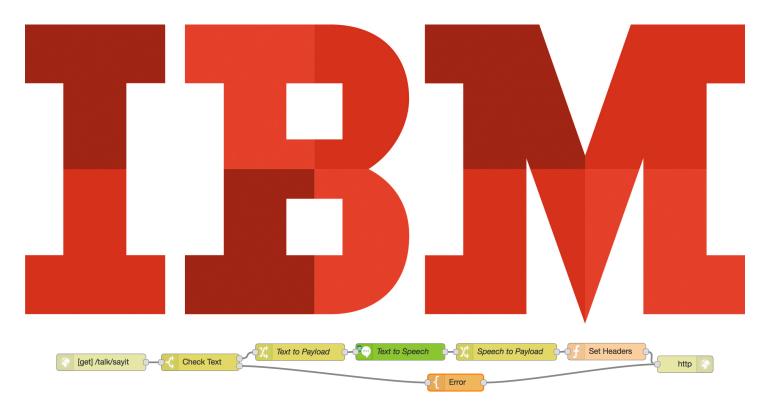
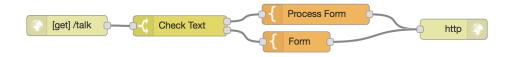
Text to Speech in Node-RED

Hands-On Lab

JeanCarl Bisson | jbisson@us.ibm.com | @dothewww



Add a web endpoint to convert text to audio (see Add Text to Speech in Node-RED)



Create a webpage to input text and play audio (see *Creating an Interactive Web UI*)





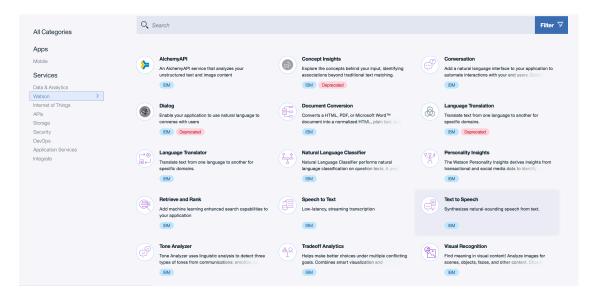
Add Text to Speech Service in IBM Bluemix

The Text to Speech node in Node-RED requires API credentials. In this section, we will create and bind the Text to Speech IBM Watson service to the Node-RED application.

1. Go to the Connections tab under the application overview for your Node-RED application in the IBM Bluemix dashboard and click on Connect New.



Click the Text to Speech node under the Watson section. You can use the default values, or customize the name. Click on Create.



IBM Bluemix will prompt to restage the application. Click on Restage. The application will restart and include the new service credentials in the environment.

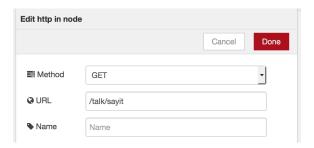


When the application has finished restaging, open the Node-RED Flow Editor. If Node-RED is already open, refresh the page.

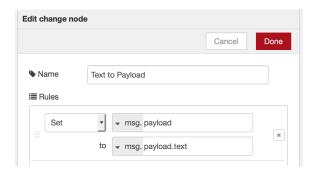
Add Text to Speech in Node-RED

In this section, we will use the IBM Watson Text to Speech service to produce a .wav audio file from input text through a simple web endpoint generated using a Node-RED flow.

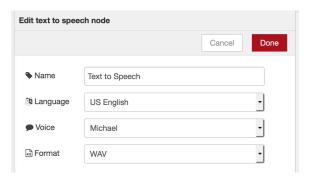
Add a node as shown below to collect the incoming speech request.



2. Add a 💯 node as shown below to extract the query parameter msg.payload.text and set it as the msg.payload. When invoked with query parameters such as ?text=Hello, the text will be placed into the msg.payload object.

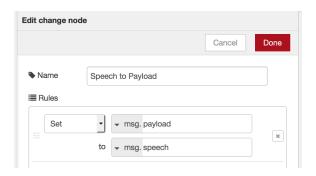


Now add a speech node as shown below. This node will generate the binary way stream content and put it in the msg.speech property.

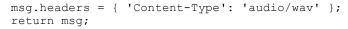


You can change the language, the voice, or the format of the audio that is returned.

4. Add another node as shown below to extract the msg.speech and place it in msg.payload.



5. Add a node as shown below to add the appropriate audio HTTP headers to the response.





We set the HTTP response headers by setting the msg.headers to the Content Type of audio/wav. This is required in order to let browsers know that this is an audio file and not HTML.

Finally, add a http response node. This node will simply return what's in msg.payload to the HTTP response. The completed flow should look like the flow shown below:



to save the changes. Test the flow by opening the application URL, appended with /talk/sayit?text=Hello as shown below.

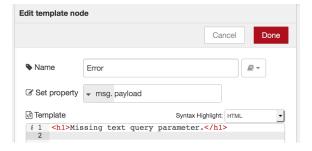
```
https:// .mybluemix.net/talk/sayit?text=Hello
```

This should prompt you to save a file. Depending on how your browser is configured, it may download the audio file or play it within the browser. Either way, play it and you should hear the text.

This flow has a caveat, however. The flow will fail when the text query parameter is not set. Add a solution of the contract o shown below to check if the text query parameter is present.



9. You'll notice that adding the second otherwise rule has created a second output handle for the switch node. Add a for template node with the error message shown below.



10. Connect the nodes together as shown below.



to save the changes. Test the flow by opening a browser and going to the application URL, appended with the following endpoints:

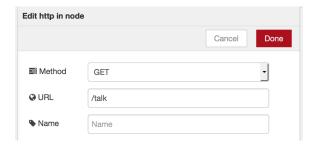
https://____.mybluemix.net/talk/sayit?text=Hello https:// .mybluemix.net/talk/sayit

(plays the audio with Hello) (displays error message)

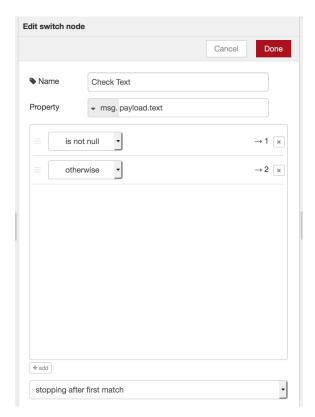
Creating an Interactive Web UI

In this section, we will create a simple webpage that displays an input textbox for the user to enter text. When the form is submitted, the text will be played via audio.

1. Add a node as shown below.

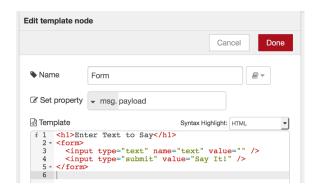


2. Add a switch node to branch the flow depending whether text input is submitted.



When the form is submitted and the text parameter is present, proceed with the first flow. Otherwise, the blank form (flow #2) will be used.

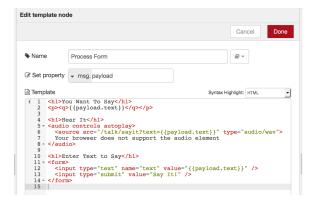
3. Add a template node with the HTML shown below.





Get the code: ibm.biz/Bd4vtc

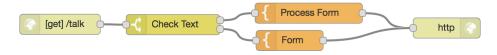
4. Add a template node with the HTML shown below.





Get the code: ibm.biz/Bd4vtx

5. Add a http response and connect the nodes together as follows:



6. Click Deploy to save the changes. Test the flow by opening the application URL in the browser, appended with /talk.

https://____.mybluemix.net/talk