Nation Healthcare Safety Network (NHSN)

API Instructions

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SAMS Systems Account Setup

To access any NHSN API, users must have a SAMS Systems account. The below instructions will guide you through the steps needed to request and set up your SAMS Systems Account.

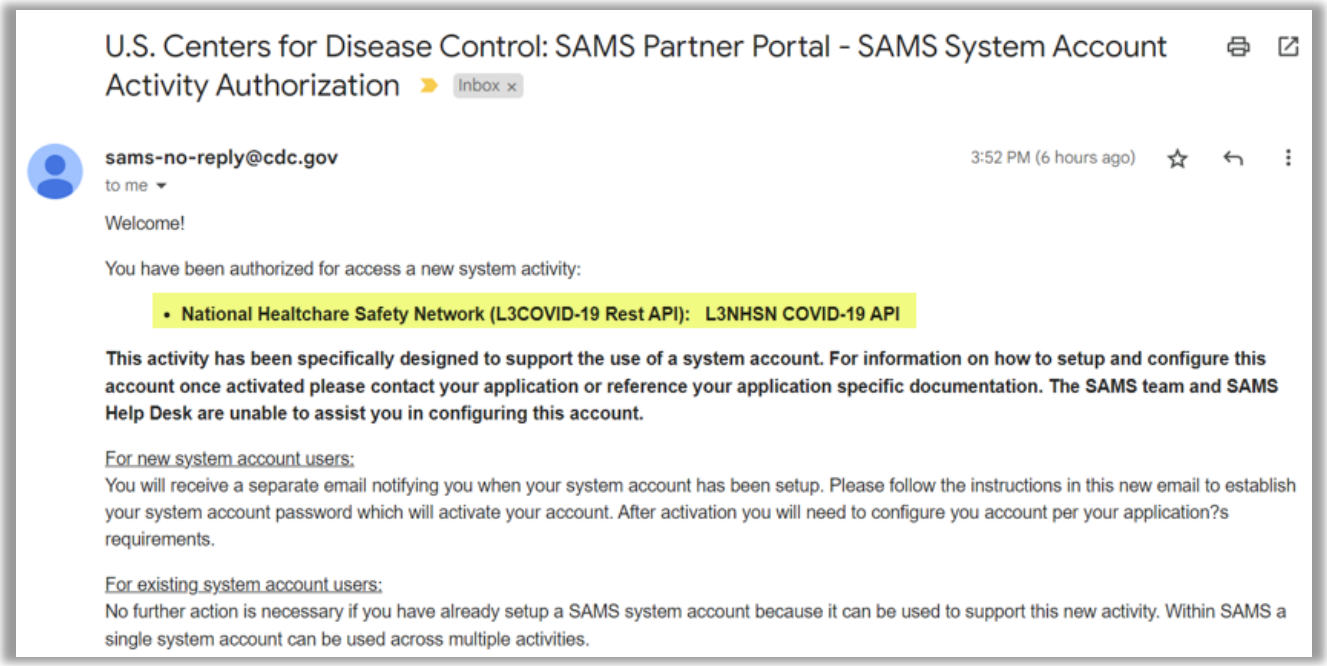
Note: The following instructions assume that the API sponsor completing the steps has requested a SAMS invitation and has the NHSN API activities added to their SAMS account.

If you are the individual responsible for setting up the API and have not registered with SAMS and had API activities added to your account, reach out to NHSN@cdc.gov using the subject line **NHSN API Setup**.

Please indicate if you will need the API activities for submission of Hospital Respiratory Data or the NHSN Connectivity: Bed Capacity Project Data.

SAMS SYSTEM ACCOUNT ACTIVITY AUTHORIZATION

1. When API activities are added to your SAMS account, you will receive the below email noting that you have access to a new system activity: L3NHSN COVID-19 API (see example below) or NHSN Bed Capacity_System.



