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Introduction

Last updated: 2023-06-12

The IBM Watson™ Text to Speech service provides APIs that use IBM's speech-synthesis capabilities to synthesize text into natural-sounding speech in a variety of languages, dialects, and voices. The service supports at least one male or female voice, sometimes both, for each language. The audio is streamed back to the client with minimal delay.

For speech synthesis, the service supports a synchronous HTTP Representational State Transfer (REST) interface and a WebSocket interface. Both interfaces support plain text and SSML input. SSML is an XML-based markup language that provides text annotation for speech-synthesis applications. The WebSocket interface also supports the SSML `<mark>` element and word timings.

The service offers a customization interface that you can use to define sounds-like or phonetic translations for words. A sounds-like translation consists of one or more words that,

The code examples on this tab use the client library that is provided for Python.

Installation

```
pip install --upgrade  
"ibm-watson">=7.0.0
```



GitHub

<https://github.com/watson-developer-cloud/python-sdk>



when combined, sound like the word. A phonetic translation is based on the SSML phoneme format for representing a word. You can specify a phonetic translation in standard International Phonetic Alphabet (IPA) representation or in the proprietary IBM Symbolic Phonetic Representation (SPR).

The service also offers a Tune by Example feature that lets you define custom prompts. You can also define speaker models to improve the quality of your custom prompts. The service supports custom prompts only for US English custom models and voices.

Important: This documentation describes Python SDK major version 5. For more information about how to update your code from the previous version, see the [migration guide](#) .

Endpoint URLs

Identify the base URL for your service instance.

IBM Cloud URLs

The following URLs represent the base URLs

Default URL

for Text to Speech. When you call the API, use the URL that corresponds to the location of your service instance.

- Dallas: <https://api.us-south.text-to-speech.watson.cloud.ibm.com>
- Washington DC: <https://api.us-east.text-to-speech.watson.cloud.ibm.com>
- Frankfurt: <https://api.eu-de.text-to-speech.watson.cloud.ibm.com>
- Sydney: <https://api.au-syd.text-to-speech.watson.cloud.ibm.com>
- Tokyo: <https://api.jp-tok.text-to-speech.watson.cloud.ibm.com>
- London: <https://api.eu-gb.text-to-speech.watson.cloud.ibm.com>
- Seoul: <https://api.kr-seo.text-to-speech.watson.cloud.ibm.com>

Set the correct service URL by calling the `set_service_url()` method of the service instance.

Cloud Pak for Data URLs

<https://api.us-south.text-to-speech.watson.cloud.ibm.com>

Example for the Washington DC location

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}'
)
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('https://api.us-
east.text-to-
speech.watson.cloud.ibm.co
m')
```

For services installed on Cloud Pak for Data, the base URLs come from both the cluster and service instance.

You can find the base URL from the Cloud Pak for Data web client in the details page about the instance. Click the name of the service in your list of instances to see the URL.

Set the correct service URL by specifying the `url` parameter when you create the service instance or by calling the `set_url()` method of the service instance. For Cloud Pak for Data System, use a hostname that resolves to an IP address in the cluster.

Endpoint example for Cloud Pak for Data

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
CloudPakForDataAuthenticat
or

authenticator =
CloudPakForDataAuthenticat
or(
    '{username}',
    '{password}',

    'https://{cpd_cluster_host}
{:port}'
)

text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('https://{cpd_cluster
_host}{:port}/text-to-
speech/{deployment_id}/ins
tances/{instance_id}/api')
```

Disabling SSL verification

All Watson services use Secure Sockets Layer (SSL) (or Transport Layer Security (TLS)) for secure connections between the client and server. The connection is verified against the local certificate store to ensure authentication, integrity, and confidentiality.

If you use a self-signed certificate, you need to disable SSL verification to make a successful connection.

Important: Enabling SSL verification is highly recommended. Disabling SSL jeopardizes the security of the connection and data. Disable SSL only if necessary, and take steps to enable SSL as soon as possible.

To disable SSL verification, specify `True` on the `set_disable_ssl_verification` method for the service instance.

Example to disable SSL verification with a service managed on IBM Cloud

```
from ibm_watson import  
TextToSpeechV1  
from  
ibm_cloud_sdk_core.authent  
icators import  
IAMAuthenticator
```

```
authenticator =  
IAMAuthenticator('{apikey}  
' )  
text_to_speech =  
TextToSpeechV1(  

```

```
authenticator=authenticato  
r  
)
```

```
text_to_speech.set_service  
_url('{url}')
```

```
text_to_speech.set_disable  
_ssl_verification(True)
```

Example to disable SSL verification with an installed service

Authentication

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
CloudPakForDataAuthenticat
or

authenticator =
CloudPakForDataAuthenticat
or(
    '{username}',
    '{password}'
)

text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

text_to_speech.set_disable
_ssl_verification(True)
```

IBM Cloud services use IBM Cloud Identity and Access Management (IAM) to authenticate. With IBM Cloud Pak for Data, you pass a bearer token.

IBM Cloud

For IBM Cloud instances, you authenticate to the API by using IBM Cloud Identity and Access Management (IAM).

You can pass either a bearer token in an authorization header or an API key. Tokens support authenticated requests without embedding service credentials in every call. API keys use basic authentication. For more information, see [Authenticating to Watson services](#).

For IBM Cloud instances, the SDK provides initialization methods for each form of authentication.

- Use the API key to have the SDK manage the lifecycle of the access token. The SDK requests an access token, ensures that the access token is valid, and refreshes it if necessary.
- Use the access token to manage the lifecycle yourself. You must periodically refresh the token.

For more information, see [IAM authentication](#) with the SDK.

Cloud Pak for Data

For Cloud Pak for Data instances, pass either username and password credentials or a

IBM Cloud. SDK managing the IAM token. Replace `{apikey}` and `{url}`.

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')
```

Cloud Pak for Data. SDK managing the token.

bearer token that you generate to authenticate to the API. Username and password credentials use basic authentication. However, the SDK manages the lifecycle of the token. Tokens are temporary security credentials. If you pass a token, you maintain the token lifecycle.

For production use, create a user in the Cloud Pak for Data web client to use for authentication, and decide which authentication mechanism to use.


- To have the SDK manage the lifecycle of the token, use the username and password for that new user in your calls.
- To manage the lifecycle of the token yourself, generate a token from that user's credentials. Call the `POST /v1/authorize` method to generate the token, and then pass the token in an `Authorization` header in your calls. You can see an example of the method on the [Curl](#) tab.

For more information, see the **Get authorization token** method of the [Cloud Pak for Data API reference](#) .

Don't use the bearer token that's displayed in the web client for the instance except during testing and development because that token does not expire.

Replace `{username}` and `{password}` with your Cloud Pak for Data credentials. For `{url}`, see [Endpoint URLs](#).

Tip: To find your value for `{url}`, view the details for the service instance by clicking the name of the service in your list of instances in the Cloud Pak for Data web client.



```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
CloudPakForDataAuthenticat
or

authenticator =
CloudPakForDataAuthenticat
or(
    '{username}',
    '{password}',

    'https://{cpd_cluster_host}
:{port}/icp4d-
api/v1/authorize'
)

text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')
```

Access between services

Your application might use more than one Watson service. You can grant access between

services and you can grant access to more than one service for your applications.

For IBM Cloud services, the method to grant access between Watson services varies depending on the type of API key. For more information, see [IAM access](#) .

- To grant access between IBM Cloud services, create an authorization between the services. For more information, see [Granting access between services](#) .
- To grant access to your services by applications without using user credentials, create a service ID, add an API key, and assign access policies. For more information, see [Creating and working with service IDs](#) .

When you give a user ID access to multiple services, use an endpoint URL that includes the service instance ID (for example, <https://api.us-south.text-to-speech.watson.cloud.ibm.com/instances/6bbda3b3-d572-45e1-8c54-22d6ed9e52c2>). You can find the instance ID in two places:

- By clicking the service instance row in the [Resource list](#) . The instance ID is the **GUID** in the details pane.
- By clicking the name of the service instance in the list and looking at the credentials URL.

Tip: If you don't see the instance ID in the URL, the credentials predate service IDs. Add new credentials from the **Service credentials** page and use those credentials.

Because the Cloud Pak for Data bearer token is associated with a username, you can use the token for all CPD Watson services that are associated with the username.

Error handling

Text to Speech uses standard HTTP response codes to indicate whether a method completed successfully. HTTP response codes in the 2xx range indicate success. A response in the 4xx range is some sort of failure, and a response in the 5xx range usually indicates an internal system error that cannot be resolved by the user. Response codes are listed with the method.

The Python SDK generates an exception for any unsuccessful method invocation. When the Python SDK receives an error response from the Text to Speech service, it generates an `ApiException` with the following fields.

Field	Description
code	The HTTP response code that is returned.
message	A message that describes the error.
info	A dictionary of additional information about the error.

Data handling

Example error handling

```
from ibm_watson import  
ApiException  
try:  
    # Invoke a method  
except ApiException as ex:  
    print "Method failed  
with status code " +  
str(ex.code) + ": " +  
ex.message
```

Additional headers

Some Watson services accept special parameters in headers that are passed with the request.

You can pass request header parameters in all requests or in a single request to the service.

To pass header parameters with every request, specify the `set_default_headers` method of the service object. See [Data collection](#) for an example use of this method.

To pass header parameters in a single request, include `headers` as a `dict` in the request.

Response details

The Text to Speech service might return information to the application in response headers.

Example header parameter in a request

```
response =  
text_to_speech.methodName(  
    parameters,  
    headers = {  
        'Custom-Header':  
'{header_value}'  
    })
```

The return value from all service methods is a `DetailedResponse` object. To access information in the result object or response headers, use the following methods.

DetailedResponse

Method	Description
<code>get_result()</code>	Returns the response for the service-specific method.
<code>get_headers()</code>	Returns the response header information.
<code>get_status_code()</code>	Returns the HTTP status code.

Data labels (IBM Cloud)

Example request to access response headers

```
text_to_speech.set_detail_response(True)
response = text_to_speech.methodName(parameters)
# Access response from methodName
print(json.dumps(response.get_result(), indent=2))
# Access information in response headers
print(response.get_headers())
# Access HTTP response status
print(response.get_status_code())
```

You can remove data associated with a specific customer if you label the data with a customer ID when you send a request to the service.

