Swann
PRO-SERIES

4 / 8 Channel
D1 Realtime H.264 DVR

Before You Begin

FCC Verification

NOTE: This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna

- Increase the separation between the equipment and the receiver

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

- Consult the dealer or an experienced radio/TV technician for help

These devices comply with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- These devices may not cause harmful interference, and

- These devices must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

All jurisdictions have specific laws and regulations relating to the use of cameras. Before using any camera for any purpose, it is the buyer's responsibility to be aware of all applicable laws and regulations that prohibit or limit the use of cameras and to comply with the applicable laws and regulations.

FCC Regulation (for USA): Prohibition against eavesdropping

Except for the operations of law enforcement officers conducted under lawful authority, no person shall use, either directly or indirectly, a device operated pursuant to the provisions of this Part for the purpose of overhearing or recording the private conversations of others unless such use is authorized by all of the parties engaging in the conversation.

WARNING

Modifications not approved by the party responsible for compliance could void user's authority to operate the equipment.

IMPORTANT SAFETY INSTRUCTIONS

- Make sure product is fixed correctly and stable if fastened in place

- Do not operate if wires and terminals are exposed

- Do not cover vents on the side or back of the DVR and allow adequate space for ventilation

DEFAULT PASSWORD INFORMATION

To ensure your privacy, this DVR supports password protection.

The default, all-access username is "admin". If the DVR asks you to log in before you've set a password, enter **admin** as your username and leave the password blank. This will give you access to all areas of the DVR.

The password function is disabled by default. However, if you're asked for a password, the default is "12345".

To ensure your ongoing privacy, **we strongly recommend setting a password as soon as possible**. Choose something that you'll remember, but that others would be unlikely to guess.

If you do manage to lock yourself out of the DVR, you'll need to contact us at the Swann Technical Support Telephone Helpdesk - the number is on the back cover.

Contents

Introduction

Congratuations on your purchase of this Swann DVR. You've made a fine choice for keeping a watchful eye over your home or business. Let's take a moment to talk about some of the features this DVR offers, and how to get the most out of them.

Multi-Channel Recording Solution

The DVR records 4 or 8 channels (depending on your model) at "D1" resolution.

What's this "D1"?

D1 is a (slightly inaccurate) term for a certain resolution of video which is now often called "broadcast quality". We like to think about it as being about the quality of a DVD movie.

Some savvy nerds will know where the term came from and why it's not quite correct, but it's become a standard term in the CCTV industry, so we use it here.

Fast and Easy Networking

Now supporting UPnP, networking your DVR has never been easier. For the majority of networks, it's almost plug-and-play.

Users with more complex network configurations might have to adjust some settings (see "Network: General" on page 19 for more about networking) to get everything running smoothly.

Easy Setup using your PC *(Recommended)*

The remote access and configuration features of the included *MyDVR* software are so powerful that (technically speaking) you don't even have to touch the DVR to operate it (except for plugging things in, of course).

If you connect the DVR to your network and install the *MyDVR* software to a compatible PC on the same network, you can complete the DVR setup procedure there, as well as stream images from the DVR straight to your PC monitor.

Requirements:

A compatible computer connected to the same network as the DVR. The network must support DHCP and UPnP.

- Connect your DVR to your cameras, power and a network as shown on page 6.

- Ensure that your network uses DHCP addressing, and supports UPnP (*Universal Plug and Play* - see page 19).

- Install the *MyDVR* software on a computer connected to the same network as the DVR (see page 35).

- Login to your DVR, view images and configure settings (see page 36 onwards for more details).

Basic DVR Operation

The USB Mouse (Recommended)

The easiest way to operate the DVR is to use the included USB optical mouse - we put together the look and feel of the menu system specifically for mouse-friendly navigation.

The controls are pretty easy to remember - heck, there are only two buttons. It couldn't be simpler.

Left click:

- Selects an item or confirms a choice.

Right click:

- Opens the menu bar from the live viewing screen.

- Returns one "step" from a submenu.

- Opens a context menu in some settings screens.

The Scroll Wheel:

- Can be used to adjust the values of sliders and scales when highlighted by the moust.

Of course, you don't **have** to use the mouse.

The Front Panel

The buttons on the front panel are adequate for operating the DVR, but they're hardly ideal for ongoing use.

Between Menu, Select and the D-pad (directional pad) you can navigate through all the DVR's menus and configure almost any setting. It's a little clunkier than the mouse and it's not as quick and easy, but it does save a little space - and you don't need to find the remote!
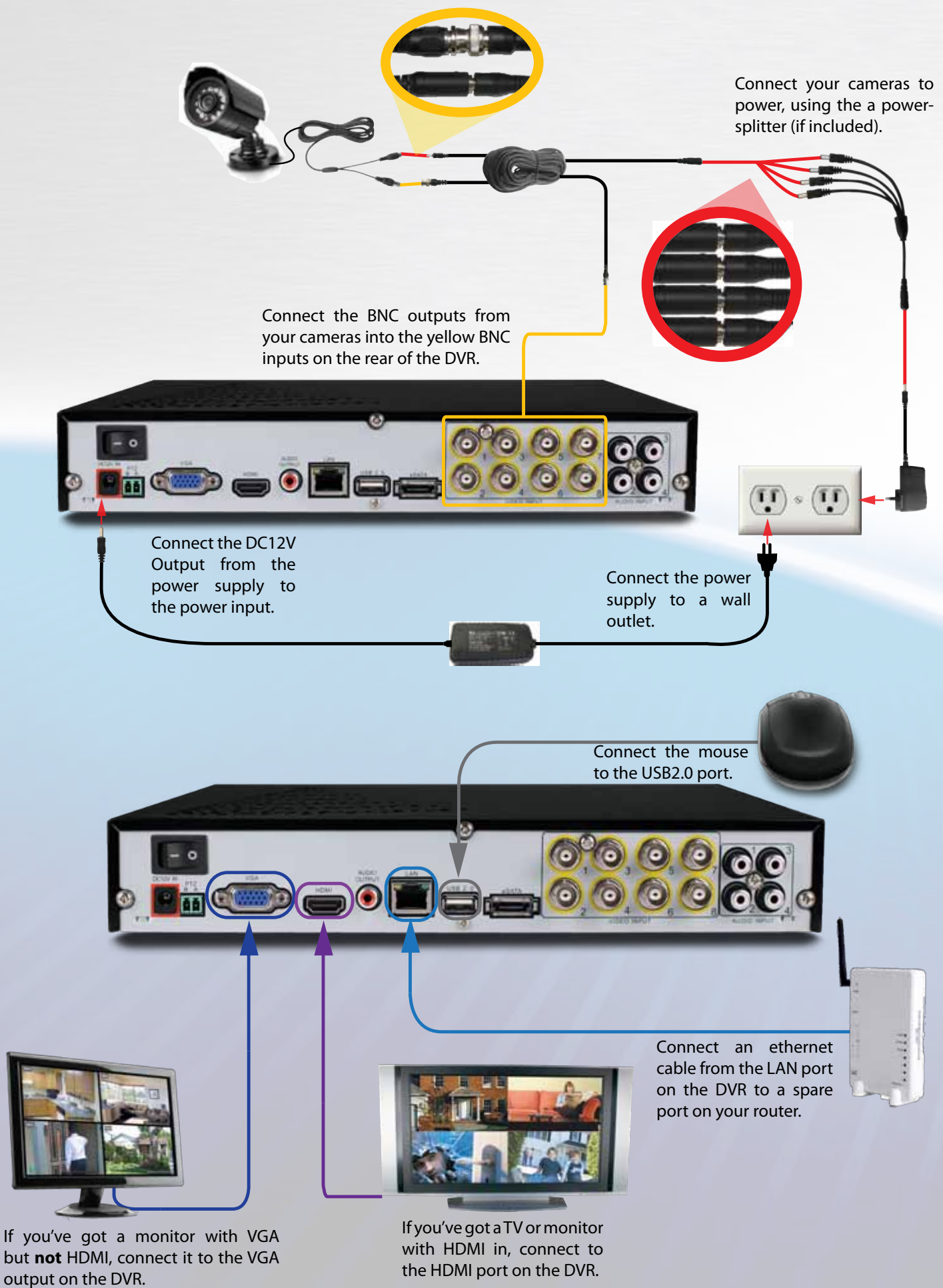
The Remote Control

The remote control has all the buttons that the front panel does, plus some others. It operates like a remote control for a DVD player or similar - it's hardly a high-tech gadget these days but it does get the job done!

A full rundown of the remote control and its various functions can be found on page 8.

Connection Diagram

Connect your cameras to power, using the a power-splitter (if included).

Connect the BNC outputs from your cameras into the yellow BNC inputs on the rear of the DVR.

Connect the DC12V Output from the power supply to the power input.

Connect the power supply to a wall outlet.

Connect the mouse to the USB2.0 port.

Connect an ethernet cable from the LAN port on the DVR to a spare port on your router.

If you've got a monitor with VGA but **not** HDMI, connect it to the VGA output on the DVR.

If you've got a TV or monitor with HDMI in, connect to the HDMI port on the DVR.

Layout of the DVR

1) USB 2.0 Port: For connecting USB external storage to the DVR for backup, or for applying new firmware.

2) Play/Pause: Opens the playback interface from the live viewing mode. Pauses playback or resumes playback from paused.

3) Quad (4ch)/All (8ch): Enters split-screen view, where the screen shows one, four (*"quad" mode 2 x 2*) or eight (*8ch only - 3 x 3 with one space blank*) video feeds at once.

**4) Menu:** Opens the DVR's menu, or goes back one step from a submenu.

5) Select: As the name suggests, it selects an option or item from a menu.

6) D-pad: For navigating around menus when you're not using the mouse. *(Why aren't you using the mouse? It's awesome.)*

7) IR Receiver: Where the DVR will pick up signals from the IR remote control. If this is obstructed, the remote will not work.

8) Power LED: Will be lit whenever the DVR is supplied power and turned on.

9) HDD LED: Will flash whenever the DVR is writing to/reading from the installed hard drive.
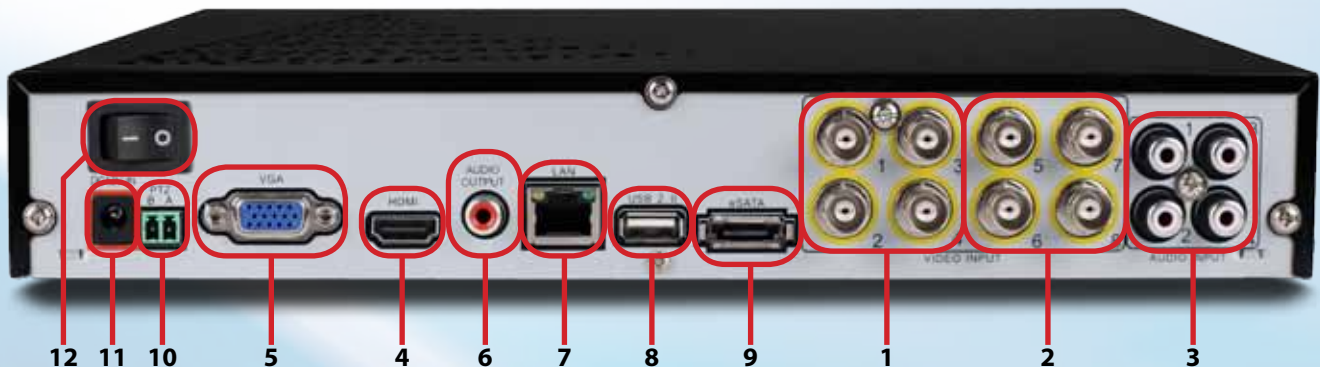
1) Video Inputs 1 - 4: These are your primary video inputs. Each accepts a standard composite video signal and connects via a BNC connector.

The channels are labeled by number in the same order as they will appear on your DVR's interface.

2) Video Inputs 5 - 8: As 1) but apply to the 8-channel model only.

3) Audio Inputs: These will accept a standard line-level signal (<1V).

4) HDMI Output: The primary output of the DVR. For the highest possible video output quality, we suggest using this output.

- For best results, use a monitor/television capable of displaying **Full HD 1080p**.

- Note that many televisions which can display 1080p signals are not actually *Full HD*. These kinds of televisions downscale a 1080p signal to the resolution of the screen. For the best possible image, use a television/monitor which can display 1920 x 1080 or higher.

5) VGA Output: For connecting a television or PC monitor with a VGA input.

6) Audio Output: A standard line-level audio output.

7) Network Port: Where you can connect the DVR to a network, typically directly into the router or network switch.

8) USB 2.0 Port: For connecting a USB mouse or a USB storage device. We suggest connecting USB storage to the USB port on the front of the DVR, and using the rear port for the mouse.

9) eSATA Port: To connect an external hard drive, to which you can backup footage.

10) PTZ (RS485) Port: To connect the RS485 cables to control a PTZ (pan, tilt, zoom) device to the DVR.

11) DC 12V Power Input: Where you connect the included DC 12V power adapter. Use **only** the supplied power adapter with the DVR, and use the power adapter **only** with the DVR.

12) Power Switch: Master ON/OFF switch.

Installation Guidelines

- **Do not expose the DVR to moisture.** Water is the arch-enemy of electrical components and also poses a high risk of electric shock.

- **Avoid dusty locations.** Dust has a tendency to build up inside the DVR case, leading to a high risk of failure or even fire.

- **Only install the DVR in a well ventilated space.** Like all electronics, the circuitry and hard drive in the DVR produce heat, and this heat needs a way out.

- **Do not open the DVR case except to install/swap the hard drive inside.** There are no user serviceable parts inside.

- **Never open the case whilst the DVR is plugged in**, and never turn the DVR on whilst the case is open.

- **Use only the supplied power adapter.** Other adapters may cause damage to the DVR or cause a fire.

- **Do not cut or modify any cable for any reason.** Doing so will void your warranty, as well as pose a great risk of fire or electrical shock.

- **Do not expose the DVR to sudden bumps or shocks** (for example, being dropped). The DVR is as robust as possible, but many of the internal components are quite fragile.

- Remember that the DVR is, in all likelihood, going to be left on **24 hours a day, 7 days a week**. Keep this in mind when choosing a location for installation.

Layout of Remote Control

1) Standby: Sends the DVR into standby mode. No recording will occur while the DVR is set to *Standby*.

2) Login / Lock: Locks the DVR so that it requires a password to re-open, or initiates unlocking the DVR if it's already locked. Only works once the password function has been enabled and a password set (see page 32 for details).

3) Number Buttons: Can be used as shortcuts to a specific camera, and are useful for quickly entering numerical passwords.

4) Display Mode: Enters split-screen view, where the screen shows one, four (*"quad" mode 2 x 2*) or eight (*8ch only - 3 x 3 with one space blank*) video feeds at once.

5) Menu: Opens the DVR's menu.

6) PTZ: Opens the Pan/Tilt/Zoom control screen.

7) Exit: Goes back one step or level in the DVR's menu tree.

8) Arrow Buttons: Navigates around menus or toggles through options.

9) OK: Works as the Select button does on the DVR, or as the Enter button on a keyboard.

10) + / -: For adjusting the zoom of PTZ devices.

11) Record: Triggers manual recording mode.

12) Stop: Stops manual recording or playback in progress. Won't have any effect on recordings triggered by the schedule in either normal or motion-based recording modes.

13) Mute: As the name suggests, this mutes the audio output of the DVR.

14) Playback Controls: Opens the playback interface from the live viewing mode. Pauses, rewinds, fast forwards or or resumes playback from paused.

Icons & The Menu Bar

The camera icon indicates that this camera is currently recording. This icon will be the same whether the recording was scheduled, initiated manually or triggered by motion (though the motion icon will also be present if there's motion detected).

The motion icon indicates that the DVR has detected motion coming from this camera. It doesn't necessarily mean it's recording (the camera icon will be there, too, if that's the case!).

Video Loss indicates that the channel displaying this has lost the feed from its camera.

