

# RT-Voice PRO

*Hearing is understanding*



Documentation

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<https://www.crosstales.com>

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**Thank you for buying our asset "RT-Voice PRO"!**

If you have any questions about this asset, send us an email at [rtvoice@crosstales.com](mailto:rtvoice@crosstales.com). Please don't forget to rate it or write a little review – it would be very much appreciated.

## 1. Overview

Did you ever want to make a game for people with **visual impairments** or **reading difficulties**? Or want your players to **not have to read too much**? Or would you listen to just the dialogues in your game **without consulting a voice-actor** in early stages of development? Then RT-Voice is your **time-saving** solution to do so!

RT-Voice uses TTS-voices already integrated in your system to pronounce any written text at runtime.

All of this happens without intermediate steps: the transformation effects **instantaneously** - and, if needed, **simultaneously**!

## 2. Features

### 2.1. Convert text to voice

- **Instant conversion** from text to speech - generated **during runtime!**
- **Side effect:** the continuous audio generation **saves a lot of memory!**
- **No need for voice actors** during the testing phase of your game!
- Filter voices by **name**, **culture** and/or **gender**
- **Several voices at once** are possible (e.g. for scenes in a public place, where many people are talking at the same time)
- **Fine tuning** for your voices with **speed**, **pitch** and **volume!**
- Support for [SSML](#) and [EmotionML](#)!
- **Current word**, **visemes** and **phomenes** on Windows and iOS - including **marker functions!**
- Generated audio **can be stored** in files reusable within Unity!
- **1-infinite synchronized speakers** for a single AudioSource!
- Simple **sequence** and **dialogue system**
- **No** performance drops!
- Components to speak UI-elements, like **Text** and **InputField**
- Enables access to more than **1'000 voices!**

### 2.2. Documentation & control

- **Test** voices within the editor!
- Powerful [API](#) for **maximum control!**
- Detailed **demo scenes!**
- Comprehensive [documentation](#) and **support!**
- Full **C# source code**

### 2.3. Compatibility

- Supports **all build platforms!**
- **Native providers** for **Windows**, **macOS**, **Android**, **iOS** and **XBox**
- Compatible with:
  - [AWS Polly](#)
  - [Azure \(Bing Speech\)](#)
  - [MaryTTS](#)
  - [eSpeak](#) and [eSpeak-NG](#)
  - [Klattersynth](#)
  - [WebGL Speech Synthesis](#)
  - [Google Cloud Speech](#)
- Works with **Windows**, **Mac** and **Linux editors!**
- Compatible with **Unity 2018.4 – 2021.1**
- Supports **AR** and **VR!**
- **C# delegates** and **Unity events!**
- Works with [Online Check](#)
- [PlayMaker](#) actions!

## 2.4. Integrations

- [Adventure Creator](#)
- [Amplitude](#)
- [Cinema Director](#)
- [Dialogue System for Unity](#)
- [Google Cloud Speech](#)
- [Klattersynth](#)
- [LipSync](#)
- [Localized Dialogs & Cutscenes \(LDC\)](#)
- [Naninovel](#)
- [NPC Chat](#)
- [Online Check](#)
- [PlayMaker](#)
- [Quest System Pro](#)
- [SALSA](#)
- [SLATE](#)
- [Volumetric Audio](#)
- [WebGL Speech Synthesis](#)

## 2.5. Platform-specific features and limitations

### 2.5.1. Overview

Provider	Offline	SSML	Audio files	Words
Windows	yes	yes	yes	yes
macOS	yes	no	yes	no
Android	yes	yes	yes	no
iOS	yes	no	no	yes
WSA (UWP) / XBox	yes	yes	yes	no
MaryTTS	no <sup>1</sup>	yes	yes	no
eSpeak	yes	yes	yes	no
AWS Polly	no	yes	yes	no
<a href="#">Klattersynth</a>	yes	no	no	no
SAPI Unity	yes	yes	no	no
<a href="#">WebGL Speech Synthesis</a>	no	no	no	no
Azure (Bing Speech)	no	yes	yes	no
<a href="#">Google Cloud Speech</a>	no	yes	yes	no

### 2.5.2. Windows

- Native rate is internally limited to 20 logarithmic distributed steps
- .NET 4.0 or higher must be installed
- Minimum Windows version: 7
- Maximal number of characters per speech: 32'000 (>35min)

**Important note:** not all SAPI-voices support SSML! If you experience a wrong voice speaking your text, the selected voice is most likely not SSML-compatible. In this case, remove all SSML-tags from your text and let RTV speak again or you could enable *Auto Clear Tags* on the Speaker-component.

### 2.5.3. macOS

- Native pitch has no effect
- Native volume has no effect
- Minimum macOS version: 10.6
- Maximal number of characters per speech: 256'000 (>4h 45min)

<sup>1</sup> Standalone: MaryTTS could be bundled with the app installer and run locally



#### 2.5.4. Android

- Only one native voice at the time (can be solved by generating audio)
- Volume has no effect for generated audio (can be adjusted via AudioSource)
- Minimum Android version: 4.0.3 (API 15) – SSML needs 6.0 (API 23) and higher
- Maximal number of characters per speech: 3'999 (>5min)

#### 2.5.5. iOS

- Only one active native voice at the time
- Current word but no phonemes and visemes
- Minimum iOS-version: 9.0
- Maximal number of characters per speech: n/a

#### 2.5.6. WSA (UWP) / Xbox

- No native audio (only generated audio files)
- Minimum SDK-version: 10.0
- Maximal number of characters per speech: 64'000 (>1h 15min)

#### 2.5.7. MaryTTS

- Platforms: all
- Support for RAWMARYXML, SSML and EmotionML
- No native audio (only generated audio files)
- Minimum MaryTTS-version: 5.0
- Maximal number of characters per speech: depends on the server request size, but 8'000 (>10min) is realistic. Higher numbers can lead to timeouts.

#### 2.5.8. eSpeak

- Platforms: Windows, macOS, Linux and Android
- Minimum eSpeak version: 1.4.0
- Maximal number of characters per speech: 32'000 (>30min)

**Important note:** eSpeak must be installed on the target machine; see chapter 7.

### 2.5.9. AWS Polly

- Platforms: all except WebGL
- No native audio (only generated audio files)
- Maximal number of characters per speech: depends on the maximal request size, but 16'000 (>20min) is realistic. Higher numbers can lead to timeouts.

### 2.5.10. Klattersynth

- Platforms: all
- Unity AssetStore: <https://assetstore.unity.com/packages/slug/95453>
- Maximal number of characters per speech: 2'150 (>3min)

### 2.5.11. SAPI Unity

- Platforms: Windows standalone (IL2CPP)
- Only one active native voice at the time
- Native rate is internally limited to 20 logarithmic distributed steps
- Maximal number of characters per speech: 256'000 (>4h 45min)

### 2.5.12. WebGL Speech Synthesis

- Platforms: WebGL and Standalone
- Unity AssetStore: <https://assetstore.unity.com/packages/slug/81861>
- Maximal number of characters per speech: 32'000 (>30min)

### 2.5.13. Azure (Bing Speech)

- Platforms: all except WebGL
- No native audio (only generated audio)
- Maximal number of characters per speech: depends on the maximal request size, but 16'000 (>20min) is realistic. Higher numbers can lead to timeouts.

### 2.5.14. Google Cloud Speech

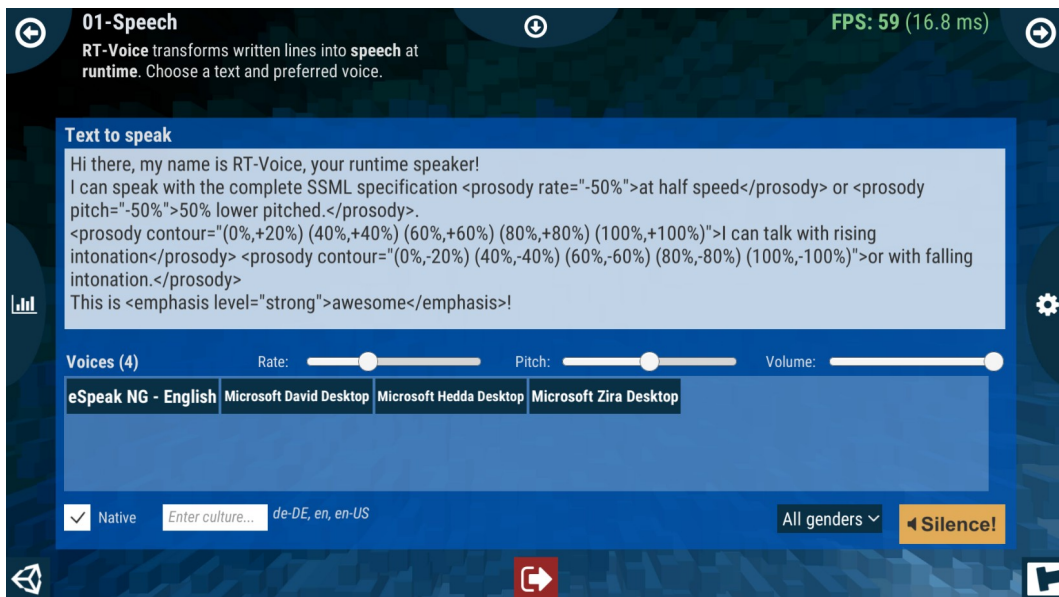
- Platforms: all
- Unity AssetStore: <https://assetstore.unity.com/packages/slug/115170>
- Maximal number of characters per speech: depends on the maximal request size, but 16'000 (>20min) is realistic. Higher numbers can lead to timeouts.

### 3. Demonstration

The asset comes with many demo scenes to show the main usage.

**Please install "Assets/Plugins/crosstales/Common/UI.unitypackage" first and afterwards "Demos.unitypackage" to use the demo scenes!**

#### 3.1. Speech



This demo scene shows how to transform written lines into speech. Choose the preferred voice.

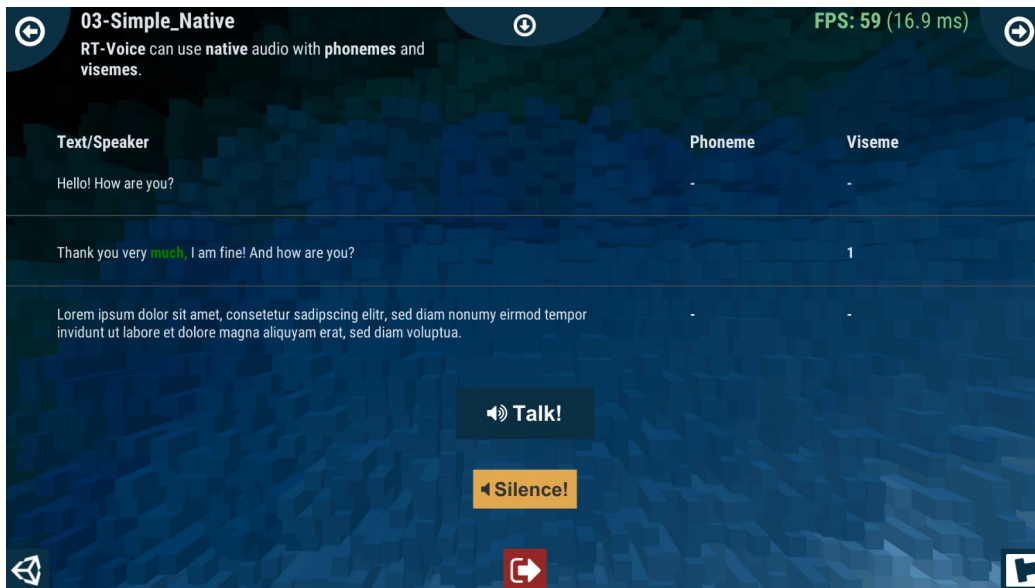
#### 3.2. Dialog

In this demo scene acts out a dialogue between two "people". Choose a different voice for both participants.



