



HAIVISION

Kraken

Kraken API v2.0 Integrator's Guide

HVS-ID-INT-KRAK-38, Issue 01

Edition Notice

© 2015-2023 Haivision. All rights reserved.

This edition and the products it describes contain proprietary and confidential information. No part of this content may be copied, photocopied, reproduced, translated or reduced to any electronic or machine-readable format without prior written permission of Haivision. If this content is distributed with software that includes an end-user agreement, this content and the software described in it, are furnished under license and may be used or copied only in accordance with the terms of that license. Except as permitted by any such license, no part of this content may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, without the prior written permission of Haivision Systems, Inc. Please note that the content is protected under copyright law even if it is not distributed with software that includes an end-user license agreement.

About Haivision

Founded in 2004, Haivision is now a market leader in enterprise video and video streaming technologies. We help the world's top organizations communicate, collaborate and educate. Recognized as one of the most influential companies in video by Streaming Media and one of the fastest growing companies by Deloitte's Technology Fast 500, organizations big and small rely on Haivision solutions to deliver video. Headquartered in Montreal, Canada, and Chicago, USA, we support our global customers with regional offices located throughout the United States, Europe, Asia and South America.

Trademarks

The Haivision logo, Haivision, and certain other marks are trademarks of Haivision. CoolSign is a registered trademark licensed to Haivision Systems, Inc. All other brand or product names identified in this document are trademarks or registered trademarks of their respective companies or organizations.

Disclaimer

The information contained herein is subject to change without notice. Haivision assumes no responsibility for any damages arising from the use of this content, including but not limited to, lost revenue, lost data, claims by third parties, or other damages.

If you have comments or suggestions, please contact infodev@haivision.com.

While every effort has been made to provide accurate and timely information regarding this product and its use, Haivision Systems Inc. shall not be liable for errors or omissions contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Contents

Edition Notice	2
About Haivision	2
Trademarks	2
Disclaimer	2
Contents	3
About This Document	4
Conventions	4
Typographic Conventions and Elements	4
Action Alerts	4
Obtaining Documentation	5
Getting Service Support	5
REST Informational Links	7
URI Structure	8
Session-Based Authentication	10
Example	10
Accessing API v2.0 Documentation	12
Warranties	15
1-Year Limited Hardware Warranty	15
EXCLUSIONS AND LIMITATIONS	15
OBTAINING WARRANTY SERVICE	16
APPLICABLE LAW	16
EULA - End User License Agreement	17
READ BEFORE USING	17
SLA - Service Level Agreement	17
1. Introduction	17
2. Definitions	17
3. Service Levels for the Video Content Management System	17
4. Exceptions to Availability for the VCMS	18
5. Credits for Downtime for the VCMS	19
6. Support Services for the VCMS	19
7. Service Levels for Haivision Streaming Media Service	20
8. Credits for Outages of Haivision Streaming Media Service	20
9. No Secondary End User Support	20
Getting Help	21

About This Document

Conventions

The following conventions are used to help clarify the content.

Typographic Conventions and Elements

<i>Italics</i>	Used for the introduction of new terminology, for words being used in a different context, and for placeholder or variable text.
bold	Used for strong emphasis and items that you click, such as buttons.
Monospaced	Used for code examples, command names, options, responses, error messages, and to indicate text that you enter.
>	In addition to a math symbol, it is used to indicate a submenu. For instance, File > New where you would select the New option from the File menu.
...	Indicates that text is being omitted for brevity.

Action Alerts

The following alerts are used to advise and counsel that special actions should be taken.



Tip

Indicates 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. This alert 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. It may also be used to alert against unsafe practices.

⚠ Warning

Indicates a potentially hazardous situation that may result in physical harm to the user.

Obtaining Documentation

This document was generated from the Haivision InfoCenter. To ensure you are reading the most up-to-date version of this content, access the documentation online at <https://doc.haivision.com>. You may generate a PDF at any time of the current content. See the footer of the page for the date it was generated.