- Use the `X-Watson-Metadata` header to associate a customer ID with the data. By adding a customer ID to a request, you indicate that it contains data that belongs to that customer.

Specify a random or generic string for the customer ID. Do not include personal data, such as an email address. Pass the string `customer_id={id}` as the argument of the header.

Labeling data is used only by methods that accept customer data.

- Use the **Delete labeled data** method to remove data that is associated with a customer ID.

Use this process of labeling and deleting data only when you want to remove the data that is associated with a single customer, not when you want to remove data for multiple customers. For more information about Text to Speech and labeling data, see [Information security](#) .

For more information about how to pass headers, see [Additional headers](#).

Data collection (IBM Cloud)

By default, Text to Speech service instances managed on IBM Cloud that are not part of Premium plans collect data about API requests and their results. This data is collected only to improve the services for future users. The collected data is not shared or made public. Data is not collected for services that are part of Premium plans.

To prevent IBM usage of your data for an API request, set the **X-Watson-Learning-Opt-Out** header parameter to `true`. You can also disable request logging at the account level. For more information, see [Controlling request logging for Watson services](#).

You can set the header by using the `set_default_headers` method of the service object.

Related information

- Text to Speech [docs](#)
- [Release notes for IBM Cloud](#)
- [Release notes for IBM Cloud Pak for Data](#)

Example request with a service managed on IBM Cloud

```
text_to_speech.set_default_headers({'x-watson-learning-opt-out':  
    "true"})
```



Methods

List voices

Lists all voices available for use with the service. The information includes the name, language, gender, and other details about the voice. The ordering of the list of voices can change from call to call; do not rely on an alphabetized or static list of voices. To see information about a specific voice, use the [Get a voice](#).

See also: [Listing all voices](#) .

Request

No Request Parameters


This method does not accept any request parameters.

```
list_voices(  
    self,  
    **kwargs,  
) -> DetailedResponse
```



Example request for IBM Cloud





```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

voices =
text_to_speech.list_voices
().get_result()
print(json.dumps(voices,
indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

Voices		Information about all available voices.	Example responses
voices		A list of available voices. Always included *	<div>Success example</div> <pre>{ "voices": [{ "name": "es- LA_SofiaV3Voice", "language": "es-LA", "customizable": true, "gender": "female", "url": "{url}/v1/voices/es- LA_SofiaV3Voice", "supported_features": { "voice_transformation": false, "custom_pronunciation": true }, "description": "Sofia: Latin American Spanish (español latinoamericano) female voice." },], }</pre>
Status Code			
200	OK.	The request succeeded.	
406	Not Acceptable.	The request specified an Accept header with an incompatible content type.	
415	Unsupported Media Type.	The request specified an unacceptable media type.	
500	Internal Server Error.	The service experienced an internal error.	
503	Service Unavailable.	The service is currently unavailable.	

```
{
  "name": "pt-
BR_IsabelaV3Voice",
  "language": "pt-BR",
  "customizable":
true,
  "gender": "female",
  "url": "
{url}/v1/voices/pt-
BR_IsabelaV3Voice",

  "supported_features": {

    "voice_transformation":
false,

    "custom_pronunciation":
true

  },
  "description":
  "Isabela: Brazilian
  Portuguese (português
  brasileiro) female voice."
},
{
  "name": "en-
GB_KateV3Voice",
  "language": "en-GB",
  "customizable":
true,
  "gender": "female",
  "url": "
{url}/v1/voices/en-
GB_KateV3Voice",
```

```
"supported_features": {  
  
  "voice_transformation":  
    false,  
  
  "custom_pronunciation":  
    true  
},  
  "description":  
  "Kate: British English  
female voice."  
}  
]  
}
```

Get a voice

Gets information about the specified voice. The information includes the name, language, gender, and other details about the voice. Specify a customization ID to obtain information for a custom model that is defined for the language of the specified voice. To list information about all available voices, use the [List voices](#) method.

See also: [Listing a specific voice](#) .

```
get_voice(  
    self,  
    voice: str,  
    *,  
    customization_id:  
str = None,  
    **kwargs,  
    ) -> DetailedResponse
```

Request

parameters

voice

Required *
str

The voice for which
information is to be returned.

Allowable values: [
de-DE_BirgitV3Voice ,
de-DE_DieterV3Voice ,
de-DE_ErikaV3Voice ,
en-AU_HeidiExpressive
, en-AU_JackExpressive ,
en-CA_HannahNatural ,
en-
GB_CharlotteV3Voice
, en-GB_ChloeNatural ,
en-
GB_GeorgeExpressive
, en-GB_GeorgeNatural ,
en-GB_KateV3Voice ,
en-
US_AllisonExpressive
, en-US_AllisonV3Voice ,
en-US_EllieNatural ,
en-US_EmilyV3Voice ,
en-US_EmmaExpressive ,

Example request for IBM Cloud



```
en-US_EmmaNatural ,
en-US_EthanNatural ,
en-US_HenryV3Voice ,
en-US_JacksonNatural ,
en-US_KevinV3Voice ,
en-US_LisaExpressive ,
en-US_LisaV3Voice ,
en-
US_MichaelExpressive
, en-US_MichaelV3Voice ,
en-US_OliviaV3Voice ,
en-US_VictoriaNatural
, es-ES_EnriqueV3Voice ,
es-ES_LauraV3Voice ,
es-
LA_DanielaExpressive
, es-LA_SofiaV3Voice ,
es-US_SofiaV3Voice ,
fr-CA_LouiseV3Voice ,
fr-FR_NicolasV3Voice ,
fr-FR_ReneeV3Voice ,
it-
IT_FrancescaV3Voice
, ja-JP_EmiV3Voice ,
ko-KR_JinV3Voice ,
nl-NL_MerelV3Voice ,
pt-BR_IsabelaV3Voice ,
```

```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

voice =
text_to_speech.get_voice('
en-
US_AllisonV3Voice').get_re
sult()
print(json.dumps(voice,
indent=2))
```

Example request for IBM Cloud Pak for Data

pt-BR_LucasExpressive

]

customization_id

str

The customization ID (GUID) of a custom model for which information is to be returned.

You must make the request with credentials for the instance of the service that owns the custom model.

Omit the parameter to see information about the specified voice with no customization.

Response

Voice

Information about an available voice.

url

Always included *

str

The URI of the voice.

Example responses

Success example



gender	The gender of the voice:
Always included *	<code>male</code> or <code>female</code> .
str	
name	The name of the voice. Use
Always included *	this as the voice identifier in
str	all requests.
language	The language and region of
Always included *	the voice (for example, <code>en-</code>
str	<code>US</code>).
description	A textual description of the
Always included *	voice.
str	
customizable	If <code>true</code> , the voice can be
Always included *	customized; if <code>false</code> , the
bool	voice cannot be customized. (Same as <code>custom_pronunciation</code> ; maintained for backward compatibility.).

supported_features

Always included *

Additional service features that are supported with the voice.

> [SupportedFeatures](#)

```
{
  "url": "{url}/v1/voices/en-US_AllisonV3Voice",
  "name": "en-US_AllisonV3Voice",
  "language": "en-US",
  "customizable": true,
  "gender": "female",
  "supported_features": {

"voice_transformation":
false,

"custom_pronunciation":
true
  },
  "description": "Allison:
American English female
voice."
}
```

customization Returns information about a specified custom model. This field is returned only by the [Get a voice](#) method and only when you specify the customization ID of a custom model.

> [CustomModel](#)

Status Code

200 OK. The request succeeded.

304 **Not Modified.** The requested resource has not been modified since the time specified by the [If-Modified-Since](#) header, as documented in the HTTP specification.

400 **Bad Request.** A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include

- [Invalid value for 'customization_id'](#)

401	Unauthorized. The specified <code>customization_id</code> is invalid for the requesting credentials: <ul style="list-style-type: none"> <code>Invalid customization_id ({id}) for user</code>
406	Not Acceptable. The request specified an <code>Accept</code> header with an incompatible content type.
415	Unsupported Media Type. The request specified an unacceptable media type.
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

Synthesize audio

Synthesizes text to audio that is spoken in the specified voice. The service bases its understanding of the language for the input text on the specified voice. Use a voice that matches the language of the input text.

The method accepts a maximum of 5 KB of

```
synthesize(
    self,
    text: str,
    *,
    accept: str =
None,
    voice: str = None
```

input text in the body of the request, and 8 KB for the URL and headers. The 5 KB limit includes any SSML tags that you specify. The service returns the synthesized audio stream as an array of bytes.

See also: [The HTTP interface](#) .

Audio formats (accept types)

The service can return audio in the following formats (MIME types).

- Where indicated, you can optionally specify the sampling rate (`rate`) of the audio. You must specify a sampling rate for the `audio/alaw` , `audio/l16` , and `audio/mulaw` formats. A specified sampling rate must lie in the range of 8 kHz to 192 kHz. Some formats restrict the sampling rate to certain values, as noted.
- For the `audio/l16` format, you can optionally specify the endianness (`endianness`) of the audio: `endianness=big-endian` or `endianness=little-endian` .

Use the `Accept` header or the `accept` parameter to specify the requested format of the response audio. If you omit an audio format altogether, the service returns the audio in Ogg format with the Opus codec (`audio/ogg;codecs=opus`). The service always

