

# AvediaPlayer Plugin

Streaming Client for  
Digital Signage



## AvediaPlayer Plugin V3.0

### Installation and User Guide



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## Document Reference

0000-0043-0001

## Edition

Version 3.0 Issue 2, November 2012  
Printed in UK

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## Products Covered By This Guide

- AvediaPlayer Plugin

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## Safety Notices

Before installing and operating these products, please read the safety information in this manual.

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# 1 Introduction

This manual explains how to install, set up, and use the Exterity AvediaPlayer Plugin. The Exterity AvediaPlayer Plugin is a DirectShow 9 compatible source filter that can be called from a digital signage application or can be used with Windows Media Player 9 onwards.

Windows Media Player, when used with the AvediaPlayer Plugin, allows you to play any unencrypted single program transport streams available on your network.

Each installation of the AvediaPlayer Plugin requires a license which is node locked to the MAC address of the installation PC/device.

## Scope

This edition of the manual refers to version 3.0 of the AvediaPlayer Plugin software. It shows you how to install the AvediaPlayer Plugin and configure various applications to make use of the AvediaPlayer Plugin.

## Audience

This manual is intended for use by systems integrators or systems administrators who are installing and setting up Exterity products. The manual assumes that readers are familiar with installing and configuring network-based and audio-visual products.

## Terms and definitions

The following terms and definitions are used in this document:

**Table 1 Terms and Definitions**

<b>Term</b>	<b>Definition</b>
<b>IPTV</b>	Internet Protocol Television
<b>LAN</b>	Local Area Network
<b>MAC</b>	Media Access Control
<b>RTP</b>	Real Time Protocol
<b>RTSP</b>	Real Time Streaming Protocol
<b>SAP</b>	Session Announcement Protocol
<b>SNMP</b>	Simple Network Management Protocol
<b>UDP</b>	User Datagram Protocol

## What is IPTV?

Internet Protocol Television, or IPTV, refers to television that is distributed over an IP network—the same network you are using within your building or campus to manage files and exchange emails.

IPTV technology enables an organisation's IP network to carry much more than just television. With IPTV, you can easily distribute terrestrial and satellite television and radio, videos/DVDs, digital videos on-demand (VoD), digital signage, information boards, and web content throughout your facility. All of this multimedia content can be viewed using existing TVs, PCs, and AV display units without requiring a separate satellite/aerial signal distribution system.

The Exterity AvediaPlayer Plugin allows you to display your IPTV network video/audio content on your digital signage device.

## 2 Installation

### System Requirements

This chapter details the minimum system required for the successful operation of the AvediaPlayer Plugin. It also shows you how to carry out the installation process on local and remote devices.

The following system requirements refer to successful operation of the Windows Media Player and Exterity AvediaPlayer Plugin:

- Intel® Core™ 2 Duo processor or equivalent
- Windows XP, Windows Vista, or Windows 7 (32 and 64 bit) operating system
- 1GB of RAM
- 1GB Hard Disk
- DirectX 9.0 compatible graphics card
- LAN connection to IPTV network
- Speakers/headphones for audio content

---

**Note:** You should also take account of any additional requirements if you are including or embedding the Media Player in another application such as digital signage or browser software.

---

### Installation

The AvediaPlayer Plugin can be installed directly by launching the installer. Administrator privileges for the device are required. You can also use command line installation on both local and remote devices (refer to [Command Line \(Silent\) Installation](#) on page 10). During the installation you are asked to provide the location of the license file for the installation device.

---

**Note:** The license is node locked to the MAC address of the device(s) specified during purchase. License requests from your Exterity reseller should also be accompanied by the MAC addresses of the targeted installation devices.

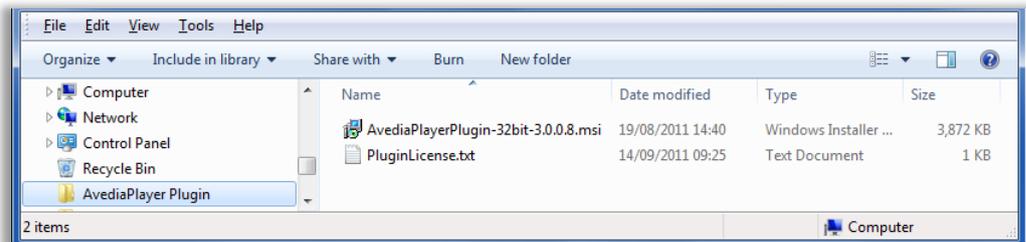
---

## AvediaPlayer Plugin Manual Installation

Ensure that any previous version of the AvediaPlayer Plugin is not in use prior to installation. During the installation you are asked for the location of the license file. If you have multiple licenses ensure you select the appropriate license for the installation destination (multiple licenses can be contained in a single file). Windows firewall rules are also created to allow operation of the required services. You do not need to uninstall any previous AvediaPlayer Plugin installations.

### To install the AvediaPlayer Plugin:

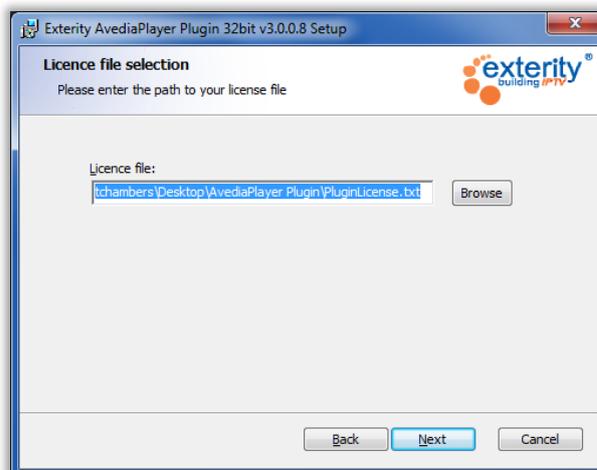
1. Locate the AvediaPlayer Plugin installation file and license file:



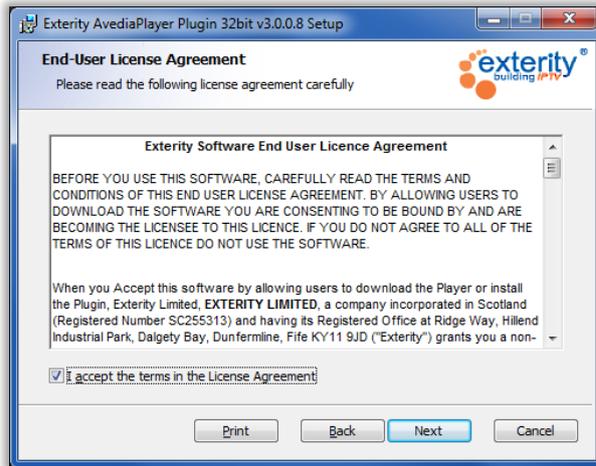
2. Double click on the AvediaPlayerPlugin-32bit-3.x.x.x.msi file to launch the Setup Wizard. Click the **Next** button to continue.



