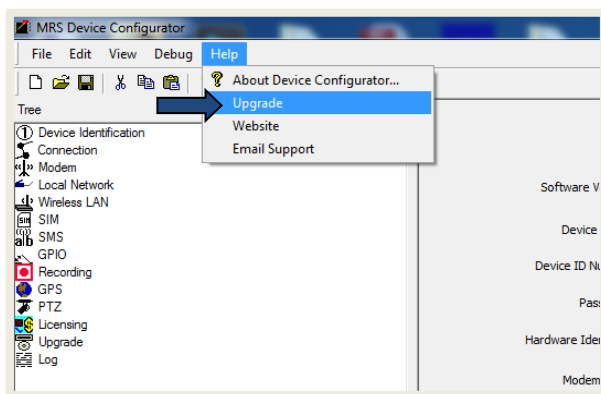
MRS Monitor (Server) Application:



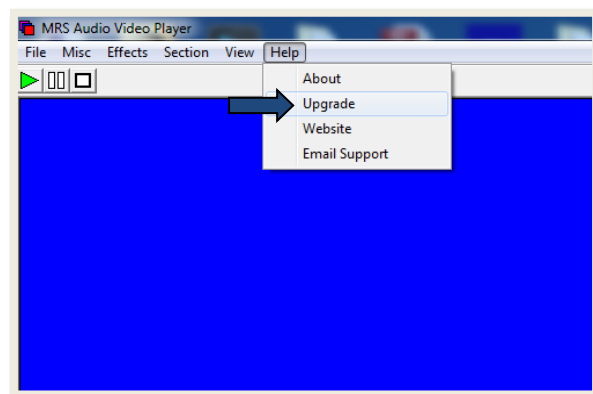
MRS Monitor (Client) Application:



MRS Device Config Application:

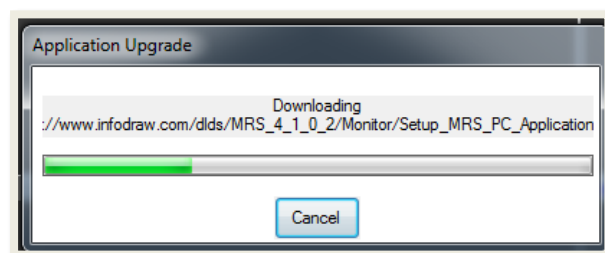


MRS AV Player Application:



- 2) A newer version (if available) of the application will automatically download.

- 3) You will then be prompted to install the new software. Follow the installation instructions to complete the upgrade.



4-6 Other Clients:

The MRS system supports an iPhone client, an Android client, Windows Mobile 5.0 and 6.0 clients and a Web Browser client. The manual for these clients is available at:

<http://www.infodraw.com/support/downloads.php>

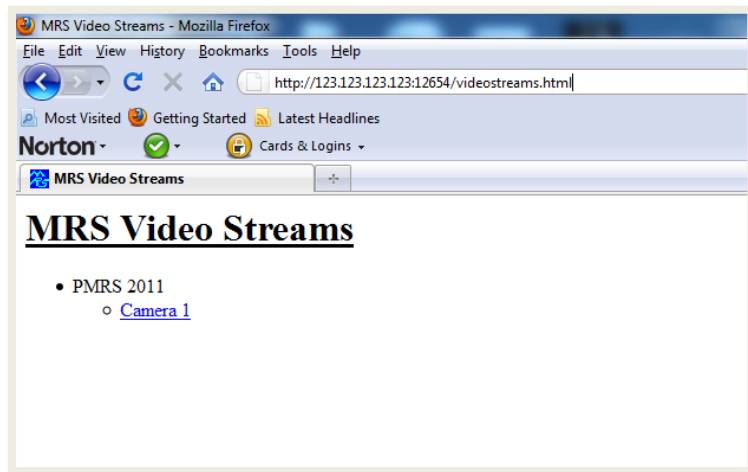
Under the Smartphone clients and Airself section.

4-6-1 Web Browser Client:

To view the live video streams using an Internet browser open the following address:

[http://\"server ip\":12654/videostreams.html](http://\)

This will let you view the video/GPS streams of any connected device using flash.



Select the desired video/ GPS channel to open it for live streaming.

If video and voice is required (synchronized), you need to attached the voice to one of the video channels and location.

Place the cursor on the video channel and right click to attach an audio channel.



Chapter 5 - Technical Specifications

Below are the technical specifications for the PMRS system.

