



Service Host

Version 1.1



Service Host



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1 Getting Started

Service Host is a component that abstracts the Windows Service layer. The Service Host operates with Service Host plugins that implement the services and functionality, while the Service Host itself manages Windows Service related operations, such as logging, on behalf of all plugins.

An example is the **Control Mode** plugin. By default, it is registered as a Windows service named `ServiceHost.control` upon successful installation. **Control Mode** provides a REST interface and comes with a web-based user interface, and is used to operate the Service Host plugin instances and installed Viz Engine instances.

The fastest way to get started with Service Host is:

1. Install Service Host, see [Install / Uninstall](#).
2. Launch the web GUI of the Control Mode. After each launch of The Control Mode, a shortcut to the web GUI endpoint is updated under `%ProgramData%/vizrt/ServiceHost/ServiceHost.control`. Open this shortcut with your favorite browser. A description of this web GUI is found under [Control Mode](#).

2Channel Recorder

This is the **Channel Recorder Administrator Guide**, containing details regarding the installation, configuration and operation of Channel Recorder.

Channel Recorder is a service that creates video clips, using an SDI or IP stream as source. It can be controlled using an arbitrary set of commands, or by remote applications utilizing the Multiport Video Computer Protocol (MVCP).

The incoming stream is captured into a file and can be transferred via Shared memory to be used with other products (e.g. Viz Coder).

2.1 Installation And Configuration

This section describes the installation requirements and procedure required to use Channel Recorder. It contains information on the following topics:

- [Installing, Registering and Removing Channel Recorder](#)
- [Channel Recorder Configuration](#)
- [Example Configuration File](#)
- [Integration with Other Services](#)
- [Hardware and Software Requirements](#)
- [Removing Channel Recorder](#)
- [Upgrading from 1.0](#)
- [Upgrading from 1.1](#)

2.1.1 Installing, Registering and Removing Channel Recorder

Channel Recorder runs as a plugin of Service Host. Channel Recorder cannot operate without Service Host, for this reason the installation of Channel Recorder consists of the following parts:

1. Running the **Service Host Setup Wizard**.
2. Manually registering one or more Channel Recorder instance(s) using the Service Host web interface.

Before installing Service Host, please make sure to obtain the latest installer from Vizrt's FTP server: <ftp://download.vizrt.com/>

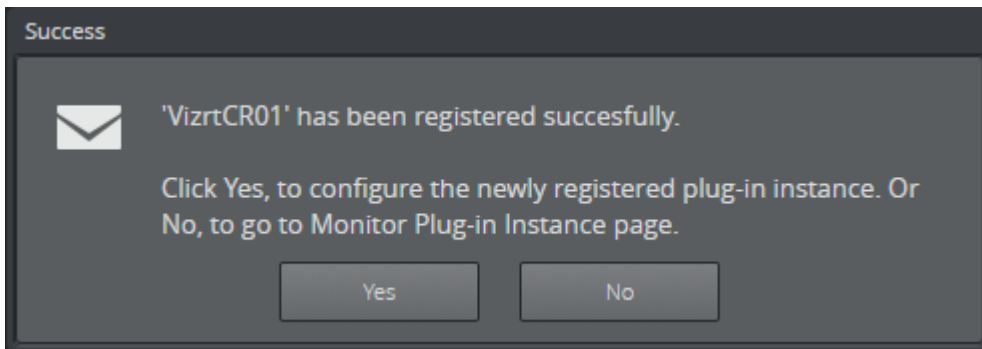
To install Service Host

Refer to the [Service Host](#) documentation.

To Register Channel Recorder instance

Refer to the [Service Host](#) documentation.

After successfully registering your Channel Recorder instance, the following dialog window appears:



This is to inform you that the registration of the instance is successful. You are prompted to choose between configuring the instance now or later. See [Channel Recorder Configuration](#) for further details.

Upgrading or Repairing an Existing Installation

Use the Service Host Setup Wizard to upgrade or repair an existing installation of Channel Recorder.

When upgrading or repairing, Service Host remembers the registered instances and which states they were before the upgrade or repair occurs. After a successful upgrade or repair operation, any previously running services stopped by the Setup Wizard is restarted.

Removing Channel Recorder

Use the Service Host web interface to remove Channel Recorder. For more information, refer to the [Service Host](#) documentation.

2.1.2 Channel Recorder Configuration

You can configure Channel Recorder at any time after successfully registering an instance. For any configuration changes to take effect, you must restart the instance.

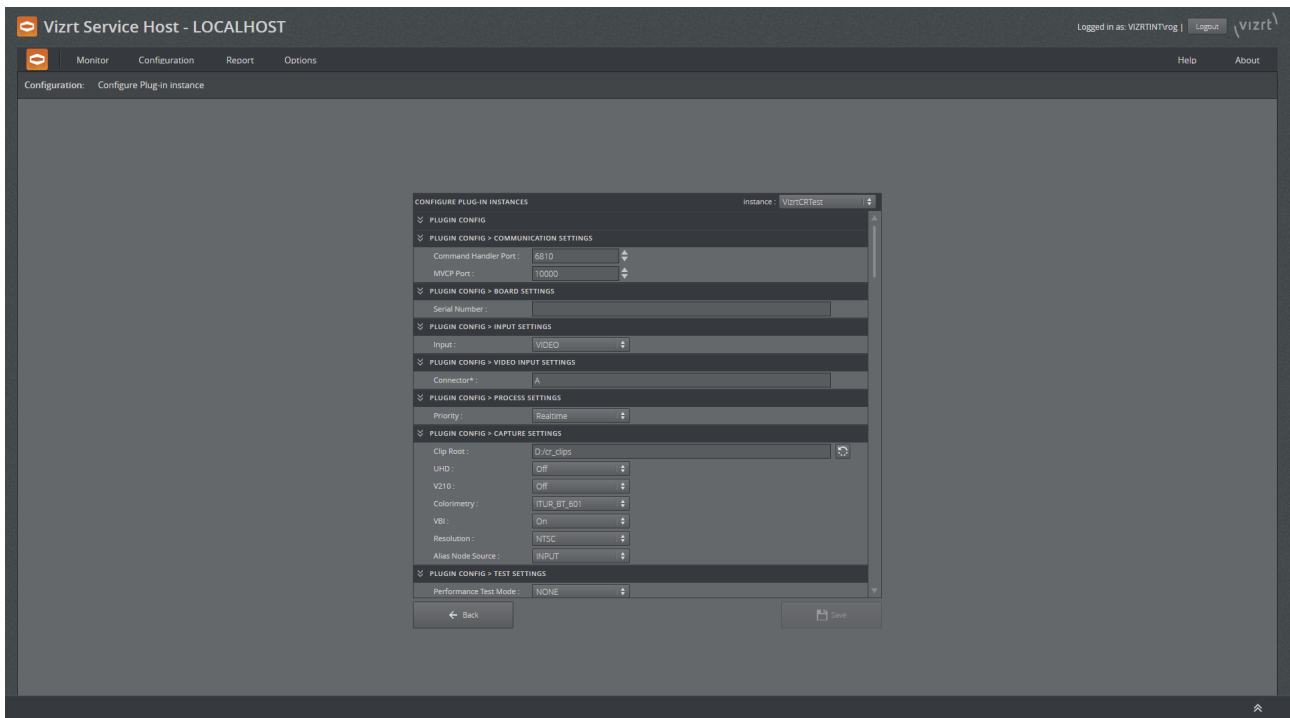
Every plugin of Service Host has its own configuration page. For more information, refer to the Service Host documentation.

Every plugin configuration page consist of two main sections:

- [Plugin Configuration Section](#)
- [Service Host Section](#)

The Plugin Configuration Section is unique for each plugin.

From the Service Host Section, you can set specific command arguments to the plugin. This is useful mainly for debugging purposes.



Plugin Configuration Section

The Plugin Configuration Section consists of the following parts:

- **Communication Settings**
 - **Command Handler Port:** Selects the port used to communicate with Channel Recorder via **Viz Send**. The default value is 6810.
 - **MVCP Port:** Selects the port used to communicate with Channel Recorder using MVCP. Some Vizrt components, such as Ingest, Dart or Capture, use this protocol to communicate with Channel Recorder. The default value is 10000, while e.g. Ingest uses 5250 as default for its first channel and subsequent port numbers for any additional channels.

⚠ Tip: If several instances of Channel Recorder are present in the machine, the ports must be different for each.



- **Board Settings** (changes to these settings only take effect by restarting the Channel Recorder instance).
 - **Serial Number:** Selects the board with the specified serial number. If no serial number is specified, the first detected board is selected. By default, no value is specified.

Tip: The serial number on Matrox video boards can be found in the hardware tab of [Matrox X.info](#), it usually begins with an A.

PLUGIN CONFIG > BOARD SETTINGS

Serial Number :

Input Settings

- **Input:** Selects the type of input to use. At the moment, only Video input is possible.

PLUGIN CONFIG > INPUT SETTINGS

Input : VIDEO

Video Input Settings

- **Connector:** Selects the connector that will be used for recording live input. This is a required value. The default value is *empty*. Accepted values are A to H, depending on the input configuration of the Matrox board.

Tip: The ports for Matrox IP board indicate the SFP.

PLUGIN CONFIG > VIDEO INPUT SETTINGS

Connector* : A

Process Settings

- **Priority:** Sets the process priority class. The values correspond to the Windows process priority levels. The default value is Normal.

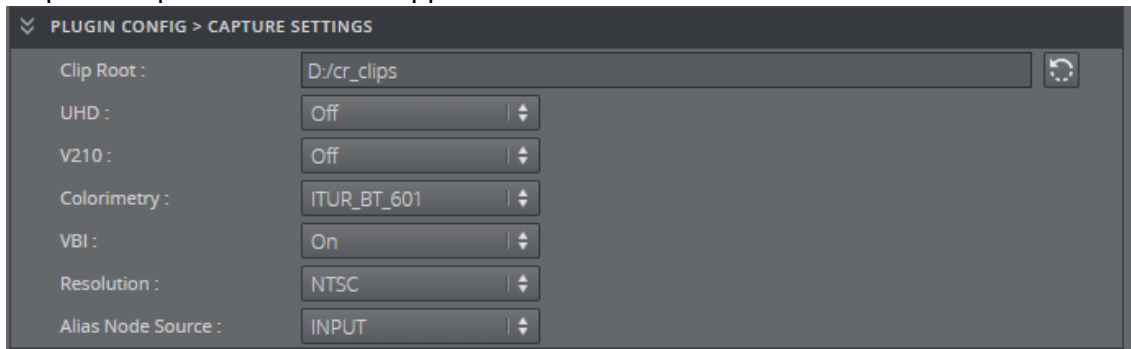
PLUGIN CONFIG > PROCESS SETTINGS

Priority : Realtime

Capture Settings

- **Clip Root:** Sets the default folder for the recordings. The default value is `v:/`.
- **UHD:** Enables detection of UHDTV signals. When set to `on`, the Channel Recorder scans the signal resolution on the four corresponding input connectors. If four 3G signals are detected, they are interpreted as one UHDTV signal. When set to `off`, the four connectors are treated as separate 3G signals. The default value is `off`.
- **V210:** Uses the 10-bit surface format V210. This is needed to record XAVC, it increases performance when for example recording ProRes. This surface format is not supported on the Matrox X.mio2+. The default value is `off`.
- **Colorimetry:** Specifies the colorimetry to be used to be able to record in HDR. By default `ITUR_BT_601` will be used for SD resolution and `ITUR_BT_709` for HD and UHD resolution.
- **VBI:** Enables VBI recording. To capture closed caption this value must be set to `on`. The default value is `On`.
- **Resolution:** Sets the default resolution. The possible values are: NTSC, PAL, 720p50, 720p60M, 1080i25, 1080p60, 1080i30M, 1080i30, 1080p50, 1080p60M and 1080p60. The default value is `NTSC`.

- **Alias Node Source:** Specifies the source of the alias node which specify from which output or input connector the application will record.



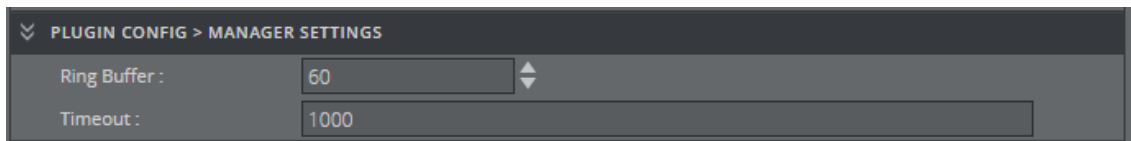
• Test Settings

- **Performance Test Mode:** Selects the mode when a performance test is to be performed.



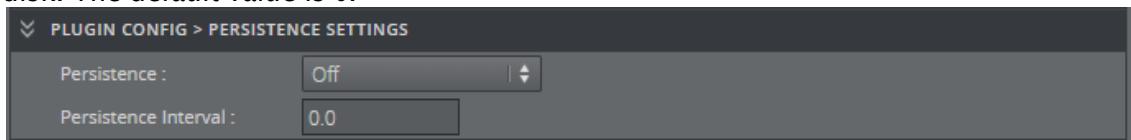
• Manager Settings

- **Ring Buffer:** Sets the size of the capture ring buffer. The default value is 60.
- **Timeout:** Sets the timeout for the capture operation in milliseconds. If the recorder reports timeout errors, increasing the timeout could help. The value can be in frames or in timecode format: 00:00:00:00. The default value is 1000.



• Persistence Settings

- **Persistence:** Chooses if a backup of the scheduled recording is needed. This is only useful for scheduled recordings. The default value is off.
- **Persistence Interval:** Defines, in seconds, the interval in which the backup is written to disk. The default value is 0.



• Log Settings

- **Timecode Log Interval:** Specifies the interval at which the current timecode is logged. The value can either be a number of frames or a timecode-based relative value. The default value is 0, which means that every full second is logged.



• Scheduler Settings

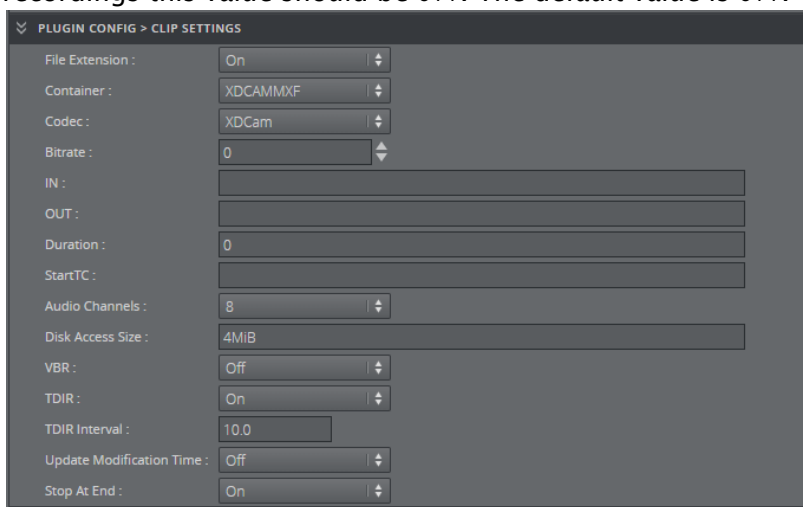
- **Writers :** Sets the number of writers to initialize. This value is only relevant in loop and scheduled recordings in which consecutive recordings are very close to each other within the timeline (less than six seconds). The default value is 2 and should never be below 2.

- **Trigger Threshold:** Determines whether to execute a timed command late if it misses the execution time. If the time is still within the trigger threshold, it will be executed late. Outside of this window, the command is ignored until the next time the timecode is received. The value can either be a number of frames or a timecode-based relative value. The default value is 5.
- **Timecode Source:** Specifies the timecode source. The default value is `TIME_OF_DAY`.



- **Inclusive Out:** When enabled the last timecode written to the file is the defined out point of the recording.
 - **Check Drop Frame:** When disabled do not check for invalid timecode and try to fix it.
 - **Clip Settings** (these are the default values for any future recordings)
 - **File Extensions:** Enables or disables automatically adding a file extension to the file name. If this feature is turned off, the client application has full control over the file name. The default value is `off`.
 - **Container:** Sets the container type of the recorded file. Possible values are `AVCINTRAMXF`, `AVI`, `DVCPROMXF`, `MOV`, `MXF`, `XAVCMXF`, `XDCAMMXF`. For capturing OP-Atom the value should be `MXF`. The default value is `XDCAMMXF`.
 - **Codec:** Sets the codec type of the recorded file. The possible values are: `DvCam`, `DvCPro`, `Dv50`, `IFrame`, `XDCam`, `AVCIntra50`, `AVCIntra100`, `ProRes`. The default value is `XDCam` which corresponds to `XDCAM HD422`.
 - **Bitrate:** Sets the bitrate for the video encoding in mbps (megabits per second). Not all codecs allow changes to the bitrate. In such cases, this value is ignored. The default value is 0.
 - **IN:** Sets the default value for the recording in point. The value must be in timecode format: `00:00:00:00`.
 - **OUT:** Sets the default value for the recording out point. The value must be in timecode format: `00:00:00:00`.
 - **Duration:** Sets the default duration of the recording. The default value is 0.
 - **StartTC:** Sets the default value for the starting timecode. The value must be in timecode format: `00:00:00:00`.
 - **Audio Channels:** Sets the number of audio channels to record. How many channels are actually recorded depends on the codec and the input signal. The default value is 8.
- ⚠ Tip:** Some formats have specific audio support, so even if the user specifies a higher or lower value, it will record always the same number of channels. Please refer to the documentation for each format.
- **Disk Access Size:** Sets the size of data blocks written to the disk in bytes. Postfixes like `KiB`, `Kb`, `k`, etc., are allowed, but must not be separated from the value with a blank space. The default value is `4MiB` ($1 * 4194304$ bytes). The minimum value is `32KiB` (32768 bytes).

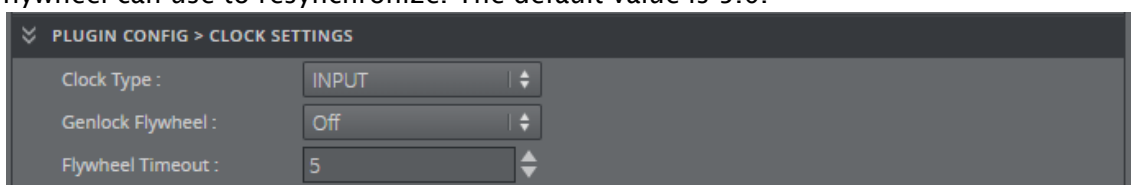
- **VBR:** Sets whether the recorded file, when the format supports it, should be in VBR (Variable Bit Rate) or not.
- **TDIR:** Sets the default behavior of TDIR (Time Delayed Instant Replay). The default value is `On`.
- **TDIR Interval:** Sets the interval of file header updates in TDIR recordings. The value is in seconds and fractions of seconds, meaning both `11.1` and `11.2` are considered valid values. Minimum allowed value is `10.0`, which is interpreted by Channel Recorder as every frame. The maximum value is `60.0`. The default value is `10.0`.
- **Update Modification Time:** Updates the modification time of the recorded clip regardless of TDIR setting value. The default value is `On`.
- **Stop At End:** Sets the default value at the end of the recording. For loop and scheduled recordings this value should be `off`. The default value is `off`.



- **Clock Type:** Defines what type of clock is used for recording. The possible values are: GENLOCK and INPUT. The default value is INPUT.

Tip: INPUT clock type is recommended when the GENLOCK signal is unstable. INPUT clock also allows recording when no input signal is detected.

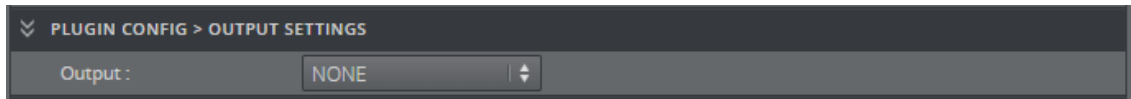
- **Genlock Flywheel:** Uses the flywheel in case the genlock signal is lost if Clock Type is GENLOCK.
- **Flywheel Timeout:** Sets the timeout of the genlock flywheel in seconds. This defines the time until the genlock switches to free run, as well as the maximum time the flywheel can use to resynchronize. The default value is `5.0`.



• Output Settings

- **Output:** Specifies the output mode. The possible values are: VIDEO, CODER, NONE. The default value is NONE.

Tip: Only one type of output can be configured at startup using the web interface. However, after startup, it is still possible to configure another output via Viz Send.



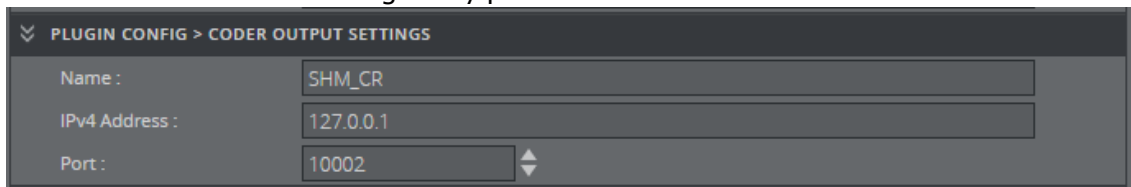
Video Output Settings

- **Connector:** Selects the connector that will be used for outputting the recorded frames. Accepted values are A to H, depending on the output configuration of the Matrox board.



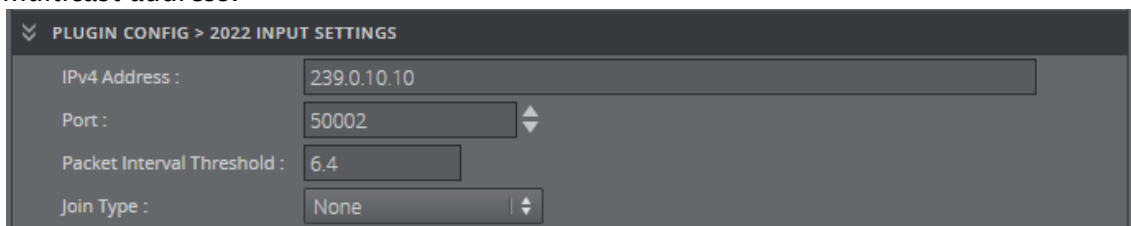
Coder Output Settings

- **Name:** Sets the name of the shared memory.
- **IPv4 Address:** Sets Viz Coder Recording Proxy IP address.
- **Port:** Sets Viz Coder Recording Proxy port number.



2022 Input Settings

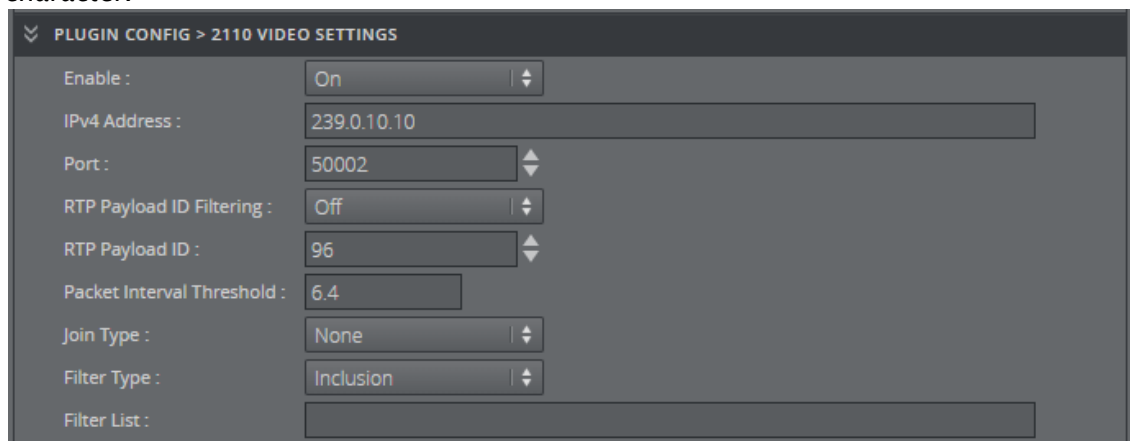
- **IPv4 Address:** Sets destination IPv4 address.
- **Port:** Sets destination port.
- **Packet Interval Threshold:** Indicates the threshold for generating the time interval between the IP packets alarm on the main IP stream. The range is from 6.4 nanoseconds to 419424.0 nanoseconds, in intervals of 6.4 nanoseconds.
- **Join Type:** Indicates the type of membership request made when IPv4 address is a multicast address.



2110 Input Video Settings

- **Enable:** Enables video flow when set to true.
- **IPv4 Address:** Sets destination IPv4 address.
- **Port:** Sets destination port.
- **RTP Payload ID Filtering:** Uses the RTP Payload ID value to filter the incoming network packets when set to true.

- **RTP Payload ID:** Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true.
- **Packet Interval Threshold:** Indicates the threshold for generating the time interval between the IP packets alarm on the main IP stream. For video, the range is from 6.4 nanoseconds to 419424.0 nanoseconds, in intervals of 6.4 nanoseconds.
- **Join Type:** Indicates the type of membership request made when IPv4 address is a multicast address.
- **Filter Type:** Specifies the type of filtering applied to the source list when IGMPv3 is used.
- **Filter List:** Lists IPv4 addresses to be included or excluded, separated by a space character.



• 2110 Input Audio Settings

- **Enable:** Enables audio flow when set to true.
- **IPv4 Address:** Sets destination IPv4 address.
- **Port:** Sets destination port.
- **RTP Payload ID Filtering:** Uses the RTP Payload ID value to filter the incoming network packets when set to true.
- **RTP Payload ID:** Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true.
- **Packet Interval Threshold:** Indicates the threshold for generating the time interval between the IP packets alarm on the main IP stream. For audio, the range is from 102.4 nanoseconds to 6710681.6 nanoseconds in intervals of 102.4 nanoseconds.
- **Join Type:** Indicates the type of membership request made when IPv4 address is a multicast address.
- **Filter Type:** Specifies the type of filtering applied to the source list when IGMPv3 is used.
- **Filter List:** Lists IPv4 addresses to be included or excluded separated by a space character.
- **Use Track Count:** Uses track count to specify the number of tracks for the incoming IP stream when set to true.
- **Track Count:** Specifies the number of tracks for the incoming IP stream.
- **Packet Duration:** Indicates the duration of the incoming audio packet. The packet size (in samples) can be computed using the sample rate (48000 samples/sec) and the

packet duration.

