

# VB7880 Advanced Content Extractor

## User's Manual



**Software version 5.2**

Form 8124B

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# 1 INTRODUCTION

## 1.1 About the VB7880 Advanced Content Extractor

The VB7880 Advanced Content Extractor performs real-time loudness monitoring as well as objective video and audio monitoring of MPEG-2, H.264/MPEG-4 and H.265/HEVC streams and offers a unique web browser based Remote Video Wall capability providing full visual status from anywhere. The VB7880 Advanced Content Extractor enables operators to inspect massive amounts of content services beyond human eyeball capability with dependable alarming on objective parameters having QoE impact.



In addition to providing automated Objective QoE of large amounts of services, the VB7880 offers thumbnail and metadata extraction for up to 100 streams (TV multicast streams or OTT) concurrently, depending on the license. The VB7880 with its RVW (Remote Video Wall) capability is ideal for visual at-a-glance monitoring in the NOC, VOC, head-end or remotely via any standard web browser.

The VB7880 Advanced Content Extractor is typically inserted before scrambling insertion in the head-end and the extracted metadata and decoded imagery is fed to the VideoBRIDGE Controller. Disruption of descrambling services is one of the main causes for service production disruptions in the head-end, and for the first time cost-effective monitoring of scrambling is available.

Further applications are in middleware scenarios for generating channel mosaics or for extracting channel metadata such as picture resolution, video bandwidth or wide screen signaling information. Each VB7880 Advanced Content Extractor runs an HTTP server with the client as a web browser, so there is no need to install custom software on computers needing access to the measurement data.

The VB7880 is designed to raise an alarm for descrambling failures at the head-end, before ingress into the network. The VB7880 can also detect freeze-frame errors and audio silence. Alarming can be masked during predefined time periods. The VB7880 enables at-a-glance monitoring remotely via any standard web browser and it will also work with the VideoBRIDGE Controller.

**The VB7880 Advanced Content Extractor is a server appliance, that can be installed onto any server that meets the minimum requirements specified in chapter 2.**

## 1.2 How to Use This Manual

This User's Manual is valid for software version 5.2 of the VB7880 Advanced Content Extractor.

Throughout this manual the term stream is often used rather than unicast or multicast. One stream may consist of one or more services, and refers to one IP uni- or multicast.

Chapter 2 INSTALLATION AND INITIAL SETUP explains how to install the software on a server.

Chapter 3 QUICK SETUP GUIDE contains a quick setup guide; a step-by-step description of how to setup the VB7880 Advanced Content Extractor once the initial setup has been performed.

Chapter 4 REMOTE VIDEO WALL describes the Remote Video Wall.

Chapter 5 THE VB7880 GRAPHICAL USER INTERFACE describes the graphical user interface (GUI) as seen when pointing a web browser to the VB7880 Advanced Content Extractor's IP address.

A Appendix: Network configuration gives a brief introduction to the server OS network configuration.

B Appendix: OTT Profile Health explains the OTT profile health bar and timeline.

Note that current version of the User's Manual can be obtained from Sencore ProCare support by emailing [procare@sencore.com](mailto:procare@sencore.com).

## 2 INSTALLATION AND INITIAL SETUP

### 2.1 System Requirements

The minimum hardware requirements are:

- Dual 6 core Intel E-Series 2.0 GHz CPU
- 32 Gbyte 1600 MHz DDR RAM
- 1 Tbyte HDD
- Dual 10/100/1000T Ethernet Network Interface card with support for Red Hat Enterprise Linux 7

### 2.2 First-time Installation

Make sure that the server hardware matches the requirements listed above and then follow the procedure outlined below.

1. Obtain the latest installation kickstart image from Sencore.
2. Insert the installation medium into the server:
  - For CD/DVD-based installations, burn the downloaded ISO image to a CD/DVD and insert into the server.
  - For USB-based installation, transfer the downloaded image to a USB mass storage device using a tool such as **dd** (Mac, Unix, Linux) or **USBWriter**<sup>1</sup> (Windows).
  - For installation in a virtualized environment, attach the downloaded ISO image to a virtual DVD-ROM unit.  
It is recommended that you disable any 'Easy install' or similarly worded option, and do *not* select the operating system type when you initially create the new virtual machine instance in your virtualization environment. These options may override the installation instructions included in the provided installation image, causing an incomplete installation.

---

<sup>1</sup><http://sourceforge.net/projects/usbwriter/>

3. Boot the server and make sure that the primary boot device is set appropriately. If the system fails to boot from the medium, you may need to configure the boot loader for 'legacy BIOS mode'.
4. The installer will run, please follow the on-screen prompts to install the system, taking note of the following:
  - **IMPORTANT:** Leave 'Software selection' at 'Custom software selected'.
  - **IMPORTANT:** In the 'Installation Destination', the default partitioning will create a large `/home` partition, which is unused. To avoid this, use the 'I will configure partitioning' option. Then use the 'Click here to create them automatically' and manually reduce the size of (or remove) the `/home` partition, instead giving that space to the `/` partition.
  - We recommend that you configure network settings (IP address, gateway, DNS) within the installer. Post-installation network configuration can be performed using the `nmcli` utility, please refer to A Appendix: Network configuration for details.
  - The default installation does not provide any graphical user interface environment. This can be installed later if desired, please refer to the Red Hat Enterprise Linux<sup>2</sup> or CentOS Linux<sup>3</sup> documentation for more details.
5. At the end of the installation procedure, the server is rebooted. Remove the installation media and ensure that the system boots up properly.
6. Enter the selected IP address in your web browser to access the Software Activation page. If your host is using dynamic addressing, you can log in to the account created during installation and issue the command `ip addr` to display the address assigned to the system.  
Continue to chapter 2.4 for details on how to enable the VB7880 Advanced Content Extractor system.

The kickstart will install Red Hat Enterprise Linux 7 or CentOS 7 on the server. The disks will be formatted and all contents lost. Make sure that any important data on the server has been backed up before beginning the procedure.

## 2.3 Deploying in a Virtualized Environment

It is also possible to deploy the software in a virtualized environment. Pre-built images for VMware (vSphere/Workstation/Player) are provided in OVA (Open Virtualization Format Archive) format. These images contains a system already installed according to the steps described in the previous chapter, with VMware Tools already installed and activated.

To deploy the image, you need to import it to the virtualization host, please refer to the documentation of your virtualization environment for more details on how to do this.

<sup>2</sup>[https://access.redhat.com/documentation/en-US/Red\\_Hat\\_Enterprise\\_Linux/7/index.html](https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/index.html)

<sup>3</sup><http://wiki.centos.org/Manuals/ReleaseNotes/CentOS7>

If installed in a VMware vSphere environment, the machine should report back its network configuration to the host environment. Please allow some time for it to do so, and then continue with the Software Activation procedure as described in the next chapter.

If you need to log in to the console of the pre-built images, the default password for the **root** user is **elvis**.

When installing the software in the virtualized environment yourself, please follow the steps from chapter 2.2. It is recommended that you disable any 'Easy install' or similarly worded option, and do *not* select the operating system type when you initially create the new virtual machine instance in your virtualization environment. These options may override the installation instructions included in the provided installation image, causing an incomplete installation.

## 2.4 Verifying Correct Initial Setup and Software Activation

Once the software has been installed and restarted all further configuration takes place through HTTP.

1. Launch a web browser application on the management system.  
Any web browser with support for JavaScript can be used to access the Software Activation interface, one of the following are recommended:
  - Edge
  - Internet Explorer 11.0 or higher
  - Firefox 2.0 or higher
  - Chrome
  - Safari
2. Type the IP address of the server in the browser URL field and press .  
The network settings should have been set when the operating system was installed. If the web browser is unable to reach the web server, check the server's network settings in the operating system.
3. The Software Activation view should be displayed inside the browser. Software Activation is password-protected, the user name is **admin** and the default password is **elvis**.  
This password can be changed under the **More options** heading<sup>4</sup>.  
The page displayed should look similar to the following screen shot.

---

<sup>4</sup>If you forget the Software Activation password, you can reset it by logging in as root and issuing the command `/opt/btech/ssg/bin/reset_web_password`



## Software selection

VideoBridge Controller Server	Installed	<a href="#">Not activated</a>
VB7880	Installed	<a href="#">Not activated</a>
Archive Server	Installed	<a href="#">Not activated</a>
VB330-V	Installed	<a href="#">Not activated</a>

## Export hardware keys

Your sales representative need the hardware key(s) to be able to issue a software license. You can [export hardware keys as XML](#) and send them to your representative as an e-mail attachment.

## ► More options

4. If you already have an XML file with license keys for your system, click on the **More options** heading and upload this file under the **Import license keys** option. If have the license key written down or in an e-mail, instead use the product page described below.
5. If this is a new server, and you need to obtain license keys for the purchased products, please click the link labelled **export hardware keys as XML** and send the downloaded file to your sales representative as an e-mail attachment.
6. The VB7880 Advanced Content Extractor is not enabled by default on the newly installed server. To enable it, use the link labelled **Not activated** next to its name. This will take you to a page giving you the details of the installed software, such as the installed version and the hardware key. If you have a license key that you want to enable and have not yet done so, enter the key in the field labelled **Apply license key** and click the **Add license** button.
7. Click the button labeled **Activate software** and wait for it to finish. If successful, the VB7880 Advanced Content Extractor should now be activated, and you will be presented with a link to the user interface. The next time you access the server using a web browser, you should be taken to the automatically to the enabled software.

Please note that it may take some additional time before the user interface of the activated product becomes available. If you receive an error trying to access it, please wait for a few minutes before trying again.

To return to the Software Activation view to make changes, open the **About — License** tab in the VB7880 Advanced Content Extractor user interface and click the link labelled **Manage installed software**.

## 2.5 Initial Setup Troubleshooting

If you are having trouble bringing up the Software Activation interface, or the VB7880 Advanced Content Extractor web based management interface, verify the following:

- Verify that the client machine and the VB7880 Advanced Content Extractor are configured on the same subnet and that they have different addresses.
- Make sure that the IP address of the gateway and the network interface are not the same.
- Verify that the appropriate Ethernet link indicators of the PC and the VB7880 Advanced Content Extractor are lit.
- Verify that web browser proxy settings are not interfering.
- Verify that local firewall settings on the PC are not interfering.
- Try rebooting the server and make sure all services start as expected.
- Clear the browser's cache.

Please refer to A Appendix: Network configuration for more information on server network configuration.

## 2.6 Upgrading From a Previous Version

You can either re-install the system as mentioned below, or by using one of the provided upgrade images.

If you are running on Red Hat Enterprise Linux 7 beta, upgrades are not supported, and you must re-install the system.

## 2.6.1 Upgrading by Re-Installing the System

If you want to re-install the system from scratch, please follow these steps:

1. Backup the system configuration (**Data — Configuration — Full configuration**). Log in to the system as root and copy the file `/opt/btech/extractor/etc/btech.xmlcfg1e` (if you are running a version prior to 5.2, the file is located at `/opt/btech/etc/btech.xmlcfg1e`) to a safe location (off the system).
2. Export the current license (**About — License — Export current license and software maintenance keys**; 5.1.0 or later) or write down the license key (**About — License**).
3. Possibly back up the system network configuration by logging in to the machine and copying any files matching the wildcard `/etc/sysconfig/network-scripts/ifcfg-*` to a safe location (off the system).
4. If you have uploaded custom images for the Remote Video Wall, make sure you have copies of these available so that you can re-upload those separately.
5. Re-install the system as described above.
6. Using the Software Activation page import the previous license key (under **More options**); or re-enter it using the activation page) and activate the software.
7. Import the configuration from **Data — Configuration — Import configuration XML**.

If importing the old configuration fails with an error, please follow these steps:

1. Log in to the system as root and issue the command

```
systemctl stop vb288.ewe
```

2. Restore the backup of the file `btech.xmlcfg1e` that you made above as `/opt/btech/extractor/etc/btech.xmlcfg1e`
3. Issue the command

```
systemctl start vb288.ewe
```

## 2.6.2 Upgrading From Version 5.0.0

VB7880 Advanced Content Extractor version 5.2 will be able to upgrade VB7880 version 5.1 only. Other versions of VB7880 will need to first be upgraded to VB7880 version 5.1.

### 2.6.3 Upgrading From Version 5.1.0

This release needs some additional software packages to be installed, and must be upgraded using the upgrade image labeled **upgrade from 5.1.0**. The upgrade image will install these packages as necessary. Please refer to chapter 5.8.2 for details on how to install the upgrade image.

The upgrade will also install the Software Activation interface (please see chapter 2.4 for more information), with the VB7880 Advanced Content Extractor already activated. Open the **About — License** tab in the user interface and click the link labeled **Manage installed software** to make changes to Software Activation, for instance to replace the default password.

## 2.7 Upgrading To a Maintenance Release

Please refer to chapter 5.8.2 for details on how to upgrade to maintenance releases. You need to use the upgrade image labelled **upgrade from 5.2.0** when installing a maintenance release.

## 2.8 Accessing the User Interface

Once the software has been installed and activated all further configuration takes place through HTTP.

The following web browsers are supported for the management interface:

- Internet Explorer 11.0 or higher
- Edge
- Firefox 2.0 or higher
- Chrome
- Safari

Please note that, for optimum results, Chrome is recommended when displaying the Remote Video Wall.

The default management view should look similar to the following screen shot. If you have problems accessing the user interface, refer to chapter 2.5 for troubleshooting.



## 3 QUICK SETUP GUIDE

This quick setup guide is intended to provide a step-by-step explanation of how to setup the VB7880 once the initial setup has been performed (as described in chapter 2). More detailed instructions are found in chapter 5 of this manual.

### 3.1 Basic Setup

1. Set appropriate parameters in the **Setup — Params** view.
2. If access control is required, define a password in the **Setup — Login** view. Note that it is important to read the instructions in the associated section of this manual.

### 3.2 Input Signal Definitions

#### Multicasts

1. Define multicasts, either by defining multicasts from scratch (**Multicasts — Streams**) or by importing a multicast list exported from another VB7880 or probe. Note that the sequence of the multicast definitions will be reflected in monitoring, so order the multicasts correctly if required.
2. Join multicasts in the **Multicasts — Join** view.

#### OTT

1. Define OTT channels (**OTT — Channels**).

### 3.3 Monitoring

When input signal parameters have been set, the signals may be monitored. For Ethernet multicasts the relevant monitoring views are: **Main**, **Alarms**, **Multicasts** and **RVW**. OTT traffic monitoring is displayed in the **OTT — Thumbnails** view (**OTT — Active testing** if the appropriate license is installed).

## 3.4 Adjusting Alarm Thresholds

When the VB7880 channels and streams have been defined using default thresholds, the result can be a number of more or less permanent alarms, some of which may not be relevant under the current circumstances. In order for the user to get rid of unwanted alarms, the extractor provides alarm filtering functionality in the form of alarm thresholds and alarm on/off selection.

### Multicasts

Creating a new threshold template is done either by copying an existing one and altering the copy, or by creating a new threshold template from scratch. The Ethernet thresholds are defined in the **Multicasts — Ethernet thresh.** View. These thresholds are associated with streams in the **Multicasts — Streams** view. In addition to the miscellaneous thresholds, that affect only the streams with which they are associated, the **Alarm — Alarm setup** view allows the user to enable and disable alarms on an overall basis. It is also possible to define the alarm severity levels for different alarms in this view.

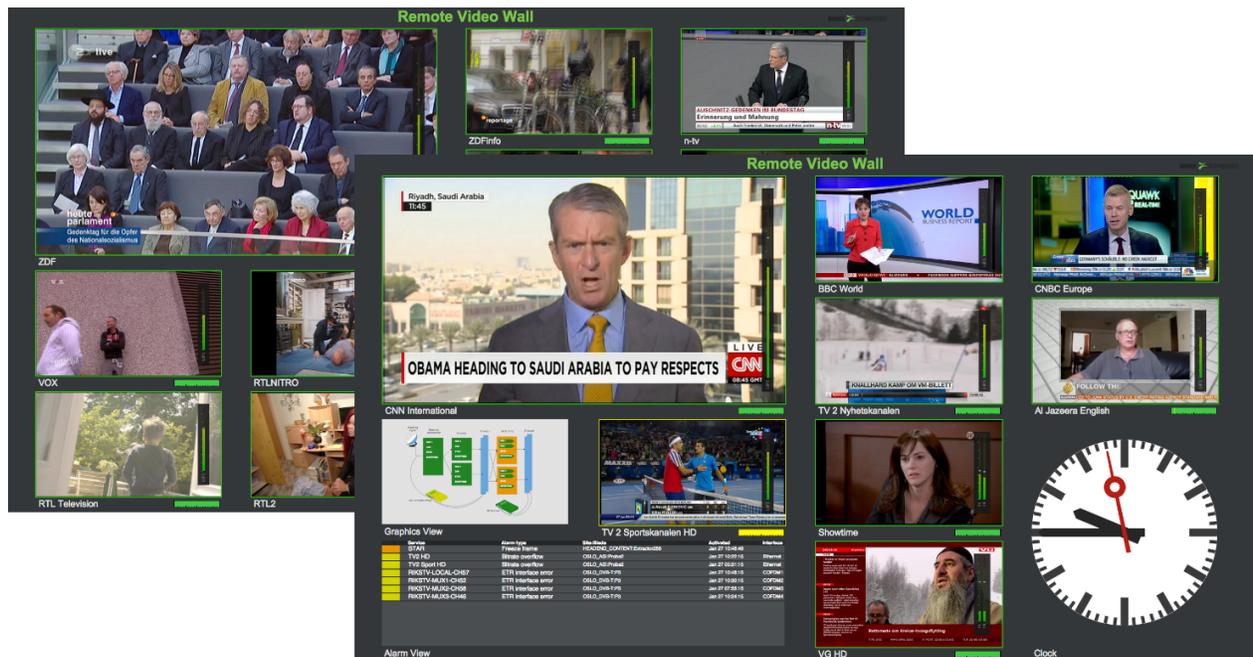
### OTT

When a OTT channel is defined the default OTT threshold template is assigned to it. To change threshold values create one or more new templates in the **OTT — Thresholds** view and assign them to OTT channels in the **OTT — Channels — Edit** view.

## 3.5 License

When first activated, the VB7880 comes with a 30-day trial license. To use it beyond this time, a license key is required. To generate the license code, you will need to provide the hardware key, which can be found under **About — License**, or from the Software Activation interface, as described in chapter 2.4.

## 4 REMOTE VIDEO WALL



This chapter gives a quick introduction on how to use the Remote Video Wall feature of the VB7880 Advanced Content Extractor.

### 4.1 Introduction to the Remote Video Wall

The VB7880 Advanced Content Extractor gives the opportunity to monitor the content of up to 64 multicast services or live OTT channel profiles spread across four web browser windows. The VB7880 also provides measurements of the audio loudness level according to the ITU-R BS.1770-2 standard. The measurement used is the EBU R128 momentary (400 ms) value. You can display this data by selecting LUFS/LKFS in the Remote Video Wall configuration. The raw measurements can be gathered through the External integration interface (Eii). The specification of the Eii can be obtained from Sencore.

The Remote Video Wall can also be configured to display web-based widgets to convey important information from within the system. Please see chapter 4.3 below for more information on the available widgets.

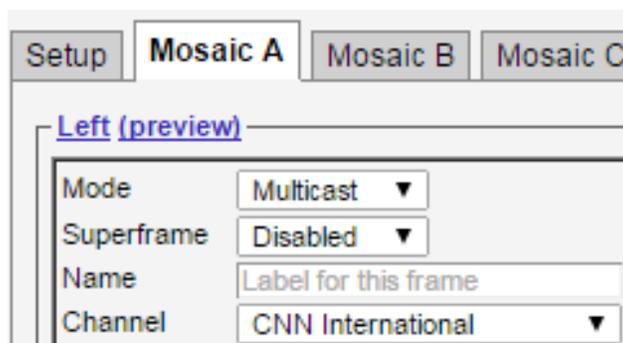
In addition the VB7880 Advanced Content Extractor can also be integrated with the VideoBRIDGE Controller enabling Network diagrams and alarm lists right next to crisp mosaics decoded from the selected streams.

When VBC integration is available, any streams for which the VideoBRIDGE Controller has active alarms will be shown with a colored border in the RVW. All other streams are displayed with a green border. This makes it possible to discover stream alarms with just a quick glance. The VBC MicroTimeline is displayed under all multicast and OTT streams for which the VideoBRIDGE Controller has data. In addition, for OTT channels, a 24h OTT alarm graph will be displayed, using data from the VideoBRIDGE Controller connected probes monitoring the same channel (if any).

If VBC integration has not been enabled, the borders will be colorized according to locally generated alarms, but no MicroTimeline or OTT alarm graph will be displayed.

## 4.2 Accessing the Remote Video Wall

The Remote Video Walls can be reached by entering `<IP address>/rvw/?m=1` in a browser's URL field. `m=1`, `m=2`, `m=3` and `m=4` selects Mosaic A, B, C and D, respectively, configured under the RVW tab, as described in chapter 5.6.2. The RVWs can also be reached through the management GUI in the section **RVW — Mosaic A–D** by following the blue link in the upper left corner. In the example below it has been renamed **Left**.



Go to chapter 5.6.2 for details on how to configure the Remote Video Walls.

**Google Chrome is recommended for displaying the Remote Video Walls.**

## 4.3 Remote Video Wall Widgets

In addition to thumbnails, each Remote Video Wall slot can display a web widget. This chapter describes the Remote Video Wall widgets that are shipped with the VB7880 Advanced Content Extractor.

Some of the widgets requires integration with a VideoBRIDGE Controller server, version 5.1.0 or later.

### **4.3.1 Alarm View**

This widget makes it possible to display a list of active alarms, either from the VideoBRIDGE Controller or the VB7880 itself. The alarm source is can be configured for each widget instance. If VBC integration is disabled, the alarm source is ignored and the local alarms are always displayed.

The Alarm View widget is designed to be two RVW tiles wide and 1–4 tiles tall.

### **4.3.2 Clock**

This widget lets you display the current time on the Remote Video Wall. Several different clock faces are available, and they can be configured to display either local time (for the system running the browser displaying the RVW), or a specific time zone.

### **4.3.3 Constellation Diagram (requires VBC integration)**

This widget lets you display the constellation diagram for a specific stream from one of the probes connected to the VideoBRIDGE Controller. In the configuration you can select any RF interface on probes available in the VideoBRIDGE Controller.

### **4.3.4 DataMiner Alarms (requires DataMiner integration)**

This widget makes it possible to display the current alarm count from a Skyline DataMiner server. Active alarms on the server are grouped based on the severity as defined on the DataMiner server and the numbers are displayed in the RVW.

### **4.3.5 DataMiner View (requires DataMiner integration)**

This widget lets you display a diagram from the Skyline DataMiner inside the RVW. In the configuration you can select any of the diagrams configured on the DataMiner server that are visible to the user whose credentials you are logging in with.

### **4.3.6 Graphics View (requires VBC integration)**

This widget lets you display a network diagram from the VBC Graphics View inside the RVW. In the configuration you can select any of the network diagrams configured in the VBC Graphics View Setup.

### **4.3.7 Image Viewer**

This widget is a static image viewer, which can be used to easily include external information. In the configuration, you can select the URL for an image to display and select the update interval.

### **4.3.8 Loudness Graph**

This widget displays a loudness graph for an audio channel of a multicast stream monitored on the VB7880 Advanced Content Extractor. Real-time audio analysis needs to be enabled for the stream for the data to be available. Up to two minutes of loudness data is displayed in the graph.

### **4.3.9 Media Window (requires VBC integration)**

This widget lets you display a view of the Media Window for a specific stream from one of the probes connected to the VideoBRIDGE Controller. In the configuration you can select any multicast stream on probes available in the VideoBRIDGE Controller.

NOTE: When displaying the media window widget for probes running 5.1.0-5 or earlier, or 5.0.2-4 or earlier, the threshold colorization does not completely reflect what is seen on the probe.

### **4.3.10 RF Graphs (requires VBC integration)**

This widget displays customizable RF graphs from the VideoBRIDGE Controller. It can be configured to show RF parameters for any stream that is applicable in the VideoBRIDGE Controller, with a selectable interval. The parameters that can be displayed are Signal to Noise Ratio (SNR), Modulation Error Ratio (MER) and Signal Level (SIG).

### **4.3.11 Stream View (requires VBC integration)**

This widget makes it possible to display the VBC MicroTimeline for selected services inside the Remote Video Wall. The list of streams can be filtered on name and/or current severity level (as defined by the VideoBRIDGE Controller). The Stream View widget is designed to be one RVW tile wide and 1–4 tiles tall.

### **4.3.12 Weather (requires Internet access)**

This widget displays a weather forecast for a configurable location for the next 24 hours.



carefully. Memory leak manifests itself as the browser responding more and more slowly, and this is corrected by closing down the application and restarting.

Web browsers supported are:

- Internet Explorer 9.0 and higher (IE 11 should be run in compatibility mode)
- Firefox 2.0 and higher
- Safari
- Chrome

The interface is easy and intuitive to use. Navigate by clicking on the tabs just below the Content Extractor logo. Some of the pages have their own tabs for accessing nested pages. The bottom frame of the interface is always the Alarms & events list, usually referred to as the **alarm list**. The alarm list can be displayed or hidden by clicking the **Toggle** link, which is displayed as an arrow head.

