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1. Introduction

This package is designed to record plain¹ live streams from network streaming TV receiver and devices such as [Elgato Netstream](#) or [Dreambox](#). If it's also your main profile, you may skip most of advanced settings. A simple use case would be a daily or weekly recording of your favorite news or shows²:

The screenshot shows the 'Records' tab of the tvstreamrecord web interface. At the top, there are navigation tabs: Records, Channels, EPG Chart, EPG List, Config, Log, and About. Below the tabs, there are buttons for 'Create new record' and 'Purge old records'. A search bar is present on the right. The main area displays a table of recordings with the following data:

Record name	Channel	at	till	Recurrent	Controls
Daily news	News Channel	04/23/2014 19:00	04/23/2014 19:10	MoTuWeThFrSa	[Play] [Stop] [Settings]
Sunday news	News Channel	04/27/2014 20:00	04/27/2014 20:20	Su	[Play] [Stop] [Settings]

At the bottom, it says 'Showing 1 to 2 of 2 entries' and provides navigation links: First, Previous, 1, Next, Last.

Other unprotected stream protocols³, which you can play with your favorite player, can also be recorded. These will be forwarded to an external package [ffmpeg](#) and may require advanced configuration. Streams can also be converted in another format on the fly using [ffmpeg](#). Please note, that it will cause massive performance problems with many older DiskStation models. See the [corresponding section](#) of this manual for more information.

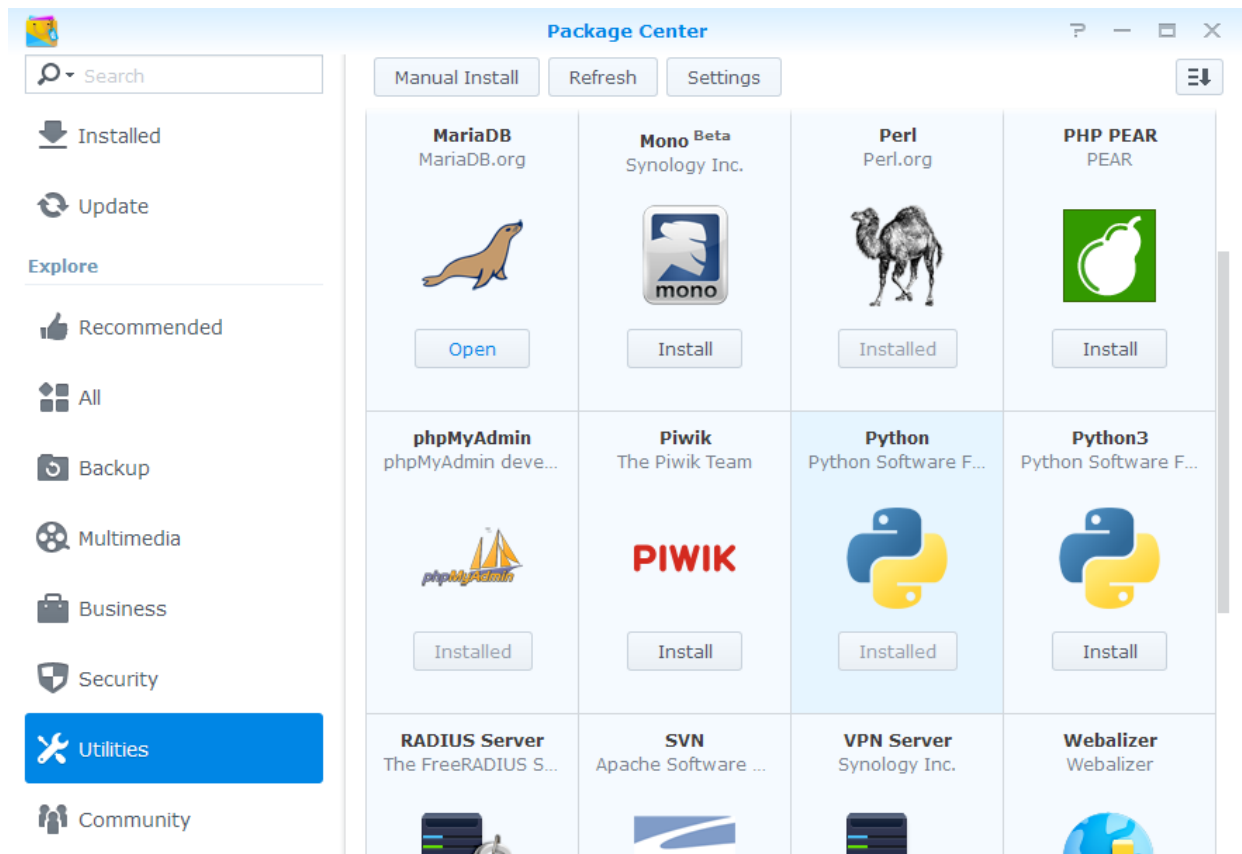
¹ Plain streams are unprotected http streams such as [http://address/streamname](#)

