







truVision DVR 31 User Manual

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Chapter 1

Product Introduction

Summary

This chapter provides an overview of the DVR 31, including its features and functions.

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Product overview 2

Product Overview

This is the *truVision DVR 31 User Manual* for models:

- TVR-3108-1T
- TVR-3108-2T
- TVR-3116-2T
- TVR-3116-4T
- TVR-3116-6T

The truVision DVR 31 is a network digital video recorder developed for digital surveillance. The truVision DVR 31 uses an embedded microcontroller unit (MCU) and Linux operating system, combining the most advanced technology in video and audio encoding/decoding, hard disk recording, and TCP/IP communication. The DVR's firmware is stored directly into the memory, making it more stable and reliable.

The truVision DVR 31 is an integrated digital video recorder that combines the features of a time-lapse audio/video recorder, a multiplexer, and a video server to create a single security solution.

The DVR 31's pentaplex operation enables users to view live video, search and play back any recorded video by date and time or by event, and back up the configuration and video data, without interrupting the ongoing DVR recording process.

In addition to the new H.264 compression mode, the DVR's graphical user interface also optimizes the monitoring controls of the unit.

The DVR 31 comes with remote viewing and configuration software already installed. This software includes a Web browser plug-in, allowing users to view live or recorded video images, and enabling remote configuration. The remote software is stored in the DVR 31 and deployed over a LAN, WAN, or Internet connection to remote Windows-based computers. This simplifies the installation and maintenance of the software components because all remote users are using the same software, which comes from the unit.

Chapter 2

Installation

Summary

This chapter provides information on how to install and connect peripherals to your device.

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Installation environment

When installing your product, consider these factors:

- Ventilation
- Temperature
- Moisture
- Chassis load

Ventilation: Do not block any ventilation openings. Install in accordance with the manufacturer's instructions. Ensure that the location planned for the installation of the unit is well ventilated.

Temperature: Consider the DVR 31's operating temperature (32 to 104°F, 0 to 40°C) and humidity specifications (10 to 90% relative, noncondensing) before choosing an installation location. Extremes of heat or cold beyond the specified operating temperature limits may reduce the life expectancy of the DVR 31. Do not install the DVR 31 on top of other hot equipment. Leave 1.75 inches (44 mm) of space between rack mounted DVR 31 units.

Moisture: Do not use the unit near water. Moisture can damage the internal components. To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.

Chassis: Equipment weighing less than 35 lbs (15.9 kg) may be placed on top of the DVR 31 only if the DVR 31 is placed on a shelf and not rack mounted.

Be sure to power off the unit before making any connections. In order to prevent the unit from losing data and system damage that may be caused by sudden power, use of an uninterruptible power supply is highly recommended.

Note: Do not remove the rubber feet, and always leave a space for air ventilation on the unit's bottom side.

Unpacking the DVR 31 and its accessories

When you receive the product, check the package and contents for damage, and verify that all items are included. There is an item list included in the package. If any of the items are damaged or missing, please contact your local supplier.

Items shipped with the product include:

- truVision DVR 31
- IR (infrared) remote control
- Two AAA batteries for the remote control

- USB mouse
- Power cord
- Rack mount kit (left and right brackets, screws)
- Terminal blocks
- *truVision DVR 31 Quick Start Guide*
- *truVision DVR 31 Quick Chart*

The support CD includes the following items:

- *truVision DVR 31 User Manual*
- *truVision DVR 31 Quick Start Guide*
- *truVision DVR 31 Quick Chart*
- Video player application
- Record duration calculator

HDD capacity

Storage capacity for the truVision DVR 31 varies depending on the model. Refer to Table 1 below for more information.

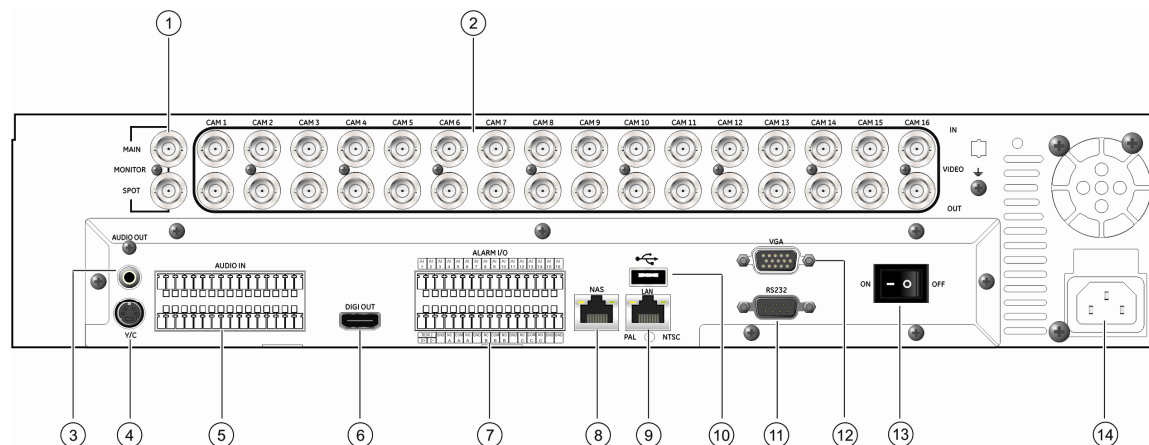
Table 1: truVision DVR 31 model types

| Model | Model number | Description |
|------------------|--------------|------------------------------------|
| 8 channel model | TVR-3108-1T | truVision DVR Model 31, 8 ch, 1 TB |
| | TVR-3108-2T | truVision DVR Model 31, 8 ch, 2 TB |
| 16 channel model | TVR-3116-1T | truVision DVR Model 31, 16ch, 1 TB |
| | TVR-3116-2T | truVision DVR Model 31, 16ch, 2 TB |
| | TVR-3116-4T | truVision DVR Model 31, 16ch, 4 TB |
| | TVR-3116-6T | truVision DVR Model 31, 16ch, 6 TB |

Back panel overview

Figure 1 below shows the back panel controls and connectors on a typical truVision DVR 31.

Figure 1: DVR 31 back panel

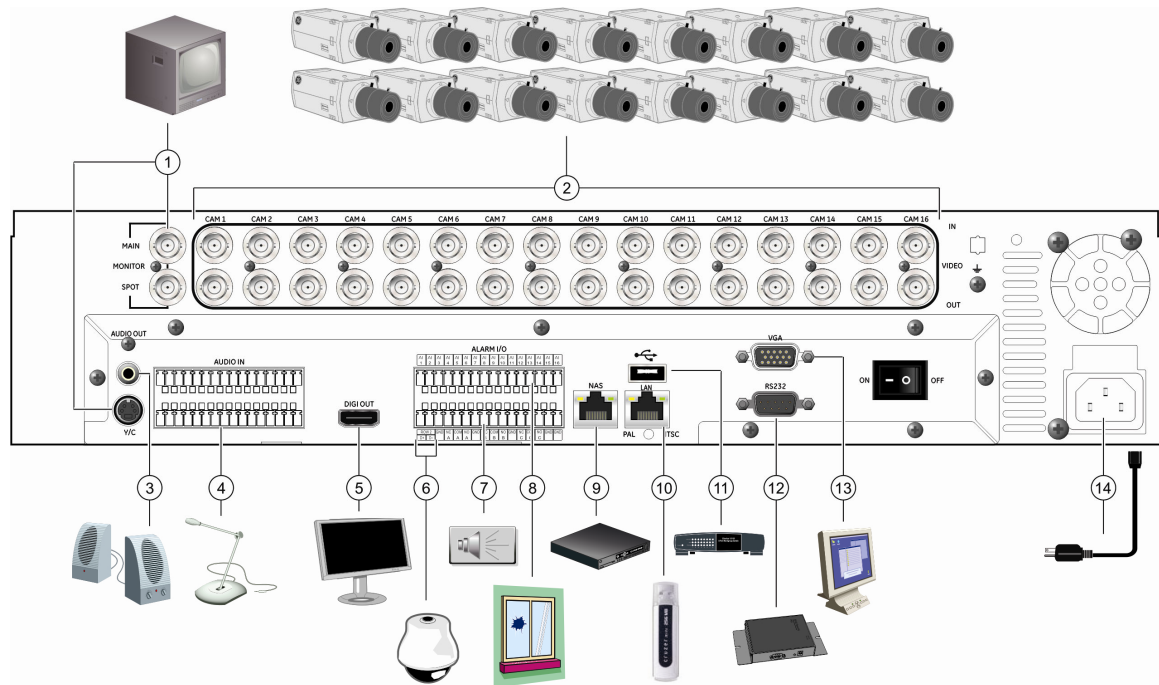


- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Video out 2. Video in (top row, loop out bottom row) 3. Audio out 4. S-video port 5. Audio in 6. Digital video output 7. Alarm I/O and RS-485 | <ol style="list-style-type: none"> 8. Network Attached Storage (NAS) port (This device is currently not supported.) 9. LAN port 10. USB port 11. RS-232 port 12. VGA output 13. Power switch 14. Power input |
|--|---|

Connecting devices to the unit

Use Figure 2 below as a visual guide to connect the various peripherals to the DVR 31.

Figure 2: Back panel connection diagram



1. Connect up to two CCTV monitors (main and spot) and/or Y/C (S-video)
2. Connect up to 16 cameras
3. Connect to speakers for audio output
4. Connect to audio input (available for each camera)
5. Connect to a monitor that displays digital video (HDMI)
6. Connect to a PTZ control
7. Alarm output
8. Connect to alarm input cables
9. Connect to a network attached storage (NAS) device (This device is currently not supported)
10. Connect to a network
11. Connect to USB device
12. Connect to a point-of-sale (POS) device
13. Connect to VGA monitor
14. Connect to the power cord

Note: DVR 31 display options are: 800 x 600, 1024 x 768, 1280 x 1024, 720P, and 1080P. If looping video, ensure that the Termination option (Main Menu >Cameras > Adjust Video) is disabled.

Connecting required devices

Before powering up the unit, cameras and a main monitor should be connected to the unit for basic operation. If needed, connect a spot monitor for displaying full screen video of all installed cameras in sequence.

Note: You can attach an extension to the RS-485 port on the back panel.

Connecting external devices

When connecting external devices to include as part of the entire system, such as a USB drive or any other USB devices, connect those devices only when the unit displays live view. The DVR 31 recognizes external devices only after the unit has gone through the initialization process.

Chapter 3

Operating instructions

Summary

This chapter describes the how to control and navigate through the DVR 31's menus and options.

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Control interfaces

The DVR 31 has three control interfaces:

- Built-in interface
- Display interface
- Web browser interface

Built-in interface. The built-in interface is displayed on the monitor output. It consists of a main menu and several dialog screens that let you configure and control the device. You can invoke the built-in interface using the front panel, remote control, or mouse.

Display interface. The display interface consists of various toolboxes that appear on top of the monitor image. These let you control live or playback video while in PTZ or playback mode. You can invoke the display interface from the built-in interface screens or from the mouse toolbar. The controls in any toolbox can be operated using the front panel, remote control, and mouse.

Web browser. The Web browser interface uses Internet Explorer to simulate the display and control functions of the VGA monitor on a remote PC. The Web browser interface can only be accessed by a PC with Internet access. See Chapter 5 “Using the Web browser” on page 43 for more information on the Web browser interface.

Controlling the DVR 31

You can control the DVR 31 using:

- Front panel control
- IR remote control
- Mouse control

Front panel control. Use the directional arrow buttons to select a command, option, or button on a screen. Use the Enter button to confirm a selection. Use the Esc button to cancel a selection.

IR remote control. Use the directional arrow buttons to select a command, option, or button on a screen. Use the OK button to confirm a selection. Use the Esc button to cancel a selection.

Mouse. Move the pointer to a command, option, or button on a screen. Click (with the left mouse button) to confirm a selection. Right-click to save and exit a screen.

You can use your preferred control method for any procedure, but in most cases we describe procedures using mouse terminology. Optional control methods are given only when they differ substantially from mouse control methods.

Front panel overview

The buttons on the front panel control all DVR 31 functions and set the programmable functions. The LED indicators light up or flash to alert you of various conditions.

Figure 3: Front panel

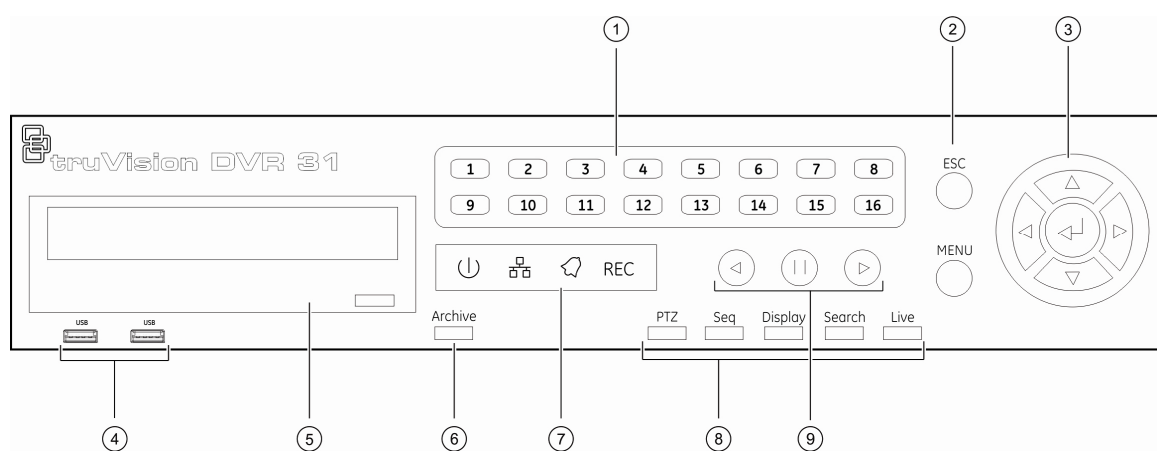


Table 2: Front panel button descriptions




| Item | Name | Description |
|------|---------------------------------------|--|
| 1 | Numeric buttons | Display the corresponding video in full screen while in both live and playback mode. The number of the button corresponds to the camera number. Press and hold a numeric button for two seconds to display the corresponding video on the spot monitor. While in PTZ mode, press the 1 button to access the Set/Go Preset menu. |
| 2 | Menu and Esc controls | Press Esc to exit a screen or cancel a selection. Press Menu to display the main menu. |
| 3 | Directional Controls And Enter button | Use arrow buttons as directional keys in zoom mode. While in a setup menu, use the Left or Right Arrow keys to navigate through fields. Use the Up or Down Arrow keys to change the value of a selected field. Press Enter to confirm the selection or display additional screens. |

| Item | Name | Description |
|------|-------------------|--|
| 4 | USB ports | Connect USB devices. |
| 5 | CD/DVD drive | Insert media for archiving. |
| 6 | Archive button | Begin archiving or displays the Archive screen. Press once to begin copying a video segment for export while in playback mode. Press again to stop copying. See “Archiving recorded files” on page 36 for more information. |
| 7 | Status LEDs | Display device status and conditions. See “Status LEDs” below for more information. |
| 8 | Function buttons | Change the DVR 31 operating mode. For example, press PTZ to go into PTZ mode. See “Operating modes” on page 17 for more information. |
| 9 | Playback controls | Control video playback speed. |

Status LEDs

The LEDs on the front panel of the DVR are described as follows.

Table 3: Status LED descriptions

| LED | Name | Description |
|---|---------|---|
|  | Power | Steady indicates that the correct power is connected to the unit. |
|  | Network | Blinking indicates that the DVR is connected to a network. |
|  | Alarm | Steady indicates that an alarm is triggered. |
| REC | Record | Blinking indicates that the DVR 31 is recording. Steady indicates hard drive failure. |

Using the mouse

Use the USB mouse provided with the DVR 31 to carry out the same operations as the front panel and remote control. Connect the mouse to the DVR 31 by plugging the mouse USB connector into one of the USB ports on the front panel. The mouse is immediately operational and the pointer should appear.

Click the left mouse button to enter or confirm a selection. This is similar to pressing Enter button on the front panel. Click the right mouse button to the exit setup menus and save the settings. Use the scroll wheel to change values. Mouse sensitivity can be adjusted in the Systems menu.

Mouse toolbar

While in live, playback, or sequence mode, point to the date and time to display the mouse toolbar, as shown in Figure 4 below.

Note: To move the mouse toolbar to a different position, click and drag the date and time display.













Figure 4: Mouse toolbar









Mouse toolbar icons

Table 4 below describes the icons that appear on the mouse toolbar.

Table 4: Mouse toolbar icons

| Icon | Description |
|---|--|
|  | User is logged in. Numerical value indicates the user's access level. User icon with a G character indicates that the device requires logon credentials to access the main menu. |
|  | The device is recording. |
|  | The device is recording an alarm event. |
|  | The device is in sequence mode. |
|  | The device is in archive mode. |
|  | Indicates the starting point of a video segment for archive while in playback mode. |
|  | Indicates the ending point of a video segment for archive while in playback mode. |
|  | The device is in PTZ mode. |
|  | The device is playing video forward. |
|  | The device is fast forwarding video playback. |
|  | The device is playing back video reverse. |
|  | The device is fast reversing video playback. |

| Icon | Description |
|---|---|
|  | Video playback is on pause. |
|  | Video playback has reached the end of a video segment. |
|  | Indicates the amount of available hard disk space left. |
|  | Indicates the hard disk is full. |
|  | Indicates a hard disk failure. |
|  | Indicates the hard disk is not recognized. |



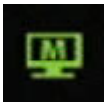

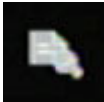

Camera commands




The camera commands appear when you point to Cameras on the mouse toolbar. Click a camera number to display that camera in live mode.