If you see this icon onscreen (it'll be lurking in the lower right corner by default) it indicates that something has gone wrong. Click the icon to access the **Event Log** where you'll get more information about exactly what has gone wrong.
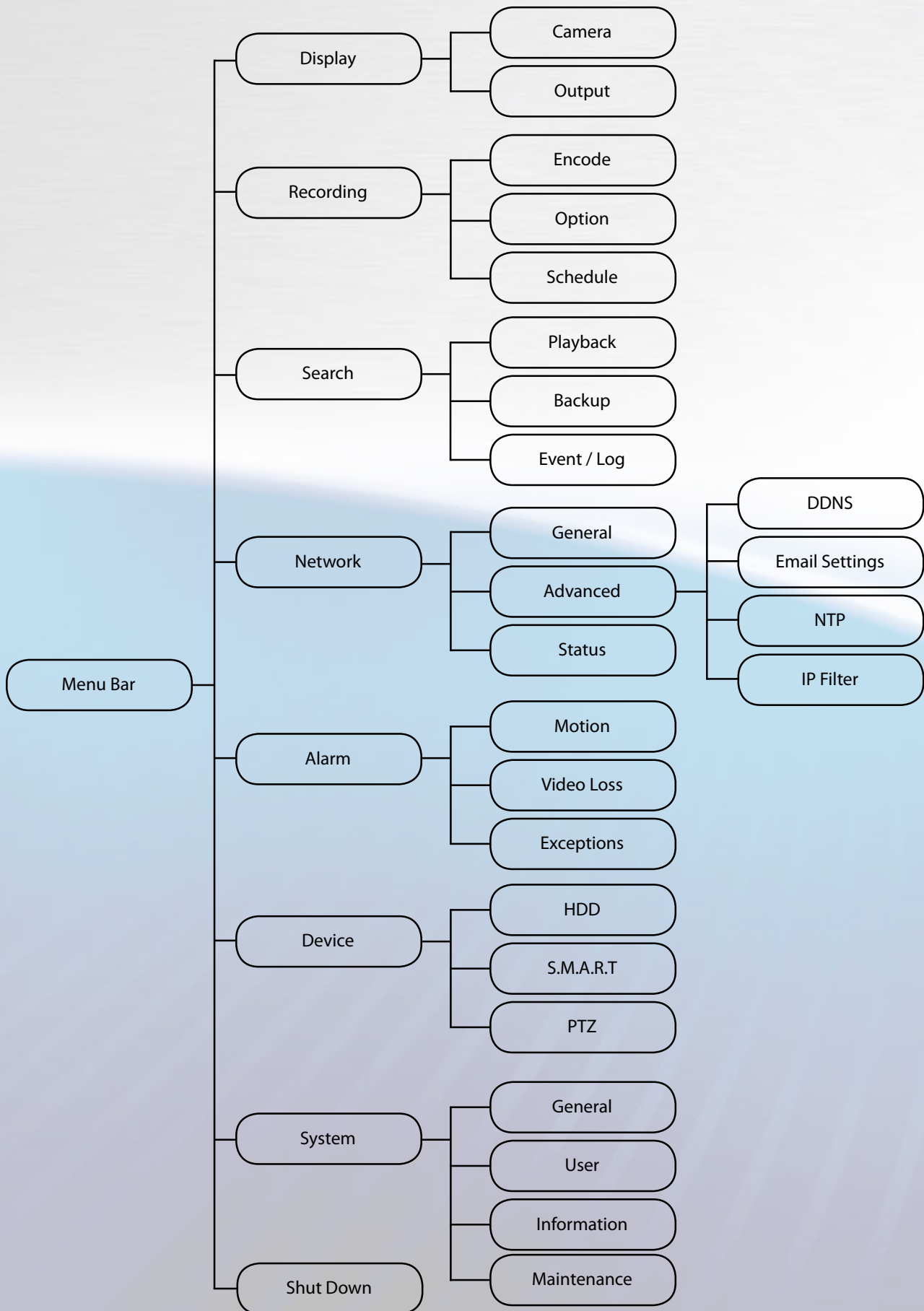

To open the Menu Bar:

- Right click with the mouse on the live viewing screen.

  or

- Press the MENU button on the DVR or the remote control.

1) Menu: Opens the main menu.

2) Single Camera View: Shows images from one camera in full-screen.

3) Multi-Camera View: Divides the screen into multiple viewing windows, each showing images from one camera.

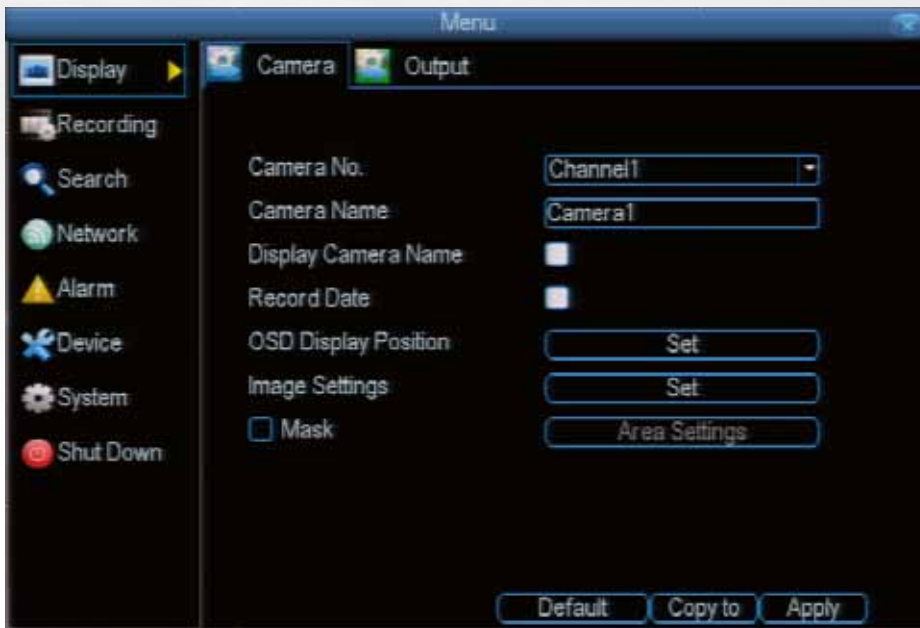**4) Next Camera(s):** Cycles the cameras displayed in viewing mode,

5) Start/Stop Tour: Starts or stops a PTZ tour.

6) PTZ Control: Opens the PTZ control window.

7) Digital Zoom: Increases the size of things in view, at the cost of visual quality.

8) Manual Record: Initiates manual recording.

9) Playback: Opens the **Search: Playback** (page 16) menu.

10) Audio On/Off: Enables or disables the audio function of the DVR.

Menu Layout

```
Menu Bar
├── Display
│   ├── Camera
│   └── Output
├── Recording
│   ├── Encode
│   ├── Option
│   └── Schedule
├── Search
│   ├── Playback
│   ├── Backup
│   └── Event / Log
├── Network
│   ├── General
│   ├── Advanced
│   │   ├── DDNS
│   │   ├── Email Settings
│   │   ├── NTP
│   │   └── IP Filter
│   └── Status
├── Alarm
│   ├── Motion
│   ├── Video Loss
│   └── Exceptions
├── Device
│   ├── HDD
│   ├── S.M.A.R.T
│   └── PTZ
├── System
│   ├── General
│   ├── User
│   ├── Information
│   └── Maintenance
└── Shut Down
```

Camera: Display

The **Display: Camera** menu is where you can make adjustments to how the DVR displays the feed coming from your cameras.

You can adjust aspects of each channel/camera, such as:

- the camera's name,
- which information will be displayed on-screen, and where this information will be displayed,
- whether information such as the date will be recorded directly onto your videos
- any areas of the video you want "masked" - that is, left blank.

Camera No.: Choose the camera / channel you want to edit here. The *Camera No* is the same thing as the number written on the rear panel next to the BNC socket used to connect the camera.

Camera Name: Select a name for the camera you've selected. By default, all channels are named as the *Camera No.* field, but this can be set to anything you'd like up to 16 characters.

Display Camera Name: When checked, the name you've selected for the camera/channel will be displayed on-screen as an overlay.

Record Date: When checked, the date (as displayed) will be recorded directly into your videos. This can be useful, as it creates an inseperable record of exactly when the footage was captured.

OSD Display Position: Gives you access to a screen where you can easily set the exact positions of any overlayed text, such as the camera name and the date and time.

Simply select any item you want to move (such as the **Channel Name** and/or the **Date and Time**) and click and drag it to the position you'd like it to be.

To exit the **OSD Display Position** screen, right click. A context menu will appear with two options: Save and Exit. To exit without saving, simply choose **Exit**. If you want to save your changes, choose **Save** first.

Image Settings: Gives you access to image adjustment tools, allowing you to adjust the way the DVR interprets and displays video images. See opposite for more information.

The Image Settings you choose will affect your recorded footage. Rather than applying the changes after the video has been processed (like many older DVRs) the Image Settings affect how the DVR decodes the video it is receiving from the cameras.

The upside of this is that you can use the Image Settings to dramatically improve the quality of the images being recorded by the DVR. This can be particularly useful for improving the accuracy of your Motion Detection settings.

Mask: When checked, allows you to create, place and shape a "privacy mask" which obscures the view of part of the image on the associated channel.

Brightness: Changes how light the image appears to be. However, it can't make the camera see further in the dark, or increase the clarity of an ill-lit image.

Contrast: Increases the difference between the blackest black and the whitest white in the image. Useful if sections of the image "grey out" but setting the contrast too high will degrade image quality.

Saturation: Alters how much color is displayed in the image. The higher the saturation, the more bright and vivid colors will appear to be. Again, setting this too high can degrade image quality.

Hue: Changes the color mix of the image (this can have very dramatic results). It's somewhat like moving through a rainbow.

Remember: *Your image settings* **will** *affect your recordings!*

You can use the Image Settings to help fine-tune your Motion Detection sensitivity. At night, many cameras image seems to flicker slightly, or to have increased "noise". In video, "noise" is random fluctuations of pixels, a little like an old television that is not set to a station, often called "static".

By tweaking the *Brightness* and the *Contrast* you can eliminate much of this video noise, increasing the quality of your images and the accuracy of the Motion Detection.

Camera: Output
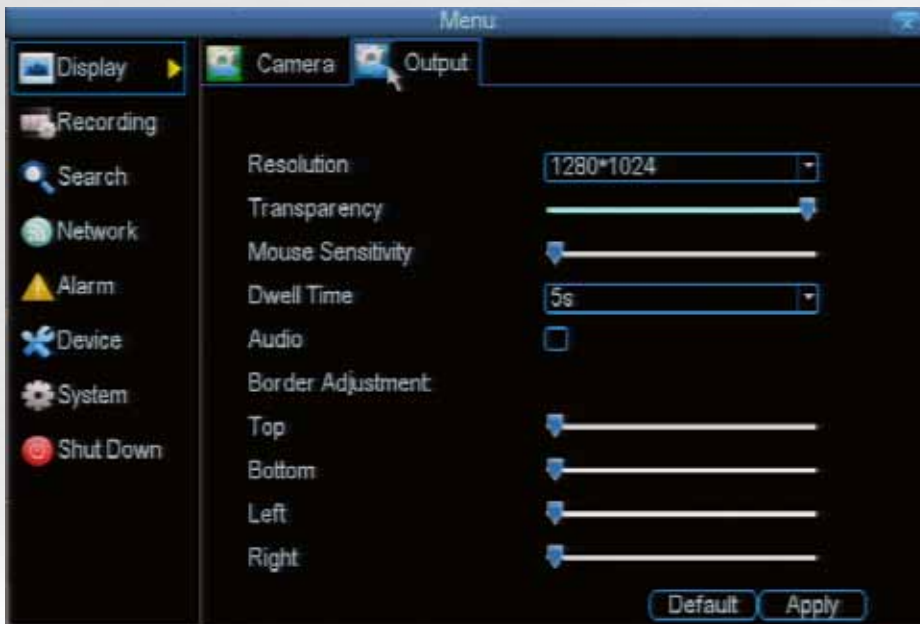
The **Camera: Output** menu is where you can control how the DVR is going to deliver an image to your television, screen or monitor.

You'll be able to adjust such items as:

- screen resolution and position on your monitor
- the audio output,
- the appearance of the menus,
- the auto-sequence dwell time, and
- the sensitivity of the USB mouse.

Resolution: The number of "little dots" that make up an image. This should be set as high as possible, but equal to or lower than the maximum resolution your screen/monitor can display. Things change a little depending on what *kind* of monitor you're using, and how it's connected.

The DVR has four formats available, in two different aspect ratios:

Square (4:3) - 1024 x 768 or 1280 x 1024
Widescreen (16:9) - 1280 x 720 (720p) or 1920 x 1080 (1080p)

Square Monitor via VGA: Use one of the 4:3 formats to correctly align the DVR's output on your screen. Using a widescreen format will "stretch" the image vertically.

Widescreen Monitor via VGA: If possible, use the widescreen (16:9) format. If your monitor can't display that resolution, you might need to enable letterboxing on your monitor and use a 4:3 format.

PC Monitor via HMDI: Choose a format appropriate for your monitor. If it's a widescreen, use a widescreen format. Set to the higest option that is **equal to or less** than the screen's maximum resolution.

Widescreen Plasma/LCD HDTV via HDMI: The resolution should be set to the maximum your television can *process* not *display*. Typically, this will be 1080p, as even screens which don't have that many pixels can still display the image, just with less detail. Check your television's documentation to learn this value. If your television can't display 1080p, then use 720p instead.

Transparency: You can set the DVR's menus to be partially transparent (see-though) - in case you need to keep an eye on things while adjusting settings (or it makes you feel like you're living in the future because it's so tech - we don't judge). The best way to set this is to simply experiment over time and see what works well for you.

Mouse Sensitivity: How sensitive the mouse will be. On lowest, large and dramatic arm movements are required to move the mouse but a few inches onscreen. At the other end of the spectrum, a tiny bump or knock can send the cursor one side of the screen to the other. Try somewhere around the lower end for starters, and then increase it little by little if it's moving too slowly.

Dwell Time: How long channels will be displayed when using auto-sequence mode.

Audio: Whether the DVR will output an audio signal. When checked, the DVR will output audio to a compatible device (via the HDMI or the RCA Audio Output). When unchecked, the DVR will not output an audio signal at all.

Border Adjustment: Changes the size and position of the DVR's images on the screen. Altering the border size can be useful if you've got parts of the DVR's image extending beyond the part of the screen you can see.

The border adjustment is much more likely to be required for older, CRT computer monitors connected via the VGA output. HDMI should (in theory) automatically adjust the DVR's image to perfectly fit your screen.

Recording: Encode

The **Recording: Encode** menu allows to alter and customize how the DVR records footage and "encodes" the files.

"Encoding" is a term which refers to the **compression algorithm** (a fancy, computer term for "make the file smaller while retaining visual quality") used by the DVR.

You can choose and alter:

• the resolution (per channel),

• the frame rate (how many images per second the DVR records) and

• the data-rate of each video stream. The higher the data rate, the "better" your images will look, but the more space they'll require on your HDD.

Camera No.: The camera feed you want to alter the settings for. These will be numbered sequentially, and correspond to the BNC video inputs labelled on the rear of the DVR. *Note that the channel name here is independent of the Camera Name selected on the Display: Camera menu screen.*

Encoding Parameters (advanced user option): Whether you're editing the parameters for the mainstream or the substream.

Main-Stream: *The main-stream is the video feed that the DVR will record and display. This is the higher-quality stream.*

Sub-Stream: *The sub-stream is the video steam that the DVR will send to remote devices via a network or the Internet. It is the lower-quality stream as a reduction in video size makes it easier to send over a network.*

Record Audio: Choose whether the channel you've selected will record audio or not. If you don't have any audio devices connected, it's a good idea to disable audio, as it will save some space on your HDD.

Resolution: How many "little dots" are going to make up your image. There are two options:

D1: About the same resolution as a DVD (704 x 480 for NTSC, or 704 x 576 for PAL). This is the default resolution for all channels, and we suggest leaving this setting well alone.

HD1: Literally, half of D1 (352 x 480 NTSC / 352 x 576 PAL) and about the quality of a typical *YouTube* video. This won't save HDD space - the *bitrate* is the important setting for determining how much space your recordings require on the HDD.

CIF: 1/4 of D1 (352 x 240 NTSC / 352 x 288 PAL), and about the same resolution as a low-quality webcam. We can't think of a good reason to use CIF as your resolution setting, unless you've some really cunning plan we didn't think of. It won't save any HDD space - for that, you'll need to change the *bitrate.*

Frame Rate: The number of frames per second (fps) that the DVR will record. The default (and maximum) is referred to as "**real-time"** and is 30fps (NTSC) or 25fps (PAL).

Reducing the number of frames per second will either save hard drive space or improve the data-rate per frame (depending how you set the bit-rate - see the next point).

Remember that your FPS count is the same as saying "take X photograph per second" (where X is your FPS setting). 5fps doesn't sound like much, but it's still five individual photographs per second. If maintaining image clarity while reducing HDD consumption is your priority, it makes sense to lower the frame rate.

As with all settings on this screen, some experimentation is encouraged to find the settings which will work best for you!

Max. BitRate(Kbps): The actual amount of data that the DVR will use to record video.

The **main-stream** uses a **variable bitrate** to record video - the more movement occurs in the video, the higher the bitrate will have to be. When there's little movement in view, the DVR will automatically reduce the bitrate to conserve HDD space.

If the amount of movement in a recording would require a higher bitrate to accurately record than you've selected as the maximum, the DVR will attempt to preserve as much of the quality as possible by applying compression to the image. This compression will take the form of irregular, fuzzy blocks over segments or all of the image. If you encounter this, it indicates that you might need to increase the overall bitrate.

If you've set a high bitrate but a low frame rate, the DVR will still use all the data it can, resulting in potentially higher quality per frame than at higher frame rates.

The **sub-stream** uses a **constant bit-rate**. This makes the video easier to stream over a network or the Internet.

