



HAIVISION

Haivision Media Platform 3.0
Command Line API Integrator's Guide

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Edition Notice

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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

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This guide describes how to configure and manage the Haivision Media Platform (HMP) Command Line API to remotely control core HMP functionality such as the creation and management of sessions and recordings. The Command Line API is an alternative to the REST API.

Command Line API Introduction

This content provides an introduction to the Command Line API for Haivision Media Platform (HMP). The HMP Command Line API provides streamlined remote control of core HMP functionality such as the creation and management of sessions and recordings. It is an alternative to the HMP REST API.

For information on the REST API, see the [REST API Integrator's Guide](#).

Topics Include

- [Why Use the Command Line API?](#)
- [HMP Concepts](#)
 - [HMP Objects](#)
 - [HMP Metadata](#)
 - [HMP Permissions](#)
- [Command Line API Syntax](#)
 - [Command Syntax](#)
 - [Response Syntax](#)
 - [Syntax Conventions](#)
- [Enabling Command Line API Access](#)

Why Use the Command Line API?

The Command Line API is designed to enable control system programmers to build custom workflows for HMP. Instead of using a JSON-based REST API, the Command Line API allows programmers to communicate with HMP using plain-text commands sent via a TCP/IP connection.

Using the Command Line API, programmers can perform tasks/actions such as the following:

- Create/Delete a new session
- Add/Remove a source to/from a session
- Create multi-source sessions
- Start/Pause/Resume/Stop a recording
- Get the status of a recording
- Share a session or recording with an HMP user or group
- Add metadata to a session or recording
- Set the category of a session or recording
- Add HotMarks on a recording
- Play a recording as a MPEG-TS stream on a specific multicast IP address and port number

Important

Before using the Command Line API, access must be enabled in the HMP web interface. You cannot do so from the Command Line API. See [Enabling Command Line API Access](#) for details.

HMP Concepts

Topics in this section:

- [HMP Objects](#)
- [HMP Metadata](#)
- [HMP Permissions](#)

HMP Objects

The HMP Command Line API can create and manipulate a variety of objects that reside on the HMP system. This section provides a brief description of their functions.

Identifiers

Each unique HMP object is assigned a randomly generated identifier (ID) when it is created. Commands use these IDs to refer to the specific objects they create or affect.

Source

A *source* is an available (incoming) HMP-compatible MPEG-TS video stream that HMP content creators can use to generate a session.

Session

A *session* is a collection of one to four video sources that are identified to provide live viewing, recording, and metadata storage. See [Sessions API](#).

Recording

A *recording* is a collection of one to four stored videos for playback and metadata storage.

Recording Type	Description
Active Recording	An active recording is a recording that is currently being created by recording a session's sources. When it is paused, it becomes a paused recording. When it is stopped it becomes a finished recording.
Paused Recording	A paused recording is an active recording that has been suspended. When it is resumed, it becomes an active recording. When it is stopped, it becomes a finished recording.
Finished Recording	A finished recording is a recording that has been finalized and is available for playback in its entirety. It is no longer considered active and it may not be paused or resumed.

See [Recordings API](#).

Stream

A *stream* is an HMP-compatible MPEG-TS video stream that is generated by HMP as it restreams a finished recording.

HMP Metadata

HMP uses metadata to provide meaningful information about sessions and recordings. This section provides an overview of the kinds of predefined and custom metadata that HMP supports.

Common Metadata

HMP stores common metadata for sessions and recordings. This type of metadata is defined on all HMP systems (as opposed to custom metadata which is defined by an administrator). The following types of common metadata are used by HMP.

Metadata Type	Description
title	Name given to a session or recording.
description	Free-form text account of a session or recording.
createdby	<div style="border: 1px solid #ccc; padding: 10px; background-color: #fff9c4;"> <p>Note</p> <p>When a session or recording is created from the HMP Web Interface, <code>createdby</code> is automatically set to the HMP user's display name. However, when a session or recording is created from the Command Line API, <code>createdby</code> is not set automatically. See Update Recording Metadata and Update Session Metadata.</p> </div>

HMP's common metadata corresponds with the Dublin Core Metadata Element Set:

HMP Common Metadata	Dublin Core Element
title	title
description	description
createdby	creator

Note

For more information about the Dublin Core Metadata Element Set refer to *IETF RFC 5013*.

Custom Metadata

HMP administrators may define keys and values to identify and store custom metadata for sessions and recordings. From the Command Line API, programmers can assign these keys and values to sessions and recordings. See [Set Recording Category](#) and [Set Session Category](#). Viewers can then select key/value pairs to filter the displayed list of sessions or recordings.

HotMarks

HMP stores HotMarks that indicate points of interest in a recording. Each HotMark is a metadata bookmark that allows viewers to jump to that time in the recording. From the Command Line API, programmers can add HotMarks to annotate an active recording. See [Add a HotMark](#).

HMP Permissions

HMP uses a combination of share permissions and roles with permissions to provide users or groups with controlled access to sessions, videos, and sources. If you do not have permission to at least view a session, video or source, it does not appear in the portal. From the Command Line API, programmers can assign these permissions to users or groups.

User can customize share permissions by granting and revoking specific actions on any available share permission. HMP comes with the default pre-configured share permissions listed below.

For details on share permissions and how to customize them, see "Managing Roles" in the *Haivision Media Platform Administrator's Guide*.

Session Default Share Permissions

Permission Type	Description
OWN	The default OWN permission grants the rights to watch, edit, share, record, change sources, and delete a session.
EDIT	The default EDIT permission grants the rights to watch and edit a session.
WATCH	The default WATCH permission grants the right to watch a session.

See [Share a Session with a User](#) and [Share a Session with a Group](#).

Recording Permissions

Permission Type	Description
OWN	The default OWN permission grants the rights to watch, edit, share, re-stream, trim, download, and delete a video. The OWN recording permission grants a user/group the EDIT recording permission with the additional abilities to give permissions on the recording to other users/groups, to control the recording's expiry behavior, and to delete the session.
EDIT	The EDIT recording permission grants a user/group the VIEW recording permission with the additional abilities to edit the recording's metadata, as well as create, edit, and delete HotMarks on Active, Paused, and Finished recordings.
WATCH	The WATCH recording permission grants a user/group the abilities to view a recording's metadata and to play back its stored video.