U.S. Centers for Disease Control: SAMS Partner Portal - SAMS System Account Activity Authorization Inbox ×

sams-no-reply@cdc.gov 3:52 PM (6 hours ago)
to me

Welcome!

You have been authorized for access a new system activity:

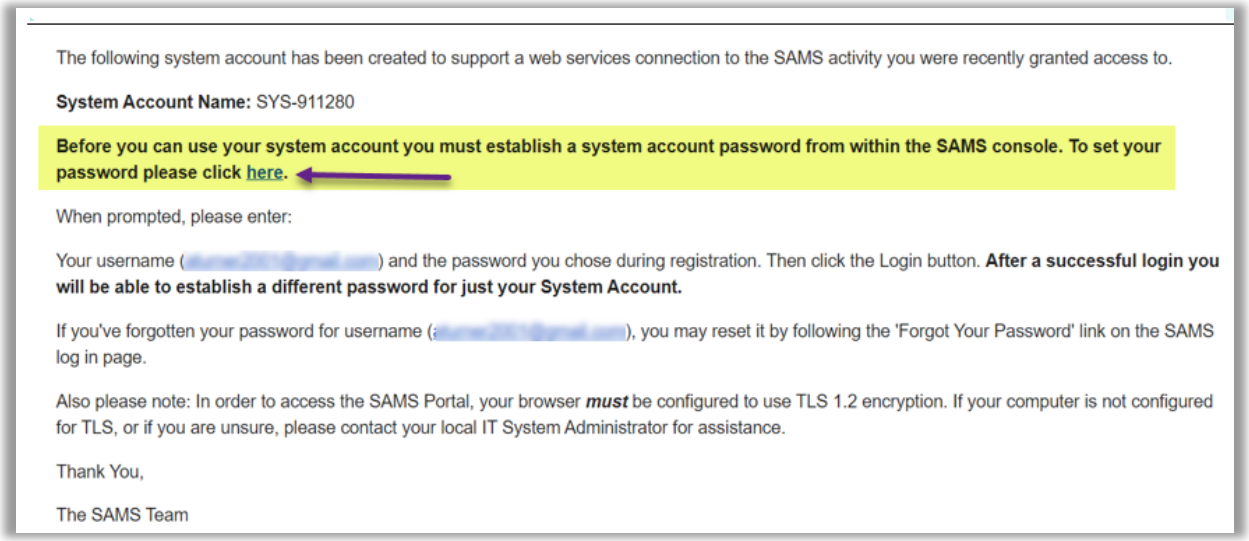
- National Healthcare Safety Network (L3COVID-19 Rest API): L3NHSN COVID-19 API

This activity has been specifically designed to support the use of a system account. For information on how to setup and configure this account once activated please contact your application or reference your application specific documentation. The SAMS team and SAMS Help Desk are unable to assist you in configuring this account.

For new system account users:
You will receive a separate email notifying you when your system account has been setup. Please follow the instructions in this new email to establish your system account password which will activate your account. After activation you will need to configure you account per your application?s requirements.

For existing system account users:
No further action is necessary if you have already setup a SAMS system account because it can be used to support this new activity. Within SAMS a single system account can be used across multiple activities.

2. Select the link to establish your system account password.



The following system account has been created to support a web services connection to the SAMS activity you were recently granted access to.

System Account Name: SYS-911280

Before you can use your system account you must establish a system account password from within the SAMS console. To set your password please click here.

