

# Instant Connect Meeting Links

In this lab, you will construct Instant Connect URLs for hosts and guests.

Instant Connect is a WebRTC based Webex product which can be used by customers to integrate with their workflows. More information can be found in <https://instant.webex.com/>. Using a simple REST API, you can easily generate Instant Connect URLs for one or multiple hosts and guests. The API allows for a variety of customizations via its request payload, including:

- A configurable meeting subject
- Not before and expiration times for the authorization JWT
- Automatic addition of Cisco devices to a meeting
- Parameters to set the number of hosts and guests up to a combined maximum of 25 (you can use the same API call to generate another 25 if necessary)
- An option to generate short URLs
- Various advanced encryption options

## Activity Objective

In this exercise, you will create a Cisco Connect flow that is triggered via a request to a webhook.

- Create a bot
- Use bot token to make API requests
- Create meeting links from API responses
- Create a Python script to automate this process

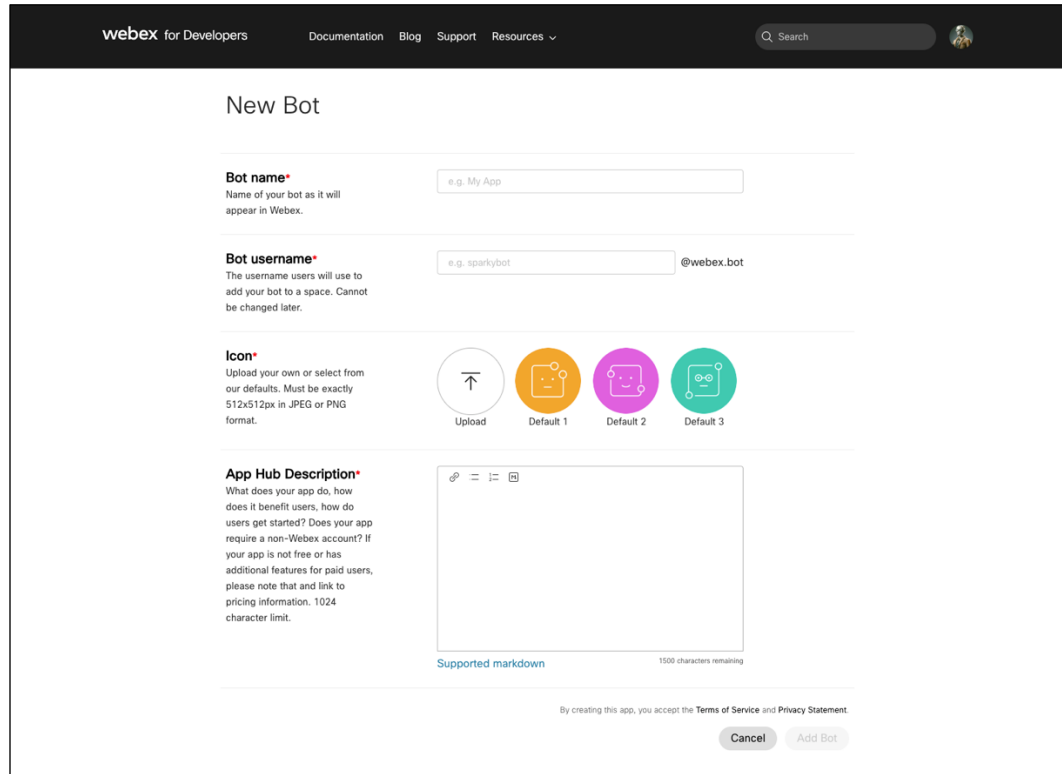
## Task 1: Retrieve a Bot Token for Production Usage

First, you'll need to generate an access token which is required to make the API call to retrieve the encrypted part of the URLs. For this lab, we will create a 100 year Bot token for production use.

### Activity Procedure

Complete these steps to retrieve your Webex developer sandbox API token:

**Step 1:** For a production-level implementation, you should create a new Webex Bot, and use the Bot's access token (valid for 100 years). Navigate to [the Cisco FedRAMP New Bot page](#) to create a bot. Login with your Cisco ID if prompted.



The screenshot shows the 'New Bot' form in the Webex for Developers portal. The form is titled 'New Bot' and is located on a page with a dark header containing the 'webex for Developers' logo and navigation links for 'Documentation', 'Blog', 'Support', and 'Resources'. A search bar and a user profile icon are also visible in the header.

The form consists of several sections:

- Bot name\***: A text input field with the placeholder 'e.g. My App'. Below the field, it says 'Name of your bot as it will appear in Webex.'
- Bot username\***: A text input field with the placeholder 'e.g. sparkybot' and a dropdown menu showing '@webex.bot'. Below the field, it says 'The username users will use to add your bot to a space. Cannot be changed later.'
- Icon\***: A section with the text 'Upload your own or select from our defaults. Must be exactly 512x512px in JPEG or PNG format.' Below this text are four options: 'Upload' (with an upload icon), 'Default 1' (with an orange icon), 'Default 2' (with a purple icon), and 'Default 3' (with a teal icon).
- App Hub Description\***: A rich text editor with a toolbar containing a link icon, a list icon, and a link icon. Below the editor, it says 'Supported markdown' and '1500 characters remaining'. The text inside the editor is empty.

At the bottom of the form, there is a small text: 'By creating this app, you accept the [Terms of Service](#) and [Privacy Statement](#).' Below this text are two buttons: 'Cancel' and 'Add Bot'.


**Step 2:** Choose a unique Bot username, like "VA-instant-connect-[your last name]@webex.bot". Select an Icon, write a brief description for your bot, and click Add Bot.

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## New Bot

**Bot name\***  
Name of your bot as it will appear in Webex.

**Bot username\***  
The username users will use to add your bot to a space. Cannot be changed later.  @webex.bot  
VA-instant-connect-demo@webex.bot is available

**Icon\***  
Upload your own or select from our defaults. Must be exactly 512x512px in JPEG or PNG format.  Edit

**App Hub Description\***  
What does your app do, how does it benefit users, how do users get started? Does your app require a non-Webex account? If your app is not free or has additional features for paid users, please note that and link to pricing information. 1024 character limit.   
Supported markdown    1433 characters remaining

By creating this app, you accept the [Terms of Service](#) and [Privacy Statement](#).