Function commands

The function commands display when you point to Functions on the mouse toolbar.

Table 5: Mouse toolbar function commands

| Icon | Name | Function |
|---|-------------|--|
|  | Main menu | Displays the main menu |
|  | Multiscreen | Toggles through the available multiscreen displays including full screen, four-screen, nine-screen, and 16-screen. |
|  | Monitor | Toggles between main and spot monitor. M indicates the main monitor is currently selected. S indicates the spot monitor is currently selected. |
|  | Sequence | Launches the sequence mode. Sequence mode refers to the display of live video in programmed sequence of cameras. |
|  | Search | Displays the Search screen. |
|  | Archive | Lets you archive video. Archives the video being played back while in playback mode. In Live mode, allows you to perform a quick archive. |

| Icon | Name | Function |
|---|------|---|
|  | PTZ | Launches PTZ mode. |
|  | Play | Plays back video instantly starting at one minute from the current date and time. |
|  | Esc | Hides the function commands. |

Using the IR remote control

The IR remote control buttons are similar to those on the DVR 31 front panel. You can use the remote control to perform any DVR 31 function.

Figure 5: IR remote control

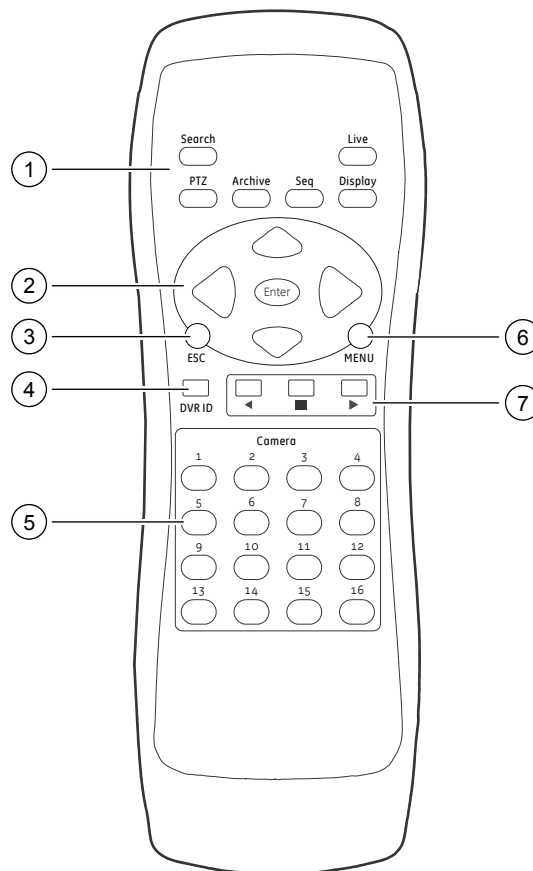


Table 6: IR remote control descriptions

| Item | Name | Description |
|------|---------------------------------------|--|
| 1 | Function buttons | Change the DVR 31 operating mode. For example, press PTZ to go into PTZ mode. See “Operating modes” on page 17 for more information. |
| 2 | Directional controls and Enter button | In menu mode, navigate and select commands. In PTZ mode, use for PTZ controls. While in a setup menu, use the Left or Right Arrow keys to navigate through fields. Use the Up or Down Arrow keys to change the value of a selected field. |
| 3 | Esc | Exit a screen or cancel a selection. |
| 4 | DVR ID | Switch control between different DVR 31 units. |
| 5 | Numeric buttons | In live mode, display the corresponding camera. In edit mode, enter numeric characters. |
| 6 | Menu | Display the main menu. |
| 7 | Playback | Control video playback speed. |

To place batteries into the IR remote control:

1. Remove the battery cover.
2. Insert the batteries (AAA). Make sure that the positive and negative poles are correctly placed.
3. Replace the battery cover.

To connect the remote control to the DVR 31:

1. Turn on the DVR 31 and wait for live video to appear.
2. On the remote control, press the DVR ID button, and then press the 1 button.

Note: The numeric button depends on the remote ID assigned to the DVR 31. The remote ID assigned is 1 by default. See “Controlling multiple DVRs with one remote control” below for more information.

3. The remote control is now operational.

Controlling multiple DVRs with one remote control

You can control up to 16 DVRs with one remote control. Each DVR must have a unique remote ID assigned. To connect the remote control to a DVR, press the DVR ID button on the remote control, and then press the numeric button with the desired remote ID. For more information on assigning a remote ID to a DVR, see “Audio and remote” on page 80.

Operating modes

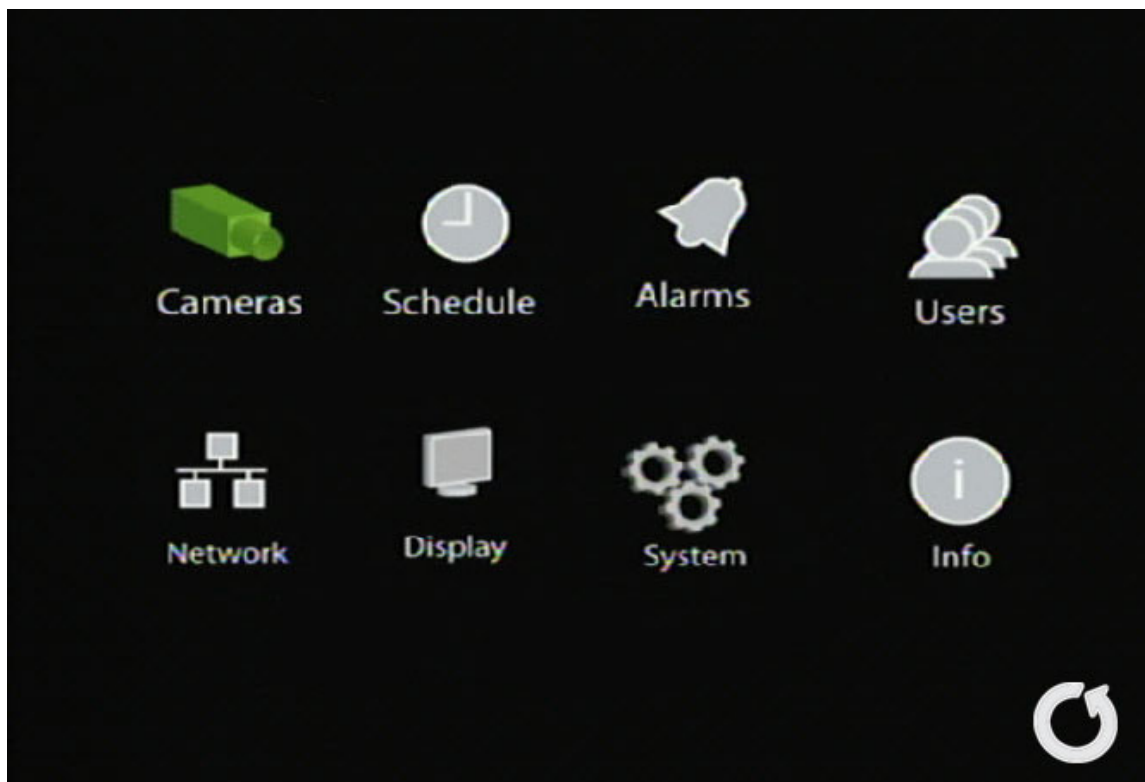
Table 7 below describes the various operating modes for the DVR 31.

Table 7: DVR 31 operating modes

| Mode | Description |
|----------|---|
| Live | Displays live video from a specific camera. |
| Sequence | Displays live video in a programmed sequence of cameras. |
| Menu | Displays menu options for configuration. |
| PTZ | Displays live video from multiple cameras in a programmed sequence. |
| Playback | Plays back recorded video. |
| Freeze | Freezes live or playback video. |
| Spot | On-screen display for spot monitor. |

Main menu overview

The built-in interface of the DVR 31 includes a main menu screen with eight command buttons. Each command displays a dialog screen that lets you edit a group of DVR 31 settings. The main menu screen is shown in Figure 6 on page 18. Access to different option screens varies depending on your access privileges. Most screens are available only to system administrators. The menu icon is highlighted when selected.

Figure 6: Main menu

Main menu commands

Table 8 below describes the commands available for each menu items.

Table 8: Main menu commands

| Command | Description |
|----------|--|
| Cameras | Configures camera settings including motion detection, PTZ, video image adjustments, camera title, covert camera, audio off, and copy settings to other cameras. |
| Schedule | Configures recording and schedule settings including recording quality, and schedule definitions. |
| Alarms | Configures alarm settings including alarm input, relay output, video loss detection, remote alert, prealarm, and post-alarm seconds. |
| Users | Configures users, passwords, access privileges, and defines privilege levels. |
| Network | Configures standard network settings including IP address, e-mail notifications, DDNS setup, and advanced network settings. |
| Display | Configures display settings including sequence order, resolution, dwell time, on-screen alerts, display formats, and transaction overlay. |

| Command | Description |
|-----------------|--|
| System | Configures system settings including system date and time, audio output, device name, RS-485 settings, RS-232 settings, firmware upgrade, hard drive settings, system log, and shutdown. |
| Info | Displays the unit's system information including model ID, network address, firmware version, and MAC addresses. |
| Back Arrow icon | Exits Main menu |

Using the main menu

Use the mouse or directional arrow keys to navigate through the menu commands and display the configuration screens. To display the main menu, click the Menu button on the mouse toolbar or press the Menu button on the front panel or remote control.

Navigating through dialog screens

Each dialog screen includes various options and buttons as seen in Figure 7 on page 20. The frame surrounding an option or button indicates that this option (or button) is currently selected.

Use the mouse to select any option or button on the screen. You can also use the directional arrow buttons (Up, Down, Left, or Right) to navigate through the options. Changes to screen settings can be entered in various ways as shown in Table 9 on page 20.

Saving your changes

Closing a screen, either by clicking the X button at the top right corner or by right-clicking, automatically saves and applies your changes. You cannot cancel or undo any changes you have entered in a dialog screen.

Figure 7: Cameras menu

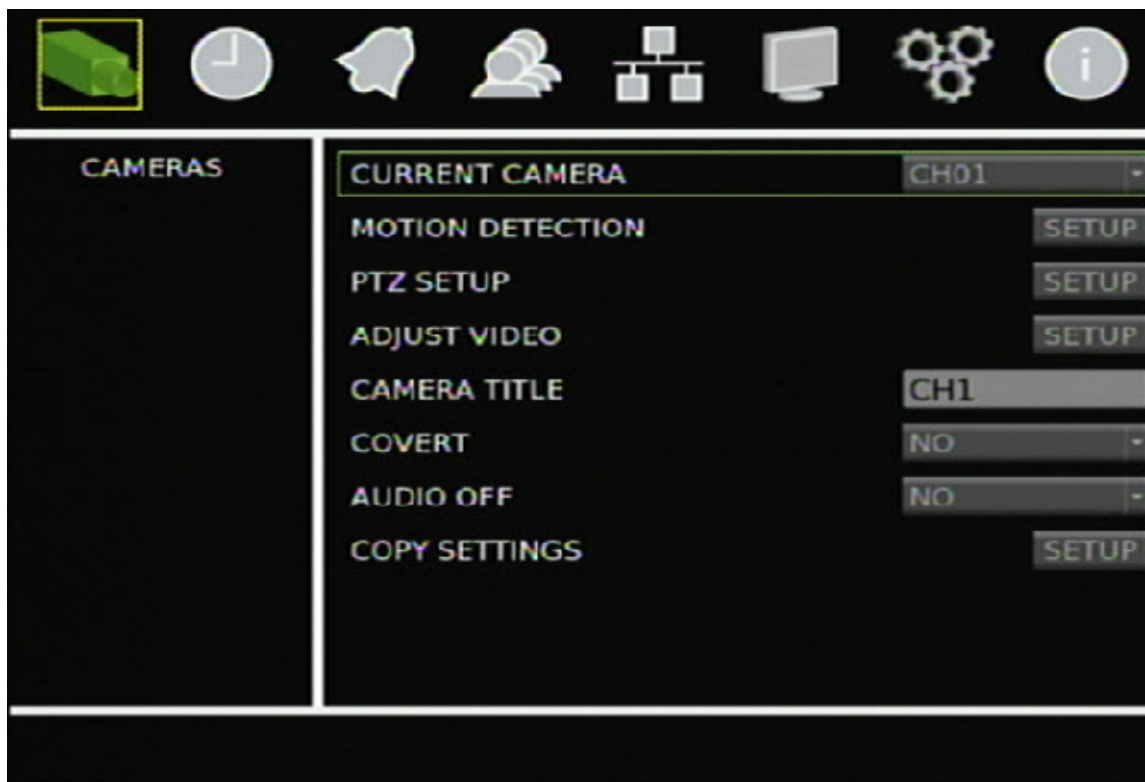


Table 9: Field entry types

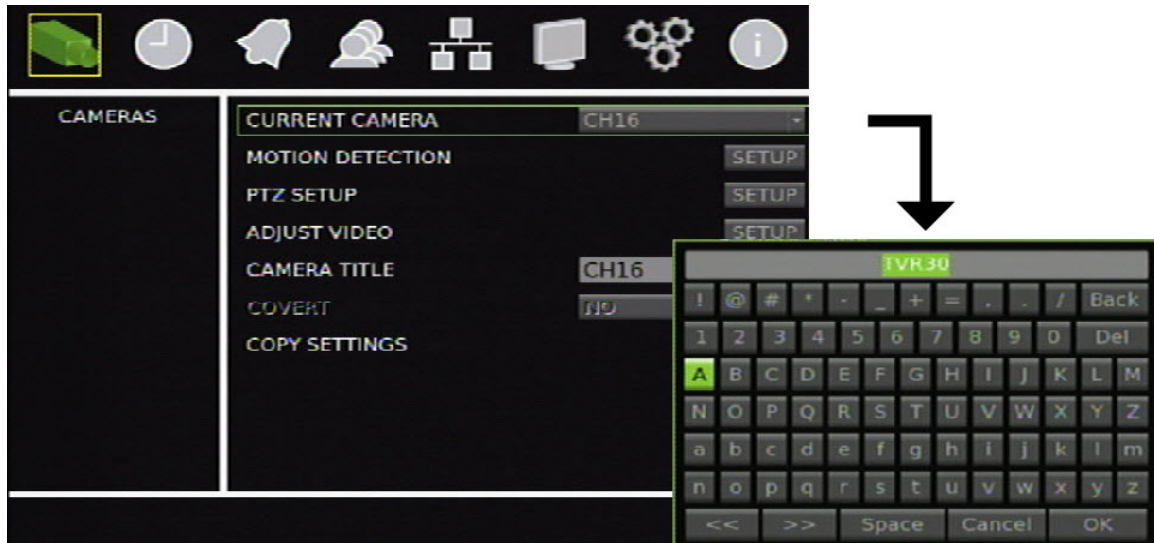
| Type | Description |
|----------|---|
| List box | Provides more than two values for the option. Only one of them can be selected. Click the scroll arrows at the right-hand side of the box to scroll through the possible values. You can also use the Up or Down Arrow buttons to select a value. |
| Edit box | Lets you to enter characters into the settings, such as camera name. Enter characters into an edit box through the virtual keyboard. See “Using the virtual keyboard” below for more information. |
| Button | Triggers a special function or allows you to display a new screen. For example, click the Setup button to display the setup screen. |

Using the virtual keyboard

The virtual keyboard allows you to enter a full range of alphanumeric characters, such as camera name, through a virtual keyboard as shown in Figure 8 on page 21. The virtual keyboard automatically displays when entering values in an edit

box field. You can use the front panel, IR remote control, or USB mouse to enter characters with the virtual keyboard.

Figure 8: Virtual keyboard



To enter characters in an edit box:

1. Highlight the edit box.
2. Click the mouse within the action frame (or press Enter in the front panel or remote control) to display the virtual keyboard.
3. Select the characters required.
4. When finished, click OK on the virtual keyboard to close the keyboard.

Exiting the main menu

Click Esc on the mouse toolbar (or right-click) or press Esc on the front panel or remote control to exit the main menu and return to live mode.

Chapter 4

Basic operation

Summary

This chapter describes the basic operation of the DVR 31 such as how to turn on the unit, log on, control a PTZ camera, play back video, and archive recorded video files.

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Turning on the DVR 31

Before turning the DVR 31 power on, connect at least one monitor to the main video out or the VGA interface. Otherwise, you will not be able to see the user interface and operate the device. Use the power switch on the back panel to turn on the unit.

Live mode

The DVR 31 automatically enters into live mode once powered on. Live mode refers to the mode in which the DVR 31 displays live video from cameras. The DVR 31 on-screen display presents information such as the camera title, the current operating mode, and the date and time information as shown in Figure 9 below.

Figure 9: On screen display



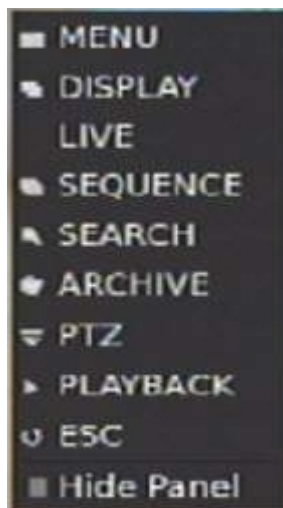
1. Camera title
2. Mouse toolbar

Note: To move the camera title to a different position, left-click the mouse on the **date/time**, and then select a new position while in live mode.

Right-click mouse menu

Right-click with the mouse to display the right-click mouse menu.

