

butt (0.1.31) Manual

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Chapter 1. About

butt (broadcast using this tool) is an easy to use, multi OS streaming tool.

It supports ShoutCast and IceCast and runs on Linux, MacOS and Windows.

The main purpose of butt is to stream live audio data from your computers Mic or Line input to an Shoutcast or Icecast server. Recording is also possible.

It is NOT intended to be a server by itself or automatically stream a set of audio files.

Chapter 2. Install

OS X:

Mount the **butt-<version>.dmg** by double clicking and drop the butt file to the Applications folder.

Windows:

Just run the **butt-<version>-setup.exe** as usual and go through the installer pages.

The default installation path might be unusual, but this way it is possible to install butt without administration rights.

Linux/MinGW (Windows):

First of all the following libraries have to be installed on your system

fttk-1.3, portaudio19, libmp3lame, libvorbis, libogg, libflac, libopus, libsamplerate, libfdk-aac, libdbus-1, libssl

They are quite common and should be included in every popular linux distribution.

On **Ubuntu** you can install them with

```
sudo apt-get install libfttk1.3-dev portaudio19-dev libopus-dev libmp3lame-dev libvorbis-dev libogg-dev libflac-dev libfdk-aac-dev libdbus-1-dev libsamplerate0-dev libssl-dev
```

On Distributions which don't have libfdk-aac like **debian** you can compile without aac support with:

```
./configure --disable-aac
```

If you want to disable SSL/TLS support you can run:

```
./configure --disable-ssl
```

For compiling on **Windows** I recommend the msys2 x64 (www.msys2.org) environment.

They have all the needed packages in their pacman repository. Additionally you need to install the **libwinpthread-git** package.

Make sure that you select the x64 version of each package.

After installing the above libraries you can install butt from source as usual:

- `tar -xzf butt-<version>.tar.gz`
- `cd butt-<version>`
- `autoreconf -i` (only on Windows/MSYS2)

- `./configure`
- `make`
- `sudo make install`

In case the included configure script or the make process fails on your system, try to create a new configure script by invoking: `autoreconf -i` and start with `./configure` again.

Chapter 3. Quick start

When you start butt the first time, it will create a default configuration file in your home directory (`~/buttrc`) on Linux and OS X or at `C:\Users|<username>|AppData\Roaming|buttrc` on Windows.

In order to connect to a server, you need to add a new server in the config window. Just open the settings window and click on [ADD]. Now fill in the input fields with the server data and click on the new [ADD]. To connect to the server just press the play button in the main window and enjoy your broadcast.

Chapter 4. Install AAC libraries

Windows:

1. Download libfdk-aac-2.dll from [here](#)
2. Go to the installation directory of butt by typing `%LOCALAPPDATA%\butt` into the file explorer
3. Copy libfdk-aac-2.dll into the installation directory of butt
4. Restart butt
5. Enjoy AAC Streaming

MacOS:

1. Download libfdk-aac.2.dylib from [here](#)
2. Open your Applications folder
3. Right click on butt.app
4. Select Show Package Contents
5. Copy libfdk-aac.2.dylib next to the butt executable in Contents/MacOS
6. Restart butt
7. Enjoy AAC Streaming

Linux:

1. Install libfdk-aac from your linux distribution repository
2. Enjoy AAC Streaming

Chapter 5. Configuration

The command line option `-c <path_to_file>` allows you to define a new standard configuration path.

This makes it possible to have multiple instances with different configurations running. In case the file does not exist, butt will create a default file.

[Save]: Saves your current settings to the standard configuration file or to the file that was passed to the `-c` option

[Export]: Saves your current settings to the given file

[Import]: Loads the selected file and applies the settings

CAUTION

If you use the `-c` command line option and import another configuration file by using the import function, pressing [Save] will overwrite the file that was passed to the `-c` option.

In some cases the configuration file can become corrupted and butt will not be able to start correctly. In that case you can hold down the shift key during butt startup to create a new configuration file.

Chapter 6. Main Window

The dot matrix display shows you the current state of the butt software.

The states are: idle, streaming, recording.

When in streaming and/or recording state you can cycle through the information by clicking on the display.

You can choose between online duration, data sent, recording duration and data recorded

The [`>`] symbol shines yellow if butt is connected to a server.

The [`O`] symbol shines orange if the [`start rec. when connected`] checkbox is activated.