Getting Service Support

For more information regarding service programs, training courses, or for assistance with your support requirements, contact Haivision Technical Support using our Support Portal at: <https://support.haivision.com>.

⚠ Important

Kraken REST API v1.0 has been deprecated and replaced by API v2.0.

Introduced as part of Kraken release 3.0, the Kraken API v2.0 is a modern REST API stack that provides all functionality from the Kraken Web UI and is also harmonized with other Haivision appliances.

Kraken API v2.0 is designed for system integrators to incorporate stream configuration and management from Kraken into their management software for applications deployed within tactical communications kits.

To authenticate against a Kraken server, see [Session-Based Authentication](#).

The REST API documentation for API v2.0 is available on every Kraken device at the `/apidoc` route. For instance, when appending to your Kraken hostname, the API documentation is available at `https://kraken.example.com /apidoc`. See [Accessing API v2.0 Documentation](#).

Topics Discussed

- [REST Informational Links](#)
- [URI Structure](#)
- [Session-Based Authentication](#)
- [Accessing API v2.0 Documentation](#)

REST Informational Links

Following are some useful external references to learn more about REST (Representational state transfer):

- [Architectural Styles and the Design of Network-based Software Architectures](#) (dissertation by Roy Fielding)
- [Representational State Transfer](#) (Wikipedia entry)
- [REST Anti-Patterns](#)

URI Structure

Note

"foobar" is a placeholder name intended to represent whatever is being discussed.

Method	URI	Notes
GET	/foobars	Returns a collection of the foobar entities. By default, items in the list are a minimal representation of a foobar entity. Note that we use the plural for the directory name.
POST	/foobars	Creates a foobar entity and returns a link to entity in the form /foobars/foobar- {id}.
GET	/foobars/foobar- {id}	Returns the full content of the foobar identified by the given id. Note that we use the singular for the entity name.
PUT	/foobars/foobar- {id}	Updates the contents of a foobar entity.
DELETE	/foobars/foobar- {id}	Deletes the foobar entity.

Sub-elements of a foobar entity are made available as sub-resources of /foobars/foobar- {id}, e.g.:

/foobars/foobar- {id}/bazs/baz- {id}/bloops/bloop- {id}

Note

The ID in each URI comes from the collection preceding it. When a resource contains multiple IDs, the notation does not imply that the IDs are identical. Refer to the collection to get the ID.

Session-Based Authentication

Kraken uses Session-Based Authentication where session data is conveyed within the cookie portion of an HTTP header request.

Kraken enforces that all interactions with it and the API are performed over secure HTTP (i.e., HTTPS). Certificates are required to enable secure communications between the Kraken server and remote clients, and some environments may require certificates NOT be self signed. In these situations, Kraken allows a Kraken Administrator to [Manage Certificates](#) on the Kraken appliance.

In addition to enforcing API interaction over HTTPS, all API requests must also be authenticated. This requires the end user application exercising the Kraken API to authenticate against the login endpoint.

Upon logging in with valid username and password credentials on the `/apis/v2/login` endpoint, the Kraken server will respond with a `204 (No Content)` success status response code, and set a cookie with session data.

Example

To demonstrate this with the `curl` command line application, the following example performs the login action to a remote Kraken server using an example password of `krakenapi` for the `haiadmin` administrator user:

Note

The default password for the Kraken server is provided in the Important Notice postcard, which is shipped with the device or available from the [Download Center](#) on the Haivision [Support Portal](#).

```
> curl -v -X POST https://kraken.example.com/apis/v2/login \  
-H 'Content-Type: application/json' \  
-d '{"username": "haiadmin", "password": "krakenapi" }' \  
-c cookie.txt
```

Curl sends this request:

```
> POST /apis/v2/login HTTP/1.1  
> Host: kraken.example.com  
> User-Agent: curl/7.77.0  
> Accept: */*  
> Content-Type: application/json  
> Content-Length: 48
```