Figure 10: Right-click mouse menu



The follow options are available:

- Menu
- Display
- Live
- Sequence
- Search
- Archive
- PTZ
- Playback
- Escape
- Hide Panel

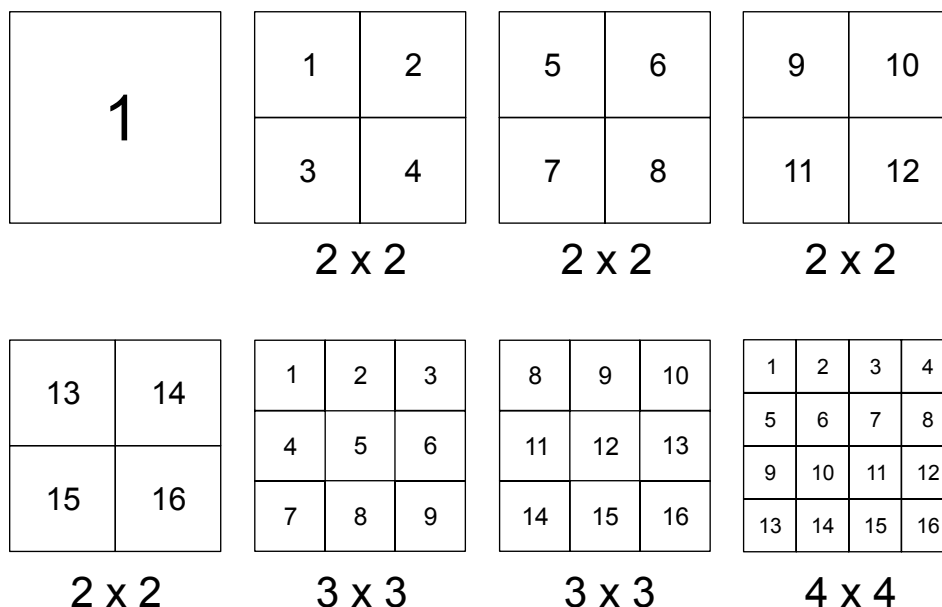
Viewing in full screen

Press a numeric button to switch to the corresponding camera display. For example, press 2 to view camera 2.

Viewing in multiscreen

Use the Display button on the front panel to cycle through different display formats. Figure 11 below displays the multiscreen formats available as defaults.

Figure 11: Display formats



Spot monitor

To connect the spot monitor:

1. Connect the spot monitor to the Spot video out port on the back panel using a composite cable.
2. While in live mode, press and hold a numeric key for two seconds on the front panel or remote control.
3. The spot monitor displays the corresponding camera in full screen.

The spot monitor only supports full screen mode.

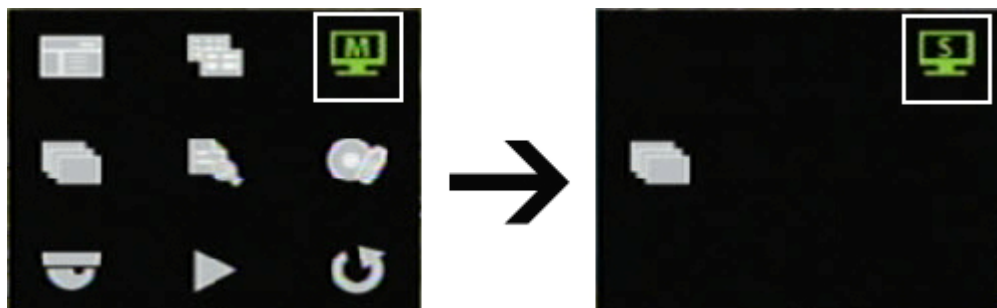
Note: Make sure that there is video signal input. Otherwise the spot monitor will only show a blank screen.

Controlling the spot monitor

Press and hold a numeric button for two seconds to display the corresponding camera in full screen. Additionally, press and hold the SEQ button (on the front

panel or remote control) to initiate sequence mode on the spot monitor. Alternatively, click the Monitor button on the mouse toolbar to toggle to the spot monitor function, and then click the Sequence button to begin sequence, as shown in Figure 12 below.

Figure 12: Spot monitor function



Logging on

The DVR 31 is shipped with a predefined user for the system administrator. The default system administrator logon uses “admin” as a user name with a password of 1234. You can modify the admin password but not the admin user name. UTC Fire & Security recommends that you change the admin password once you have completed the installation and setup to protect against unauthorized access. The seven predefined standard users are labeled User1 to User7 with a default password of 4321 and level 4 access. The administrator can customize these users and define their privileges. For more information, see “Managing users” on page 53”.

To log on to the DVR 31 user interface:

1. Click Menu.
2. Select a user in the Account field.
3. Use the mouse or the Down Arrow button to select the Password field.
4. Enter the corresponding password.
5. Click Confirm to enter the main menu.

Logging off

There are two ways to log off. You can:

- Log off manually by pressing Esc while in live mode
— or —
- Automatically log off from live or menu mode when no buttons are pressed for five minutes

Controlling a PTZ camera

PTZ mode lets you to control the PTZ operation of the cameras using a DVR 31 PTZ interface. You can control PTZ cameras using the buttons on the front panel and IR remote control or by using the PTZ control icons on the mouse toolbar. To enter PTZ mode, you must have PTZ control access privileges.

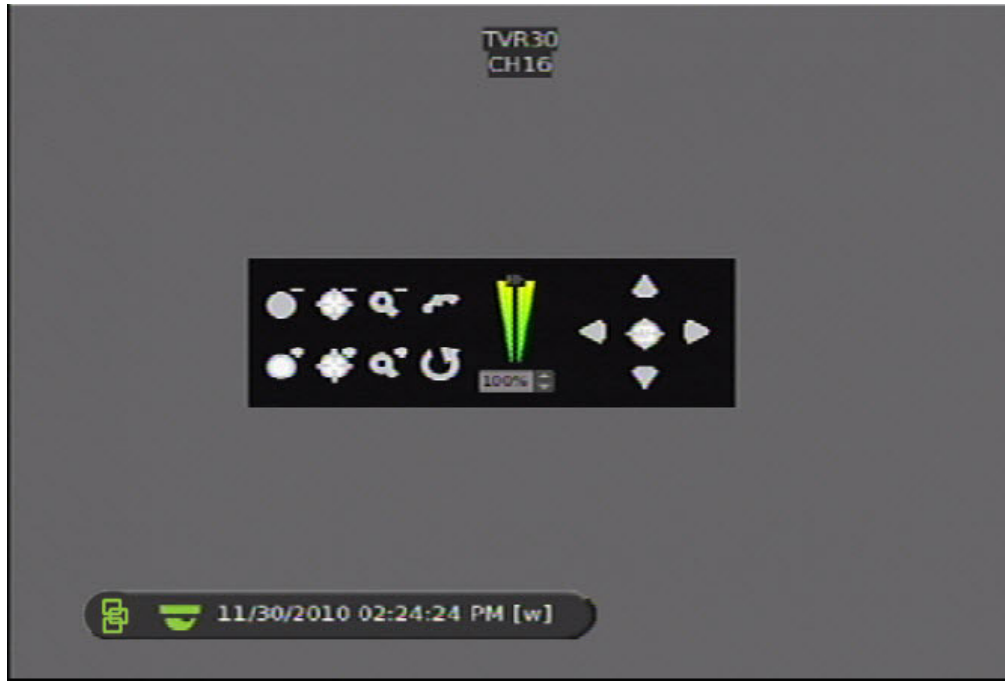
Note: The DVR 31's support for Digiplex (UTC RS-422) is limited. As a result, you may not be able to control Digiplex domes with a multiplexer unless the camera's input connects to the output of a keypad.

Accessing PTZ mode

To access PTZ mode, select a camera using the numeric buttons (on the front panel, remote control, or the mouse toolbar). Click PTZ in the mouse toolbar or press the PTZ button on the front panel or remote control. The PTZ control interface displays as shown in Figure 13 on page 29.

Note: You can only access the PTZ control interface while in live mode.

Figure 13: PTZ control interface



PTZ control buttons

When you enter PTZ mode, the PTZ control interface displays. In PTZ mode, the numeric buttons control additional PTZ functions. Table 10 below lists the front panel keys and their PTZ control functions.

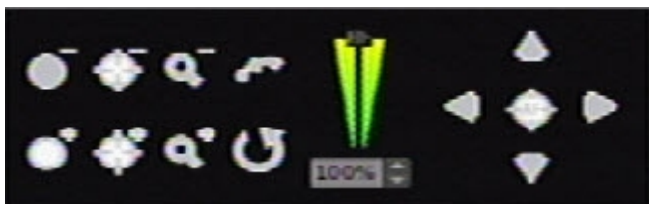
Table 10: Front panel PTZ control function

| Front panel key | | PTZ control |
|-----------------|------------|---------------------|
| 8-channel | 16-channel | |
| 8 | 8 | Zooms out |
| 5 | 16 | Zooms in |
| 4 | 15 | Focuses near |
| 7 | 7 | Focuses far |
| 6 | 6 | Closes iris |
| 3 | 14 | Opens iris |
| Enter | Enter | Auto focus/iris |
| Esc | Esc | Exits PTZ mode |
| 1 | 1 | Enter Preset Dialog |

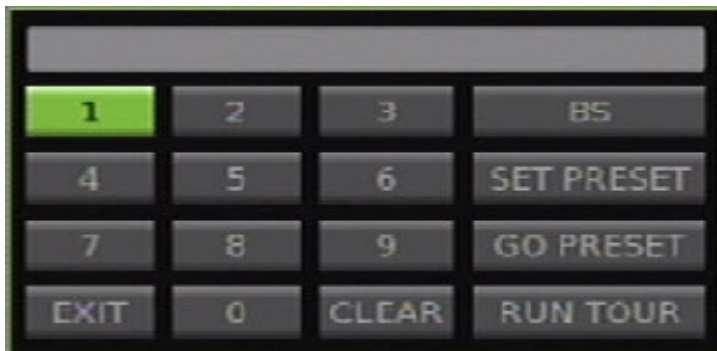
Calling up a preset PTZ point

To call up a preset PTZ point:

1. Click on a camera in the mouse toolbar or use the numeric buttons to select a camera.
2. Click the PTZ icon in the mouse toolbar or press the PTZ button to display the PTZ control as shown in the figure below.



3. Click the Preset icon (or press 1 on the front panel or remote control) to access the Set/Go Preset function as shown in the figure below.



4. Enter a preset number.
5. Click Go Preset. The selected camera adjusts to the settings of that preset number.
6. You can also enter a number and click *Run Tour* (only supported by the UTC RS-485 protocol).

Exiting the PTZ control mode

Press Esc to exit the PTZ control mode and return to live mode.

Playing back video

The DVR 31 allows you to play back recorded video. This section describes the features and methods in playing back video.

There are several ways to play back recorded video:

Instant playback. Play back instantly, starting from the last recorded minute in live mode.

Searched video playback. Play back video starting from a specific date and time.

Instant video playback

To play back video instantly, press the Play button on the front panel, remote control, or mouse toolbar. The DVR 31 plays back recorded video from the selected camera starting from the last recorded minute in live mode.

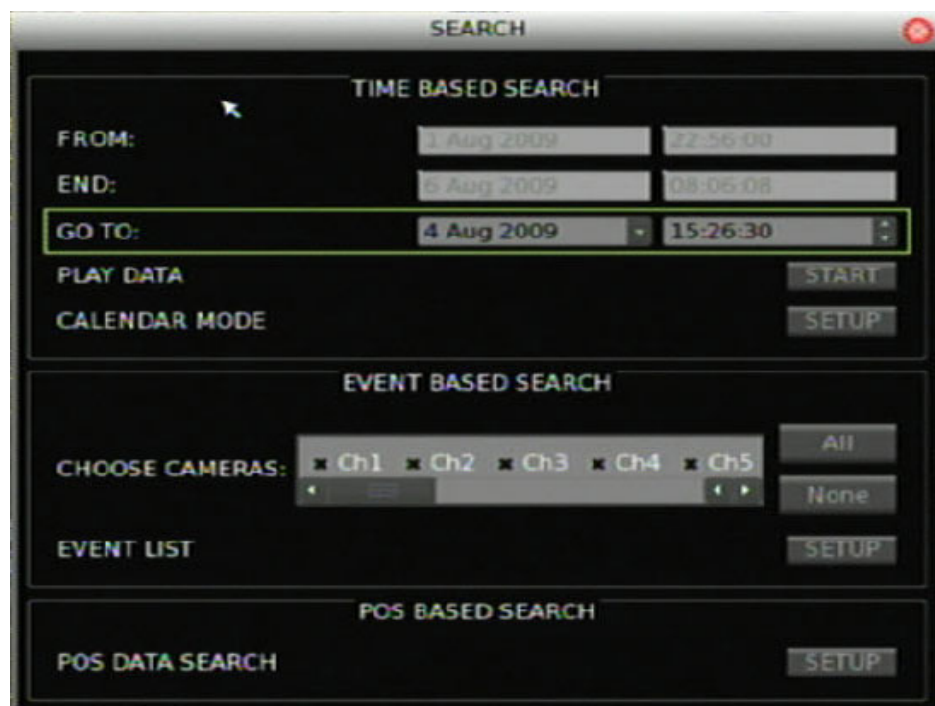
Searching video for playback

The DVR 31 lets you search and play back recorded video based on the following search criteria:

- Date and time
- Events
- Text (if a POS machine is connected)

While in live or playback mode, click Search to display the Search menu as shown in Figure 14 below.

Figure 14: Search menu

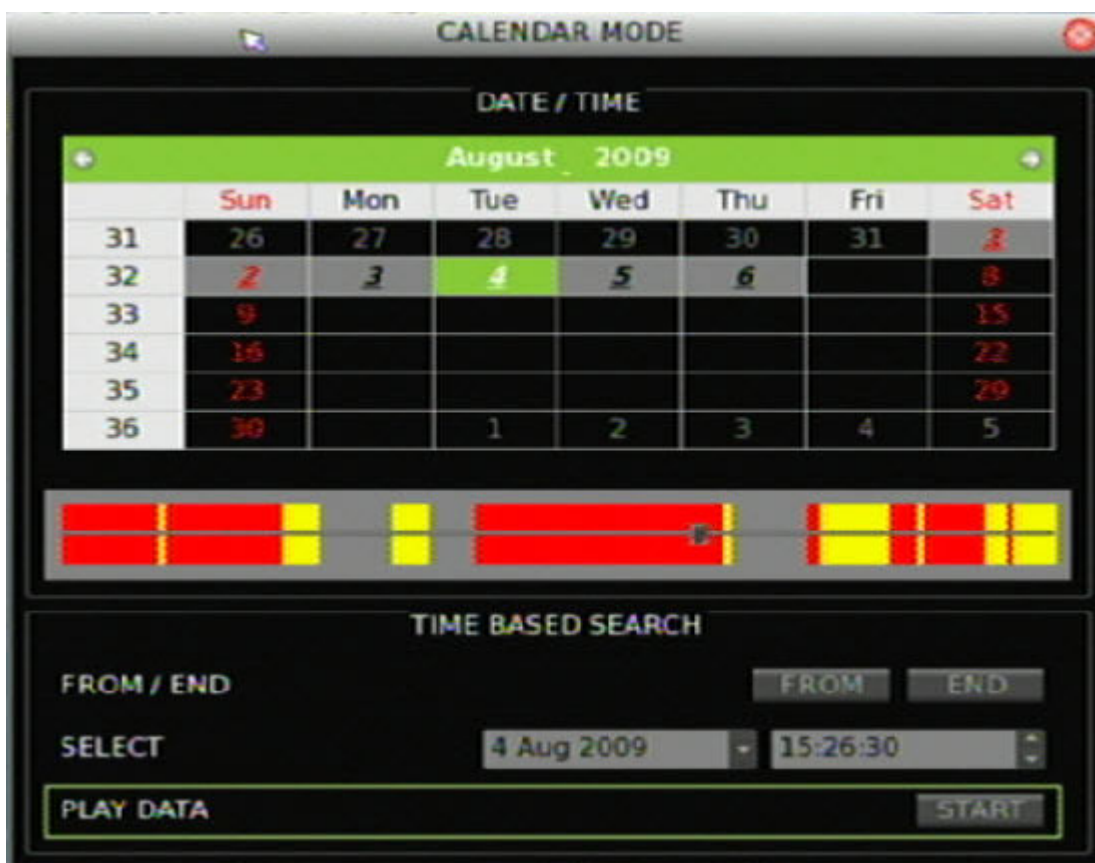


To search for recorded video by date and time:

1. Click Search to display the Search screen.
2. Enter a start date and time in the Go To field.
3. Click Play Data. Recorded video will begin to play back starting from the specified date and time.

To search for recorded video using the Calendar Mode:

1. Click Search to display the Search screen.
2. Click Calendar Mode. The Calendar Mode screen displays as shown in the figure below.



3. Select a date from the Calendar.

Click on a date or use directional arrow keys to select a date. Dates that appear in italics and underlined indicate recorded video available for that day. Days highlighted in gray indicate that the days are within the start and end time of the database. Days not highlighted indicate that the days are beyond the start and end time of the database.

4. Select a start time using the timeline.

The timeline displays a 24-hour period for the specified date. Yellow areas indicate normal recorded video. Red areas indicate events that occurred that day. You can click anywhere in the timeline to specify a start time for the video you want to play back. If you are using the front panel or remote control keys, highlight the From/End option and press Enter to move the marker at the start or end points of the video segment.

If using the front panel or the remote control to navigate through the Calendar Mode, use the Select fields to specify a start date and time.

5. Click Play Data to begin playback.

To search for recorded video by events:

1. Click Search to display the Search screen.
2. In the Choose Camera box, select the cameras you want to use in your search. You can select more than one camera or all cameras.
3. Click Event List to display the Event List screen.
4. Click an event from the Event List to play video.