Setting	Value
Enable :	On
IPv4 Address :	239.0.10.12
Port :	50004
RTP Payload ID Filtering :	Off
RTP Payload ID :	97
Packet Interval Threshold :	102.4
Join Type :	None
Filter Type :	Inclusion
Filter List :	
Use Track Count :	Off
Track Count :	8
Packet Duration :	1ms

• 2110 Input ANC Settings

- **Enable:** Enables ANC flow when set to true.
- **IPv4 Address:** Sets destination IPv4 address.
- **Port:** Sets destination port.
- **RTP Payload ID Filtering:** Uses the RTP Payload ID value to filter the incoming network packets when set to true.
- **RTP Payload ID:** Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true.
- **Packet Interval Threshold:** Indicates the threshold for generating the time interval between the IP packets alarm on the main IP stream. For ancillary data, the range is from 819.2 nanoseconds to 53685452.8 nanoseconds in intervals of 819.2 nanoseconds.
- **Join Type:** Indicates the type of membership request made when IPv4 address is a multicast address.
- **Filter Type:** Specifies the type of filtering applied to the source list when IGMPv3 is used.
- **Filter List:** Lists IPv4 addresses to be included or excluded separated by a space character.

Setting	Value
Enable :	On
IPv4 Address :	239.0.10.14
Port :	50006
RTP Payload ID Filtering :	Off
RTP Payload ID :	100
Packet Interval Threshold :	819.2
Join Type :	None
Filter Type :	Inclusion
Filter List :	

- **SFP A General Settings**

- **IPv4 Address:** Sets IPv4 address.
- **IPv4 Gateway:** Sets IPv4 gateway.
- **IPv4 Netmask:** Sets IPv4 netmask.

PLUGIN CONFIG > SFP A GENERAL SETTINGS

IPv4 Address :	10.0.0.2
IPv4 Gateway :	10.0.0.1
IPv4 Netmask :	255.255.255.0

- **SFP A 2059 Settings**

- **Type of Service DSCP:** Specifies a datagram's priority and request a route for low-delay, high-throughput, or highly-reliable service.
- **Delay Mechanism:** Specifies the type of network delay mechanism to use for the time server connection.
- **IP Mode:** Specifies the type of internet protocol mode to use for the time server connection.
- **Master Clock Domain Number:** Specifies the master clock domain number.
- **Join Type:** Indicates the type of membership request made when IPv4 address is a multicast address.
- **Filter Type:** Specifies the type of filtering applied to the source list when IGMPv3 is used.
- **Filter List:** Lists IPv4 addresses to be included or excluded separated by a space character.

PLUGIN CONFIG > SFP A 2059 SETTINGS

Type of Service DSCP :	0
Delay Mechanism :	End-to-End
IP Mode :	Multicast
Master Clock Domain Number :	127
Join Type :	None
Filter Type :	Inclusion
Filter List :	

- **SFP B General Settings**

- **IPv4 Address:** Sets IPv4 address.
- **IPv4 Gateway:** Sets IPv4 gateway.
- **IPv4 Netmask:** Sets IPv4 netmask.

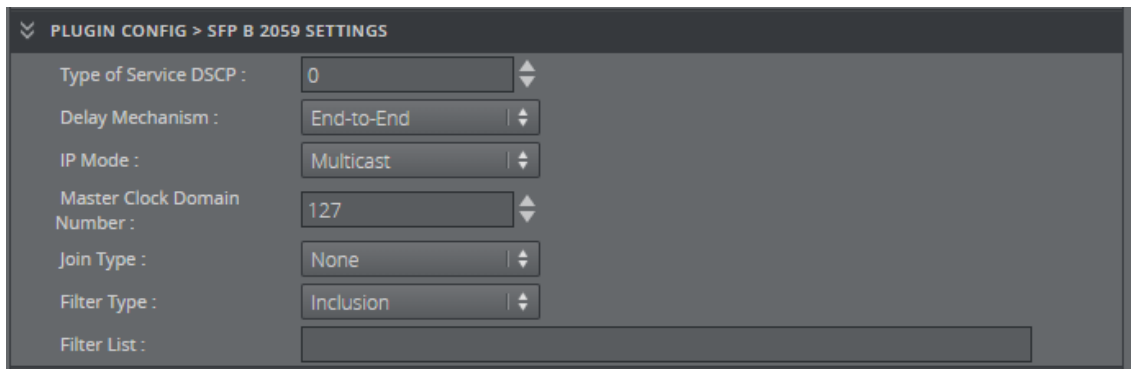
PLUGIN CONFIG > SFP B GENERAL SETTINGS

IPv4 Address :	10.0.0.3
IPv4 Gateway :	10.0.0.1
IPv4 Netmask :	255.255.255.0

- **SFP B 2059 Settings**

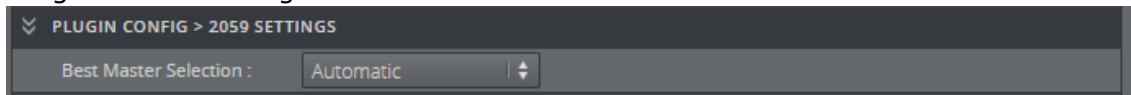
- **Type of Service DSCP:** Specifies a datagram's priority and request a route for low-delay, high-throughput, or highly-reliable service.

- **Delay Mechanism:** Specifies the type of network delay mechanism to use for the time server connection.
- **IP Mode:** Specifies the type of internet protocol mode to use for the time server connection.
- **Master Clock Domain Number:** Specifies the master clock domain number.
- **Join Type:** Indicates the type of membership request made when IPv4 address is a multicast address.
- **Filter Type:** Specifies the type of filtering applied to the source list when IGMPv3 is used.
- **Filter List:** Lists IPv4 addresses to be included or excluded separated by a space character.



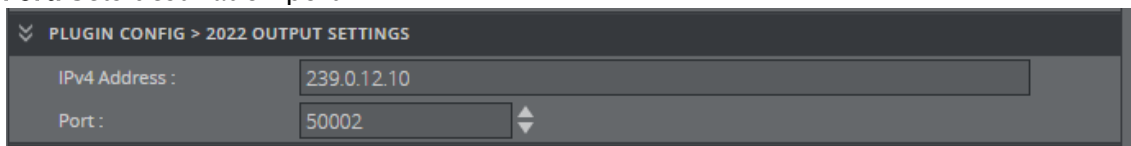
• **2059 Settings**

- **Best Master Selection:** Specifies the BMCA (Best Master Clock Algorithm) used to select the genlock over IP signal.



• **2022 Output Settings**

- **IPv4 Address:** Sets destination IPv4 address.
- **Port:** Sets destination port.



• **2110 Output Video Settings**

- **Enable:** Enables video flow when set to true.
- **IPv4 Address:** Sets destination IPv4 address.
- **Port:** Sets destination port.

- **RTP Payload ID:** Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true.

PLUGIN CONFIG > 2110 OUTPUT VIDEO SETTINGS

Enable :	On
IPv4 Address :	239.0.12.10
Port :	50002
RTP Payload ID :	96

- **2110 Output Audio Settings**

- **Enable:** Enables audio flow when set to true.
- **IPv4 Address:** Sets destination IPv4 address.
- **Port:** Sets destination port.
- **RTP Payload ID:** Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true.
- **Use Track Count:** Uses track count to specify the number of tracks for the outgoing IP stream when set to true.
- **Track Count:** Specifies the number of tracks for the incoming IP stream.
- **Packet Duration:** Indicates the duration of the incoming audio packet. The packet size (in samples) can be computed using the sample rate (48000 samples/sec) and the packet duration.

PLUGIN CONFIG > 2110 OUTPUT AUDIO SETTINGS

Enable :	On
IPv4 Address :	239.0.12.12
Port :	50004
RTP Payload ID :	97
Use Track Count :	Off
Track Count :	8
Packet Duration :	1ms

- **2110 Output ANC Settings**

- **Enable:** Enables ANC flow when set to true.
- **IPv4 Address:** Sets destination IPv4 address.
- **Port:** Sets destination port.
- **RTP Payload ID:** Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true.
- **SMPTE352:** Enables SMPTE 352 packets when set to true.

PLUGIN CONFIG > 2110 OUTPUT ANC SETTINGS


Enable :	On
IPv4 Address :	239.0.12.14
Port :	50006
RTP Payload ID :	100
SMPTE352 :	Off

Service Host Section

Only one setting can be set in this section:

- **Arguments:** Specifies the arguments that are going to be passed to Channel Recorder.

An example of a string that can be used for enabling log level debug is: `-v -l debug -n 10 -m 50`

 Channel Recorder 1.2 introduces two new parameters: n and m. n specify the maximum number of log files and m the maximum size of each log file in MB. By default, the number of log files is four and the maximum size of each log file is 10 MB.

See Also


- [Channel Recorder Control Commands](#)
- [Channel Recorder Startup Options](#)
- [Example Configuration File](#)

2.1.3 Example Configuration File

You can manually change the configuration, without using the web interface as described in [Channel Recorder Configuration](#).

The configuration file is located in `%ProgramData%\vizrt\ServiceHost\`.

The name of the configuration file is the **Service Name** that has been used during the registration of the instance.

 Manual manipulation of the configuration file is prone to errors. For this reason you are strongly advised not to do it. Whenever possible, use the web interface provided by Service Host.

```

<payload xmlns="http://www.vizrt.com/types" model="model.xml">
  <field name="plugin-config">
    <field name="2022-input-settings">
      <field name="ipv4address">
        <value>239.0.10.10</value>
      </field>
      <field name="join-type">
        <value>1</value>
      </field>
      <field name="packet-interval-threshold">
        <value>6.4</value>
      </field>
      <field name="port">
        <value>50002</value>
      </field>
    </field>
    <field name="2022-output-settings">
      <field name="ipv4address">
        <value>239.0.12.10</value>
      </field>
      <field name="port">
        <value>50002</value>
      </field>
    </field>
    <field name="2059-settings">
      <field name="best-master-selection">
        <value>1</value>
      </field>
    </field>
    <field name="2110-input-anc-settings">
      <field name="enable">
        <value>1</value>
      </field>
      <field name="filter-list">
        <value />
      </field>
      <field name="filter-type">
        <value>1</value>
      </field>
      <field name="ipv4address">
        <value>239.0.10.14</value>
      </field>
      <field name="join-type">
        <value>1</value>
      </field>
      <field name="packet-interval-threshold">
        <value>819.2</value>
      </field>
      <field name="port">
        <value>50006</value>
      </field>
      <field name="rtp-payload-id">
        <value>100</value>
      </field>
    </field>
  </payload>

```

```
<field name="rtp-payload-id-filtering">
  <value>0</value>
</field>
</field>
<field name="2110-input-audio-settings">
  <field name="enable">
    <value>1</value>
  </field>
  <field name="filter-list">
    <value />
  </field>
  <field name="filter-type">
    <value>1</value>
  </field>
  <field name="ipv4address">
    <value>239.0.10.12</value>
  </field>
  <field name="join-type">
    <value>1</value>
  </field>
  <field name="packet-duration">
    <value>3</value>
  </field>
  <field name="packet-interval-threshold">
    <value>102.4</value>
  </field>
  <field name="port">
    <value>50004</value>
  </field>
  <field name="rtp-payload-id">
    <value>97</value>
  </field>
  <field name="rtp-payload-id-filtering">
    <value>0</value>
  </field>
  <field name="track-count">
    <value>8</value>
  </field>
  <field name="use-track-count">
    <value>0</value>
  </field>
</field>
<field name="2110-input-video-settings">
  <field name="enable">
    <value>1</value>
  </field>
  <field name="filter-list">
    <value />
  </field>
  <field name="filter-type">
    <value>1</value>
  </field>
  <field name="ipv4address">
    <value>239.0.10.10</value>
  </field>
```

```
</field>
<field name="join-type">
  <value>1</value>
</field>
<field name="packet-interval-threshold">
  <value>6.4</value>
</field>
<field name="port">
  <value>50002</value>
</field>
<field name="rtp-payload-id">
  <value>96</value>
</field>
<field name="rtp-payload-id-filtering">
  <value>0</value>
</field>
</field>
<field name="2110-output-anc-settings">
  <field name="enable">
    <value>1</value>
  </field>
  <field name="ipv4address">
    <value>239.0.12.14</value>
  </field>
  <field name="port">
    <value>50006</value>
  </field>
  <field name="rtp-payload-id">
    <value>100</value>
  </field>
  <field name="smpte352">
    <value>0</value>
  </field>
</field>
<field name="2110-output-audio-settings">
  <field name="enable">
    <value>1</value>
  </field>
  <field name="ipv4address">
    <value>239.0.12.12</value>
  </field>
  <field name="packet-duration">
    <value>3</value>
  </field>
  <field name="port">
    <value>50004</value>
  </field>
  <field name="rtp-payload-id">
    <value>97</value>
  </field>
  <field name="track-count">
    <value>8</value>
  </field>
  <field name="use-track-count">
```

```

        <value>0</value>
    </field>
</field>
<field name="2110-output-video-settings">
    <field name="enable">
        <value>1</value>
    </field>
    <field name="ipv4address">
        <value>239.0.12.10</value>
    </field>
    <field name="port">
        <value>50002</value>
    </field>
    <field name="rtp-payload-id">
        <value>96</value>
    </field>
</field>
<field name="board-settings">
    <field name="serial-number">
        <value />
    </field>
</field>
<field name="capture-settings">
    <field name="alias-node-source">
        <value>INPUT</value>
    </field>
    <field name="clip-root">
        <value>V:/</value>
    </field>
    <field name="colorimetry">
        <value>1</value>
    </field>
    <field name="resolution">
        <value>NTSC</value>
    </field>
    <field name="uhd">
        <value>0</value>
    </field>
    <field name="v210">
        <value>0</value>
    </field>
    <field name="vbi">
        <value>1</value>
    </field>
</field>
<field name="clip-settings">
    <field name="audio-channels">
        <value>8</value>
    </field>
    <field name="bitrate">
        <value>0</value>
    </field>
    <field name="codec">
        <value>XDCam</value>
    </field>
</field>

```

```
</field>
<field name="container">
  <value>XDCAMMXF</value>
</field>
<field name="disk-access-size">
  <value>4MiB</value>
</field>
<field name="duration">
  <value>0</value>
</field>
<field name="file-extension">
  <value>1</value>
</field>
<field name="in">
  <value />
</field>
<field name="out">
  <value />
</field>
<field name="starttc">
  <value />
</field>
<field name="stop-at-end">
  <value>1</value>
</field>
<field name="tdir">
  <value>1</value>
</field>
<field name="tdir-interval">
  <value>10.0</value>
</field>
<field name="update-mt-enable">
  <value>0</value>
</field>
<field name="vbr">
  <value>0</value>
</field>
</field>
<field name="clock-settings">
  <field name="clock-type">
    <value>INPUT</value>
  </field>
  <field name="flywheel-timeout">
    <value>5</value>
  </field>
  <field name="genlock-flywheel">
    <value>0</value>
  </field>
</field>
<field name="coder-output-settings">
  <field name="ipv4address">
    <value>127.0.0.1</value>
  </field>
<field name="name">
```



```

        <value>SHM_CR</value>
    </field>
    <field name="port">
        <value>10002</value>
    </field>
</field>
<field name="communication-settings">
    <field name="command-handler-port">
        <value>6810</value>
    </field>
    <field name="mvp-port">
        <value>10000</value>
    </field>
</field>
<field name="input-settings">
    <field name="input">
        <value>VideoIn</value>
    </field>
</field>
<field name="log-settings">
    <field name="timecode-log-interval">
        <value>0</value>
    </field>
</field>
<field name="manager-settings">
    <field name="ring-buffer">
        <value>60</value>
    </field>
    <field name="timeout">
        <value>1000</value>
    </field>
</field>
<field name="output-settings">
    <field name="output">
        <value>None</value>
    </field>
</field>
<field name="persistence-settings">
    <field name="persistence">
        <value>0</value>
    </field>
    <field name="persistence-interval">
        <value>0.0</value>
    </field>
</field>
<field name="process-settings">
    <field name="priority">
        <value>REALTIME</value>
    </field>
</field>
<field name="scheduler-settings">
    <field name="timecode-source">
        <value>TIME_OF_DAY</value>
    </field>

```

```

    <field name="trigger-threshold">
      <value>5</value>
    </field>
    <field name="writers">
      <value>2</value>
    </field>
    <field name="inclusive-out">
      <value>0</value>
    </field>
    <field name="check-drop-frame">
      <value>1</value>
    </field>
  </field>
  <field name="sfp-a-2059-settings">
    <field name="delay-mechanism">
      <value>1</value>
    </field>
    <field name="filter-list">
      <value />
    </field>
    <field name="filter-type">
      <value>1</value>
    </field>
    <field name="ip-mode">
      <value>1</value>
    </field>
    <field name="join-type">
      <value>1</value>
    </field>
    <field name="master-clock-domain-number">
      <value>127</value>
    </field>
    <field name="type-of-service-dscp">
      <value>0</value>
    </field>
  </field>
  <field name="sfp-a-general-settings">
    <field name="ipv4address">
      <value>10.0.0.2</value>
    </field>
    <field name="ipv4gateway">
      <value>10.0.0.1</value>
    </field>
    <field name="ipv4netmask">
      <value>255.255.255.0</value>
    </field>
  </field>
  <field name="sfp-b-2059-settings">
    <field name="delay-mechanism">
      <value>1</value>
    </field>
    <field name="filter-list">
      <value />
    </field>
  </field>

```

```
<field name="filter-type">
  <value>1</value>
</field>
<field name="ip-mode">
  <value>1</value>
</field>
<field name="join-type">
  <value>1</value>
</field>
<field name="master-clock-domain-number">
  <value>127</value>
</field>
<field name="type-of-service-dscp">
  <value>0</value>
</field>
</field>
<field name="sfp-b-general-settings">
  <field name="ipv4address">
    <value>10.0.0.3</value>
  </field>
  <field name="ipv4gateway">
    <value>10.0.0.1</value>
  </field>
  <field name="ipv4netmask">
    <value>255.255.255.0</value>
  </field>
</field>
<field name="test-settings">
  <field name="performance-test-mode">
    <value>NONE</value>
  </field>
</field>
<field name="video-input-settings">
  <field name="connector">
    <value />
  </field>
</field>
<field name="video-output-settings">
  <field name="connector">
    <value>A</value>
  </field>
</field>
</field>
<field name="service-host">
  <field name="plugin">
    <field name="plugin-name">
      <value>ChannelRecorder</value>
    </field>
    <field name="plugin-arguments">
      <value />
    </field>
  </field>
</field>
</payload>
```

2.1.4 Integration with Other Services

Channel Recorder can be integrated with other services.

Viz Capture

The Viz Capture video acquisition tool can be configured to acquire assets using Channel Recorder. Integration of Channel Recorder with Viz Capture is based on the MLT Video Control Protocol, or MVCP. MVCP is by default activated on port **10000**. To change the port, refer to Channel Recorder Configuration.

For using Channel Recorder with VizCapture the following settings are specially important:

- **Inclusive Out:** By default, Channel Recorder will not record the last frame specified by Viz Capture. This must be changed to 1 if the value in Viz Capture application should match the recorded frames timecode.
- **Check Drop Frame:** By default, Channel Recorder will check if a timecode is a valid one in drop frame resolutions. Sometimes the input source could have a drop frame resolution with non-drop frame timecode. If this is the case, this value should be changed to 0.
- **Timecode Source:** When using VizCapture this value should be changed to VITC or LTC.

For further information on how to configure Viz Capture, or how to operate it on a Video Disk Recorder, refer to the Viz Capture Documentation.

Viz Dart

The Viz Dart video acquisition tool can be configured to acquire assets using Channel Recorder. Integration of Channel Recorder with Viz Dart is based on the MLT Video Control Protocol, or MVCP. MVCP is by default activated on port **10000**. To change the port, refer to [Channel Recorder Configuration](#).

For further information on how to configure Viz Dart, or how to operate it on a Video Disk Recorder, refer to the Viz Dart Documentation.

Coder

Coder is the next generation transcoder that can be used as a standalone component with Viz Engine, or in a MAM environment using Viz One. To setup the Channel Recorder to output to Coder, issue the following command:

```
CONFIG SET SHMOUT SHMNAME [shared memory name]
CONFIG SET SHMOUT ADDRESS [proxy hostname]
CONFIG SET SHMOUT PORT [proxy port]
OUTPUT START Coder
```

Alternatively, the output can be started automatically during startup. Refer to Output Settings in [Channel Recorder Configuration](#).

[proxy hostname] and [proxy port] are only used by Viz Coder Recording Proxy and are not necessary. This application automatically creates a job for Coder and transcodes using the setting

specified in an XML file bundled with the application. If Viz Coder Recording Proxy is not used, [proxy hostname] and [proxy port] can be left out.

To be able to use Coder with Channel Recorder in a new machine, follow these steps:

1. Install Viz Coder.
2. Go to C:\Program Files (x86)\vizrt\Coder and run **coder_slave.exe** in the cmd with Administrator privileges:

```
register_slave.exe http://[IP]:[Port]
```

Where [IP] IP address where Coder is installed (if in doubt use the localhost IP) and [Port] is the port that Coder is using (if in doubt use 8081 which is the default value of Coder port).

3. Go to C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Vizrt\Coder and run **run_benchmark.exe** by double clicking on it.

⚠ Do not run run_benchmark.exe from C:\Program Files (x86)\vizrt\Coder, since this will not work.

The port used by Coder can be checked in C:\ProgramData\vizrt\Coder\vizrt-coder-master.log

4. Go to Coder web interface [http://\[IP\]:\[Port\]/ui/war/index.html](http://[IP]:[Port]/ui/war/index.html) (e.g. <http://localhost:8081/ui/war/index.html>) and check if the slave worker is there by clicking the Workers tab.
5. Create a new live job with the following setting:
 - a. Input URL: shm://@[IP]:[shared memory name] where [IP] is the IP address where Channel Recorder is located and [shared memory name] is the shared memory name given in the configuration without the *Global* string.

⚠ To use Coder the shared memory name given in the configuration of Channel Recorder must be preceded by *Global* this is because Coder always expects the shared memory to be located in the Global namespace.

- b. Output URL: udp://@[IP]:[Port] where [IP] and [Port] is the IP address and port where the stream is going to be sent.
 - c. Profile URL: mpegts_mpeg2_720p.

⚠ The settings above are just example and can be changed, however it is recommended to test with these values first before experimenting with other values.

To test that the above steps are done correctly, open VLC and go to **Media > Open Network Stream** and use the address specified in Output URL when Channel Recorder is recording and using the appropriate configuration. Example of configuration for Coder:

```

<field name="coder-output-settings">
  <field name="name">
    <value>Global\viz_shm_cr_01</value>
  </field>
  <field name="ipv4address">
    <value>127.0.0.1</value>
  </field>
  <field name="port">
    <value>10002</value>
  </field>
</field>

```

Please note that Global\ is used for the name of the shared memory. For the Input URL only viz_shm_cr_01 should be given.

For further information on the configuration and operation of Coder, refer to the Media Service documentation.

See Also

- Media Service documentation
- Viz One documentation for Viz Dart
- [Channel Recorder Configuration](#)
- [References and Specifications](#)

2.1.5 Hardware and Software Requirements

Channel Recorder runs on the following hardware:

- HP Z840
- Dell R7910 (2U) Rack Server


The Viz Engine Administrator Guide provides a detailed description of these machines.

Channel Recorder requires one of the following Video Cards:

- Matrox X.mio3 IP
- Matrox X.mio3
- Matrox DSX LE4

Optional:

- Matrox M264

 The M264 encoder/decoder board is required for CPU intense codecs like XAVC and ProRes. It is mandatory for UHD recording and strongly recommended for ProRes and AVC codecs.

Channel Recorder requires Matrox DSX.utils version 9.9.0.23060.

See Also

- [Viz Engine Administrator Guide](#)

2.1.6 Removing Channel Recorder

Channel Recorder can be removed by using the web interface provided by Service Host. For more information please refer to the [Service Host](#) documentation.

See Also

- [Channel Recorder Startup Options](#)

2.1.7 Upgrading from 1.0

The biggest difference between Channel Recorder versions 1.0 and 1.1 is that Service Host is now the front end controller. Starting with version Channel Recorder version 1.1, Channel Recorder is considered a plugin of Service Host. This means that the Channel Recorder is managed by Service Host through the web interface that it provides. With Service Host you can:

- Register a new instance
- Remove an existing instance
- Start an existing instance
- Stop an existing instance
- Provide an **initial configuration** to an instance.

For more information, refer to the [Service Host](#) documentation.

Configuration file

For users upgrading from Channel Recorder 1.0, the only required step is the translation of the configuration into the new format. Previously, the configuration was provided via a simple text file located in %programdata%\vizrt\Channel Recorder.

This file might contain the following:

```
COMMAND_HANDLER PORT SET 6810
MAIN BOARD SELECT A523502
MVCP PORT 10000
CONFIG SET RINGBUFFERSIZE 60
MAIN CLOCKTYPE GENLOCK
MAIN CONNECTOR SELECT A
CONFIG SET FILEEXTENSION OFF
CONFIG SET PRIORITY REALTIME
CONFIG SET CLIP_ROOT D:/
CONFIG SET TIMEOUT 5000
CONFIG SET AUDIOCHANNELS 4
CONFIG SET CODEC XDCamHD
CONFIG SET CONTAINER XDCAMMXF
CONFIG SET TIMECODE TIME_OF_DAY
CONFIG SET TDIRENABLE FALSE
CONFIG SET VBI OFF
```

In Channel Recorder 1.1, the configuration is provided via an xml file located in %programdata%\vizrt\ServiceHost. The configuration file name is the **Service Name** used when registering the

Channel Recorder instance. This xml file can be edited directly, however, it is highly recommended that you use the Service Host web interface.