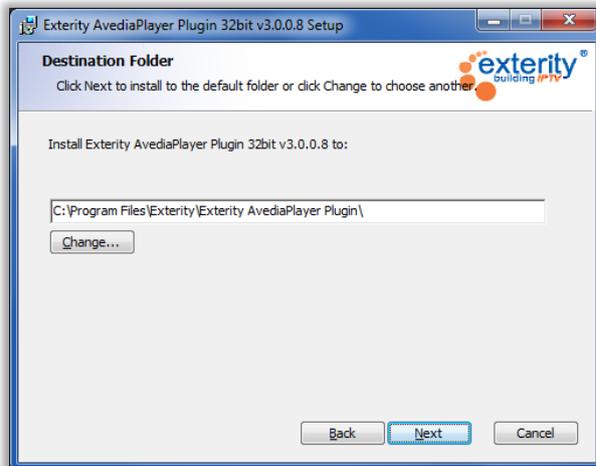
3. Click on the **Browse** button to locate and select the license file.



4. Confirm acceptance of the license by clicking the “**I accept the terms in the License Agreement**” checkbox. Click the **Next** button to continue.



5. Click the **Next** button to accept the default installation path (C:\Program Files\Exterity\Exterity AvediaPlayer Plugin\) or click the **Change...** button to specify a different path.



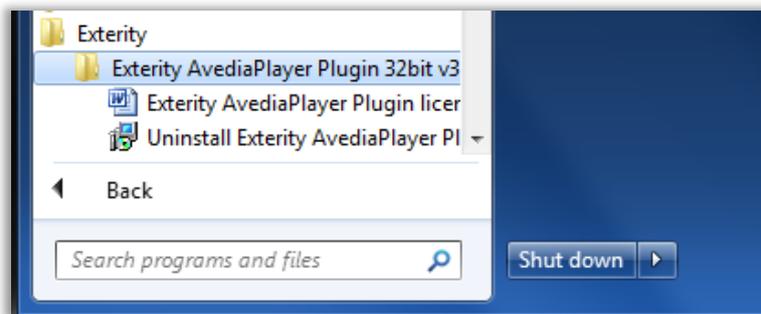
6. Click the **Install** button to install the AvediaPlayer Plugin.



- Click the **Finish** button to complete the installation.



The completed installation adds an **Exterity** folder containing 2 items to the **Programs** menu.

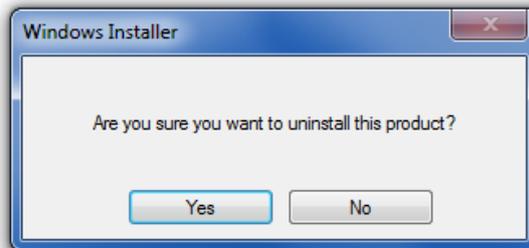


## Removing the AvediaPlayer Plugin

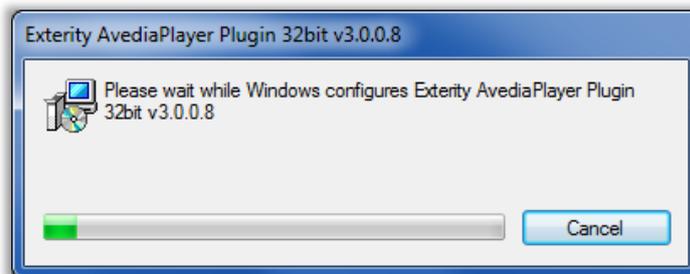
The AvediaPlayer Plugin can be removed if required.

### To uninstall the AvediaPlayer Plugin:

1. Click **Start > All Programs**.
2. Locate and open the Exterity AvediaPlayer Plugin folder.
3. Click **Uninstall Exterity AvediaPlayer Plugin**.
4. Click **Yes** to confirm you want to process with the removal.



5. The following window appears briefly during the removal of the AvediaPlayer Plugin:



On completion, the Exterity AvediaPlayer Plugin items are removed, including the **Program** menu folder, contents, and associated registry entries.

## Command Line Installation

You can also use "Msiexec.exe" executable to install the AvediaPlayer Plugin from the command line. This allows you to carry out installations using options such as **/quiet** where no dialog boxes or messages are displayed to the user. Figure 1 shows the use of Msiexec.exe in the command line to uninstall AvediaPlayer Plugin version 3.0.0-8 and install version 3.0.0-9.

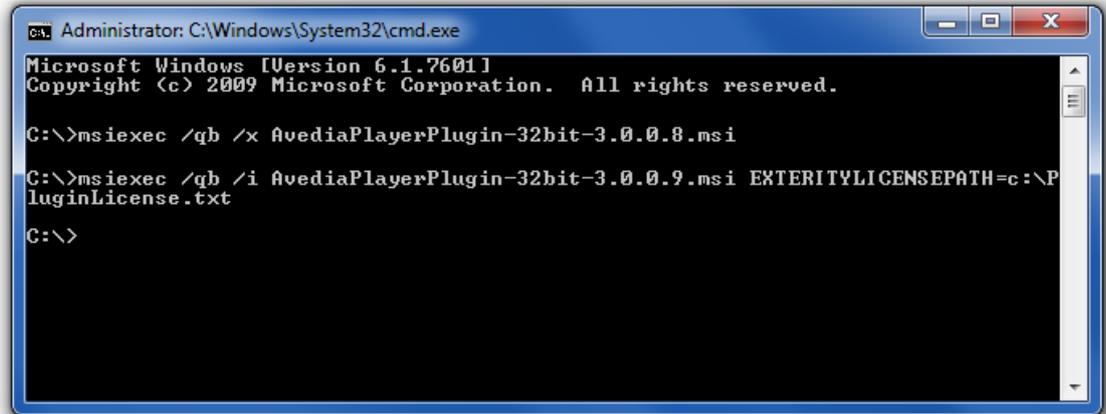
Refer to the MSDN Library article: [http://msdn.microsoft.com/en-us/library/aa372024\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/aa372024(v=vs.85).aspx) for more information.

