VBrick StreamPlayer

StreamPlayer v5.2 Admin Guide

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About VBrick Systems

Founded in 1997, VBrick Systems, an ISO 9001 certified vendor, is a privately held company that has enjoyed rapid growth by helping our customers successfully introduce mission critical video applications across their enterprise networks. Since our founding, VBrick has been setting the standard for quality, performance and innovation in the delivery of live and stored video over IP networks—LANs, WANs and the Internet. With thousands of video appliances installed world-wide, VBrick is the recognized leader in reliable, high-performance, easy-to-use networked video solutions.

VBrick is an active participant in the development of industry standards and continues to play an influential role in the Internet Streaming Media Alliance (ISMA), the MPEG Industry Forum, and Internet2. In 1998 VBrick invented and shipped the world's first MPEG Video Network Appliance designed to provide affordable DVD-quality video across the network. Since then, VBrick's video solutions have grown to include Video on Demand, Management, Security and Access Control, Scheduling, and Rich Media Integration. VBrick solutions are successfully supporting a broad variety of applications including distance learning and training, conferencing and remote office communications, security, process monitoring, traffic monitoring, business and news feeds to the desktop, webcasting, corporate communications, collaboration, command and control, and telemedicine. VBrick serves customers in education, government, healthcare, and financial services markets among others.

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StreamPlayer Admin Guide

StreamPlayer is a VBrick PC application used to view Live and On-Demand streams, including full play, pause, stop, fast forward, rewind, and seek capabilities. StreamPlayer can discover program names on a network by listening for a session announcement from other VBrick devices. When you click a program name, StreamPlayer launches the stream in Windows Media Player. StreamPlayer Plus is an enhanced version that adds support for stream recording. StreamPlayer Plus is available for Windows, Linux, and Solaris and also includes a web deployment toolkit that lets you embed video in web pages.

Organization

1. Getting Started	provides an overview of StreamPlayer features and functions. It explains the differences between StreamPlayer and StreamPlayer Plus.
2. Web Deployment Toolkit	explains how to deploy StreamPlayer over the web. It explains how to set up a web server and how to embed video in web pages using pre-configured templates.
3. StreamPlayer Categories	defines the concept of concept of "categories" and explains how these relate to VBrick appliances.

StreamPlayer Differences

Table 1. Supported Versions

Version	Plays	License Required
StreamPlayer WM	WM, MPEG-1 †	No.
StreamPlayer	WM, MPEG-1, MPEG-4, H.264 †	Yes. Installs automatically.
StreamPlayer with MPEG-2 Playback	WM, MPEG-1, MPEG-2, MPEG-4, H.264	Yes. See Product CD or download from VBrick website.
StreamPlayer Plus	WM, MPEG-1, MPEG-2, MPEG-4, H.264 plus Record, FTP, Edit ††, Capture Driver †††	Yes. See Product CD or download from VBrick website.

†   Plays MPEG-2 with an MPEG-2 decoder (e.g. a DVD player) on your computer.

††   Edits MPEG-1 and MPEG-2 streams only.

†††   Outputs raw streaming media for third-party applications.

Font Conventions

Arial bold is used to describe dialog boxes and menu choices, for example: **Start > All Programs > VBrick**

`Courier fixed-width font` is used for scripts, code examples, or keyboard commands.

`Courier bold fixed-width font` is used for user input in scripts, code examples, or keyboard commands.

This bold black font is used to strongly emphasize important words or phrases.

Folder names and user examples in text are displayed in this sans serif font.

User input in text is displayed in this bold sans serif font.

Italics are used in text to emphasize specific words or phrases.

Printer-Friendly

Click on any of the following links to print a hard copy of the document. For best viewing, open and resize the document using the magnification box at the bottom of the Acrobat Reader window.

StreamPlayer Admin Guide

▼   To save or print a PDF document:

1.   Click once to open the PDF document in Acrobat Reader.

2.   On the **Acrobat Reader** toolbar, click **Save** or **Print**.

Getting Started

Topics in this chapter

Welcome to VBrick Systems award winning StreamPlayer software. StreamPlayer software delivers true TV-quality video to the desktop. Whether the application is distance learning, video streaming to the desktop, or remote monitoring – providing video and audio to any PC is easy with VBrick's StreamPlayer family of software products. The StreamPlayer product family empowers viewers to watch television quality MPEG and Windows Media video and audio on PCs, anywhere the network reaches. From the needs of a single user, to those of a network administrator with the responsibility for hundreds or thousands of PC users, StreamPlayer provides flexibility of installation. Whatever the need, StreamPlayer provides a desktop display of VBrick's MPEG-1, MPEG-2, MPEG-4, H.264, and Windows Media video streams in real time. The StreamPlayer Family consists of the following products.

- StreamPlayer WM
- StreamPlayer
- StreamPlayer with MPEG-2 Playback
- StreamPlayer Plus
- StreamPlayer License Server

Note Microsoft Windows Media is a trademarked name that identifies operating system features and technologies that are designed to create, edit, play, and distribute streaming media. The VBrick WM Appliance is a VBrick device that encodes Windows Media-formatted content so it can be distributed over a network.

StreamPlayer Overview

Any references to StreamPlayer in this document apply to both StreamPlayer for Windows Media and StreamPlayer with MPEG-2 Playback. The only difference is the type of video that each supports. See Supported Versions for a complete list of options. The desktop versions of StreamPlayer and StreamPlayer Plus both support the following features:

- Viewing live streams
- Playback of files
- Display of closed captions

These features are supported for MPEG-1 and StreamPlayer WM (Windows Media). MPEG-4/H264 support is added with StreamPlayer. MPEG-2 support is provided in StreamPlayer with MPEG-2 Playback and the StreamPlayer Plus versions. StreamPlayer may also support MPEG-2 video if an MPEG-2 decoder is installed on the PC. For example, if

the computer has a DVD player, then there is an MPEG-2 decoder installed. StreamPlayer will be able to use this decoder in most cases. StreamPlayer Plus adds the following features:

- Recording of MPEG-1, MPEG-2, MPEG-4, and WM streams. Recording can be password protected.
- Editing of MPEG-1 and MPEG-2 files.
- Capture driver functionality.

Note StreamPlayer and StreamPlayer with MPEG-2 Playback can also be deployed as an automatic download from a web server. See <u>Web Deployment Toolkit</u> on page 9 for a discussion of how to deploy StreamPlayer in this manner.