Note: All configuration settings that were in 1.0 are still present with the same parameters and similar names.

You must use the Service Host web interface and configure Channel Recorder appropriately to achieve the same behavior as in the old version. Configuration is described in [Channel Recorder Configuration](#).

Note: Do not forget to restart the instance after any changes to the configuration.

Log file

As with the configuration file, the log file is now located in %programdata%\vizrt\ServiceHost instead of %programdata%\vizrt\Channel Recorder.

The old file used to configure the logging mechanism is gone. The only option in the new version is to change the logging level. Refer to the Service Host Section in [Channel Recorder Configuration](#).

2.1.8 Upgrading from 1.1

This process should be handled automatically during the upgrade process. However, if the automatic upgrade fails, the user will not be able to configure or start the service. In this case, the user must:

1. Create a new service, with a different name than the old one, using the new installation to generate a new default configuration.

Info: Both the new and old configuration is located at C:\ProgramData\vizrt\ServiceHost

2. Copy manually the relevant configuration parameters from the old configuration to the new one using a text or XML editor.
3. The old configuration can be removed and the new configuration can be renamed as the old one. Now the service can be configured and started via the web interface.

2.2 Operation And Troubleshooting


You can use the application **Viz Send**, which is included in **Viz Artist** installation, to communicate with Channel Recorder. Connect the tool to the port specified in the **Channel Recorder** configuration file.

2.2.1 Channel Recorder Initialization

You can start Channel Recorder with the Service Host web interface.

When Channel Recorder is started, the following will happen:

1. User specified configuration runs in a specific order:
 - a. If no serial number is specified, Channel Recorder selects the first board detected by the system.
 - b. If no connector is selected, Channel Recorder fails to execute.
2. Depending on the selected clock type, one of the following can happen:
 - a. If GENLOCK is selected, Channel Recorder queries for the genlock signal. Channel Recorder compares the genlock frequency to the signal frequency. The signal frequencies need to be from the same frequency family, for example, 25_i and 50_p frequencies will match, but 29.97_i and 50_p will not.
 - b. If INPUT is selected, Channel Recorder does not query for the genlock signal.

 **Note:** INPUT clock type is only available for Matrox X.mio3 IP, Matrox X.mio3 and Matrox DSX LE4.

If everything works as expected, the input channel is set up and Channel Recorder starts capturing from it. As long as no clip is recorded, the captured frames are thrown away. When a recording starts, these frames are written to the file. This is necessary to be able to provide:

1. Instant recording
2. Scheduling of recordings

2.2.2 Workflow Example

1. Start the service from the Service Host web interface. For more information, refer to the [Service Host](#) documentation.
2. Check the log in the Service Host web interface to make sure that everything has started correctly. You can also check the log file located at %programdata%\vizrt\ServiceHost/[service name].
3. You should not see any errors or warning messages. If there is any error or warning messages, please try to amend it and restart the service using the web interface provided by Service Host. For more information, refer to the [Service Host](#) documentation. The following is an example of a successful initial run by Channel Recorder:


```

[2018-06-29 08:23:35.031 +02:00][24300][info]: Startup
'ChannelRecorder::ChannelRecorder::Initialize' as 'VizrtCRTest'
[2018-06-29 08:23:35.031 +02:00][24300][info]: Startup
'ChannelRecorder::ChannelRecorder::Initialize' version of ServiceHost is '1.1.0.77448.'
[2018-06-29 08:23:35.031 +02:00][24300][info]: Startup
'ChannelRecorder::ChannelRecorder::Initialize' version of ChannelRecorder is '1.1.0.77448.'
[2018-06-29 08:23:35.046 +02:00][24300][info]: [VizrtCRTest] starting up. thread-id: 24300
[2018-06-29 08:23:35.046 +02:00][24300][info]: [VizrtCRTest] Applying settings from configuration
file!
[2018-06-29 08:23:35.046 +02:00][24300][info]: [VizrtCRTest] Received: -1 COMMAND_HANDLER PORT SET
6810
[2018-06-29 08:23:35.046 +02:00][24300][info]: [VizrtCRTest] setting COMMAND_HANDLER PORT=6810
[2018-06-29 08:23:35.047 +02:00][24300][info]: [VizrtCRTest] OK
[2018-06-29 08:23:35.047 +02:00][24300][info]: [VizrtCRTest] Received: -1 MVCP PORT SET 10000
[2018-06-29 08:23:35.047 +02:00][24300][info]: [VizrtCRTest] setting MVCP PORT=10000
[2018-06-29 08:23:35.047 +02:00][24300][info]: [VizrtCRTest] OK
[2018-06-29 08:23:35.047 +02:00][24300][info]: [VizrtCRTest] Received: -1 CONFIG SET CLIP_ROOT D:/
cr_clips
[2018-06-29 08:23:35.047 +02:00][24300][info]: [VizrtCRTest] setting CLIP_ROOT=D:/cr_clips
[2018-06-29 08:23:35.047 +02:00][24300][info]: [VizrtCRTest] OK
[2018-06-29 08:23:35.047 +02:00][24300][info]: [VizrtCRTest] Received: -1 MAIN CONNECTOR SELECT A
[2018-06-29 08:23:39.303 +02:00][24300][info]: [VizrtCRTest::CaptureChannelSystemInA]
SetInputResolution: Detected input resolution is 1080i25
[2018-06-29 08:23:39.303 +02:00][24300][info]: [VizrtCRTest::CaptureChannelSystemInA]
DetectInputResolutionSdi: Selected resolution is 1080i25
[2018-06-29 08:23:40.908 +02:00][24300][info]: [VizrtCRTest] Capture from channel InA on board XMI03
/8/550 (serial: A523502)
[2018-06-29 08:23:40.909 +02:00][24300][info]: [VizrtCRTest] OK
[2018-06-29 08:23:40.909 +02:00][2916][info]: [VizrtCRTest::CaptureChannelSystemInA] starting up
[2018-06-29 08:23:40.912 +02:00][5000][info]:
[VizrtCRTest::CaptureChannelSystemInA::ClipOutChannel0] starting up
[2018-06-29 08:23:40.912 +02:00][29676][info]:
[VizrtCRTest::CaptureChannelSystemInA::ClipOutChannel1] starting up

```

4. The most common errors are not specifying a connector, or specifying a connector that is already in use or non-existing.

When Channel Recorder is successfully running, you can control it using Viz Send, or by using Viz Dart through the MVCP protocol. Refer to [Channel Recorder Control Commands](#) for available commands.

 **Note:** Telnet can also be used as a way to control Channel Recorder through the MVCP protocol.

2.2.3 Change of Input Resolution

Starting with version 1.1, the Channel Recorder handles input resolution changes during runtime. When Channel Recorder detects a change in the input resolution, it resets the channel to use the new resolution, without the need to restart the service. This requires that you select **INPUT as Clock Type** during initial configuration.

2.2.4 Recording with no Input Signal

Starting with version 1.1, the Channel Recorder can record without an input signal attached. When a signal is attached during recording, Channel Recorder will seamlessly use the signal. This means that the recorder file will have a black signal, plus the new connected signal. This requires that the configured resolution matches the connected signal resolution, and that you select the **INPUT Clock Type** during initial configuration.

2.2.5 Drop Frame Timecode

The user should be mindful when using commands to operate Channel Recorder than involves inputting timecode in drop frame resolutions. Such commands require the input of a valid timecode. However, when a timecode is not recognized as valid, Channel Recorder will try to fix it by rounding down the timecode to a valid one. For example:

```
RECORD SET schedule.mxf IN=15:00:00:00 OUT=16:00:00:00
```

Both timecodes are not valid when operating in drop frame resolution. The command and timecode will be automatically changed to:

```
RECORD SET schedule.mxf IN=15:00:00:04 OUT=16:00:00:04
```

See Also

- [Channel Recorder Control Commands](#)
- [Channel Recorder Startup Options](#)
- [Channel Recorder Configuration](#)

2.2.6 Troubleshooting Channel Recorder

This page contains some common troubleshooting tips:

- [ChannelRecorder and Viz Engine](#)
- [The Service Reports Timeout Errors](#)
- [Channel Recorder fails to initialize](#)
- [Recording UHD with XAVC produces specified compression format is not supported error](#)

ChannelRecorder and Viz Engine

As both Channel Recorder and Viz Engine are using a Matrox topology, make sure Viz Engine is being started before Channelrecorder if you need to use a shared input. If Viz Engine is started afterwards, the acquisition of the selected input connector will fail.

The Service Reports Timeout Errors

If Channel Recorder reports timeout errors, try increasing the timeout value by sending the command `CONFIG SET TIMEOUT [timeout]`, or by configuring the timeout value using the web interface provided by Service Host.

Channel Recorder fails to initialize

Channel Recorder will fail to initialize if GENLOCK is selected as clock type and no valid synchronization signal or input signal is connected to the Matrox video board. Make sure that the Matrox board is connected to an input and sync source.

Recording UHD with XAVC produces specified compression format is not supported error

UHD recording with XAVC requires a Matrox M264 board to be installed in the system. If the system does not have such a board installed, Channel Recorder will report that the specified compression format is not supported.

2.2.7 Logging

The log file for Channel Recorder is located at `%programdata%/vizrt/ServiceHost`. The log file name reflects the **Service Name** the Channel Recorder instance is registered as in Service Host.

For troubleshooting, you can enable a higher level of logging for more information. For more information, refer to the Service Host Section in [Channel Recorder Configuration](#).

2.2.8 Crash Recording

Channel Recorder can be used to instantly record any input signal into a clip file. The delay between command and first field written to the file is usually less than four fields.

An example of how to invoke crash recording with MVCP command would be the following:

```
UADD CS_ENCODER1 * SHAR Capture
LOAD U1 "MVCP_Crash" IN CRTE NOEX
CUER U1
REC U1
USTA U1
STOP U1
UNLD U1
UCLS U1
BYE
```

An example of how to invoke crash recording with regular Channel Recorder Commands:

```
RECORD CLIP Crash.mxf
RECORD START
RECORD STOP
```

Both examples will create an instant recording (also called a crash recording) using the values in the configuration file.

2.2.9 Loop Recording

This mode of recording only works with **Timecode Source** time of day.

Loop recordings can also be split into various chunks. These can either be specified via timecode format or with fields being written.

An example on how to run a loop recording using regular Channel Recorder commands:

```
RECORD LOOP CHUNK=00:01:00:00
RECORD LOOP PREFIX=Loopy
RECORD LOOP START
```

This will generate chunks, each consisting of one minute, until you stop the recording.

Possible options for loop recordings are:

- **Length:** Length of the loop in frames or timecode. At least this amount of frames will reside on the disk. The minimum length value is 00:02:00:00 or the equivalent number of fields / frames.
- **Chunk:** The size of one chunk in frames or timecode. The chunk size influences the loop length. The minimum chunk value is 00:00:10:00 or the equivalent number of fields / frames.
- **Disksize:** The size of the loop is defined by the size of the clips on the disk. The oldest clips are deleted until the disk size drops below the specified value.
- **Diskfree:** The size of the loop is defined by the space left on the disk. If it drops below the value, the oldest clips are deleted until at least the specified amount is free again.

An example on how LENGTH and CHUNK parameters are related:

```
RECORD LOOP CHUNK=00:00:30:00
RECORD LOOP LENGTH=00:04:00:00
RECORD LOOP PREFIX=Loopy
RECORD LOOP START
```

This will generate a total of nine files after four minutes. One of the files will always be zero bytes, this is the next file the Channel Recorder will write to. Another file will have a changing size, this is the file Channel Recorder is currently writing to. The other seven files have already been written. When Channel Recorder reaches four minutes it will start removing the first file it has written.

2.2.10 Scheduled Recording

Channel Recorder has its own scheduler to plan recordings in the future.

The command to record an input signal starting at 12:00 and running for one hour would be the following:

```
RECORD SET scheduled.mxf IN=12:00:00:00 OUT=13:00:00:00
```

If a scheduled recording is being interrupted by a loop or crash recording, the following logic applies:

- A recording is being issued while a scheduled recording is running: **The scheduled recording will be interrupted and stopped.**
- During loop recording someone decides to schedule a recording in the future: **The recording will be scheduled and run when/if the loop recording stops before the specified time, otherwise it will fail.**

2.3 References And Specifications

This section details references and specifications for the Channel Recorder.

This section contains the following topics:

- [Channel Recorder Startup Options](#)
- [Channel Recorder Control Commands](#)
- [Data Types](#)
- [Files and Directories](#)
- [Supported Multiport Video Computer Protocol \(MVCP\) Commands](#)
- [Supported Codecs](#)
- [Clock Behavior and Resolution](#)
- [Recording Modes and States](#)

2.3.1 Channel Recorder Startup Options

It is possible to reroute some commands to Channel Recorder during initialization. Refer to the Service Host Section in [Channel Recorder Configuration](#). The only use for this is to activate a higher level of logging.

2.3.2 Channel Recorder Control Commands

The application **Viz Send**, included in **Viz Artist** installation, can be used to communicate with Channel Recorder. Connect the tool to the port specified in the configuration file. The following commands are implemented in the service:

- [ABOUT](#)
- [MAIN](#)
- [OUTPUT](#)

- RECORD
- CONFIG
- CONFIG SET
- COMMUNICATION
- EXIT

ABOUT

Command	Description
ABOUT GET	Prints license information of all libraries used in this software.

MAIN

Some of the following commands must be called during initialization. To configure these commands, use the configuration web interface and the restart the service. Refer to [Channel Recorder Configuration](#) for more information.

Command	Description
MAIN VERSION	Returns application version.
GET VERSION	Returns application version. Same as MAIN VERSION.
MAIN HOSTNAME	Lists all available boards.
MAIN SVCNAME	Selects a board. The board is identified by the serial number. If the board with the given number is not found, the first board will be selected.
MAIN BOARD LIST	Lists all available boards.
MAIN BOARD SELECT [serial number]	Selects a board. The board is identified by the serial number. If the board with the given number is not found, the first board will be selected.
MAIN BOARD GET	Returns the selected boards.
MAIN CONNECTOR SELECT	Selects a connector. Connectors are labeled consecutively from A to H. When using an IP board this refers to the SFP.
MAIN CONNECTOR GET	Returns the selected connector.

Command	Description
MAIN CRASH [type]	Crashes the service. [type] can either be omitted or be one of: <ul style="list-style-type: none"> • MAIN: Crash the service (same as when omitted). • RECORD: Crash the recording thread.

OUTPUT

One output target can be initialized during startup. During execution more than one output can be enabled. For instance you can have VideoOut A and Coder enabled. Please refer to [Channel Recorder Configuration](#) to initialize an output during startup.

Command	Description
OUTPUT GET	Lists the active targets.
OUTPUT LIST	Lists available targets.
OUTPUT START [target]	<p>Starts an output handler for the specified [target]. Several output handlers can be started in parallel, but only one is allowed for each target. Valid targets are:</p> <ul style="list-style-type: none"> • VideoOut: This target requires one additional parameter: [connector]. The [connector] parameter specifies the video output connector of the Matrox board. <div style="border: 1px solid #f0e68c; padding: 10px; margin: 10px 0;"> <p>⚠ Example</p> <p>OUTPUT START VideoOut A</p> </div> <ul style="list-style-type: none"> • Coder: This target requires three additional parameters that can be configured via CONFIG SET SHMOUT commands. <div style="border: 1px solid #f0e68c; padding: 10px; margin: 10px 0;"> <p>⚠ Example</p> <p>OUTPUT START Coder SHMCoder1 localhost 12345</p> </div>
OUTPUT STOP [target]	Stops the output handler for the specified target.

RECORD

Crash recording / one-time scheduling

These are specific commands used only for crash and one-time scheduling of recording. These command are available from version 1.0. For scheduling, it is recommended to use RECORD SET introduced from version 1.1.

Command	Description
RECORD CLIP [clip name]	Sets the clip name and initializes the recorder. This command does not start recording (see RECORD START).
RECORD START [duration] [start time] [end mode]	<p>Starts or continues recording. The [duration], [start time], and [end mode] parameters are optional. However, the parameters are interdependent as follows:</p> <p>If the parameter [start time] is provided, [duration] is also required.</p> <p>If the parameter [end mode] is provided, [duration] is also required.</p> <p>The format for both is Timecode (see Data Types).</p> <p>[duration] and [start time] can be zero timecode, which will then be ignored.</p> <p>[end mode] can either be STOP, which finalizes and closes the clip, or PAUSE (default behavior), where the clip stays open and can be used for further recording.</p>
RECORD PAUSE	Pauses recording.
RECORD STOP [end time]	Stops recording and flushes the recorder. A new clip needs to be set afterwards (see RECORD CLIP). The end time is optional and specifies the timecode when the recording should end.

Example

Crash recording:

```
RECORD CLIP Crash.mxf
RECORD START
RECORD STOP
```

One-time scheduling recording:

```
RECORD CLIP Crash.mxf
RECORD START 600 15:00:00:00
```

Loop recording

These are specific commands used only for loop recording. It allows setup, start or stop loop recording. These are introduced from version 1.1.

Command	Description
RECORD LOOP [key=value] ... [key=value] [operation]	<p>Starts, stops or configures the settings for loop recording. Any number of properties can be applied in the form of key-value-pairs. If no property is supplied, and the entry does not yet exist, it is added with the default values. Available keys are:</p> <ul style="list-style-type: none"> • PREFIX Prefix to the filename. It will be appended with the timestamp of the start time. • POSTFIX Postfix to the filename. Will be appended after the timestamp. • LENGTH Length of the loop in frames or timecode. At least this amount of frames will reside on the disk. The minimum length value is 00:02:00:00 or the equivalent number of fields / frames. • CHUNK The size of one chunk in frames or timecode. The chunk size influences the loop length. The minimum chunk value is 00:00:30:00 or the equivalent number of fields / frames. • DISKSIZE The size of the loop is defined by the size of the clips on the disk. The oldest clips are deleted until the disk size drops below the specified value. • DISKFREE The size of the loop is defined by the space left on the disk. If it drops below the value, the oldest clips are deleted until at least the specified amount is free again. <p>[operation] can be START or STOP. When no [operation] is specified then only the settings are set for the specified key-value-pairs. It is possible to specify [key=value] [operation] at the same time but only when [operation] is START.</p> <div style="border: 1px solid #f0e68c; padding: 10px; margin-top: 10px;"> <p>⚠ Example</p> <pre>RECORD LOOP LENGTH=00:05:00:00 CHUNK=00:00:30:00 PREFIX=Loopy START RECORD LOOP STOP</pre> </div>

Scheduled recording

These are specific commands used only for scheduled recording. It allows setup, start or stop scheduled recording.

Command	Description
RECORD SET [name] [key=value] ... [key=value]	<p>Adds a new clip to the timeline, or changes a property of an entry defined by [name]. Any number of properties can be applied in the form of key-value-pairs. If no property is supplied, and the entry does not yet exist, it is added with the default values. Available keys are:</p> <ul style="list-style-type: none"> • FILE_EXTENSION Enables or disables automatically adding a file extension to the file name. If this feature is turned off, the client application has full control over the file name. • CONTAINER Set the container type of the recorded file. With the container type, a default codec is also set. By setting the container type, a valid recording can be started. • CODEC Set the codec type of the recorded file. By setting the codec type, default values for bitrate and audio will also be set. • BITRATE Set the bitrate for the video encoding. The value can either be applied as bits per second or as Megabits per second. Not all codecs allow changes to the bitrate. In such cases, BITRATE will be ignored. • IN Set the default value for the recording in point. The value must be in timecode format: 00:00:00:00. • OUT Set the default value for the recording out point. The value must be in timecode format: 00:00:00:00. • DURATION Set the default value for the recording duration. The value can be in frames or in timecode format: 00:00:00:00. • STARTTTC Set the default value for the starting timecode. The value must be in timecode format: 00:00:00:00. • AUDIOCHANNELS Set the number of audio channels to record. How many channels are actually recorded depends on the codec and the input signal. • DISKACCESSSIZE Set the size of data blocks written to the disk in byte. Postfixes like KiB, Kb, k, etc., are allowed, but must not be separated from the value with a blank space. The default value is 4MiB (4194304 bytes). The minimum value is 32KiB (32768 bytes). KiB and k multiplies the value by 1024. kb multiplies the value by 1000. The same works with m for mega and g for giga. • VBR Set whether the recorded file, when the format supports it, should be in VBR (Variable Bit Rate) or not. • TDIR Set the default behavior of TDIR (Time Delayed Instant Replay). • TDIRINTERVAL Set the interval of file header updates in TDIR (Time Delayed Instant Replay) recordings. The value is in seconds and fractions of seconds, meaning both 11.1 and 11.2 are considered valid values. Minimum allowed value is 10s, which is interpreted by Channel Recorder as every frame. The maximum value is 60.0s.

Command	Description
	<ul style="list-style-type: none"> · UPDATEMT Update the modification time of the recorded clip regardless of TDIR value. The initial value is ON. · STOPATEND Set the default behavior at the end of the recording. <p>For more information regarding these settings possible values and default values check the section CONFIG SET below.</p>
RECORD REMOVE [name] ... [name]	Removes the entry [name]. Multiple [name] arguments can be provided.
RECORD GET [name] [key] ... [name] [key]	Lists all entries or shows the properties of an entry. If no parameter is applied, a list of all scheduled clips is returned. Any number of [name] and [key] can be applied. The values of all keys will be returned for all values. If no [key] is provided, all values of the applied keys will be returned and vice versa. This means that if you call RECORD GET with clip names only, the command returns all properties of these clips. When called with properties only, it will return this property for all clips. A special [key] is TIMELINE, which returns all entries in the timeline.

Common record commands

Some of these commands are only used for loop and crash recording, while others are used for all three modes.

Command	Description
RECORD DURATION	If no duration parameter is applied to the command, it returns the timecode relative to the start timecode . If a duration parameter is applied, the duration of an ongoing recording is changed. The duration parameter can be specified as either a number of frames or a timecode (see Data Types). In the case of loop and schedule recording the value used to set using this command is ignored.
RECORD RESOLUTION GET	Returns the resolution the Channel Recorder is running at.
RECORD STATE	<p>Returns the state the Record Channel service is in. By default state is idle. State is only invalid when the clip was configured incorrectly (e.g. container / codec combination is wrong).</p> <div style="border: 1px solid #ffc107; padding: 10px; margin-top: 10px;"> <p>⚠ State flow:</p> <pre> Idle -- Start() --> Recording -- Stop() --> Paused ^ `-- Flush() -----+-----` </pre> </div>

Command	Description
RECORD STARTTC [starttc]	Defines which start timecode to use for the recording. If the command is not called before the recording starts, the current timecode is written to the clip. If no value is given, the command returns the current value. This is only used for loop and schedule recording.

CONFIG

Command	Description
CONFIG GET	Gets the current settings.
CONFIG LIST [argument]	Lists all available variables. The optional [argument] flag provides information specific to the applied argument. Known arguments are: <ul style="list-style-type: none"> • CONTAINER Displays all known container types. • CODEC Displays all known codec types. • DUMP Displays the current dump file setting. • PRIORITY Displays the current process priority setting.
CONFIG SET [variable] [value]	Sets the [variable] to [value]. To get all available variables, call CONFIG LIST. Refer also to variables and values for CONFIG SET below.

CONFIG SET

Variable and values for CONFIG SET command. The CONFIG SET command is used to set the configuration globally, this means that all the recording mode will use these settings by default unless specified otherwise. Only schedule recording can specify different settings for each schedule by specifying them via RECORD SET command.

IPIN

Variable	Value
IPIN SDIIP ADDRESS [address]	Destination IPv4 address. The default value is 239.0.10.10.
IPIN SDIIP PORT [port]	Destination port. The default value is 50002.
IPIN SDIIP PACKETINTERVALTHRES HOLD [threshold]	Indicates the threshold for generating the time interval between the IP packets alarm on the main IP stream. The range is from 6.4 nanoseconds to 419424.0 nanoseconds in intervals of 6.4 nanoseconds. The default value is 6.4.

Variable	Value
IPIN SDIIP JOINTYPE [type]	Indicates the type of membership request made when IPv4 address is a multicast address. Valid values for [type] are: <ul style="list-style-type: none"> • 0 None • 1 IGMPv2 • 2 IGMPv3 The default value is None.
IPIN IPVIDEO [bool]	If true, enables video flow.
IPIN IPVIDEO ADDRESS [address]	Destination IPv4 address. The default value is 239.0.10.10.
IPIN IPVIDEO PORT [port]	Destination port. The default value is 50002.
IPIN IPVIDEO RTPPAYLOADIDFILTERING [bool]	If true, the RTP Payload ID value will be used to filter the incoming network packets.
IPIN IPVIDEO RTPPAYLOADID [id]	Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true. The default value is 96.
IPIN IPVIDEO PACKETINTERVALTHRESHOLD [threshold]	Indicates the threshold for generating the time interval between the IP packets alarm on the main IP stream. For video, the range is from 6.4 nanoseconds to 419424.0 nanoseconds in intervals of 6.4 nanoseconds. The default value is 6.4.
IPIN IPVIDEO JOINTYPE [type]	Indicates the type of membership request made when IPv4 address is a multicast address. Valid values for [type] are: <ul style="list-style-type: none"> • 0 None • 1 IGMPv2 • 2 IGMPv3 The default value is None.
IPIN IPANC FILTERTYPE [type]	Specifies the type of filtering applied to the source list when IGMPv3 is used. Valid values for [type] are: <ul style="list-style-type: none"> • 1 Inclusion • 2 Exclusion The default value is 1.
IPIN IPAUDIO FILTERLIST [list of ips]	List of IPv4 addresses to be included or excluded separated by a space character.
IPIN IPAUDIO [bool]	If true, enables audio flow.