And the Kraken response:

```
< HTTP/1.1 204 No Content
< Server: nginx
< Date: Tue, 08 Mar 2022 23:34:17 GMT
< Connection: keep-alive
< Cache-Control: no-cache, no-store, must-revalidate
< Pragma: no-cache
< Expires: 0
< Set-Cookie: DisplayUnsavedWarning=; Max-Age=100000; Path=/; Secure; SameSite=Strict
< Set-Cookie: id=1NwNImOGcDe4a2yHFUaaPHIicw3ngiCRHPHScQAs; Path=/; HttpOnly; Secure;
SameSite=Strict
< Strict-Transport-Security: max-age=31536000; includeSubDomains
```

The session cookie data is provided in the `id` parameter. By using the `-c cookie.txt` curl command, curl writes the cookie data to a file.

Subsequent API requests can now use that stored cookie in `cookie.txt` to interact with Kraken in an authenticated manner.

For instance, now that the cookie is saved, use it with curl as:

```
> curl -v -X GET https://kraken.example.com/apis/v2/streams \
--cookie cookie.txt
```

Additional information about the programming interfaces available within Kraken are discussed in [Accessing API v2.0 Documentation](#).

Refer to your HTTP protocol tool documentation for how it handles cookie storage and inclusion back in HTTP header requests.

Accessing API v2.0 Documentation

To access the API v2.0 endpoint documentation, simply type in the IP hostname of your Kraken appliance followed by `/apidoc`.

 **Tip**

You can also access the API endpoint documentation on the demo Kraken server at: <https://kraken.demo.haivision.com/apidoc/>

The Kraken API documentation page opens, as shown in the following example:

DEBUGMODE

/v2/debuglogging (GET)
/v2/debuglogging (PUT)

DECKLINK CAPTURE CARD

/v2/decklink (GET)

LICENSE

/v2/license (GET)
/v2/license (PUT)

LOGOUT

/v2/logout (GET)

NDI CAPTURE DEVICE

/v2/devices/ndi (GET)

PRESETS

/v2/presets (GET)
/v2/presets (POST)
/v2/presets/:uuid (DELETE)
/v2/presets/:uuid (PUT)
/v2/presets/:uuid/load (PUT)
/v2/presets/:uuid/startup (PUT)

SERIAL PORTS

/v2/serialports (GET)

SESSION

/v2/session (GET)

SYSTEM

/v2/system/certificates/files (GET)
/v2/system/certificates/files (POST)
/v2/system/certificates/files/:id (DELETE)
/v2/system/certificates/files/:id (GET)
/v2/system/certificates/files/:id/defa (PUT)
/v2/system/certificates/upload (POST)
/v2/system/load (GET)
/v2/system/network (GET)
/v2/system/network (PUT)
/v2/system/reboot (POST)
/v2/system/restapi (GET)
/v2/system/restapi (POST)
/v2/system/restapi/v1/change_key (POST)
/v2/system/security (GET)
/v2/system/security (PUT)
/v2/system/services (GET)

Kraken API Documentation 3.6.0

Kraken API Documentation

DebugMode

DebugMode - /v2/debuglogging (GET) 2.9.0

Get debug mode value

GET

`/apis/v2/debuglogging`

Permission: admin, operator, user

Request

GET https://10.65.11.218/apis/v2/debuglogging?_=1545340321684 HTTP/1.1
Cookie: PHPSESSID=m6os2jfmd4a9p11pdd8bvqsvd5

Success response

```
HTTP/1.1 200 OK
Date: Thu, 20 Dec 2018 21:55:24 GMT
Server: Ha1Web
Expires: Thu, 19 Nov 1981 08:52:08 GMT
Cache-Control: no-store, no-cache, must-revalidate, post-check=0, pre-check=0
Pragma: no-cache
Connection: close
Transfer-Encoding: chunked
Content-Type: application/json

{"enabled": true}
```