² All embedded screenshots are based on DSM 5.0-4458 Update 2 and tvstreamrecord 0.6.4

³ With the preinstalled version of ffmpeg following input protocols are additionally supported: cache, concat, crypto, data, ffrtmpt, file, ftp, gopher, hls, http, httpproxy, mmsh, mmst, pipe, rtmp, rtmpt, tcp, udp

2. Installation

This package requires [Python](#) 2.x, which must be installed separately through your **Package Center**. Please open your **Package Center**, navigate to the **Utilities** tab, select **Python** (not Python3!) and click **Install**. Python must not be started and will also create no icon in your Main Menu as it runs on demand only. You've done it, if it looks like this:



In order to install this package please click on **Settings** button in your **Package Center**, navigate to the **Package Sources** tab and click the **Add** button. Please add our community package hub www.cphub.net as shown below (name may vary):

Add

Name:

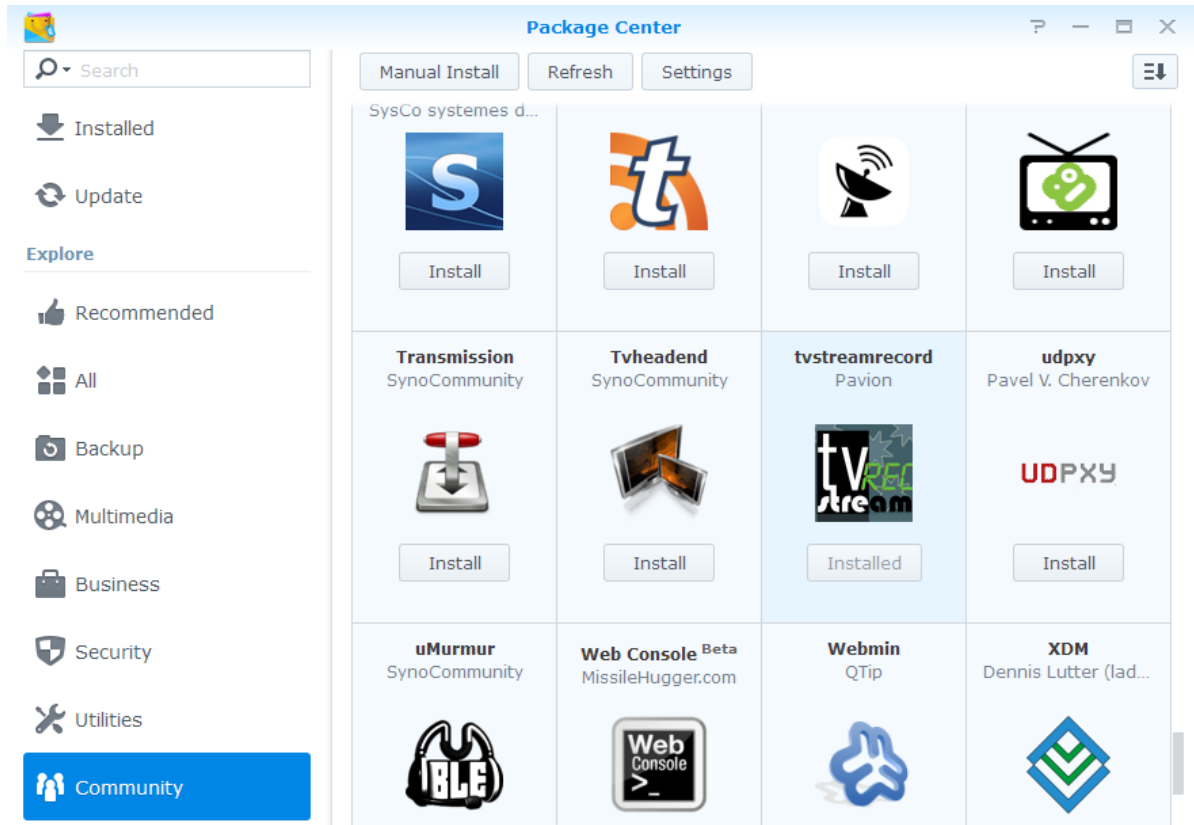
Location:

