aCSTV — antiX Community Simple TV Starter

Service:

The program is used for simple reception of the regionally available television channels as a data stream via the Internet. The station selection and assignment of the program slots is freely configurable. Internationally receivable stations can also be added, provided they have not been blocked by the service provider via *GeoIP* for the country in question.

An internet connection is required to receive the channels.

- Start reception:
  To start TV reception, press one of the station buttons (left mouse button click).
  Note: It may take up to 12 seconds for the TV picture to appear. In contrast to analogue television, where switching from one program to another took place within fractions of a second, even with historical tube sets, with digital reception a connection to the respective server of the transmission service provider must first be established via the Internet. In addition, the incoming data has to be buffered for a few seconds in order to enable trouble-free playback, which also causes a delay in the start of the actual image playback. The length of time depends on many factors, including the response time of the server of the respective transmission service provider and the processing speed of the PC.
- Switch stations:
  To switch to another program, press another station button.
- TV reception:
  To switch off the current channel, press the *»Stop«* button.
- program:
  To exit aCSTV, press the *»Exit«* (or "b") key.
- Program preview: The
  current program preview can be displayed in the browser with the *»Program preview«* button . The desired service provider can be freely configured in the settings.
- Scene photo:
  The »Scene photo« button creates a scene photo of the current TV picture. The photo is stored in the folder stored in the settings under the file name *Scene photo-<Sender>-<Date>-<Time>.png* . Example: *Scene photo-Arte-03.10.2021-17:14:22.png*
- Recording function:
  Start recording the current program with the *»Video recording« button* . A red recording control symbol appears in the status bar. Clicking on the aCSTV recording icon opens an information dialog. The accuracy of the information increases with the elapsed running time. The recording is saved under the file name *Broadcast Recording-<Sender>-<Date>-<Time>.ts* in the folder specified under Settings.
  The file format *.ts* can be played with *mpv , for example* . Example: *Broadcast recording-Phoenix-03.10.2021-16:02:31.ts*
  End the recording with the »Stop recording« button. This ends the recording and the current program continues to be received.
  For technical reasons, the display of the current program on the screen is

currently interrupted for a few seconds when *starting* and *stopping a recording.* For conversion to other file formats, see *»Miscellaneous«.*

- Changing the station list
  The button assignment of the station buttons in the main dialog box can be changed using the 5 button, by reading in another prepared station list .
  The default directory for station lists is *~/.config/aCSTV* , but a file can be read from any directory that has write permissions. Sample files for numerous countries can be found in the directory / *usr* /local/lib/aCSTV/Stationslisten and can also be copied manually from there into the aCSTV configuration directory. Some of the stations on this list can be received worldwide, others are geo-blocked and can only be received in the respective country. The channel list currently read in can be updated automatically in the Settings menu.

- Shortcuts and mouse control:
  The following functions are provided during playback using MPV's key and mouse controls:

  General commands
  · Show and hide the keypad -
  · Switch between full-screen mode and window mode: double-click on the running video image. (also: f)
  Correct video frame size (black borders): Alt + Alt -
  Correct audio/video desynchronization: Ctrl + Ctrl -
  Adjust playback volume: 9 0
  · Mute/unmute: m
  Gamma correction video image: 6 5
  Brightness video image: 4 3
  Contrast video image: 2 1
  Color saturation video image: 8 7
  · Pause and resume playback: right click on the video image. (also: p and space bar) (depending on data rate up to 30 minutes, depending on how full the local buffer is)
  · Fast forward / rewind (1 sec): Shift ← Shift →
  · Fast forward / rewind (5 sec): ← →
  Fast forward / rewind (1 min): ↑ ↓
  (Fast forward and rewind possible within the buffer, especially after using the pause function)
  · Scene photo: button in the aCSTV control panel or s
  (The still photo is placed in the folder specified in the aCSTV settings)
  · Video recording of the current program: button in the aCSTV control panel
  Accelerate/decelerate playback (10%): [ ]
  (limited capability, useful for correcting wrong -speed, incorrectly encoded movies that cause the cache to run out when played too fast, or whose segments expire before they are retrieved when played too slowly)
  · Playback speed normal: backspace
  · Set and cancel an endless loop (AB): l

Switch to another video stream (if available): Shift –
Switch to another audio stream (if available): #

Information functions:
· Stream and playback details Shift i
· Buffer fill level and playback position in the buffer memory: Shift or similar
· View Stream URL F8
· Show stream information for audio, video and subtitles F9

Subtitle features (if available)
Enable/disable subtitles: v
Switch between different subtitles: j J
Synchronize subtitles with video image: z Z

Settings:

All aCSTV settings can be adjusted after pressing the »Settings« button.