DebugMode - /v2/debuglogging (PUT) 2.9.0

Set debug mode value

PUT

`/apis/v2/debuglogging`

Permission: admin, operator

Parameter

Field	Type	Description
enabled	Boolean	(Required) Set to true to enable debug mode; false to disable

Request

Warranties

1-Year Limited Hardware Warranty

Haivision warrants its hardware products against defects in materials and workmanship under normal use for a period of ONE (1) YEAR from the date of equipment shipment ("Warranty Period"). If a hardware defect arises and a valid claim is received within the Warranty Period, at its option and to the extent permitted by law, Haivision will either (1) repair the hardware defect at no charge, or (2) exchange the product with a product that is new or equivalent to new in performance and reliability and is at least functionally equivalent to the original product. A replacement product or part assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever is longer. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes Haivision's property.

EXCLUSIONS AND LIMITATIONS

This Limited Warranty applies only to hardware products manufactured by or for Haivision that can be identified by the "Haivision" trademark, trade name, or logo affixed to them. The Limited Warranty does not apply to any non-Haivision hardware products or any software, even if packaged or sold with Haivision hardware. Manufacturers, suppliers, or publishers, other than Haivision, may provide their own warranties to the end user purchaser, but Haivision, in so far as permitted by law, provides their products "as is".

Haivision does not warrant that the operation of the product will be uninterrupted or error-free. Haivision does not guarantee that any error or other non-conformance can or will be corrected or that the product will operate in all environments and with all systems and equipment. Haivision is not responsible for damage arising from failure to follow instructions relating to the product's use.

This warranty does not apply:

- (a) to cosmetic damage, including but not limited to scratches, dents and broken plastic on ports;
- (b) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes;
- (c) to damage caused by operating the product outside the permitted or intended uses described by Haivision;
- (d) to a product or part that has been modified to alter functionality or capability without the written permission of Haivision; or
- (e) if any Haivision serial number has been removed or defaced.

TO THE EXTENT PERMITTED BY LAW, THIS WARRANTY AND REMEDIES PROVIDED ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, STATUTORY, EXPRESS OR IMPLIED. AS PERMITTED BY APPLICABLE LAW, HAIVISION SPECIFICALLY DISCLAIMS ANY AND ALL STATUTORY OR IMPLIED WARRANTIES,

INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND WARRANTIES AGAINST HIDDEN OR LATENT DEFECTS. IF HAIVISION CANNOT LAWFULLY DISCLAIM STATUTORY OR IMPLIED WARRANTIES THEN TO THE EXTENT PERMITTED BY LAW, ALL SUCH WARRANTIES SHALL BE LIMITED IN DURATION TO THE DURATION OF THIS EXPRESS WARRANTY AND TO REPAIR OR REPLACEMENT SERVICE AS DETERMINED BY HAIVISION IN ITS SOLE DISCRETION. No Haivision reseller, agent, or employee is authorized to make any modification, extension, or addition to this warranty. If any term is held to be illegal or unenforceable, the legality or enforceability of the remaining terms shall not be affected or impaired.

EXCEPT AS PROVIDED IN THIS WARRANTY AND TO THE EXTENT PERMITTED BY LAW, HAIVISION IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOSS OF USE; LOSS OF REVENUE; LOSS OF ACTUAL OR ANTICIPATED PROFITS (INCLUDING LOSS OF PROFITS ON CONTRACTS); LOSS OF THE USE OF MONEY; LOSS OF ANTICIPATED SAVINGS; LOSS OF BUSINESS; LOSS OF OPPORTUNITY; LOSS OF GOODWILL; LOSS OF REPUTATION; LOSS OF, DAMAGE TO OR CORRUPTION OF DATA; OR ANY INDIRECT OR CONSEQUENTIAL LOSS OR DAMAGE HOWSOEVER CAUSED INCLUDING THE REPLACEMENT OF EQUIPMENT AND PROPERTY, ANY COSTS OF RECOVERING, PROGRAMMING, OR REPRODUCING ANY PROGRAM OR DATA STORED OR USED WITH HAIVISION PRODUCTS AND ANY FAILURE TO MAINTAIN THE CONFIDENTIALITY OF DATA STORED ON THE PRODUCT. THE FOREGOING LIMITATION SHALL NOT APPLY TO DEATH OR PERSONAL INJURY CLAIMS, OR ANY STATUTORY LIABILITY FOR INTENTIONAL AND GROSS NEGLIGENT ACTS AND/OR OMISSIONS.