StreamPlayer and Windows Media

StreamPlayer Plus launches Windows Media Player to play MPEG or WM streams on the PC. StreamPlayer will use the latest version of the Windows Media Player that is installed on the machine.

Desktop PC Requirements

VBrick Systems recommends the following minimum system specifications:

- Windows 2000, Windows XP, or Vista.
- 300 MHz Pentium II processor for MPEG-1 streams.
- 500 MHz Pentium III processor for MPEG-2 streams.
- 500 MHz (minimum), 750 MHz Pentium III processor (recommended) for MPEG-4 and Windows Media streams.
- 128 MB RAM.
- SVGA video card 640x480, 256 colors, video card acceleration recommended.
- Windows compatible sound device.
- Minimum 10 MB hard disk space for installation.
- Microsoft Internet Explorer 6.0 or higher.
- Windows Media Player Version 7.1 (Windows 98 or 2000), 9 Series (Windows 2000 or XP), or 10 (Windows XP only).

- DirectX Media Version 8.1 or higher; 9.0 or higher recommended.
- Windows XP operating systems: Service Pack 1 or above (Service Pack 2 has been tested and is supported).

StreamPlayer Components

StreamPlayer

The various forms of StreamPlayer allow MPEG-1, MPEG-4/H.264, and Windows Media-based content video to be played on PCs. StreamPlayer with MPEG-2 Playback additionally allows MPEG-2 video to be played on PCs. Both can be deployed either via a desktop install (.exe) or via embedding the components in a web page. The components, including sample HTML pages, required to embed the video in a web page are called the StreamPlayer Web Deployment Toolkit. When deployed in this method, the StreamPlayer components are automatically downloaded to the desktop from the web page.

Note A separate version of StreamPlayer is available *without* support for MPEG-4/H.264; this version is freely distributable without limitation. A version *with* MPEG-4 support is available for free for up to 1,000 users. There is a nominal charge for additional users.

StreamPlayer Plus

StreamPlayer Plus is a full-featured version that is deployed via a desktop install (.exe). It includes the same features as StreamPlayer and StreamPlayer with MPEG-2 Playback, and also provides:

- The ability to record MPEG-1, MPEG-2, MPEG-4/H.264, and WM streams.
- The ability to edit MPEG-1 and MPEG-2 files.
- Capture Driver software, which allows MPEG-1 and MPEG-2 video to be decoded and then transcoded into different formats (JPGs, Windows Media, Real, etc.) via third party software.
- Built-in FTP enables instant transfer of recorded files to a remote server.
- Category filtering protection on a per stream basis restricts streams to authorized viewers.

StreamPlayer License Server Software

StreamPlayer License Server Software, based on the industry standard FLEXlm, is an optional component when more than 100 StreamPlayer with MPEG-2 Playback or StreamPlayer Plus licenses are purchased. License Server software offers concurrent MPEG-2 license management, allowing the number of purchased licenses to be based on the number of simultaneous viewers rather than the total number of PCs on which it is installed. StreamPlayer with MPEG-2 Playback and StreamPlayer Plus contact the license server to obtain an MPEG-2 license in order to view MPEG-2 video. When the video stops, the license is returned to the server. The software can be installed on any Windows-based server in the network, including the EtherneTV Portal Server or the web server hosting the StreamPlayer components, if applicable.

Note The StreamPlayer License Server is repeatedly accessed by computers throughout the network and requires a reliable network connection.

Sigma Decoder Card

Both StreamPlayer and StreamPlayer Plus work with the Sigma NetStream 2000 hardware decoder card. The Sigma card can be installed at any time and will be recognized by the StreamPlayer or StreamPlayer Plus software. The benefits of using a hardware decoder card include reduced CPU utilization and reduced latency. The drawback is that hardware cards require installation in each computer. The NetStream 2000 decoder card supports MPEG-1 and MPEG-2.

StreamPlayer Implementations

Methods to Receive Video

StreamPlayer is an extremely flexible software player and allows customers to receive video in a variety of ways. Some of these include:

MPEG-1/2/4/H.264 and Windows Media Multicast

Dedicated MPEG-1/2 Unicast

RTSP MPEG-4 Unicast

RTSP MPEG-4/H.264 Interleaved/HTTP-Tunneled Unicast Streams

Windows Media HTTP Unicast Stream

Windows Media RTSP Unicast Stream

### MPEG-1/2/4/H.264 and Windows Media Multicast

The most efficient way of transmitting live video is via multicast. In a multicast video transmission, the video stream is sent to a multicast IP Address. The VBrick appliance transmits to the multicast address and StreamPlayer software can be set to listen to the address to play the video and audio streams. The StreamPlayer and StreamPlayer Plus desktop players make it extremely easy to view live multicast video because it will automatically list the available multicast streams in the **Program Info** window. The end user simply needs to click on one of the Program names and the video will begin playing. Similarly, using the StreamPlayer Web Deployment Toolkit, web masters can create links with the URLs to the multicast IP addresses. When users click on the link, the video will begin playing.

MPEG-4 Multicast

MPEG-4 Multicast Stream

LAN

StreamPlayer Plus set to receive Multicast
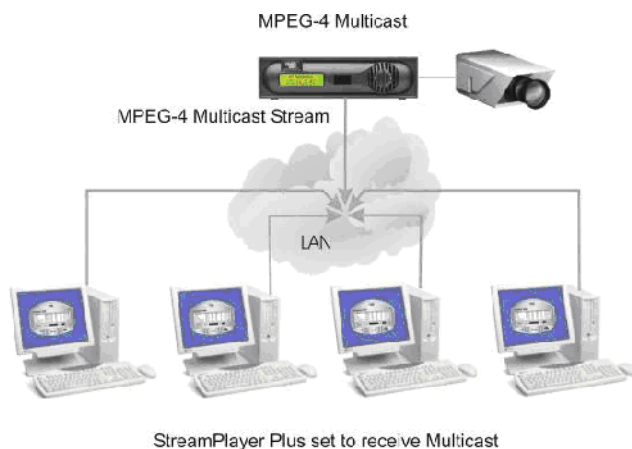
Note Multicasting is not generally available on the Internet. If the LAN supports multicast, administrators can take advantage of all the features of this method of delivering video streams. The diagram above shows an MPEG-4 multicast but the diagram is also applicable for MPEG-1, MPEG-2, and WM multicasts.