OK

Cancel



Click **OK** to close this window and the one below and click **Refresh** button in your **Package Center**. After a short refresh time you will see a **Community** tab. Click it and scroll down to find the package **tvstreamrecord** as shown below. Click **Install**.



Please start the package if it's not running. You should now see a corresponding icon in your **Main Menu**. Click it and you are ready to move on and start configuring the package. Please note, that you can also bookmark any package page to have a quick access to it.



3. Configuring this package

General configuration tab

This section covers the general configuration, which is enough to start recording plain streams. Please open the package's web interface and navigate to the **Config** page. You are now seeing some general options you should consider:

Configuration: [Submit changes](#)

General	EPG	FFMPEG support	Advanced
---------	-----	----------------	----------

Parameter name	Value
Path for your recordings	<input type="text" value="/volume1/common/"/> Browse
File extension for the recorded stream (default='.ts')	<input type="text" value=".ts"/>
Interface theme (default='smoothness')	<input type="text" value="smoothness"/>
Interface language (default='english')	<input type="text" value="english"/>
Date/time locale (default='default')	<input type="text" value="default"/>
Set remote access password (leave blank for none)	Set password

Path for your recordings is a vital setting and should be set. You can use any shared folder, which can be accessed with the root user (e.g. /volume1/common/). You can type your desired path in the corresponding box or use the **Browse** button to select one from the list.

File extension for the recorded stream will be added as a suffix to the filename. In a basic configuration this parameter doesn't affect anything beside filename itself.

Interface theme specifies the theme for the web interface to be used. Please select your favorite look and feel from the provided list.




Interface language. As of now, three languages are supported (English, German and Russian).

Interface locale adds local date/time support for several countries. Please select your desired locale or the default one.

Set remote access password can be used to provide an access password for from outside your local network. Local connections don't require a password. **Warning: entering wrong password three times will block your current IP for at least 48 hours.** To disable a password query again just type nothing in the corresponding fields. Please note that you might need to forward the package port (default: TCP/8030) in your router/firewall configuration. See its respective manual for more details.

EPG configuration tab

This section hosts all settings regarding an **Electronic Program Guide (EPG)**. If you don't have an EPG content provider and your streams don't transport any EPG information, you can't use this feature and also don't need to setup anything at this page.

Parameter name	Value
Lengthen an EPG-record (delta before and after), [minutes]	3
Enable XMLTV import	
Initial path for an XMLTV import	<input type="text" value="http://xmltv.spaetfruehstuecken.org/xmltv/datalist.xml.gz"/>
Enable stream scan/grab	
Maximal EPG scan duration per channel, [seconds] (default: '60')	60
Time to perform daily EPG/XMLTV grab (hh:mm format, 24h based, default '0' for manual only)	<input type="text" value="0"/>
Zoom level for EPG view. Positive values for horizontal, negative for vertical view (default '1' for old style)	1
EPG list mode. Disable for client-side processing (more network load), enable for server-side processing (more server load)	
Client-side only: maximal number of events to request from server (earlier first), solves some performance issues	5000
Delete/reset all EPG data	<input type="button" value="Delete"/>

Lengthen an EPG record will be used to prolong the record and avoid any small time shifts in TV charts. Please note that your system time will be used for recording and should be exact.

