EXPERIMENTATION AND VALIDATION OPENNESS FOR LONGTERM EVOLUTION OF VERTICAL INDUSTRIES IN 5G ERA AND BEYOND

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# Exploring APIs of the EVOLVED-5G CAPIF core function (CCF) - Release 1.0 with the Postman tool

| | |
|---|---|
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| | |

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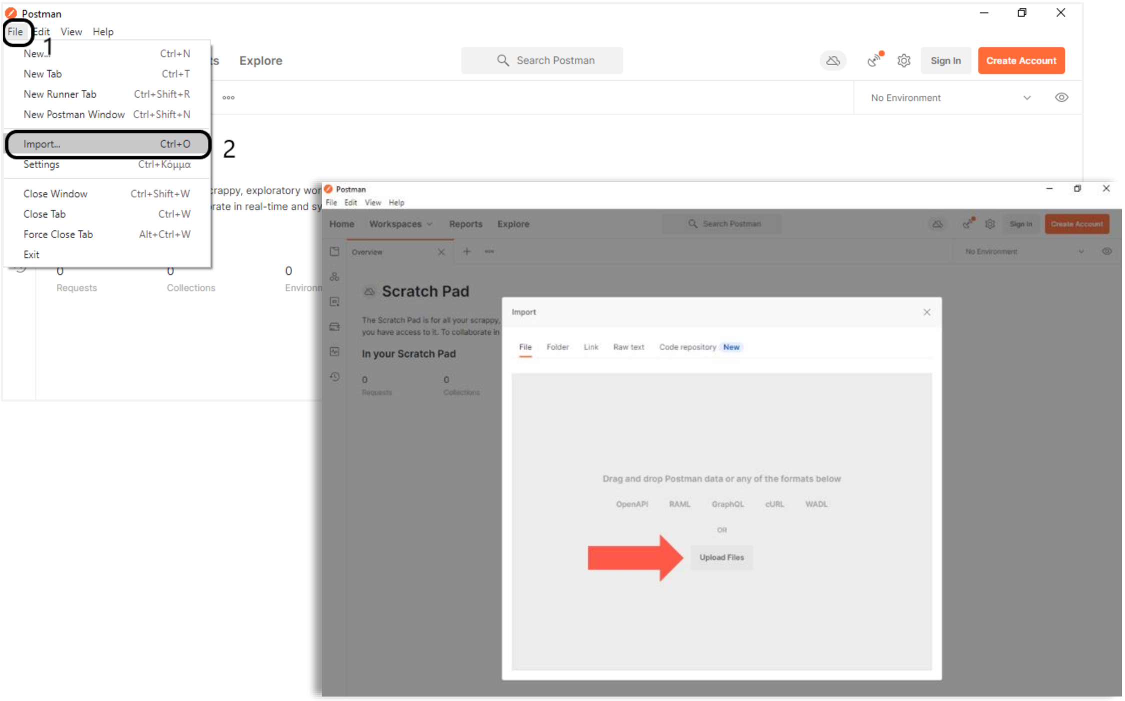
# USE POSTMAN TO INTERACT WITH CCF

Here a detailed set of instructions is provided for those who want to test the usage of the EVOLVED5G CCF Release 1.0 using manual API calls through the Postman tool.

Prerequisite to this process is the installation of the CCF API services.