**Step 3:** Copy the Bot access token once you've created your new bot.

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## Congratulations! 🎉

InstantConnect Bot is one step closer to becoming a reality.

### InstantConnect Bot

👉 **Next Step:** Use your Bot Access Token to set up your webhook and finish building your bot.

**Bot access token**  
Non-expiring (good for 100 years) access token for your bot. Save this token to set up your

💡 **Tip:** Save this token! It won't be shown again (but you can regenerate a new one if needed).

## Task 2: Retrieve a Bot Token for Production Usage

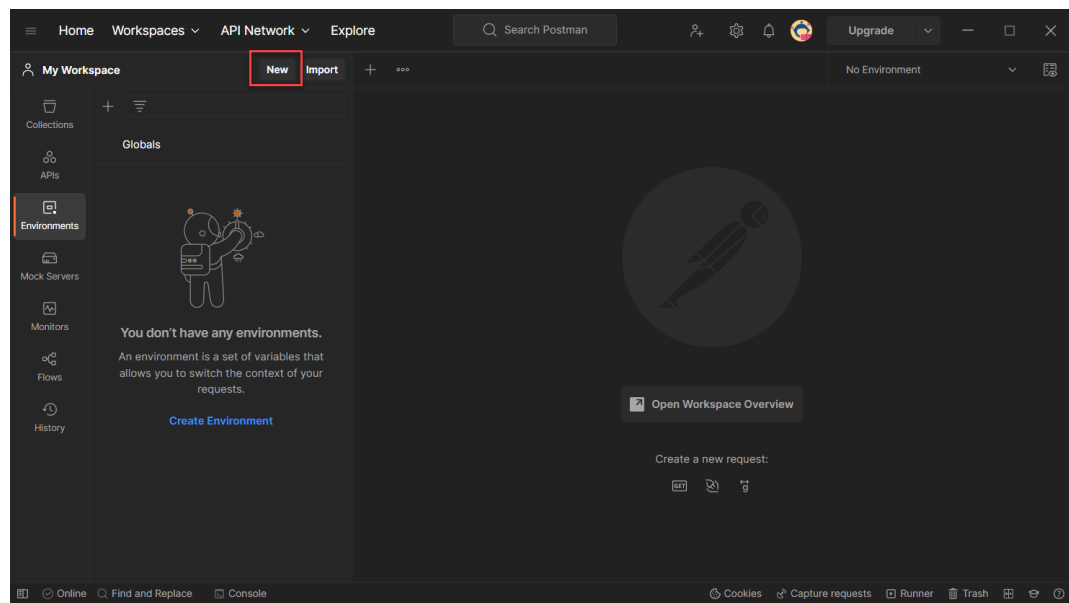
With your access token, you use the Instant Connect API to retrieve the encrypted ciphers that you'll append to the base URLs for hosts and guests. In this section we'll use Postman to walk you through an example REST call that generates ciphers for a single host and a single participant using the minimum required request payload.

This lab uses the desktop version of Postman, but the web version works just as well.

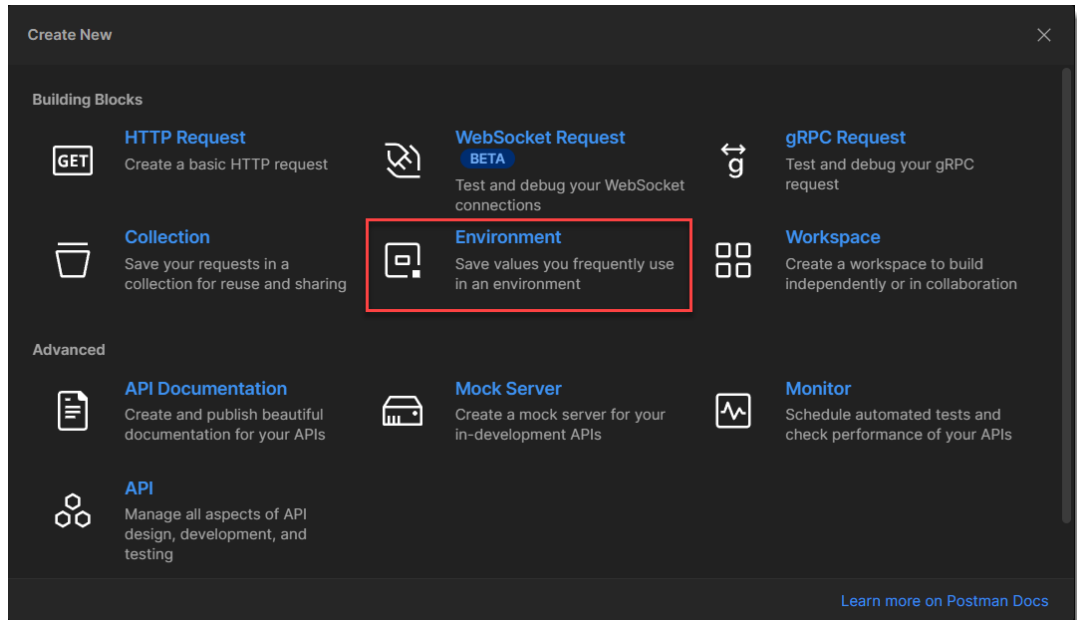
## Activity Procedure

Complete these steps to retrieve the encrypted ciphers using Postman:

**Step 4:** Open Postman and select New.



**Step 5:** Choose Environment.



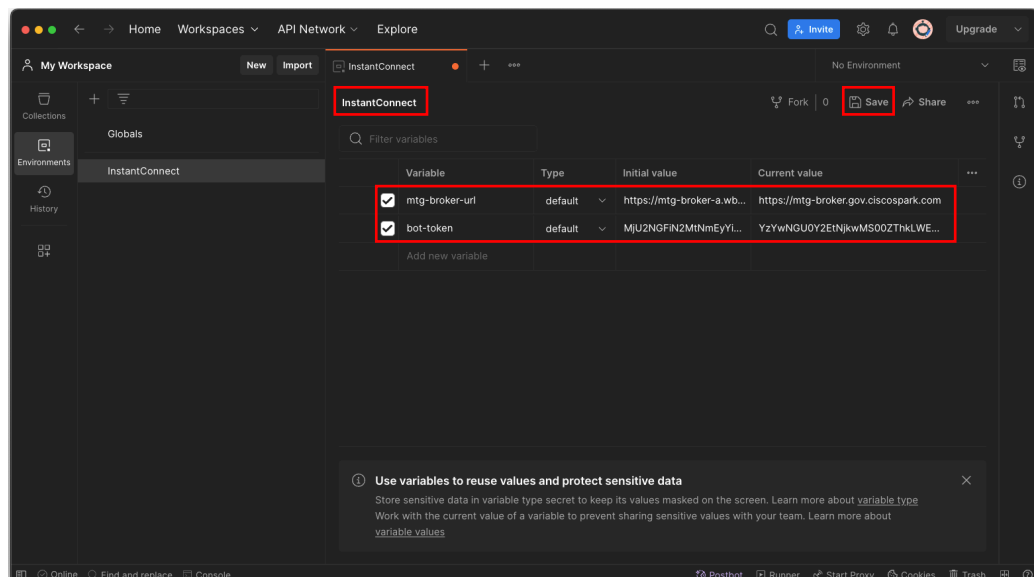
**Step 6:** Name your new environment, in this case *InstantConnect* and define the two following variables with the corresponding values, then click Save:

**Variable:** mtg-broker-url;

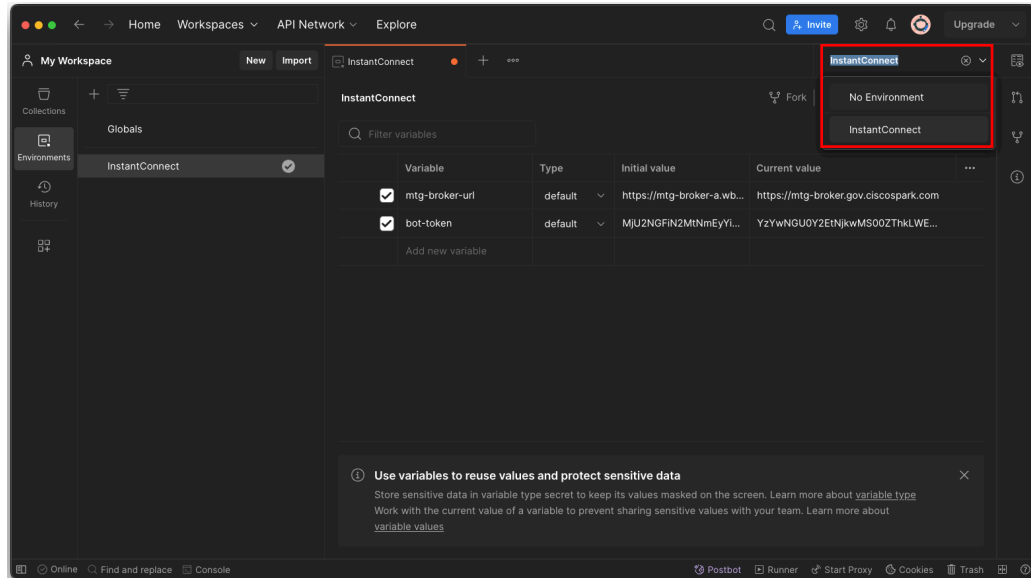
**Initial Value:** https://mtg-broker.gov.ciscospark.com

**Variable:** bot-token;

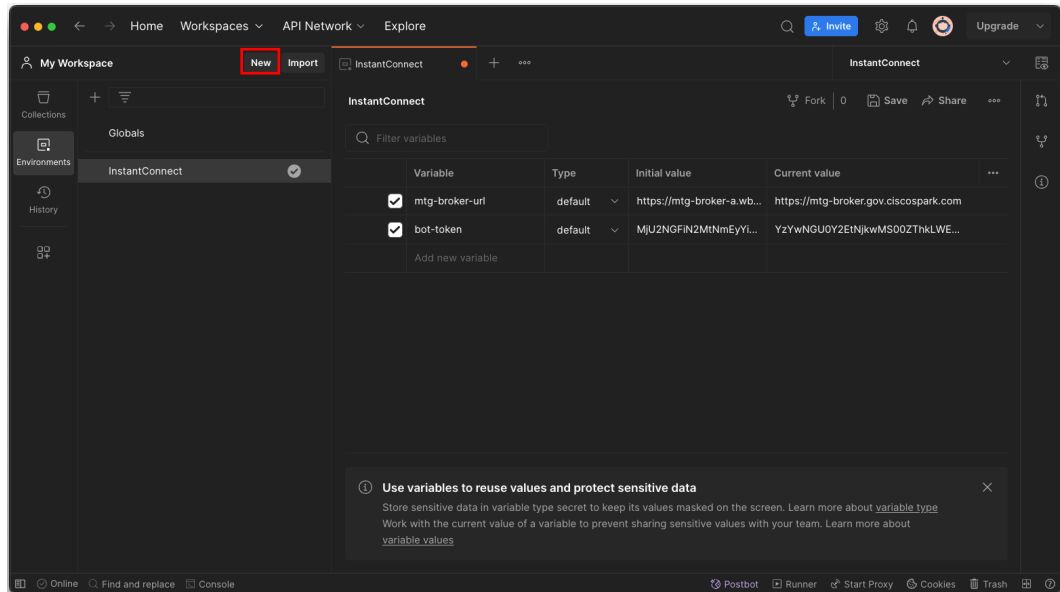
**Initial Value:** paste your bot token here