Variable	Value
IPIN IPAUDIO ADDRESS [address]	Destination IPv4 address. The default value is 239.0.10.12.
IPIN IPAUDIO PORT [port]	Destination port. The default value is 50004.
IPIN IPAUDIO RTPPAYLOADIDFILTERING [bool]	If true, the RTP Payload ID value will be used to filter the incoming network packets.
IPIN IPAUDIO RTPPAYLOADID [id]	Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true. The default value is 97.
IPIN IPAUDIO PACKETINTERVALTHRESHOLD [threshold]	Indicates the threshold for generating the time interval between the IP packets alarm on the main IP stream. For audio, the range is from 102.4 nanoseconds to 6710681.6 nanoseconds in intervals of 102.4 nanoseconds. The default value is 102.4.
IPIN IPAUDIO JOINTYPE [type]	Indicates the type of membership request made when IPv4 address is a multicast address. Valid values for [type] are: <ul style="list-style-type: none"> • 0 None • 1 IGMPv2 • 2 IGMPv3 The default value is None.
IPIN IPANC FILTERTYPE [type]	Specifies the type of filtering applied to the source list when IGMPv3 is used. Valid values for [type] are: <ul style="list-style-type: none"> • 1 Inclusion • 2 Exclusion The default value is 1.
IPIN IPAUDIO FILTERLIST [list of ips]	List of IPv4 addresses to be included or excluded separated by a space character.
IPIN IPAUDIO USETRACKCOUNT [bool]	If true, uses track count to specify the number of tracks for the incoming IP stream. The default value is OFF.

Variable	Value
IPIN IPAUDIO TRACKCOUNT [count]	<p>Specifies the number of tracks for the incoming IP stream. Valid values for [count] are:</p> <ul style="list-style-type: none"> • 1 Mono • 2 Stereo • 4 4 • 8 8 • 16 16 • 32 32 • 64 64 <p>The default value is 8.</p>
IPIN IPAUDIO PACKETDURATION [duration]	<p>Indicates the duration of the incoming audio packet. The packet size (in samples) can be computed using the sample rate (48000 samples/sec) and the packet duration. Valid values for [duration] are:</p> <ul style="list-style-type: none"> • 0 125us • 1 250us • 2 333us • 3 1ms • 4 4ms <p>The default value is 3.</p>
IPIN IPANC [bool]	If true, enables ANC flow.
IPIN IPANC ADDRESS [address]	Destination IPv4 address. The default value is 239.0.10.14.
IPIN IPANC PORT [port]	Destination port. The default value is 50006.
IPIN IPANC RTPPAYLOADIDFILTERING [bool]	If true, the RTP Payload ID value will be used to filter the incoming network packets. The default value is OFF.
IPIN IPANC RTPPAYLOADID [id]	Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true. The default value is 100.
IPIN IPANC PACKETINTERVALTHRESHOLD [threshold]	Indicates the threshold for generating the time interval between the IP packets alarm on the main IP stream. For ancillary data, the range is from 819.2 nanoseconds to 53685452.8 nanoseconds in intervals of 819.2 nanoseconds. The default value is 819.2.

Variable	Value
IPIN IPANC JOINTYPE [type]	Indicates the type of membership request made when IPv4 address is a multicast address. Valid values for [type] are: <ul style="list-style-type: none"> • 0 None • 1 IGMPv2 • 2 IGMPv3 The default value is None.
IPIN IPANC FILTERTYPE [type]	Specifies the type of filtering applied to the source list when IGMPv3 is used. Valid values for [type] are: <ul style="list-style-type: none"> • 1 Inclusion • 2 Exclusion The default value is 1.
IPIN IPANC FILTERLIST [list of ips]	List of IPv4 addresses to be included or excluded separated by a space character.

SFP

[sfp] can be A or B and it refers to the SFP cage.

 These parameters are board-wide meaning that any change done will affect any other instances of any application that is using the board. The values for these parameters should be the same for every instances of Channel Recorder that is using the board.

Variable	Value
SFP [sfp] ADDRESS [ip]	IPv4 address. The default value is 10.0.0.3.
SFP [sfp] GATEWAY [ip]	IPv4 gateway. The default value is 10.0.0.1.
SFP [sfp] NETMASK [ip]	IPv4 netmask. The default value is 255.255.255.0.
SFP [sfp] TOSDSCP [number]	Specifies a datagram's priority and request a route for low-delay, high-throughput, or highly-reliable service. The default value is 0.

Variable	Value
SFP [sfp] DELAYMECHANISM [mechanism]	Specifies the type of network delay mechanism to use for the time server connection. Valid values for [mechanism] are: <ul style="list-style-type: none"> • 1 End-to-End • 2 Peer-to-Peer The default value is End-to-End.
SFP [sfp] IPMODE [mode]	Specifies the type of internet protocol mode to use for the time server connection. Valid values for [mode] are: <ul style="list-style-type: none"> • 1 Multicast • 2 Unicast • 3 Hybrid The default value is Multicast.
SFP [sfp] MASTERCLOCKDOMAINNUMBER [number]	Specifies the master clock domain number. The default value is 127.
SFP [sfp] JOINTYPE [type]	Indicates the type of membership request made when IPv4 address is a multicast address. Valid values for [type] are: <ul style="list-style-type: none"> • 0 None • 1 IGMPv2 • 2 IGMPv3 The default value is None.
SFP [sfp] FILTERTYPE [type]	Specifies the type of filtering applied to the source list when IGMPv3 is used. Valid values for [type] are: <ul style="list-style-type: none"> • 1 Inclusion • 2 Exclusion The default value is 1.
SFP [sfp] FILTERLIST [list of ips]	List of IPv4 addresses to be included or excluded separated by a space character.

2059

Variable	Value
2059 BESTMASTERSELECTION	Specifies the BMCA (Best Master Cock Algorithm) used to select the genlock over IP signal.

Process

Variable	Value
PRIORITY [priority]	<p>Sets the process priority class. The values correspond to the Windows process priority. Valid values for [priority] are:</p> <ul style="list-style-type: none"> • IDLE • BELOW_NORMAL • NORMAL • ABOVE_NORMAL • HIGH • REALTIME <p>The default value is REALTIME.</p>

Capture

All the configuration below requires a channel restart. This can be achieved by restarting the service or by calling [MAIN CONNECTOR SELECT](#) while Channel Recorder is running.

Variable	Value
CLIP_ROOT [path]	Sets the root folder for the captured files. If the filename in command RECORD CLIP does not contain a absolute path name, the CLIP_ROOT is prepended.
UHD [bool]	Enables detection of UHDTV signals. When set to ON, the Channel Recorder scans the signal resolution on the four corresponding input connectors. If four 3G signals are detected, they are interpreted as one UHDTV signal. When set to OFF, the four connectors are treated as separate 3G signals. This flag must be set before selecting a connector using MAIN CONNECTOR SELECT . The default value is OFF.
V210 [bool]	Uses the 10-bit surface format V210. This is needed to record XAVC. It also increases performance when for example recording ProRes. This surface format is not supported on the Matrox X.mio2+. This flag must be set before selecting a connector using MAIN CONNECTOR SELECT . The default value is OFF.
COLORIMETRY	Specifies the colorimetry to be used to be able to record in HDR. By default ITUR_BT_601 will be used for SD resolution and ITUR_BT_709 for HD and UHD resolution.
VBI [bool]	Turns off VBI recording. The default value is ON. This flag must be set before selecting a connector using MAIN CONNECTOR SELECT .

Variable	Value
RESOLUTION [resolution]	<p>Sets the default resolution. Format of [resolution] is: WxHs@F, WxHs@FM, Hs@F, Hs@FM, NTSC, PAL With w = Width, H = Height, s = Scanmode, F = Framerate, and M = Drop Frame Flag. Possible values for s are:</p> <ul style="list-style-type: none"> · i or I: Interlaced · p or P: Progressive · psf or PSF: Progressive segmented <p>M is optional, and as an alternative, you can use framerate with two decimal points (e.g. 30M = 29.97). Examples: NTSC, PAL, 1280x720p@50, 1920X1080P@50, 1280x720p@60M, 1280x720p@59.97, 720p50, 720P60M, 1080P50. This flag must be set before selecting a connector using MAIN CONNECTOR SELECT. The default value is NTSC.</p>
ALIASNODESOURCE [source]	Specifies the source of the alias node which specify from which output or input connector the application will record.

Test

Variable	Value
PERFORMANCETESTMODE [mode]	Sets the number of audio channels to record. How many channels are actually recorded depends on the codec and the input signal.

Manager

Variable	Value
RINGBUFFERSIZE [size]	Sets the size of the capture ring buffer. The default value is 60.
TIMEOUT [timecode]	Sets the timeout for the capture operation in milliseconds. If the recorder reports timeout errors, increasing the timeout could help. Refer to Data Types for information on time code formatting.

Persistence

Variable	Value
PERSISTENCE [bool]	Turns on persistence for operational data like the config and the timeline. The default value is Off.

Variable	Value
PERSISTENCEINTERVAL [seconds]	Sets the interval, at which the data is written to the disk. The value is in seconds and fractions of seconds, meaning both 0.1 and 1.0 are considered valid values. A value of 0 means that every change is written. The default value is 0.

Log



Variable	Value
TCLOGINTERVAL [frames timecode]	Specifies the interval at which the current timecode is logged. The value can either be a number of frames or a timecode-based relative value. The default value is 0, which means that every full second is logged.



Scheduler



Clip

For the following parameters to take effect Channel Recorder does not need to be restarted, however, a new recording must be issued.

Variable	Value
FILE_EXTENSION [bool]	Enables or disables automatically adding a file extension to the file name. If this feature is turned off, the client application has full control over the file name. The default value is ON. Please refer to Data Types for details on accepted boolean values.

Variable	Value
CONTAINER [container type]	<p>Sets the container type of the recorded file. With the container type, a default codec is also set. By setting the container type, a valid recording can be started. Known container types are:</p> <ul style="list-style-type: none"> • AVCINTRAMXF (See note regarding audio and timecode support) • AVI • DVCPRAMXF (See note regarding audio and timecode support) • MOV • MXF (See note regarding audio and timecode support) • XAVCMXF (See note regarding audio and timecode support) (Requires a Matrox M264 card in order to work) • XDCAMMXF (See note regarding audio and timecode support) <div data-bbox="464 808 1426 929" style="border: 1px solid #f9e79f; padding: 10px; margin-top: 10px;"> <p> To utilize the TDIR capabilities of the ProRes codec with a .mov container in Viz Engine, you must use the .Ref-file</p> </div> <div data-bbox="464 958 1426 1240" style="border: 1px solid #f9e79f; padding: 10px; margin-top: 10px;"> <p> When container is XDCAMMXF the default codec will be XDCam which is HD422. The default bitrate for XDCam, XDCamEX and XDCamHD are 50, 35 and 35 or 25 respectively. XDCamEX will output 1920x1080 clip at 35 Mbps and XDCamHD will output 1440x1080 clip at 35 Mbps (VBR) or 25 Mbps (CBR) depending on the bitrate chosen. Refer to the Supported Codecs for further details.</p> </div>

Variable	Value
CODEC [codec type]	<p>Sets the codec type of the recorded file. By setting the codec type, default values for bitrate and audio will also be set. These values can be changed (see below). Not all codec types are available with all container types. Available codec types are:</p> <ul style="list-style-type: none"> • DvCam • DvCPro • Dv50 • IFrame • XDCam (See note regarding bitrates specification) • XDCamEX (See note regarding bitrates specification) • XDCamHD (See note regarding bitrates specification) • AVCIntra50 • AVCIntra100 • ProRes • XAVC <div style="border: 1px solid #f9e79f; padding: 10px; margin-top: 10px;"> <p> To utilize the TDIR capabilities of the ProRes codec with a .mov container in Viz Engine, you must use the .Ref-file</p> </div> <div style="border: 1px solid #f9e79f; padding: 10px; margin-top: 10px;"> <p> When container is XDCAMMXF the default codec will be XDCam which is HD422. The default bitrate for XDCam, XDCamEX and XDCamHD are 50, 35 and 35 or 25 respectively. XDCamEX will output 1920x1080 clip at 35 Mbps and XDCamHD will output 1440x1080 clip at 35 Mbps (VBR) or 25 Mbps (CBR) depending on the bitrate chosen. Refer to the Supported Codecs for further details.</p> </div>
BITRATE [rate]	Sets the bitrate for the video encoding. The value can either be applied as bits per second or as Megabits per second. Not all codecs allow changes to the bitrate. In such cases, BITRATE will be ignored.
IN [timecode]	Sets the default value for the recording start time. The initial value is empty.
OUT [timecode]	Sets the default value for the recording stop time. The initial value is empty.
DURATION [frames timecode]	Sets the default value for the recording duration. The initial value is 0. When applying a duration to the RECORD START command, the default value is ignored but not changed. Refer to Data Types for information on time code formatting.

Variable	Value
STARTTC [timecode]	Sets the default value for the starting timecode. The value must be in timecode format: 00:00:00:00.
AUDIOCHANNELS [channels]	Sets the number of audio channels to record. How many channels are actually recorded depends on the codec and the input signal.
DISKACCESSSIZE [size]	<p>Sets the size of data blocks written to the disk in byte. Postfixes like KiB, Kb, k, etc., are allowed, but must not be separated from the value with a blank space (see example). The default value is 4 MiB (4194304 bytes). The minimum value is 32 KiB (32768 bytes). KiB and k multiplies the value by 1024. kb multiplies the value by 1000. The same works with m for mega and g for giga.</p> <div style="border: 1px solid #ffc107; padding: 10px; margin-top: 10px;"> <p> Example CONFIG SET DISKACCESSSIZE 1024KiB</p> </div>
VBR [bool]	Activates variable bit rates for codecs which support it (currently XAVC only). The default setting is OFF.
TDIR [bool]	Sets the default behavior of TDIR (Time Delayed Instant Replay). The default setting is ON.
TDIRINTERVAL [time]	<p>Sets the interval of file header updates in TDIR recordings. The value is in seconds and fractions of seconds, meaning both 0.1 and 1.0 are considered valid values. Minimum allowed value is 0.001, which is interpreted by Channel Recorder as every frame. A typical value would be 10.0, the default value is 3.0.</p> <div style="border: 1px solid #dc3545; padding: 10px; margin-top: 10px;"> <p> In order to secure proper operation with Viz Engine, this value must not exceed 10.0.</p> </div>
UPDATENT [bool]	Updates the modification time of the recorded clip regardless of TDIR value. The initial value is ON.
STOPATEND [bool]	Sets the default behavior at the end of the recording.

Clock Type

Variable	Value
CLOCKTYPE [type]	<p>Defines the type of clock used. Valid values for [type] are:</p> <ul style="list-style-type: none"> · INPUT · GENLOCK <div style="border: 1px solid #ffc107; padding: 5px; margin-top: 10px;"> <p>⚠ Note: INPUT clock should be use if automatic detection of input is a requirement.</p> </div>
GENLOCKFLYWHEEL [bool]	If genlock is used, also use the flywheel in case of genlock loss. The default value is OFF.
FLYWHEELTIMEOUT [timeout]	Sets the timeout for the genlock flywheel in seconds. This defines the time until the genlock switches to free run, as well as the maximum time the flywheel can use to resynchronize. The initial value is 5.0.

IPOUT

Variable	Value
IPOUT SDIIP ADDRESS [address]	Destination IPv4 address. The default value is 239.0.12.10.
IPOUT SDIIP PORT [port]	Destination port. The default value is 50002.
IPOUT IPVIDEO [bool]	If true, enables video flow.
IPOUT IPVIDEO ADDRESS [address]	Destination IPv4 address. The default value is 239.0.12.10.
IPOUT IPVIDEO PORT [port]	Destination port. The default value is 50002.
IPOUT IPVIDEO RTPPAYLOADID [id]	Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true. The default value is 97.
IPOUT IPAUDIO [bool]	If true, enables audio flow.
IPOUT IPAUDIO ADDRESS [address]	Destination IPv4 address. The default value is 239.0.12.12.
IPOUT IPAUDIO PORT [port]	Destination port. The default value is 50004.

Variable	Value
IPOUT IPAUDIO RTPPAYLOADID [id]	Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true. The default value is 98.
IPOUT IPAUDIO USETRACKCOUNT [bool]	If true, uses track count to specify the number of tracks for the outgoing IP stream. The default value is OFF.
IPOUT IPAUDIO TRACKCOUNT [count]	Specifies the number of tracks for the incoming IP stream. Valid values for [count] are: <ul style="list-style-type: none"> • 1 Mono • 2 Stereo • 4 4 • 8 8 • 16 16 • 32 32 • 64 64 The default value is 8.
IPOUT IPAUDIO PACKETDURATION [duration]	Indicates the duration of the incoming audio packet. The packet size (in samples) can be computed using the sample rate (48000 samples/sec) and the packet duration. Valid values for [duration] are: <ul style="list-style-type: none"> • 0 125us • 1 250us • 2 333us • 3 1ms • 4 4ms The default value is 3.
IPOUT IPANC [bool]	If true, enables ANC flow.
IPOUT IPANC ADDRESS [address]	Destination IPv4 address. The default value is 239.0.12.14.
IPOUT IPANC PORT [port]	Destination port. The default value is 50006.
IPOUT IPANC RTPPAYLOADID [id]	Indicates the RTP (Real-time Transfer Protocol) Payload ID to capture. Used when RTP Payload ID is set to true. The default value is 100.
IPOUT IPANC SMPTE352 [bool]	If true, enables SMPTE 352 packets. The default value is OFF.

SHMOUT

Variable	Value
SHMOUT SHMNAME [name]	Shared memory name. The default value is SHM_CR.
SHMOUT ADDRESS [address]	Destination IPv4 address. The default value is 127.0.0.1.
SHMOUT PORT [port]	Destination port. The default value is 10002.

COMMUNICATION

Command	Description
COMMAND_HANDLER PORT SET [port]	Sets the port of the command interface. A port can only be set once.
COMMAND_HANDLER DUMP	Prints this list of available commands.
MVCP PORT [port]	Sets the port for the MVCP communication. This command is required to initialize MVCP.

EXIT

Command	Description
exit, EXIT	Stops all channels, clean up the hardware and stop the service.

2.3.3Data Types

Booleans

Booleans are a data type with only two possible values; true or false. The Channel Recorder accepts YES, NO, TRUE, FALSE, ON, or OFF as boolean values, where:

- YES, TRUE and ON are positive values switching a flag **on**, and
- NO, FALSE and OFF are negative values switching a flag **off**.

Timecodes

Timecodes in Channel Recorder have the form <hh>:<mm>:<ss>:<ff>, where

- <hh> represents the hour in 24 hour format,
- <mm> is minutes,
- <ss> is seconds, and
- <ff> refers to the frame number, according to the frame rate.

⚠ Example: A zero timecode looks like this: 00:00:00:00.

2.3.4 Files and Directories

The Channel Recorder uses various files and directories while running.

Description	Type	Location
Installation Directory	Directory	<viz install folder>\ServiceHost
ProgramData Directory	Directory	%ProgramData%\vizrt\ServiceHost
Log	File	<instance_name>.log
	Path	%ProgramData%\vizrt\ServiceHost\<instance_name>.log
Configuration	File	<instance_name>.conf
	Path	%ProgramData%\vizrt\ServiceHost\<instance_name>.conf

2.3.5 Supported Multiport Video Computer Protocol (MVCP) Commands

Channel Recorder supports the following sets of Multiport Video Computer Protocol (MVCP) commands:

Supported Global MVCP Commands

Command	Function
BYE	Closes the current connection.
MON	Initiates event monitoring mode.

Command	Function
PLS	Returns the supported media ports.
UADD	Creates a new unit.
ULS	Returns the existing VST units.

Supported Unit MVCP Commands

Command	Function
CCST	Gets the current status of the VST Clip Cache (the numbers displayed are bytes used/available)
CUER	Cues recording of the unit's currently loaded clip.
LOAD	Loads a clip into a unit.
SET	Sets controls for the unit: vtr.media.clip.format : Allowed values: [movie/stream/mxf] vtr.media.video.input.compression.type [mpg2] vtr.media.mpeg.bit_rate : Sets the recording bitrate. vtr.media.mpeg.imx : Enables IMX recording. vtr.media.audio.input.channels : Sets the number of audio channels to record. vtr.media.audio.input.sample.width : Sets audio bits per sample. vtr.media.video.standard : The command is understood, however, as the video standard is determined by the input signal, it does not get changed. vtr.media.input.trigger.duration.out : Sets the duration of the recording. vtr.media.clip.start.mode : Allowed values: [time-of-day][vitc][ltc]
STOP	Stops playback or recording.
UCLS	Closes a unit.
UNLD	Unloads the unit's currently loaded clip.
USTA	Returns the status of a unit.

See Also

- The [Video Server Toolkit Developer's Guide](http://ftp.sgi.com) on ftp.sgi.com.

2.3.6 Supported Codecs

The Channel Recorder supports the following containers and codecs.

i If a combination of CODEC / CONTAINER / RESOLUTION is not supported Channel Recorder will flood the logs with error. If this happens stop the recording using RECORD STOP. Please make sure that the mentioned combination are supported by consulting the tables below.

i Only the containers AVCINTRAMXF, DVCPROMXF, XDCAMMXF, XAVCMXF support capturing of closed caption. The closed caption must be part of SMPTE 334M CDP. The captured close caption will be found in the recorded clip in the wrapper according to SMPTE 436M and in the actual MXF essence.

i The examples below are not exhaustive. The parameter that can be changed within the example are in bold.

- PAL Codecs
 - MPEG-IFrame
 - DVCAM
 - DVCPRO
 - XDCAM
- NTSC Codecs
 - MPEG IFrame
 - DVCAM
 - DVCPRO
 - XDCAM
- 720p50 and 720p59.94 (60M) Codecs
 - MPEG-IFrame
 - DVCPRO HD
 - XDCAM HD 422
 - XDCAM EX HQ
 - AVC-Intra
 - ProRes
- 1080i25 and 1080i29.97 (30M) Codecs
 - MPEG-IFrame
 - DVCPRO HD
 - XDCAM HD 422
 - XDCAM HD LP
 - XDCAM HD SP
 - XDCAM HD HQ

- XDCAM EX HQ
- AVC-Intra
- ProRes
- 1080p50 and 1080p59.94 (60M) Codecs
 - AVC-Intra
 - MPEG-IFrame
 - ProRes
- 2160p50 and 2160p59.94 (60M) Codecs
 - XAVC

PAL Codecs

MPEG-IFrame

Container	Codec	Features	Audio	VizSend Example
.avi	MPEG2-IFrame422 720x576	Alpha: No Bitrate: 10-50 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC IFrame CONFIG SET CONTAINER AVI CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

DVCAM

Container	Codec	Features	Audio	VizSend Example
.avi	DV/ DVCAM 4:2:0 720x576	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCam CONFIG SET CONTAINER AVI CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mov	DVCAM 4:2:0 720x576	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: N/A CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCam CONFIG SET CONTAINER MOV CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf Panasonic P2(OP-Atom)	DVCAM 4:2:0 720x576	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: No	No Audio	CONFIG SET CODEC DvCam CONFIG SET CONTAINER MXF RECORD CLIP clip RECORD START

DVCPRO

Container	Codec	Features	Audio	VizSend Example
.avi	DVCPRO 4:1:1 720x576	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz; - 4 ch: 24 in 32bit; 48kHz; - 8 ch: 24 in 32bit; 48kHz; - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER AVI CONFIG SET BITRATE 25 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.avi	DVCPRO 50 4:2:2 720x576	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER AVI CONFIG SET BITRATE 50 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mov	DVCPRO 4:1:1 720x576	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: N/A CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MOV CONFIG SET BITRATE 25 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mov	DVCPRO 50 4:2:2 720x576	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: N/A CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MOV CONFIG SET BITRATE 50 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	DVCPRO 4:1:1 720x576	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER DVCPROMXF CONFIG SET BITRATE 25 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf (OP1a)	DVCPRO 50 4:2:2 720x576	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER DVCPROMXF CONFIG SET BITRATE 50 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf Panasonic P2 (OP-Atom)	DVCPRO 4:1:1 720x576	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MXF CONFIG SET BITRATE 25 RECORD CLIP clip RECORD START
.mxf Panasonic P2 (OP-Atom)	DVCPRO 50 4:2:2 720x576	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MXF CONFIG SET BITRATE 50 RECORD CLIP clip RECORD START

XDCAM

Container	Codec	Features	Audio	VizSend Example
.mxf XDCAM (OP1a)	D10 (IMX) 4:2:2 720x608	Alpha: No Bitrate: 50 Bit depth: 10 VBI: required Timecode: required TDIR: Yes CC: Yes	AES3: - 4ch: 24 in 32bit; 48kHz	CONFIG SET CODEC XDCam CONFIG SET CONTAINER XDCAMMXF RECORD CLIP clip RECORD START

NTSC Codecs

MPEG IFrame

Container	Codec	Features	Audio	VizSend Example
.avi	MPEG2-IFrame422 720x480	Alpha: No Bitrate: 10-50 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC IFrame CONFIG SET CONTAINER AVI CONFIG SET BITRATE 50 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

DVCAM

Container	Codec	Features	Audio	VizSend Example
.avi	DV/ DVCAM 4:1:1 720x480	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCam CONFIG SET CONTAINER AVI CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mov	DVCAM 4:1:1 720x480	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: N/A CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCam CONFIG SET CONTAINER MOV CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf Panasonic P2 (OP-Atom)	DVCAM 4:1:1 720x480	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: N/A CC: No	No Audio	CONFIG SET CODEC DvCam CONFIG SET CONTAINER MXF RECORD CLIP clip RECORD START