See [Share a Recording with a User](#) and [Share a Recording with a Group](#).

Command Line API Syntax

The HMP Command Line API provides a typical line-delimited command/response interface, as shown in the following examples:

Client Command	Server Response
startRecording e3af4dd4-b358-431e-9450-e7c82f64b6df	OK 9eed71ca-d567-4a16-9d9c-26c6c5ad282e
shareRecording someuser OWN 9eed71ca-d567-4a16-9d9c-26c6c5ad282e	OK
stopRecording 9eed71ca-d567-4a16-9d9c-26c6c5ad282e	OK
undefinedCommand "Example of \"Error\""	ERROR Command not found

Command execution is synchronous:

1. HMP reads commands from the TCP/IP connection one at a time.
2. When a command is received, it is executed immediately.
3. After each command has executed, a response is sent to the client device.

Character Set and Encoding

Note

UTF-8 is a compatible superset of the basic US-ASCII character set. For more information on Unicode visit the [Unicode Consortium](#). For more information on UTF-8, refer to *IETF RFC 3629*.

End-Of-Line Character

Note

Many programming languages use the escape sequence `\n` to represent a newline control character in a string. The character codes generated for this newline may differ depending on the programming language and operating system in use.

Command Syntax

HMP follows the standard command-line conventions of a *command* followed by positional *arguments* delimited by spaces. When the command is executed, HMP assigns the values of these arguments to the corresponding *parameters* of the command's definition.

Arguments that contain whitespace (e.g., spaces or tabs) must be represented with quoted strings. Arguments that contain certain special characters must be represented with quoted strings and the special characters must be encoded using escape sequences.

Quoted Strings

HMP uses spaces (code U+0020) to separate the name of command and its list of arguments. Arguments that contain spaces must be represented with quoted strings. A quote character (code U+0022) indicates the beginning or end of a quoted string. For example:

```
updateMetadata UUID title Jan01-Room101
updateMetadata UUID title "January 1st - Room 101"
```

Escape Sequences

Within a quoted string, the backslash character (code U+005C) is used to escape certain special characters. Outside of a quoted string, the backslash character is a normal character. A quote character (code U+0022) indicates the beginning or end of a quoted string.

Escape Sequence	Name	Code
<code>\n</code>	Line feed	U+000A
<code>\"</code>	Quote	U+0020
<code>\\</code>	Backslash	U+005C

Response Syntax

Success

When a command that does not return a result value succeeds, HMP responds with `OK`.

Success with Result

When a command that returns a result value succeeds, HMP responds with OK followed by a | character (code U+007C) followed by the response value.

Error

When a command fails for any reason, HMP responds with:

- ERROR followed by a | character (code U+007C)
- followed by a six-digit error code followed by another | character
- followed by an error message.

The response has the following format: `"ERROR|Code|Error message"`.

For a general list of error messages, see [General Errors](#). Also, refer to command-specific errors listed under each command in [Command Line API Reference](#).

Syntax Conventions

The following syntax conventions are used in this document:

Convention	Description
<code>monospace</code>	Command names and options, filenames, and code samples appear in monospace typeface.
<i>italics</i>	Italic font indicates variables or placeholders that you replace with a user-defined value or name.
[]	Square brackets indicate optional items or parameters. Do not type the brackets.
x y	Vertical bars are used to separate items in a list of options from which you must select one.
...	An ellipsis (...) indicates that the previous option can be repeated multiple times with different values. It can be used inside or outside of brackets.


Enabling Command Line API Access

Access to the Command Line API is based on IP address. By default, the Command Line API is disabled, connections to TCP/IP port 23233 are refused, and no IP address is authorized to access the Command Line API. Any unauthorized attempt to connect to the API results in a "Not Authorized" error response and the connection is closed. The list of IP addresses permitted to access the API is managed from the HMP web interface.

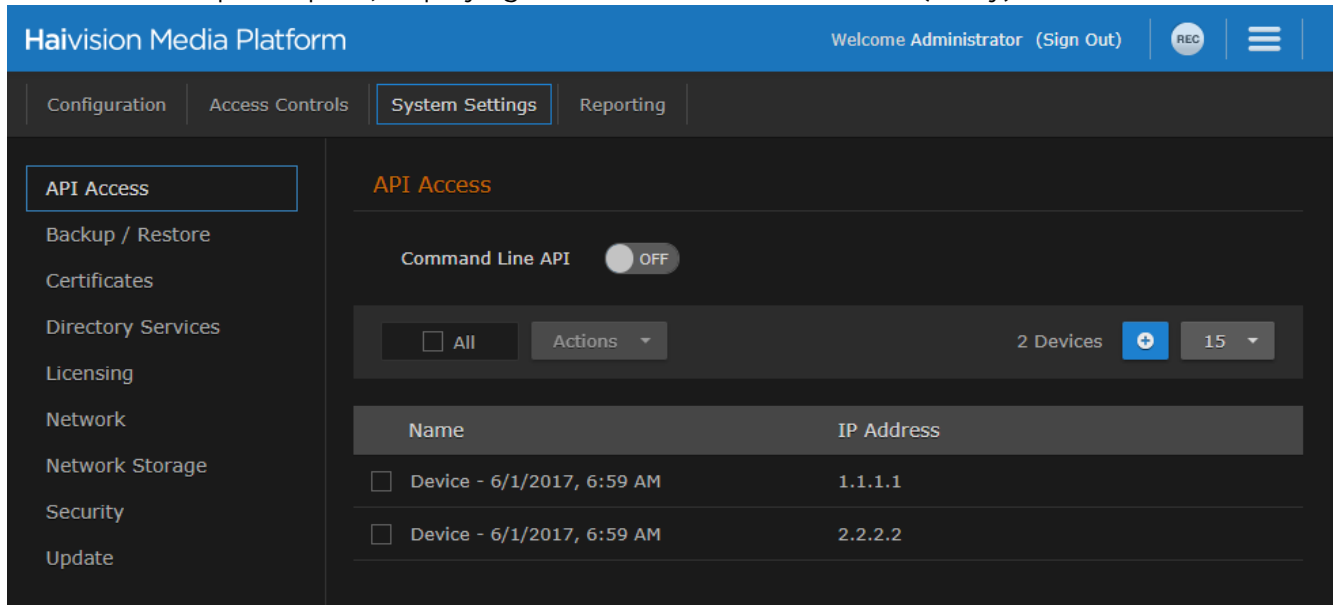
Important

No further authentication is required for the Command Line API.