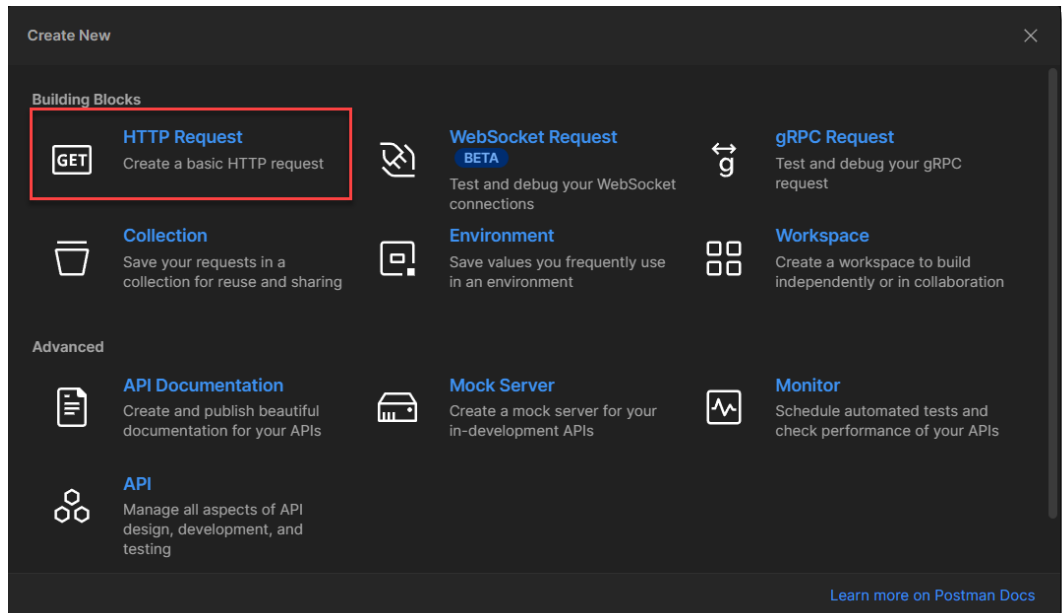
**Step 7:** Choose the InstantConnect environment from the environment dropdown in the top-right of the Postman window.



**Step 8:** Click "New" again.

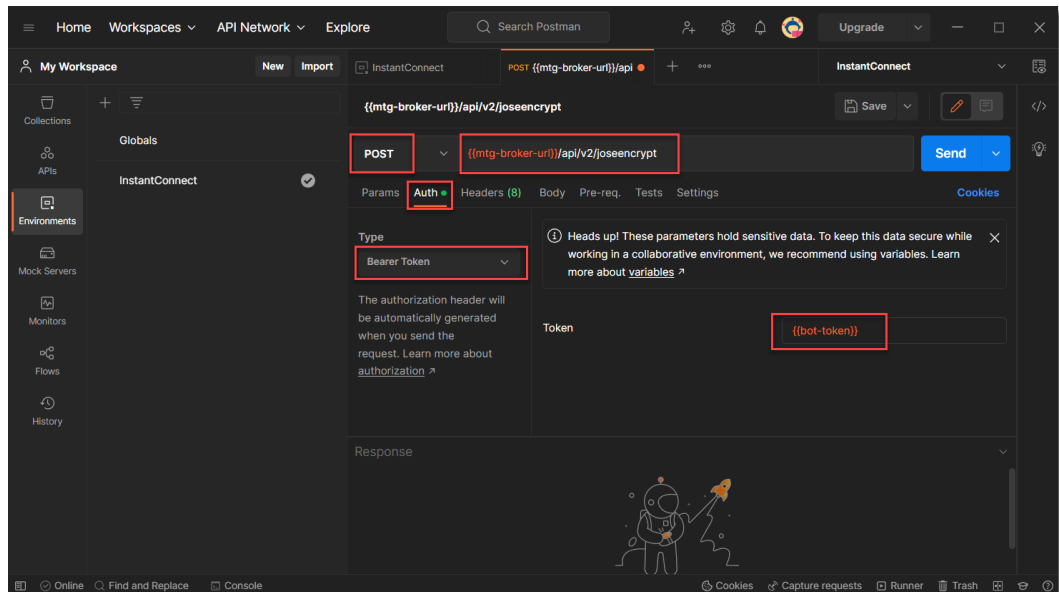


**Step 9:** Choose HTTP Request.



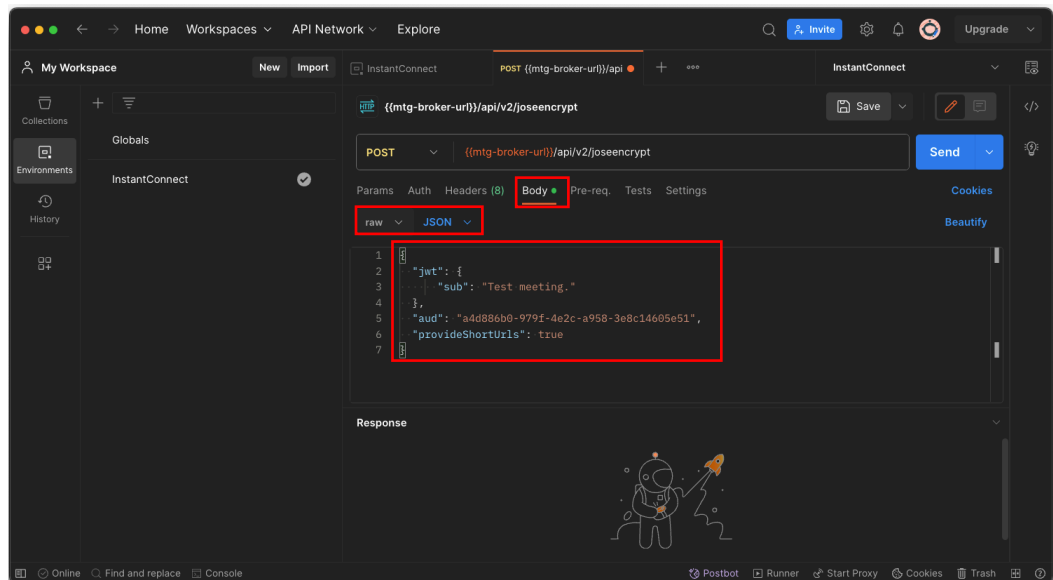
**Step 10:** Configure the request as follows:

- Choose POST as the request type.
- Enter `{{mtg-broker-url}}/api/v2/joseencrypt` as the URL.
- Select Auth, choose Bearer Token as the Type, and enter `{{bot-token}}` as the value for the token.



**Step 11:** Select Body, select the type as raw JSON and enter the following JSON string (you can change the `sub` (subject) string to whatever you'd like as long as it is unique for each meeting):

```
{  
  "jwt": {  
    "sub": "Test Meeting."  
  },  
  "aud": "a4d886b0-979f-4e2c-a958-3e8c14605e51"  
  "provideShortUrls": true  
}
```



**Step 12:** Select Send. You'll see the response in the Body tab of the Postman console.





```
} _____
```

## Activity Verification

You'll notice you've got two `short` values, one for the host and one for a single guest. Those are the values that you'll append to the `baseUrl` to create the meeting links.