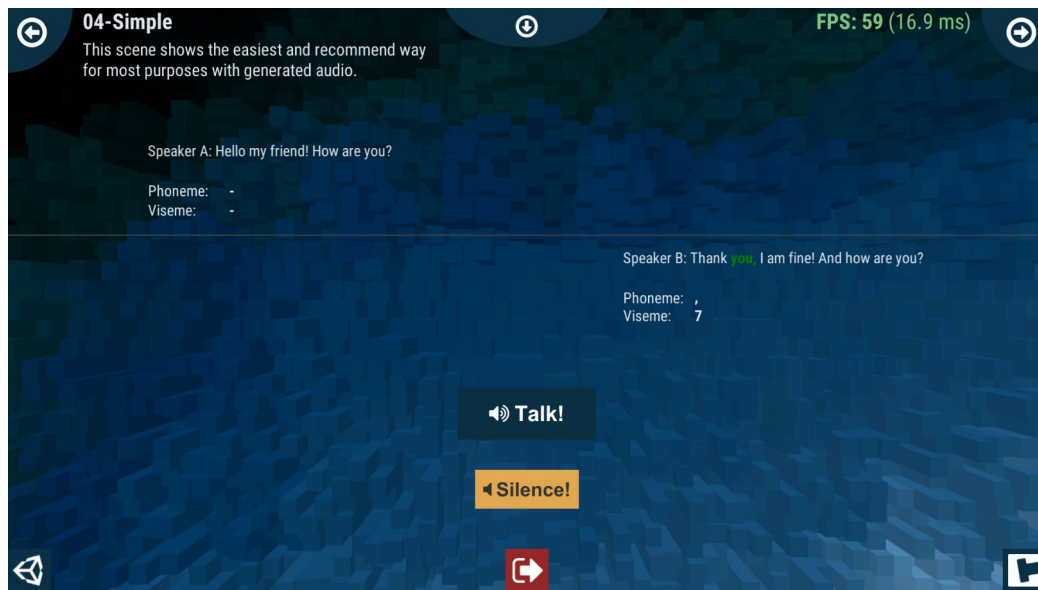
### 3.3. SimpleNative

The "SimpleNative" scene shows the easiest way for native audio.



### 3.4. Simple

The "Simple" scene shows the easiest and recommended way for most purposes with generated audio.



### 3.5. 3DAudio

This scene demonstrates 3D positioned and looped audio.

Needs the [Unity Standard Assets](#)-package.

### 3.6. Loudspeakers

This scene demonstrates 3D positioned loudspeakers with only one audio origin (looped).

Needs the [Unity Standard Assets](#)-package.

### 3.7. SendMessage

This scene shows the usage of Unity's "SendMessage".

### 3.8. Sequencer

This scene shows the usage of our simple sequencer.

### 3.9. Exact and Exact\_Native

These two scenes are showing how to build applications with exact timing between audio and animations (e.g. lip sync).

### 3.10. SpeechText

This scene shows how to speak or store generated audio (see the result inside the folder "\_generatedAudio").

### 3.11. SpeechText

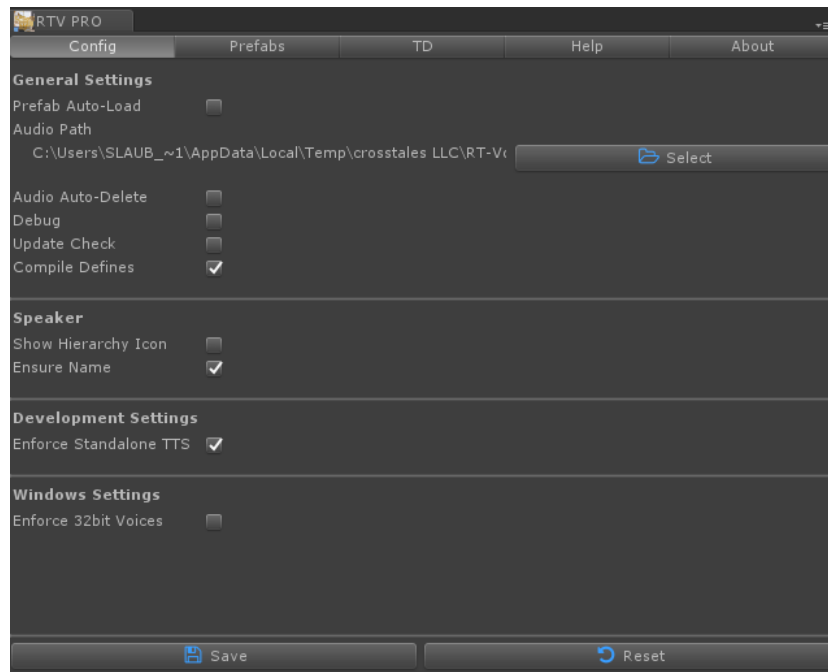
This scene shows how to speak text files with a voice (e.g. random dialogues of NPCs).

### 3.12. AudioFileGenerator

This scene shows how-to generate audio files from text files.

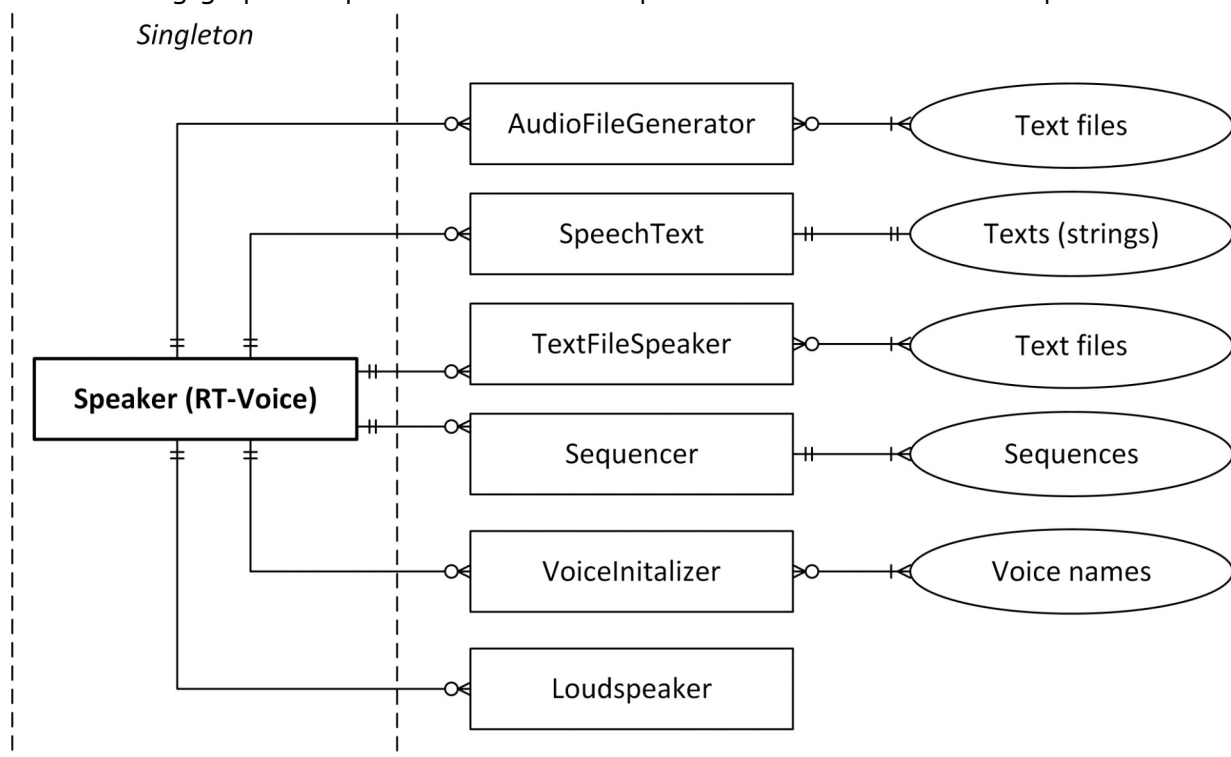
## 4. Setup

RT-Voice has global settings under "Edit\Preferences..." and under "Tools\RTVoice PRO\ Configuration...":



### 4.1. Schema

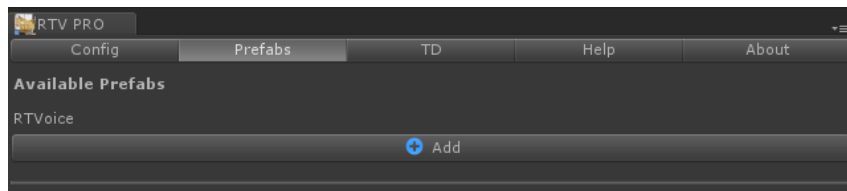
The following graphic explains the relationships between all relevant components:



## 4.2. Add RT-Voice

There are four ways to add RT-Voice to the project:

1. Add the prefab **RTVoice** from Assets/Plugins/crosstales/RTVoice/Resources/Prefabs to the scene
2. Or go to *Tools => RTVoice PRO => Prefabs => RTVoice*
3. Right-click in the *hierarchy-window => RTVoice PRO => RTVoice*
4. Add it from the Prefabs-tab:



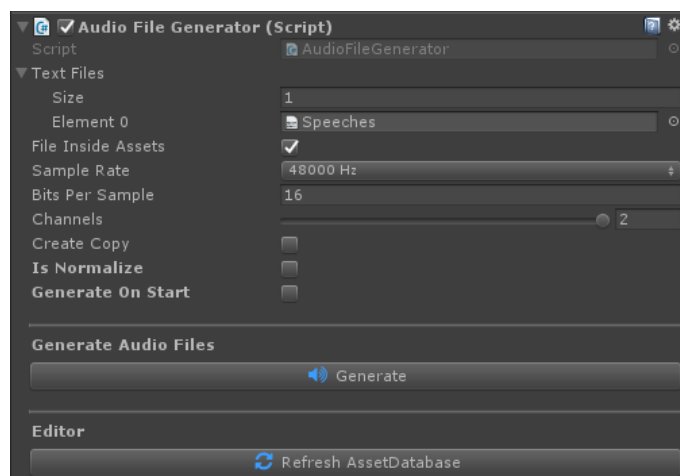
## 4.3. Other components

The other components can be added in the same way as "RTVoice".

### 4.3.1. AudioFileGenerator

This scene generates audio files from text files with lines like:

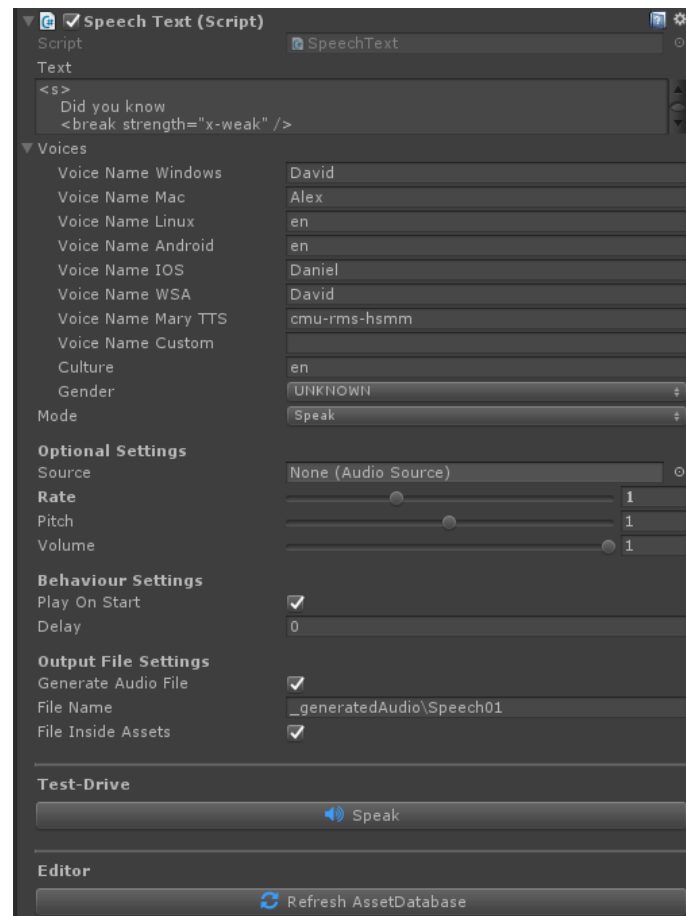
```
#Text;Output file (without extension);Voice name;Rate;Pitch;Volume  
This is a test speech;Speeches\Mary01;cmu-slt-hsmm;1.2;0.85;0.95
```





### 4.3.2. SpeechText

Allows to speak and store generated audio.

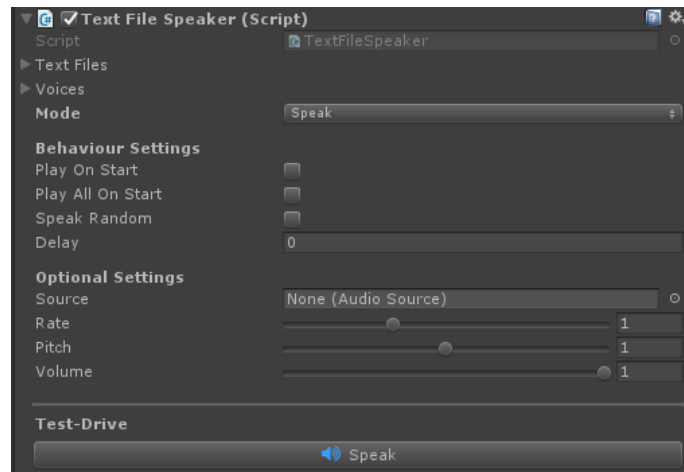


### 4.3.3. Sequencer

Simple sequencer for dialogues.