Recording: Option
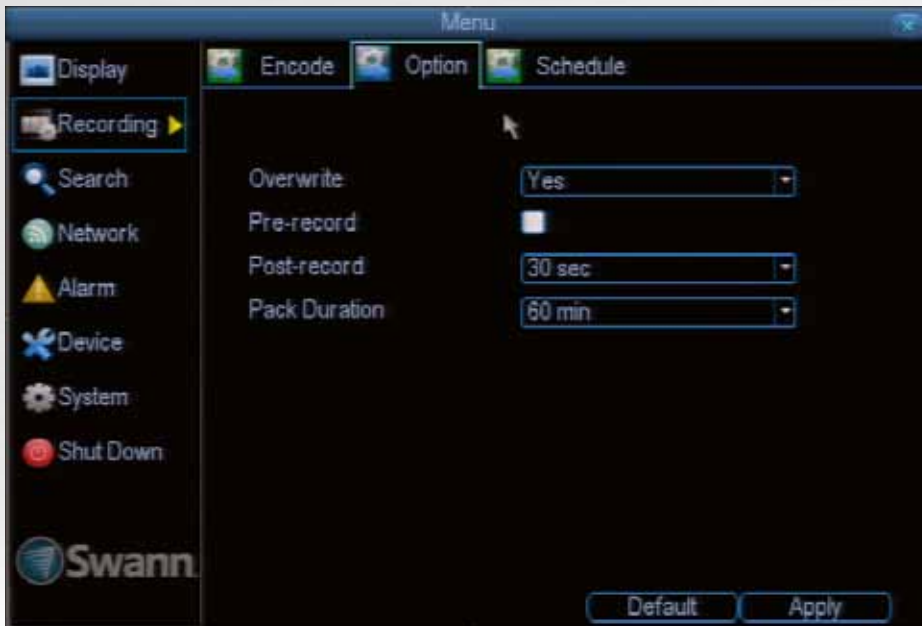
The **Recording: Encode** menu allows to alter and customize how the DVR records footage and "encodes" the files.

"Encoding" is a term which refers to the **compression algorithm** (a fancy, computer term for "make the file smaller while retaining visual quality") used by the DVR.

You can choose and alter:

- the resolution (per channel),

- the frame rate (how many images per second the DVR records) and

- the data-rate of each video steam. The higher the data rate, the "better" your images will look, but the more space they'll require on your HDD.

Overwrite: When enabled, the DVR will record over the files already stored on the hard drive. The DVR will always record over the **oldest** files on your hard drive first.

Using the overwrite option is advisable, as the DVR will always be able to record events as they happen. However, it does mean that you'll need to get important events off the HDD before they're overwritten.

Pre-Record: While Pre-Record is enabled, the DVR will record a few seconds **before** an event occurs. It's a little like making the DVR psychic (but not really - it's actually just caching a few seconds of video which it adds to event recordings as they occur).
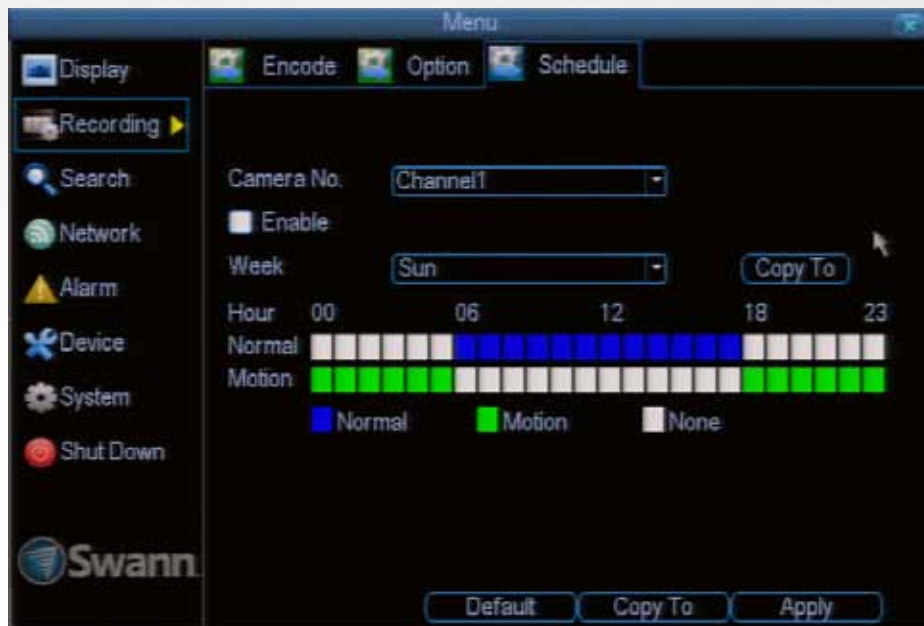
If you're using **Motion Detection** (recommended) as your primary recording method, then it's a really good idea to use Pre-Record - sometimes, if a motion event is fast enough, it might have left view before the DVR can trigger a recording. With Pre-Record, there's almost no chance you'll miss it.

Post-Record: How long after an event occurs that the DVR will continue to record. It can be very useful - for example, if an intruder or potential target triggers the motion detection but pauses in view, then post record being enabled will get a much better look at them. We think that 30 seconds is a reasonable length for the post-record setting, but can be higher (the options are 1, 2, 5 or 10 minutes) depending on your unique circumstances.

Pack Duration: *Pack Duration* is a measurement of how long the DVR will record for before splitting the output file into discrete units. "Packs" are something like the scene numbers on a DVD - though the video is broken up into separate units, it will still play through as one continuous movie (unless interrupted by the schedule or motion detection turning the recording on or off). If you don't want to worry about setting Pack Durations, you can leave it on the default value; it will make little difference to the day-to-day running of the DVR.

Recording: Schedule

Recording Modes:

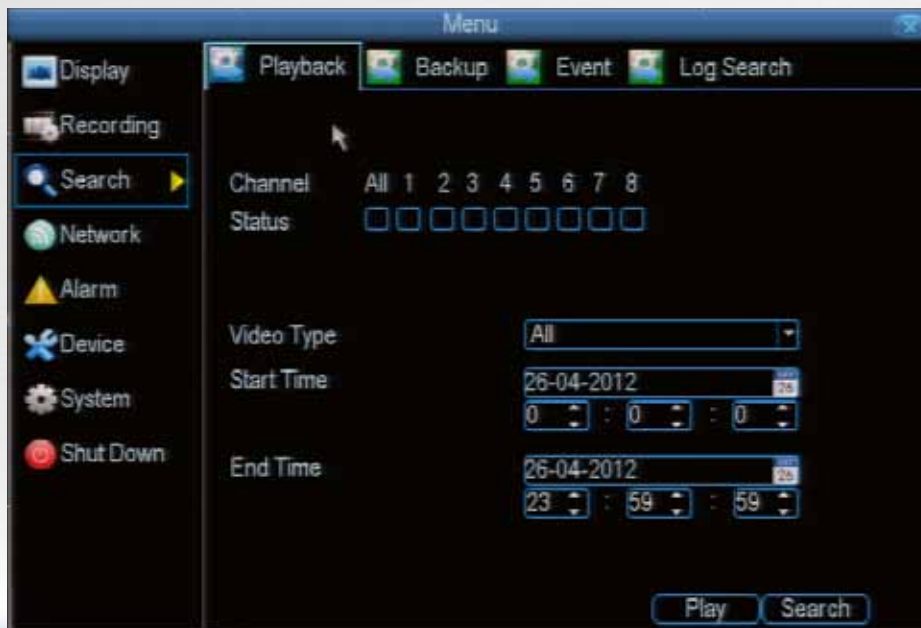There are two types of recording to choose from.

Normal: The DVR will constantly record for any period where **Normal** is selected. You won't miss anything, but constant recording will fill your hard drive very quickly. (The DVR does record the equivalent of a DVD film every two hours on every channel, so that's rather a lot of data!) Typically, we suggest Motion as a better recording mode for most users.

Motion: The recommended recording setting for most applications. The DVR will only record when it detects something moving in front of a camera, and will then only record footage from the camera(s) that do detect motion.

Before setting any of your schedule to Motion, ensure that **Motion Detection** is properly configured for the channel(s) you want to associate with it. See "Alarm: Motion" on page 24 for more information about setting up and configuring Motion Detection.

None: As the name suggests, the DVR will not record anything. This isn't really a mode, but it's listed here for completeness.

Important Guidelines

The schedule presented on-screen applies to **one channel** on **one specific day of the week** only.

Use the **Copy To** functions to quickly assign identical schedule layouts to multiple days/channels at once.

Be careful when programming your schedule. It's one of the most important aspects of setting up your DVR, and if it's wrong in any way, it could lead to disastrous complications later.

Copy To: There are two Copy To buttons on the Schedule Menu screen.

Copy To (Week/Day): This is located above the schedule itself, next to the Week drop down menu where you can select a day of the week to edit the schedule for.

This button will allow you to copy your settings from one day to other days. It won't affect any other channels.

Copy To (Channel): Located at the base of the screen, with **Default** on one side and **Apply** on the other. This will allow you to copy the schedule from the channel you're editing to another channel or channels.

Search: Playback

To initiate playback:

• Select the channels you'd like to playback. *Note that the DVR can only playback a limited number of channels simultaneously: the DVR cam playback 2 channels at realtime, and up to four channels at near-realtime.*

• From the **Video Type** menu, select the type(s) of video you'd like to playback. The options are *Manual*, *Schedule* and *Motion*.

• Set your **Start Time** and your **End Time**.

• Select **Search**.

• Choose which **event(s)** you want to play back, and up to four cameras you'd like to view the **video(s)** from.

• To initiate playback, select **Play**.

• C

Why can't I playback all channels at once?

The DVR only has so much processing power, and we've configured it so that it has more resources dedicated to recording than to playback.

While you're playing back footage, the DVR continues to monitor and record normally. Recording from four or eight channels at once (depending on your model) is so resource intensive that playback is limited to two channels simultaneously in realtime.

If you do require playback of more channels than the DVR is capable of at once, then we suggest using the **Backup** process to copy information off the DVR and then playing it back via the remote interface on a PC.

When we say that it can "playback so many channels at near real-time", this doesn't mean things will be in slow motion. Rather, the action will unfold at normal speed, but be represented by half the number of frames per second (12.5fps/PAL or 15fps/NTSC).

Notes about playback, backup, media and so forth can go here.

Search: Backup, Event & Log Search
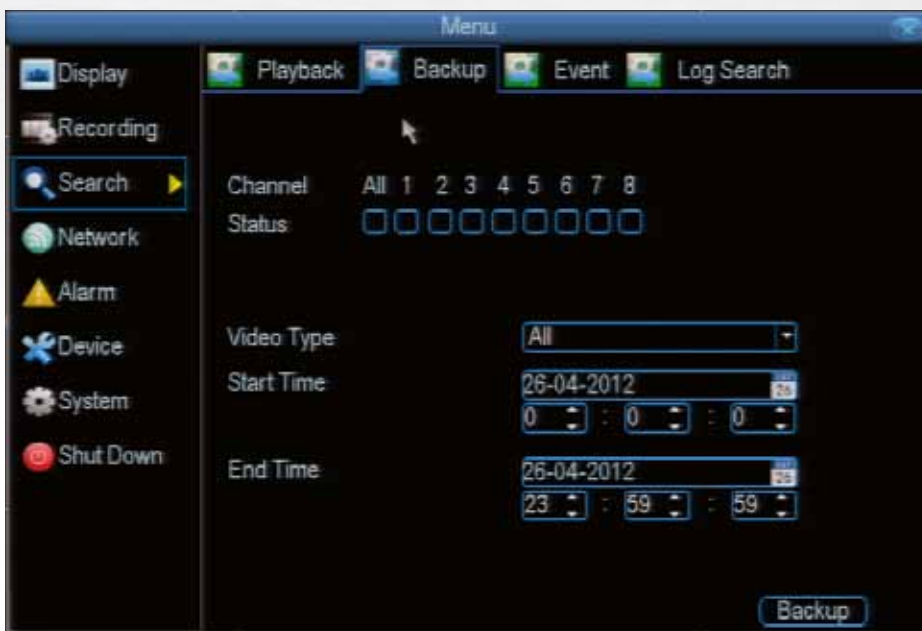
To backup footage:

- Connect a USB flash drive or a USB HDD to the USB port on the front of the DVR

  - OR -

- Connect an eSATA HDD to the eSATA port on the rear of the DVR.

- Choose the camera(s) you want to backup footage from.

- From the **Video Type** menu, select the type(s) of video you want to backup. The options are Manual, Motion and Schedule.

- Set your **Start Time** and **End Time**.

- Select **Backup**.
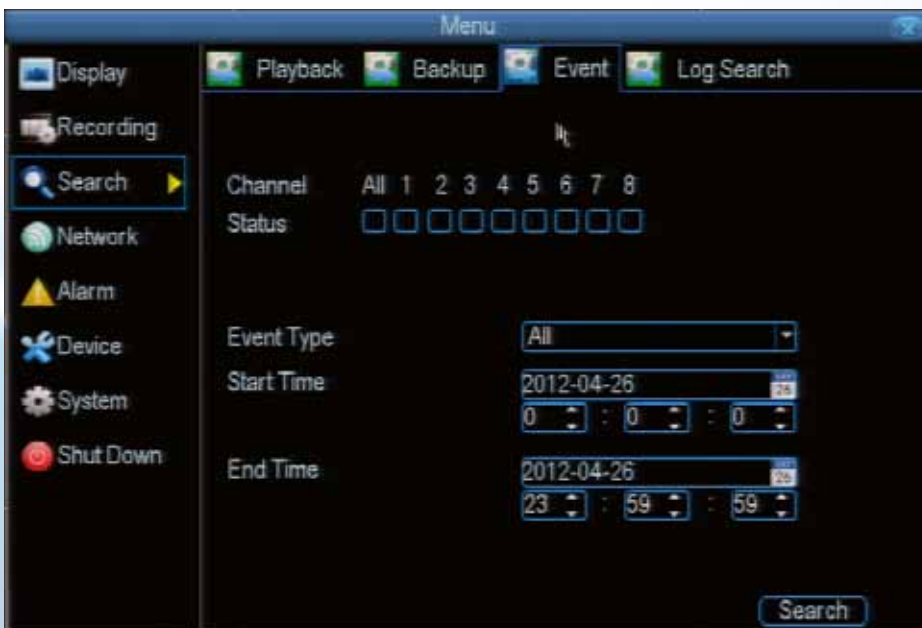
The **Event Search** menu will show you recordings that were triggered by the DVR detecting motion.

Typically, the majority of recordings based upon "Events" are likely to be recordings triggered by the DVR's **motion detection** feature.

The search function operates in the same way as the main playback search: the only difference is you'll select an **Event Type** rather than a **Video Type**.
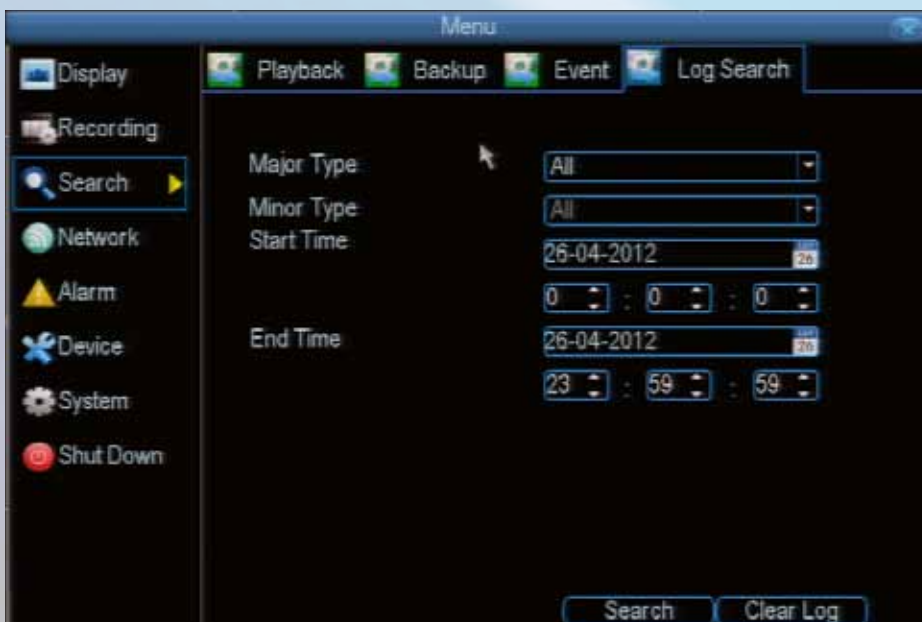

The **Log Search** screen operates in the same way as the other search screens, but is able to access the entire DVR's event log, not just recorded footage.

If you're looking for an event which has no recorded footage associated with it (such as a lost video signal, hard drive error, Internet communication problem or similar) this is where you'll find it.