To activate Command Line API access on HMP:

1. Click the  icon and click **Administration**.
2. Click **System Settings** on the toolbar and then click **API Access** on the sidebar.

The API Access pane opens, displaying the list of authorized devices (if any).



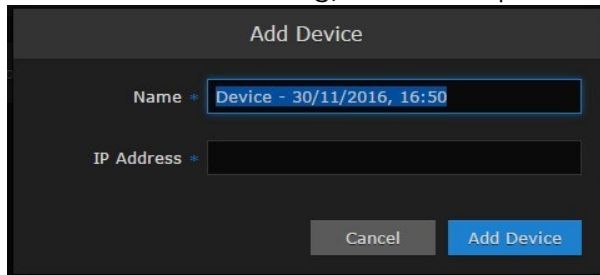
3. Toggle the Command Line API button to **On**.

Note

Toggling this button activates *all* devices in the list.

4. To add a device to the list, click the **+** icon.

5. In the Add Device dialog, enter a unique name that identifies this device.



6. Enter the IP address of the device that will be accessing the Command Line API.

7. Click **Add Device**. The new device is added to the list of authorized devices.

Note

Further changes to the list of authorized devices is applied automatically. You do not need to restart HMP.

Command Line API Reference

⚠ Important

Ensure that you have activated Command Line API access on the HMP system and added your computer to the list of authorized devices. See [Enabling Command Line API Access](#).

📘 Note

You must connect to the HMP Command Line network socket on TCP/IP port 23233. During development, the Telnet utility may be used to connect to HMP on this port, allowing you to execute commands interactively.

Topics Include

- [Summary of Command Line API Commands](#)
- [Sessions API](#)
 - [Create a Session](#)
 - [Set Live Session](#)
 - [Delete a Session](#)
 - [Add a Source to a Session](#)
 - [Remove a Source from a Session](#)
 - [Share a Session with a User](#)
 - [Share a Session with a Group](#)
 - [Update Session Metadata](#)
 - [Set Session Category](#)
- [Recordings API](#)
 - [Start a Recording](#)
 - [Pause a Recording](#)
 - [Resume a Recording](#)
 - [Stop a Recording](#)
 - [Get Recording Status](#)
 - [Share a Recording with a User](#)
 - [Share a Recording with a Group](#)
 - [Update Recording Metadata](#)
 - [Set Recording Category](#)
 - [Add a HotMark](#)
 - [Start Re-streaming a Recording](#)
 - [Stop Streaming a Recording](#)

Summary of Command Line API Commands

Command	Result	Use to...
<code>createSession sessionTitle</code>	<code>sessionId</code>	Create a Session
<code>setLiveSession sessionID active</code>	None	Set Live Session
<code>deleteSession sessionId</code>	None	Delete a Session
<code>addSourceToSession sessionId sourceId</code>	None	Add a Source to a Session
<code>removeSourceFromSession sessionId sourceId</code>	None	Remove a Source from a Session
<code>shareSessionWithUser username permissionId sessionId</code>	None	Share a Session with a User
<code>shareSessionWithGroup groupName permissionId sessionId</code>	None	Share a Session with a Group
<code>updateSessionMetadata sessionId title description createdBy value</code>	None	Update Session Metadata

Command	Result	Use to...
<code>setSessionCategory sessionId categoryId value [value...]</code>	None	Set Session Category
<code>startRecording sessionId</code>	<code>recordingId</code>	Start a Recording
<code>pauseRecording recordingId</code>	None	Pause a Recording
<code>resumeRecording recordingId</code>	None	Resume a Recording
<code>stopRecording recordingId</code>	None	Stop a Recording
<code>getRecordingStatus recordingId</code>	<code>state</code>	Get Recording Status
<code>shareRecordingWithUser username permissionId recordingId</code>	None	Share a Recording with a User
<code>shareRecordingWithGroup groupName permissionId recordingId</code>	None	Share a Recording with a Group
<code>updateMetadata recordingId title description createdBy value</code>	None	Update Recording Metadata
<code>setCategory recordingId categoryId value [value...]</code>	None	Set Recording Category
<code>addHotmark recordingId title</code>	None	Add a HotMark
<code>startRestreamRecording recordingId ip port</code>	<code>streamId</code>	Start Re-streaming a Recording
<code>stopRestreamRecording streamId</code>	None	Stop Streaming a Recording

Sessions API

Topics in this section:

- [Create a Session](#)
- [Set Live Session](#)
- [Delete a Session](#)
- [Add a Source to a Session](#)
- [Remove a Source from a Session](#)
- [Share a Session with a User](#)
- [Share a Session with a Group](#)
- [Update Session Metadata](#)
- [Set Session Category](#)

Create a Session

This command creates a new session and returns a session ID. The session ID is required in later commands.

Authorizations: All

Requests

```
createSession sessionTitle
```

Parameters

Parameter	Description/Values
sessionTitle	<div style="border: 1px solid #ccc; padding: 5px;"> <p>Note</p> <p>The title must be enclosed in quotes if it contains one or more spaces.</p> </div>

Result

Success

```
sessionId
```

Error

Error	Description
ERROR 010003 Expected 1 parameter(s). Got Y parameter(s)	Calling <code>createSession</code> requires 1 parameter.
ERROR 010001 Session name must be at least 1 character	The session title cannot be empty string " ".
ERROR 070019 Failed to create a session	Creating a new session failed. Please see <code>calypso.log</code> for details.

