Haivision™

Torpedo™
DVB to IP Gateways
User's Guide Version 2.2

HVS-ID-UG-TORP-220
Issue 01

Intelligent IP Video

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Safety Guidelines

Use the following guidelines when unsafe conditions exist or when potentially hazardous voltages are present:

- Always use caution and common sense.
- To reduce the risk of electrical shock, do not operate equipment with the cover removed.
- Repairs must be performed by qualified service personnel only.

Antistatic Precautions

Electrostatic discharge (ESD) results from the buildup of static electricity and can cause computer components to fail. Electrostatic discharge occurs when a person whose body contains a static buildup touches a computer component.

The equipment contains static-sensitive devices that may be easily damaged, and proper handling and grounding is essential. Use ESD precautionary measures when installing systems or cards, and keep the parts and cards in antistatic packaging when not in use. If possible, use antistatic floorpads and workbench pads.

Improper handling and/or installation practices may VOID the warranty.

CAUTION When handling components, or when setting switch options, always use an antistatic wrist strap connected to a grounded equipment frame or chassis. *If a wrist strap is not available, periodically touch an unpainted metal surface on the equipment.* Never use a conductive tool, such as a screwdriver or a paper clip, to set switches.

Table of Contents

About This Guide

Welcome to the user's guide for the Torpedo™ DVB to IP Gateways, Version 2.2. This user's guide describes how to install, configure, and manage the Torpedo to stream digital broadcasts onto an IP network.

To access the online help, open the Web interface and click Help from the menu bar.

Topics In This Section

About Haivision

Haivision is a global leader in delivering advanced video networking, digital signage, and IP video distribution solutions. Haivision offers complete end-to-end technology for video, graphics, and metadata to help customers to build, manage, and distribute their media content to users throughout an organization or across the Internet. Haivision has specific expertise in the enterprise, education, medical/healthcare, and federal/military markets.

Haivision is based in Montreal and Chicago, with technical centers in Beaverton, Oregon; Austin, Texas; and Hamburg, Germany.

Audience

This user's guide is directed towards qualified service personnel such as technicians and network system administrators who have a basic knowledge of telecommunications equipment, and IP and LAN networking concepts and terminology.

Reliability of Information

The information contained in this user's guide has been carefully checked and is believed to be entirely reliable. However, as Haivision improves the reliability, function, and design of its products, the possibility exists that this user's guide may not remain current.

If you require updated information, or any other Haivision product information, contact:

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Or visit our website at: http://www.haivision.com

Obtaining Documentation

You may download the Torpedo firmware, Release Notes, and user documentation, including this user's guide through Haivision's Download Center at: http://www.haivision.com/download-center/

NOTE All customers may access the Download Center; however, a login is required. If you do not have a login, select the link to create an account.

Related Documents

In addition to this user's guide, the following document(s) are also available through Haivision's Download Center (see previous link):

- Torpedo Quick Start Guide
- Furnace Administration Guide

Service Support

Haivision is committed to providing the service support and training needed to install, manage, and maintain your Haivision equipment.

For more information regarding service programs, training courses, or for assistance with your support requirements, contact Haivision Technical Support via our Support Portal on our website at: http://www.haivision.com/support/

Document Conventions

The following document conventions are used throughout this user's guide.

TIP   The light bulb symbol highlights suggestions or helpful hints.

NOTE   Indicates a note, containing special instructions or information that may apply only in special cases.

IMPORTANT   Indicates an emphasized note. It provides information that you should be particularly aware of in order to complete a task and that should not be disregarded. IMPORTANT is typically used to prevent loss of data.

CAUTION   Indicates a potentially hazardous situation which, if not avoided, may result in damage to data or equipment, or minor to moderate injury. It may also be used to alert against unsafe practices.

> **WARNING** Indicates an imminently hazardous situation which, if not avoided, <u>could</u> result in serious injury or death.

Safety Information

The CAUTION and WARNING notices shown above are not only preventative measures designed to uphold the safety of both the service engineer and operator, but also enhance equipment reliability.

The definitions and symbols for CAUTION and WARNING comply with ANSI Z535.2, American National Standard for Environmental and Facility Safety Signs, and ANSI Z535.4, Product Safety Signs and Labels, issued by the American National Standards Institute.

New Features in Version 2.2

Version 2.2 of the Torpedo introduces the following new features and enhancements:

- Support for the DVB-CI MM (Common Interface Man-Machine-Interface) menu sub-system in order to support BISS (Basic Interoperable Scrambling System). DVB-S/S2 satellite downlink users may now decode a BISS encoded stream.

  For more information, see "Conditional Access" on page 48.

- Increased range of Conditional Access Modules (CAMs) supported.

- Save and Load Configurations – Ability to save the currently active configuration and upload previously saved configurations to the Torpedo.

  For more information, see "Save / Load Settings" on page 88.

- Software Upgrade / File Upload – You can now directly upload an .img file to the Torpedo to start an update rather than having to use a Web server.

  For more information, see "Software Upgrade" on page 79.

NOTE You can also continue to use the Web server method. In either case, you must first copy the upgrade file(s) to your local computer or network.

- Scan Setup – Ability to set the "Dwell period" (i.e., the timeout period for scanning). When the Torpedo locks on to a multiplex when scanning, it will wait for this number of seconds for the Network Information Table (NIT) and/or Service Description Table (SDT). According to the standard, these should be sent at intervals of no more than 10 seconds but not all broadcasters manage this. The default is 30 seconds, but you can now set it to anything between 15 and 300 seconds.

  For more information, see "Scan Setup" on page 55.

- Reboot from WCI – Reset Board button added to Advanced page to reboot the unit. This is useful, for example, when changing the Port number for a Telnet Session, since the unit needs to be rebooted for the change to take effect. Now you can reboot from the Advanced page, even when there is no COM communication and the unit is located in a different room/facility.

  For more information, see "Advanced" on page 64.

Recap of Previous Releases

Version 2.1 was a minor enhancement release which was provided to customers to address specific issues.

Version 2.0 of the Torpedo introduced the following new features and enhancements:

- Fit within the existing racks used by Haivision (such as the MB2, MB6B and MB21B chassis), and

- Functionality extended to include CI (Common Interface)/CAM support and DVB-T2 support.

CHAPTER 1: Introduction

This chapter provides a brief overview of Haivision's Torpedo™ DVB to IP Gateways, along with a description of the main hardware components and key features.

Topics In This Chapter

Product Overview

ℹ️ NOTE Haivision's Torpedo DVB to IP Gateways are specifically designed to support free-to-air DVB (Digital Video Broadcasting) transmission or Pay TV services using a DVB-CI Conditional Access Module (CAM). The Torpedo supports only DVB-T/T2 (Terrestrial) or DVB-S/S2 (Satellite) transmission systems.

The Torpedo DVB to IP Gateways deliver digital TV and radio broadcasts over IP video networks, without the need for re-encoding the video. Digital Satellite (DVB-S/S2) and Digital Terrestrial (DVB-T/T2) broadcasts contain audio/video programming using industry standard compression (MPEG-2 or H.264) contained within MPEG-2 Transport Streams. The Torpedo gateway tunes to selected channels, delivered over RF by the DVB antennas or satellite dishes, extracts and filters the MPEG transport stream packets, and delivers the program content over IP networks. A single Torpedo can stream up to 15 channels of live TV from a single RF multiplex to any authorized network computer.

Figure 1-1   Front View (Torpedo DVB-S/S2 to IP Gateway Appliance)

Figure 1-2   Rear View (Torpedo DVB-S/S2 to IP Gateway Appliance)

Product Features

The Torpedo is available in two models:

- The Torpedo DVB-S/S2 supports satellite (DVB-S and DVB-S2) signals.
- The Torpedo DVB-T/T2 supports terrestrial (DVB-T and DVB-T2) signals.

The Torpedo also supports a CI/CAM service subscription card interface to allow decryption, decoding and streaming of Pay TV content. The Torpedo can be used as an independent device or can be integrated as part of Haivision's Furnace™ IP video system.

For configuration and monitoring, the Torpedo provides an on-board Web interface. Through this interface, administrators can select a broadcast source and scan through available DVB-T2/DVB-S2 multiplex tables, selecting up to 15 individual channels. The Torpedo then transmits each channel as a separate IP video unicast or multicast stream.

Other Configuration and Monitoring Features

- Multicast and Unicast address for output of video stream
- Static IP address or DHCP assignment of Torpedo unit
- Supports Netmask, Gateway Address, DNS Server Addressing
- Command Line Interface (CLI) available over Telnet or serial RS-232/USB
- SNMPv1 monitoring of key operating functions reported via on-board SNMP agent

Signal Inputs

- Torpedo DVB-T/T2: RF input of Digital Terrestrial Television (DVB-T2) TV and radio channels via a 75ohm IEC aerial connector
- Torpedo DVB-S/S2: RF input of Digital Satellite Television (DVB-S2) TV and radio channels via a 75ohm type F female connector
- Delivers up to 15 channels from an unscrambled DVB Multiplex or from Pay TV services using a DVB-CI CAM (Conditional Access Module)
- Supports standard definition TV, high definition TV and radio services
- RF loopthrough for connection to additional Torpedo blades (DVB-T/T2 systems only)

Chassis Styles

The Torpedo is available as a stand-alone appliance (shown in Figures 1-1 and 1-2) or as a blade within Haivision's 1U 6-slot and 4U 21-slot rack mountable chassis. Each chassis can hold any combination of the DVB-T/T2 and DVB-S/ S2 models as well as Haivision's Makito and Barracuda H.264 encoder blades. The Torpedo blades that support Conditional Access (CAM) decryption occupy two slots within the multi-slot chassis.

For all chassis styles, the application software operates in a stand-alone environment which does not have an operating system. Each blade has Web browser and RS232/USB control interface.

The 21-slot and 6-slot chassis and blades are shown in the following figures (Figures 1-3 and 1-4).

Figure 1-3   Multichannel Chassis - Front Views (Top 21 slot, Bottom 6 slot)

Figure 1-4   Multichannel Chassis - Single Blades (single and double height)

Related Topics

- [Physical Description](#)

Conditional Access Modules (CAMs)

In order to receive encrypted broadcasts, the Torpedo supports a standard DVB-CI (Common Interface) slot. Users can insert a CAM with a suitable service subscription card into the slot and thereby enable decryption of those services by the Torpedo.

The Torpedo will detect the presence of a CAM and will automatically decrypt the services that the user has selected for streaming over the network.

CAM Requirements

Torpedo systems support user-supplied CAM/PC smart cards that meet the following requirements:

- The CAM must comply with the DVB-CI interface specification.
- The CAM may require users to enter PIN codes to decrypt encrypted signals on DVB-S/S2 cards.
- The CAM must not require access to a third party licensing server via an internet or some other back-channel connection.

Related Topics

-
-

Physical Description

Following is a description of the Torpedo's interfaces, connectors, and LED status indicators:

System Interfaces (Rear Panel)

The Torpedo comes with a 10/100 Base-T Ethernet Network interface for both traffic and management (RJ45).

The Torpedo can optionally be connected to a computer through its RS-232/USB connector to the computer's USB port.

A DVB-CI Conditional Access Module (CAM) smart-card may also be inserted in the CAM card slot to allow decryption, decoding and streaming of Pay TV content. See the previous section, "CAM Requirements".

Figure 1-5   Ethernet, RS-232/USB and CAM Interfaces (Torpedo DVB-T/T2CAM)
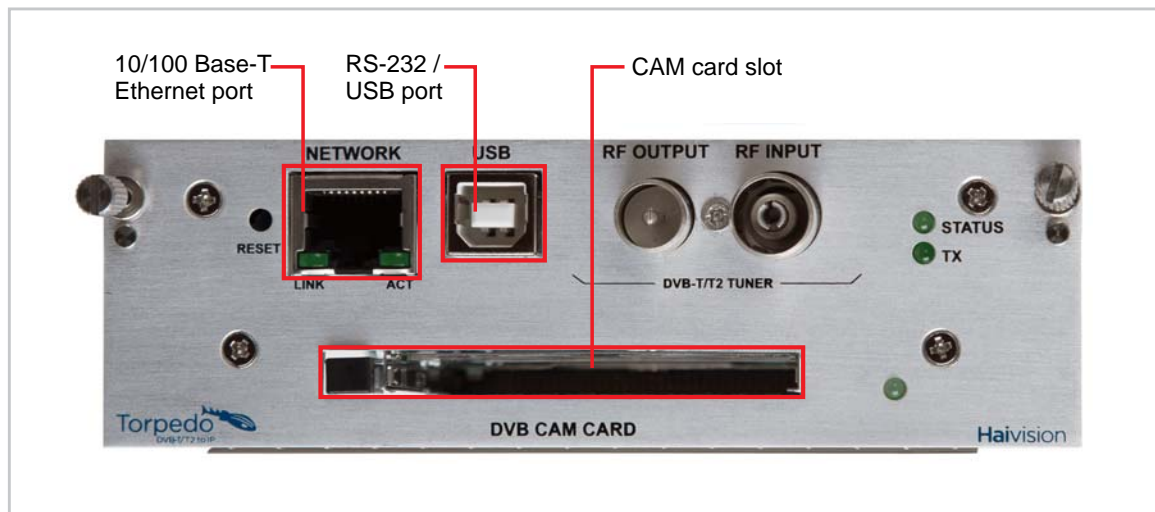
Related Topics

• "Connecting the Torpedo to the Network and a Computer" on page 28

RF Interfaces (Rear Panel)

Torpedo DVB-T/T2

The Torpedo DVB-T/T2 provides RF Input of Digital Terrestrial Television (DVB-T2) TV and radio channels via a 75ohm IEC aerial connector.

In addition, the Input and Output connectors may be connected by an RF loopthrough for connection to additional Torpedo blades. This allows input from a single RF multiplex to one blade in the multichannel chassis to then be cascaded to other Torpedoes in the chassis.

Figure 1-6   RF Input and Output Connectors (Torpedo DVB-T/T2CAM)
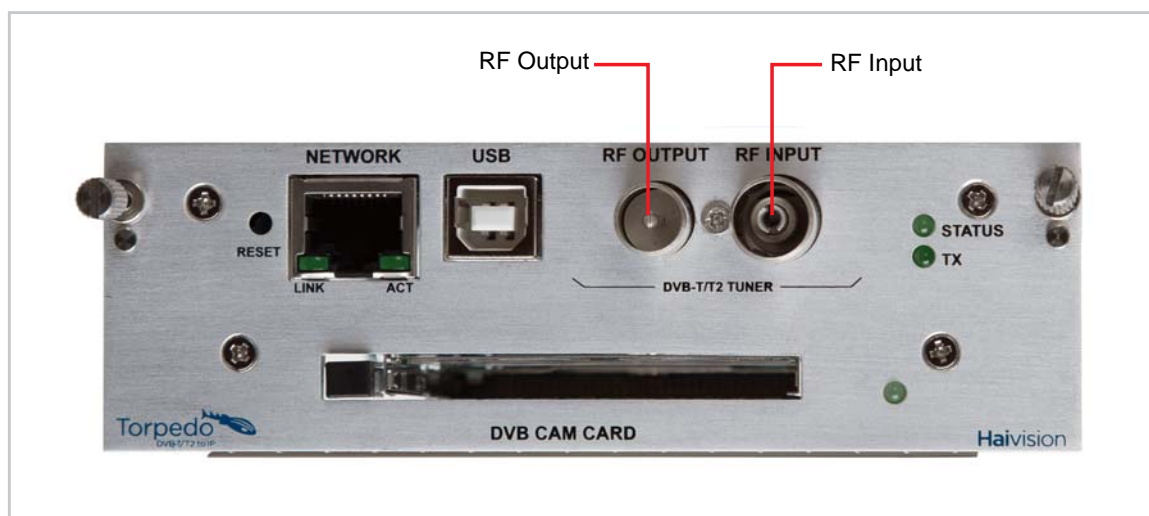
Torpedo DVB-S/S2

The Torpedo DVB-S/S2 provides RF Input of Digital Satellite Television (DVB-S2) TV and radio channels via a 75ohm type F female connector.

RF loopthrough for DVB-S/S2 is not available in the current version.

Figure 1-7   RF Input Connectors (Torpedo DVB-S/S2)
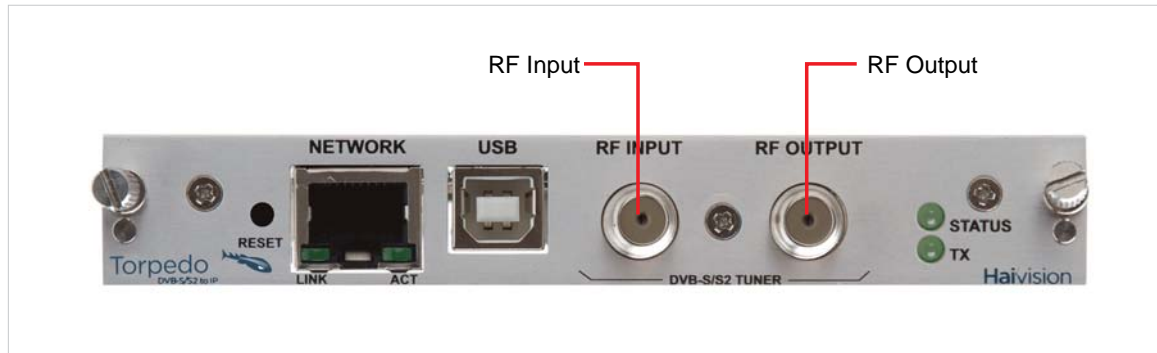
Related Topics

- <u>"Connecting RF Input to the Torpedo"</u> on page 30

LED Status Indicators (Rear Panel)

The LED colors and flashing (blinking) speed indicate the status (operational state) of the Torpedo. The following table describes the colors and speed after the LEDs settle down to normal state.

Figure 1-8   LED Status Indicators (Torpedo DVB-T/T2CAM)
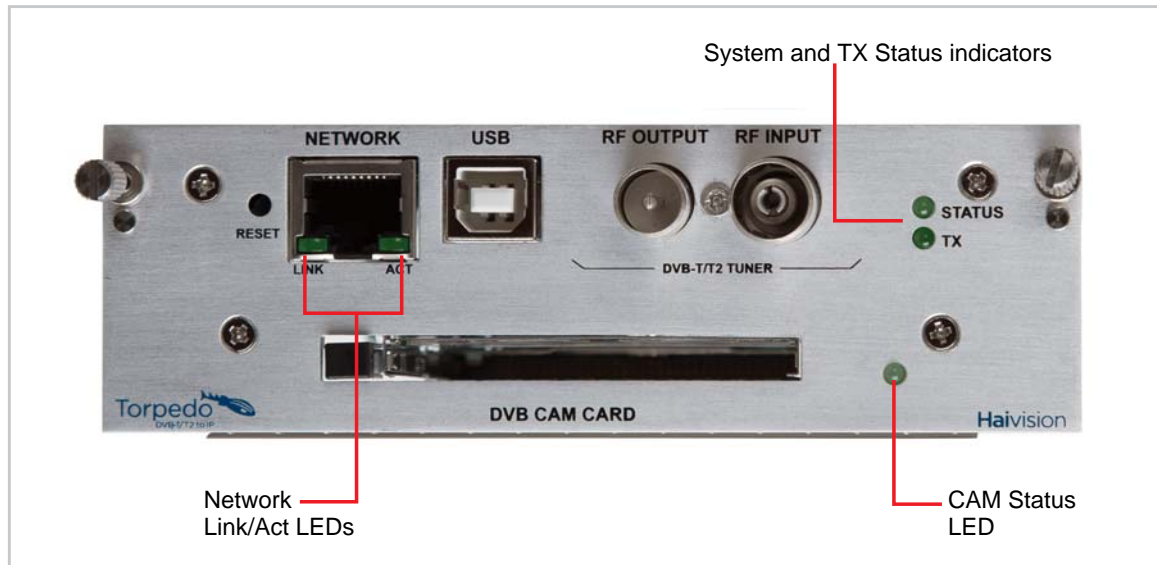
Table 1-1   General LED Status Indicators

Function	Color	Description	Indication
Status	RED/GREEN	OFF	Unit is not receiving power
		RED Blinking	Factory Reset ongoing
		RED Solid	Error/Fault Factory Reset completed
		GREEN Blinking	Booting / Initialization ongoing
		GREEN Solid	No Fault / Normal operation
TX	AMBER/GREEN	OFF	Unit is not receiving power
		AMBER Blinking	No RF locked
		AMBER Solid	Booting / Initialization ongoing
		GREEN Blinking	RF locked and Streaming data
		GREEN Solid	RF locked only, no Streaming

Table 1-1   General LED Status Indicators (Cont.)

Function	Color	Description	Indication
Network port			
Link	GREEN	OFF	No link
		GREEN Solid	Connected / good link
ACT	GREEN	OFF	No activity
		GREEN Solid	Activity / transmitting video traffic
CAM card slot			
CI Status	GREEN	OFF	CAM card slot empty
		GREEN Solid	Valid CAM card in the slot

Related Topics

-

CHAPTER 2: Installing the Torpedo

This chapter explains how to set up the Torpedo, connect data and power cables, and power on the unit.

Topics In This Chapter

Setting Up the Torpedo

Always read the instructions carefully and keep this user's guide for future reference.

Please choose a suitable location for operating the Torpedo. By doing so you will preserve long lifesaving and stability of the unit(s).

Set up the Torpedo on a reliable and flat surface when using the single chassis, or mount in a rack, when using the 1U or 4U chassis.

Safety First

Please pay particular attention to the following points in order to help protect yourself and the Torpedo:

- Refer to "Safety Guidelines" on page 3.
- The Torpedo is an indoor appliance and should be kept in a dry, dust free environment.
- There are no user-serviceable parts inside the unit. Making unauthorized changes will void the warranty.
- Only connect the unit to a compatible power source.
- If an electrical fault occurs, disconnect the unit and contact Haivision Technical Support.
- Never try to force the connections when setting up the system as this may damage the unit.

Connecting the Torpedo to the Network and a Computer

To connect the Network Interface:

1. Connect the Torpedo's 10/100 Base-T port to the IP network using an Ethernet UTP cable (Type Cat 5 or higher).

   This will allow you to telnet to the unit or connect via the Web interface.

Figure 2-1   Network Connections (Torpedo DVB-S/S2)

To connect the Serial Interface:

1. (Optional) Connect the Torpedo's RS-232/USB port to the USB port of a computer.

   This will allow you to communicate directly from your computer to the Torpedo using a serial communication application such as Putty or SecureCRT. This is only required if you do not know the IP address or wish to use the RS-232/USB management port.

Related Topics:

- For details on the connectors, see "System Interfaces (Rear Panel)" on page 21.
- To set the terminal parameters to interface with the serial RS232 port, see the following section, "Serial Interface Setup".

Serial Interface Setup

Prior to logging in to the Torpedo Web interface for the first time, you may wish to change the unit's default network settings to match the network in which it will be used. You can do so by connecting directly to the Torpedo's serial RS-232/USB port from your computer using a serial communication application.

To get started, you must set the terminal parameters to communicate with the Torpedo.

To set up the serial interface:

1. Connect the Torpedo's RS-232/USB port to your computer as described in the previous section, "Connecting the Torpedo to the Network and a Computer".

2. Power up the computer and start the serial communication application.

3. Set up the terminal parameters as follows:

Parameter	Setting
baud rate	115 200 bps
data bits	8
parity	none
stop bit	1
flow control	None

4. Power up the Torpedo. (See "Powering On the Unit" on page 31.)

5. From the serial communication application, press **Enter** to get a prompt from the Torpedo.

   Once the Torpedo has rebooted, the system will display the JCL> prompt. The rebooting cycle takes seconds to complete.

Related Topics:

- "System Interfaces (Rear Panel)" on page 21
- "Connecting RF Input to the Torpedo" on page 30

Connecting RF Input to the Torpedo

To connect RF input to the Torpedo:

1. Connect the input cable from the DVB antenna or satellite dish to the Torpedo's RF Input, using the appropriate connector(s).

