

AudioRepeater Module – Version 2

Andrew S. Kennedy

Version 2.3 (DRAFT)

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Document Control

Change History

Date	Author	Version	Change Reference
24 th October 2013	Andrew S. Kennedy	0.1	Initial draft.
25 th October 2013	Andrew S. Kennedy	0.2	Added Icecast2 Support. Fixed a bug in configuration loading.
25 th November 2013	Andrew S. Kennedy	0.3	Added Shoutcast2 Protocol Support Added Meta Data update to all protocols which supports Shoutcast and RTMP Added HTTP interface so Meta Data can be updated manually

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1. Overview

This document outlines a Wowza module which strips audio from a RTMP stream and creates a separate stream within the current application or sent to an Icecast2, Shoutcast1 or Shoutcast2 server.

The purpose of the module is to allow one single encoded stream of audio and video to be split into an additional audio only stream so providing a lower bandwidth option for other clients who may wish to listen to a broadcast.

This module **ONLY** works for live streams and streammanager streams (simulated live) it will not work for VOD streaming.

2. AudioRepeater Module

The requirements given for this module were as follows

- Strip the audio stream from a audio/video stream being sent to Wowza
- Option to create a separate audio stream within the current application
- Option to send the audio stream to a Shoutcast1 server
- Option to send the audio stream to a Shoutcast2 server using Ultravox protocol
- Options to send the audio stream to an Icecast2 server
- Multiple streams within the same application
- Support MP3, AAC LC , HE and HE V2

3. Module Installation

The module is provided in the form of a JAR file called

AudioRepeater2.jar

This should be copied to the lib directory of the Wowza installation, commonly found at

/usr/local/WowzaMediaServer/lib

4. Server Configuration

4.1. Application.xml configuration

The AudioRepeater module allows a live RTMP stream to have the audio stripped out and re-used.

There are two distinct property configurations that can be used to configure the module, however the module must be included in the Module section with

```
<Module>
<Name>AudioRepeater</Name>
<Description>AudioRepeater</Description>
<Class>uk.org.shamrock.audio.AudioRepeater</Class>
</Module>
```

An example Application.xml can be found in the appendix section.

It is important for the Name and Description values to be AudioRepeater for the HTTP interface to work correctly.

4.2. VHost.xml configuration

You can configure a HTTP interface as part of the module to allow meta data updates. To use the HTTP interface add the following to your VHost.xml configuration prior to Version entry

```
<HTTPProvider>
<BaseClass>uk.org.shamrock.audio.http.MetaUpdate</BaseClass>
<RequestFilters>metadata</RequestFilters>
<AuthenticationMethod>none</AuthenticationMethod>
</HTTPProvider>
```

To access the HTTP Provider interface you need to use the following attributes

appname	-	This selects the correct application
appinstance	-	This selects the application instance. This is not needed if the default application instance is in use.
streamname	-	This is the stream name to use, this must be the source stream name
title	-	This sets the current track title
album	-	This sets the current album name
artist	-	This sets the current artist name
year	-	This sets the current year
genre	-	This sets the current genre
servername	-	This sets the current servername
url	-	This sets the current URL

In order to trigger a meta data event you can use the following HTTP get request

[http://\[wowza-server-ip\]:1935/metadata?appname=live&streamname=myStream&title=hello](http://[wowza-server-ip]:1935/metadata?appname=live&streamname=myStream&title=hello) there

The meta data event is supported across all protocols although not all attributes are supported.

Shoutcast1 and Icecast2 only support the title update, Shoutcast2 and RTMP support all elements.