Dedicated MPEG-1/2 Unicast

For environments that do not support multicast, or for environments where a private communication is desired, a Dedicated Unicast can be sent from a VBrick to StreamPlayer. For Dedicated Unicast, the VBrick is set to transmit audio and video to a single Unicast IP Address. The Unicast address configured in the VBrick should be the destination IP Address of the computer on which StreamPlayer software is running. The StreamPlayer user would enter the IP address of the VBrick in the IP address field of StreamPlayer. The diagram below depicts an MPEG-4 unicast, but the diagram is applicable for MPEG-1 and MPEG-2 unicasts also.
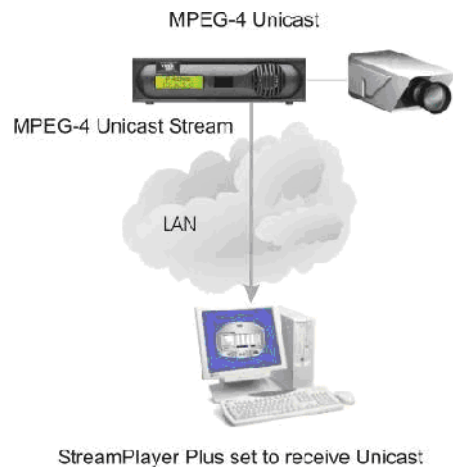
RTSP MPEG-4 Unicast

For On-Demand video and for Live video coming from a VBrick MPEG-4 encoder (VBXcast), it is also possible to initiate a unicast stream by connecting via RTSP (Real Time Streaming Protocol). Using RTSP to view video is similar to using a web browser to view a web page. For example, where the "location name" of a web page begins with http://, the "location name" of an MPEG-4 video stream begins with rtsp://, for example `rtsp://ipaddress/vbrickvideo1`. The URL can be entered into the IP address field of StreamPlayer or StreamPlayer Plus. Alternatively, the IP URL can be linked to in a web page. Clicking on a link will launch the video in StreamPlayer.

MPEG-4 RTSP
(Real Time Streaming Protocol)

MPEG-4 RTSP streams

LAN

StreamPlayer Plus receiving RTSP streams
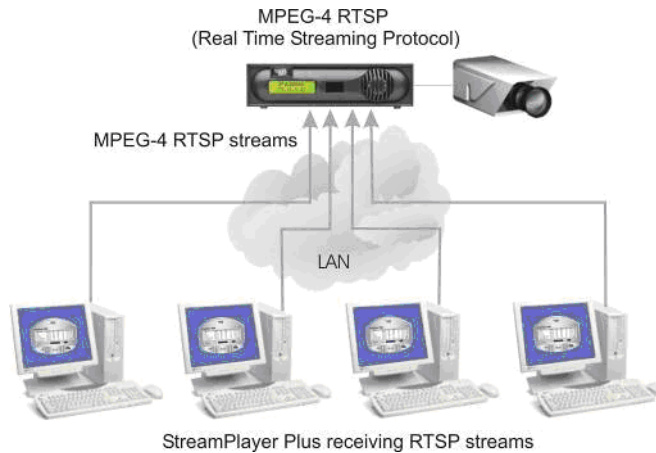
RTSP MPEG-4/H.264 Interleaved/HTTP-Tunneled Unicast Streams

For environments where UDP traffic is not allowed, the MPEG-4 stream can be sent over TCP (interleaved) or HTTP (tunneled) channels. This is ideally suited for Internet environments where the players and the encoders could be behind firewalls. The streams are unicasted to the player. Interleaved play back consumes less bandwidth compared to tunneled playback. However tunneled playback is more suitable because most firewalls allow HTTP traffic to go through, especially over port 80. See the topic "MPEG-4" Preferences in the *StreamPlayer User Guide* for more information on how to configure the player to receive these unicast streams. See also Source Filter Tags on page 14 for more about receiving these streams via the embedded Windows Media Player.

Windows Media HTTP Unicast Stream

The VBrick WM Appliance supports HTTP streaming. The player can choose to receive such a stream when it is behind a firewall or when the network does not support multicast traffic. The stream is unicasted over a regular HTTP channel. You can type in the HTTP URL to the stream in the IP address edit box of StreamPlayer. For example:

http://172.22.167.40/vbrickvideo1

Windows Media RTSP Unicast Stream

Another way to receive a unicast VBrick Windows Media stream is over UDP. This consumes less bandwidth compared to a HTTP stream but the stream may be blocked by some firewalls. This type of stream is suited for environments where firewalls are not an issue but the network does not support multicast traffic. You can type in the RTSPU URL to the stream in the IP address edit box of StreamPlayer. For example:

rtspu://172.22.167.40/vbrickvideo1

Installing StreamPlayer

Standard Desktop Installation

Run SetupStreamPlayer_5_x_x.exe. All StreamPlayer software installs by double-clicking the application .exe file and following the directions on the screen. If InstallShield encounters a previous copy of StreamPlayer or StreamPlayer Plus, a notification appears. Press **Ok** to continue. A license file and a serial number are required during installation.

- Serial Number – the nine-digit serial number for your software is attached to a sticker on the StreamPlayer Product CD.
- License File – a license file is required for installation of StreamPlayer with MPEG-2 Playback and StreamPlayer Plus.

Enter your serial number and navigate to the license file when prompted (license files end with an .lic extension). Browse to the location of the license file and then select **Open** or simply double-click on the file name. VBrick recommends that the default folder and settings be used. Select **Finish** to complete installation. The setup file for Windows Media and MPEG-1 playback (`Setup_WM_StreamPlayer_5_x_x.exe`) only installs Windows Media and MPEG-1 components. This free StreamPlayer application that has limited functionality and does not prompt for a license file.

Note Windows 7 only. The Windows Media Player will not play video launched from StreamPlayer with the default settings. To enable video from StreamPlayer on Windows 7, go to Start > Control Panel > Windows Firewall > Advanced Settings > Inbound Rules. Right-click on **Windows Media Player (UDP-In)**, select **Properties**, and enable UDP-In on the **General** tab.