Searching for recorded video by POS text

The DVR 31 lets you to search for video based on text data from a point-of-sale (POS) device connected to the unit. You can search using any of these methods:

- By text
- By numeric value
- By date and time
- By camera

Text. When searching by text, you can search for video with data containing the exception string defined using the setup menu. You can also enter two word strings and search for video with data containing either one of the word strings or both of the word strings. Alternatively, you can specify only one word string.

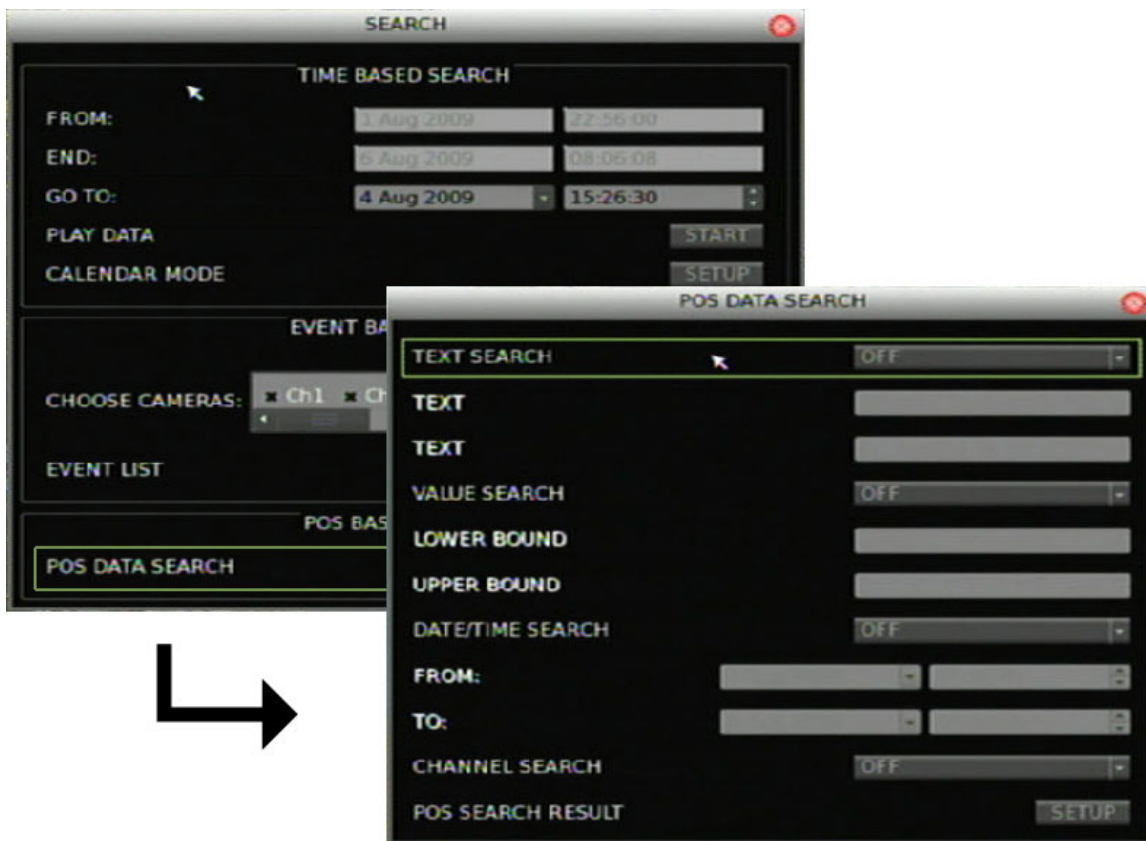
Value. When searching by value, you can enter two numeric values to specify a range. You can search for videos with data containing values within or outside the specified range. Additionally, you can enter a single value and search for videos with data containing values less than, equal to, or greater than that value.

Date/Time. When searching for video based on POS data, you can narrow your search by specifying a date and time range.

Camera. When searching for video based on POS data, you can narrow your search by specifying a camera.

To search for recorded video by POS text:

1. Click Search to display the Search screen.
2. Click POS Data Search. The POS Data Search screen displays as shown in the figure below.



3. Specify your search criteria.

Before entering any search criteria, highlight the search type field and specify how you want the search criteria to be handled. For example, if searching for data containing the text words “sale” and “charge,” highlight the Text Search field and select the AND option. Then enter the search words in the Text fields, one word for each field. When specifying a numeric value range, enter the lower number in the Lower Bound field and the higher number in the Upper Bound field.

4. Click POS Search Result to display your search results.
5. Click a search result to play back the resulting video.

Note: Make sure the Transaction Overlay (POS) box in the Display screen is set to include playback.

Playback controls

When viewing recorded video, several options are available to control playback. You can control playback using the front panel, the mouse toolbar (as shown in Figure 15 below), or the remote control.

Note: Playback control on the mouse toolbar automatically hides if there is no mouse activity for more than five seconds. The playback toolbar reappears when you move the pointer over the toolbar.

Figure 15: Playback controls



Playback control options

| Option | Description |
|--------------|---|
| Play reverse | Plays video backwards at a speed based on how many times you press the key. Press once to play video 1x, twice for 2x, etc. Speeds include: 1x, 2x, 4x, 8x, 16x, and 32x. |
| Pause | Pauses the video playback. |
| Play forward | Plays video forward at a speed based on how many times you press the key. Press once to play video 1x, twice for 2x, etc. Speeds include: 1x, 2x, 4x, 8x, 16x, and 32x. |

When video is paused, use the left or right button to jump back to the previous frame or forward to the next frame.

Exiting playback mode

To exit playback mode, press Live or click the Live button on the mouse toolbar.

Archiving recorded files

Archive recorded files using an external device. There are two ways to archive recorded files:

Quick Archive. Quick archive lets you archive recorded files quickly by using the Archive button on the front panel and remote control.

Archive screen. Use the Archive screen (shown in Figure 16 below) to specify archiving settings such as date range, events, and data type.

Note: You can archive up to 8 GB with a USB drive that is formatted to FAT 32.

Figure 16: Archive screen



Using Quick Archive in live mode

To archive recorded video using Quick Archive while in live mode:

1. Insert the backup device.

If using a USB memory drive, insert the device into the USB port on the front panel. If using a digital video disc (DVD), insert the disc into the DVD drive. If both media are found in the DVR 31, the USB device takes precedence over the DVD.

2. Press the Archive button on the front panel or the remote control. The Quick Archive hint screen displays as shown in the figure below.



3. Click Quick Archive to begin archiving.

The DVR 31 archives the latest recorded video onto the backup device until the medium is filled to its capacity or all video found in the unit have been exported.

Using the Archive screen in live mode

To archive recorded video using the Archive screen in live mode:

1. Insert the backup device.

If using a USB memory drive, insert the device into the USB port on the front panel. If using a digital video disc (DVD), insert the disc into the DVD drive. If both media are found in the DVR 31, the USB device takes precedence over the DVD.

2. Press the Archive button on the front panel, or remote control, or click Archive in the mouse toolbar.
3. Press Enter to display the Archive screen.
4. Select the cameras you want for archive.
5. Specify a date and time range you want for archive.
6. Select a data type.

Use the Data Type option to select one of the following:

Normal. Archive normal video only.

Event. Archive event video only.

Both. Archive both normal and event video types.

7. Select the events you want to archive, if required.
 - a. Select the Choose Events option.

This option is only enabled if you select Event as the data type. A list of events displays on the Event List screen.

- b. Click an event in this screen to be archived.

You can click additional events you want to archive.

Note: When archiving a motion event, the DVR archives the motion event for the selected camera as well as post-event video from all other cameras. The duration of the post-event video is based on the value you specified on the Post-Alarm Seconds option in the Alarms screen.

8. Select a file format.

Use the Format option to specify whether to export to an original, DRV or AVI file type. Selecting the original format results in faster archiving of large amounts of video compared to the DRV format.

Although selecting the original format results in faster archiving, you cannot select which camera to archive. The system archives all the data in the DVR. In addition, when specifying a time range to archive, selecting the original file format results in the exporting of video clips that include the specified time range, but may not be contained in a single file.

The DVR identifies a video clip when the clip reaches 20 MB in size. If you select the original file format and specify a time range with both the start and end times falling in the middle of two video files, both video files are archived.

9. Select Yes for the Begin Export option to start archiving.

Note: The Watermark box is always set to On.

Archiving a video segment in playback mode

While playing back recorded video, you can mark a video segment to archive.

To mark and archive a video segment:

1. Play back recorded video.
See “Playing back video” on page 30 for more information.
2. Press Archive to mark the start time of the video segment you want to archive.
3. Press Archive again to mark the end time of the video segment you want to archive.

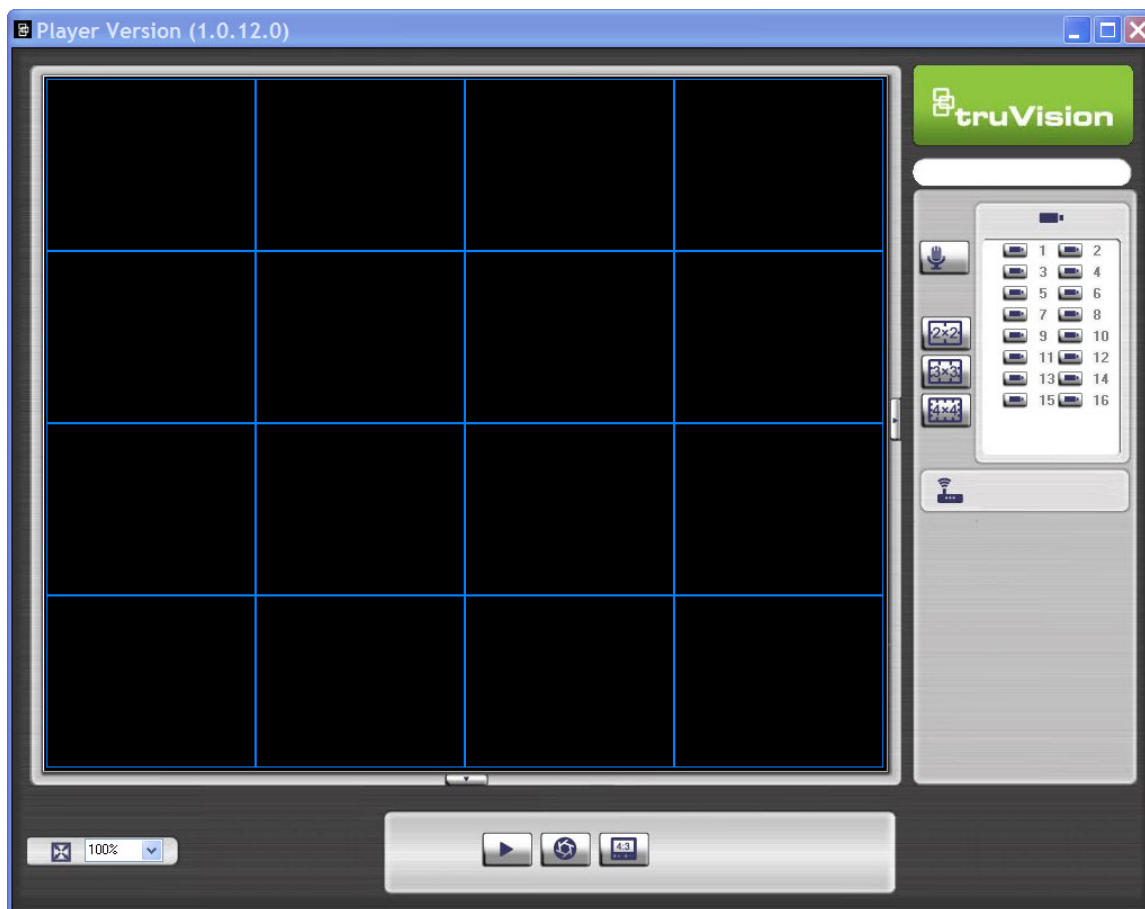
This segment is then archived to the media.

Using the DVR player

Use the DVR player to view video clips archived from the DVR 31 on any PC. The DVR player is automatically included when archiving data from the device. When you insert the backup media into the PC, the DVR player automatically runs.

Note: If your PC is running on Windows Vista or Windows 7, the DVR player may not automatically launch. If so, open the backup media by double-clicking the device drive letter, and then launching the DVR Player file located in the Player folder.

Figure 17: DVR player



To view archived video using the DVR player:

1. Launch the DVR player.
2. Click Play to display the Data List dialog box.

The Data List dialog box displays a list of all archived video. If you don't see a list, click Open and browse for the folder containing your archived video.

3. Select an event, and then click Playback to display the Playback screen.

You can select the start time and cameras from which to play video.

4. Click OK to play back video.

To verify that the video has not been altered, select an event, and then click Verify in the Data List dialog box. The Playback screen displays. If the Status Log reports a value of Good Signature, then the video has not been altered.

To play back a local file previously saved from the DVR, click Local Playback in the Playback screen, and then click Open to browse for the local file.

Turning off the DVR 31

To avoid potentially damaging the DVR 31, use the proper method to turn off the unit.

To turn off or restart the unit:

1. Display the main menu.
2. Select System to display the System screen.
3. Select Shutdown. The Shutdown screen displays.
4. Select Restart to restart the unit or Shutdown to turn off the unit.

Chapter 5

Using the Web browser

Summary

This chapter describes how you can use the Web browser interface to configure the device, search and play back recorded video, and control a PTZ camera. You can also specify settings on the Web browser interface to optimize video playback and recording performance when operating in a low or limited bandwidth environment.

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Overview

The DVR 31 Web browser lets you view, record, and play back videos as well as manage all aspects of the DVR 31 from any PC with Internet access. The browser's easy-to-use controls give you quick access to all DVR 31 functions.

To access the DVR 31, open a Web browser and enter the IP address assigned to the DVR 31 as a Web address. In the log on screen, enter the default user ID and password.

User ID: admin

Password: 1234

The Web browser uses HTTP Port 80.

Figure 18: Web browser interface

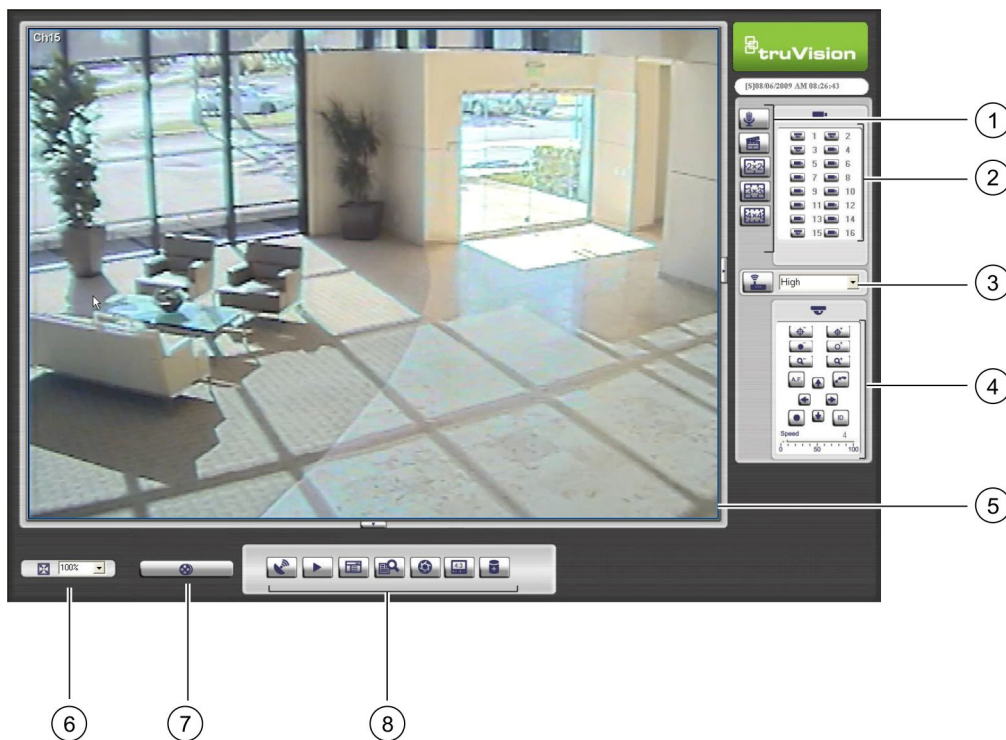


Table 11: Web browser interface features and controls

| Item | Name | Description |
|------|----------------------------|---|
| 1 | Display and audio settings | Enable audio. Record live video. Specify viewer layout. |
| 2 | Camera | View video from the selected camera. |

| Item | Name | Description |
|------|---|--|
| 3 | Bandwidth control switch (Dual Streaming) | Toggle between Bandwidth settings and Live Dual Streaming. By default the Bandwidth settings are enabled. Bandwidth settings refer to the number of video frames sent across the network. For example, select High for all data or select Low for partial data. Switching to Live Dual Streaming uses a second video data stream (less data size) that is sent over the network. This is ideal for lower bandwidth networks. For more information, see “Live dual streaming” on page 47. |
| 4 | PTZ controls | Control PTZ for the currently selected camera. Only displays if PTZ control is available for the selected camera (indicated by a PTZ icon). You can drag this panel anywhere on the screen. |
| 5 | Viewer | View live or playback video. |
| 6 | Zoom | Zoom in or out on video. |
| 7 | Download DVR player | Download the DVR player. |
| 8 | Function | Lets you do the following: <ul style="list-style-type: none"> • View live video • Play back video • Display the configuration screen • Search for recorded video • Take an image snapshot (saves image file to Desktop) • Set the aspect ratio • Check the hard drive health status |

Windows Vista and 7 users

Internet Explorer for Windows Vista and Windows 7 operating systems have increased security measures to protect your PC from any malicious software being installed. When using the DVR 31 Web browser interface, you can install ActiveX controls to connect and view video using Internet Explorer. However, you cannot download data, such as video, images, and the DVR player due to the increased security measure.