Example

The following example creates a session entitled "Test Session1". The system returns OK and the ID of the new session.

```
createSession "Test Session1"
OK|71edd346-2cf0-4c62-b3d3-9d457b287394
```

Set Live Session

Note

When Multi-site Live was implemented, the default was changed to not-Live. Previously sessions were Live by default.

Authorizations: All

Requests

```
setLiveSession sessionId active
```

Parameters

Parameter	Description/Values
sessionId	The ID of a HMP session.
active	The Live state of the session, either: <ul style="list-style-type: none"> • true (Live) or • false (not-Live)

Result

Success

```
OK
```

Error

Error	Description
ERROR 010003 Expected 2 parameter(s). Got Y parameter(s)	Calling <code>setLiveSession</code> requires 2 parameters.
ERROR 010001 'Y' is not a uuid	The <code>sessionId</code> provided must be a UUID.
ERROR 010001 'Y' is not a boolean	<code>active</code> must be <code>true</code> or <code>false</code>
ERROR 040006 Session not found	The 'session' with UUID ' <code>sessionId</code> ' was not found.

Example

The first example toggles the session Live setting/state to Live (`active = "true"`). The system returns `OK` .

```
setLiveSession 46713454-8e31-4efc-babc-6bc9b88f2834 true
```

```
OK
```

The second example toggles the session Live setting/state to not-Live (`active = "false"`). The system returns `OK` .

```
setLiveSession 46713454-8e31-4efc-babc-6bc9b88f2834 false
```

```
OK
```


Delete a Session

This command deletes an existing session.

Authorizations: All

Request

```
deleteSession sessionId
```

Parameters

Parameter	Description/Values
sessionId	The ID of a HMP session

Result

Success

```
OK
```

Error

Error	Description
ERROR 010003 Expected 1 parameter(s). Got Y parameter(s)	Calling <code>deleteSession</code> requires 1 parameter.
ERROR 010001 'Y' is not a uuid	The <code>sessionId</code> provided must be a UUID.
ERROR 040006 Session not found	The 'session' with UUID ' <code>sessionId</code> ' was not found.
ERROR 060003 Recording currently in progress	The session is being recorded. All recordings for this session must be stopped before it can be removed.
ERROR 070000 Internal Server Error	Database returned an error while removing session. Please see <code>calypso.log</code> for details.


Example

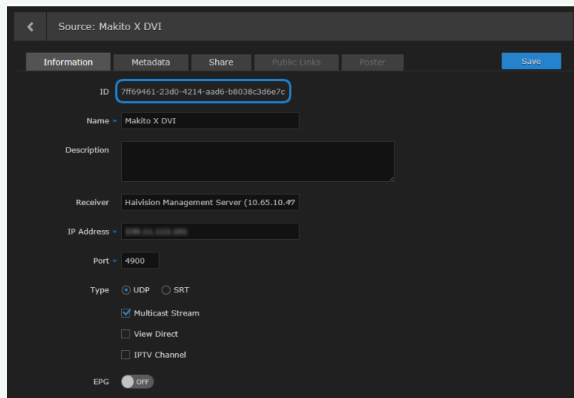
The following example deletes a session entitled "Test Session1". The system returns OK.

```
deleteSession "Test Session1"
OK
```

Add a Source to a Session

Tip

The source ID is generated by HMP when the source is defined. To add a source to a session, go the Web interface ( > **Administration** > **Configuration** > **Sources** and click on the desired source) to get the source ID.



Authorizations: All

Note

To create a multi-source session, you simply add up to four sources to a session, executing the `addSourceToSession` comm and once for each source you wish to add.

Requests

```
addSourceToSession sessionId sourceId
```

Parameters

Parameter	Description/Values
sessionId	The ID of a HMP session.
sourceId	The ID of a HMP source. See the Tip above to obtain the desired source ID.

Result

Success

OK

Error

Error	Description
ERROR 010003 Expected 2 parameter(s). Got Y parameter(s)	Calling <code>addSourceToSession</code> requires 2 parameters.
ERROR 010001 'Y' is not a UUID	The <code>sessionId</code> provided was not a valid UUID. OR The <code>sourceId</code> provided was not a valid UUID.
ERROR 060003 Active recording currently in progress	The session is being recorded. All recordings for this session must be stopped before a source can be added.
ERROR 070010 Could not create a track	Attempting to create a track for the source failed.
ERROR 040006 Session not found	The 'session' with UUID ' <code>sessionId</code> ' was not found.
ERROR 040009 Source not found	The 'source' with UUID ' <code>sourceId</code> ' was not found.
ERROR 060008 Source already added to this session	The source with UUID ' <code>sourceId</code> ' has already been added to this session.

Example

The following example adds a source to the session specified by ID 71edd346-2cf0-4c62-b3d3-9d457b287394. The system returns OK.

```
addSourceToSession 71edd346-2cf0-4c62-b3d3-9d457b287394
b86befc3-7b44-4655-852f-21a77935d110

OK
```

Remove a Source from a Session

This command removes the specified source from the session.

Authorizations: All

Requests

```
removeSourceFromSession sessionId sourceId
```

Parameters

Parameter	Description/Values
sessionId	The ID of a HMP session.
sourceId	The ID of a HMP source. See the Tip in Add a Source to a Session to obtain the source ID.

Result

Success

```
OK
```

Error

Error	Description
ERROR 010003 Expected 2 parameter(s). Got Y parameter(s)	Calling <code>removeSourceFromSession</code> requires 2 parameters.
ERROR 010001 'Y' is not a uuid	The <code>sessionId</code> provided was not a valid UUID. OR The <code>sourceId</code> provided was not a valid UUID.
ERROR 040006 Session not found	The 'session' with UUID ' <code>sessionId</code> ' was not found.
ERROR 040009 Source not found	The source with UUID ' <code>sourceId</code> ' was not found.
ERROR 060003 Active recording currently in progress	The session is being recorded. All recordings for this session must be stopped before a source can be added.
ERROR 070000 Internal Server Error	Removing source from session failed. Please see <code>calypso.log</code> for details.