### Installation Example:

```
msiexec /qb /i AvediaPlayerPlugin-32bit-3.0.0.9.msi  
EXTERITYLICENCEPATH=c:\licence.txt
```

### Un-installation Example:

```
msiexec /qb /x AvediaPlayerPlugin-32bit-3.0.0.9.msi
```



```
Administrator: C:\Windows\System32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\>msiexec /qb /x AvediaPlayerPlugin-32bit-3.0.0.8.msi
C:\>msiexec /qb /i AvediaPlayerPlugin-32bit-3.0.0.9.msi EXTERITYLICENSEPATH=c:\P
uginLicense.txt
C:\>
```

Figure 1 Command Line

- 
- Note:**
- The user running Msiexec.exe must have administrator rights.
  - Ensure the license file path is specified in the command line.
  - The licence file can be on a local path or network share.
-

## 3 Using the AvediaPlayer Plugin

The AvediaPlayer Plugin can interoperate with digital signage applications. This section shows you how to configure an application to make use of the AvediaPlayer Plugin to access the available media content on your network. It contains the following sections:

- [Specifying Content](#)
- [Overscan Cropping](#)
- [Using the AvediaPlayer Plugin with Windows Media Player](#)
- [Adding Content to a Web Page](#)
- [Play Content Using a Metafile Playlist](#)
- [Using the AvediaPlayer Plugin with Sony Ziris](#)
- [Using the AvediaPlayer Plugin with Sedao](#)
- [Using the AvediaPlayer Plugin with Scala](#)
- [DirectShow Integration](#)

### Specifying Content

Content is identified by its URL and must be prefixed by the following:

Prefix	Media Stream Type
exerity://	Same as exerity-udp (maintains compatibility with earlier AvediaPlayer applications)
exerity-udp://	UDP multicast stream
exerity-rtp://	RTP multicast stream
exerity-rtsp://	RTSP video-on-demand stream

**For example:**

To display the UDP multicast stream with a URL of 239.192.5.32:5000, enter:

```
exerity-udp://239.192.5.32:5000
```

## Overscan Cropping

Overscan provides an extra area around all four edges of a video image. Its purpose was to compensate for the variability of how images were rendered on CRT displays. Some SD channels exhibit overscan borders when the full video image is displayed with modern panel displays or software clients.

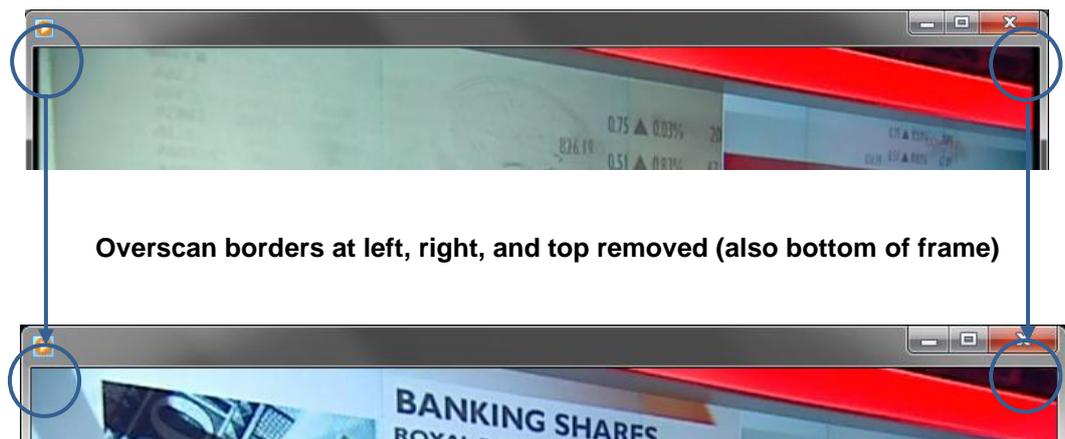
The AvediaPlayer Plugin provides a cropping function to enable you to remove any unwanted borders. This is achieved by specifying a value (as a percentage) for the cropping parameter. The specified area is removed from all 4 sides and the image remains centred. Typically values of around 3% are sufficient.

**Syntax:** ?overscan=x

### For example:

To display the UDP multicast stream with a URL of 239.192.5.32:5000, and an overscan cropping value of 2%, enter:

```
exterity-udp://239.192.5.32:5000?overscan=2
```



## Using the AvediaPlayer Plugin with Windows Media Player

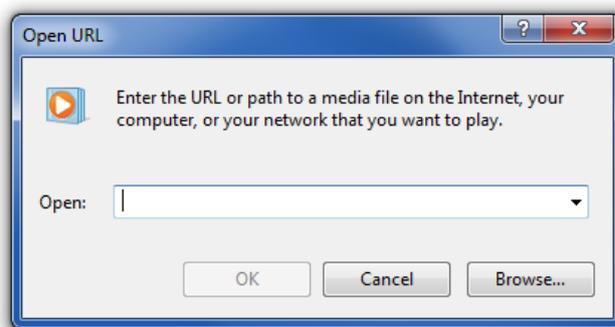
Installation of the AvediaPlayer Plugin allows you to access media content (audio and video) distributed as transport streams on your network. To access the content you must know its URL, or have the URL added to a play list. This section shows you examples of both.

### Play Content Using a URL

To play content using the URL of the channel, you must enter the appropriate prefix and stream URL directly.