Silent Mode Installation

Deploying StreamPlayer or StreamPlayer Plus to thousands of desktops is best done through deployment tools such as Microsoft's Systems Management Server (SMS). Tools such as SMS make it easy for administrators to push software installations across the network to PCs with no interaction from the end-user. Because the installations run in the admin mode there is no user permissions issue. A major requirement for setup programs run by deployment tools is the ability for them to run in silent mode. The setup programs should not wait for user input as they are most often run when there is no user logged on to the machine. See Running a Silent Setup below.

Extracting the Package

StreamPlayer Setup is a self extracting executable. If you were supplied with the package `SetupStreamPlayer_5_x_x.exe`, please follow the steps below to extract the `Setup.exe` and other files from this package. Run the following command at your command-line prompt. After you hit **Enter**, please cancel out of any InstallShield window that may open. Do not proceed with the installation. This step is only needed to extract the Setup.exe package from the `SetupStreamPlayer_5_x_x.exe`.

```
SetupStreamPlayer_5_x_x.exe -f<absolute-path-to-a-folder>
```

The folder specified in the above command will contain all the extracted files including the file `Setup.exe`.

Running a Silent Setup

Use the following generic command to run a silent install. Note that you will need to replace the generic serial number placeholder in the `sp-install.iss` response file (see Table 1 below) with the actual serial number from the sticker on the StreamPlayer Product CD. Be sure to modify this file before you run the installer.

```
Setup.exe <absolute path to license file> -s -f1<absolute path of install
response_file>
```

For example, open a Command Prompt and enter the following:

```
Setup.exe c:\myFolder\mylicense.lic –s –f1c:\myFolder\sp-install.iss
```

Table 1. Command Line Parameters.

setup.exe	This is the setup file for the StreamPlayer application.
Absolute path to license file	The first command line parameter should be the absolute path to the license file that you received from VBrick. The license file ends with an .lic extension. While installing Windows Media only StreamPlayer this parameter is not required. While installing the free StreamPlayer that supports MPEG-4 this parameter should be pointing to default-4-2.lic.
-s	This switch tells the Setup to run in the silent mode, i.e. no dialog boxes thrown, no status displayed.
-f1<absolute path to install response file>	A response file contains the inputs required for the silent setup to run. Usually the user gives these inputs but because there is no user interactions in the silent install a response file is used instead. Use the VBrick-supplied install response file (`sp-install.iss`). The response file can be found on the Product CD in the following location: `software\response-files-for-silent-install`

Note If you want to install StreamPlayer to a location other than the default location (`c:\program files\VBrick\StreamPlayerPlus`) you have to modify a single line in the .iss file. Please open the sp-install.iss file in any text editor (Notepad, Wordpad, or equivalent). Look for the line "szDir=C:\Program Files\VBrick\StreamPlayerPlus". Change it to "szDir=newPath", where 'newPath' is the location you want the StreamPlayer installed.

Upgrading

Upgrading of older versions is done automatically. The commands for a silent upgrade are same as the commands for a silent new installation.

Uninstall

Use the following generic command to run a silent uninstall:

```
Setup.exe -s –f1<absolute path of un-install response file>
```

For example, open a Command Prompt and enter the following:

```
Setup.exe –s –f1c:\MyFolder\sp-un-install.iss
```

As you can see the parameters are similar to that of an install except for two important differences: (1)the uninstall does not require a license file; and (2) the response file to use is `sp-un-install.iss`

Web Deployment Toolkit

Topics in this chapter

Overview

StreamPlayer can be deployed either via a desktop install (.exe) or via embedding the components in a web page. The components, including sample HTML pages, required to embed the video in a web page are called the StreamPlayer Web Deployment Toolkit.   When deployed in this method, the StreamPlayer components are automatically downloaded to the desktop from the web page. This chapter focuses on the deployment of StreamPlayer by downloading the StreamPlayer components from a web server. VBrick makes this easy to do by providing the following functionality to users:

- **Cabinet files (.cab) files** – These files contain the necessary software which needs to be downloaded to the PC to allow MPEG stream viewing. The .cab files only work with Internet Explorer browsers (6.0 or higher recommended) on PC platforms. When the user accesses a web page with a .cab file embedded on it, they will get a popup window that asks them if they want to install the software. When they click **Yes**, the software is automatically downloaded onto their PC.
- **Web Page Templates** – These templates provide all the information needed to develop the web pages to download the .cab files and also to link to a particular video. Several different templates are provided which differ in the type of stream (MPEG-1, MPEG-2, and MPEG-4) and the access mechanism (multicast vs. RTSP).
- **HTML Generator Utility** – This software allows users to input various parameters, including type of stream (MPEG-1, MPEG-2, or MPEG-4) and the address of the stream and have a fully activated HTML page created automatically.

Note You can also use standard Microsoft web tools to embed streams from VBrick appliances in your web pages.

Installing the Toolkit

In order to access the functionality of the toolkit, the components need to be installed by running the `SetupStreamPlayerWebDeploymentKit_4_x_x.exe` from the VBrick Product CD. VBrick recommends installing the application in the default location. If the default location is used, the components will be located in `C:\Program Files\VBrick\StreamPlayer` including:

- Html templates (`MPEG1Template`, `Mpeg2Template-For-2000-and-98`, `Mpeg2Template-For-XP`, `Mpeg4RTSPTemplate`, `Mpeg4Template`).
- Html template generator application (`SPHtmlUtil.exe`).
- Cab files (`STREAMPLAYER1.cab`, `STREAMPLAYER2.cab`, `OLD_STREAMPLAYER2.cab`, `STREAMPLAYER4.cab`, and `VBPLAYER.cab`).

Using the Toolkit

Setting up a Web Server

StreamPlayer software can be installed on a pre-existing web server, or on a new computer configured as a web server. If Windows 2000 or Windows 2003 is the operating system, Internet Information Services (IIS), or other web server software can be installed as web server software. To verify that IIS is set up, go to Start, Settings, Control Panel, Add or Remove Programs and choose Add/Remove Windows Components from the side panel. If the box for IIS is not checked, indicating it is not configured; it will be necessary to set it up from System Disks. Please refer to system documentation for more information on how to install and configure web server software.