## POSTMAN BASICS

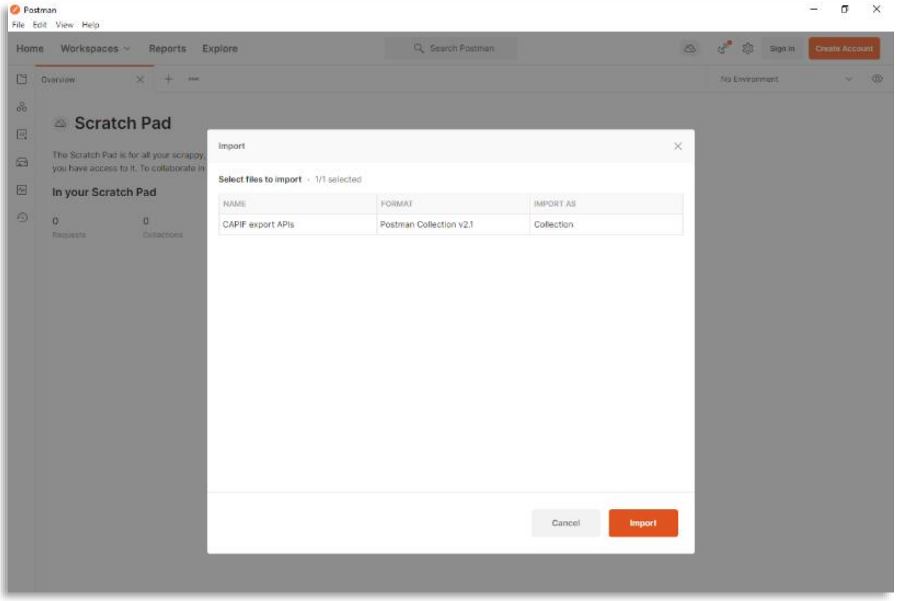
Start the Postman tool and select import



The Scratch Pad is for all your scrappy, exploratory work ... you have access to it. To collaborate in real-time and sy...

Drag and drop Postman data or any of the formats below

Find in your file system and select for import the **CAPIF export APIs.postman_collection.json** file (The *CAPIF export APIs.postman_collection.json* file is available in the CCF Release 1.0 repository under the **docs/testing_with_postman** folder)



The Scratch Pad is for all your scrappy, ... you have access to it. To collaborate in ...

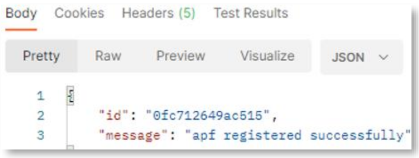
Select files to import · 1/1 selected

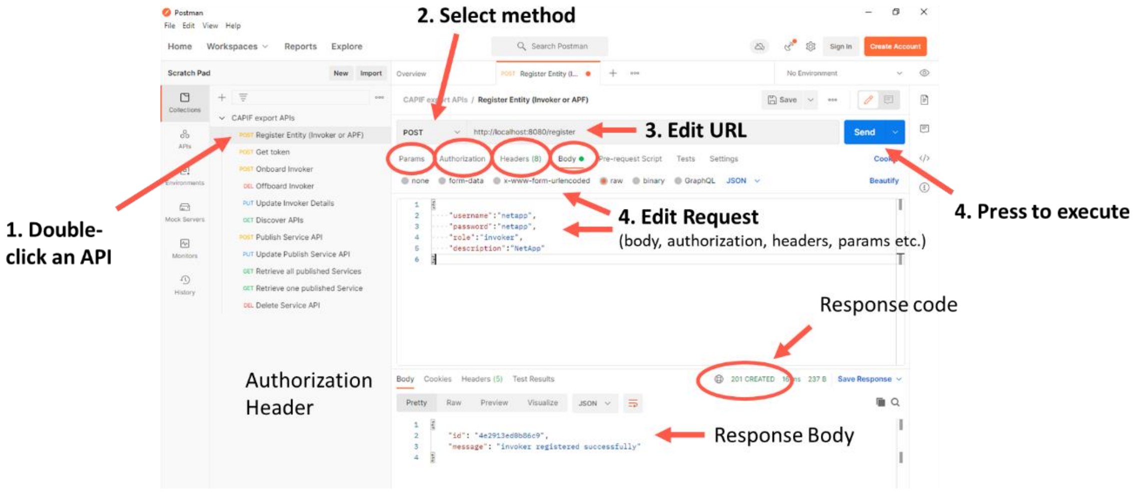
| NAME | FORMAT | IMPORT AS |
|---|---|---|
| CAPIF export APIs | Postman Collection v2.1 | Collection |