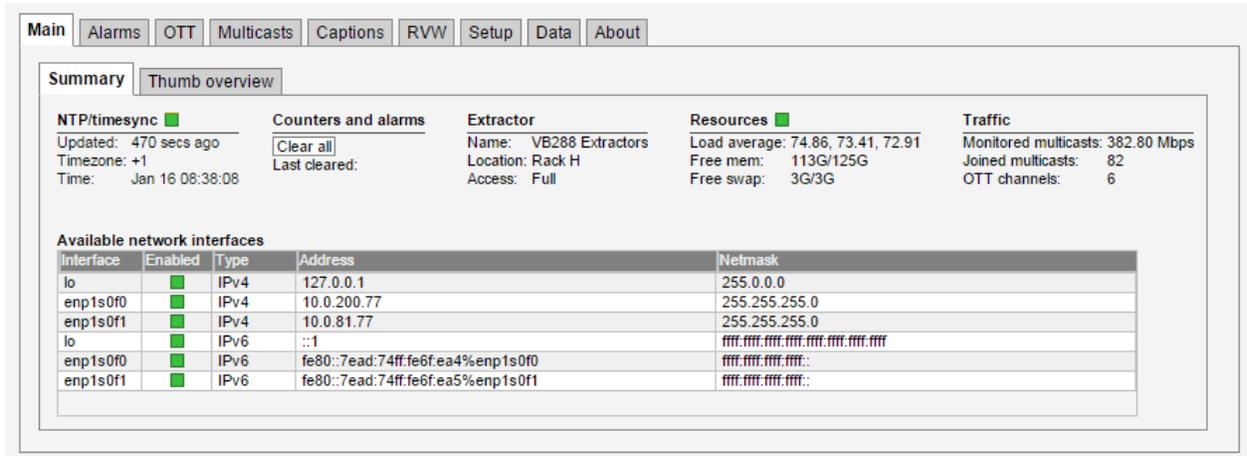
The web interface has been designed to be resizeable in both vertical and horizontal directions with a minimum screen resolution of 1024×768 pixels.

Tool-tips are available for most buttons and labels. To access tool-tip information simply navigate the mouse pointer towards a button or a label and leave it hovering for a second or two.

In this manual the term stream is generally used instead of the terms multicast and/or a unicast stream. A stream may thus contain a single service or multiple services.

## 5.1 Main

### 5.1.1 Main — Summary



The screenshot shows the 'Main' page with a navigation bar containing 'Main', 'Alarms', 'OTT', 'Multicasts', 'Captions', 'RVW', 'Setup', 'Data', and 'About'. The 'Summary' tab is active, showing a 'Thumb overview' section with several key metrics:

- NTP/timesync** (Green status): Updated: 470 secs ago, Timezone: +1, Time: Jan 16 08:38:08.
- Counters and alarms**: Includes a 'Clear all' button and 'Last cleared:' information.
- Extractor**: Name: VB288 Extractors, Location: Rack H, Access: Full.
- Resources** (Green status): Load average: 74.86, 73.41, 72.91; Free mem: 113G/125G; Free swap: 3G/3G.
- Traffic**: Monitored multicasts: 382.80 Mbps, Joined multicasts: 82, OTT channels: 6.

Below these metrics is a table titled 'Available network interfaces':

Interface	Enabled	Type	Address	Netmask
lo	Green	IPv4	127.0.0.1	255.0.0.0
enp1s0f0	Green	IPv4	10.0.200.77	255.255.255.0
enp1s0f1	Green	IPv4	10.0.81.77	255.255.255.0
lo	Green	IPv6	:::1	ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff
enp1s0f0	Green	IPv6	fe80::7ead:74ff:fe6f:ea4%enp1s0f0	ffff:ffff:ffff::
enp1s0f1	Green	IPv6	fe80::7ead:74ff:fe6f:ea5%enp1s0f1	ffff:ffff:ffff::

The intention of this page, together with the **alarm list**, is to provide enough information for the operator to immediately see if there is anything seriously wrong with one or more input streams.

The following parameters are shown:

---

#### *NTP/timesync*

---

**(Bulb):** The NTP/timesync bulb indicates whether the Extractor clock is locked to an external time reference signal. Green indicates that the Extractor is locked to an external reference whereas gray indicates that the Extractor runs in unlocked mode or the status is unknown.

**Updated:** The time since the last time synchronization update.

**Timezone:** The time zone relative to UTC. Configured in the OS.

**Time:** The current local time.

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#### *Counters and alarms*

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**Clear all:** Click the **Clear all** button to reset all counters, graphs and alarms. All VB7880 measurement and alarm history is cleared. Note that it is not possible to undo this operation.

**Last cleared:** The time the **Clear all counters** button was last clicked. If no time is indicated the counters have not been cleared since VB7880 startup/reboot time.

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#### *Extractor*

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<b>Name:</b>	The Extractor name as defined by the operator in the <b>Setup — Params</b> view.
<b>Location:</b>	The Extractor location as defined by the operator in the <b>Setup — Params</b> view.
<b>Access:</b>	The access rights of the current user. Access rights are either full access or read only access.

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#### *Resources*

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<b>Load average:</b>	The system load of the server.
<b>Free mem:</b>	The available free memory.
<b>Free swap:</b>	The available free swap memory.

---



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#### *Traffic*

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<b>Monitored multicasts:</b>	The total bitrate of all monitored multicast streams.
<b>Joined multicasts:</b>	The number of joined multicast streams.
<b>OTT channels:</b>	The number of enabled OTT channels.

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#### *Available network interfaces*

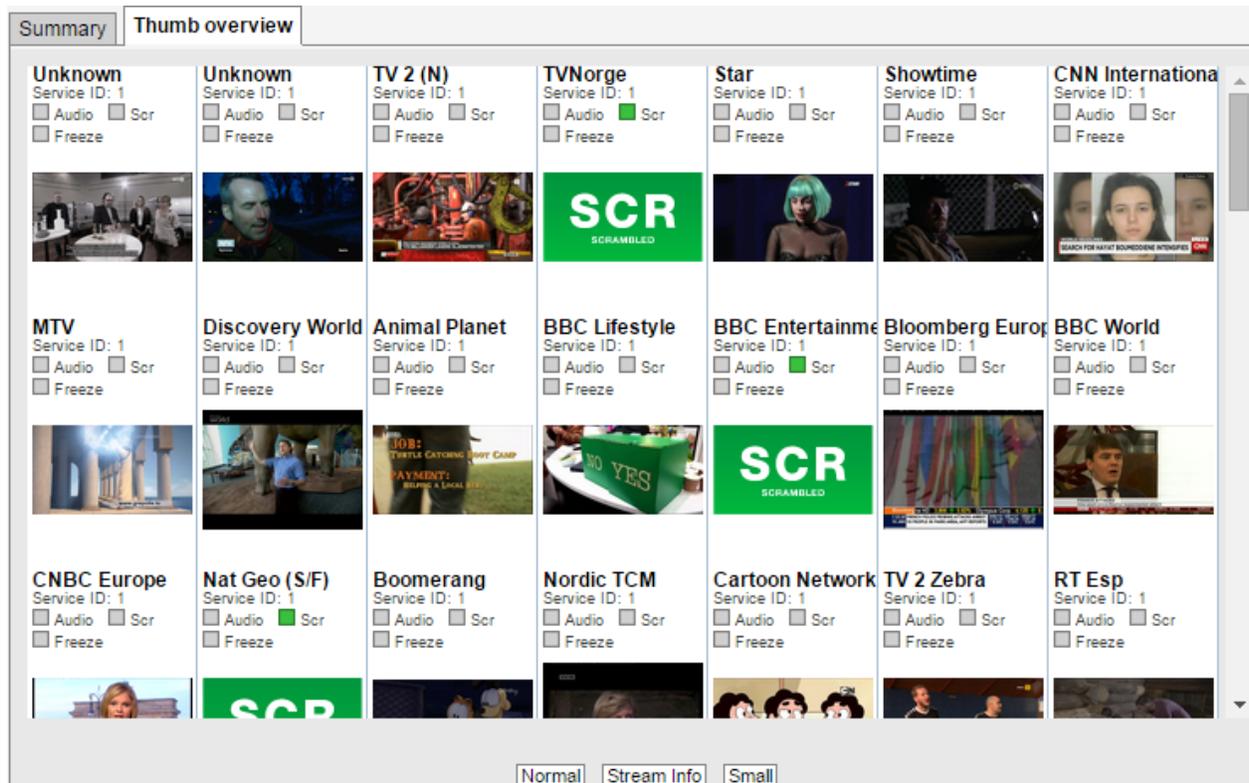
---

<b>Interface:</b>	The id of the selected network interface.
<b>Enabled:</b>	Is the selected interface enabled and running.
<b>Type:</b>	What type of IP address is set for the selected interface.
<b>Address:</b>	The IP address of the selected network interface.
<b>Netmask:</b>	The subnet mask of the selected network interface.

---

## 5.1.2 Main — Thumb overview

The **Thumb overview** view displays a mosaic of all decoded thumbnails. By default the **Normal** mode is used.



If the **Small** button is clicked the **Thumb overview** view will display service names and thumbs only, allowing more thumbnails to be displayed in a view. To display the stream address and name (as defined in the **Multicasts — Streams** and **OTT — Channels** views) click the **Stream info** button.

The **Thumbs Details** pop-up view is accessed by clicking a thumb in the **Thumb overview** view. For more information about the details displayed in the **Thumbs Details** pop-up see chapter 5.4.1 for multicast streams, and chapter 5.3.2 for OTT channels. Clicking the **Close** button will close the view.

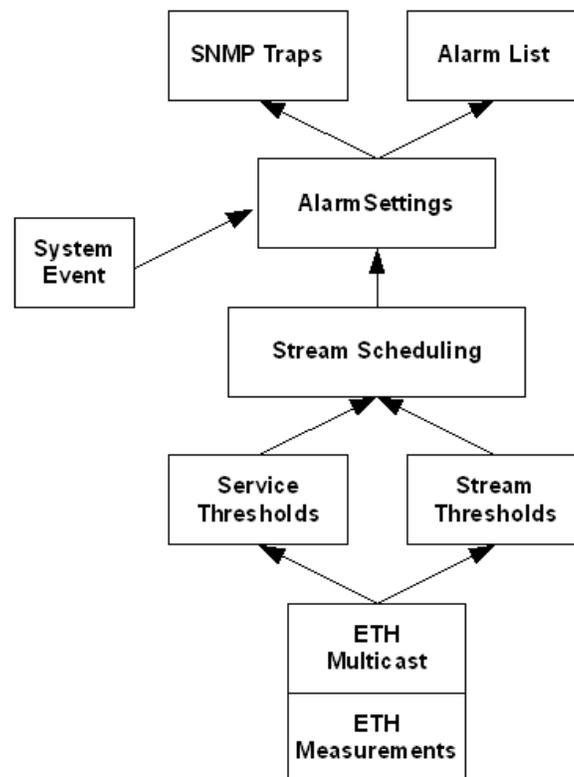
Status bulbs indicate the current content-check status for the streams. The available status bulbs are Audio silence, scrambling, freeze-frame and color-freeze, and profile alignment (OTT only). A gray bulb means that the test has not been enabled for the stream. A green bulb indicates that no error has been detected. A yellow bulb indicates that the extractor is detecting a potential error and a red bulb indicates that the configured error threshold has been reached.

The Remote Video Wall feature offers a better overview of content and alarm status for each stream. Please refer to chapter 4 for more information on the Remote Video Wall feature.

## 5.2 Alarms

The VB7880 Advanced Content Extractor alarm handling is configured by the user at global level, stream level or service level. The alarm setup view allows global alarm configuration whereas settings defined for each multicast and service (in the **Multicasts — Streams** views) will also affect VB7880 alarming. A simplified diagram of the VB7880 alarm handling is shown below.

The Alarms view gives the user the possibility of viewing alarms according to type or as one complete list.



## 5.2.1 Alarms — All alarms

Main **Alarms** OTT Multicasts RVW Setup Data About

All alarms Ethernet alarms OTT alarms System alarms Alarm setup

#	Status	Col.	Time	Type	Stream	Description
1	Active	■	Jan 16 09:23:43	OTT	Wowza Live HLS	503 Server error (10.0.30.15) (playlist.m3u8)
2	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_5 [1500 kbps] 400 Client error (10.0.30.15) (sample1_1500kpbs.f4vSeg1-Frag30)
3	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_4 [1000 kbps] 400 Client error (10.0.30.15) (sample1_1000kpbs.f4vSeg1-Frag30)
4	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_3 [700 kbps] 400 Client error (10.0.30.15) (sample1_700kpbs.f4vSeg1-Frag30)
5	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_2 [500 kbps] 400 Client error (10.0.30.15) (sample1_500kpbs.f4vSeg1-Frag30)
6	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_1 [150 kbps] 400 Client error (10.0.30.15) (sample1_150kpbs.f4vSeg1-Frag30)
7	Active	■	Jan 16 09:15:56	ETH	BBC ENTERTAINMENT.BBC Entertainment	Scrambling not expected for both PES sync and Control bit tests
8	Active	■	Jan 16 09:15:20	ETH	Discovery HD	No signal detected
9	Cleared	■	Jan 16 09:36:47	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:35:35) (Jan 16 09:36:40 - Jan 16 09:36:47)
10	Cleared	■	Jan 16 09:35:36	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:33:56) (Jan 16 09:35:00 - Jan 16 09:35:36)
11	Cleared	■	Jan 16 09:33:58	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:32:36) (Jan 16 09:33:39 - Jan 16 09:33:58)
12	Cleared	■	Jan 16 09:32:38	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:31:07) (Jan 16 09:32:08 - Jan 16 09:32:38)
13	Event	□	Jan 16 09:15:05	SYS		Process ewe restarted

Recent items 13  
[View list offline](#) [Auto-refresh list](#) [Flush alarms](#) [Export...](#)

The Ethernet, OTT, Caption and System alarms can also be found in separate tabs next to the All alarms tab.

If **Auto-refresh list** is selected, the alarm list will be continuously updated with new alarms.

All alarms Ethernet alarms OTT alarms System alarms Alarm setup

#	Status	Col.	Time	Type	Stream	Description
1	Active	■	Jan 16 09:41:57	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:40:50)
2	Active	■	Jan 16 09:40:13	OTT	Wowza Live HTTPS1	Unknown SSL protocol error in connection to 10.0.30.38:443
3	Active	■	Jan 16 09:23:43	OTT	Wowza Live HLS	503 Server error (10.0.30.15) (playlist.m3u8)
4	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_5 [1500 kbps] 400 Client error (10.0.30.15) (sample1_1500kpbs.f4vSeg1-Frag30)
5	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_4 [1000 kbps] 400 Client error (10.0.30.15) (sample1_1000kpbs.f4vSeg1-Frag30)
6	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_3 [700 kbps] 400 Client error (10.0.30.15) (sample1_700kpbs.f4vSeg1-Frag30)
7	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_2 [500 kbps] 400 Client error (10.0.30.15) (sample1_500kpbs.f4vSeg1-Frag30)
8	Active	■	Jan 16 09:22:47	OTT	AMS VoD HDS	Profile_1 [150 kbps] 400 Client error (10.0.30.15) (sample1_150kpbs.f4vSeg1-Frag30)
9	Active	■	Jan 16 09:15:56	ETH	BBC ENTERTAINMENT.BBC Entertainment	Scrambling not expected for both PES sync and Control bit tests
10	Active	■	Jan 16 09:15:20	ETH	Discovery HD	No signal detected
11	Cleared	■	Jan 16 09:36:47	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:35:35) (Jan 16 09:36:40 - Jan 16 09:36:47)
12	Cleared	■	Jan 16 09:35:36	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:33:56) (Jan 16 09:35:00 - Jan 16 09:35:36)
13	Cleared	■	Jan 16 09:33:58	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:32:36) (Jan 16 09:33:39 - Jan 16 09:33:58)
14	Cleared	■	Jan 16 09:32:38	ETH	Kanal 10 Norge:Kanal 10 Norge	Freeze-frame detected (since Jan 16 09:31:07) (Jan 16 09:32:08 - Jan 16 09:32:38)
15	Event	□	Jan 16 09:15:05	SYS		Process ewe restarted

Items found: 15  
[View list offline](#) [Auto-refresh list](#) [Flush alarms](#) [Export...](#)

Clicking the **View list offline** button gives the user the opportunity to view the complete alarms and events list. By clicking an alarm entry in the offline list, a detailed alarm description can be viewed. The search field in the upper right corner of the view allows the user to type a text string and the alarm list is updated to display only streams and alarms matching the specified text.

The alarm lists can be deleted by clicking the **Flush alarms** button. However it should be noted that this action will permanently clear the alarm lists — they cannot be restored.

The **Export** button enables export of the corresponding alarm list as an XML file. This file will open in a new window.

## 5.2.2 Alarms — Alarm setup

All alarms
Ethernet alarms
OTT alarms
System alarms
Alarm setup

**Global alarm settings**

Name	Type	Enable	Severity	Description
Scrambling expected	ETH	<input checked="" type="checkbox"/>	Major ▼	The service should have been scrambled but is sent in clear
Scrambling not expected	ETH	<input checked="" type="checkbox"/>	Major ▼	The service should have been clear but is scrambled
Freeze-frame detected	ETH	<input checked="" type="checkbox"/>	Major ▼	The service has frozen frames
Color-freeze detected	ETH	<input checked="" type="checkbox"/>	Major ▼	The service has frozen in one color
Audio silence detected	ETH	<input checked="" type="checkbox"/>	Major ▼	The service has silent audio tracks
No data detected	ETH	<input checked="" type="checkbox"/>	Major ▼	The service has no data on video PID
CC errors detected	ETH	<input checked="" type="checkbox"/>	Major ▼	The service has an excessive amount of CC errors
No signal detected	ETH	<input checked="" type="checkbox"/>	Major ▼	The stream has no signal
Wrong DAR	ETH	<input checked="" type="checkbox"/>	Major ▼	The service has wrong DAR
Wrong PAR	ETH	<input checked="" type="checkbox"/>	Major ▼	The service has wrong PAR
Missing custom video PID	ETH	<input checked="" type="checkbox"/>	Major ▼	This stream uses only custom video PIDs, but none are configured
[Critical system errors]	SYS	<input checked="" type="checkbox"/>	Fatal ▼	Enable this to see all critical system errors
[System errors]	SYS	<input checked="" type="checkbox"/>	Major ▼	Enable this to see all system errors
[System info]	SYS	<input checked="" type="checkbox"/>	Ok ▼	Enable this to see system information messages
The number of profiles changed	OTT	<input checked="" type="checkbox"/>	Warning ▼	The number of profiles changed in the manifest
Profile streamtype changed	OTT	<input checked="" type="checkbox"/>	Warning ▼	The streamtype of the profile changed in the manifest
Address resolve error	OTT	<input checked="" type="checkbox"/>	Error ▼	Unable to resolve address name
Connection failed	OTT	<input checked="" type="checkbox"/>	Error ▼	Connection failed
Send error	OTT	<input checked="" type="checkbox"/>	Error ▼	Could not send data to host
Receive error	OTT	<input checked="" type="checkbox"/>	Major ▼	Could not receive data from host

The Alarm setup represents the final filtering stage for VB7880 Advanced Content Extractor alarms. The user selects whether an alarm should be enabled or ignored, and associates an error severity level with each alarm. When changes have been made to alarm settings click the **Apply changes** button for changes to take effect.

Note that the VB7880 Advanced Content Extractor alarm handling will also depend on the threshold settings assigned to a stream defined by the user (**Multicasts — Ethernet thresh.** and **Multicasts — Service thresh.** for multicasts, **OTT — Thresholds** for OTT and **Caption — Thresholds** for captions).

Also note that only enabled alarms are shown in the alarm lists and forwarded as SNMP traps. Enabling or disabling Extractor alarms does however not affect the alarms presented by the VideoBRIDGE Controller.

The following alarm severity levels may be selected:

<b>OK:</b>	If enabled, the alarm will be present in the alarm list, color green
<b>Warning:</b>	If enabled, the alarm will be present in the alarm list, color yellow
<b>Error:</b>	If enabled, the alarm will be present in the alarm list, color orange

---

**Major:** If enabled, the alarm will be present in the alarm list, color red

---

**Fatal:** If enabled, the alarm will be present in the alarm list, color black

---

The following alarms and events are configured:

---

#### *ETH (Ethernet) alarms*

<b>Scrambling expected:</b>	The service should have been scrambled but is sent in clear	Default: Enabled, severity 'Major'
<b>Scrambling not expected:</b>	The service should have been clear but is scrambled	Default: Enabled, severity 'Major'
<b>Freeze-frame detected:</b>	The service has frozen frames	Default: Enabled, severity 'Major'
<b>Color-freeze detected:</b>	The service has frozen in one color	Default: Enabled, severity 'Major'
<b>Audio silence detected:</b>	The service has silent audio tracks	Default: Enabled, severity 'Major'
<b>No data detected:</b>	The service has no data on video PID	Default: Enabled, severity 'Major'
<b>CC Errors detected:</b>	The service has an excessive amount of CC errors	Default: Enabled, severity 'Major'
<b>No signal detected:</b>	The stream has no signal	Default: Enabled, severity 'Major'
<b>Wrong DAR:</b>	The stream has wrong Display Aspect Ratio	Default: Enabled, severity 'Major'
<b>Wrong PAR:</b>	The stream has wrong Pixel Aspect Ratio	Default: Enabled, severity 'Major'
<b>Missing custom video PID:</b>	A custom video PID has been configured in the service threshold, but the PID does not appear in the stream	Default: Enabled, severity 'Major'

---

#### *SYS (System) events*

<b>[Critical system errors]:</b>	Enable this to view all critical system errors	Default: Enabled, severity 'Fatal'
<b>[System errors]:</b>	Enable this to view all system errors	Default: Enabled, severity 'Major'
<b>[System info]:</b>	Enable this to view system information messages	Default: Enabled, severity 'Ok'

---

---

***OTT Alarms***

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<b>The number of profiles changed:</b>	The number of profiles flagged in the manifest file changed	Default: Enabled, severity 'Warning'
<b>Profile stream type changed:</b>	The streaming format has changed	Default: Enabled, severity 'Warning'
<b>Address resolve error:</b>	Unable to resolve address name	Default: Enabled, severity 'Error'
<b>Connection failed:</b>	Connection failed	Default: Enabled, severity 'Error'
<b>Send error:</b>	Could not send data to host	Default: Enabled, severity 'Error'
<b>Receive error:</b>	Could not receive data from host	Default: Enabled, severity 'Major'
<b>Empty reply:</b>	Response did not contain any data in body	Default: Enabled, severity 'Major'
<b>HTTP error:</b>	Invalid HTTP response	Default: Enabled, severity 'Major'
<b>HTTP redirect error:</b>	HTTP 3xx redirection error	Default: Enabled, severity 'Major'
<b>HTTP client error:</b>	HTTP 4xx client error	Default: Enabled, severity 'Major'
<b>HTTP server error:</b>	HTTP 5xx server error	Default: Enabled, severity 'Major'
<b>Freeze-frame detected:</b>	The profile has frozen frames	Default: Enabled, severity 'Major'
<b>Color-freeze detected:</b>	The profile has frozen in one color	Default: Enabled, severity 'Major'
<b>Audio silence detected:</b>	The profile has a silent audio track	Default: Enabled, severity 'Major'
<b>Mis-alignment detected:</b>	One or more profiles are out of visual alignment	Default: Enabled, severity 'Major'
<b>Manifest parse error:</b>	Failed to parse manifest file. Invalid format	Default: Enabled, severity 'Major'
<b>Unknown manifest:</b>	Cannot recognize manifest XML format	Default: Enabled, severity 'Fatal'

---

***CAP (Caption) Alarms***

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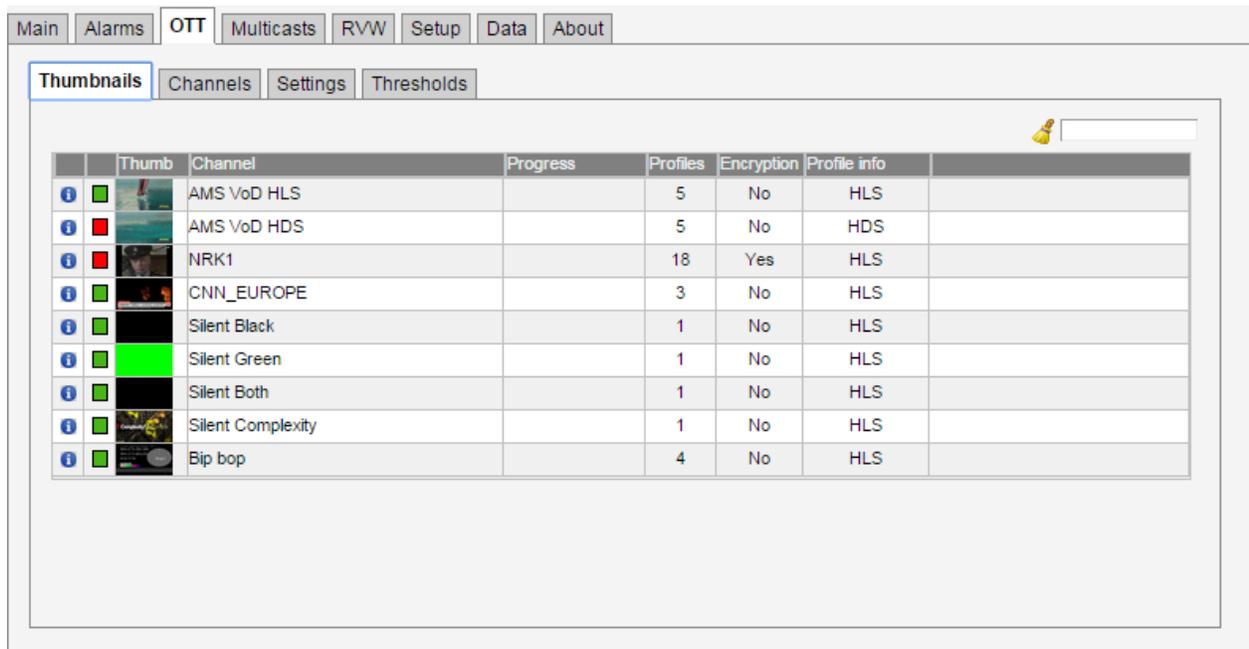
---