Understanding CAB Files

A .cab, or cabinet file, is a single file that holds other compressed files. During installation of the program, the compressed files are automatically decompressed and copied to a directory. A cabinet file usually contains .cab as the file extension. Different .cab files are installed, depending on the application:

`STREAMPLAYER1.cab`	Contains MPEG-1 and MPEG-2 source filters. If viewing MPEG-1 or MPEG-2 video, the `STREAMPLAYER1.cab` needs to be used.
`STREAMPLAYER2.cab`	Contains MPEG-2 decoders for Windows XP machines. If viewing MPEG-2 video on Windows XP machines, the StreamPlayer2.cab needs to be used.
`OLD-STREAMPLAYER2.cab`	Contains MPEG-2 decoders for Windows 98 and 2000 machines. If viewing MPEG-2 video on Windows 98 or 2000 machines, the `OLD-STREAMPLAYER2.cab` needs to be used.
`STREAMPLAYER4.cab`	Includes both the MPEG-4 source filter and decoder. If viewing MPEG-4 video, the `STREAMPLAYER4.cab` needs to be used.
`VBPLAYER.cab`	Is the player control that can be used in conjunction with the StreamPlayer components. The player control provides Play, Pause, Stop, Fast Forward, Rewind, Seek, Audio Control, and Full Screen capabilities.

HTML Templates

The StreamPlayer Web Deployment toolkit comes with five separate HTML templates which make it easy to embed video into a web page. These templates provide all the information needed to develop the web pages to download the .cab files and also to link to a particular video. Several different templates are provided which differ in the type of stream (MPEG-1, MPEG-2, and MPEG-4) and the access mechanism (multicast vs. RTSP).These templates are as follows:

- `MPEG-1 Template` – Demonstrates how to view a live MPEG-1 stream
- `Mpeg2Template-For-2000-and-98` – Demonstrates how to view a live MPEG-2 stream on a Windows 98 or Windows 2000 PC.
- `MPEG-2 Template for XP` - Demonstrates how to view a live MPEG-2 stream on a Windows XP PC.
- `Mpeg4RTSPTemplate` – Demonstrates how to view either live or stored video by making a connection to a server using the Real Time Streaming Protocol (RTSP).
- `Mpeg4Template` – Demonstrates how to view a live MPEG-4 stream

MPEG-1 Template

Copy and paste this code into your HTML generator of choice. This page code provides the basis for embedding Windows Media Player into a web page and have it play an MPEG-1 VBrick Multicast Stream. The code is also available as an HTML file located in the directory where you installed the StreamPlayer Web Deployment Toolkit. The user will have to modify the bold sections of the sample below. The `server name here` is the IP Address or Domain Name of the web server that will be hosting this file. The `IP Address here` is typically a multicast address like 225.1.1.1 (this is the configured destination address of the VBrick Encoder). `License File here` can either be a link to the license file (for example, http://IPAddress/licensefile.lic) or the license file embedded into the link. If you choose to embed the license we recommend that you use the HTML Generator utility to create your page.

```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<meta name="GENERATOR" content="Microsoft FrontPage 4.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<title>New Page 1</title>
</head>
<body>
<p>
<object classid="clsid:0249ED44-B640-45BD-8066-17F81BFDC050"
  CODEBASE="http://server name here/STREAMPLAYER1.cab#Version=4,4,0,0">
</object>
<object classid="clsid:22D6F312-B0F6-11D0-94AB-0080C74C7E95"
    id="MediaPlayer1" width="286" height="225">
  <param name="Filename" value = "vbricksys://ip=IP Address here&port=Port Number
here&license=License File here">
</object>
</p>
</body>
</html>
```

MPEG-2Template-For-2000-and-98

Copy and paste this code into your HTML generator of choice. This page code provides the basis for embedding Windows Media Player into a web page and have it play an MPEG-2 VBrick Multicast Stream for users using Windows 2000 or Windows 98. The code is also available as an HTML file located in the directory where you installed the StreamPlayer Web Deployment Toolkit. The user will have to modify the bold sections of the sample below. The `server name here` is the IP Address or Domain Name of the web server that will be hosting this file. The `IP Address here` is typically a multicast address like 225.1.1.1 (this is the configured destination address of the VBrick Encoder). `License File here` can either be a link to the license file (for example, http://IPAddress/licensefile.lic) or the license file embedded into the link. If you choose to embed the license we recommend that you use the HTML Generator utility to create your page.

```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<meta name="GENERATOR" content="Microsoft FrontPage 4.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<title>New Page 1</title>
</head>
<body>
<p>
<object classid="clsid:0249ED44-B640-45BD-8066-17F81BFDC050"
  CODEBASE="http://server name here/STREAMPLAYER1.cab#Version=4,4,0,0">
</object>
<object classid="clsid:F50B3F13-19C4-11CF-AA9A-02608C9BABA2"
  CODEBASE="http://server name here/OLD-STREAMPLAYER2.cab#Version=1,35,0,1020">
</object>
<object classid="clsid:22D6F312-B0F6-11D0-94AB-0080C74C7E95"
  id="MediaPlayer1" width="286" height="225">
  <param name="Filename" value = "vbricksys://ip=IP Address here&port=Port Number
here&license=License File here">
</object>
</p>
</body>
</html>
```

MPEG-2 Template for XP

Copy and paste this code into your HTML generator of choice. This page code provides the basis for embedding Windows Media Player into a web page and have it play an MPEG-2 VBrick Multicast Stream for users using Windows XP. The code is also available as an HTML file located in the directory where you installed the StreamPlayer Web Deployment Toolkit. The user will have to modify the bold sections of the sample below. The `server name here` is the IP Address or Domain Name of the web server that will be hosting this file. The `IP Address here` is typically a multicast address like 225.1.1.1 (this is the configured destination address of the VBrick Encoder). `License File here` can either be a link to the license file (for example, http://IPAddress/licensefile.lic) or the license file embedded into the link. If you choose to embed the license we recommend that you use the HTML Generator utility to create your page.

```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<meta name="GENERATOR" content="Microsoft FrontPage 4.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<title>New Page 1</title>
</head>
<body>
<p>
<object classid="clsid:0249ED44-B640-45BD-8066-17F81BFDC050"
  CODEBASE="http://server name here/STREAMPLAYER1.cab#Version=4,4,0,0">
</object>
<object classid="clsid:F50B3F13-19C4-11CF-AA9A-02608C9BABA2"
  CODEBASE="http://server name here/STREAMPLAYER2.cab#Version=2,0,0,3611">
</object>
<object classid="clsid:22D6F312-B0F6-11D0-94AB-0080C74C7E95"
  id="MediaPlayer1" width="286" height="225">
  <param name="Filename" value = "vbricksys://ip=IP Address here&port=Port Number
here&license=License File here">
</object>
</p>
</body>
</html>
```