```
voice: str = None,  
customization_id:  
str = None,  
spell_out_mode:  
str = None,  
rate_percentage:  
int = None,  
pitch_percentage:  
int = None,  
**kwargs,  
) -> DetailedResponse
```

returns single-channel audio.

- `audio/alaw` - You must specify the `rate` of the audio.
- `audio/basic` - The service returns audio with a sampling rate of 8000 Hz.
- `audio/flac` - You can optionally specify the `rate` of the audio. The default sampling rate is 24,000 Hz for Natural voices and 22,050 Hz for all other voices.
- `audio/l16` - You must specify the `rate` of the audio. You can optionally specify the `endianness` of the audio. The default endianness is `little-endian`.
- `audio/mp3` - You can optionally specify the `rate` of the audio. The default sampling rate is 24,000 Hz for Natural voices and 22,050 Hz for for all other voices.
- `audio/mpeg` - You can optionally specify the `rate` of the audio. The default sampling rate is 24,000 Hz for Natural voices and 22,050 Hz for all other voices.
- `audio/mulaw` - You must specify the `rate` of the audio.
- `audio/ogg` - The service returns the audio in the `vorbis` codec. You can optionally specify the `rate` of the audio. The default sampling rate is 48,000 Hz.
- `audio/ogg;codecs=opus` - You can optionally specify the `rate` of the audio. Only the

following values are valid sampling rates: 48000 , 24000 , 16000 , 12000 , or 8000 . If you specify a value other than one of these, the service returns an error. The default sampling rate is 48,000 Hz.

- `audio/ogg;codecs=vorbis` - You can optionally specify the `rate` of the audio. The default sampling rate is 48,000 Hz.
- `audio/wav` - You can optionally specify the `rate` of the audio. The default sampling rate is 24,000 Hz for Natural voices and 22,050 Hz for all other voices.
- `audio/webm` - The service returns the audio in the `opus` codec. The service returns audio with a sampling rate of 48,000 Hz.
- `audio/webm;codecs=opus` - The service returns audio with a sampling rate of 48,000 Hz.
- `audio/webm;codecs=vorbis` - You can optionally specify the `rate` of the audio. The default sampling rate is 48,000 Hz.

For more information about specifying an audio format, including additional details about some of the formats, see [Using audio formats](#) .

Note: By default, the service returns audio in the Ogg audio format with the Opus codec (`audio/ogg;codecs=opus`). However, the Ogg audio format is not supported with the Safari

browser. If you are using the service with the Safari browser, you must use the `Accept` request header or the `accept` query parameter specify a different format in which you want the service to return the audio.

Warning messages

If a request includes invalid query parameters, the service returns a `Warnings` response header that provides messages about the invalid parameters. The warning includes a descriptive message and a list of invalid argument strings. For example, a message such as `"Unknown arguments:"` or `"Unknown url query arguments:"` followed by a list of the form `"{invalid_arg_1}, {invalid_arg_2}."` The request succeeds despite the warnings.

Request

parameters	
text	The text to synthesize.
Required *	
str	

Example request for IBM Cloud

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
```


accept

str

The requested format (MIME type) of the audio. You can use the `Accept` header or the `accept` parameter to specify the audio format. For more information about specifying an audio format, see **Audio formats (accept types)** in the method description.

Allowable values:

```
audio/alaw ,
audio/basic ,
audio/flac , audio/l16 ,
audio/ogg ,
audio/ogg;codecs=opus
,
audio/ogg;codecs=vorbis
, audio/mp3 , audio/mpeg
, audio/mulaw ,
audio/wav , audio/webm ,
audio/webm;codecs=opus
,
audio/webm;codecs=vorbis
]
```

Default:

```
audio/ogg;codecs=opus
```

IAMAuthenticator

```
authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(
```

```
authenticator=authenticato
r
)
```

```
text_to_speech.set_service
_url('{url}')
```

```
with
open('hello_world.wav',
'wb') as audio_file:
    audio_file.write(
```

```
text_to_speech.synthesize(
    'Hello world',
    voice='en-
US_AllisonV3Voice',
```

```
accept='audio/wav'
```

```
).get_result().content)
```

Download sample audio output file
[hello_world.wav](#)

voice

The voice to use for speech

voice
str

The voice to use for speech synthesis. If you omit the **voice** parameter, the service uses the US English **en-US_MichaelV3Voice** by default.

*For IBM Cloud Pak for Data, if you do not install the **en-US_MichaelV3Voice**, you must either specify a voice with the request or specify a new default voice for your installation of the service.*

See also:

- [Languages and voices](#)
- [Using the default voice](#)

Allowable values: [

de-DE_BirgitV3Voice ,
de-DE_DieterV3Voice ,
de-DE_ErikaV3Voice ,
en-AU_HeidiExpressive ,
en-AU_JackExpressive ,
en-CA_HannahNatural ,
en-GB_CharlotteV3Voice ,
en-GB_ChloeNatural ,

Example request for IBM Cloud Pak for Data 

en-
GB_GeorgeExpressive
, en-GB_GeorgeNatural ,
en-GB_KateV3Voice ,
en-
US_AllisonExpressive
, en-US_AllisonV3Voice ,
en-US_EllieNatural ,
en-US_EmilyV3Voice ,
en-US_EmmaExpressive ,
en-US_EmmaNatural ,
en-US_EthanNatural ,
en-US_HenryV3Voice ,
en-US_JacksonNatural ,
en-US_KevinV3Voice ,
en-US_LisaExpressive ,
en-US_LisaV3Voice ,
en-
US_MichaelExpressive
, en-US_MichaelV3Voice ,
en-US_OliviaV3Voice ,
en-US_VictoriaNatural
, es-ES_EnriqueV3Voice ,
es-ES_LauraV3Voice ,
es-
LA_DanielaExpressive
, es-LA_SofiaV3Voice ,

```
es-US_SofiaV3Voice ,  
fr-CA_LouiseV3Voice ,  
fr-FR_NicolasV3Voice ,  
fr-FR_ReneeV3Voice ,  
it-  
IT_FrancescaV3Voice  
, ja-JP_EmiV3Voice ,  
ko-KR_JinV3Voice ,  
nl-NL_MerelV3Voice ,  
pt-BR_IsabelaV3Voice ,  
pt-BR_LucasExpressive  
]
```

Default: en-
US_MichaelV3Voice

customization_id

str

The customization ID (GUID) of a custom model to use for the synthesis. If a custom model is specified, it works only if it matches the language of the indicated voice. You must make the request with credentials for the instance of the service that owns the custom model. Omit the parameter to use the specified voice with no customization.

spell_out_mode *For German voices, indicates*
str how the service is to spell out strings of individual letters. To indicate the pace of the spelling, specify one of the following values:

- **default** - The service reads the characters at the rate at which it synthesizes speech for the request. You can also omit the parameter entirely to achieve the default behavior.

- **singles** - The service reads the characters one at a time, with a brief pause between each character.
- **pairs** - The service reads the characters two at a time, with a brief pause between each pair.
- **triples** - The service reads the characters three at a time, with a brief pause between each triplet.

For more information, see [Specifying how strings are spelled out](#).

Allowable values: [**default** , **singles** , **pairs** , **triples**]

Default: **default**

rate_percentage The percentage change from the default speaking rate of the voice that is used for speech synthesis. Each voice has a default speaking rate that is optimized to represent a normal rate of

int

speech. The parameter accepts an integer that represents the percentage change from the voice's default rate:

- Specify a signed negative integer to reduce the speaking rate by that percentage. For example, -10 reduces the rate by ten percent.
- Specify an unsigned or signed positive integer to increase the speaking rate by that percentage. For example, 10 and +10 increase the rate by ten percent.
- Specify 0 or omit the parameter to get the default speaking rate for the voice.

The parameter affects the rate for an entire request.

For more information, see [Modifying the speaking rate](#)

Default: 0

pitch percentage

int

The percentage change from the default speaking pitch of the voice that is used for speech synthesis. Each voice has a default speaking pitch that is optimized to represent a normal tone of voice. The parameter accepts an integer that represents the percentage change from the voice's default tone:

- Specify a signed negative integer to lower the voice's pitch by that percentage. For example, -5 reduces the tone by five percent.
- Specify an unsigned or signed positive integer to increase the voice's pitch by that percentage. For example, 5 and +5 increase the tone by five percent.
- Specify 0 or omit the parameter to get the default speaking pitch for the voice.

The parameter affects the pitch for an entire request.

For more information, see [Modifying the speaking_pitch](#).

Default: 0

Response

Response type: `BinaryIO`

Status Code

200	OK. The request succeeded.
-----	----------------------------

400	<p>Bad Request. A required input parameter is null or a specified input parameter or header value is invalid. Examples of specific messages include</p>
-----	--

- `prompt_id '{prompt_id}' not found in custom model '{customization_id}'` if you attempt to use a nonexistent or deleted custom prompt.
- `<express-as> is not supported in the current voice` if you attempt to use the `<express-as>` element with a

voice that is not one of the expressive neural voices or if you specify an illegal value for the `style` attribute of the element.

- Tag `<express-as>` is missing required attribute `->type` if you omit the `style` attribute from the `<express-as>` element.
- Emphasis level `{level}` is not supported if you specify an illegal value for the `level` attribute of the `<emphasis>` element.

If the request fails SSML validation, the description of the error explains the failure. For example,

`<prosody>` with attribute `volume` is not supported in the current voice . For more information, see [SSML validation](#) .

404

Not Found. The specified voice does not exist or, for IBM Cloud Pak for Data, the `voice` parameter was not specified but the default voice is not installed. The message is `Model '{voice}' not found` .

406	Not Acceptable. The request specified an incompatible content type or failed to specify a required sampling rate.
415	Unsupported Media Type. The request specified an unacceptable media type.
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

Get pronunciation

Gets the phonetic pronunciation for the specified word. You can request the pronunciation for a specific format. You can also request the pronunciation for a specific voice to see the default translation for the language of that voice or for a specific custom model to see the translation for that model.

See also: [Querying a word from a language](#) .

```
get_pronunciation(  
    self,  
    text: str,  
    *,  
    voice: str = None,  
    format: str =  
None,  
    customization_id:  
str = None,  
    **kwargs,  
) -> DetailedResponse
```


Request

parameters	
text Required * str	The word for which the pronunciation is requested.
voice str	<p>A voice that specifies the language in which the pronunciation is to be returned. If you omit the <code>voice</code> parameter, the service uses the US English <code>en-US_MichaelV3Voice</code> by default. All voices for the same language (for example, <code>en-US</code>) return the same translation.</p> <p><i>For IBM Cloud Pak for Data, if you do not install the <code>en-US_MichaelV3Voice</code> , you must either specify a voice with the request or specify a new default voice for your installation of the service.</i></p> <p>See also: Using the default voice .</p> <p>Allowable values: [</p>

Example request for IBM Cloud



```
de-DE_BirgitV3Voice ,
de-DE_DieterV3Voice ,
de-DE_ErikaV3Voice ,
en-AU_HeidiExpressive
,en-AU_JackExpressive ,
en-CA_HannahNatural ,
en-
GB_CharlotteV3Voice
,en-GB_ChloeNatural ,
en-
GB_GeorgeExpressive
,en-GB_GeorgeNatural ,
en-GB_KateV3Voice ,
en-
US_AllisonExpressive
,en-US_AllisonV3Voice ,
en-US_EllieNatural ,
en-US_EmilyV3Voice ,
en-US_EmmaExpressive ,
en-US_EmmaNatural ,
en-US_EthanNatural ,
en-US_HenryV3Voice ,
en-US_JacksonNatural ,
en-US_KevinV3Voice ,
en-US_LisaExpressive ,
en-US_LisaV3Voice ,
```



```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAAuthenticator

authenticator =
IAMAAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

pronunciation =
text_to_speech.get_pronunc
iation(
    text='IEEE',
    voice='en-
US_AllisonV3Voice',
    format='ibm'
).get_result()
print(json.dumps(pronuncia
tion, indent=2))
```

```
en-
US_MichaelExpressive
, en-US_MichaelV3Voice ,
en-US_OliviaV3Voice ,
en-US_VictoriaNatural
, es-ES_EnriqueV3Voice ,
es-ES_LauraV3Voice ,
es-
LA_DanielaExpressive
, es-LA_SofiaV3Voice ,
es-US_SofiaV3Voice ,
fr-CA_LouiseV3Voice ,
fr-FR_NicolasV3Voice ,
fr-FR_ReneeV3Voice ,
it-
IT_FrancescaV3Voice
, ja-JP_EmiV3Voice ,
ko-KR_JinV3Voice ,
nl-NL_MerelV3Voice ,
pt-BR_IsabelaV3Voice ,
pt-BR_LucasExpressive
]
```

Default: en-
US_MichaelV3Voice

Example request for IBM Cloud Pak for Data 

format

str

The phoneme format in which to return the pronunciation. Omit the parameter to obtain the pronunciation in the default format.