   • Torpedo DVB-T/T2: For RF terrestrial (DVB-T/T2) signals, use a 75ohm IEC aerial connector.

   • Torpedo DVB-S/S2: For SD and HD satellite (DVB-S and DVB-S2) signals, use a 75ohm Type F Female connector.

Figure 2-2   RF Input and Output Connectors (Torpedo DVB-S/S2)
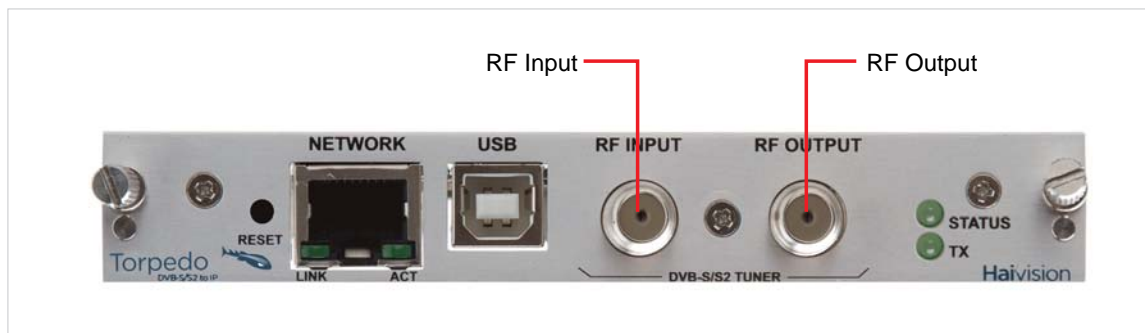
NOTE   With the DVB-T/T2 Torpedo, it is possible to cascade the RF Input to other Torpedoes. To do so, connect the RF Output of the first Torpedo to the RF Input of the subsequent Torpedo.

Related Topics

Powering On the Unit

Once all the cables are in place, the Torpedo is ready to be powered on.

Single Blade Appliance

Figure 2-3   Sample Rear Panel (#S-340-S2)

Connect power supply here (Power Input jack)
Locking mini-DIN Power Connector

NOTE There is no power switch on the Torpedo. The power is automatically on when the unit is plugged in. The power supply cord is used as the main disconnect device.

Ensure that the AC power outlet is located near the equipment and is easily accessible.

To power up the Single Blade Appliance:

1. Insert the locking mini-DIN connector on the DC adaptor into the Power input jack at the rear of the Torpedo.

CAUTION To prevent damage to the Torpedo and/or power supply, be sure to connect the power supply to the chassis *first* and then to the AC source.

Make sure the connector is properly inserted and locked to avoid intermittent power problems.

2. Plug the DC adaptor plug into an AC power source.

The Status LED will turn (solid) green, indicating that the Torpedo is ready for operation.

To begin configuring the Torpedo, you can either open the Web interface, or log in to the CLI.

- To use the Web interface, see "Logging In to the Web Interface" on page 43.
- To enter CLI commands, see "CLI Command Reference" on page 88.

Multichannel Chassis

Figure 2-4   Multichannel Chassis (21 slot) showing Power Connectors
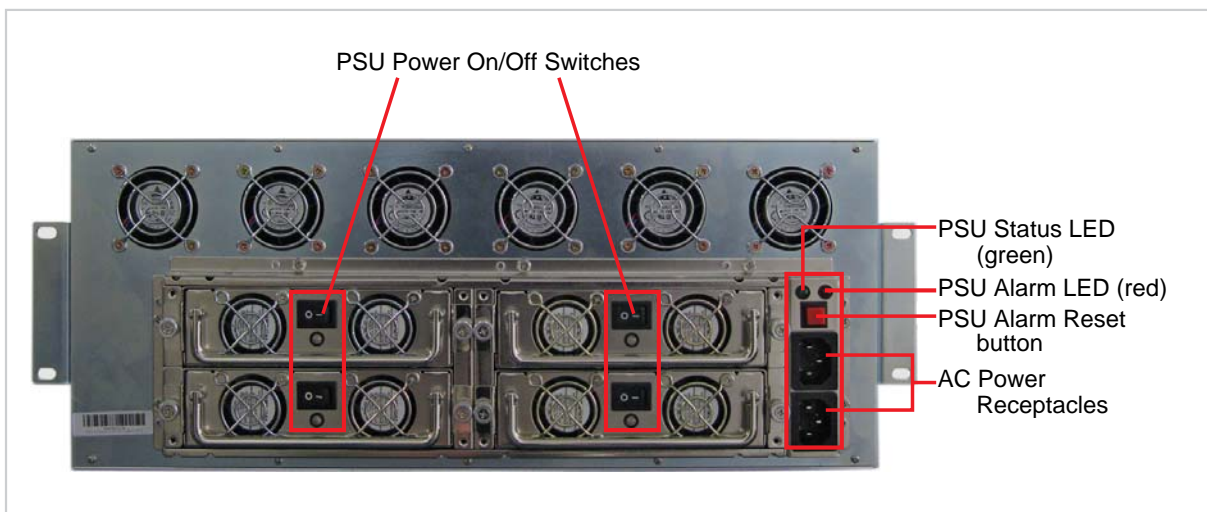
To power up the Multichannel Chassis:

1. Connect the power cord to the IEC connector on the back of the chassis.

2. Plug the cord into an AC power source.

3. Switch on the Power On/Off switches for one or both power supplies.

    The Status LED will turn blinking green indicating that the chassis is booting up.

4. Wait until the Status LED stays solid green, indicating that the Torpedoes are ready for operation.

To begin configuring the Torpedo, you can either open the Web interface, or log in to the CLI.

- To use the Web interface, see "Logging In to the Web Interface" on page 40.
- To enter CLI commands, see "Command Line Interface Reference" on page 91.

Resetting the Torpedo

This section describes the procedures to perform either a Power Reset or Factory Reset.

- A Power Reset is equivalent to simply powering the unit off and on.

- A Factory Reset powers the unit off and on, and returns the Torpedo to the same settings it originally had when shipped from Haivision, including the factory default IP address, subnet, and gateway.

  After a Factory reset, only the firmware revision, serial number, and MAC address are preserved. Everything else is wiped out (including saved configurations, network settings, and modified passwords).

To reset the Torpedo:

1. With the Torpedo on, insert a small tool such as a straightened paper clip into the small opening labeled Reset on the Torpedo faceplate.

Figure 2-5   Reset micro switch (Sample view, Torpedo DVB-S/S2)

2. Power Reset: Press the micro switch (you will feel the button depress) and release. Be sure to release the button in less than 2 seconds.

   This resets the unit. The Status LED will start blinking and stay solid green as soon as the reset is complete.

   -or-

3. Factory Reset: Press the micro switch (you will feel the button depress) and hold until the Status LED flashes red. This resets the Torpedo to its factory default settings.

   The Torpedo will reboot on its own. As soon as the lights stop blinking and the Status LED is solid green, the appliance is ready.

Default Network Settings

After a factory reset, the Network settings should be:

IP Address	Subnet Mask	Gateway
10.5.1.2	255.255.0.0	10.5.0.1

CHAPTER 3: Managing the Torpedo

This chapter begins with a management overview of the Torpedo, followed by system access control information. The remainder of the chapter describes the Web interface pages used to configure and monitor the Torpedo.

NOTE Before proceeding, make sure that the Torpedo is set up correctly and all necessary network and RF connections are established. See Chapter 2: "Installing the Torpedo".

Topics In This Chapter

Management Overview

The Torpedo may be configured and managed through its Web interface or the Command Line Interface (CLI). Both methods require access to the Torpedo through its 10/100 BaseT Ethernet port, or (if applicable) the RS232/USB port.

Using the Web Interface

Managing the Torpedo from the Web interface requires a connection from the unit's Ethernet port to your network. You must then connect a computer with a Web browser to the network to access the Web interface.

The remainder of this chapter provides information on how to configure and manage the Torpedo from the Web interface.

Using the CLI

Management via the CLI is possible through a Telnet session or (if applicable) RS-232/USB interface.

For a list and description of the CLI commands to configure and manage the Torpedo, see Appendix A: "Command Line Interface Reference".

Accessing the Torpedo

Web Interface

To access the Torpedo configuration Web page:

1. From your computer, open a Web browser.

NOTE The currently supported browsers are Internet Explorer, Firefox, Chrome, and Safari.

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2. Type the Torpedo's IP Address in the browser's address field (see "Default Torpedo IP Address" below) and press Enter.

3. Log in (see "Logging In to the Web Interface" on page 40).

Default Torpedo IP Address

NOTE If you haven't changed the factory presets, and if not specified elsewhere in the shipment, the Torpedo's IP Address is set by default to: 10.5.1.2.

To be able to log in to the Torpedo Web interface, your computer has to be in the same IP Address range (subnet).

You may have to temporarily change your computer's IP Address to be in the same subnet as the Torpedo. Only then you will be able to access the Torpedo and change the Torpedo's IP Address, and then afterwards change your computer's IP Address back.

TIP After you change the Torpedo's IP Address, be sure to document it somewhere or label the chassis. Otherwise if you do not know the current IP Address, you will need to access the unit via the serial port.

Setting up Multiple Torpedoes in a Multichannel Chassis

When setting up multiple Torpedoes in either the 21-slot or 6-slot chassis, you will need to change the default IP Addresses so each blade has a unique IP Address. You can use the following procedure to change the IP Address for each Torpedo, one after the other.

To change the IP Address for multiple Torpedoes:

1. Connect only one Torpedo to your computer via the appliance's RJ-45 network port (see "Connecting the Torpedo to the Network and a Computer" on page 28).

2. Log in to the configuration Web interface for the Torpedo (see "Logging In to the Web Interface" on page 40).

3. Change the IP Address of the Torpedo (see "Network Configuration" on page 68).

4. You may wish to reboot the Torpedo from the Web interface or CLI. Alternatively, you may wish to wait until the last step to physically power cycle the unit(s).

5. Unplug the Torpedo from the network and connect the next Torpedo to your computer via its RJ-45 network port.

6. Repeat Steps #2 through #5 for each Torpedo.

7. If you have opted to physically power cycle the chassis instead of using the Web interface or CLI (as explained in Step #4), then do so now.

Logging In to the Web Interface

To log in to the Torpedo configuration Web page:

1. From your Web browser, type the Torpedo's IP Address into the address field and press Enter.

    The browser will display the Login page for the Web configuration interface.
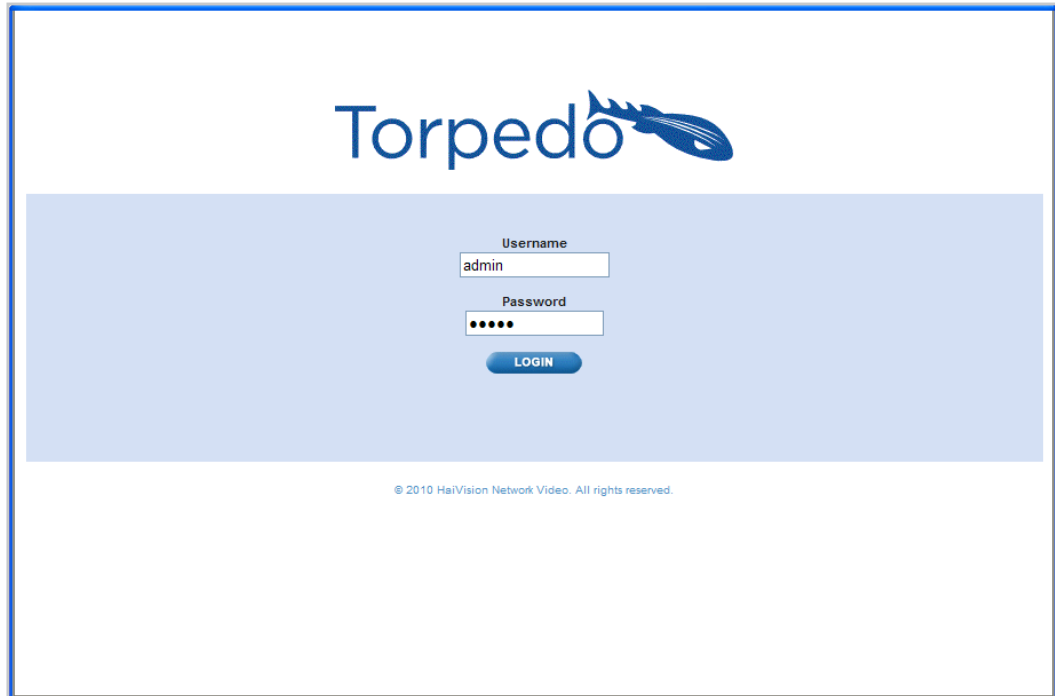
2. Type in the Username and Password and click Login (or press Enter).

    The default Web interface Username and Password are:

Username:	admin
Password:	manager

    The default password may be changed from the CLI. See "setpassword" on page 107.

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i   NOTE   Selecting Help from the menu bar will launch the online help.

Exploring the Web Interface

After logging in to the Web interface, you will have access to the Torpedo configuration settings. The most common settings can be adjusted via the Web interface. For more advanced settings, please use the CLI.

Navigational Menus

The Web interface opens to the Status page as shown in the following example (DVB-T/T2). You can access the Torpedo configuration settings by selecting the following:

1. Either SYSTEM, NETWORK, or ADMINISTRATION from the main menu (along the top bar, see example below), and

2. (Where applicable) The configuration area from the sidebar menu (for example, STATUS, REMOTE MONITORING, UNIT LOCATOR, SOFTWARE UPGRADE, EVENT LOG or SAVE/LOAD SETTINGS from the Administration menu).

NOTE   The screenshots in this chapter apply to either Digital Satellite (DVB-S/S2) or Digital Terrestrial (DVB-T/T2) units, with or without CAM (Conditional Access Module), unless indicated otherwise.

System Configuration
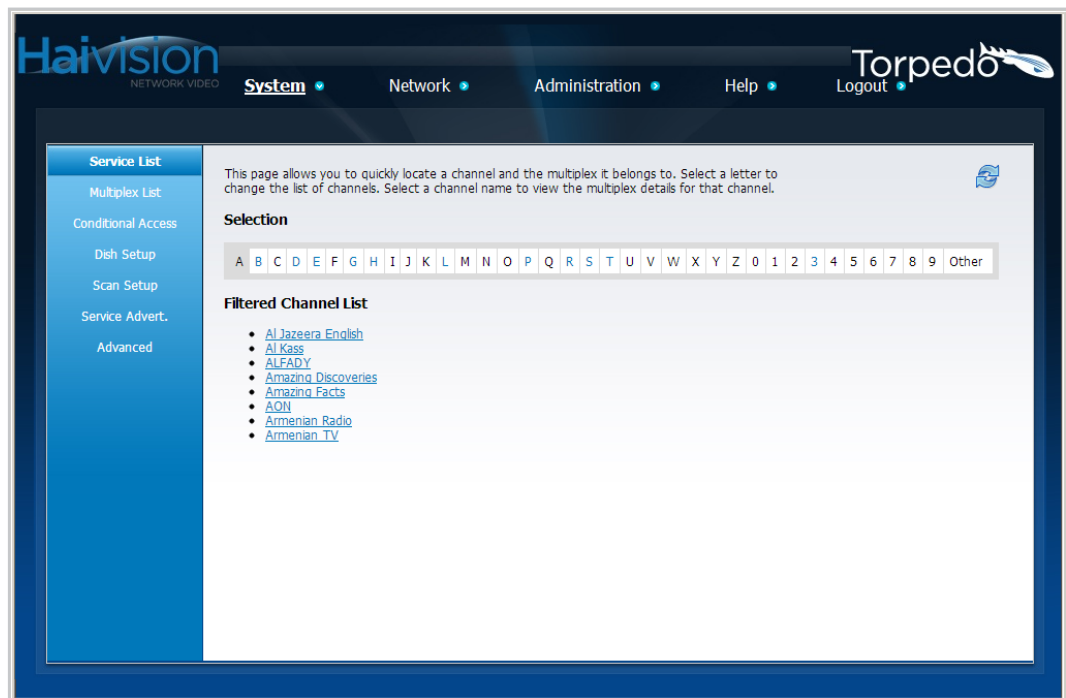
Service List

The Service List allows you to quickly locate a channel and the multiplex to which it belongs. The list of available services is organized alphabetically or numerically by channel name/number. Clicking a channel link opens the Multiplex Information page for the multiplex to which the channel belongs.

To locate a channel:

1. Click SYSTEM from the main menu and then click SERVICE LIST from the sidebar menu.

   The Service List opens, as shown in the following example (DVB-S/S2 with CAM).

2. To filter the list of channels displayed, under Selection, select the link (initial letter or number) corresponding to the channel name.

TIP   Hypertext links are blue, whereas black letters or numbers indicate that no channels are available.

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3. To display the multiplex details for this channel, select the channel name under Filtered Channel List.

This opens up the Multiplex Information page for the selected channel. See "Multiplex Information Page" on page 44.

Multiplex List

The Multiplex List displays a summary of information on the currently tuned multiplex, as well as the other available multiplexes for this Torpedo. This includes all multiplexes found during the last service scan.

To view the list of multiplexes:

1. Click SYSTEM from the main menu and then click MULTIPLEX LIST from the sidebar menu.

   The Multiplex List opens, as shown in the following example (DVB-S/S2).

2. To view and configure the channels for a multiplex, click the Frequency link for the multiplex.

This opens the Multiplex Information Page. For details, see the following section.

Multiplex Information Page

The Multiplex Information page displays details about the selected multiplex and lists the available content channels for the multiplex. From here, you can enable and disable the channels/services for the multiplex, as well as view and configure network information for the channels.

To view and configure channel information for a multiplex:

1. From the Service List page, select a channel name under Filtered Channel List.

   -or-

   From the Multiplex List page, click the Frequency link for the multiplex.

   This opens the Multiplex Information page, as shown in the following examples (DVB-S/S2 first, followed by DVB-T/T2).

From the Multiplex Information page, you can do the following:

- Enable up to 15 television, radio or data channels for the Torpedo.

- Specify network information for individual channels (to reach the IP target desired), including IP Address, Port, TTL (Time to Live), DSCP, (Differentiated Services Code Point), and LCN (Logical Channel Number). See table below for details.

- Change the currently tuned multiplex. For example, if you want to stream a service which is not in the currently tuned multiplex.

- Browse through the other multiplex pages (if stored) by clicking << Previous multiplex or Next multiplex >>.

NOTE   Selecting Entire Multiplex (last item on the Multiplex List) will send the entire multiplex, unmodified, to the given target IP address. Examples of when this could be useful include diagnostic reasons, testing, compliance recording, and recasting at another site.

Multiplex Settings

The following table lists the Multiplex Information controls and settings:

Multiplex Setting	Description
Enabled	Check this checkbox to enable the channel.
Name	The channel name and current program name (if available).
Encrypted	The encryption status for the channel, either locked, unlocked, key, or pending. For details, see "CAM Encryption Status Icons" on page 47.
Type	The type of channel, either Television, Data or Radio.
Address	To specify the target for the channel, enter the destination address (any multicast or unicast address).
Port	Enter the destination port (a number in the range 1025..65,535, even numbers only). The default is 1234.
TTL	TTL (Time to Live) controls the number of router hops the stream will traverse on its journey in the network. The default is 64.
DSCP	DSCP (Differentiated Services Code Point) is a quality of service setting which can give priority to video/audio traffic if the network supports it. The default is CS0.
LCN	An LCN (Logical Channel Number) may be added to each service so that it is self-described within the stream. When a compatible decoder displays the stream, it will know which channel number (as in the number a user would press on a remote control) to map this stream to.

CAM Encryption Status Icons

The following table lists and describes the CAM encryption status icons, taking into consideration whether or not the multiplex ("mux") has been tuned:

Icon	Mux tuned	Mux not tuned
Locked padlock	This CAM will not descramble this service, even with a valid subscription card because the CAM does not support any scrambling scheme for this service. The Torpedo requires a suitable CAM and subscription card to descramble this service.	This service was scrambled when the service scan was done. The scrambled status will update when you tune to this multiplex.
Unlocked padlock	This service is not scrambled.	This service was not scrambled when the service scan was done. The scrambled status will update when you tune to this multiplex.
Key	This service is scrambled using a scrambling scheme that is supported by the CAM. The CAM must have a valid subscription card inserted in order to descramble the service. The Torpedo is not able to show if the subscription card is valid.	The key icon is not shown until the multiplex is tuned.
Pending	The Torpedo is still processing.	The Torpedo is still processing.

For details on CAM management, see the following section, "Conditional Access".

Conditional Access

> **IMPORTANT** The Conditional Access page is available on the Torpedo DVB-S/S2 or DVB-T/T2 with a DVB-CI expansion card installed. These units allow descrambling and streaming of Pay TV content with a suitable DVB-CI Conditional Access Module (CAM) and subscription card.

A Torpedo with a DVB-CI slot may be configured to deliver up to 15 channels from Pay TV services using a suitable CAM.

> **NOTE** The number of channels that can be descrambled may be limited by the CAM that is being used, or by the subscription card. It is up to System Integrators and/or end users to determine the limitations of their specific CAM and subscription card.

Conditional Access Modules

The Torpedo has been tested with a variety of consumer and professional CAMs. The performance and functionality that is provided by different CAMs varies widely, and most consumer CAMs are designed to descramble a single channel at a time. These CAMs may support two channels for a few seconds so that a TV viewer does not lose the picture while the channel is changed.

Most of these CAMs support and use only a minimal part of the DVB-CI standard, in order to ensure that they operate with the widest range of receiver devices possible. This means that the communication between the Torpedo and the CAM is often limited to basic commands, and it is not always possible to provide an accurate status feedback for the CAM. Instead, the Torpedo displays status information for the CAM based on the commands that the Torpedo has sent to the CAM. It is entirely possible for the Torpedo to display a status for the CAM that says that the CAM is decrypting a stream, when in fact, the CAM has failed to decrypt the service it because of a lack of capacity, authorization, or other errors.
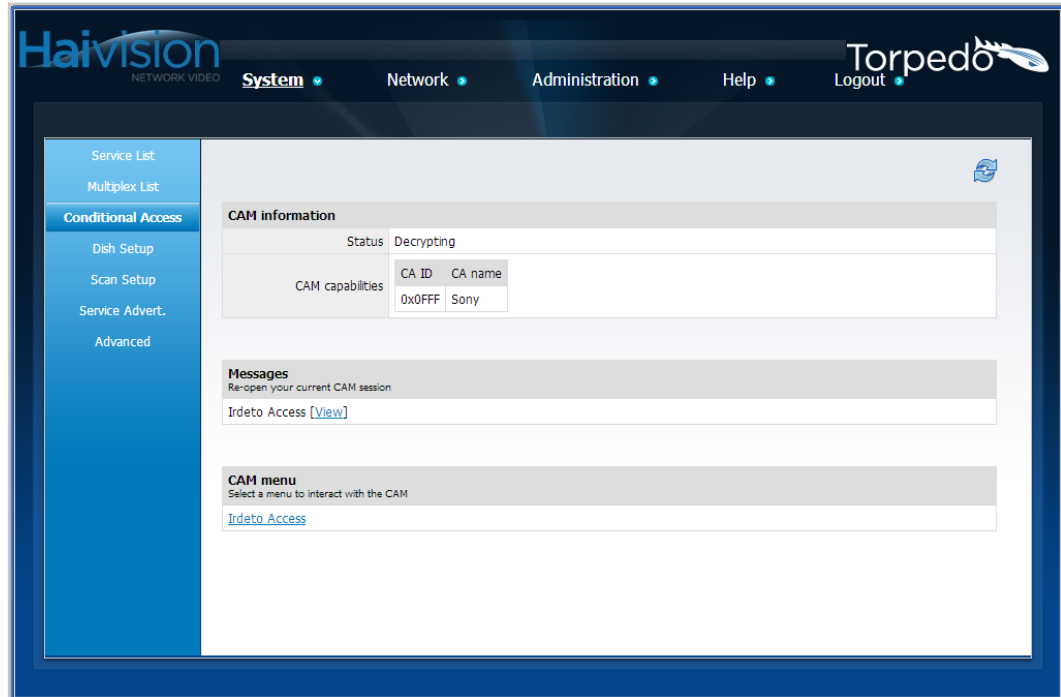
On a Torpedo with a CI/CAM subscription card interface, when you insert a CAM, you will see activity on the Conditional Access page, such as Initializing, Decrypting, and Ready. This page will list all the encryption types supported by this CAM module. It will also present the CAM's main menu entry point to allow you to browse the CAM menu. For example, when you select the main menu link from the Conditional Access page, you may be able to:

• Display the serial number and version of the subscription "smart" card.