Enable XMLTV import for manual import or to be performed once per day at specified time.

Initial path for an XMLTV-Import can be used to import EPG (electronic program guide) from free XMLTV-compatible pages. Please read the [corresponding section](#) for more information.

Enable stream scan/grab for manual import or to be performed once per day at specified time.

Maximal EPG scan duration per channel in seconds. Some channels resend all their EPG information each minute; some channels have much longer cycles. Increasing duration can result in receiving more guide information.

Time to perform daily EPG/XMLTV grab can be used to automatically refresh your EPG guide using your streams and/or your XMLTV provider. Please read the [corresponding sections](#) for more details.

Zoom level for EPG view. You can change your default EPG view here. Enter negative values for vertical and positive values for default horizontal view (i.e. 2=200% horizontal, -3=300% vertical). Default is '1' for classic horizontal one-page view.

EPG list mode. Disabled for classic client side processing with greater network load, enabled for server side processing with greater server load but lesser traffic.

Delete/reset all EPG data can be used to clear your database in case of EPG issues



FFMPEG support tab

This part offers a few settings regarding [ffmpeg](#) support. If your stream is a plain **http**, you don't need to read this section. For advanced information and some usage examples please check the [corresponding section](#) of this manual.

Configuration: [Submit changes](#)

General	EPG	FFMPEG support	Advanced								
<table border="1"><thead><tr><th>Parameter name</th><th>Value</th></tr></thead><tbody><tr><td>Stream types, which should be forwarded to ffmpeg (space separated)</td><td><input type="text" value="rtmp rtp"/></td></tr><tr><td>Full path to ffmpeg for other streams support</td><td><input type="text" value="ffmpeg"/></td></tr><tr><td>Additional output arguments for ffmpeg (default: '-acodec copy -vcodec copy')</td><td><input type="text" value="-acodec copy -vcodec copy"/></td></tr></tbody></table>				Parameter name	Value	Stream types, which should be forwarded to ffmpeg (space separated)	<input type="text" value="rtmp rtp"/>	Full path to ffmpeg for other streams support	<input type="text" value="ffmpeg"/>	Additional output arguments for ffmpeg (default: '-acodec copy -vcodec copy')	<input type="text" value="-acodec copy -vcodec copy"/>
Parameter name	Value										
Stream types, which should be forwarded to ffmpeg (space separated)	<input type="text" value="rtmp rtp"/>										
Full path to ffmpeg for other streams support	<input type="text" value="ffmpeg"/>										
Additional output arguments for ffmpeg (default: '-acodec copy -vcodec copy')	<input type="text" value="-acodec copy -vcodec copy"/>										

Stream types to forward to ffmpeg. If your stream can be recorded with, you can add its prefix (or protocol) here. You can also add **http** to disable a basic functionality of this package and to enable stream processing on the fly.

Full path to [ffmpeg](#) is needed for supporting other streams than **http**. [ffmpeg](#) is not included within this software. On DiskStation [ffmpeg](#) is preinstalled with Video/Audio/Media Station and the default value should not be changed.

Additional output arguments for ffmpeg can be used to change your output, to encode or to decode your stream on the fly.



Advanced tab

This section covers a few advanced settings, which shouldn't normally be changed.

Configuration: [Submit changes](#)

General	EPG	FFMPEG support	Advanced
---------	-----	----------------	----------

Parameter name	Value
Purge database records older than [days]	30
Server bind address (restart needed)	0.0.0.0
Server port (restart needed)	8030
Record name mask (valid placeholders: %date% and %title%, default: '%date% - %title%')	%date% - %title%
Reset the log file	Reset log

Purge database records is used to automatically delete old EPG and records information after some time supplied

Server bind address. Default 0.0.0.0 will make your server available from any local address. Any other choices (i.e. 127.0.0.1) may be used to limit the access. Changing this setting requires package restart (stop and start using **Package Center**).