#### To use a URL to access content:

1. Determine the URL of the content you want to access.
2. Launch Windows Media Player.
3. If the Windows Media Player menu bar is not visible, press CTRL+M to display it.
4. Click **File > Open URL...**

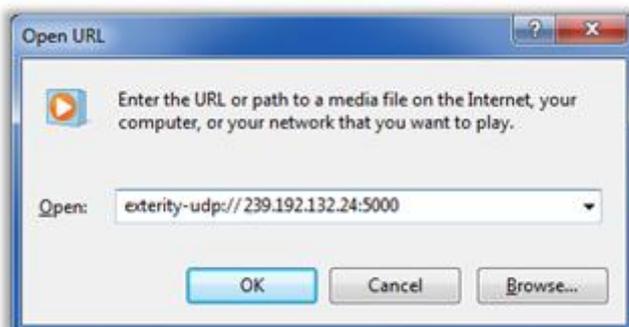


5. Enter the prefix type for the stream type and its URL. For example, to access the UDP stream with URL 239.192.132.24:5000, enter: `exterity-udp://239.192.132.24:5000`.

---

**Note:** If it has been previously selected, click the arrow and select the stream from the drop down list.

---



6. Click the **OK** button to display the stream.



7. To select another stream click the  icon and repeat the above process.

## Adding Content to a Web Page

The Windows Media Player can be embedded in an HTML document. With the addition of the Exterity AvediaPlayer Plugin, you can add streamed content to a webpage. This article describes the process for adding the Windows Media Player:

<http://technet.microsoft.com/en-us/library/bb676136.aspx#XSLTsection129121120120>

### To add streamed content to a webpage:

1. Open the required web page in an HTML editor (or simple text editor)
2. Identify the URL of the content you want to stream in the web page.
3. Refer to the section **Inserting the Player Control** in this article:  
<http://technet.microsoft.com/en-us/library/bb676136.aspx#XSLTsection129121120120>
4. Add the Windows Media Player Object at the required location on the web page using the code:

```
<OBJECT id="VIDEO" width="320" height="240"
  CLASSID="CLSID:6BF52A52-394A-11d3-B153-00C04F79FAA6"
  type="application/x-oleobject">
  <PARAM NAME="URL" VALUE="exterity-udp://239.192.5.32:5000">
  <PARAM NAME="SendPlayStateChangeEvents" VALUE="True">
  <PARAM NAME="AutoStart" VALUE="True">
  <PARAM name="uiMode" value="none">
</OBJECT>
```

For streamed content, specify the source in the form shown in the highlighted line above.

5. In this example, a TV News channel is added to the Exterity AvediaPlayer web page.



6. Right click on the player window to access the Windows Media Player controls.

## Play Content Using a Metafile Playlist

You can use the playlist feature of Window Media Player to create channel name lists. By defining the content name and URL in an Advanced Stream Redirector file (.asx), you can

create playlists, adding each item to the appropriate list. For additional information about adding metafile playlists refer to <http://msdn.microsoft.com/en-us/library/aa386633.aspx>.

The following example shows how to create a playlist of TV News channels from the streams available on a network.

#### To create channel playlists:

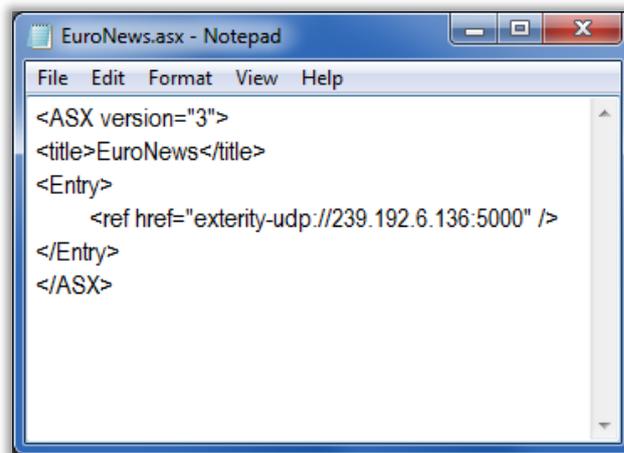
1. Determine the names and URLs of the media you want to include in a playlist.
2. Open a simple text editor to create the metafile.

---

**Note:** Ensure you use a text editor that does not apply any formatting codes.

---

3. Create and save the metafile (Save As.. .asx) specifying the name and URL:

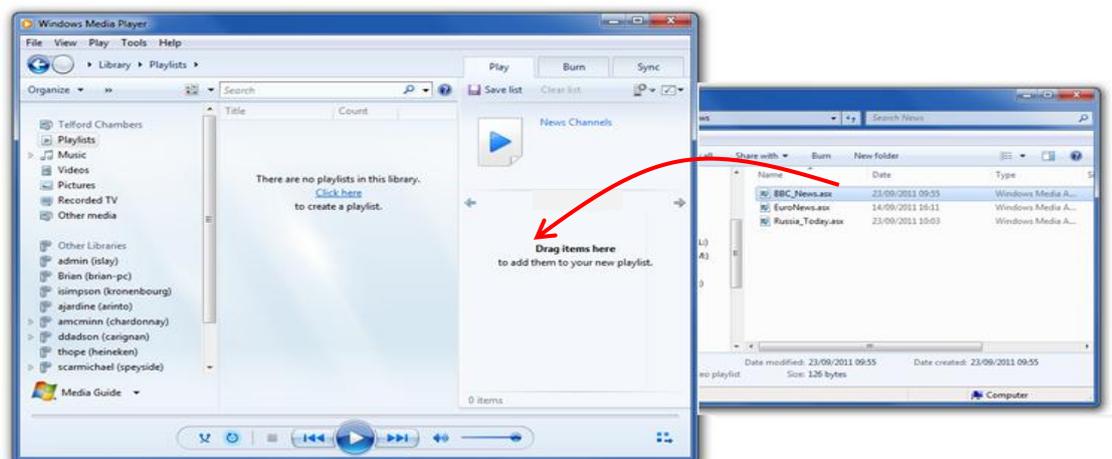


```

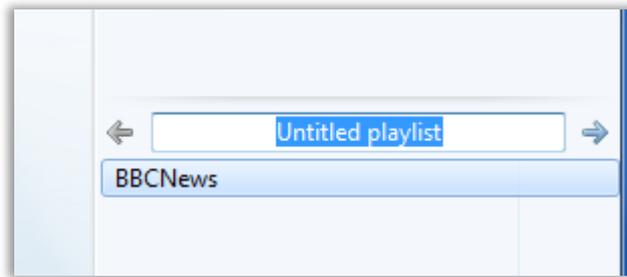
EuroNews.asx - Notepad
File Edit Format View Help
<ASX version="3">
<title>EuroNews</title>
<Entry>
  <ref href="exterty-udp://239.192.6.136:5000" />
</Entry>
</ASX>