• Change the CAM menu language.

• Enter a PIN code for a subscription card (where required).

To view the CAM status:

1. Click SYSTEM from the main menu and then click CONDITIONAL ACCESS from the sidebar menu.

   The Conditional Access page displays the CAM's status and descrambling capabilities, with a link to the CAM's main menu at the bottom, as shown in the following example (DVB-S/S2 with CAM).

NOTE   The menus presented by a DVB-CI compliant CAM are created by the CAM itself and will vary from CAM to CAM. All CAM menus are designed to be operated by a user with a TV and remote control. Usually, the remote control will have a Menu or Exit button and an OK or Select button. The up and down arrow buttons are normally used to select a menu item from the TV screen, and the Select button is used to select it. The Torpedo provides similar functionality so that you can navigate the CAM menu system using a mouse.

To use the CAM menu:

1. Scroll down past the table of CAM capabilities to the CAM menu list and select a menu to interact with the CAM.
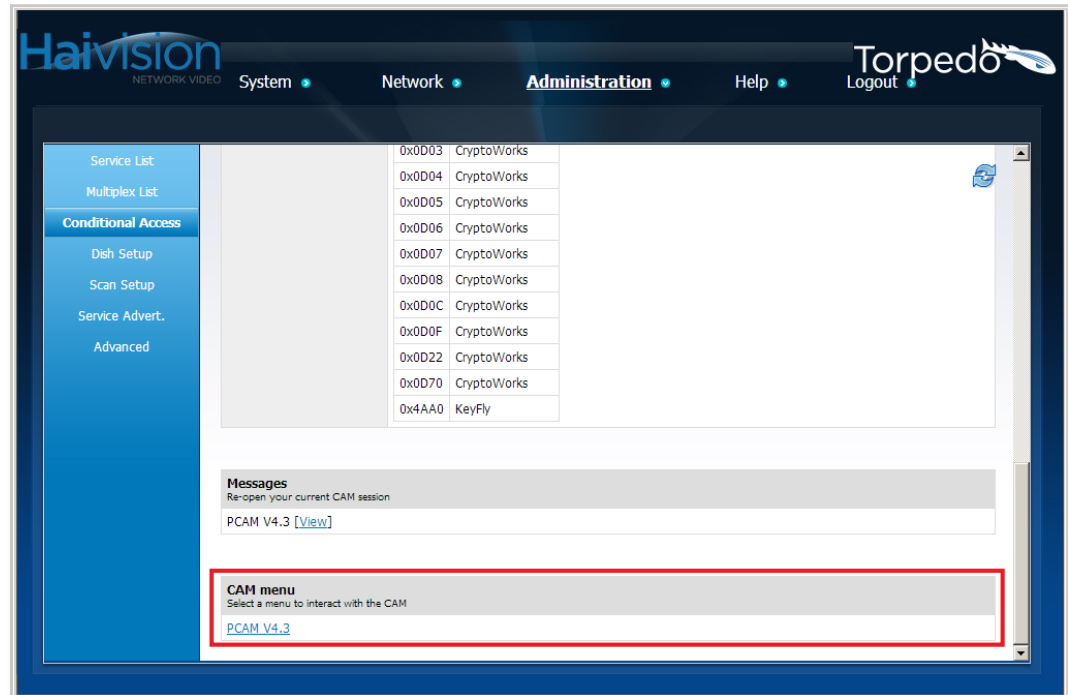
The CAM menu is displayed on the Browse Conditional Access Module page. The selectable items are listed in a table, as shown in the following example.
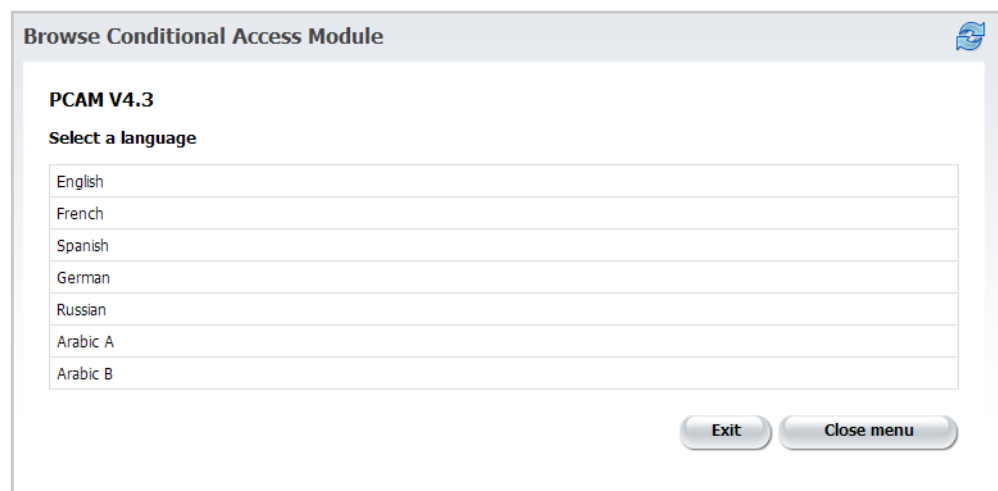
2. Click an item, such as your language in the above example, to select it. This is equivalent to pressing OK on a TV remote.

3. To return to the previous menu page, click Exit. Most CAMs will display the previous page, or the higher level menu page (if there is one).

4. To leave the menu and return to the Conditional Access page, click Close menu.

TIP Some operations, such as setting a subscription key or PIN, may require some time for the CAM to complete. In these cases, you may see a message that instructs you to press the Refresh button. If this happens, click Refresh to reload the page

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Dish Setup (DVB-S/S2 only)

IMPORTANT The Dish Setup page is only available on the Torpedo DVB-S/S2. Also, the LNB setting is only relevant to DVB-S/S2.

From the Dish Setup page, you can view and configure the Low Noise Block (LNB) and DiSEqC (Digital Satellite Equipment Control) settings for the Torpedo DVB-S/S2.

The Low Noise Block down-converter is a device on the front of a satellite dish that is used to improve satellite TV reception. The LNB receives high frequency signals from the satellite, converts them to a lower frequency, and transmits them through the coax cable to the satellite receiver.

DiSEqC (Digital Satellite Equipment Control) is a special communication protocol used between a satellite receiver and devices such as a multi-dish switch. A DiSEqC switch allows you to connect multiple dishes or satellites to one receiver.

To view and configure the LNB and DiSEqC settings:

1. Click SYSTEM from the main menu and then click DISH SETUP from the sidebar menu.

   The Dish Setup page opens, as shown in the following example (DVB-S/S2).
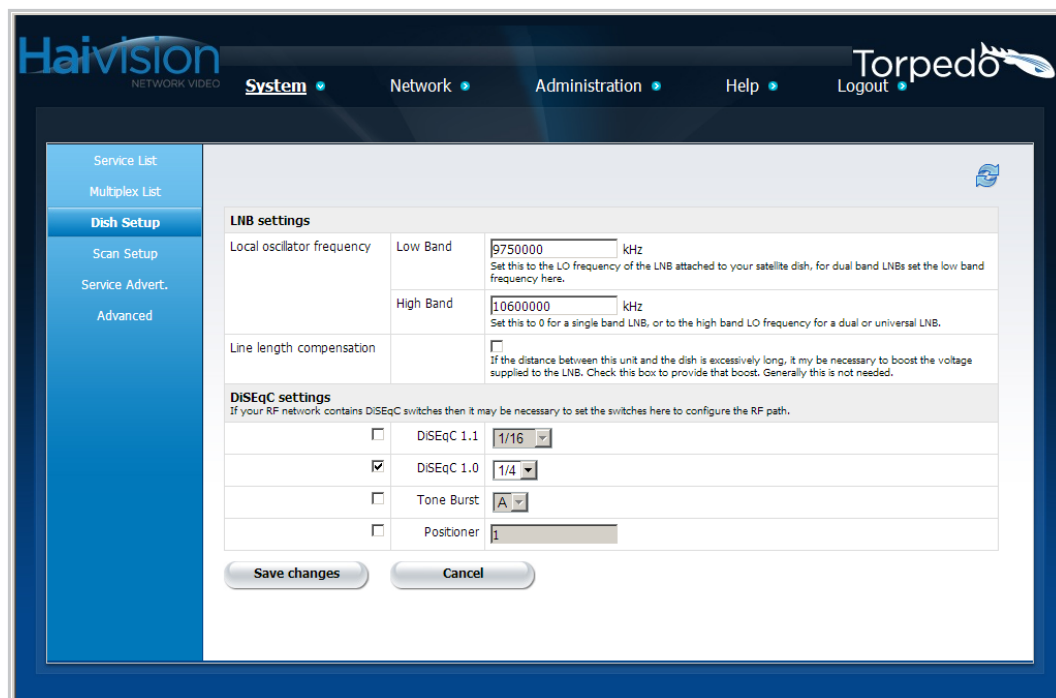
NOTE   The default LNB frequencies are for a "Universal" LNB. If you have another type, you may need to modify to those settings.

2. As required for your system, specify the LNB settings as follows:

LNB Setting	Default	Description
Local Oscillator (LO) Frequency		
Low Band:	9750000	Set this to the Low Band LO frequency of the LNB attached to your satellite dish.
High Band:	10600000	Set this to the High Band LO frequency of the LNB attached to your satellite dish. TIP: Please refer to your LNB specifications for the appropriate Low and High Band local oscillator frequencies.
Line Length Compensation	Disabled	Enable this in order to boost the voltage supplied to the LNB. NOTE: If the distance between the dish and the LNB is excessively long, it may be necessary to boost the voltage supplied to the LNB. Check this box to provide that boost. Generally this is not needed.

3. (Optional) If your RF network contains DiSEqC switches, it may be necessary to set the switches here to configure the RF path, i.e., to specify which RF source reaches the Torpedo. The DiSEqC settings are as follows:

DiSEqC Setting	Default	Description
DiSEqC 1.1	1/16	Set this to one of: • 1/16 - 16/16 NOTE: DiSEqC 1.1 allows switching between up to 16 RF (satellite) sources. It is used for multifeed systems with cascading multi-switches.
DiSEqC 1.0	1/4	Set this to one of: • 1/4 - 4/4 NOTE: DiSEqC 1.0 is an expansion of Tone Burst that allows switching between up to four RF (satellite) sources. It is used for multifeed and/or multi-antenna systems with up to four LNBs/antennas.

DiSEqC Setting (Cont.)	Default (Cont.)	Description (Cont.)
Tone Burst	A	Select either Satellite-A or Satellite-B. NOTE: Tone Burst is used for simultaneous reception of two satellites with a monoblock LNB.
Positioner	1	Type in the position number for the orbital position (1-99). NOTE: This can be used to move a motorized dish if attached to a positioner (DiSEqC 1.2).

NOTE By default, none of the DiSEqC switches are selected.

4. To save your changes, click Save Changes.

Scan Setup

A service scan is required when the Torpedo is first installed, and may be needed if services are added or removed by the broadcaster. On the Scan Setup page, you can start a service scan and set the parameters used for scanning. A service scan updates the list of services and multiplexes that the unit has stored. It can take several minutes and while underway, no services will be streamed.

Automatic Scanning

When scanning in Automatic mode, you only need to provide a satellite Orbital position (DVB-S/S2) or your Country (DVB-T/T2). The Torpedo contains a predefined list of satellites and their positions, as well as a list of all transponders known at each position. Automatic scanning is thorough, and the list is constantly updated.

However, in some cases, Automatic mode may not work, for example, when a new satellite is launched. In this case, you need to provide additional information, such as the frequency, symbol rate, polarisation, and standard (i.e. signal type) for a known transponder to help locate one of the transponders from this new satellite. This information will then serve as the starting point for the scan.

To start a service scan:

1. Click SYSTEM from the main menu and then click SCAN SETUP from the sidebar menu.

   The Scan Setup page opens, as shown in the following examples (DVB-S/S2 first, followed by DVB-T/T2).

2. To enable Automatic Scanning, check the Automatic checkbox.

-or-

To disable Automatic scanning, clear the Automatic checkbox.

DVB-S/S2 units

3. To scan in Automatic mode, select the satellite Orbital position from the drop-down list.
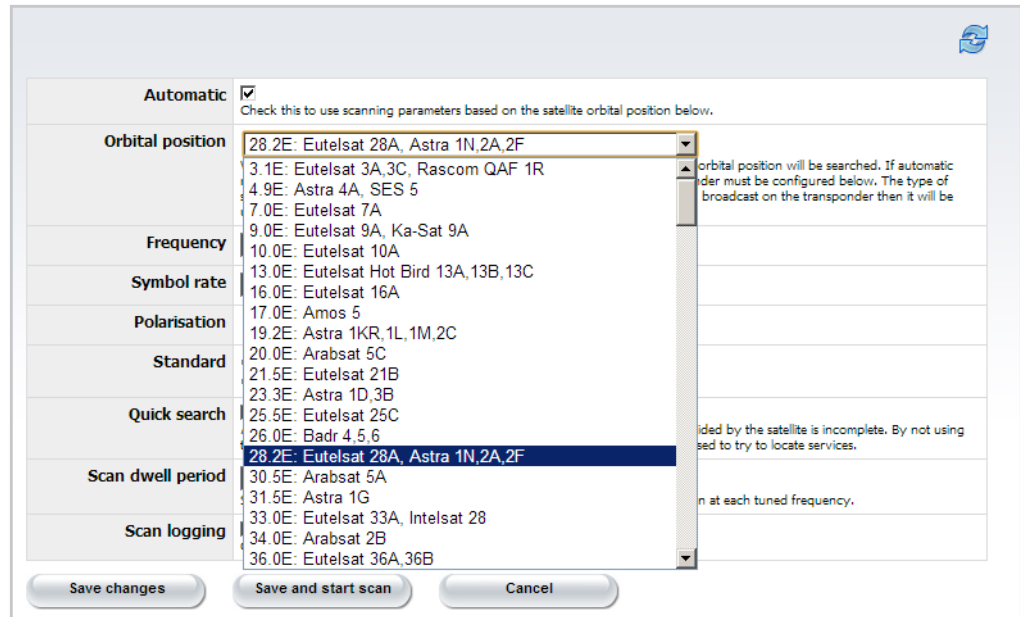
4. If Automatic scanning is disabled, you must provide the following information:

    •   Frequency, Symbol rate and Polarisation for a known transponder.

    •   Standard (i.e., the type of signal, either DVB-S or DVB-S2).

DVB-T/T2 units

5. To scan in Automatic mode, select your Country from the drop-down list.
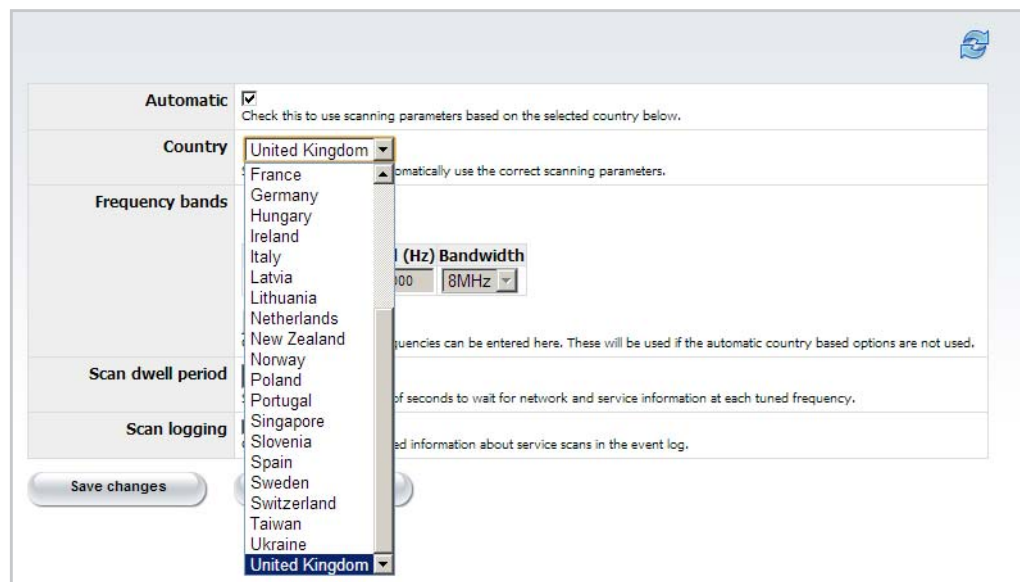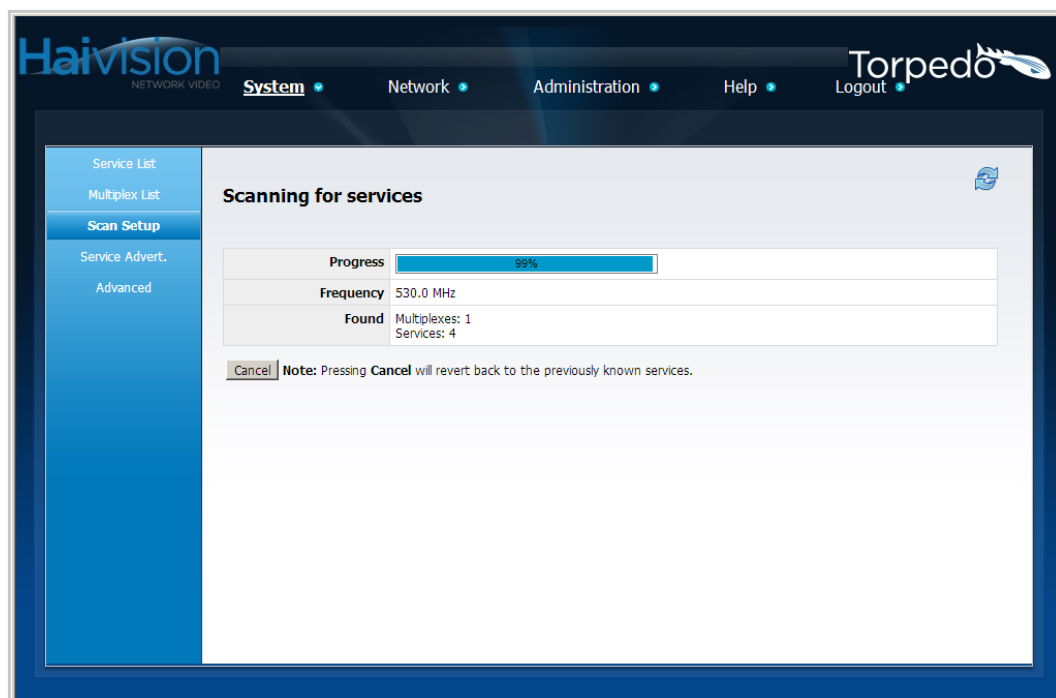
6. If Automatic scanning is disabled, you must provide the following information:

- Frequency bands (i.e., Start and End frequencies and Bandwidth per channel).

For details, see the following section, "Scan Settings".

7. To save your changes, click Save Changes.

8. To save your changes and start the service scan, click Save and Start Scan.

The Scanning Progress page opens, as shown in the following example (DVB-T/T2).

Scan Settings

The following table lists the Scan settings:

Scan Setting	Default	Description
Automatic	Enabled	Enables or disables Automatic Scanning (enabled by default). Check this to base the scan on the satellite Orbital position below (DVB-S/S2) or Country (DVB-T/T2).
DVB-S/S2 Units		
Orbital position	28.2E	Available when Automatic mode is enabled. Select the orbital position for the satellite from the list of available satellites and their global position (i.e., the number of degrees from the Prime Meridian). When the scan starts, a list of known transponders for the selected orbital position will be searched. If Quick search is not enabled, any valid network information that is being broadcast on the transponder will be used to expand the list of transponders that will be searched.
Frequency	10714000	The frequency of the selected satellite in kilohertz (kHz). In Automatic mode, this is read-only. If Automatic mode is not used, you must specify the frequency. This provides a way to add the frequency of the "pilot" multiplex for a network. The Torpedo will parse the NIT (Network Information Table) in this multiplex and use the frequency list descriptors to add additional multiplexes to the scan. NOTE: The frequency that is entered should be the frequency that is being transmitted by the transponder. The Torpedo will then calculate the correct intermediate frequency for its tuner based on the values set for the LNB. • For Ku-band signals with a universal LNB, the frequency will be between 10700000 kHz and 12750000 kHz. • For C-band signals using an LNB with a local oscillator frequency of 5.15 GHz the frequency should be between 3000000 kHz and 4200000 kHz.

Scan Setting (Cont.)	Default (Cont.)	Description (Cont.)
Symbol rate	22000000	The baud or modulation rate in symbol changes per second (Sym/s). In Automatic mode, this is read-only. If Automatic mode is not used, you must specify the symbol rate. Symbol rate is an integer numeric value, comparable to bandwidth on analog RF channels. Valid values are 1,000,000 to 30,000,000 Sym/s.
Polarisation	Horizontal	The alternating polarisation of the tuned satellite, either: • Horizontal, Vertical, Right Circular or Left Circular. (Default = Vertical) If Automatic mode is not used, you must select the polarisation. Your LNB will support either linear or circular polarisation. • If you select R or L, it must support circular polarisation • If you select H or V, it must support linear polarisation.
Standard	DVB-S	The DVB standard being used (i.e., the type of signal, either: • DVB-S or DVB-S2) If Automatic mode is not used, you must select the standard.
Quick search	Enabled	Enables or disables quick search. If this is not enabled, the Torpedo will examine every NIT (Network Information Table) in this multiplex and use any frequency list descriptors that it finds to add additional multiplexes to the scan. You should only enable this feature if you are scanning a single manual transponder, or if using the automatic mode and the Torpedo's internal transponder list is sufficient. A quick search will find most services but may miss some if the information provided by the internal transponder list is incomplete. By not using the quick search option, scanning will take longer but all available information will be used to try to locate services.