OBTAINING WARRANTY SERVICE

Before requesting warranty service, please refer to the documentation accompanying this hardware product and the Haivision Support Portal <https://support.haivision.com>. If the product is still not functioning properly after making use of these resources, please contact Haivision or Authorized Reseller using the information provided in the documentation. When calling, Haivision or Authorized Reseller will help determine whether your product requires service and, if it does, will inform you how Haivision will provide it. You must assist in diagnosing issues with your product and follow Haivision's warranty processes.

Haivision may provide warranty service by providing a return material authorization ("RMA") to allow you to return the product in accordance with instructions provided by Haivision or Authorized Reseller. You are fully responsible for delivering the product to Haivision as instructed, and Haivision is responsible for returning the product if it is found to be defective. Your product or a replacement product will be returned to you configured as your product was when originally purchased, subject to applicable updates. Returned products which are found by Haivision to be not defective, out-of-warranty or otherwise ineligible for warranty service will be shipped back to you at your expense. All replaced products and parts, whether under warranty or not, become the property of Haivision. Haivision may require a completed pre-authorized form as security for the retail price of the replacement product. If you fail to return the replaced product as instructed, Haivision will invoice for the pre-authorized amount.

APPLICABLE LAW

This Limited Warranty is governed by and construed under the laws of the Province of Quebec, Canada.

This Limited Hardware Warranty may be subject to Haivision's change at any time without prior notice.

EULA - End User License Agreement

READ BEFORE USING

THE LICENSED SOFTWARE IS PROTECTED BY COPYRIGHT LAWS AND TREATIES. READ THE TERMS OF THE FOLLOWING END USER (SOFTWARE) LICENSE AGREEMENT ("AGREEMENT") CAREFULLY BEFORE ACCESSING THE LICENSED SOFTWARE. BY SCANNING THE QR CODE TO REVIEW THIS AGREEMENT AND/OR ACCESSING THE LICENSED SOFTWARE, YOU CONFIRM YOUR ACCEPTANCE OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THESE TERMS, HAIVISION IS UNWILLING TO LICENSE THE LICENSED SOFTWARE TO YOU AND YOU ARE NOT AUTHORIZED TO ACCESS THE LICENSED SOFTWARE.

Click the following link to view the Software End-User License Agreement: [Haivision EULA.pdf](#)

If you have questions, please contact legal@haivision.com

SLA - Service Level Agreement

1. Introduction

This Service Level and Support supplement forms a part of and is incorporated into the Service Agreement (the "Agreement") between You and Haivision Network Video Inc. ("Haivision"). Capitalized terms used but not otherwise defined in this supplement shall have the meaning ascribed to them in the Agreement. Haivision may, upon prior written notice to You, amend this supplement to incorporate improvements to the service levels and support commitments at no additional cost to You. This supplement applies only to those products and services set forth below.

2. Definitions

- "Audience Member" means an individual or entity that accesses Your Published Media Objects through a public URL.
- "Access Service" means the service provided by Haivision VCMS that verifies an Audience Member's credentials.
- "Digital Media File" means a computer file containing text, audio, video, or other content.
- "Outage" is a 12-minute period of consecutive failed attempts by all six agents to PING the domain on the Haivision Streaming Media network.
- "Published Media Object" means a Digital Media File with a public URL.
- "Transaction" means the creation of a right for an Audience Member to access a Media Object and the completion of an order logged in the order history service.