Allowable values: [[ibm](#) ,
[ipa](#)]

Default: [ipa](#)

customization_id

str

The customization ID (GUID) of a custom model for which the pronunciation is to be returned. The language of a specified custom model must match the language of the specified voice. If the word is not defined in the specified custom model, the service returns the default translation for the custom model's language. You must make the request with credentials for the instance of the service that owns the custom model. Omit the parameter to see the translation for the specified voice with no customization.

Response

Pronunciation	The pronunciation of the specified text.
----------------------	--

Example responses

Success example



pronunciation

Always included *
str

The pronunciation of the specified text in the requested voice and format. If a custom model is specified, the pronunciation also reflects that custom model.

```
{
  "pronunciation": "[.1Y]
[.1i] [.1i] [.1i]"
}
```

Status Code

200 OK. The request succeeded.

304 **Not Modified.** The requested resource has not been modified since the time specified by the **If-Modified-Since** header, as documented in the HTTP specification.

400

Bad Request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include

- Invalid parameter
'{name}' in request
- Required parameter
'{name}' is missing
- Invalid header value for
'{header}'
- Invalid value for
'customization_id'
- Customization language
{language} does not match
the language {language}
for voice {voice}

401

Unauthorized. The specified
`customization_id` is invalid for
the requesting credentials:

- Invalid customization_id
('{id}') for user
-

404	Not Found. The specified voice does not exist or, for IBM Cloud Pak for Data, the <code>voice</code> parameter was not specified but the default voice is not installed. The message is <code>Model '{voice}' not found</code> .
406	Not Acceptable. The request specified an <code>Accept</code> header with an incompatible content type.
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.


Create a custom model

Creates a new empty custom model. You must specify a name for the new custom model. You can optionally specify the language and a description for the new model. The model is owned by the instance of the service whose credentials are used to create it.

See also: [Creating a custom model](#) .

Request

parameters



```
create_custom_model(  
    self,  
    name: str,  
    *,  
    language: str =  
None,  
    description: str =  
None,  
    **kwargs,  
) -> DetailedResponse
```

Example request for IBM Cloud




name

Required *
str

The name of the new custom model. Use a localized name that matches the language of the custom model. Use a name that describes the purpose of the custom model, such as `Medical custom model` or `Legal custom model`. Use a name that is unique among all custom models that you own.

Include a maximum of 256 characters in the name. Do not use backslashes, slashes, colons, equal signs, ampersands, or question marks in the name.



```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

custom_model =
text_to_speech.create_cust
om_model(
    name='First Model',
    language='en-US',
    description='First
custom model'
).get_result()
print(json.dumps(custom_mo
del, indent=2))
```

language

str

The language of the new custom model. You create a custom model for a specific language, not for a specific voice. A custom model can be used with any voice for its specified language. Omit the parameter to use the the default language, `en-US`.

Allowable values: [`de-DE` , `en-AU` , `en-GB` , `en-US` , `es-ES` , `es-LA` , `es-US` , `fr-CA` , `fr-FR` , `it-IT` , `ja-JP` , `nl-NL` , `pt-BR`]

Default: `en-US`

description

str

A recommended description of the new custom model. Use a localized description that matches the language of the custom model. Include a maximum of 128 characters in the description.

Response

CustomModel

Information about an

Example request for IBM Cloud Pak for Data 

Example responses

existing custom model.

customization_id

Always included *

str

The customization ID (GUID) of the custom model. The [Create a custom model](#) method returns only this field. It does not return the other fields of this object.

name

str

The name of the custom model.

language

str

The language identifier of the custom model (for example, **en-US**).

owner

str

The GUID of the credentials for the instance of the service that owns the custom model.

Success example

```
{
  "customization_id":
    "51e996ea-86ca-482e-b7ec-
    0f31c34e5ee9"
}
```

created str	The date and time in Coordinated Universal Time (UTC) at which the custom model was created. The value is provided in full ISO 8601 format (YYYY-MM-DDThh:mm:ss.sTZD).
last_modified str	The date and time in Coordinated Universal Time (UTC) at which the custom model was last modified. The created and updated fields are equal when a model is first added but has yet to be updated. The value is provided in full ISO 8601 format (YYYY-MM-DDThh:mm:ss.sTZD).
description str	The description of the custom model.

words

An array of **Word** objects that lists the words and their translations from the custom model. The words are listed in alphabetical order, with uppercase letters listed before lowercase letters. The array is empty if no words are defined for the custom model. This field is returned only by the [Get a custom model](#) method.

> [List\[Word\]](#)

prompts

An array of **Prompt** objects that provides information about the prompts that are defined for the specified custom model. The array is empty if no prompts are defined for the custom model. This field is returned only by the [Get a custom model](#) method.

> [List\[Prompt\]](#)

Status Code

201	Created. The custom model was successfully created.
400	Bad Request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include <ul style="list-style-type: none">Invalid parameter '{name}' in requestRequired parameter '{name}' is missingInvalid header value for '{header}'
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

List custom models

Lists metadata such as the name and description for all custom models that are owned by an instance of the service. Specify a language to list the custom models for that language only. To see the words and prompts in addition to the metadata for a specific custom model, use the [Get a custom model](#) method. You must use credentials for the instance of the service that owns a model to list information about it.

See also: [Querying all custom models](#) .

Request

parameters

```
list_custom_models(  
    self,  
    *,  
    language: str =  
None,  
    **kwargs,  
) -> DetailedResponse
```



Example request for IBM Cloud



language

str

The language for which custom models that are owned by the requesting credentials are to be returned. Omit the parameter to see all custom models that are owned by the requester.

Allowable values: [`de-DE` , `en-AU` , `en-GB` , `en-US` , `es-ES` , `es-LA` , `es-US` , `fr-CA` , `fr-FR` , `it-IT` , `ja-JP` , `nl-NL` , `pt-BR`]

```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAmAAuthenticator

authenticator =
IAmAAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

custom_models =
text_to_speech.list_custom
_models().get_result()
print(json.dumps(custom_mo
dels, indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

CustomModels

Information about existing custom models.

Example responses

customizations

Always included *

An array of [CustomModel](#) objects that provides information about each available custom model. The array is empty if the requesting credentials own no custom models (if no language is specified) or own no custom models for the specified language.

> [List\[CustomModel\]](#)

Status Code

200

OK. The request succeeded.

Success example

```
{
  "customizations": [
    {
      "owner": "53fd7517-af0d-849d-801b-6e042a5d2f22",
      "language": "en-US",
      "created": "2016-07-15T19:15:17.926Z",
      "customization_id": "a4df11a9-7cf9-48e8-8319-08fb7c3b1aa8",
      "name": "Second Model",
      "description": "Second custom model",
      "last_modified": "2016-07-15T19:15:17.926Z"
    },
    {
      "owner": "53fd7517-af0d-849d-801b-6e042a5d2f22",
      "language": "en-US",
      "created": "2016-07-15T18:12:31.743Z",
      "customization_id":
```

400

Bad Request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include

- Invalid value for 'language'
- Invalid header value for '{header}'
- Input parameter '{parameter}' is invalid

500

Internal Server Error. The service experienced an internal error.

503

Service Unavailable. The service is currently unavailable.

```
"53506a62-6861-41f5-9a44-352047edcf6f",
  "name": "First Model
Update",
  "description":
"First custom model
update",
  "last_modified":
"2016-07-15T18:23:50.912Z"
}
]
```

Update a custom model

Updates information for the specified custom model. You can update metadata such as the name and description of the model. You can also update the words in the model and their translations. Adding a new translation for a word that already exists in a custom model overwrites the word's existing translation. A custom model can contain no more than

```
update_custom_model(
    self,
    customization_id:
str,
    *,
    name: str = None,
    description: str =
None,
```

20,000 entries. You must use credentials for the instance of the service that owns a model to update it.

You can define sounds-like or phonetic translations for words. A sounds-like translation consists of one or more words that, when combined, sound like the word. Phonetic translations are based on the SSML phoneme format for representing a word. You can specify them in standard International Phonetic Alphabet (IPA) representation

```
<phoneme alphabet="ipa" ph="təm'ɑto">
</phoneme>
```

or in the proprietary IBM Symbolic Phonetic Representation (SPR)

```
<phoneme alphabet="ibm"
ph="1gAstroEntxrYFXs"></phoneme>
```

See also:

- [Updating a custom model](#)
- [Adding words to a Japanese custom model](#)
- [Understanding customization](#) .

Request

parameters

```
words:
List['Word'] = None,
**kwargs,
) -> DetailedResponse
```

Example request for IBM Cloud



customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

name	A new name for the custom model.
str	

description	A new description for the custom model.
str	

words	An array of Word objects that provides the words and their translations that are to be added or updated for the custom model. Pass an empty array to make no additions or updates.
--------------	--

> [List\[Word\]](#)

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

text_to_speech.update_cust
om_model(
    '{customization_id}',
    name='First Model
Update',
    description='First
custom model update',
    words=[{'word':
'NCAA', 'translation': 'N
C double A'},
    {'word': 'iPhone',
'translation': 'I phone'}]
)
```


Response

Status Code

200	OK. The custom model was successfully updated.
400	Bad request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. If the request fails SSML validation, the description of the error explains the failure; for more information, see SSML validation . Specific messages include <ul style="list-style-type: none">Invalid parameter '{name}' in requestInvalid value for 'customization_id'For word: '{word}', <phoneme alphabet="{alphabet}" ph="{translation}"></phoneme> is not a standard SSML format

Example responses

Success example

{ }

- In SSML: <phoneme alphabet="ipa" ph="{translation}"></phoneme>, attribute 'ph' is not a standard IPA format
- In SSML: <phoneme alphabet="ibm" ph="{translation}"></phoneme>, attribute 'ph' is not a standard SPR format
- Invalid part_of_speech name
- Part of speech is supported for ja-JP language only
- Invalid header value for '{header}'
- Invalid request

401 **Unauthorized.** The specified `customization_id` is invalid for the requesting credentials:

- Invalid `customization_id` ('{id}') for user

500 **Internal Server Error.** The service experienced an internal error.