Scan Setting (Cont.)	Default (Cont.)	Description (Cont.)
DVB-T/T2 Units		
Country	United Kingdom	Available when Automatic mode is enabled. Select your country to automatically use the default scanning parameters for your country.
Frequency bands		
Start (Hz) End (Hz) Bandwidth (MHz)	474000000 850000000 8	The frequency range over which the Torpedo will scan for DVB terrestrial channels. Start-End frequencies are in Hertz (Hz), and Bandwidth per channel is in MHz. In Automatic mode, this is read-only. If Automatic mode is not used, you must specify the start and end frequency, and channel bandwidth.
Add Remove	n/a	• To enter custom single or band frequencies, click Add. These will be used if the automatic country-based options are not used. • To remove the last entry, click Remove.
All Units		
Scan dwell period	30	Sets the timeout period for scanning, i.e., the maximum number of seconds to wait for network and service information at each tuned frequency. This determines how long the Torpedo pauses at each channel before resuming scanning. 15..300 seconds. TIP: If multiplexes seem to be missing when the Torpedo has completed scanning, then you may wish to increase the dwell time. The Torpedo may have dropped a multiplex because it did not receive any network or service information before it had to move on. It is not normally advisable to reduce this value as the Torpedo will move on as soon as it receives network and service data – the dwell period is the maximum waiting time.
Scan logging	Disabled	Enables or disables the scan log. If you are having trouble when scanning, then check this to record detailed information about service scans in the Event Log. A log message will be recorded for every frequency that the Torpedo has tuned to.
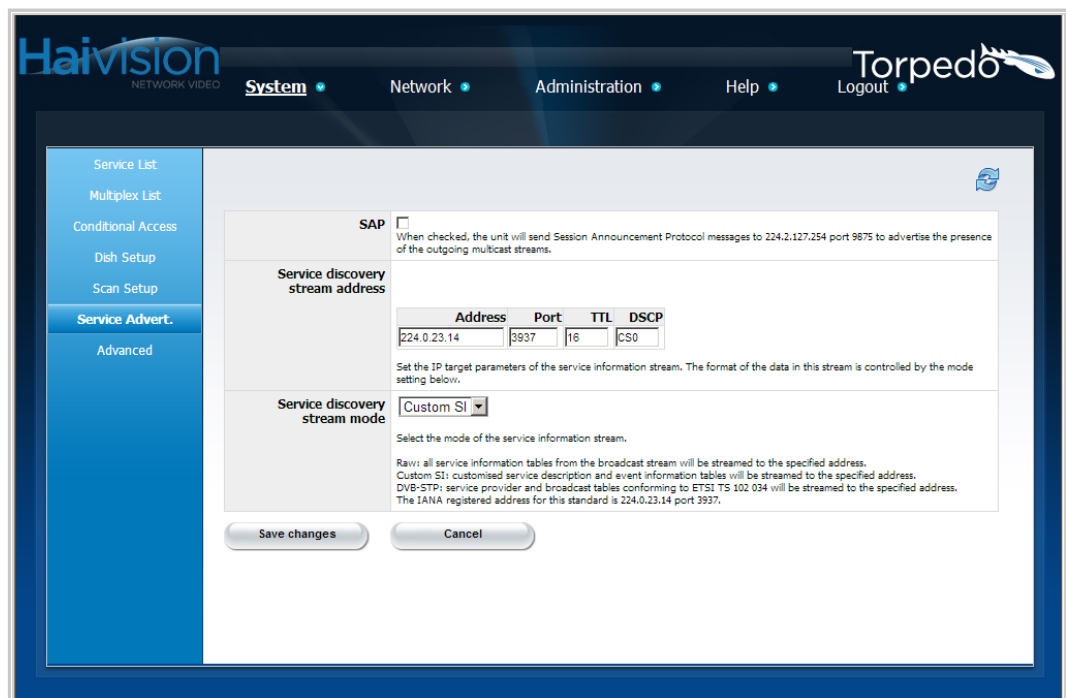
Service Advertisement

The Service Advertisement page allows you to configure the ways in which the Torpedo can advertise the presence of its streams on the network. Capable clients can automatically detect this information to allow the services to be viewed.

To configure the service advertisement for the Torpedo:

1. Click SYSTEM from the main menu and then click SERVICE ADVERT. from the sidebar menu.

    The Service Advertisement page opens, as shown in the following example (DVB-S/S2).

2. Select or enter the appropriate value(s) as required. For details, see the following section, "Service Advertisement Settings".

3. To save your changes, click Save Changes.

Service Advertisement Settings

The following table lists the Service Advertisement settings:

Service Advert. setting	Default	Description
SAP	Disabled	Enables or disables Session Announcement Protocol (SAP). When checked, the Torpedo will send SAP messages to 224.2.127.254 port 9875 to advertise the presence of the outgoing multicast streams.
Service discovery stream address		
Address Port TTL DSCP	224.0.23.14 3937 1 CS0	Sets the IP target parameters of the service information stream. The format of the data in this stream is controlled by the Service discovery stream mode setting below. Specify the following settings: • IP Address: The default (224.0.23.14) is the IANA registered DvbServDisc address. • Port: The default port (3937) is the IANA registered port dvbservdscport. • TTL: Target time-to-live (optional). • DSCP: Differentiated Services Code Point (optional).

Service Advert. setting (Cont.)	Default (Cont.)	Description (Cont.)
Service discovery stream mode	Off	Selects the service discovery stream mode. The service discovery steam is a special stream which is sent out from the Torpedo to a multicast or unicast address. This stream contains service information, such as what the broadcaster or the Torpedo is sending, the service names, and event (program) information. Select one of the following: • Off • Raw: All service information tables from the broadcast stream will be streamed to the specified address. • Custom SI (Service Information): Customized service description and event information tables will be streamed to the specified address. TIP: Select this mode when using InStream Amino decoders. • DVB-STP: Service provider and broadcast tables conforming to ETSI TS 102 034 will be streamed to the specified address. NOTE: The IANA registered address for this standard is 224.0.23.14 port 3937.

Advanced

The Advanced page contains additional settings which advanced users may find useful. Generally these settings should not be changed unless there is a specific need.

For example, you might need to change these settings if the Torpedo is installed within another application that requires some core behavior of the Torpedo to be changed. These are settings primarily for advanced usage scenarios.
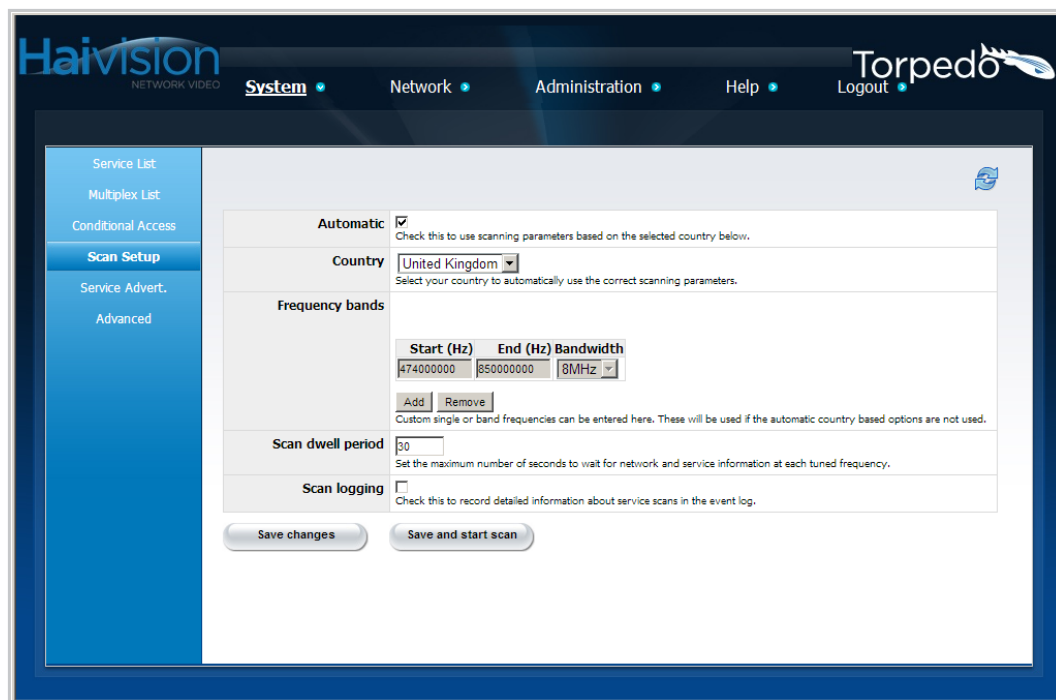
To configure the advanced settings:

1. Click SYSTEM from the main menu and then click ADVANCED from the sidebar menu.

   The Advanced page opens, as shown in the following example (DVB-T/T2).
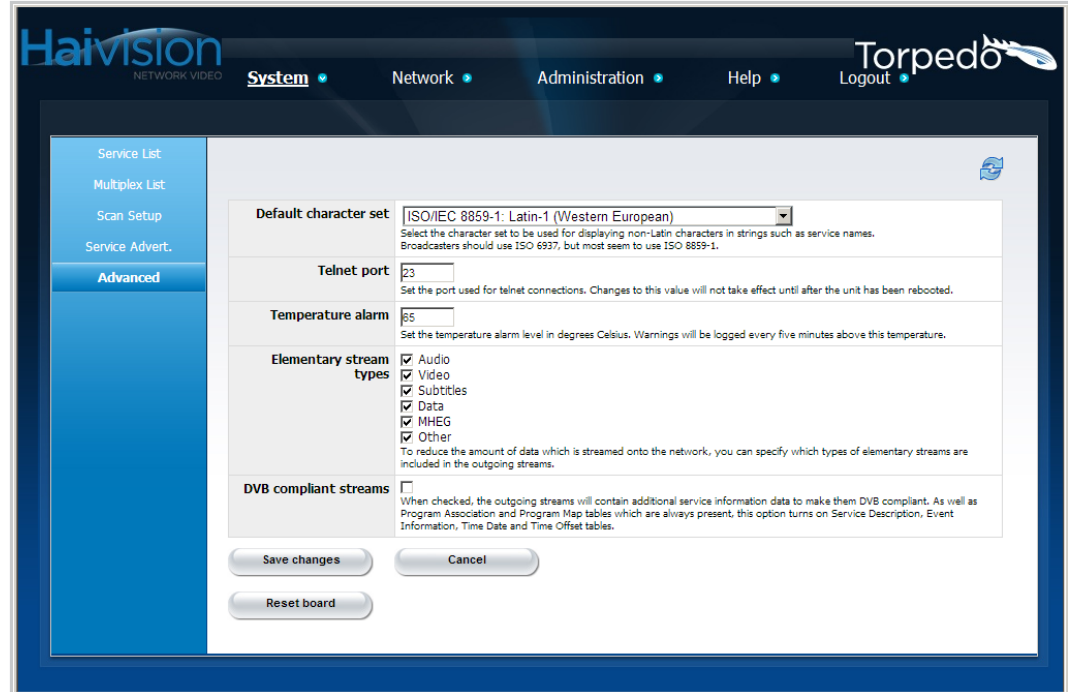
2. Select or enter the appropriate value(s) as required. For details, see the following section, "Advanced Settings".

3. To save your changes, click Save Changes.

4. To reboot the unit, click Reset Board.

   For example, after you change the Port number for a Telnet Session, the unit needs to be rebooted for the change to take effect. This enables you to reboot the unit from the Web Interface (which otherwise would not be possible if there is no COM communication and the unit is located in a different room/facility).

Advanced Settings

The following table lists the Advanced settings:

Advanced setting	Default	Description
Default character set	ISO/IEC 8859-1	Selects the character set to be used for displaying non-Latin characters in strings such as service names. For example, you may need to change the character set if the broadcaster is using a language which has characters which do not render correctly in the current selected character set. NOTE: The standard is ISO/IEC 6937, although most broadcasters use ISO/IEC 8859-1.
Telnet port	23	Sets the port used for telnet connections. Telnet port may be changed for obscurity reasons. Changes to this value will not take effect until after the Torpedo has been rebooted.
Temperature alarm	65	Sets the temperature alarm level in degrees Celsius. Warnings will be logged every five minutes if the unit temperature exceeds this value.
Session Timeout	15	Sets the number of minutes with no activity before a session should be automatically logged out. 10..20 minutes. NOTE: A value of 0 will disable the automatic logout, and the session will remain valid indefinitely.

Advanced setting (Cont.)	Default (Cont.)	Description (Cont.)
Elementary stream types	All Enabled	Toggles specific stream types off and on. To reduce the amount of data that is streamed onto the network, you can specify which types of elementary streams are included in the outgoing streams. • Audio - On/Off • Video - On/Off • Subtitles - On/Off • Data - On/Off • MHEG - On/Off • Other NOTE: Disabling audio or video will *not* be reflected in the PSI tables. The Torpedo only extracts the contents of the DVB stream, but does not create new streams or rebuild the tables. Therefore, the PSI tables are generated assuming that *all* services are active.
DVB compliant streams	Disabled	When checked, the outgoing streams will contain additional service information data to make them DVB compliant. For example, DVB compliant streams can be turned on if the decoder playing back the streams is able to understand and render DVB Service information in the streams. In addition to Program Association and Program Map tables, which are always present, this option turns on Service Description, Event Information, Time Date, and Time Offset tables.

Network Configuration

From the IP CONFIGURATION page, you can configure the network settings for the Torpedo, either manually or by enabling DHCP (Dynamic Host Configuration Protocol).

⚠ CAUTION When you modify the IP configuration, be sure to write down the new settings (for example, the IP Address) or label the chassis. After you save your changes and the unit reboots, you will have to redirect the browser to the new IP address and log in again in order to access the Torpedo.

To view and configure the Network Settings:

1. Click NETWORK from the main menu.

   The IP Configuration page opens, as shown in the following example.

2. Select or enter the appropriate value(s) as required. For details, see the following section, "IP Configuration Settings".

3. To save your changes, click Save Changes.

After you save your changes to the IP configuration, the Torpedo will reboot.

CAUTION Please confirm these settings with your network administrator before installing this unit on the network.

IP Configuration Settings

The following table lists the IP Configuration settings.

Network setting	Default	Description
Link	Autonegotiate	Selects the Duplex Mode for the Torpedo. Select one of the following: • Autonegotiate -or- • 10BaseT-Half Duplex • 10BaseT-Full Duplex • 100BaseTx-Half Duplex • 100BaseTx-Full Duplex
DHCP mode	Disabled	Check or clear this checkbox to enable or disable the Dynamic Host Configuration Protocol. NOTE: When DHCP is enabled, the Torpedo will get an IP Address from a DHCP server on the network. When it is disabled, you must manually enter the remaining network settings.
IP Address	10.5.1.2	Displays the IP Address for the Torpedo. If DHCP is disabled, enter the IP address in dotted-decimal format.
Netmask	255.255.0.0	Displays the Subnet Mask for the Torpedo. If DHCP is disabled, enter the netmask address in dotted-decimal format.
Gateway address	10.5.0.1	Displays the gateway address of the network (typically the address of the network router). If DHCP is disabled, enter the gateway address in dotted-decimal format.
Hostname	Torpedo	(Optional) Enter a unique name for the Torpedo.

Network setting (Cont.)	Default (Cont.)	Description (Cont.)
DNS server address	0.0.0.0	(Optional) Enter the DNS server address for the Torpedo.
Mac address	varies for each unit, e.g., 5C:77:57:00:1B:B1	(Read-only) Displays the Media Access Control address assigned to the Torpedo.

Administration

Status

The Status page displays a summary of the key status settings for the Torpedo, along with information about the hardware and software components and network configuration.

To view the Status Settings:

1. Click ADMINISTRATION from the main menu.

   The Status page opens, as shown in the following examples (DVB-S/S2 first, followed by DVB-T/T2).

2. To view additional information for the RF status or Streaming services, click the hyperlink. This opens Multiplex Information Page for the currently tuned multiplex.

The Status settings are read-only. For details, see the following section, "Status Fields".

Status Fields

The following table lists the Status fields:

Status field	Description
Hostname	The device name for the Torpedo, specified on the IP Configuration Settings page.
Description	Haivision internal part identifier, followed by the model type (DVB-S/S2 satellite or DVB-T/T2 terrestrial).
Serial number	The serial number for the Torpedo.
RF status	The frequency at which the Torpedo is locked on to a signal.
Orbital position	(DVB-S/S2 only) Orbital position of the transponder(s) to scan. Only used for automatic scans.

Status field (Cont.)	Description (Cont.)
Signal to Noise ratio	The signal-to-noise ratio (SNR) at which the Torpedo is operating, measured in decibels (dB). NOTE: SNR measures signal strength relative to background noise.
Signal level	The signal level at which the Torpedo is operating (dBm). NOTE: Decibel-milliwatt (dBm) is an electrical power unit in decibels (dB), referenced to 1 milliwatt (mW).
Bit error rate	The number of bit errors divided by the total number of transferred bits during a specified time interval. NOTE: Bit errors are received bits of a data stream that have been altered due to noise, interference, distortion or bit synchronization errors.
LNB status	(DVB-S/S2 only) The current LNB voltage (polarisation) and (22kHz) Tone settings. NOTE: If the Torpedo is not locked at a frequency, it will attempt to detect the LNB and will indicate if it was detected. This is useful to test if an LNB is actually connected to the end of the RF cable.
CAM status	(DVB-S/S2 with CAM only) Shows the CAM status. Possible statuses include: CAM not detected, CAM initializing, CAM enabled, CAM active, CAM attention required.
(Incoming) Off air data rate	The incoming data rate in Mbits per second.
(Outgoing) Network data rate	The outgoing data rate over the network in Mbits per second.
Streaming services	The channel number/name of the currently active stream(s).
Last scan	Description of the last scan performed by the user.
Stored services	The total amount of signals and the number of multiplexes in which they are encountered.
Temperature	The running temperature in Celsius
Up time	The duration in days and minutes since the last time the unit as been powered up.
IP address	The IP address for the Torpedo, specified on the IP Configuration Settings page.
MAC address	The MAC address for the Torpedo, specified on the IP Configuration Settings page.

Status field (Cont.)	Description (Cont.)
Ethernet link speed	The Ethernet link mode for the Torpedo, specified on the IP Configuration Settings page.
Software version	The software version for the Torpedo.
Command set version	The command set (firmware) version for the Torpedo.

Remote Monitoring

In addition to the Event Log held in RAM, the Torpedo can send out event messages via the network for centralized and ongoing logging. If you have centralized logging based on Syslog or SNMP traps, you can configure the location and type of the remote logging server(s) from the Remote Monitoring page.
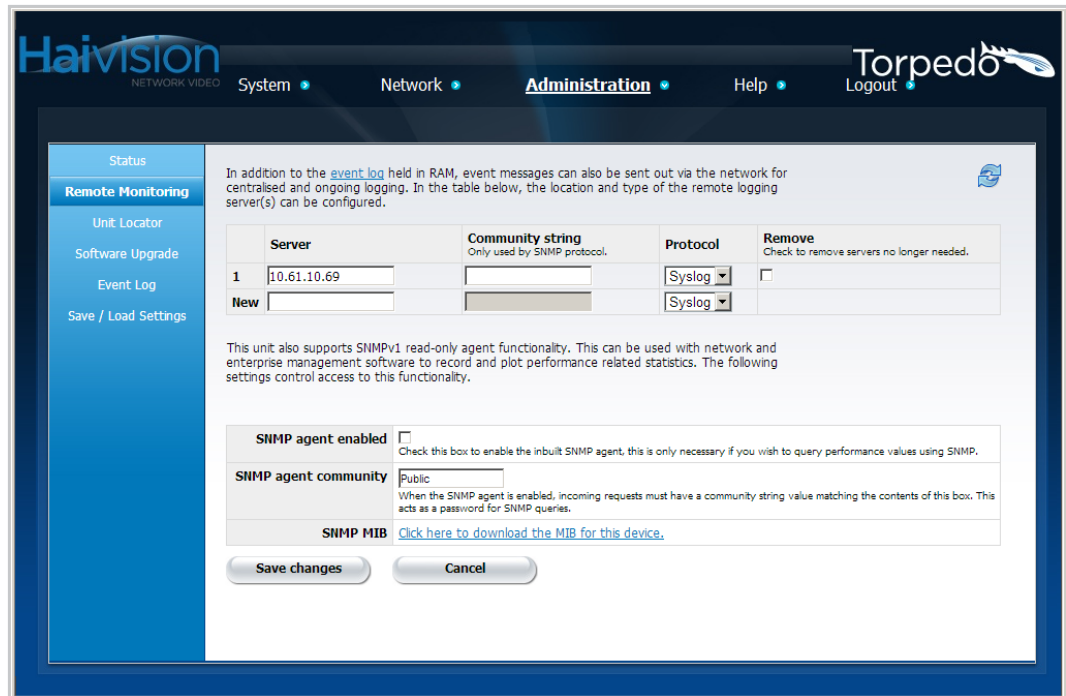
NOTE   The Torpedo supports SNMPv1 read-only agent functionality. This can be used with network and enterprise management software to record and plot performance related statistics.

To configure remote monitoring:

1. Click ADMINISTRATION from the main menu and then click Advanced from the side-bar menu.

   The Remote Monitoring page opens, as shown in the following example.

2. To add or remove a logging server, select or enter the appropriate value(s) as required. For details, see the following section, "Remote Monitoring Settings".

3. To save your changes, click Save Changes.

Remote Monitoring Settings

The following table lists the Remote Monitoring settings, beginning with configuring access to the logging servers.

Remote Monitoring	Default	Description
Server	n/a	To add a logging server, type in the IP address of the remote server.
Community string	n/a	Type in the community string for the remote server. NOTE: Only used by SNMP protocol.
Protocol	Syslog	Select the protocol for the remote monitoring, either: • Syslog • SNMP
Remove	n/a	To remove a server that is no longer needed, check the checkbox next to the log entry. NOTE: The server will be removed when you save your changes.
SNMP Management		
SNMP agent enabled	Disabled	Check or clear this checkbox to enable or disable the inbuilt SNMP agent. This is only necessary if you wish to query performance values using SNMP.
SNMP agent community	Public	Type in the name of the SNMP community to which the Torpedo belongs. The default is public. When the SNMP agent is enabled, incoming requests must have a community string value matching the contents of this box. This acts as a password for SNMP queries.
SNMP MIB	n/a	Click here to download the MIB for this device. If you are monitoring network devices via SNMP, you will need the MIB file for your system to be able to display the names of the values and interpret their meaning correctly.

Unit Locator

From the Unit Locator page, you can start the front panel LEDs flashing for a period of time to help locate the unit. This is useful to help you to quickly locate a specific Torpedo (for example, when the unit is located within a multi-slot chassis).

To view the Unit Locator:

1. Click ADMINISTRATION from the main menu and then click UNIT LOCATOR from the sidebar menu.

   The Unit Locator page opens, as shown in the following example.
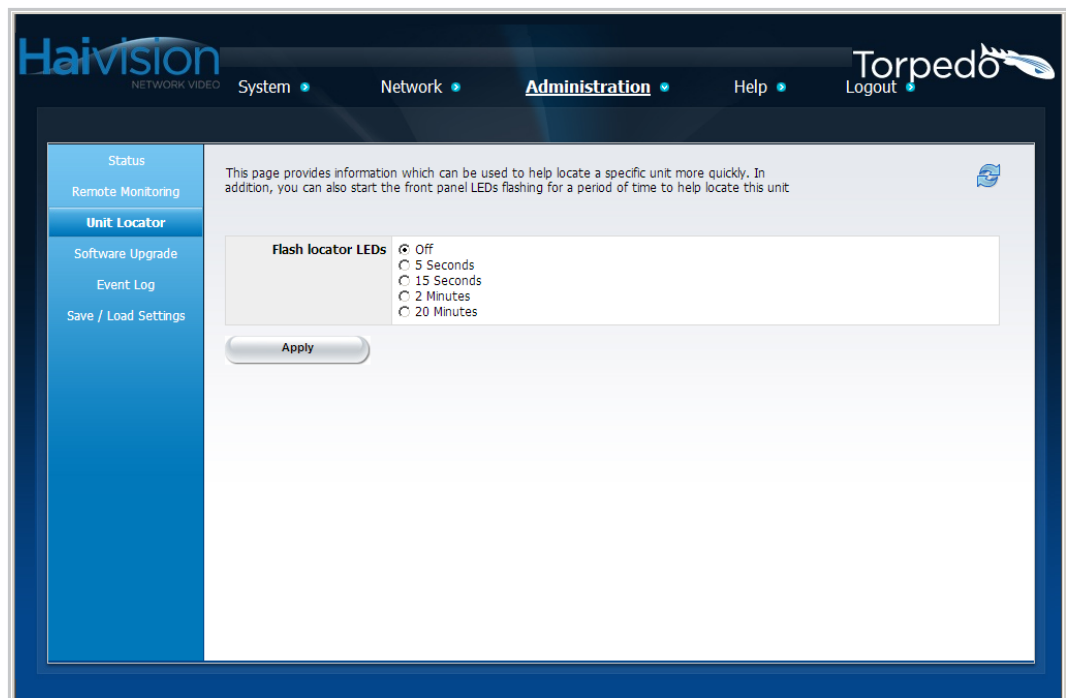
2. To start the front panel LEDs flashing, select the duration of the flashing.