```

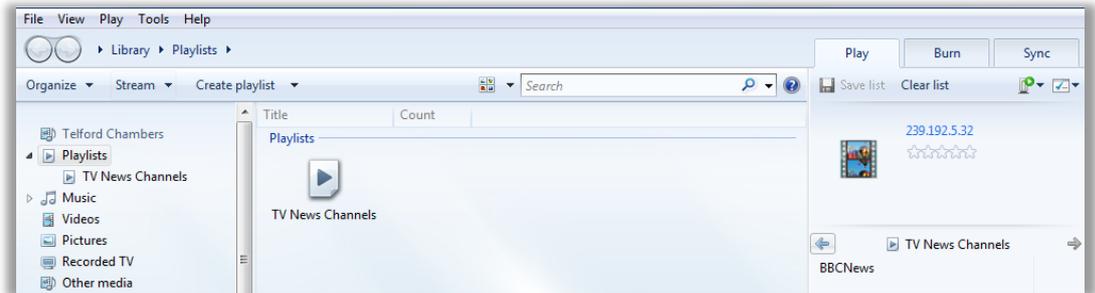
4. Repeat this process, creating an entry element for each channel/URL to be listed in the playlist.
5. Launch Windows Media Player.
6. From a Windows Explorer window, drag and drop the first metafile you want to add to your playlist into the Windows Media Player:



7. Confirm the content is displayed in the play window and click the  icon to return to the Windows Media Player setup window.
8. Click in the playlist name field to highlight *Untitled playlist*.



9. Enter the name of your playlist.



10. Press **Enter** to save and add your new Playlist.

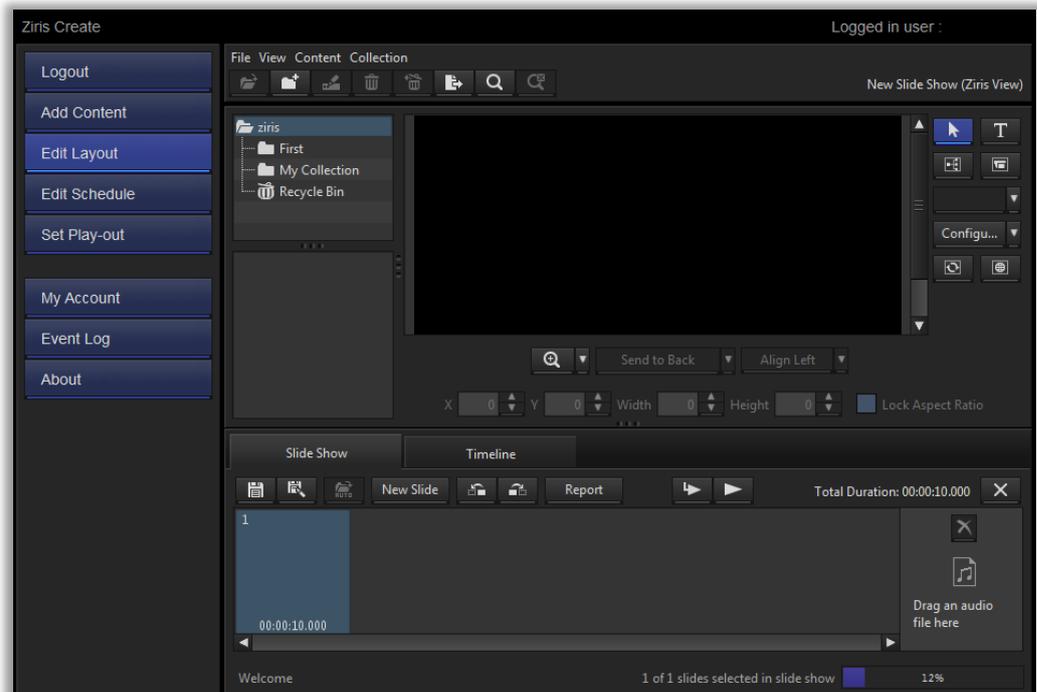
With the playlist selected continue to drag and drop each required metafile onto your playlist until it is completed.

## Using the AvediaPlayer Plugin with Sony Ziris

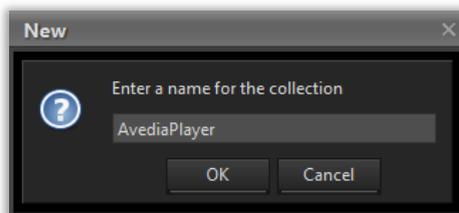
You can add streamed content to displays created with the Sony Ziris Digital Signage software using the AvediaPlayer Plugin. This section shows you how to add streamed content to a new collection. The multicast address of the streamed content you want to add is required for the setup process.

### To add streamed content:

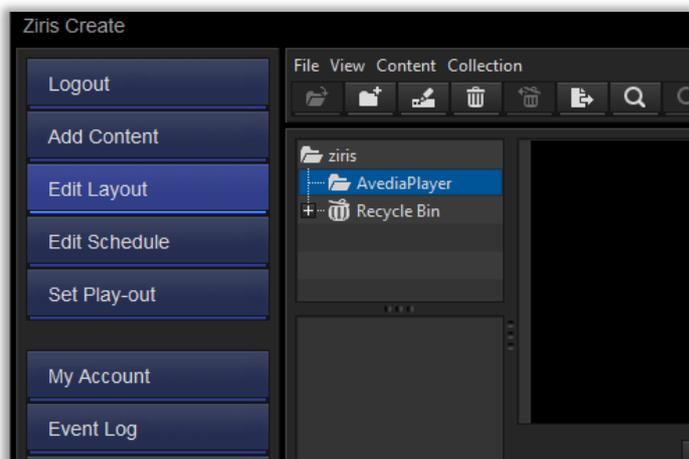
1. Open your Sony Ziris Create application.
2. Click **Edit Layout**.