4.2.1. Audio Stripping Configuration

The AudioRepeater module uses simple configuration files to repeat a published stream. When a stream is published a configuration file with a filename shown below is used. The filename is made up of the stream name

<StreamName>-repeat.txt

This file is looked for at the StorageDir location defined in Application.xml for the application running. The file format is a simple text file which contains one configuration parameter per line. The parameter and value are split with a colon, so an example would be

<parameter name>:<parameter value>

All available parameters are listed below

Property Name	Description
Type	There is no default for this parameter. It has 3 possible values rtmp shoutcast1 shoutcast2 icecast2 rtmp – This will publish a stream to the application and destination stream specified on the local Wowza server shoutcast1 – This will make a connection to a Shoutcast1 server icecast2 – This will make a connection to an Icecast2 server
Parameters to be used when Type is set to rtmp	
AppName	This parameter defines the application name for the new stream to publish into. The default is 'live'
DestinStream	This parameter defines the stream name for the new stream. The default is 'live'

Parameters to be used when Type is set to shoutcast1	
IP	This parameter defines the IP address of the Shoutcast server to connect to.
Port	This parameter defines the port of the Shoutcast server to connect to.
Password	This parameter defines the password of the Shoutcast server to connect to.
Bitrate	This parameter defines the bitrate to be shown by the Shoutcast server. It is only required if the module is repeating AAC+ streams. MP3 streams this is determined from the stream automatically.
Name	This is the stream name that will be set for the connection to the Shoutcast1 compatible server. This should only contain alpha numeric characters and spaces only. The default is to leave this blank.
URL	This is the URL that will be set for the connection to the Shoutcast1 compatible server. It should be noted this should contain the FULL url including the http:// prefix. The default is to leave this blank.
IRC	This is the IRC channel that will be set for the connection to the Shoutcast1 compatible server. This should contain the full IRC identification. The default is to leave this blank.
AIM	This is the AIM handle that will be set for the connection to the Shoutcast1 compatible server. The default is to leave this blank.
ICQ	This is the ICQ handle that will be set for the connection to the Shoutcast1 compatible server. The default is to leave this blank.
Genre	This is the Genre that will be set for the connection to the Shoutcast1 compatible server. The default is to leave this blank.
Public	This is public setting that will be set for the connection to the Shoutcast1 compatible server. This should have a value of true or false. The default is to set this to false, so making the connection force the server private.

Parameters to be used when Type is set to shoutcast2	
IP	This parameter defines the IP address of the Shoutcast server to connect to.
Port	This parameter defines the port of the Shoutcast server to connect to.
Username	This parameter defines the username of the Shoutcast 2 server to connect with.
Password	This parameter defines the password of the Shoutcast 2 server to connect with.
DestinStream	This parameter defines the stream id of the Shoutcast 2 server stream. All streams to a Shoutcast2 server have an ID between 1 and 2147483648. If this is not set correctly no connection is made to the Shoutcast2 server and the error is logged.
Bitrate	This parameter defines the bitrate to be shown by the Shoutcast server. It is only required if the module is repeating AAC+ streams. MP3 streams this is determined from the stream automatically.
Name	This is the stream name that will be set for the connection to the Shoutcast1 compatible server. This should only contain alpha numeric characters and spaces only. The default is to leave this blank.
URL	This is the URL that will be set for the connection to the Shoutcast1 compatible server. It should be noted this should contain the FULL url including the http:// prefix. The default is to leave this blank.
IRC	This is the IRC channel that will be set for the connection to the Shoutcast1 compatible server. This should contain the full IRC identification. The default is to leave this blank.
AIM	This is the AIM handle that will be set for the connection to the Shoutcast1 compatible server. The default is to leave this blank.
ICQ	This is the ICQ handle that will be set for the connection to the Shoutcast1 compatible server. The default is to leave this blank.
Genre	This is the Genre that will be set for the connection to the Shoutcast1 compatible server. The default is to leave this blank.
Public	This is public setting that will be set for the connection to the Shoutcast1 compatible server. This should have a value of true or false. The default is to set this to false, so making the connection force the server private.