Mpeg4RTSPTemplate

Copy and paste this code into your HTML generator of choice. This page code provides the basis for embedding Windows Media Player into a web page and have it play an MPEG-4

RTSP Unicast Stream (from either a VBrick or a Video on Demand server. The code is also available as an HTML file located in the directory where you installed the StreamPlayer Web Deployment Toolkit. The user will have to modify the bold sections of the sample below. The server name here is the IP Address or Domain Name of the web server that will be hosting this file. The VBrick_IP_address_here or IP-Addr is the address of the VBrick or the VoD server. License File here can either be a link to the license file (for example, http:// IPAddress/licensefile.lic) or the license file embedded into the link. If you choose to embed the license we recommend that you use the HTML Generator utility to create your page.

```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<meta name="GENERATOR" content="Microsoft FrontPage 4.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<title>StreamPlayer</title>
</head>
<object classid="clsid:85887165-031A-4297-BC4E-6B246C120B9C"
  CODEBASE="http://server_name_here/STREAMPLAYER4.cab#Version=4,4,1,0">
</object>
<body>
<object classid="clsid:6BF52A52-394A-11D3-B153-00C04F79FAA6" id="wmplayer">
<param name="URL" value = "vbrtsp://VBrick_IP_address_here/
program_name_here&license=license_file_here">
</object>
</body>
</html>
```

Here are different versions of the URL that can be entered based on the mode of the MPEG-4 Encoder. Examples of different combinations of mpeg4 RTSP playback possible. Note that Tunneled playback always tries port 80 if the given port fails.

```
vbrtsp://IP-Addr/Program name&mp4buffsize=200&tcpbuffersize=3000 -- Best try
playback, use 200 msec buffer in case of UDP, 3000msec in case of TCP

vbrtsp://IP-Addr/Program-name&RTSPProtocol=1 -- RTSP Interleaved with the default
port (554)

vbrtsp://IP-Addr:xxx/Program-name&RTSPProtocol=1 -- RTSP Interleaved with port xxx

vbrtsp://IP-Addr/Program-name&RTSPProtocol=2 -- HTTP Tunneled playback with default
port (80)

vbrtsp://IP-Addr:xxx/Program-name&RTSPProtocol=2 -- HTTP Tunneled playback over
port xxx
```

Mpeg4Template

Copy and paste this code into your HTML generator of choice. This page code provides the basis for embedding Windows Media Player into a web page and have it play an MPEG-4 VBrick Multicast Stream. The code is also available as an HTML file located in the directory where you installed the StreamPlayer Web Deployment Toolkit. The user will have to modify the bold sections of the sample below. The server name here is the IP Address or Domain Name of the web server that will be hosting this file. The IP Address of VBrick here is the network IP address of the VBrick network appliance. SDP_Filename_here is the name of the SDP file that resides on the VBrick. The syntax for the SDS Filename on the VBrick is as follows:

```
Source = vbs1d1.sdp – Slot 1 Destination 1
Source = vbs1d2.sdp – Slot 1 Destination 2
Source = vbs2d1.sdp – Slot 2 Destination 1
Source = vbs2d2.sdp – Slot 2 Destination 2
```

The SDP file can also be downloaded, renamed, and placed on any server. If this is done, please reference the file name to which you renamed the SDP file. License File here can

either be a link to the license file (for example, http://IPAddress/licensefile.lic) or the license file embedded into the link. If you choose to embed the license we recommend that you use the HTML Generator utility to create your page.

```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<meta name="GENERATOR" content="Microsoft FrontPage 4.0">
<meta name="ProgId" content="FrontPage.Editor.Document">
<title>StreamPlayer</title>
</head>
<object classid="clsid:85887165-031A-4297-BC4E-6B246C120B9C"
  CODEBASE="http://server_name_here/STREAMPLAYER4.cab#Version=4,1,1,0">
</object>
<body>
<object classid="clsid:6BF52A52-394A-11D3-B153-00C04F79FAA6" id="wmplayer">
<param name="URL" value = "vbhttp://IP_Address_of_VBrick_here/
SDP_Filename_here&license=License_File_Here">
</object>
</body>
</html>
```

Source Filter Tags

The following source filter tags provide specific functionality in order to cause the player to act in a particular manner. For example, these tags can be used to display closed caption text, to increase or decrease the size of the receive buffer for MPEG-4 video, or to specific a specific protocol to receive MPEG-4 video (HTTP tunneling, for example).

Table 1. MPEG-1 and MPEG-2 Tags

MPEG-1/MPEG-4 Tags	Description
`vbricksys://` `ip=ipaddress&port=port`	Base tag to invoke source filter ipaddress = multicast address (xxx.xxx.xxx.xxx) port = port number
`&cc=on`	Closed Caption underlay enabled
`&cc=on_ovl`	Closed Caption overlay enabled
`&cc=off`	Closed Captions disabled (default)
`&priority =`	-1 = below normal 0 = normal 1 = above normal 2 = highest 15 = critical (Default = 2 MPEG-2, 0 for MPEG-1)
`&license =`	Path to license file (local or via http) or actual license string.

Examples:

- Play MPEG-2 multicast with Closed Captions in Overlay mode using licensed VBrick MPEG-2 decoder software

  ```
  vbricksys://ip=239.1.1.1&port=4444&cc=on_ovl&license=http://myserver/
  license.lic
  ```

- Play MPEG-2 multicast with Closed Captions in Overlay mode using pre-existing MPEG-2 decoder software

```
vbricksys://ip=239.1.1.1&port=4444&cc=on_ovl
```

- Play MPEG-1 multicast

```
vbricksys://ip=239.1.1.1&port=4444&cc=on
```

- Play MPEG-2 that is unicast to my PC without Closed Captions using default decoder software

```
vbricksys://ip=192.168.1.100&port=4444
```

192.168.1.100 is the IP address of the VBrick that is configured to unicast to the IP address of your PC