503

Service Unavailable. The service is currently unavailable.

Get a custom model

Gets all information about a specified custom model. In addition to metadata such as the name and description of the custom model, the output includes the words and their translations that are defined for the model, as well as any prompts that are defined for the model. To see just the metadata for a model, use the [List custom models](#) method.

See also: [Querying a custom model](#) .

Request

parameters

```
get_custom_model(  
    self,  
    customization_id:  
str,  
    **kwargs,  
) -> DetailedResponse
```

Example request for IBM Cloud

customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

custom_model =
text_to_speech.get_custom_
model('{customization_id'}
).get_result()
print(json.dumps(custom_mo
del, indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

CustomModel Information about an existing custom model.

Example responses

customization_id

Always included *

str

The customization ID (GUID) of the custom model. The [Create a custom model](#) method returns only this field. It does not return the other fields of this object.

name

str

The name of the custom model.

language

str

The language identifier of the custom model (for example, `en-US`).

owner

str

The GUID of the credentials for the instance of the service that owns the custom model.

Success example

```
{
  "customization_id":
    "d76ea7bb-cc91-4591-a9fb-
    aabf048dcc61",
  "name": "First Model
  Update",
  "description": "First
  custom model update",
  "language": "en-US",
  "owner": "35df7157-fad0-
  498c-912c-6e429f5c1e11",
  "created": "2017-01-
  23T16:00:32.893",
  "last_modified": "2017-
  01-23T16:00:35.619",
  "words": [
    {
      "word": "NCAA",
      "translation": "N C
      double A"
    },
    {
      "word": "iPhone",
      "translation": "I
      phone"
    }
  ]
}
```

created str	The date and time in Coordinated Universal Time (UTC) at which the custom model was created. The value is provided in full ISO 8601 format (<code>YYYY-MM-DDThh:mm:ss.sTZD</code>).
last_modified str	The date and time in Coordinated Universal Time (UTC) at which the custom model was last modified. The <code>created</code> and <code>updated</code> fields are equal when a model is first added but has yet to be updated. The value is provided in full ISO 8601 format (<code>YYYY-MM-DDThh:mm:ss.sTZD</code>).
description str	The description of the custom model.

```

],
  "prompts": [
    {
      "prompt": "Hello and
welcome!",
      "prompt_id":
"greeting",
      "status":
"available",
      "speaker_id":
"56367f89-546d-4b37-891e-
4eb0c13cc833"
    },
    {
      "prompt": "How can I
help you today?",
      "prompt_id": "help",
      "status":
"processing",
      "speaker_id":
"56367f89-546d-4b37-891e-
4eb0c13cc833"
    }
  ]
}

```

words

An array of **Word** objects that lists the words and their translations from the custom model. The words are listed in alphabetical order, with uppercase letters listed before lowercase letters. The array is empty if no words are defined for the custom model. This field is returned only by the [Get a custom model](#) method.

> [List\[Word\]](#)

prompts

An array of **Prompt** objects that provides information about the prompts that are defined for the specified custom model. The array is empty if no prompts are defined for the custom model. This field is returned only by the [Get a custom model](#) method.

> [List\[Prompt\]](#)

Status Code

200

OK. The request succeeded.

304	Not Modified. The requested resource has not been modified since the time specified by the <code>If-Modified-Since</code> header, as documented in the HTTP specification.
400	Bad Request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include <ul style="list-style-type: none">• <code>Invalid value for 'customization_id'</code>• <code>Invalid header value for '{header}'</code>
401	Unauthorized. The specified <code>customization_id</code> is invalid for the requesting credentials: <ul style="list-style-type: none">• <code>Invalid customization_id ('{id}') for user</code>
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

Delete a custom model

Deletes the specified custom model. You must use credentials for the instance of the service that owns a model to delete it.

See also: [Deleting a custom model](#) .

```
delete_custom_model(  
    self,  
    customization_id:  
str,  
    **kwargs,  
) -> DetailedResponse
```

Request

parameters


customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

Example request for IBM Cloud



```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

text_to_speech.delete_cust
om_model('{customization_i
d}')
```

Example request for IBM Cloud Pak for Data 

Response

Status Code

204	No Content. The custom model was successfully deleted.
400	Bad Request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include <ul style="list-style-type: none">Invalid value for 'customization_id'Invalid header value for '{header}'
401	Unauthorized. The specified <code>customization_id</code> is invalid for the requesting credentials: <ul style="list-style-type: none">Invalid customization_id ('{id}') for user
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

Add custom words

Adds one or more words and their translations to the specified custom model. Adding a new translation for a word that already exists in a custom model overwrites the word's existing translation. A custom model can contain no more than 20,000 entries. You must use credentials for the instance of the service that owns a model to add words to it.

You can define sounds-like or phonetic translations for words. A sounds-like translation consists of one or more words that, when combined, sound like the word. Phonetic translations are based on the SSML phoneme format for representing a word. You can specify them in standard International Phonetic Alphabet (IPA) representation

```
<phoneme alphabet="ipa" ph="təm'ɑto">
</phoneme>
```

or in the proprietary IBM Symbolic Phonetic Representation (SPR)

```
<phoneme alphabet="ibm"
ph="1gAstroEntxrYFXs"></phoneme>
```

See also:

- [Adding multiple words to a custom model](#)
- [Adding words to a Japanese custom model](#)
- [Understanding customization](#) .

Request

```
add_words(
    self,
    customization_id:
str,
    words:
List['Word'],
    **kwargs,
) -> DetailedResponse
```



request

parameters

customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

Example request for IBM Cloud

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

text_to_speech.add_words(
    '{customization_id}',
    words=[{'word': 'EEE',
            'translation':
'<phoneme alphabet="ibm"
ph="tr1Ipxl.1i">
</phoneme>'},
          {'word': 'IEEE',
```

words

Required *

The [Add custom words](#) method accepts an array of **Word** objects. Each object provides a word that is to be added or updated for the custom model and the word's translation.

The [List custom words](#) method returns an array of **Word** objects. Each object shows a word and its translation from the custom model. The words are listed in alphabetical order, with uppercase letters listed before lowercase letters. The array is empty if the custom model contains no words.

> [List\[Word\]](#)

```
'translation':  
'<phoneme alphabet="ibm"  
ph="1Y.tr1Ipxl.1i">  
</phoneme>' }]  
)
```

Example request for IBM Cloud Pak for Data 

Response

Status Code

200	OK. The words were successfully added to the custom model.
400	Bad Request. A required input parameter is null or a specified input

Example responses

Success example 

parameter or header value is invalid or not supported. If the request fails SSML validation, the description of the error explains the failure; for more information, see [SSML validation](#) . Specific messages include

- Invalid parameter '{name}' in request
- Invalid value for 'customization_id'
- <phoneme alphabet="{alphabet}" ph="{translation}"></phoneme> is not a standard SSML format
- In SSML: <phoneme alphabet="ipa" ph="{translation}"></phoneme>, attribute 'ph' is not a standard IPA format
- In SSML: <phoneme alphabet="ibm" ph="{translation}"></phoneme>, attribute 'ph' is not a standard SPR format
- Invalid part_of_speech

{ }



name

- Part of speech is supported for ja-JP language only
- Invalid header value for '{header}'

401

Unauthorized. The specified `customization_id` is invalid for the requesting credentials:

- Invalid `customization_id` ('{id}') for user

500

Internal Server Error. The service experienced an internal error.

503

Service Unavailable. The service is currently unavailable.

List custom words

Lists all of the words and their translations for the specified custom model. The output shows the translations as they are defined in the model. You must use credentials for the instance of the service that owns a model to list its words.

See also: [Querying all words from a custom model](#) .

Request

parameters

customization_id

Required *
str


The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

```
list_words(  
    self,  
    customization_id:  
    str,  
    **kwargs,  
) -> DetailedResponse
```



Example request for IBM Cloud





```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

words =
text_to_speech.list_words(
'{customization_id}').get_
result()
print(json.dumps(words,
indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

Words

For the [Add custom words](#) method, one or more words that are to be added or updated for the custom model and the translation for each specified word.

For the [List custom words](#) method, the words and their translations from the custom model.

Example responses

Success example

```
{
  "words": [
    {
      "word": "NCAA",
      "translation": "N C
double A"
    },
    {
      "word": "ACLs",
      "translation":
"ackles"
    },
    {
      "word": "iPhone",
      "translation": "I
phone"
    },
    {
      "word": "EEE",
      "translation": "
<phoneme alphabet=\"ibm\"
ph=\"tr1Ipx1.1i\">
</phoneme>"
    },
    {
      "word": "IEEE",
```

words

Always included *

The [Add custom words](#) method accepts an array of **Word** objects. Each object provides a word that is to be added or updated for the custom model and the word's translation.

The [List custom words](#) method returns an array of **Word** objects. Each object shows a word and its translation from the custom model. The words are listed in alphabetical order, with uppercase letters listed before lowercase letters. The array is empty if the custom model contains no words.

