

[Home](#) » [API.AI](#) » API.AI tutorial: Passing data from browser localStorage to webhooks

May 23, 2017

API.AI tutorial: Passing data from browser localStorage to webhooks

Occasionally, you come across API.AI features that surprise you (in a pleasant way).

Yesterday I found one feature like that.

The problem

In API.AI, you know that each intent can be hooked up with a webhook call. As soon as the intent is invoked, it will first send all (relevant) information to the webhook URL. The response from the webhook is parsed to output a message to the user.

Now, it is fairly straightforward to send the parameters that you collect from the user to the webhook. There are occasions where you generate session specific parameters from the browser's localStorage, and on first glance it doesn't look like there is any way to send those to the webhook.

Invoking intents by calling events

Each intent can have an associated event.

What are these events?

Events are used to "trigger" the intent when it has to be done without user participation. (Usually API.AI will only call intents as a response to the user's message - this is the way to bypass this requirement).

Session specific parameters from browser localStorage

Suppose you have a webchat which is built on top of API.AI.

You might also need to pass some session specific parameters to the API.AI webhook, such as some information you stored in the browser's localStorage (e.g. a user's accountid which you already have generated, say, in your SaaS app).

The best time to do this, is in the [Default Welcome intent](#), where you invoke the intent by using the WELCOME event.

From the docs:

“ When you create a new agent, a Default Welcome Intent is automatically added. Such intents have a pre-defined WELCOME event and text responses.

So we know that calling the event WELCOME using the REST API should invoke the Default Welcome Intent.

Reading the documentation (carefully)

The first question to ask is: how to invoke these events programmatically?

Invoking events

So in the documentation, this is how you are asked to invoke events.

<https://docs.api.ai/docs/query#query-parameters-and-json-fields>

Query Parameters and JSON Fields

The following parameters are used as either query parameters in the URL or JSON keys in the POST body:

Name	Type	Description	Required
query	String or array of strings	Natural language text to be processed. Query length should not exceed 256 characters.	Required unless an "event" / "e" parameter is submitted.

Alright, so now we know that when we make a call to the /query endpoint using POST, *we can send either query or event as a parameter*. I don't think you can do that using the GET call, but if I am mistaken please leave a comment below.

Sending custom parameters when invoking events

Right below the row shown in the screenshot above, you also have a hint at how to send parameters as part of an event.

event (for POST requests) or e (for GET requests)	Object	Object containing event name and additional data. The "data" parameter can be submitted only in POST requests.	Required unless a "query" parameter is submitted.
name	String	Event name.	Required.
data	Object	Object consisting of "parameter_name": "parameter_value" pairs.	Optional.

Alright, now we know that it should be possible to send a list of parameters to API.AI as you are invoking an event via the REST API call.

Request format

So how should we send the actual request? What does the request format look like?

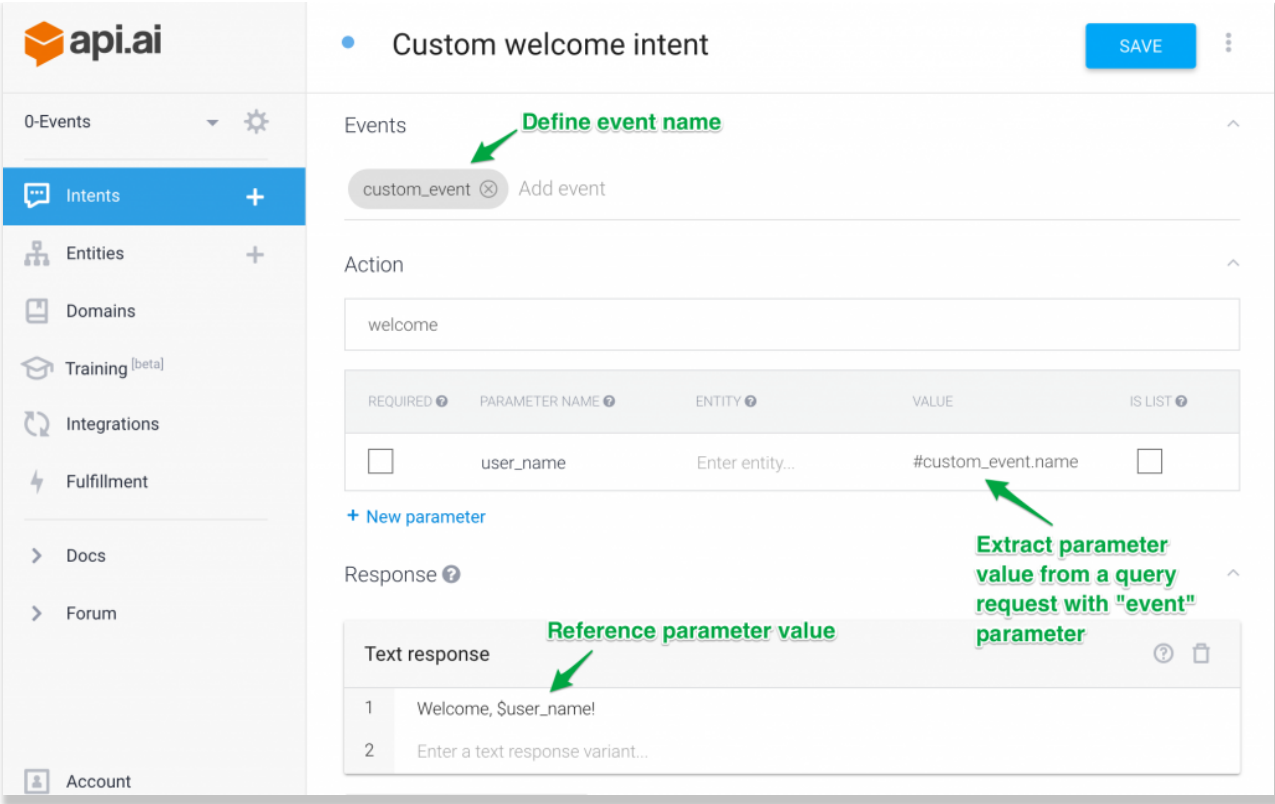
More careful reading of the docs, now at a different link.