<b>Caption service missing:</b>	The service has less caption services than specified in the threshold	Default: Enabled, severity 'Major'
<b>Bad quality:</b>	Some or all caption data was corrupt	Default: Enabled, severity 'Error'
<b>Unknown:</b>	Unknown error	Default: Enabled, severity 'Warning'

---

## 5.3 OTT

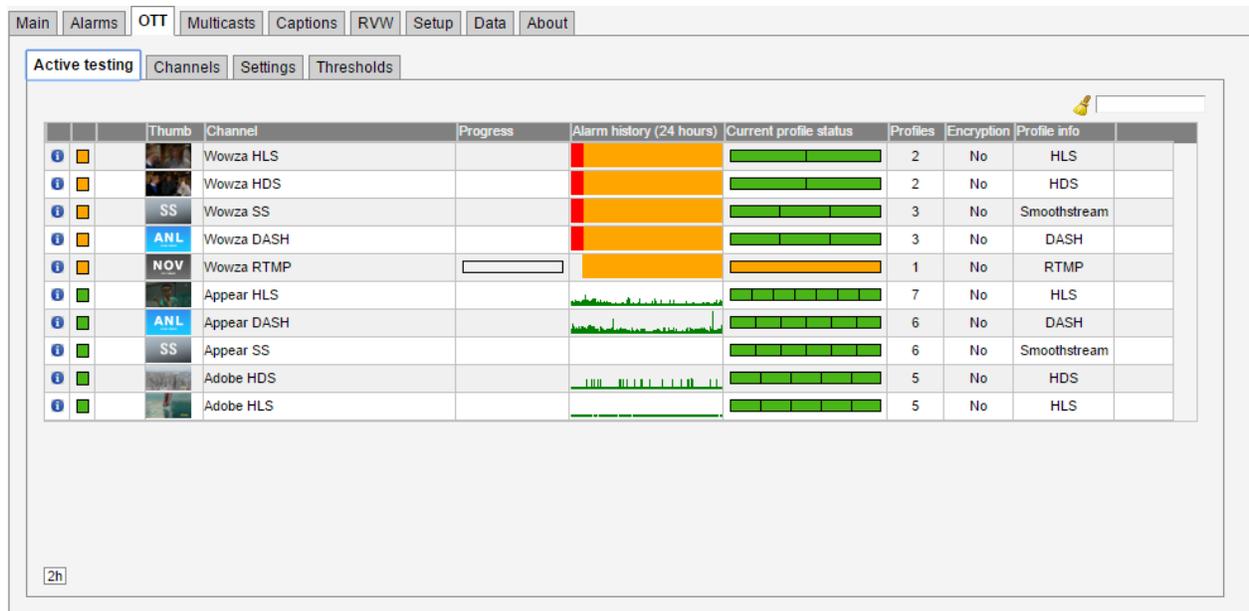
### 5.3.1 OTT — Thumbnails (OTT — Active Testing, option)



The screenshot shows the 'OTT' section of the software interface, specifically the 'Thumbnails' tab. The interface includes a navigation menu at the top with options: Main, Alarms, OTT, Multicasts, RVW, Setup, Data, and About. Below this, there are sub-tabs: Thumbnails, Channels, Settings, and Thresholds. The main content area displays a table with the following data:

	Thumb	Channel	Progress	Profiles	Encryption	Profile info
		AMS VoD HLS		5	No	HLS
		AMS VoD HDS		5	No	HDS
		NRK1		18	Yes	HLS
		CNN_EUROPE		3	No	HLS
		Silent Black		1	No	HLS
		Silent Green		1	No	HLS
		Silent Both		1	No	HLS
		Silent Complexity		1	No	HLS
		Bip bop		4	No	HLS

The OTT support enables monitoring of OTT channels. Up to 100 OTT channels can be monitored in parallel, up to a total maximum of 100 channels (multicasts and OTT combined), depending on the license.



The screenshot shows the 'Active testing' section of the software interface. The navigation menu at the top includes: Main, Alarms, OTT, Multicasts, Captions, RVW, Setup, Data, and About. The sub-tabs are: Active testing, Channels, Settings, and Thresholds. The main content area displays a detailed table with the following data:

	Thumb	Channel	Progress	Alarm history (24 hours)	Current profile status	Profiles	Encryption	Profile info
		Wowza HLS				2	No	HLS
		Wowza HDS				2	No	HDS
		Wowza SS				3	No	Smoothstream
		Wowza DASH				3	No	DASH
		Wowza RTMP				1	No	RTMP
		Appear HLS				7	No	HLS
		Appear DASH				6	No	DASH
		Appear SS				6	No	Smoothstream
		Adobe HDS				5	No	HDS
		Adobe HLS				5	No	HLS

2h

The OTT Active Testing option enables additional monitoring for up to the licensed number of OTT channels. The Active Testing licenses can be distributed over the monitored OTT channels as desired.

The VB7880 Advanced Content Extractor will parse a channel's manifest file, and for a live stream one of the latest chunks in each OTT profile's chunk sequence will be analyzed.

If manifest file parsing or chunk analysis reveals an error, an alarm will be raised. Note that some alarms depend on user defined threshold values. Alarms must also be enabled in the **Alarm — Alarm setup** view.

Thumbnail decoding is available for **non-encrypted** HLS and HDS streams, as well as some types of encrypted HLS streams.

The following OTT information is displayed in the Thumbnails view:

---

<b>Status bulb:</b>	A bulb indicates the current status of the channel, i.e. the most severe profile status.
<b>Thumb:</b>	If the selected stream is of type HLS or HDS a thumbnail of the content will be decoded and updated.
<b>Channel:</b>	The channel name defined by the user and linked to a URL in the <b>OTT — Channels</b> view.
<b>Progress:</b>	The progress bar shows which channel is currently being monitored and how analysis is progressing.
<b>Profiles:</b>	The number of profiles associated with a channel.
<b>Encryption:</b>	Scrambling information is resolved from the profile manifest. If the profile is scrambled the encryption field will read <i>Yes</i> . If the profile is transmitted in clear the encryption field will read <i>No</i> .
<b>Profile info:</b>	The OTT format is displayed (Smoothstream, HLS, MPEG Dash or Adobe HDS).

---

Additionally, the following OTT information is displayed in the OTT Active Testing view:

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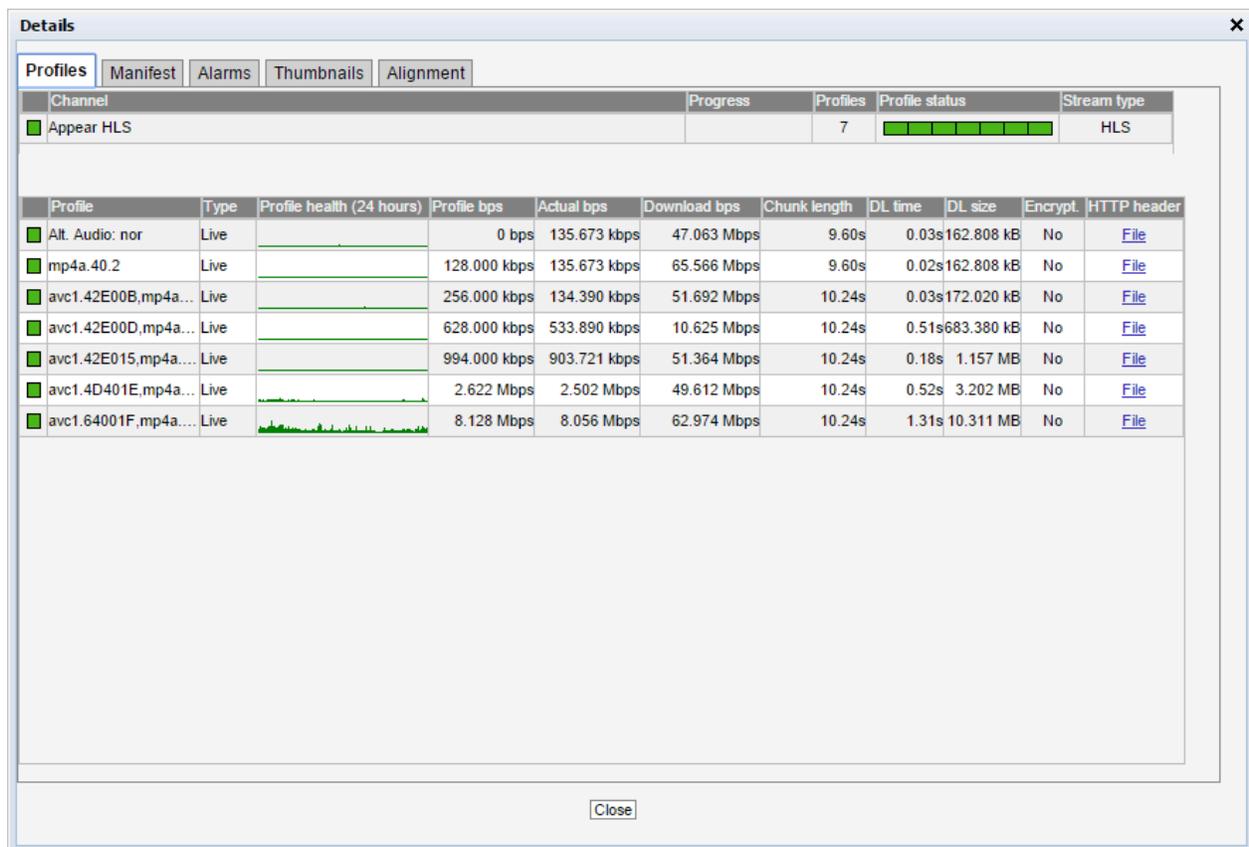
<b>Alarm history:</b>	A bar graph showing alarm severity history. It can either show the last 120 minutes or the last 24 hours. To switch between them, press the “24h” or “2h” button on the left under the channel list. Each bar color represents the alarm severity level as configured under <b>Main — Alarm setup</b> .
<b>Current profile status:</b>	The channel health bar displays the current status for individual channel profiles. Profiles are separated by vertical black lines. Colors indicate profile alarm status: <ul style="list-style-type: none"><li>● Green: OK</li><li>● Yellow: Warning</li><li>● Orange: Error</li><li>● Red: Major</li><li>● Black: Fatal</li></ul>

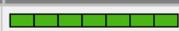
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## 5.3.2 OTT — Details

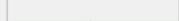
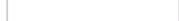
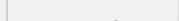
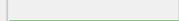
Press the blue information button on a channel to open the details window. This window provides detailed information about the status and alarms on all the profiles for the selected channel. The same pop-up can be opened from the **Main — Thumb Overview** view, see chapter 5.1.2 for more information.

### 5.3.2.1 OTT — Details — Profiles



Channel	Progress	Profiles	Profile status	Stream type
Appear HLS		7		HLS

Profile	Type	Profile health (24 hours)	Profile bps	Actual bps	Download bps	Chunk length	DL time	DL size	Encrypt.	HTTP header
Alt. Audio: nor	Live		0 bps	135.673 kbps	47.063 Mbps	9.60s	0.03s	162.808 kB	No	<a href="#">File</a>
mp4a.40.2	Live		128.000 kbps	135.673 kbps	65.566 Mbps	9.60s	0.02s	162.808 kB	No	<a href="#">File</a>
avc1.42E00B,mp4a...	Live		256.000 kbps	134.390 kbps	51.692 Mbps	10.24s	0.03s	172.020 kB	No	<a href="#">File</a>
avc1.42E00D,mp4a...	Live		628.000 kbps	533.890 kbps	10.625 Mbps	10.24s	0.51s	683.380 kB	No	<a href="#">File</a>
avc1.42E015,mp4a...	Live		994.000 kbps	903.721 kbps	51.364 Mbps	10.24s	0.18s	1.157 MB	No	<a href="#">File</a>
avc1.4D401E,mp4a...	Live		2.622 Mbps	2.502 Mbps	49.612 Mbps	10.24s	0.52s	3.202 MB	No	<a href="#">File</a>
avc1.64001F,mp4a...	Live		8.128 Mbps	8.056 Mbps	62.974 Mbps	10.24s	1.31s	10.311 MB	No	<a href="#">File</a>

The **Profiles** view in this pop-up consists of two tables detailed below:

The following information relevant for the overall OTT channel is shown in the first part of the **Details — Profiles** pop-up window:

<b>Channel:</b>	The channel name defined by the user and linked to a URL in the <b>OTT — Setup</b> view. A bulb indicates the current status of the channel, i.e. the most severe profile status.
<b>Progress:</b>	Channels will be analyzed sequentially, and the progress bar shows which channel is currently being monitored and how analysis is progressing.
<b>Profiles:</b>	The number of profiles associated with a channel.

**Profile status:** (Only displayed if OTT Active Testing is enabled for this channel.) The channel health bar displays the current status for individual channel profiles. Profiles are separated by vertical black lines.

Colors indicate profile alarm status:

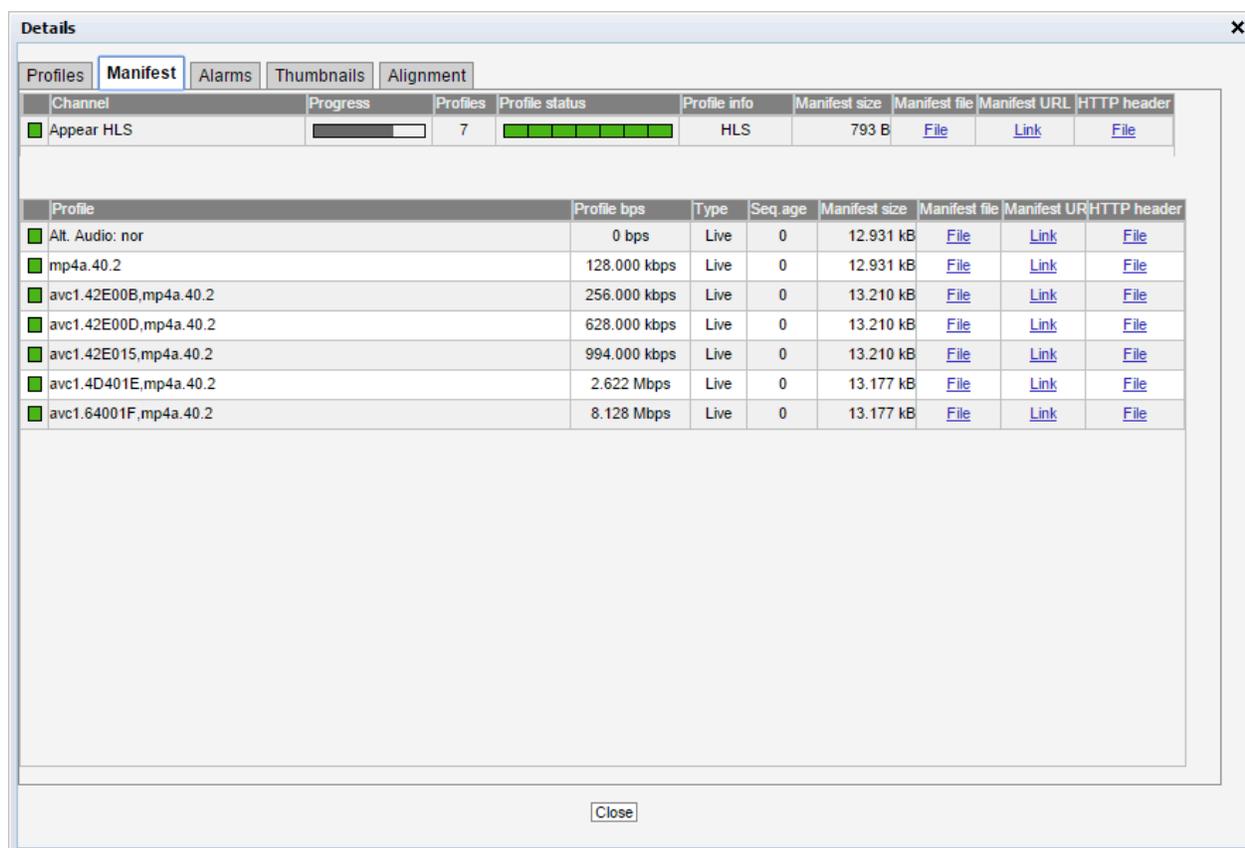
- Green: OK
- Yellow: Warning
- Orange: Error
- Red: Major
- Black: Fatal

**Stream type:** The OTT format is displayed (Smoothstream, HLS, Adobe HDS or MPEG Dash).

In the same view below the table for the overall channel a more detailed view per **channel profile** is shown with the following information in it:

<b>Profile:</b>	The name of the OTT profile as flagged in the manifest files.
<b>Type:</b>	<b>Live</b> for live content or <b>VoD</b> for stored content. The distinction between the two is done based on the contents of the manifest file.
<b>Profile health:</b>	(Only displayed if OTT Active Testing is enabled for this channel.) A timeline graph display of a combined bitrate and alarm representation for individual profiles. Refer to Appendix B for a description of these graphs. The timeline duration is either 2 or 24 hours, and the graph resolution is one minute for the 2 hour graph, and twelve minutes for the 24 hour graph.
<b>Profile bps:</b>	(Only displayed if OTT Active Testing is enabled for this channel.) The profile nominal bandwidth as flagged in the manifest files.
<b>Download bps:</b>	(Only displayed if OTT Active Testing is enabled for this channel.) The download bitrate, i.e. the chunk size (megabits) divided by the download time (seconds).
<b>Chunk length:</b>	(Only displayed if OTT Active Testing is enabled for this channel.) The profile chunk length (seconds) specified in the manifest file.
<b>Download time:</b>	(Only displayed if OTT Active Testing is enabled for this channel.) The actual profile chunk download time (seconds).
<b>Download size:</b>	(Only displayed if OTT Active Testing is enabled for this channel.) The actual profile chunk size (megabytes).
<b>Encrypt.:</b>	<b>Yes</b> or <b>No</b> depending on whether the content for that profile is encrypted or not.
<b>HTTP header:</b>	(Only displayed if OTT Active Testing is enabled for this channel.) The current HTTP header of the last chunk downloaded for that profile.

### 5.3.2.2 OTT — Details — Manifest (Option)



Channel	Progress	Profiles	Profile status	Profile info	Manifest size	Manifest file	Manifest URL	HTTP header
Appear HLS	<div style="width: 50%;"></div>	7	<div style="width: 100%; height: 10px; background-color: green;"></div>	HLS	793 B	<a href="#">File</a>	<a href="#">Link</a>	<a href="#">File</a>

Profile	Profile bps	Type	Seq. age	Manifest size	Manifest file	Manifest UR	HTTP header
Alt. Audio: nor	0 bps	Live	0	12.931 kB	<a href="#">File</a>	<a href="#">Link</a>	<a href="#">File</a>
mp4a.40.2	128.000 kbps	Live	0	12.931 kB	<a href="#">File</a>	<a href="#">Link</a>	<a href="#">File</a>
avc1.42E00B,mp4a.40.2	256.000 kbps	Live	0	13.210 kB	<a href="#">File</a>	<a href="#">Link</a>	<a href="#">File</a>
avc1.42E00D,mp4a.40.2	628.000 kbps	Live	0	13.210 kB	<a href="#">File</a>	<a href="#">Link</a>	<a href="#">File</a>
avc1.42E015,mp4a.40.2	994.000 kbps	Live	0	13.210 kB	<a href="#">File</a>	<a href="#">Link</a>	<a href="#">File</a>
avc1.4D401E,mp4a.40.2	2.622 Mbps	Live	0	13.177 kB	<a href="#">File</a>	<a href="#">Link</a>	<a href="#">File</a>
avc1.64001F,mp4a.40.2	8.128 Mbps	Live	0	13.177 kB	<a href="#">File</a>	<a href="#">Link</a>	<a href="#">File</a>

If Active Testing is enabled for the channel, the **Manifest** view shows health information on the overall manifest file for the channel as well as for the manifest files for the individual profiles.

**Channel:** The channel name defined by the user and linked to a URL in the **OTT — Setup** view. A bulb indicates the current status of the channel, i.e. the most severe profile status.

**Progress:** Channels will be analyzed sequentially, and the progress bar shows which channel is currently being monitored and how analysis is progressing.

**Profiles:** The number of profiles associated with a channel.

**Profile status:** The channel health bar displays the current status for individual channel profiles. Profiles are separated by vertical black lines.

Colors indicate profile alarm status:

- Green: OK
- Yellow: Warning
- Orange: Error
- Red: Major
- Black: Fatal

---

<b>Profile info:</b>	The type of stream is shown here. Apple <b>HLS</b> , Microsoft <b>Smoothstream</b> , Adobe <b>HDS</b> or MPEG <b>Dash</b> .
<b>Manifest size:</b>	The size in bytes of the main/top manifest file for the overall channel.
<b>Manifest file:</b>	Clickable URL for displaying the manifest file as text for the overall channel.
<b>Manifest URL:</b>	A clickable link to the current main/top manifest file for the overall channel.
<b>HTTP header:</b>	The current HTTP header of the main/top manifest file for the overall channel.

---

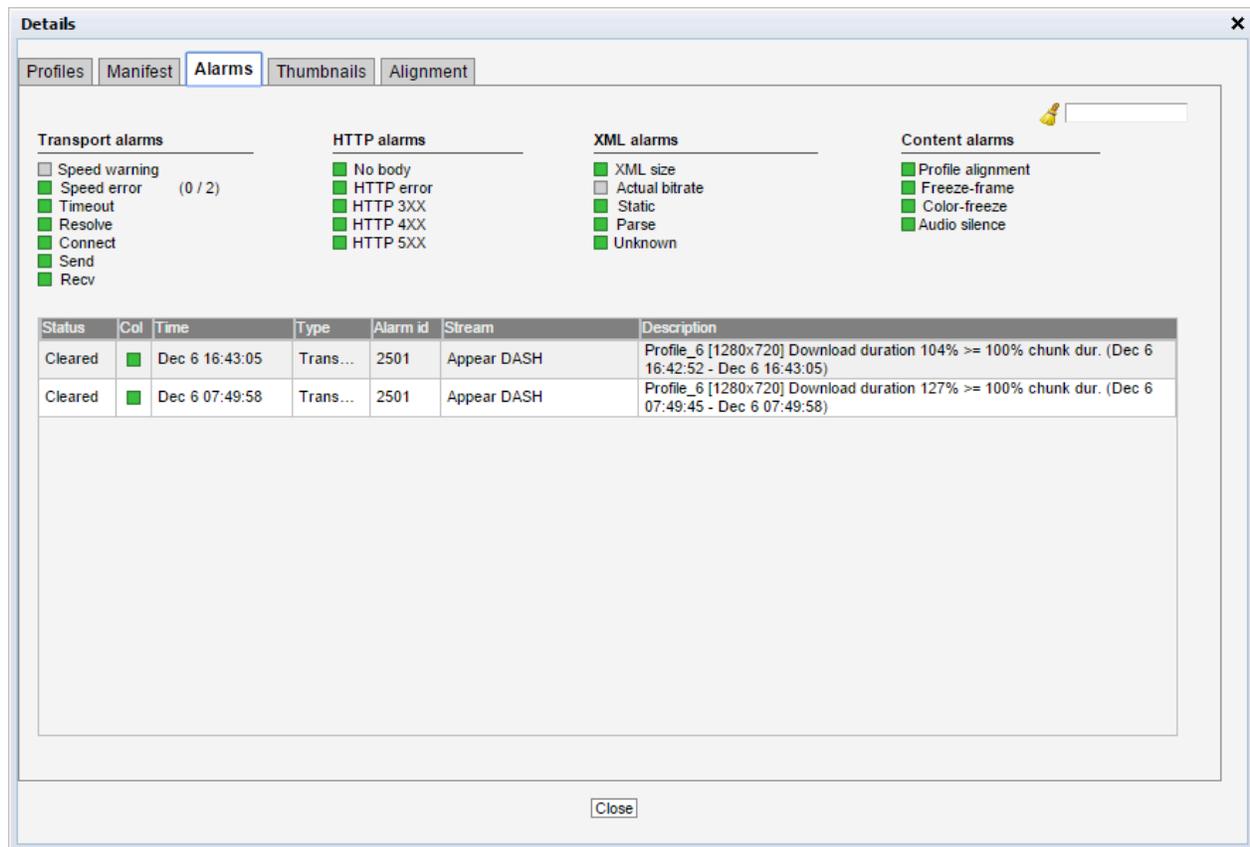
Just below the channel manifest information in the same window is the detailed manifest information per profile. This view contains the following information:

---

<b>Profile:</b>	The name of the OTT profile as flagged in the manifest files.
<b>Profile bps:</b>	The profile nominal bandwidth as flagged in the manifest files.
<b>Type:</b>	<b>Live</b> for live content or <b>VoD</b> for stored content. The distinction between the two is done based on the contents of the manifest file.
<b>Seq.age:</b>	The profile sequence age.
<b>Manifest size:</b>	The size in bytes of the manifest file for a particular profile.
<b>Manifest file:</b>	Clickable URL for displaying the manifest file as text for this particular profile.
<b>Manifest URL:</b>	Clickable URL to the profile manifest file.
<b>HTTP header:</b>	URL to HTTP header in text form for a particular profile manifest file.