3. Service Levels for the Video Content Management System

The service levels in this [Section 3](#) apply only to the hosted version of Haivision VCMS and the Haivision VCMS development kit (collectively, the "Standard Hosted Components" of Haivision Video Cloud Services). Subject to the exceptions noted in [Section 4](#) below, the aforementioned components of Haivision Video Cloud Services will be available for use over the course of each calendar month as follows:

Type of Access	Definition	Availability Level
Write Functions	<ul style="list-style-type: none"> • Access to all functions through the administrative user interface. • Ability to add or modify objects and metadata through the application programming interface (“API”) • Ability of ingest service to check for new or updated files or feeds 	99.999%
Read-Only Functions	<ul style="list-style-type: none"> • Ability to retrieve data through the API • Ability for Audience Members to authenticate through the Access Service • Ability for Audience Members to play Published Media Objects • Ability for Audience Members to play Haivision VCMS-authenticated or entitled Published Media Objects • Ability to complete Transactions 	99.999%

4. Exceptions to Availability for the VCMS

The Standard Hosted Components may not be available for use under the following circumstances, and in such case such periods of unavailability shall not be counted against Haivision Video Cloud for purposes of calculating availability:

- a. Normal Maintenance, Urgent Maintenance and Upgrades as defined in the table below;
- b. Breach of the Agreement by You as defined in the Agreement;
- c. The failure, malfunction, or modification of equipment, applications, or systems not controlled by Haivision Video Cloud;
- d. Any third party, public network, or systems unavailability;
- e. Acts of Force Majeure as defined in the Agreement;
- f. Modification of software made available to You as part of Haivision Video Cloud Services by You or a third party acting on Your behalf; and
- g. Any third party product or service not incorporated into Haivision Video Cloud Services or any third party plug-in.

Haivision Video Cloud shall make commercially reasonable efforts to notify, or work with, applicable third parties to repair or restore Haivision VCMS functionality affected by such exceptions.

Type of Maintenance	Purpose	Write Functions Available	Read Functions Available	Maximum Time Per Month	Continuous Time in Mode (Max)	Window (Central Time)	Min Notice
Normal	<ul style="list-style-type: none"> • Preventive maintenance on the software/hardware components of Haivision VCMS • Addition of new features/functions • Repair errors that are not immediately affecting Your use of Haivision VCMS 	No	Yes	10 Hours	6 Hours	10:00p m - 5:00a m	48 Hours
Urgent	<ul style="list-style-type: none"> • Repair errors that are immediately affecting Your use of Haivision VCMS 	No	Yes	30 Minutes	15 Minutes	Any Time	3 Hours

Type of Maintenance	Purpose	Write Functions Available	Read Functions Available	Maximum Time Per Month	Continuous Time in Mode (Max)	Window (Central Time)	Min Notice
Upgrades	<ul style="list-style-type: none"> Perform upgrades on software or hardware elements necessary to the long term health or performance of Haivision VCMS, but which, due to their nature, require that certain components of Haivision VCMS to be shut down such that no access is possible 	No	No	1 Hour	1 Hour	12:00am - 4:00am M-F	5 Days

5. Credits for Downtime for the VCMS

Haivision Video Cloud will grant a credit allowance to You if You experience Downtime in any calendar month and you notify Haivision Video Cloud thereof within ten (10) business days after the end of such calendar month. In the case of any discrepancy between the Downtime as experienced by You and the Downtime as measured by Haivision Video Cloud, the Downtime as measured by Haivision Video Cloud shall be used to calculate any credit allowance set forth in this section. Such credit allowance shall be equal to the pro-rated charges of one-half day of Fees for each hour of Downtime or fraction thereof. The term “Downtime” shall mean the number of minutes that Standard Hosted Components are unavailable to You during a given calendar month below the availability levels thresholds in [Section 3](#), but shall not include any unavailability resulting from any of the exceptions noted in [Section 4](#). Within thirty (30) days after the end of any calendar month in which Downtime occurred below the availability levels thresholds in [Section 3](#), Haivision Video Cloud shall provide You with a written report detailing all instances of Downtime during the previous month. Any credit allowances accrued by You may be offset against any and all Fees owed to Haivision Video Cloud pursuant to the Agreement, provided that a maximum of one month of credit may be accrued per month.

