Digital Barriers

Elevated Body Temperature System User Guide

Date: 14th April 2020

Issue: Issue 1v1

WARNING REGARDING CONDITIONS OF USE

This Device is not FDA cleared or approved for medical diagnosis of illness or symptoms of illness.

Device is intended to be used only:

i. **for triage purposes to perform initial body temperature measurement;**

ii. **where an elevated body temperature measurement is confirmed in the context of use with secondary evaluation methods (e.g., non-contact infrared thermometer (NCIT) or clinical grade contact thermometer); and**

iii. **where such devices do not create an undue risk in light of the public health emergency.**

Per U.S. Food and Drug Administration ("FDA") guidance ("Enforcement Policy for Telethermographic Systems During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency" (April 2020)):

i. **the Device should not be solely or primarily relied upon to diagnose or exclude a diagnosis of COVID-19, or any other disease;**

ii. **public health officials, through their experience with the Device in the particular environment of use, should determine the significance of any fever or elevated temperature based on the skin Telethermographic temperature measurement.**

iii. **the system and technology should be used to measure only one subject's temperature at a time; and**

iv. **visible thermal patterns are only intended for locating the points from which to extract the thermal measurement.**

RECORD OF CHANGES

This is a controlled document and will be uncontrolled once issued; additional controlled copies can be obtained through the issuing authority. In the event of copying locally, including electronically, each document should be marked ‘Uncontrolled Copy’. Full issues and page amendments are identified on this page. Any proposals for change should be forwarded, in writing, to the issuing authority.

Issue	Date	Detail of Changes	Amended by
Draft 1v1	14 Apr 2020	Initial Issue (Draft)	Kevin Peters

SUPPORT PUBLICATION

LIST OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ELEVATED BODY TEMPERATURE - BASIC USER GUIDE

VERSION NUMBER

1 Firmware Version v1.0.ID20200409.

INTRODUCTION

2 The aim of this document is to detail the steps require to configure and operate the Elevated Body Temperature System and associated capability.

SYSTEM OVERVIEW

3 The entire Elevated Body Temperature System has several components required to provide its entire capability as follows:

3.1 **Local Viewing**. The local viewing capability allows the local operation and detection of objects from a 2 to 5-meter range. A local operator is deployed at the front end with the equipment providing a first layer mechanism of viewing and alerting. The local viewing equipment consists of:

3.1.1 THERMAL/OPTICAL Camera (Thermal & HD Daylight).

3.1.2 Equipment Enclosure.

3.1.3 Local Viewing Laptop running the Intelligent Screening Software.

3.1.4 Blackbody Temperature Sensor.

3.1.5 Transportable Equipment Platform / Housing.

3.2 **Remote Viewing**. Required for the remote viewing capability, consisting of the following equipment:

3.2.1 EdgeVis Server.

3.2.2 HD-IP200 Encoder.

3.2.3 EdgeVis Client.

NETWORK ARCHITECTURE

4 Figure 1 shows the system architecture/ connectivity of the capability.

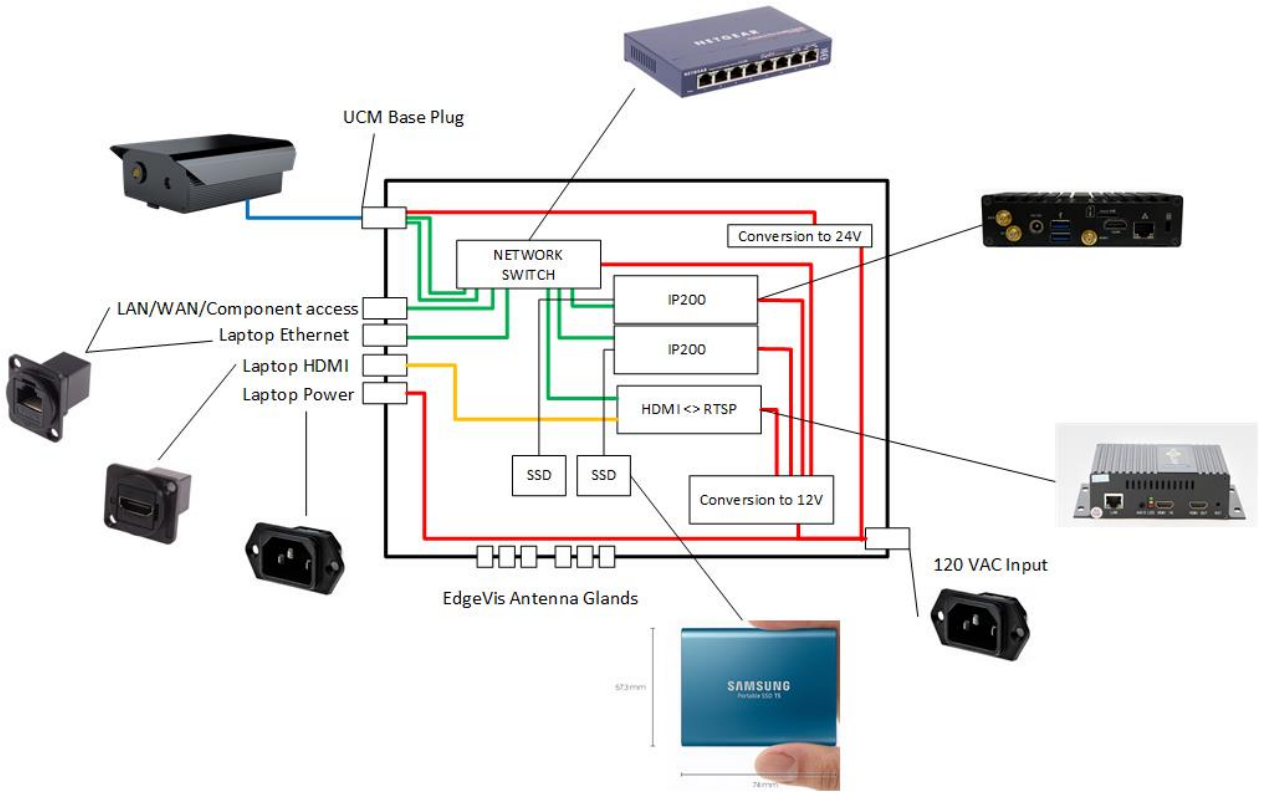

Figure 1: Elevated Body Temperature System Architecture

IP ADDRESSES

5 Junction Enclosure IP addresses (for all Junction Enclosures) are shown at Table 1.

Device	IP Address	Default Gateway	Subnet Mask
Thermal Camera	192.168.1.101	192.168.1.1	255.255.255.0
HD Camera	192.168.1.100		
ASUS Laptop	192.168.1.99		
IP200 #1	192.168.1.103		
IP200 #2	192.168.1.104		
Antrica Encoder	192.168.1.102		

Table 1: System IP Address Scheme

SYSTEM OPERATION

6 The following sections details basic user operating instructions to enable the User to receive a system and configure it for use prior to deployment to an operational scenario[1]. It covers the following components:

6.1 Local Viewing Capability.

6.2 Remote Viewing Capability.

[1] This assumes the Elevated Body Temperature system has been staged via Digital Barriers prior to being received by the end User.

Local Viewing Capability

7 This section of the User guide details how to connect, configure, and operate the Intelligent Screening application installed on the supplied laptop.

System Operation Pre-requisites

8 The following are the pre-requisites / requirements required prior to using the user guide:

8.1 A THERMAL/OPTICAL camera powered up and connected to the Laptop via Ethernet (direct or via a network switch).

8.2 A Laptop meeting, or exceeding, the specification detailed at Para 9 connected to the same network/subnet as the THERMAL/OPTICAL camera.

8.3 Intelligent Screening Software installed on the Laptop at Para 3.2.

8.4 The Black-Body Temperature Reference device deployed with the FoV of the THERMAL/OPTICAL unit, at roughly the distance as the required detection and set to 35°.

System Requirements

9 Platform System requirements for the software are as follows:

9.1 **Operating System**. Microsoft Windows 10.

9.2 **Processor**[2]. 32 or 64-bit Intel i5 or equivalent processor.

9.3 **Memory**. 8GB RAM.