The Playback Interface

13%

23:55:58   23:56:30 / 00:00:01

Normal   Event
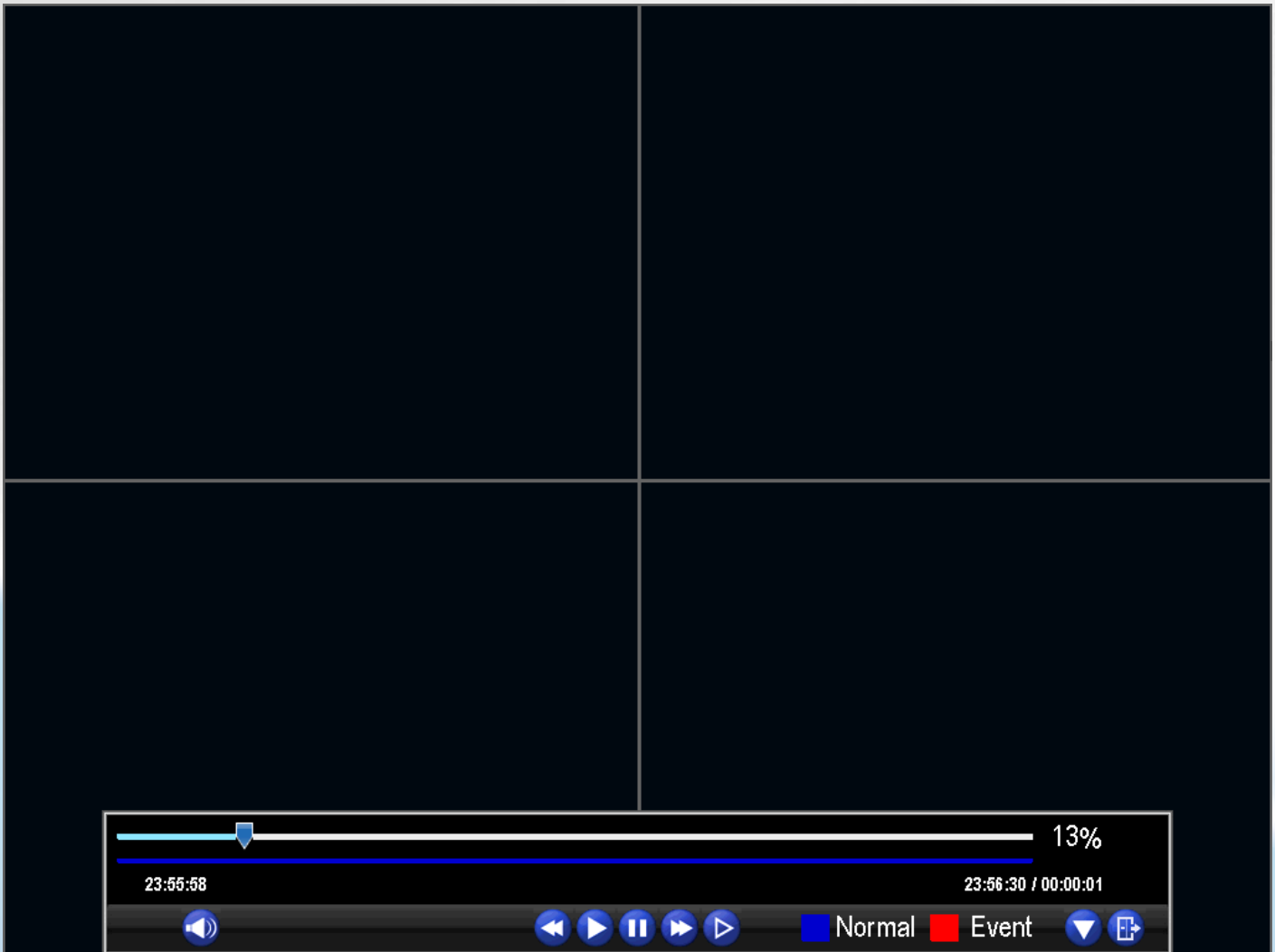
The Playback interface is quite similar to a computer's media player, or to the on-screen display of a DVD/Blu-Ray player.

Most of the controls are quite straight forward, and operate in the same way as a standard media player's.

Current Position: A basic progress meter. You can click to move to the current position icon to quickly scan through video events.

Volume Control: Alters the output volume of playback.

Rewind: Reverses footage.

Play: Plays footage forwards at normal speed.

Pause: Stops playback but retains still images onscreen.

Fast-Forward: Speeds up playback.

Step: Moves a single frame forward in the video. This will usually be 1/30th (NTSC) or 1/25th (PAL) of a second.

Slow: Plays back footage at reduced speed. Press multiple times to further reduce the speed: 1/2 speed, 1/4 speed, 1/8th speed, 1/16th speed and so on.

Recording Type: Whether the video being played back was recorded under n**ormal recording** (blue) or based on **motion** or an **alarm event** (red).

Hide Console: Maximizes the area onscreen for playing back

your footage by hiding the on-screen controls.

Exit Playback: Leaves the playback interface and returns to the live viewing mode.

Remember: Playback Limitations

While you're playing back footage, the DVR continues to monitor and record normally.

Recording from four or eight channels at once (depending on your model) is so resource intensive that playback is limited to one channel in realtime.

You can playback more channels at once (up to 4) but the frame rate will drop proportionally to the number of channels being played back.

Network: General

Network Access: Here you can choose between the three different types of networks that the DVR can be connected to. The three types of networks are:

DHCP: DHCP (Dynamic Host Configuration Protocol) is a system where one device on your network (usually a router) will automatically assign IP addresses to devices connected to the network.

STATIC: Static networks require all devices need to have their IP addresses manually defined, as there is no device dedicated to automatically assigning addresses.

PPPoE: An advanced protocol that allows the DVR to be more directly connected via a DSL modem. This is an option for advanced users **only**.

IP Address: Just as houses and businesses need to have an address which identifies their location on the road network, so too do computers and other devices need addresses (called IP ADDRESSES) to identify their position on the electronic network. The DVR uses IPv4 addressing, which consists of four groups of numbers between 0 and 255, separated by periods. For example, a typical IP address might be "192.168.1.24" or something similar. The most important thing when setting the IP address is that nothing else on your network shares that IP address.

Subnet Mask: If the IP address is like a street address, then a subnetwork is like your neighborhood. This will be formatted in a similar way to the IP address (ie. four numbers up to 255 separated by periods) but contain very different numbers. In the above example, the Subnet Mask might be something like: "255.255.255.0".

Default Gateway: This is the address of the "way to the Internet" - to continue the road analogy, this is like your local access point to the highway. This is an IP address in the same format as the others, and is typically very similar to the IP

address of the DVR. To continue the above examples, it might be something such as: "192.168.1.254".

Auto DNS / Static DNS: Choose how you'd like to define your DNS servers. We recommend leaving it on **Auto** unless you've got a specific reason not to.

Auto DNS: The DVR will automatically choose a DNS server. This is the recommended setting.

Static DNS: If you need to manually define a DNS server, then choose Static DNS. This is recommended for advanced users only.

Preferred DNS Server: "Domain Name System". Everything on the Internet is located via an IP address - however, for ease of use, we associate domain names (such as "www.exampledomainname.com") with those IP addresses. This index is accessible in many locations online, and we call those locations "DNS servers".

DNS for STATIC configuration: Under most circumstances, you can set the DNS Server address to be the same address as your router (this is usually the same address as *Gateway*).

DNS for DHCP configuration: Typically, the DNS Server address will automatically be detected by the DVR. In some cases, you'll need to enter a value - the address of your router (the same as the *Gateway*) should work.

Alternate DNS Server: A backup DNS server. This is here as a redundancy - your DVR will probably work without one.

MAC Address: The *Media Access Control* address. This is a unique code which nothing else should share. You can't change this one - it's hard set when the DVR ships out.

Network: Advanced
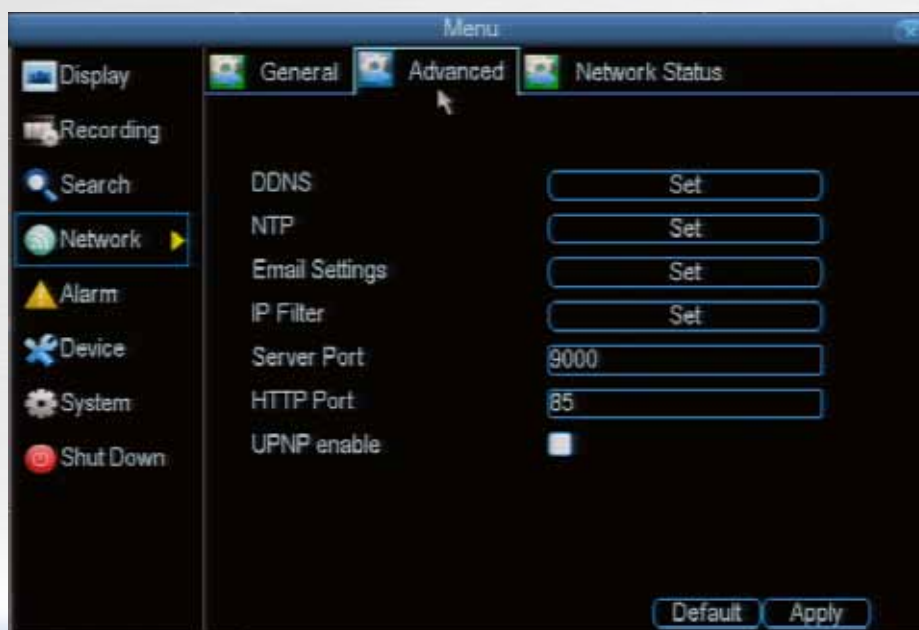
DDNS: The place to configure the DVR to automatically update a dynamic DNS service. If you want to remotely access the DVR via the Internet, you'll probably need to configure a DDNS account. See "Network: Advanced: DDNS" on page 21 for details on setting up and configuring the DDNS.

NTP: *Network Time Protocol*. If you've got the DVR connected to the Internet, you can have it automatically sync time with an online server.

Email Settings: Where you can configure the DVR to work with an email account of your choice. This must be correctly configured for the DVR's auto-email feature to work.

IP Filter: An advanced feature which allows you to exercise precise control over what devices/IP address(es) are allowed to communicate with the DVR and which are not. Recommended for **advanced users only.**

Server Port: This is the port that the DVR will use to send information through. The most important things are that:

- You'll need to enable UPnP on your router so your router can selectively open these ports, allowing the DVR to communicate via the Internet. If your router doesn't support UPnP, you have two options. You can either get a new router (which we'd actually recommend - UPnP is such a good feature!) or you can manually forward ports from the router to the DVR. Port forwarding is a technical and involved process, recommended only for the technically inclined.

- **Nothing else share this port.** The default port number is 9000, which is not used by many other devices/programs. However, particularly if you have another DVR or DVR-like device, something might be using this port already. **If this is the case, change this value to be unique.**

- **You'll need to know this port value when logging in from a mobile device - so, if you change it, remember what it is!**

HTTP Port: This is the port through which you will be able to log in to the DVR.

- Like the **server port**, it will need to be forwarded properly in order to ensure smooth, latency-free communication. The default value is "85", as this port is seldom used by other devices or applications. If there is another device on your network using this port, you'll need to change it to be unique.

- **This is the port number you'll need to remember when logging in remotely from a remote PC via the HTTP interace or the MyDVR software.**

UPNP enable: UPnP is a technology which makes configuring your network easier and faster. To use the UPnP setting on the DVR, you'll need a router which supports the feature, with UPnP enabled. Note that many routers which do support UPnP do not come with the feature enabled by default. You may need to ask your Internet service provider to turn it on.

When UPnP is enabled on both your DVR and router, the Ports that the DVR requires to be open for access to and from the Internet will automatically be opened and closed as necessary by your router, saving you the trouble of manually forwarding these ports. If UPnP is not enabled, or your router does not support the feature, you'll need to forward the ports the DVR uses from the router to the DVR - since this is a technically challenging process, we strongly recommend using UPnP if possible.

Network: Advanced: DDNS

Static and Dynamic IP Addresses

In much the same way as your home network can use static or dynamic IP addresses, many Internet providers don't issue (or charge more for) a static IP address for users. The easiest way to find out is to contact your Internet service provider. Alternately, you can access the www.whatismyip. com service, make a note of your IP, then reboot your router/gateway. This should refresh your Internet connection. If your IP address stays the same, you've probably got a static IP address. If it changes, you have a dynamic IP address.

How do I deal with a dynamic IP address?

One option is to contact your ISP and request a static IP address. They'll usually charge a small fee for doing this. It's worth noting that not all ISPs offer static IP addresses.

If your ISP does not offer static IP addresses then you can use a dynamic referencing service. We provide one free of charge.

We recommend using SWANNDVR as your DNS service. This is a free service for Swann DVR owners, which we directly support.

To create an account with SWANNDVR, go to:
http://mydvr.swanndvr.com/
and click the Registration button.
Follow the prompts to create your account.

Server: Choose the server that you're using. The options are DYNDNS and our own DDNS server, SWANNDVR.

Device Domain Name: Enter the host name that you set up in your DDNS service. This is the address you use to access your network. For example: yourhostname.swanndvr.net

Username and Password: Here, enter the username and password you setup with your DDNS server. These do not have to match your username/password combination in either your DVR or router (for the sake of security, we suggest making them different).

For SwannDVR users: Your username is the **email address** you used to register the account. The password is whatever you selected when you registered.

Network: Advanced: NTP

Particularly important if you've enabled NTP - set this to the time zone where you happen to be. For example, people in eastern Australia (Canberra, Sydney and Melbourne) choose GMT+10:00, whilst the Eastern Time zone in the USA and Canada is GMT-05:00. (GMT stands for Greenwich Mean Time - it's the baseline that keeps all the different time zones in sync.)

NOTE: Some NTP servers are NOT fully compatible with DST. This may cause your system to double-count adding one or removing one more hour than they should, or cancel each other out. You may need to intentionally change your time zone to compensate, or simply not use NTP and DST simultaneously.

Network: Advanced: IP Filter
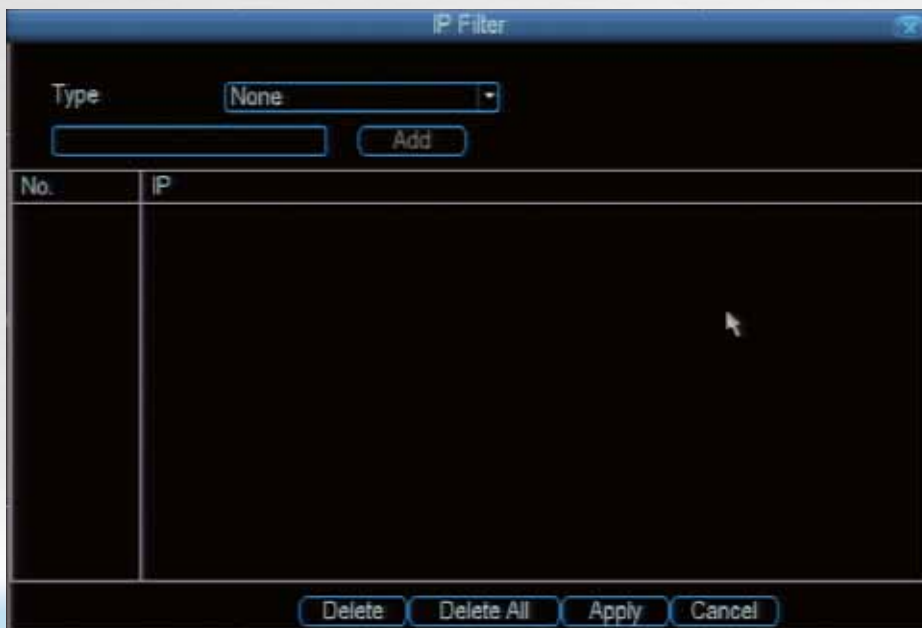
The IP Filter can be used to modify which IP addresses have permission to talk to the DVR and which do not.

This is an advanced feature, and is recommended for advanced users only. Tinkering with things here - if you're not sure what you're doing - is more likely to break things than making anything better.

Network: Network Status

The **Network Status** screen shows you a quick summary of your network settings. You can't alter things here - see the **General** and **Advanced** tabs for places to actually alter things.

Network: Advanced: Email Settings
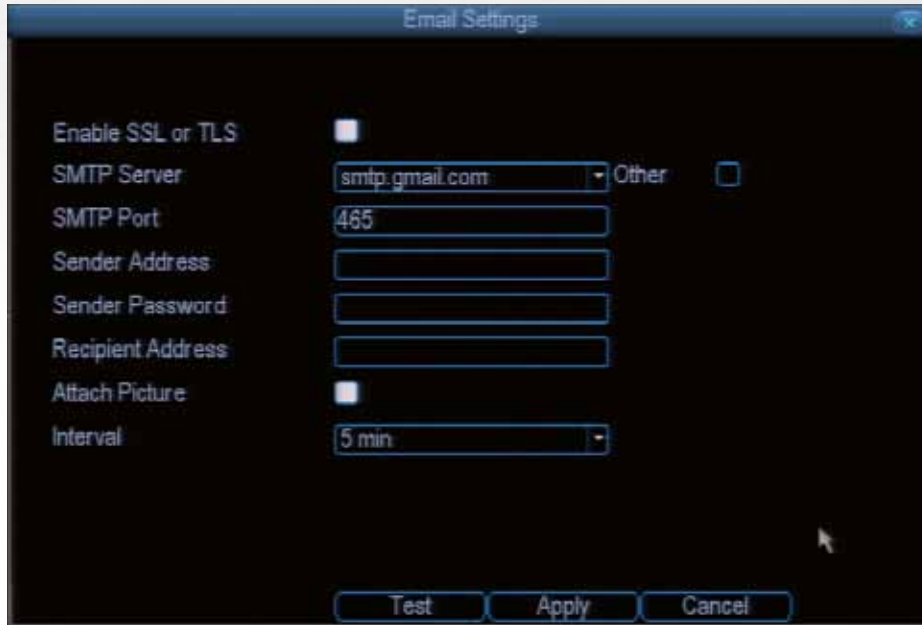
If you want the DVR to occasionally drop you a line, share news, tell you about its day and - more importantly - tell you what's going on around your home or business as it happens, then you can configure it to automatically send email alerts as events happen.