- Limitation of the video data rate:
  With the setting of the maximum playback rate in kbps, the data stream requested by the server can be adapted to the processing capabilities of the computer used and the Internet line.
  1. Limitation according to the performance of the PC. Experience has shown that a single-core 32-bit Pentium-M with 1.7 GHz can reproduce a maximum of around 3000 kbps without interference. It is therefore advisable to set it to around this value on such a PC. aCSTV selects the best available data stream from the service provider that is below the set maximum value. A higher value can be entered for more powerful computers, and a lower one for weaker ones.
  2. Limitation according to the available transmission capacity of the Internet connection. Depending on the quality of the Internet connection (or possibly the WLAN), it may be necessary to limit the values below the performance of the PC, e.g. to 1800) . make possible. Low values result in a low image resolution, while high values result in constant dropouts.
     Most broadcasts by the German public television broadcasters are currently broadcasting at rates of
     325k , 581k, 635k, 969k, 1020k, 1130k, 1790k,
     1807k, 2120k, 3256k, 3544k, 3990k, 7290k,
     but not all rates are at all channels available. Depending on the service provider, some private broadcasters experience more frequent disruptions
     during peak times during transmission, even if the data rate has been set correctly. At other times of the day, the reception of these stations works perfectly again.
- Selecting the TV screen
  The screen for the TV picture output can be configured in the settings. If, for example, a TV set is connected to the PC as a second screen and configured accordingly, the TV image can be displayed on the TV by specifying the corresponding screen number. Caution: The count starts at

zero, ie »0« is the first screen, »1« the second etc. A maximum of 32 screens can be addressed.

- Full screen mode/window mode
  This check box can be used to specify whether the TV picture is started as full screen or as a window. You can switch back and forth between full-screen and window mode at any time (double- *click* on the current TV picture or press the "*F*" *key*).
- Playback in foreground
  With this check box you can determine whether the TV picture should always be displayed in the foreground or whether it may be overlaid by other windows. The display can be changed at any time via the context menu of the taskbar → Layer *,* as well as with the key combination "*Shift T*" .
- Target folder for scene photos and video
  recordings Enter the folders in which recordings and scene photos are to be stored in the appropriate input fields. The corresponding standard folders of the antiX operating system are preset, referenced by $XDG_PICTURES_DIR/ and $XDG_VIDEOS_DIR/.
  The logged in user must have write access to the specified folders.
- Edit station list manually
  The currently imported station list can be edited manually. New entries can be added, existing entries can be deleted or changed. Both the station names and the associated server addresses can be edited. Lines beginning with a hash *(#)* are disabled and do not appear on the keypad.
- Updating the station list automatically
  The station list currently read in can be updated automatically with the "*Update*" *button* . An existing internet connection is required for this. The country-specific channel directories are continuously updated by volunteers from the *IPTV.org project.* When updating a station list automatically, you can use the “Check connection to station” setting to exclude those stations that cannot be received at your own location. This process can be relatively time-consuming (particularly in the case of large lists of channels), since a response from the server must be awaited for each channel. If it is missing or erroneous, instead of containing a correct rejection, the connection must be allowed to time out before the offending sender can be discarded.

Miscellaneous:

Utilities
The utilities socat *, feh, buffer, mpv, yd-dlp, sed, xdotool, wmctrl* must be installed. This is automatically ensured when installing via Debian installation package. If these components are missing, eg during manual installation, aCSTV will not work.

Scope of channel lists
With very large channel lists with more than 40-50 channels, the processing by aCSTV becomes increasingly sluggish. For fast and resource-saving functioning, you should ensure that the channel list is limited to the entries that are actually required, and that you deactivate (comment out) or remove all superfluous

entries in the *“Edit channel list” settings* . The maximum number of keys that can be assigned is approx. 264, depending on the number of characters per name entry. It is possible that the keypad of this size can no longer be displayed sensibly on small monitors. All further active entries of such excessive lists are ignored. Large channel lists can be split into several individual files using a text editor such as *Geany* or *Leafpad , which can be selected using the “Change channel list ” button* (icon: ⎘) on the keypad.

File format and conversions

The saved files in *.ts format* can be directly played back with *MPV in antiX* . If desired, you can use *ffmpeg to convert the saved program recordings from the .ts* format to another file format . Conversion during recording is only possible on extremely powerful systems and is therefore not intended for aCSTV. Since it is also not possible to predict which format a station will transmit, a little experimentation is required when converting afterwards. If the format received is not compatible with the target format, either the video or audio data stream contained therein, or both, must be re-encoded, otherwise it is sufficient to repackage them unchanged in the desired target format.

Examples:

- to *Matroska* , without re-encoding
  ffmpeg -i './filename.ts' -map 0 -c copy './filename.mkv'
- to *mp4* , without re-encoding
  ffmpeg -i './filename.ts' -map 0 -c copy './filename.mp4'
- If the data stream transmitted by the broadcaster and saved in the .ts file is not compatible with the selected target format (eg *mp4*), this conversion will not work and only generates an error message. In this case the video can be re-encoded:
  ffmpeg -i './filename.ts' -c:v libx264 -c:a copy './filename.mp4'
- Or re-encode video and audio:
  ffmpeg -i './filename.ts' -c:v libx264 -c:a aac './filename.mp4'

Depending on the computing power of the PC, the file size and the type of re-encoding, processing can take some time.