

MFA and Pretrained Acoustic Models

The *Montreal Forced Aligner* (MFA) is a third-party tool developed by Michael McAuliffe and others for time aligning orthographic and phonological forms from a pronunciation dictionary to orthographically transcribed audio files. It is [open source software](#) based on the [Kaldi ASR toolkit](#).

LaBB-CAT includes a layer manager module called “MFA Manager” which integrates with MFA in order to facilitate forced alignment of LaBB-CAT corpus data.

The layer manager can work in two modes:

- *Train and Align* - acoustic models are trained on the data you want to align, which can be in any language as long as you have a pronunciation dictionary for it.
- *Pre-trained Models/Dictionaries* - pre-trained models and pronunciation dictionaries are supplied by the Montreal Forced Aligner and used for forced alignment. Languages for which dictionaries are available listed on the MFA website and include:
 - English
 - French
 - German
 - Brazilian Portuguese
 - Spanish
 - Catalan

These instructions assume that your corpus is in one of these languages, and uses the *Pre-trained Models/Dictionaries* approach...

MFA Installation

MFA is a 3rd-party tool that LaBB-CAT integrates with via a Layer Manager module. MFA is *not included* as part of LaBB-CAT, and so it must be installed on the server you have installed LaBB-CAT on before you can integrate LaBB-CAT with it.

If MFA has not been installed already, please follow the steps detailed under [MFA Installation](#). This is a one-time process.

Layer Manager Installation

Once MFA has been installed, you have to install the MFA Manager, which is the LaBB-CAT module that provides MFA with all the data it needs, and then saves to alignments MFA produces back to your database.

1. Select the *layer managers* menu option.
2. Follow the *List of layer managers that are not yet installed* link.

3. Find *MFA Manager* in the list, and press its *Install* button and then press *Install* again.
As long as MFA has been installed for all users, you should see a box that's already filled in with the location that MFA was installed to.
4. Click *Configure* to continue the layer manager installation.
You will see a window open with some information about integrating with MFA, including the information you've already read above.

Forced Alignment

Once you've

1. Now you need to add a phrase layer for the HTK configuration:
 - **Layer ID:** *mfa*
 - **Type:** *Text*
 - **Alignment:** *Intervals*
 - **Manager:** *MFA Manager*
 - **Generate:** *always*
 - **Description:** *MFA alignment time*
2. When you configure the layer, set the following options:
 - **Dictionary Name:** the dictionary language, e.g. *english_uk_mfa*
 - **Pretrained Acoustic Models:** the models language, e.g. *english_mfa*
 - The rest of the options can be left as their default values.
 - If you're curious about what the configuration options do, hover your mouse over each option to see a 'tool tip' that describes what the option is for.
3. Press *Set Parameters*
4. Press *Regenerate*
You will see a progress bar while LaBB-CAT force-aligns all the transcripts in the corpus, which may take a few minutes.
5. When the layer manager has finished, you'll see a message saying:
Complete - words and phones from selected utterances are now aligned.

Tip

Not all MFA pre-trained acoustic models can be used with all dictionaries. Apart from matching the language (e.g. English-trained acoustic models should be used only with English dictionaries), the phoneme symbol sets must also match. MFA uses several symbol sets, including:

- IPA - model and dictionary names ending in *..._mfa*
- ARPAbet - model and dictionary names ending in *..._arpa*

So if you use an acoustic model ending in . . . arpa, then the dictionary you choose must also end in . . . arpa.

See the MFA documentation on models and dictionaries for more detailed information:

<https://mfa-models.readthedocs.io>