5-1 PMRS Unit Specifications

Data Network		
Supported Air Interfaces	HSUPA HSDPA 3G 4G/LTE EDGE GPRS WCDMA	
Frequency Bands	GSM/ GPRS/ EDGE UMTS WCDMA/ HSUPA/ HSDPA/LTE	850/ 900/ 1800/ 1900 MHz 850/ 1900/ 2100 MHz
Cellular Module	Built-in	Requires SIM card (Data only)
Cellular Antenna	External Frequency	SMA Connector 850/ 900/ 1800/ 1900/ 2100 MHz
Bandwidth control	Automatic	
Video		
Video Input	1x Video Input	RCA Male Connector (through video/power splitter cable)
Supported Cameras	Any Analogue Cameras	PAL/ NTSC
Video compression	H.264 Dual Encoding	Streaming/ recording
Video Resolution	QCIF/CIF/ D1	Remote User Control
Video Bit rate	From 10kbit/s to 2Mbit/s	Remote User Control
Video Frame rate	Up to 25/30 fps	Remote User Control
Supported PTZ Cameras	Analogue Protocol Baud Rates	PAL/ NTSC Pelco D/ Visca 1200/ 1800/ 2400/ 4800/ 9600/ 19200/ 38400/ 57600/ 115200/ 230400
PTZ Control	Built-in RS-485 Wires (T+, T-)	Through GPIO/PTZ Cable

Audio		
Audio Input	Built-in microphone or Line in	Line in through Audio Splitter Cable
Audio output	Line out	Line out through Audio Splitter Cable
Audio compression	AAC	
GPS		
GPS Receiver	Built-in Frequency Band	Updates every few seconds 1575.42 MHz
GPS Antenna	External Frequency Waterproof	SMA Connector 1575.42 MHz Yes (IP67)
Alarm button		
Push button	On surface Multiple Trigger Actions	(Input Sensor) Streaming/ Recording/ SMS/ Noise/ GPS Tracking
Memory		
Micro SD Slot	FAT32 file system (Micro SDHC)	Max bit rate based on micro SD write speed, recommended at least class 10.
GPIO		
Input	4x Input Sensor Ports Logic Level User Settings Control Multiple Trigger Actions	Built-in (Through GPIO/PTZ Cable) TTL Active Low/ Active high Streaming/ Recording/ SMS/ Noise/ GPS Tracking
Output	4x Output Ports Logic Level Switching Multiple Trigger Actions	Built-in (Through GPIO/PTZ Cable) TTL Through MRS Monitor Software Streaming/ Recording/ SMS/ Noise/ GPS Tracking

Power		
Power Input	5V (Max)	AC/DC to 5V adapters
Power consumption	1000-1500mA while streaming	
Battery	Built-in, Lithium	4000mAh
Power output	DC 5v output to camera	DC Male Connector (through video/power splitter cable)
Environment		
Temperature Input	-10 +60°C	
Physical		
Dimension	5 x 10 x 2.8 cm (Plastic)	
	5.6 x 16 x 3.7 cm (Metal)	
Weight	140g {Plastic}	
	320 g (Metal)	
Other Interfaces		
USB Client	Built-in (Mini USB Input)	For Setup/ Configuration (Through USB Cable and PC)
video/power cable	Splitter cable for video/5V power output	RCA/DC Male Connectors LEMO (Ruggedized)
Audio in/out cable	Splitter cable for Speakers/ Mic	TRRS Female Connectors
LAN	Built-in Through external cable interface	Ethernet Cable
Protocols		
RTP/RTSP/SDP		

5-2 MRS Software Specifications:

Software:	Type:	Use:	Compatible Operating Systems:
MRS Server (Web Admin Interface):	Windows Service Program	Server Program	Windows XP/Vista/7/8/10 Windows Server 2008/2012
MRS Monitor Server:	Windows Application	Server Program/ Monitoring Program	Windows XP/Vista/7/8/10 Windows Server 2008/2012
MRS Monitor Client:	Windows Application	Monitoring Program	Windows XP/Vista/7/8/10
MRS Device Configurator:	Windows Application	Setup/ Configuration Program	Windows XP/Vista/7/8/10
MRS AV Player:	Windows Application	Recordings Player	Windows XP/Vista/7/8/10
MRS USB Drivers:	Windows System Drivers	For Setup of USB Client	Windows XP/Vista/7/8/10
iMRS iPhone Client:	iOS Application	Monitoring Program	iOS 4.3 or Later
Android Client:	Android Application	Monitoring Program	Android 1.6 and Up
Windows Mobile Client:	Windows Mobile Application	Monitoring Program	Windows Mobile 5.0/6.0

5-3 MRS Server Technical Requirements:

Server Components	Requirements (Minimum)
Server Machine Processor (PC/ Laptop/ Dedicated Server)	5-core processor (The more units/clients connected to the server, the better the processor will need to be).
RAM	4GB RAM (The more units/clients connected to the server, the more RAM will be required in the server machine).
Hard Disk	500GB hard drive 7200RPM or SSD. 50 GB have to be free at any given time.
Operating System	Windows XP or higher Server software compatible with: Windows XP/Vista/7/8, Windows Server 2008/2012
IP Address	Fixed (Static)
Bandwidth	Connection should have an upload rate of at least 10Mb. Varies depending on how many units/clients are connected to the server and at what bit rate the units are streaming data to the server at.

Chapter 6 – Support

- For FAQ please visit our help centre at:

http://www.infodraw.com/support/help_centre.php

Contact Us:



Infodraw Israel R&D LTD (Global Headquarters)

14 Aba-Hillel St. Ramat-Gan, Israel

Tel: +972-3-6127434

Email: info@infodraw.com

www.infodraw.com