Example

The following example removes the source from session ID 71edd346-2cf0-4c62- b3d3-9d457b287394. The system returns OK.

```
removeSourceFromSession 71edd346-2cf0-4c62-b3d3-9d457b287394  
b86befc3-7b44-4655-852f-21a77935d110
```

OK

Share a Session with a User

This command shares the specified session with the specified user and sets the access permission (either WATCH, EDIT, RECORD, OWN, or custom permission ID).

Authorizations: All

Request

```
shareSessionWithUser username permissionId sessionId
```

Parameters

Parameter	Description/Values
username	The unique name specified for the HMP user. username is case-insensitive.
permissionId	The access permission to assign to this user, either: <ul style="list-style-type: none"> WATCH: View this session EDIT: View and edit this session. RECORD: View and record this session. OWN: All capabilities, including deleting this session. OR • <uuid> of admin-defined share permission.
sessionId	The ID of a HMP session.

Result

Success

OK

Error

Error	Description
ERROR 010003 Expected 3 parameter(s). Got Y parameter(s)	Calling shareSessionWithUser requires 3 parameters.
ERROR 010001 'Y' is not a UUID	The sessionId provided must be a UUID.
ERROR 010001 Permission must be one of: WATCH, EDIT, RECORD, OWN	The 'permission' passed in was not one of the expected values.
ERROR 070008 Error searching for a user	An internal error occurred while searching for user 'username'.
ERROR 040004 User not found	The user with UUID 'username' was not found.

Error	Description
ERROR 060001 User has no roles assigned	Make sure a role is assigned to the user or to at least one of the user's groups.

Error	Description
ERROR 040006 Session not found	The session with UUID ' <code>sessionId</code> ' was not found.
ERROR 030003 Cannot share	Trying to share to a permission that user doesn't have access to. Ex.: User has permission to 'WATCH' and tries to share with 'OWN'.

Examples

This example uses a default HMP share permission:

```
shareSessionWithUser viewer EDIT 71edd346-2cf0-4c62-b3d3-9d457b287394
OK
```

This example uses a custom share permission.

```
shareSessionWithUser InfoDev 12b0cc54-9018-42c2-9dfb-3f7707a09829
71edd346-2cf0-4c62-b3d3-9d457b287394
OK
```


Share a Session with a Group

! Important

Groups are only available on HMP if your system is connected to an LDAP or Active Directory server. See “Managing Directory (Authentication) Services” in the *HMP Administrator’s Guide*.

Authorizations: All

Request

```
shareSessionWithGroup groupname permissionId sessionId
```

Parameters

Name	Description
groupname	The unique name specified for the HMP group. groupname is case-insensitive.
permissionId	The access permission to assign to this group, either: <ul style="list-style-type: none"> WATCH: View this session. EDIT: View and edit this session. RECORD: View and record this session. OWN: All capabilities, including deleting this session. OR: <ul style="list-style-type: none"> <uuid> of admin-defined permission.
sessionId	The ID of a HMP session.

Result

Success

OK

Error

Error	Description
ERROR 010003 Expected 3 parameter(s). Got Y parameter(s)	Calling <code>shareSessionWithGroup</code> requires 3 parameters.
ERROR 010001 'Y' is not a UUID	The <code>sessionId</code> provided must be a UUID.
ERROR 010001 Permission must be one of: WATCH, EDIT, RECORD, OWN	The 'permission' passed in was not one of the expected values.
ERROR 070009 Error searching for a group	An internal error occurred while searching for group ' <code>groupname</code> '.

Error	Description
ERROR 040005 Group not found	The group with UUID ' <code>groupName</code> ' was not found.
ERROR 060002 Group has no roles assigned	Returned when a group has no roles.
ERROR 040006 Session not found	The session with UUID ' <code>sessionId</code> ' was not found.
ERROR 030003 Cannot share	Trying to share to a permission that user doesn't have access to. Ex.: User has permission to 'WATCH' and tries to share with 'OWN'.

Example

This example uses a default HMP share permission.

```
shareSessionWithGroup Viewers RECORD 71edd346-2cf0-4c62-b3d3-9d457b287394
OK
```

This example uses a custom share permission.

```
shareSessionWithGroup Admins 12b0cc54-9018-42c2-9dfb-3f7707a09829
71edd346-2cf0-4c62-b3d3-9d457b287394
OK
```

Update Session Metadata

This command updates the metadata assigned to the specified session (the contents of either the title, description, or createdby field).

Authorizations: All

Request

```
updateSessionMetadata sessionId title|description|createdby value
```

Parameters

Parameter	Description/Values
sessionId	The ID of a HMP session.
fieldName	The metadata field to update, either <code>title</code> , <code>description</code> or <code>createdby</code>
value	The contents of the metadata field.

Result

Success

OK

Error

Error	Description
ERROR 010003 Expected 3 parameter(s). Got Y parameter(s)	Calling <code>updateSessionMetadata</code> requires 3 parameters.
ERROR 010001 'Y' is not a UUID	The <code>sessionId</code> provided must be a UUID.
ERROR 010001 'Z' is an invalid field name	The <code>fieldName</code> provided is invalid.
ERROR 040006 Session not found	A session with UUID ' <code>sessionId</code> ' was not found.
ERROR 070000 Internal Server Error	Updating the session failed. Please see <code>calypso.log</code> for details.

Example

```
updateMetadata 71edd346-2cf0-4c62-b3d3-9d457b287394 createdby Test2
```

OK

Set Session Category

Tip

The category ID is generated by HMP when the category is defined. To assign category to a session or recording, go the Web interface (☰ > **Administration** > **Configuration** > **Metadata** and click on the metadata entry) to get the category ID.

Authorizations: All

Note

When using this command, the (Web interface's) Multiple Values and Custom Values settings are ignored. The command always allows multiple and custom values regardless of the checkbox settings.

Request

```
setSessionCategory sessionId categoryId value [value...]
```

Parameters

Parameter	Description/Values
sessionId	The ID of a HMP session.
categoryId	The ID of the category to assign to the session. See the tip above to obtain category ID.
value	The value defined for the category. Multiple values are separated by spaces.