#### 4.3.4. TextFileSpeaker

Allows to speak text files.



#### 4.3.5. Loudspeaker

Loudspeaker for an AudioSource.

This is useful to use a speech on multiple locations in the game.

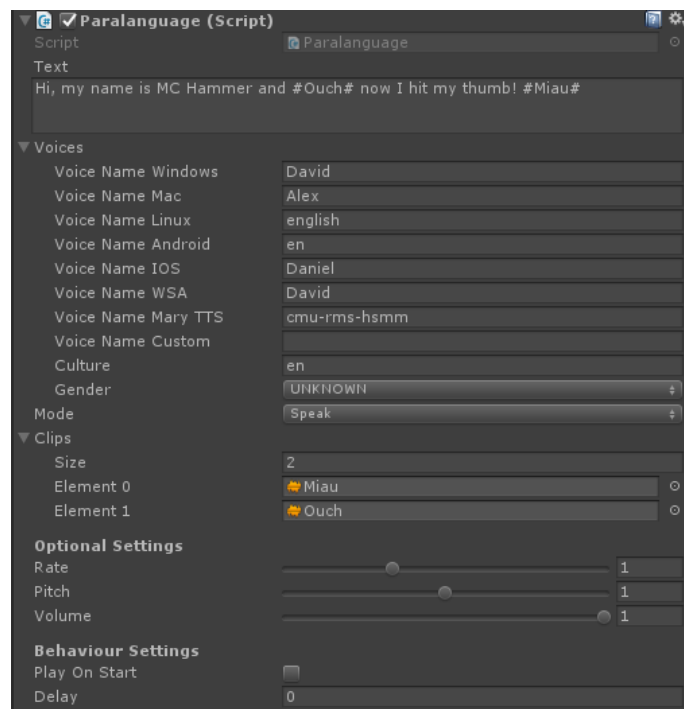
#### 4.3.6. VoiceInitializer

This component allows to initialize voices to provide lag-free speeches. It's especially useful for Android.

Add it together with RT-Voice to the first scene (e.g. splash screen).

### 4.3.7. Paralanguage

Paralanguage allows to use sounds inside a speech:



It works like this: add 1-n audio clips (names without spaces). Then add text and fill in the desired clips with the # as pre- and postfix.

## 4.4. Differences between standard and native mode

In the **standard** mode the TTS-system of the OS will **convert** text to an **audio** file and return it to **Unity** as an "**AudioSource**" for further use (like changing the volume, pitch etc.).

On the other hand, the **native** mode **delegates** the speech-task **entirely** to the underlying TTS-system (outside of Unity). It offers less **control** but it uses slightly **less performance**.

We clearly **recommend** using the **standard** mode.

## 4.5. Speaker.cs vs. LiveSpeaker.cs

"Speaker.cs" is the main class of RT-Voice and presents the API via methods.

"LiveSpeaker.cs" on the other hand is a wrapper for "Speaker.cs" and presents the API as normal C#-instance via public methods. The main usage of "LiveSpeaker.cs" is as a receiver for "SendMessage"-calls.

## 4.6. MaryTTS

MaryTTS is an open-source TTS with a server, client and many voices.

It enables TTS under all Unity platforms.

Customize everything by yourself, just follow their guides:

<http://mary.dfki.de/>

To enable MaryTTS, simply check "MaryTTS" in the RTVoice-component and configure the URL and port.

### 4.6.1. Important

The default server in RT-Voice is the test server from MaryTTS.

**Never release** a product with the **default configuration** and install your own server (local/remote)!

### 4.6.2. Account for our MaryTTS-service

We offer a service for MaryTTS. It's currently free and in early beta-stage, this means it could be sometimes slow or unavailable.

If you're interested in getting a test account, [contact us](#).

### **4.6.3. Installation guide**

We created a guide which should help installing a MaryTTS-server with HTTPS (needed for the WebGL-platform).

It can be found under "Assets/crosstales/RTVoice/Documentation/MaryTTS.pdf".

## 5. API

The asset contains various classes and methods. The most important are explained here. Make sure to **include** the **name space** in the relevant source files:

```
using Crosstales.RTVoice;
```

### 5.1. Speaker

The "Speaker.cs" is a singleton and contains the following important methods.

#### 5.1.1. Speak

Speaks a text with a given voice and optional AudioSource.

For example:

```
//Immediately speak "hello world" with the first available voice  
Speaker.Instance.Speak("hello world", audioSource);
```

```
//Immediately speak "hello world" with the first English voice (if available  
else it uses the first voice on the OS)  
Speaker.Instance.Speak("hello world", audioSource,  
Speaker.Instance.VoiceForCulture("en"));
```

```
// Prepare speak "hello world" with the first available voice (without  
AudioSource.Play() - this is up to you). With this technique, all audio texts  
of a scene can be created in advance and the AudioSource can be modified in  
various ways  
Speaker.Instance.Speak("hello world", audioSource, null, false);
```

#### 5.1.2. SpeakNative

Speaks a text with a given voice.

For example:

```
//Speak "hello world" with the first available voice  
Speaker.Instance.SpeakNative("hello world");
```

```
//Speak "hello world" with the first English voice (if available else it uses  
the first voice on the OS)
```

```
Speaker.Instance.SpeakNative("hello world",  
Speaker.Instance.VoiceForCulture("en"));
```

### 5.1.3. Silence

Silence all active TTS-voices.

Example:

```
//silence all voices  
Speaker.Instance.Silence();
```

### 5.1.4. Voices

```
List<Voice> Voices
```

Returns all available voices (alphabetically ordered by 'Name').

### 5.1.5. VoicesForGender

```
List<Voice> VoicesForGender(Model.Enum.Gender gender, string culture)
```

Returns all available voices for a given gender and optional culture (alphabetically ordered by 'Name').

### 5.1.6. VoiceForGender

```
Voice VoiceForGender(Model.Enum.Gender gender, string culture, int index,  
string fallbackCulture)
```

Returns a voice for the given gender and optional culture/index/fallbackCulture.

### 5.1.7. VoicesForCulture

```
List<Voice> VoicesForCulture(string culture)
```

Returns all available voices for a given culture (alphabetically ordered by 'Name').

### 5.1.8. VoiceForCulture

`voice voiceForCulture(string culture, int index, string fallbackCulture)`

Returns a voice for the given culture and optional index/fallbackCulture.

### 5.1.9. VoiceForName

`Voice voiceForName(string name)`

Returns the voice for the given name or null if not found.

### 5.1.10. Cultures

`List<string> cultures`

Returns all available cultures (alphabetically ordered by 'Culture').



## 5.2. Callbacks

There are various callbacks available. Subscribe them in the "Start"-method and unsubscribe in "OnDestroy".

### 5.2.1. Voices ready

```
VoicesReady();
```

```
VoicesReady OnVoicesReady;
```

Triggered as soon as the voices of a provider are ready to use.

### 5.2.2. Speak start and complete

```
SpeakStart(wrapper wrapper);
```

```
SpeakStart OnSpeakStart;
```

Triggered whenever a speak is started.

```
SpeakComplete(wrapper wrapper);
```

```
SpeakComplete OnSpeakComplete;
```

Triggered whenever a native speak is completed.

### 5.2.1. Current word (native, Windows and iOS only)

```
SpeakCurrentWord(wrapper wrapper, string[] speechTextArray, int wordIndex);
```

```
SpeakCurrentWord OnSpeakCurrentWord;
```

Triggered whenever a new word is spoken (native, Windows and iOS only).

### 5.2.2. Current phoneme (native, Windows only)

```
SpeakCurrentPhoneme(wrapper wrapper, string phoneme);
```

```
SpeakCurrentPhoneme OnSpeakCurrentPhoneme;
```

Triggered whenever a new phoneme is spoken (native mode, Windows only).

### 5.2.3. Current viseme (native, Windows only)

```
SpeakCurrentViseme(wrapper wrapper, string viseme);
```

```
SpeakCurrentViseme OnSpeakCurrentViseme;
```

Triggered whenever a new viseme is spoken (native mode, Windows only).

#### 5.2.4. Speak audio generation start and complete

`SpeakAudioGenerationStart(wrapper wrapper);`

`SpeakAudioGenerationStart` **`OnSpeakAudioGenerationStart`**;

Triggered whenever a speak audio generation is started.

`SpeakAudioGenerationComplete(wrapper wrapper);`

`SpeakAudioGenerationComplete` **`OnSpeakAudioGenerationComplete`**;

Triggered whenever a speak audio generation is completed.

#### 5.2.5. Provider change

`ProviderChange(string provider);`

`ProviderChange` **`OnProviderChange`**;

Triggered whenever a provider changes (e.g. from Windows to MaryTTS).

#### 5.2.6. Errors

`ErrorInfo(string info);`

`ErrorInfo` **`OnErrorInfo`**;

Triggered whenever an error occurs.

### 5.2.7. Example

Wait until all voices are ready. Then speak the text and get informed when it starts and completes:

```
public void OnEnable() {
    // Subscribe event listeners
    Speaker.Instance.OnVoicesReady += voicesReady;
    Speaker.Instance.OnSpeakStart += speakStart;
    Speaker.Instance.OnSpeakComplete += speakComplete;
}

public void OnDisable() {
    // Unsubscribe event listeners
    Speaker.Instance.OnVoicesReady -= voicesReady;
    Speaker.Instance.OnSpeakStart -= speakStart;
    Speaker.Instance.OnSpeakComplete -= speakComplete;
}

private void voicesReady() {
    Debug.Log("voicesReady: " + wrapper);
    Speaker.Instance.SpeakNative("Hello world!");
}

private void speakStart(Model.Wrapper wrapper) {
    Debug.Log("speakStart: " + wrapper);
}

private void speakComplete(Model.Wrapper wrapper) {
    Debug.LogWarning("speakComplete: " + wrapper);
}
```

## 5.3. Complete API

For more details, please see the [RTVoice-api.pdf](#)

## 6. Additional voices

RT-Voice works great with third-party voices (e.g. [Cereproc](#)).

### 6.1. Windows

All SAPI5-compatible voices are supported. Microsoft also provides a wide range of voices for different languages:

<https://support.microsoft.com/en-us/topic/how-to-download-text-to-speech-languages-for-windows-10-d5a6b612-b3ae-423f-af65-4f6caf1ec5d3?ui=en-us&rs=en-us&ad=us>

There are many free and commercial voices available. Here is a site with more than 36 free voices in 13 languages:

<https://zero2000.com/free-text-to-speech-natural-voices.html>

### 6.2. macOS

Apple delivers many voices for different languages. To add or customize them, follow the tutorial below:

<http://osxdaily.com/2011/07/25/how-to-add-new-voices-to-mac-os-x/>

### 6.3. Android

Follow the link to add various voices on an Android phone:

<http://hyperionics.com/TtsSetup/eng/TtsInfo.html>

### 6.4. iOS

Follow the link to change the quality of the installed voices:

<https://support.apple.com/en-us/HT202362>

### 6.5. WSA (UWP) / Xbox

See 6.1.

## 6.6. MaryTTS

<http://mary.dfki.de/>

## 6.7. eSpeak

<http://espeak.sourceforge.net/languages.html>

# 7. Setup eSpeak

eSpeak and esSpeak-NG are open-source TTS solutions that work under Windows, macOS, Linux and Android.

To take advantage of it, please install it on the PC.

## 7.1. Windows

[http://sourceforge.net/projects/espeak/files/espeak/espeak-1.48/setup\\_espeak-1.48.04.exe](http://sourceforge.net/projects/espeak/files/espeak/espeak-1.48/setup_espeak-1.48.04.exe)

## 7.1. macOS

<http://sourceforge.net/projects/espeak/files/espeak/espeak-1.45/espeak-1.45.04-OSX.zip>

## 7.2. Linux

```
sudo apt-get install espeak
```

## 7.3. eSpeak-NG

<https://github.com/espeak-ng/espeak-ng#binaries>

To use eSpeak-NG in RT-Voice, please change the variables **DEFAULT\_TTS\_LINUX** and **DEFAULT\_TTS\_LINUX\_DATA** in the region "eSpeak" inside the class "Constants.cs".

## 8. Third-party support (PlayMaker etc.)

RT-Voice supports various products from other companies. Please import the desired packages from "Assets/Plugins/crosstales/RTVoice/3rd party".