---

### 5.3.2.3 OTT — Details — Alarms



**Transport alarms**

- Speed warning
- Speed error (0 / 2)
- Timeout
- Resolve
- Connect
- Send
- Recv

**HTTP alarms**

- No body
- HTTP error
- HTTP 3XX
- HTTP 4XX
- HTTP 5XX

**XML alarms**

- XML size
- Actual bitrate
- Static
- Parse
- Unknown

**Content alarms**

- Profile alignment
- Freeze-frame
- Color-freeze
- Audio silence

Status	Col	Time	Type	Alarm id	Stream	Description
Cleared	<input checked="" type="checkbox"/>	Dec 6 16:43:05	Trans...	2501	Appear DASH	Profile_6 [1280x720] Download duration 104% >= 100% chunk dur. (Dec 6 16:42:52 - Dec 6 16:43:05)
Cleared	<input checked="" type="checkbox"/>	Dec 6 07:49:58	Trans...	2501	Appear DASH	Profile_6 [1280x720] Download duration 127% >= 100% chunk dur. (Dec 6 07:49:45 - Dec 6 07:49:58)

Close

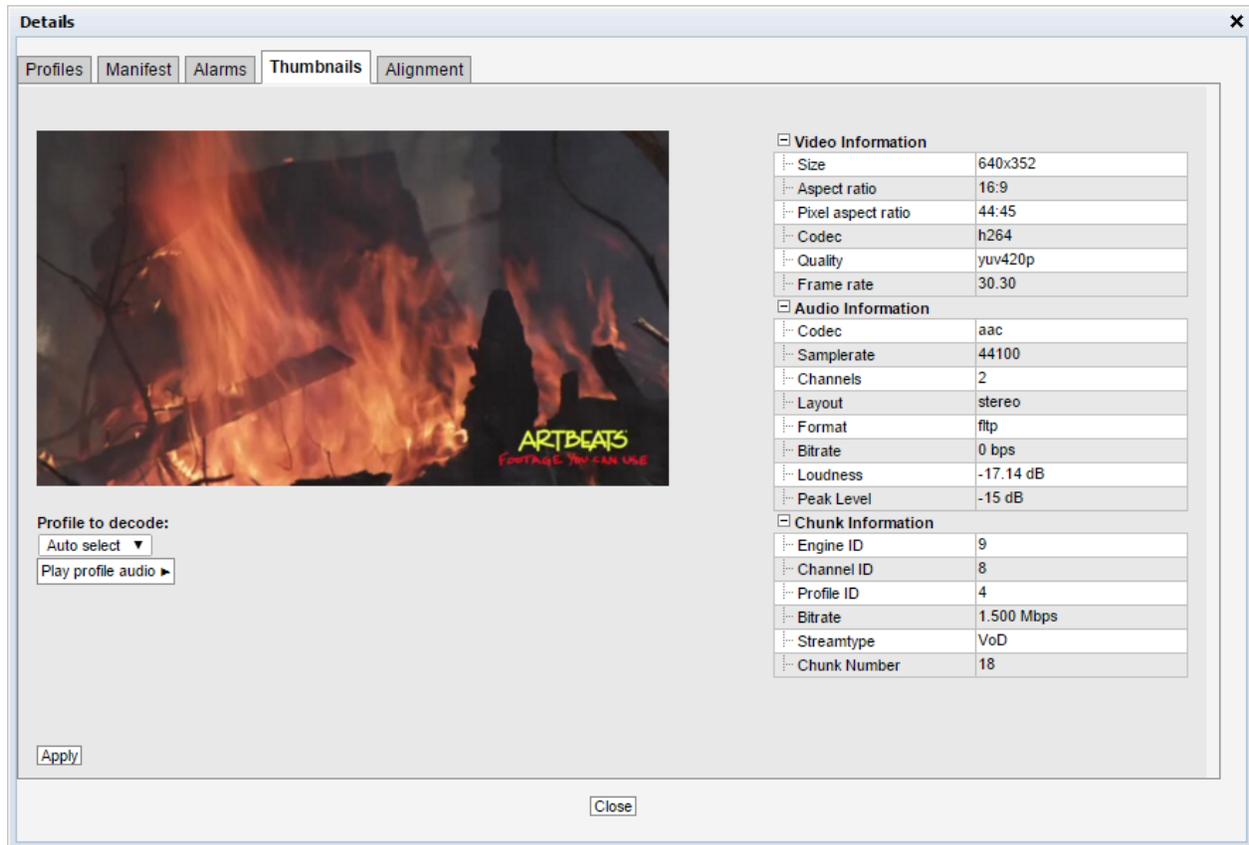
The **Details — Alarms** view gives an at-a-glance overview of any active OTT alarms for the selected channel. An alarm log for the selected channel is also provided here.

In the right corner of the pop-up window is a free text search field used to narrow down the entries in the alarm log.

The alarms are the same ones as explained for the **Alarms Setup** view, see chapter 5.2.2 for more information.

When the OTT Active Testing option is available, but the currently displayed channel has Active Testing disabled, the alarms that are not applicable to the channel are shown as black squares in the top half of the dialog.

### 5.3.2.4 OTT — Details — Thumbnails



The Thumbnails tab will provide information about the current thumbnails in the stream.

The quality of the content in the selected profile can be viewed in the thumbnail section, and the user may alter the selected profile in the drop down list.

The section on the right hand side provides specific decoder and chunk information.

By pressing the apply button without selecting a profile from the drop-down list the thumbnail will be switched to the default selection; Auto Select. Auto select will select the profile with the highest bitrate and video data.

Click the 'Play profile audio' button to play back the last decoded audio chunk for the selected profile in the browser.

---

#### *Decoder information*

---

**Size:** The video picture size of the selected profile

**Aspect ratio:** The video aspect ratio of the selected profile

**Pixel aspect ratio:** The video pixel aspect ratio of the selected profile

**Codec:** The video encoding format of the selected profile

---

---

**Quality:** The video sampling format of the selected profile

---

**Frame rate:** The video frame rate of the selected profile (Hz)

---

---

***Audio Information***

---

**Codec:** The audio encoding format

**Samplerate:** The audio sample rate

**Channels:** The number of audio channels represented by the audio PID

**Layout:** The audio channel layout

**Format:** The binary format of the audio stream

**Bitrate:** The effective audio bitrate

**Loudness:** The integrated loudness value for the currently decoded chunk

**Peak level:** The audio peak level for the currently decoded chunk

---

---

***Chunk Information***

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**Engine ID:** The OTT engine monitoring the selected stream.

**Channel ID:** The id of selected channel corresponding to the list of streams defined by the user.

**Profile ID:** The ID of the selected profile.

**Bitrate:** Bitrate rate of the a chunk.

**Streamtype:** The type of the stream detected; live or video on demand.

**Sequence Number:** The sequence number of a chunk.

---

### 5.3.2.5 OTT — Details — Alignment



The alignment tab gives the user a view of all the profiles for a selected channel with thumbnails and corresponding data. Each profile has a profile ID, bitrate, size and Sequence number.

If the sequence numbers are highlighted in yellow, the thumbnails are not generated from the same chunk for all profiles, and may therefore appear to be out of synchronization.

Click the 'Play' button to play back the last decoded audio chunk for the selected profile in the browser.

### 5.3.3 OTT — Channels

Active testing Channels Settings Thresholds					
OTT channel configuration 					
Name	URL	Threshold	Active Test	Enabled	Edit
Wowza HLS	http://10.0.30.32:1935/edge/smil:NRK1.smil/playlist.m3u8	Active Testing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">Edit</a>
Wowza HDS	http://10.0.30.32:1935/edge/smil:NRK1.smil/manifest.f4m	Active Testing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">Edit</a>
Wowza SS	http://10.0.30.32:1935/edge/smil:NRK1.smil/Manifest	Active Testing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">Edit</a>
Wowza DASH	http://10.0.30.32:1935/edge/smil:NRK1.smil/manifest_mvlist.mpd	Active Testing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">Edit</a>
Wowza RTMP	rtmp://10.0.30.32/edge/NRK1.stream_360p	Active Testing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">Edit</a>
Adobe HDS	http://10.0.30.101/vod/hds_sample1_manifest.f4m	Freeze-frame		<input checked="" type="checkbox"/>	<a href="#">Edit</a>
Adobe HLS	http://10.0.30.101/vod/hls_sample1_manifest.m3u8	Freeze-frame		<input checked="" type="checkbox"/>	<a href="#">Edit</a>

Channels:7

The OTT Channel Configuration list shows OTT channels configured by the user. To add a channel to the list click the **Add new channel** button. This will open the **Edit channel** pop-up view, allowing the user to define channel parameters. A channel entry can be selected by clicking the channel; the list entry will be highlighted. Several list entries can be selected by using regular Ctrl + click functionality. Clicking the **Duplicate selected** button will create a new entry and open the **Edit channel** pop-up view with all channel parameters duplicated, except the channel name. Clicking the **Delete selected** will delete the highlighted list entry. Clicking the **Edit selected** will open the **Edit channel** pop-up view associated with the highlighted channel. Batch editing is supported; this is convenient if a new threshold template should be assigned to a number of channels or if monitoring of several channels should be enabled or disabled. Select the channels and click the **Edit selected** button. Parameters differing between channels will be indicated in the **Edit selected** pop-up view by an asterisk wildcard symbol.

The search field allows searching for one or more list entries containing a user defined text string.

#### *OTT Channel Configuration*

<b>Enabled:</b>	Check the 'Enabled' check box to start monitoring the OTT service.
<b>Threshold:</b>	The OTT threshold that should be assigned to the OTT channel. OTT thresholds that have been defined in the OTT — Thresholds view are available for selection from the drop-down menu.
<b>Active Testing:</b>	Check this box to enable the 'Active Testing' parts of the selected Threshold settings for this channel. Only available if OTT Active Testing option is enabled.
<b>VBC thresholds:</b>	The alarm threshold template used to configure when alarms are generated towards VideoBRIDGE Controller template. This setting is applied if Active Testing is enabled for this channel.
<b>Manifest URL:</b>	The URL of the OTT channel.
<b>Player URL:</b>	In this field you can enter the URL to a web page which will open the OTT channel in your browser. If entered, a 'play' button will be displayed in the OTT overview tab, which will open the selected URL in a new browser tab.
<b>RTMP:</b>	Check this check box if the channel is an RTMP channel.
<b>RTMP live:</b>	Check this check box if the RTMP channel is a live service.

Property	Value	Description
Enabled	<input checked="" type="checkbox"/>	Check to monitor channel
Threshold	Active Testing ▼	Defined in OTT/Thresholds
Active Testing	<input checked="" type="checkbox"/>	Apply "Active Testing" thresholds
VBC thresholds	Default ▼	Defined in Setup/VBC thresh
Name	Wowza HLS	Identifier for referring to this channel
Manifest URL	http://10.0.30.32:1935/edge/smil:NRK1.smil/playlist.m3u8	URL for master manifest list
Player URL	URL for launching a browser window for playing the channel (option	Optional URL for playing channel in browser
RTMP	<input type="checkbox"/>	Check if the channel is an RTMP channel
RTMP live	<input type="checkbox"/>	Check if RTMP channel is a live stream

### 5.3.4 OTT — Settings

Thumbnails	Channels	Settings	Thresholds
<b>OTT engine settings configuration</b> Round time: <input type="text" value="30"/> seconds  <input type="button" value="Apply"/>			

In the settings section global round time for all of the OTT engines can be set. The round time setting does not apply to channels for which real-time audio analysis have been enabled.

## 5.3.5 OTT — Thresholds

Threshold presets										
Name	Refs	Alignment	Freeze-frame	Freeze timeout	Color-freeze	Color timeout	Real-time audio	Audio threshold	Audio timeout	Edit
Default	14	Off	Off	10 min	Off	10 s		0 dB	10 s	<a href="#">Edit</a>
Everything	0	Normal difference	Large change	1 min	Large change	10 s	✓	-30 dB	10 s	<a href="#">Edit</a>

Thresholds:2

The OTT **Threshold presets** list shows OTT threshold templates configured by the user. To add a threshold template to the list click the **Add new threshold** button. This will open the **Edit threshold** pop-up view, allowing the user to define threshold parameters. A list threshold template entry can be selected by clicking the threshold template; the list entry will be highlighted. Several list entries can be selected by using regular Ctrl + click functionality. Clicking the **Duplicate selected** button will open the **Edit threshold** pop-up view on a new threshold, with all threshold template parameters duplicated except the threshold template name. Clicking the **Delete selected** will delete the highlighted list entry. Clicking the **Edit selected** will open the **Edit channel** pop-up view associated with the highlighted threshold template. Batch editing is supported. Select the threshold templates and click the **Edit selected** button. Parameters differing between templates will be indicated in the **Edit selected** pop-up view by an asterisk wildcard symbol.

The search field allows searching for one or more list entries containing a user defined text string.

### Content-check thresholds

**Name:** The threshold template name defined by the user.

**Profile alignment:** Picture matching in video streams is not an exact science, as noise can be introduced in many of the stages the stream goes through. This setting makes it possible to define how much noise is allowed when performing profile alignment detection. When set to **Large difference**, a large amount of noise is allowed when comparing the frames across profiles for out-of-alignment conditions. **Normal difference** is the recommended setting, whereas **Small difference** allows only a small amount of noise, which may result in too many out-of-alignment alarms.

**Freeze-frame noise floor:** It is possible to define how much noise is allowed when performing freeze-frame detection. When set to Off, the freeze-frame detection is disabled. When set to **Small change**, only a small amount of noise is allowed when comparing frames. **Normal change** is the recommended setting, whereas **Large change** allows a high amount of noise, which may result in too many freeze-frame alarms.

<b>Freeze-frame error timeout:</b>	The time (in minutes) a freeze-frame error should persist before the VB7880 will raise an alarm.
<b>Color-freeze noise floor:</b>	It is possible to define how much noise is allowed when performing color-freeze detection. When set to Off, the color-freeze detection is disabled. When set to <b>Small change</b> , only a small amount of noise is allowed when comparing to the list of solid colors. <b>Normal change</b> is the recommended setting, whereas selection of <b>Large change</b> allows a high amount of noise, which may result in too many color-freeze alarms.
<b>Color-freeze error timeout:</b>	The time (in seconds) a color-freeze error should persist before the VB7880 will raise an alarm.
<b>Real-time audio analysis:</b>	Enables real-time loudness extraction for the stream. The loudness data can be retrieved through the Eii.
<b>Audio silence detection threshold:</b>	Set the threshold for silence detection in decibel below 0 LUFS/LKFS (max volume) Use negative values, 0 disables alarm.
<b>Audio silence detection timeout:</b>	The value in seconds for when to trigger the audio silence alarm.

If the OTT Active Testing option is available, additional settings are available, which can be enabled on a channel-by-channel basis by checking the appropriate checkbox in the channel setup. Depending on the purchased license, there might be an upper limit as to the number of channel the Active Testing thresholds can be applied to, this limit is described in the **Edit Threshold** dialog.

To disable a threshold alarm, set the threshold value to -1. This does **not** apply for *Manifest XML size*.

#### **Active testing thresholds**

<b>Download speed error:</b>	The maximum allowed difference between profile bitrate and download bitrate (%). If the difference exceeds the threshold value a bitrate error alarm will be raised.
<b>Download speed warn:</b>	The maximum allowed difference between profile bitrate and download bitrate (%). If the difference exceeds the threshold value a bitrate error warning will be raised.
<b>Actual bitrate min:</b>	The minimum allowed bitrate when measured actual bitrate is compared to profile bitrate (%). If the actual bitrate goes below the threshold an actual bitrate alarm will be raised.
<b>Actual bitrate max:</b>	The maximum allowed bitrate when measured actual bitrate is compared to profile bitrate (%). If the actual bitrate exceeds the threshold an actual bitrate alarm will be raised.
<b>Sequence age:</b>	The maximum time a manifest can remain unchanged before a manifest age alarm is raised.
<b>Manifest XML size:</b>	The maximum detected size of the manifest before a manifest size alarm is raised.

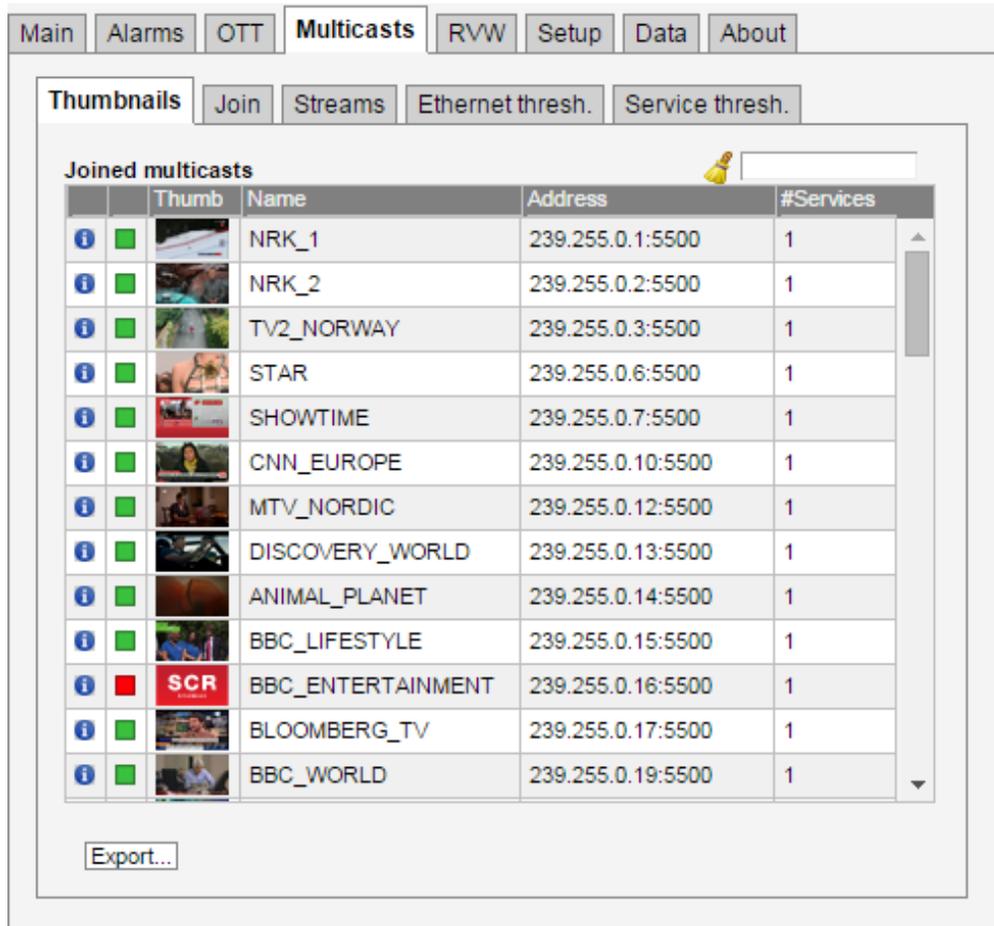
---

**Min. Profiles:** Minimum number of profiles in the selected channel before an alarm is raised.

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## 5.4 Multicasts

### 5.4.1 Multicasts — Thumbnails



The **Multicasts — Thumbnails** view gives the user visual feedback of each stream's status. The streams that the VB7880 Advanced Content Extractor extracts data from are presented in a list of streams, and a 'bulb' indicates the current alarm status of the associated stream. In addition, the Remote Video Wall features offers a better overview of content and alarm status for each stream.

The 'bulb' can have the following colors:

---

**Green:** stream status: OK.

---

**Yellow:** The extractor is observing possible problems but the thresholds have not yet been exceeded.

---

**Red:** stream status: alarm.

---

**Gray:** stream status: start-up/unknown.

---

By clicking a stream name a dialog opens displaying an overview of the services available in the stream.

Press the blue information button to display the following information for the service:

---

<b>Service name:</b>	Shows the name defined for the TV service in the SI service descriptor. If no SI is present in the stream the service id will be shown.
----------------------	---

---

<b>Service id:</b>	The ID of the selected service within a transport stream.
--------------------	---

---

<b>Audio silence detection status:</b>	<p>A bulb indicating the audio silence detection status. If no audio silence detection threshold value has been defined, bulb color will be gray.</p> <p>When a threshold value has been defined, bulb color is green for status OK. If the measured audio level goes below the audio silence detection threshold value, for more than the duration specified in the threshold settings, an alarm will be raised, and the bulb turns red.</p>
--	---

---

<b>Freeze-frame detection status:</b>	<p>A bulb indicating the freeze frame detection status for regular and color freeze. The freeze-frame error timeout value is set as part of the stream threshold template associated with each multicast (refer to the <b>Multicasts — Stream thresh.</b> and <b>Multicasts — Streams — Edit</b> views). The different bulb colors are:</p> <p><b>White:</b> Unknown (typically due to the Extractor being unable to decode video)</p> <p><b>Grey:</b> freeze-frame detection is disabled.</p> <p><b>Green:</b> freeze-frame detection is enabled, no freeze-frame is detected.</p> <p><b>Yellow:</b> freeze-frame detection is enabled. Two consecutive equal frames have been detected, but the freeze-frame error timeout value has not been exceeded.</p> <p><b>Red:</b> freeze-frame is enabled. freeze-frame has been detected and the freeze-frame error timeout value has been exceeded, thus resulting in an alarm.</p>
---------------------------------------	--

---

<b>Scrambling status:</b>	<p>A bulb indicating the scrambling check status. Scrambling check is defined as part of the stream or service threshold template associated with each multicast (refer to the <b>Multicasts — Ethernet thresh.</b>, <b>Multicasts — Service thresh.</b> and <b>Multicasts — Streams — Edit</b> views). The different bulb colors are:</p> <p><b>Grey:</b> Scrambling check is disabled.</p> <p><b>Green:</b> Scrambling check is enabled, and scrambling is in accordance with the user-defined requirement.</p> <p><b>Red:</b> Scrambling check is enabled, and scrambling is not in accordance with the user-defined requirement; an alarm is active.</p>
---------------------------	--

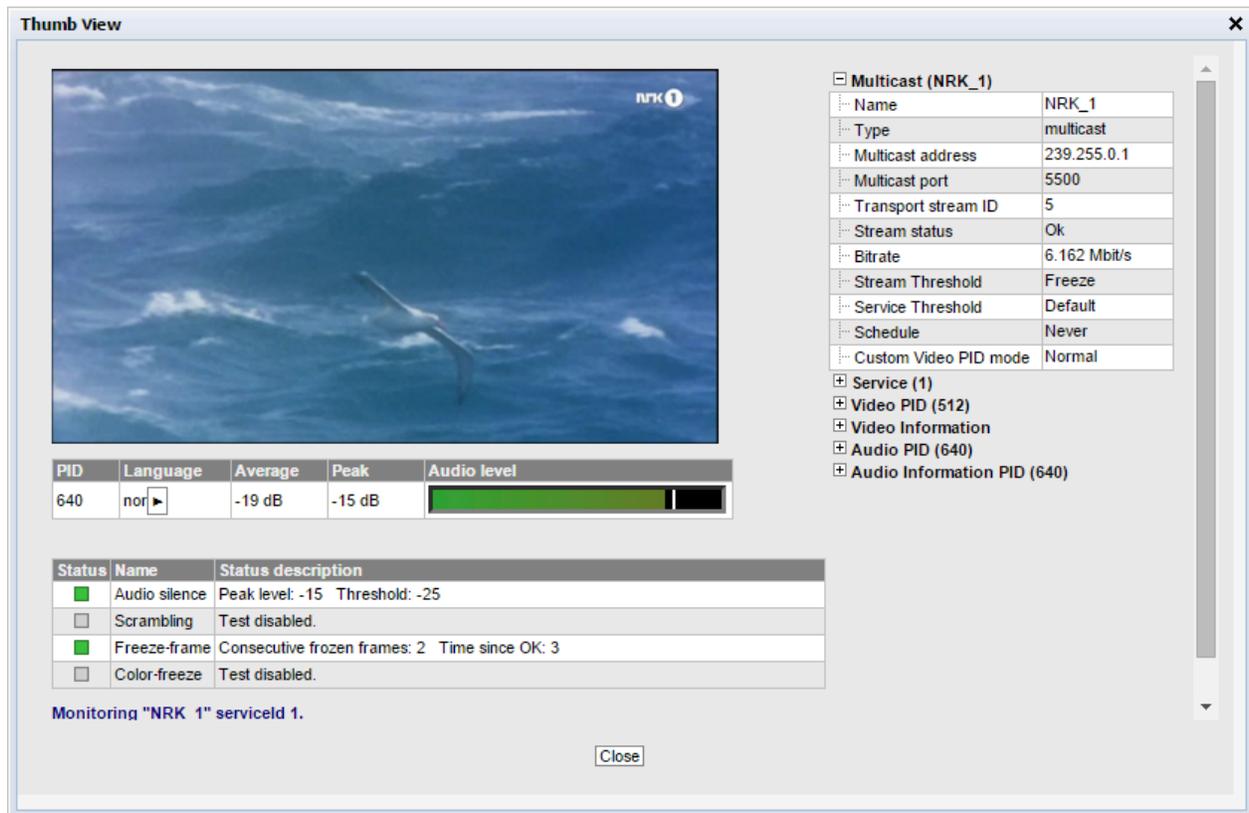
---

The VB7880 Advanced Content Extractor is capable of extracting thumbs from up to 100 streams, up to a total maximum of 100 channels (multicasts and OTT combined), depending on the license. MPEG-2,

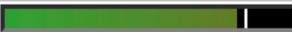
MPEG-4/AVC and HEVC video formats in standard definition, high definition or ultra-high definition are supported.