To have complete functionality of the Web browser interface and the DVR player with Windows Vista and Windows 7, do the following:

- Run the Browser interface and the DVR player application as an administrator in your workstation
- Add the DVR's IP address to your browser's list of trusted sites

To add the DVR's IP address to Internet Explorer's list of trusted sites:

1. Open Internet Explorer.
2. Click Tools, and then Internet Options.
3. Click the Security tab, and then select the Trusted sites icon.
4. Click the Sites button.
5. Clear the "Require server verification (https:) for all sites in this zone" box.
6. Enter the IP address in the "Add this website to the zone" field.
7. Click Add, and then click Close.
8. Click OK in the Internet Options dialog screen.
9. Connect to the DVR 31 for full browser functionality.

Browser connections

The Web browser interface lets you connect to the DVR 31 up to five times simultaneously. With each connection, you can view up to 16 cameras (streams). You can only view video from one camera for any additional connection to the device.

Using the Web browser to configure the device

Click the Configuration button to display the configuration screen. The configuration screen lets you configure:

- Camera settings including motion detection, PTZ controls, video image, covert camera, and camera title
- Recording settings including recording schedule and recording quality
- Alarm settings including alert notifications, audio alerts, prealarm, and post-alarm seconds
- Display options including resolution and sequencing

- Network settings including bandwidth throttle, e-mail, DDNS, and UPnP setup
- System settings including system date and time, audio, unit name, RS-485, RS-232, language, and hard drive setup

The configuration screen also lets you view the unit's information.

Searching and playing recorded video

To search for and play back recorded video, click the Playback button. The Playback screen displays. Select the camera, date and time from which you want to play back video, and then click Start. Video is played back at the viewer. Use the playback control bar to forward, reverse, or pause playback video.

You can also search for video by events or text. Click the Search button to display the Event List screen. Select the appropriate tab and enter your search criteria. The Event List screen also lets you download results to your PC as DRV files.

Using the mouse to zoom in or out

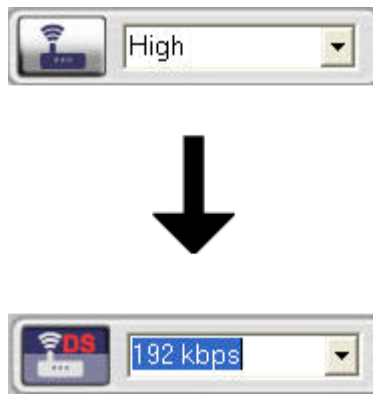
During live or playback mode, you can use the mouse to quickly zoom in on a video image. To zoom in, right-click on a video tile, then use the scroll wheel to zoom in or out. When a video image is zoomed in, you can drag the video image to pan out to different areas.

Live dual streaming

The Live Dual Streaming function lets you view video from up to 16 cameras on the Web browser interface while on a lower bandwidth network. This feature utilizes a second and smaller video data stream that is sent over the network. Click on the Bandwidth Control Switch button (shown in Figure 19 on page 48) in the Web browser interface and select the appropriate bandwidth setting to enable dual streaming. Predefined bandwidth settings (for the second stream) in the browser include:

- 768 kbps
- 576 kbps
- 384 kbps
- 192 kbps

Figure 19: Bandwidth control switch



Bandwidth throttle management

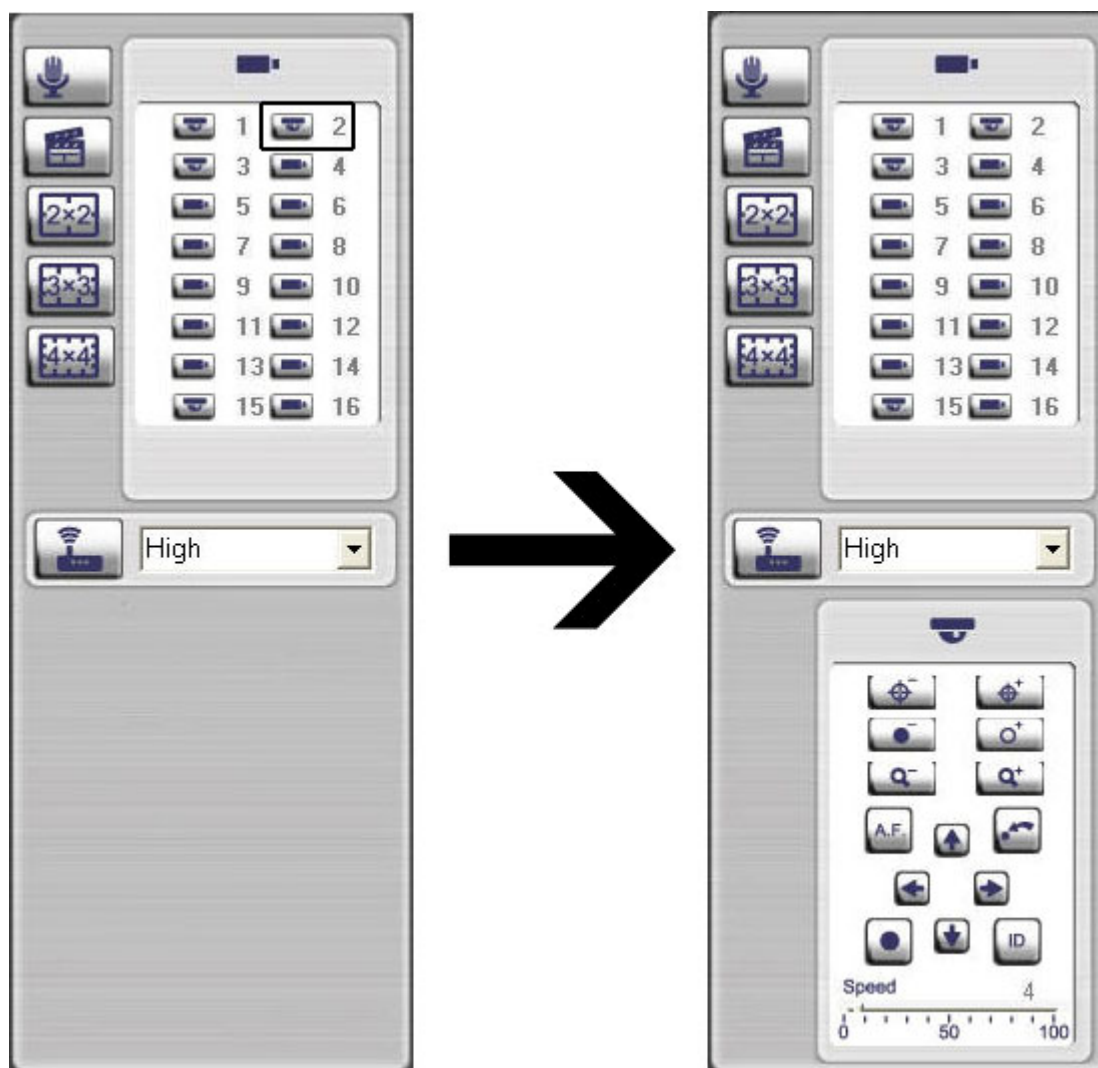
The Bandwidth Throttle Management function lets you throttle the amount of network data sent from the DVR to a client. This function is helpful for networks that have predefined bandwidth limits. This feature lets you control the DVR 31 in a network-sensitive environment and prohibits the DVR 31 from sending a large amount of network data that can potentially disrupt the network. To configure bandwidth throttle, see “Advanced IP settings” on page 71.

Both live dual streaming and bandwidth throttle management can be used simultaneously or individually. For example, if you display live video in the Web browser with the bandwidth throttle management feature enabled, the video update rate is lower, as network video data is sent in shorter, controlled amounts. However, if live dual streaming is enabled, then the video quality increases, since the second stream can be reduced to meet the bandwidth throttle settings, which results in a higher video update rate.

Controlling a PTZ camera in the Web browser

The Web browser interface lets you control the PTZ functions of a camera. Cameras with PTZ capabilities are marked with a PTZ icon (as shown in Figure 20 on page 49). Click on a PTZ camera to display the PTZ controls.

Figure 20: PTZ camera in Web browser



Exporting Video Clips

This section explains how to export video using Internet Explorer. The videos export as a .drv file type and the DVR Player must be used to view them. When providing videos to law enforcement, the DVR Player will be provided on the CD along with the video clip(s).

1. Establish the start and stop times of the video clip you wish to export, write them down.
2. Re-open the playback window by clicking on the “playback” button, this time choose “download”.

3. Name the file, select the camera(s), and set the start and stop times. Take note of the file path.
4. Export the file, you should see a progress window that closes when the export is complete.
5. Browse to the saved folder on your PC. There you will find a sub folder called "DVR Player" as well as the .drv file that you exported.
6. Copy and paste the .drv file into the DVR Player folder, that way you will always have a copy of the clip that won't be overwritten on the DVR.
7. Open the DVR Player folder and make sure that the .drv file is there. You can place multiple .drv files there if you wish.
8. Delete any other .drv files in that folder that you don't want included on the CD.
9. Go back one level to see the DVR Player folder as a single entity.
10. Insert a CD into the drive on your PC, don't use the wizard that opens by default.
11. Right click on the DVR Player folder, copy and paste it onto the CD drive.
12. A balloon pops up saying you have files waiting to be written to the CD, click in the balloon.
13. Click on burn files to CD, click finish.

To play the clip

1. Open the DVR Player folder from the CD.
2. Double click the .exe file and the DVR Player opens.
3. Click the play button and the selection window opens.
4. Click "Open", select the CD drive and the DVR Player folder, click OK, you will see your clip highlighted in the window.
5. Click playback, then OK in the next window. The clip begins to play, you can double click it to make it full screen.

Chapter 6

Advanced setup

Summary

This chapter covers the advanced setup of your DVR 31. Advanced setup lets you define your users and access privileges, specify display options, and network configuration. Only users with appropriate access privileges can define and modify advanced configurations.

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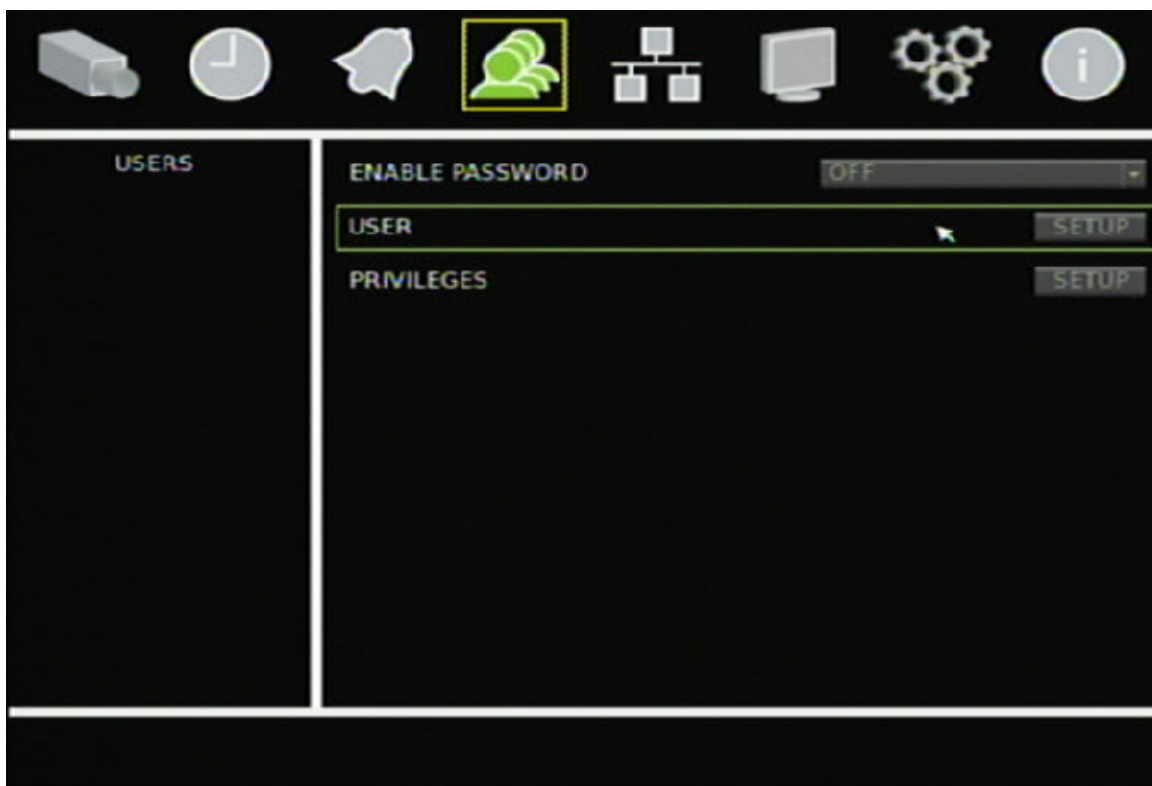
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Managing users

The DVR 31 is shipped with one predefined user for the system administrator and seven predefined standard users. The default system administrator logon uses admin as the account name with a default password of 1234. You can modify the admin password but not the admin user name. The seven predefined standard users are labeled User1 to User7 with a default password of 4321 and level 4 access. The administrator can customize the seven standard users and define their privileges. Use the Users screen (shown in Figure 21 below) to manage users.

Note: When accessing the main menu for the first time, the system lets you pick either an admin user or a regular user (Level 4 privilege) by default. If you select User 4, enter the initial default password of 4321.

Figure 21: Users screen

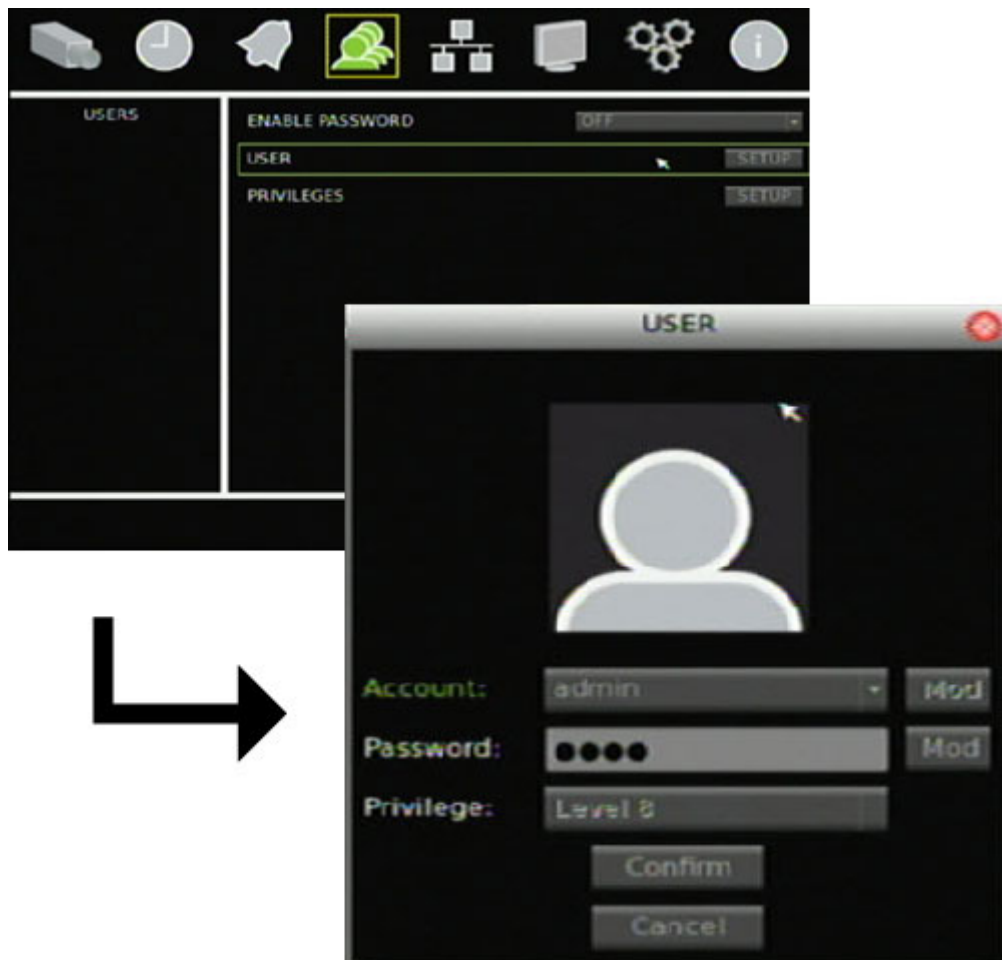


Customizing a user

Only the system administrator can customize a user. Customizing a user includes changing the user name, password, and access privileges on the User

screen (shown in Figure 22 below). All seven standard users can be customized for the DVR 31.

Figure 22: User screen



To customize a user:

1. Select Users on the main menu to display the Users screen.
2. Click the User Setup button to display the User screen.
3. Select the user you want to customize in the Account box.
4. Click Mod in the Account box to display the virtual keyboard.
5. Enter a new user name and click OK to return to the User screen. User names are case-sensitive.
6. Click Mod in the Password box to display the virtual keyboard as shown in the figure below.



7. Enter a new password for the account.
 Note: You can only enter numerals for passwords.
8. Click OK to return to the User screen.
9. Select an access privilege for the user in the Privilege box.
10. Click Confirm to save your changes.

Enabling password

The Enable Password option determines whether or not users must enter their passwords to display the main menu and functions. To enable this option, click Users on the main menu to display the Users screen. Select On in the Enable Password box.