9.4 **Monitor Resolution**. High Definition

9.5 **Hard Drive Capacity**. >= 256GB

Software Operation (Intelligent Screening Software)

10 Carry out the following steps to connect the application to the thermal camera:

10.1 Ensure the system is connected as per Figure 1 and the Laptop is powered up.

10.2 Double-click the icon as shown at Figure 2

[2] The CPU processer should have a benchmark score of greater than 7500 - www.cpubenchmark.net

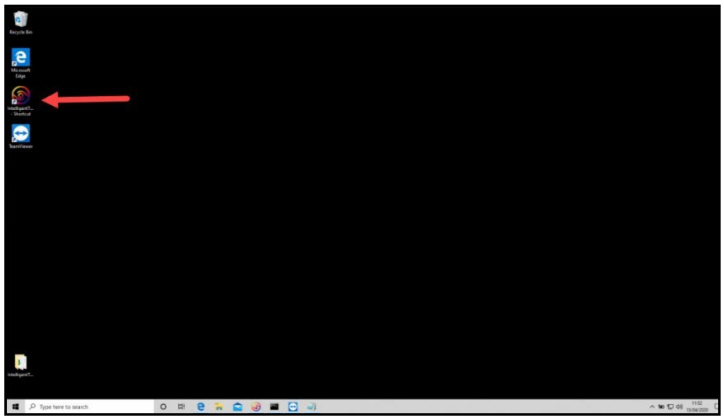

Figure 2: Software Short-cut Location

10.3 From the resulting screen, select ***Connect*** - as shown at Figure 3.

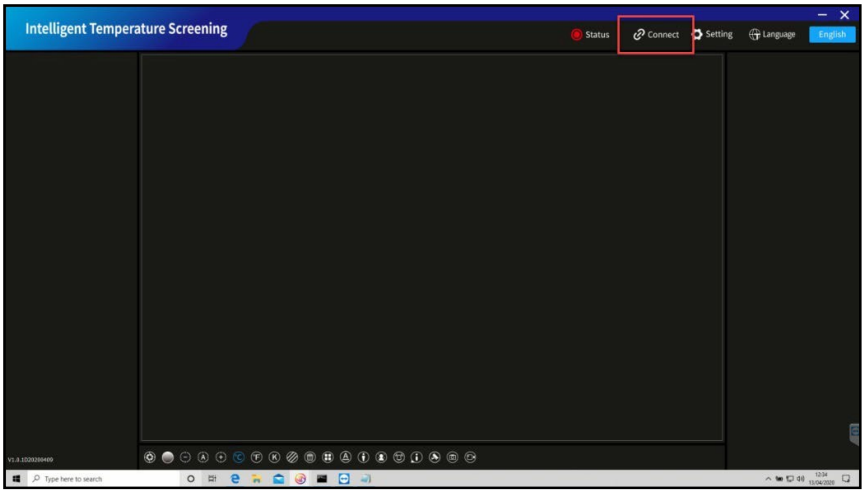

Figure 3: Software to Camera Connection

10.4 Enter the IP Address of the thermal camera and Password into the resulting screens - as shown at Figure 4.

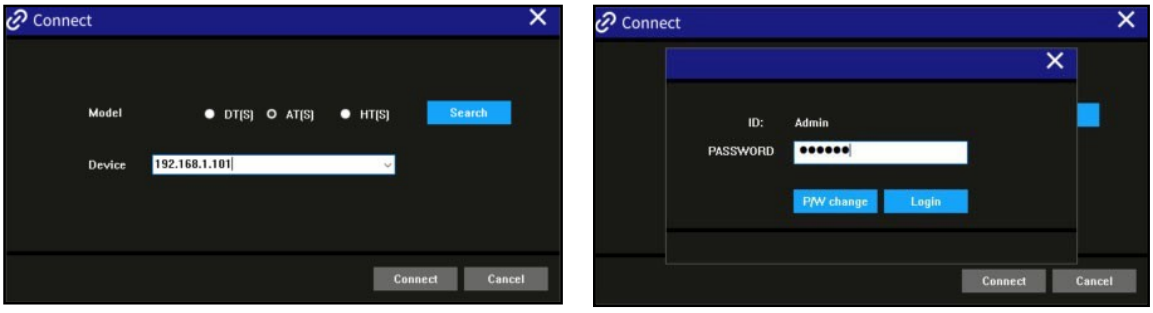

Figure 4: Software to Camera Connection Authorization

11 If the IP Address and Password have been entered correctly the software should connect to the camera and commence operation with the screen showing as per Figure 5 - note the green ***Status***.

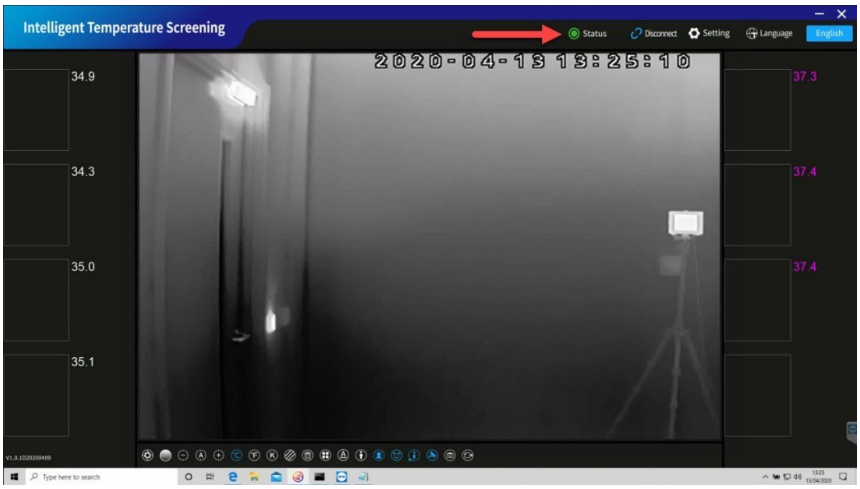

Figure 5: Successful Camera/Software Connection

Software Interface - Home Screen

12 The home screen carries the follow user configurable settings across the bottom of the main video interface - as shown at Figure 6 and described at

Figure 6: User Configurable Software Settings

Icon	Icon Description / Purpose	Icon	Icon Description / Purpose
	Enable / Disable Shutter		Whole Frame Measurement Tool
	Switch Color Palette		Measurement Rectangle Color Change
	Focus Near / Focus Far		Standard measurement / Body Temperature Compensation Mode
	Auto-focus		Face Detection On / Off Toggle
	Display Temp - Celsius[3]		Audio Alarm On / Off Toggle
	Display Temp - Fahrenheit		Alarm Window On / Off Toggle
	Display Temp - Kelvin		Alarm Snapshot On / Off Toggle
	Add a Rectangle Measuring Area		Current Image & Overlay Snapshot
	Remove Rectangle Measuring Area		Current Image & Overlay Video Recording (Start then Stop)

Table 2: Basic Settings Description

[3] Blue Highlighted Icon shows Current Selection.

Basic Operational Settings

13 Select *Setting* from the Video Interface Home page; as shown at Figure 7; this will allow the following sub-menu settings:

13.1.1 Environmental Parameters.

13.1.2 System Mode.

13.1.3 Shielded Area

13.1.4 Temp-Measurement Mode.

13.1.5 Blackbody Area (initially hidden).

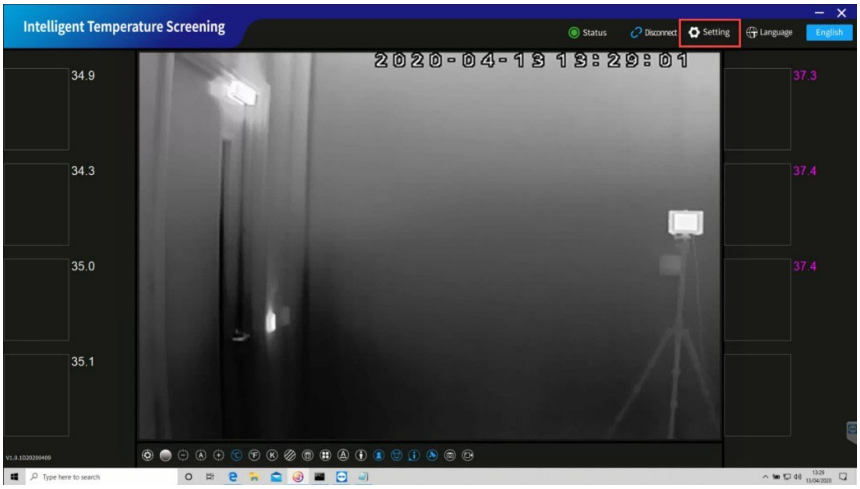

Figure 7: Basic Operational Settings Selection

Environmental Parameters

14 This page allows the user to enter certain environmental parameters, which are then factored into the correction algorithms used by the software to allow for various environmental considerations; these are shown at Figure 8 and described in Table 3.

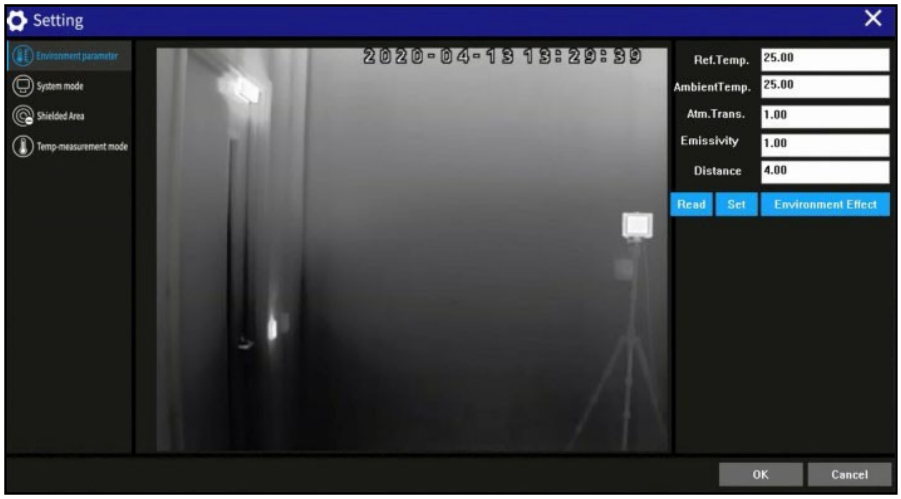

Figure 8: Environmental Parameters Settings

Selection	Description
Ref. Temp	Reflection temperature (set the same as Ambient Temp)
Ambient Temp	Environment temperature of surroundings
Atm. Trans.	Atmospheric transmittance (set to 1.00)
Emissivity	Emissivity of human skin (set to 0.98)
Distance	Required range - recommended distance ranges from 1m to 5m.