The VB7880 Advanced Content Extractor will use a varying amount of time decoding the streams, depending on how the streams are coded and if they are standard definition, high definition or ultra-high definition.

In the **Service Overview** view, clicking the Information icon opens the **Thumb View** which presents video and audio metadata for the stream. The same pop-up can be opened from the **Main — Thumb Overview** view, see chapter 5.1.2 for more information.



The screenshot shows the 'Thumb View' window. On the left, there is a video player showing a blue sky with a bird in flight. Below the video is a table with audio metadata:

PID	Language	Average	Peak	Audio level
640	nor	-19 dB	-15 dB	

Below the table is another table with status information:

Status	Name	Status description
<input checked="" type="checkbox"/>	Audio silence	Peak level: -15 Threshold: -25
<input type="checkbox"/>	Scrambling	Test disabled.
<input checked="" type="checkbox"/>	Freeze-frame	Consecutive frozen frames: 2 Time since OK: 3
<input type="checkbox"/>	Color-freeze	Test disabled.

At the bottom left, it says 'Monitoring "NRK 1" servid 1.' and there is a 'Close' button at the bottom center. On the right side of the window, there is a tree view showing the service details:

- Multicast (NRK\_1)
  - Name: NRK\_1
  - Type: multicast
  - Multicast address: 239.255.0.1
  - Multicast port: 5500
  - Transport stream ID: 5
  - Stream status: Ok
  - Bitrate: 6.162 Mbit/s
  - Stream Threshold: Freeze
  - Service Threshold: Default
  - Schedule: Never
  - Custom Video PID mode: Normal
- Service (1)
  - Video PID (512)
  - Video Information
  - Audio PID (640)
  - Audio Information PID (640)

Clicking the **Close** button will close the **Thumbs Details** view. For multicasts, the following metadata is displayed in the Thumbs Details view:

#### *Audio fields*

**PID:** The audio PID for which the associated parameters apply

**Language:** The audio language, as derived from PSI/SI

**Average:** The average audio level in dB, measured over 0.4 seconds

**Peak:** The peak audio level in dB, detected during 0.4 seconds

**Audio level:** An audio level bar displaying the average audio level as a green bar referenced to the peak audio level, the peak level being indicated by a white line

Click the 'Play' button to play back the last few seconds of decoded audio for the selected PID in the browser.

The following stream status information will be displayed (bulbs will be green for status OK, red to indicate an active alarm and gray if the associated check has been disabled):

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***Status description***

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<b>Audio silence:</b>	A bulb indicates the audio silence status with reference to the defined requirement. <b>Peak level:</b> The measured peak level (dB). This is checked against the audio silence threshold to determine if an audio silence alarm should be raised. <b>Threshold:</b> The audio silence detection threshold (dB) as defined in the stream threshold template associated with the stream.
<b>Scrambling:</b>	A bulb indicates the scrambling status with reference to the defined requirement. <b>Expect:</b> 'Clear' or 'Scrambled' <b>Control bit indicates:</b> 'Clear' or 'Scrambled' <b>PES status indicates:</b> 'Clear' or 'Scrambled'
<b>Freeze-frame:</b>	A bulb indicating the freeze-frame detection status. The freeze-frame error timeout value is set as part of the stream threshold group associated with each multicast (refer to the <b>Multicasts — Ethernet thresh.</b> and <b>Multicasts — Streams — Edit</b> views). <b>Consecutive frozen frames:</b> The number of consecutive equal frames that have been detected <b>Time since OK:</b> The time (in seconds) since freeze-frame status OK was last detected. When a freeze-frame condition occurs, this value indicates for how long video has been frozen.
<b>Color-freeze:</b>	A bulb indicating the color-freeze detection status. The freeze-frame error timeout value is set as part of the stream threshold group associated with each multicast (refer to the <b>Multicasts — Ethernet thresh.</b> and <b>Multicasts — Streams — Edit</b> views). <b>Consecutive frozen frames:</b> The number of consecutive single color frames that have been detected <b>Time since OK:</b> The time (in seconds) since color-freeze status OK was last detected. When a color-freeze condition occurs, this value indicates for how long video has been frozen.

The following metadata information is displayed:

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***Multicast (Stream Name)***

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<b>Name:</b>	The name of the multicast containing the selected service, as defined by the user
<b>Type:</b>	The type of the stream containing the selected service; multicast or unicast
<b>Multicast address:</b>	The multicast address of the stream containing the selected service
<b>Multicast port:</b>	The port number of the multicast containing the selected service

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<b>Transport stream ID:</b>	The id of the selected stream as shown in the list of multicasts in the Ethernet section
<b>Stream status:</b>	The status of the stream containing the selected service, as reported by the decoding engine
<b>Bitrate:</b>	The total stream bitrate of the multicast containing the selected service (bits/s)
<b>Stream Threshold:</b>	The name of the stream threshold template assigned to the multicast
<b>Service Threshold:</b>	The name of the service threshold template assigned to the multicast
<b>Schedule:</b>	The name of the alarm masking schedule template assigned to the multicast
<b>Custom Video PID mode:</b>	An indication of custom PID mode: 'Normal' or 'Custom PIDs only'.

---

#### *Service (Service ID)*

<b>Service ID:</b>	The service ID of the selected service
<b>PSI/SI Name:</b>	The name of the selected service, as derived from PSI/SI
<b>Controlbit scramble state:</b>	The scramble state as indicated by the MPEG TS control bit
<b>PES sync scramble state:</b>	The scramble state as detected from the PES sync state
<b>Number of PIDs:</b>	The number of PIDs associated with the selected service
<b>Bitrate:</b>	The total bitrate of the selected service (bits/s)

---

#### *Video PID (PID Number)*

<b>PID:</b>	The video PID of the selected service
<b>Has PCR:</b>	Yes if the selected stream contains PCR, No if not
<b>Bitrate:</b>	The video PID bitrate of the selected service
<b>PES sync:</b>	The latest PES sync state
<b>PES length indicator:</b>	If signaled in the PES packet header, the PES packet length is displayed.
<b>Status:</b>	The status of the video PID as reported by the decoding engine

---

#### *Decoder Information*

<b>Size:</b>	The video picture size of the selected service
<b>Aspect ratio:</b>	The video aspect ratio of the selected service
<b>Pixel aspect ratio:</b>	The video pixel aspect ratio of the selected service
<b>Codec:</b>	The video encoding format of the selected service
<b>Quality:</b>	The video sampling format of the selected service
<b>Frame rate:</b>	The video frame rate of the selected service (Hz)

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**Audio PID (PID Number)**

<b>PID:</b>	The audio PID of the selected service. Note that there may be several audio PIDs associated with a service.
<b>Type:</b>	The audio encoding standard
<b>Has PCR:</b>	Yes if the selected Audio PID contains PCR
<b>Language:</b>	The language of the audio, as defined in the Program Map Table (PMT)
<b>Bitrate:</b>	The audio PID bitrate of the selected service
<b>Is scrambled:</b>	Yes if the audio PID is scrambled.
<b>Peak level:</b>	The peak audio level in dB, detected during a period of approximately 0.4 second
<b>Average level:</b>	The average audio level in dB, measured over a period of approximately 0.4 second

---

**Audio Information PID (PID Number)**

<b>Codec:</b>	The audio encoding format
<b>Samplerate:</b>	The audio sample rate
<b>Channels:</b>	The number of audio channels represented by the audio PID
<b>Layout:</b>	The audio channel layout
<b>Format:</b>	The binary format of the audio stream
<b>Bitrate:</b>	The effective audio bitrate

If the Extractor cannot generate a thumbnail from the signal, it will present one of the following icons:



Shown if no data is received for the stream or if no PSI is found. There should be a match between presenting this icon and a No-signal alarm; however since the alarm and thumbnail mechanisms work independently of each other they have been given different names (loss of signal and no signal).



Shown while the thumbnail engine is trying to decode a thumbnail picture and more precise status information has not yet been obtained. This icon is typically displayed after extractor reboot or if new streams have recently been joined.



Shown if the service does not carry a video PID — which is the case for radio services.



The stream contains no service, as signaled in PSI/SI.



The signal cannot be decoded due to excessive CC errors.



The VB7880 does not support thumbnail generation for this protocol mapping.



The signal is recognized as being MPEG-2 encoded but the thumbnail extractor is unable to correctly decode a thumbnail picture.



The signal is recognized as being MPEG-4 encoded but the thumbnail extractor is unable to correctly decode a thumbnail picture.



The signal is recognized as being MPEG-H encoded but the thumbnail extractor is unable to correctly decode a thumbnail picture.



This icon is shown if the VB7880 is unable to receive or analyze the PMT PID. Note that if a stream is known not to carry PSI, the user may select to manually specify a custom video PID — refer to the **Multicasts — Streams** view.

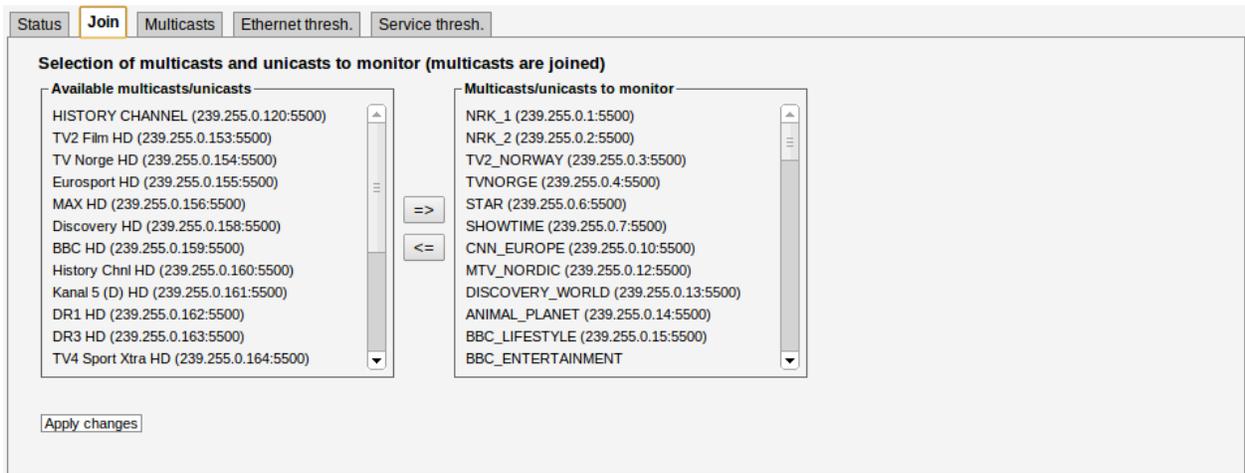


The VB7880 can only generate a thumbnail picture if the video data is not scrambled. The Extractor will always try to generate a thumbnail picture and will only conclude that it is scrambled if decode fails and the PID is signaled as being scrambled. If the stream is configured not to raise an alarm upon scrambling the icon will be colored green.



As above. If the stream is configured to raise an alarm upon scrambling the icon will be colored red.

## 5.4.2 Multicasts — Join



A multicast added to the selected Extractor can easily be joined and unjoined by selecting it from one of the lists and navigate it to the left or right by using the navigation arrows as shown above.

Press **Apply changes** to save the changes.

### 5.4.3 Multicasts — Streams

Thumbnails
Join
Streams
Ethernet thresh.
Service thresh.

**Multicasts** 🔔

Name	Address	Port	Input	Ethernet thresh	Service thresh	Schedule	SSM addr	Edit	Join
NRK_1	239.255.0.1	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
NRK_2	239.255.0.2	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
TV2_NORWAY	239.255.0.3	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
TVNORGE	239.255.0.4	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
STAR	239.255.0.6	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
SHOWTIME	239.255.0.7	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
CNN_EUROPE	239.255.0.10	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
MTV_NORDIC	239.255.0.12	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
DISCOVERY_WORLD	239.255.0.13	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
ANIMAL_PLANET	239.255.0.14	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
BBC_LIFESTYLE	239.255.0.15	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
BBC_ENTERTAINMENT	239.255.0.16	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
BLOOMBERG_TV	239.255.0.17	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
BBC_WORLD	239.255.0.19	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
CNBC_Europe	239.255.0.20	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
NAT_GEOGRAPH	239.255.0.21	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
BOOMERANG	239.255.0.22	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓
TMN_NORDIC	239.255.0.25	5500	em1	Everything	Default	Never	0.0.0.0	<a href="#">Edit</a>	✓

**Streams:114**

Add new
Edit selected
Delete selected
N 
Add N

Join selected
Unjoin selected
Unjoin all
Fields...

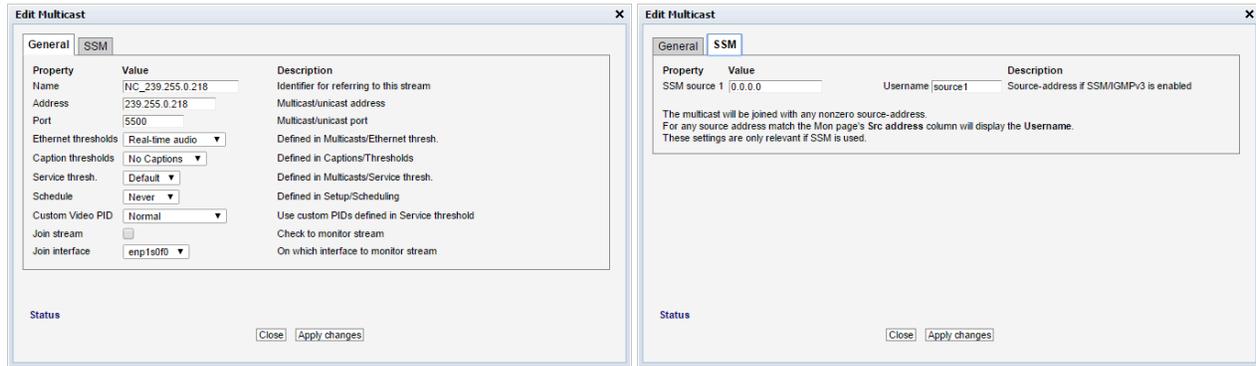
In this view the operator can define multicasts available to the Extractor and associate a name with each multicast address. This name will be used by the Extractor when referring to the multicast. If no name has been defined the Extractor will use the multicast address:port notation.

It is possible to add or delete several entries simultaneously. The current dialogue values will be used as the template with the values for Name and Address incremented for each.

Note that both multicast and unicast addresses can be entered here.

The search field in the upper right corner of the view allows the user to type a text string, and the multicast list is updated to display only streams matching the specified text.

Clicking **Add new** or selecting one or more multicasts and clicking **Edit selected** will open the **Multicast — Edit** pop-up menu. When multicasts have been defined, clicking **Join selected** will join the selected multicasts and enable monitoring. The Extractor will only extract thumbnails from and analyze joined multicasts. Clicking **Join all** will join all multicasts in the list (up to the licensed maximum number of channels). Unjoining one or more multicasts is done by selecting multicasts and clicking **Unjoin selected** or by clicking **Unjoin all**.



### *Multicasts parameters*

<b>Name:</b>	A name should be assigned to each unicast/multicast. The name will be used throughout the Extractor's user interface when referring to this stream.
<b>Address:</b>	The IP address of the unicast or multicast.
<b>Port:</b>	The port number of the unicast or multicast.
<b>SSM source 1:</b>	The SSM source value is only needed for IGMP v3 systems. A name may be associated with a SSM source address.
<b>Ethernet thresholds:</b>	The stream threshold that should be assigned to the multicast. Stream thresholds that have been defined in the <b>Multicasts — Ethernet thresh.</b> view are available for selection from the drop-down menu.
<b>Caption thresholds:</b>	The Caption threshold that should be assigned to the multicast. Caption thresholds that have been defined in the <b>Captions — Thresholds</b> view are available for selection from the drop-down menu.
<b>Service thresh.:</b>	The service threshold group that should be assigned to the multicast. Service threshold groups that have been defined in the <b>Multicasts — Service thresh.</b> view are available for selection from the drop-down menu.
<b>Schedule:</b>	The scheduling scheme that should be assigned to the multicast. Scheduling schemes that have been defined in the <b>Setup — Scheduling</b> view are available for selection from the drop-down menu. Scheduling allows alarm masking at predefined time periods.
<b>Custom video PID:</b>	If a stream is known not to contain PSI needed in order to locate the video component, the user can define a custom video PID to be decoded by the Extractor. The PID definition is made as part of a service threshold that should be associated with the stream. If custom video PID is set to 'Normal' the Extractor will determine the video PID(s) based on PSI/SI plus custom video PID definitions made in the service threshold template. If custom video PID is set to 'Custom PIDs only', PSI/SI will not be analyzed.
<b>Join stream:</b>	Check the 'Join stream' check box to join a multicast or unicast.
<b>Join interface:</b>	Select which interface to join the selected multicast.

Note that no alarms will be raised if the corresponding alarm types are deactivated in the **Alarms —**

Alarm Setup view.

## 5.4.4 Multicasts — Ethernet thresh.

Thumbnails
Join
Streams
Ethernet thresh.
Service thresh.

**Threshold presets** 🔔

Name	Refs	Extract a	Scrambling	Detection mode	Freeze-frame	Freeze ti	Real-tim	Audio thr	Edit
Default	3	✓	Ignore	Both	Off	5 min		0 dB	<a href="#">Edit</a>
Freeze-frame	3	✓	Ignore	Both	Large change	1 min	✓	0 dB	<a href="#">Edit</a>
Color-freeze	0	✓	Ignore	Both	Off	10 min	✓	0 dB	<a href="#">Edit</a>
Not scrambled	0	✓	Error if scrambled	Both	Off	10 min		0 dB	<a href="#">Edit</a>
Scrambled	0	✓	Error if scrambled	Both	Off	10 min		0 dB	<a href="#">Edit</a>
Silence detection	1	✓	Ignore	Both	Off	10 min	✓	-30 dB	<a href="#">Edit</a>
Only selected PIDs	1		Ignore	Both	Off	10 min		0 dB	<a href="#">Edit</a>

**Thresholds:7**

Add new threshold
Duplicate selected
Delete selected
Edit selected

Thresholds are used to determine when to actually raise an alarm upon detection of an error. The **Multicasts — Ethernet thresh.** view makes it possible to define threshold values that operate at stream level. Thresholds are associated with each stream in the **Multicasts — Streams — Edit** view. To add a new threshold setting — click the **Add new threshold** button and assign a name and value to the new threshold.

In the threshold presets list the ‘Refs’ column displays how many streams are associated with each stream threshold template.

Another way of creating a user-defined thresholds is by highlighting one of the thresholds already defined and then clicking the **Duplicate highlighted** button.

Deleting a threshold is done by highlighting the threshold that should be removed and clicking **Delete selected**. Note that the predefined ‘Default’ threshold template cannot be deleted or changed.

**Edit Threshold** ✕

Name

Parameter	Threshold	Corresponding extractor alarm(s)
Extract all services	<input checked="" type="checkbox"/>	
Scrambling	<input type="text" value="Ignore"/>	Scrambling [not] expected
Scrambling detection mode	<input type="text" value="Both"/>	
Scrambling error seconds	<input type="text" value="40"/> seconds	
Freeze-frame noise floor	<input type="text" value="Large change"/>	Freeze-frame detected
Freeze-frame error timeout	<input type="text" value="1"/> minutes	
Color-freeze noise floor	<input type="text" value="Off"/>	Color-freeze detected
Color-freeze error timeout	<input type="text" value="0"/> seconds	
Real-time audio analysis	<input checked="" type="checkbox"/>	
Audio silence detection threshold	<input type="text" value="0"/> dB	Audio silence detected
Audio silence detection timeout	<input type="text" value="10"/> seconds	
DAR alarm mode	<input type="text" value="Ignore"/>	Wrong DAR
Expected display aspect ratio	<input type="text" value="Specifies the DAR to chec"/>	
DAR alarm timeout	<input type="text" value="10"/> seconds	
PAR alarm mode	<input type="text" value="Ignore"/>	Wrong PAR
Expected pixel aspect ratio	<input type="text" value="Specifies the PAR to chec"/>	
PAR alarm timeout	<input type="text" value="10"/> seconds	

### *Ethernet thresholds*

**Name:** A text string that identifies the Ethernet threshold

**Extract all services:** When enabled, all services in the multicast this threshold is applied to will be extracted. For an MPTS, all services in the stream counts towards the active service limit defined by the license. If only one or a few services need to be monitored, disable this setting, in which case services not referenced by the Service threshold applied to the same stream will be ignored. Please refer to chapter 5.4.5 for details on Service thresholds.

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<b>Scrambling:</b>	<p>Each stream can be configured to raise an alarm when that stream's scrambling status changes. The default behavior is to ignore whether a stream is scrambled or not. In order to trigger an alarm if a clear service is received when it is supposed to be scrambled, select Error if not scrambled in the Scrambling pull-down menu. For a multicast each individual service will be checked for violation of this setting — i.e. each service may trigger an alarm.</p> <p>As a general rule the value of the Scrambling pull-down should be set to Ignore when individual service scrambling alarm handling is defined.</p>
<b>Scrambling detection mode:</b>	<p>When scrambling detection mode is set to 'Both', scrambling of a stream is detected by checking the control bit of the MPEG transport stream packets and checking PES sync. If one or both checks indicate that the scrambling requirement is not fulfilled, an alarm will be raised. When 'Control bit' or 'PES sync' is selected, scrambling detection will rely on the selected parameter only.</p>
<b>Scrambling error seconds:</b>	<p>The number of seconds a scrambling error should persist before an alarm is raised. The default setting is to wait until the error has lasted for 40 seconds. This is useful when scrambling alternates between scrambled and unscrambled and you don't want to raise an alarm every time the stream is not scrambled but only when there is a real error.</p>
<b>Freeze-frame noise floor:</b>	<p>Picture matching in video streams is not an exact science, as noise can be introduced in many of the stages the stream goes through. This setting makes it possible to define how much noise is allowed when performing freeze-frame detection.</p> <p>When set to Off, the freeze-frame detection is disabled. When set to Small change, only a small amount of noise is allowed when comparing frames. Normal change is the recommended setting, whereas Large change allows a high amount of noise, which may result in too many freeze-frame alarms.</p>
<b>Freeze-frame error timeout:</b>	<p>The time (in minutes) a freeze-frame error should persist before the Extractor will raise an alarm</p>
<b>Color-freeze noise floor:</b>	<p>It is possible to define how much noise is allowed when performing color-freeze detection. When set to Off, the color-freeze detection is disabled. When set to Small change, only a small amount of noise is allowed when comparing to the list of solid colors. Normal change is the recommended setting, whereas selection of Large change allows a high amount of noise, which may result in too many color-freeze alarms.</p>

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<b>Color-freeze error timeout:</b>	The time (in seconds) a color-freeze error should persist before the Extractor will raise an alarm.
<b>Real-time audio analysis:</b>	Enables real-time loudness extraction for the stream. The loudness data can be retrieved through the Eii.
<b>Audio silence detection threshold:</b>	The value in dBs when to trigger the audio silence alarm.
<b>Audio silence detection timeout:</b>	The value in seconds for when to trigger the audio silence alarm.
<b>DAR alarm mode:</b>	The alarm threshold for Display Aspect Ratio can be set to Ignore, Same or Specific DAR. <ul style="list-style-type: none"><li>● Ignore: No alarming for DAR.</li><li>● Same: Alarm if the DAR changes.</li><li>● Specified DAR: The DAR expected for the stream must be specified in the text field below.</li></ul>
<b>Expected display aspect ratio:</b>	The expected DAR must be given in the text field (i.e: 16:9 or 4:3) if Specified DAR has been selected in the drop-down menu above.
<b>DAR alarm timeout:</b>	The number of seconds before an alarm is triggered when the Expected display ratio is not correct.
<b>PAR alarm mode:</b>	The alarm mode of the expected Pixel Aspect Ratio, can be set to Ignore, same or Specific PAR. <ul style="list-style-type: none"><li>● Ignore: No alarming for PAR.</li><li>● Same: Alarm if the PAR changes.</li><li>● Specified PAR: The PAR expected for the stream must be specified in the text field below.</li></ul>
<b>Expected pixel aspect ratio:</b>	The expected Pixel Aspect ratio must be given in the text field (i.e: 1:1 or 2:1) if Specified PAR has been selected in the drop-down menu above.
<b>PAR alarm timeout:</b>	The number of seconds before an alarm is triggered when the expected PAR is not correct.

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## 5.4.5 Multicasts — Service thresh.

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Streams
Ethernet thresh.
Service thresh.