   For details, see the following section, "Unit Locator Fields".

3. To activate the LED flashing, click Apply.

Unit Locator Fields

The following table lists the Unit Locator fields:

Unit Locator field	Default	Description
Flash locator LEDs	Off	Enable the flash LEDs in order to visually discover the device among several: • Off • 5 sec • 15 sec • 2 min • 20 min

Software Upgrade

The software for the Torpedo is field upgradeable. From time to time, new software may be made available to add new functionality or address security and support-related issues.

Upgrades of the firmware are issued through Haivision's Download Center on our website at: http://www.haivision.com/download-center/. Please note that you may download the latest firmware and documentation by registering via Haivision's Download Center.

There are two methods to upgrade the Torpedo.

- Method #1 - Direct Upgrade – (starting Version 2.2) upload the upgrade file directly to the Torpedo. The direct upload uses one .img file.

  -or-

- Method #2 - Upgrade via Web Server – (legacy method) use a Web server to distribute software updates. The Web server method uses two files, an .img file and an .xml file.

In either case, you must first copy the upgrade file(s) to your local computer or network.

To upgrade the software:

1. Copy the upgrade file(s) onto your computer or your network, or an HTTP Web server.

2. On the Torpedo configuration Web interface, click ADMINISTRATION from the main menu and then click SOFTWARE UPGRADE from the sidebar menu.

   The Software Upgrade page opens, as shown in the following example.
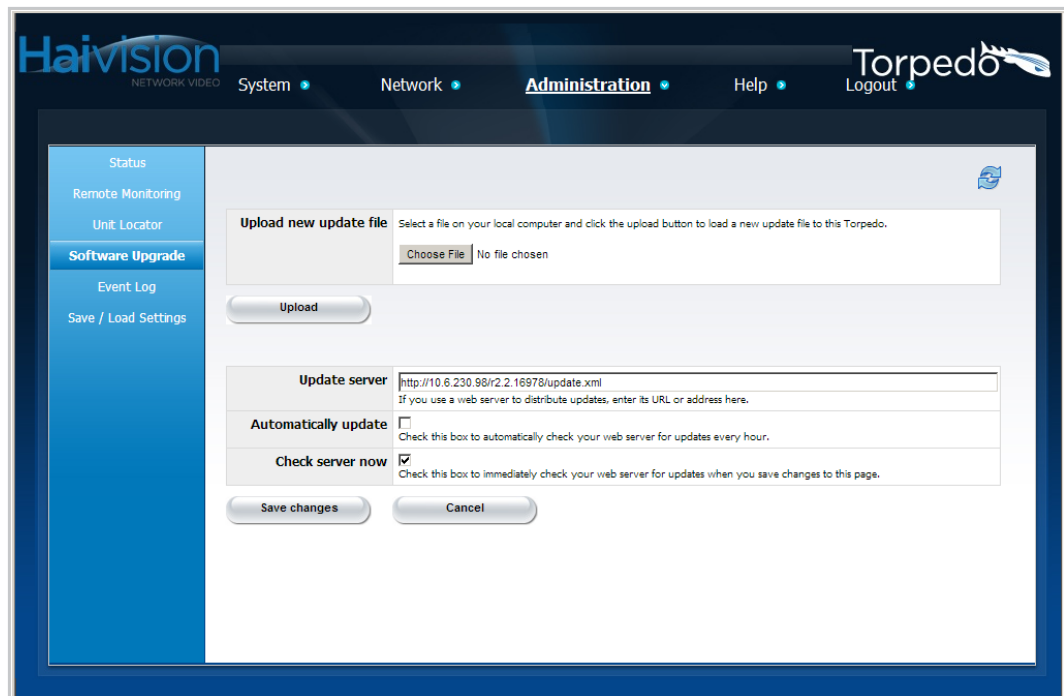
Method #1 - Direct Upgrade

1. To select the upgrade file (previously copied to your local computer in Step #1), click Choose file.

2. On the Open dialog, locate and select the file to upload to the Torpedo.

3. On the Software Upgrade page, click Upload.

Method #2 - Upgrade via Web Server

NOTE This procedure requires that the downloaded files be accessible through an HTTP file server on your computer.

---

1. Type in the URL or IP Address and port number of the Web server to use to distribute updates (for example, 10.6.230.107:80).

   For details, see the following section, "Software Upgrade Fields".

2. To save your changes (i.e., without checking for updates now), click Save Changes.

   Files will now be downloaded from your computer to the Torpedo. This process takes about 5 seconds depending on the HTTP transfer speed.

   There is some progress indicated on the Web page. When the Web page refreshes, the upgrade is completed. The upgrade process takes less than two minutes.

Software Upgrade Fields

The following table lists the Software Upgrade fields:

Software Upgrade fields	Description
Upload new update file	Select a file on your local computer and click the upload button to load a new update file to this Torpedo.
Update server	Type in the URL or IP address and port of the Web server containing the update files. This must be an HTTP file server on your local computer or network.
Automatically update	Check or clear this checkbox to enable or disable hourly software upgrade checks of the Web server.
Check server now	Check this checkbox to check for updates when you save changes to this page.

Event Log

The Event Log page displays a list of the events relevant to the functions, state or modifications made to the Torpedo (see the following section, "List of Possible Events in the Event Log"). The Event Log table consists of a Time stamp and a message for each event.

To view the Event Log:

1. Click ADMINISTRATION from the main menu and then click EVENT LOG from the sidebar menu.

   The Event Log page opens, as shown in the following example.
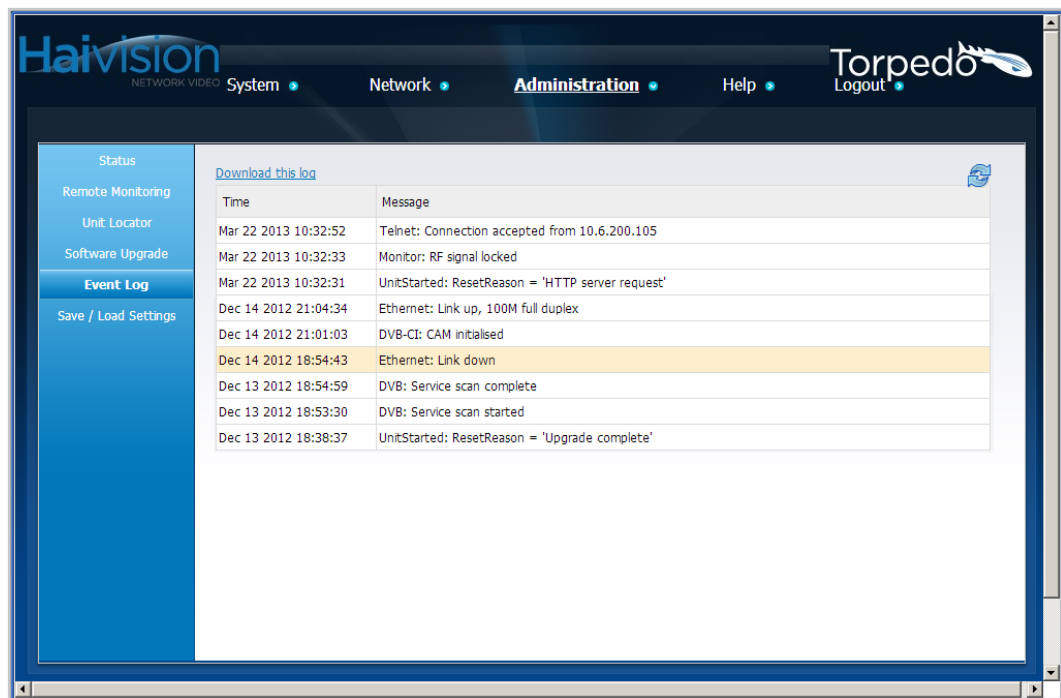
Following are examples of Time and Message descriptions for the Torpedo.

Time	Message
Apr 22 2013 15:22:52	UnitStarted: ResetReason = 'Power-on Reset'
Apr 22 2013 16:42:58	Ethernet: Link up, 100M full duplex
Apr 22 2013 16:12:23	Monitor: RF signal locked

List of Possible Events[1] in the Event Log

Level	Tag	Message	Reason
ALERT	Monitor	LNB current overload: 250 mA	The LNB connected to the RF input is drawing too much current. The Torpedo supports a maximum load of 250 mA at a maximum of 19.5 V. All tested LNBs require well under 200 mA, and RF distribution switches typically require less than 20 mA. If this event occurs, the Torpedo will periodically try to restart the LNB, so you may see this event multiple times.
ERROR	BOOT	Image not found	The Torpedo has failed to load its firmware image. This is likely to be a result of internal corruption, and the firmware will need to be replaced manually, using the bootloader.
ERROR	Config	Mount file system failed	The Torpedo has failed to mount its internal file system. This is likely to be a result of internal corruption, and the firmware will need to be replaced manually, using the bootloader.
ERROR	FPGA	Loading failed	The Torpedo has failed to load its firmware image. This is likely to be a result of internal corruption, and the firmware will need to be replaced manually, using the bootloader.
ERROR	Resource	Mount temporary file system failed	The Torpedo has failed to mount its internal file system. This is likely to be a result of internal corruption, and the firmware will need to be replaced manually, using the bootloader.
ERROR	Tuning	Unspecified RF front end error	The demodulator or tuner have reported that there is an error. If a power off reset does not resolve this error, it suggests that there is a hardware fault on the main board.
ERROR	UnitStarted	Core Watchdog SW Interrupt	The board has restarted because the firmware crashed and the watchdog restarted the board.
ERROR	UnitStarted	Exception	The board has restarted because of a hardware error. The exception code will also be logged and may be important for support.
ERROR	Update	Already running latest version	An update has been started, but the board is already running this version of the firmware.
ERROR	Update	Corrupt update image	The provided firmware file is corrupt.
ERROR	Update	Failed to update firmware. Not enough free RAM to complete.	A firmware update has failed due to lack of memory.

Level	Tag	Message	Reason
ERROR	Update	Failed to update firmware. Unit may be inoperable	A firmware update has failed. The failure may have occurred when writing the new firmware to flash and so the board may be corrupted. In this case it will be necessary to manually update the firmware using the bootloader tools.
ERROR	Update	Image 'board id' does not match index file	The provided firmware file has a board ID that is different to the board ID in the Update.xml file on the web server. Check that the Torpedo firmware file (*.img) and the Update .xml file are correct.
ERROR	Update	Image 'version' does not match index file	The provided firmware file has a version that is different to the version in the Update.xml file on the web server. Check that the Torpedo firmware file (*.img) and the Update .xml file are correct.
ERROR	Update	Incomplete update record found	The provided firmware file is corrupt.
ERROR	Update	Incompatible index file	The provided firmware file is corrupt.
ERROR	Update	Incomplete update record found	The provided firmware file is corrupt.
ERROR	Update	Truncated update image	The provided firmware file is corrupt.
INFO	Config	Factory default settings have been applied	The Torpedo has been reset to factory default settings.
INFO	DVB	Service scan started	A new service scan has been started.
INFO	DVB	Service scan cancelled	The service scan has been cancelled part way through. The existing scan results will not be changed.
INFO	DVB	Service scan complete	The service scan has been completed. The existing scan results will not be deleted and the new results will be stored.
INFO		CAM initialized	The CAM has been successfully initialized.
INFO	Telnet	Connection accepted from {IP address}	A telnet connection has been accepted from the specified IP address.
INFO	UnitStarted	Configuration changed	The board has restarted because the configuration has changed.
INFO	UnitStarted	External Reset	The board has started up from a power-on or hard reset.
INFO	UnitStarted	HTTP server request	The board has started up from a Web interface reset.

1. Facility = SYSTEM for all

Level	Tag	Message	Reason
INFO	UnitStarted	User request	The board has started up from a command line reset.
NOTICE	Ethernet	Link up, speed: duplex	The Ethernet link status is working at the specified speed and duplex settings. For correct streaming operation, the Ethernet connection must be 100M full duplex. A speed of 10M and/or half-duplex operation is not sufficient for successful streaming. If you are experiencing problems with streaming when the Ethernet link setting are set to automatic, then this log message will show what speed has been negotiated with the switch. If it is not 100M full duplex, then change the settings manually.
NOTICE	Monitor	LNB current is now below 250 mA	The overcurrent state has ended and the LNB is now drawing less than 250 mA.
NOTICE	Monitor	RF signal locked	The demodulator has locked to a valid broadcast signal.
NOTICE	Monitor	RF signal lost	The demodulator has detected a loss of signal. This could be due to local interference, disconnection of the RF input, failure of the RF network or poor signal quality. The Torpedo will repeatedly attempt to reacquire the signal.
NOTICE	Reaquire	RF signal locked	After the demodulator has detected a loss of signal the Torpedo will repeatedly attempt to reacquire the signal. Once the signal has been locked, this message is logged.
NOTICE	Reaquire	Unspecified RF front end error	The demodulator or tuner have reported that there is an error. If a power off reset does not resolve this error, it suggests that there is a hardware fault on the main board.
NOTICE	Scan	Contains no services, dropped	A carrier was found at the specified frequency but the transport stream appears to contain no services, and the multiplex is dropped from the list of scanned multiplexes.
NOTICE	Scan	Duplicate multiplex, dropped	This multiplex is already in the service scan list. This may happen if there are minor differences in frequency or symbol rate for two multiplexes so they are initially considered to be two separate multiplexes. When a lock is achieved the second time, the Torpedo finds that the transport stream ID matches the ID of the first occurrence, so this version is dropped.

Level	Tag	Message	Reason
NOTICE	Scan	fff.fff MHz, b MHz, No carrier found	While scanning, no carrier was found at the specified frequency and bandwidth.
NOTICE	Scan	ff.ffff GHz, Pol, nnnnnnSym/s, Std, No carrier found	While scanning, no carrier was found at the specified frequency, polarity, symbol rate and transmission standard. Frequency, etc. are logged for the following message as well, but are omitted from the log description here for clarity.
NOTICE	Scan	Network information table not found	A carrier was found at the specified frequency but a NIT was not seen. This error is ignored for satellite multiplexes as they may be used for feeds that have no NIT. A dummy NIT will be created.
NOTICE	Scan	Network information table not found, dropped	A carrier was found at the specified frequency but a NIT was not seen, so the multiplex is dropped.
NOTICE	Scan	Network information and service description tables not found, dropped	A carrier was found at the specified frequency but neither a NIT nor an SDT was seen, so the multiplex is dropped.
NOTICE	Scan	New multiplex found	A new multiplex has been found. Frequency and bandwidth are also logged, but are not shown here for clarity.
NOTICE	Scan	No services in multiplex, dropped	A carrier was found at the specified frequency and a NIT and SDT were also seen. The SDT contains no services, so the multiplex is dropped from the list of scanned multiplexes.
NOTICE	Scan	Program association table not found, mux dropped	A carrier was found at the specified frequency, but no PAT was received. A multiplex must contain a PAT to be a valid transport stream, so this multiplex is dropped from the scan results.
NOTICE	Scan	Service description table not found	A carrier was found at the specified frequency but an SDT was not seen. This error is ignored for satellite multiplexes as they may be used for feeds that have no SDT. A dummy SDT will be created by looking for Program Map Tables in the stream; each PMT will add another service to the multiplex.
NOTICE	Scan	Service description table not found, dropped	A carrier was found at the specified frequency but an SDT was not seen so the multiplex is dropped.
NOTICE	UnitStarted	Upgrade complete	The board has restarted because the firmware has been updated.

Level	Tag	Message	Reason
NOTICE	Update	Update from file	The board is being updated from an uploaded firmware file.
NOTICE	Update	Starting update	A firmware update has started.
NOTICE	Update	Update complete	A firmware update has completed. The board will reboot, so this event will only be seen if you set up an external Syslog server.
WARNING	DVB	Invalid NIT for this transport stream	The Torpedo has received a Network Information Table in the current multiplex that does not match the stored ID for this stream. This is most likely to happen with a satellite system when the satellite dish is pointing at a new orbital position. The stored multiplex details, captured when the dish was pointing at another orbital position may match the frequency of a multiplex on the new satellite, so the demodulator is able to lock to a carrier. However, that carrier has a different ID to the original. The Torpedo will ignore this error, in case the multiplex that is tuned is being used for feeds that changes ID regularly.\n\nIf you lose access to services, then you should check the satellite position and/or DiSEqC settings. This error may occur if the connected RF switch is reset or suffers a power failure. In this case, resetting the Torpedo or disconnecting and reconnecting the RF feed will resolve the problem.

Level	Tag	Message	Reason
WARNING	DVB	Invalid SDT for this transport stream	The Torpedo has received a Service Description Table in the current multiplex that does not match the stored ID for this stream. This is most likely to happen with a satellite system when the satellite dish is pointing at a new orbital position. The stored multiplex details, captured when the dish was pointing at another orbital position may match the frequency of a multiplex on the new satellite, so the demodulator is able to lock to a carrier. However, that carrier has a different ID to the original. The Torpedo will ignore this error, in case the multiplex that is tuned is being used for feeds that changes ID regularly.
			If you lose access to services, then you should check the satellite position and/or DiSEqC settings. This error may occur if the connected RF switch is reset or suffers a power failure. In this case, resetting the Torpedo or disconnecting and reconnecting the RF feed will resolve the problem.
WARNING	DVB-CI	CA ID not supported by this CAM	The CAM does not support the scrambling system that is being used by this service.
WARNING	DVB-CI	CA-PMT length is invalid	The CA_PMT for this transport stream is invalid.
WARNING	DVB-CI	CI driver not ready	The conditional access expansion board has not started.
WARNING	DVB-CI	Invalid CAM buffer size	The host and CAM have failed to negotiate a communication buffer size.
WARNING	DVB-CI	PCMCIA device is not a CAM	The device inserted into the DVB-CI slot is not a CAM.
WARNING	DVB-CI	Session layer protocol error	An error in the information received from the CAM was detected. The transport connection to the CAM will be closed and the CAM will be reset. If this error occurs frequently then it may be necessary to use the CAM diagnostics mode so that all communication between the CAM and the host can be monitored.
WARNING	DVB-CI	Transport connection is closed	The host has attempted to communicate with the CAM on a transport connection that has already been closed.
WARNING	Ethernet	Link down	There is no connection to the Ethernet port. Either the cable is disconnected or the remote switch is not working.

Level	Tag	Message	Reason
WARNING	Temperature	Alarm: Temperature is {temp} degrees	The internal temperature is higher than the alarm limit. The current temperature is specified in the log message. This state must be rectified quickly, or the Torpedo must be powered off.
WARNING	Tuning	Carrier not found	The demodulator cannot lock to a carrier at the specified frequency.

Save / Load Settings

The Save / Load Settings page allows you to save (download) the currently active Torpedo configuration to a file on your local computer, as well as upload a previously saved configuration from your computer to this Torpedo.

To save or load configuration settings:

1. Click SYSTEM from the main menu and then click SAVE / LOAD SETTINGS from the sidebar menu.

   The Save / Load Settings page opens, as shown in the following example.
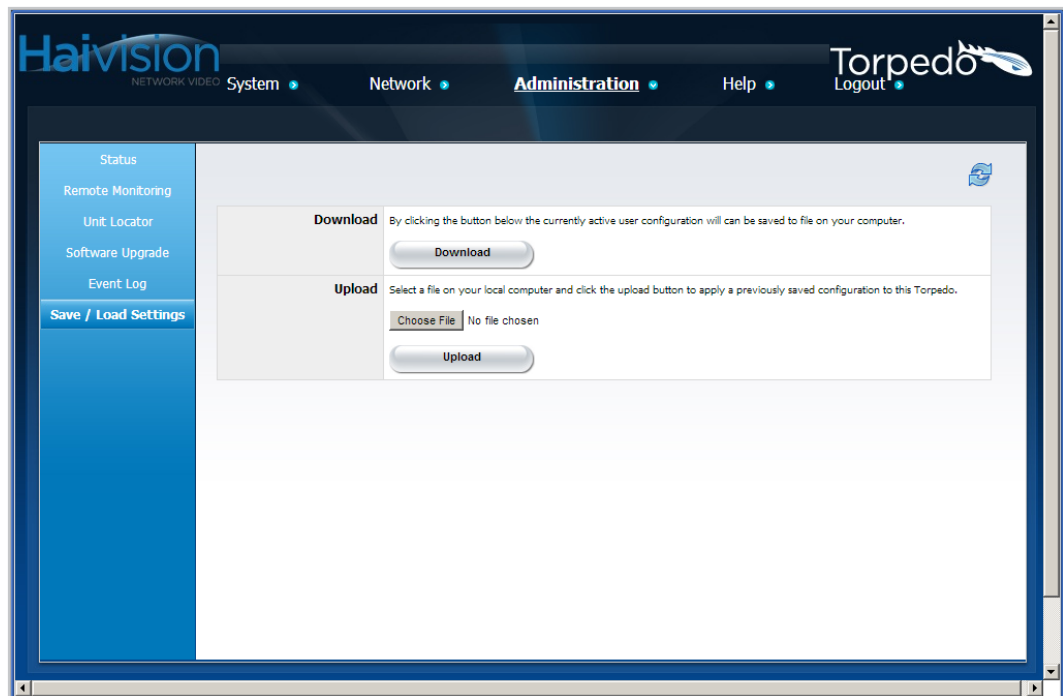
2. To save (download) the currently active Torpedo configuration to a file on your local computer, click Download.

3. On the Save As dialog, select the location to save the file. It will be saved with an .ini extension; the default filename is config.ini.

4. To upload a previously saved configuration from your computer to this Torpedo, click Choose file.

5. On the Open dialog, locate and select the file to upload.

6. On the Save / Load Settings page, click Upload.

The Torpedo will reboot as soon as you upload the configuration file. Changes will be applied once the unit has finished rebooting.

Logging Out

After you finish using the Torpedo, be sure to log out. To do so, select LOGOUT from the main menu.

Logging out prevents misuse and unauthorized access to the Torpedo.

APPENDIX A: Command Line Interface Reference

The command set presented here provides a machine interface that allows remote configuration and operation of Haivision's Torpedo DVB to IP Gateways.

Topics In This Appendix

Preliminaries

Connection Procedure

This command interface is accessible via serial (RS232/USB) and over Ethernet (TCP) connections.

When accessing the interface over the serial connection, the communications parameters are as follows:

Bits per second = 115200

Data bits = 8

Parity = None

Stop bits = 1

Flow control = None

When accessing the command interface over Ethernet, the Telnet protocol is used. By default, the unit listens for and accepts Telnet connections on port 23. Only two Telnet options are supported, ECHO and Suppress Go Ahead.

• When connecting, an attempt is made to negotiate local ECHO on, and local and remote Suppress Go Ahead on.

• If not confirmed with a response from the client, both ECHO and Suppress Go Ahead remain off. The interface can be used by a raw TCP client if the initial negotiation attempt is ignored.

A standard Telnet client can be used to connect to a unit and operate this command interface manually.

Once opened, the TCP connection remains open until it is disconnected, either by the unit or by the client software. While the connection is open, as many commands as desired can be sent. The unit will disconnect the TCP session if the exit command is issued or if the maximum number of concurrent connections is exceeded. In the latter case, connections are closed in order of least active first.

Command Syntax

Commands are sent from a remote client to the Torpedo. Per connection, only a single command can be processed at a time. The client should wait for a response to its previous command before sending the next.

Format

Commands consist entirely of ASCII text and are terminated with a single LF (0x0a) character. Where applicable, parameters can follow a command with a single space between the command and the first parameter.