Table 2. MPEG-4/H.264 Tags

| MPEG-4/H.264 Tags	Description
`vbricksys4://`	Base tag to invoke source filter Requires id=, buffer=, or file=
`&id=`	The ID for a multicast MPEG-4 stream generated by the VBrick exchange component
`vbrtsp://ipaddress/` `streamname`	Base tag to invoke source filter using Real Time Streaming Protocol (RTSP) streamname = VBrick RTSP server resource name *or* VoD server file name including ".mp4"
`vbhttp://ipaddress/` `source`	Base tag to invoke source filter using http to retrieve SDP information from a VBrick appliance. Source = vbs1d1.sdp – Slot 1 Destination 1 Source = vbs1d2.sdp – Slot 1 Destination 2 Source = vbs2d1.sdp – Slot 2 Destination 1 Source = vbs2d2.sdp – Slot 2 Destination 2 Used to play multicast without a local SDP file. This method can also be used with a SDP file placed on any server (source=file.sdp)
`vbmp4file://`	Base tag to invoke source filter for local file playback.
`&mp4buffersize=`	Sets the amount of buffering used to accommodate packet jitter from the network for UDP connections. Default = 5000.
`&tcpbuffersize=`	Sets the amount of buffering used to accommodate packet jitter from the network for TCP connections. Default = 10000.
`&cc=on`	Closed Caption underlay enabled
`&cc=on_ovl`	Closed Caption overlay enabled
`&cc=off`	Closed Captions disabled (default)
`&tcptimeout=`	Sets the timeout for vbrtsp TCP session. Default=10000 milliseconds.
`&udptimeout=`	Sets the timeout for vbrtsp UDP session. Default = 5000 milliseconds

MPEG-4/H.264 Tags	Description
`&mdccid =`	Accepts the ID from the MDNOTIFIER object for sinking metadata and closed caption events.
`&startime=`	Sets the starting position time for MPEG-4 file streaming playback in 100 nanosecond units
`&duration=`	Sets the duration of playback in microseconds
`&rtspprotocol=`	Sets the source filter to use this protocol (do not negotiate others). Value is 1 for RTSP interleaving, 2 for http tunneling
`&pftc=`	Causes rapid close of WMP upon stop or exit. Value=1000 to 5000 milliseconds. Default=0.
`&license=`	Path to license file (local or via http) or actual license string.

Examples

- Play live MPEG-4 from a VBrick appliance via RTSP with Closed Captions in overlay

  `vbrtsp://192.168.1.100/vbrickvideo1&cc=on_ovl&license=http://myserver/license.lic`

  192.168.1.100 is the IP address of the VBrick and the resource name is vbrickvideo1.

- Play a streaming MPEG-4 file from a server via http tunneling

  `vbrtsp://serveripaddress/myfile.mp4&rtspprotocol=2&tcptimeout=5000&&pftc=1000`

  Optional tcptimeout set to 5 seconds. License not specified. Local license or evaluation use.

- Play live MPEG-4 from a VBrick appliance via multicast

  `vbricksys4://id=value`

  Value from VBrick Exchange component.

- Play live MPEG-4 from a VBrick appliance via multicast

  `vbhttp://vbrickipaddress/s1d1.sdp`

  Plays the video from the encoder slot 1 destination.

End User Operation

Once the template has been modified, the files should be placed on the web server, in the appropriate directory. Accessing these files for the first time requires that the appropriate .cab file be downloaded to the PC. Answering **Yes** to the Security Warning allows whichever .cab file is necessary, MPEG-1, MPEG-2 and/or MPEG-4 to be downloaded. After the .cab files are installed, the user can view video on the desktop through the customizable HTML template pages. After the initial download, the software recognizes that the components are installed; they are not re-installed with each use.
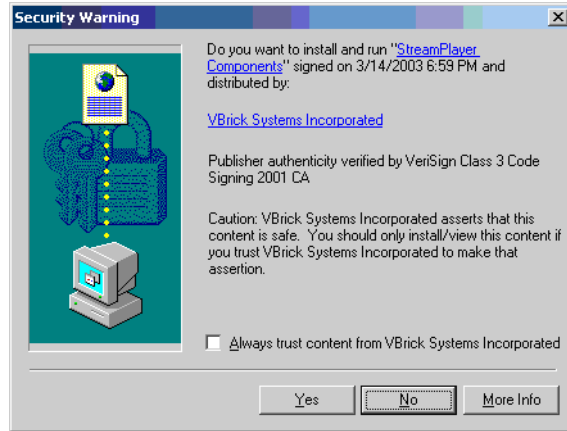
Verifying File Installation

▼   To verify that the files have installed correctly:

1.   Launch Internet Explorer.

2.   From the Tools Menu, select Internet Options and select Settings.

3.   Next, select View Objects. The files are visible in the target directory for Windows downloaded files, depending what was installed:

`STREAMPLAYER1.cab` - VBrick StreamPlayer Components.

`STREAMPLAYER2.cab` — Moonlight-Elecard MPEG-2 Video Decoder.

`OLD-STREAMPLAYER2.cab` -Elecard MPEG2 Video Decoder.

`STREAMPLAYER4.cab` - VBrick MPEG4 Components.

`VBPLAYER.cab` — CVBUI object.

Using the Embedded VBrick Player Control

VBrick StreamPlayer embedded components includes a new player control that can be used in web pages. The VBrick player control is slightly different from Windows Media Player, and it provides fast-forward and rewind functions when used with a video server that supports these functions, such as Kasenna and InfoValue servers. Embed the player the same way you would any ActiveX control:

```
<OBJECT codeBase="VBPlayer.cab#Version=4,4,1,0" height="0" width="0"
classid="clsid:5459BAF4-09A9-422A-AB5C-5F114A7287B5" VIEWASTEXT>
</OBJECT>
```

Note that in this example, the player component is loaded via a code base statement and that the object "VBPlayer.cab" is located in the same directory as the web page. Note also, if you decide to use the VBrick player control, you should replace the sections in the sample Windows Media Player that call the Windows Media Player. For example:

```
<object classid="clsid:6BF52A52-394A-11D3-B153-00C04F79FAA6" id="wmplayer">
<param name="URL" value = "vbrtsp://VBrick_IP_address_here/
program_name_here&license=license_file_here">
</object>
```

Methods

Open([in] BSTR url, [in] ULONG pos)

Description	Opens and plays the stream specified in 'url'

Parameters	url - vbricksys://, vbricksys4://, vbrtsp://, vbrtsp2:// OR a string pointing to the location of any media
	pos – Offset from which to start to play the media
Returns	0 – success
	1 – Could not find source filter
	2 – Graph cannot be rendered
	3 – could not create directshow graph

GetStreamTime()

Description	Used to find current play position of the stream
Returns	The current play position in seconds

GetStatus()

Description	Gets the current playback status
Returns	0 – No stream opened
	1 – A stream was opened and is playing
	2 – Stream playing
	3 – Stream Paused
	4 – Stream Stopped
	5 – Stream Forwarding
	6 – Stream Rewinding

Stop()

Description	Stops the stream playback.
Returns	0 – success
	1 – No media control found in graph
	2 – Cannot stop graph

Close()

Description	Stops the stream, closes the connection with the server, removes and cleans up the filter graph and returns the player control to the original state with all controls disabled
Returns	Always S_OK

HideButtons(ULONG uButtons)

Description	Hides buttons selectively depending upon the value of uButtons.