**Service Thresholds**

Name	Refs	Description	Edit
Default	114	No special rules for any services.	<a href="#">Edit</a>
Service 1 scrambled	0	ID 1 scrambled	<a href="#">Edit</a>
Video PID 512	0	Video PID 512	<a href="#">Edit</a>

Service presets:3

Add new threshold group
Duplicate selected
Delete selected

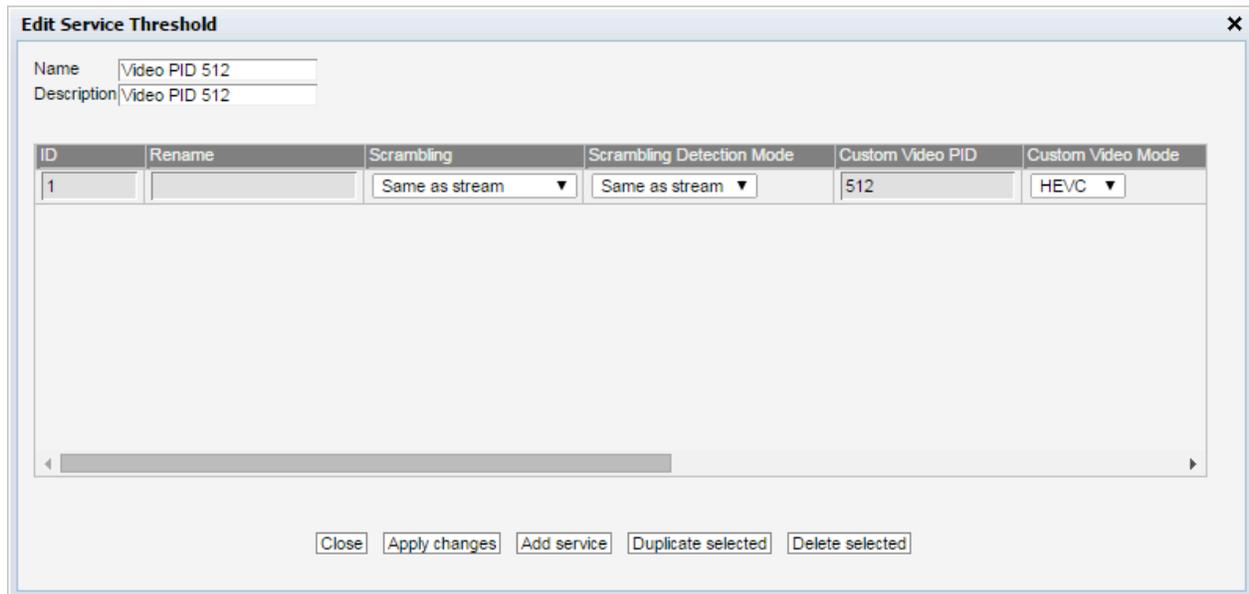
Thresholds are used to determine when to actually raise an alarm upon detection of an error. The **Multicasts — Service thresh.** view makes it possible to define threshold values that operate at service level. This is particularly useful to specify individual alarm handling rules for services in a multi-program transport stream (MPTS). Note that if there is a stream and service threshold mismatch, the service threshold will apply. This may be the case if scrambling or scheduling requirements are set differently in the stream threshold template and service threshold template associated with a stream.

If the **Extract all services** setting is disabled in the Ethernet threshold that is applied to a stream, any services not referenced by a Service threshold (even if all service-specific settings are disabled or set to 'Same as stream') will be ignored by the VB7880.

In the service threshold template list the 'Refs' column displays how many streams are associated with each service threshold template. Thresholds are associated with each stream in the **Multicasts — Streams — Edit** view. To add a new threshold setting, click the **Add new threshold group** button and assign a name and value to the new threshold.

Another way of creating a user-defined thresholds is by highlighting one of the thresholds already defined and then clicking the **Duplicate highlighted** button.

Deleting a threshold is done by highlighting the threshold that should be removed and clicking **Delete selected**. Note that the predefined thresholds cannot be deleted or changed.



### **Service thresholds**

**Name:** A text string that identifies the service threshold group

**Description:** A text string that describes the service threshold group

**ID:** The service ID for which the associated thresholds should apply. For an SPTS the service ID will generally be 1; adding several list entries with different service IDs allows different thresholds to apply for different services within an MPTS.

**Rename:** The rename functionality allows a service to be renamed for the use of the VideoBRIDGE Controller. This is useful when services within an MPTS are unnamed (no service names in the SDT) or when services should be recognized by the VideoBRIDGE Controller under a different name than indicated in the SDT.

**Scrambling:** Each service can be configured to raise an alarm when that stream's scrambling status changes. The default behavior is to ignore whether a stream is scrambled or not. In order to trigger an alarm if a clear service is received when it is supposed to be scrambled, select Error if not scrambled in the Scrambling: pull-down menu. When Error if scrambled is selected, the Extractor will raise an alarm if it detects that the stream is clear. When Same as stream is selected, the requirement defined in the stream threshold will apply.

---

<b>Scrambling detection mode:</b>	When scrambling detection mode is set to 'Both', scrambling of a service is detected by checking the control bit of the MPEG transport stream packets and checking PES sync. If one or both checks indicate that the scrambling requirement is not fulfilled, an alarm will be raised. When 'Control bit' or 'PES sync' is selected, scrambling detection will rely on the selected parameter only. When Same as stream is selected, the requirement defined in the stream threshold will apply.
<b>Custom video PID:</b>	If a stream is known not to contain correct PSI needed in order to locate the video component, the user can define a custom video PID to be decoded by the Extractor. Note that for MPTS streams the service IDs for each service should be unique in the threshold template, even if the stream itself does not contain PSI.
<b>Custom video mode:</b>	When a custom video PID has been defined for a service, the user must specify the video encoding format: MPEG2, H264 or HEVC.
<b>DAR Mode:</b>	The alarm threshold for Display Aspect Ratio can be set to Ignore, Same or Specific DAR. <ul style="list-style-type: none"><li>● Ignore: No alarming for DAR.</li><li>● Same: Alarm if the DAR changes.</li><li>● Specified DAR: The DAR expected for the stream must be specified in the text field below.</li></ul>
<b>Expected DAR:</b>	The expected Pixel Aspect ratio must be given in the text field (i.e: 1:1 or 2:1) if Specified PAR has been selected in the drop-down menu prior.
<b>PAR Mode:</b>	The alarm mode of the expected Pixel Aspect Ratio, can be set to Ignore, same or Specific PAR. <ul style="list-style-type: none"><li>● Ignore: No alarming for PAR.</li><li>● Same: Alarm if the PAR changes.</li><li>● Specified PAR: The PAR expected for the stream must be specified in the text field below.</li></ul>
<b>Expected PAR:</b>	The expected Pixel Aspect ratio must be given in the text field (i.e: 1:1 or 2:1) if Specified PAR has been selected in the drop-down menu above.

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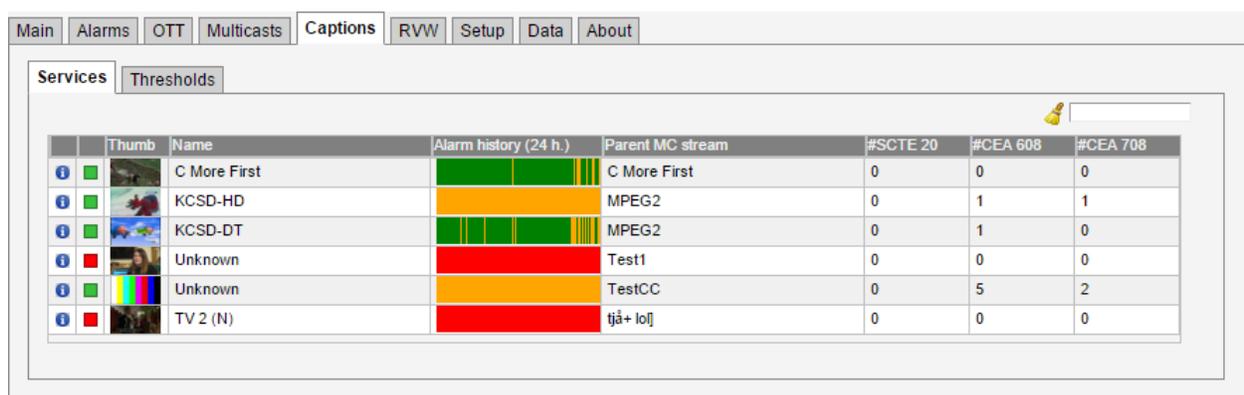
**Schedule:** The Schedule drop-down menu allows the user to associate a scheduling scheme to a service, in effect masking alarms during selected intervals. Scheduling templates are defined in the **Setup — Scheduling** view. The predefined scheduling templates 'Never' and 'Always' will always be selectable, and these will result in service alarms never and always being masked, respectively. When *Same as stream* is selected, the requirement defined in the stream threshold will apply. Note that alarm masking only affects alarm lists and SNMP traps; other alarm indications in the GUI will remain visible.

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## 5.5 Captions (Option)

To enable closed caption extraction on a stream, a **Captions threshold** with **Enabled** ticked needs to be applied to the stream. See chapters 5.4.3 and 5.5.3 for more details.

### 5.5.1 Captions — Services



Thumb	Name	Alarm history (24 h.)	Parent MC stream	#SCTE 20	#CEA 608	#CEA 708
	C More First		C More First	0	0	0
	KCSD-HD		MPEG2	0	1	1
	KCSD-DT		MPEG2	0	1	0
	Unknown		Test1	0	0	0
	Unknown		TestCC	0	5	2
	TV 2 (N)		tjã+ lol]	0	0	0

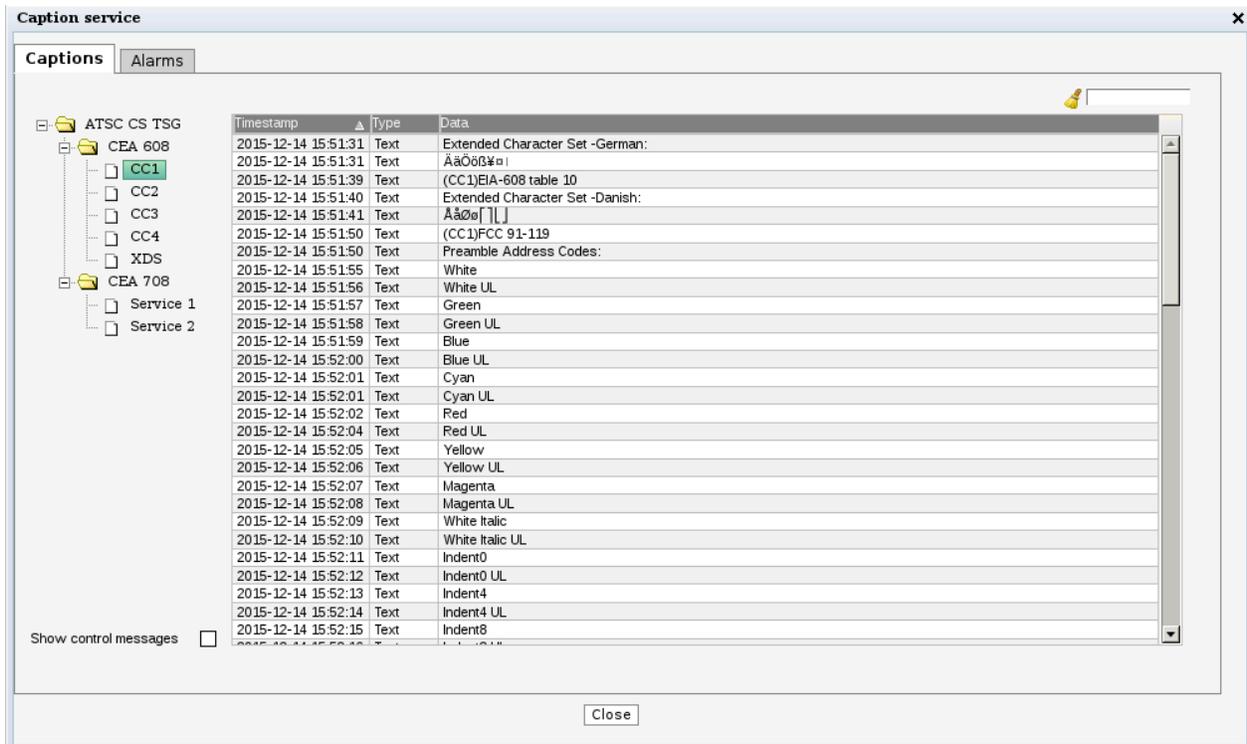
The **Captions — Services** view gives the user visual feedback of the closed caption status of each service. The services that the VB7880 Advanced Content Extractor extracts captions from are presented in a list of services, and a 'bulb' indicates the current alarm status of the associated service.

<b>Thumb:</b>	Thumbnail
<b>Name:</b>	Service name
<b>Alarm history:</b>	A bar graph showing alarm severity history for the last 24 hours. Each bar color represents the alarm severity level as configured under <b>Main — Alarm setup</b> .
<b>Parent MC stream:</b>	Name of the multicast stream this service is extracted from.
<b>#SCTE 20:</b>	Number of SCTE 20 caption services detected in this service.
<b>#CEA 608:</b>	Number of non-SCTE 20, CEA 608 caption services detected in this service.
<b>#CEA 708:</b>	Number of CEA 708 caption services detected in this service.

### 5.5.2 Captions — Caption service

Press the blue information button on a service to open the caption service window. This window gives you access to view all closed caption services, and see the alarms for this service.

### 5.5.2.1 Captions — Caption service — Captions



The **Captions** view in this pop-up consists of a closed caption service format selector, and the list to display the select captions.

By default, only the closed caption text is shown in the list. If you would like to see all control messages as well, check the **Show control messages** checkbox at the bottom left.

### 5.5.2.2 Captions — Caption service — Alarms

**Availability alarms**

- Caption service missing

**Quality alarms**

- Bad quality (0 / 620)

Status	Col	Time	Type	Alarm id	Stream	Description
Cleared	■	Dec 14 15:54:00	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 15:53:58 - Dec 14 15:54:00)
Cleared	■	Dec 14 15:45:30	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 15:45:28 - Dec 14 15:45:30)
Cleared	■	Dec 14 15:37:01	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 15:36:59 - Dec 14 15:37:01)
Cleared	■	Dec 14 15:28:31	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 15:28:30 - Dec 14 15:28:31)
Cleared	■	Dec 14 15:20:01	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 15:20:00 - Dec 14 15:20:01)
Cleared	■	Dec 14 15:11:32	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 15:11:30 - Dec 14 15:11:32)
Cleared	■	Dec 14 15:03:02	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 15:03:00 - Dec 14 15:03:02)
Cleared	■	Dec 14 14:54:32	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 14:54:30 - Dec 14 14:54:32)
Cleared	■	Dec 14 14:46:03	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 14:46:01 - Dec 14 14:46:03)
Cleared	■	Dec 14 14:37:33	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 14:37:32 - Dec 14 14:37:33)
Cleared	■	Dec 14 14:29:03	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 14:29:02 - Dec 14 14:29:03)
Cleared	■	Dec 14 14:20:34	Quality	6100	TestCC:Unknown	Data corruption (Dec 14 14:20:32 - Dec 14 14:20:34)

Close

The **Alarms** view gives an at-a-glance overview of any active or cleared alarm for the selected service.

In the right corner of the pop-up window is a free text search field used to narrow down the entries in the alarm log.

The alarms are the same ones as explained for the **Alarms Setup** view, see chapter 5.2.2 for more information.

### 5.5.3 Captions — Thresholds

**Threshold presets**

Name	Refs	Enabled	Min. SCTE 20	Min. 608	Min. 708	Edit
No Captions	1		0	0	0	Edit
DoCaptions	4	✓	0	0	0	Edit
1x 608	2	✓	0	1	0	Edit

Add new threshold Duplicate selected Delete selected Edit selected

Thresholds are used to determine when to actually raise an alarm upon detection of an error. The **Captions — Thresholds** view makes it possible to define threshold values that operate at stream level. Thresholds are associated with each stream in the **Multicasts — Streams — Edit** view. To add a new threshold setting — click the **Add new threshold** button and assign a name and value to the new threshold.

In the threshold presets list the ‘Refs’ column displays how many streams are associated with each stream threshold template.

Another way of creating a user-defined thresholds is by highlighting one of the thresholds already defined and then clicking the **Duplicate highlighted** button.

Deleting a threshold is done by highlighting the threshold that should be removed and clicking **Delete selected**. Note that the predefined ‘No Captions’ threshold template cannot be deleted or changed.

**Edit Threshold** ✕

Name

Parameter	Threshold	Format	Description
Enabled	<input checked="" type="checkbox"/>		
Min. SCTE 20	<input type="text" value="0"/>		
Min. CEA 608	<input type="text" value="0"/>		
Min. CEA 708	<input type="text" value="0"/>		

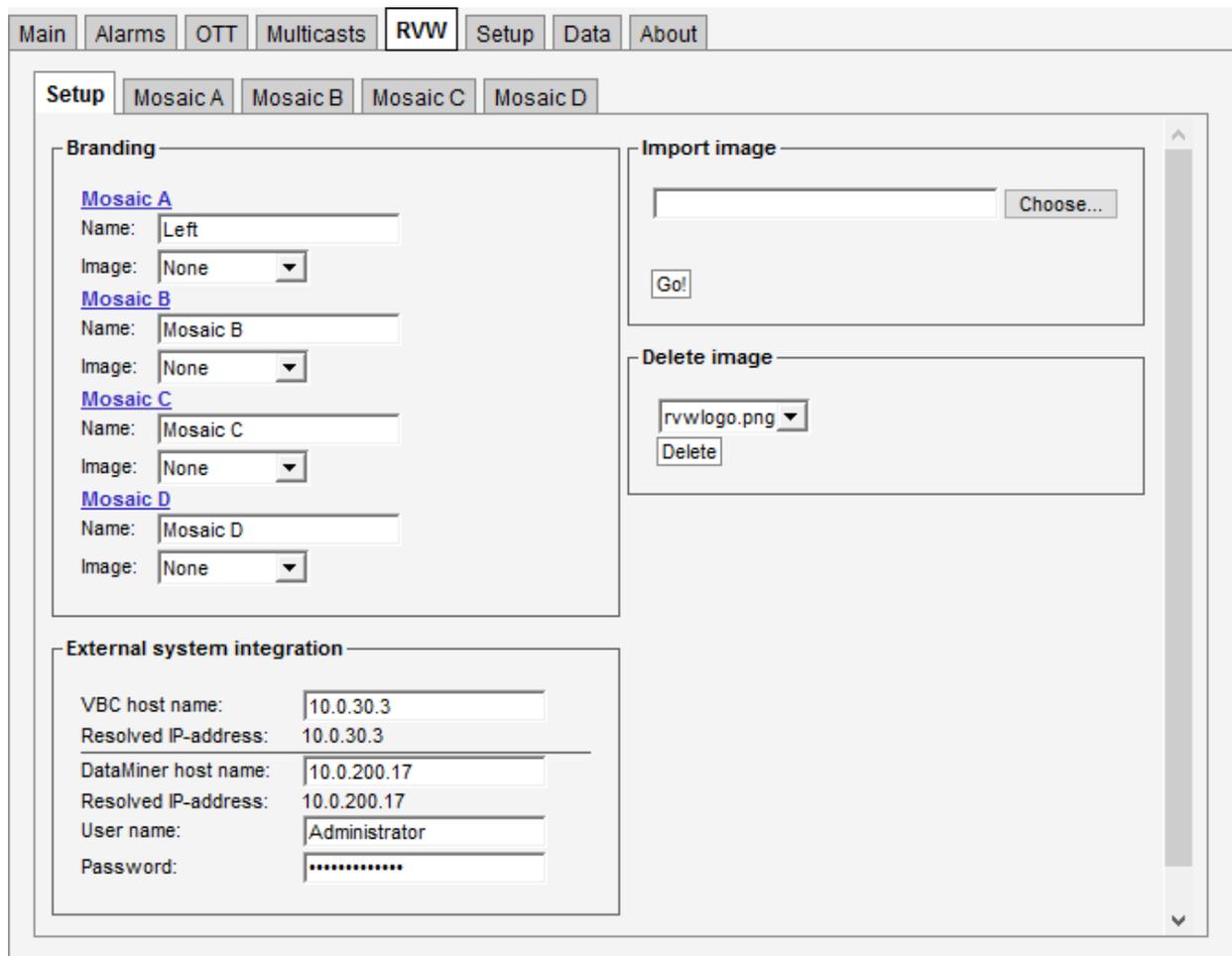
---

### Caption Thresholds

<b>Name:</b>	Unique name of these threshold settings
<b>Enabled:</b>	Tick this to start closed caption extraction for streams using this threshold
<b>Min. SCTE 20:</b>	Minimum number of SCTE 20 caption services expected in services
<b>Min. CEA 608:</b>	Minimum number of non-SCTE 20 CEA 608 caption services expected in services
<b>Min. CEA 708:</b>	Minimum number of CEA 708 caption services expected in services

## 5.6 RVW

### 5.6.1 RVW — Setup



The screenshot shows the 'RVW Setup' window with the following sections:

- Branding:**
  - Mosaic A:** Name: Left, Image: None
  - Mosaic B:** Name: Mosaic B, Image: None
  - Mosaic C:** Name: Mosaic C, Image: None
  - Mosaic D:** Name: Mosaic D, Image: None
- External system integration:**
  - VBC host name: 10.0.30.3
  - Resolved IP-address: 10.0.30.3
  - DataMiner host name: 10.0.200.17
  - Resolved IP-address: 10.0.200.17
  - User name: Administrator
  - Password: [masked]
- Import image:** Includes a text input field, a 'Choose...' button, and a 'Go!' button.
- Delete image:** Includes a dropdown menu showing 'rvwlogo.png' and a 'Delete' button.

The **RVW — Setup** view configures parameters valid for all the Remote Video Walls. Please refer to chapter 4 for more information on the Remote Video Wall feature.

---

#### *Setup — Branding*

**Name:** The name of the selected RVW Mosaic is shown as a label at the top of the RVW.

**Image:** A small image/logo that will be visible in the top left corner of the RVW Mosaic. The file must be selected from the corresponding drop-down menu.

---



---

#### *Setup — External system integration*

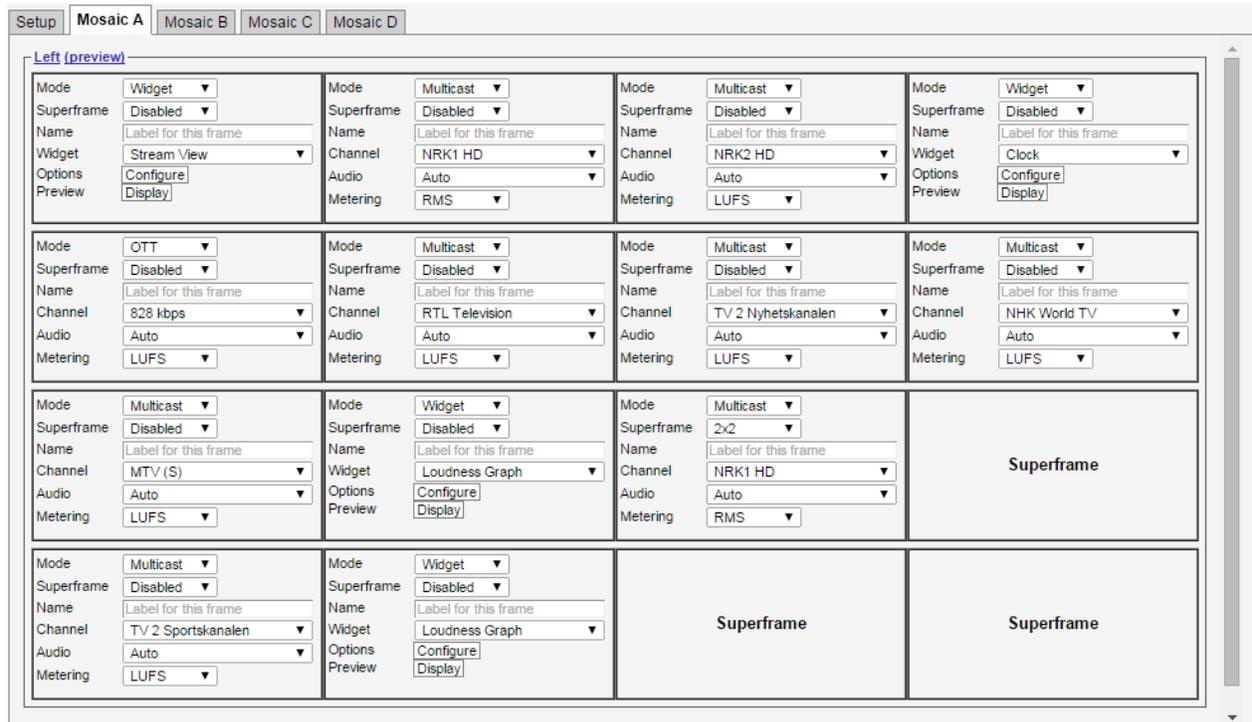
---

<b>VBC host name:</b>	The host name or IP address of the VideoBRIDGE Controller used for integration with the RVW. Leave blank if you do not have a VBC server.
<b>DataMiner host name:</b>	The host name or IP address of the Skyline DataMiner used for integration with the RVW. Leave blank if you do not have a DataMiner server.
<b>User name:</b>	The user name to use when establishing a session towards the DataMiner server.
<b>Password:</b>	The password to use when establishing a session towards the DataMiner server. The user name and password is sent directly from the VB7880 to obtain a session key, the RVW widgets do not have access to the password directly.

The Remote Video Wall allows logos or similar images to be uploaded and set on the each RVW. A company logo or image can be set as an reference to a selected RVW. To upload an image, use the file selector under the **Import image** heading and press the **Go!** button. To delete an uploaded file, select it from the drop-down menu under **Delete image** heading and press the **Delete** button.

The DataMiner user name and password are stored in plain text on the VB7880 server and can be seen by all logged-in users. If possible, have the VB7880 use a non-privileged account on the DataMiner server.

### 5.6.2 RVW — Mosaic A–D



The screenshot displays the 'Mosaic A' configuration page. At the top, there are tabs for 'Setup', 'Mosaic A', 'Mosaic B', 'Mosaic C', and 'Mosaic D'. Below the tabs, the interface is divided into a grid of 16 widget slots. Each slot has a 'Left (preview)' link and a set of configuration options:

- Mode:** A dropdown menu with options like 'Widget', 'Multicast', 'OTT', and '2x2'.
- Superframe:** A dropdown menu with options like 'Disabled'.
- Name:** A text input field with a placeholder 'Label for this frame'.
- Channel:** A dropdown menu with various channel names like 'NRK1 HD', 'RTL Television', 'MTV (S)', 'TV 2 Nyhetskanalen', and 'TV 2 Sportskanalen'.
- Audio:** A dropdown menu with options like 'Auto'.
- Metering:** A dropdown menu with options like 'RMS' and 'LUFS'.
- Options:** Buttons for 'Configure' and 'Display'.
- Preview:** A button for 'Display'.