For the host URL after appending the value of `short`, you'll get something like:

<https://instant-usgov.webex.com/visit/uEMF98j>

For the guest URL after appending the cipher, you'll get something like:

<https://instant-usgov.webex.com/visit/HHJu07S>

You have completed this task when you attain these results:

- Get a response from the Instant Connect API in Postman
- Locate the value of “short” within “host” and “guest” within the API response
- Locate the value of “baseUrl” within the API response

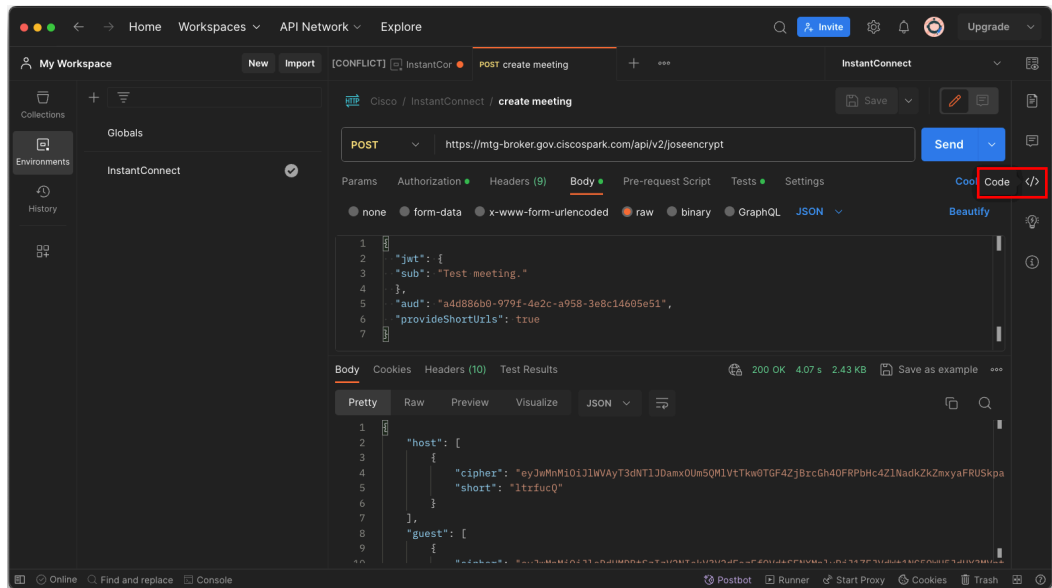
## Task 3: Create a Python Script

In this section of the lab, we will extract a Python code snippet from Postman to use in our project.

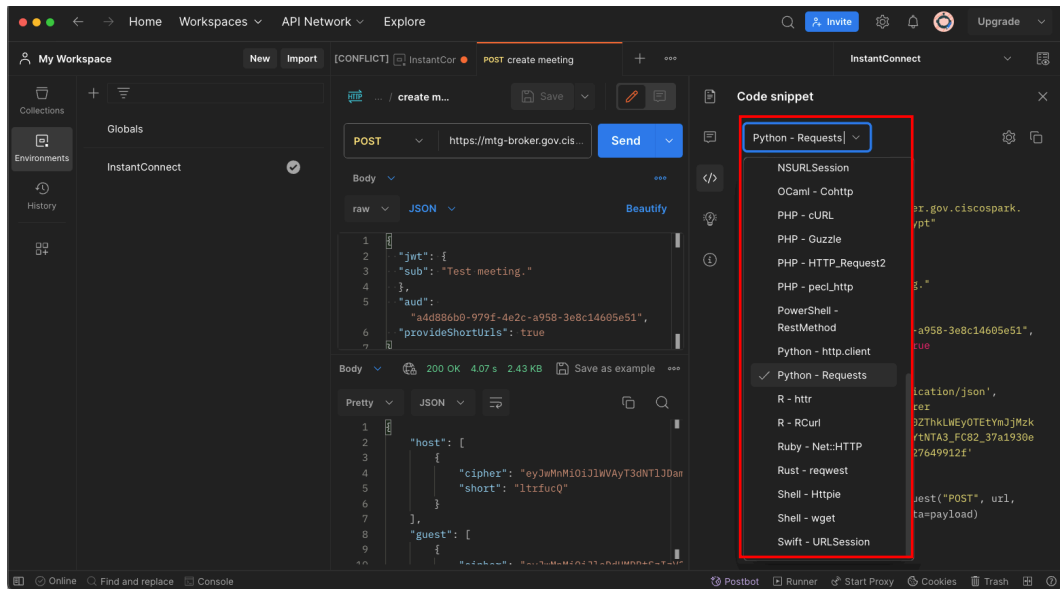
### Activity Procedure

Complete these steps:

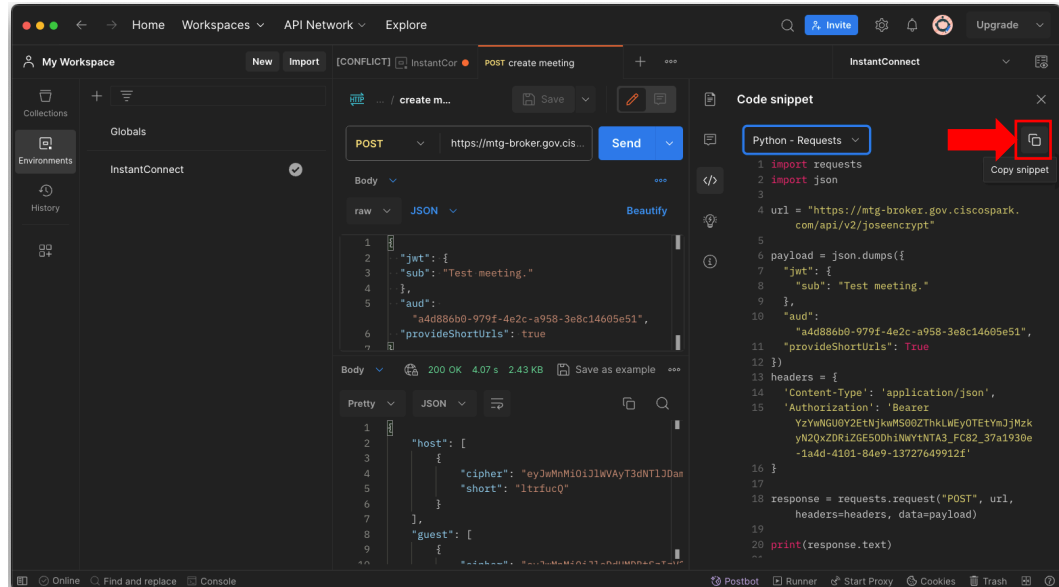
- Step 13:** In the Postman window, look to the right sidebar and locate the ``</>` code` icon, which is the symbol for Postman's code snippet feature. Click this icon to reveal a pop-out panel.