## AUTHENTICATION PRIOR EXECUTING A CAPIF API CALL IN YOUR POSTMAN WORKSPACE

Register an entity (either an API invoker or an APF of the API provider)

The registration of an entity is a fundamental first step before the use of any API

| | Action | Value | Comment |
|---|---|---|---|
| 1 | Double-click to select API | "Register Entity (Invoker or APF)" | The First API in the list |
| 2 | Select method | "POST" | The default one is POST |
| 3 | Edit URL | "http://<CAPIF Host IP>:8080/register" | If the CCF is installed locally the URL should be http://localhost:8080/register |
| 4 | Edit Request | e.g.<br>For API invoker<br>`"username":"netapp",`<br>`"password":"netapp",`<br>`"role":"invoker",`<br>`"description":"Netapp"`<br><br>For APF<br>`"username":"apf",`<br>`"password":"apf",`<br>`"role":"apf",`<br>`"description":"APF"` | |
| 5 | Collect the **ID** | A code that is found in the response area.<br>E.g.:<br><br>`"id": "0fc712649ac615",`<br>`"message": "apf registered successfully"` | |



2. Select method

3. Edit URL

1. Double-click an API

4. Edit Request
(body, authorization, headers, params etc.)

4. Press to execute

Response code

Authorization Header

Response Body

POST http://localhost:8080/register

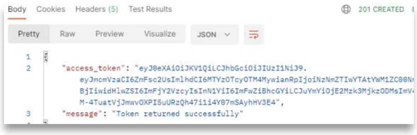
```
{
    "username":"netapp",
    "password":"netapp",
    "role":"invoker",
    "description":"NetApp"
}
```

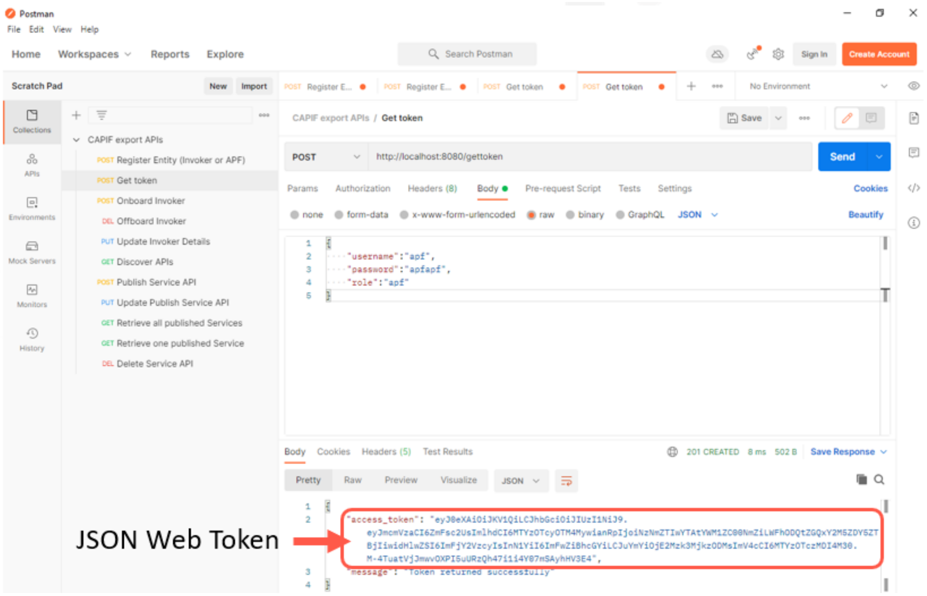
201 CREATED

```
{
    "id": "4e2913ed8b86c9",
    "message": "invoker registered successfully"
}
```

Get a Token for the registered entity

| | Action | Value | Comment |
|---|---|---|---|
| 1 | Double-click to select API | "Get token" | |
| 2 | Select method | "POST" | The default one is POST |
| 3 | Edit URL | "http://<CAPIF Host IP>:8080/gettoken" | If the CCF is installed locally the URL should be http://localhost:8080/gettoken |

| | | | |
|---|---|---|---|
| 4 | Edit Request | e.g.<br>For API invoker<br>`"username":"netapp",`<br>`"password":" netapp",`<br>`"role":"invoker",`<br><br>For APF<br>`"username":"apf",`<br>`"password":"apf",`<br>`"role":"apf",` | |
| 5 | Collect the **Access Token** | A code that is found in the response area.<br>E.g.:<br> | |