Some slots in the grid are labeled 'Superframe' and do not have the standard configuration options. The interface also includes a vertical scrollbar on the right side.

The **RVW — Mosaic A–D** views allows the operator to select which streams to be presented on each RVW and in which frames. A Remote Video Wall can have up to 16 multicast services or OTT channel profiles depending on the setup.

Follow the link formed by the name of the selected RVW to be re-directed to the URL that hosts the Remote Video Wall. To display a preview of the RVW inside the configuration UI, use the **(preview)** link. Please note that the preview might fail to display properly under some circumstances, and is only meant as a preview, not a permanent display.

Due to limitations of the VBC server, widget configuration and preview dialogs may not work properly when opened from inside the VBC interface. If this happens, point the web browser directly to the VB7880 and perform the configuration there.

Real-time audio analysis is automatically enabled for any multicasts or OTT channels that are set to display audio bars in the RVW.

---

### *RVW — Mosaic A–D*

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- Mode:** The selected frame can contain these services.
- None: The frame will be empty, this is the default selection.
  - Multicast: When selected from the drop-down menu, a multicast service can be selected in the Channel drop-down menu below. Make sure that the stream has been joined in the Multicast section.
  - OTT: When selected, a live OTT profile can be selected in the Channel drop-down menu below. Make sure that the channel has been enabled in the OTT section.
  - Widget: Embed a web-based widget in this frame. After selecting this type, the widget to embed can be selected from the 'Widget' drop-down menu.
  - Iframe: Embed a web page in this frame. After selecting this type, the address of the page to embed can be entered in the 'Address' field.

---

**Superframe:** Select Superframe to increase the size of a stream thumbnail or widget. When superframe has been selected, the other frames hidden by this frame will be locked from editing. A frame can be set up to be displayed in any size from 1x1 to 4x4.

---

**Name:** A name to refer to the selected stream in the Remote Video Wall section. If left empty, the slot will use the name of the service defined by the stream.

---

**Channel:** In Multicast mode, any service available within a stream may be selected for display. In OTT mode, any profile available within a live OTT channel may be selected for display.

---

**Audio:** The audio PIDs in a stream to be monitored.

---

**Metering:** The specific type of metering for the Audio PIDs. Select either RMS or LUFS/LKFS metering. RMS metering will display one meter for each audio channel in the stream, whereas LUFS/LKFS displays one compound meter for the entire audio stream. Setting metering to None will disable audio bars for this frame.

**Note:** If the service is scrambled, the VB7880 will not attempt to monitor the audio.

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**Widget:** In Widget mode, any installed widget can be selected for display in this frame. Please refer to chapter 4.3 for descriptions of the available widgets.

---

**Options:** If the widget has any configuration options, click the Configure button to set up the widget. In the configuration dialog, select Apply to apply the changes or Close to close the dialog without saving changes. Some widgets may also provide a Reset button that restore the widget's default setting.

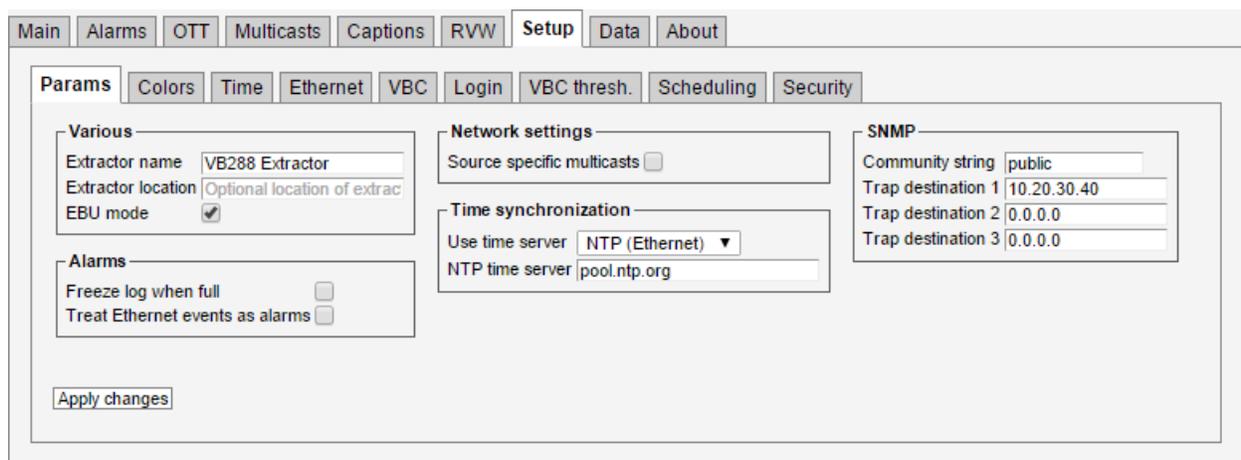
---

**Preview:** Click the Display button to display a preview of the widget inside the configuration UI. Please note that not all widget might display correctly in this mode.

---

## 5.7 Setup

### 5.7.1 Setup — Params



The Setup — Params view enables the following settings:

#### *Various*

**Extractor name:** Each Extractor can be assigned a user defined name.

**Extractor location:** A text string describing the location of the Extractor.

**EBU mode:** Selects the unit to use for loudness monitoring. In EBU mode, LUFS is used, otherwise LKFS is used.

#### *Alarms*

**Freeze log when full:** When enabled the alarm list will freeze when full (an event will show that it is full). When the list is full new alarms are ignored until Clear alarms is pressed. This can sometimes be useful if a unit is placed unattended.

**Treat events as alarms:** When enabled each event is treated as an alarm that is active for 5 seconds. This may be useful when reporting to external systems that do not support events but only active or cleared alarms. This setting affects the local alarm list, SNMP traps and syslog messages.

#### *Network settings*

**Source specific multicasts:** This option should be enable to use Source-specific multicasts.

#### *Time synchronization*

---

**Use time server:** If enabled, the Extractor will synchronize with an external NTP time-server. Please note that if you have configured NTP synchronization in the operating system (either in the installer or manually), these settings might not be reflected here.

---

**Time server:** The IP address or host name of the time server.

---

Instead of setting up network time synchronization from this tab, we recommend using the standard operating system tools for configuring the system clock. The settings on this tab are deprecated and will be removed from a future release of the VB7880 software.

Please refer to the operating system instructions<sup>1</sup> for further details on how to configure the date and time.

---

### *SNMP*

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**Community string:** The Extractor SNMP community string can be changed.

---

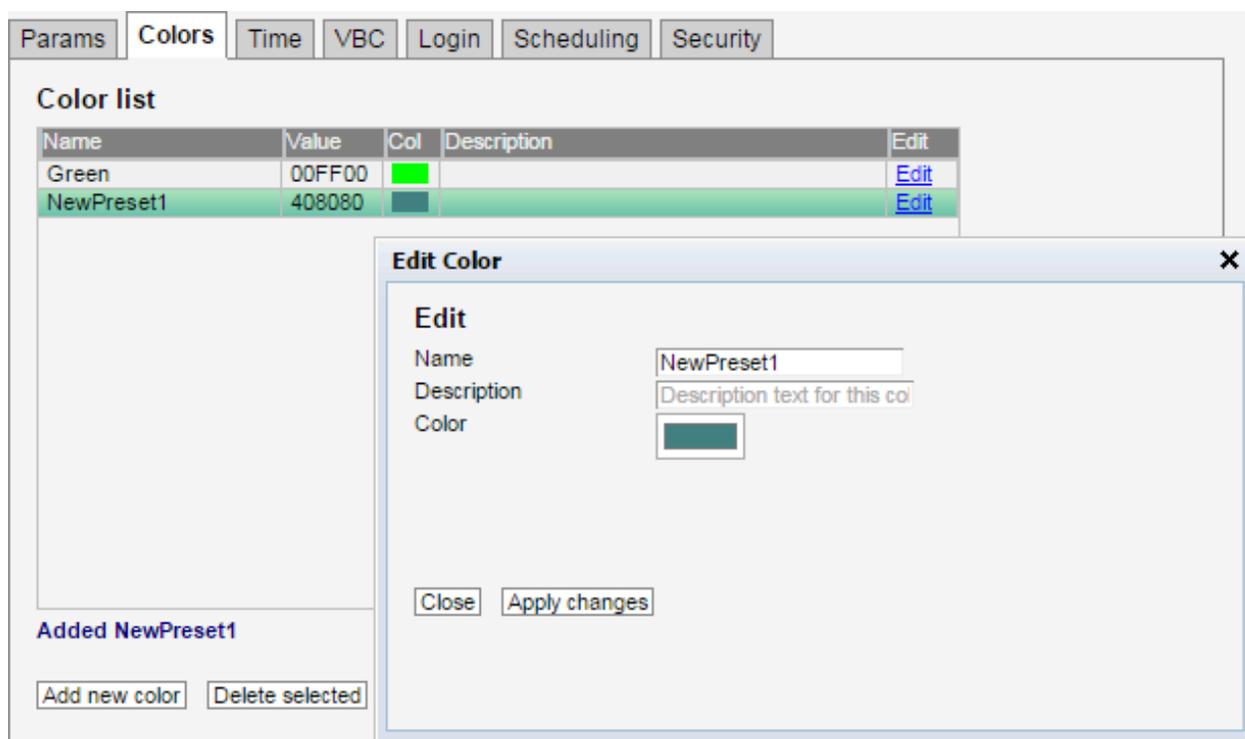
**Trap destination 1-3:** SNMP traps will be sent to the specified destinations. Set to 0.0.0.0 to disable SNMP trap transmission.

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<sup>1</sup>[https://access.redhat.com/documentation/en-US/Red\\_Hat\\_Enterprise\\_Linux/7/html/System\\_Administrators\\_Guide/chap-Configuring\\_the\\_Date\\_and\\_Time.html](https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/html/System_Administrators_Guide/chap-Configuring_the_Date_and_Time.html)

## 5.7.2 Setup — Colors



The **Setup — Colors** view allows the user to define colors that should be recognized if a color-freeze condition should occur. A mono-colored freeze frame condition may in some cases indicate what equipment is failing, resulting in the color-freeze.

A freeze color is defined by clicking the **Add new color** button and assigning an RGB value to a name. A maximum of four colors may be defined. An existing color may be modified by clicking the associated **Edit** link.

### *Edit color*

**Name:** The color name. This name will be part of a color alarm description and the associated SNMP trap.

**Description:** A description of the color or an error indication.

**Color:** The RGB color on the format #XX(Red)XX(Green)XX(Blue) where XX represents a hexadecimal figure spanning 0-255 in decimal notation. If supported by the browser, clicking the color should pop up a color selection dialog.

### 5.7.3 Setup — Ethernet

Interface	Enabled	Type	VLAN	Address	Netmask
lo	Yes	IPv4	—	127.0.0.1	255.0.0.0
eno1	Yes	IPv4	—	10.0.30.29	255.255.255.0
eno2	Yes	IPv4	—	169.254.8.183	255.255.0.0
eno2.3000	Yes	IPv4	3000	10.100.0.1	255.255.255.0
eno2.3001	Yes	IPv4	3001	10.101.0.1	255.255.255.0
eno2.3002	Yes	IPv4	3002	10.102.0.1	255.255.255.0
lo	Yes	IPv6	—	:::1	ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff
eno1	Yes	IPv6	—	fe80::eabd:1dff:feae:eb34%eno1	ffff:ffff:ffff:ffff::
eno2	Yes	IPv6	—	fe80::eabd:1dff:feae:eb35%eno2	ffff:ffff:ffff:ffff::
eno2.3000	Yes	IPv6	3000	fe80::eabd:1dff:feae:eb35%eno2.3000	ffff:ffff:ffff:ffff::
eno2.3001	Yes	IPv6	3001	fe80::eabd:1dff:feae:eb35%eno2.3001	ffff:ffff:ffff:ffff::
eno2.3002	Yes	IPv6	3002	fe80::eabd:1dff:feae:eb35%eno2.3002	ffff:ffff:ffff:ffff::

Default IPv4 gateway has address 10.0.30.1 on interface eno1.

[Manage server](#)

The **Setup — Ethernet** menu displays Ethernet parameters for the available network interfaces. The view can be used to verify the server network configuration. A Appendix: Network configuration gives a brief introduction to the server OS network configuration.

Click the **Manage server** button to access the Software Activation interface, see chapter 2.4 for more information.

### 5.7.4 Setup — VBC

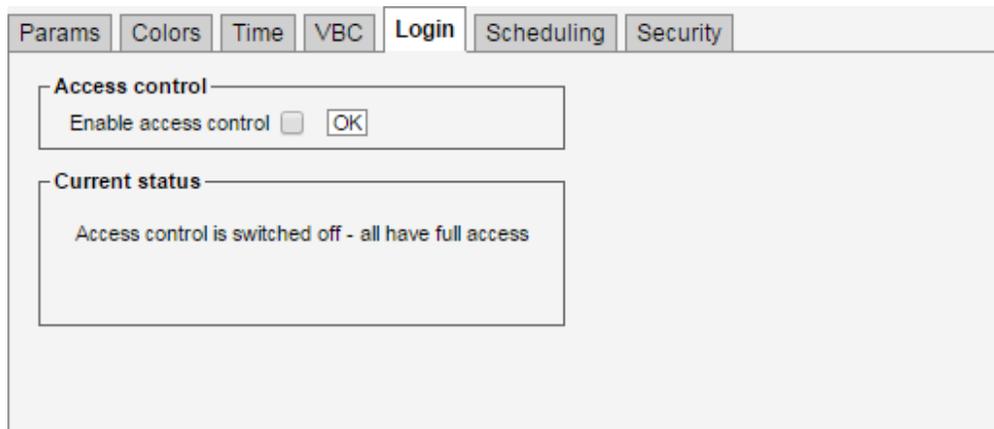
Params	Colors	Time	VBC	Login	Scheduling	Security
<p><b>Auto-detect</b></p> <p>Enable VBC auto-detect of this device <input checked="" type="checkbox"/></p> <p>VBC server (DNS-name or IP-address): <input type="text" value="vbc.bridgetech.tv"/></p> <p>Resolved IP-address of the VBC server: 94.139.83.117</p> <p><a href="#">Apply</a></p>						

The VideoBRIDGE Controller can automatically detect the VB7880 Advanced Content Extractor and add it to the VideoBRIDGE Controller equipment list, provided that the auto-detect functionality is enabled and the VideoBRIDGE Controller server address is known to the Extractor. Note that the network must be transparent to traffic between the VideoBRIDGE Controller server and VB7880 Advanced Content Extractors for auto-detection to work.

The VideoBRIDGE Controller server's host name may be typed in the VBC server address field. The IP address associated with the DNS name will be displayed. If host name lookup fails, it is necessary to type the VideoBRIDGE Controller server's IP address.

When changes have been made in the **Setup — VBC** view, click the **Apply** button for changes to take effect.

## 5.7.5 Setup — Login



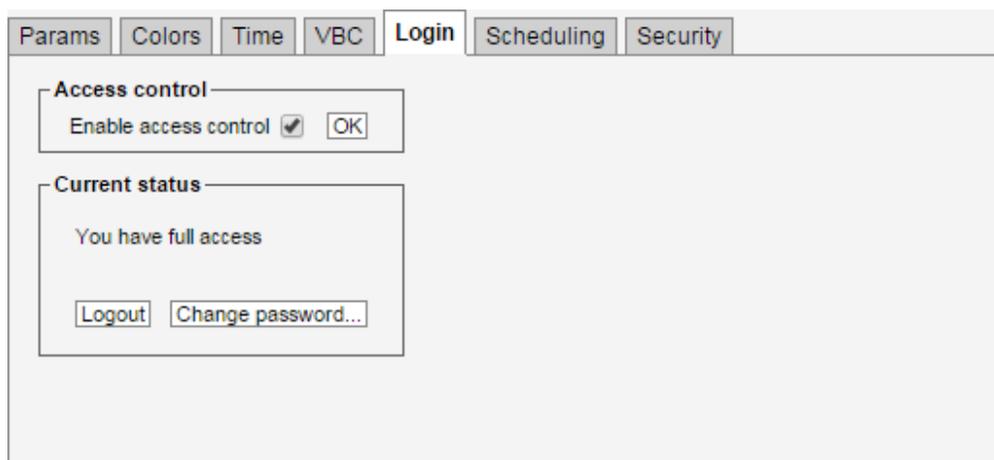
The screenshot shows a web interface with a navigation bar at the top containing tabs: Params, Colors, Time, VBC, Login (selected), Scheduling, and Security. Below the navigation bar, there are two main sections:

- Access control:** A box containing the text "Enable access control" followed by an unchecked checkbox and an "OK" button.
- Current status:** A box containing the text "Access control is switched off - all have full access".

By default, there is no access control and all users have access to all features. Access control can be enabled for the Extractor, restricting users to read-only access until they log in.

Any user can enable access control, but only users who are logged in can disable it or change the password.

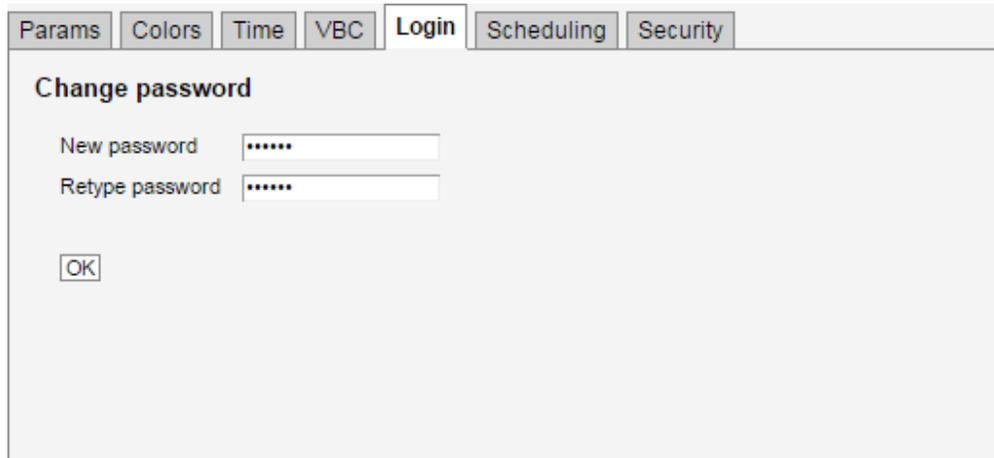
When access control is activated a **READ-ONLY access** message is displayed under the alarm list for users that are not logged in. It will be necessary to log-in each time a web browser application is launched and pointed at the extractor.



The screenshot shows the same web interface as above, but with the following changes:

- Access control:** The checkbox for "Enable access control" is now checked, and the "OK" button is still present.
- Current status:** The text now reads "You have full access". Below this text are two buttons: "Logout" and "Change password...".

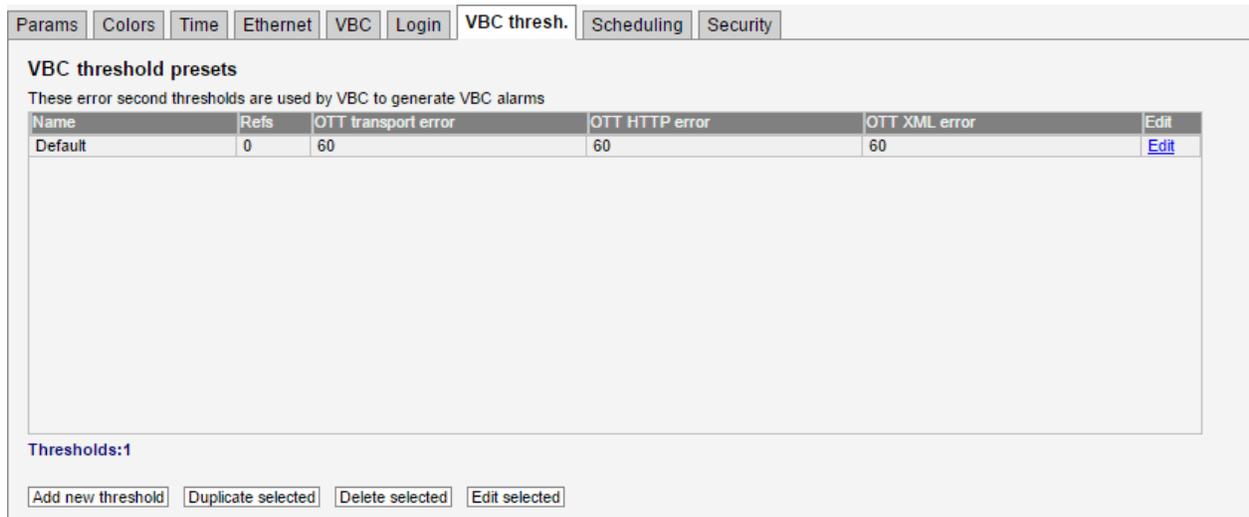
Log-in is performed by providing the correct password. The default password is **elvis**. The operator may define a new password that should be easy to remember.



Note that when logged in from the VideoBRIDGE Controller, the VideoBRIDGE Controller user's access rights apply.

The password defined here controls access to the VB7880 user interface. To change the password for the Software Activation interface, please refer to chapter 2.4

## 5.7.6 Setup — VBC thresh.



Name	Refs	OTT transport error	OTT HTTP error	OTT XML error	Edit
Default	0	60	60	60	<a href="#">Edit</a>

This tab is only available if the OTT Active Testing option is enabled, and the settings here only apply to these tests.

The VBC error second thresholds are used by the VideoBRIDGE Controller to issue VBC specific alarms. The VBC will raise an alarm when the number of error seconds exceeds the error seconds threshold. The VBC thresholds are only relevant when a VideoBRIDGE Controller is part of the monitoring system.

The reason for using error second thresholds is to avoid alarms that toggle on and off, which for a large monitoring system might otherwise lead to an unintelligible user interface. The VBC thresholds will allow masking of minor error incidences thus resulting in a control system GUI that presents persistent alarms only.

The VBC error second thresholds are specified as the number of seconds affected by an error situation. These thresholds refer to a monitoring window of one hour, meaning that if the number of error seconds summed over any one-hour period exceeds the associated error second threshold an alarm will be raised by the VBC.

If a monitoring window different from one hour is selected by the VBC user, the threshold values will be automatically recalculated to proportional values.

In the 'VBC threshold presets' table the 'Refs' column shows how many streams are associated with each VBC threshold template.

By clicking the **Add new threshold** button the user will enter a VBC thresholds edit view enabling definition of a new threshold template. It is possible to copy or delete an existing threshold template by clicking the **Duplicate selected** or **Delete selected** button respectively. To edit a highlighted threshold template, the **Edit selected** button should be clicked.

Multi-edit functionality allows editing several VBC thresholds simultaneously. Highlight the list entries that should be edited and click the **Edit selected** button.

---

### *VBC thresholds*

---

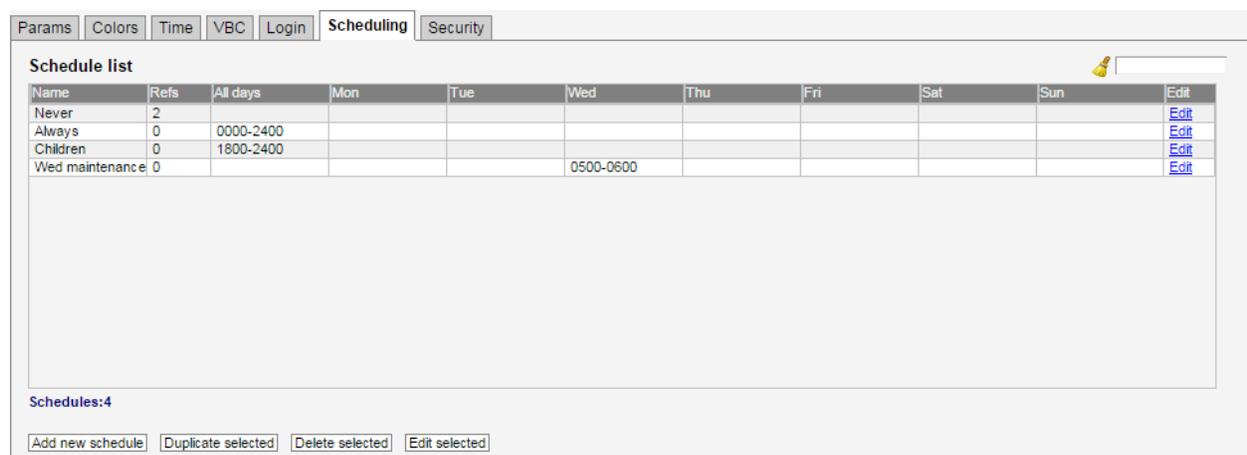
**OTT transport errors:** Number of seconds with OTT transport related alarms

**OTT HTTP errors:** Number of seconds with OTT HTTP related alarms

**OTT XML errors:** Number of seconds with OTT XML related alarms.

---

## 5.7.7 Setup — Scheduling



The screenshot shows a web interface with a navigation bar containing tabs: Params, Colors, Time, VBC, Login, Scheduling, and Security. The 'Scheduling' tab is active. Below the navigation bar is a 'Schedule list' section with a search icon and a search input field. The main content is a table with the following data:

Name	Refs	All days	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Edit
Never	2									<a href="#">Edit</a>
Always	0	0000-2400								<a href="#">Edit</a>
Children	0	1800-2400								<a href="#">Edit</a>
Wed maintenance	0				0500-0600					<a href="#">Edit</a>

Below the table, it says 'Schedules:4'. At the bottom of the interface, there are four buttons: 'Add new schedule', 'Duplicate selected', 'Delete selected', and 'Edit selected'.