We suggest using Gmail as your email client - it's quite easy to set up an account and use it solely for the DVR. We've tested the email procedure with Gmail, and it does work.

Other email servers may not work correctly - many interpret the procedurally generated email from the DVR as *spam* and block the mail from being sent.

For the Auto-Mail function to work correctly, the DVR will need to be correctly configured with the details of the email servers and addresses you want to use.

Enable SSL or TSL: Whether the email server you're using requires a secure link. This is **on** be default, and should be left on if you're using any of the preset email servers.

SMTP Server: There are three preset options to choose from, Gmail (smtp.gmail.com), Windows Live Mail (smtp.live.com) and Yahoo Mail (smtp.mail.yahoo.com).

You'll need to setup an account with one of these email providers. All offer free email accounts. To signup, visit the email provider's website:

Gmail (Google):	www.gmail.com
Yahoo Mail:	mail.yahoo.com
Windows Live Mail:	www.hotmail.com

You can use any email server you like if you tick the box labeled "Other". You'll have to define the email server you'd like to use manually, and you'll need to know details about the server, such as the SMTP port they use, as well as whether they use SSL or TLS security protocols. Contact your email provider if you need to learn this information.

We recommend using one of the presets, and can offer better support for users and the DVR will automatically adjust some settings (such as the SMTP port number) to make configuration significantly easier.

SMTP Port: The SMTP port used by the email provider of your choice. This field will automatically self-populate if you use one of the presets.

Sender Address: The address you're sending the email **from**. This will be the username you've set up for the email server you're using, followed by "@" and then the email server. For example: "youraddress@gmail.com" or similar.

Sender Password: The password for the outgoing email account.

Recipient Address: The email address you want the DVR to send emails to. This can be any email address you like, however, bear in mind that the DVR might send a large number of automatic emails under certain conditions.

Attach Picture: While this is selected, the DVR will attach a small image to each email alert (where applicable).
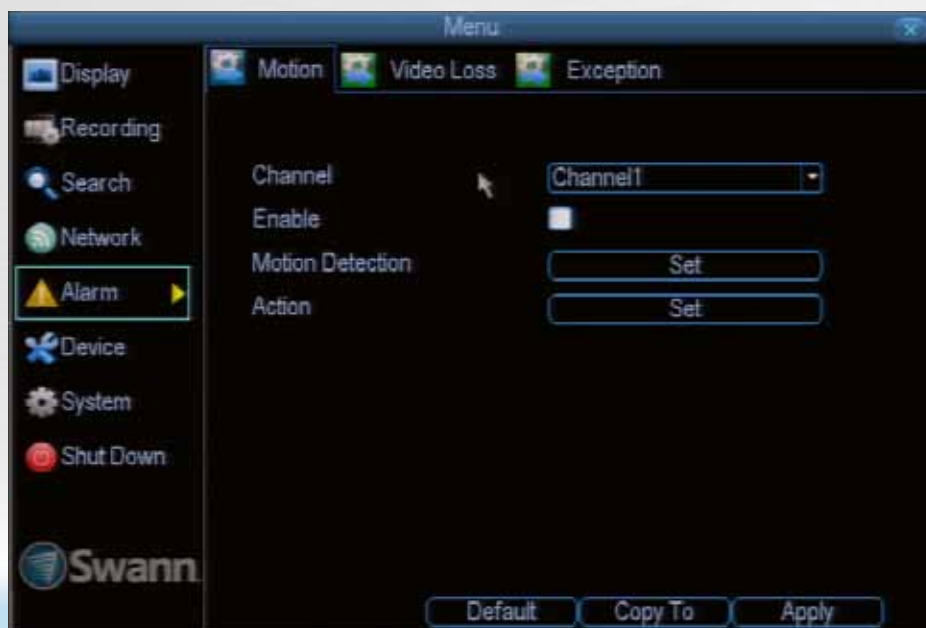
For motion-based email alerts, this will be an image of whatever triggered the motion detection.

Interval: The length of time that must elapse after the DVR sends an email alert before it will send another.

Short **Interval** settings are likely to lead to huge numbers of alerts being sent by the DVR - perhaps even several emails for one event (if that one event lasts longer than the interval setting). On the other hand, a long interval setting might mean you'll miss a specific update that you needed. There's no right answer, and you'll probably have to fine-tune this setting to get the results you're after - it'll be different for everyone's unique circumstances.

Alarm: Motion

If you're planning to use *Motion Detection* as the primary (or sole) recording mode for the DVR, you must ensure it's properly configured.

If the motion detection sensitivity is **too sensitive**, then the DVR will record too frequently or continually - any benefit of motion detection will be lost.

If the motion detection sensitivity is *not sensitive enough*, then the DVR will not record when it should and *may not record anything at all*.

We think that motion detection is the best way to get your DVR to operate almost autonomously for long periods of time (typically weeks to months) without you having to worry about losing old footage.

However, it is VITAL that it's configured correctly!

How Motion Detection Works

The way that the DVR looks for motion is quite straight forward - it's a process where it compares one frame (that is, a single image taken approximately a 25th/30th of a second from the previous image) with the next. A certain amount of "difference" between these two "frames" is interpreted as motion.

As a result, the DVR is able to detect when there is a change in the picture. However, this does not necessarily need to be something moving in the frame. For example, a light being turned on or off, a lightning flash or even the sun coming out momentarily on a cloudy day might be enough to trigger the motion detection on the DVR. However, as these events last only a moment (and are relatively rare) they will only create a few very short redundant clips, which will not take up too much space or pose a problem with scanning through footage.

This method of motion detection can, however, become problematic when using wireless cameras. As wireless technology is susceptible to interference, the static and image distortion common to wireless systems is often enough to trigger the motion detection inadvertently.

As a result, we **strongly advise against using wireless cameras with any of our motion sensitive recording equipment**, and advise the use of hard wired cameras. If you simply must use wireless technology, we advise using digital wireless technology as this technology is much more resistant to interference from other wireless equipment and environmental causes. However, any wireless technology, digital or otherwise, has serious limitations when combined with motion detection.

For a similar reason, **don't use PTZ systems and motion detection simultaneously**. The DVR will interpret the camera moving as 'motion' and record. This is particularly true when using Cruise Mode - as the camera is moving almost continually, so too is the DVR recording almost continually!

Here, you'll be able to set the motion detection features of the DVR for each channel. We suggest that motion detection is, under most circumstances, the most practical recording method for the DVR to employ.

How it Works: Once motion detection has been enabled for a channel, it will register to the DVR as an **Motion Event**. Thus, you can use the Motion recording mode in the schedule to trigger the DVR to record when motion detection triggers an alarm signal.

Enable: Whether or not motion detection is enabled on a specific channel. Each channel can be configured independently of one another.

Motion Detection: Click the applicable **Set** button to setup the motion detection area for that channel. See "Alarm: Motion Detection Configuration" on page 25 for details on how to do this, and what it means.

Say, for example, you are trying to monitor your front yard, whilst in the background there is a busy street, and the cars driving past continually set off the motion detection. What can you do about it? Setting only part of the camera's view to be motion sensitive might be the answer. This is useful in a number of circumstances, such as monitoring one particular door at the end of a busy hallway, or a backyard with a tree that keeps blowing in the wind.

Action: Here you can define what will happen when the camera you've selected detects motion.

Note: If you've used the Copy-To feature to copy from one camera to another, remember that the *Action* will be copied across, too! You will need to reset the action for each channel.

Alarm: Motion Detection Configuration
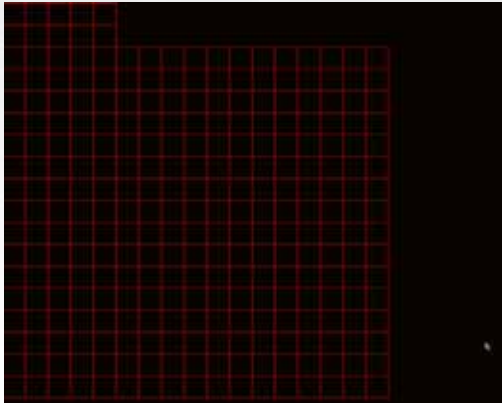
To set the MOTION DETECTION AREA

In the MOTION DETECTION menu, use the mouse or the arrow buttons to highlight the SETUP button for the channel you wish to setup the MOTION DETECTION AREA for, and confirm by pressing select or left clicking.

- You will see a grid of red boxes. **The outlined boxes mark the area that is sensitive to motion**. The area **without** the red outlines is **not** sensitive to motion.

- Use the mouse to move the cursor around the screen.

- By pressing select or left clicking an area in the grid, you can toggle motion detection ON or OFF in that location.

- Areas marked by red boxes will be sensitive to motion, those not marked will not be.

- Click and drag to select the area you want to select or deselect.
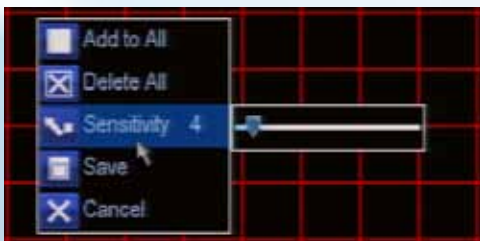
Sensitivity: The Sensitivity setting is controlled by a slider, allowing you to set a value between 0 and 50. The lower the number, the more sensitive the motion detection will be.

Typically, values between 5 and 10 will give good results in the daytime.

At night, you may get numerous false triggers unless you raise the sensitivity setting, perhaps as high as 25 - 30. This is because when cameras (particularly CMOS-based ones) use active infrared night vision, they dramatically increase the gain controls to the image sensor. This creates a lot of "noise" in the camera's images, which are interpreted by the DVR as motion.

There are a few steps you can take to minimize the amount of noise in your images.

- Try adjusting the **Image Settings** (see "Camera: Display" on page 11 for details) to fine-tune the brightness and contrast to get a more stable image.

- Limit the motion sensitive area to only the areas in view that a taget could be. In particular, large featureless areas in the camera's view are the ones most likely to give false triggers - turning off the motion sensitivity to any area a target cannot move infront of will help reduce false triggers.

Note: The motion detection feature will seem more sensitive at night, particularly when using low-light or active infrared cameras. We recommend that you test your motion detection sensitivity both during the day and at night to ensure your sensitivity setting is suitable for either lighting condition.

Notes

Wireless cameras are **not** recommended for use with the motion detection.

Motion detection is not recommended for use with PTZ systems. Avoid enabling motion detection on a channel which has a PTZ system attached to it - especially when the PTZ system is set to Cruise Mode.

Setting the motion detection at high sensitivity levels (4 or lower) increases the frequency of false alarms. On the other hand, low sensitivity levels (20 or higher) increase the risk that a significant motion event (such as an intruder) will not trigger the motion detection to record.

Check the Motion Detection settings both during the day and at night. In low-light conditions (or when your cameras are using infrared night vision) the DVR may be more or less sensitive to motion, depending on your unique circumstances. The difference might be very dramatic!

Image Sensors: CMOS and CCD

There are two kinds of CCTV cameras out there: CMOS and CCD. Neither technology is inherrently "better" but they're quite different and you may need to adjust your motion detection sensitivity to suit the kind of cameras you have.

CCD: A *Charged-Coupled Device* outputs a clear, stable image. It's the best kind of sensor to use with motion detection, and typically requires lower settings (that is: *lower* number, *more* sensitive).

CMOS: A *Complementary Metal–Oxide–Semiconductor* is a different kind of image sensor, producing bold, vibrant images. It tends to have more noise than CCD, and typically requires a higher setting (that is, a *higher* number, which is *less* sensitive).

Weather

The weather conditions are going to affect your motion detection. Dramatic weather phenomenon such as heavy rain, strong winds, lightning and so on may trigger the motion detection with surprising frequency.

On the other hand, things like fog, mist and other obscuring kinds of weather might mask or obscure something moving to the point that the DVR fails to detect them.

Alarm: Motion Detection - Action

Audio Warning: The DVR will use its internal buzzer to emit an alarm tone. It sounds like an old computer indicating an error, or a large truck backing up.

Send Email: The DVR will send an auto-email alert when the event type you've selected occurs. The Email Settings button will take you to the same email configuration screen accessible from the Network menu - see "Network: Advanced: Email Settings" on page 23 for details.

Trigger Camera: You can define one camera's motion detection to trigger recording on one or more other cameras.

This can be useful in a number of situations. For example:

• If you've two cameras overlooking a yard, one with a wide view from well overhead and one with a much narrower view of a corner or path. You may find that using the camera with the narrow view for motion detection gives fewer false triggers and doesn't miss an event as often as the really wide view might, so triggering the wide view to record as well ensures you know where the subject went after they left the narrow view.

• One camera might face a public area, while another camera looks down a private corridor which exits into the public area. Having the camera in the private area trigger the one in the public area to record can give you a record of where a subject went after they left the private area, without filling your hard drive with recordings triggered by random passers by.

Schedule: You can change how the DVR Actions events at different times. For example, a motion event occurring during business hours might be perfectly normal, whereas one occurring at four in the morning might indicate something much more severe is happening.

Some tips to customizing your motion detection actions:

• **Consider how important it is to be notified of motion events as they happen.**

Using the email alerts is a great way to be kept up-to-speed on what's happening, but may quickly become annoying if something occurs which will generate a number of false triggers. As a rule, we suggest employing the email alert only on interior cameras during times that **noone** should be moving about in front of them.

• **It can be important to have a complete record of a subject's movements and actions for legal reasons.**

If your cameras capture an illegal event (typically an intruder, but we're continually surprised by stories from our users) it is important to have as much information as possible.

For example, images of someone in your home may not actually *prove* that they broke in - but footage of them breaking a window does. If you use a camera inside the home to trigger all exterior cameras with a long pre-record time set, then you will have a record of how they entered in addition to what they did.

• **Always consider what's really important.**

Which is the bigger problem - a dozen false triggers per day, or missing one critical event?

There's no magic setting which will make motion detection work *perfectly*. There will always be some events that it's not sensitive enough to catch, or minor happenings that will trigger an overly sensitive camera to record. Typically, the best motion detection settings are one's that give few false triggers but *don't miss anything*.

Even motion detection which fasle triggers a few times per hour will still save a significant amount of hard drive space compared with a constant recording schedule for the same duration.
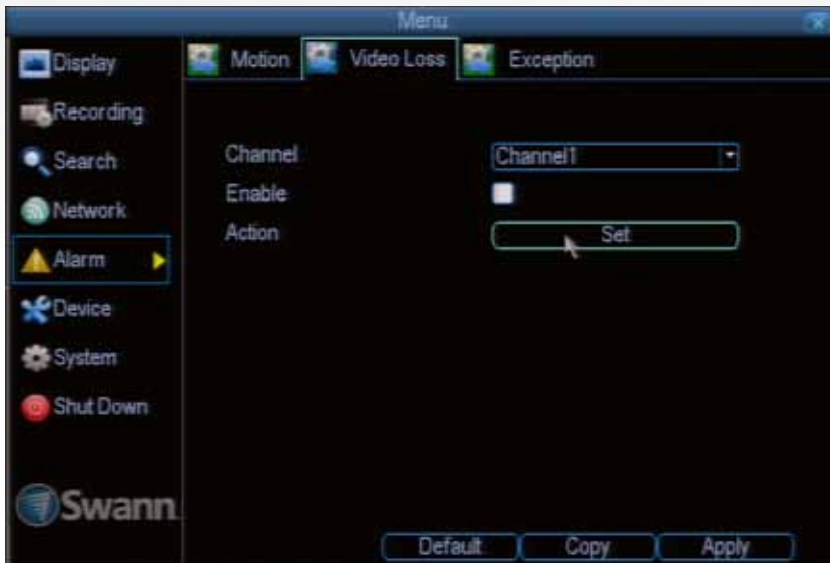
Alarm: Video Loss

Alarm: Video Loss

Video Loss is regarded as a potential alarm event, and is considered to occur any time that the DVR doesn't receive an active video signal on any of its inputs.

The default behaviour of the DVR, when a channel has no incoming video signal, is simply to display "Video Loss" in white text on a black background over the associated channel. If you're not using all the inputs on your DVR, then some channels will be in "permanent" Video Loss state. Just be sure that you don't Enable a video loss action for these channels.

Channel: Which channel/camera you'd like to set the Video Loss behaviour for.

Enable: Whether the selected channel has video loss monitoring active or not.

Action: The action you'd like the DVR to take when this event occurs. It's set in the same way as the Action for any other event.

Alarm: Video Loss - Action

Audio Warning: The DVR will use its internal buzzer to emit an alarm tone. It sounds like an old computer indicating an error, or a large truck backing up.

Send Email: The DVR will send an auto-email alert when the event type you've selected occurs. The Email Settings button will take you to the same email configuration screen accessible from the Network menu - see "Network: Advanced: Email Settings" on page 23 for details.

Schedule: You can change how the DVR Actions events at different times. For example, a motion event occurring during business hours might be perfectly normal, whereas one occurring at four in the morning might indicate something much more severe is happening.

You can set the schedule for each "Action" in the same way as you set the recording schedule proper. Multiple Action events can be tied to the same exception, or vice-versa using clever scheduling.

Alarm: Exception

An **Exception** is any deviation from the DVR's normal behaviour - phrased another way, it's like saying the DVR's been working fine **except** for these events

Exception Type: What event type you'd like the DVR to react to. By configuring the Action for these events, you can create any combination of audio alerts (see below) or auto-emails to be sent for different event types.

