

Getting started with the voice recognition script for MemBrain

1 Download and install Hard Disk Ogg

Hard Disk Ogg is a free recorder tool that allows you to record audio data to your hard disk, e.g. in wave file format as required by the MemBrain voice recognition script.

Download Hard Disk Ogg from <http://www.fridgesoft.de/downloads.php>.

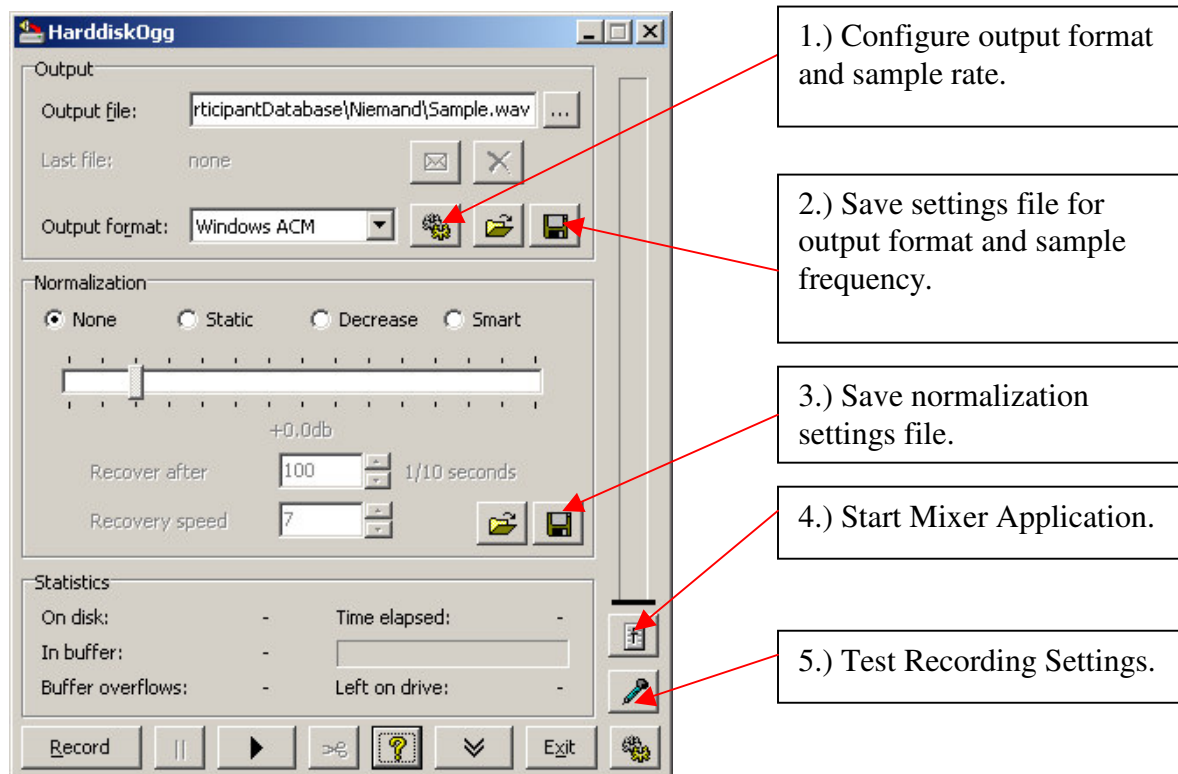
The current version at release time of this document is 2.5.2.

Create a new folder, e.g. **C:\hdogg**, and extract the zip file in this folder. There is no installer required for Hard Disk Ogg, just copy the files onto your system.

Note: Should you use a different folder name then please also adapt the script file 'WaveRecorder.as' accordingly which is located in the sub directory 'Includes' below the voice recognition script folder: The constant 'HDOGG_INSTALL_PATH' has to reflect the folder of your Hard Disk Ogg installation.