6. Support Services for the VCMS

Support for Haivision Video Cloud Services as well as the Application Software (defined as the VCMS application software components that Haivision licenses for use in conjunction with the Video Cloud Services) can be reached at hvc-techsupport@haivision.com and shall be available for all Your support requests. Haivision Video Cloud will provide 24x7 monitoring of the Standard Hosted Components.

Cases will be opened upon receipt of request or identification of issue, and incidents will be routed and addressed according to the following:

Severity Level	Error State Description	Status Response Within	Incident Resolution within
1 - Critical Priority	Renders Haivision VCMS inoperative or causes Haivision VCMS to fail catastrophically.	15 minutes	4 hours
2 - High Priority	Affects the operation of Haivision VCMS and materially degrades Your use of Haivision VCMS.	30 minutes	6 hours
3 - Medium Priority	Affects the operation of Haivision VCMS, but does not materially degrade Your use of Haivision VCMS.	2 hours	12 hours

Severity Level	Error State Description	Status Response Within	Incident Resolution within
4 - Low Priority	Causes only a minor impact on the operation of Haivision VCMS.	1 business day	3 business days

7. Service Levels for Haivision Streaming Media Service

Haivision agrees to provide a level of service demonstrating 99.9% Uptime. The Haivision Streaming Media Service will have no network Outages.

The following methodology will be employed to measure Streaming Media Service availability:

Agents and Polling Frequency

- a. From six (6) geographically and network-diverse locations in major metropolitan areas, Haivision’s Streaming Media will simultaneously poll the domain identified on the Haivision Streaming Media network.
- b. The polling mechanism will perform a PING operation, sending a packet of data and waiting for a reply. Success of the PING operation is defined as a reply being received.
- c. Polling will occur at approximately 6-minute intervals.
- d. Based on the PING operation described in (b) above, the response will be assessed for the purpose of measuring Outages.

If an Outage is identified by this method, the customer will receive (as its sole remedy) a credit equivalent to the fees for the day in which the failure occurred.

Haivision reserves the right to limit Your use of the Haivision Streaming Media network in excess of Your committed usage in the event that Force Majeure events, defined in the Agreement, such as war, natural disaster or terrorist attack, result in extraordinary levels of traffic on the Haivision Streaming Media network.

8. Credits for Outages of Haivision Streaming Media Service

If the Haivision Streaming Media network fails to meet the above service level, You will receive (as your sole remedy) a credit equal to Your or such domain’s committed monthly service fee for the day in which the failure occurs, not to exceed 30 days of fees.

9. No Secondary End User Support

UNDER NO CIRCUMSTANCES MAY YOU PROVIDE CONTACT INFORMATION FOR HAIVISION SERVICES TO CUSTOMERS OR AUDIENCE MEMBERS OR OTHER THIRD PARTIES WITHOUT HAIVISION’S EXPRESS PRIOR WRITTEN CONSENT.

Getting Help

<p>General Support</p>	<p>North America (Toll-Free) 1 (877) 224-5445</p> <p>International 1 (514) 334-5445</p> <p><i>and choose from the following:</i> Sales - 1, Cloud Services - 3, Support - 4</p>
<p>Managed Services</p>	<p>U.S. and International 1 (512) 220-3463</p>
<p>Fax</p>	<p>1 (514) 334-0088</p>
<p>Support Portal</p>	<p>https://support.haivision.com</p>
<p>Product Information</p>	<p>info@haivision.com</p>