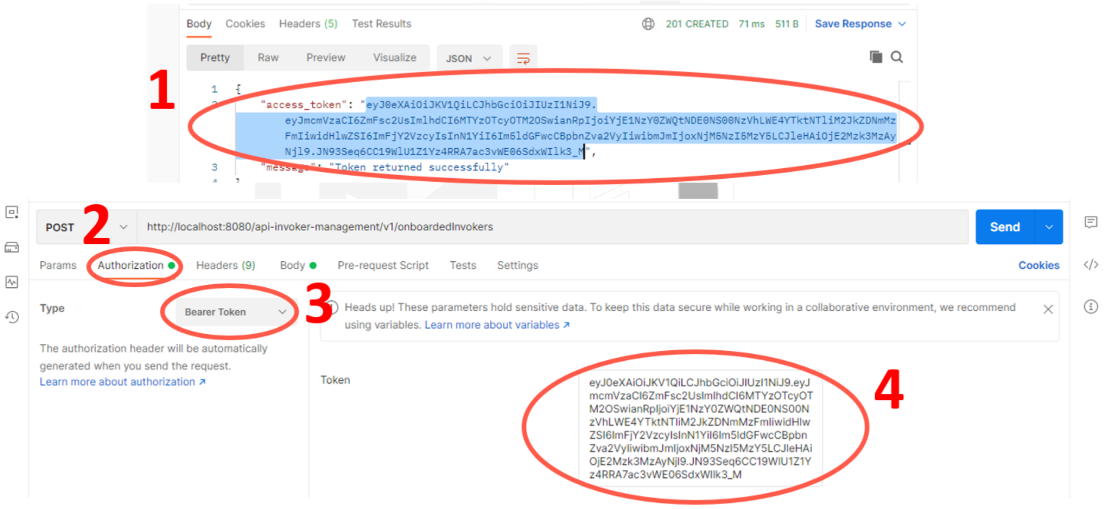
POST http://localhost:8080/gettoken

```
    "username":"apf",
    "password":"apfapf",
    "role":"apf"
```

```
{
    "access_token": "eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.
        eyJmcmVzaCI6ZmFsc2UsImlhdCI6MTYzOTcyOTM4MywianRpIjoiNzNmZTIwYTAtYWM1ZC00NmZiLWFhODQtZGQxY2M5ZDY5ZT
        BjIiwidHlwZSI6ImFjY2VzcyIsInN1YiI6ImFwZiBhcGYiLCJuYmYiOjE2Mzk3MjkzODMsImV4cCI6MTYzOTczMDI4MzB.
        M-4TuatVjJmwvOXPI5uURzQh47i1i4Y07mSAyhHV3E4",
    "message": "Token returned successfully"
}
```

Use the collected token for any CAPIF call

For each API call of CAPIF, we have to copy the corresponding token (of the invoker or the APF) to Authorization header. This procedure is depicted below.



```
{
    "access_token": "eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.
        eyJmcmVzaCI6ZmFsc2UsImlhdCI6MTYzOTcyOTM2OSwianRpIjoiYjE1NzY0ZWQtNDE0NS00NzVhLWE4YTktNTliM2JkZDNmMz
        FmIiwidHlwZSI6ImFjY2VzcyIsInN1YiI6Im5ldGFwcCBpbnZva2VyIiwibmJmIjoxNjM5NzI5MzY5LCJleHAiOjE2Mzk3MzAy
        Njl9.JN93Seq6CC19WlU1Z1Yz4RRA7ac3vWE06SdxWIlk3_M",
    "message": "Token returned successfully"
}
```