## 9. Verify installation

Check if RT-Voice is installed:

```
#if CT_RTV
    Debug.Log("RTV installed: " + Util.Constants.ASSET_VERSION);
#else
    Debug.LogWarning("RTV NOT installed!");
#endif
```

## 10. Upgrade to new version

Follow this steps to upgrade the version of "RT-Voice PRO":

1. Update "RT-Voice PRO" to the latest version from the "Unity AssetStore"
2. Inside the project in Unity, go to menu "File" => "New Scene"
3. Delete the "Assets/Plugins/crosstales/RTVoice" folder from the Project-view
4. Import the latest version downloaded from the "Unity AssetStore"

## 11. Important notes

### 11.1. iOS

On some device with iOS 13+ the voices can't be found.

This is due a bug of in the iOS-upgrade which corrupts the voices.

To solve it, go to the "Settings" (and look further for "Voices" or "Speech") on your device and re-install all needed voices.

## 12. Problems, improvements etc.

If you encounter any problems with this asset, just [send us an email](#) with a problem description and the invoice number and we will try to solve it.

## 13. Release notes

See "VERSIONS.txt" under "Assets/crosstales/RTVoice/Documentation" or online:

<https://crosstales.com/media/data/assets/rtvoice/VERSIONS.txt>

## 14. Credits

The icons are based on [Font Awesome](#).

## 15. Contact and further information

**crosstales** LLC

Schanzeneggstrasse 1

CH-8002 Zürich

Homepage: <https://www.crosstales.com/en/portfolio/rtvoice/>

Email: [rtvoice@crosstales.com](mailto:rtvoice@crosstales.com)

AssetStore: <https://assetstore.unity.com/lists/crosstales-42213>

Forum: <https://forum.unity.com/threads/rt-voice-run-time-text-to-speech-solution.340046/>

Documentation: <https://www.crosstales.com/media/data/assets/rtvoice/RTVoice-doc.pdf>

API: <https://www.crosstales.com/en/assets/rtvoice/api/>

WebGL-Demo: <https://www.crosstales.com/media/data/assets/rtvoice/webgl/>

Windows-Demo: [https://drive.google.com/file/d/11BFDLbj9vmyrfltXeS\\_d9zK3oM9h8TaS/view?usp=sharing](https://drive.google.com/file/d/11BFDLbj9vmyrfltXeS_d9zK3oM9h8TaS/view?usp=sharing)





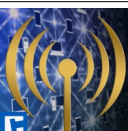
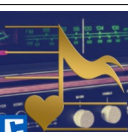
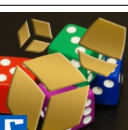
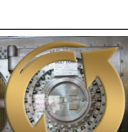

Mac-Demo: <https://drive.google.com/file/d/11A7u7g7Cs63Bu7lv7ER9KFTVCU9oWAaT/view?usp=sharing>

Linux-Demo: [https://drive.google.com/file/d/1XViADtStr8NXKHPMejXQ6iY4C2U\\_Bh3o/view?usp=sharing](https://drive.google.com/file/d/1XViADtStr8NXKHPMejXQ6iY4C2U_Bh3o/view?usp=sharing)

Android-Demo: <https://drive.google.com/file/d/11FUbfuvSAAT5JgdolUKZO1sCPkTAFYJG/view?usp=sharing>



## 16. Our other assets

 <p><b>3D Skybox</b></p>	<p>Those beautiful packages contain professional 8k, HDR, stereoscopic 360° real-world skyboxes for your projects.</p>
 <p><b>Bad Word Filter</b></p>	<p>The "Bad Word Filter" (aka profanity or obscenity filter) is exactly what the title suggests: a tool to filter swearwords and other "bad sentences".</p>
 <p><b>DJ</b></p>	<p>DJ is a player for external music-files. It allows a user to play his own sound inside any Unity-app. It can also read ID3-tags.</p>
 <p><b>File Browser</b></p>	<p>File Browser is a wrapper for native file dialogs on Windows, macOS, Linux and UWP (WSA).</p>
 <p><b>Online Check</b></p>	<p>You need a reliable solution to check for <b>Internet availability</b>? Here it is!</p>
 <p><b>Radio</b></p>	<p>Radio allows implementing free music from Internet radio stations into your project..</p>
 <p><b>True Random</b></p>	<p>True Random can generate "true random" numbers for you and your application. The randomness comes from atmospheric noise, which for many purposes is better than the pseudo-random number algorithms typically used in computer programs.</p>
 <p><b>Turbo Backup</b></p>	<p>Turbo Backup is the fastest and safest way to backup your Unity project. It only stores the difference between the last backup, this makes it incredible fast.</p>
 <p><b>Turbo Builder</b></p>	<p>Turbo Builder creates builds for multiple platforms in one click. It works together with <a href="#">Turbo Switch</a> to offer an incredible fast build pipeline.</p>



**Turbo Switch**

Turbo Switch is a Unity editor extension to reduce the time for assets to import during platform switches. We measured speed improvements up to 100x faster than the built-in switch in Unity.

## 17. Appendix

### 17.1. Voices

The voices of all available providers ordered by language.

Please see chapter 6 on how-to add additional voices.

#### 17.1.1. Windows

Windows 10 (64bit, tested: 28.04.2020)

Number of voices: 24 (but can easily be extended with additional voices)

Name	Gender	Language
Microsoft Server Speech Text to Speech Voice (ca-ES, Herenā)	FEMALE	ca-ES
Microsoft Server Speech Text to Speech Voice (da-DK, Helle)	FEMALE	da-DK
Microsoft Hedda Desktop	FEMALE	de-DE
Microsoft Server Speech Text to Speech Voice (en-AU, Hayley)	FEMALE	en-AU
Microsoft Server Speech Text to Speech Voice (en-CA, Heather)	FEMALE	en-CA
Microsoft Server Speech Text to Speech Voice (en-IN, Heera)	FEMALE	en-IN
Microsoft Server Speech Text to Speech Voice (en-US, Helen)	FEMALE	en-US
Microsoft Server Speech Text to Speech Voice (en-US, ZiraPro)	FEMALE	en-US
Microsoft Zira Desktop	FEMALE	en-US
Microsoft Server Speech Text to Speech Voice (es-ES, Helena)	FEMALE	es-ES
Microsoft Server Speech Text to Speech Voice (es-MX, Hilda)	FEMALE	es-MX
Microsoft Server Speech Text to Speech Voice (fi-FI, Heidi)	FEMALE	fi-FI
Microsoft Server Speech Text to Speech Voice (fr-CA, Harmonie)	FEMALE	fr-CA
Microsoft Server Speech Text to Speech Voice (fr-FR, Hortense)	FEMALE	fr-FR
Microsoft Server Speech Text to Speech Voice (it-IT, Lucia)	FEMALE	it-IT
Microsoft Server Speech Text to Speech Voice (ja-JP, Haruka)	FEMALE	ja-JP
Microsoft Server Speech Text to Speech Voice (ko-KR, Hyeonja)	FEMALE	ko-KR

Heami)		
Microsoft Server Speech Text to Speech Voice (nb-NO, Hulda)	FEMALE	nb-NO
Microsoft Server Speech Text to Speech Voice (nl-NL, Hanna)	FEMALE	nl-NL
Microsoft Server Speech Text to Speech Voice (pl-PL, Paulina)	FEMALE	pl-PL
Microsoft Server Speech Text to Speech Voice (pt-BR, Heloisa)	FEMALE	pt-BR
Microsoft Server Speech Text to Speech Voice (pt-PT, Helia)	FEMALE	pt-PT
Microsoft Server Speech Text to Speech Voice (ru-RU, Elena)	FEMALE	ru-RU
Microsoft Server Speech Text to Speech Voice (sv-SE, Hedvig)	FEMALE	sv-SE

### 17.1.2. macOS

Version 10.15.3 (tested: 28.04.2020)

Number of voices: 46

<b>Name</b>	<b>Gender</b>	<b>Language</b>
Maged	MALE	ar-SA
Zuzana	FEMALE	cs-CZ
Sara	FEMALE	da-DK
Anna	FEMALE	de-DE
Melina	FEMALE	el-GR
Karen	FEMALE	en-AU
Daniel	MALE	en-GB
Moirá	FEMALE	en-IE
Rishi	UNKNOWN	en-IN
Veena	FEMALE	en-IN
Fiona	FEMALE	en-scotland
Fred	MALE	en-US
Samantha	FEMALE	en-US
Victoria	FEMALE	en-US
Tessa	FEMALE	en-ZA
Diego	MALE	es-AR
Jorge	MALE	es-ES
Monica	FEMALE	es-ES
Juan	MALE	es-MX
Paulina	FEMALE	es-MX
Satu	FEMALE	fi-FI
Amelie	FEMALE	fr-CA
Thomas	MALE	fr-FR
Carmit	FEMALE	he-IL

Lekha	FEMALE	hi-IN
Mariska	FEMALE	hu-HU
Damayanti	FEMALE	id-ID
Luca	MALE	it-IT
Kyoko	FEMALE	ja-JP
Yuna	FEMALE	ko-KR
Nora	FEMALE	nb-NO
Ellen	FEMALE	nl-BE
Xander	MALE	nl-NL
Zosia	FEMALE	pl-PL
Luciana	FEMALE	pt-BR
Joana	FEMALE	pt-PT
Ioana	FEMALE	ro-RO
Milena	FEMALE	ru-RU
Yuri	MALE	ru-RU
Laura	FEMALE	sk-SK
Alva	FEMALE	sv-SE
Kanya	FEMALE	th-TH
Yelda	FEMALE	tr-TR
Ting-Ting	FEMALE	zh-CN
Sin-ji	FEMALE	zh-HK
Mei-Jia	FEMALE	zh-TW

### 17.1.3.Android

Version 9 (Google TTS, tested: 28.04.2020)

Number of voices: 427

<b>Name</b>	<b>Gender</b>	<b>Language</b>
bn-bd-x-ban-network	UNKNOWN	bn-bd
bn-IN-language	UNKNOWN	bn-IN
bn-in-x-bin-local	UNKNOWN	bn-in
bn-in-x-bin-network	UNKNOWN	bn-in
bn-in-x-bnf-local	UNKNOWN	bn-in
bn-in-x-bnf-network	UNKNOWN	bn-in
bn-in-x-bnm-local	UNKNOWN	bn-in
bn-in-x-bnm-network	UNKNOWN	bn-in
bs	UNKNOWN	bs
ca	UNKNOWN	ca
cmn-cn-x-ccc-local	UNKNOWN	cmn-c
cmn-cn-x-ccc-network	UNKNOWN	cmn-c
cmn-cn-x-ccd-local	UNKNOWN	cmn-c
cmn-cn-x-ccd-network	UNKNOWN	cmn-c
cmn-cn-x-cce-local	UNKNOWN	cmn-c
cmn-cn-x-cce-network	UNKNOWN	cmn-c
cmn-cn-x-ssa-local	UNKNOWN	cmn-c

cmn-cn-x-ssa-network	UNKNOWN	cmn-c
cmn-tw-x-ctc-local	UNKNOWN	cmn-t
cmn-tw-x-ctc-network	UNKNOWN	cmn-t
cmn-tw-x-ctd-local	UNKNOWN	cmn-t
cmn-tw-x-ctd-network	UNKNOWN	cmn-t
cmn-tw-x-cte-local	UNKNOWN	cmn-t
cmn-tw-x-cte-network	UNKNOWN	cmn-t
cs-CZ-language	UNKNOWN	cs-CZ
cs-cz-x-jfs-local	UNKNOWN	cs-cz
cs-cz-x-jfs-network	UNKNOWN	cs-cz
cy	UNKNOWN	cy
da-DK-language	UNKNOWN	da-DK
da-dk-x-kfm-local	UNKNOWN	da-dk
da-dk-x-kfm-network	UNKNOWN	da-dk
de-DE-language	UNKNOWN	de-DE
de-de-x-deb-local	UNKNOWN	de-de
de-de-x-deb-network	UNKNOWN	de-de
de-de-x-deg-local	UNKNOWN	de-de
de-de-x-deg-network	UNKNOWN	de-de
de-de-x-nfh-local	UNKNOWN	de-de
de-de-x-nfh-network	UNKNOWN	de-de
de-de-x-nfh#female_1-local	FEMALE	de-de
de-de-x-nfh#female_2-local	FEMALE	de-de
de-de-x-nfh#female_3-local	FEMALE	de-de
de-de-x-nfh#male_1-local	MALE	de-de
de-de-x-nfh#male_2-local	MALE	de-de
de-de-x-nfh#male_3-local	MALE	de-de
el-GR-language	UNKNOWN	el-GR
el-gr-x-vfz-local	UNKNOWN	el-gr
el-gr-x-vfz-network	UNKNOWN	el-gr
en-AU-language	UNKNOWN	en-AU
en-au-x-afh-local	UNKNOWN	en-au
en-au-x-afh-network	UNKNOWN	en-au
en-au-x-ava-local	UNKNOWN	en-au
en-au-x-ava-network	UNKNOWN	en-au
en-au-x-aub-local	UNKNOWN	en-au
en-au-x-aub-network	UNKNOWN	en-au
en-au-x-auc-local	UNKNOWN	en-au
en-au-x-auc-network	UNKNOWN	en-au
en-au-x-aud-local	UNKNOWN	en-au
en-au-x-aud-network	UNKNOWN	en-au
en-GB-language	UNKNOWN	en-GB
en-gb-x-fis-local	UNKNOWN	en-gb
en-gb-x-fis-network	UNKNOWN	en-gb
en-gb-x-fis#female_1-local	FEMALE	en-gb
en-gb-x-fis#female_2-local	FEMALE	en-gb
en-gb-x-fis#female_3-local	FEMALE	en-gb