When prompted, please enter:

Your username ( ) and the password you chose during registration. Then click the Login button. **After a successful login you will be able to establish a different password for just your System Account.**

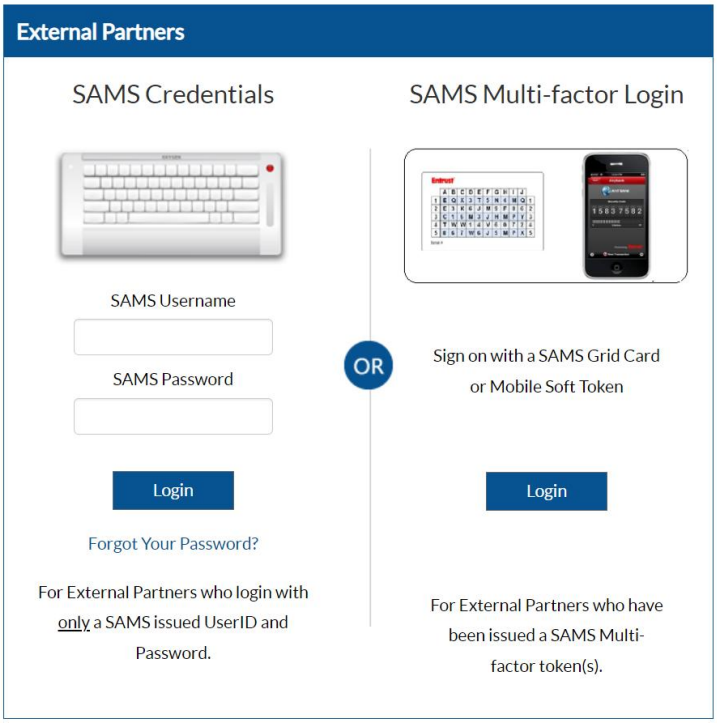
If you've forgotten your password for username ( ), you may reset it by following the 'Forgot Your Password' link on the SAMS log in page.

Also please note: In order to access the SAMS Portal, your browser ***must*** be configured to use TLS 1.2 encryption. If your computer is not configured for TLS, or if you are unsure, please contact your local IT System Administrator for assistance.

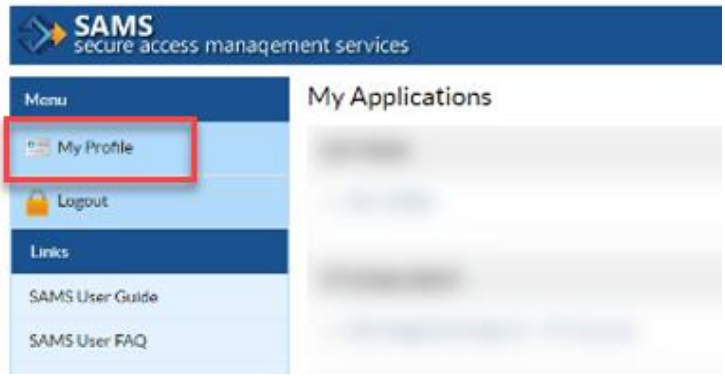
Thank You,

The SAMS Team

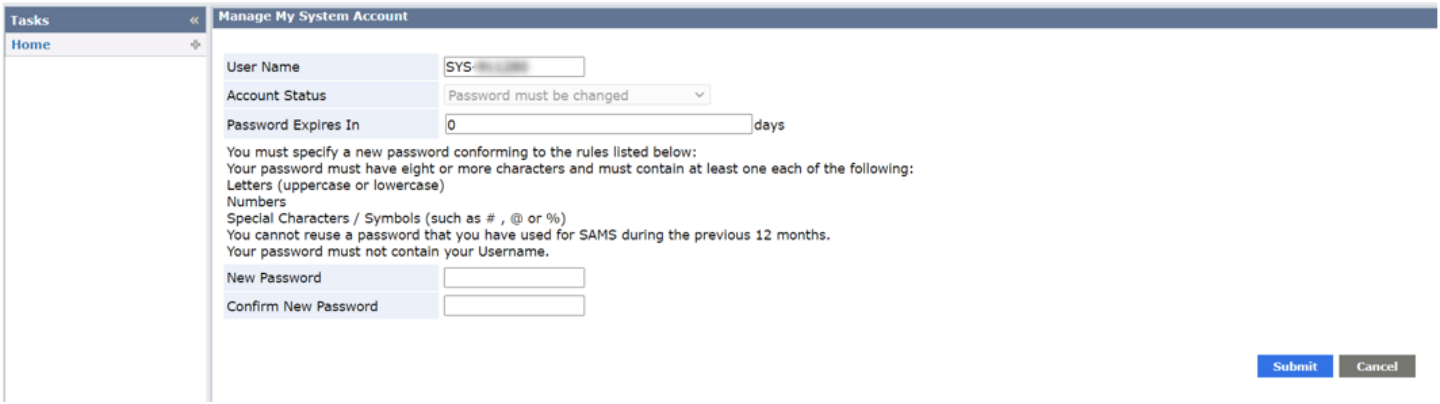
3. The link will direct you to the SAMS Portal – log in using your previously established credentials. If you do not have SAMS credentials, refer to the note on page 1 of this document.