> [List\[Word\]](#)

```
"translation": "  
<phoneme alphabet=\"ibm\"  
ph=\"1Y.tr1IpXl.1i\">  
</phoneme>  
  }  
]  
}
```

Status Code

200 OK. The request succeeded.

400	Bad Request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include <ul style="list-style-type: none">• Invalid value for 'customization_id'• Invalid header value for '{header}'• Dictionary format error (if the custom model contains no words)
401	Unauthorized. The specified customization_id is invalid for the requesting credentials: <ul style="list-style-type: none">• Invalid customization_id ('{id}') for user
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

Add a custom word

Adds a single word and its translation to the specified custom model. Adding a new translation for a word that already exists in a custom model overwrites the word's existing translation. A custom model can contain no more than 20,000 entries. You must use credentials for the instance of the service that owns a model to add a word to it.

You can define sounds-like or phonetic translations for words. A sounds-like translation consists of one or more words that, when combined, sound like the word. Phonetic translations are based on the SSML phoneme format for representing a word. You can specify them in standard International Phonetic Alphabet (IPA) representation

```
<phoneme alphabet="ipa" ph="təm'ɑto">
</phoneme>
```

or in the proprietary IBM Symbolic Phonetic Representation (SPR)

```
<phoneme alphabet="ibm"
ph="1gAstroEntxrYFXs"></phoneme>
```

See also:

- [Adding a single word to a custom model](#)
- [Adding words to a Japanese custom model](#)
- [Understanding customization](#) .

Request

```
add_word(
    self,
    customization_id:
    str,
    word: str,
    translation: str,
    *,
    part_of_speech:
    str = None,
    **kwargs,
) -> DetailedResponse
```



request

parameters

customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

word

Required *

str

The word that is to be added or updated for the custom model.

translation

Required *

str

The phonetic or sounds-like translation for the word. A phonetic translation is based on the SSML format for representing the phonetic string of a word either as an IPA translation or as an IBM SPR translation. A sounds-like is one or more words that, when combined, sound like the word.

Example request for IBM Cloud

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

text_to_speech.add_word(
    '{customization_id}',
    'ACLs',
    'ackles'
)
```


part_of_speech **Japanese only.** The part of speech for the word. The service uses the value to produce the correct intonation for the word. You can create only a single entry, with or without a single part of speech, for any word; you cannot create multiple entries with different parts of speech for the same word. For more information, see [Working with Japanese entries](#) .

Allowable values: [*Dosi* , *Fuku* , *Gobi* , *Hoka* , *Jodo* , *Josi* , *Kato* , *Kedo* , *Keyo* , *Kigo* , *Koyu* , *Mesi* , *Reta* , *Stbi* , *Stto* , *Stzo* , *Suji*]

Example request for IBM Cloud Pak for Data 

Response

Status Code

200	OK. The word was successfully added to the custom model.
------------	---

400	Bad request. A required input
------------	--------------------------------------

400

Bad request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. If the request fails SSML validation, the description of the error explains the failure; for more information, see [SSML validation](#) . Specific messages include

- Invalid parameter '{name}' in request
- Invalid value for 'customization_id'
- Required parameter 'translation' is missing
- <phoneme alphabet="{alphabet}" ph="{translation}"></phoneme> is not a standard SSML format
- In SSML: <phoneme alphabet="ipa" ph="{translation}"></phoneme>, attribute 'ph' is not a standard IPA format
- In SSML: <phoneme alphabet="ibm" ph="{translation}"></phoneme>, attribute

'ph' is not a standard
SPR format

- Invalid part_of_speech
name
- Part of speech is
supported for ja-JP
language only
- Invalid header value for
'{header}'

401 **Unauthorized.** The specified
customization_id is invalid for
the requesting credentials:

- Invalid customization_id
('{id}') for user

500 **Internal Server Error.** The service
experienced an internal error.

503 **Service Unavailable.** The service is
currently unavailable.

Get a custom word

Gets the translation for a single word from the specified custom model. The output shows the translation as it is defined in the model. You must use credentials for the instance of the service that owns a model to list its words.


See also: [Querying a single word from a custom model](#) .

Request

parameters	
customization_id Required * str	The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.
word Required * str	The word that is to be queried from the custom model.

```
get_word(  
    self,  
    customization_id:  
    str,  
    word: str,  
    **kwargs,  
) -> DetailedResponse
```

Example request for IBM Cloud



```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

word =
text_to_speech.get_word(
    '{customization_id}',
    'ACLS'
).get_result()
print(json.dumps(word,
indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

Translation	Information about the translation for the specified text.
translation Always included * str	The phonetic or sounds-like translation for the word. A phonetic translation is based on the SSML format for representing the phonetic string of a word either as an IPA translation or as an IBM SPR translation. A sounds-like is one or more words that, when combined, sound like the word.

Example responses

Success example

```
{  
  "translation": "ackles"  
}
```

part_of_speech **Japanese only.** The part of speech for the word. The service uses the value to produce the correct intonation for the word. You can create only a single entry, with or without a single part of speech, for any word; you cannot create multiple entries with different parts of speech for the same word. For more information, see [Working with Japanese entries](#) .

Possible values: [[Dosi](#) , [Fuku](#) , [Gobi](#) , [Hoka](#) , [Jodo](#) , [Josi](#) , [Kato](#) , [Kedo](#) , [Keyo](#) , [Kigo](#) , [Koyu](#) , [Mesi](#) , [Reta](#) , [Stbi](#) , [Stto](#) , [Stzo](#) , [Suji](#)]

Status Code

200 OK. The request succeeded.

400 **Bad Request.** A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include

- Invalid value for 'customization_id'
- Word: {word} not found in customization_id: {customization_id}
- Invalid header value for '{header}'

401 **Unauthorized.** The specified customization_id is invalid for the requesting credentials:

- Invalid customization_id ('{id}') for user

500 **Internal Server Error.** The service experienced an internal error.

503 **Service Unavailable.** The service is currently unavailable.

Delete a custom word

Deletes a single word from the specified custom model. You must use credentials for the instance of the service that owns a model to delete its words.

See also: [Deleting a word from a custom model](#) .

Request

parameters	
customization_id Required * str The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.	
word Required * str	The word that is to be deleted from the custom model.

```
delete_word(  
    self,  
    customization_id:  
    str,  
    word: str,  
    **kwargs,  
) -> DetailedResponse
```



Example request for IBM Cloud



```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

text_to_speech.delete_word
(
    '{customization_id}',
    'ACLs'
)
```



Example request for IBM Cloud Pak for Data 

Response

Status Code

Status Code

204	No Content. The word was successfully deleted from the custom model.
400	Bad Request. A required input parameter is null or a specified input parameter or header value is invalid or not supported. Specific messages include <ul style="list-style-type: none">Invalid value for 'customization_id'Word: {word} not found in customization_id: {customization_id}Invalid header value for '{header}'
401	Unauthorized. The specified customization_id is invalid for the requesting credentials: <ul style="list-style-type: none">Invalid customization_id ('{id}') for user
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

List custom prompts

Beta

Lists information about all custom prompts that are defined for a custom model. The information includes the prompt ID, prompt text, status, and optional speaker ID for each prompt of the custom model. You must use credentials for the instance of the service that owns the custom model. The same information about all of the prompts for a custom model is also provided by the [Get a custom model](#) method. That method provides complete details about a specified custom model, including its language, owner, custom words, and more. Custom prompts are supported only for use with US English custom models and voices.

See also: [Listing custom prompts](#) .

Request

parameters

```
list_custom_prompts(  
    self,  
    customization_id:  
str,  
    **kwargs,  
) -> DetailedResponse
```

Example request for IBM Cloud

customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

prompts =
text_to_speech.list_custom
_prompts('{customization_i
d}').get_result()
print(json.dumps(prompts,
indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

Prompts	Information about the custom prompts that are defined for a custom model.
prompts Always included *	An array of Prompt objects that provides information about the prompts that are defined for the specified custom model. The array is empty if no prompts are defined for the custom model. > List[Prompt]
Status Code	
200	OK. The request succeeded.
400	Bad Request. The request failed. Possible failure causes include: <ul style="list-style-type: none">Invalid service credentials were passed with the request.
500	Internal Server Error. The service experienced an internal error.

Example responses	
Success example	<pre>{ "prompts": [{ "prompt": "Hello and welcome!", "prompt_id": "greeting", "status": "available", "speaker_id": "56367f89-546d-4b37-891e- 4eb0c13cc833" }, { "prompt": "How can I help you today?", "prompt_id": "help", "status": "processing", "speaker_id": "56367f89-546d-4b37-891e- 4eb0c13cc833" }, { "prompt": "I am sorry to hear that.",</pre>

503

Service Unavailable. The service is currently unavailable.

```
"prompt_id":  
"sorry",  
"status":  
"available",  
"speaker_id":  
"323e4476-63de-9825-7cd7-  
8120e45f8331"  
}  
]  
}
```

Add a custom prompt

Beta

Adds a custom prompt to a custom model. A prompt is defined by the text that is to be spoken, the audio for that text, a unique user-specified ID for the prompt, and an optional speaker ID. The information is used to generate prosodic data that is not visible to the user. This data is used by the service to produce the synthesized audio upon request. You must use credentials for the instance of the service that owns a custom model to add a prompt to it. You can add a maximum of 1000 custom prompts to a single custom model.

You are recommended to assign meaningful

```
add_custom_prompt(  
    self,  
    customization_id:  
    str,  
    prompt_id: str,  
    metadata:  
    'PromptMetadata',  
    file: BinaryIO,  
    **kwargs,  
) -> DetailedResponse
```

values for prompt IDs. For example, use `goodbye` to identify a prompt that speaks a farewell message. Prompt IDs must be unique within a given custom model. You cannot define two prompts with the same name for the same custom model. If you provide the ID of an existing prompt, the previously uploaded prompt is replaced by the new information. The existing prompt is reprocessed by using the new text and audio and, if provided, new speaker model, and the prosody data associated with the prompt is updated.

The quality of a prompt is undefined if the language of a prompt does not match the language of its custom model. This is consistent with any text or SSML that is specified for a speech synthesis request. The service makes a best-effort attempt to render the specified text for the prompt; it does not validate that the language of the text matches the language of the model.

Adding a prompt is an asynchronous operation. Although it accepts less audio than speaker enrollment, the service must align the audio with the provided text. The time that it takes to process a prompt depends on the prompt itself. The processing time for a reasonably sized prompt generally matches the length of the audio (for example, it takes 20 seconds to process a 20-second prompt).