en-gb-x-fis#male_1-local	MALE	en-gb
en-gb-x-fis#male_2-local	MALE	en-gb
en-gb-x-fis#male_3-local	MALE	en-gb
en-gb-x-gba-local	UNKNOWN	en-gb
en-gb-x-gba-network	UNKNOWN	en-gb
en-gb-x-gbb-local	UNKNOWN	en-gb
en-gb-x-gbb-network	UNKNOWN	en-gb
en-gb-x-gbc-local	UNKNOWN	en-gb
en-gb-x-gbc-network	UNKNOWN	en-gb
en-gb-x-gbd-local	UNKNOWN	en-gb
en-gb-x-gbd-network	UNKNOWN	en-gb
en-gb-x-rjs-local	UNKNOWN	en-gb
en-gb-x-rjs-network	UNKNOWN	en-gb
en-gb-x-rjs#female_1-local	FEMALE	en-gb
en-gb-x-rjs#female_2-local	FEMALE	en-gb
en-gb-x-rjs#female_3-local	FEMALE	en-gb
en-gb-x-rjs#male_1-local	MALE	en-gb
en-gb-x-rjs#male_2-local	MALE	en-gb
en-gb-x-rjs#male_3-local	MALE	en-gb
en-IN-language	UNKNOWN	en-IN
en-in-x-ahp-local	UNKNOWN	en-in
en-in-x-ahp-network	UNKNOWN	en-in
en-in-x-ahp#female_1-local	FEMALE	en-in
en-in-x-ahp#female_2-local	FEMALE	en-in
en-in-x-ahp#female_3-local	FEMALE	en-in
en-in-x-ahp#male_1-local	MALE	en-in
en-in-x-ahp#male_2-local	MALE	en-in
en-in-x-ahp#male_3-local	MALE	en-in
en-in-x-cxx-local	UNKNOWN	en-in
en-in-x-cxx-network	UNKNOWN	en-in
en-in-x-cxx#female_1-local	FEMALE	en-in
en-in-x-cxx#female_2-local	FEMALE	en-in
en-in-x-cxx#female_3-local	FEMALE	en-in
en-in-x-cxx#male_1-local	MALE	en-in
en-in-x-cxx#male_2-local	MALE	en-in
en-in-x-cxx#male_3-local	MALE	en-in
en-in-x-enc-local	UNKNOWN	en-in
en-in-x-enc-network	UNKNOWN	en-in
en-in-x-end-local	UNKNOWN	en-in
en-in-x-end-network	UNKNOWN	en-in
en-in-x-ene-local	UNKNOWN	en-in
en-in-x-ene-network	UNKNOWN	en-in
en-NG-language	UNKNOWN	en-NG
en-ng-x-tfn-local	UNKNOWN	en-ng
en-ng-x-tfn-network	UNKNOWN	en-ng
en-US-language	UNKNOWN	en-US
en-us-x-sfg-local	UNKNOWN	en-us

en-us-x-sfg-network	UNKNOWN	en-us
en-us-x-sfg#female_1-local	FEMALE	en-us
en-us-x-sfg#female_2-local	FEMALE	en-us
en-us-x-sfg#female_3-local	FEMALE	en-us
en-us-x-sfg#male_1-local	MALE	en-us
en-us-x-sfg#male_2-local	MALE	en-us
en-us-x-sfg#male_3-local	MALE	en-us
en-us-x-tpd-local	UNKNOWN	en-us
en-us-x-tpd-network	UNKNOWN	en-us
es-ES-language	UNKNOWN	es-ES
es-es-x-ana-local	UNKNOWN	es-es
es-es-x-ana-network	UNKNOWN	es-es
es-es-x-ana#female_1-local	FEMALE	es-es
es-es-x-ana#female_2-local	FEMALE	es-es
es-es-x-ana#female_3-local	FEMALE	es-es
es-es-x-ana#male_1-local	MALE	es-es
es-es-x-ana#male_2-local	MALE	es-es
es-es-x-ana#male_3-local	MALE	es-es
es-US-language	UNKNOWN	es-US
es-us-x-sfb-local	UNKNOWN	es-us
es-us-x-sfb-network	UNKNOWN	es-us
es-us-x-sfb#female_1-local	FEMALE	es-us
es-us-x-sfb#female_2-local	FEMALE	es-us
es-us-x-sfb#female_3-local	FEMALE	es-us
es-us-x-sfb#male_1-local	MALE	es-us
es-us-x-sfb#male_2-local	MALE	es-us
es-us-x-sfb#male_3-local	MALE	es-us
et-EE-language	UNKNOWN	et-EE
et-ee-x-tms-local	UNKNOWN	et-ee
et-ee-x-tms-network	UNKNOWN	et-ee
fi-FI-language	UNKNOWN	fi-FI
fi-fi-x-afi-local	UNKNOWN	fi-fi
fi-fi-x-afi-network	UNKNOWN	fi-fi
fil-PH-language	UNKNOWN	fil-P
fil-ph-x-cfc-local	UNKNOWN	fil-p
fil-ph-x-cfc-network	UNKNOWN	fil-p
fr-CA-language	UNKNOWN	fr-CA
fr-ca-x-caa-local	UNKNOWN	fr-ca
fr-ca-x-caa-network	UNKNOWN	fr-ca
fr-ca-x-cab-local	UNKNOWN	fr-ca
fr-ca-x-cab-network	UNKNOWN	fr-ca
fr-ca-x-cac-local	UNKNOWN	fr-ca
fr-ca-x-cac-network	UNKNOWN	fr-ca
fr-ca-x-cad-local	UNKNOWN	fr-ca
fr-ca-x-cad-network	UNKNOWN	fr-ca
fr-FR-language	UNKNOWN	fr-FR
fr-fr-x-fra-local	UNKNOWN	fr-fr



fr-fr-x-fra-network	UNKNOWN	fr-fr
fr-fr-x-frb-local	UNKNOWN	fr-fr
fr-fr-x-frb-network	UNKNOWN	fr-fr
fr-fr-x-frc-local	UNKNOWN	fr-fr
fr-fr-x-frc-network	UNKNOWN	fr-fr
fr-fr-x-frd-local	UNKNOWN	fr-fr
fr-fr-x-frd-network	UNKNOWN	fr-fr
fr-fr-x-vlf-local	UNKNOWN	fr-fr
fr-fr-x-vlf-network	UNKNOWN	fr-fr
fr-fr-x-vlf#female_1-local	FEMALE	fr-fr
fr-fr-x-vlf#female_2-local	FEMALE	fr-fr
fr-fr-x-vlf#female_3-local	FEMALE	fr-fr
fr-fr-x-vlf#male_1-local	MALE	fr-fr
fr-fr-x-vlf#male_2-local	MALE	fr-fr
fr-fr-x-vlf#male_3-local	MALE	fr-fr
gu-IN-language	UNKNOWN	gu-IN
gu-in-x-guf-local	UNKNOWN	gu-in
gu-in-x-guf-network	UNKNOWN	gu-in
gu-in-x-gum-local	UNKNOWN	gu-in
gu-in-x-gum-network	UNKNOWN	gu-in
hi-IN-language	UNKNOWN	hi-IN
hi-in-x-cfn-local	UNKNOWN	hi-in
hi-in-x-cfn-network	UNKNOWN	hi-in
hi-in-x-cfn#female_1-local	FEMALE	hi-in
hi-in-x-cfn#female_2-local	FEMALE	hi-in
hi-in-x-cfn#female_3-local	FEMALE	hi-in
hi-in-x-cfn#male_1-local	MALE	hi-in
hi-in-x-cfn#male_2-local	MALE	hi-in
hi-in-x-cfn#male_3-local	MALE	hi-in
hi-in-x-hic-local	UNKNOWN	hi-in
hi-in-x-hic-network	UNKNOWN	hi-in
hi-in-x-hid-local	UNKNOWN	hi-in
hi-in-x-hid-network	UNKNOWN	hi-in
hi-in-x-hie-local	UNKNOWN	hi-in
hi-in-x-hie-network	UNKNOWN	hi-in
hr	UNKNOWN	hr
hu-HU-language	UNKNOWN	hu-HU
hu-hu-x-kfl-local	UNKNOWN	hu-hu
hu-hu-x-kfl-network	UNKNOWN	hu-hu
id-ID-language	UNKNOWN	id-ID
id-id-x-dfz-local	UNKNOWN	id-id
id-id-x-dfz-network	UNKNOWN	id-id
id-id-x-dfz#female_1-local	FEMALE	id-id
id-id-x-dfz#female_2-local	FEMALE	id-id
id-id-x-dfz#female_3-local	FEMALE	id-id
id-id-x-dfz#male_1-local	MALE	id-id
id-id-x-dfz#male_2-local	MALE	id-id

id-id-x-dfz#male_3-local	MALE	id-id
id-id-x-idc-local	UNKNOWN	id-id
id-id-x-idc-network	UNKNOWN	id-id
id-id-x-idd-local	UNKNOWN	id-id
id-id-x-idd-network	UNKNOWN	id-id
id-id-x-ide-local	UNKNOWN	id-id
id-id-x-ide-network	UNKNOWN	id-id
it-IT-language	UNKNOWN	it-IT
it-it-x-itb-local	UNKNOWN	it-it
it-it-x-itb-network	UNKNOWN	it-it
it-it-x-itc-local	UNKNOWN	it-it
it-it-x-itc-network	UNKNOWN	it-it
it-it-x-itd-local	UNKNOWN	it-it
it-it-x-itd-network	UNKNOWN	it-it
it-it-x-kda-local	UNKNOWN	it-it
it-it-x-kda-network	UNKNOWN	it-it
it-it-x-kda#female_1-local	FEMALE	it-it
it-it-x-kda#female_2-local	FEMALE	it-it
it-it-x-kda#female_3-local	FEMALE	it-it
it-it-x-kda#male_1-local	MALE	it-it
it-it-x-kda#male_2-local	MALE	it-it
it-it-x-kda#male_3-local	MALE	it-it
ja-JP-language	UNKNOWN	ja-JP
ja-jp-x-htm-local	UNKNOWN	ja-jp
ja-jp-x-htm-network	UNKNOWN	ja-jp
ja-jp-x-htm#female_1-local	FEMALE	ja-jp
ja-jp-x-htm#female_2-local	FEMALE	ja-jp
ja-jp-x-htm#female_3-local	FEMALE	ja-jp
ja-jp-x-htm#male_1-local	MALE	ja-jp
ja-jp-x-htm#male_2-local	MALE	ja-jp
ja-jp-x-htm#male_3-local	MALE	ja-jp
ja-jp-x-jab-local	UNKNOWN	ja-jp
ja-jp-x-jab-network	UNKNOWN	ja-jp
ja-jp-x-jac-local	UNKNOWN	ja-jp
ja-jp-x-jac-network	UNKNOWN	ja-jp
ja-jp-x-jad-local	UNKNOWN	ja-jp
ja-jp-x-jad-network	UNKNOWN	ja-jp
jv-ID-language	UNKNOWN	jv-ID
jv-id-x-jvf-local	UNKNOWN	jv-id
jv-id-x-jvf-network	UNKNOWN	jv-id
km-KH-language	UNKNOWN	km-KH
km-kh-x-khm-local	UNKNOWN	km-kh
km-kh-x-khm-network	UNKNOWN	km-kh
kn-IN-language	UNKNOWN	kn-IN
kn-in-x-knf-local	UNKNOWN	kn-in
kn-in-x-knf-network	UNKNOWN	kn-in
kn-in-x-knm-local	UNKNOWN	kn-in