<https://docs.api.ai/docs/concept-events#section-sending-parameters-in-a-query-request>

I am basically pasting the exact image you see in that section, because I need it for the explanation.

You know how an image is supposed to be worth a thousand words?

This image is one of those.



Right below, you have a sample cURL request:

```
curl -X POST -H "Content-Type: application/json; charset=utf-8" -H "Authorization: Bearer YOUR_CLIENT_ACCESS_TOKEN" --data '{"event':{ 'name': 'custom_event', 'data': {'name': 'Sam'}}, 'timezone': 'America/New_York', 'lang': 'en', 'sessionId': '1321321'}" "https://api.api.ai/api/query?v=20150910"
```

Now, combining these, we have a fairly good idea how to send a cURL request which will

- a) invoke the default welcome intent
- b) send a params object which can be received at API.AI and passed along to a webhook

The final cURL request

So, this is what the cURL request will look like:

```
curl -X POST -H "Content-Type: application/json; charset=utf-8" -H "Authorization: Bearer YOUR_DEVELOPER_ACCESS_TOKEN" --data '{"event':{ 'name': 'WELCOME', 'data': {'visitorid': '123', 'accountid': '456'}}, 'timezone': 'America/New_York', 'lang': 'en', 'sessionId': '1321321'}" "https://api.api.ai/api/query?v=20150910"
```

Obviously, remember to set the sessionId appropriate to your specific circumstance.

Updating the Default Welcome intent to receive the event

Well. Are we done yet? No 😊

See, the most important thing here, and the reason why the 1000 word picture contains a ton of information, is that you need to make sure that you

- a) define a param (right below the Action)

b) make sure you use the correct syntax for the value - you need to prepend the event name.

This is very important, and this is the part which stitches the whole thing together.

Events ?

WELCOME

⊗

Add event

Action

input.welcome

REQUIRED ?	PARAMETER NAME ?	ENTITY ?	VALUE	IS LIST ?
<input type="checkbox"/>	visitorid	Enter entity	#WELCOME.visitorid	<input type="checkbox"/>
<input type="checkbox"/>	accountid	Enter entity	#WELCOME.accountid	<input type="checkbox"/>
<input type="checkbox"/>	Enter name	Enter entity	Enter value	<input type="checkbox"/>

+ New parameter

As you can see, I made sure to define the VALUE as #WELCOME.visitorid, which is what will now be used as the JSON is constructed for the webhook.

Do the parameter name and the name following the #WELCOME have to be exactly one and the same? I am not sure, I just left it as it was. If you ever experiment with it, please be sure to leave a comment!

The code which receives the webhook

I am keeping this simple. Let us suppose you took the sample code which came with the [Heroku weather example](#).