HDD Full: As the name suggests, this event occurs when the DVR runs out of space on the hard drive to save new footage. This event is redundant if you've got **overwrite** enabled, as the DVR will automatically delete old footage to ensure it can continue to record.

HDD Error: Occurs when the DVR has trouble accessing one or more of its hard drives, or when it cannot detect one at all.

Net Disconnected: Will occur if the DVR has problems connecting to the Internet. This may indicate a problem with the DVR's configuration, a fault with your network or a problem with your Internet Service Provider (ISP).

IP Conflict: This event will occur if the DVR detects another device on the same network with a conflicting IP address. It's a little like two houses with the same number being on the same street - one house might get the other's mail, or get woken up at all hours of the night being asked if someone named "Big Bob" lives there.

Basically, it indicates that two devices are trying to use the same IP address. This shouldn't occur if you're using DHCP addressing, unless one or more devices is set to use a STATIC IP (the static addressing method overrides the automatic assignment process).

Audio Warning: The DVR will use its internal buzzer to emit an alarm tone. It sounds like an old computer indicating an error, or a large truck backing up.

Send Email: The DVR will send an auto-email alert when the event type you've selected occurs.

Device: HDD

Here you'll find a comprehensive list of hard drives connected to the DVR.

Typically, there will be one entry here, and it will probably be the hard drive that came with the DVR. This is not a problem, and you'll probably get years of usage out of the included hard drive.

Note that external drives connected by either eSATA or USB will **NOT** be displayed here.

Device: S.M.A.R.T.

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology - gotta love a good acronym) is your hard drive's way of telling the DVR how it's going.

Status: The current condition of the hard drive. It should say "Good". If it says anything else, this indicates there's a problem with your hard drive.

If there's no problem, there's little else to do here, unless reading the output of the dozens of self-tests the hard drive performs on itself is of interest to you.

If you have been confronted with a HDD Error, or the Status entry doesn't read "Good" then you can use the S.M.A.R.T. information to attempt to diagnose the problem. The information presented in the S.M.A.R.T. report is practically identical to what you'd see on a desktop PC while using *Administrator Tools*, or a similar service.

Device: PTZ

Left: *The PTZ Settings menu.*

Above: *The PTZ controls, accessed by the PTZ icon on the menu bar.*

Right: *The PTZ context menu. Accessed by right-clicking while the PTZ controls are open.*

Below: *The Menu Bar, with the PTZ icon highlighted in red.*
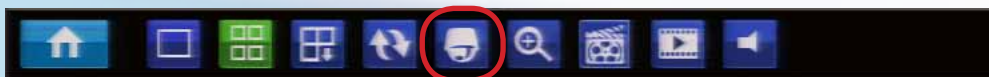
PTZ Settings

This is where you can configure the DVR to be able to operate PTZ devices. PTZ stands for Pan, Tilt & Zoom.

The DVR is compatible with many - but not all - PTZ devices available. For the best results, we suggest using a Swann PTZ camera, as we know what they're compatible with and we'll be able to offer support for both devices at once (should you need it).

Camera No: The camera you'd like to associate a PTZ device with.

Baudrate: Check the PTZ device's documentation to learn this value. Most *Swann* PTZ units operate at 2400 or 9600bps.

Data Bit, Stop Bit & Parity: Options that subtly change the way the DVR talks to the device. These are important to get right - check your PTZ device's documentation to learn the correct settings.

PTZ Protocol: A protocol is like a language that the DVR uses to talk to the PTZ device. Ensure that this setting matches the requirement of your device.

Address (0 - 255): The **command address** of the PTZ device you want to associate with this channel.

PTZ Controls

Arrows: Moves the camera in the direction selected.

Speed: How fast the camera will move. The higher the number, the faster the movement. Note that the actual speed of movement will depend upon the capabilities of your particular PTZ device.

Zoom: Increases or decreases the magnification of a vari-focal lens. *Not all PTZ devices have vari-focal lenses.*

Focus: Alters the focal point of a PTZ device with a vari-focal lens. Try adjusting this control if your images seem "soft" or blurry. *Not all cameras support this function.*

Iris: Alters how much light gets into the camera by opening and closing the iris of the camera. Not all PTZ cameras have an adjustable iris. Also called an "aperture". *Not all cameras support this function.*

Preset: A Preset is a position that the camera is in which is saved to memory to be retrieved later.

Patrol: Initates patrol mode (also sometimes called "cruise" mode). You'll need to define a series of Preset points for the camera to patrol between.

Exit: Closes the PTZ controls.

PTZ Context Menu

Camera No: Switch quickly between cameras.

Call Preset: Returns the camera to a Preset point.

Call Patrol: Initiates a patrol of your choice.

Preset: Defines a Preset point.

Patrol: Initiates or stops a patrol.

PTZ Menu: Toggles the appearance of the PTZ Control Menu onscreen. While the PTZ Control Menu is hidden, the DVR will still be in PTZ mode, and the context menu can still be opened via right-clicking the interface.

PTZ Settings: Opens the PTZ Settings menu, where you can adjust the control method for the camera.

System: General

The **System: General** menu contains many of the settings you'll need to configure to get the most out of your DVR system. Most importantly:

- The time and date can be set here.

- You can select the language you want for the menus/GUI.

- The configuration for automatic adjustment to daylight savings time is here.

- You can easily enable or disable password protection - but will have to create a valid username/password

Language: The language that the DVR's menus, alerts and other communications will use. This usually defaults to English.

Be careful not to change this setting unintentionally - it might be tricky to find the setting to change it back when the DVR is speaking another language!

Video Standard: Here you can choose between PAL and NTSC. PAL is used in Western Europe and Australia, NTSC is used in the US, Canada and Japan. If the DVR's picture is black and white, flickering or similar, then this is probably caused by the video system being set incorrectly. **Don't change this setting unless advised to do so by** *Swann* **Technical Support. You may not be able to see the DVR's output on your screen anymore!**

Time Zone: Particularly important if you've enabled NTP - set this to the time zone where you happen to be. For example, people in eastern Australia (Canberra, Sydney and Melbourne) choose GMT+10:00, whilst the Eastern Time zone in the USA and Canada is GMT-05:00. (GMT stands for Greenwich Mean Time - it's the baseline that keeps all the different time zones in sync.)

Menu Date Format: The format of the date (eg. DD/MM/YYYY or MM/DD/YYYY and so on).

System Time: This can be edited manually, or set to update automatically by using NTP (see "Network: Advanced: NTP" on page 21).

DST Setting: As the standards for daylight savings differ from country to country, and often state to state, you might need to manually tell the DVR exactly when it commences and ends in your locality. First, turn DST on. We suggest setting the **Daylight Saving Time Mode** to **Date**, and manually entering the dates and times that daylight savings time applies to and from, in your locality.

Note: Some NTP servers are NOT fully compatible with DST.

This may cause your system to double-count adding one or removing one more hour than they should, or cancel each other out. You may need to intentionally change your time zone to compensate, or simply not use NTP and DST simultaneously.

Enable Password: While enabled, the DVR will require a password to access, even for local users. It's advisable to enable password protection

Auto Lock Time: While the password protection is enabled, the DVR will automatically time-out, whereafter it will ask for a password before returning to normal functioning. The **Auto Lock Time** determines how long a period of inactivity will cause the DVR to lock itself again.

Device ID: Differentiates your DVR from other devices. If you don't have any other DVR's or similar devices, then you can leave this as-is. If you've got multiple DVRs running on the same network, then it's a great idea to give each a unique ID.

System: User
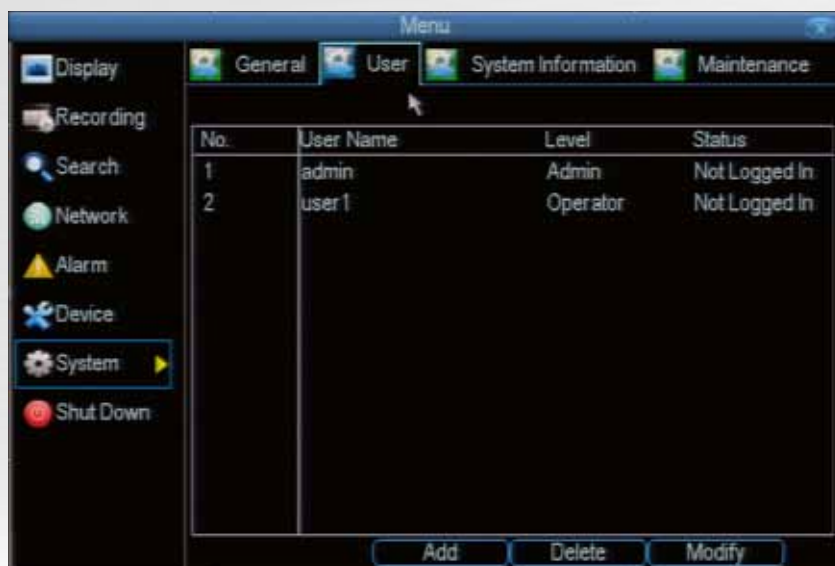
The System: User menu is where you can define and configure the different levels of access various users have to the DVR.

We suggest that *at minimum* the admin account be password protected, as it has access to all aspects of the DVR's operation.

To add additional users, choose **Add**.

To remove a user, choose **Delete**.

To customize a user's level of access, choose **Modify**.

You cannot modify the access level of the default admin account - they can do everything. This is to prevent an unfortunate incident where, for example, no user has the permissions required to change another user's permissions - which could lead to the DVR being, in at least some senses, inoperable.

User Name: Select a name for the user you want to define. The best usernames are short, to the point, are relevant to the specific user they're intended for, are easily memorable and hard to guess.

Password: A password can be any combination of numbers (0 though 9) between four and eight characters long.

Confirm Password: Must exactly match the password for the definintion of a new user to be successful.

Level: There are two default levels of access to the DVR - Guests and Operators.

Guest: By default, a *Guest* user has access to the live images on the DVR and can search through recorded events. They cannot change any settings or configure the DVR in any way.

Operator: The default permissions of an *Operator* allow them to access and configure all aspects of the DVR.
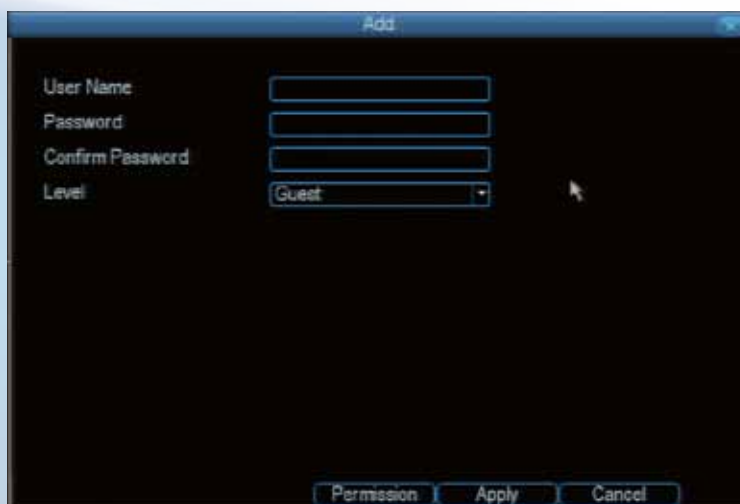
You can easily customize the level of access each individual user has. Simply choose the **Permission** button on either the **Add User** or **Modify** to set the specific access for the user you want. The Permission menu has two tabs - *Configuration* and *Operation*.

Configuration: The configuration page select which menu(s) the user can access. There is no heirachy and any combination of menus can be selected (although some combinations would make little sense in practice).

Operation: You can select which channels the user has access to, and what they can do with them. For example, you could set a user to have permission to view all channels in live viewing mode, but only playback channels 2 and 4.

Choose the **Set** button next to each type of access to choose specific channels that the user can access.

Also, this page contains permissions for **HDD Management** and **Shutdown**. These are surprisingly powerful levels of access: between them, a user can remove all footage from a DVR's hard drive and turn the DVR off. Be careful assigning these permissions!
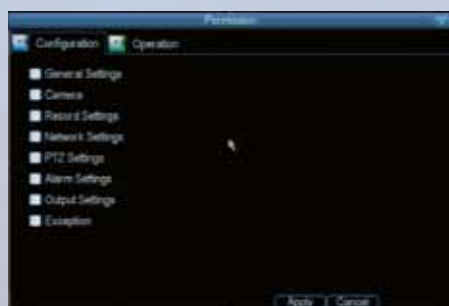
System: System Information

If you're looking at the System Information screen, you've probably been directed to do so by Swann Technical Support.

If we haven't told you to come here, you might be wondering what all the information means. On a day-to-day level, the answer is "very little". However, if you're still curious:

Device Name: The name that the DVR considers to be its own, and what it will use to register an IP address with your DHCP host.

The remaining information is for use by *Swann's* Technical Support, in the event that you require assistance. The various model and build numbers help us track down any known issues, or catalogue new issues as they come to light. It also helps us figure out if you're running the most recent firmware on the DVR, and whether you'd benefit from an upgrade.

System: Device State
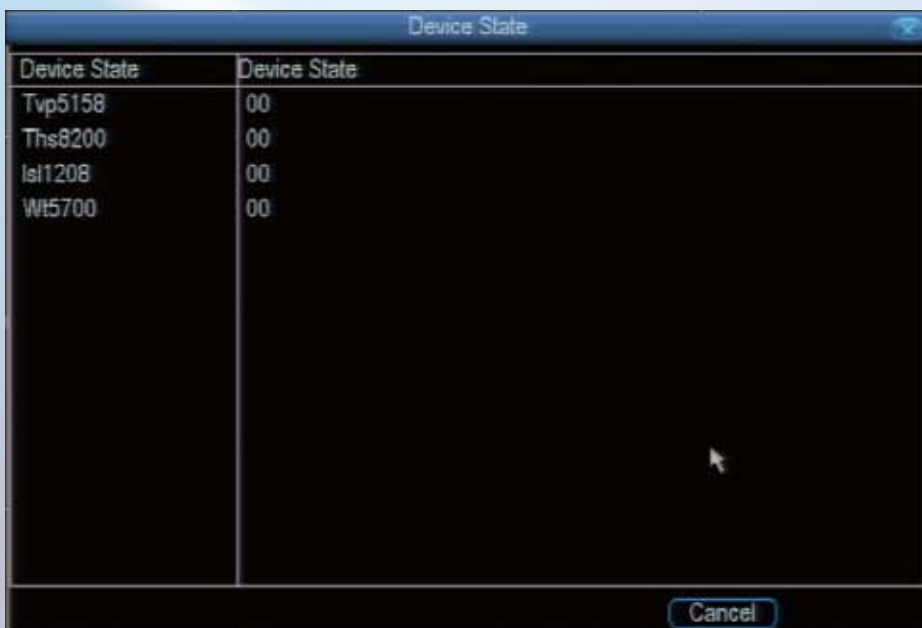
The **Device State** menu contains information about devices and their current state. If you don't know what any of this means, this indicates two things:

1) You seem to be a balanced, healthy individual who doesn't become obsessed by knowing exactly how the things they have work, it's enough that they do,

and

2) You've probably got no reason to be here. Just back out of this menu and pretend it isn't here.

Unless you call up Technical Support and we ask about something on this screen, there really isn't anything to do here.

System: Maintenance
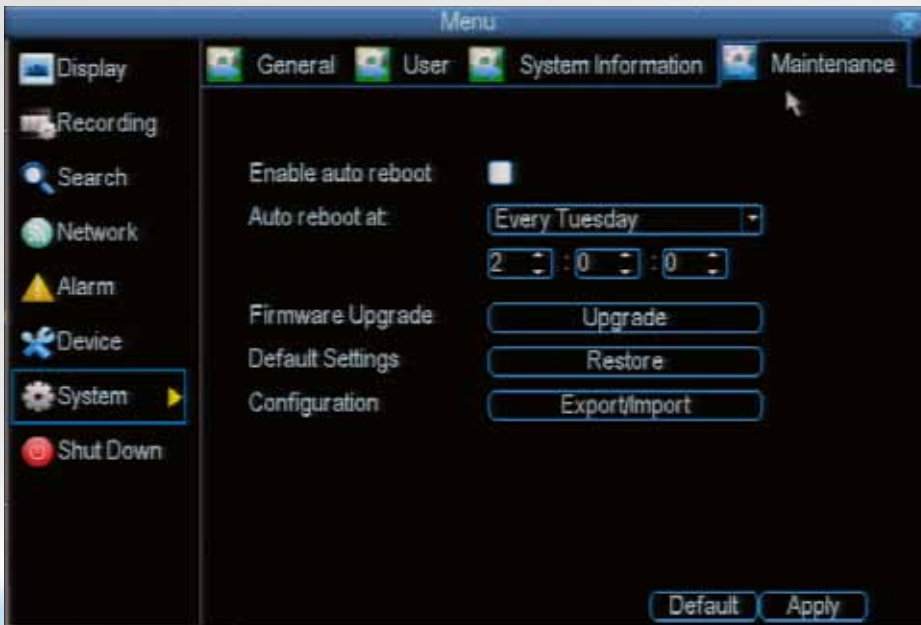
To maintain the operational integrity of the DVR, it is suggested that it be rebooted periodically. In much the same way that a computer can become unstable if left on for an extremely long time, the DVR can become unstable. It is strongly suggested that the DVR be rebooted at least once per month.