The [`O`] symbol shines red if butt is currently recording.

Gain slider: The slider is only visible when the little [`more/less`] button below the [`settings`] button was clicked.

With this slider you can attenuate and amplify the input signal between -24 dB and $+24\text{ dB}$, respectively.

Double clicking the slider resets the gain to 0 dB . Use this slider only to fine tune your input signal.

It does not change the operating systems input volume setting. Instead, the input signal is multiplied

by the given factor. Thus, adding too much gain will also add lots of noise.

Chapter 7. Audio

The audio settings tab allows you to select your audio interface and the desired sample rate.

If you have a multi-channel device you may also select the desired input channels for the left and right audio channel.

With the channel mode setting you tell butt if the audio stream shall be encoded to stereo or mono. This brings us to 4 possible combinations.

*Channel mode = **Stereo** and **different channels** are selected for Left and Right:*

This is probably the most used combination.

Left and Right channels are encoded into a stereo stream.

*Channel mode = **Stereo** and the **same channel** is selected for Left and Right:*

The selected channel is used for Left and Right channel in a stereo stream.

*Channel mode = **Mono** and **different channels** are selected for Left and Right:*

Left and Right channels are averaged into a mono stream.

*Channel mode = **Mono** and the **same channel** is selected for Left and Right:*

The selected channel is used as mono channel in a mono stream.

Chapter 8. Streaming

To start streaming just click the play symbol.

butt will try to connect to the server until you press the stop button.

If the connection gets lost, butt will try to reconnect until the stop button is pressed

You can stream in 5 different audio codecs: mp3, aac+, ogg/vorbis, ogg/opus and FLAC.

In case opus is selected the sample rate is always upsampled to 48 kHz.

Of course no upsampling is needed if you select 48 kHz as sample rate.

Song name:

If you want to inform the listener about which song is currently playing you can do that on the [\[Stream\]](#) tab.

You only need to type the song into the **Song Name** input field and hit Enter or click [\[OK\]](#).

butt can also update the song automatically from a text file.

The first or the last line of the file must be the name of the song.

As soon as butt detects that the file has been changed, it updates the name of the song on the server.

If you run butt on MacOS or Linux you can even transfer the current song name from an audio player to butt.

Supported audio players:

Linux: Rhythmbox, Banshee, Clementine, Cantana, Spotify

MacOS: iTunes/Music, Vox, Spotify

As broadcasting with Icecast and Shoutcast is not realtime, the listener receives the audio content with a few seconds delay.

This delay introduces an offset between the current song name and the actual song that is playing. To prevent confusion on the listener side you can add a delay to the automatic song update.

In case you want to add a prefix and/or a suffix to your song name you can do that by entering the desired text into the corresponding input field.

Updating the song name is not supported for the Opus codec.

Stream infos:

In the **[Main]** settings window you can add stream infos.

This allows you to deliver more details about your stream.

For example the genre of your music, description of your station, web address etc.

Unfortunately, it is not possible to update stream infos during a broadcast.

You need to reconnect for updating the stream infos.

Automatic streaming:

If you activate the checkbox *Start streaming after launch* butt will automatically connect to the server as soon as the application has been started.

butt can also connect and disconnect depending on the audio signal level:

To connect automatically if a signal is present for a certain amount of time enter an integral number larger than 0 into the *Start if signal is present for [...] seconds* field.

To disconnect automatically if the signal is absent for a certain amount of time enter an integral number larger than 0 into the *Stop if signal is absent for [...] seconds* field.

The default signal detection levels are set to -50.0 dB and can be independently changed for the present and absent signal cases in the **[Audio]** tab.

Chapter 9. Recording

butt is able to record and stream simultaneously in different bit rates.

For example you can stream with 96 kbit and record with 192 kbit.

Recording is possible in mp3, aac+, ogg/vorbis, ogg/opus, FLAC or wav.

To record your session you first need to select the destination folder and specify a file name in the **[Rec]** tab.

butt will replace specific date variables with the current time and date. For example `rec_(%m_%d_%y).mp3` expands to `rec_(03_28_2008).mp3`.

Other possible time variables are %H (hours) %M (minutes) %S (seconds). Refer to the table below for more supported date variables.

With the %i variable you can add an index number to your file name.

This means with `rec_%i.mp3` butt first tries to record to `rec_0.mp3`. In case that file already exists, butt tries `rec_1.mp3` and so on...