Table 3: Environmental Parameters Settings Description

15 The parameters can be managed using the settings as follows:

15.1 **Read**. Read the current settings.

15.2 **Set**. Change the settings to the user required figures entered.

15.3 **Environment Effect**. TBC.

System Mode

16 This page - Figure 9 - allows the user to change the network details of the camera as well as the ***Alarm*** file output path (to the local Laptop); descriptions at Table 4.

Figure 9: System Mode Settings

Selection		Description
IP		Reflection temperature (set the same as Ambient Temp)
Gateway		Environment temperature of surroundings
Dropdown Selection	Alarm	Alarm Triggered Snapshot - saved to local path
	Capture	Alarm Triggered Image Frame - saved to local path
	Video	Alarm Triggered Video - saved to local path

Table 4: System Mode Settings Description

17 The parameters are managed using the settings as follows:

17.1 **Set**. Change the settings to the user required figures entered.

17.2 **Path Selection**. Defines the output path for the .csv file and thumbnails on the local Laptop.

Shielded Area

18 This allows a default area(s) of the camera FoV to be ignored by the FaceDetect algorithm running as part of the software and general temperature measurements.

19 To set a shielded area - carry out the steps below:

19.1 Select ***Shielded Area*** from the ***Setting*** menu - as shown at Figure 10.

Figure 10: Shielded Area Settings Selection

19.2 Follow the instructions described in Table 5 - also shown in the highlighted red area in Figure 11.

Step	Instructions
1	Click the ***Shielded Area Switch*** icon [ ] to turn the editing function ON.
2	Click the Set Measurement Rectangle [ ] to allow an area to be created.
3	Click on an area of the Video to start the area then release the mouse button.
4	Move the mouse to the end of the area and click once more.
5	Select ***OK***.
6	Click the ***Shielded Area Switch*** icon [ ] to turn the editing function OFF.

Table 5: Shielded Area Instructions

Figure 11: Shielded Area Settings Selection

19.3 Multiple shielded areas can be selected; plus, the selected area can be edited, including moving, re-sizing, deleting and other operations.

Temp-Measurement Mode

20 This allows the user to select between measurement modes, as shown at Figure 12 and described at Table 6.

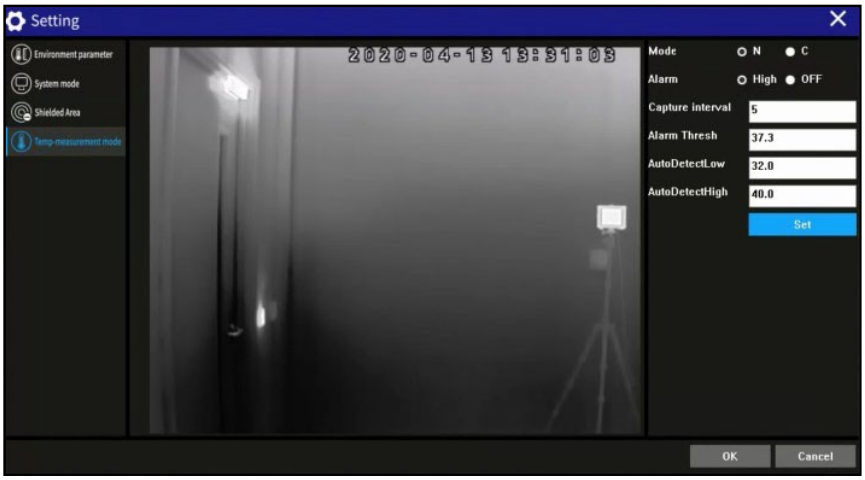

Figure 12: Temp-Measurement Mode Settings Selection

Selection	Description
Mode	N = Standard. Returns the true temperature of the area with no compensation. C = Compensated. This value has been adjusted to deliver a more accurate algorithm-based approximation of the temperature.
Alarm	Enable / Disable the High Temperature alarm.
Capture Interval (Seconds)	When the snapshot switch is enabled (Para 9), a picture will be saved to the configured Alarm Path (Para 14.2) at the configured time interval.
Alarm Thresh	Alarm Threshold Temperature - alarm raised above this value.
Auto Detect Low	Minimum temperature for FaceDetect Algorithm.
Auto Detect High	Maximum temperature for FaceDetect Algorithm.

Table 6: Temp-Measurement Settings Description

Blackbody Area

21 The Blackbody Area configuration settings are hidden behind an Administrator password; to unlock and configure - carry out the following steps:

21.1 From the keyboard, press the following:

Ctrl > Shift > r

21.2 Enter the correct password into the resulting window - as shown at Figure 13.

Figure 13: Blackbody Area Administrative Password

22 After conducting the steps from Para 18, the Blackbody Area will be available from the ***Setting*** tab - as shown at Figure 14, with relevant settings described at Table 7.

Figure 14: Blackbody Area Settings Selection

Selection	Description
Switch	On - Blackbody correction enabled. Off - Blackbody correction disabled.
Checkbox: Draw	Drawing Mode enabled.
Draw: Box & Slider	Enables and allows the size of the drawings box to be altered.
LX | LY | RX | RY	Pixel coordinates of the blackbody area.
Temp.	Blackbody Temperature Reference (Set to that as displayed on the rear of the Blackbody unit).

Table 7: Blackbody Area Settings Description

23 The parameters can be managed using the settings as follows:

23.1 **Read**. Read the current settings.

23.2 **Set**. Change the settings to the user required figures entered.

24 To configure the Blackbody correction area (with reference to Table 7)[4]:

24.1 Switch on the Blackbody correction.

24.2 Tick the ***Draw*** box.

24.3 Mark the area where the Blackbody is located on the image with the annotated red rectangle, keeping the rectangle in the center of the blackbody area. The marking rectangle can be re-sized by moving the slider - recommended setting is 5.

24.4 Left click the mouse to confirm and update the coordinates in software.

24.5 Untick the ***Draw*** box.

24.6 Click ***Set*** and ***OK***.

[4] Any positional changes to either the Camera or Blackbody will necessitate the repetition of these steps.

Remote Viewing System Capability

25 This section of the User guide details how to connect, configure, and operate the remote viewing capability of the Elevated Body Temperature System and consists of the following steps:

25.1 EdgeVis Server Configuration.

25.2 HD-IP200 Encoder Configuration.

25.3 EdgeVis Client Operation.

EdgeVis Server Configuration

26 This section of the User guide details how to configure the EdgeVis Server to enable both encoders and users to connect and authorize for operation.

27 The following is the configuration required for an EV Server to enable a basic set-up:

27.1 Domain Creation.

27.2 Encoder Creation.

27.3 User Creation.

Domain Creation

28 This section of the User guide details how to configure the EdgeVis Server to enable both encoders and users to connect and authorize for operation.

29 The following is the configuration required for an EV Server to enable a basic set-up:

29.1 Domain Creation.

29.2 Encoder Creation.

29.3 User Creation.

Domain Creation

30 All encoders and users must exist within a domain[5].

31 A domain is a segmented area within EdgeVis Server where all encoders and users are only visible to other users within the domain. This allows Server Administrators to keep different customers/user communities separate (and hidden) from each other - a user within the domain cannot see a Server Administrator or a user in another domain.

32 It is possible to create multiple domains on the server, allowing Server Administrators to keep different customers/user communities separate (and hidden) from each other - a user within the domain cannot see a Server Administrator or a user in another domain.

33 It is possible to create multiple domains on the server.

34 To create a domain, carry out the following steps (also shown in Table 8):

[5] Domains can only be created by Server-wide Administrators.

34.1 Log into the Server's Web management interface via any suitable web-browser, using the following URL:

https://<EV Server IP Address or DNS>:9443

34.2 Select ***Domains*** under **Manage this Server** heading on the server homepage

34.3 Click ***Create a new domain*** under the ***Create a domain*** heading

34.4 Enter a Domain name (and optionally, a Description) and click ***Submit***.

Table 8: Creating a Domain

Encoder Creation

35 Although Digital Barriers/Vodafone ship the HD-IP200 Encoder preconfigured - the communications and server settings will need to be changed from their staging settings to the required operational settings; to. The Encoder name and Password of the Encoder must match that as configured on the server.