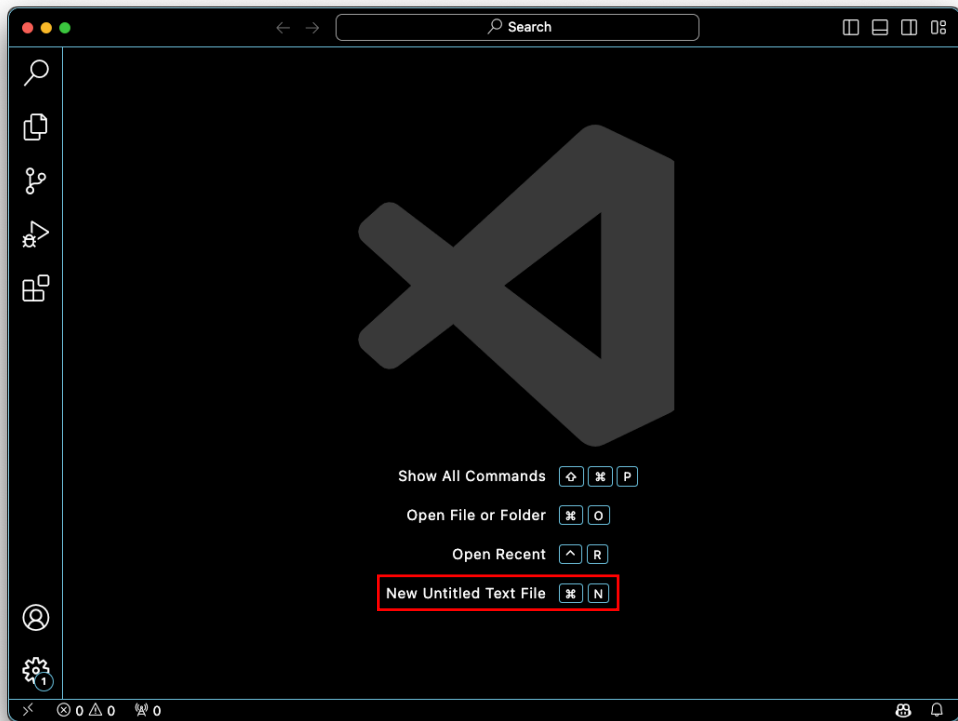
**Step 14:** Within the pop-out panel, you will see a dropdown menu offering a variety of programming languages and tools. Select 'Python - Requests' from this menu. The panel will then display a code snippet that translates your API request into Python code. This code uses the Requests library to make HTTP calls, which is a popular choice due to its simplicity and the readability of the code.

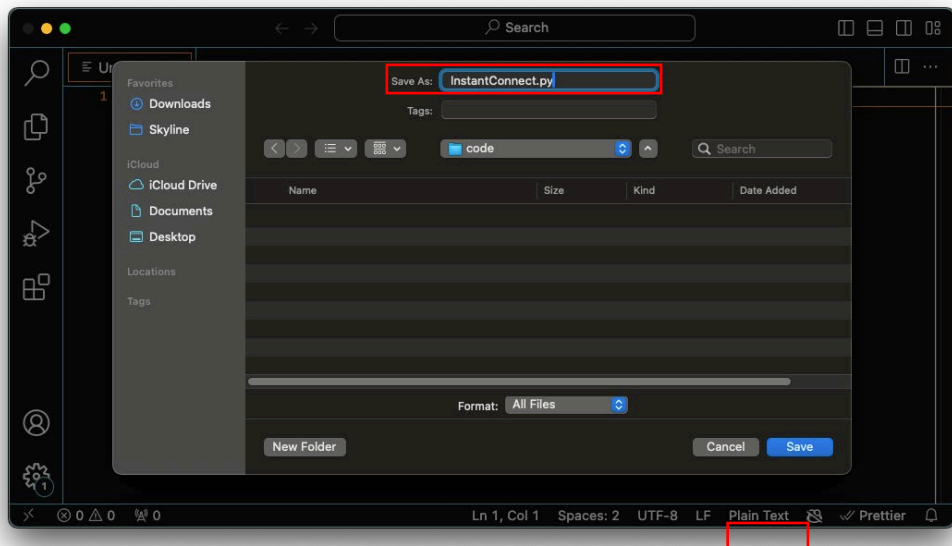


**Step 15:** Click the "Copy Snippet" button to copy the generated Python code to your clipboard. This snippet is a ready-to-execute piece of code that will replicate the API request you've just set up in Postman.



**Step 16:** Next, you will move to Visual Studio Code (VS Code), an efficient and versatile code editor. Once VS Code is open, create a new file by clicking on the 'New File' icon or using the shortcut Ctrl+N (Cmd+N on Mac). Save this file with the name `InstantConnect.py` by clicking on 'File' > 'Save' or using the shortcut Ctrl+S (Cmd+S on Mac). This naming convention is important as it indicates the file is a Python script.





**Step 17:** After saving the new file, you're ready to paste the code snippet you copied from Postman. Click anywhere in the body of `InstantConnect.py` and paste the snippet. This pasted Python code is what you'll use to interact programmatically with the Webex Instant Connect API. Ensure that the indentation and formatting are preserved when pasting, as Python is sensitive to such syntax.

```
1 import requests
2 import json
3
4 url = "https://mtg-broker.gov.ciscospark.com/api/v2/joseencrypt"
5
6 payload = json.dumps({
7     "jwt": {
8         "sub": "Test meeting."
9     },
10    "aud": "a4d886b0-979f-4e2c-a958-3e8c14605e51",
11    "provideShortUrls": True
12 })
13 headers = {
14     'Content-Type': 'application/json',
15     'Authorization': 'Bearer YzYwNGU0Y2EtNjkwMS00ZThkLWVlOTEtYmJkMzkyN2QxZDRiZGE5ODhiNWYtNTA3_FC82_37a1930e-1a4d-4d'
16 }
17
18 response = requests.request("POST", url, headers=headers, data=payload)
19
20 print(response.text)
21
```



which can be overwhelming with information that might not be immediately relevant. We will find data within that object and formulate a more readable and useful output.