For shorter prompts, you can wait for a reasonable amount of time and then check the status of the prompt with the [Get a custom prompt](#) method. For longer prompts, consider using that method to poll the service every few seconds to determine when the prompt becomes available. No prompt can be used for speech synthesis if it is in the `processing` or `failed` state. Only prompts that are in the `available` state can be used for speech synthesis.

When it processes a request, the service attempts to align the text and the audio that are provided for the prompt. The text that is passed with a prompt must match the spoken audio as closely as possible. Optimally, the text and audio match exactly. The service does its best to align the specified text with the audio, and it can often compensate for mismatches between the two. But if the service cannot effectively align the text and the audio, possibly because the magnitude of mismatches between the two is too great, processing of the prompt fails.

Evaluating a prompt

Always listen to and evaluate a prompt to determine its quality before using it in production. To evaluate a prompt, include only the single prompt in a speech synthesis

request by using the following SSML extension, in this case for a prompt whose ID is `goodbye` :

```
<ibm:prompt id="goodbye"/>
```

In some cases, you might need to rerecord and resubmit a prompt as many as five times to address the following possible problems:

- The service might fail to detect a mismatch between the prompt's text and audio. The longer the prompt, the greater the chance for misalignment between its text and audio. Therefore, multiple shorter prompts are preferable to a single long prompt.
- The text of a prompt might include a word that the service does not recognize. In this case, you can create a custom word and pronunciation pair to tell the service how to pronounce the word. You must then re-create the prompt.
- The quality of the input audio might be insufficient or the service's processing of the audio might fail to detect the intended prosody. Submitting new audio for the prompt can correct these issues.

If a prompt that is created without a speaker ID does not adequately reflect the intended prosody, enrolling the speaker and providing a speaker ID for the prompt is one recommended means of potentially improving the quality of the prompt. This is especially

important for shorter prompts such as "good-bye" or "thank you," where less audio data makes it more difficult to match the prosody of the speaker. Custom prompts are supported only for use with US English custom models and voices.

See also:

- [Add a custom prompt](#)
- [Evaluate a custom prompt](#)
- [Rules for creating custom prompts](#)

Request

parameters

customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

Example request for IBM Cloud

```
from os.path import join,
dirname
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}')
```

prompt_id

Required *

str

The identifier of the prompt that is to be added to the custom model:

- Include a maximum of 49 characters in the ID.
 - Include only alphanumeric characters and `_` (underscores) in the ID.
 - Do not include XML sensitive characters (double quotes, single quotes, ampersands, angle brackets, and slashes) in the ID.
 - To add a new prompt, the ID must be unique for the specified custom model. Otherwise, the new information for the prompt overwrites the existing prompt that has that ID.
-

```
text_to_speech =
TextToSpeechV1(

    authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

with
open(join(dirname(__file__
), './.', 'goodbye-
prompt.wav'),
        'rb') as
audio_file:

prompt=text_to_speech.add_
custom_prompt(

    '{customization_id}',
        'goodbye',
        {
            'prompt_text':
'Thank you and good-bye!',
            'speaker_id':
'{speaker_id}'
        },
        audio_file
    ).get_result()

print(json.dumps(prompt,
indent=2))
```

metadata

Required *

PromptMetadata

Information about the prompt that is to be added to a custom model. The following example of a `PromptMetadata` object includes both the required prompt text and an optional speaker model ID:

```
{ "prompt_text":  
  "Thank you and good-  
  bye!", "speaker_id":  
  "823068b2-ed4e-11ea-  
  b6e0-7b6456aa95cc" } .
```

Example request for IBM Cloud Pak for Data 

file

Required *

BinaryIO

An audio file that speaks the text of the prompt with intonation and prosody that matches how you would like the prompt to be spoken.

- The prompt audio must be in WAV format and must have a minimum sampling rate of 16 kHz. The service accepts audio with higher sampling rates. The service transcodes all audio to 16 kHz before processing it.
- The length of the prompt audio is limited to 30 seconds.

Response

Prompt

Information about a custom prompt.

prompt

Always included *

str

The user-specified text of the prompt.

Example responses

Success example



prompt_id The user-specified identifier
Always included * (name) of the prompt.
str

status The status of the prompt:
Always included *
str

- **processing** : The service received the request to add the prompt and is analyzing the validity of the prompt.
- **available** : The service successfully validated the prompt, which is now ready for use in a speech synthesis request.
- **failed** : The service's validation of the prompt failed. The status of the prompt includes an **error** field that describes the reason for the failure.

error If the status of the prompt is
str **failed** , an error message that describes the reason for the failure. The field is omitted if no error occurred.

```
{  
  "prompt": "Thank you and  
good-bye!",  
  "prompt_id": "goodbye",  
  "status": "processing",  
  "speaker_id": "823068b2-  
ed4e-11ea-b6e0-  
7b6456aa95cc"  
}
```

speaker_id str	The speaker ID (GUID) of the speaker for which the prompt was defined. The field is omitted if no speaker ID was specified.
--------------------------	---

Status Code

201	Created. The prompt was added successfully. Check the status of the prompt to ensure that it is available for use in speech synthesis.
------------	---

400

Bad Request. The request failed.

Possible failure causes include:

- The prompt name exceeds the 49-character limit or includes characters that are not alphanumeric or underscores.
- The audio has a media type other than `audio/wav` or a sampling rate of less than 16 kHz.
- The audio is longer than 30 seconds.
- The service cannot process the audio for any reason (for example, the audio is corrupt).
- The service cannot align the text and the audio because differences between the two are too great.
- The request attempts to add a prompt to a custom model that is defined for a language other than US English.
- Invalid service credentials were passed with the request.

401

Unauthorized. The specified

`customization_id` is invalid for the requesting credentials.

415	Unsupported Media Type. The request passed an unacceptable media type with the Content-Type header. The header must pass a value of multipart/form-data .
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

Get a custom prompt

Beta

Gets information about a specified custom prompt for a specified custom model. The information includes the prompt ID, prompt text, status, and optional speaker ID for each prompt of the custom model. You must use credentials for the instance of the service that owns the custom model. Custom prompts are supported only for use with US English custom models and voices.

See also: [Listing custom prompts](#) .

Request

```
get_custom_prompt(  
    self,  
    customization_id:  
    str,  
    prompt_id: str,  
    **kwargs,  
) -> DetailedResponse
```

parameters

customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

prompt_id


Required *

str

The identifier (name) of the prompt.

Example request for IBM Cloud





```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

prompt =
text_to_speech.get_custom_
prompt(
    '{customization_id}',
    '{prompt_id}'
).get_result()
print(json.dumps(prompt,
indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

Prompt	Information about a custom prompt.
prompt Always included * str	The user-specified text of the prompt.
prompt_id Always included * str	The user-specified identifier (name) of the prompt.

Example responses

Success example

```
{
  "prompt": "Hello and
welcome!",
  "prompt_id": "greeting",
  "status": "available",
  "speaker_id": "56367f89-
546d-4b37-891e-
4eb0c13cc833"
}
```

status

Always included *
str

The status of the prompt:

- **processing** : The service received the request to add the prompt and is analyzing the validity of the prompt.
- **available** : The service successfully validated the prompt, which is now ready for use in a speech synthesis request.
- **failed** : The service's validation of the prompt failed. The status of the prompt includes an **error** field that describes the reason for the failure.

error

str

If the status of the prompt is **failed** , an error message that describes the reason for the failure. The field is omitted if no error occurred.

speaker_id str	The speaker ID (GUID) of the speaker for which the prompt was defined. The field is omitted if no speaker ID was specified.
--------------------------	---

Status Code

200	OK. The request succeeded.
------------	-----------------------------------

400	Bad Request. The request failed. Possible failure causes include: <ul style="list-style-type: none">• Invalid service credentials were passed with the request.
------------	---

401	Unauthorized. The request failed. Possible failure causes include: <ul style="list-style-type: none">• The specified <code>customization_id</code> is invalid for the requesting credentials.• The specified <code>prompt_id</code> is invalid for the requesting credentials or for the specified custom model.
------------	---

500	Internal Server Error. The service experienced an internal error.
------------	--

Delete a custom prompt

Beta

Deletes an existing custom prompt from a custom model. The service deletes the prompt with the specified ID. You must use credentials for the instance of the service that owns the custom model from which the prompt is to be deleted.

Caution: Deleting a custom prompt elicits a 400 response code from synthesis requests that attempt to use the prompt. Make sure that you do not attempt to use a deleted prompt in a production application. Custom prompts are supported only for use with US English custom models and voices.

See also: [Deleting a custom prompt](#) .

Request

parameters

```
delete_custom_prompt(  
    self,  
    customization_id:  
    str,  
    prompt_id: str,  
    **kwargs,  
) -> DetailedResponse
```

Example request for IBM Cloud

customization_id

Required *

str

The customization ID (GUID) of the custom model. You must make the request with credentials for the instance of the service that owns the custom model.

prompt_id

Required *

str

The identifier (name) of the prompt that is to be deleted.

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator
```

```
authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(
```

```
authenticator=authenticato
r
)
```

```
text_to_speech.set_service
_url('{url}')
```

```
text_to_speech.delete_cust
om_prompt(
    '{customization_id}',
    '{prompt_id}'
)
```

Example request for IBM Cloud Pak for Data 

Response

Status Code

204	No Content. The prompt was deleted successfully.
400	Bad Request. The request failed. Possible failure causes include: <ul style="list-style-type: none">• Invalid service credentials were passed with the request.
401	Unauthorized. The request failed. Possible failure causes include: <ul style="list-style-type: none">• The specified <code>customization_id</code> is invalid for the requesting credentials.• The specified <code>prompt_id</code> is invalid for the requesting credentials.
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

List speaker models

Beta

Lists information about all speaker models that are defined for a service instance. The information includes the speaker ID and speaker name of each defined speaker. You must use credentials for the instance of a service to list its speakers. Speaker models and the custom prompts with which they are used are supported only for use with US English custom models and voices.

See also: [Listing speaker models](#) .