Defining access privileges

The Privileges screen (shown in Figure 23 on page 56) lets you assign access levels to various functions or privileges of the DVR 31. Access levels range from level 1 (lowest) to level 8 (highest). Additionally, setting an access level to "Anyone" allows anyone to access the function, regardless of their assigned access privileges. Table 12 below provides a list of functions and privileges available in the DVR 31.

Note: You cannot change the access level of the admin account.

Table 12: Function or privilege descriptions

| Privilege | Description |
|---------------|--|
| PLAY/SEARCH | Search and play back recorded video |
| COVERT CAMERA | View and configure covert camera settings |
| PTZ CONTROL | Display and use the PTZ controls of a camera |
| SPOT MONITOR | Access the spot monitor |
| ARCHIVE | Archive recorded video |

| Privilege | Description |
|-------------|------------------------------|
| MAIN MENU | Display the main menu |
| CAMERA | Configure camera settings |
| RECORDING | Configure recording settings |
| EVENT | Configure event settings |
| USERS | Specify user settings |
| NETWORK | Configure network settings |
| DISPLAY | Configure display settings |
| SYSTEM | Configure system settings |
| INFORMATION | Display system information |

Figure 23: Privileges screen



To assign access levels to privileges:

1. Click Users on the main menu to display the Users screen.
2. Click the Privileges Setup button to display the Privileges screen.

The Privileges screen displays a list of all privileges or operating functions for the DVR 31 and the current access level of each.

3. Select an access level for each of the privilege using the drop-down list.

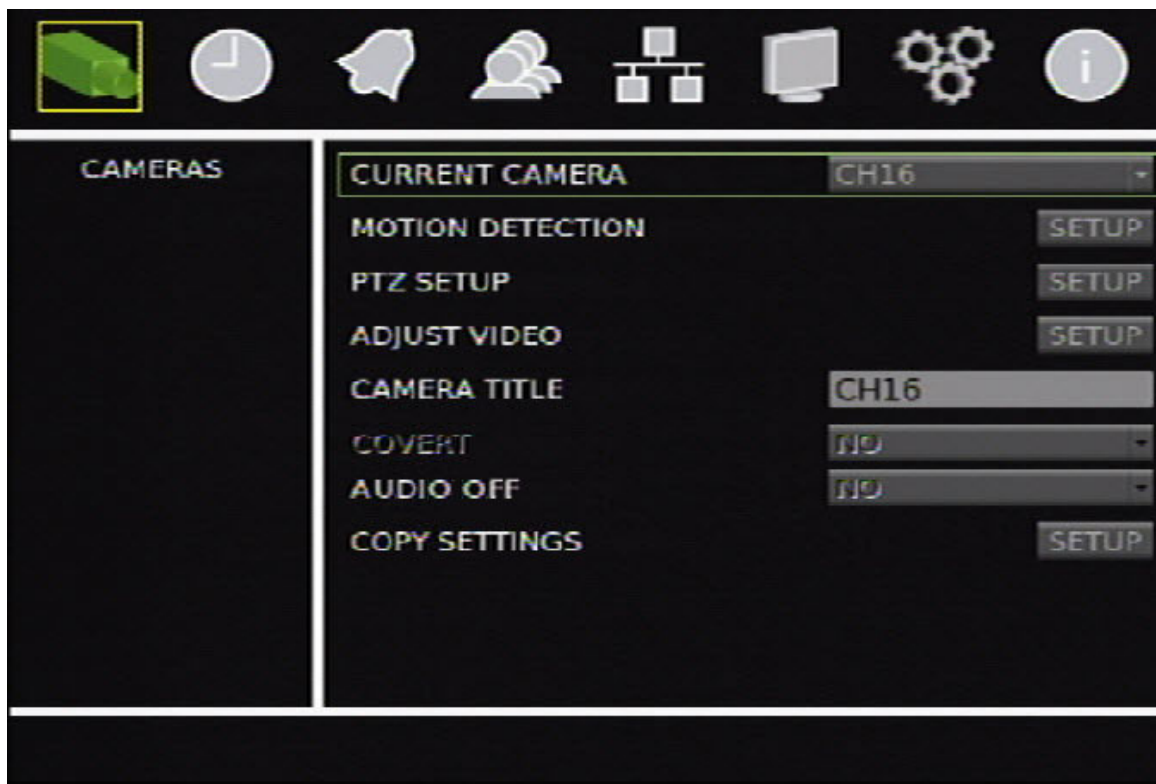
Configuring cameras

This section describes how to configure your cameras using the Cameras screen (shown in Figure 24 below). For each camera, you can configure the following camera settings:

- Motion detection alarm
- PTZ controls
- Display properties
- Camera title (name)
- Covert Camera
- Audio On or OFF

Changes made in the Cameras screen apply only to the selected camera in the Current Camera box. To copy a camera's configuration settings to another camera, click Copy Settings. Settings copied include motion, PTZ, and video adjustment settings. Copied settings do not include the camera title and covert camera.

Figure 24: Cameras screen



Motion detection alarm

A *motion detection alarm* is an alarm that is triggered when a camera detects motion. The DVR 31 can be configured to display an on-screen alert icon and sound an alarm tone. The DVR 31 lets you define the area on screen where the motion is detected, the level of sensitivity to motion, the schedule, and the target size.

To define a motion detection alarm:

1. Click Cameras on the main menu to display the Cameras screen.
2. In the Current Camera box, select the camera for which you want to define a motion detection alarm .
3. Click the Motion Detection Setup button to display the Motion Detection screen.
4. In the Motion Detection box, select the schedule of when you want motion detection to be enabled.
5. Click the Detection Area Setup button to define the motion detection area.

The system displays a grid covering the entire live view screen of the currently selected camera as shown in the figure below. By default, motion detection is set for the entire screen. Each green square represents a motion detection area. Click on an area (or press Enter) to stop motion detection in that area. When only the desired detection areas remain, right-click, and then click Confirm to save your settings. Press Esc to return to the main menu.



Alternatively, you can select the entire area by right-clicking, and then clicking Select All. A grid covers the entire display screen. Click Deselect All to clear the screen from motion detection.

6. Select a sensitivity level in the Sensitivity box.

Sensitivity level refers to the degree of pixel change in the specified area before a motion detection alarm triggers.

Note: The Motion Detection screen also includes a motion sensitivity indicator that lets you test (by making motions on the camera) how much motion is required to trigger an alarm at the selected sensitivity level. A buzzer sounds off when an alarm is triggered.

7. Select the target size in the Target Size box.

Target size refers to the minimum size of an area in which motion is detected thus triggering a motion detection alarm.

Assigning PTZ protocol

Assign a PTZ protocol and ID to a camera to allow PTZ control of the camera while in PTZ mode. The PTZ Setup screen lets you assign a PTZ protocol and ID to a camera.

To assign PTZ protocol and ID to a camera:

1. Click Cameras on the main menu to display the Cameras screen.
2. Click the PTZ Setup button to display the PTZ Setup screen.
3. Select a protocol in the PTZ Protocol box.

Available protocol values include:

- None
- DSCP
- AD422
- Pelco D
- Pelco P
- Hitron
- JVC
- Panasonic C
- Panasonic N
- GE RS-485
- GE RS-422

4. Select an ID in the PTZ ID box.

Adjusting video image

In order to get the best image quality when capturing video, you may need to adjust the video image settings, including brightness, contrast, saturation, and hue. Use the Adjust Video screen (shown in Figure 25 on page 60) to modify these settings.

Figure 25: Adjust Video screen



To adjust video image:

1. Click Cameras on the main menu to display the Cameras screen.
2. Click the Adjust Video Setup button to display the Adjust Video screen.
3. Make the appropriate video image adjustments.

Adjust the video image's brightness, contrast, saturation, and hue by selecting a level in the corresponding box.

4. If video is going to be looped out of the device, set the Termination option to Off to avoid a double terminated video signal.

Covert Camera

When a password is enabled on the DVR 31, the Covert Camera option will be made available. When Covert Camera is selected for the camera, the camera's video will not be viewed on the Main Monitor, Spot Monitor, or Browser, and cannot be archived if the user does not have the proper privileges (see Table 12 on page 55). Instead there will be a gray screen displayed until a user with the proper privileges has logged in.

Audio Off

Select Yes to disable a camera's audio recording or No to enable the audio. The default setting is No (Audio enabled).

Assigning a camera name

Each camera can be assigned a unique camera name. If you do not assign a camera name, a default, pre-numbered camera name is applied.

To assign a camera name:

1. Click Cameras on the main menu to display the Cameras screen.
2. Click the Camera Title edit box.
A virtual keyboard displays.
3. Enter the new camera name.
You can enter up to 11 characters.
4. Click OK to exit the virtual keyboard and return to the Cameras screen.
The new camera name is displayed.

Configuring recording and schedule settings

Use the Schedule screen (shown in Figure 26 on page 62) to define how and when the DVR 31 records video. The following options can be configured:

- Recording schedule
- Video compression
- Recording quality

Note: If video loss is detected on a camera, the unit will stop recording from that camera.

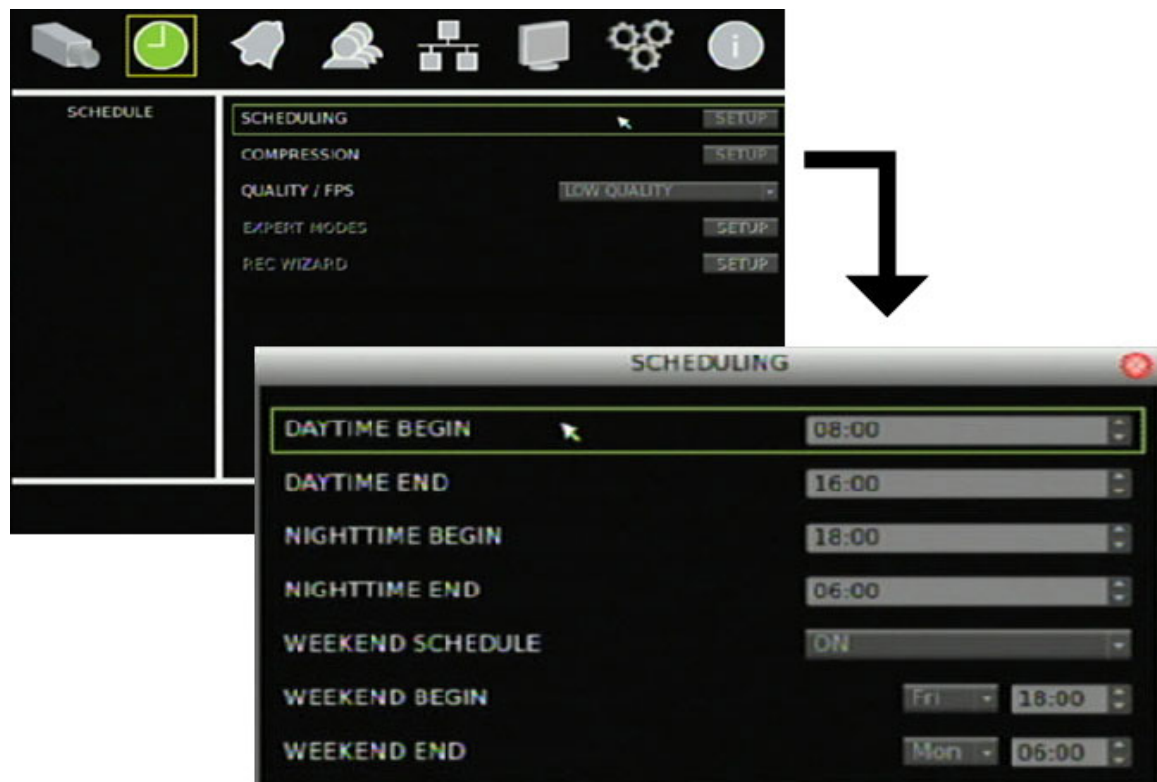
Figure 26: Schedule screen



Defining a recording schedule

The Scheduling screen (shown in Figure 27 on page 63) lets you define the elements of a schedule, such as the daytime, nighttime, and weekend ranges.

Figure 27: Scheduling screen



To define schedule ranges:

1. Click Schedule on the main menu to display the Schedule screen.
2. Click Scheduling Setup to display the Scheduling screen.
3. Select the daytime range using the Daytime Begin and Daytime End boxes.
4. Select the nighttime range using the Nighttime Begin and Nighttime End boxes.
5. Select On in the Weekend Schedule box to enable weekend schedule.
6. Select the weekend range using the Weekend Begin and Weekend End boxes.

Note: Weekend schedule takes precedence if overlapping on a weekday.

Configuring recording compression

To configure recording compression:

1. Click Schedule on the main menu to display the Schedule screen.
2. Click Compression Setup to display the Compression screen.

3. Select a resolution in the Resolution box.
4. Select a format in the Format box.

The resulting recording frame rate is automatically populated based on what you selected in the Resolution and Format box in the Total Rec FPS box.

5. Close the screen to save your settings.

Defining recording quality

To define the quality of your recording, click Schedule on the main menu to display the Schedule screen. Then select a recording quality in the Quality/FPS box. The quality is set to Normal Quality by default. Each camera's FPS is calculated using the total PPS divided by the total number of cameras.

Recording quality values include:

- Expert Mode
- Best Quality
- Normal Quality
- Low Quality
- Event Only
- Rec Wizard
- 512K ADSL
- 256K ADSL
- 128K ADSL

Rec wizard

The Rec Wizard screen (shown in Figure 28 on page 65) provides a faster method of determining the recording resolution and quality based on the number of recording days and the recording schedule. Alternatively, you can select the recording resolution and quality to determine the recording schedule.

Note: The Record At Weekend command is unavailable if the Weekend Schedule box in the Schedule screen is set to No.

Figure 28: Rec Wizard screen



To use the Rec Wizard screen:

1. Click Schedule on the main menu to display the Schedule screen.
2. Select Rec Wizard in the Quality/FPS box.
The Rec Wizard command becomes available.
3. Click Rec Wizard to display the Rec Wizard screen.
4. Select your recording settings.
5. Close the screen to save your settings.

In the Rec Wizard screen, select the number of recording days in the Recording Days box and whether to enable recording in daytime, nighttime, and weekends in the corresponding boxes. The Average FPS and Average Quality boxes are automatically populated based on the settings you specified and on the hard drive capacity. You can also select a frame rate and recording quality at which the screen automatically populates the number of recording days and scheduling commands.

Expert modes

The Expert Modes screen (shown in Figure 29 on page 66) lets you customize the resolution and recording quality based on the schedule and event conditions on a per camera basis. You can set the resolution and recording quality in normal and event conditions based on the recording schedule.

Figure 29: Expert Mode screen



To use the Expert Modes screen:

1. Click Schedule on the main menu to display the Schedule screen.
2. Select Expert Mode in the Quality/FPS box. The Expert Mode command becomes available.
3. Click Expert Mode to display the Expert Modes screen.
4. In the Current Camera box, select the camera you want to configure.
5. Select your recording settings in the corresponding boxes.

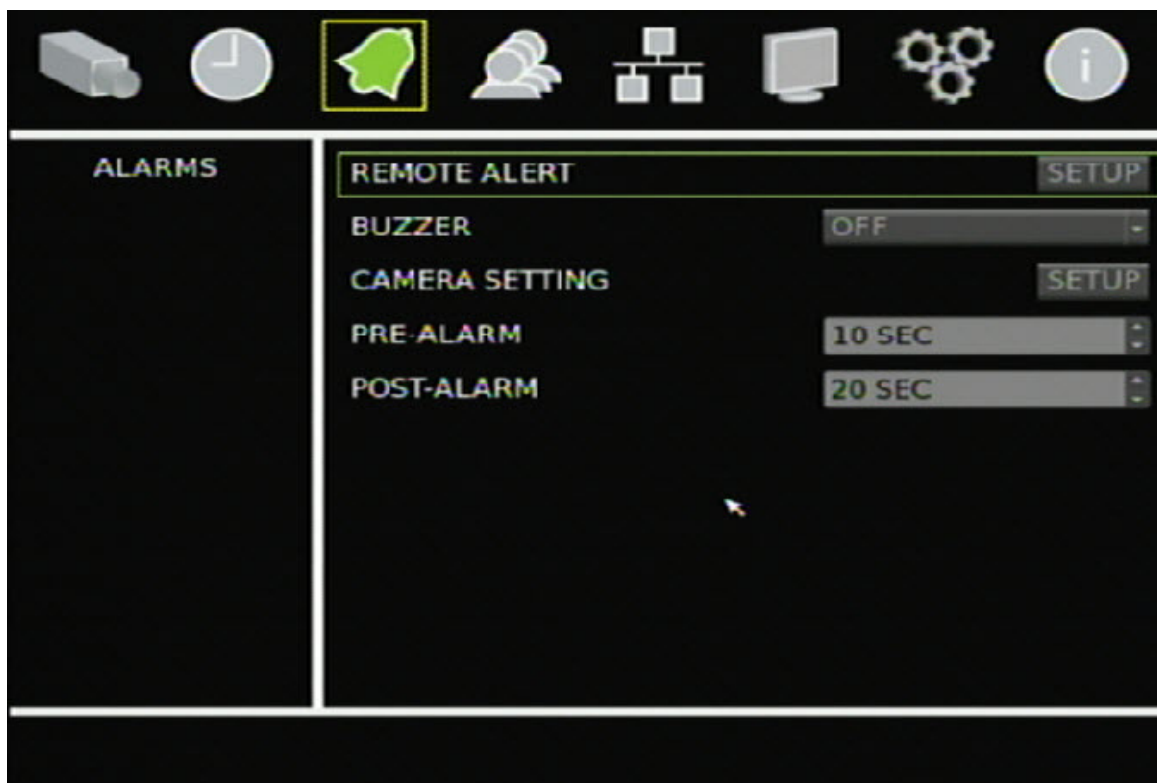
Use the Normal FPS and Normal Quality boxes to select the recording resolution and quality under normal conditions. Use the Event FPS and Event Quality boxes to select the recording resolution and quality under event conditions.