Parameters consist of a name part followed by a quoted value string. Only a single = (0xed) character should separate the name and value part of a parameter. If it is necessary to pass more than one parameter, a comma followed by a single space should be used to separate them.

Response

With the exception of commands such as reset and native, all commands generate at least one line of result, the standard response. The format of this standard response closely mirrors the syntax of the commands being executed. The first word is always a repeat of the command keyword, followed by repeats of the parameters/value pairs issued to the command. The command specific result name/value pairs, if any, follow. Finally all commands end with the values status and statusstring.

Example

The general syntax of a command and a result is illustrated below. The line break after the result1 value is shown here for clarity but is not normally present.

```
JCL> command param1="value1", param2="value2"…
command hostname="name", param1="value1", param2="value2", result1=
   "blue",
result2="5000", status="0", statusstring="Success"
JCL>
```

The first line is the command to execute, the second shows the result in the standard response format, and finally the third is the prompt showing that the unit is ready to accept the next command. The prompt shown may differ from the one illustrated here.

For commands that return multi-line results, extra lines will be inserted before the standard response line. The format of these lines is dependent on the command being executed.

For details of the commands supported and their individual parameters, see the Command List and remaining sections of this appendix.

Common Parameter Types

The common parameter types for commands are as follows:

string	Any string between quotes "abcd...". Quotes are optional for strings without spaces or commas.
integer	Any integer value.
ip	Any IP value XX.XX.XX.XX where XX = [0-255]
bool	A boolean value, either TRUE or FALSE.

Parameters for All Commands

The following parameters can be given to any of the commands, but are optional. If present, they control how the commands are processed.

hostname	(string) If nonempty, this must match the host name of the unit.
passwd	(string) This must match the unit's password. This is not needed if a password is not set or if session authentication (/ref sessionauth) is used. In this command reference, "pass=manager" in the synopsis indicates commands that require a password. You will need to replace "manager" with a valid password for your unit.

Command List

The following commands are supported.

General Commands

CAM Commands

DVB Commands

Logging Commands

Stream Management Commands

Update Management Commands

The remainder of this appendix contains a detailed reference description of all supported commands.

General Commands

help

SYNOPSIS

help

DESCRIPTION

Displays the parameters available for the specified command, or displays a list of all available commands.

PARAMETERS

command   (string) The command to display parameters for. Optional, if not given, a list of all available commands is displayed instead.

MULTI-LINE RESULT

Human readable output is returned.

STANDARD RESPONSE RESULTS

None.

EXAMPLES

Listing all Available Commands:

```
JCL> help
Available commands are :
- setenablement
- getethernetinfo
- flashleds
- help
...
- getscanprogress
- getscanconf
- setscanconf
Type 'help command="command_name"' for more details on
  'command_name'
help hostname="T1", status="0", statusstring="Success"
JCL>
```

Displaying Specific Help for the getipconf Command:

```
JCL> help command=getipconf
Available parameters for 'getipconf' command are :
 -- hostname      : (any string between quotes "abcd...")
 -- passwd        : (password value)
help hostname="T1", command="getipconf", status="0", statusstring=
  "Success"
JCL>
```

native

SYNOPSIS

`native pass=manager`

DESCRIPTION

Switches the current session to the native command interface. The `native` command is used for debugging purposes by Haivision Technical Support. Please do *not* use this command.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

None.

setenablement

SYNOPSIS

setenablement

DESCRIPTION

This command is designed to be used with optional features, but does not apply to the current release. Please do *not* use this command.

PARAMETERS

code   (enablement code) The code corresponding to the feature to be activated.

STANDARD RESPONSE RESULTS

None.

getethernetinfo

SYNOPSIS

getethernetinfo

DESCRIPTION

Displays Ethernet link layer information.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

macaddr	(mac) The unit MAC address.
speed	(string) The Ethernet link speed; 'Down', '10MHalf', '100MHalf', '10MFull' and '100MFull'.

EXAMPLE

```
JCL> getethernetinfo
getethernetinfo hostname="T1", macaddr="5C:77:57:00:0F:4B", speed=
   "100MFull", status="0", statusstring="Success"
JCL>
```

flashleds

SYNOPSIS

flashleds period=value pass=manager

DESCRIPTION

Flashes the front panel LEDs in a distinctive manor as an aid to physically locating the unit receiving the command. The flashing will last for the given period of time.

PARAMETERS

period   (integer) The duration, in seconds, to flash for. Mandatory. Valid range is 1 to 3600 seconds.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> flashleds period=10 pass=manager
flashleds hostname="T1", passwd="manager", period="10", status="0",
    statusstring="Success"
JCL>
```

getipconf

SYNOPSIS

getipconf

DESCRIPTION

Retrieves the current IP configuration.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

dhcp	(bool) Indicates if the DHCP client is enabled.
localaddr	(ip) The unit IP address.
localnetmask	(ip) The unit subnet mask.
gatewayaddr	(ip) The unit gateway address.
dnsaddr	(ip) The unit DNS server address.

EXAMPLE

```
JCL> getipconf
getipconf hostname="T1", dhcp="FALSE", localaddr="10.6.0.160",
   localnetmask="255.255.0.0", gatewayaddr="10.6.1.1", dnsaddr=
   "0.0.0.0", status="0", statusstring="Success"
JCL>
```

setipconf

SYNOPSIS

setipconf parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Changes the IP configuration.

PARAMETERS

dhcp	(bool) Whether to use DHCP. Optional, default is FALSE.
localaddr	(ip) The IP address to use. Mandatory if DHCP=FALSE.
localnetmask	(ip) The netmask to use. Optional, the default based on the IP address is used.
gatewayaddr	(ip) The IP address of the gateway. Optional, the default is the current setting.
dnsaddr	(ip) The DNS server to use. Optional, the default is the current setting.

EXAMPLE

```
JCL> setipconf dhcp=FALSE localaddr=10.0.0.50 pass=manager
setipconf hostname="T1", passwd="manager", dhcp="FALSE", localaddr=
   "10.0.0.50", status="0", statusstring="Success"
JCL>
```

NOTE This command requires a reboot for the changes to take effect.

sethostname

SYNOPSIS

sethostname name=<hostname> pass=manager

DESCRIPTION

Sets the hostname of the unit.

PARAMETERS

name   (string) The new hostname.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> sethostname name=TorpedoCH pass=manager
sethostname hostname="T1", passwd="manager", name="TorpedoCH",
   status="0", statusstring="Success"
JCL>
```

setpassword

SYNOPSIS

setpassword old=<passwd> new=<newpasswd> pass=manager

DESCRIPTION

Sets the password for the unit. This controls access to the Web interface and is required to run some CLI commands.

PARAMETERS

old	(string) The old password, for confirmation. Mandatory.
new	(integer) The new password. Mandatory

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> setpassword old=manager new=manager2 pass=manager
setpassword hostname="T1", passwd="manager", old="manager", new=
  "manager2", status="0", statusstring="Success"
JCL>
```

sessionauth

SYNOPSIS

```
sessionauth
```

DESCRIPTION

This command is used to authenticate an entire session. If no parameters are given, a new nonce string is returned. When the nonce is combined with the plain text password and a MD5 hash is calculated, authentication of the session can take place in a way that does not expose the password.

If exposing the password is not an issue, use sessionauth with just the password parameter. However, because this sends the password as plain text, its use is not recommended.

If the sessionauth is successful, all subsequent commands in the current session will work unauthenticated.

PARAMETERS

md5	(string) The hash of the concatenated nonce and password strings, represented as 32 hexadecimal characters. Optional.
password	(string) Plain text password (not recommended). Optional.

STANDARD RESPONSE RESULTS

nonce	(string) A random string to be used when calculating the md5 hash. This value is only returned if no parameters are given to the command.

EXAMPLE

Assuming that a password of "123456" has been set for the unit.

First run sessionauth without any parameters to generate the nonce value.

```
JCL> sessionauth
sessionauth hostname="T1", nonce="5B<42FBW81>4", status="0",
  statusstring="Success"
JCL>
```

Next, take the nonce value and append the plain text password to give the string:

```
"5B<42FBW81>4123456".
```

Calculating the MD5 hash of this gives:

```
9B638AF5BB205FC0E56C282A50595538.
```

Use this value in a second call to sessionauth:

```
JCL> sessionauth md5="9B638AF5BB205FC0E56C282A50595538"
sessionauth hostname="T1", md5=
  "9B638AF5BB205FC0E56C282A50595538", status="0", statusstring=stat
JCL>
```

The session is now authenticated. Until the session end, i.e., Telnet connection closed or unit rebooted, all commands will be processed without requiring further authentication.

getserialnumber

SYNOPSIS

getserialnumber

DESCRIPTION

Retrieves the unit's serial number.

PARAMETERS

None

STANDARD RESPONSE RESULTS

serialnumber   (integer) The unit's serial number.

EXAMPLE

```
JCL> getserialnumber
getserialnumber hostname="T1", serialnumber="HAI-031144030010",
    status="0", statusstring="Success"
JCL>
```

getsignalinfo

SYNOPSIS

getsignalinfo pass=manager

DESCRIPTION

Retrieves signal information.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

level	(integer) Signal level (dBm). Only shown on the Torpedo DVB-S/S2.
SNR	(integer) Signal-to-noise ratio.
BER	(integer) Bit Error Rate.

EXAMPLE

```
JCL> getsignalinfo pass=manager
getsignalinfo hostname="T1", passwd="manager", level="0", SNR="0",
   BER="0", status="0", statusstring="Success"
JCL>
```

getstatus

SYNOPSIS

`getstatus pass=manager`

DESCRIPTION

Retrieves general system status information.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

memory	(integer) Free memory
temperature	(integer) Unit temperature
rxrate	(integer) Received data rate
txrate	(integer) Transmit data rate
streams	(integer) Number of active streams

EXAMPLE

```
JCL> getstatus pass=manager
getstatus hostname="T1", passwd="manager", memory="61345776",
    temperature="31", rxrate="0", txrate="0", streams="0", status="0",
    statusstring="Success"
JCL>
```

getversions

SYNOPSIS

getversions

DESCRIPTION

Retrieves the current software version information.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

tech	(string) DVB technology, e.g., DVB-T, DVB-S2, etc.
board	(integer) The board revision number. Used for compatibility checking during software updates.
oem	(integer) The hardware OEM code. Used for compatibility checking during software updates.
software	(string) The software version number string.

EXAMPLE

```
JCL> getversions
getversions hostname="T1", tech="Satellite", board="3", oem="0",
  software="2.0.16517", status="0", statusstring="Success"
JCL>
```

csversion

SYNOPSIS

csversion

DESCRIPTION

Retrieves CLI command-set version information.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

csversion   (string) The current CLI command-set version.

EXAMPLE

```
JCL> csversion
csversion hostname="T1", csversion="Extended Command Set Version v1.9
   (Terrestrial)", status="0", statusstring="Success"
JCL>
```

debug

SYNOPSIS

debug pass=manager

DESCRIPTION

Displays debug information as a diagnostic aid. This command is reserved for advanced troubleshooting purposes. Haivision Technical Support may require the output of this command to analyze the Torpedo's behavior.

PARAMETERS

None.

MULTI-LINE RESULT

A hexadecimal dump of key data used for diagnosing post crash problems.

STANDARD RESPONSE RESULTS

tech	(string) DVB technology, e.g., DVB-T, DVB-S2, etc.
software	(string) Software version number string.

default

SYNOPSIS

default option=[targets,services,all] pass=manager

DESCRIPTION

Clears nonvolatile data and returns the unit to a factory default state.

IMPORTANT The unit will reboot when this command is issued.

PARAMETERS

option

(string) The saved data to clear. Mandatory; must be targets, services, or all.

If targets is specified, the IP addresses, ports, enabled state, etc. will be cleared for all services.

If services is specified, all stored multiplex, service and target information will be cleared.

If all is specified, all nonvolatile stored data will be cleared, including the unit's IP address.

STANDARD RESPONSE RESULTS

None. Connections will be terminated before any response is given.

EXAMPLE

```
JCL> default option=all pass=manager
JCL>
```

reset

SYNOPSIS

 reset pass=manager

DESCRIPTION

Immediately reboots the unit.

IMPORTANT The unit immediately reboots when this command is issued.

PARAMETERS

None

STANDARD RESPONSE RESULTS

None, connections will be terminated before any response is given.

EXAMPLE

```
JCL> reset pass=manager

Bootloader version 2.0.16517

Haivision Torpedo DVB to IP gateway 2.0.16517
Loading zipped FPGA code, date:....
.
.
.
JCL>
```

getsnmp

SYNOPSIS

`getsnmp pass=manager`

DESCRIPTION

Retrieves the embedded SNMP agent settings.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

enable	(bool) Set to TRUE when the SNMP agent is enabled.
community	(string) The community string value used for authenticating SNMP messages.

EXAMPLE

```
JCL> getsnmp pass=manager
getsnmp hostname="T1", passwd="manager", enable="FALSE",
   community="Public", status="0", statusstring="Success"
JCL>
```

setsnmp

SYNOPSIS

setsnmp enable=[true,false] community=<community> pass=manager

DESCRIPTION

Sets the embedded SNMP agent operating configuration.

PARAMETERS

enable	(bool) Set to TRUE when the SNMP agent is enabled. Optional; default is current setting.
community	(string) The community string value used for authenticating SNMP messages. Optional; default is current setting.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> setsnmp enable=true community=public pass=manager
setsnmp hostname="T1", passwd="manager", enable="TRUE",
   community="public", status="0", statusstring="Success"
JCL>
```

CAM Commands

camshowmenu

SYNOPSIS

camshowmenu

DESCRIPTION

Shows the current state of the CAM's menu.

If no MMI session is open, then this command will return a list of all application menus in an XML object tag named <menus>. The tag includes application type: Conditional Access or Electronic Programme Guide (CA or EPG); manufacturer ID and manufacturer code. The text for each menu tag is the CAM's name for the application.

If an MMI session is open, the current MMI object is displayed in XML format. This may be a <menu>, <list> or <enquiry>. The first two objects share the same child tags: <title>, <subtitle> and <footer>. These are standardised text items returned by the CAM. N.B. Any of these items may contain no text. <menu> objects then return a list of <menu_item> objects, each with an ID. The ID values start at 1 and can be used as arguments to the camselect command. <list> object return <list_item> objects which do not have an ID. CAMs typically use a <list> to display some lines of text. N.B Some CAMs use a <menu> object instead of a <list> object to display static lines of text.

The third type of object returned is an <enquiry> object. This is returned when the CAM expects some data to be entered. The <enquiry> tag has two properties, "answ_len" and "blind". The "answ_len" is the number of characters of response that the CAM expects. This is a number between 1 and 255. If it is set to 255, then that means the length is not known by the CAM. If "blind" is set to TRUE, then the application interface should display * or - characters as the user enters their response.

PARAMETERS

None.

MULTI-LINE RESULT

The multi-line result is returned in XML format (see examples).

EXAMPLES

List all application menus in XML format

```
<?xml version="1.0"?>
<cam>
<menus>
<menu id="1" type="CA" manufacturer="0xCAFE" code=
  "0xBABE">Viaccess Access"<
/menu>
</menus>
</cam>
```

Example menu, after a camselect command to select an application menu

```
<?xml version="1.0"?>
<cam>
<menu>
<title>Viaccess Conditional Access</title>
<subtitle>Main Menu</subtitle>
<menu_item id="1">Consultation</menu_item>
<menu_item id="2">Settings</menu_item>
<menu_item id="3">Upgrade</menu_item>
<footer>Press 'OK' to confirm, 'EXIT' to quit</footer>
</menu>
</cam>
```

Example enquiry, asking for the existing PIN

```
<?xml version="1.0"?>
<cam>
<enquiry answ_len="4" blind="TRUE">Enter old PIN code(4
  digits):</enquiry>
</cam>
```

camselect

SYNOPSIS

camselect

DESCRIPTION

Selects an item from a CAM menu or application list

PARAMETERS

item   The ID of the item to select, or 0 to Cancel or return to the parent level menu.

If this parameter is not provided, item will be set to 0 by default, so camselect with no parameters is equivalent to camcancel or camok. Optional.

MULTI-LINE RESULT

The multi-line result is returned in XML (see examples).

The select command is sent to the CAM and then we wait for the CAM's response. If no response is forthcoming in 300 mS, then the command will time out and a timeout response will be returned.

If a timeout response is returned, then the cammenu command can be issued. If the MMI session is still waiting for a response, then another 300 mS timeout will be started.

EXAMPLES

Example menu, after a "camselect item=1" command to select an application menu

```
<?xml version="1.0"?>
<cam>
<menu>
<title>Viaccess Conditional Access</title>
<subtitle>Main Menu</subtitle>
<menu_item id="1">Consultation</menu_item>
<menu_item id="2">Settings</menu_item>
<menu_item id="3">Upgrade</menu_item>
<footer>Press 'OK' to confirm, 'EXIT' to quit</footer>
</menu>
</cam>
```

camanswer

SYNOPSIS

camanswer

DESCRIPTION

Sends a response to a CAM enquiry.

PARAMETERS

answer   The answer text to send back to the CAM. If the expected length of the answer does not match the length of the answer provided, then it will not be transmitted to the CAM and the enquiry will be redisplayed.

If the answer is not provided, then this command will send a Cancel to the CAM, so camanswer with no parameters is equivalent to camcancel or camok. Optional.

MULTI-LINE RESULT

The multi-line result is returned in XML (see examples).

The answer command is sent to the CAM and then we wait for the CAM's response. If no response is forthcoming in 300 mS, then the command will time out and a timeout response will be returned.

If a timeout response is returned, then the camshowmenu command can be issued. If the MMI session is still waiting for a response, then another 300 mS timeout will be started. Otherwise, or when a response is received it will be returned.

EXAMPLES

Example enquiry. First item 2 is selcted from a menu, which prompts an enquiry for the PIN. Then the answer "1234" is sent for the existing PIN.

```
<?xml version="1.0"?>
<cam>
<menu>
<title>Spartas Welt</title>
<subtitle>Setting</subtitle>
<menu_item id="1">Language</menu_item>
<menu_item id="2">Parental Lock</menu_item>
<menu_item id="3">Add package</menu_item>
<menu_item id="4">Restore Setting</menu_item>
<menu_item id="5">Return</menu_item>
<footer>'OK': select, 'EXIT': exit</footer>
</menu>
</cam>
> camselect item=2
<?xml version="1.0"?>
<cam>
<enquiry answ_len="4" blind="TRUE">Enter PIN code (4
  digits):</enquiry>
</cam>
> camanswer answer=1234
<?xml version="1.0"?>
<cam>
<menu>
<title>Spartas Welt</title>
<subtitle>Parental Control</subtitle>
<menu_item id="1">Age rating Germany : OFF</menu_item>
<footer>'OK': select, 'EXIT': exit</footer>
</menu>
</cam>
```

camok

SYNOPSIS

camok

DESCRIPTION

Sends an Ok response to the CAM. This is equivalent to selection item 0 from a menu or sending an empty answer to a CAM enquiry. The CAM will display the parent menu, if there is one.

camcancel

SYNOPSIS

camcancel

DESCRIPTION

Sends a Cancel response to the CAM This is equivalent to selecting item 0 from a menu or sending an empty answer to a CAM enquiry. The CAM will display the parent menu, if there is one.

PARAMETERS

None.

MULTI-LINE RESULT

The multi-line result is returned in XML (see examples for other CAM commands.)

The command is sent to the CAM and then we wait for the CAM's response. If no response is forthcoming in 300 mS, then the command will time out and a timeout response will be returned.

If a timeout response is returned, then the camshowmenu command can be issued. If the MMI session is still waiting for a response, then another 300 mS timeout will be started. Otherwise, or when a response is received it will be returned.

camexitmenu

SYNOPSIS

camexitmenu

DESCRIPTION

Closes the MMI session if one is open.

PARAMETERS

None.

camreset

SYNOPSIS

camreset

DESCRIPTION

Resets the common interface controller to simulate removal and reinsertion of the CAM module.

PARAMETERS

None.

MULTI-LINE RESULT

The multi-line result is returned in XML (see examples).

The command is sent to the CAM and then we wait for the CAM's response. If no response is forthcoming in 300 mS, then the command will time out and a timeout response will be returned.

If a timeout response is returned, then the camshowmenu command can be issued. If the MMI session is still waiting for a response, then another 300 mS timeout will be started. Otherwise, or when a response is received it will be returned.

EXAMPLES

List all menus in XML format

```
<?xml version="1.0"?>
<cam>
<reset>CAM reset OK</reset>
</cam>
```

camdiagnostic

SYNOPSIS

camdiagnostic

DESCRIPTION

Enables the CAM diagnostic mode.

PARAMETERS

enable   Set to TRUE to enable diagnostic mode or FALSE to disable.

When set to diagnostic mode, all of the communication between the CAM and the host is recorded in a LibPCAP format file. This file can be retrieved at any time that the CAM diagnostics are enabled by getting the camdiag.tmpl URI from the host. E.g.:

http://hostname/camdiag.tmpl

The file will be returned as a download called camdiag.pcap and it can be opened using an up-to-date copy of Wireshark (http://www.wireshark.org/).

When diagnostic mode is enabled, streaming performance will be reduced. Diagnostic mode is automatically disabled upon reboot. The capture file will be deleted when diagnostic mode is disabled, so you can clear the file by disabling and then re-enabling diagnostic mode. The capture file is constrained to be no more than 64 KB long. It will reset once this length is reached.

DVB Commands

getcharset

SYNOPSIS

getcharset pass=manager

DESCRIPTION

Retrieves the current character-set setting.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

code   (integer) The current character-set code.

description   (string) Text description of the selected character-set.

See setcharset for a list of possible codes.

EXAMPLE

```
JCL> getcharset pass=manager
getcharset hostname="T1", passwd="manager", code="1", description=
   "ISO/IEC 8859-1:   Latin-1 (Western European)", status="0",
   statusstring="Success"
JCL>
```

setcharset

SYNOPSIS

setcharset code=[0-21] pass=manager

DESCRIPTION

Sets the default character-set used to decode and render DVB-SI (Service Information) strings. Valid character-set codes are:

- 0 ISO/IEC 6937 DVB default
- 1 ISO/IEC 8859-1 Latin-1 (Western European)
- 2 ISO/IEC 8859-2 Latin-2 (Central European)
- 3 ISO/IEC 8859-3 Latin-3 (South European)
- 4 ISO/IEC 8859-4 Latin-4 (North European)
- 5 ISO/IEC 8859-5 Latin/Cyrillic
- 6 ISO/IEC 8859-6 Latin/Arabic
- 7 ISO/IEC 8859-7 Latin/Greek
- 8 ISO/IEC 8859-8 Latin/Hebrew
- 9 ISO/IEC 8859-9 Latin-5 (Turkish)
- 10 ISO/IEC 8859-10 Latin-6 (Nordic)
- 11 ISO/IEC 8859-11 Latin/Thai
- 12 ISO/IEC 8859-12 Latin/Devanagari
- 13 ISO/IEC 8859-13 Latin-7 (Baltic Rim)
- 14 ISO/IEC 8859-14 Latin-8 (Celtic)
- 15 ISO/IEC 8859-15 Latin-9 (Western European with Euro)
- 16 ISO/IEC 8859-16 Latin-10 (South-eastern European)
- 17 ISO/IEC 10646-1 Unicode Basic Multilingual Plane
- 18 KSC 5601-1987 Wansung (Korea)
- 19 GB2312-1980 Guojia Biaozhun (China)
- 20 ISO/IEC 10646-1-BIG5 Unicode Big 5 Subset (Taiwan & Hong Kong)
- 21 UTF-8 Unicode Transformation Format

PARAMETERS

code   (integer) The code of the character-set to use when displaying DVB strings. Mandatory.

STANDARD RESPONSE RESULTS

None.

NOTE According to the DVB specification, broadcasters are supposed to use ISO/IEC 693 as the default character-set. However, most DVB-S broadcasts from around Europe actually use ISO/IEC 8859-1 as their default.