## Activity Procedure

Complete these steps:

**Step 19:** To enhance the readability of the script's output, replace the existing print statement (which should be on line 20) with a new print statement designed to extract and display only the guest URL. Locate the line `print(response.text)` at the end of your `InstantConnect.py` script. This line is responsible for printing the raw text of the response object to the console.

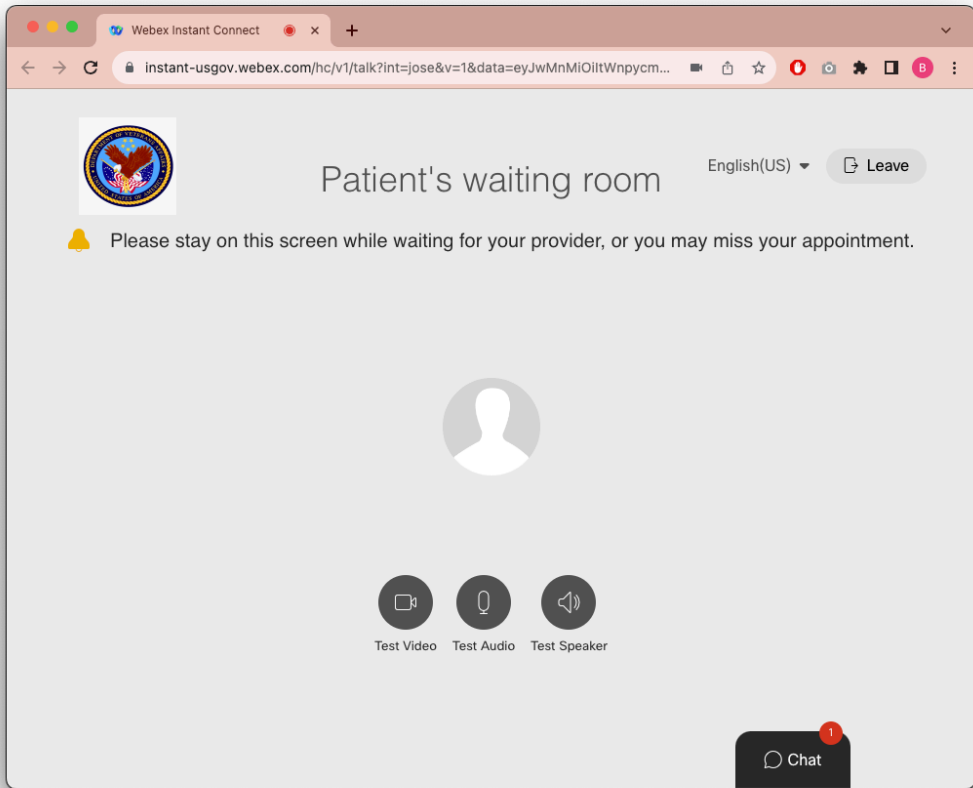
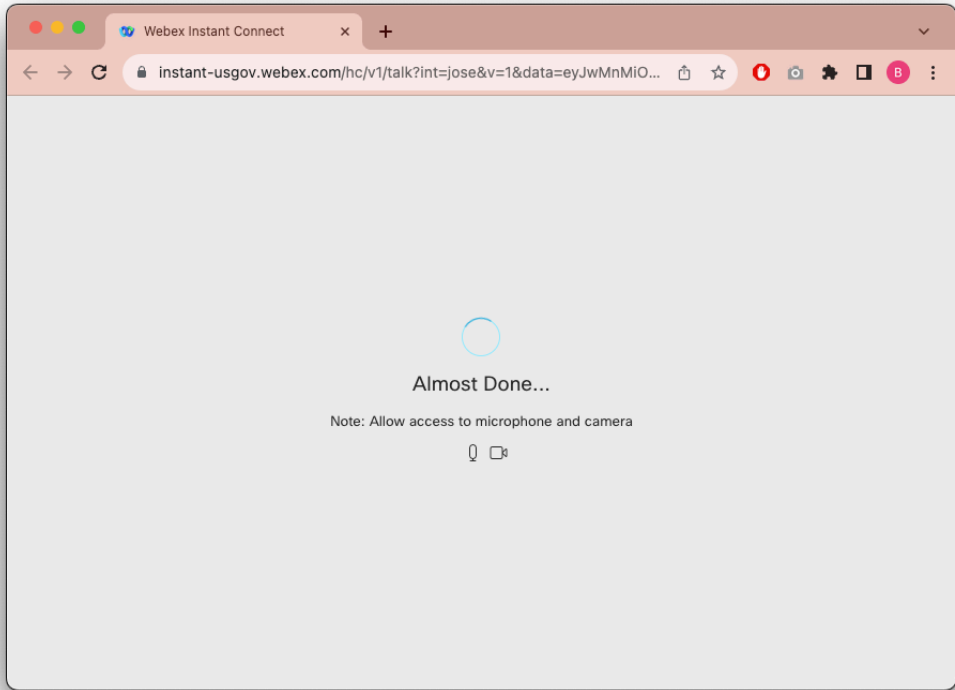
Replace this line with `print("THE GUEST URL IS: ", response.json()["baseUr1"] + response.json()["guest"][0]["short"])`. This new line of code does a couple of things differently. First, it calls `response.json()`, which converts the JSON response from the API into a Python dictionary. This allows you to access specific parts of the response using key-value pairs. Next, it concatenates the `baseUr1` with the `short` URL for the guest, both of which are elements within the JSON response. The index `[0]` is used to access the dictionary within the Guest array.

The `print()` statement is also formatted to include a descriptive string, making it clear to the user what is being outputted. When the script is run with this new line, the terminal will display THE GUEST URL IS: followed by the actual URL, providing a concise and clear output. This change not only makes the result more digestible but also gears the functionality of the script towards practical use, as users can immediately use the URL without needing to parse through extraneous









## **Activity Verification**

You have completed this task when you attain these results:

- You can access the meeting as a guest with the generated guest URL
- You are able to start the meeting as the host with the generated host URL

# Instant Connect URL REST API Reference

This section contains the full reference for all the Instant Connect URL REST API including example requests and responses.