Alarm settings

Use the Alarms screen (shown in Figure 30 on page 67) to define how the DVR 31 handles alarms. Configurable settings include:

- Remote alert
- Alarm buzzer
- Alarm input and output
- Prealarm and post-alarm seconds

Figure 30: Alarms screen



Configuring remote alert

The DVR 31 can send alarm notifications to a remote PC using compatible monitoring software. Use the Remote Alert screen to define settings that allow the DVR 31 to communicate with the remote PC and to enable this feature.

In addition, the DVR sends a signal to the remote PC every two minutes to indicate that the DVR is still active.

To configure remote alert:

1. Click Alarms on the main menu to display the Alarms screen.
2. Click Remote Alert Setup to display the Remote Alert screen.
3. Select an alert set.

4. Select On in the Alert Notification box to enable alert notification to the remote PC.
5. Enter the PC's IP address in the Alert IP edit box.
6. Enter the PC's port in the Alert Port box.

Enabling the alarm buzzer

In the Alarms screen, select On in the Buzzer box to enable alarm buzzer. An audible sound is emitted when an alarm is triggered.

Camera alarm settings

Use the Camera Setting screen to define camera alarm settings.

To define camera alarm settings:

1. Click Alarms on the main menu to display the Alarms screen.
2. Click Camera Setting Setup to display the Camera Setting screen.
3. Select a camera in the Current Camera box.
4. Select an alarm input in the Alarm Input box.
5. Select an output in the Relay Output box.
6. Select On in the Video Detection box to detect video loss.
7. Select an Event Trigger Preset for that camera (mapped in the PTZ menu).
8. You can also copy these settings to other cameras.

Prealarm and post alarm seconds

In the Prealarm box, enter the prealarm seconds. The prealarm option defines the number of seconds recorded before a motion or external alarm is triggered and includes the alarm data.

In the Post-Alarm box, enter the post alarm seconds. The post alarm option defines the number of seconds recorded after a motion or external alarm is triggered and includes the alarm data.

Network settings

Accessing the DVR 31 remotely through a network requires that you define certain network settings. Use the Network screen (shown in Figure 31 below) to define the network settings of the DVR 31, including:

- Ethernet settings
- IP settings
- E-mail notification settings
- Syncing the DVR 31 time with the network
- DDNS settings (Dynamic Domain Name Service)
- UPnP settings (Universal Plug and Play)

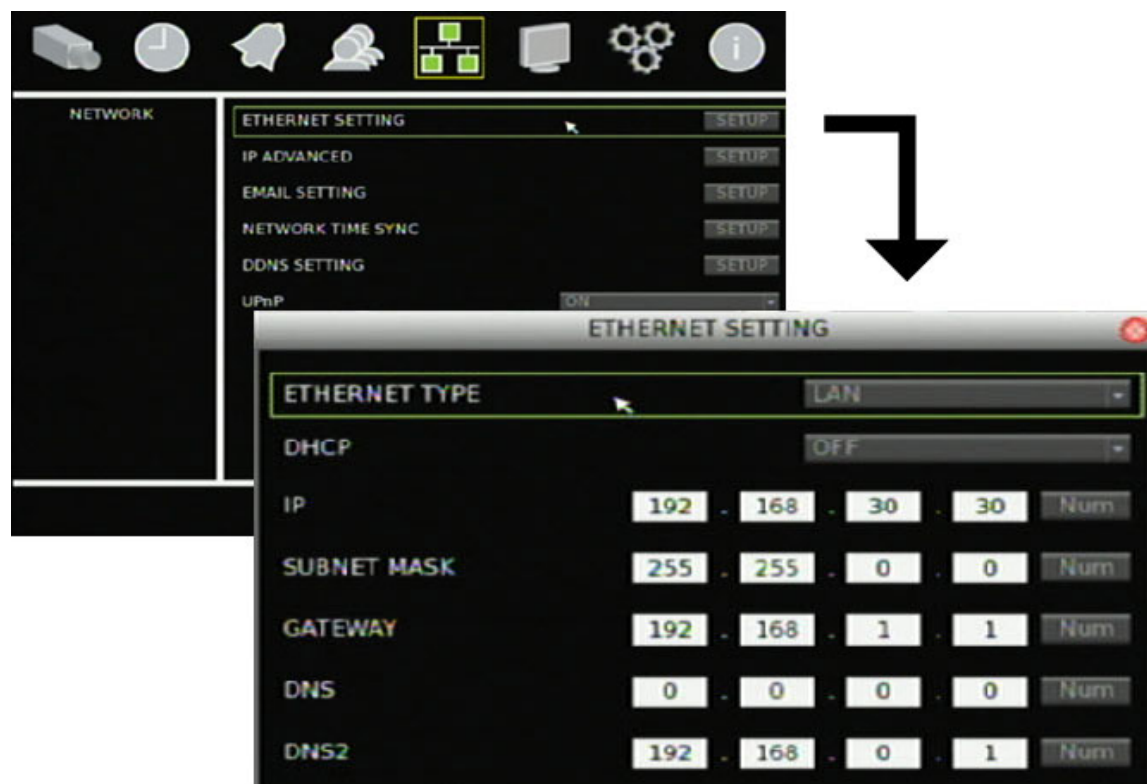
Figure 31: Network screen



Ethernet settings

Use the Ethernet Setting screen (shown in Figure 32 on page 70) to configure standard Ethernet settings. Click Ethernet Setting Setup in the Network screen to access the Ethernet Setting screen.

Figure 32: Ethernet Setting screen



To define Ethernet settings:

1. Click Network on the main menu to display the Network screen.
2. Click Ethernet Setting Setup to display the Ethernet Setting screen.
3. Select an Ethernet type.
4. Select On in the DHCP box to enable DHCP (Dynamic Host Configuration Protocol) if the network automatically supplies an IP address. Otherwise, select Off in the DHCP box and continue with steps 5 through 9.
5. Enter the network's dynamic IP address in the IP edit box.
6. Enter the subnet mask in the Subnet Mask edit box.
7. Enter the gateway IP address in the Gateway edit box.
8. Enter the DNS IP address in the DNS edit box.
9. Enter the secondary DNS IP address box in the DNS2 edit box, if required.

Advanced IP settings

Use the IP Advanced screen to define the connection port and bandwidth throttle used for the Web browser. Bandwidth throttle lets you throttle the amount of network data from the DVR to a client. Predefined bandwidth throttle settings include:

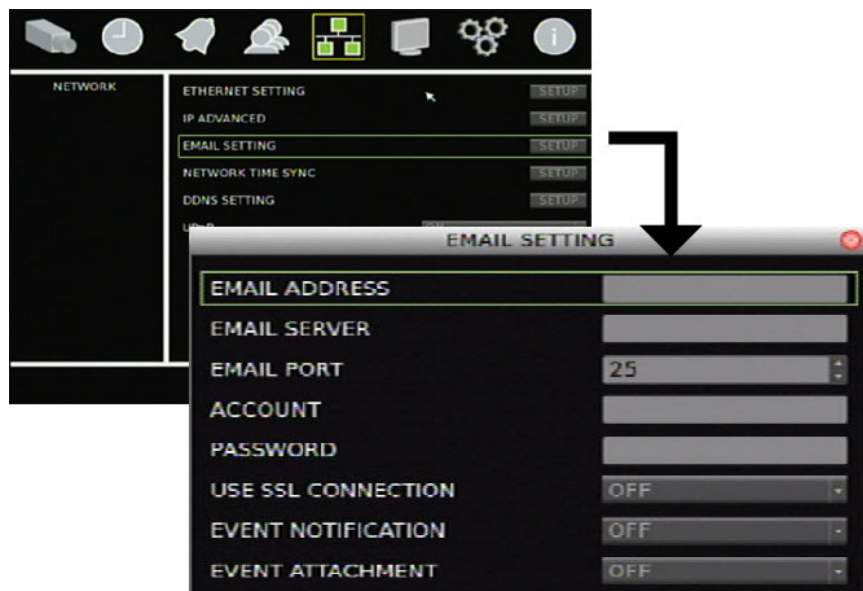
- 192 kbps
- 384 kbps
- 768 kbps
- 960 kbps

For more information in Bandwidth Throttle Management, see “Bandwidth throttle management” on page 48.

E-mail settings

The DVR 31 has the option to send e-mail notifications of alarm events through the network. Use the Email Setting screen (shown in Figure 33 below) to configure the e-mail settings.

Figure 33: Email Setting screen



To define e-mail settings:

1. Click Network on the main menu to display the Network screen.
2. Click Email Setting Setup to display the Email Setting screen.

3. Enter the e-mail address to whom the notification is sent in the Email Address edit box.
4. Enter the e-mail server of the e-mail account from whom the notification is sent in the Email Server edit box.
5. Enter the e-mail port number of the e-mail account from whom the notification is sent in the Email Port edit box.
6. Enter the e-mail address of the e-mail account from whom the notification is sent in the Account edit box.
7. Enter the password of the e-mail account from whom the notification is sent in the Password edit box.
8. Select On in the Use SSL Connection to enable the SSL connection.
9. Select On in the Event Notification to enable e-mail notification.
If this option is enabled, any motion, video loss, or alarm events will trigger an e-mail notification of these events.
10. Select On in the Event Attachment to allow attachments in the e-mail notification. Attachments will be an .avi video clip of the event.

DDNS settings

The DDNS function lets you define the device's domain name for access through a Web browser. Use the DDNS Setting screen to define the settings for the DDNS function.

The domain name format is `http://(DNS name).ddns-tvr.net`.

To define the DDNS settings:

1. Click Network on the main menu to display the Network screen.
2. Click DDNS Setting Setup to display the DDNS Setting screen.
3. In the Use DDNS box, select On to enable the DDNS function .
4. Enter the host name. If you leave this box blank, the system generates a host name for you.
5. Enter the port number.
6. In the Submit/Update box, select Yes to submit the DDNS information through the network.

UPnP

If enabled, the UPnP function (Universal Plug and Play) lets a PC connect to the DVR 31 using the same local area network. To enable this function, select On in the UPnP box in the Network screen.

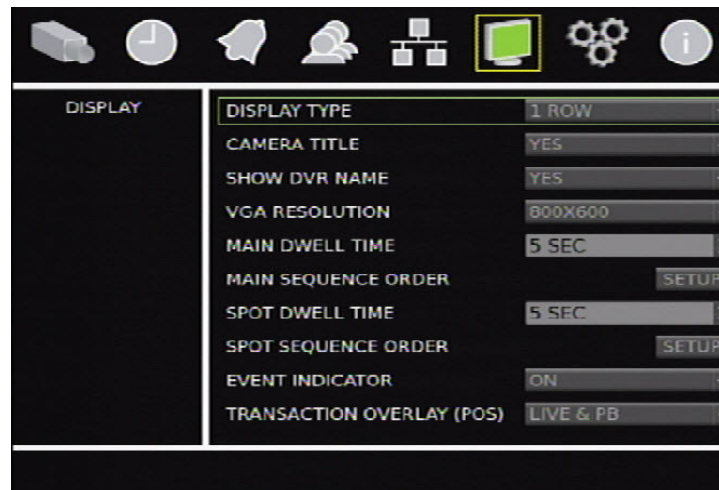
Display settings

Use the Display screen to configure how information is displayed on-screen. The following settings can be configured:

- Display format
- Camera title display
- Unit name display
- VGA resolution
- Dwell time
- Sequence order
- Event display
- POS transaction display

To access the Display screen, click Display on the main menu.

Figure 34: Display screen



Display format

Select a display format in the Display Type box. The display format determines how the date and time are displayed on-screen. You can select a format of one row or two rows.

Camera title display

Select Yes in the Camera Title box to display the camera title (name) on-screen.

Unit name display

Select Yes in the Show DVR Name box to display the unit's name on-screen.

VGA Resolution

Select from:

- 800 x 600
- 1024 x 768
- 1280 x 1024
- 720P
- 1080P

Dwell time

Dwell time refers to the amount of time a camera view is displayed before moving into a different camera view. Select a dwell time for the main monitor in the Main Dwell Time box. Select a dwell time for the spot monitor in the Spot Dwell Time box.

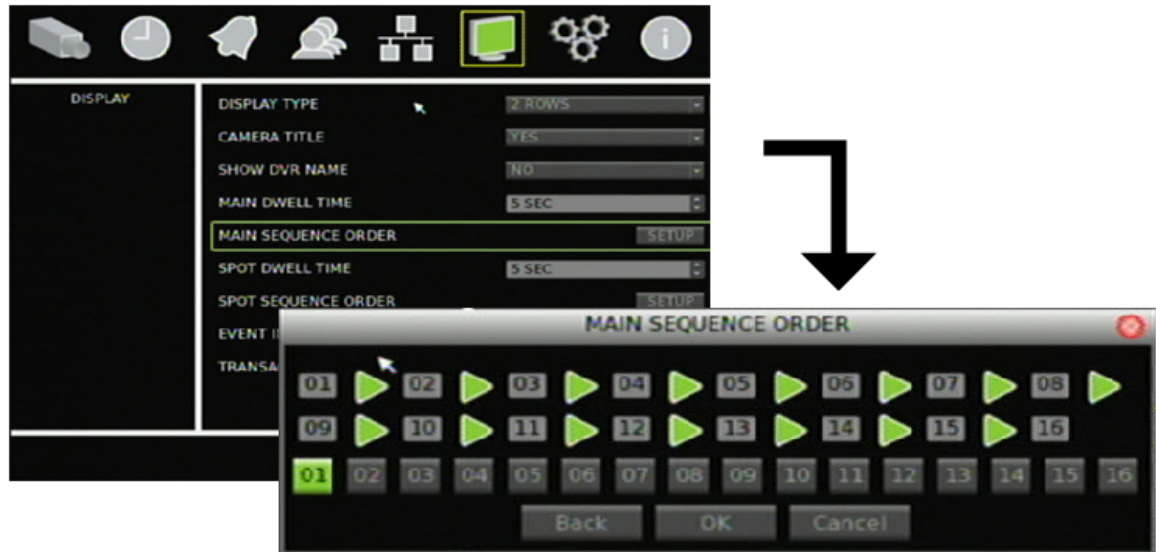
Sequence order

The DVR 31 lets you configure the order of the cameras displayed in sequence mode for both the main monitor and the spot monitor.

To configure the order of cameras:

1. Click Display on the main menu to open the Display screen.
2. Click Main Sequence Order to display the Main Sequence Order screen.

The Main Sequence Order screen displays the sequence positions and a row listing all cameras as shown in the figure below. By default, the system orders the cameras by camera number. Click Back to clear the last sequence position. Click Back repeatedly to clear all positions in the sequence.



Note: To configure the sequence order for the spot monitor, click Spot Sequence Order. The Spot Sequence Order screen displays.

3. Click the camera you want to display first from the camera row. That camera number displays in the first sequence position.
4. Continue clicking cameras in the order you want them displayed in sequence mode until all sequence positions are filled.

Event display

Select On in the Event Indicator box to display any alarm events on-screen.

POS transaction display

Select an option in the Transaction Overlay box to configure the format of POS transactions displayed on-screen.

Chapter 7

System settings

Summary

This chapter covers how to configure the system settings of your DVR 31. System settings lets you define the system date and time, unit name, RS-485 and RS-232 settings, upgrade, and hard drive settings. Only users with appropriate access privileges can define and modify advanced configurations.

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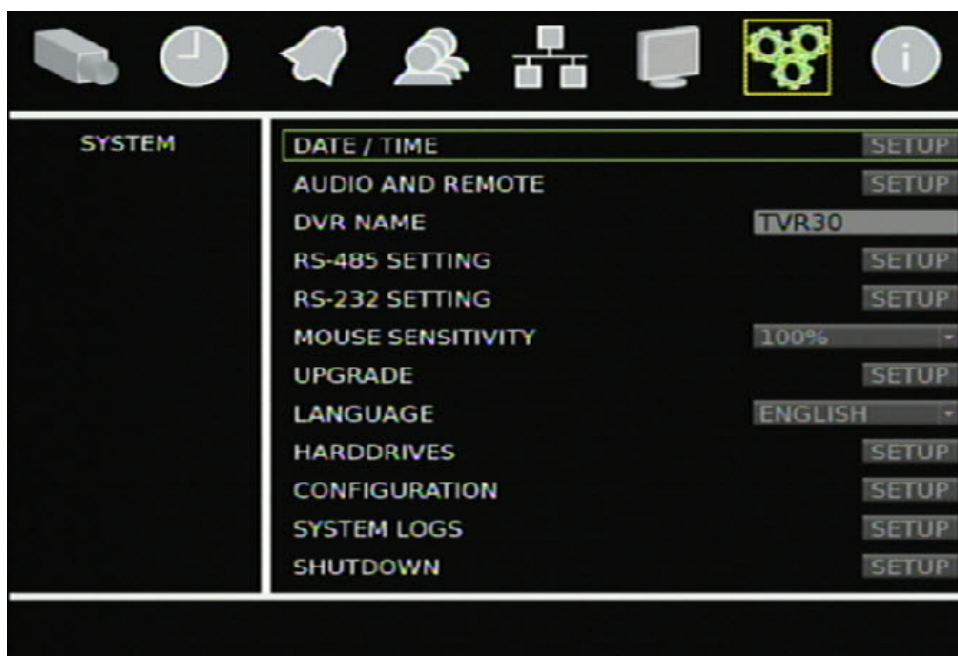
Overview

Use the System screen (shown in Figure 35 below) to configure the following system settings:

- System date and time
- Audio output and key beep
- Unit name and display
- RS-485 settings
- RS-232 settings
- Mouse sensitivity settings
- Firmware upgrade
- Language selection
- Hard drive settings and health status
- Storing and uploading configuration settings
- System logs
- Shutting down the device

Click System on the main menu to access the System screen.