36 To create an Encoder account on the Server, carry out the following steps:

36.1 Log into the Server's Web management interface via any suitable web-browser, using the following URL:

https://<EV Server IP Address or DNS>:9443

36.2 Access the Domain created at Para 34.

36.3 Click the '***X total***' link under ENCODERS to access the Encoder list - as shown at Figure 15.

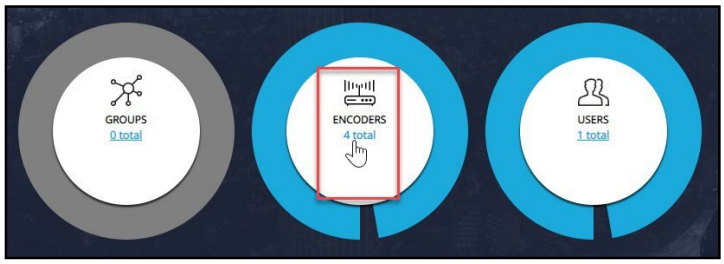

Figure 15: Access Encoder Creation Page

36.4 Click ***Create one Encoder*** or ***Create multiple Encoders***.

36.5 Enter the Encoder name(s) and password(s) for each account[6].

36.6 Assign an appropriate license to the encoder account (for IP200 use Enhanced).

User Creation

37 To create a User account on the Server, carry out the following steps:

37.1 Log into the Server's Web management interface via any suitable web-browser, using the following URL:

https://<EV Server IP Address or DNS>:9443

37.2 Access the Domain created at Para 34.

37.3 Click the '***X total***' link under USERS to access the User list - as shown at Figure 16.

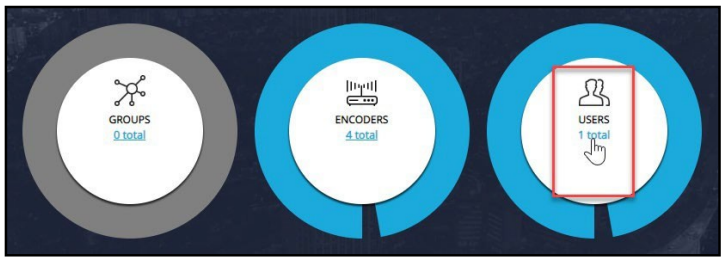

Figure 16: Access User Creation Page

37.4 Click ***Create one user*** or ***Create multiple users***.

37.5 Enter the Username(s) and password(s) for each account.

37.6 Assign an appropriate user role to the created user(s).

38 This section of the User guide details how to configure the EdgeVis Server to enable both encoders and users to connect and authorize for operation.

HD-IP200 Encoder Configuration

39 Although Digital Barriers ship the HD-IP200 Encoder preconfigured - the following settings will require amending to their operational settings

39.1 Communication Settings.

39.2 Server Settings.

40 Ensure that the steps detailed from Para 41 to Para 43 are carried out for both HD-IP200 Encoders.

Communication Settings

41 Communications Settings will need amending as follows:

41.1 **Primary Communications**. Change to Internal 4G Modem.

41.2 **Internal 4G Modem Settings**. APN settings including username and password (if required).

42 To conduct this post-staging configuration, carry out the following steps:

42.1 From the supplied System Laptop, open a suitable web-browser and type in the IP address of the required Encoder (Para 6 details).

42.2 Enter the password for the Encoder at the resulting log-in screen[7].

42.3 From the main Encoder configuration page - as shown at Figure 17- enter the ***Communication Settings*** menu.

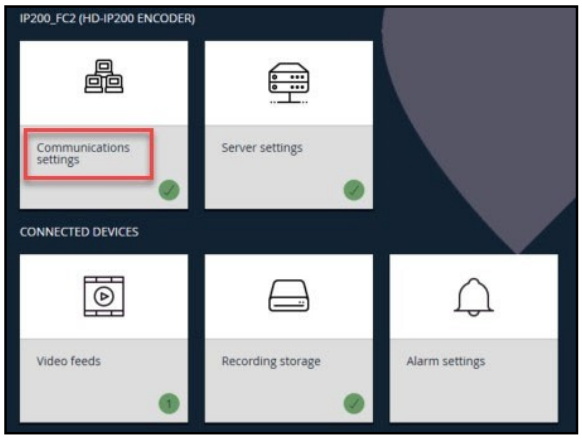

Figure 17: Encoder Communication Settings

42.4 Ensure that ***Internal 4G Modem*** has been enabled for Primary Comms; then select ***Edit Configuration*** - as shown at Figure 18.

7 Contact System Administrator for details.

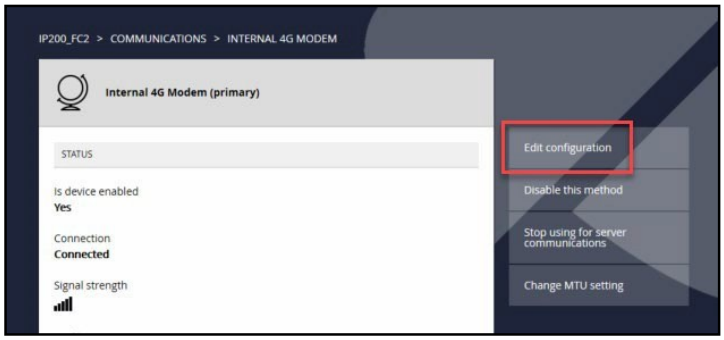

Figure 18: Internal 4G Modem Configuration

42.5 Edit the required settings to that required for the chosen network (see footnote 7).

42.6 Return to the main Encoder configuration page.

Server Settings

43 To conduct the post-staging configuration required for the operational server, carry out the following steps:

43.1 From the supplied System Laptop, open a suitable web-browser and type in the IP address of the required Encoder (Para 6 details).

43.2 Enter the password for the Encoder at the resulting log-in screen[8].

43.3 From the main Encoder configuration page - as shown at Figure 17- enter the ***Server Settings*** menu.

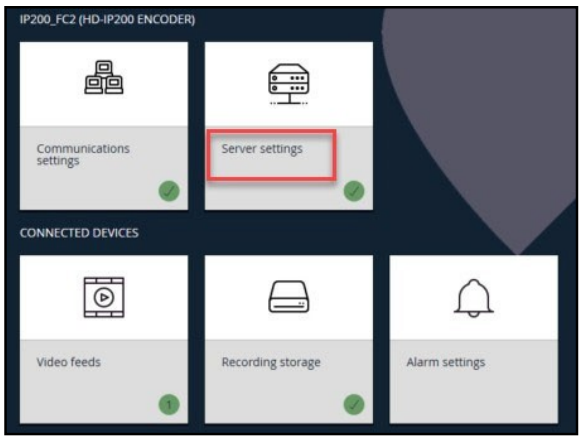

Figure 19: Encoder Server Settings

43.4 Edit the required settings to that required for the chosen network (see footnote 8).

43.5 Return to the main Encoder configuration page and log-out from the Encoder.

8 Contact System Administrator for details.

EdgeVis Client Installation

44 EdgeVis Client is a software viewing application that allows users to access the video streams available on an EdgeVis Server and perform day-today C2 functions on deployed elements. This section details how to install EdgeVis Client onto any device being utilized for viewing and C2 functionality.

45 This section of the User guide details how to install EdgeVis Client - required for the remote viewing capability on the following platforms:

45.1 Microsoft Windows

45.2 Android

45.3 Apple iOS

46 EdgeVis Client has been designed to provide a consistent experience, regardless of the platform in use. Tablet users will benefit from full 'desktop' functionality, as opposed to a scaled-up phone application.

Microsoft Windows Installation

47 System requirements for a MS Windows device are as follows:

47.1 Microsoft Windows Vista or newer.

47.2 32 or 64-bit Intel compatible processor.

47.3 2GB RAM.

47.4 Microsoft .NET4.5 (bundled).

48 For EdgeVis Encoders supplied with a USB pen drive, look within the 'Software\EdgeVis Client' folder, which contains an EdgeVis Client Setup executable. Alternatively, and more reliably[9], download the client installer from the Digital Barriers Support Site.

49 Run this program (which can only be run by a user with Administrator privileges), the installer will need to agree to ***License Terms and Conditions***, by ticking the appropriate box and select Install (shown at Figure 17) which will install all of the files required for EdgeVis Client.

50 Once complete, the program will automatically create an EdgeVis Client shortcut in the Windows Start menu under the ***Digital Barriers*** folder and also display a ***Launch*** screen (Figure 18) to enable the installer to initiate the program for the first time.

[9] Ensures the latest version is being installed.

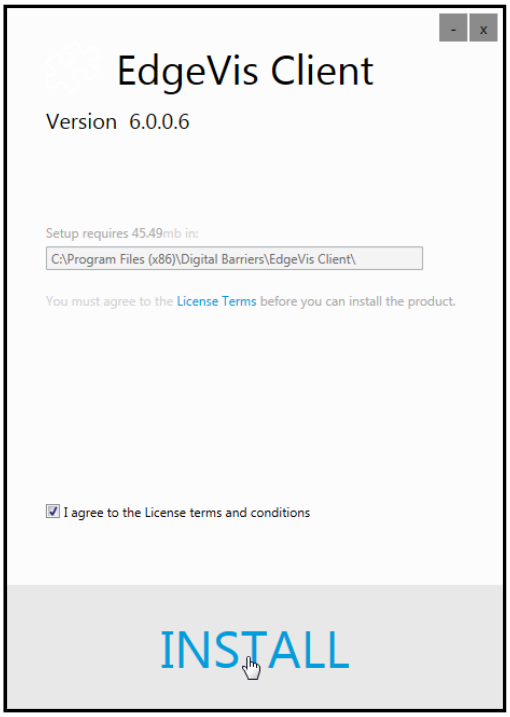

Figure 20: Initial Install Screen

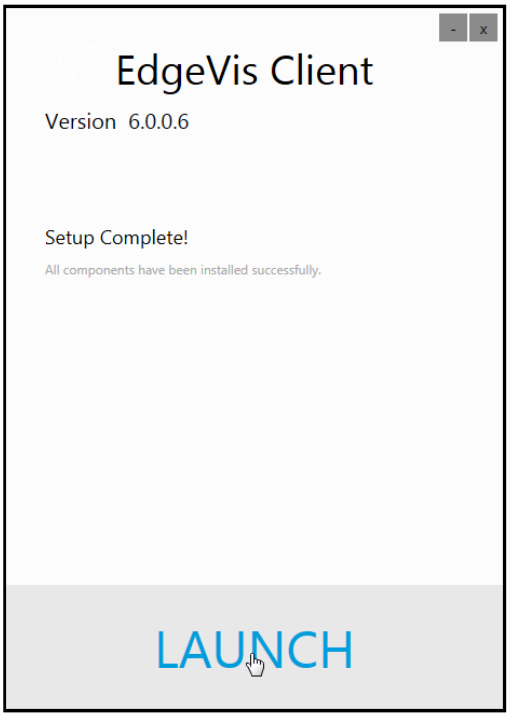

Figure 21: Set-up Complete

Android Installation

51 System requirements for an Android installation are as follows:

51.1 Tablet with 7"+ screen.

51.2 Dual core processor.

51.3 Android 4.3+ (Jelly Bean).

51.4 Google Play Services installed.

52 To install EdgeVis Client open the Google Play Store and search for EdgeVis Client, which is a free download.

53 Alternatively, it is possible to download and manually install the EdgeVis Client APK file. To install EdgeVis Client manually, carry out the following:

53.1 Log in to the Digital Barriers Support Site, and search for EdgeVis Client

53.2 Download the EdgeVis Client APK file

53.3 If necessary, copy the APK file to the device

53.4 Open the APK, which will attempt to install EdgeVis Client

53.5 If an error is displayed that it is not possible to install the APK as it did not come from the Play Store, it is possible to bypass this restriction. Open ***Settings*** -> ***Security*** and tick the ***Unknown Source*** option, and then re-attempt installation. Once installed remember to un-tick the ***Unknown Source*** option.

Apple iOS Installation

54 System requirements for an Apple iOS installation are as follows:

54.1 Apple iPad 2+, iPad Mini, iPad Air+, iPad Pro

54.2 iOS 8+

55 To install EdgeVis Client open the App Store and search for the free EdgeVis Client download.

EdgeVis Client Operation

56 Regardless of which platform is being used (Windows, Android, or iOS), it is the same process to login and access the streams on EdgeVis Server.

57 Launching EdgeVis Client for the first time should present an empty list of ***Available EdgeVis Servers***, as shown in Figure 22. EdgeVis Client can be launched by the following methods - dependent on platform being used:

57.1 **EdgeVis Client on Microsoft Windows**. Launch from Pre-installed shortcut in Windows Start Menu or from the user installed shortcut icon on Windows desktop.

57.2 **EdgeVis Client on Android / Apple iOS**. Launch from desktop icon as per normal application operation.

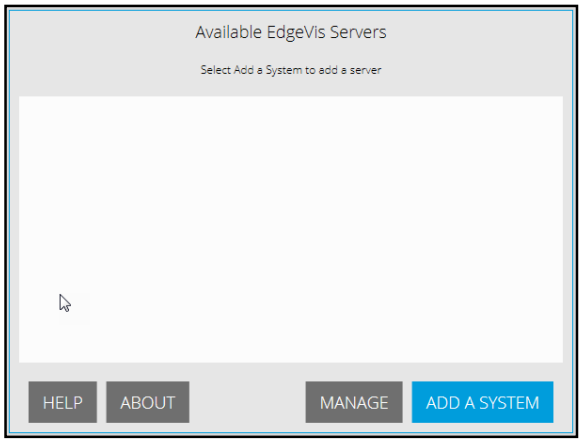

Figure 22: EdgeVis Client - Initial Launch Screen

58 To enable the user / operator to login to the required EdgeVis Server and commence day-to-day command and control operations, carry out the following:

58.1 **Click 'Add a System'**. This will start a wizard that will allow the appropriate settings to be entered, checking that the details entered are valid after each step, as per Figure 23.

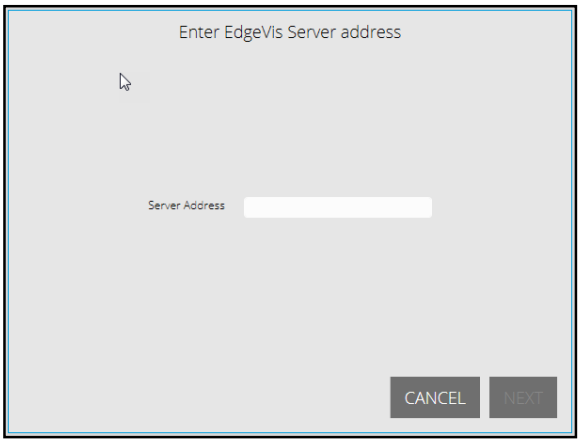

Figure 23: EdgeVis Client - Adding Server Address

58.2 **Enter the EdgeVis Server IP or DNS[10] Address and select 'Next'**. EdgeVis Client will then validate the entered address and attempt to contact the server. Figure 24 shows a DNS address entered into the Server Address box.

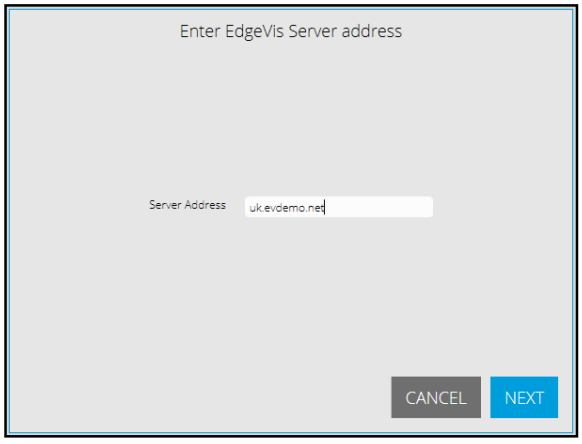

Figure 24: EdgeVis Client - Server Address Entered

58.3 **Enter the User Log-in Details[11]**. As supplied by the System Administrator, two further options are then available, as shown at Figure 25:

[10] Server IP address or DNS can be found via The System Administrator.
[11] Username / Password need to have been set-up prior to this step (System Administrator).

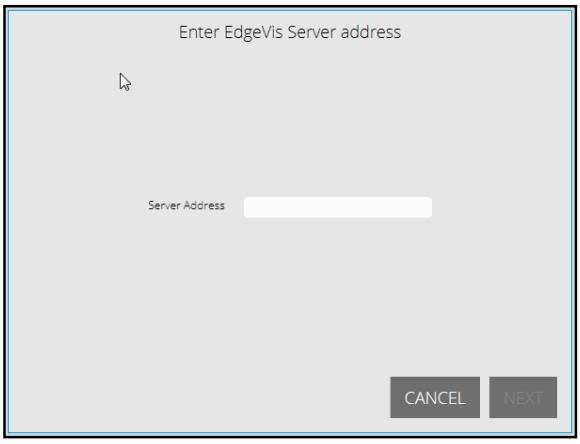

Figure 25: EdgeVis Client - Username / Password Entry

58.3.1 **Save Password**. For security reasons it is possible to force EdgeVis Client to ask for the password every time the account is used by un-ticking this box.

58.3.2 **Connect using Encryption**. It is also possible to disable encryption while communicating with the server, which may be required if the server administrator has disabled encryption.

58.4 **Verify Server Key**. If encryption is enabled the final step will be to verify the server's public (and unique) encryption fingerprint, as shown at Figure 26. This check is to verify that the EdgeVis Client is communicating with is the correct server, and not an imposter. Security conscious users should obtain this fingerprint along with their login details (from their administrator), If the fingerprint matches it is recommended to select ***Allow Always***. EdgeVis Client will then validate the fingerprint every time the user connects to the server and warn if it ever changes.

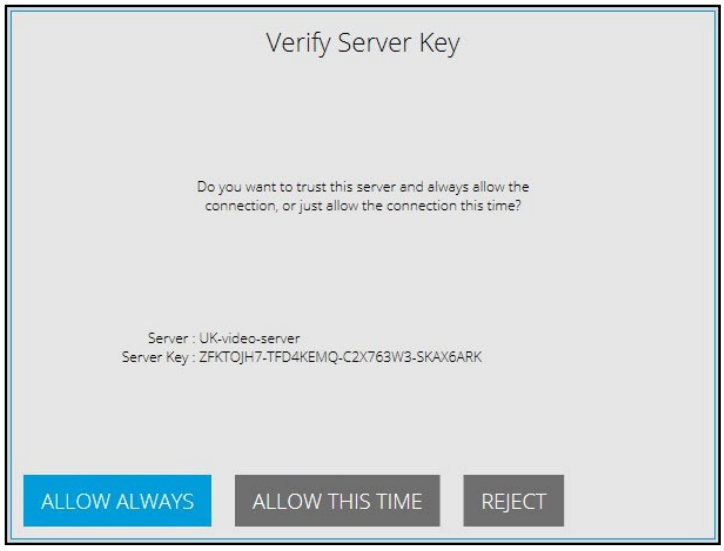

Figure 26: EdgeVis Client - Server Key Verification

59 Once the details have been entered and validated there should now be an entry for the new server in the ***Available EdgeVis Servers*** list. The name displayed is the public name of the server, as selected by the System Administrator, as shown at Figure 27.