Parameters to use when Type is set to icecast2	
IP	This parameter defines the IP address of the Icecast2 server to connect to.
Port	This parameter defines the port of the Icecast2 server to connect to.
Username	This parameter defines the username for the connection. Commonly for Icecast2 this is 'source', however it must be set.
Password	This parameter defines the password of the Icecast2 server to connect to.
DestinStream	This parameter defines the mountpoint to use. It SHOULD NOT be prefixed with / as this is added automatically.
Bitrate	This parameter defines the bitrate to be shown by the Icecast2 server. It is only required if the module is repeating AAC+ streams. MP3 streams this is determined from the stream automatically.
Name	This is the stream name that will be set for the connection to the Icecast2 compatible server. This should only contain alpha numeric characters and spaces only. The default is to leave this blank.
URL	This is the URL that will be set for the connection to the Icecast2 compatible server. It should be noted this should contain the FULL url including the http:// prefix. The default is to leave this blank.
Genre	This is the Genre that will be set for the connection to the Icecast2 compatible server. The default is to leave this blank.
Description	This is the description that will be set fo the connection to the Icecast2 server.
Public	This is public setting that will be set for the connection to the Icecast2 compatible server. This should have a value of true or false. The default is to set this to false, so making the connection force the server private.
When connecting to an Icecast2 server the module automatically calculates the audio frequency and channels to add to the info connection string.	

A complete example for the published stream myStream to connect to a Shoutcast1 server would be myStream-repeat.txt containing the following

IP:10.0.0.5
Port:9000
Password:mine
Type:shoutcast1
Bitrate:128
Name:This is my server
Public:false
Genre:Zeppelin
URL:http://www.shamrock.org.uk
AIM:1234567
ICQ:2233445
IRC:9876222

This would cause the audio from the myStream stream to be stripped and sent to the Shoutcast server at IP 10.0.0.5 port 9000 with a password of mine.

A complete example for the published stream myStream to connect to a Shoutcast 2 server would be myStream-repeat.txt containing the following

IP:10.0.0.5
Port:9000
DestinStream:1
Username:source
Password:shamrockpass
Type:shoutcast2
Bitrate:128
Name:This is my server
Public:false
Genre:Zeppelin
URL:http://www.shamrock.org.uk

This would cause the audio from the myStream stream to be stripped and sent to the Shoutcast2 server at IP 10.0.0.5 port 9000, mountpoint of /mymountname with a password of shamrockpass.

A complete example for the published stream myStream to connect to a Icecast2 server would be myStream-repeat.txt containing the following

IP:10.0.0.5
Port:9000
DestinStream:mymountname
Username:source
Password:shamrockpass
Type:icecast2
Bitrate:128
Name:This is my server
Public:false
Genre:Zeppelin
URL:http://www.shamrock.org.uk

This would cause the audio from the myStream stream to be stripped and sent to the Icecast2 server at IP 10.0.0.5 port 9000, mountpoint of /mymountname with a password of shamrockpass.