DVCPRO

Container	Codec	Features	Audio	VizSend Example
.avi	DVCPRO 4:1:1 720x480	Alpha: No; Bitrate: 25; Bit depth: 8; VBI: N/A; Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz; - 4 ch: 24 in 32bit; 48kHz; - 8 ch: 24 in 32bit; 48kHz; - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER AVI CONFIG SET AUDIOCHANNELS 8 CONFIG SET BITRATE 25 RECORD CLIP clip RECORD START
.avi	DVCPRO 50 4:2:2 720x480	Alpha: No; Bitrate: 50; Bit depth: 8; VBI: N/A; Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER AVI CONFIG SET AUDIOCHANNELS 8 CONFIG SET BITRATE 50 RECORD CLIP clip RECORD START
.mov	DVCPRO 4:1:1 720x480	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: N/A CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MOV CONFIG SET AUDIOCHANNELS 8 CONFIG SET BITRATE 25 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mov	DVCPRO 50 4:2:2 720x480	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: N/A CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MOV CONFIG SET AUDIOCHANNELS 8 CONFIG SET BITRATE 50 RECORD CLIP clip RECORD START
.mxf (OP1a)	DVCPRO 4:1:1 720x480	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER DVCPROMXF CONFIG SET AUDIOCHANNELS 8 CONFIG SET BITRATE 25 RECORD CLIP clip RECORD START
.mxf (OP1a)	DVCPRO 50 4:2:2 720x480	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER DVCPROMXF CONFIG SET AUDIOCHANNELS 8 CONFIG SET BITRATE 50 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mxf Panasonic P2 (OP-Atom)	DVCPRO 4:1:1 720x480	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MXF CONFIG SET BITRATE 25 RECORD CLIP clip RECORD START
.mxf Panasonic P2 (OP-Atom)	DVCPRO 50 4:2:2 720x480	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MXF CONFIG SET BITRATE 50 RECORD CLIP clip RECORD START

XDCAM

Container	Codec	Features	Audio	VizSend Example
.mxf XDCAM (OP1a)	D10 (IMX) 4:2:2 720x512	Alpha: No Bitrate: 50 Bit depth: 10 VBI: Required Timecode: Required TDIR: Yes CC: Yes	AES3: - 4 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC XDCam CONFIG SET CONTAINER XDCAMMXF RECORD CLIP clip RECORD START

720p50 and 720p59.94 (60M) Codecs

MPEG-IFrame

Container	Codec	Features	Audio	VizSend Example
.avi	MPEG2-IFrame422 1280x720	Alpha: No Bitrate: 50-300 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC IFrame CONFIG SET CONTAINER AVI CONFIG SET BITRATE 50 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

DVCPRO HD

Container	Codec	Features	Audio	VizSend Example
.avi	DVCPRO HD 1280x720	Alpha: No Bitrate: 100 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvcPro CONFIG SET CONTAINER AVI CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mov	DVCPRO HD 960x720	Alpha: No Bitrate: 100 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: N/A CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MOV CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf (OP1a)	DVCPRO HD 960x720	Alpha: No Bitrate: 100 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER DVCPROMXF CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf Panasonic P2 (OP-Atom)	DVCPRO HD 960x720	Alpha: No Bitrate: 100 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MXF RECORD CLIP clip RECORD START

XDCAM HD 422

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	XDCAM HD 422 1280x720	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	No Audio PCM: - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC XDCam CONFIG SET CONTAINER XDCAMMXF CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

XDCAM EX HQ

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	XDCAM EX HQ 1280x720	Alpha: No Bitrate: 35 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC XDCamEX CONFIG SET CONTAINER XDCAMMXF RECORD CLIP clip RECORD START

AVC-Intra

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	AVCIntra Class 50 960x720	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC AVCIntra100 CONFIG SET CONTAINER AVCINTRAMXF CONFIG SET BITRATE 100 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf (OP1a)	AVCIntra Class 100 1280x720	Alpha: No Bitrate: 100 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC AVCIntra100 CONFIG SET CONTAINER AVCINTRAMXF CONFIG SET BITRATE 100 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf Panasonic P2 (OP- Atom)	AVCIntra Class 50 960x720	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: N/ A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC AVCIntra50 CONFIG SET CONTAINER AVCINTRAMXF CONFIG SET BITRATE 50 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mxf Panasonic P2 (OP- Atom)	AVCIntra Class 100 1280x720	Alpha: No Bitrate: 100 Bit depth: 8 VBI: N/A Timecode: N/ A TDIR: Yes CC:No	No Audio	CONFIG SET CODEC AVCIntra100 CONFIG SET CONTAINER AVCINTRAMXF CONFIG SET BITRATE 100 RECORD CLIP clip RECORD START

ProRes

Container	Codec	Features	Audio	VizSend Example
.mov	I-Frame 4:2:2 1280x720	Alpha: No Bitrate: 100 (LT), 147, 220 (HQ) Bit depth: 10 VBI: N/A Timecode: N/ A TDIR: Yes, with .Ref file CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC ProRes CONFIG SET CONTAINER MOV CONFIG SET BITRATE 100 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

1080i25 and 1080i29.97 (30M) Codecs

MPEG-IFrame

Container	Codec	Features	Audio	VizSend Example
.avi	MPEG2-IFrame422 1920x1080	Alpha: No Bitrate: 50-300 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC IFrame CONFIG SET CONTAINER AVI CONFIG SET BITRATE 50 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

DVCPRO HD

Container	Codec	Features	Audio	VizSend Example
.avi	DVCPRO HD 1920x1080 (1080i25) 1260x1080 (1080i29.97)	Alpha: No Bitrate: 100 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER AVI CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mov	DVCPRO HD 1280x1080 (1080i25) 1260x1080 (1080i29.97)	Alpha: No Bitrate: 100 Bit depth: 10 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MOV CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mxf Panasonic P2 (OP-Atom)	DVCPRO HD 1280x1080 (1080i25) 1260x1080 (1080i29 .97)	Alpha: No Bitrate: 100 Bit depth: 10 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER MXF RECORD CLIP clip RECORD START
.mxf (OP1a)	DVCPRO HD 1280x1080 (1080i25) 1260x1080 (1080i29 .97)	Alpha: No Bitrate: 100 Bit depth: 10 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 4 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC DvCPro CONFIG SET CONTAINER DVCPROMXF RECORD CLIP clip RECORD START

XDCAM HD 422

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	XDCAM HD 422 1920x1080 0	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	No Audio PCM: - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC XDCam CONFIG SET CONTAINER XDCAMMXF CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

XDCAM HD LP

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	XDCAM HD LP 1440x1080	Alpha: No Bitrate: 18 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	No Audio PCM: - 4 ch: 16 in 32bit; 48kHz	CONFIG SET CODEC XDCamHD CONFIG SET CONTAINER XDCAMMXF CONFIG SET BITRATE 18 RECORD CLIP clip RECORD START

XDCAM HD SP

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	XDCAM HD SP 1440x1080	Alpha: No Bitrate: 25 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	No Audio PCM: - 4 ch: 16 in 32bit; 48kHz	CONFIG SET CODEC XDCamHD CONFIG SET CONTAINER XDCAMMXF CONFIG SET BITRATE 25 RECORD CLIP clip RECORD START

XDCAM HD HQ

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	XDCAM HD HQ 1440x1080	Alpha: No Bitrate: 35 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	No Audio PCM: - 4 ch: 16 in 32bit; 48kHz	CONFIG SET CODEC XDCamHD CONFIG SET CONTAINER XDCAMMXF CONFIG SET BITRATE 35 RECORD CLIP clip RECORD START

XDCAM EX HQ

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	XDCAM EX HQ 1920x1080	Alpha: No Bitrate: 35 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	No Audio PCM: - 2 ch: 16 in 32bit; 48kHz	CONFIG SET CODEC XDCamEX CONFIG SET CONTAINER XDCAMMXF RECORD CLIP clip RECORD START

AVC-Intra

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	AVCIntra Class 50 1440x1080	Alpha: No Bitrate: 50 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC AVCIntra50 CONFIG SET CONTAINER AVCINTRAMXF CONFIG SET BITRATE 50 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf (OP1a)	AVCIntra Class 100 1920x1080	Alpha: No Bitrate: 100 Bit depth: 8 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC AVCIntra100 CONFIG SET CONTAINER AVCINTRAMXF CONFIG SET BITRATE 100 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mxf Panasonic P2 (OP-Atom)	AVCIntra Class 50 1440x1080	Alpha: No Bitrate: 50 Bit depth: 10 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC AVCIntra50 CONFIG SET CONTAINER MXF CONFIG SET BITRATE 50 RECORD CLIP clip RECORD START
.mxf Panasonic P2 (OP-Atom)	AVCIntra Class 100 1920x1080	Alpha: No Bitrate: 100 Bit depth: 10 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC AVCIntra100 CONFIG SET CONTAINER MXF CONFIG SET BITRATE 100 RECORD CLIP clip RECORD START

ProRes

Container	Codec	Features	Audio	VizSend Example
.mov	I-Frame 4:2:2 1920x1080	Alpha: No Bitrate: 100 (LT), 147, 220 (HQ) Bit depth: 10 VBI: N/A Timecode: N/A TDIR: Yes, with .Ref file CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC ProRes CONFIG SET CONTAINER MOV CONFIG SET BITRATE 100 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

1080p50 and 1080p59.94 (60M) Codecs

AVC-Intra

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	AVCIntra Class 50 1440x1080	Alpha: No Bitrate: 100 Bit depth: 10 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC AVCIntra50 CONFIG SET CONTAINER AVCINTRAMXF CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf (OP1a)	AVCIntra Class 100 1920x1080	Alpha: No Bitrate: 100 Bit depth: 10 VBI: N/A Timecode: Yes TDIR: Yes CC: Yes	PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC AVCIntra100 CONFIG SET CONTAINER AVCINTRAMXF CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START
.mxf Panasonic P2 (OP-Atom)	AVCIntra Class 50 1440x1080	Alpha: No Bitrate: 100 Bit depth: 10 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC AVCIntra50 CONFIG SET CONTAINER MXF CONFIG SET BITRATE 50 RECORD CLIP clip RECORD START

Container	Codec	Features	Audio	VizSend Example
.mxf Panasonic P2 (OP-Atom)	AVCIntra Class 100 1920x1080	Alpha: No Bitrate: 100 Bit depth: 10 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio	CONFIG SET CODEC AVCIntra100 CONFIG SET CONTAINER MXF CONFIG SET BITRATE 100 RECORD CLIP clip RECORD START

MPEG-IFrame

Container	Codec	Features	Audio	VizSend Example
.avi	MPEG2- IFrame422 1920x1080	Alpha: No Bitrate: 50-300 Bit depth: 8 VBI: N/A Timecode: N/A TDIR: Yes CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC IFrame CONFIG SET CONTAINER AVI CONFIG SET BITRATE 50 CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

ProRes

Container	Codec	Features	Audio	VizSend Example
.mov	I-Frame 4:2:2 1920x1080	Alpha: No Bitrate: 100 (LT), 147, 220 (HQ) Bit depth: 8, 10 VBI: N/A Timecode: N/A TDIR: Yes, with .Ref file CC: No	No Audio PCM: - 2 ch: 24 in 32bit; 48kHz - 4 ch: 24 in 32bit; 48kHz - 8 ch: 24 in 32bit; 48kHz - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC ProRes CONFIG SET CONTAINER MOV CONFIG SET AUDIOCHANNELS 8 RECORD CLIP clip RECORD START

2160p50 and 2160p59.94 (60M) Codecs

XAVC

Container	Codec	Features	Audio	VizSend Example
.mxf (OP1a)	XAVC	Alpha: No Bitrate: 300, 480, (VBR/CBR) Bit depth: 10 VBI: N/A Timecode: Yes TDIR: N/A CC: Yes HDR: Yes	PCM: - 16 ch: 24 in 32bit; 48kHz	CONFIG SET CODEC XAVC CONFIG SET CONTAINER XAVCMXF CONFIG SET BITRATE 300 RECORD CLIP clip RECORD START

Important

A M264 board is required for recording UHD.

2.3.7 Clock Behavior and Resolution

The clock is a very important component of Channel Recorder. If no clock is present Channel Recorder might fail in performing scheduled, loop or frame accurate recordings.

There are four sources of resolution: input, genlock, configuration and internal.

For clock type GENLOCK, the priority is given in the following order:


- Input
- Genlock
- Configuration
- Internal

For clock type INPUT, the priority is given in the following order:


- Input
- Configuration

Important points to remember are:

- The resolution from the configuration will only be used when there is no input or genlock signal detected.
- Internal resolution is only relevant when the following is true:
 - There is another application using Matrox board.
 - The application in question is using a different frame rate family.
- Clock type INPUT is the simplest and should be used unless there is a compelling reason not to use it.

 For IP boards 2059 will be used by default.

2.3.8 Recording Modes and States

 The following information is only relevant when using the native recording features of Channel Recorder.

Channel Recorder supports three modes of recordings: *schedule*, *loop* and *crash*. All three modes share the same timeline and writers, thus some kind of logic is needed to avoid conflicting each other operations. The following logic applies:

The first time Channel Recorder runs, it will have the *schedule* state.

Crash and *loop* have the same level of priority:

- When a *crash* recording is running a *loop* recording can not be started.
- When a *loop* recording is running a *crash* recording can not be started.

Source Recording Mode	Target Recording Mode	Action	Output Mode
Crash	Loop	Not possible	Crash
Crash	Schedule	Deferred until stopped	Crash
Crash	Crash	Stop the active recording and start another recording	Crash
Loop	Crash	Not possible	Loop
Loop	Schedule	Deferred until stopped	Loop
Loop	Loop	Stop the active recording and start another recording	Loop
Schedule	Loop	Suspend existing entries and timeline	Loop
Schedule	Crash	Suspend existing entries and timeline	Crash
Schedule	Schedule	Attempt to add to the timeline	Schedule

2.4 Specific Use Cases

This section details how to configure Channel Recorder to help the users achieve specific use cases.

This section contains the following use cases:

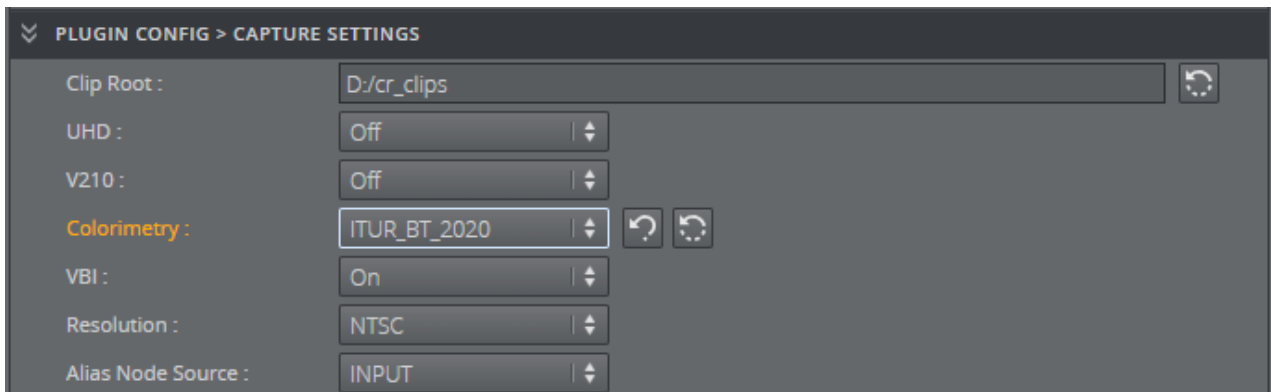
- [Recording HDR](#)
- [Recording UHD](#)
- [Recording Viz Engine](#)

2.4.1 Recording HDR

From version 1.2, Channel Recorder supports the recording of HDR. To be able to record in HDR, the input resolution must be in HD. The possible values for colorimetry are:

- ITUR_BT_601
- ITUR_BT_709
- ITUR_BT_2020
- ITUR_BT_2100_PQ
- ITUR_BT_2100_HLG
- ITUR_BT_2100_SLOG3
- LinearLight

By default, HD resolution will record in ITUR_BT_709 and SD resolution will record in ITUR_BT_601. The colorimetry can be changed in the Capture Settings of the configuration.



When one of the possible HDR colorimetry options is chosen, the recording will be captured in ten bits per sample instead of eight bits per sample.

2.4.2 Recording UHD

From version 1.2, Channel Recorder supports the recording of UHD in 2SI mode as well as HDR. To be able to record in 2SI mode, the board must be of the variant X2 or upgraded with that capability. Please check that the installed board is X2 by accessing the **Matrox X.info** utility.

These are the steps to be able to record UHD in 2SI with HDR support:


1. If not already done, configure the board into 2SI mode by going to C:\Program Files\Matrox DSX.utils\drivers via cmd and call:

```
mvConnectorConfig.exe -2SI=on -sn=XXXXXX  
where XXXXXX is the serial number of the board
```

2. If not already done, configure the board connectors to be 4in8out (8in4out is not a supported configuration).

```
mvConnectorConfig.exe -4in8out -sn=XXXXXX  
where XXXXXX is the serial number of the board
```

3. In the Channel Recorder configuration, set the following values to the parameters:

 UHD: true
V210: true
Resolution: 2160p50 or 2160p60M
Container: XAVCMXF
Codec: XAVC
Colorimetry: Any HDR values

2.4.3 Recording Viz Engine

From version 1.2, Channel Recorder supports the recording of the input and output signal from VizEngine. This feature is controlled by the parameter AliasNodeSource in the configuration.

The order in which the applications are execute is very important. In order to capture from Viz Engine, this must be executed before Channel Recorder.

3 Service Host Component

Service Host is a Vizrt component that abstracts the Windows Service layer. The Service Host operates with plugins that implement a desired service or functionality. The Service Host itself takes care of logging and all the Windows Service stuff.

An example is the Control Mode plugin, which by default is registered as a Windows service called ServiceHost.control. Control Mode provides a REST interface and comes with a web-based user interface. It provides the necessary functionality to manage the Service Host plugins and installed Viz Engine instances.

3.1 Install / Uninstall

This page contains information on the following topics:

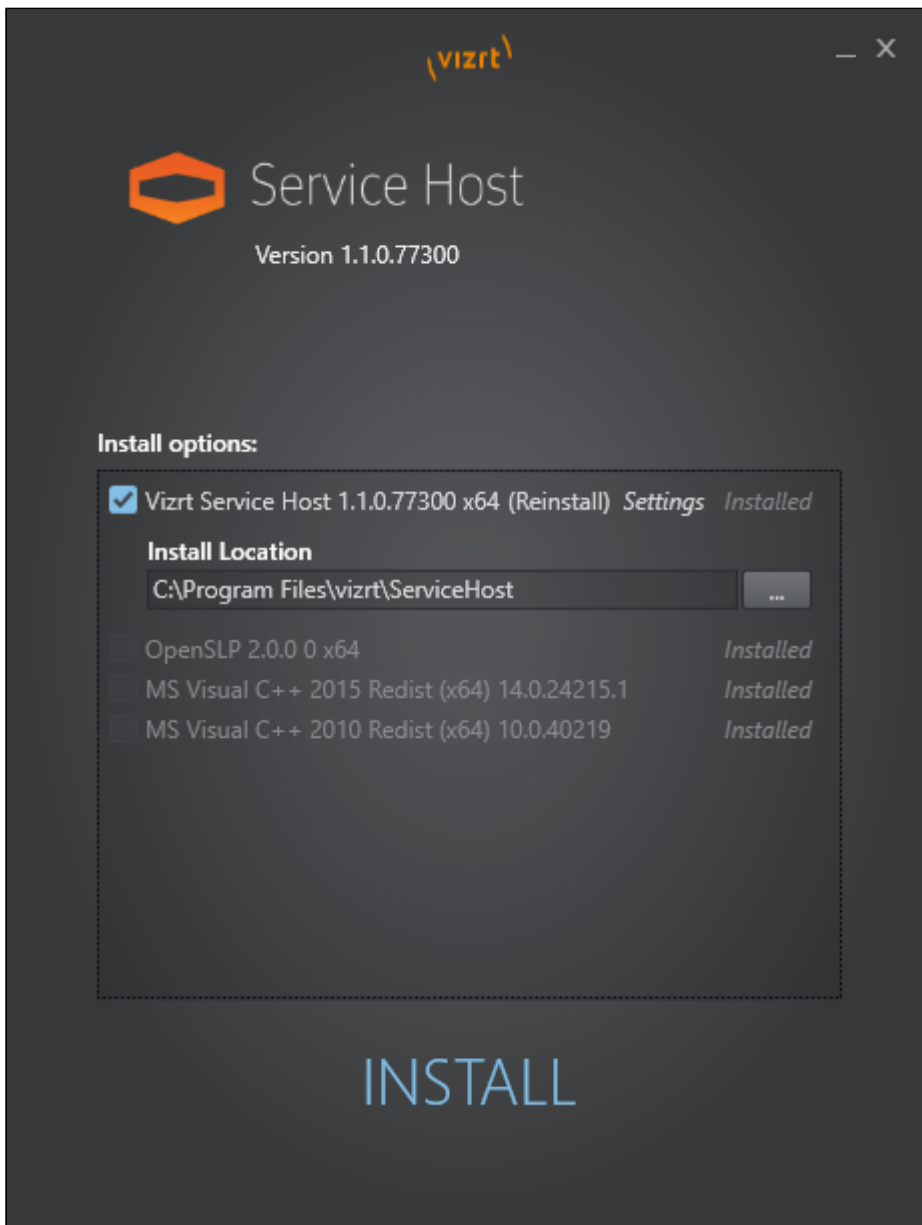
- [Installers](#)
 - [Installation](#)
 - [msi Installer](#)
 - [Upgrade an Existing Installation](#)
 - [msi Installer](#)
 - [Uninstall](#)
 - [msi Installer](#)
 - [Control Mode](#)

3.1.1 Installers

The Service Host installer comes in two flavors:

- `ServiceHostBundle-x64*.exe`
- `ServiceHost-x64*.msi`

The main difference is that the bundle installer takes care of upgrading an existing installation and installs the required operating system run-times (if not already present), whereas the .msi installer only installs the Service Host.



Installation

The bundle installer itself is using the .msi installer. The .msi and other files can be extracted from the bundle. This is mostly used for silent and unattended installs. Please run the bundle with -h command line switch to get all the available options.

Command Line Options for Bundle Installer

```
Z:\my_path> ServiceHostBundle-x64-1.0.0.68324 -h

Z:\my_path>
Running with no parameters will install the product
-s, --silent           Runs the installer with no user interaction

--msi                 Extracts all .msi files to a subdirectory
--dump                Extracts all files to a subdirectory
--dumpTo=VALUE        Extracts all files to the specified path
-h, -?, --help        Prints this help
```

msi Installer

```
Z:\my_path> msixec /package ServiceHost-x64-1.99.0.68094.msi /l*vx! install.log
```

Pre Conditions

- No Service Host is installed prior to the procedure.

Post Conditions

- Service Host is installed at the indicated location. the default value is %ProgramFiles%/vizrt/ServiceHost.
- Configuration and log files are located at %ProgramData%/vizrt/ServiceHost.
- If the configuration of the Control Mode does not exist, then a default one will be created at %ProgramData%/vizrt/ServiceHost/ServiceHost.control.xml.
- The Control Mode is registered as Windows Service and started.
- A shortcut, ServiceHost.control, is created in %ProgramData%/vizrt/ServiceHost to point to the web GUI of the Control Mode. Use this shortcut to verify the installation.

Upgrade an Existing Installation

msi Installer

Upgrading an existing installation using the .msi installer is possible when doing an uninstall of the old package followed by an install of the new package.

Pre Conditions

- Service Host is installed.
- The Control Mode is running.

The uninstallation process writes the current configuration and state into `Reinstall.profile`. This file is then used by the installer of the new package to re-establish the state and configuration.

Post Conditions

- The new version of Service Host is installed.
- The existing configuration and state of the Service Host services is re-established.

Uninstall

msi Installer

```
Z:\my_path> msixec /uninstall ServiceHost-x64-1.99.0.68094.msi /l*vx! uninstall.log
```

Pre Conditions

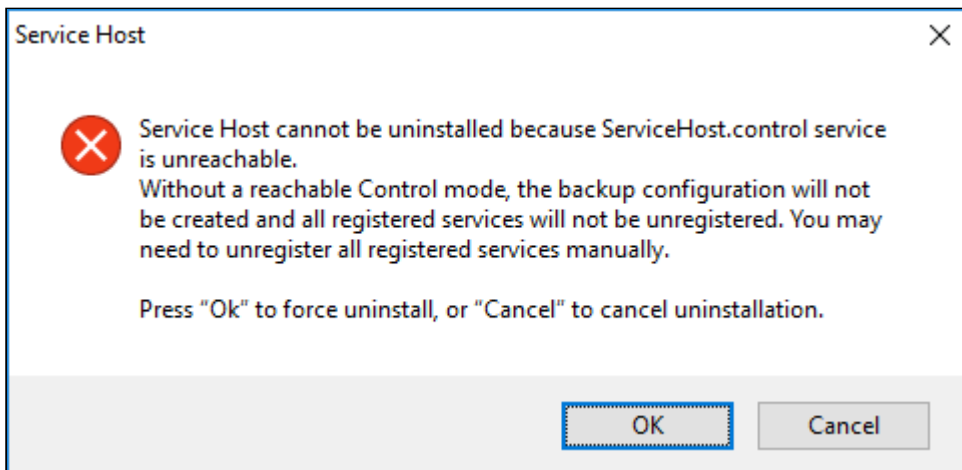
- Service Host is installed.
- Zero, one or more services may be registered with this Service Host.
- Zero, one or more services may be registered with this Service Host and running.
- The `Control Mode` has to be running. otherwise the uninstall silently fails.

Post Conditions

- The configuration and status of services under this Service Host are stored as the config file location in `Reinstall.profile`. They can be used later for further installations.
- Any running services are stopped.
- Any registered services are unregistered.
- The files under `%ProgramFiles%\vizrt\ServiceHost` are removed.

Notes

If the `Control Mode` is unreachable during uninstallation, it is still possible to uninstall. The dialog will inform users that the `Control Mode` is unreachable and prompt users to decide to force uninstall, or cancel. If users force uninstall, users have to manually unregister all Service Host services registered as Windows services.



Control Mode

To register/unregister and start/stop Service Host plugin instances manually, please take a look at [Control Mode](#).