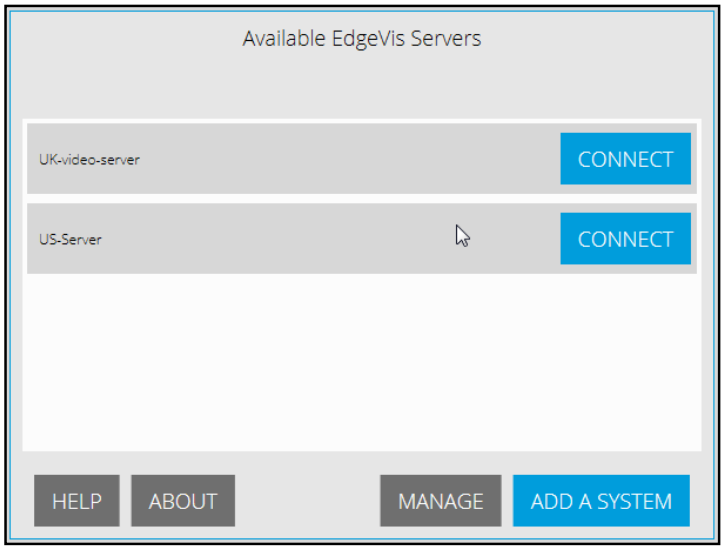

Figure 27: EdgeVis Client - Available EdgeVis Servers

60 To ***Connect***, to any of the available servers, simply select the ***Connect*** button.

61 To ***Edit*** or ***Delete*** an already entered EdgeVis Server, use the ***Manage*** button to display additional buttons on the required EdgeVis Server entries in the list, as shown at Figure 28.

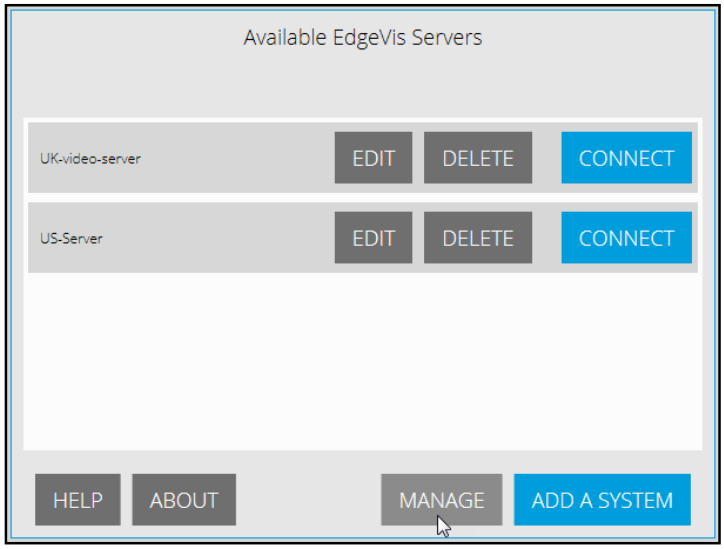

Figure 28: EdgeVis Client - Managing Available EdgeVis Servers

EdgeVis Client Operation

62 Once EdgeVis Client has logged into the required EdgeVis Server the interface changes to display the EdgeVis Client Home tab. This is where the operator will carry out normal day-today C2 tasks allowing them to view videos, monitor alarm alerts and observer encoder mappositions.

63 The main EdgeVis Client interface presents a tabbed interface of which, the first tab is the Home tab, this tab cannot be closed unless the application is closed down and is the launch-pad from which new tabs containing video, map and alarm panels are opened; the Home tab can be seen at Figure 29.

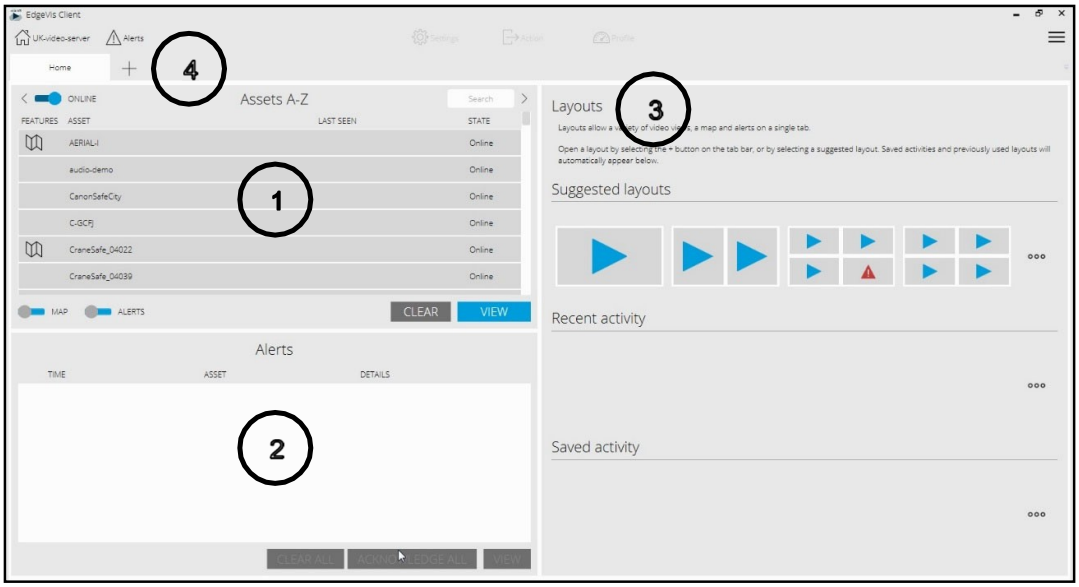

Figure 29: EdgeVis Client - Home Tab

Home Tab

64 EdgeVis Encoders and supporting attributes such as alarm notifications and location (GPS). The sub-panels are numbered in Figure 29 and are explained in Table 9:

1	The **Assets** Panel	This allows the operator / user to select single or multiple EdgeVis Encoders and click 'View' to open a new tab that shows the video stream and optionally (via the slider selector in the panel) a map and alarm panel.
2	The **Alerts** Panel	This allows the operator / user to monitor incoming alarm notifications. If an alert is of interest, click the alert and select 'View' to open a new tab with the video stream from the EdgeVis Encoder that generated the alert.
3	The **Layouts** Panel	This panel offers the user a number of possibilities: • **Suggested Layouts**. An intuitive list of the most commonly used empty layouts, which will change over time depending on how often a user prefers certain layouts. • **Recent Activity**. A list of previously opened layouts, including the encoders viewed. These are Activities. These are ordered in terms of most recently used. If an activity is frequently used it is possible to save these for quick access. • **Saved Activity**. A list of saved activities, with both the layout and selected EdgeVis Encoders saved and easily reselectable.
4	The **New Tab** Button	This button will allow the operator / user to access the **Layouts** tab without needing to visit the home screen.

Table 9: EdgeVis Client - Home Screen Panels

Video Panel Interface

65 EdgeVis Client's main interface is the Video Panel Interface and is responsible for displaying the video and providing access to the advanced capabilities of your encoder, including PTZ, full-resolution retrieval and archive access.

66 The Video panel Interface is extremely versatile allowing the operator / user to select several encoders to view along with alerts and a mapping function simultaneously.

67 Figure 30 shows a side-by-side Encoder layout, which would be typical for the Elevated Body Temperature System.

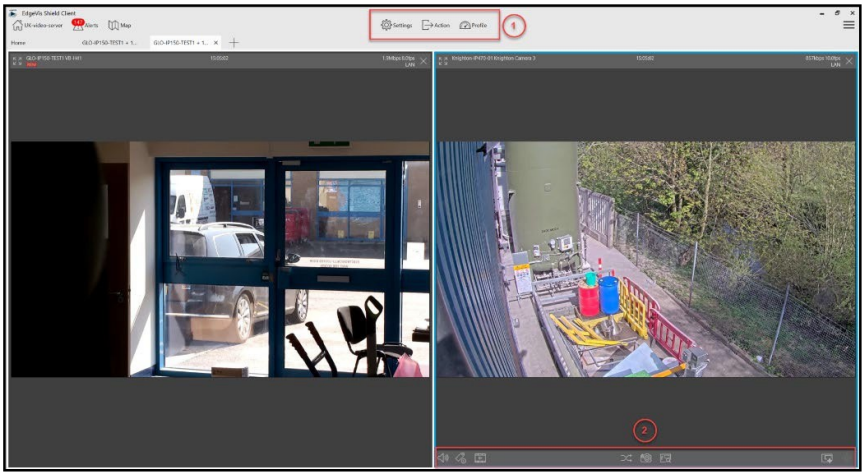

Figure 30: EdgeVis Client - Video Panel Interface

68 Only one video panel can be active at any one time; clicking on the video pane to select the desired encoder will display a blue border around that specific video stream showing that it the active video screen.

69 Two further sets of controls will also be displayed which will enable various functions of the encoder, these are labelled in Figure 30 and are described in Table 10.

1	Encoder Functions Toolbar	This allows the operator / user to select PTZ functions, access the archive, utilization of the full-resolution tool and allows local Wi-Fi archive download if the EdgeVis Encoder supports it.
2	Encoder Settings, Actions & Profiles	These menus allow access to further EdgeVis Encoder functionality: • **Settings.** Includes color controls, encoder diagnostics and allows the setting of a static GPS location. • **Actions**. Includes various controls to manipulate the mapping function, enabling remote archive function, starting / stopping local video recording, and accessing SecureConnect services on the encoder • **Profiles**. Allows the operator / user to quickly change the encoder bandwidth, framerate and resolution to a number of intelligent-sets (including a low-bandwidth economy mode). If a non-standard specific setting is required, the Custom profile option can be used.