5. Appendix Section

5.1. Application.xml

5.1.1. **Example Configuration**

```
<Root>
  <Application>
    <!-- Uncomment to set application level timeout values
    <ApplicationTimeout>60000</ApplicationTimeout>
    <PingTimeout>12000</PingTimeout>
    <ValidationFrequency>8000</ValidationFrequency>
    <MaximumPendingWriteBytes>0</MaximumPendingWriteBytes>
    <MaximumSetBufferTime>60000</MaximumSetBufferTime>
    <MaximumStorageDirDepth>25</MaximumStorageDirDepth>
    -->
    <Connections>
      <AutoAccept>true</AutoAccept>
      <AllowDomains></AllowDomains>
    </Connections>
    <!--
      StorageDir path variables

      ${com.wowza.wms.AppHome} - Application home directory
      ${com.wowza.wms.ConfigHome} - Configuration home directory
      ${com.wowza.wms.context.VHost} - Virtual host name
      ${com.wowza.wms.context.VHostConfigHome} - Virtual host config directory
      ${com.wowza.wms.context.Application} - Application name
      ${com.wowza.wms.context.ApplicationInstance} - Application instance name

    -->
    <Streams>
      <StreamType>live</StreamType>
      <StorageDir>${com.wowza.wms.context.VHostConfigHome}/content</StorageDir>
      <KeyDir>${com.wowza.wms.context.VHostConfigHome}/keys</KeyDir>
      <!-- LiveStreamPacketizers (separate with commas): cupertinostreamingpacketizer, smoothstreamingpacketizer,
      sanjosestreamingpacketizer, cupertinostreamingrepeater, smoothstreamingrepeater, sanjosestreamingrepeater, dvrstreamingpacketizer, dvrstreamingrepeater -->
      <LiveStreamPacketizers></LiveStreamPacketizers>
      <!-- Properties defined here will override any properties defined in conf/Streams.xml for any streams types loaded by this application -->
      <Properties>
      </Properties>
    </Streams>
    <Transcoder>
      <!-- To turn on transcoder set to: transcoder -->
      <LiveStreamTranscoder></LiveStreamTranscoder>
      <!-- [templatename].xml or ${SourceStreamName}.xml -->
      <Templates>${SourceStreamName}.xml,transcode.xml</Templates>
      <ProfileDir>${com.wowza.wms.context.VHostConfigHome}/transcoder/profiles</ProfileDir>
      <TemplateDir>${com.wowza.wms.context.VHostConfigHome}/transcoder/templates</TemplateDir>
      <Properties>
      </Properties>
    </Transcoder>
  </Application>
</Root>
```

```

<DVR>
  <!-- As a single server or as an origin, use dvrstreamingpacketizer in LiveStreamPacketizers above -->
  <!-- Or, in an origin-edge configuration, edges use dvrstreamingrepeater in LiveStreamPacketizers above -->
  <!-- As an origin, also add dvrchunkstreaming to HTTPStreamers below -->

  <!-- To turn on DVR recording set Recorders to dvrrecorder. This works with dvrstreamingpacketizer -->
  <Recorders></Recorders>

  <!-- As a single server or as an origin, set the Store to dvrfilestorage-->
  <!-- edges should have this empty -->
  <Store></Store>

  <!-- Window Duration is length of live DVR window in seconds. 0 means the window is never trimmed. -->
  <WindowDuration>0</WindowDuration>

  <!-- Storage Directory is top level location where dvr is stored. e.g. c:/temp/dvr -->
  <StorageDir>${com.wowza.wms.context.VHostConfigHome}/dvr</StorageDir>

  <!-- valid ArchiveStrategy values are append, version, delete -->
  <ArchiveStrategy>append</ArchiveStrategy>

  <!-- If this is a dvrstreamingrepeater, -->
  <!-- either define the general Application/Repeater/OriginURL below to point back to the origin -->
  <!-- or define this one (which affects only DVR origin-edge). e.g. http://localhost/dvrorigin -->
  <Repeater>
    <ChunkOriginURL></ChunkOriginURL>
  </Repeater>

  <!-- Properties for DVR -->
  <Properties>
  </Properties>
</DVR>

<TimedText>
  <!-- VOD caption providers (separate with commas): vodcaptionproviderttml, vodcaptionprovidermp4_3gpp -->
  <VODTimedTextProviders>vodcaptionprovidermp4_3gpp</VODTimedTextProviders>

  <!-- Properties for TimedText -->
  <Properties>
  </Properties>
</TimedText>

  <!-- HTTPStreamers (separate with commas): cupertinostreaming, smoothstreaming, sanjosestreaming, dvrchunkstreaming -->
  <HTTPStreamers>cupertinostreaming,smoothstreaming,sanjosestreaming</HTTPStreamers>
  <SharedObjects>
    <StorageDir></StorageDir>
  </SharedObjects>
  <Client>
    <IdleFrequency>-1</IdleFrequency>
    <Access>
      <StreamReadAccess>*</StreamReadAccess>
      <StreamWriteAccess>*</StreamWriteAccess>
      <StreamAudioSampleAccess></StreamAudioSampleAccess>