However, as this can be a hassle (particularly if the DVR is stashed away somewhere inconvenient) you can set the DVR up to reboot itself.

Enable auto reboot: Will automatically shut the DVR down and restart it at a certain time of the day or week.

Auto reboot at: Choose when you'd like the DVR to reboot. Typically, this will be a time when it's unlikely there'll be any activity for the DVR to record.

Firmware Upgrade (Upgrade): Instructs the DVR to update its firmware. You'll only need to use this option if instructed to do so by Swann Technical Support.

Default Settings (Restore): Loads the factory default settings.

This must be done after a firmware upgrade to ensure proper operation of the DVR. You can retain your settings, recording schedule and so on by using the Import/Export Configuration function.

Configuration (Export): Creates a file containing all the settings you've customized, including your recording preferences, schedule, user-list and so on.

To export your settings:

- Insert a USB flash drive into the USB port on the front of the DVR. Ensure it has enough free space (a few MB is sufficient - the file is less than 50KB) and that it is not write-protected.

- Choose **Configuration: Import/Export**.

- You'll see a file browser, showing the contents of the storage device.

- Click **Export** to save your settings.

- **Exporting your settings will overwrite any previous settings you've saved to that flash drive.** If you want to do sequential configuration exports, you'll need multiple USB drives - or, rename the file using a PC (advanced users only).

Configuration (Import): Operates in the same way as the **Export** function, but is used to load a previously saved configuation file.

Locate the file you want on your flash drive - it will be called **config.tgz**. Loading the file will cause the DVR to automatically reboot.
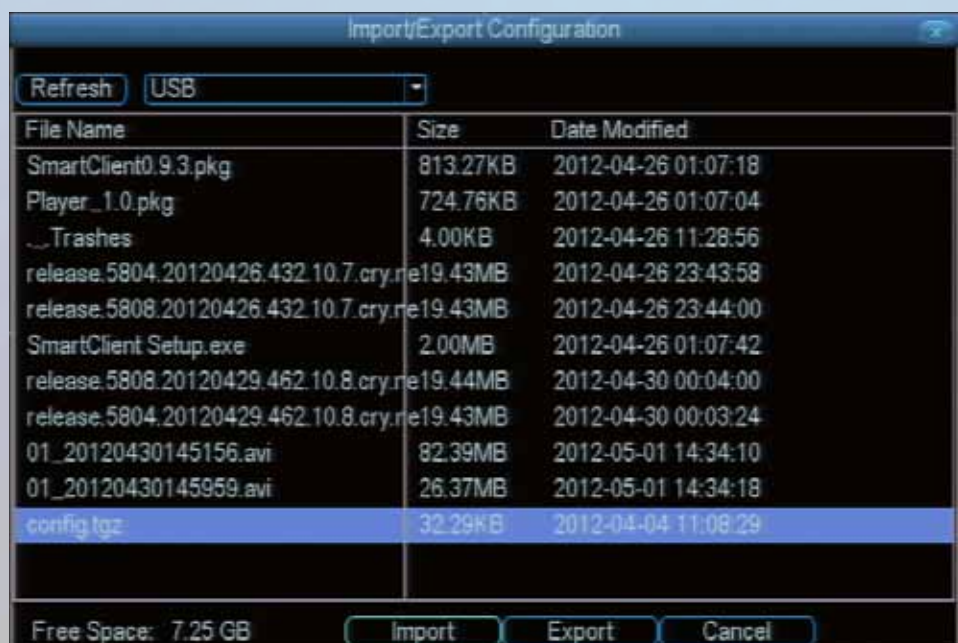
Remote Access: Installing *MyDVR* on PC

Your DVR comes with powerful remote access and interface software, called *MyDVR*.

The *MyDVR* software will allow you to:

*   view images from your DVR in real-time,

*   playback recorded footage,

*   copy footage to your local PC and

*   adjust settings and configure the DVR.

In fact, the MyDVR software is so powerful, you don't even need to connect a monitor to the DVR if there's a computer on the local network that you're running *MyDVR* on.

For quick and easy configuration of the DVR's settings, recording quality and schedule, we suggest using the remote interface in *MyDVR*.

How to install MyDVR:

*   Insert the included CD into your computer.

*   Locate the file called **MyDVR.exe** and run this file.

*   You may be asked by UAC (User Account Control) to allow MyDVR to "make changes" to your system. Select **Allow** or **Continue**.

*   You'll see an installation wizard. Simply follow the prompts to install the software.

*   Once the MyDVR software has been installed, it should automatically detect your DVR on your network.

Minimum PC Requirements:

|	
2.0GHz or faster CPU	*(Dual-core recommended)*
1GB or more RAM	*(2GB recommended)*
10/100Mbps Network	*(1000Mbps recommended)*
Internet connection	*(512kbps+ recommended)*

Supported Operating Systems

Microsoft Windows XP, Microsoft Windows Vista, Microsoft Windows 7

NOTE: Windows XP, Windows Vista and Windows 7 are registered trademarks of Microsoft Corporation.

Got a Mac?

Check out

www.swann.com/mydvrmac

for the latest Mac-based remote access software.
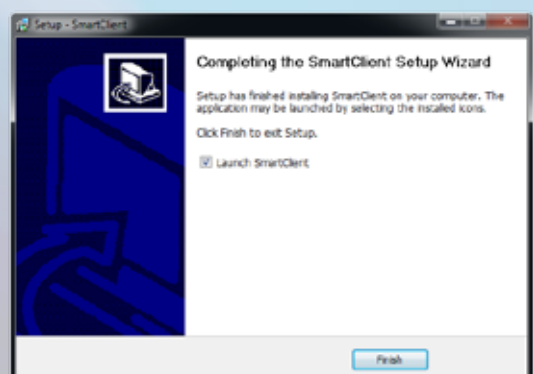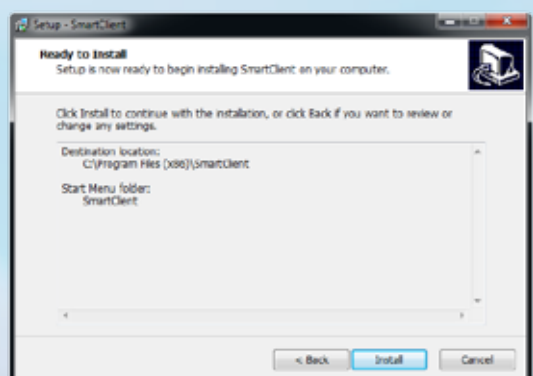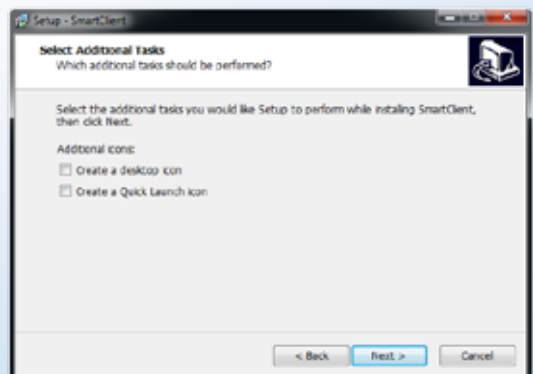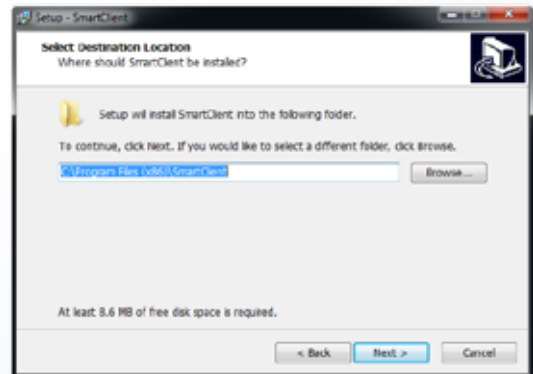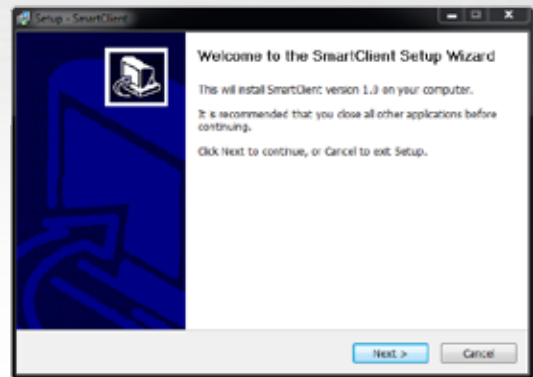
Remote Access: Login

If you're logging in to the DVR for the first time via a local network, then use the following settings:

- **IP:** This field will self-populate when you select a DVR from the list.

- **Server Port:** The default is 9000. MyDVR will automatically detect the server port of the DVR.

- **Username:** To get full control of the DVR, use the default administrator username: **admin**. You can create other accounts, but the default is always called **admin**.

- **Password:** The default admin account has no password. Leave this blank, and set a password later.

Before running *MyDVR* for the first time:

Ensure your DVR is connected to a network and (if accessing via the Internet) you know the Public IP Address of the DVR or the DDNS address (see "Network: Advanced: DDNS" on "Network: Advanced: DDNS" on page 21 for more).

That your network is set to DHCP addressing or the DVR has been configured to use STATIC addressing (see "Network: General" on page 19).

**That UPnP is enabled on your router** (see your router's documentation to learn more).

If you're accessing the DVR via a LAN (local network):

- Select **LAN** under the heading **Network Type**.

- Your DVR should automatically appear in the list of compatible devices near the top of the window.

- If your DVR does not appear, choose **Scan Device** in LAN. If this doesn't work, then it indicates some kind of local network fault.

- Select your DVR from the list - it will probably be the only thing there, unless you've got another *Swann* DVR.

If you're accessing the DVR via the Internet:

- Select WAN under the heading **Network Type**.

- If you're using a **Fixed Public IP address**, choose **IP Address** under **Register Mode**, and enter the IP address into the space marked **IP**.

- If you're using a DDNS hostname, choose **Domain Name** under **Register Mode**, and enter the DDNS domain name into the field labeled **Domain**.

- If you're using the SwannDVR DDNS service, your address will be: *yourDDNSname*.swanndvr.net

- Enter the **Server Port** for the DVR (it won't be able to automatically detect this over the Internet - you'll need to remember it!).

- Enter your **Username** and **Password**.

- Choose **Login**.

MyDVR: Interface
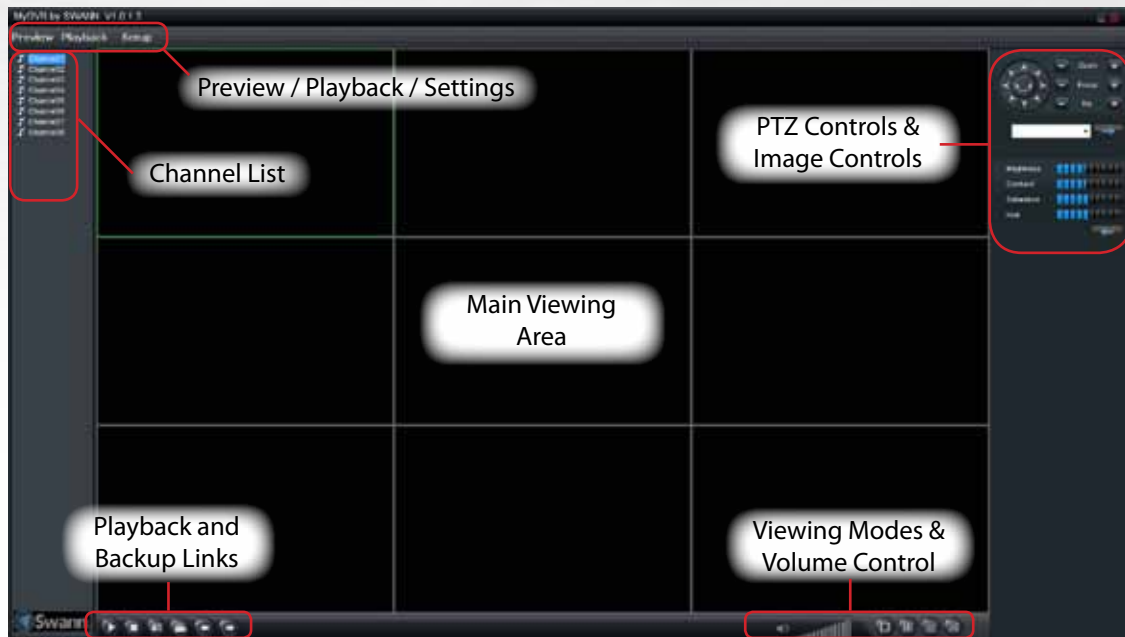
Preview: The default splash screen of MyDVR.

The screen layout emulates the multi-channel live view screen of the DVR, showing you images coming directly from your cameras in near-realtime (some delay is caused by the network/Internet connection you're using to access the DVR).

You can select a single camera, or multi-channel viewing by using the **Viewing Mode** buttons in the lower right corner.

Playback: Opens the Playback interface, which operates in much the same way as the playback interface on the DVR itself.

Settings (Configuration): Allows access to both the **Local Configuration** screen and **Remote Configuration** menus.

Local Configuration: Defines how MyDVR will manage and save footage/still images to your local PC.

Remote Configuration: Allows access to the DVR's settings. The configurable options are very similar to those you'll find in the DVR menus.

Main Viewing Area: Where images from your camera will be shown.

Playback / Backup Links: Quick access to playback and backup.

PTZ Controls: For controlling PTZ devices. They operate in the same way as those you'll find on the DVR itself.

Image Controls: You can alter the brightness, contrast, saturation and hue of your images here. They operate in the same way as those in the DVR's menu (see "Camera: Display" on page 11 for more information).

Viewing Modes: Choose between single camera viewing, quad-mode (2 x 2, showing four cameras) and all (3 x 3 showing eight cameras - 8ch model only).

Volume Control: Alters how loud the audio output from the DVR will be. Remember that the final output volume will also be affected by the master volume control of your operating system, as well as the levels set on speakers or amplifiers connected to your system.

MyDVR: Local Configuration

The local configuration screen is where you can customise how MyDVR will store and process footage on the local PC when you download it from the DVR.

Record Path: Where MyDVR will save recordings if you select **Record** from the **Preview** screen.

Download Path: Where MyDVR will save footage that you've downloaded from the DVR.

Snapshot Path: Where MyDVR will save still images captured using the **snapshot** function.

Convert to AVI: When selected, MyDVR will use your PC to *transcode* footage from the DVR's native format (H.264) into a container that your computer (indeed, almost any computer) will be able to playback without special software.

About transcoding to AVI:

Don't be put off by the complex word - transcoding is just a shortening of "translating code".

Transcoding, while a straight-forward process, is **very processor intensive**. You may notice significant slow-down on your computer while the transcoding takes place. For best results, try not to over-burden your computer - just let it transcode the footage in peace.

Auto-Login: When selected, MyDVR will automatically login to and open the Preview screen for the DVR it is currently connected to. Simply un-check Auto-Login if you don't want MyDVR to do this anymore, or you want to change the default device (you'll just need to go through the manual login procedure once for the device you want).

MyDVR: Remote Configuration
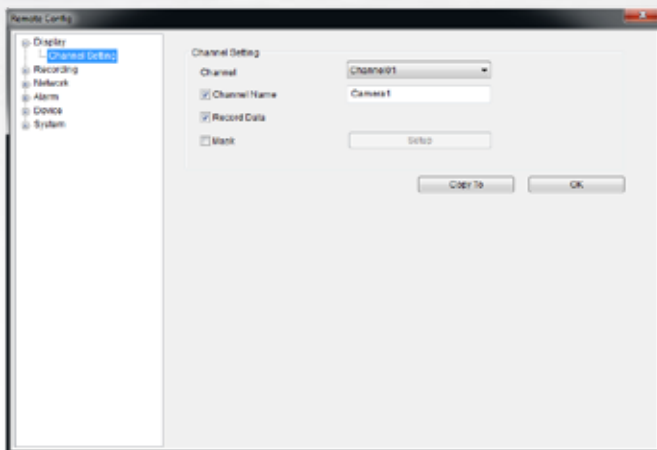
Display: Camera (see page 11)

Channel Name (Check Box): Whether the channel's name will be displayed on screen or not.
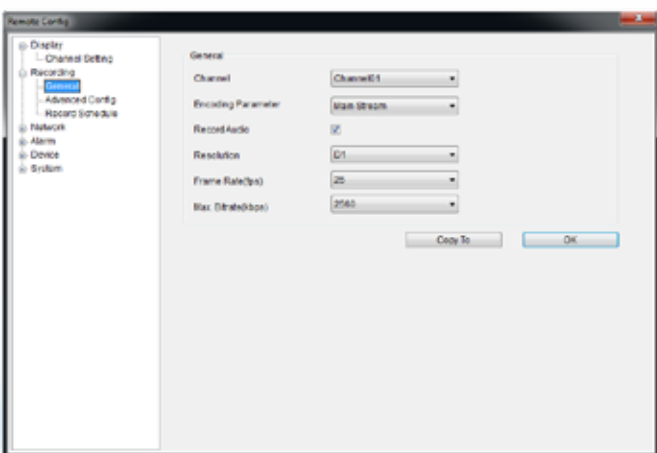
Channel Name: The title you'd like to give that camera.