To manually start the recording simply press the record symbol.

To stop recording just click on the record symbol again.

Automatic recording:

If the *start recording when connected* checkbox is activated but starts the recording immediately after being connected to a server.

Vice versa but will stop the recording if the *Stop recording when disconnected* checkbox is active.

Additionally you can tell butt to immediately start recording after the application has been launched by checking the "Start recording after launch" box.

To start recording automatically if a signal is present for a certain amount of time enter an integral number larger than 0 into the *Start if signal is present for [...] seconds* field.

To stop recording automatically if the signal is absent for a certain amount of time enter an integral number larger than 0 into the *Stop if signal is absent for [...] seconds* field.

The default signal detection levels are set to -50.0 dB and can be independently changed+ for the present and absent signal cases in the [\[Audio\]](#) tab.

You can also tell butt to split your recording into separate files every **n** minutes. Just enter a number higher than 0 into the *Split file every [...] minutes* field.

Let's assume your file name is `rec_(%m_%d_%y)_%i.mp3` Then the first file is expanded to `rec_(03_28_2008)_0-1.mp3`, the second after **n** minutes to `rec_(03_28_2008)_0-2.mp3`, the third to `rec_(03_28_2008)_0-3.mp3`, you got it.

If the *sync to full hour* checkbox is activated the automatic file splitting is synchronized to the full hour. This means if the time is 8:55 and file splitting is set to *15 minutes*, the second file starts at 9:00 and the third at 9:15.

If you want to split the recording now, just click the *[Split now]* button.

Supported variables for file name expansion:

Variable	Meaning
%a	abbreviated weekday name (e.g. Fri)
%A	full weekday name (e.g. Friday)
%b	abbreviated month name (e.g. Oct)
%B	full month name (e.g. October)
%d	day of the month, as a number (1-31)
%H	hour, 24 hour format (0-23)
%I	hour, 12 hour format (1-12)
%j	day of the year, as a number (1-366)
%m	month as a number (1-12).
%M	minute as a number (0-59)
%p	AM or PM

Variable	Meaning
%S	second as a number (0-59)
%U	week of the year, (0-53), where week 1 has the first Sunday
%w	weekday as a decimal (0-6), where Sunday is 0
%W	week of the year, (0-53), where week 1 has the first Monday
%y	year in decimal, without the century (0-99)
%Y	year in decimal, with the century
%Z	time zone name

Chapter 10. DSP

10-Band Equalizer:

The equalizer allows you to change the gain of certain frequency bands from -15 dB to 15 dB. The equalizer uses a Q of 2 on every frequency band.

Dynamic Range Compressor:

Dynamic range compression is used to reduce the difference between loud and quiet parts of the signal, and thus provide a more consistent experience for listeners. It is used by virtually all professional radio stations.

The recommended procedure for configuring the compressor is as follows:

1. Start playing the loudest audio source you intend to broadcast (typically music), and line it up with the master gain slider.
2. Enable the compressor, and adjust the threshold and gain to suit. The attack and release times can generally be kept as they are, unless you have a particular reason to change them. You will notice that the overall signal level goes down, as it is being compressed.
3. Adjust the makeup gain to bring the signal back to its original level.
4. Now test with a quieter audio source (such as your voice), and see that the level of that is boosted in comparison. If the quieter source is still too quiet, reset the makeup gain to 0 and repeat from step 2 onwards, until you have a satisfactory result.

This procedure can take some time to find the optimum settings, which are determined by listening as much as by metering, but it generally only needs to be done once - but will save your settings, so once you have values that work well for your content, you probably don't need to adjust them again.

As a rough guide, music should be compressed relatively subtly, with a fairly high threshold and a ratio typically between 2 and 3. Pure speech content can be compressed much more dramatically, with a low

threshold and a ratio of 5 or more; this will make the speech easier for the listener to understand, and will also reduce the differences between different speakers or by not keeping a very consistent distance from the microphone.

For mixed speech and music broadcasting, it is recommended to set butt's compression as for music, and then have an additional compressor (typically a hardware module) between the microphones and the final mix.

To check if the signal power exceeds the threshold, the compressor usually averages the signal power over time and compares it with the threshold. This averaging process reduces the speed of the compressor. In case you need a very fast responding compressor you can activate the *Aggressive Mode* option. With this option enabled the compressor does not average the signal power over time anymore.