## Request Endpoint

The REST API endpoint is:

- POST <https://mtg-broker-a.wbx2.com/api/v2/joseencrypt>

## Request Headers

Use the following headers in your request:

- **Content-Type:** application/json
- **Authorization:** Bearer <Personal or Bot access token goes here>

## Body Parameters

Use the following body parameters to customize your REST request:

Parameter	Description
aud (required)	String Value: a4d886b0-979f-4e2c-a958-3e8c14605e51 Indicates the audience for which the JWT is intended.
jwt (required)	Object
sub (required) (under jwt)	String A unique value in your organization which will be used to place hosts and guests into the same collaboration space.
nbf (under jwt)	Integer The nbf (not before) claim identifies the time given as the number of seconds from the Unix Epoch (1970-01-01T00:00:00Z UTC) before which the JWT will not be accepted for processing.

Parameter	Description
exp (under jwt)	Integer The exp (expiration time) claim identifies the expiration time given as the number of seconds from the Unix Epoch (1970-01-01T00:00:00Z UTC) on or after which the JWT will not be accepted for processing. If not specified, set for 15 minutes later than the time when the request was made.
flow (under jwt)	Object
id (under flow)	String Takes only one value currently - sip-no-knock. If id is defined along with data mentioned below, the SIP addresses mentioned in the data object will be called to join the Instant Connect Meeting.
data (under flow)	Object List of Cisco Device SIP addresses that should be added to this meeting automatically.
numHost	Integer [0 ... 25] Default: 1 Number of encrypted strings to be used by hosts. <b>NOTE:</b> The maximum number of links, combining both host and guest, that can be requested at one time is 25.
numGuest	Integer [0 ... 25] Default: 1 Number of encrypted strings to be used by guests. <b>NOTE:</b> The maximum number of links, combining both host and guest, that can be requested at one time is 25.
provideShortUrls	Boolean Default: false If set to true, the response will have shortened data portions of the meeting URL. It will also contain a shortened base URL
verticalType	String Default: hc Relevant only if provideShortUrls is true. Currently takes two values, gen (for general flow) and hc (for healthcare flow).

Parameter	Description
loginUrlForHost	Boolean Default: true Relevant only if provideShortUrls is true. If set to false, the short URL for hosts will be non-login links which means the host won't have an option to login for the meeting.
jweAlg	String Default: PBES2-HS512+A256KW Enum: PBES2-HS256+A128KW PBES2-HS384+A192KW PBES2-HS512+A256KW Algorithm to encrypt the Content Encryption Key, which produces the JWE Encrypted Key.
saltLength	Integer [8 ... 128] Default: Random value between 8 and 128 inclusive. Length of the salt to be used in conjunction with jweAlg.
iterations	Integer [1000 ... 32767] Default: A random value between 1000 and 32767 inclusive. Number of iterations to be used in conjunction with the jweAlg.
enc	String Default: A256GCM Options: A128CBC-HS256 A192CBC-HS384 A256CBC-HS512 A128GCM A192GCM A256GCM Algorithm used to encrypt the JWT.
jwsAlg	String Default: HS512 Options: HS256 HS384 HS512 Algorithm used to sign the JWT.

## Response

A successful request returns:

- A response message of type 200 OK
- A response payload of type application/json

## Request and Response Payload Examples

The following examples show various request payloads as a formatting reference as well as their resultant responses.

The `cipher` values are truncated to save space.

### Minimum Request Body Payload

```
{
  "jwt": {
    "sub": "Subject goes here."
  },
  "aud": "a4d886b0-979f-4e2c-a958-3e8c14605e51"
}
```

### Response from the Minimal Request Body

```
{
  "host": [
    {
      "cipher": "eyJwMnMiOiJiLVZB...xtzA"
    }
  ],
  "guest": [
    {
      "cipher": "eyJwMnMiOiJuNmXv...FaqA"
    }
  ]
}
```

### Complete Sample JSON Request Payload Without Device Support

To create multiple host and guest URLs in the same response, increase the value of `numHost` and `numGuest` up to a maximum of 25.

```
{
  "jwt": {
    "sub": "Subject goes here.",
    "Nbf": 1671480433000,
    "Exp": 1671480433000
  },
  "aud": "a4d886b0-979f-4e2c-a958-3e8c14605e51",
  "numGuest": 1,
  "numHost": 1,
  "provideShortUrls": false,
  "verticalType": "gen",
  "loginUrlForHost": false,
  "jweAlg": "PBES2-HS512+A256KW",
  "saltLength": 8,
  "iterations": 1000,
  "enc": "A256GCM",
  "jwsAlg": "HS512"
}
```

### Complete Sample JSON Response Payload Without Device Support

In this case the response will appear similar to the minimal request payload response above. The cipher provided, however will reflect the additional configuration options. In addition, increasing the values for `numHost` and `numGuest` will return multiple cipher instances that you can use to create multiple Instant Connect URLs.

### Complete Sample JSON Request Payload Including Device Support

To enable device support, add the `flow` element to the `jwt` element in your regular request body.

You can have multiple SIP addresses as well.



```
{
  "jwt": {
    "sub": "Subject goes here.",
    "Nbf": 1671480433000,
    "Exp": 1671480433000,
    "flow": {
      "id": "sip-no-knock",
      "data": [
        {
          "uri": "example1@intadmin.room.wbx2.com"
        },
        {
          "uri": "example2@intadmin.room.wbx2.com"
        }
      ]
    }
  },
  "aud": "a4d886b0-979f-4e2c-a958-3e8c14605e51",
  "numGuest": 1,
  "numHost": 1,
  "provideShortUrls": true,
  "verticalType": "gen",
  "loginUrlForHost": false,
  "jweAlg": "PBES2-HS512+A256KW",
  "saltLength": 8,
  "iterations": 1000,
  "enc": "A256GCM",
  "jwsAlg": "HS512"
}
```

**Complete Sample JSON Response Payload Including Device Support**

As with the other complete payload, the response will appear similar to the minimal request payload response above. The cipher provided, however will reflect the additional configuration options and the SIP addresses are added once the host joins the meeting.