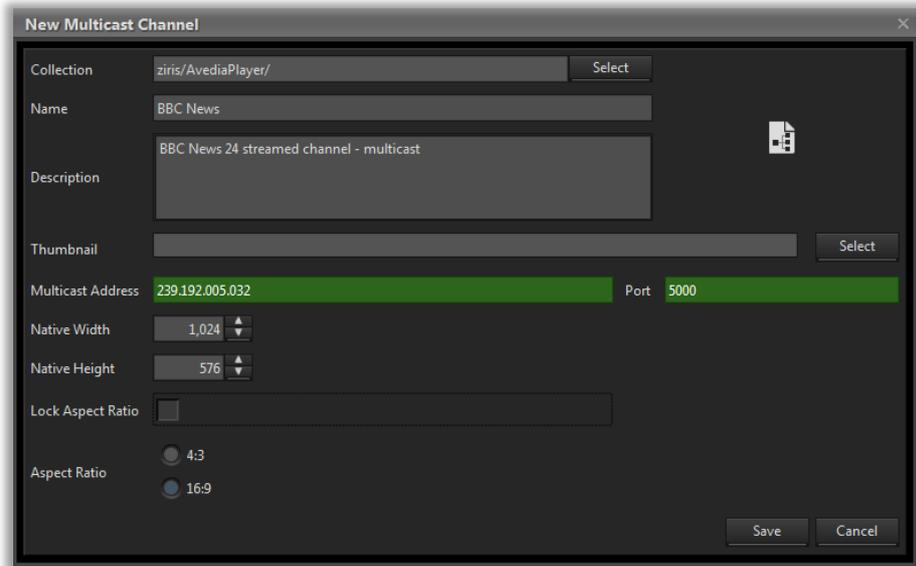
3. Click **Collection > New** and enter a name for the new collection and click the **OK** button.



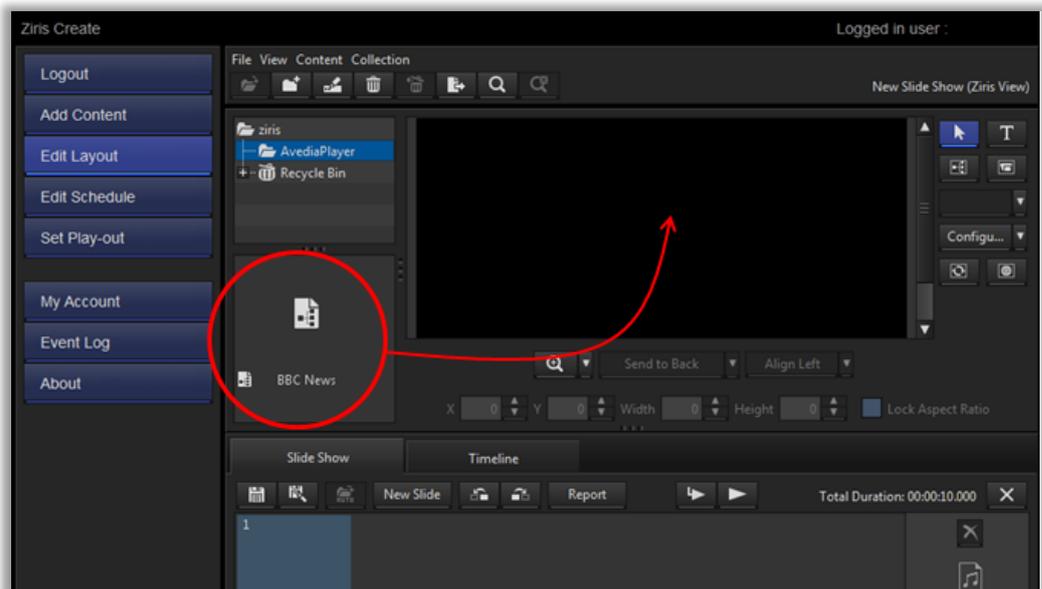
4. Select the new folder name in the ziris folder tree (AvediaPlayer in this example).



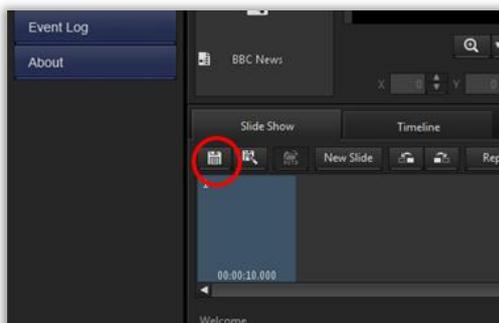
- With the folder selected, click **File > New Multicast Channel** and enter a name and description for the channel (BBC News in this example).



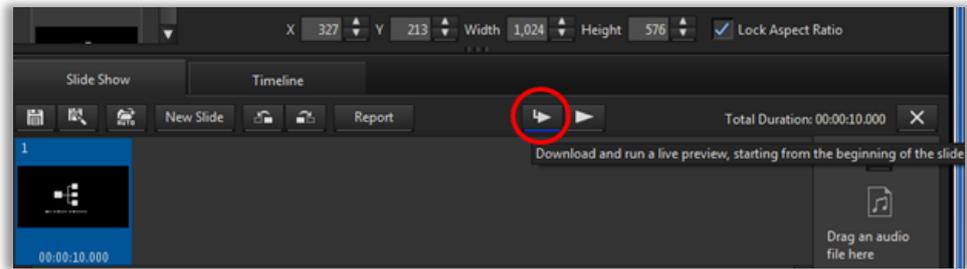
- Enter the multicast address and port of the streamed content. Ensure the address is entered using leading zeros.
- Specify the height, width as aspect ratio settings as required.
- Click the **Save** button.
- Drag the channel from the content list to the Layout Editor window.



- Click the Save icon on the **Slide Show** tab.



11. Click the **Download and run live preview** button on the **Slide Show** tab to confirm the content is played in a full screen window.