```

```

        <StreamVideoSampleAccess></StreamVideoSampleAccess>
        <SharedObjectReadAccess>*</SharedObjectReadAccess>
        <SharedObjectWriteAccess>*</SharedObjectWriteAccess>
    </Access>
</Client>
<RTP>
    <!-- RTP/Authentication/[type]Methods defined in Authentication.xml. Default setup includes; none, basic, digest -->
    <Authentication>
        <PublishMethod>digest</PublishMethod>
        <PlayMethod>none</PlayMethod>
    </Authentication>
    <!-- RTP/AVSyncMethod. Valid values are: senderreport, systemclock, rtpimecode -->
    <AVSyncMethod>senderreport</AVSyncMethod>
    <MaxRTCPWaitTime>12000</MaxRTCPWaitTime>
    <IdleFrequency>75</IdleFrequency>
    <RTSPSessionTimeout>90000</RTSPSessionTimeout>
    <RTSPMaximumPendingWriteBytes>0</RTSPMaximumPendingWriteBytes>
    <RTSPBindIpAddress></RTSPBindIpAddress>
    <RTSPConnectionIpAddress>0.0.0.0</RTSPConnectionIpAddress>
    <RTSPOriginIpAddress>127.0.0.1</RTSPOriginIpAddress>
    <IncomingDatagramPortRanges>*</IncomingDatagramPortRanges>
    <!-- Properties defined here will override any properties defined in conf/RTP.xml for any depacketizers loaded by this application -->
    <Properties>
    </Properties>
</RTP>
<MediaCaster>
    <RTP>
        <RTSP>
            <!-- udp, interleave -->
            <RTPTransportMode>interleave</RTPTransportMode>
        </RTSP>
    </RTP>
    <!-- Properties defined here will override any properties defined in conf/MediaCasters.xml for any MediaCasters loaded by this applications -->
    <Properties>
    </Properties>
</MediaCaster>
<MediaReader>
    <!-- Properties defined here will override any properties defined in conf/MediaReaders.xml for any MediaReaders loaded by this applications -->
    <Properties>
    </Properties>
</MediaReader>
<MediaWriter>
    <!-- Properties defined here will override any properties defined in conf/MediaWriter.xml for any MediaWriter loaded by this applications -->
    <Properties>
    </Properties>
</MediaWriter>
<LiveStreamPacketizer>
    <!-- Properties defined here will override any properties defined in conf/LiveStreamPacketizers.xml for any LiveStreamPacketizers loaded by
this applications -->
    <Properties>
    </Properties>
</LiveStreamPacketizer>
<HTTPStreamer>

```

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```
applications -->
    <!-- Properties defined here will override any properties defined in conf/HTTPStreamers.xml for any HTTPStreamer loaded by this
    <Properties>
    </Properties>
</HTTPStreamer>
<Repeater>
    <OriginURL></OriginURL>
    <QueryString><![CDATA[]]></QueryString>
</Repeater>
<Modules>
    <Module>
        <Name>base</Name>
        <Description>Base</Description>
        <Class>com.wowza.wms.module.ModuleCore</Class>
    </Module>
    <Module>
        <Name>logging</Name>
        <Description>Client Logging</Description>
        <Class>com.wowza.wms.module.ModuleClientLogging</Class>
    </Module>
    <Module>
        <Name>flvplayback</Name>
        <Description>FLVPlayback</Description>
        <Class>com.wowza.wms.module.ModuleFLVPlayback</Class>
    </Module>
    <Module>
        <Name>AudioRepeater</Name>
        <Description>AudioRepeater</Description>
        <Class>uk.org.shamrock.audio.AudioRepeater</Class>
    </Module>
</Modules>
    <!-- Properties defined here will be added to the IApplication.getProperties() and IApplicationInstance.getProperties() collections -->
    <Properties>
    </Properties>
</Application>
</Root>
```