Table 10: EdgeVis Client - Video Panel EdgeVis Encoder Controls

Encoder Function's Toolbar

70 The Encoder Function's toolbar at the bottom of the selected video pane will present several controls that allows access to the features supported by the selected EdgeVis Encoder. The toolbar will dynamically show buttons that the operator / user has access to and will hide buttons for any of the following conditions:

70.1 Features not available on an EdgeVis Encoder (e.g. archive access on a mobile encoder).

70.2 EdgeVis Client hides features that the user has not been given permission to use.

70.3 Features will not be shown if the video pane is too small to operate them within the confined pane.

70.4 The EdgeVis Encoder may not be licensed for particular functions.

70.5 Table 11 explains the symbols displayed on the toolbar (shown at Figure 31) and each feature.

Figure 31: EdgeVis Client - Encoder Function's Toolbar

	Add Bookmark	Add a bookmark for the current time. Bookmarks can be added to live video or while reviewing archive video
	Archive Access	Review the recordings on the encoder. This will present a list of available times - drill down to a day / hour / minute to begin playback, or select a bookmark to jump to a saved time
	Camera Input Select	Change the live camera input. No of Camera inputs dependent on EdgeVis Encoder.
	Save Local Image	Save a local image of the current video frame.
	Full Resolution Tool	Open the full-resolution retrieval interface.
	VPTZ Controls	Open the virtual PTZ controls.
	PTZ Controls	Open the physical PTZ controls.

Table 11: EdgeVis Client - Encoder Function's Toolbar

Adding Bookmarks

71 Archived Bookmarks can be set to mark a point in time to be reviewed later, they can be set while viewing a live EdgeVis video stream or reviewing footage from the EdgeVis Encoder's archive.

72 To set a Bookmark, whilst viewing the stream, select the ***Add Bookmark*** icon, which will bring the screen as shown in Figure 32, then enter the name of the bookmark required along with a description (if required) shown in Figure 33) and select 'OK'.

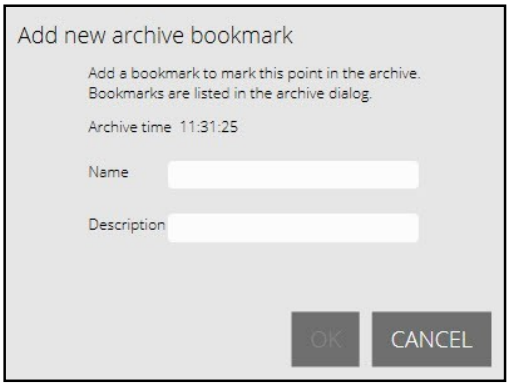

Figure 32: Add Bookmark Screen

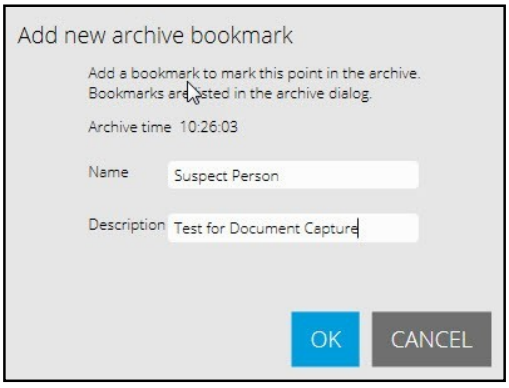

Figure 33: Bookmark Details

73 The bookmarks are stored centrally on the EdgeVis Server and can hence be accessed from any EdgeVis Client with the requisite permission and license.

74 Any bookmark, previously added, can be viewed by selecting the **Archive Access** icon from the Encoder Function's Toolbar and tapping ***Select a bookmark***, as shown in Figure 34 - this will commence the archive playback (Para 77 describes archive usage) and automatically commence it from the previously saved bookmark.

75 Right clicking on the Bookmark in the ***Select a bookmark*** screen will highlight it in blue and allow the previously entered description to be read (if entered); as shown in Figure35

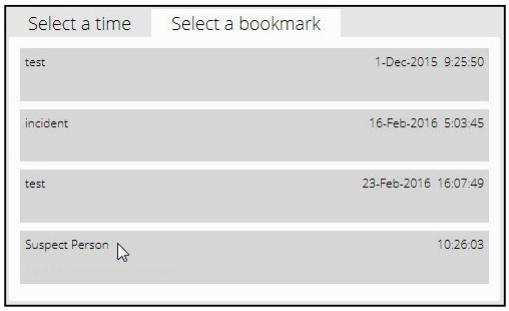

Figure 34: Selecting a Bookmark

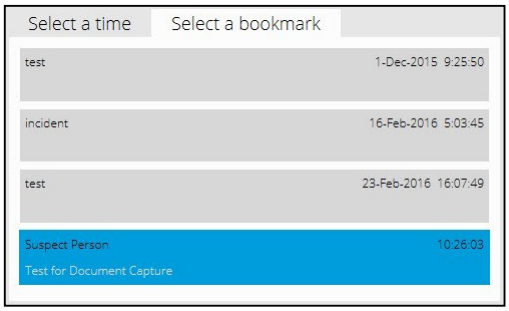

Figure 35: Bookmark Description

76 To remove a bookmark, press and swipe left the required bookmark to delete.

Archive Access

77 Dependent on the EdgeVis Encoder being utilized will dictate whether on-board storage is available and can store OTA stream-able archive footage. For example, the EdgeVis HD-IP200 has an SSD as part of the delivered system allowing access to the archive to a User with the correct permission and license via EdgeVis Client.

78 To access the archive, tap the **Access Archive** icon, if no archive is present the icon will be greyed out and non-selectable, if available the screen shown at Figure 36 will be displayed to which the operator / user needs to further select a day from the displayed time bar (shown at Figure 37), once a day has been selected and highlighted the keyboard left / right arrow keys can be used to scroll through those not immediately displayed.

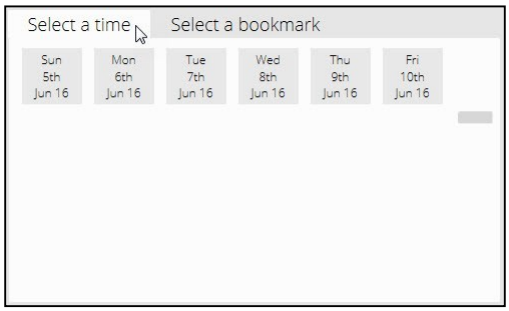

Figure 36: Archive Access

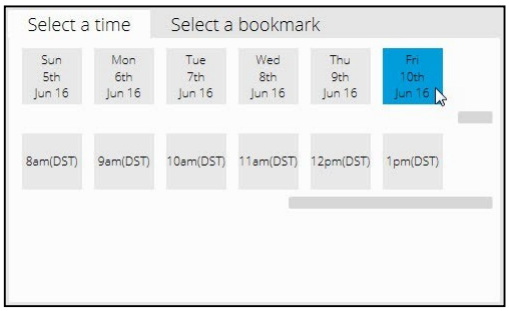

Figure 37: Archive Access - Date Selection

79 Once the desired day has been selected, the available hours then minutes will be shown, as per Figure 38, once the minute of the required archive has been selected, the recording will automatically start to play.

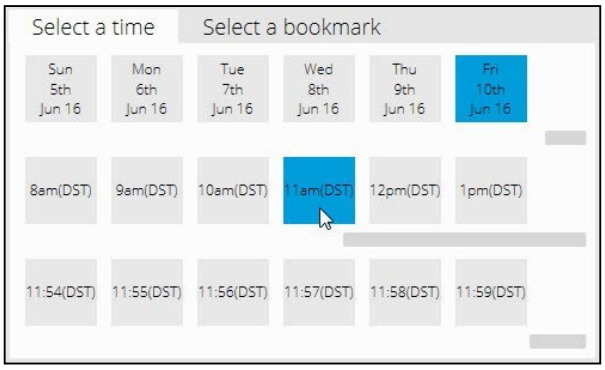

Figure 38: Archive Access - Time Selection

80 Once the archive is paying the screen shown at Figure 39 will be displayed; this will show the archive playback as selected by the operator / user with the Archive Time displayed at the top middle of the screen with the Archive Control Toolbar at the bottom center of the screen allowing normal video playback control.

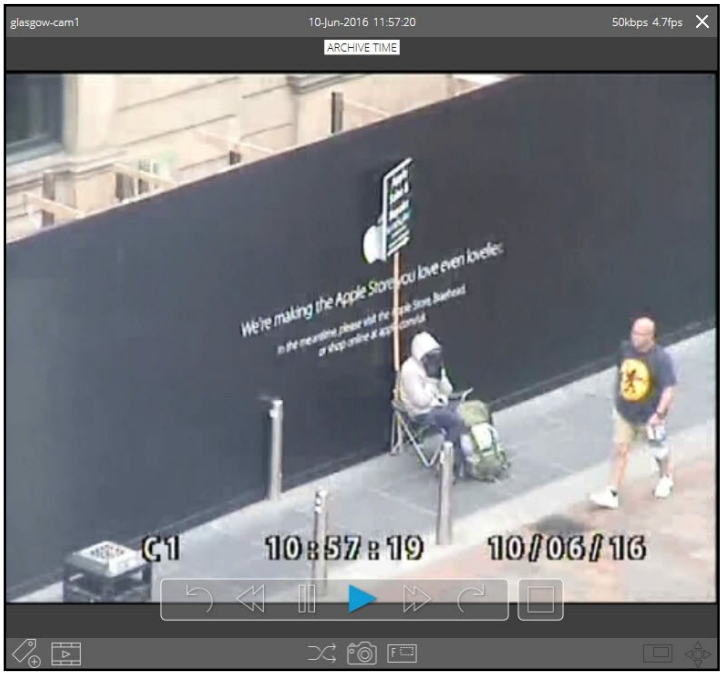

Figure 39: Archive Display Screen

81 To close the Archive and revert to the normal live video stream, press the stop button, furthest right, on the Archive Control Toolbar.