Server port is the port the server runs on. Changing it also requires package restart.

Reset log should be used to clear your log file if it's becoming too big or on output issues.

Channels page

The **Controls** column shows (left to right): a switch for enabling or disabling a particular channel, a plus/minus icon for enabling or disabling [EPG import](#), a Play icon to create a record with this channel and a gear icon to edit the record.

Records

Channels

EPG Chart

EPG List

Config

Log

About

tv

stream

RECORD

Channels:

Create new

Import

Export

Show

10

 entries

Search:

Channel ID	Channel name	Channel URL	Type	Controls
1	News Channel	http://dummy.url		<div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div>

Showing 1 to 1 of 1 entries

First

Previous

1

Next

Last

#EXTM3U

```
#EXTINF:0,channel name 1
```

```
http://10.0.0.1/stream/tunerequest0000000000000000000000000000000000000000000
```

```
#EXTINF:0,channel name 2
```

```
http://10.0.0.1/stream/tunerequest00000000000000000000000000000000000000000000000000000
```

Create/edit a channel

Channel ID

1

Channel name

News Channel


Channel URL


http://dummy.url

File extension (i.e. .mpg)

Enabled

Grab EPG





Delete

Update

Cancel


Import channel list from .m3u file

.m3u file name

Durchsuchen...

Keine Datei ausgewählt.

Append to existing channels:



Upload file

Cancel



Please note, that adding a new playlist without appending will erase all the old channels and records as well, due to the possibility of ID conflict!

You can add a file extension while creating new channels. If you are using http streams, file extension will be simply added at the end of the file name. If you are using ffmpeg, file extension may be crucial for determining your output type. While importing from .m3u you can't specify any file extension. In case of empty extension the default one from configuration will be used automatically.

Once added, you can edit and move your channels. To do this, please click on the gear symbol at the right of the table row. You're now able to edit the channel information as well as to assign a new ID. Using an existing ID will insert the current record before this ID and re-enumerate the others. You can also delete your channel from here. Please note, that deleting a channel will also delete all associated records.

Records page

Here you can schedule your records, turn them on and off, edit or delete them. You can also schedule recurrent records if weekdays are provided. Unlike 'normal' records, which are done after completion, here the next runtime will be automatically calculated and set.

The **Controls** column shows (left to right): a progress bar for running records, a switch for enabling or disabling a particular record and a gear icon to edit the record.

Records Channels EPG Chart EPG List Config Log About

Records: Create new record Purge old records

Show 10 entries

Search:

Record name	Channel	at	till	Recurrent	Controls
Daily news	News Channel	04/23/2014 19:00	04/23/2014 19:10	MoTuWeThFrSa	<div></div>
Sunday news	News Channel	04/27/2014 20:00	04/27/2014 20:20	Su	<div></div>