Result

Success

OK

Error

Error	Description
ERROR 010003 Expected 3 parameter(s). Got Y parameter(s)	Calling <code>setSessionCategory</code> requires at least 3 parameters.
ERROR 010001 'Y' is not a UUID	The <code>sessionId</code> provided must be a UUID. The <code>categoryId</code> provided must be a UUID.
ERROR 010001 Values must be strings	Categories must be strings.
ERROR 010001 Please provide non-empty values	Categories cannot be empty
ERROR 010001 Please remove any leading or trailing spaces in the values	Categories cannot start or end with spaces.
ERROR 010001 Please verify that values are unique	Category list passed in contains duplicate entries.
ERROR 040007 Category not found	A category with UUID ' <code>categoryId</code> ' was not found.
ERROR 040006 Session not found	A session with UUID ' <code>sessionId</code> ' was not found.

Example

<pre>setSessionCategory 71edd346-2cf0-4c62-b3d3-9d457b287394 692e9ab8-d446-4bfd-b64d-e39e8e57c4c5 Surgery</pre>
OK

Recordings API

Topics in this section:

- [Start a Recording](#)
- [Pause a Recording](#)
- [Resume a Recording](#)
- [Stop a Recording](#)
- [Get Recording Status](#)
- [Share a Recording with a User](#)
- [Share a Recording with a Group](#)
- [Update Recording Metadata](#)
- [Set Recording Category](#)
- [Add a HotMark](#)
- [Start Re-streaming a Recording](#)
- [Stop Streaming a Recording](#)

Start a Recording

This command creates an active recording for specified session and returns its ID. You will use the recording ID in later commands.

Authorizations: All

Note

If you record a multi-source session, you get a multi-stream recording, whereas if you record a session with one source, you get a one-stream recording. The Command Line API is the same in either case; you are always working with a single recording ID.

Note

The Command Line API only records the session intact. For example, you cannot use it to record only two of the sources for a four-source session.

Request

```
startRecording sessionId
```

Parameters

Parameter	Description/Values
sessionId	The ID of a HMP session.

Result

Success

```
recordingId
```

Error

Error	Description
ERROR 010003 Expected 1 parameter(s). Got Y parameter(s)	Calling <code>startRecording</code> requires 1 parameter.
ERROR 010001 'Y' is not a UUID	The <code>sessionId</code> provided must be a UUID.
ERROR 040006 Session not found	The session with UUID ' <code>sessionId</code> ' was not found.

Error	Description
ERROR 0700014 Error writing to file	An internal error occurred while attempting to write to the disk. Please see <code>calypso.log</code> for details.
ERROR 070000 Internal Server Error	The recording could not be started due to an internal error. Please see <code>calypso.log</code> for details.
ERROR 070027 Insufficient Disk Space	Not enough disk space on server for creating a recording.
ERROR 060009 Session requires at least one source	The session does not have a source.

Example

```
startRecording 71edd346-2cf0-4c62-b3d3-9d457b287394
OK|f678f415-0665-48cd-b141-1e95283469f1
```


Pause a Recording

This command pauses the specified active recording.

Authorizations: All

Request

```
pauseRecording recordingId
```

Parameters

Parameter	Description/Values
recordingId	The ID of a HMP recording.

Result

Success

```
OK
```

Error

Error	Description
ERROR 010003 Expected 1 parameter(s). Got Y parameter(s)	Calling <code>pauseRecording</code> requires 1 parameter.
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 040001 Active recording not found	The recording with UUID ' <code>recordingId</code> ' was not found.
ERROR 070003 Failed to update state	Pausing recording failed. Please see <code>calypso.log</code> for details.

Example

```
pauseRecording f678f415-0665-48cd-b141-1e95283469f1
OK
```

Resume a Recording

This command resumes the specified paused, active recording.

Authorizations: All

Request

```
resumeRecording recordingId
```

Parameters

Name	Description
recordingId	The ID of a HMP recording.

Result

Success

```
OK
```

Error

Error	Description
ERROR 010003 Expected 1 parameter(s). Got Y parameter(s)	Calling <code>resumeRecording</code> requires 1 parameter.
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 040001 Active recording not found	The recording with UUID ' <code>recordingId</code> ' was not found.
ERROR 070003 Failed to update state	Resuming recording failed. Please see <code>calypso.log</code> for details.

Example

```
resumeRecording f678f415-0665-48cd-b141-1e95283469f1
OK
```

Stop a Recording

This command stops the specified active recording.

Authorizations: All

Request

```
stopRecording recordingId
```

Parameters

Name	Description
recordingId	The ID of a HMP recording.

Result

Success

```
OK
```

Error

Error	Description
ERROR 010003 Expected 1 parameter(s). Got Y parameter(s)	Calling <code>stopRecording</code> requires 1 parameter.
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 040001 Active recording not found	The recording with UUID ' <code>recordingId</code> ' was not found.
ERROR 070003 Internal Server Error	An internal error occurred while stopping the recording. Please see <code>calypso.log</code> for details.

Example

```
stopRecording f678f415-0665-48cd-b141-1e95283469f1
OK
```

Get Recording Status

This command gets the status of the specified active recording.

Authorizations: All

Request

```
getRecordingStatus recordingId
```

Parameters

Name	Description
recordingId	The ID of a HMP recording.

Result

Success

```
state
```

where `state` could be one of the following:

state	Description
RECORDING	It is currently being recorded (active recording).
PAUSED	Recording has already started but is currently paused.
FINISHED	Recording has finished recording.
ERROR	Any other error on the recording will be set to this state.

Error

Error	Description
ERROR 010003 Expected 1 parameter(s). Got Y parameter(s)	Calling <code>getRecordingStatus</code> requires 1 parameter.
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 040001 Active recording not found	The recording with UUID ' <code>recordingId</code> ' was not found.

Error	Description
ERROR 070003 Recording not found	A recording with UUID 'recordingId' was not found.