Camera Input Selection

82 Dependent on the EdgeVis Encoder being utilized will dictate how many camera inputs are available and can be used. The HD-IP200 utilized within Elevated Body Temperature only allows 1x Camera to be connected - this option will therefore not allow camera inputs to beswitched.

Save Local Image

83 Tapping the ***Camera*** icon will take a snapshot of the current video frame, stamp it with the Figure 40) Date / Time, Encoder Name, Server Name and Camera Input.

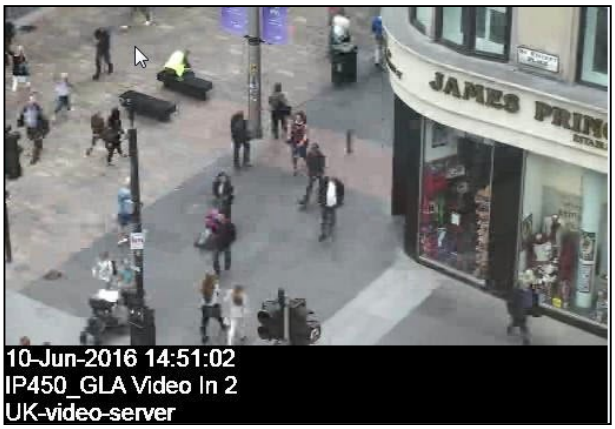

Figure 40: Snapshot View

84 Dependent on the device being used to access EdgeVis Client will dictate where the image is stored:

84.1 **Mobile Device**. Stored in the device photo album.

84.2 **PC / Laptop**. Stored in a folder accessed by File explorer at the following location:

C:\Documents\Digital Digital Barriers\Archived Video and Pictures\Server_Name\Encoder_Name[12]

Full Resolution Mode

85 All EdgeVis Encoders support the full-resolution retrieval feature which allows users to download portions of the original image, as supplied by the camera, before any TVI compression is applied. This allows the operator / user to view the original image in the highest quality and retrieve detail lost during live transmission if this has occurred due to a poor-quality communication link.

86 When the operator / user selects the **Full Resolution** icon, EdgeVis Client will open a new tab containing the full-res application, as shown at Figure 41.

[12] Insert EdgeVis Server and EdgeVis Encoder being used into '**Server_Name**' and '**Encoder_Name**'.

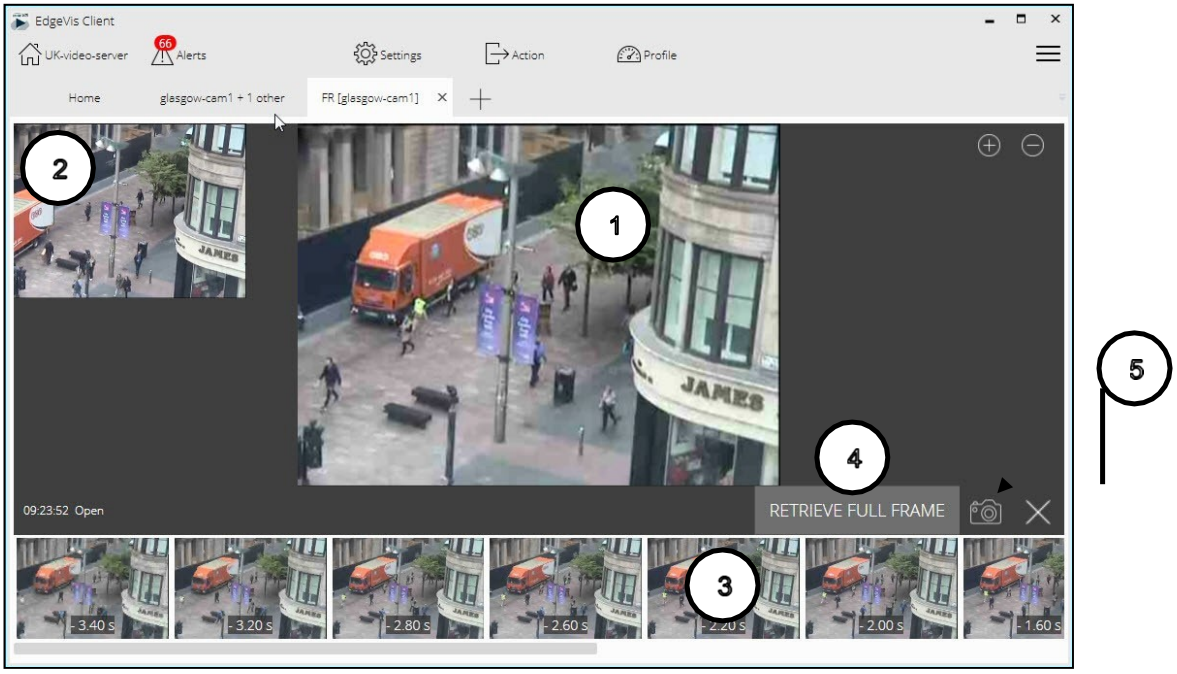

Figure 41: Full Resolution Screen

87 The screen is split into several parts, as shown in Figure 41 and described in Table 12.

1	Selected Video Frame	This is the currently selected video frame, blown up to the resolution of the source image. This image may look blocky, as it was likely received at a lower resolution. Selecting an area will trickle-feed (speed dependent on quality of communication link) that portion of the original image to the client.
2	Live Stream	This window shows the live stream, allowing the user to maintain situation awareness.
3	Selectable Video Frames	This pane allows for a different video frames to be retrieved. The amount of time a user may scroll back varies by EdgeVis Encoder model and frame-rate but is typically around one minute.
4	Entire Frame Download Button	This button allows the user to download the entire frame – time will be dependent on quality of communication link - but downloading a full 1080p image (which will be approximately 200-300KB) could take several minutes to download.
5	Save Image (Local)	The Save button will save a high-quality JPEG of the retrieved image locally on the operator / user's device

Table 12: Full Resolution Screen Functionality

PTZ / VPTZ Control

88 EdgeVis Client supports two types of PTZ[13] (Pan, Tilt and Zoom) controls:

88.1 **Physical PTZ**. If the EdgeVis Encoder has a camera that is physically capable of being controlled, EdgeVis Client will allow the users to be move the camera, zoom in / out and change focus / iris and backlight controls.

88.2 **Virtual PTZ (VPTZ).** The encoder will usually be transmitting the video at a resolution lower than the source footage. The encoder will resize the original source image down to the transmitted image's resolution which will cause some detail to be lost. VPTZ allows the user to zoom into the source image, up to the point where one pixel in the source image is represented by one pixel in the transmitted image.

89 Opening Physical PTZ control will display an on-screen joystick as shown at Figure 42 (note the PTZ icon highlight in blue) although keyboard control is also available. To move the camera, drag the thumb joystick in the direction required moving it further from the center to move the camera faster.

Figure 42: EdgeVis Client - Physical PTZ Control

90 The joystick is surrounded by four other functions:

90.1 Zoom In '+'.

90.2 Zoom Out '-'.

90.3 Camera pre-set positions (both 'go to' and 'set')

90.4 Advanced features - camera specific, but usually includes iris, focus and backlight controls.

91 Opening Virtual PTZ control will display an on-screen joystick similar to the Physical PTZ but missing the camera pre-set and advanced feature buttons as shown at Figure 43 (note the VPTZ icon highlight in blue) although keyboard control is also available. Operate the joystick in the same manner as previous PTZ; plus, it should also be noted that there is a VPTZ indication at the top right of the Video stream indicating where the VPTZ is currently pointing within the video stream, this is shown at Figure 44.

[13] Both types of PTZ are performed by the encoder and will affect all viewing the encoder. Only one user may control PTZ at a time, although it is possible to 'kick' a user off PTZ control utilizing administrative permission via EdgeVis Server interface.

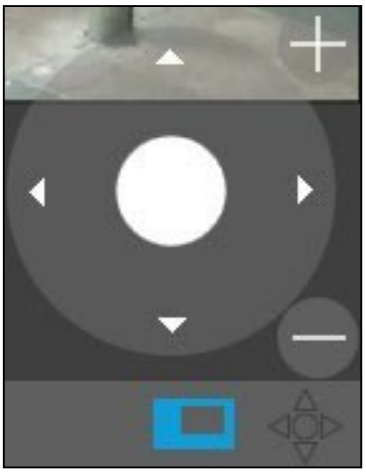

Figure 43: Virtual PTZ Control

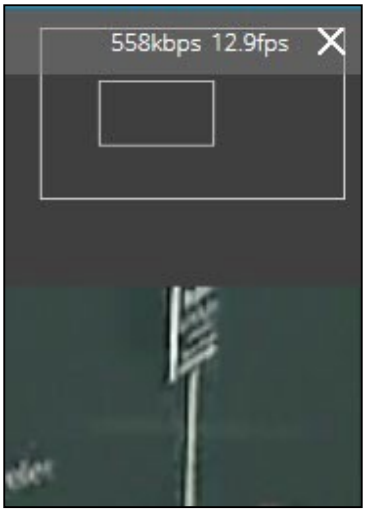

Figure 44: Virtual PTZ Indication