Showing 1 to 2 of 2 entries

First Previous 1 Next Last

Create new record

Name

News

Channel

News Channel

Start date

04/24/2014

Start/end time

19:00

20:00

Recurrent records

Su

Mo

Tu

We

Th

Fr

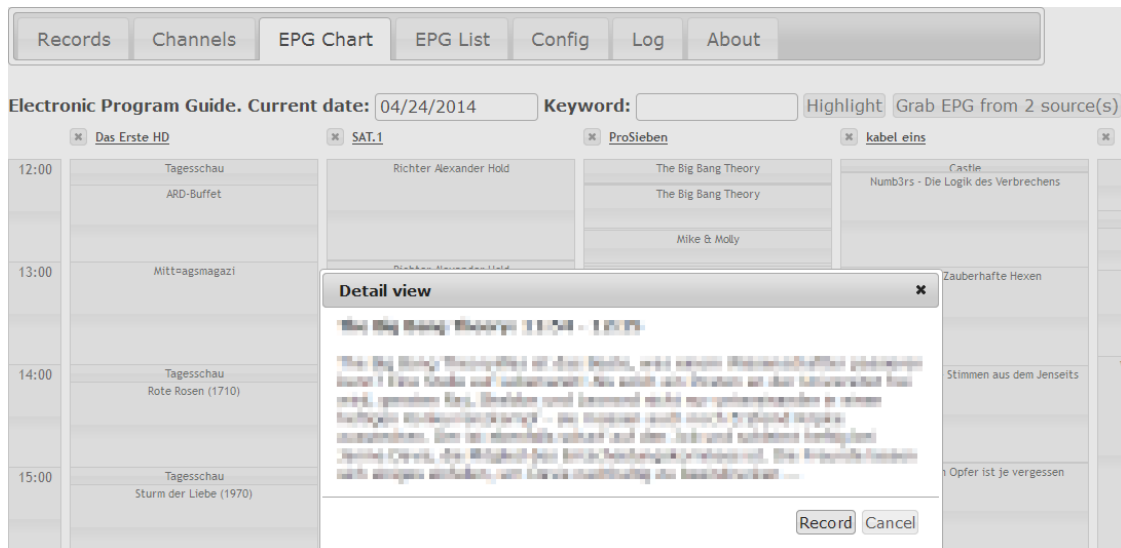
Sa

Create

Cancel

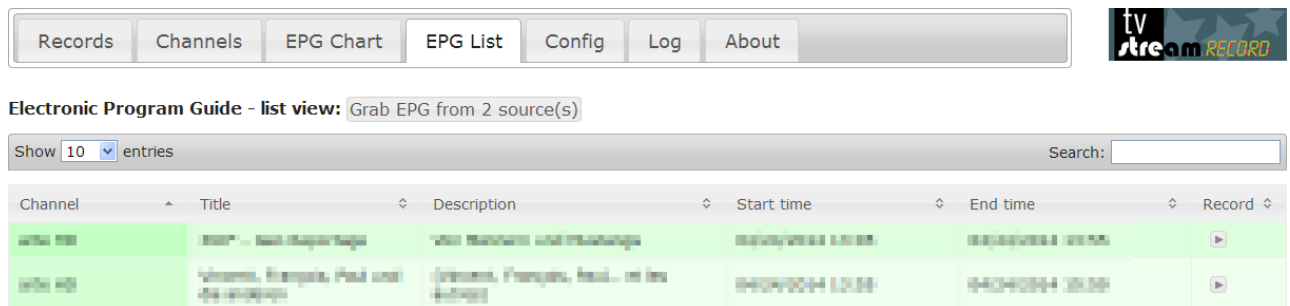
EPG chart page

If available, your **Electronic Program Guide (EPG)** is presented here in a chart form for a current or a selected date. You can disable a channel by clicking on an X icon next to its name. You can highlight events with specified keyword and you can directly start a record by clicking on an event.



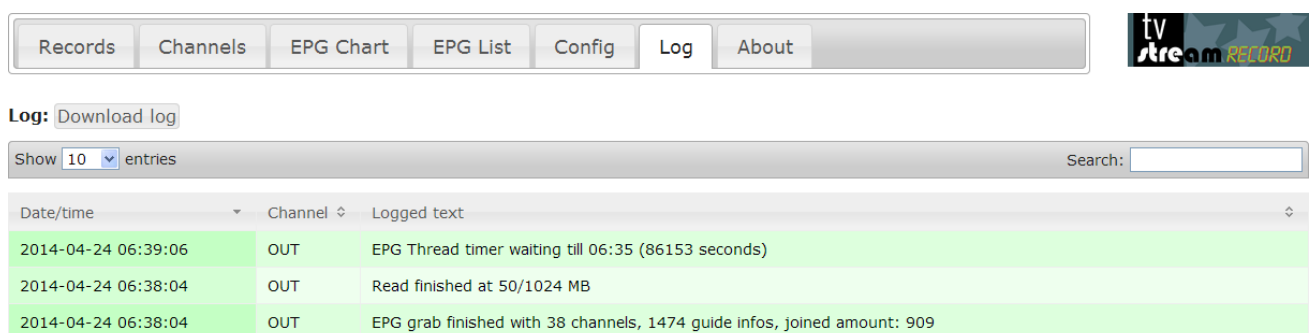
EPG list page

If available, your **Electronic Program Guide (EPG)** is presented here in a table form. You can search within this table and you can also record your event directly as well



Log page

Here you can see server side debug information. Please check this page if you encounter a behavior you can't explain. Please also consult the [corresponding section](#) of this manual.