EXAMPLE

```
JCL> setcharset code=15 pass=manager
 setcharset  hostname="T1", passwd="manager", code="15", status="0",
   statusstring="Success"
JCL>
```

getdate

SYNOPSIS

```
getdate pass=manager
```

DESCRIPTION

Retrieves the current time and date. The time returned is received over the air, so may not reflect the current local time.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

date	(string) The current DVB date, in the form "DD/MM/YYYY".
time	(string) The current DVB time, in the form "HH:MM:SS".

EXAMPLE

```
JCL> getdate pass=manager
getdate hostname="T1", passwd="manager", date="10/01/2000", time=
   "02:30:53", rtc="Mon Jan 10 02:30:53 2000", status="0", statusstring=
   "Success"
JCL>
```

setdate

SYNOPSIS

setdate day=[01-31] mon=[01-12] year=[xxxx] hour=[xx] min=[xx] sec=
[xx] pass=manager

DESCRIPTION

Sets the date and time for the unit's real-time clock.

PARAMETERS

day	(integer) Sets the day of the month (from 01 to 31).
mon	(integer) Sets the month value (from 01 to 12).
year	(integer) Sets the year value in the format xxxx.
hour	(integer) Sets the hour of the day in the format xx.
min	(integer) Sets the minutes value in the format xx.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> setdate day=16 mon=12 year=2011 pass=manager
setdate hostname="T1", passwd="manager", day="16", mon="12", year=
   "2011", rtc="Fri Dec 16 05:18:07 2011", status="0", statusstring=
   "Success"
JCL>
```

getmultiplexcount

SYNOPSIS

getmultiplexcount pass=manager

DESCRIPTION

Retrieves the number of known multiplexes.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

count   (integer) The number of multiplexes.

EXAMPLE

```
JCL> getmultiplexcount pass=manager
getmultiplexcount hostname="T1", passwd="manager", count="1", status=
   "0", statusstring="Success"
JCL>
```

getmultiplexinfo

SYNOPSIS

getmultiplexinfo parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Retrieves multiplex information. If an index or Network ID and Transport Stream ID are specified, information for a single multiplex only will be provided. If omitted, information on all the multiplexes will be provided.

PARAMETERS

index	(integer) The 1-based index of a multiplex. Optional.
frequency	(string) Frequency of mux. Recommended when Original Network ID or Transport stream ID cannot be guaranteed to be unique. Frequency should be MHz or Hz for DVB-T, GHz or kHz for DVB-S.
symbol_rate	(string) Symbol rate. Mandatory for DVB-S if frequency is supplied, ignored otherwise. Should be kSym/s (kBaud) or Sym/s (Baud).
polarisation	(string) Polarisation. H or V mandatory for DVB-S if frequency is supplied, ignored otherwise.
onid	(integer) Original network ID. Alternative to frequency when ON ID and TS ID are known to be unique.
tsid	(integer) Transport Stream ID. Mandatory if onid is given.
format	(string) Specifies the output format, valid values are STD and XML. Optional, default is STD.

MULTI-LINE RESULT

The multi-line result is returned in the format requested, see Examples.

STANDARD RESPONSE RESULTS

scan_counter   (integer) Version number of the currently stored scan information. This value increments each time a scan completes. This is a 5 bit counter.

EXAMPLES

List all Multiplexes in the Standard Format:

```
JCL> getmultiplexinfo
Mux F(Hz) FFT Mod VR SNR(dB) NETID ON_ID TS_ID Network
-------------------------------------------------------------------------
1 626166666 2K QAM16 3/4 25 12290 9018 20480 Sandy Heath
2 641833333 2K QAM16 3/4 25 12290 9018 4109 Sandy Heath
3 650166666 2K QAM64 2/3 22 12290 9018 12290 Sandy Heath
4* 665833333 2K QAM64 2/3 23 12290 9018 8194 Sandy Heath
5 674166666 2K QAM16 3/4 26 12290 9018 24576 Sandy Heath
6 842000000 2K QAM16 3/4 26 12290 9018 16384 Sandy Heath
getmultiplexinfo hostname="T1", status="0", statusstring="Success"
JCL>
```

Display only Information on Multiplex 6, in the XML Format:

```
JCL> getmultiplexinfo format=xml index=6
<?xml version="1.0"?>
<getmultiplexinfo>
<muxes>
<mux index="6" frequency="842000000" polarisation="" symbol_rate=""
onid="9018" tsid="16384" netid="12290">
<signal SNR="26" LVL="0" tuned="no"/>
<system standard="DVB-T" mod="QAM16" VR="1/2" FFT="2K"/>
<netname>Cambs &amp; Beds.</netname>
<services>
<svc id="17024"/>
...
<svc id="18304"/>
</services>
<stream enabled="no">
</stream>
</mux>
</muxes>
</getmultiplexinfo>
getmultiplexinfo hostname="T1", index="6", format="xml", status="0",
statusstring="Success"
JCL>
```

NOTE The parameter index is provided as a convenience to users. However, automated control devices should use frequency, with symbol_rate and polarisation for DVB-S, to identify a multiplex since they are persistent, whereas index can change.

If a service scan is in progress, getmultiplexinfo will return an error.

getcurrentmultiplex

SYNOPSIS

getcurrentmultiplex pass=manager

DESCRIPTION

Retrieves the currently-tuned multiplex.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

index	(integer) 1-based index of the currently-tuned multiplex.
frequency	(integer) Frequency of the currently-tuned multiplex in Hz for DVB-T or kHz for DVB-S.
polarisation	(integer) Polarisation of the currently-tuned multiplex, only present on DVB-S/S2 units.
symbol_rate	(integer) Symbol rate currently-tuned multiplex in Sym/s (Baud), only present on DVB-S/S2 units.
onid	(integer) Original network ID of currently-tuned multiplex.
tsid	(integer) Transport Stream ID of currently-tuned multiplex.
scan_counter	(integer) Version number of the currently stored scan information. This value increments each time a scan completes. This is a 5 bit counter.

> **NOTE** The parameter index is provided as a convenience to users. However, automated control devices should use frequency, with symbol_rate and polarisation for DVB-S, to identify a multiplex, since they are persistent, whereas index can change.

EXAMPLE

```
JCL> getcurrentmultiplex pass=manager
getcurrentmultiplex hostname="T1", passwd="manager", index="1",
   frequency="539125000", onid="1", tsid="1", scan_counter="15",
   status="0", statusstring="Success"
JCL>
```

setcurrentmultiplex

SYNOPSIS

setcurrentmultiplex parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Selects (tunes) to the specified multiplex. All the services on the current multiplex which are streaming will be stopped. On the new multiplex, those services that have targets and are enabled will be started.

PARAMETERS

index	(integer) The 1-based index of the new multiplex. Optional.
frequency	(string) Frequency of mux. Recommended when Original Network ID or Transport stream ID cannot be guaranteed to be unique. Frequency should be MHz or Hz for DVB-T, GHz or kHz for DVB-S.
symbol_rate	(string) Symbol rate. Mandatory for DVB-S if frequency is supplied, ignored otherwise. Should be kSym/s (kBaud) or Sym/s (Baud).
polarisation	(string) Polarisation. H or V mandatory for DVB-S if frequency is supplied, ignored otherwise.
onid	(integer) Original network ID. Alternative to frequency when ON ID and TS ID are known to be unique.
tsid	(integer) Transport Stream ID. Mandatory if onid is given.

STANDARD RESPONSE RESULTS

None.

NOTE The parameter index is provided as a convenience to users. However, automated control devices should use frequency, with symbol_rate and polarisation for DVB-S, to identify a multiplex since they are persistent, whereas index can change.

If a service scan is in progress, setcurrentmultiplex will return an error.

---

getserviceinfo

SYNOPSIS

getserviceinfo pass=manager

DESCRIPTION

Retrieves service information. If a single service is specified by Logical Channel Number or by Original Network ID, Transport Stream ID and Service ID, only information for that service is provided. If not specified, information on all known services with a valid Logical Channel Number is returned.

PARAMETERS

lcn	(integer) Logical channel number of the service. Optional.
frequency	(string) Frequency of mux. Recommended when Original Network ID or Transport stream ID cannot be guaranteed to be unique. Frequency should be MHz or Hz for DVB-T, GHz or kHz for DVB-S.
symbol_rate	(string) Symbol rate. Mandatory for DVB-S if frequency is supplied, ignored otherwise. Should be kSym/s (kBaud) or Sym/s (Baud).
polarisation	(string) Polarisation. H or V mandatory for DVB-S if frequency is supplied, ignored otherwise.
onid	(integer) Original network ID. Alternative to frequency when ON ID and TS ID are known to be unique.
tsid	(integer) Transport Stream ID. Mandatory if onid is given.
sid	(integer) Service ID. Mandatory if onid or frequency is given.
format	(string) Specifies the output format, valid values are STD or XML. Optional, default is STD. Slightly more information is available when using the XML format for output.
activeonly	(bool) If TRUE and a specific service is not given, only output services which have been selected by the user for streaming using the /ref startservice command. Optional; default is FALSE.

MULTI-LINE RESULT

The multi-line result is returned in the format requested. See the following examples for details.

STANDARD RESPONSE RESULTS

scan_counter   (integer) Version number of the currently stored scan information. This value increments each time a scan completes. This is a 5 bit counter.

EXAMPLES

List the Known Services In the Standard Format:

```
JCL> getserviceinfo
1 television BBC ONE
2 television BBC TWO
3 r * television ITV1
4 rs* television Channel 4
5 television Five
6 r * television ITV2
7 television BBC THREE
9 television BBC FOUR
10 r * television ITV3
11 television SKY THREE
12 television UKTV History
13 r * television Channel 4+1
14 r * television More 4
16 television QVC
17 $ television UKTV GOLD
...
728 r * radio Heart
getserviceinfo hostname="T1",  passwd="manager", scan_counter="15",
  status="0", statusstring="Success"
JCL>
```

In the standard format, the default, a line is generated for each channel. For each line:

• Characters 0-3 are the Logical channel number.

• Character 5 is '$' if the service is not Free to Air.

• Character 6 is 'h' if the service is hidden.

• Character 7 displays the running state of the service, space=Undefined, n=Not running,

• i=Imminent, p=Paused, r=Running.

• Character 8 is 's' if the user has marked this for streaming.

• Character 9 is '*' if this service is on the currently tuned mux.

• Characters 10-12 are reserved flags.

• Characters 14-26 are the service type string.

• Characters 28 and above contain the service name.

Display the Service Information for BBC1 in the XML Format:

```
JCL> getserviceinfo format="xml", lcn=1
<?xml version="1.0"?>
<getserviceinfo>
  <services>
    <service lcn="1" type="Television" ca="no" id="4173">
      <name>BBC ONE</name>
      <mux index="2" frequency="641833333" polarisation=""
  symbol_rate=""
        onid="9018" tsid="4109" netid="12290"/>
      <stream enabled="no">
      </stream>
    </service>
  </services>
</getserviceinfo>
getserviceinfo hostname="timtvbt", lcn="1", format="xml",
status="0", statusstring="Success"
JCL>
```

NOTE The parameter lcn is provided as a convenience to users. However, automated control devices should either use freq, with symbol_rate, polarisation and sid to identify the service, as freq, symbol_rate, and polarisation are reasonably unique. Or: use onid, tsid and sid when the mux can be uniquely identified by onid and tsid. This requires that the broadcaster is sending valid and unique IDs, which is not always the case for satellite broadcasters. lcn is likely to change after a re-scan if any services change.

If a service scan is in progress, getserviceinfo will return an error.

startscan

SYNOPSIS

`startscan pass=manager`

DESCRIPTION

Launches a service scan. The settings specified by `/ref setscanconf` are used to find new services and multiplexes. All currently known services will be lost. All active streams will be stopped until the scan is complete, at which point they may start again, if the same services were found during the scan.

PARAMETERS

None

STANDARD RESPONSE RESULTS

scanning   (bool) TRUE if scanning was started; FALSE otherwise

progress   (integer) Percentage progress of the ongoing scan.

EXAMPLE

```
JCL> startscan pass=manager
startscan hostname="T1", passwd="manager", scanning="TRUE",
   progress="0", status="0", statusstring="Success"
JCL>
```

stopscan

SYNOPSIS

```
stopscan pass=manager
```

DESCRIPTION

Cancels the currently active service scan started by the startscan command. The unit reverts to the list of services and multiplexes known before the scan was started.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

scanning   (bool) TRUE if still scanning; FALSE otherwise

progress   (integer) percentage progress of an ongoing scan, if any.

EXAMPLE

```
JCL> stopscan pass=manager
stopscan hostname="T1", passwd="manager", scanning="FALSE",
   progress="100", status="0", statusstring="Success"
JCL>
```

getscanprogress

SYNOPSIS

getscanprogress pass=manager

DESCRIPTION

Provides progress information of the ongoing scan started by the startscan command.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

scanning	(bool) TRUE if scanning; FALSE otherwise
progress	(integer) Percentage progress of an ongoing scan, if any.

EXAMPLE

```
JCL> getscanprogress pass=manager
getscanprogress hostname="T1", passwd="manager", scanning="FALSE",
   progress="100", status="0", statusstring="Success"
JCL>
```

getscanconf

```
getscanconf pass=manager
```

DESCRIPTION

Retrieves the configuration settings used when scanning for services by the startscan command.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

For DVB-T units:

automatic	(bool) TRUE if using the built-in country list; FALSE otherwise.
code	(integer) The ITU country code used for automatic scan parameter selection.
country	(string) The name corresponding to the ITU country code.

For DVB-S units:

quick	(bool) TRUE if doing a quick scan; FALSE otherwise.
automatic	(bool) TRUE if using the built-in transponder list; FALSE otherwise.
position	(string) Orbital position of the transponder(s) to scan. Only used for automatic scans.
frequency	(integer) Frequency of the first transponder to scan. Not used for automatic scans.
polarisation	(string) Polarisation of the first transponder to scan. Not used for automatic scans.
symbol_rate	(integer) Symbol rate of the first transponder to scan. Not used for automatic scans.
standard	(string) DVB standard of the first transponder to scan. Not used for automatic scans.

EXAMPLE

```
JCL> getscanconf pass=manager
getscanconf hostname="T1", passwd="manager", quick="TRUE",
    automatic="TRUE", position="28.2E", frequency="0", polarisation="H",
    symbol_rate="0", standard="S", status="0", statusstring="Success"
JCL>
```

setscanconf

setscanconf parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Set the configuration settings used during a service scan by the command startscan.

PARAMETERS

For DVB-T units:

automatic	(bool) Set to TRUE to use the built-in country list.
code	(integer) The ITU country code, from the LIST OF ITU-T RECOMMENDATION E.164 ASSIGNED COUNTRY CODES, used for automatic scan parameter selection. Mandatory if automatic is true, optional/ignored otherwise.

For DVB-S units:

quick	(bool) Whether to do a quick scan or a detailed scan. Optional, default is the current setting.
automatic	(bool) Whether to use the built-in transponder list or user provided parameters. Mandatory.
position	(string) Orbital position of the transponder(s) to scan. Mandatory if automatic is true, ignored otherwise.
frequency	(integer) Frequency of the first transponder to scan. Mandatory if automatic is false, and ignored otherwise.
polarisation	(string) Polarisation of the first transponder to scan. Mandatory if automatic is false, and ignored otherwise. Must be V or H.
symbol_rate	(integer) Symbol rate of the first transponder to scan. Mandatory if automatic is false, and ignored otherwise. In kSym/s (kBaud) or Sym/s (Baud).
standard	(string) DVB standard of the first transponder to scan. Mandatory if automatic is false, and ignored otherwise. Must be S or S2.

STANDARD RESPONSE RESULTS

None.

If a service scan is in progress, setscanconf will return an error.

getlnbconf

```
getlnbconf pass=manager
```

DESCRIPTION

Retrieves the current LNB (Low Noise Block) configuration settings. This command is only available on the Torpedo DVB-S/S2.

PARAMETERS

None

STANDARD RESPONSE RESULTS

lo_low	(integer) The low band LNB local oscillator frequency. In kHz.
lo_high	(integer) The high band LNB local oscillator frequency. In kHz.
llc	(bool) Is Line level compensation enabled.

EXAMPLE

```
JCL> getlnbconf pass=manager
getlnbconf hostname="T1", passwd="manager", lo_low="9750000",
  lo_high="10600000", llc="FALSE", status="0", statusstring="Success"
JCL>
```

setlnbconf

SYNOPSIS

setlnbconf parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Sets parameters corresponding to the attached LNB (Low Noise Block). This command is only available on the Torpedo DVB-S/S2.

PARAMETERS

lo_low	(integer) The low band LNB local oscillator frequency in kHz. Mandatory.
lo_high	(integer) The high band LNB local oscillator frequency in kHz. Mandatory.
llc	(bool) Whether or not to use line level compensation. LLC boosts the LNB supply voltage by about 1v to compensate for long cable runs between the unit and the LNB, this is not normally needed with modern equipment.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> setlnbconf lo_low=9750000 lo_high=10600000 pass=manager
getlnbconf hostname="T1", passwd="manager", lo_low="9750000",
  lo_high="10600000", status="0", statusstring="Success"
JCL>
```

getdiseqcconf

SYNOPSIS

```
getdiseqcconf pass=manager
```

DESCRIPTION

Retrieves the current DiSEqC (Digital Satellite Equipment Control), configuration parameters. This command is only available on the Torpedo DVB-S/S2.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

toneburst	(string) Tone Burst setting, Off, A or B.
1.0	(string) DiSEqC 1.0 setting, Off or 1 to 4.
1.1	(string) DiSEqC 1.0 setting, Off or 1 to 16.
position	(string) DiSEqC positioner settings, Off or 1 to 99.

EXAMPLE

```
JCL> getdiseqcconf pass=manager
getdiseqcconf hostname="TorpedoCH", passwd="manager", toneburst=
   "off", 1.0="off", 1.1="off", position="off", status="0", statusstring=
   "Success"
JCL>
```

setdiseqcconf

SYNOPSIS

setdiseqcconf parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Sets the DiSEqC related settings. This command is only available on the Torpedo DVB-S/S2.

PARAMETERS

toneburst	(string) Tone Burst setting, Off, A or B. Optional, existing value is used if not specified.
1.0	(string) DiSEqC 1.0 setting, Off or 1 to 4. Optional, existing value is used if not specified.
1.1	(string) DiSEqC 1.0 setting, Off or 1 to 16. Optional, existing value is used if not specified.
position	(string) DiSEqC positioner settings, Off or 1 to 99. Optional, existing value is used if not specified.

STANDARD RESPONSE RESULTS

None.

movedish

SYNOPSIS

movedish directions=[e, w] steps=[1-27] seconds=1-28] pass=manager

DESCRIPTION

Moves the dish using an externally attached DiSEqC positioner. This command is only available on the Torpedo DVB-S/S2.

PARAMETERS

direction   (string) The direction to move in. Mandatory, must be E or W.

NOTE The following two parameters are optional and mutually exclusive. If neither is used, the dish moves until stopped.

---

steps   (integer) Angle in steps to move. Must be 1-127.

seconds   (integer) Time in seconds to move. Must be 1-128.

STANDARD RESPONSE RESULTS

None.

stopdish

SYNOPSIS

stopdish pass=manager

DESCRIPTION

Stops the dish using an externally attached DiSEqC positioner. This command is only available on the Torpedo DVB-S/S2.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

None.

storelimit

SYNOPSIS

storelimit enables=[bool value] direction=[e, w] pass=manager

DESCRIPTION

Enables or disables limits, and optionally stores the current position of the dish as a limit of an externally attached DiSEqC positioner. This command is only available on the Torpedo DVB-S/S2.

PARAMETERS

enabled   (bool) Whether or not to use limits.

direction   (string) Which direction to set, if any. Optional, must be E or W.

STANDARD RESPONSE RESULTS

None.

storeposition

SYNOPSIS

storeposition position=[1-99] pass=manager

DESCRIPTION

Stores the current dish position in an externally attached DiSEqC positioner. This command is only available on the Torpedo DVB-S/S2.

PARAMETERS

position	(integer) The location to store the current position at. Mandatory; must be 1-99.

STANDARD RESPONSE RESULTS

None.

gotoposition

SYNOPSIS

gotoposition position=[1-99] pass=manager

DESCRIPTION

Moves the dish to a stored position using an externally attached DiSEqC positioner. This command is only available on the Torpedo DVB-S/S2. The dish angle should already have been stored in the positioner.

PARAMETERS

position   (integer) The position to go to. Mandatory; must be 1-99.

STANDARD RESPONSE RESULTS

None.

Logging Commands

getlogcount

SYNOPSIS

getlogcount pass=manager

DESCRIPTION

Retrieves the number of log entries.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

count   (integer) The number of log entries.

EXAMPLE

```
JCL> getlogcount pass=manager
getlogcount hostname="T1", passwd="manager", count="1", status="0",
   statusstring="Success"
JCL>
```

getlog

SYNOPSIS

```
getlog pass=manager
```

DESCRIPTION

Retrieves the unit's event log. If count is specified, it only returns that number of log entries from the end of the log. If count is omitted, all of the events will be shown.

PARAMETERS

count   (integer) The number of log entries to retrieve. Optional, if omitted all log entries are retrieved.