2 Configure Hard Disk Ogg and save config files

Start Hard Disk Ogg manually by double-clicking **Harddisk.exe** in the Hard Disk Ogg installation directory. Hard Disk Ogg will start up and look something like this:



The screenshot shows the HarddiskOgg application window. It has several sections: 'Output' with fields for 'Output file' and 'Output format', 'Normalization' with radio buttons and a slider, and 'Statistics' at the bottom. Five red arrows point to specific buttons with numbered callouts:

- 1.) Configure output format and sample rate. (Points to the 'Codec Settings...' button in the Output section)
- 2.) Save settings file for output format and sample frequency. (Points to the 'Save' button in the Output section)
- 3.) Save normalization settings file. (Points to the 'Save' button in the Normalization section)
- 4.) Start Mixer Application. (Points to the 'Mixer' button in the bottom right)
- 5.) Test Recording Settings. (Points to the 'Test' button in the bottom right)

Select item 1.) and adjust the sample rate to 16000 Hz Mono. Select output format (button *Codec Settings...* in the dialog where the sample rate is adjusted.) to 'PCM', 16 kHz, Mono.

Click OK on all the open settings dialogs which will return you to the main Hard Disk Ogg Window.

Select item 2.) to save the settings. Save the settings to the file '**MemBrain.hdp**' in the voice recognition script directory (overwrite the already existing file there).

Select item 3.) to save the Normalization Preset file to '**MemBrain.hfs**' in the voice recognition script directory (overwrite the already existing file there).

Select item 4.) And adjust the recording source of your system (usually microphone).

Select item 5.) to test your recording settings. You should see the recording signal bar on the right hand side of Hard Disk Ogg move significantly when talking into your microphone.

Close Hard Disk Ogg now, you have successfully finished this one-time setup.

3 Define the participants for your voice recognition experiment

Open the script file '**GlobalDefinitions.as**' and edit the following constant array:

```
// The participants for the voice recognition session
const string[] PARTICIPANTS =
{
    "Nobody",
    "Voice 1",
    "Voice 2",
    "Voice 3"
};
```

Simply replace the names by the names of your participants. If you want to add more participants just add them to the list, there's nothing more to do than that. Certainly, you can also remove one or more of the participants.

However, you should ensure that you place the participant 'Nobody' as first item in the list. You can change the name of that participant, however, it should reflect 'Nobody's talking', i.e. this is the background noise that is caught by your microphone that does not represent somebody's voice. Note that the last line in the participants list does not have a trailing ','.

The voice recognition is not limited to human voices. Basically, you can try to detect any noise you want to, try to be creative! Just give it a unique name in the participants list and be sure that you are able to record this noise with your computer's microphone when asked for by the script.

4 Start the voice recognition example script

Start MemBrain. Select <Scripting><Execute Script...> from the main menu. Select 'VoiceRecognition.as' and click 'Open' on the file selection dialog.

The script will guide you through all required steps: Collect new training data, create a new or load an existing net, train the net and finally start the process of voice recognition.

Hard Disk Ogg will always be kept minimized to the Windows task bar. However, you can see when recording is active from the Hard Disk Ogg symbol light up in bright red.

The voice recognition process entered in the end of the MemBrain script is an endless loop of recording short snippets of audio data, evaluating it using the net and printing the results into the script trace window.

If you want to add more training data simply stop the script and start it again. Newly recorded data will be added to the already existing data.

The script organizes the data collection for all participants in a sub directory called 'ParticipantDatabase'. You can simply delete this directory or sub directories of it if you want to delete the already collected data. MemBrain will re-create the directories automatically the next time the script is executed and start over new with data collection.

5 Questions or problems?

If you should experience any problems with the voice recognition script or have any questions then feel free to post them in the MemBrain User Forum (<http://www.membrain-nn.de/forum/>). I'll try my best to get back to your questions asap.

Have fun and kind regards,

Thomas Jetter