3.2 Control Mode

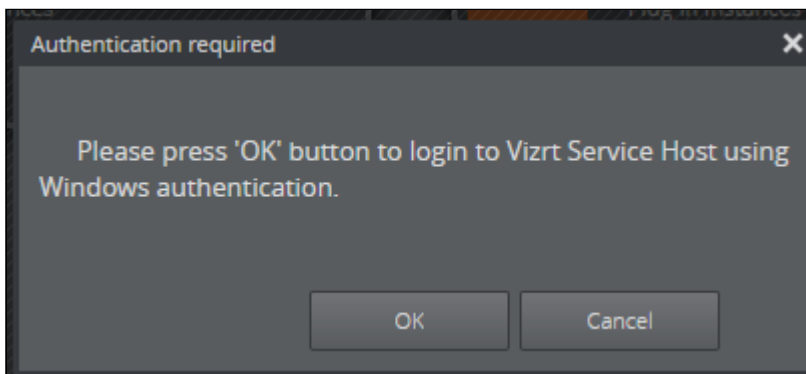
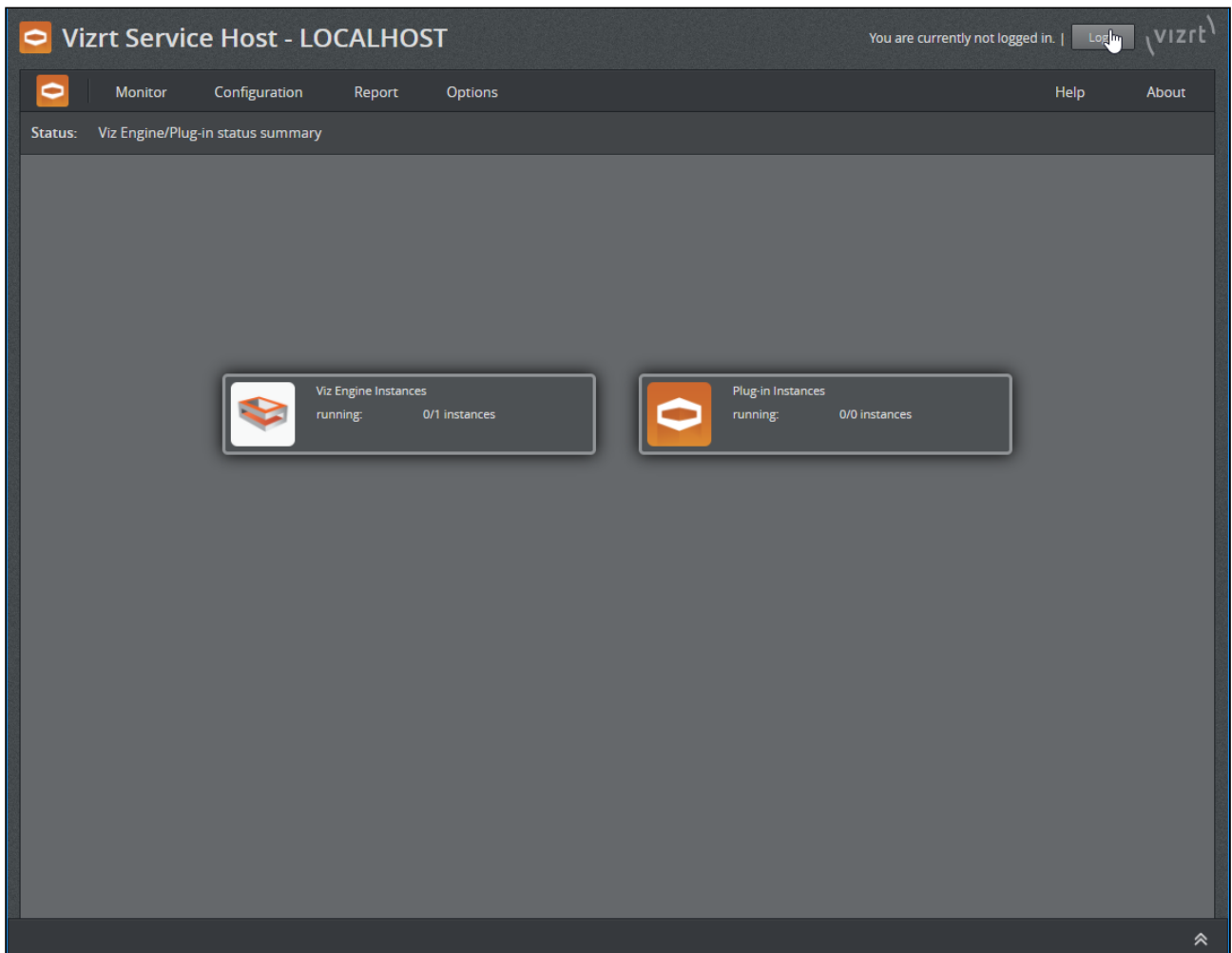
The Control Mode plugin is registered as a Windows Service when the Service Host is installed. This service is the administration point for this Service Host. The shortcut to the Control Mode of the current Service Host can be found at %ProgramData%\vizrt\ServiceHost\ServiceHost.control. It provides the following functionalities via REST and Command interface.

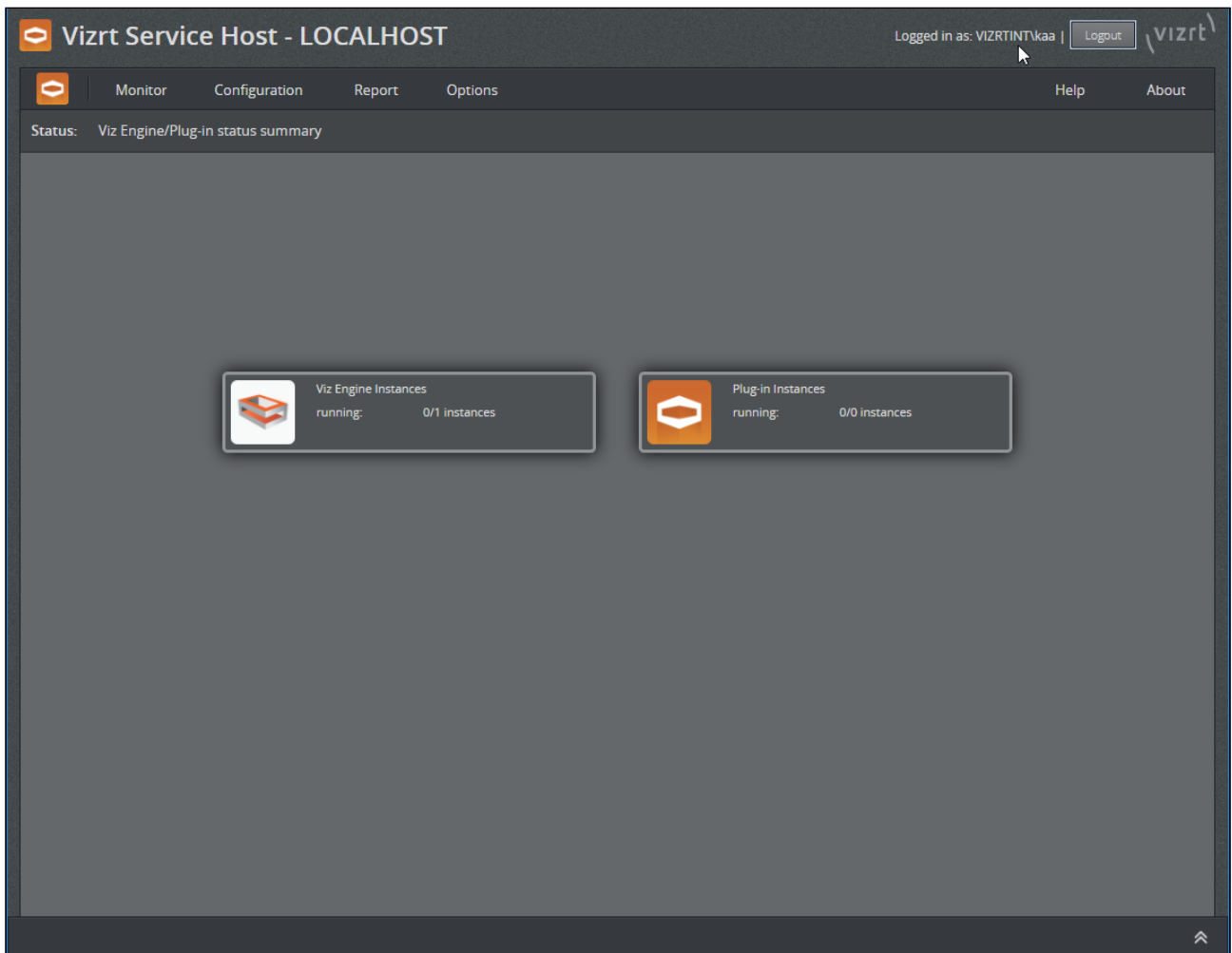
This page contains information on the following topics:

- [Viz Engine](#)
 - [Start a Viz Engine instance](#)
 - [Stop a Viz Engine instance](#)
 - [View Viz Engine Configuration](#)
 - [View Viz Engine Logs](#)
- [Plugins](#)
 - [Register a Plugin Instance](#)
 - [Configure a Plugin Instance](#)
 - [Plugin Monitor](#)
 - [Start/Stop a Plugin instance](#)
 - [Unregister a Plugin Instance](#)
 - [Report/Logs](#)
 - [Notes](#)
- [Service Host \(Control Mode\)](#)
 - [Configuration](#)
 - [Report/Logs](#)
 - [The Control Mode log](#)
 - [Service Host Startup Logs](#)
- [Debugging of Service Host](#)

- [Manual Register/Unregister and Stop/Start](#)
- [Launch Service Host in Foreground With a Console Window](#)

On the welcome page, the first thing to do is to log in. The login name is used to log all interactions with the Control Mode. The login name can be viewed on the upper right of the GUI, next to the Login/Logout button.

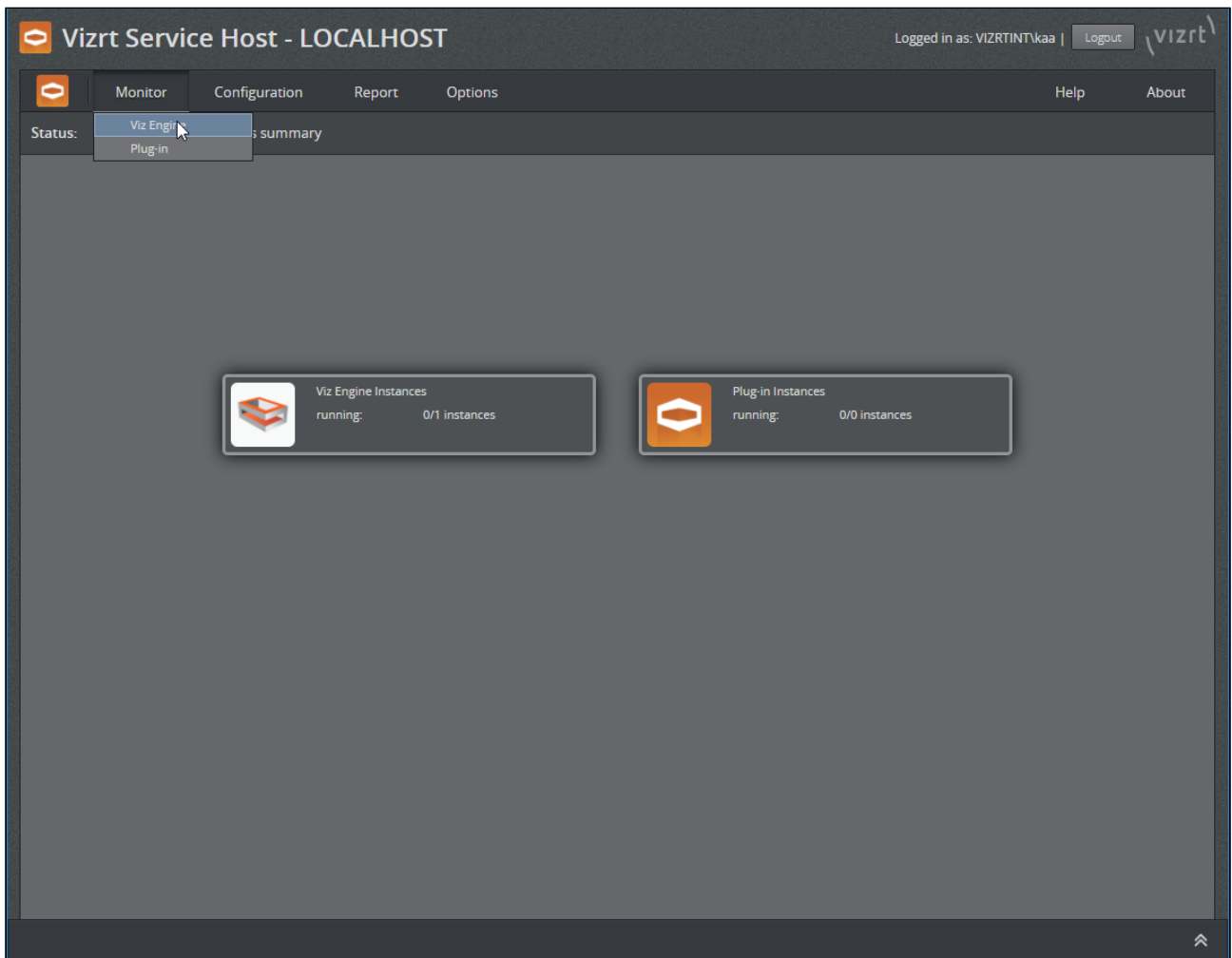




3.2.1 Viz Engine

The Control Mode is aware of Viz Engine instances on the local machine. They can be controlled from here.

Follow the menu **Monitor > Viz Engine**



to go to this screen.

Vizrt Service Host - LOCALHOST

Logged in as: VIZRTINTVkaa | Logout

Monitor Configuration Report Options Help About

Monitor: Viz Engine Instances

VIZ ENGINE INSTANCES					Refresh: Manual
	Service	Status	Port	Display Name	
1	Viz Engine	Running (since 04s)	6100	Vizrt VizEngine #1	

start: 25/10/2017 11:18

← Back Choose Action Apply Refresh

Start a Viz Engine instance

From the Viz Engine Instances Monitor page, the context menu on an individual Viz Engine instance or use the action bar on the bottom of the screen can be used to start Viz Engine instances.

The screenshot shows the 'Vizrt Service Host - LOCALHOST' web interface. The top navigation bar includes 'Monitor', 'Configuration', 'Report', and 'Options'. The main content area is titled 'Monitor: Viz Engine Instances'. A table titled 'VIZ ENGINE INSTANCES' is displayed with columns for 'Service', 'Status', 'Port', and 'Display Name'. The first row shows a 'Viz Engine' service in a 'Running (since 04s)' status on port '6100', with a display name of 'Vizrt VizEngine #1'. A context menu is open over the first row, offering actions: 'Start', 'Stop', 'Terminate', 'Configuration', and 'Log Files'. Below the table are buttons for 'Back', 'Choose Action', 'Apply', and 'Refresh'.

	Service	Status	Port	Display Name
1	Viz Engine	Running (since 04s)	6100	Vizrt VizEngine #1

Vizrt Service Host - LOCALHOST

Logged in as: VIZRTINTVkaa | Logout

Monitor Configuration Report Options Help About

Monitor: Viz Engine Instances

VIZ ENGINE INSTANCES				Refresh: Manual
	Service	Status	Port	Display Name
1	Viz Engine	Running (since 04s)	6100	Vizrt VizEngine #1

Choose Action

- Start Instance (selected)
- Stop Instance (selected)
- Start All Stopped Instances (0/1)
- Stop All Running Instances (1/1)

Back Apply Refresh

The page is not automatically refreshed by default. This is due to performance reasons to keep the impact on the Viz Engines as minimal as possible. To check for a proper launch or termination, use the Refresh button or set a refresh rate.

Preconditions

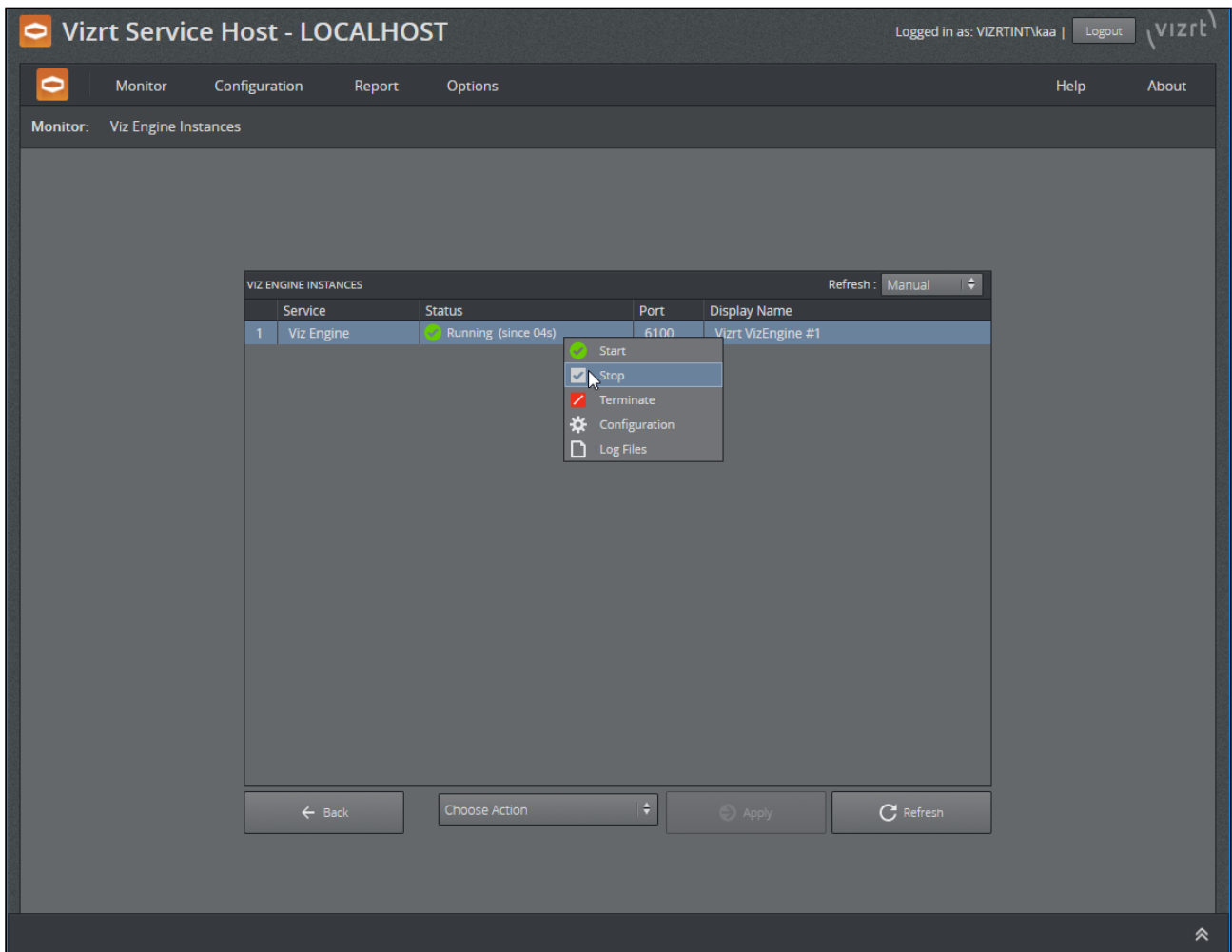
- The Viz Engine needs to be installed at the default location.

Postconditions

- Start: a Viz Engine was launched without GUI and without console
- Start: the launch may have failed. Please check the reason in the logs. Context menu **Logs or Menu Report > Logs > Viz Engine**.

Stop a Viz Engine instance

From the Viz Engine Instances Monitor page, the context menu on an individual Viz Engine instance or use the action bar on the bottom of the screen can be used to stop Viz Engine instances.



Vizrt Service Host - LOCALHOST

Logged in as: VIZRTINTkkaa | Logout

Monitor Configuration Report Options Help About

Monitor: Viz Engine Instances

VIZ ENGINE INSTANCES				Refresh: Manual
Service	Status	Port	Display Name	
1 Viz Engine	Running (since 04s)	6100	Vizrt VizEngine #1	

← Back Choose Action Apply Refresh

- Start Instance (selected)
- Stop Instance (selected)
- Start All Stopped Instances (0/1)
- Stop All Running Instances (1/1)

The page is not automatically refreshed by default. This is due to performance reasons to keep the impact on the Viz Engines as minimal as possible. To check for a proper launch or terminate use the Refresh button or set a refresh rate.

Preconditions

- The Viz Engine needs to be installed at the default location
- The General Comm. Port of each Viz Engine instances need to be configured properly. Otherwise, the control instance will not be able to stop the specified Viz Engine instance correctly.

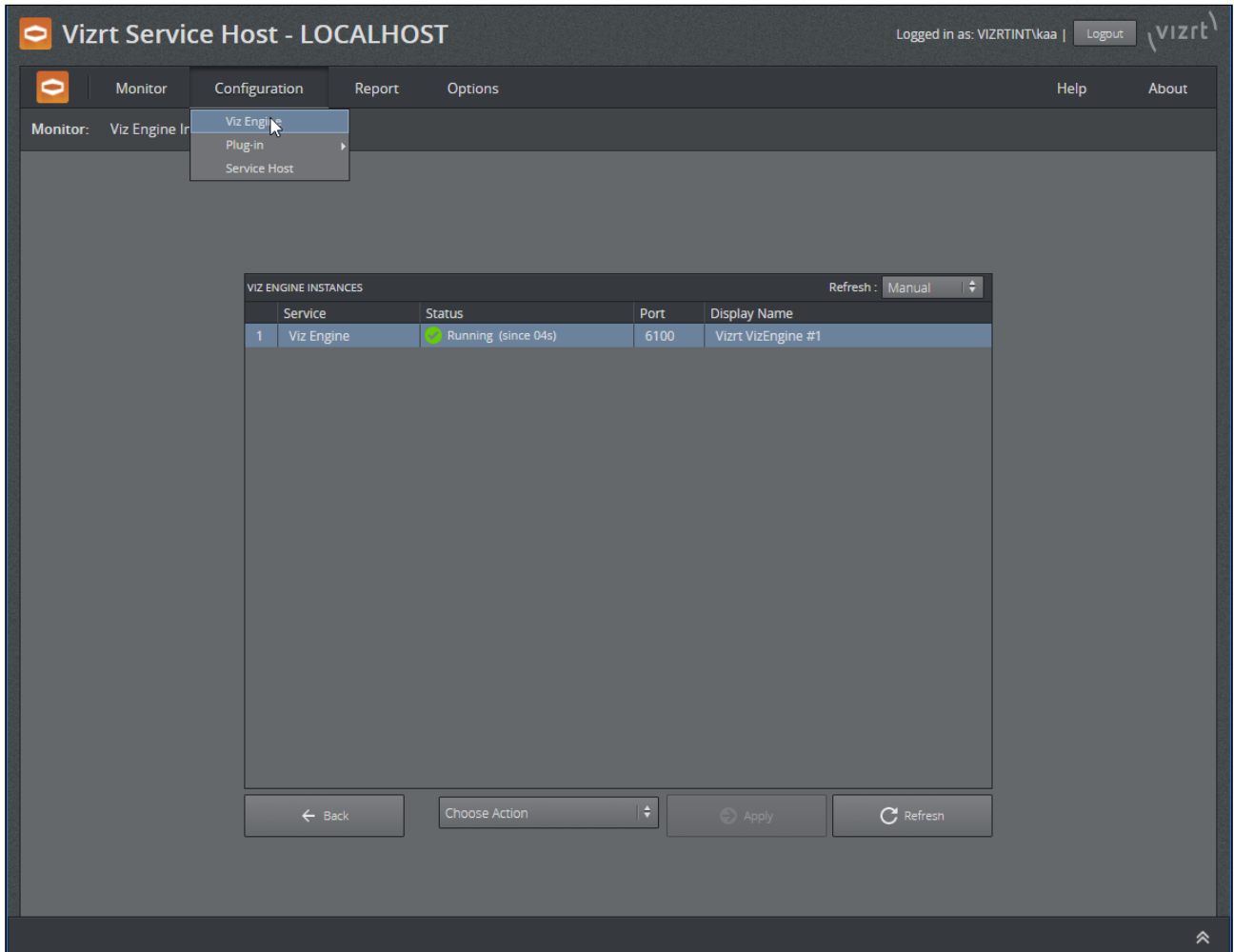
Postconditions

- Stop: the Viz Engine instance was sent the EXIT command.

The shutdown of a Viz Engine may take some time. To kill the process, with all consequences, use Terminate from the context menu.

View Viz Engine Configuration

The config file of a Viz Engine instance can be viewed either from the Context menu on the Monitor page or via menu **Configuration > Viz Engine**.



The screenshot shows the Vizrt Service Host - LOCALHOST interface. The top navigation bar includes 'Monitor', 'Configuration', 'Report', 'Options', 'Help', and 'About'. The 'Configuration' menu is open, showing 'Viz Engine', 'Plug-in', and 'Service Host'. Below the menu, a table titled 'VIZ ENGINE INSTANCES' displays the following data:

	Service	Status	Port	Display Name
1	Viz Engine	Running (since 04s)	6100	Vizrt VizEngine #1

At the bottom of the table, there are buttons for 'Back', 'Choose Action', 'Apply', and 'Refresh'.

From there, select the Viz Engine instance.

