

Prerequisites:

- Batchalign is a command line program, meaning you will be interacting with the Shell of your machine to execute commands. We will write down commands for you to execute; to execute them, you must first locate your platform's terminal.
 - o On MacOS: <https://tinyurl.com/OSXterminal>
 - o On Windows: <https://tinyurl.com/PCterminal>
 - o Follow your Distribution's Instructions for Linux
- To use Batchalign, you have to install it. We depend on Python 3.11 (versions between 3.9-3.11 are all tested, version 3.12 is explicitly not supported) and some external dependencies which will be **installed automatically** when you install Batchalign. This means that, in particular, do not install any dependencies (like Whisper or Nvidia Nemo) manually. If a special function requires a manual dependency, the Batchalign program will prompt you with instructions.
 - o To install Batchalign, follow the instructions at <https://github.com/talkbank/batchalign2> for Quick Start
 - o Remember that the commands we provide are meant to be executed in the terminal which you located in the step above.

Updating: Batchalign's update and install instructions are almost identical, although you don't need to install Python again. To update simply follow the instructions in the section at github.com/talkbank entitled "Install and Update the Package".

Usage: Once installed, the usage of Batchalign follows these steps. These instructions supersede the earlier descriptions in our 2023 article in JSLHR.

1. At your user root level of ~/ you should create a folder using: `mkdir ba_data` (or whatever name you prefer). Then use `cd ba_data` to go inside that folder and create subfolders using: `mkdir input` and `mkdir output`.
2. Next, you will need to prepare your audio or video file and put it inside the ~/ba_data/input folder. Batchalign only works on .wav files. If you have another format, you could either use a third party converter such as Amadeus Pro, Audacity, or Video Converter to create .wav or you could install FFmpeg to your computer and Batchalign will convert automatically. For information on installing FFmpeg, see below.
3. You can put as many files as you wish in your input folder, and they will be processed in sequence. If your machine has enough memory and multiple processor cores, as with the M2 Apple, you can even create multiple input and output folders to run multiple jobs in parallel.
4. Batchalign supports different processes with different verbs. The three most used are marked with an asterisk:
 - ***align** produces utterance- and word-level alignment of a text when you place both the media and transcript files into /input. If any utterance bullets exists, Batchalign will stick to them even if they are wrong, potentially worsening the alignment of the whole file; hence, it is best to first remove current bullets using

this CLAN command: `chstring -cbullets.cut *.cha +1` unless you are sure the bullets are absolutely correct.

- ***morphotag** uses Stanza, following Universal Dependencies, to add %mor and %gra lines to a transcript. This function does not require a media file. It uses the @Languages line in the transcript to detect what language model to use.
 - ***transcribe** provides transcription directly from audio or video. This only requires raw media files (audio or video) in /input.
 - **bulletize** creates time bullets for files that were not originally linked to media.
 - **clean** empties the input and output folders.
 - **recursive** allows you to process a full hierarchy of folders in the /input folder
 - **version** lists the version of batchalign.
 - **sph** allows for .sph and .stm file format in /input.
 - **benchmark** compares ASR output with human transcription in /input
5. You can use either Whisper or Rev-AI for transcription. The default mode for English uses Rev-AI. For this, you will need to open a rev.ai account. Rev-AI provides you with 6 free hours for your new account. Charges are \$.02/minute of audio for this service. Go to rev.ai, sign up, and on the left side of your dashboard, you will find a tab called Access Token. Click generate to generate a new token, copy and paste the key to somewhere you can find later.
 6. In addition to Rev.AI, we have adjusted Whisper, a local ASR model, to perform nearly as well as Rev-AI. Also, Whisper does better than Rev-AI for some languages other than English, such as Spanish. Although Whisper runs much more slowly than Rev-AI, some projects may prefer Whisper's local mode of operation.
 7. Whichever ASR engine you choose, basic Batchalign command for transcribing is:
 - `batchalign transcribe --lang=[3 letter ISO language code] ~/ba_data/input ~/ba_data/output`
 - For example, to transcribe with Rev.AI: `batchalign transcribe --lang=eng ~/ba_data/input ~/ba_data/output`
 - To use Whisper instead: `batchalign transcribe --lang=eng --whisper ~/ba_data/input ~/ba_data/output`
 8. The first time you run Batchalign, the program will take about 5 minutes to download the material that will go into various cache folders on your system (this manifests as the program appearing to hang). After that, the system will ask you for your Rev.AI key from step 5) above, which you will need to paste into the program when asked if you wish to use Rev.AI. Cut and paste that from the place where you saved it earlier.
 9. The program will provide output as it processes each input file, and you will soon see transcribed or coded CHAT (*.cha) files in your output folder(s)!

*Only the **transcribe** function requires the --lang flag. All other functions will read language information from the input CHAT file.*

FFmpeg installation for MacOS: We expect that users with MacOS will rely on Homebrew for installing programs. To install Homebrew, go to <https://brew.sh> and copy the long command

from the box to your terminal. Once installed, you can add ffmpeg using this command: brew install ffmpeg

FFmpeg for Windows: For information on how to install FFmpeg on windows, please go to <https://www.wikihow.com/Install-FFmpeg-on-Windows>.

.m4a conversion: If you record with iPhone, the format is m4a. Since batchalign only accepts mp3, mp4, and wav, you will need to convert .m4a to .wav. You can do this using a program such as Audacity or Amadeus Pro or an online converter site such as this one: <https://cloudconvert.com/m4a-to-wav>

Support Information:

Please feel free to reach out if you have questions! Should you reach out for help, please run “batchalign version” to tell us which version you are using.

“Verbose” Output:

There is a -vvv flag which allows Batchalign to run a file in “diagnostic mode.” For instance, if your original command was:

```
batchalign align ~/ba_data/input ~/ba_data/output
```

To get diagnostic information, you would write:

```
Batchalign -vvv align ~/ba_data/input ~/ba_data/output
```