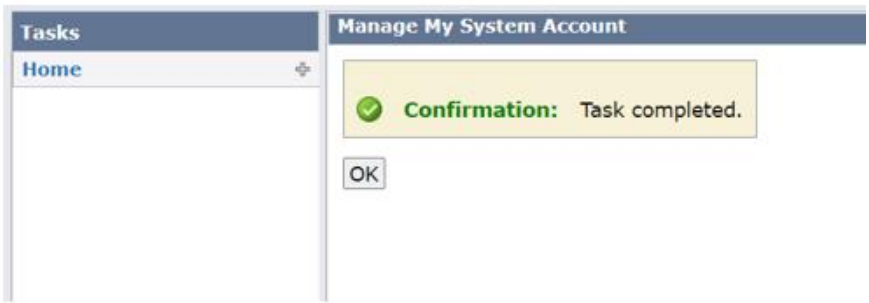
4. Select My Profile



5. In Tasks, set the System Account (API) Password. Ensure the Password Expires In field is greater than 0 days. Setting a new password will reset this to 365 days. Make note of your User Name (e.g. SYS-XXXXXX).



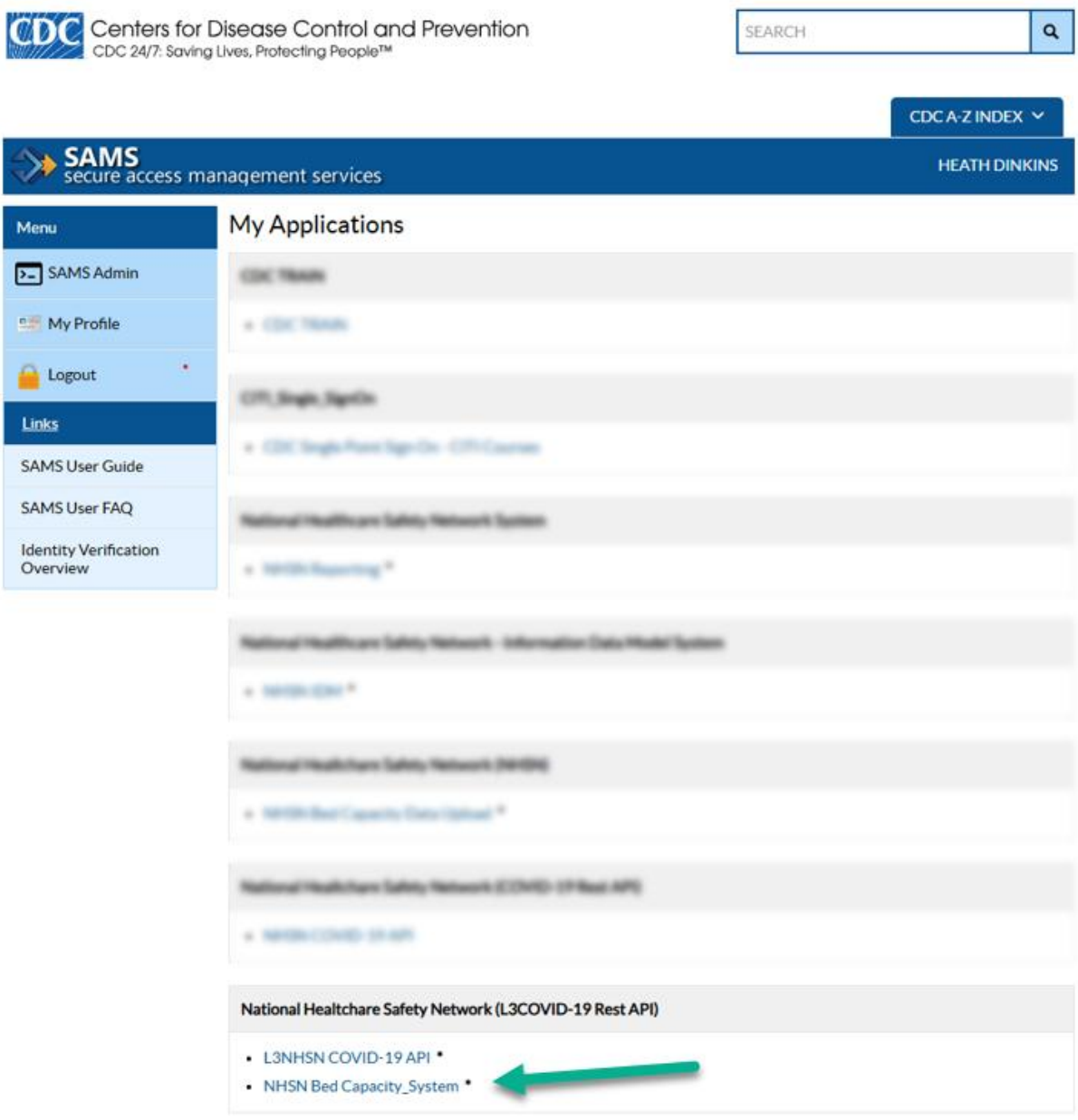
6. Confirmation that System Account Password has been set.



NHSN Bed Capacity Upload API

SAMS ACTIVITY

Login to the SAMS Portal and ensure you have access to the National Healthcare Safety Network – **NHSN Bed Capacity_System** SAMS activity.