POST http://localhost:8080/api-invoker-management/v1/onboardedInvokers

Type: Bearer Token

The authorization header will be automatically generated when you send the request.
Learn more about authorization ↗

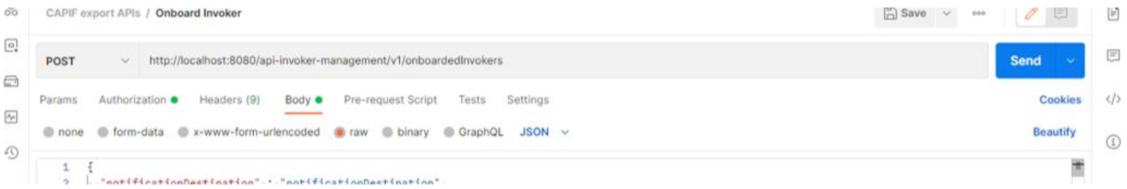
Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about variables ↗

Token: eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJmcmVzaCI6ZmFsc2UsImlhdCI6MTYzOTcyOTM2OSwianRpIjoiYjE1NzY0ZWQtNDE0NS00NzVhLWE4YTktNTliM2JkZDNmMzFmIiwidHlwZSI6ImFjY2VzcyIsInN1YiI6Im5ldGFwcCBpbnZva2VyIiwibmJmIjoxNjM5NzI5MzY5LCJleHAiOjE2Mzk3MzAyNjl9.JN93Seq6CC19WlU1Z1Yz4RRA7ac3vWE06SdxWIlk3_M

## Invoker Management APIs

### Onboard an Invoker

- Add the received Token of the Invoker in the Authorization area as described in Use the collected token for any CAPIF call
- POST http://<CAPIF Host IP>:8080/api-invoker-management/v1/onboardedInvokers

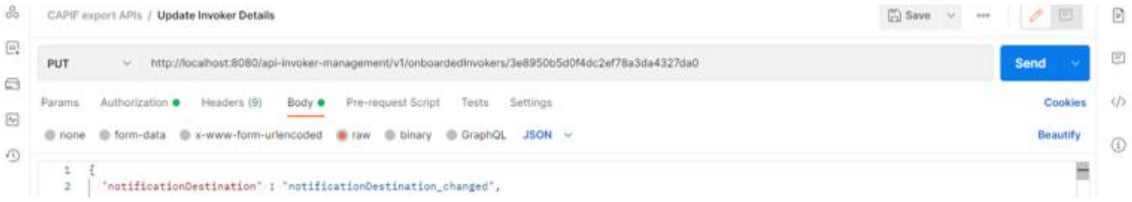


POST http://localhost:8080/api-invoker-management/v1/onboardedInvokers

```
{
"notificationDestination" : "notificationDestination"
```

### Update Invoker Details

- Add the received Token of the Invoker in the Authorization area as described in Use the collected token for any CAPIF call
- PUT http://<CAPIF Host IP>:8080/api-invoker-management/v1/onboardedInvokers/<API Invoker ID>

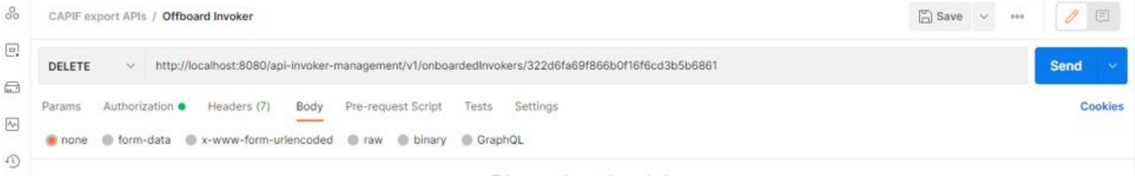


PUT http://localhost:8080/api-invoker-management/v1/onboardedInvokers/3e8950b5d0f4dc2ef78a3da4327da0

```
{
"notificationDestination" : "notificationDestination_changed",
```