kn-in-x-knm-network	UNKNOWN	kn-in
ko-KR-language	UNKNOWN	ko-KR
ko-kr-x-ism-local	UNKNOWN	ko-kr
ko-kr-x-ism-network	UNKNOWN	ko-kr
ko-kr-x-ism#female_1-local	FEMALE	ko-kr
ko-kr-x-ism#female_2-local	FEMALE	ko-kr
ko-kr-x-ism#female_3-local	FEMALE	ko-kr
ko-kr-x-ism#male_1-local	MALE	ko-kr
ko-kr-x-ism#male_2-local	MALE	ko-kr
ko-kr-x-ism#male_3-local	MALE	ko-kr
ko-kr-x-kob-local	UNKNOWN	ko-kr
ko-kr-x-kob-network	UNKNOWN	ko-kr
ko-kr-x-koc-local	UNKNOWN	ko-kr
ko-kr-x-koc-network	UNKNOWN	ko-kr
ko-kr-x-kod-local	UNKNOWN	ko-kr
ko-kr-x-kod-network	UNKNOWN	ko-kr
ku	UNKNOWN	ku
la	UNKNOWN	la
ml-IN-language	UNKNOWN	ml-IN
ml-in-x-mlf-local	UNKNOWN	ml-in
ml-in-x-mlf-network	UNKNOWN	ml-in
ml-in-x-mlm-local	UNKNOWN	ml-in
ml-in-x-mlm-network	UNKNOWN	ml-in
mr-IN-language	UNKNOWN	mr-IN
mr-in-x-mrf-local	UNKNOWN	mr-in
mr-in-x-mrf-network	UNKNOWN	mr-in
nb-NO-language	UNKNOWN	nb-NO
nb-no-x-cfl-local	UNKNOWN	nb-no
nb-no-x-cfl-network	UNKNOWN	nb-no
nb-no-x-cmj-local	UNKNOWN	nb-no
nb-no-x-cmj-network	UNKNOWN	nb-no
nb-no-x-rfj-local	UNKNOWN	nb-no
nb-no-x-rfj-network	UNKNOWN	nb-no
nb-no-x-tfs-local	UNKNOWN	nb-no
nb-no-x-tfs-network	UNKNOWN	nb-no
nb-no-x-tmg-local	UNKNOWN	nb-no
nb-no-x-tmg-network	UNKNOWN	nb-no
ne-NP-language	UNKNOWN	ne-NP
ne-np-x-nep-local	UNKNOWN	ne-np
ne-np-x-nep-network	UNKNOWN	ne-np
nl-NL-language	UNKNOWN	nl-NL
nl-nl-x-bmh-local	UNKNOWN	nl-nl
nl-nl-x-bmh-network	UNKNOWN	nl-nl
nl-nl-x-dma-local	UNKNOWN	nl-nl
nl-nl-x-dma-network	UNKNOWN	nl-nl
nl-nl-x-lfc-local	UNKNOWN	nl-nl
nl-nl-x-lfc-network	UNKNOWN	nl-nl

nl-nl-x-tfb-local	UNKNOWN	nl-nl
nl-nl-x-tfb-network	UNKNOWN	nl-nl
nl-nl-x-yfr-local	UNKNOWN	nl-nl
nl-nl-x-yfr-network	UNKNOWN	nl-nl
pl-PL-language	UNKNOWN	pl-PL
pl-pl-x-afb-local	UNKNOWN	pl-pl
pl-pl-x-afb-network	UNKNOWN	pl-pl
pl-pl-x-bmg-local	UNKNOWN	pl-pl
pl-pl-x-bmg-network	UNKNOWN	pl-pl
pl-pl-x-jmk-local	UNKNOWN	pl-pl
pl-pl-x-jmk-network	UNKNOWN	pl-pl
pl-pl-x-oda-local	UNKNOWN	pl-pl
pl-pl-x-oda-network	UNKNOWN	pl-pl
pl-pl-x-oda#female_1-local	FEMALE	pl-pl
pl-pl-x-oda#female_2-local	FEMALE	pl-pl
pl-pl-x-oda#female_3-local	FEMALE	pl-pl
pl-pl-x-oda#male_1-local	MALE	pl-pl
pl-pl-x-oda#male_2-local	MALE	pl-pl
pl-pl-x-oda#male_3-local	MALE	pl-pl
pl-pl-x-zfg-local	UNKNOWN	pl-pl
pl-pl-x-zfg-network	UNKNOWN	pl-pl
pt-BR-language	UNKNOWN	pt-BR
pt-br-x-afs-local	UNKNOWN	pt-br
pt-br-x-afs-network	UNKNOWN	pt-br
pt-br-x-afs#female_1-local	FEMALE	pt-br
pt-br-x-afs#female_2-local	FEMALE	pt-br
pt-br-x-afs#female_3-local	FEMALE	pt-br
pt-br-x-afs#male_1-local	MALE	pt-br
pt-br-x-afs#male_2-local	MALE	pt-br
pt-br-x-afs#male_3-local	MALE	pt-br
pt-PT-language	UNKNOWN	pt-PT
pt-pt-x-jfb-local	UNKNOWN	pt-pt
pt-pt-x-jfb-network	UNKNOWN	pt-pt
pt-pt-x-jmn-local	UNKNOWN	pt-pt
pt-pt-x-jmn-network	UNKNOWN	pt-pt
pt-pt-x-pmj-local	UNKNOWN	pt-pt
pt-pt-x-pmj-network	UNKNOWN	pt-pt
pt-pt-x-sfs-local	UNKNOWN	pt-pt
pt-pt-x-sfs-network	UNKNOWN	pt-pt
ro-RO-language	UNKNOWN	ro-RO
ro-ro-x-vfv-local	UNKNOWN	ro-ro
ro-ro-x-vfv-network	UNKNOWN	ro-ro
ru-RU-language	UNKNOWN	ru-RU
ru-ru-x-dfc-local	UNKNOWN	ru-ru
ru-ru-x-dfc-network	UNKNOWN	ru-ru
ru-ru-x-dfc#female_1-local	FEMALE	ru-ru
ru-ru-x-dfc#female_2-local	FEMALE	ru-ru

ru-ru-x-dfc#female_3-local	FEMALE	ru-ru
ru-ru-x-dfc#male_1-local	MALE	ru-ru
ru-ru-x-dfc#male_2-local	MALE	ru-ru
ru-ru-x-dfc#male_3-local	MALE	ru-ru
ru-ru-x-ruc-local	UNKNOWN	ru-ru
ru-ru-x-ruc-network	UNKNOWN	ru-ru
ru-ru-x-rud-local	UNKNOWN	ru-ru
ru-ru-x-rud-network	UNKNOWN	ru-ru
ru-ru-x-rue-local	UNKNOWN	ru-ru
ru-ru-x-rue-network	UNKNOWN	ru-ru
ru-ru-x-ruf-local	UNKNOWN	ru-ru
ru-ru-x-ruf-network	UNKNOWN	ru-ru
si-LK-language	UNKNOWN	si-LK
si-lk-x-sin-local	UNKNOWN	si-lk
si-lk-x-sin-network	UNKNOWN	si-lk
sk-SK-language	UNKNOWN	sk-SK
sk-sk-x-sfk-local	UNKNOWN	sk-sk
sk-sk-x-sfk-network	UNKNOWN	sk-sk
sq	UNKNOWN	sq
sr	UNKNOWN	sr
su-ID-language	UNKNOWN	su-ID
su-id-x-suf-local	UNKNOWN	su-id
su-id-x-suf-network	UNKNOWN	su-id
sv-SE-language	UNKNOWN	sv-SE
sv-se-x-lfs-local	UNKNOWN	sv-se
sv-se-x-lfs-network	UNKNOWN	sv-se
sw	UNKNOWN	sw
ta-IN-language	UNKNOWN	ta-IN
ta-in-x-taf-local	UNKNOWN	ta-in
ta-in-x-taf-network	UNKNOWN	ta-in
ta-in-x-tag-local	UNKNOWN	ta-in
ta-in-x-tag-network	UNKNOWN	ta-in
te-IN-language	UNKNOWN	te-IN
te-in-x-tef-local	UNKNOWN	te-in
te-in-x-tef-network	UNKNOWN	te-in
te-in-x-tem-local	UNKNOWN	te-in
te-in-x-tem-network	UNKNOWN	te-in
th-TH-language	UNKNOWN	th-TH
th-th-x-mol-local	UNKNOWN	th-th
th-th-x-mol-network	UNKNOWN	th-th
th-th-x-mol#female_1-local	FEMALE	th-th
th-th-x-mol#female_2-local	FEMALE	th-th
th-th-x-mol#female_3-local	FEMALE	th-th
th-th-x-mol#male_1-local	MALE	th-th
th-th-x-mol#male_2-local	MALE	th-th
th-th-x-mol#male_3-local	MALE	th-th
tr-TR-language	UNKNOWN	tr-TR

tr-tr-x-ama-local	UNKNOWN	tr-tr
tr-tr-x-ama-network	UNKNOWN	tr-tr
tr-tr-x-cfs-local	UNKNOWN	tr-tr
tr-tr-x-cfs-network	UNKNOWN	tr-tr
tr-tr-x-efu-local	UNKNOWN	tr-tr
tr-tr-x-efu-network	UNKNOWN	tr-tr
tr-tr-x-mfm-local	UNKNOWN	tr-tr
tr-tr-x-mfm-network	UNKNOWN	tr-tr
tr-tr-x-tmc-local	UNKNOWN	tr-tr
tr-tr-x-tmc-network	UNKNOWN	tr-tr
uk-UA-language	UNKNOWN	uk-UA
uk-ua-x-hfd-local	UNKNOWN	uk-ua
uk-ua-x-hfd-network	UNKNOWN	uk-ua
ur-PK-language	UNKNOWN	ur-PK
ur-pk-x-cfn-local	UNKNOWN	ur-pk
ur-pk-x-cfn-network	UNKNOWN	ur-pk
ur-pk-x-urm-local	UNKNOWN	ur-pk
ur-pk-x-urm-network	UNKNOWN	ur-pk
vi-VN-language	UNKNOWN	vi-VN
vi-vn-x-gft-local	UNKNOWN	vi-vn
vi-vn-x-gft-network	UNKNOWN	vi-vn
vi-vn-x-vic-local	UNKNOWN	vi-vn
vi-vn-x-vic-network	UNKNOWN	vi-vn
vi-vn-x-vid-local	UNKNOWN	vi-vn
vi-vn-x-vid-network	UNKNOWN	vi-vn
vi-vn-x-vie-local	UNKNOWN	vi-vn
vi-vn-x-vie-network	UNKNOWN	vi-vn
vi-vn-x-vif-local	UNKNOWN	vi-vn
vi-vn-x-vif-network	UNKNOWN	vi-vn
yue-HK-language	UNKNOWN	yue-H
yue-hk-x-jar-local	UNKNOWN	yue-h
yue-hk-x-jar-network	UNKNOWN	yue-h
zh-CN-language	UNKNOWN	zh-CN
zh-TW-language	UNKNOWN	zh-TW

**17.1.4.iOS**

Version 13.3.1 (tested: 28.04.2020)

Number of voices: 52

<b>Name</b>	<b>Gender</b>	<b>Language</b>
Maged	MALE	ar-SA
Zuzana	FEMALE	cs-CZ
Sara	FEMALE	da-DK
Anna	FEMALE	de-DE
Helena	FEMALE	de-DE
Martin	MALE	de-DE
Melina	FEMALE	el-GR
Catherine	FEMALE	en-AU
Gordon	MALE	en-AU
Karen	FEMALE	en-AU
Arthur	MALE	en-GB
Daniel	MALE	en-GB
Martha	FEMALE	en-GB
Moirá	FEMALE	en-IE
Rishi	UNKNOWN	en-IN
Fred	MALE	en-US
Nicky	FEMALE	en-US
Samantha	FEMALE	en-US
Tessa	FEMALE	en-ZA
Mónica	FEMALE	es-ES
Paulina	FEMALE	es-MX
Satu	FEMALE	fi-FI
Amélie	FEMALE	fr-CA
Daniel	MALE	fr-FR
Marie	FEMALE	fr-FR
Thomas	MALE	fr-FR
Carmit	FEMALE	he-IL
Lekha	FEMALE	hi-IN
Mariska	FEMALE	hu-HU
Damayanti	FEMALE	id-ID
Alice	FEMALE	it-IT
Hattori	MALE	ja-JP
Kyoko	FEMALE	ja-JP
O-ren	FEMALE	ja-JP
Yuna	FEMALE	ko-KR
Ellen	FEMALE	nl-BE
Xander	MALE	nl-NL
Nora	FEMALE	no-NO
Zosia	FEMALE	pl-PL
Luciana	FEMALE	pt-BR

Joana	FEMALE	pt-PT
Ioana	FEMALE	ro-RO
Milena	FEMALE	ru-RU
Laura	FEMALE	sk-SK
Alva	FEMALE	sv-SE
Kanya	FEMALE	th-TH
Yelda	FEMALE	tr-TR
Li-mu	FEMALE	zh-CN
Tian-Tian	UNKNOWN	zh-CN
Yu-shu	FEMALE	zh-CN
Sin-Ji	FEMALE	zh-HK
Mei-Jia	FEMALE	zh-TW

### 17.1.5.WSA (UWP) / XBox

Depends on the installed voices.