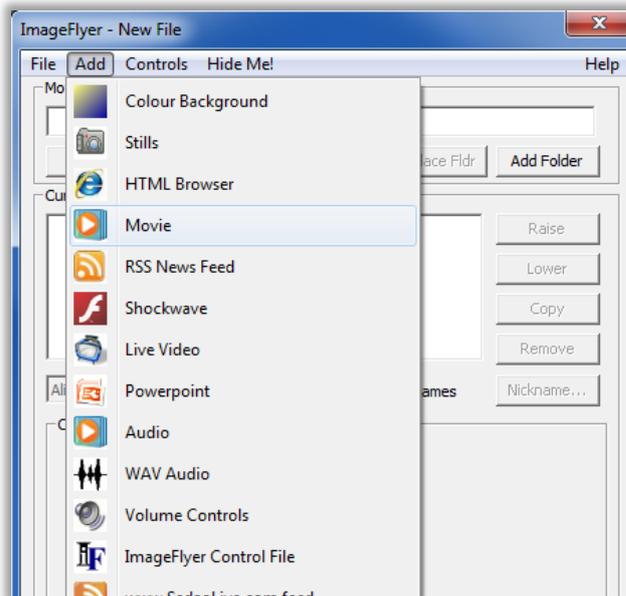
12. Press **Alt-F4** to return to exit full screen display.

## Using the AvediaPlayer Plugin with Sedao

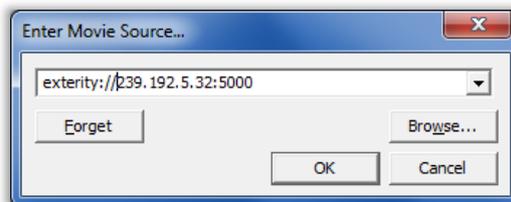
You can use the AvediaPlayer Plugin to add streamed content to your Sedao ImageFlyer output. The AvediaPlayer Plugin must be installed on the authoring PC as well as PCs or signage devices.

### To add a live stream to Sedao ImageFlyer output:

1. Identify the URL of the streamed content you want to add to your output.
2. Open the Sedao ImageFlyer file to which the content is to be added, or create a new one.
3. Click **Add** and select **Movie** (or Audio).

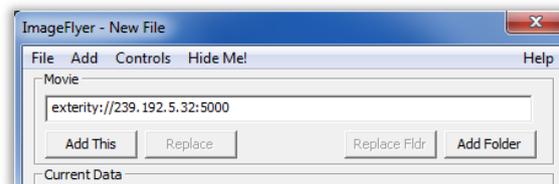


4. Enter the streamed media URL in the entry field: (in this example, 239.192.5.32:5000)



Note that the URL can be entered in the forms listed in [Specifying Content](#) on page 12.

5. Click the **OK** button to add the content and display the ImageFlyer window and confirm the new content URL is displayed.



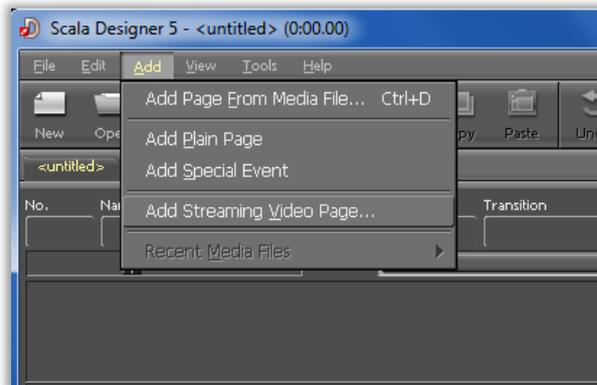
6. Click the **Add This** button and confirm the media plays as expected.
7. Complete and publish your output.

## Using the AvediaPlayer Plugin with Scala

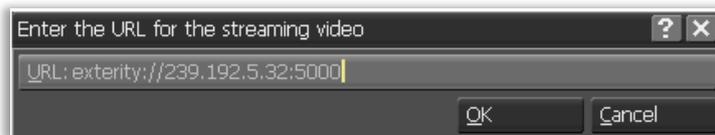
You can use the AvediaPlayer Plugin to add streamed content to your Scala signage scripts. The AvediaPlayer Plugin must be installed on the authoring PC as well as PCs or signage devices running the Scala Player.

### To add a live stream to Scala Designer output:

1. Identify the URL of the streamed content you want to add to your Scala Designer project.
2. Open Scala Designer project to which the content is to be added, or create a new one.
3. Click **Add > Add Streaming Video Page**.

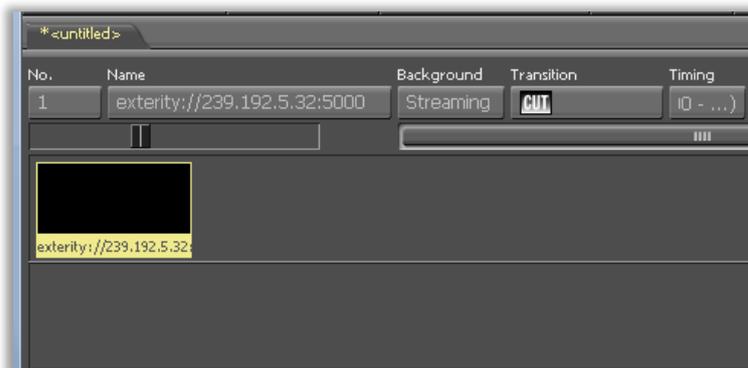


4. Enter the streamed media URL in the entry field: (in this example, 239.192.5.32:5000)



Note that the URL can be entered in the forms listed in [Specifying Content](#) on page 12.

5. Click the **OK** button to add the content and display the authoring window and confirm the new content is correctly listed as an icon displaying its URL.



6. Select the content icon and click the Preview button  to confirm the media is played as expected.
7. Press the **ESC** key to return to the authoring window.
8. Complete and publish your project.

## DirectShow Integration

Whilst the AvediaPlayer Plugin can be used with Windows Media Player or embedded in another application, some applications may require use of the AvediaPlayer Plugin at a lower level using DirectShow. This section describes the lower level operation of the AvediaPlayer Plugin and the interfaces that it supports and/or provides.