### Offboard an Invoker

- Add the received Token of the Invoker in the Authorization area as described in Use the collected token for any CAPIF call
- DELETE http://<CAPIF Host IP>:8080/api-invoker-management/v1/onboardedInvokers/<API Invoker ID>

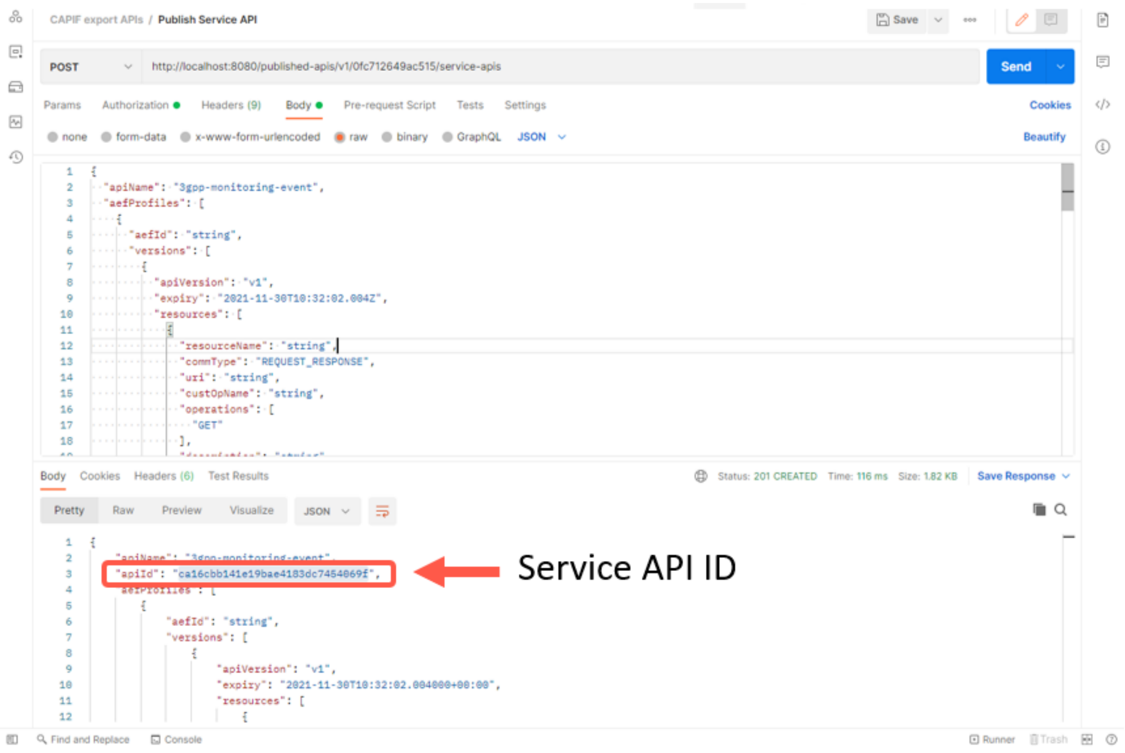


DELETE http://localhost:8080/api-invoker-management/v1/onboardedInvokers/322d6fa69f866b0f16f6cd3b5b6861

## Publish APIs

### Publish a new API

- Add the received Token of the APF in the Authorization area as described in Use the collected token for any CAPIF call
- POST http://<CAPIF Host IP>:8080/published-apis/v1/<APF ID>/service-apis
- Collect the Service API ID



POST http://localhost:8080/published-apis/v1/0fc712649ac515/service-apis

```
{
  "apiName": "3gpp-monitoring-event",
  "aefProfiles": [
    {
      "aefId": "string",
      "versions": [
        {
          "apiVersion": "v1",
          "expiry": "2021-11-30T10:32:02.004Z",
          "resources": [
            {
              "resourceName": "string",
              "commType": "REQUEST_RESPONSE",
              "uri": "string",
              "custOpName": "string",
              "operations": [
                "GET"
              ],
```