Modify the processRequest method to look like this:

```
def processRequest(req):
    if
req.get("result").get("action")== "yahooWeatherForecast":
    baseurl =
"https://query.yahooapis.com/v1/public/yql?"
    yql_query = makeYqlQuery(req)
    if yql_query is None:
        return {}
    yql_url = baseurl + urlencode({'q': yql_query}) +
"&format=json"
    result = urlopen(yql_url).read()
    data = json.loads(result)
    res = makeWebhookResult(data)
    elif req.get("result").get("action")== "getjoke":
    baseurl = "http://api.icndb.com/jokes/random"
    result = urlopen(baseurl).read()
    data = json.loads(result)
    res = makeWebhookResultForGetJoke(data)
    elif req.get("result").get("action")== "input.welcome":
```

```
        data = req
        res = makeWebhookResultForGetCustomParams(data)
    else:
        return {}
    return res
```

(Don't mind the elif for the 'getjoke', it was used in a [different tutorial](#)).

Now in the method for getting custom params you can just fetch the params you passed in:

```
def makeWebhookResultForGetCustomParams(data):
    speech = 'visitor id =
'+data.get("result").get("parameters").get('visitorid')
    +' accountid =
'+data.get("result").get("parameters").get('accountid')

    return {
        "speech": speech,
        "displayText": speech,
        # "data": data,
        # "contextOut": [],
        "source": "apiai-weather-webhook-sample"
    }
```

(It is just some sample code, please modify it to make it more maintainable).

Webhook JSON

If you see how API.AI designed its webhook request-response protocol, you will notice that the response JSON object is a superset of the request JSON object.

All the webhook code has to do is to populate the appropriate fields and send back the response.

Why does this matter? Because there are occasions where you need to know the exact request which was sent to the webhook, and in some environments this is not too easy. For e.g. you could check the Heroku logs, but it is simpler to see the request right there in the response JSON object.

Testing it

The reason I mention all this is because we can test the whole thing end to end from the terminal using cURL.

When I send the cURL request above to my agent (make sure to use the correct developer access token), I receive the following response.

```
{
  "id": "REDACTED",
  "timestamp": "2017-05-23T11:59:02.098Z",
  "lang": "en",
  "result": {
    "source": "agent",
    "resolvedQuery": "WELCOME",
```

```
"action": "input.welcome",
"actionIncomplete": false,
"parameters": {
  "accountid": "456",
  "visitorid": "123"
},
"contexts": [],
"metadata": {
  "intentId": "REDACTED",
  "webhookUsed": "true",
  "webhookForSlotFillingUsed": "false",
  "webhookResponseTime": 52,
  "intentName": "Default Welcome Intent"
},
"fulfillment": {
  "speech": "visitor id = 123 accountid = 456",
  "source": "apiai-weather-webhook-sample",
  "displayText": "visitor id = 123 accountid = 456",
  "messages": [
    {
      "type": 0,
      "speech": "visitor id = 123 accountid = 456"
    }
  ]
},
"score": 1.0
},
"status": {
  "code": 200,
  "errorType": "success"
},
"sessionId": "1321321"
}
```


Success!

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Article by aravindmc / API.AI / 11 Comments

11 comments

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Kapil Joshi

July 5, 2019

Hi @aravindmc,

im still not clear how the event gets fired in my dialogflow agent which i have hosted in my web application.

So on login event in my app, i invoke my dialog flow intent with a custom event.

I'm making a POST API call with event params like login UserName and getting a success response , but how does that get forwarded to my agents window.

Please help.

Thanks.

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aravindmc

July 8, 2019

You can book a paid consultation if you need additional help.
<https://miningbusinessdata.com/book-a-20-minute-video-consultation/>

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Kondhalkar

July 2, 2019

Hi Arvind
I want to pass some parameter or value to dailogflow fulfilment from my code is its possible.Want to use this value as a global in fulfilment

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↩ Reply to Kondhalkar



aravindmc

July 2, 2019

You should be able to adapt the above tutorial to do this. If you need further help, you can get in touch for a paid consultation.

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↩ Reply to aravindmc

Hwt Development

June 8, 2019

Dear Sir
Already integrate dailogflow with my Android application but i want to send loacal store information that means want to share employee id to bot (Which helps to give information about employee from the server)So using that employee id we call our

3rd party server api to get information.How can i send employee id in fulfilment to call api

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aravindmc

June 9, 2019

This is a complex requirement and cannot be addressed in a comment or article. If it is urgent, I recommend getting in touch for paid consultation.

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Hwt Development

June 10, 2019

Just wanted know is it any api available to get outside string value in fulfilment

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aravindmc

June 10, 2019

I don't think there is any way other than what has already been explained in detail in this article, maybe you should also try on StackOverflow.

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RAvid

September 8, 2018

Thanks for the article. I am new to dialogflow and need to integrate the bot with our website but not sure on how to pass the user_id to bot , the backend needs to see the user_id&session_key in webhook call. Can you please let me know the flow chart for the same to make the things easier(something like sequence of steps). I called the Welcome event but it doesn't keep the user_id&session_id in the subsequent calls.

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aravindmc