The screenshot shows the 'Vizrt Service Host - LOCALHOST' web interface. The user is logged in as 'VIZRTINTVkaa'. The main menu includes 'Monitor', 'Configuration', 'Report', 'Options', 'Help', and 'About'. The current page is 'Configuration: Viz Engine instance'. A dropdown menu is open, showing 'instance: Viz Engine #1' and 'Viz Engine #1'. The main content area displays the configuration file for 'VIZ ENGINE CONFIGURATION (VIEW ONLY)'. The configuration includes a note that the file is auto-generated, a 'SECTION GLOBAL_CONFIG' with settings for 'VerboseConfig', 'EngineVersion', 'EngineType', and 'EnginePlatform', and a 'SECTION LENSISTORTION' with settings for 'camera1_distortion_mode' and 'camera1_distortion_param_mode'. A 'Back' button is visible at the bottom left of the configuration area.

```

VIZ ENGINE CONFIGURATION (VIEW ONLY)
#####
# VIZ CONFIGURATION FILE
#####
# Note: this file is auto-generated and not intended
# to be modified directly by the user.
# Configuration settings should always be
# made via the graphical user interface

#####
SECTION GLOBAL_CONFIG
#####
## Set the following to 1 to enable writing of config entries with default values
#* VerboseConfig: Default=0
VerboseConfig = 0
## Engine Version this config was written by
#* EngineVersion: Default=
EngineVersion = 3.99.0.69469
#* EngineType: Default=
EngineType = Standard PC
#* EnginePlatform: Default=
EnginePlatform = X64

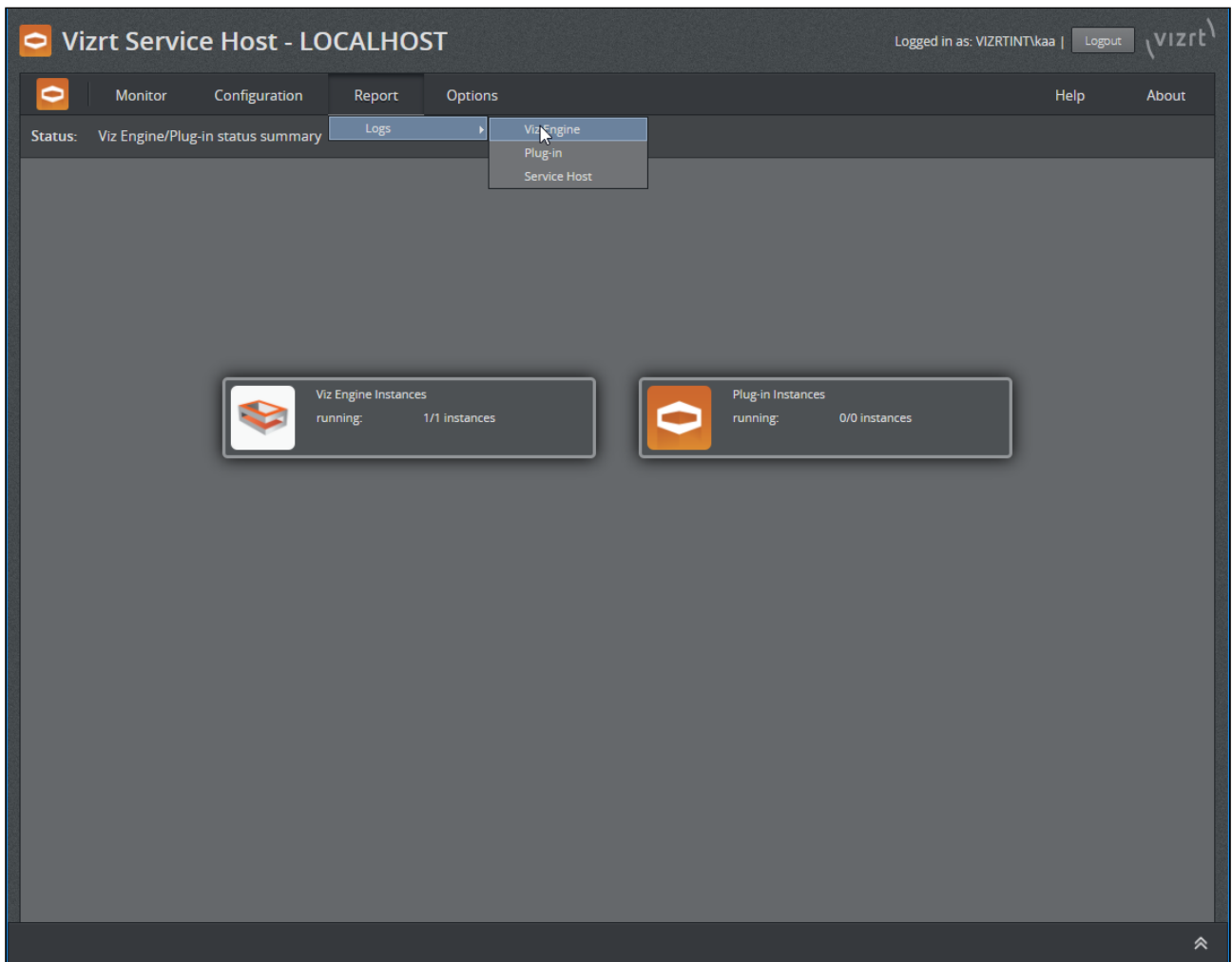
#####
SECTION LENSISTORTION
#####
## Possible distortion modes: 0=INACTIVE, 1=AUTO, 2=INTERNAL, 3=XPECTO, 4=LIBERO, 5=RADIAL, 6=STYPE, 7=TRACKMEN
## Possible distortion param modes: 0=AUTO, 1=MANUAL, 2=LENSFILE, 3=TRACKINGHUB, 4=LIBERO
camera1_distortion_mode = 1
camera1_distortion_param_mode = 0

```

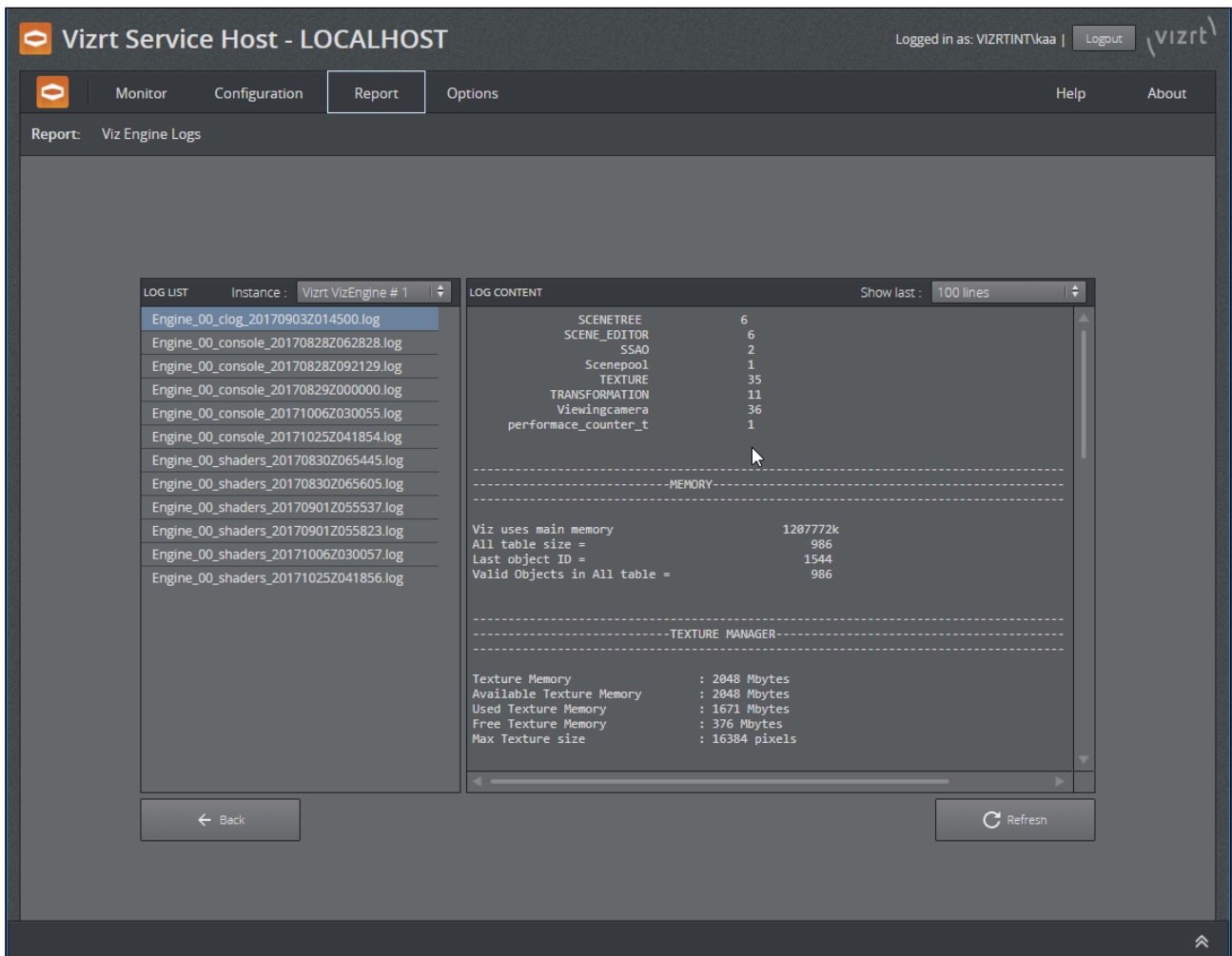
The page is view only.

View Viz Engine Logs

The log file of a Viz Engine instance can be viewed either from the Context menu on the Monitor page or via menu **Report > Logs > Viz Engine**.



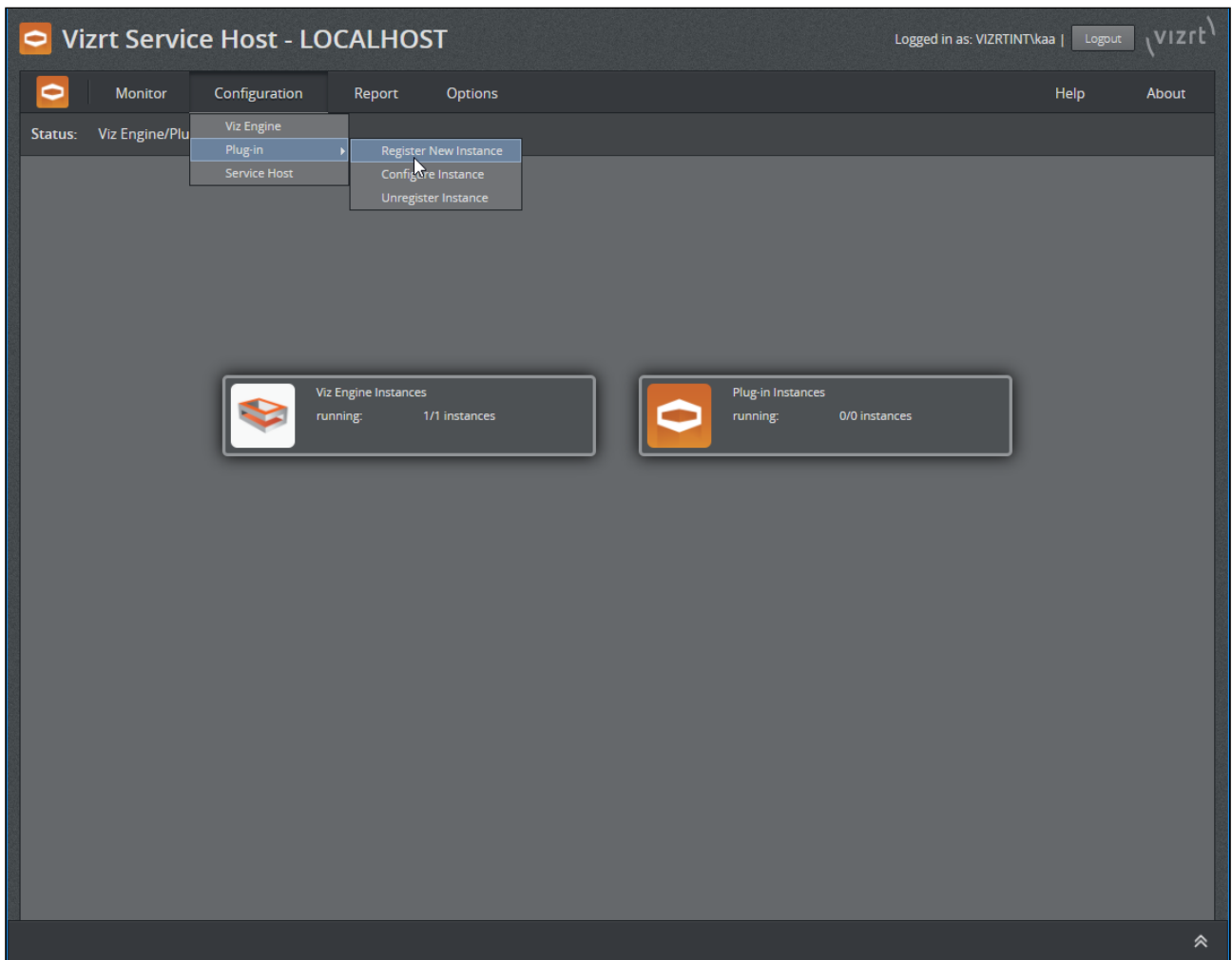
From there, select the Viz Engine instance to filter the available log files and how many lines to display.



3.2.2Plugins

Register a Plugin Instance

To register a new instance of a plugin as a Windows Service, use the menu **Configuration > Plugin-in > Register New Instance**.



On the following screen, select the plugin type and give the instance a service and display name. E.g. register a Channel Recorder:

Vizrt Service Host - LOCALHOST

Logged in as: VIZRTINTVkaa | Logout

Monitor Configuration Report Options Help About

Configuration: Register new Plug-in instance

REGISTER NEW PLUG-IN INSTANCE

Plug-in*: ChannelRecorder

Service Name*: VizrtChannelRecorder

Display Name*: VizrtChannelRecorder

Fill a service name of a new Plug-in instance. It must be prefixed by 'Vizrt' and only the following characters are allowed. Alphanumeric(0-9a-zA-Z), .(dot), -(dash), and _(underscore).

← Back Apply →

Success

✉ 'VizrtChannelRecorder' has been registered succesfully.

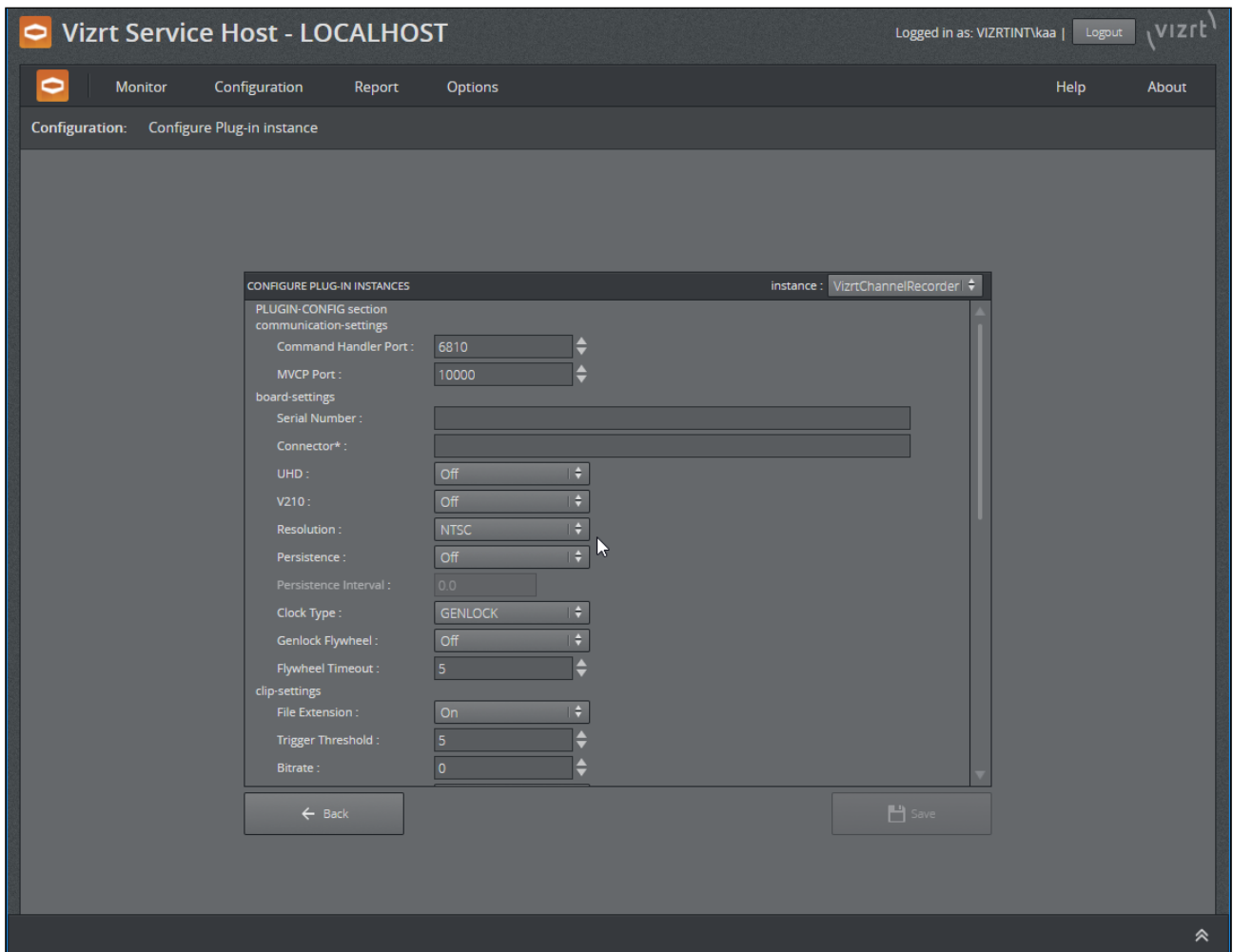
Click Yes, to configure the newly registered plug-in instance. Or No, to go to Monitor Plug-in Instance page.

Yes No

Confirm with Apply. The dialog allows to go directly to the configuration of this plugin instance.

Configure a Plugin Instance

The configuration of a plugin instance can be reached from the Monitor plugin page via the context menu of a plugin instance or via the menu **Configuration > Plug-in > Configure Instance**.



Plugin Monitor

The plugin monitor page can be reached via the menu **Monitor > Plugin** or from the welcome page by clicking on the Plugin-in Instances icon.

The screenshot shows the 'Vizrt Service Host - LOCALHOST' interface. At the top, it says 'Logged in as: VIZRTINTVkaa | Logout'. The main navigation bar includes 'Monitor', 'Configuration', 'Report', 'Options', 'Help', and 'About'. The current view is 'Monitor: Plug-in instances'. On the left, there is a 'FILTER' section with 'All' selected. The main area displays a table of 'PLUG-IN INSTANCES' with a 'Refresh: Manual' dropdown. The table has the following data:

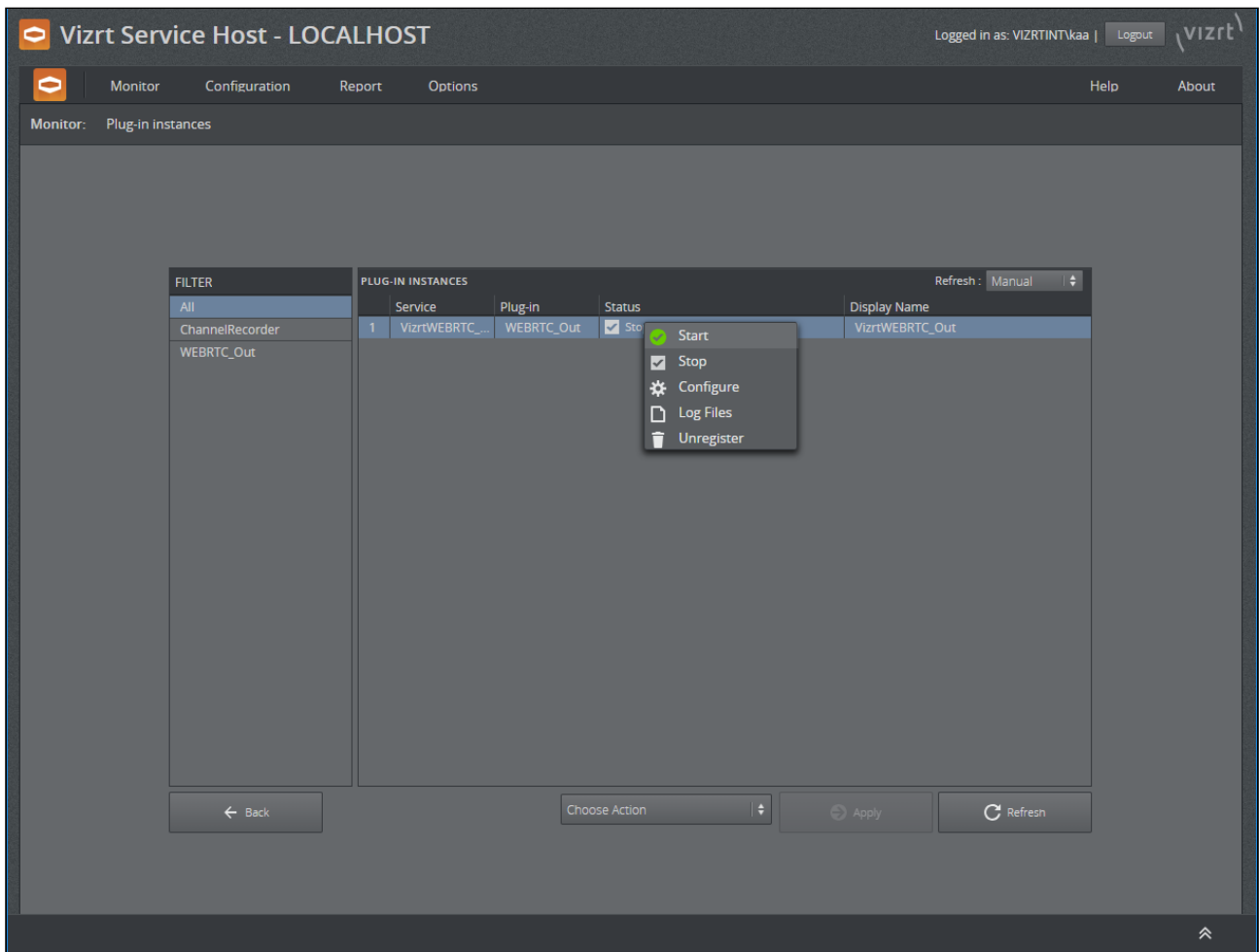
Service	Plug-in	Status	Display Name
1	VizrtChannelR...	Running (since 02s)	VizrtChannelRecorder

A context menu is open over the 'Running (since 02s)' status, showing 'start: 25/10/2017 12:55'. At the bottom, there are buttons for 'Back', 'Choose Action', 'Apply', and 'Refresh'.

On this page, there is a filter on the left-hand side to select the available plugin instances. Each concrete entry on the right-hand side has a context menu that allows the plugin instance to be unregistered.

Start/Stop a Plugin instance

The context menu provides the capability to start/stop a plugin instance.



Unregister a Plugin Instance

The context menu provides the capability to unregister a plugin instance. Once selected and the following dialog has been answered with Yes, then the plugin instance is stopped if it was running and unregistered from Windows services.

Any log and configuration files remain in ProgramData in order for later use by a subsequent new registration.

Vizrt Service Host - LOCALHOST

Logged in as: VIZRTINTVkaa | Logout

Monitor Configuration Report Options Help About

Monitor: Plug-in instances

FILTER	PLUG-IN INSTANCES			Refresh: Manual
All	Service	Plug-in	Status	Display Name
ChannelRecorder	1	VizrtChannelR...	ChannelRecor...	VizrtChannelRecorder

Start
Stop
Configure
Log Files
Unregister

← Back Choose Action Apply Refresh

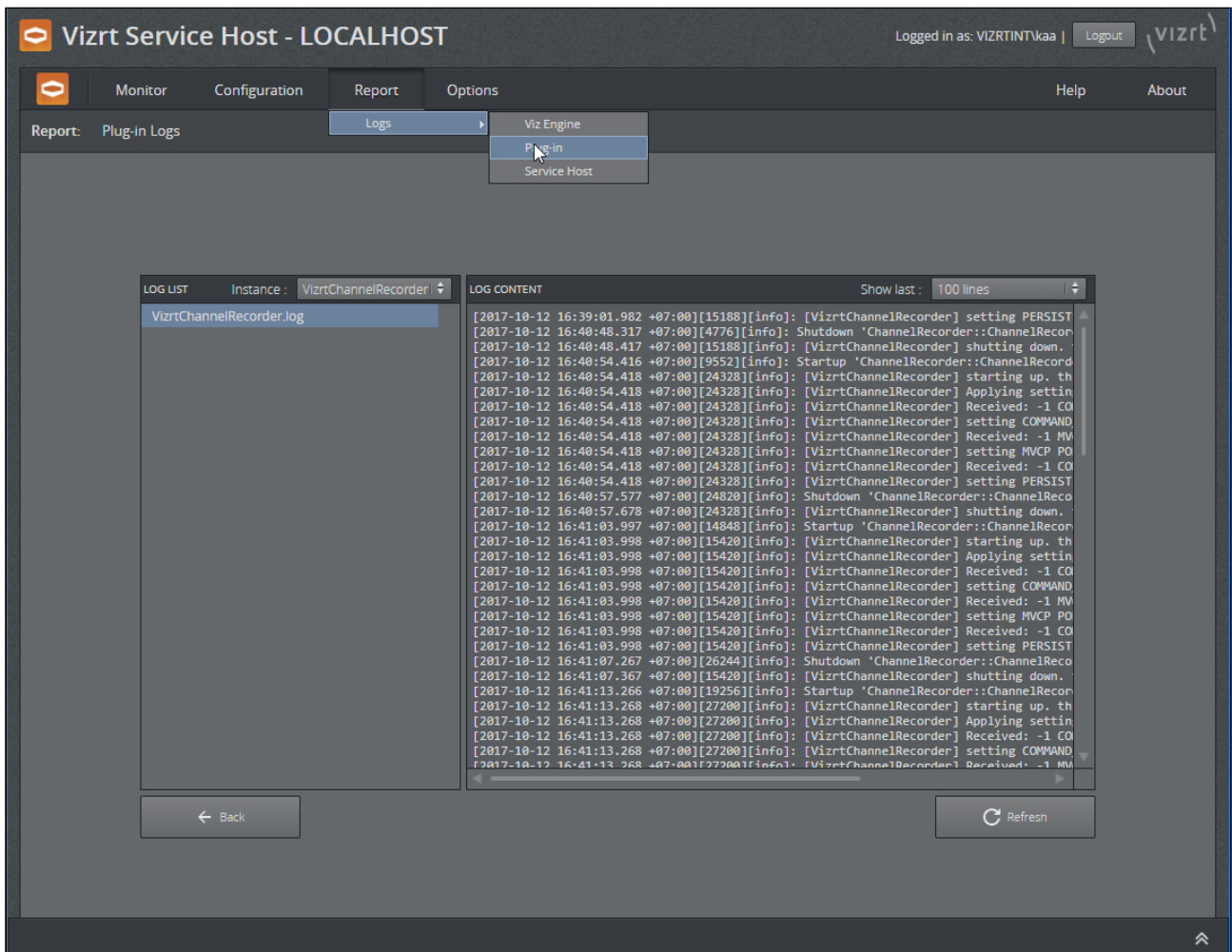
Unregister Plug-in Instance

⚠ Are you sure you want to unregister the following Service(s)?
- VizrtChannelRecorder

Yes No

Report/Logs

The logs can be reached either via the context menu on the plugin monitor page or from the menu **Report > Logs > Plug-in**.