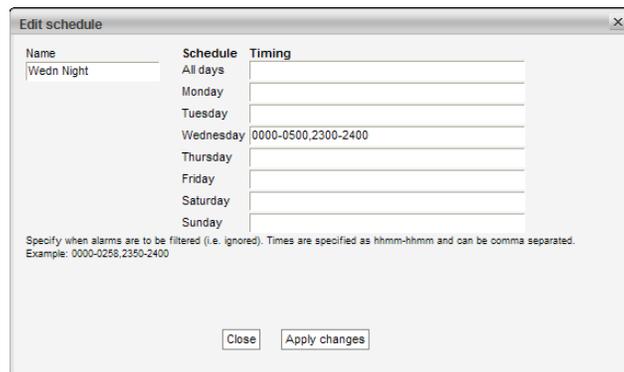
The **Setup — Scheduling** view enables definition of scheduling templates which are associated with PIDs or services using the PID threshold or service threshold template system. This way it is possible to mask alarms during selected time intervals, e.g. due to maintenance.

In the schedule list the ‘Refs’ column shows how many streams are associated with each schedule threshold template.

The predefined scheduling templates **Never** and **Always** result in alarms being masked never or always, respectively. A new scheduling template is created by clicking the **Add new schedule** button. It is also possible to copy an existing scheduling template by highlighting a schedule template and clicking the **Duplicate selected** button. The alarm masking intervals are defined for individual week days or for all week days. Intervals are specified on the form hhmm–hhmm, for instance the interval 1200–1400 means that alarm masking should start at noon and finish at 2 pm. Several alarm masking intervals may be specified for each day using comma separation. To edit an existing scheduling template, highlight it and click the **Edit selected** button. To delete a template, highlight it and click the **Delete selected** button.

When a scheduling template has been modified, click the **Apply changes** button. Defined scheduling templates become available as selections in the **Multicasts — Service thresh. — Edit** view.

The search field in the upper right corner of the view allows the user to type a text string, and the schedule list is updated to display only scheduling templates matching the specified text.



Name	Schedule	Timing
Wedn Night	All days	
	Monday	
	Tuesday	
	Wednesday	0000-0500,2300-2400
	Thursday	
	Friday	
	Saturday	
	Sunday	

Specify when alarms are to be filtered (i.e. ignored). Times are specified as hhmm-hhmm and can be comma separated.  
Example: 0000-0256,2350-2400

Close Apply changes

## 5.7.8 Setup — Security

Params
Colors
Time
Ethernet
VBC
Login
VBC thresh.
Scheduling
Security

**Security parameters**

Enable SNMP (default on)  If disabled, no MIB is available on port 161 but traps are still sent on port 162  
 After changing this setting, the main process needs to be restarted.

Login will automatically expire two minutes after accessing this page.

Apply changes

The security section is a restricted section where only the administrator should have access. In this section the SNMP support may be disabled or enabled (default). For security reasons the login will expire two minutes after accessing this section.

This page uses the same log-in credentials as the Software Activation interface. Please refer to chapter 2.4 for details on Software Activation.

---

### *Security parameters*

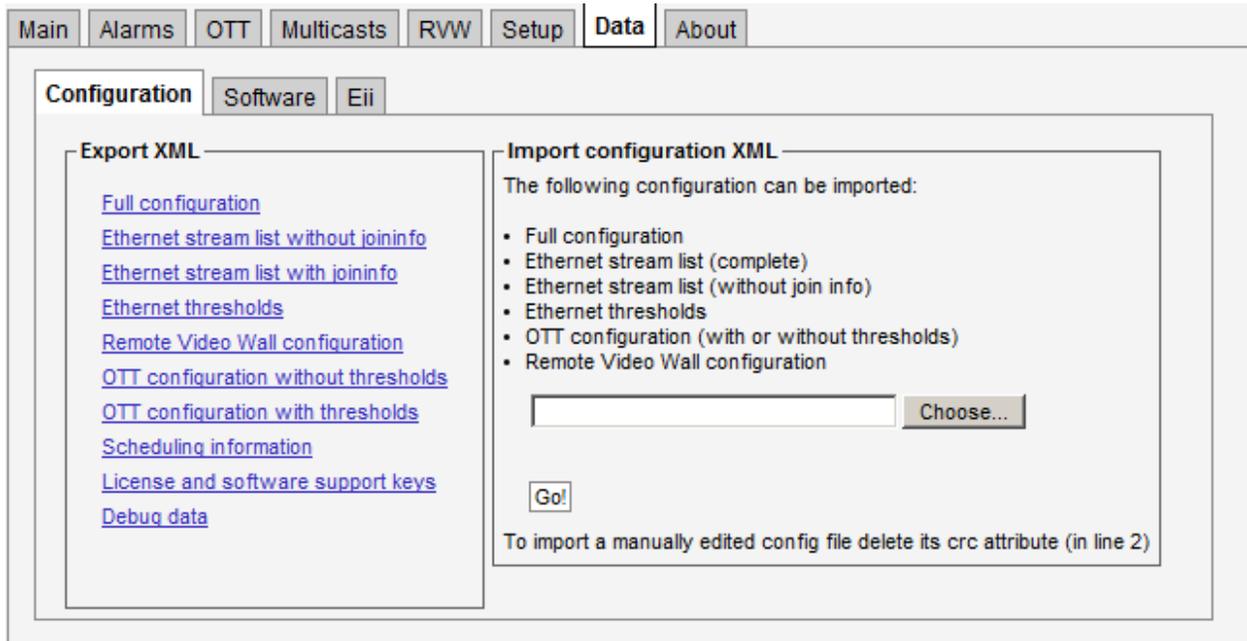
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<b>Enable SNMP:</b>	If SNMP is disabled, no MIB is available on port 161. However SNMP traps are sent as usual on port 162.
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## 5.8 Data

### 5.8.1 Data — Configuration



Full and partial configuration of the Extractor can be exported as XML documents. This is achieved by clicking one of the links inside the **Export XML** frame. A new browser window pops up containing the selected XML document. The browser will allow the contents of the page to be saved to file.

Restoring the Extractor configuration, multicast stream list or OTT channel list is just as simple. Just click the **Browse** button and select the file that contains the XML document. Then click the **Go!** button and the information in the XML document will be applied. The configuration, stream list, thresholds and scheduling exports can all be imported by other VB7880s. Multicast stream lists, OTT channel lists and scheduling information can be exported to and imported from Sencore VideoBRIDGE probes.

You can also import and export license and software maintenance keys in XML format from this page.

It should be possible to import the configuration from a VB280. Go to the Data tab in the VB280 and select **Full configuration** under **Export XML**. Due to the changes in the architecture between the VB280 and the VB7880, some changes may not carry forward correctly.

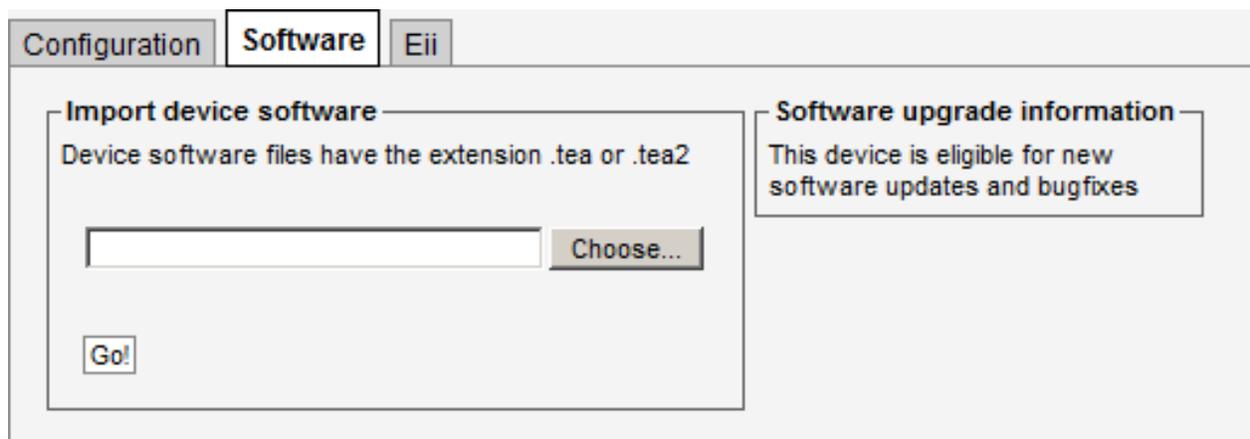
To import documents that have been manually edited the CRC attribute at the very top of the document must be deleted (i.e. delete `crc="..."` from the file). This will bypass the checksum verification mechanism.

Under certain circumstances an unmodified configuration file may fail with a CRC error when imported back. This problem can most often be fixed by opening the exported configuration file in a text editor and removing the **crc** attribute as mentioned above.

Note that the Extractor name and location are not part of the XML document. Hence exporting the full configuration of one Extractor and restoring it on another will make the two Extractors identical except for the network settings.

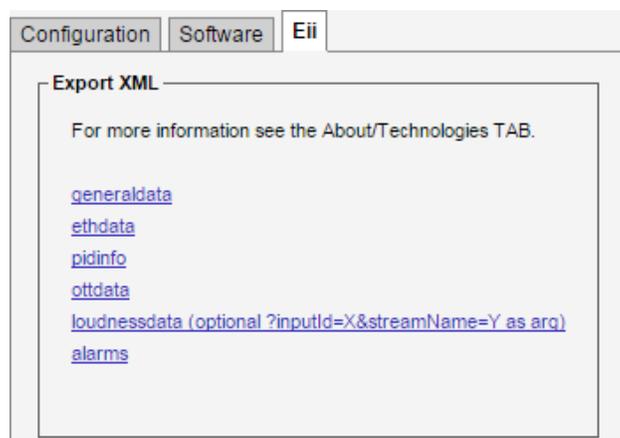
Clicking the Debug data export option will generate a document containing debug information that may be useful if Extractor misbehavior is reported. This file should be sent along with a description of the misbehavior.

## 5.8.2 Data — Software



The software section allows the VB7880 Advanced Content Extractor to be upgraded to a newer version just by pressing the choose file button and selecting the **.tea** file from the directory of the local PC and then pressing *Go!*.

## 5.8.3 Data — Eii

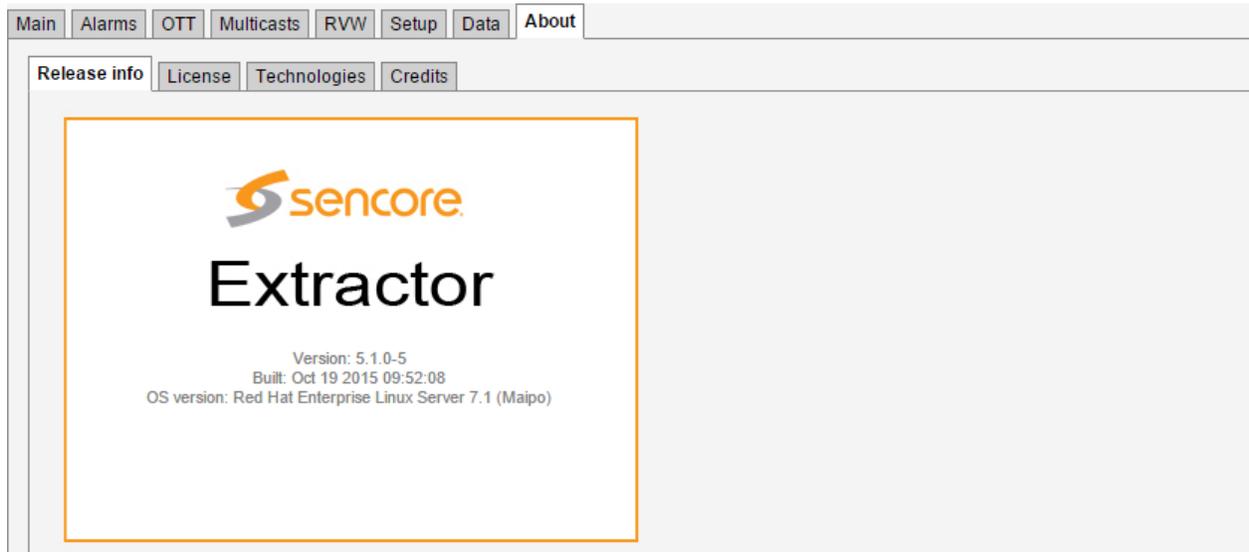


The **External integration interface** (Eii) allows inclusion of Sencore VideoBRIDGE equipment into 3rd party NMS systems. In order to facilitate integration the **Data — Eii** view allows export of XML files containing the data typically being requested by an NMS system via the regular Eii interface.

Please refer to the document **Eii External Integration Interface** for detailed information about Eii.

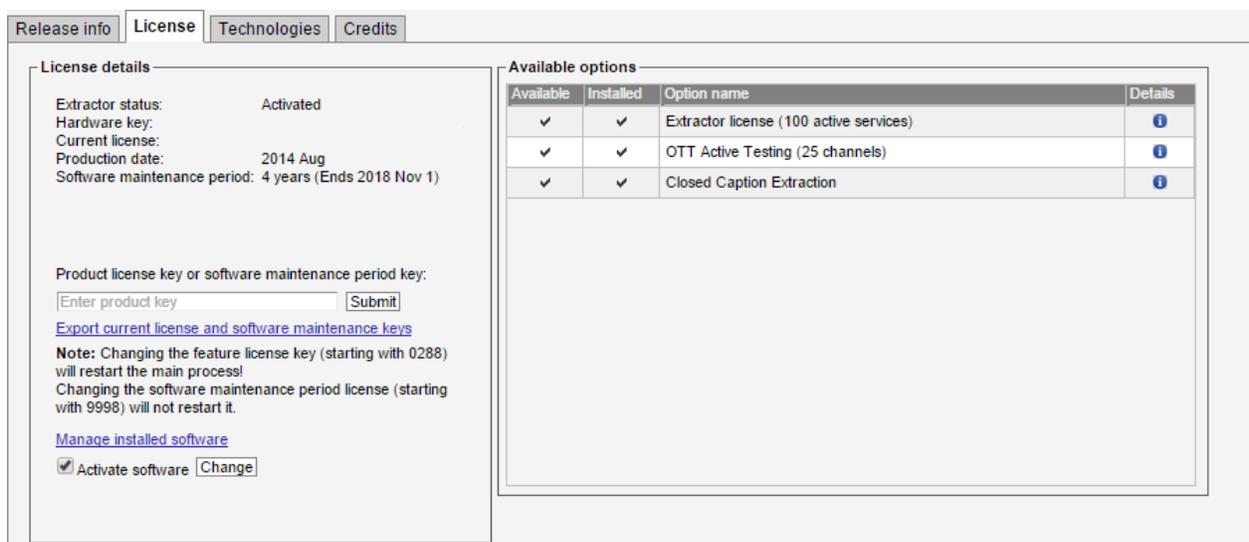
## 5.9 About

### 5.9.1 About — Release info



This section shows the version and build date of the installed software and the underlying operating system.

### 5.9.2 About — License



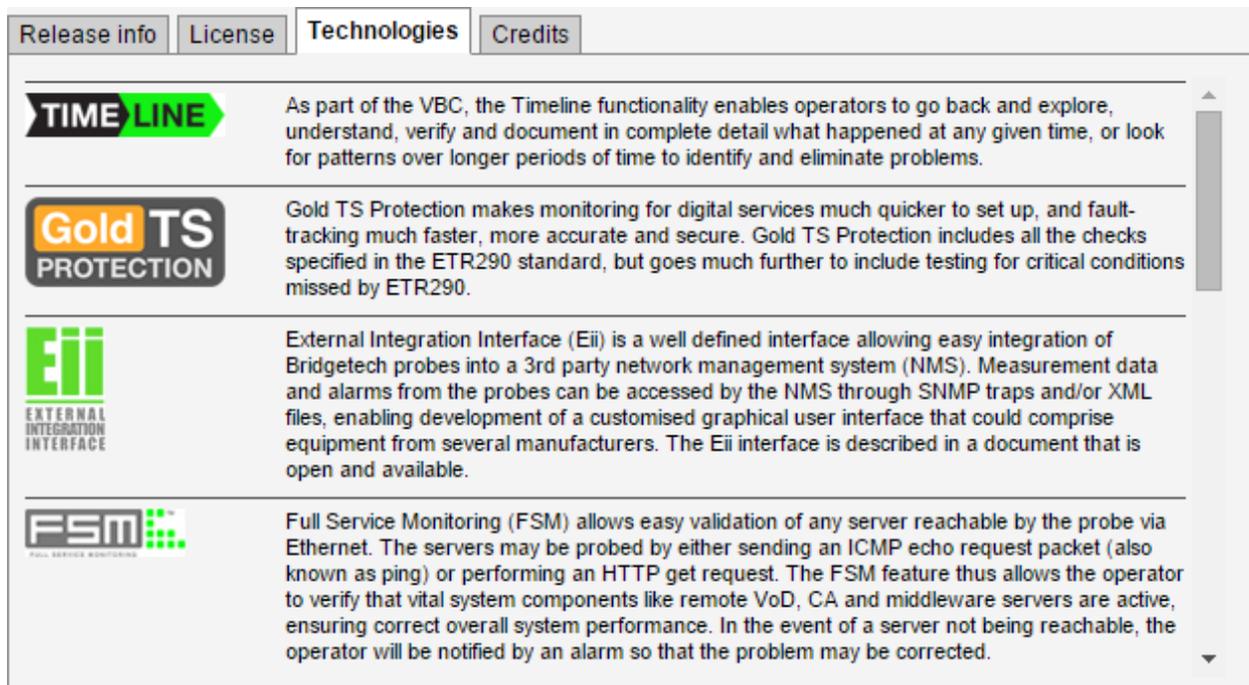
This view shows the available Extractor options and current Extractor license and software maintenance details. By clicking the blue information icon associated with each option it is possible to view option details.

It is also possible to export the license and software maintenance keys in XML format from this page. These keys can be imported using the **Data — Configuration** tab, or from Software Activation.

Click the **Manage installed software** link to access the Software Activation interface, see chapter 2.4 for more information.

To disable the VB7880 Advanced Content Extractor, uncheck the **Activate software** checkbox and click the **Change** button. You cannot do this if it has been set as the default software through the Software Activation interface (which is done by default the first time you activate the software), you will need to change the default back to **Software Activation** before disabling VB7880 Advanced Content Extractor.

### 5.9.3 About — Technologies



The screenshot shows a web interface with four tabs: 'Release info', 'License', 'Technologies' (selected), and 'Credits'. Below the tabs is a scrollable list of technologies:

- TIME LINE**: As part of the VBC, the Timeline functionality enables operators to go back and explore, understand, verify and document in complete detail what happened at any given time, or look for patterns over longer periods of time to identify and eliminate problems.
- Gold TS PROTECTION**: Gold TS Protection makes monitoring for digital services much quicker to set up, and fault-tracking much faster, more accurate and secure. Gold TS Protection includes all the checks specified in the ETR290 standard, but goes much further to include testing for critical conditions missed by ETR290.
- Eii** (EXTERNAL INTEGRATION INTERFACE): External Integration Interface (Eii) is a well defined interface allowing easy integration of Bridgetech probes into a 3rd party network management system (NMS). Measurement data and alarms from the probes can be accessed by the NMS through SNMP traps and/or XML files, enabling development of a customised graphical user interface that could comprise equipment from several manufacturers. The Eii interface is described in a document that is open and available.
- FSM** (FULL SERVICE MONITORING): Full Service Monitoring (FSM) allows easy validation of any server reachable by the probe via Ethernet. The servers may be probed by either sending an ICMP echo request packet (also known as ping) or performing an HTTP get request. The FSM feature thus allows the operator to verify that vital system components like remote VoD, CA and middleware servers are active, ensuring correct overall system performance. In the event of a server not being reachable, the operator will be notified by an alarm so that the problem may be corrected.

This view shows a description of some of the technologies available in the Sencore VideoBRIDGE product family.

## 5.9.4 About — Credits

Release info	License	Technologies	Credits
Contains software licensed under the <a href="#">GNU General Public License</a> version 2. Please contact your dealer to receive copies of the source code for these parts.			
Contains software licensed under the <a href="#">GNU Lesser General Public License</a> version 2.1.			
Contains software from the cURL project licensed under the <a href="#">cURL license</a> .			
Contains software from the FFmpeg project licensed under the <a href="#">GNU General Public License</a> version 2.			
This product includes software developed by the <a href="#">OpenSSL Project</a> for use in the OpenSSL Toolkit. This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). OpenSSL is licensed under both the <a href="#">OpenSSL license and original SSLeay license</a>			
The rolling digital clock widget contains code by <a href="#">Jon Combe</a> .			
The German railway station and 7-segment clock widgets contain code by <a href="#">Rüdiger Appel</a> licensed under the <a href="#">Creative Commons 3.0 license</a> (CC BY 3.0).			

This view shows information about the software included with the Extractor.

## A Appendix: Network configuration

To change the network configuration, using the **nmtui** tool is recommended. More documentation on using **nmtui** can be found in the Networking Guide<sup>1</sup>.

Some older installation images did not make the **nmtui** tool available. If it is not installed on your system, you can install it by issuing the command

```
yum install NetworkManager-tui
```

It is also possible to use the **nmcli** command. Here are some example commands for adding and modifying network connections using **nmcli**:

```
# Display a list of active connections
nmcli con
# Add a new connection
nmcli con add con-name eno2 ifname eno2 type ethernet ip4 10.100.100.1/24
# Disconnect the eno2 connection
nmcli con down eno2
# Reconfigure the IPv4 address
nmcli con mod eno2 ipv4.addresses 10.100.100.2/24
# Connect the eno2 connection
nmcli con up eno2
```

More documentation on **nmcli** is available in the Networking Guide<sup>2</sup>.

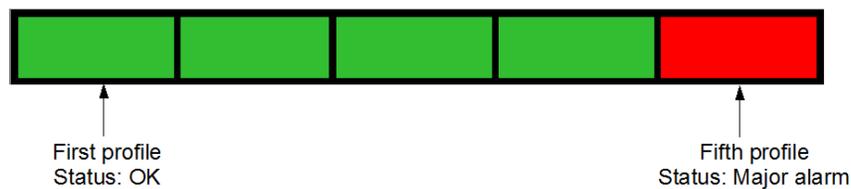
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<sup>1</sup>[https://access.redhat.com/documentation/en-US/Red\\_Hat\\_Enterprise\\_Linux/7/html/Networking\\_Guide/sec-Networking\\_Config\\_Using\\_nmtui.html](https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/html/Networking_Guide/sec-Networking_Config_Using_nmtui.html)

<sup>2</sup>[https://access.redhat.com/documentation/en-US/Red\\_Hat\\_Enterprise\\_Linux/7/html/Networking\\_Guide/sec-Using\\_the\\_NetworkManager\\_Command\\_Line\\_Tool\\_nmcli.html](https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/html/Networking_Guide/sec-Using_the_NetworkManager_Command_Line_Tool_nmcli.html)

## B Appendix: OTT Profile Health

### B.1 OTT Profile Health Bar

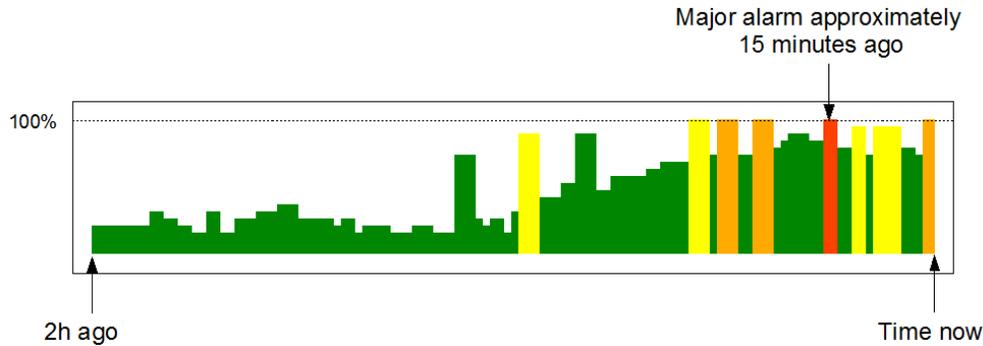


The profile health bar displayed at channel level shows an overview of current status for individual channel profiles. Different colors indicate status:

- Green: OK
- Yellow: Warning
- Orange: Error
- Red: Major
- Black: Fatal

All enabled alarms may affect the profile health bar, and alarm severities can be assigned to each alarm in the **Alarms — Alarm setup** view.

## B.2 OTT Profile Health Timeline



The OTT profile health timeline shows information about channel bitrate and channel alarm status for the last two hours, with a time resolution of one minute. Green parts of the timeline indicate profile download time versus chunk length. The graph is scaled so that 100% indicates a chunk download time identical to chunk length (in seconds), chunk length being signalled in the profile manifest. Quick chunk download times therefore result in a 'low' green graph, as seen in the left hand part of the graph above. When download times exceed the user defined profile bitrate warning and error thresholds the graph is colored yellow and orange respectively.

In addition to profile bitrate indication the graph displays profile status information related to non-bitrate alarms. Active profile alarms are represented in the graph as 100% bars, the color reflecting the severity of the alarm. If several alarms are active within a one minute period the graph color will reflect the most severe alarm. Historical alarms can be examined in more detail by viewing the OTT alarm list.