Request

No Request Parameters

This method does not accept any request parameters.

```
list_speaker_models(  
    self,  
    **kwargs,  
) -> DetailedResponse
```

Example request for IBM Cloud



```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

speakers =
text_to_speech.list_speake
r_models().get_result()
print(json.dumps(speakers,
indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

Speakers	Information about all speaker models for the service instance.	Example responses
speakers Always included *	An array of Speaker objects that provides information about the speakers for the service instance. The array is empty if the service instance has no speakers. > List[Speaker]	<div>Success example</div> <pre>{ "speakers": [{ "speaker_id": "56367f89-546d-4b37-891e-4eb0c13cc833", "name": "speaker_one" }, { "speaker_id": "323e4476-63de-9825-7cd7-8120e45f8331", "name": "speaker_two" }] }</pre>
Status Code		
200	OK. The request succeeded.	
400	Bad Request. The request failed. Possible failure causes include: <ul style="list-style-type: none">Invalid service credentials were passed with the request.	
500	Internal Server Error. The service experienced an internal error.	
503	Service Unavailable. The service is currently unavailable.	

Create a speaker model

Beta

Creates a new speaker model, which is an optional enrollment token for users who are to add prompts to custom models. A speaker model contains information about a user's voice. The service extracts this information from a WAV audio sample that you pass as the body of the request. Associating a speaker model with a prompt is optional, but the information that is extracted from the speaker model helps the service learn about the speaker's voice.

A speaker model can make an appreciable difference in the quality of prompts, especially short prompts with relatively little audio, that are associated with that speaker. A speaker model can help the service produce a prompt with more confidence; the lack of a speaker model can potentially compromise the quality of a prompt.

The gender of the speaker who creates a speaker model does not need to match the gender of a voice that is used with prompts that are associated with that speaker model. For example, a speaker model that is created by a male speaker can be associated with

```
create_speaker_model(  
    self,  
    speaker_name: str,  
    audio: BinaryIO,  
    **kwargs,  
) -> DetailedResponse
```



prompts that are spoken by female voices.

You create a speaker model for a given instance of the service. The new speaker model is owned by the service instance whose credentials are used to create it. That same speaker can then be used to create prompts for all custom models within that service instance. No language is associated with a speaker model, but each custom model has a single specified language. You can add prompts only to US English models.

You specify a name for the speaker when you create it. The name must be unique among all speaker names for the owning service instance. To re-create a speaker model for an existing speaker name, you must first delete the existing speaker model that has that name.

Speaker enrollment is a synchronous operation. Although it accepts more audio data than a prompt, the process of adding a speaker is very fast. The service simply extracts information about the speaker's voice from the audio. Unlike prompts, speaker models neither need nor accept a transcription of the audio. When the call returns, the audio is fully processed and the speaker enrollment is complete.

The service returns a speaker ID with the request. A speaker ID is globally unique identifier (GUID) that you use to identify the

speaker in subsequent requests to the service. Speaker models and the custom prompts with which they are used are supported only for use with US English custom models and voices.

See also:

- [Create a speaker model](#)
- [Rules for creating speaker models](#) .

Request

parameters

Example request for IBM Cloud

```
from os.path import join,
dirname
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
```


speaker_name

Required *
str

The name of the speaker that is to be added to the service instance.

- Include a maximum of 49 characters in the name.
- Include only alphanumeric characters and `_` (underscores) in the name.
- Do not include XML sensitive characters (double quotes, single quotes, ampersands, angle brackets, and slashes) in the name.
- Do not use the name of an existing speaker that is already defined for the service instance.

```
r  
)
```

```
text_to_speech.set_service  
_url('{url}')
```

```
with  
open(join(dirname(__file__  
) , './.', 'audio-  
file.wav'),  
      'rb') as  
audio_file:
```

```
speaker_model=text_to_spee  
ch.create_speaker_model(  
    'speaker_one',  
    audio_file  
) .get_result()
```

```
print(json.dumps(speaker_m  
odel, indent=2))
```

Example request for IBM Cloud Pak for Data 

audio

Required *
BinaryIO

An enrollment audio file that contains a sample of the speaker's voice.

- The enrollment audio must be in WAV format and must have a minimum sampling rate of 16 kHz. The service accepts audio with higher sampling rates. It transcodes all audio to 16 kHz before processing it.
- The length of the enrollment audio is limited to 1 minute. Speaking one or two paragraphs of text that include five to ten sentences is recommended.

Response**SpeakerModel**

The speaker ID of the speaker model.

Example responses

Success example



speaker_id

Always included *
str

The speaker ID (GUID) of the
speaker model.

```
{  
  "speaker_id": "56367f89-  
546d-4b37-891e-  
4eb0c13cc833"  
}
```

Status Code

201

Created. The speaker model was
created successfully.

400

Bad Request. The request failed.
Possible failure causes include:

- The audio has a media type other than `audio/wav` or a sampling rate of less than 16 kHz.
- The audio is longer than 1 minute.
- The speaker name exceeds the 49-character limit or includes characters that are not alphanumeric or underscores.
- The speaker name is not unique within the service instance.
- The service cannot process the audio for any reason (for example, the audio is corrupt).
- Invalid service credentials were passed with the request.

415	Unsupported Media Type. The request passed an unacceptable media type for the enrollment audio with the Content-Type header. The header must pass a value of audio/wav .
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

Get a speaker model

Beta

Gets information about all prompts that are defined by a specified speaker for all custom models that are owned by a service instance. The information is grouped by the customization IDs of the custom models. For each custom model, the information lists information about each prompt that is defined for that custom model by the speaker. You must use credentials for the instance of the service that owns a speaker model to list its prompts. Speaker models and the custom prompts with which they are used are supported only for use with US English custom models and voices.


See also: [Listing the custom prompts for a speaker model](#) .

Request

parameters	
speaker_id Required * str	The speaker ID (GUID) of the speaker model. You must make the request with service credentials for the instance of the service that owns the speaker model.

```
get_speaker_model(  
    self,  
    speaker_id: str,  
    **kwargs,  
) -> DetailedResponse
```

Example request for IBM Cloud



```
import json
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

speaker_custom_models =
text_to_speech.get_speaker
_model('{speaker_id'}).get
_result()
print(json.dumps(speaker_c
ustom_models, indent=2))
```

Example request for IBM Cloud Pak for Data 

Response

SpeakerCustomModels Custom models for which the speaker has defined prompts.

customizations An array of **SpeakerCustomModel** objects. Each object provides information about the prompts that are defined for a specified speaker in the custom models that are owned by a specified service instance. The array is empty if no prompts are defined for the speaker.

> [List\[SpeakerCustomModel\]](#)

Status Code

200 OK. The request succeeded.

Example responses

Success example

```
{
  "customizations": [
    {
      "customization_id":
"9937efc0-5341-b436-77e1-9923f6e693a1",
      "prompts": [
        {
          "prompt": "Hello
and welcome!",
          "prompt_id":
"greeting",
          "status":
"available"
        },
        {
          "prompt": "How
can I help you today?",
          "prompt_id":
"help",
          "status":
"processing"
        }
      ]
    },
    {}
  ]
}
```

304	Not Modified. The requested resource has not been modified since the time specified by the If-Modified-Since header, as documented in the HTTP specification.
400	Bad Request. The request failed. Possible failure causes include: <ul style="list-style-type: none"> Invalid service credentials were passed with the request.
401	Unauthorized. The specified speaker_id is invalid for the requesting credentials.
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

```

        "customization_id":
"7ab01821-a312-7b55-8629-
598a56b234f5",
        "prompts": [
            {
                "prompt": "Thank
you and good-bye!",
                "prompt_id":
"goodbye",
                "status":
"available"
            },
            {
                "prompt": "I do
not understand that
response.",
                "prompt_id":
"do_not_understand",
                "status":
"available"
            }
        ]
    }
}

```

Delete a speaker model

Beta


Deletes an existing speaker model from the service instance. The service deletes the enrolled speaker with the specified speaker ID. You must use credentials for the instance of the service that owns a speaker model to delete the speaker.

Any prompts that are associated with the deleted speaker are not affected by the speaker's deletion. The prosodic data that defines the quality of a prompt is established when the prompt is created. A prompt is static and remains unaffected by deletion of its associated speaker. However, the prompt cannot be resubmitted or updated with its original speaker once that speaker is deleted. Speaker models and the custom prompts with which they are used are supported only for use with US English custom models and voices.

See also: [Deleting a speaker model](#) .

Request

parameters



```
delete_speaker_model(  
    self,  
    speaker_id: str,  
    **kwargs,  
) -> DetailedResponse
```

Example request for IBM Cloud



speaker_id

Required *

str

The speaker ID (GUID) of the speaker model. You must make the request with service credentials for the instance of the service that owns the speaker model.

```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator
```

```
authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(
```

```
authenticator=authenticato
r
)
```

```
text_to_speech.set_service
_url('{url}')
```

```
text_to_speech.delete_spea
ker_model('{speaker_id}')
```

Example request for IBM Cloud Pak for Data 

Response

Status Code

204	No Content. The speaker model was deleted successfully.
400	Bad Request. The request failed. Possible failure causes include: <ul style="list-style-type: none">• Invalid service credentials were passed with the request.
401	Unauthorized. The specified <code>speaker_id</code> is invalid for the requesting credentials.
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

Delete labeled data

Deletes all data that is associated with a specified customer ID. The method deletes all data for the customer ID, regardless of the method by which the information was added. The method has no effect if no data is associated with the customer ID. You must issue the request with credentials for the same instance of the service that was used to associate the customer ID with the data. You associate a customer ID with data by passing the `X-Watson-Metadata` header with a request that passes the data.

Note: If you delete an instance of the service from the service console, all data associated with that service instance is automatically deleted. This includes all custom models and word/translation pairs, and all data related to speech synthesis requests.

See also: [Information security](#) .

Request

parameters	
customer_id Required [*] str	The customer ID for which all data is to be deleted.

```
delete_user_data(  
    self,  
    customer_id: str,  
    **kwargs,  
) -> DetailedResponse
```



Example request for IBM Cloud



```
from ibm_watson import
TextToSpeechV1
from
ibm_cloud_sdk_core.authent
icators import
IAMAuthenticator

authenticator =
IAMAuthenticator('{apikey}
')
text_to_speech =
TextToSpeechV1(

authenticator=authenticato
r
)

text_to_speech.set_service
_url('{url}')

text_to_speech.delete_user
_data('{customer_id}')
```

Example request for IBM Cloud Pak for Data 

Response

Status Code

200	OK. The deletion request was successfully submitted.
400	Bad Request. The request did not pass a customer ID: <ul style="list-style-type: none">• No customer ID found in the request
500	Internal Server Error. The service experienced an internal error.
503	Service Unavailable. The service is currently unavailable.

[Privacy statement](#)