Example

```
getRecordingStatus f678f415-0665-48cd-b141-1e95283469f1
OK|PAUSED
```

Share a Recording with a User

This command shares the specified recording with the specified user and sets the access permission (either `WATCH`, `EDIT`, `OWN`, or custom permission ID).

Authorizations: All

Request

```
shareRecordingWithUser username permissionId recordingId
```

Parameters

Name	Description
username	The HMP user name specified for the user. username is case-insensitive.
permissionId	The access permission to assign to this user, either: <ul style="list-style-type: none"> • <code>WATCH</code>: View this recording • <code>EDIT</code>: View and edit this recording • <code>OWN</code>: All capabilities, including deleting this recording, or • <code><uuid></code> of admin-defined share permission
recordingId	The ID of a HMP recording.

Result

Success

```
OK
```

Error

Error	Description
ERROR 010003 Expected 3 parameter(s). Got Y parameter(s)	Calling <code>shareRecordingWithUser</code> requires 3 parameter.
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 010001 Permission must be one of: WATCH, EDIT, OWN	Validation failed on <code>'permission'</code> . Verify that it is set to <code>WATCH</code> , <code>EDIT</code> , or <code>OWN</code> .
ERROR 070008 Error searching for a user	An internal error occurred while searching for user <code>'username'</code> .
ERROR 040004 User not found	A user with UUID <code>'username'</code> was not found.
ERROR 060001 User has no roles assigned	Make sure a role is assigned to the user or to at least one of the user's groups.

Error	Description
ERROR 040002 Recording not found	A recording with UUID 'recordingId' was not found.
ERROR 030003 Cannot share	Trying to share to a permission that user doesn't have access to. Ex.: User has permission to 'WATCH' and tries to share with 'OWN'.

Example

This example uses a default HMP share permission.

```
shareRecordingWithUser creator OWN f678f415-0665-48cd-b141- 1e95283469f1
OK
```

This example uses a custom share permission.

```
shareRecordingWithUser InfoDev 12b0cc54-9018-42c2-9dfb-3f7707a09829
  f678f415-0665-48cd-b141-1e95283469f1
OK
```

Share a Recording with a Group

This command shares the specified recording with the specified group and sets the access permission (either WATCH, EDIT, OWN, or custom permission ID).

Authorizations: All

Request

```
shareRecordingWithGroup groupname permissionId recordingId
```

Parameters

Name	Description
groupname	The name specified for the group. groupname is case-insensitive.
permissionId	The access permission to assign to this group, either: <ul style="list-style-type: none"> WATCH: View this recording EDIT: View and edit this recording OWN: All capabilities, including deleting this recording, or <uuid> of admin-defined share permission.
recordingId	The ID of an HMP recording.

Result

Success

```
OK
```

Error

Make sure a role is assigned to the group

Error	Description
ERROR 010003 Expected 3 parameter(s). Got Y parameter(s)	Calling <code>shareRecordingWithGroup</code> requires 3 parameter.
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 010001 Permission must be one of: WATCH, EDIT, OWN	Validation failed on 'permission'. Verify that it is set to <code>WATCH</code> , <code>EDIT</code> , or <code>OWN</code> .
ERROR 070009 Error searching for a group	An internal error occurred while searching for group <code>'groupname'</code> .
ERROR 040005 Group not found	A group with UUID <code>'groupname'</code> was not found.

Error	Description
ERROR 060002 Group has no roles assigned	Make sure a role is assigned to the group.
ERROR 040002 Recording not found	A recording with UUID 'recordingId' was not found.
ERROR 030003 Cannot share	Trying to share to a permission that user doesn't have access to. Ex.: User has permission to 'WATCH' and tries to share with 'OWN'.

Example

This example uses a default HMP share permission.

```
shareRecordingWithGroup Grp10 OWN f678f415-0665-48cd-b141-1e95283469f1
OK
```

This example uses a custom share permission.

```
shareRecordingWithGroup Grp10 12b0cc54-9018-42c2-9dfb3f7707a09829
f678f415-0665-48cd-b141-1e95283469f1
OK
```

Update Recording Metadata

This command updates the metadata assigned to the specified recording (the contents of either the `title`, `description`, or `createdby` field).

Authorizations: All

Requests

```
updateMetadata recordingId title|description|createdby value
```

Parameters

Name	Description
recordingId	The ID of a HMP recording.
fieldName	The metadata field to update, either <code>title</code> , <code>description</code> or <code>createdby</code> . <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>Note</p> <p><code>createdby</code> is the display name on the Edit User page (☰ > Administration > Access Controls > Users). <code>createdby</code> is also the creator in the "Created M/D/YYYY by [creator]" status displayed in the Videos or Session player window.</p> </div>
value	The contents of the metadata field.

Result

Success

OK

Error

Error	Description
ERROR 010003 Expected 3 parameter(s). Got Y parameter(s)	Calling <code>updateMetadata</code> requires 3 parameters.
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 040002 Recording not found	A recording with UUID ' <code>recordingId</code> ' was not found.
ERROR 070017 Failed to update a recording	An internal error occurred while updating the metadata. Please see <code>calypso.log</code> for details.
ERROR 010001 'Z' is an invalid field name	The <code>fieldName</code> provided is invalid

Error	Description
ERROR 040012 No results	The list of metadata was not returned from the server.

Example

```
updateMetadata f678f415-0665-48cd-b141-1e95283469f1 title Test2  
OK
```

Set Recording Category

This command sets the value for a category assigned to the specified recording. You specify the category using the category ID.

Authorizations: All

Request

```
setCategory recordingId categoryId value [value...]
```

Parameters

Name	Description
recordingId	The ID of a HMP recording.
categoryId	The ID of the category to assign to the recording. See the Tip in Set Session Category to obtain the category ID.
value	The value defined for the category. Multiple values are separated by spaces.