Chapter 11. Secure Connection over SSL/TLS (Icecast only)

To enable encryption for a certain server, you only have to activate the *Use SSL/TLS* checkbox in the server settings. Please bear in mind that the server must be configured with SSL/TLS support in order to make this working. The connection will fail if you activate SSL/TLS for a server which does not support encryption.

If the certificate validation fails, butt will ask you if you want to trust that certificate anyway. If you click on **[TRUST]** butt will establish the connection and remembers the decision for that certificate and server. By pressing the button *[Revoke certificate trust]* you can revoke that decision.

If you want to specify your own file or folder with CA certificates, you can enter the path to the file or folder in the **[TLS]** tab of the settings window. Usually you should not need to enter any information there.

Chapter 12. The butt agent (Windows only)

Version 0.1.29 has introduced the little helper tool called butt agent. The main purpose of the butt agent is to make it possible to minimize butt into the windows system tray.

Minimizing to tray is not the only feature, though. You also have the ability to let it display balloon notifications for connects/disconnects and for song updates. If you want to start butt at windows start you can also enable/disable this with the agent.

butt starts the agent automatically if the checkbox *Minimize to tray* is enabled. If you want to use the balloon notifications you should activate the *Start agent at startup* checkbox in the **[Main]** settings tab.

Once the agent has been started you will find it in the system tray. From here you can manage the minimized butt instances and activate the features mentioned above. A left click on the tray icon minimizes or raises the last butt instance. A right click opens up a context menu with more options.

The butt agent closes itself if no more butt instance is running.

Chapter 13. Command line control

butt can be controlled from command line.

If you want you can even control butt from a remote computer.

Please refer to the section below for more information on that.

Chapter 14. Command line options

butt has several command line options which can be separated into two modes.

Operating Mode:

These options change the behaviour of the instance you are about to start.

-c <path>:

This option allows you to select a different configuration path. It is useful if you want to run several butt instances with different configurations. Just pass a different configuration file with the -c option for every instance.

-A:

This option tells butt to accept control commands from your network or even the internet.

CAUTION

When using this option everyone in your network or even internet may control your butt instance. Please use this option only if you have secured your network appropriately.

-X:

Use this option if you do not want to run a command server at all. This will also disable receiving commands from your local machine.

-p <port>:

With this option you can define the port of the command server. The default port is 1256. Use this option for example if you have several butt instances that you want to control from command line.

Control Mode:

With these options you can send control commands to a running butt instance.

-s [name]:

(lowercase s)

This command tells butt to connect to the server *name*. If the *name* parameter is omitted, butt will connect to the currently selected server.

-d:

When receiving this command, butt will disconnect from the current server.

-r:

This command starts the recording engine.

-t:

Use this option to stop the recording.

-n:

In case a recording session is active this option splits the current file like it would if you press the `[Split now]` button in the user interface.

-q:

Closes butt gracefully.

-u <song name>:

Sends a new song name to the server.

-S:

(uppercase S)

Requests a status information packet. The answer will be of the form:

`connected: 1`

`connecting: 0`

`recording: 0`

where `0` means the function is inactive and `1` means the function is active.

-a <address>:

Use this option to control a butt instance that is running on a remote computer.

In order to control a remote butt instance the butt instance must have been started with the `-A` option. The parameter *address* can be either a IP Address or a hostname.

-p <port>:

This should be set to the same port that has been given to the butt instance you want to control.

By default the command will be sent to port 1256.

Chapter 15. Uninstall

MacOS:

Delete the **butt.app** from your *Application* folder and remove the configuration file from `/Users/<username>/.buttrc`

Windows:

Run the Uninstaller from the butt folder in your windows start menu.

Linux/MinGW:

Run `sudo make uninstall` from the source tree and remove the configuration file from `/home/<username>/.buttrc`

Chapter 16. Contact

butt at danielnoethen dot de

Chapter 17. Donate

Paypal: paypal@danielnoethen.de

Patreon: <https://www.patreon.com/bePatron?u=31552247>

Bitcoin: bc1q4uq7h464rsu2cudrmuuqmc4tcr98d0edrhe5au

Monero:

85u8DacasxPNvKzY5kEiprBnbydDqg26yGAVEw7mdwccNFsrXWCE4VQnV2JVfh5BTRheNnpDJqYj
bqPrVRLEPAKP3dsYgc

Dash: Xeg9k831A931VrAkwK64escVnm7L7TJSmu