MULTI-LINE RESULT

A human readable version of the event log is returned. The format of this follows the BSD-SYSLOG format.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> getlog pass=manager
Aug 11 2008 22:19:41 System Notice UnitStarted ResetReason = 'Upgrade
 complete'
Aug 11 2008 22:19:41 System Notice Monitor RF signal locked
Aug 11 2008 22:19:41 System Informational Time External reference
   received
after '0 minutes, 10 sec.' uptime
getlog hostname="S3", status="0", statusstring="Success"
JCL>
```

getlogservers

SYNOPSIS

`getlogservers pass=manager`

DESCRIPTION

Retrieves the configured servers used for logging.

PARAMETERS

None.

MULTI-LINE RESULT

A human readable list of log servers is returned.

STANDARD RESPONSE RESULTS

count   (integer) The number of log servers configured.

EXAMPLE

```
JCL> getlogservers pass=manager
192.168.0.253 SYSLOG
192.168.0.56 SNMP public
getlogservers hostname="T1", count="2", status="0", statusstring=
   "Success"
JCL>
```

addlogserver

SYNOPSIS

addlogserver server=<server IP> protocol=[syslog, snmp] pass=manager

DESCRIPTION

Adds a remote target for logging.

PARAMETERS

server	(string) The name of the remote server. Mandatory.
protocol	(string) Either syslog or SNMP. Mandatory.
community	(string) SNMP community. Mandatory for SNMP, ignored otherwise.

EXAMPLE

```
JCL> addlogserver server=10.6.230.107 protocol=syslog pass=manager
addlogserver hostname="T1", passwd="manager", server="10.6.230.107",
  protocol="syslog", status="0", statusstring="Success"
JCL>
```

dellogserver

SYNOPSIS

dellogserver server=<server IP> protocol=[syslog, snmp] pass=manager

DESCRIPTION

Removes a remote logging target (i.e., the Server's IP and Protocol (Syslog or SNMP).

PARAMETERS

server	(string) The name of the remote server. Mandatory.
protocol	(string) The protocol, either syslog or SNMP. Mandatory.
community	(string) The SNMP community string. Mandatory for SNMP, ignored otherwise.

EXAMPLE

```
JCL> dellogserver server=10.6.230.107 protocol=syslog pass=manager
JCL>
```

Stream Management Commands

getstreaminfo

SYNOPSIS

getstreaminfo index=<index> format=<format> pass=manager

DESCRIPTION

Retrieves information on the currently active streams.

PARAMETERS

index	(integer) The stream to obtain information on. Optional; if omitted information on all the streams is returned.
format	(string) Specifies the output format, valid values are STD or XML. Optional, default is STD. Slightly more information is available when using the XML format for output.

MULTI-LINE RESULT

The multi-line result is returned in the format requested, see examples for details.

STANDARD RESPONSE RESULTS

None.

EXAMPLES

Standard Output For All Streams With Channel 4 Streaming:

```
JCL> getstreaminfo format="std"
Stream 0: 228.99.101.1:1234 SIPIDS 257
Stream 1: 227.12.13.15:1234 257 6017 6018 6019
Bitrate: 3.84 Mbit/s
Stream 2: 0.0.0.0:0 NOPIDS
Stream 3: 0.0.0.0:0 NOPIDS
Stream 4: 0.0.0.0:0 NOPIDS
Stream 5: 0.0.0.0:0 NOPIDS
Stream 6: 0.0.0.0:0 NOPIDS
Stream 7: 0.0.0.0:0 NOPIDS
Stream 8: 0.0.0.0:0 NOPIDS
Stream 9: 0.0.0.0:0 NOPIDS
getstreaminfo hostname="T1", status="0", statusstring="Success"
JCL>
```

xml Output of Stream 1, with 'Five' Streaming:

```
JCL> getstreaminfo index=1, format="xml"
<?xml version="1.0"?>
<getstreaminfo>
  <streams>
    <stream index="1" address="227.12.13.15" port="1234" ttl="1"
  dscp="CS0"
      bitrate="4548096"
      <services>
        <service id="12866">
          <name>Five</name>
        </service>
      </services>
      <pids>
        <pid>0</pid>
        <pid>257</pid>
        <pid>6017</pid>
        <pid>6018</pid>
        <pid>6019</pid>
      </pids>
    </stream>
  </streams>
</getstreaminfo>
getstreaminfo hostname="T1", index="1", format="xml", status="0",
  statusstring="Success"
JCL>
```

If a service scan is in progress, getstreaminfo will return an error.

getsap

getsap pass=manager

DESCRIPTION

Determines if sending of Session Announcement Protocol messages (SAP), for the outgoing multicast streams, is currently enabled or disabled.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

enable   (bool) TRUE if SAP is enabled; false otherwise

EXAMPLE

```
JCL> getsap pass=manager
getsap hostname="T1", passwd="manager", enable="FALSE", status="0",
   statusstring="Success"
JCL>
```

setsap

SYNOPSIS

setsap enable=[true, false] pass=manager

DESCRIPTION

Enables or disables sending of Session Announcement Protocol (SAP) messages for the outgoing multicast streams.

PARAMETERS

enable   (bool) TRUE to enable SAP; FALSE to disable it. Mandatory.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> setsap enable=true pass=manager
setsap hostname="T1", passwd="manager", enable="true", status="0",
   statusstring="Success"
JCL>
```

addserviceip

```
addserviceip parameter=value [parameter=value ...] pass=manager
```

DESCRIPTION

Adds an IP target to a service and optionally starts that service streaming.

PARAMETERS

lcn	(integer) Logical Channel Number of the service. Optional. See <u>custom_lcn</u> below.
custom_lcn	(integer) The Logical Channel Number that will be added to custom SI (Service Information) packets for the service. If this parameter is not supplied and custom SI is streamed, then the service's logical channel number will be the one that was sent by the broadcaster. Optional.
frequency	(string) Frequency of mux. Recommended when Original Network ID or Transport stream ID cannot be guaranteed to be unique. Frequency should be MHz or Hz for DVB-T, GHz or kHz for DVB-S.
symbol_rate	(string) Symbol rate. Mandatory for DVB-S if frequency is supplied, ignored otherwise. Should be kSym/s (kBaud) or Sym/s (Baud).
polarisation	(string) Polarisation. H or V mandatory for DVB-S if frequency is supplied, ignored otherwise.
onid	(integer) Original network ID. Alternative to frequency when ON ID and TS ID are known to be unique.
tsid	(integer) Transport Stream ID. Mandatory if onid is supplied, ignored otherwise.
sid	(integer) Service ID. Mandatory if LCN is omitted, ignored otherwise.
ip	(ip) Target IP address. Mandatory.
port	(integer) Target port. Mandatory.
ttl	(integer) Target time-to-live. Optional; default is 64.
dscp	(string) Differentiated Services Code Point (QOS) Optional; default is "CS0".

tune	(bool) Set to TRUE to tune into the multiplex containing the service. Optional; default is FALSE. Has no effect if the board is already tuned to that multiplex.
start	(bool) Set to TRUE to mark the service as enabled for streaming. Optional; default is FALSE.

STANDARD RESPONSE RESULTS

None.

If a service scan is in progress, addserviceip will return an error.

EXAMPLE

```
JCL> addserviceip lcn=68 ip=230.6.230.160 port=9022 pass=manager
JCL>
```

delserviceip

delserviceip parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Removes an IP target, specified by ip and port from a service.

If a service is enabled for streaming and, after delserviceip is run, the service has no other IP targets, its enabled flag will be cleared.

If the IP target parameters ip and port are omitted, all the IP targets for the given service are removed.

PARAMETERS

lcn	(integer) Logical channel number of the service. Optional.
frequency	(string) Frequency of mux. Recommended when Original Network ID or Transport stream ID cannot be guaranteed to be unique. Frequency should be MHz or Hz for DVB-T, GHz or kHz for DVB-S.
symbol_rate	(string) Symbol rate. Mandatory for DVB-S if frequency is supplied, ignored otherwise. Should be kSym/s (kBaud) or Sym/s (Baud).
polarisation	(string) Polarisation. H or V mandatory for DVB-S if frequency is supplied, ignored otherwise.
onid	(integer) Original network ID. Alternative to frequency when ON ID and TS ID are known to be unique.
tsid	(integer) Transport Stream ID. Mandatory if onid is supplied, ignored otherwise.
sid	(integer) Service ID. Mandatory if LCN is omitted, ignored otherwise.
ip	(ip) Target IP address. Optional.
port	(integer) Target port. Mandatory only if ip is given.

STANDARD RESPONSE RESULTS

None.

If a service scan is in progress, delserviceip will return an error.

EXAMPLE

```
JCL> delserviceip lcn=68 ip=230.6.230.160 port=9022 pass=manager
JCL>
```

startservice

SYNOPSIS

startservice parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Enables a service for streaming. The service must have at least one IP target for this command to take effect.

- If the service is on the currently tuned multiplex, it will start streaming.

- If it is on any other multiplex, the enabled flag is set to indicate that the user has requested this service for streaming. If that multiplex is later selected, the service will start streaming.

PARAMETERS

lcn	(integer) Logical channel number of the service. Optional.
frequency	(string) Frequency of mux. Recommended when Original Network ID or Transport stream ID cannot be guaranteed to be unique. Frequency should be MHz or Hz for DVB-T, GHz or kHz for DVB-S.
symbol_rate	(string) Symbol rate. Mandatory for DVB-S if frequency is supplied, ignored otherwise. Should be kSym/s (kBaud) or Sym/s (Baud).
polarisation	(string) Polarisation. H or V mandatory for DVB-S if frequency is supplied, ignored otherwise.
onid	(integer) Original network ID. Alternative to frequency when ON ID and TS ID are known to be unique.
tsid	(integer) Transport Stream ID. Mandatory if onid is given.
sid	(integer) Service ID. Mandatory if LCN is omitted, ignored otherwise.

STANDARD RESPONSE RESULTS

None.

If a service scan is in progress, startservice will return an error.

EXAMPLE

```
JCL> startservice lcn=68 pass=manager
JCL>
```

stopservice

SYNOPSIS

```
stopservice parameter=value [parameter=value ...] pass=manager
```

DESCRIPTION

Stops streaming a service. The enabled flag, which marks a service as having been requested for streaming, will be cleared. If the service is on the currently tuned multiplex, it will stop streaming immediately.

PARAMETERS

all	(bool) If TRUE, other parameters will be ignored and all services with the stream enabled flag set will have it cleared. Optional; default is FALSE.
lcn	(integer) Logical channel number of the service. Optional.
frequency	(string) Frequency of mux. Recommended when Original Network ID or Transport stream ID cannot be guaranteed to be unique. Frequency should be MHz or Hz for DVB-T, GHz or kHz for DVB-S.
symbol_rate	(string) Symbol rate. Mandatory for DVB-S if frequency is supplied, ignored otherwise. Should be kSym/s (kBaud) or Sym/s (Baud).
polarisation	(string) Polarisation. H or V mandatory for DVB-S if frequency is supplied, ignored otherwise.
onid	(integer) Original network ID. Alternative to frequency when ON ID and TS ID are known to be unique.
tsid	(integer) Transport Stream ID. Mandatory if onid is given.
sid	(integer) Service ID. Mandatory if onid is given.

STANDARD RESPONSE RESULTS

None.

If a service scan is in progress, stopservice will return an error.

EXAMPLE

```
JCL> stopservice lcn=68 pass=manager
JCL>
```

getsdns

SYNOPSIS

getsdns pass=manager

DESCRIPTION

Retrieves the current Service Discovery stream address and mode. This consists of the IP address target parameters and the data mode in use. See setsdns for more details.

PARAMETERS

None

STANDARD RESPONSE RESULTS

ip	(ip) Target IP address.
port	(integer) Target port.
ttl	(integer) Target time-to-live.
dscp	(string) Differentiated Services Code Point (QOS).
mode	(string) Service information stream mode.

EXAMPLE

```
JCL>  getsdns pass=manager
getsdns hostname="T1", passwd="manager", ip="224.0.23.14", port=
    "3937", ttl="1", dscp="CS0", mode="off", status="0", statusstring=
    "Success"
JCL>
```

setsdns

SYNOPSIS

setsdns parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Sets the Service Discovery stream address and mode. This command can be used to change the destination and mode of the service information stream.

PARAMETERS

ip	(ip) Target IP address. Optional; existing value unchanged if not provided.
port	(integer) Target port. Mandatory if ip is given.
ttl	(integer) Target time-to-live. Optional if ip is given; default is 64.
dscp	(string) code point. Optional if ip is given; default is CS0.
mode	(string) Service information stream mode. Valid values are off, raw, si and stp. Optional; existing value unchanged if not provided.

STANDARD RESPONSE RESULTS

None.

The Service Discovery stream provides a mechanism for the unit to send out service information reflecting what it is currently streaming. We support the following modes:

OFF	The service information stream is disabled.
RAW	In RAW mode, the unit streams an unmodified copy of the incoming multiplex' service information. This will include all the DVB-SI PIDs and tables along with the PMT packets for the whole multiplex.

| SI | In SI (Service Information) mode, the unit streams specially constructed DVB Service Description (Other) Tables. Each service has a Service descriptor and a <u>Private Descriptor</u> (see following section) giving the multicast addresses of the streams. Descriptors are only present for the services which we are currently streaming. |
| STP | In STP mode, the unit sends a DVB STP (DVB Service Discovery Transport Protocol) stream. This stream contains Service Provider tables, which could be used by a compatible Home Network End Device (HNED) to obtain a list of services available on the network. |

Private Descriptor

In <u>SI</u> mode, the private descriptor is defined as follows:

```
ipv4_address_descriptor() {
descriptor_tag 8 uimsbf used-defined tag 0xa0
descriptor_length 8 uimsbf
tgt_address 32 uimsbf multicast address of stream
tgt_port 16 uimsbf multicast port of stream
src_address 32 uimsbf IP address of source
src_port 16 uimsbf IP port of source
}
```

tgt_address:	32 bit IP_V4 address that this service is being streamed to.
tgt_port:	16 bit IP_V4 port number that this service is being streamed to.
src_address:	32 bit IP_V4 address of the board that is streaming this service.
src_port:	16 bit IP_V4 port number that the multiplex is being streamed to.

The source address along with the Original Network ID, Transport Stream ID and Service ID will uniquely identify a stream on the network.

The unit will also stream Event Information present/following (Other) Tables that contain up-to-date information on each of the services being streamed. Both types of table are added to the stream at 2 second intervals.

EXAMPLE

```
JCL> setsdns hostname=Torpedo1 ip=224.0.23.14 port=3937 pass=
  manager
setsdns hostname="T1", ip="224.0.23.14", port="3937" passwd=
  "manager", status="0", statusstring="Success"
JCL>
```

getdvbsimode

SYNOPSIS

getdvbsimode pass=manager

DESCRIPTION

Determines if the inclusion of DVB service information data in the outgoing streams is currently enabled or disabled.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

enable   (bool) TRUE if DVB-SI (Service Information) data is included in the outgoing streams; false otherwise

EXAMPLE

```
JCL> getdvbsimode pass=manager
getdvbsimode hostname="T1", passwd="manager", enable="FALSE",
   status="0", statusstring="Success"
JCL>
```

setdvbsimode

setdvbsimode enable=[true,false] pass=manager

DESCRIPTION

Enables or disables DVB-SI (Service Information) mode. When Enabled, the outgoing streams will contain DVB Service Information data including Service Description Tables (SDT), Event Information Tables (EIT), Time & Data Tables (TDT) and Time Offset Tables (TOT)

PARAMETERS

enable	(bool) TRUE to enable inclusion of DVB-SI data; FALSE to disable it. Mandatory.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> setdvbsimode enable=true pass=manager
setdvbsimode hostname="T1", passwd="manager", enable="true", status=
   "0", statusstring="Success"
JCL>
```

gettypemask

SYNOPSIS

gettypemask pass=manager

DESCRIPTION

Retrieves the current elementary stream mask settings.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

video	(bool) If TRUE, video elements are included.
audio	(bool) If TRUE, audio elements are included.
subtitle	(bool) If TRUE, subtitle elements are included.
mheg	(bool) If TRUE, MHEG elements are included.
data	(bool) If TRUE, data elements are included.
other	(bool) If TRUE, 'other' elements are included.

EXAMPLE

```
JCL> gettypemask pass=manager
gettypemask hostname="TorpedoCH", passwd="manager", video="TRUE",
   audio="TRUE", subtitle="TRUE", mheg="TRUE", data="TRUE", other=
   "TRUE", status="0", statusstring="Success"
JCL>
```

settypemask

SYNOPSIS

settypemask parameter=value [parameter=value ...] pass=manager

DESCRIPTION

Sets the elementary stream type mask values. This global filter applies to all the outgoing streams. It controls which types of elementary streams, which services consist of, will be replicated into the outgoing streams.

PARAMETERS

video	(bool) If TRUE, include video elements. Optional; default is current setting.
audio	(bool) If TRUE, include audio elements. Optional; default is current setting.
subtitle	(bool) If TRUE, include subtitle elements. Optional; default is current setting.
mheg	(bool) If TRUE, include MHEG elements. Optional; default is current setting.
data	(bool) If TRUE, include data elements. Optional; default is current setting.
other	(bool) If TRUE, include other elements. Optional; default is current setting.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> settypemask video=TRUE audio=TRUE subtitle=FALSE pass=manager
settypemask hostname="T1", passwd="manager", video="TRUE", audio=
   "TRUE", subtitle="FALSE", status="0", statusstring="Success"
JCL>
```

This would cause the unit to only pass the video and audio components of the outgoing streams.

Update Management Commands

updatefirmware

SYNOPSIS

updatefirmware url=<url> pass=manager

DESCRIPTION

Updates the unit's firmware.

PARAMETERS

url   (string) The URL to update from. Optional; default is current setting.

MULTI-LINE RESULT

The update progress is displayed in a human readable form.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> updatefirmware url=http://10.6.230.98/update.xml pass=manager
Updating from http://10.6.230.98/update.xml
Suitable upgrade file at http://10.6.230.98/torpedo-v2.img
Downloading update file 0%
Downloading update file 1%
Downloading update file 2%
Downloading update file 3%
.
.
Downloading update file 99%
Downloading update file 100%
Stopping all streaming services.
Validating update file.
Update file validated, preparing for update.
DO NOT SWITCH OFF! Formatting new update.
.
.
Version 2.0.16517
JCL>
```

getupdateconf

SYNOPSIS

```
getupdateconf  pass=manager
```

DESCRIPTION

Retrieves the current update configuration.

PARAMETERS

None.

STANDARD RESPONSE RESULTS

url	(string) The URL to update from.
period	(integer) The period in minutes at which to check for new updates.

EXAMPLE

```
JCL> getupdateconf  pass=manager
1CH", passwd="manager", url="", period="0", status="0", statusstring=
   "Success"
JCL>
```

setupdateconf

SYNOPSIS

setupdateconf url=<url> period=value pass=manager

DESCRIPTION

Sets the update configuration.

PARAMETERS

url	(string) The URL to update from.
period	(integer) The period in minutes to check for new updates. Optional, default to current value. If this value is given as 0, automatic update checking is disabled.

STANDARD RESPONSE RESULTS

None.

EXAMPLE

```
JCL> setupdateconf url=http://10.6.230.98/update.xml period=1 pass=
   manager
setupdateconf hostname="T1", passwd="manager", url=
   "http://10.6.230.98/update.xml", period="1", status="0", statusstring=
   "Success"
JCL>
```

APPENDIX B: Technical Specifications

This appendix lists the technical specifications for the Torpedo.

Topics In This Appendix

Input Interfaces

Torpedo Blade (x-380-x)	
Input Interface (x-380-T2 models)	
DVB-T, DVB-T2	75 ohm IEC 169-2 aerial input connector 75 ohm IEC 169-2 aerial output connector (for pass-through)
Input Interface (x-380-S2 models)	
DVB-S, DVB-S2	75 ohm F-type input connector 75 ohm F-type output connector (pass-through is not implemented)
CAM Module (x-380-xxCAM models)	
	DVB-CI (EN 50221) Decryption of multiple channels with suitable CAM and subscription card

Streaming Protocols

Streaming Protocols	
	Unicast Streaming
	Multicast Streaming
	MPEG Transport Stream over UDP
	10/100 Base-T network
	Session Announcement Protocol (SAP)

Management and Control

Management and Control	
IP	10/100 Base-TX Ethernet
USB	USBv1.1 interface for control and configuration

Capacities

Capacities	
Simultaneous Streams	15 unicast/multicast channels from a single multiplex

Chassis Options

Single Blade Appliance

Torpedo - Single Blade Appliance (S-380-x)	
Dimensions (H x W x D)	41mm H x 143mm W x 220 mm D (1.7" x 5.75" x 8.7")
Weight	Approximately 1.1 kg [2.42 lbs.]
Power Requirements	5VDC, 8W (each blade) 100-240VAC 10W via external DC adaptor
Temperature	0° to 50° C [32° to 122° F] operating -40° to 70° C [-40° to 158° F] non-operating
Relative Humidity	DVB-S/S2: Up to 85% without condensation DVB-T/T2: Up to 90% without condensation
Certification	CE, CB FCC Part 15

6 Blade Chassis

Torpedo - 6 Blade Chassis (F-MB6X-RAC, F-MB6B-MED, F-MB6B-DC)	
Dimensions (H x W x D)	19" rack mountable, 1 RU 43.69mm H x 434.98mm W x 420.37mm D (1.72" x 17.25" x 16.55")
Weight	6 slot empty chassis: 7.94 kg. (17.5 lbs.) Single blade: 230 g. (0.5 lbs.)

Power Requirements	Single Internal Power Supply:
	• AC type 90-264VAC 47Hz-63Hz
	                          200 Watt max.
	• Medical Grade 90-264VAC 47Hz-63Hz
	                          300 Watt max.
	• DC type 20-36 VDC
	                          200 Watt max.

Torpedo - 6 Blade Chassis (F-MB6X-RAC, F-MB6B-MED, F-MB6B-DC)	
Temperature	0° to 50° C [32° to 122° F] operating -40° to 70° C [-40° to 158° F] non-operating
Relative Humidity	DVB-S/S2: Up to 85% without condensation DVB-T/T2: Up to 90% without condensation

21 Blade Chassis

Torpedo - 21 BLADE CHASSIS (F-280-21DPS)	
Dimensions (H x W x D)	19" rack mountable, 4 RU 178mm H x 445mm W x 400mm D (7.00" x 17.50" x 15.75")
Weight	21 slot empty chassis (2 x PSU) – 9 kg / 20 lbs. 21 slot empty chassis (1 x PSU) – 8 kg / 18 lbs. Single blade – 230 g / 0.5 lbs.
Power Requirements	Internal Power Supply Supports voltages ranging from 90 to 132V and 180 to 264V AC 47Hz-63Hz
Temperature	0° to 40° C [32° to 104° F] operating -40° to 70° C [-40° to 158° F] non-operating
Relative Humidity	DVB-S/S2: Up to 85% without condensation DVB-T/T2: Up to 90% without condensation

APPENDIX C: Warranty Information

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and against any and all Claims incurred by or on behalf of any of the foregoing in the investigation or defense of any and all such Claims.

6.   OTHER PROVISIONS

6.1   Export and Other Restrictions. This Agreement, and all Your rights and Your obligations under this Agreement, are subject to all applicable Canadian and U.S. Government laws and regulations relating to exports including, but not limited to, the U.S. Department of Commerce Export Administration Regulations and all administrative acts of the U.S. Government thereunder. In the event the Licensed Software or the Hardware is exported from the United States or re-exported from a foreign destination, You shall ensure that the distribution and export/re-export of the Licensed Software or the Hardware is in compliance with all laws, regulations, orders, or other restrictions of the U.S. Export Administration Regulations. You agree that neither it nor any of its Affiliates will export/re-export any Licensed Software, Hardware, technical data, process, Products, or service, directly or indirectly, to any country for which the Canadian government or United States government (or any agency thereof) requires an export license, other governmental approval, or letter of assurance, without first obtaining such license, approval or letter.

6.2   Publicity. Neither party shall make or authorize or permit any other person to make any announcement or other like statement concerning this Agreement or the subject matter, terms or conditions hereof, without the other party's prior written consent.

6.3   Transfer and Assignment. Haivision may assign, sublicense, or transfer this Agreement and/or any or all of its rights or obligations hereunder. You may not assign, transfer or delegate any of its rights or obligations hereunder (whether by operation of law or otherwise) without the prior written consent of Haivision. Any unauthorized assignment, transfer or delegation by You shall be null and void. No other Person shall have or acquire any right under or by virtue of this Agreement.

6.4   Waiver and Amendment. No modification, amendment or waiver of any provision of this Agreement shall be effective. No failure or delay by either party in exercising any right, power or remedy under this Agreement, except as specifically provided herein, shall operate as a waiver of any such right, power or remedy. Without limiting the foregoing, any terms and conditions of the Entitlement or similar materials submitted by either party to the other shall be of no force or effect.

6.5   Enforcement by Third Party. For any Licensed Software licensed by Haivision from other suppliers, the applicable supplier is a third party beneficiary of this Agreement with the right to enforce directly the obligations set forth in this Agreement against You.

6.6   Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Province of Québec, Canada and the Laws of Canada applicable therein (excluding any conflict of laws rule or principle, foreign or domestic).

6.7   Severability. If any provision of this Agreement is held by a court of competent jurisdiction to be contrary to law, such provision shall be changed and interpreted so as to best accomplish the objectives of the original provision to the fullest extent allowed by law and the remaining provisions of this Agreement shall remain in full force and effect.

6.8   Force Majeure. Neither party shall be liable to the other party for any failure or delay in performance to the extent that such delay or failure is caused by fire, flood, explosion, war, terrorism, embargo, government requirement, labor problems, export controls, failure of utilities, civil or military authority, act of God, act or omission of carriers or other similar causes beyond its control. If any such event of force majeure occurs, the party delayed or unable to perform shall give immediate notice to the other party, and the party affected by the other's delay or inability to perform may elect, at its sole discretion, to terminate this Agreement or resume performance once the condition ceases, with an option in the affected party to extend the period of this Agreement up to the length of time the condition endured. Unless written

notice is given within 30 calendar days after the affected party is notified of the condition, the latter option shall be deemed selected. During an event of force majeure, the affected party shall exercise reasonable effort to mitigate the effect of the event of force majeure.

If you have questions, please contact Haivision Systems Inc., 4445 Garand, Montréal, Québec, H4R 2H9

Canada.