Result

Success

OK

Error

Errors	Description
ERROR 010003 Expected at least 3 parameters. Got Y parameter(s)	Calling <code>setCategory</code> requires at least 3 parameters
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> and <code>categoryId</code> provided must be a UUID.
ERROR 010001 Values must be strings	Categories must be strings.
ERROR 010001 Please provide non-empty values	Categories cannot be empty.
ERROR 010001 Please remove any leading or trailing spaces in the values	Categories cannot start or end with spaces.
ERROR 010001 Please verify that values are unique	Category list passed in contains duplicate entries.
ERROR 040007 Category not found	A category with UUID ' <code>categoryId</code> ' was not found.

Errors	Description
ERROR 040002 Recording not found	A recording with UUID 'recordingId' was not found.
ERROR 040012 No results	The list of metadata was not returned from the server.

Example

```
setCategory f678f415-0665-48cd-b141-1e95283469f1
692e9ab8-d446-4bfd-b64d-e39e8e57c4c5 HD

OK
```

Add a HotMark

A HotMark is a metadata “bookmark” that you can add to annotate an active recording.

Authorizations: All

HotMarks can also be added to completed recordings using the HMP Web Interface. Viewers can then select the HotMarks to jump directly to specific points of interest in the recording.

Note

HMP rounds the “now” timestamp down to the nearest second.

Request

```
addHotmark recordingId title
```

Parameters

Name	Description
recordingId	The ID of a HMP recording.
title	The title to assign to HotMark.

Result

Success

```
OK
```

Error

Error	Description
ERROR 010003 Expected 2 parameters. Got Y parameter(s)	Calling <code>addHotmark</code> requires 2 parameters.
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 040002 Recording not found	A recording with UUID ' <code>recordingId</code> ' was not found.
ERROR 060004 Hotmark already exists at this time	A HotMark at the specified timestamp already exists.
ERROR 010004 'Y' is not an active recording	Returned if the recording is no longer active. Y is the <code>recordingId</code> .
ERROR 070011 Could not locate recording	An internal error occurred while adding HotMark. Please see <code>calypso.log</code> for details.

Example

```
addHotmark f678f415-0665-48cd-b141-1e95283469f1 PhaseI
OK
```

Start Re-streaming a Recording

This command creates a stream for the specified recording (asset) and returns its ID. You specify the destination IP address and port.

Authorizations: All

Request

```
startRestreamRecording recordingId ip port
```

Parameters

Name	Description
recordingId	The ID of a HMP recording.
ip	The destination unicast or multicast IP address.
port	The destination Port number.

Result

Success

```
streamId
```

Error

Error	Description
ERROR 010001 'Y' is not a UUID	The <code>recordingId</code> provided must be a UUID.
ERROR 010001 'Y' is not an ip address	The IP Address must follow the IPv4 dotted decimal notation.
ERROR 010001 'Y' is not a port number	Port must be between 0 and 65535.
ERROR 040002 Recording not found	A recording with UUID ' <code>recordingId</code> ' was not found.
ERROR 010005 Only single source recordings can be streamed	<code>recordingId</code> is a UUID of a multi-sourced session.
ERROR 010006 Address or port already in use	The specified IP address or port is currently in use by the session.
ERROR 010006 Address or port already in use by a source	The specified IP address or port is currently in use by the source.
ERROR 070004 Error while starting stream	An internal error occurred while starting the <code>restream</code> . Please see <code>calypso.log</code> for details.

Example

```
startRestreamRecording f678f415-0665-48cd-b141-1e95283469f1  
10.65.10.240 222
```

```
OK|bfdac49c-beb7-4271-8acb-de79f3fd2ddf
```

Stop Streaming a Recording

This command stops streaming the specified recording (asset).

Authorizations: All

Request

```
stopRestreamRecording streamId
```

Parameters

Parameter	Description/Values
streamId	The ID of a HMP stream.

Result

Success

```
OK
```

Error

Error	Description
ERROR 010001 'Y' is not a UUID	The <code>streamId</code> provided must be a UUID.
ERROR 070005 Error while stopping stream	An internal error occurred when attempting to stop the stream. Please see <code>calypso.log</code> for details.
ERROR 040003 Stream not found	A stream with UUID ' <code>streamId</code> ' was not found.

Example

```
stopRestreamRecording bfdac49c-beb7-4271-8acb-de79f3fd2ddf
```

```
OK
```


General Errors

This command reference lists and describes the general errors for the HMP Command Line API. If an error occurs, the response has the following format: " `ERROR|Code|Error message` ".

Note

Error codes that begin with "07" are internal system errors. Please contact Haivision Technical Support if you encounter this error code.

The following is the list of general Command Line API error messages:

Code	Error	Description
000000	<code>ERROR 000000 Unknown Error</code>	Unknown error
000001	<code>ERROR 000001 Syntax Error</code>	For any parameter which was enclosed within quotes, this error will be returned if quotes are not balanced. (Ex.: <code>createSession "asdf</code> returns this error.)
000002	<code>ERROR 000002 Command not found</code>	Command entered by user does not exist.
010001	<code>ERROR 010001 'Y' is not a UUID</code>	For any parameter ending with "Id" (i.e., <code>:recordingId</code> , <code>:sessionId</code> , <code>:categoryId</code>), the parameter provided must be a UUID. ("Y" displays the wrong parameter text provided by the user.)
010003	<code>ERROR 010003 Expected X parameter(s). Got Y parameter(s)</code>	For a command with a required number of parameters, the user must provide all the parameters. Or for a command with variable number of parameters. (Ex.: <code>setCategory</code> and <code>setSessionCategory</code>), the user must provide all required parameters.
020000	<code>ERROR 020000 Not Authorized</code>	User tries to connect to the Command Line API but is not authorized.
070000	<code>ERROR 070000 Internal Server Error</code>	This error occurs when the service is not available. (Ex.: HMP is restarted and command is sent while HMP is not yet ready.) This is a more general error message that could occur if something else goes wrong and requires investigation. Please see <code>calypso.log</code> for details.
070006	<code>ERROR 070006 Bus client error</code>	There was an internal bus communication error.

Code	Error	Description
070007	ERROR 070007 Bus response parsing error	There was an error parsing the response of a bus request.
090001	ERROR 090001 No bus connection	There is no connection to the bus.

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- (e) if any Haivision serial number has been removed or defaced.

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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>