5. Further information

FFMPEG support

This section covers all issues with non-http streams, which still can be handled with the external software [ffmpeg](#). I ask to understand, that ffmpeg is neither part of this package nor can ffmpeg developers provide support for this package. This package simply provides an unofficial front end for this console based tool. **All the advanced settings in this section may also require advanced skills in dealing with console applications.**

Global rule is: if you can play your stream with your favorite media player, you can also try to record it with this feature. A default setting allows the handling of RTMP streams. If you have a terminal access to your DS, you can do following steps in your DS console; otherwise you can also download and install an ffmpeg version for your local operation system (make sure you use a correct path though).

Following is a small tutorial for checking and adding your stream support (all console commands are bold):

Make sure, that you have ffmpeg properly installed by typing and running

```
> ffmpeg
```

from the console. You should see following output (only first line is displayed here):

```
/> ffmpeg  
ffmpeg version 2.0.2 Copyright (c) 2000-2013 the FFmpeg developers
```

Check your stream **foo://10.0.0.1:1000** with a following command:

```
> ffmpeg -i foo://10.0.0.1:1000 -t 30 -acodec copy -vcodec copy out.mpg
```

This tells ffmpeg to save your stream (**-i streamaddress**) for a duration of (**-t xx**) seconds by copying audio (**-acodec copy**) and video (**-vcodec copy**) into an output file (**out.mpg**).

If it works, you should see a lot of output text for the duration of 30 seconds and be able to locate the generated file in your current folder.

```
frame= 665 fps= 30 q=-1.0 size= 14634kB time=00:00:27.26 bitrate=4397.4kbits/s  
frame= 675 fps= 30 q=-1.0 size= 14890kB time=00:00:27.66 bitrate=4409.6kbits/s  
frame= 688 fps= 30 q=-1.0 size= 15262kB time=00:00:28.18 bitrate=4436.4kbits/s  
frame= 703 fps= 30 q=-1.0 size= 15616kB time=00:00:28.78 bitrate=4444.7kbits/s  
frame= 718 fps= 30 q=-1.0 size= 15956kB time=00:00:29.38 bitrate=4448.7kbits/s  
frame= 728 fps= 29 q=-1.0 size= 16420kB time=00:00:29.78 bitrate=4516.6kbits/s  
frame= 734 fps= 29 q=-1.0 Lsize= 16632kB time=00:00:30.02 bitrate=4538.3kbits/s  
video:15853kB audio:703kB subtitle:0 global headers:0kB muxing overhead 0.455517%
```

Else you should check for any errors in console output. Make sure that you've provided a correct extension for your stream (.ts, .mpg, .avi, .mk4, .mkv and such): ffmpeg uses this to determine output file type. Look into [ffmpeg documentation](#) and experiment with your stream till you get your file.



If you've got your file and can play it with your favorite media player, you can now add your stream type at the **Config** page (e.g. rtmp rtm foo).

Check your ffmpeg path at your **Config** page. If you encounter issues with your particular stream protocol, you may want to try other versions of ffmpeg, which are supplied with their respective applications and commonly located under:

```
/volume1/@appstore/VideoStation/bin/ffmpeg  
/volume1/@appstore/AudioStation/bin/ffmpeg  
/volume1/@appstore/MediaServer/bin/ffmpeg
```

If you want to provide additional output arguments for ffmpeg (-f for stream format or other codecs parameters), you can also do it at the **Config** page. First arguments are always *-i inputstreamname -t recordduration* and last argument is *outputstreamname.extension* (you will see all arguments used at the **Log** page after each ffmpeg trigger).

You can now create a channel with some name, your stream address and your file extension and schedule some records.



EPG import

There are two ways to get EPG information. Please read this section carefully to avoid issues.