Parameters	uButtons is a bitwise OR of any combination of the following values
	VB_PLAY_BUTTON 1
	VB_PAUSE_BUTTON 2
	VB_STOP_BUTTON 4
	VB_REWIND_BUTTON 8
	VB_FORWARD_BUTTON 16
	VB_FULL_BUTTON 32
	VB_REC_BUTTON 64
	ALL_BUTTONS_USABLE 127
	For example, if you want to hide the play and forward buttons visible, then the value for uButtons will be
	VB_PLAY_BUTTON | VB_FORWARD_BUTTON = 17
Returns	Always S_OK

Properties

Native Width

Data Type	LONG
Description	Native Width of the video frame

NativeHeight

Data Type	LONG
Description	Native Height of the video frame

ActiveButtons

Once you set the ActiveButtons value to anything other than 0, you are in complete control over the button usability. If a button is not set to usable by you it will always be grayed out.

Data Type	ULONG
Default Value	0

Description	Used to override default behavior for usable buttons. A button is 'usable' if it will be not be grayed out in at least one playback state. Set it to 0 if you want to stick with the default behavior of the control. Set it to 31 if you want all buttons to be usable. If you want to selectively choose usable buttons, use a *combination (Bitwise OR-ed)* of the following values.
	VB_PLAY_BUTTON 1
	VB_PAUSE_BUTTON 2
	VB_STOP_BUTTON 4
	VB_REWIND_BUTTON 8
	VB_FORWARD_BUTTON 16
	VB_FULL_BUTTON 32
	VB_REC_BUTTON 64
	ALL_BUTTONS_USABLE 127
	For example, if you want to only make the play and forward buttons usable, then the value for ActiveButtons will be PLAY_BUTTON_USABLE | FORWARD_BUTTON_USABLE = 17

RecButtonVisible

Data Type	ULONG
Default Value	0
Description	If value non-zero, makes the record button visible. Note that the button is still not usable. It is grayed out. See RecButtonUsable property for making it usable. Also note that if ActiveButtons property is set to anything non-zero, this property is not used. This property should be set before the Open method is called on the player.

RecButtonUsable

The button must be visible before this property is set. See RecButtonVisible property for making it visible. Also note that if ActiveButtons property is set to anything non-zero, this property is not used. This property should be set before the Open method is called on the player.

Data Type	ULONG
Default Value	0
Description	If value non-zero, makes the record button usable.
	If set to 1 – The button is in Record-Stopped State
	If set to 2 – The button is in Recording State

ButtonClicked (USHORT button)

Parameter	button – identifies the button that was clicked by the user 2 – Play 3 – Pause 4 – Stop 5 – Forward 6 – Rewind 7 – User Started Record 8 – User Stopped Record
Description	Event sent immediately after the user clicks on the button. It is sent even before the control does its DirectShow processing of the requested action. After the control does its processing and if the user request was handled without errors, the control sends the StatusChanged (see below) event.

Events

StatusChanged (USHORT newStatus)

Parameter	newStatus – The playback's new Status 0 – No stream opened 1 – A stream was opened and is playing 2 – Stream playing 3 – Stream Paused 4 – Stream Stopped 5 – Stream Forwarding 6 – Stream Rewinding

Chapter 3

StreamPlayer Categories

Overview

VBrick MPEG appliances and Video on Demand announce their content by sending several items in a single Service Announcement Protocol (SAP) message. Included in this SAP is a "Category." The Category may contain nothing at all, a word, or several words. There is no restriction to the category except that all words are case sensitive. If the same Category is entered on both StreamPlayer and a VBrick appliance, both behave the same. The implementation is equivalent, even though VBrick and the StreamPlayer categories operate differently. StreamPlayer reads the **Category** field and displays the Program Guide for a particular stream if there is no entry in the SAP category field or if the category is present and it matches StreamPlayer 's category list. The following table clarifies the matrix:

Incoming Stream	CATX	CATY	Blank
"CATX"	Displayed	Blocked	Blocked
"CATY"	Blocked	Displayed	Blocked
Blank	Displayed	Displayed	Displayed

StreamPlayer also controls the recording of a stream based on category. The following table illustrates StreamPlayer actions upon receipt of a stream from a VBrick appliance or VBVOD Server containing the Transmit Category shown:

Transmitted Category	StreamPlayer Plus Action
(none)	Program is displayed in Program Guide and recording is allowed.
norecord	Recording disallowed.
norecord=password	Recording allowed with password entry.
abcdef	Program shown in Program Guide only if abcdef is in StreamPlayer Plus category list.
norecord abcdef	Program shown in Program Guide only if abcdef is in StreamPlayer Plus category list. Recording not allowed.
norecord=password abcdef	Program is shown in Program Guide only if abcdef is in StreamPlayer Plus category list. Recording allowed with password.
abcdef vwxyz	Program shown in Program Guide only if abcdef or vwxyz is in StreamPlayer Plus category list.

Category Specifications

Characters are ASCII and only lowercase. The total characters contained in all the keywords in the string is 36 characters including spaces. Categories can act as passwords. Category entries may be simple English such as "marketing", "sales", and "finance", but if someone knows that "marketing" is a category, they might figure out that "sales" is another category. If random words, such as "gold", "music", and "bird" are used, it is more difficult to guess the right category to view private streams. The SAP Category entry can contain one or more keywords to limit the video streams displayed. Keywords should be separated by spaces.

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