### 17.1.6. MaryTTS

Version 5.2 (tested: 28.04.2020)

Number of voices: 30

<b>Name</b>	<b>Gender</b>	<b>Language</b>
bits2	MALE	de
bits3	MALE	de
bits3-hsmm	MALE	de
bits4	FEMALE	de
dfki-pavoque-neutral	MALE	de
dfki-pavoque-neutral-hsmm	MALE	de
dfki-obadiah	MALE	en-GB
dfki-obadiah-hsmm	MALE	en-GB
dfki-poppy	FEMALE	en-GB
dfki-poppy-hsmm	FEMALE	en-GB
dfki-prudence	FEMALE	en-GB
dfki-prudence-hsmm	FEMALE	en-GB
dfki-spike	MALE	en-GB
dfki-spike-hsmm	MALE	en-GB
cmu-bdl	MALE	en-US
cmu-bdl-hsmm	MALE	en-US
cmu-rms	MALE	en-US
cmu-rms-hsmm	MALE	en-US
cmu-slt	FEMALE	en-US
cmu-slt-hsmm	FEMALE	en-US
enst-camille	FEMALE	fr
enst-camille-hsmm	FEMALE	fr



enst-dennys-hsmm	MALE	fr
upmc-jessica	FEMALE	fr
upmc-jessica-hsmm	FEMALE	fr
upmc-pierre	MALE	fr
upmc-pierre-hsmm	MALE	fr
istc-lucia-hsmm	FEMALE	it
dfki-ot	MALE	tr
dfki-ot-hsmm	MALE	tr

### 17.1.7. eSpeak

Version 1.48.03 (tested: 28.04.2020)

Number of voices: 83

<b>Name</b>	<b>Gender</b>	<b>Language</b>
amharic-test	UNKNOWN	am
aragonese	MALE	an
assamese-test	UNKNOWN	as
azerbaijani-test	UNKNOWN	az
bulgarian	UNKNOWN	bg
bengali-test	MALE	bn
bosnian	MALE	bs
catalan	MALE	ca
czech	MALE	cs
welsh	MALE	cy
danish	MALE	da
german	MALE	de
greek	MALE	el
default	MALE	en
english	MALE	en-gb
en-scottish	MALE	en-sc
english-north	MALE	en-uk-north
english_rp	MALE	en-uk-rp
english_wmids	MALE	en-uk-wmids
english-us	MALE	en-us
en-westindies	MALE	en-wi
esperanto	MALE	eo
spanish	MALE	es
spanish-latin-am	MALE	es-la
estonian	UNKNOWN	et
basque-test	UNKNOWN	eu
persian	UNKNOWN	fa
persian-pinglish	UNKNOWN	fa-pin
finnish	MALE	fi
french-Belgium	MALE	fr-be
french	MALE	fr-fr

irish-gaeilge	UNKNOWN	ga
scottish-gaelic-test	UNKNOWN	gd
greek-ancient	MALE	grc
gujarati-test	UNKNOWN	gu
hindi	MALE	hi
croatian	MALE	hr
hungarian	MALE	hu
armenian	MALE	hy
armenian-west	MALE	hy-west
indonesian	MALE	id
icelandic	MALE	is
italian	MALE	it
lojban	UNKNOWN	jbo
georgian	UNKNOWN	ka
greenlandic	UNKNOWN	kl
kannada	UNKNOWN	kn
korean-test	MALE	ko
kurdish	MALE	ku
latin	MALE	la
lingua_franca_nova	MALE	lfn
lithuanian	MALE	lt
latvian	MALE	lv
macedonian	MALE	mk
malayalam	MALE	ml
malay	MALE	ms
nahuatl-classical	MALE	nci
nepali	MALE	ne
dutch	MALE	nl
norwegian	MALE	no
oriya-test	UNKNOWN	or
punjabi	UNKNOWN	pa
papiamentto-test	UNKNOWN	pap
polish	MALE	pl
brazil	MALE	pt-br
portugal	MALE	pt-pt
romanian	MALE	ro
russian	MALE	ru
sinhala-test	UNKNOWN	si
slovak	MALE	sk
slovenian-test	UNKNOWN	sl
serbian	MALE	sr
swedish	MALE	sv
swahili-test	MALE	sw
tamil	MALE	ta
telugu-test	UNKNOWN	te
turkish	MALE	tr
urdu-test	UNKNOWN	ur

vietnam	MALE	vi
vietnam_hue	MALE	vi-hue
vietnam_sgn	MALE	vi-sgn
Mandarin	MALE	zh
cantonese	MALE	zh-yue

**17.1.8. AWS Polly**

Tested: 15.06.2021

Number of voices: 63

<b>Name</b>	<b>Gender</b>	<b>Language</b>
Zeina	FEMALE	ar
Gwyneth	FEMALE	cy-GB
Mads	MALE	da-DK
Naja	FEMALE	da-DK
Hans	MALE	de-DE
Marlene	FEMALE	de-DE
Vicki	FEMALE	de-DE
Nicole	FEMALE	en-AU
Olivia*	FEMALE	en-AU
Russell	MALE	en-AU
Amy	FEMALE	en-GB
Brian	MALE	en-GB
Emma	FEMALE	en-GB
Geraint	MALE	En-GB-WLS
Aditi	FEMALE	en-IN
Raveena	FEMALE	en-IN
Ivy	FEMALE	en-US
Joanna	FEMALE	en-US
Joey	MALE	en-US
Justin	MALE	en-US
Kendra	FEMALE	en-US
Kevin*	MALE	en-US
Kimberly	FEMALE	en-US
Matthew	MALE	en-US
Salli	FEMALE	en-US
Conchita	FEMALE	es-ES
Enrique	MALE	es-ES
Lucia	FEMALE	es-ES
Mia	FEMALE	es-MX
Lupe	FEMALE	es-US
Miguel	MALE	es-US
Penelope	FEMALE	es-US
Chantal	FEMALE	fr-CA
Gabrielle*	FEMALE	fr-CA

Celine	FEMALE	fr-FR
Lea	FEMALE	fr-FR
Mathieu	MALE	fr-FR
Dora	FEMALE	is-IS
Karl	MALE	is-IS
Bianca	FEMALE	it-IT
Carla	FEMALE	it-IT
Giorgio	MALE	it-IT
Mizuki	FEMALE	ja-JP
Takumi	MALE	ja-JP
Seoyeon	FEMALE	ko-KR
Lotte	FEMALE	nl-NL
Ruben	MALE	nl-NL
Liv	FEMALE	no-NO
Ewa	FEMALE	pl-PL
Jacek	MALE	pl-PL
Jan	MALE	pl-PL
Maja	FEMALE	pl-PL
Camila	FEMALE	pt-BR
Ricardo	MALE	pt-BR
Vitoria	FEMALE	pt-BR
Cristiano	MALE	pt-PT
Ines	FEMALE	pt-PT
Carmen	FEMALE	ro-RO
Maxim	MALE	ru-RU
Tatyana	FEMALE	ru-RU
Astrid	FEMALE	sv-SE
Filiz	FEMALE	tr-TR
Zhiyu	FEMALE	zh

\* = only available as neural voice

### 17.1.9. Klattersynth

Unlimited variations of voices can be created.

### 17.1.10. SAPI Unity

Has the same voices as in chapter 17.1.1.

**17.1.11. WebGL Speech Synthesis**

Google Chrome 81.0.4044.122 (tested: 28.04.2020)

Number of voices: 17

Name	Gender	Language
Google UK English Female	FEMALE	en-GB
Google UK English Male	MALE	en-GB
Google US English	UNKNOWN	en-US
Google español	UNKNOWN	es-ES
Google español de Estados Unidos	UNKNOWN	es-US
Google français	UNKNOWN	fr-FR
Google हिन्दी	UNKNOWN	hi-IN
Google italiano	UNKNOWN	it-IT
Google 日本語	UNKNOWN	ja-JP
Google 한국의	UNKNOWN	ko-KR
Google Nederlands	UNKNOWN	nl-NL
Google polski	UNKNOWN	pl-PL
Google português do Brasil	UNKNOWN	pt-BR
Google русский	UNKNOWN	ru-RU
Google 普通话 (中国大陆)	UNKNOWN	zh-CN
Google 粵語 (香港)	UNKNOWN	zh-HK
Google 國語 (臺灣)	UNKNOWN	zh-TW

**17.1.12. Azure**

Tested: 15.06.2021

Number of voices: 79

Name	Gender	Language
Hoda	FEMALE	ar-EG
Naayf	MALE	ar-SA
Ivan	MALE	bg-BG
HerenaRUS	FEMALE	ca-ES
Jakub	MALE	cs-CZ
HelleRUS	FEMALE	da-DK
Michael	MALE	de-AT
Karsten	MALE	de-CH
Hedda	FEMALE	de-DE
HeddaRUS	FEMALE	de-DE
Stefan-Apollo	MALE	de-DE
Stefanos	MALE	el-GR

Catherine	FEMALE	en-AU
HayleyRUS	FEMALE	en-AU
HeatherRUS	FEMALE	en-CA
Linda	FEMALE	en-CA
George-Apollo	MALE	en-GB
HazelRUS	FEMALE	en-GB
Susan-Apollo	FEMALE	en-GB
Sean	MALE	en-IE
Heera-Apollo	FEMALE	en-IN
PriyaRUS	FEMALE	en-IN
Ravi-Apollo	MALE	en-IN
BenjaminRUS	MALE	en-US
Guy24kRUS	MALE	en-US
Jessa24kRUS	FEMALE	en-US
JessaRUS	FEMALE	en-US
ZiraRUS	FEMALE	en-US
HelenaRUS	FEMALE	es-ES
Laura-Apollo	FEMALE	es-ES
Pablo-Apollo	MALE	es-ES
HildaRUS	FEMALE	es-MX
Raul-Apollo	MALE	es-MX
HeidiRUS	FEMALE	fi-FI
Caroline	FEMALE	fr-CA
HarmonieRUS	FEMALE	fr-CA
Guillaume	MALE	fr-CH
HortenseRUS	FEMALE	fr-FR
Julie-Apollo	FEMALE	fr-FR
Paul-Apollo	MALE	fr-FR
Asaf	MALE	he-IL
Hemant	MALE	hi-IN
Kalpana	FEMALE	hi-IN
Kalpana-Apollo	FEMALE	hi-IN
Matej	MALE	hr-HR
Szabolcs	MALE	hu-HU
Cosimo-Apollo	MALE	it-IT
LuciaRUS	FEMALE	it-IT
Ayumi-Apollo	FEMALE	ja-JP
HarukaRUS	FEMALE	ja-JP
Ichiro-Apollo	MALE	ja-JP
HeamiRUS	FEMALE	ko-KR
Rizwan	MALE	ms-MY
HuldaRUS	FEMALE	nb-NO
HannaRUS	FEMALE	nl-NL
PaulinaRUS	FEMALE	pl-PL
Daniel-Apollo	MALE	pt-BR
HeloisaRUS	FEMALE	pt-BR
HeliaRUS	FEMALE	pt-PT

Andrei	MALE	ro-RO
EkaterinaRUS	FEMALE	ru-RU
Irina-Apollo	FEMALE	ru-RU
Pavel-Apollo	MALE	ru-RU
Filip	MALE	sk-SK
Lado	MALE	sl-SI
HedvigRUS	FEMALE	sv-SE
Valluvar	MALE	ta-IN
Chitra	FEMALE	te-IN
Pattara	MALE	th-TH
SedaRUS	FEMALE	tr-TR
HuihuiRUS	FEMALE	zh-CN
Kangkang-Apollo	MALE	zh-CN
Yaoyao-Apollo	FEMALE	zh-CN
Danny-Apollo	MALE	zh-HK
Tracy-Apollo	FEMALE	zh-HK
TracyRUS	FEMALE	zh-HK
HanHanRUS	FEMALE	zh-TW
Yating-Apollo	FEMALE	zh-TW
Zhiwei-Apollo	MALE	zh-TW