The first way is to use third party EPG data, which is provided in XML format (XMLTV). This is also the only way if you are using [ffmpeg](#) to record your streams.

If you have a free XMLTV provider from your region, you should add his address in **Config → EPG**. Now you should be able to import EPG by pressing the corresponding button or by enabling the automatic synchronization. As of now there is no direct feedback for this feature and full synchronization takes some time, so please check the log file for the progress or error status. The only provider tested is [Egon zappt](#). As I'm following [OzTiVo rules](#) to grab EPG data, you will receive new data only, which would normally be refreshed one time a day.

The second way is applicable only if you are using http-based transport streams (such as those from network SAT tuners), which also carry EPG information within themselves.

According to the specification, one channel can carry several other channels' EPG as well. So the best method is to enable grab on your favorite channels one by one to see, which EPG data would be provided by them. You can change the maximal grabbing duration per channel at the **Config** page. To mark a channel for grabbing, click on the corresponding symbol or edit it and use the provided switch. To avoid performance issues, no "grab all" switch is provided.

As reported, several streams do not transport a channel list at all, so EPG data cannot be properly ordered. This can result in log entry "EPG grab finished with 0 channels, XYZ guide infos, joined amount: 0". In such cases your channel IDs may be carried as a part of your URL. Already implemented are following types:

`http://10.0.0.1:8001/1:0:1:6DCA:44D:1:C00000:0:0:0:`

`http://10.0.0.1/stream/tunerequest00040000C0FFFFFF00B49A60044D00FF00016DCA010101FF`

Please contact me if you have a same issue with a different URL.

Both ways can be combined if applicable and both ways require that the channel names you're using match those provided by your stream or XMLTV provider (e.g. please use 'CNN' and not '1 - CNN' or 'epg.cnn.com' or 'My favorite news channel').



6. License and disclaimer

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <http://www.gnu.org/licenses>.

Please note that the recording, keeping or distribution of streams may be forbidden by the law of your country or your local content provider. Author takes no responsibility for any records taken or used.

No stream is modified by this package. Plain streams will be copied “as is” while other streams will be forwarded untouched to an external application.

If you are using XMLTV source for your EPG guide, please make sure, that your source provider allows accessing his data with third party applications.



7. External modules

Following packages and modules are licensed under their respective licenses.

- [Python](#)
- [Bottle: Python Web Framework](#)
- [CherryPy - A Minimalist Python Web Framework](#)
- [SQLite](#)
- [jQuery](#) and further based-on themes, modules and locales:
 - [jQueryUI](#)
 - [SlickSwitch](#)
 - [DataTables](#)
 - [TimePicker](#)
 - [File Tree](#)

Some code snippets are taken from or inspired by several community help pages, tutorials, code samples and so on. I want to thank all the developers and contributors, whose work helped me so far.



8. Troubleshooting

If you encounter an undefined error, please check the package log file. You can access it either by using the package frontend and navigating to the **Log** tab, or by opening a **Package Center**, navigating to **Installed** tab, clicking on **tvstreamrecord** and selecting **View log**. The newest entry may give you a clue, what was wrong. If it doesn't help, please contact me.

If you encounter any issue with **EPG** or **Log** pages, you can reset both at the **Config** page.

9. Modifying the package

Although this package is open sourced, author takes no responsibility for any damage resulting from altering or updating the source code of this package. Any changes you've made will be overwritten with a new version of this package.

The best way to get this package altered is to contact author and provide your solution or addition. If you have a shell access to your DiskStation and you know what you do, you can still customize this package:

- You can add further [jQueryUI themes](#) by copying them into the **css** folder of this package
- You can add or change locales in the **js\i18n** folder
- You can add or change languages in the **lang** folder (see supplied dummy for more details)

If made correctly, you must be able to select your addition with reopening or refreshing a **Config** page. You can also send me your own translation to be included in following versions.

10. Contact and support information

If you have any questions, issues, ideas or feedback, feel free to contact me using one of the following ways:

- [German Synology community forum](#)
- [E-Mail](#) (support languages: English, German, Russian)
- [GitHub](#) users can also open an issue, comment my code or contact me there