Record Data: Whether the overlays (Channel Name, Date and so on) will be recorded onto the video with your images.

Mask (Check Box): Turns the masking function on or off.

Mask (Setup): Creates a black privacy overlay which masks part of your images. Will affect recordings.

Recording: General (page 13 for more)

Encoding Parameter: Choose from the main-stream or sub-stream to configure.

Main Stream: The way the DVR will internally process and record video.

Sub Stream: The way the DVR will encode and send video to a remote device (such as the PC you're using to access the DVR).

Record Audio (Check Box): Turn the audio recording function on or off.

Resolution: How many pixels (little dots) make up your image. From highest to lowest resolution: D1, HD1, CIF

Frame Rate: How many images per second the DVR will capture. "Realtime" is 30fps (NTSC) or 25fps (PAL).

BitRate Limit: The maximum size that your video files will be. The higher this is set, the better recordings will look - however, they'll also fill the hard drive faster.
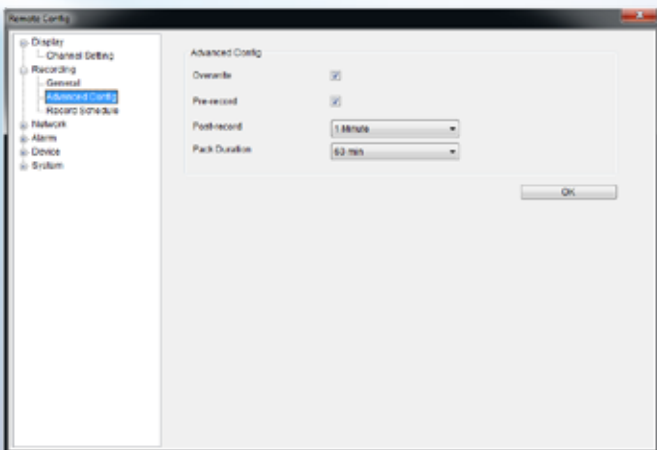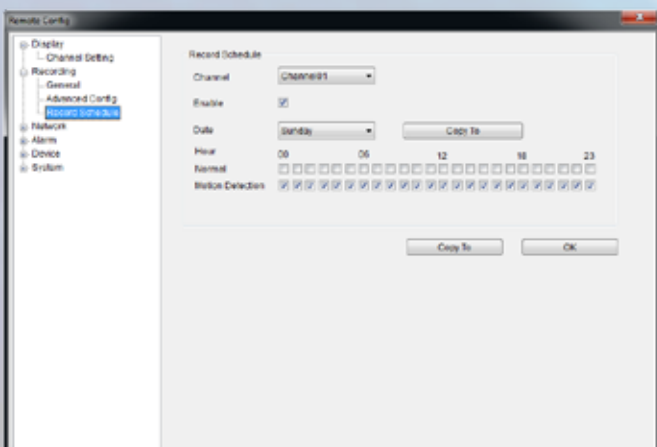
Recording: Advanced Config (see page 14)

Overwrite: Whether the DVR will erase old recordings to make room for new ones, or not.

Pre-record: How long *before* an alarm event or motion the DVR will record.

Delay: How long *after* an alarm event or motion the DVR will continue to record for.

**Pack Duration:** The amount of video that will be stored as a single "pack".

Recording: Schedule (see page 15)

The schedule presented on-screen applies to **one channel** on **one specific day of the week** only.

Use the **Copy To** functions to quickly assign identical schedule layouts to multiple days/channels at once.

Be careful when programming your schedule. It's one of the most important aspects of setting up your DVR, and if it's wrong in any way, it could lead to disastrous complications later.
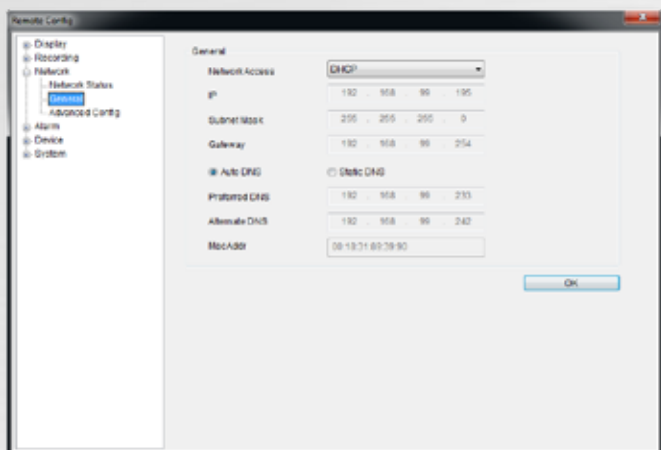
Network: General (see page 19 for more)

Be careful adjusting settings here - if the DVR can't access the network anymore, you won't be able to configure it remotely!

Network Access: How your network is addressed - either DHCP or STATIC IP addressing.

Subnet Mask: A required additional piece of IP addressing information.

Gateway: The way "out" of your network, to the Internet.

Auto DNS / Static DNS: Whether the DVR will automatically select a DNS server, or use one you assign.

Preffered / Alternate DNS: The DVR has two DNS servers, essentially a primary and a backup.

MAC Address: The Media Access Control address. For some advanced networking, it can help to know this value.
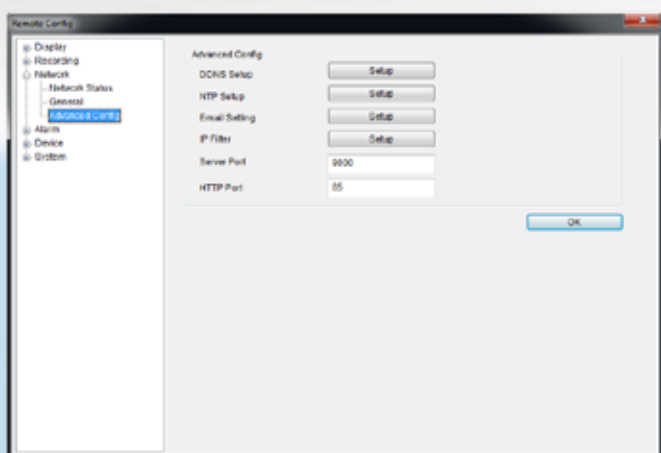
Network: Advanced Config (see page 20)

DDNS Setup: Opens the DDNS setup window (below).

NTP Setup: Opens the Network Time Protocol setup window (see below).

Email Setting: Opens the Email Setup window (see below).

Server Port: One of the two ports the DVR needs to communicate over your network. Ensure nothing else uses this port. The default value is **9000**. This is the port used for remote access from a mobile device.

HTTP Port: The second of two ports the DVR needs to communicate over your network. Ensure nothing else uses this port. The default value is **85**. This is the port number you'll use when logging in over the Internet from the *MyDVR* software.

- **NTP Setup (see page 21)**

NTP Domain or IP Address: The server you intend to use to access the current date and time. The default is **pool.ntp.org**.

NTP Port: The port that the NTP server uses. The default for pool.ntp.org is **123**.

- **Email Setting (see page 23)**

Operates in the same way as the email setup menu in the DVR menu. Rather than attempt to summarize here, it's easier to simply turn back to page 23 to learn more.

- **DDNS Setup (see page 21)**

Where you can configure a Dynamic DNS server to track the "position" of your DVR over the Internet. Check out page 21 for more information on DDNS servers.

We recommend using SWANNDVR as your DNS service. This is a free service for Swann DVR owners, which we directly support.

To create an account with SWANNDVR, go to:

http://mydvr.swanndvr.com/

*and click the **Registration** button. Follow the prompts to create your account.*
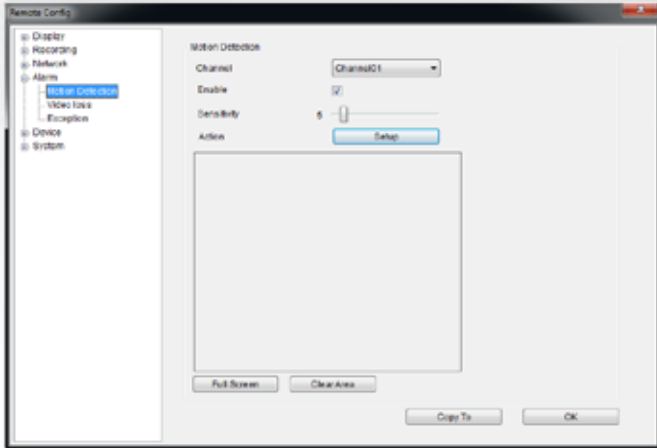
Alarm: Motion Detection (see page 24)

Channel: The channel you're configuring the motion detection settings for.

Enable: Whether the motion detection is enabled for the channel currently selected.

Sensitivity: A sliding scale between 1 and 50

Action: What you'd like the DVR to do when it detects motion. Typically (assuming the schedule is configured to do so) this will be to record video. It can also be a cue to trigger an email alert, or to sound the DVR's internal buzzer.
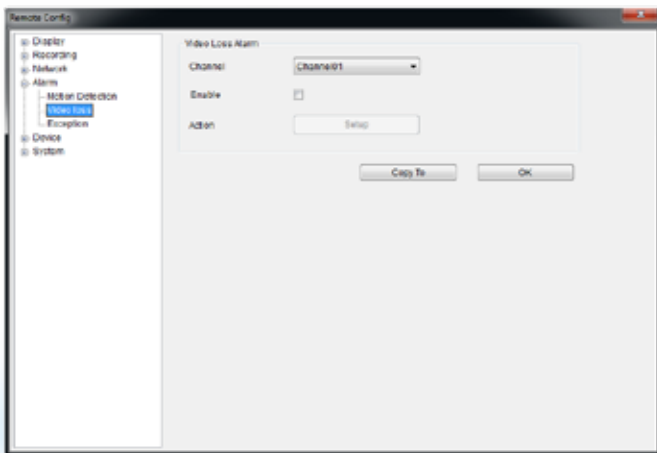
Alarm: Video Loss (see page 27)

Action (Check boxes): Whether you'd like the DVR to send an email alert or to sound the DVR's internal buzzer.

Arm Schedule: The times of day/week you'd like the DVR to be "armed" to detect video loss.
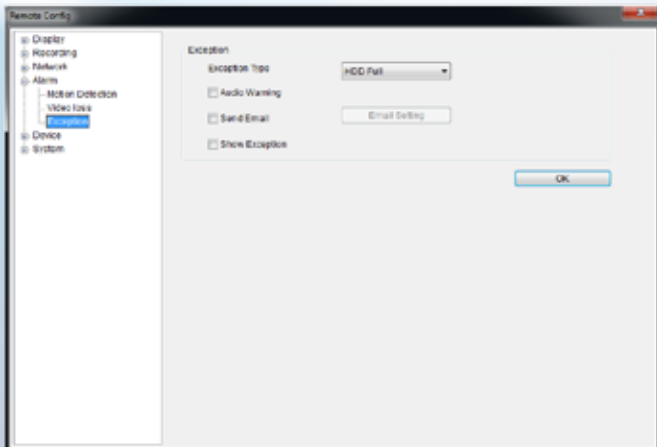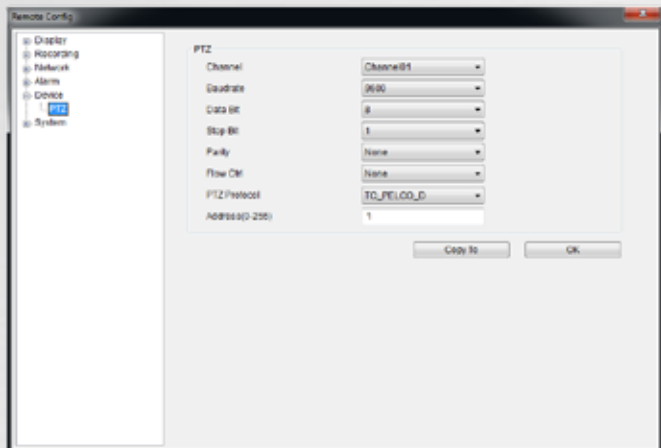
Alarm: Exception (see page 27)

Exception Type: The

Audio Warning: Sounds the DVR's internal buzzer.

Send Email: Commands the DVR to send an email alert.

Show Exception: Shows any alerts that occur at the bottom right corner of the main screen. Double-click on the alert notification to see details.
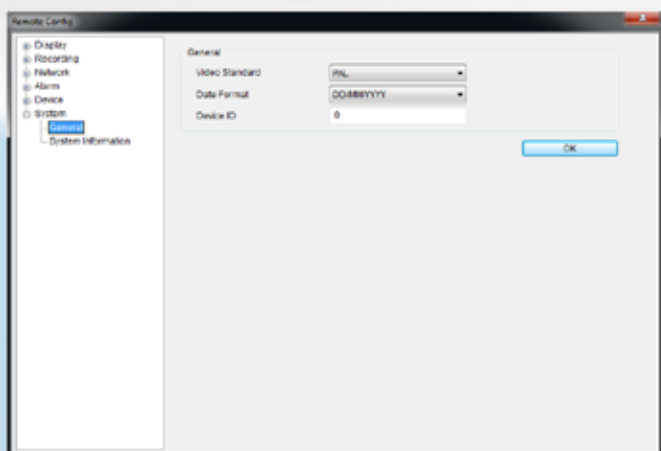
Device: PTZ (see page 30)

Channel: The channel you'd like to configure a PTZ camera for.

Settings: See page 30 for more information about the PTZ settings you'll find here.

You'll probably need the documentation that came with your PTZ camera to figure out how to fill out this configuration page.

System: General (see page 31)

System Standard: Lets you change the DVR between PAL or NTSC standards.

NTSC operates at 30 frames per second, and has an effective resolution of 720 x 480. It's used in countries with 60Hz power, such as the United States, Canada, Japan and so on.

PAL operates at 25 frames per second, and has a effective resolution of 720 x 576. It's used in countries with 50Hz power, such as most of Europe, the United Kingdom and Australia.

If this is not set correctly, images on your DVR may be black and white, flickering or simply not there at all.

If you change the *System Standard*, it automatically forces a reboot of the DVR. This will happen the instant you click *OK*.

Date Format: How you'd like the date displayed.

Device ID: A code differentiating this DVR from other DVRs or DVR-like devices. You can leave this setting - it's only important if you're got multiple DVR's and you're planning to use them on the same network or share PTZ device control.

Remote Access From a Mobile Device

Using the *SwannView* app for mobile devices, you'll be able to log into your DVR from almost anywhere you can imagine (or, at least, get a decent signal - like everyone, we're at the mercy of your phone company!) and view images coming from your cameras in real-time (or as close to as wireless networking will permit).

How cool is that? We're pretty sure this was science-fiction just a few short years ago.

You'll need a compatible mobile device. At the time of writing, there are apps for *iOS (iPhone / iPad)* and *Android*-based devices. We're working on apps for other mobile platforms.

To download the latest mobile viewing apps, operating guides and to check the compatibility of your device, log onto:

www.swann.com/swannview

Troubleshooting

Get up to Date Information

We're constantly making improvements to our products, firmware, software, user manuals, video tutorials and more.

To ensure you're up to date with the latest documentation for your DVR, check out our website:

www.swann.com/trueblu

Warranty Information

USA	**Australia**	**United Kingdom**

Swann Communications USA Inc.   Swann Communications   Swann Communications LTD.
12636 Clark Street   Unit 13, 331 Ingles Street,   Stag Gates House
Santa Fe Springs CA 90670   Port Melbourne Vic 3207   63/64 The Avenue
USA   Australia   SO171XS
                                                                United Kingdom

Warranty Terms & Conditions

Swann Communications warrants this product against defects in workmanship and material for a period of one (1) year from its original purchase date. You must present your receipt as proof of date of purchase for warranty validation. Any unit which proves defective during the stated period will be repaired without charge for parts or labor or replaced at the sole discretion of Swann. The end user is responsible for all freight charges incurred to send the product to Swann's repair centers. The end user is responsible for all shipping costs incurred when shipping from and to any country other than the country of origin.

The warranty does not cover any incidental, accidental or consequential damages arising from the use of or the inability to use this product. Any costs associated with the fitting or removal of this product by a tradesman or other person or any other costs associated with its use are the responsibility of the end user. This warranty applies to the original purchaser of the product only and is not transferable to any third party. Unauthorized end user or third party modifications to any component or evidence of misuse or abuse of the device will render all warranties void.

By law some countries do not allow limitations on certain exclusions in this warranty. Where applicable by local laws, regulations and legal rights will take precedence.

For Australia: Our goods come with guarantees which cannot be excluded under Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to major failure.

Helpdesk / Technical Support Details

Swann Technical Support
All Countries E-mail: tech@swann.com

Telephone Helpdesk

USA toll free
1-800-627-2799
(Su, 2pm-10pm US PT)
(M-Th, 6am-10pm US PT)
(F 6am-2pm US PT)

AUSTRALIA toll free
1300 138 324
(M 9am-5pm AUS ET)
(Tu-F 1am-5pm AUS ET)
(Sa 1am-9am AUS ET)

USA Exchange & Repairs
1-800-627-2799 (Option 1)
(M-F, 9am-5pm US PT)

NEW ZEALAND toll free
0800 479 266

UK
0203 027 0979