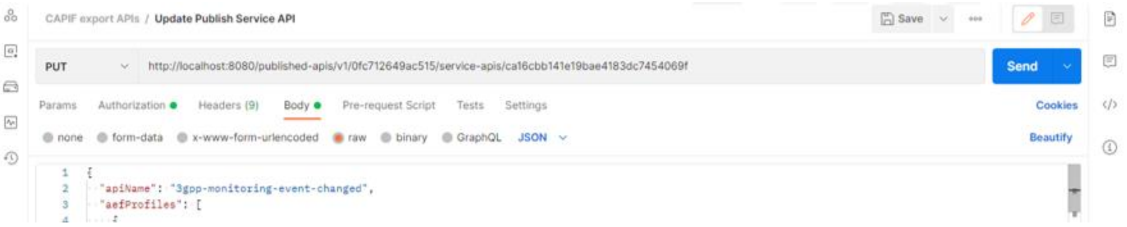
Status: 201 CREATED Time: 116 ms Size: 1.82 KB

```
{
    "apiName": "3gpp-monitoring-event",
    "apiId": "ca16cbb141e19bae4183dc7454069f",
    "aefProfiles": [
        {
            "aefId": "string",
            "versions": [
                {
                    "apiVersion": "v1",
                    "expiry": "2021-11-30T10:32:02.004000+00:00",
                    "resources": [
                        {
```

Service API ID

Update a published service API

- Add the received Token of the APF in the Authorization area as described in Use the collected token for any CAPIF call
- PUT http://<CAPIF Host IP>:8080/published-apis/v1/<APF ID>/service-apis/<Service API ID>

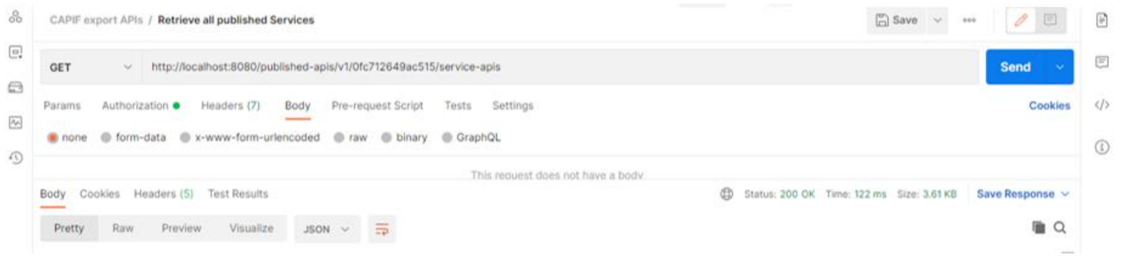


PUT http://localhost:8080/published-apis/v1/0fc712649ac515/service-apis/ca16cbb141e19bae4183dc7454069f

```
{
  "apiName": "3gpp-monitoring-event-changed",
  "aefProfiles": [
```

Retrieve all published APIs

- Add the received Token of the APF in the Authorization area as described in Use the collected token for any CAPIF call
- GET http://<CAPIF Host IP>:8080/published-apis/v1/<APF ID>/service-apis



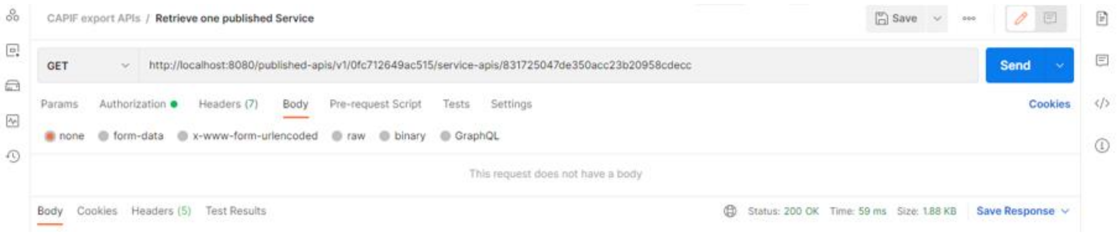
GET http://localhost:8080/published-apis/v1/0fc712649ac515/service-apis