**17.1.13. Google Cloud Speech**

Tested: 28.04.2020

Number of voices: 221

<b>Name</b>	<b>Gender</b>	<b>Language</b>
ar-XA-Standard-C	MALE	ar-XA
ar-XA-Standard-D	FEMALE	ar-XA
ar-XA-Wavenet-A	FEMALE	ar-XA
ar-XA-Wavenet-B	MALE	ar-XA
ar-XA-Wavenet-C	MALE	ar-XA
bn-IN-Standard-A	FEMALE	bn-IN
bn-IN-Standard-B	MALE	bn-IN
cmn-CN-Standard-A	FEMALE	cmn-CN
cmn-CN-Standard-B	MALE	cmn-CN
cmn-CN-Standard-C	MALE	cmn-CN
cmn-CN-Standard-D	FEMALE	cmn-CN
cmn-CN-Wavenet-A	FEMALE	cmn-CN
cmn-CN-Wavenet-B	MALE	cmn-CN
cmn-CN-Wavenet-C	MALE	cmn-CN
cmn-CN-Wavenet-D	FEMALE	cmn-CN
cmn-TW-Standard-A-Alpha	FEMALE	cmn-TW
cmn-TW-Standard-B-Alpha	MALE	cmn-TW
cmn-TW-Standard-C-Alpha	MALE	cmn-TW
cmn-TW-Wavenet-A-Alpha	FEMALE	cmn-TW
cmn-TW-Wavenet-B-Alpha	MALE	cmn-TW
cmn-TW-Wavenet-C-Alpha	MALE	cmn-TW
cs-CZ-Standard-A	FEMALE	cs-CZ
cs-CZ-Wavenet-A	FEMALE	cs-CZ
da-DK-Standard-A	FEMALE	da-DK
da-DK-Wavenet-A	FEMALE	da-DK
de-DE-Standard-A	FEMALE	de-DE
de-DE-Standard-B	MALE	de-DE
de-DE-Standard-E	MALE	de-DE
de-DE-Standard-F	FEMALE	de-DE
de-DE-Wavenet-A	FEMALE	de-DE
de-DE-Wavenet-B	MALE	de-DE
de-DE-Wavenet-C	FEMALE	de-DE
de-DE-Wavenet-D	MALE	de-DE
de-DE-Wavenet-E	MALE	de-DE
de-DE-Wavenet-F	FEMALE	de-DE
el-GR-Standard-A	FEMALE	el-GR
el-GR-Wavenet-A	FEMALE	el-GR
en-AU-Standard-A	FEMALE	en-AU
en-AU-Standard-B	MALE	en-AU
en-AU-Standard-C	FEMALE	en-AU



en-AU-Standard-D	MALE	en-AU
en-AU-Wavenet-A	FEMALE	en-AU
en-AU-Wavenet-B	MALE	en-AU
en-AU-Wavenet-C	FEMALE	en-AU
en-AU-Wavenet-D	MALE	en-AU
en-GB-Standard-A	FEMALE	en-GB
en-GB-Standard-B	MALE	en-GB
en-GB-Standard-C	FEMALE	en-GB
en-GB-Standard-D	MALE	en-GB
en-GB-Wavenet-A	FEMALE	en-GB
en-GB-Wavenet-B	MALE	en-GB
en-GB-Wavenet-C	FEMALE	en-GB
en-GB-Wavenet-D	MALE	en-GB
en-IN-Standard-A	FEMALE	en-IN
en-IN-Standard-B	MALE	en-IN
en-IN-Standard-C	MALE	en-IN
en-IN-Standard-D	FEMALE	en-IN
en-IN-Wavenet-A	FEMALE	en-IN
en-IN-Wavenet-B	MALE	en-IN
en-IN-Wavenet-C	MALE	en-IN
en-IN-Wavenet-D	FEMALE	en-IN
en-US-Standard-B	MALE	en-US
en-US-Standard-C	FEMALE	en-US
en-US-Standard-D	MALE	en-US
en-US-Standard-E	FEMALE	en-US
en-US-Wavenet-A	MALE	en-US
en-US-Wavenet-B	MALE	en-US
en-US-Wavenet-C	FEMALE	en-US
en-US-Wavenet-D	MALE	en-US
en-US-Wavenet-E	FEMALE	en-US
en-US-Wavenet-F	FEMALE	en-US
es-ES-Standard-A	FEMALE	es-ES
fi-FI-Standard-A	FEMALE	fi-FI
fi-FI-Wavenet-A	FEMALE	fi-FI
fil-PH-Standard-A	FEMALE	fil-PH
fil-PH-Wavenet-A	FEMALE	fil-PH
fr-CA-Standard-A	FEMALE	fr-CA
fr-CA-Standard-B	MALE	fr-CA
fr-CA-Standard-C	FEMALE	fr-CA
fr-CA-Standard-D	MALE	fr-CA
fr-CA-Wavenet-A	FEMALE	fr-CA
fr-CA-Wavenet-B	MALE	fr-CA
fr-CA-Wavenet-C	FEMALE	fr-CA
fr-CA-Wavenet-D	MALE	fr-CA
fr-FR-Standard-A	FEMALE	fr-FR
fr-FR-Standard-B	MALE	fr-FR
fr-FR-Standard-C	FEMALE	fr-FR

fr-FR-Standard-D	MALE	fr-FR
fr-FR-Standard-E	FEMALE	fr-FR
fr-FR-Wavenet-A	FEMALE	fr-FR
fr-FR-Wavenet-B	MALE	fr-FR
fr-FR-Wavenet-C	FEMALE	fr-FR
fr-FR-Wavenet-D	MALE	fr-FR
fr-FR-Wavenet-E	FEMALE	fr-FR
gu-IN-Standard-A	FEMALE	gu-IN
gu-IN-Standard-B	MALE	gu-IN
hi-IN-Standard-A	FEMALE	hi-IN
hi-IN-Standard-B	MALE	hi-IN
hi-IN-Standard-C	MALE	hi-IN
hi-IN-Standard-D	FEMALE	hi-IN
hi-IN-Wavenet-A	FEMALE	hi-IN
hi-IN-Wavenet-B	MALE	hi-IN
hi-IN-Wavenet-C	MALE	hi-IN
hi-IN-Wavenet-D	FEMALE	hi-IN
hu-HU-Standard-A	FEMALE	hu-HU
hu-HU-Wavenet-A	FEMALE	hu-HU
id-ID-Standard-A	FEMALE	id-ID
id-ID-Standard-B	MALE	id-ID
id-ID-Standard-C	MALE	id-ID
id-ID-Standard-D	FEMALE	id-ID
id-ID-Wavenet-A	FEMALE	id-ID
id-ID-Wavenet-B	MALE	id-ID
id-ID-Wavenet-C	MALE	id-ID
id-ID-Wavenet-D	FEMALE	id-ID
it-IT-Standard-A	FEMALE	it-IT
it-IT-Standard-B	FEMALE	it-IT
it-IT-Standard-C	MALE	it-IT
it-IT-Standard-D	MALE	it-IT
it-IT-Wavenet-A	FEMALE	it-IT
it-IT-Wavenet-B	FEMALE	it-IT
it-IT-Wavenet-C	MALE	it-IT
it-IT-Wavenet-D	MALE	it-IT
jā-JP-Standard-A	FEMALE	jā-JP
jā-JP-Standard-B	FEMALE	jā-JP
jā-JP-Standard-C	MALE	jā-JP
jā-JP-Standard-D	MALE	jā-JP
jā-JP-Wavenet-A	FEMALE	jā-JP
jā-JP-Wavenet-B	FEMALE	jā-JP
jā-JP-Wavenet-C	MALE	jā-JP
jā-JP-Wavenet-D	MALE	jā-JP
kn-IN-Standard-A	FEMALE	kn-IN
kn-IN-Standard-B	MALE	kn-IN
ko-KR-Standard-A	FEMALE	ko-KR
ko-KR-Standard-B	FEMALE	ko-KR

ko-KR-Standard-C	MALE	ko-KR
ko-KR-Standard-D	MALE	ko-KR
ko-KR-Wavenet-A	FEMALE	ko-KR
ko-KR-Wavenet-B	FEMALE	ko-KR
ko-KR-Wavenet-C	MALE	ko-KR
ko-KR-Wavenet-D	MALE	ko-KR
ml-IN-Standard-A	FEMALE	ml-IN
ml-IN-Standard-B	MALE	ml-IN
nb-NO-Standard-A	FEMALE	nb-NO
nb-NO-Standard-B	MALE	nb-NO
nb-NO-Standard-C	FEMALE	nb-NO
nb-NO-Standard-D	MALE	nb-NO
nb-no-Standard-E	FEMALE	nb-NO
nb-NO-Wavenet-A	FEMALE	nb-NO
nb-NO-Wavenet-B	MALE	nb-NO
nb-NO-Wavenet-C	FEMALE	nb-NO
nb-NO-Wavenet-D	MALE	nb-NO
nb-no-Wavenet-E	FEMALE	nb-NO
nl-NL-Standard-A	FEMALE	nl-NL
nl-NL-Standard-B	MALE	nl-NL
nl-NL-Standard-C	MALE	nl-NL
nl-NL-Standard-D	FEMALE	nl-NL
nl-NL-Standard-E	FEMALE	nl-NL
nl-NL-Wavenet-A	FEMALE	nl-NL
nl-NL-Wavenet-B	MALE	nl-NL
nl-NL-Wavenet-C	MALE	nl-NL
nl-NL-Wavenet-D	FEMALE	nl-NL
nl-NL-Wavenet-E	FEMALE	nl-NL
pl-PL-Standard-A	FEMALE	pl-PL
pl-PL-Standard-B	MALE	pl-PL
pl-PL-Standard-C	MALE	pl-PL
pl-PL-Standard-D	FEMALE	pl-PL
pl-PL-Standard-E	FEMALE	pl-PL
pl-PL-Wavenet-A	FEMALE	pl-PL
pl-PL-Wavenet-B	MALE	pl-PL
pl-PL-Wavenet-C	MALE	pl-PL
pl-PL-Wavenet-D	FEMALE	pl-PL
pl-PL-Wavenet-E	FEMALE	pl-PL
pt-BR-Standard-A	FEMALE	pt-BR
pt-BR-Wavenet-A	FEMALE	pt-BR
pt-PT-Standard-A	FEMALE	pt-PT
pt-PT-Standard-B	MALE	pt-PT
pt-PT-Standard-C	MALE	pt-PT
pt-PT-Standard-D	FEMALE	pt-PT
pt-PT-Wavenet-A	FEMALE	pt-PT
pt-PT-Wavenet-B	MALE	pt-PT
pt-PT-Wavenet-C	MALE	pt-PT

pt-PT-Wavenet-D	FEMALE	pt-PT
ru-RU-Standard-A	FEMALE	ru-RU
ru-RU-Standard-B	MALE	ru-RU
ru-RU-Standard-C	FEMALE	ru-RU
ru-RU-Standard-D	MALE	ru-RU
ru-RU-Standard-E	FEMALE	ru-RU
ru-RU-Wavenet-A	FEMALE	ru-RU
ru-RU-Wavenet-B	MALE	ru-RU
ru-RU-Wavenet-C	FEMALE	ru-RU
ru-RU-Wavenet-D	MALE	ru-RU
ru-RU-Wavenet-E	FEMALE	ru-RU
sk-SK-Standard-A	FEMALE	sk-SK
sk-SK-Wavenet-A	FEMALE	sk-SK
sv-SE-Standard-A	FEMALE	sv-SE
sv-SE-Wavenet-A	FEMALE	sv-SE
tā-IN-Standard-A	FEMALE	tā-IN
tā-IN-Standard-B	MALE	tā-IN
te-IN-Standard-A	FEMALE	te-IN
te-IN-Standard-B	MALE	te-IN
th-TH-Standard-A	FEMALE	th-TH
tr-TR-Standard-A	FEMALE	tr-TR
tr-TR-Standard-B	MALE	tr-TR
tr-TR-Standard-C	FEMALE	tr-TR
tr-TR-Standard-D	FEMALE	tr-TR
tr-TR-Standard-E	MALE	tr-TR
tr-TR-Wavenet-A	FEMALE	tr-TR
tr-TR-Wavenet-B	MALE	tr-TR
tr-TR-Wavenet-C	FEMALE	tr-TR
tr-TR-Wavenet-D	FEMALE	tr-TR
tr-TR-Wavenet-E	MALE	tr-TR
uk-UA-Standard-A	FEMALE	uk-UA
uk-UA-Wavenet-A	FEMALE	uk-UA
vi-VN-Standard-A	FEMALE	vi-VN
vi-VN-Standard-B	MALE	vi-VN
vi-VN-Standard-C	FEMALE	vi-VN
vi-VN-Standard-D	MALE	vi-VN
vi-VN-Wavenet-A	FEMALE	vi-VN
vi-VN-Wavenet-B	MALE	vi-VN
vi-VN-Wavenet-C	FEMALE	vi-VN
vi-VN-Wavenet-D	MALE	vi-VN