Figure 35: System screen



System date and time

Configure the DVR 31 system date and time in the Date/Time screen. This screen also lets you enable Daylight Saving Time (DST) and format the date and time displayed on-screen.

To configure the system date and time:

1. Click System on the main menu to display the System screen.
2. Click Date/Time Setup to display the Date/Time screen.
3. Enter the current date in the Date box.
4. Enter the current time in the Time box.
5. Select a time zone in the Time Zone box.
6. Select a date format in the Date Format box.
7. Select a time format in the Time Format box.
8. Click Daylight Saving Time to display the Daylight Saving Time screen.

This screens lets you enable and configure Daylight Saving Time. For more information, see “Daylight Saving Time” below.

Daylight Saving Time

Use the Daylight Saving Time screen (shown in Figure 36 on page 80) to enable and configure Daylight Saving Time. This screen lets you select when Daylight Saving Time begins and ends.

Figure 36: Daylight Saving Time screen



Audio and remote

Use the Audio and Remote screen to define the audio output settings and specify the remote ID for the device. To access the Audio and Remote screen, click Audio and Remote Setup on the System screen.

Select Live/PB in the Audio Output box to play audio during live or playback modes. Select On in the Key Beep box to allow front panel buttons to beep when pressed.

Specifying a remote ID for the device lets you control up to 16 DVRs using a single remote control. See “Controlling multiple DVRs with one remote control” on page 16 for more information.

RS-485 settings

Use the RS-485 Setting screen to define the settings for the RS-485 ports. Settings defined in this screen must match the PTZ settings of the camera connected to the RS-485 port. To access the RS-485 Setting screen, click RS-485 Setting on the System screen.

RS-232 settings

Use the Device Setting screen to define settings for the serial port. This port is used to connect point-of-sale (POS) devices to the DVR 31. To access the RS-232 Setting screen, click RS-232 Setting on the System screen.

Mouse Sensitivity settings

Use the Mouse Sensitivity Setting screen to define sensitivity settings for the mouse.

Hard drive settings

Use the Hard Drives screen to define settings for the hard drive. Table 13 below describes the commands and options available on this screen. To access the Hard Drives screen, click Hard Drives on the System menu.

Figure 37: Hard Drives screen



Table 13: Hard Drives screen commands and options

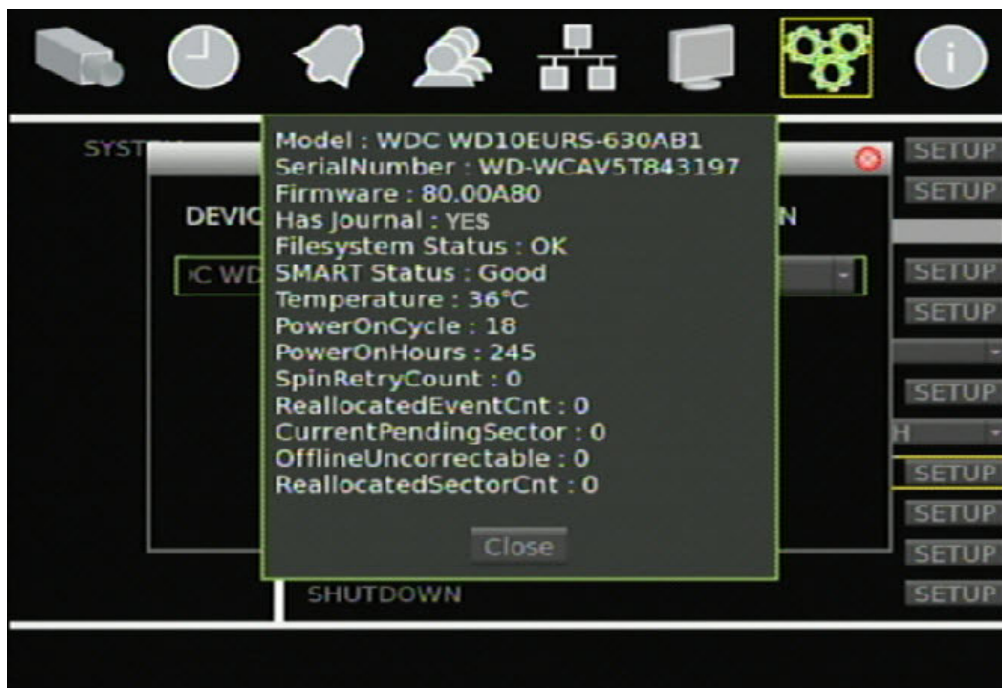
| Commands and options | Descriptions |
|----------------------|--|
| Auto Delete | Selects the number of days when the system deletes data automatically |
| Overwrite | Select On to automatically overwrite data when the hard drive reaches its capacity |
| Disk Drives | Displays the Disk Drive screen. This screen lets you add, remove, format, and repair disk drives installed in your device. [1] |
| Total Storage | Displays the total hard drive space |
| Free Capacity | Displays the amount of available space in the hard drive |

[1] The Repair option under Disk Drives fixes file system errors.

Drive details and status

Click the Setup button on the Disk Drives menu to open the Setup Screen. Select Yes under Details to view the hard drive details.

Figure 38: Hard Drives details screen



Importing and exporting configuration settings

Use the Configuration screen to import or export configuration settings. Click Export Config to export the DVR 31's configuration settings into a configuration file. Click Import Config to import configuration settings from a file. This screen also lets you restore the DVR 31 settings to factory defaults.

System log

The System Log screen displays your device's information that is generated each time your device boots up. A system log helps you diagnose your system in case of problems. Click Archive to save the system log into a backup device.

Table 14 below describes the codes used in the system's system log.

Table 14: System log code descriptions

| Code | Value | Description |
|----------------|-----------|--|
| Shutdown | AppExit | Use <ESC> + <ENTER> + <CH1> to terminate the AP |
| Shutdown | PwrOff | PwrOff |
| Shutdown | Reboot | From menu reboot |
| Boot | PwrOn | Powered On |
| Boot | PwtFail | Booted up but DVR was unexpectedly powered off |
| Boot | Reboot | Powered on via reboot |
| Boot | ForceRst | AP force DVR reset |
| Boot | WDogRst | Watchdog Reset |
| Boot | UnknowRst | Unknown Reset |
| ChgDate | | Change system date |
| ChgTime | | Change system time |
| DstSwitch | | Change DST On/Off |
| DstStime | | Change DST start time |
| DstEtime | | Change DST end time |
| AdminPwd | | Change admin password |
| UserPwd | | Change user password |
| Upgrade | | Upgrade software |
| Upgrade | | Upgrade bootloader |
| DiskAdd | | Add Disk to database |
| DiskDel | | Remove Disk from database |
| DiskChk | | Repair Disk |
| DiskFmt | | Format Disk |
| DiskIOER | | Disk I/O error. |
| OverHeat | | Overheat hdd detected |
| CoolDown | | HDD temperature back to normal from overheat state |
| PurgeDB Normal | | Purge normal |
| PurgeDB Event | | Purge Event |
| DayStime | | Change day schedule start time |
| DayEtime | | Change day schedule end time |
| NigStime | | Change night schedule start time |
| NigEtime | | Change night schedule end time |

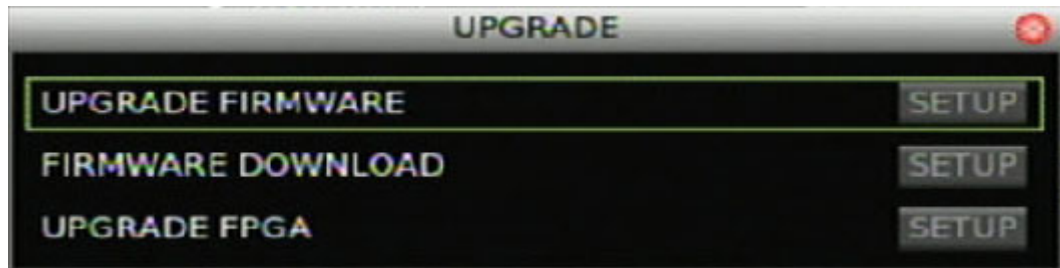
| Code | Value | Description |
|------------|-----------------|--|
| WkdStime | | Change weekend schedule start time |
| WkdEtime | | Change weekend schedule end time |
| RecMode | | Change record mode |
| PresetCfg | | Change preset config |
| NormalPPS | | Change Normal PPS on per-channel config |
| NormalSiz | | Change Normal size on per-channel config |
| EventPPS | | Change Event PPS on per-channel config |
| EventSiz | | Change Event size on per-channel config |
| EventAct | | Change event active setting |
| SmtDayNum | | Change ezRecord day number |
| SmtRecDay | ON/OFF | Change ezRecord day schedule |
| SmtRecNig | ON/OFF | Change ezRecord night schedule |
| SmtRecWkd | ON/OFF | Change ezRecord weekend schedule |
| AudioRec | ON/OFF | Change audio record setting |
| Circular | ON/OFF | Change circular setting |
| EventPart | | Change event partition (no more available) |
| Export | channel of data | Export Record data of channel |
| Export_JPG | channel of JPG | Export JPEG Pic of channel |
| GUI | | |
| Playback | Entry | Start Playback |
| Playback | CH XX | Change Pb channel |
| S:XXXXXX | XXXXXX | Playback start time information |
| E:XXXXXX | XXXXXX | Playback stop time information |
| --MENU-- | Menu text | Log what menu user entry |
| --OPTION-- | Option text | Log what option user select |
| --ITEM-- | Item text/Value | Log what item value user change |
| AUTOSCAN | INTDEVXX [1] | Scandisk was performed |
| FAILSCAN | INTDEVXX [1] | Scandisk failed |
| DESELFMT | INTDEVXX [1] | Drive formatted |
| PASSSCAN | INTDEVXX [1] | Scandisk fixed file system errors |

[1] The XX represents the SATA port number that the Hard Drive is connected to.

Upgrading the firmware

To upgrade the firmware using the built-in interface:

1. Display the System screen.
2. Click Upgrade to display the Upgrade screen as shown in the figure below.



3. Upgrade the unit's firmware.
Click Upgrade Firmware to upgrade the firmware through a USB flash drive.
Click Firmware Download to connect the device to a network and download the upgrade file.
4. Click Upgrade at the prompt to reboot the DVR 31 and begin the upgrade process.

Appendix A

Specifications and Troubleshooting

Summary

This appendix provides specifications and troubleshooting information for the DVR 31.

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Product specifications

| Model | DVR 31 |
|--------------------------|--|
| Video compression | H.264 |
| Playback resolution | D1/2CIF/CIF |
| Video input | 16 channels, BNC (1.0 Vp-p on 75 Ω) |
| Main monitor | 1 channel, BNC (1.0 Vp-p on 75 Ω), 1 digital display, S-video |
| Spot monitor | 1 channel, BNC (1.0 Vp-p on 75 Ω) |
| Frame rate (per channel) | D1: 7.5 fps 2CIF: 15 fps CIF: 30 fps |
| Audio compression | ADPCM, G.726 |
| Audio input | 16 channels, line-in |
| Audio output | 1 channel, line-out |
| Live Dual Streaming | Yes |
| HDD interface | 4 SATA interface, 1 DVD, 3 HDD |
| Communication interface | 1 RJ45 10M/100M self-adaptive Ethernet Interface 1 RS-485 interface 1 RS-232 interface |
| USB interface | 3 USB interfaces can support mouse and flash drive |
| VGA/HDMI interface | 1 VGA interface can support resolution: Up to 1280 x 600 pixels / HDMI supports 720P, 1080P |
| External alarm in | 16 |
| Relay output | 4 |
| Bi-directional audio | Yes |
| Buzzer support | Yes |
| Power supply | 100 to 240 VAC |
| Power consumption | 100 W |
| Operating temperature | 32 to 104°F (0 to 40°C) |
| Relative humidity | 10% to 90% |
| Dimensions (W x H x D) | 17.3 x 3.54 x 16.3 in (440 x 90 x 413 mm) |
| Weight | Approx. 15.42 lb. (7 kg) with 1 HDD and DVD-RW drive |

HDMI Compatibility List*

| Manufacturer | Model |
|--------------|--------------------|
| BenQ | ET-0019-N |
| BenQ | ET0036-B |
| BenQ | VH374 |
| BenQ | SH3741 |
| BenQ | VH3243 |
| Chimei | TL-24V7000D |
| Chimei | 24SH-L |
| Chimei | DTL-637S200 |
| Dell | 2408WFPb |
| Haier | HL19SLW2 |
| LG | 22LD350 |
| LG | 32LH30FD |
| LG | 37LB7DF |
| Orion | 17RTC |
| Panasonic | TH-L37U20W |
| Panasonic | TC-37MPK |
| Philips | 42PFL363D/F7 |
| Pioneer | PDP-436PG |
| Samsung | P2770FH |
| Samsung | LN32A550P1R |
| Sony | Bravia KDL-40S4100 |
| Sony | KLV-32U300A |
| Sony | KLV-40W300A |
| ViewSonic | VX2433WM |

* Other monitors may have been added to the list since the release date of the manual. Call Technical support for the current listing.

HDMI Incompatibility List

| Manufacturer | Model |
|-------------------|-----------|
| Hannsree Monitor | HF237 |
| Toshiba 19AV600UZ | 19AV600UZ |
| ViewSonic | VT2230 |

Battery removal

The DVR 31 unit contains one 3 V Lithium battery. This battery can only be removed by a recycling or service technician. The remote control comes with two AAA alkaline batteries.

To remove the remote control batteries:

1. Detach the remote control's back cover.
2. Replace the batteries with any standard AAA batteries.
3. Reattach the cover.
4. Dispose of the batteries as required by local ordinances or regulations.

Troubleshooting

Scandisk

Scandisk will run when the system detects file system errors and will run a scandisk at boot up. This is run automatically when the firmware detects any inconsistency in the file system or after five improper shutdowns during normal operation.

The Scandisk operation may take 30 minutes or longer depending on the hard disk drive configuration of your DVR 31. During this time the DVR 31 will not be recording. If Scandisk is successful the DVR 31 will reboot and will begin recording automatically. If Scandisk fails, you will have the option to format the defective hard disk or call Technical Support for assistance.

The System Log on the DVR 31 will provide information of when Scandisk was run. Please note if you see "PASSSCAN" message frequently please note this maybe a symptom of the hard drive failing. You should archive your video data and replace the hard drive(s).

S.M.A.R.T. Hard Drive information

SMART data can be viewed from the Disk Drive menu from the Front Panel and Browser which can be archived. SMART data will include if the current hard drive has a journal (confirming ext3 file system) and will display if the current hard drive has allocated bad sectors. If the Offline Uncorrectable count starts increasing, this may be a sign that the physical hard drive is failing.

Appendix B

Factory defaults

Summary

This appendix provides the DVR 31'S factory defaults.

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Menu defaults

| Function | Setting |
|----------------------|--|
| Date format | M/D/Y |
| Time format | 12 HR |
| Normal record speed | 30 frames per second (NTSC), 25 frames per second (PAL) at CIF |
| Record quality/FPS | Normal Quality |
| Menu timeout | 5 minutes |
| Video standard | NTSC |
| Disk overwrite mode | Overwrite |
| Brightness | 0 |
| Contrast | 0 |
| Hue | 0 |
| Saturation | 0 |
| Daylight Saving Time | Off |

Network defaults

| Function | Setting |
|-----------------|---------------|
| IP address | 192.168.1.82 |
| Subnet mask | 255.255.255.0 |
| Gateway address | 192.168.1.1 |
| Http port | 80 |

Appendix C

Warranty and support

Summary

This appendix provides information on warranty and support for the DVR 31.

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Contacting support 94

Warranty information

The warranty period for the DVR 31 is three years from the date of delivery.

Contacting support

Contact technical support if you encounter any difficulties during this installation. Please make sure you have the requested diagnostic or log files ready before you contact us by phone or go to www.interlogix.com/customer-support.

Technical Support

Europe, Middle East and Africa

W Select *Contact Us* at www.utcssecurityproducts.eu

North America

T +1 855.286.8889

E techsupport@interlogix.com

Australia

E techsupport@interlogix.au

Appendix D

KTD-405 keyboard mapping

Summary

This appendix provides information on how to operate the DVR 31 using the KTD-405 keyboard.

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DVR 31 to KTD-405 keyboard mapping

| DVR 31 | KTD-405 |
|-------------------|--|
| Up | Joystick up or hold Esc, and then press the Up Arrow |
| Down | Joystick down or hold Esc, and then press the Down Arrow |
| Left | Joystick left or hold Esc, and then press the Left Arrow |
| Right | Joystick right or hold Esc, and then press the Right Arrow |
| Esc | Press Esc while in a menu |
| Menu | Press Esc while in live mode |
| Enter | Press Enter (↵) |
| Changing a camera | Press the camera number and Enter |
| Live | Press Play (▶) |
| Zoom | Press Zoom (⊕) |
| Search | Press Search (🔍) |
| Display | Press View and the 5 button (multiple times to switch between display modes) |
| Sequence | Press Seq |
| PTZ mode | Press Stop (■) |
| Archive | Press Record (●) in live and playback mode |
| Play | Press Play (▶) |
| Pause | Press Pause (⏸) |
| Rewind | Press Rewind (⏮) |
| Fast Forward | Press Fast Forward (⏭) |
| Frame reverse | While in playback, pause video, hold Esc, and then press the Left Arrow |
| Frame advance | While in playback, pause video, hold Esc, and then press the Right Arrow |

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