This request does not have a body

Status: 200 OK Time: 122 ms Size: 3.61 KB

### Retrieve a published service API

- Add the received Token of the APF in the Authorization area as described in Use the collected token for any CAPIF call
- GET http://<CAPIF Host IP>:8080/published-apis/v1/<APF ID>/service-apis/<Service API ID>



CAPIF export APIs / Retrieve one published Service

GET http://localhost:8080/published-apis/v1/0fc712649ac515/service-apis/831725047de350acc23b20958cdecc

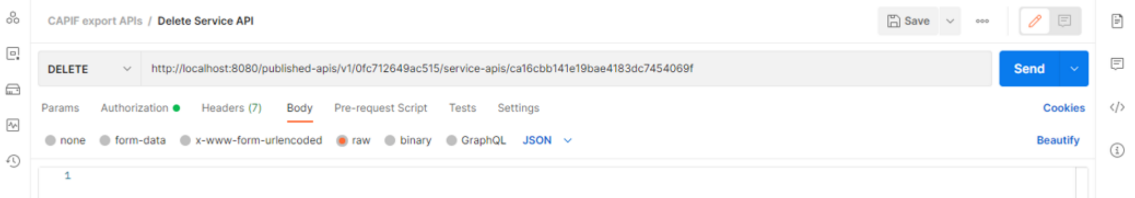
Body: ● none ○ form-data ○ x-www-form-urlencoded ○ raw ○ binary ○ GraphQL

This request does not have a body

Status: 200 OK Time: 59 ms Size: 1.88 KB

### Delete a published service API

- Add the received Token of the APF in the Authorization area as described in Use the collected token for any CAPIF call
- DELETE http://<CAPIF Host IP>:8080/published-apis/v1/<APF ID>/service-apis/<Service API ID>



CAPIF export APIs / Delete Service API

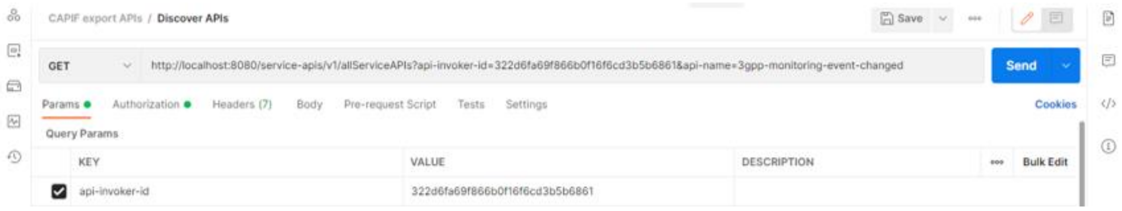
DELETE http://localhost:8080/published-apis/v1/0fc712649ac515/service-apis/ca16cbb141e19bae4183dc7454069f

Body: ○ none ○ form-data ○ x-www-form-urlencoded ● raw ○ binary ○ GraphQL JSON

## Discover API

### Discover published service APIs

- Add the received Token of the Invoker in the Authorization area as described in Use the collected token for any CAPIF call
- GET http:// <CAPIF Host IP> :8080/service-apis/v1/allServiceAPIs?api-invoker-id= <API Invoker ID> &api-name= <API Name>
- Where <API Name> the name of the target API e.g., 3gpp-monitoring-event-changed or any other API name that could be exposed by the API provider (a potential list is the NEF APIs, listed in [https://github.com/jdegre/5GC_APIs#nef-network-exposure-function-1](https://github.com/jdegre/5GC_APIs#nef-network-exposure-function-1))



CAPIF export APIs / Discover APIs

GET http://localhost:8080/service-apis/v1/allServiceAPIs?api-invoker-id=322d6fa69f866b0f16f6cd3b5b6861&api-name=3gpp-monitoring-event-changed

Query Params

| | KEY | VALUE | DESCRIPTION |
|---|---|---|---|
| ☑ | api-invoker-id | 322d6fa69f866b0f16f6cd3b5b6861 | |