On the left-hand side, there is the instance filter and the content of the selected log file is displayed on the right-hand side of the screen. The number of lines displayed can be selected. It operates like the tail command.

Notes

The Configuration File of a Plugin instance is missing

The configuration file of a Plugin instance, located at %ProgramData%\vizrt\ServiceHost, contains the Plugin name, which is a most important information. Service Host uses the Plugin name to load the correct DLL at run time to serve functionalities and get some information from the DLL, such as the configuration model. Thus, if the configuration file missing, a plugin instance cannot be started.

At the Plugin monitor page, for the plugin instances which their configuration files missing, the Plug-in field will be empty. To fix the problem, users need to unregister them first, and register them back.

Vizrt Service Host - LOCALHOST

Logged in as: VIZRTINTWaa | Logout

Monitor Configuration Report Options Help About

Monitor: Plug-in instances

FILTER		PLUG-IN INSTANCES			Refresh: Manual
Service	Plug-in	Status	Display Name		
1	VizrtWEBRTC_...	<input checked="" type="checkbox"/> Stopped	VizrtWEBRTC_Out		

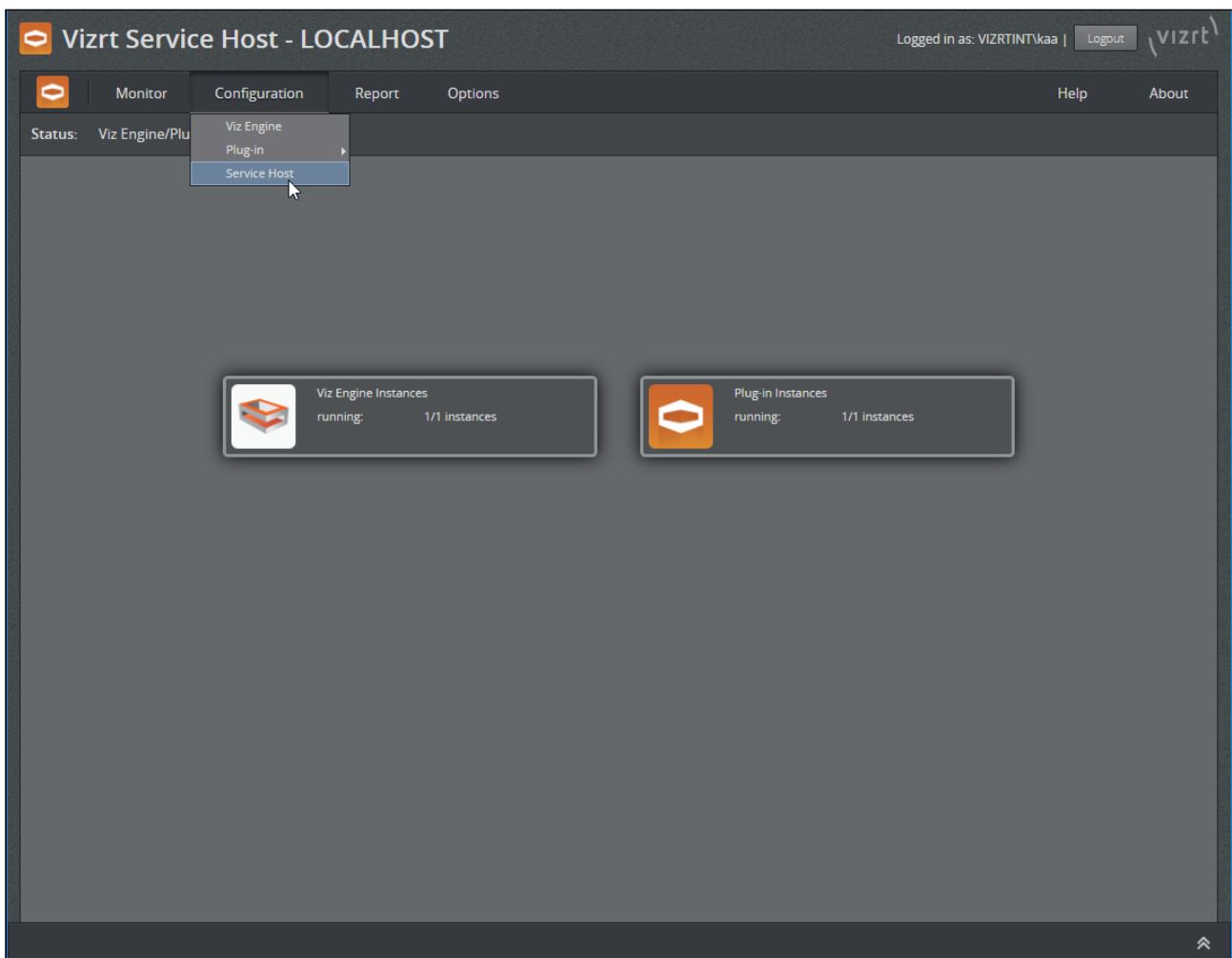
← Back Choose Action Apply Refresh

3.2.3 Service Host (Control Mode)

The Control Mode itself can be configured too. For security reasons, the configuration of the Control Mode needs to be configured by administrators.

Configuration

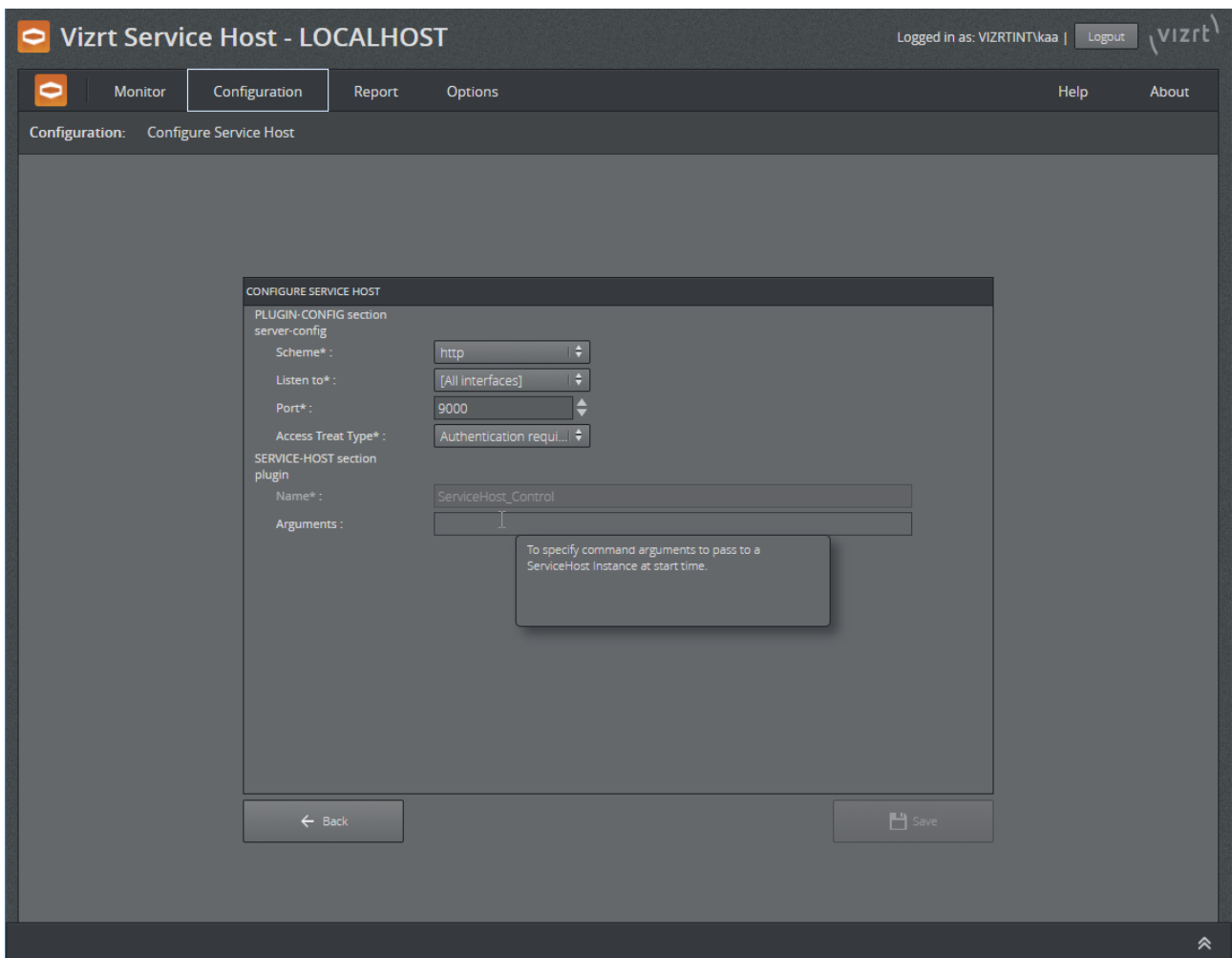
The configuration page for the Control Mode may be reached via the menu **Configuration > Service Host**.



On this page, the REST listening address can be configured. By default, Service Host is listening to all interfaces. This is specified by [ALL interfaces] in the Listen to field. As port number, any valid and unused port number may be used. Later versions may support automatically finding of an available port number.

The Access Treat Type controls who is able to interact with the Service Host.

- **Only local access (LOCAL_ONLY):** To allow only users accessing the GUI via the local machine to change the system (such register/unregister new plugin instance or start/stop Viz Engine instances). Users accessing the GUI from external machine, regardless of whether authenticated, are not allowed to make any changes.
- **Authentication required (AUTHENTICATION_REQUIRED):** Same as above, only local access; except that users accessing externally are allowed as well as long as they are authenticated. In future versions, this may change to all users are required to authenticate before they can make changes to the system.
- **No authentication (NO_AUTHENTICATION):** No restrictions apply. All users may change the system, both locally and externally. We do not recommend this setting since there is no way of gathering user information in the operating logs.



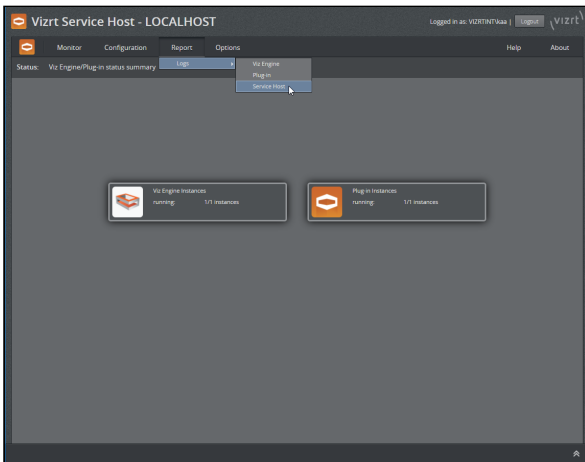
The Arguments edit lets one pass arbitrary startup arguments to the control mode plugin. In this case, we set the log level to debug mode.

Allowed values for Arguments are

- -l debug
- -l info
- -l warning
- -l error
- -l off

Report/Logs

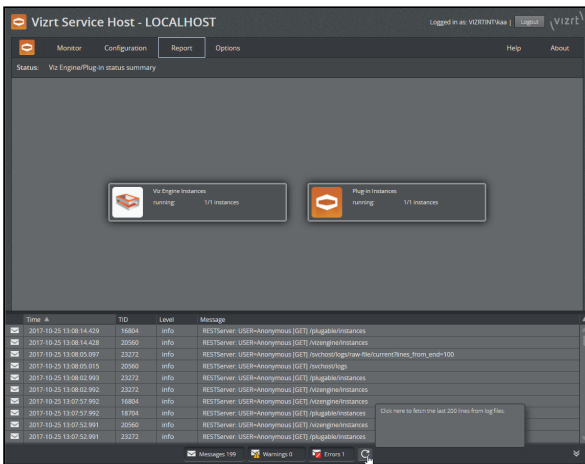
The logs produced by the control mode may be accessed via the menu **Report > Logs > Service Host**.



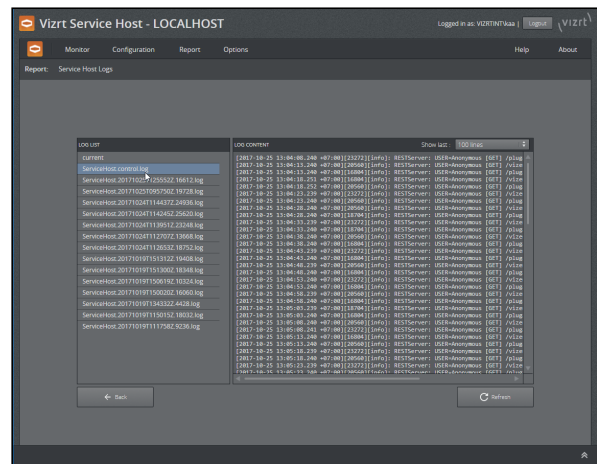
On the left-hand side, select the log file to be displayed. There are two types of logs available.

The Control Mode log

This log file is named `ServiceHost.control.log`, it does log rotation and may also be reached via the log panel on the bottom of the screen.



and



Service Host Startup Logs

Logs are produced during startup and kept as long as this Service Host is running, so possible startup issues can be captured before a plugin is loaded and initialized. These log files are removed after a successful shutdown. They are named `ServiceHost.dateandtime.pid.log`, where `dateandtime` is the date and time the selected timezone, `pid` is the process id.

Command line Options for Service Host

```

Z:\>ServiceHost.exe -h
Usage:
$0 [-v] ... start from within windows services, optional verbose mode
$0 [-v] -N service_name -i
    ... install $service_name as service
        -v ... optional verbose mode
$0 [-v] -N service_name -r
    ... remove $service_name as service
        -v ... optional verbose mode
$0 [-v] -N service_name -s
    ... start service $service_name
        -v ... optional verbose mode
$0 [-v] -N service_name -k
    ... kill service $service_name
        -v ... optional verbose mode
$0 [-v] -N service_name -d
    ... run $service_name in debug mode with a console window
        -v ... optional verbose mode
$0 [-v] -c -i
    ... install control as service, the service name is '{ProductName}.control'
        -v ... optional verbose mode
$0 [-v] -c -r
    ... remove control as service, the service name is '{ProductName}.control'
        -v ... optional verbose mode
$0 [-v] -c -s
    ... start control service, the service name is '{ProductName}.control'
        -v ... optional verbose mode
$0 [-v] -c -k
    ... kill control service, the service name is '{ProductName}.control'
        -v ... optional verbose mode
$0 [-v] -c -d
    ... run control in debug mode with a console window
        -v ... optional verbose mode
-p "[argument...]"
    ... arguments that gets forwarded to the plugin
    e.g. -p "-l debug -v"

```

What we are interested in here are the lines with the `-d` option.

To start the Service Host in the Control Mode with a console window, make sure it is not running as windows service then launch it with `-c -d` options.

```

Z:\>ServiceHost.exe -c -k
Z:\>ServiceHost.exe -c -d

```

Optionally, you can add verbose and log parameters to the Service Host and the Control Mode plugin.

```

Z:\>ServiceHost.exe -c -d -v -l debug -p "-v -l debug"

```

the first `-v -l debug` are for the Service Host executable and the one inside the `-p` option are forwarded to the `Control Mode` plugin. In the console mode, the logs are also forwarded to the console window.

4 WebRTC Preview

Software I/O Mode to SHM Channels. This Administrator Guide gives details on how to install, configure and operate Vizrt's WebRTC Preview service.

WebRTC Preview is a service that allows to stream the video output of a Viz Engine as a preview to WebRTC client applications such as web browsers, Viz Multiplay or Viz Opus.

This page contains the following information:

- [Hardware and Software Requirements](#)
- [Installing, Registering and Removing WebRTC Preview](#)
 - [To install Service Host](#)
 - [Registering a WebRTC Preview Instance](#)
 - [Removing a WebRTC Preview Instance](#)
 - [Upgrading or Repairing an Existing Installation](#)
- [WebRTC Preview Configuration](#)
 - [Plugin Configuration Section](#)
 - [Video Settings](#)
 - [Source Settings](#)
 - [WebRTC Settings](#)
 - [REST Service Settings](#)
 - [License Settings](#)
 - [Service Host Settings](#)
- [Operation](#)
 - [Integration with Viz Engine](#)
 - [To Configure Viz Engine for WebRTC Preview in Matrox Video Version](#)
 - [To Configure Viz Engine for WebRTC Preview in Video-Fallback Mode](#)
 - [Using the HTML Test Template to Preview the Video Output of a Viz Engine Instance](#)

4.1 Hardware And Software Requirements

In addition to the requirements listed in the Viz Engine release notes, the requirements listed below must also be met:

- Viz Engine 3.11.0 or newer.
- NVIDIA Quadro with NVENC support.

4.2 Installing, Registering And Removing WebRTC Preview

WebRTC Preview runs as a plugin of Service Host. WebRTC Preview cannot operate without Service Host, for this reason the installation of WebRTC Preview consists of the following parts:

1. Running the **Service Host Setup Wizard**.
2. Manually registering one or more WebRTC Preview instance(s) using the Service Host web interface.

Before installing Service Host, please make sure to obtain the latest installer from Vizrt's FTP server: <ftp://download.vizrt.com/>

i Prior WebRTC Preview Installations

In case one had a pre-release or a release candidate installed, it is recommended to remove the existing configuration xml.

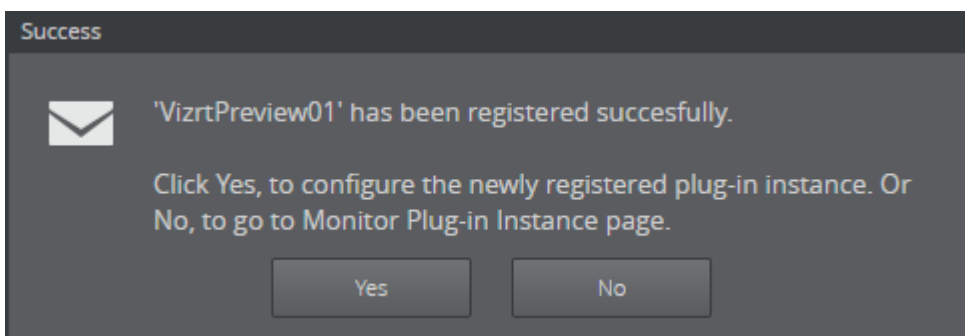
4.2.1 To install Service Host

Refer to the [Service Host](#) documentation.

4.2.2 Registering a WebRTC Preview Instance

Refer to the [Service Host](#) documentation.

After successfully registering a WebRTC Preview instance, the following dialog window appears.



4.2.3 Removing a WebRTC Preview Instance

Use the Service Host web interface to remove a WebRTC Preview instance. For more information, refer to the [Service Host](#) documentation.

4.2.4 Upgrading or Repairing an Existing Installation

Use the Service Host Setup Wizard to upgrade or repair an existing installation of WebRTC Preview. When upgrading or repairing, Service Host remembers the registered instances and which states they were before the upgrade or repair occurs. After a successful upgrade or repair operation, any previously running services stopped by the Setup Wizard is restarted.

4.3 WebRTC Preview Configuration

The configuration page of a WebRTC Preview instance can be reached from the Monitor plugin page via the context menu of a plugin instance or via the menu **Configuration > Plug-in > Configure Instance**. For any configuration changes to take effect, you must restart the instance.

The configuration page of a WebRTC Preview instance consists of two main sections:

- [Plugin Configuration Section](#)
- [Service Host Settings](#)


4.3.1 Plugin Configuration Section

From the Plugin Configuration Section, you can change the configuration of a specific WebRTC Preview instance. The configuration of an instance consists of five parts:

- Video Settings
- Source Settings
- Sink Settings
- Test page Settings
- License Settings

Video Settings


- **Codec:** Sets the video codec. This value must be set to "H264".
- **Bitrate MBit/s:** Sets the video bitrate in mbps (megabits per second). This value must be in the range between 1 and 15 mbps.
- **GOP-Length:** Sets the GOP length. This value must be in range 1 (I-Frame only) to 300.
- **GPU-Instance:** Specifies which GPU to use for video encoding in dual GPU environments. This value must be in the range between 0 and 1, where "0" uses the first GPU and "1" uses the second GPU.
- **Enable Downscale:** Enables down-scaling of the video input resolution by a factor of two. This value must be in the range between 0 and 1, where "0" disables down-scaling and "1" enables down-scaling.

 Please note that interlaced video formats are not de-interlaced and only scaled in width.

- **Reduce Framerate** enables framerate reduction by a factor of two. This value must be in the range between 0 and 1, where "0" disables framerate reduction and "1" enables framerate reduction

Source Settings

- **Shared Memory Name:** Specifies the shared memory connection endpoint to which the WebRTC Preview instance will connect to. This value must be set according to the configuration of the Viz Engine instance the WebRTC Preview instance is to connect to.

 To allow a service connect to shared memory sources, the suffix *Global\{shared_memory_name}* must be used. The same name must be defined in the engine configuration.

WebRTC Settings

The WebRTC Settings allow a user to configure a simple WebSocket server to which a WebRTC client needs to connect to in order to initiate the WebRTC signaling process.

- **Signaling Port:** Specifies the WebSocket server port.

REST Service Settings

The REST Service Settings allow a user to configure a REST service that can be used to access the HTML test template from a web browser.


- **Listening Address:** Specifies the listening address of the REST service.
- **Listening Port:** Specifies the listening port of the REST service.

To open the HTML test template from a web browser, navigate to `http://<Listening Address>:<Listening Port>`.

License Settings

The License Settings allows users to configure a WebRTC Preview instance for WiBu Licensing.

- **License Location:** Specifies the location the system will search for a WiBu license. This can be either:
 - "Local license" acquires the licence from either a WiBu Dongle connected to the system or a file based license.
 - "Network license" acquires the licence from WiBu License server.
- **License:** Selects the license feature a user must acquire to use WebRTC Preview. This can be either:
 - "Combination Feature" uses the combination feature of a Viz Engine core license.
 - "MezzIP OUT Upgrade (max)" uses the standalone Mezzanine Out Upgrade feature.
- **4K Video Enablement:** Allows output of video resolutions higher than 2K (optional feature).

 **Note:** In addition to the license features listed above, a user must also acquire a Service Host Core license. The Service Host Core license is consumed by the Service Host itself.

4.3.2 Service Host Settings

From the Service Host Section, you can specific command arguments to pass to a plugin instance at start time. This is mainly used for debugging purposes.

4.4 Operation

This sections gives information on how to setup typical use cases of the WebRTC Preview service.

4.4.1 Integration with Viz Engine

The main use case of the WebRTC Preview service is to stream the video output of a Viz Engine as a preview. The Viz Engine supports two different operational modes that can be used in combination with the WebRTC Preview service.

- Preview of SDI video output in Matrox video version.
- Preview of SHM video output in video-fallback version.


To Configure Viz Engine for WebRTC Preview in Matrox Video Version

1. Open **Viz Configuration**.
2. Click on **Video Output**.
3. Set the **Streaming Output** option to **Active**.

The shared memory endpoint and its name is configured automatically depending on the instance ID of the Viz Engine. The name of the shared memory endpoint follows the naming schema below:

```
Global\viz_out_<INSTANCE_ID>_00
```

For example, the name of the shared memory endpoint of Viz Engine instance 1 is **Global\viz_out_01_00**.

 **Note:** This mode requires the Viz Engine to be installed as video version running with a Matrox SDI video board.

To Configure Viz Engine for WebRTC Preview in Video-Fallback Mode

1. Open **Viz Configuration**.
2. Click on **Video Board**.
3. Set the **Check Video Card** option to **None**.
4. Set the **Software I/O Mode** option to **SHM Channels**.
5. Click on **Video Output: SHM Output**.
6. Select **SHMOut 1**.
7. Set the **Shared Memory Output** option to **Active**.
8. Set the **Unique Identifier** option to a unique name preceded by **Global**.

To avoid naming conflicts with other Vizrt products running on the same machine it is recommended to set the **Unique Identifier** option based on the following naming schema.

```
Global\viz_out_<INSTANCE_ID>_00
```

For example the name of the shared memory endpoint of the first Viz Engine instance is **Global\viz_out_01_00**.

Note: The shared memory connection endpoint must be located in the Global namespace, otherwise the WebRTC Preview instance will not be able to connect to the shared memory endpoint.

Using the HTML Test Template to Preview the Video Output of a Viz Engine Instance

1. Configure a Viz Engine instance as described in section **Integration with Viz Engine**.
2. Open a web browser and navigate to the configuration page of the WebRTC Preview instance.
3. Set the **Shared Memory Name** option in section **Source Settings** to the name of the shared memory endpoint of the Viz Engine instance to which the WebRTC Preview instance is supposed to connect to.
Example: **Global\viz_out_01_00**
4. In section **Rest Service Settings** select a **Listening Address** from the drop down menu.
Example: **[All interfaces]**
5. Set the **Listening Port** option in section Rest Service Settings to a port number that is currently not used by any other application running on the machine.
Example: **11111**
6. Save the configuration changes and restart the WebRTC Preview instance.
7. Open a web browser and navigate to the HTML test template page **http://<Listening Address>:<Listening Port>**.
Example: **http://localhost:11111**
8. Click on **Connect**.