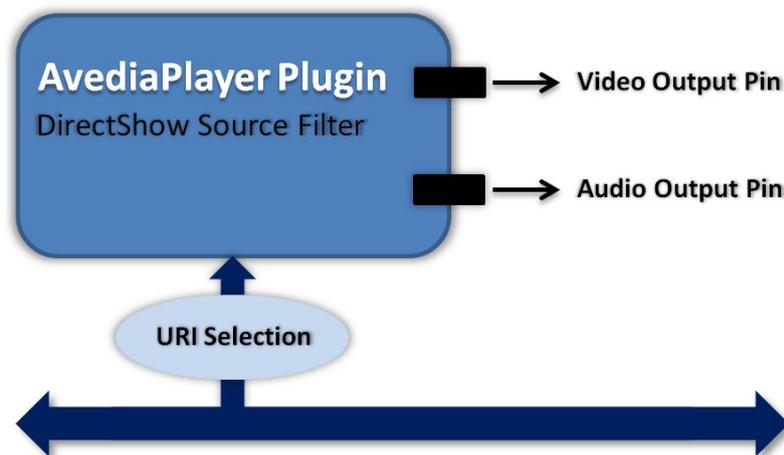
### Overview

The AvediaPlayer Plugin is constructed as a single DirectShow filter, and can be integrated into applications using the Microsoft DirectShow APIs.

There are 3 main types of DirectShow filters:

- Source Filters
- Transform Filters
- Rendering Filters

The AvediaPlayer Plugin is a DirectShow Source Filter, and has two output pins providing decoded, uncompressed video and audio.



There are two ways the filter can be added to a DirectShow graph:

- Let DirectShow (GraphBuilder) choose the filter as a suitable source filter for a particular stream
- Instantiate the filter manually in a graph, and pass in a stream address directly

### GraphBuilder instantiation

The filter is registered with the following URI handlers

<b>UDP:</b>	exterity-udp://x.x.x.x:yyyy
<b>RTP:</b>	exterity-rtp://x.x.x.x:yyyy
<b>RTSP:</b>	exterity-rtsp://x.x.x.x/path/to/media

Calling IGraphBuilder's RenderFile () method with one of the above URI formats causes the AvediaPlayer Plugin to be added to the graph, with a video/audio render chain established dynamically using IntelligentConnect.

## Manual Instantiation

The classid of the filter is:

```
{B87FD264-201A-4945-A49C-5DC811400C4E}
```

You can use this to find and instantiate the filter manually in an application. The filter supports the IFileSourceFilter interface – the Load() method of this interface can be used to specify the media address to be used.

```
STDMETHODIMP AvediaSourceFilter::Load(LPCOLESTR addr, const  
AM_MEDIA_TYPE *pmt);
```

The pmt value is not used, and should always be set NULL. The address can be one of the four Exterity handler addresses documented earlier.

The video output pin is connected using various targets and colour formats, connection attempts iterating through the list below until a valid connection is formed. Connection attempts follow a pre-defined order, in preference of rendering and CPU efficiency. Connections are attempted in the following order:

1. Automatic graph creation (IntelligentConnect) using
  - a. YV12
  - b. NV12
  - c. YUY2
  - d. BGRA
2. Connect directly to EVR
  - a. YV12
  - b. NV12
  - c. YUY2
  - d. BGRA
3. Connect directly to VMR9
  - a. YV12
  - b. NV12
  - c. YUY2
  - d. BGRA
4. Connect directly to VMR7
  - a. YV12
  - b. NV12
  - c. YUY2
  - d. BGRA

## IntelligentConnect Operation

In general, IntelligentConnect finds the most appropriate renderer for the video and audio output pins from the Exterity filter. However, it is useful to be aware of some features and limitations of this:

1. If a suitable audio/video renderer is already present in the DirectShow graph, IntelligentConnect typically chooses to connect to it, even if it would not have been chosen by default. This can result in sub-optimal performance, where, for example, the older VMR7 renderer is chosen over the much newer and more efficient EVR.
2. If a renderer is chosen that doesn't support the default colour format (YV12), and a third party DirectShow colour space converter is available on the host system, IntelligentConnect may try to use this to convert to the format the renderer is requesting. This can result in an invalid graph set up and a resulting green/black output during playback. Removing the colour space converter from the host system resolves this issue.

## Video pin colour formats

The filter supports the following colour formats. They are listed in order of preference. Using any format other than YV12 incurs an extra overhead as video data requires a software conversion from YV12 to the required format.

<b>YV12:</b>	No extra overhead
<b>NV12:</b>	Line by line copy of chrominance, byte by byte copy of luminance
<b>YUY2:</b>	Byte by byte copy of chrominance and luminance
<b>BGRA:</b>	Byte by byte copy and colour space conversion

## Audio pin formats

The audio pin supports a single output format as detailed below. The only variable parameter is the sample rate, which will always match the sample rate of the source audio.

<b>Format:</b>	Signed PCM
<b>Channels:</b>	2 (mono audio is replicated across both channels)
<b>Bits per sample:</b>	16
<b>Sample rate:</b>	Matches source

## Filter control

Once a valid DirectShow graph has been established, the filter can be controlled using the following methods:

```
STDMETHODIMP AvediaSourceFilter::Run(REFERENCE_TIME tStart);
STDMETHODIMP AvediaSourceFilter::Pause();
STDMETHODIMP AvediaSourceFilter::Stop();
```

Calling Run() starts the data flowing in the graph. Pause() temporarily pauses the graph – this can be re-started by calling Run(). Stop() can be called when the graph is running or paused.

## 4 Troubleshooting

To help resolve any issues you may have with the operation of the AvediaPlayer Plugin or the playing of a specific channel, you can enable output to dbgview. This output can subsequently be used to help diagnose the issue.

By specifying debug and the interval in the channel URL, a set of debug values can be output to dbgview at the set intervals (specified in seconds).

**Syntax:** ?debuginterval=x

**For example:**

To output to dbgview at 5 second intervals when displaying the UDP multicast stream with a URL of 239.192.5.32:5000, enter:

```
exterity-udp://239.192.5.32:5000?debuginterval=5
```

---

**Note:** this can be combined with overscan cropping to maintain the intended display whilst capturing debug information. For example:

```
exterity-udp://239.192.5.6:5000?debugInterval=60&overscan=3
```

---

## **APPENDIX A Support and Contact Information**

Technical Support for Exerity products is provided by authorised Systems Integrators and Resellers. Please contact your Systems Integrator or Reseller with any Support issues.