API CSV UPLOAD ENDPOINT SETUP

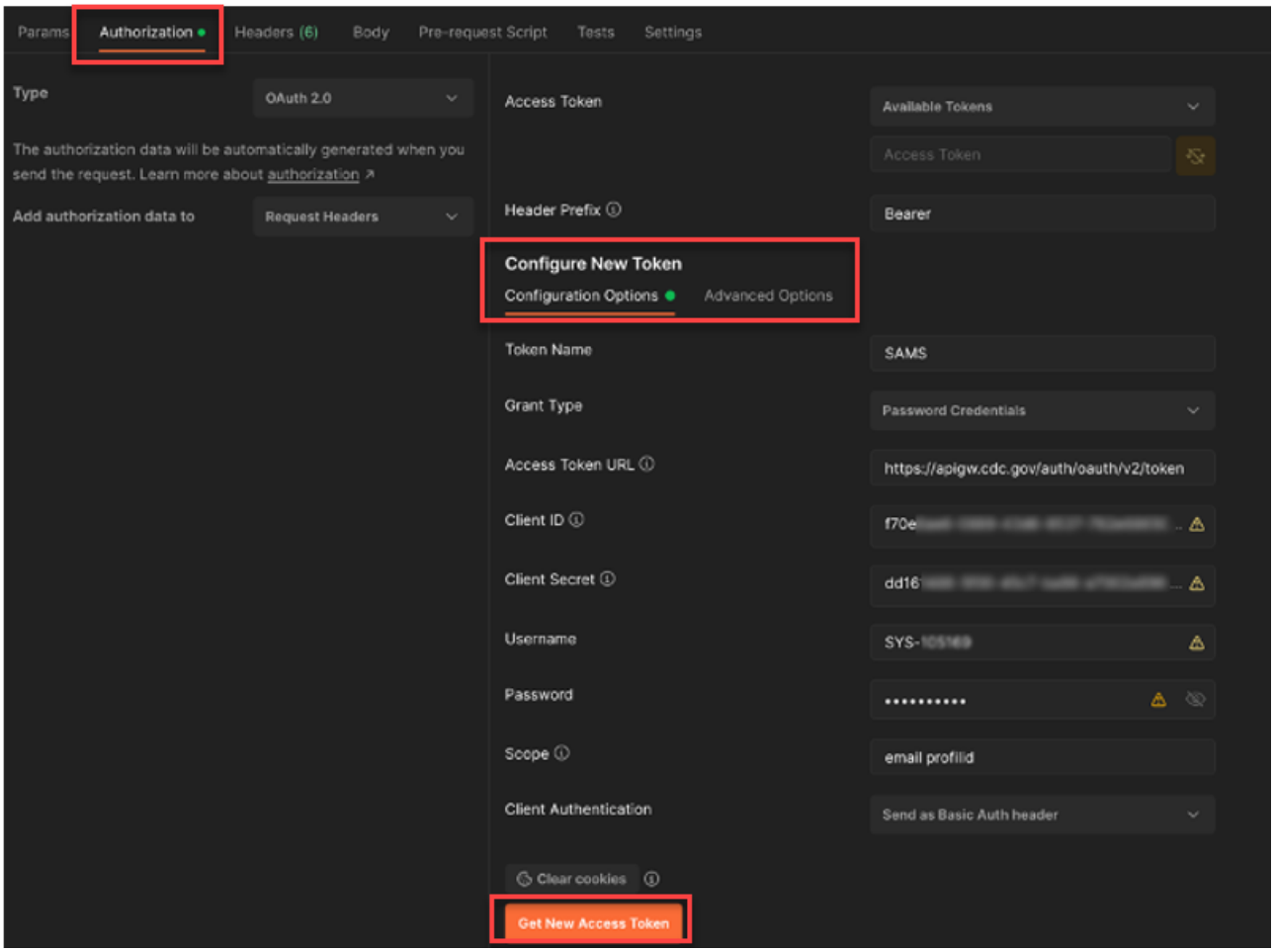
Postman Setup – Bed Capacity Upload JSON

1. Create a new **HTTP Post** request using the request URL:

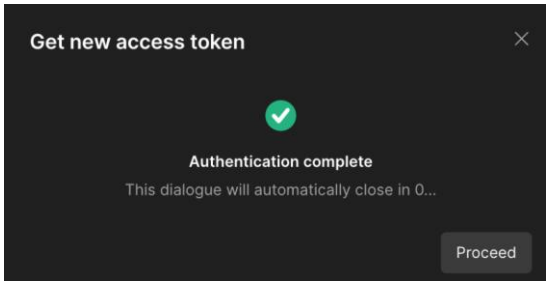
   URL:
   https://apigw.cdc.gov/DDID/NCEZID/l3nhsnbedcapacityapi/v1/messagerouter/upload/bedcapacity/json

2. From the **Authorization** tab, create a new OAuth 2.0 Access Token entering the following values:
   a. Token Name
      i. Enter any name you want to identify the token (e.g., SAMS). The token name will be used later.
   b. Grant Type (dropdown)
      i. Select 'Password Credentials'
   c. Access Token URL
      i. https://apigw.cdc.gov/auth/oauth/v2/token
   d. Client ID
      i. Provided by System Admin
   e. Client Password
      i. Provided by System Admin
   f. Username
      i. Refer to Step 5 - from the SAMS portal.
   g. Password
      i. Refers to the System Account Password set in the SAMS portal
   h. Client Authentication (dropdown)
      i. Select 'Send as Basic Auth header'

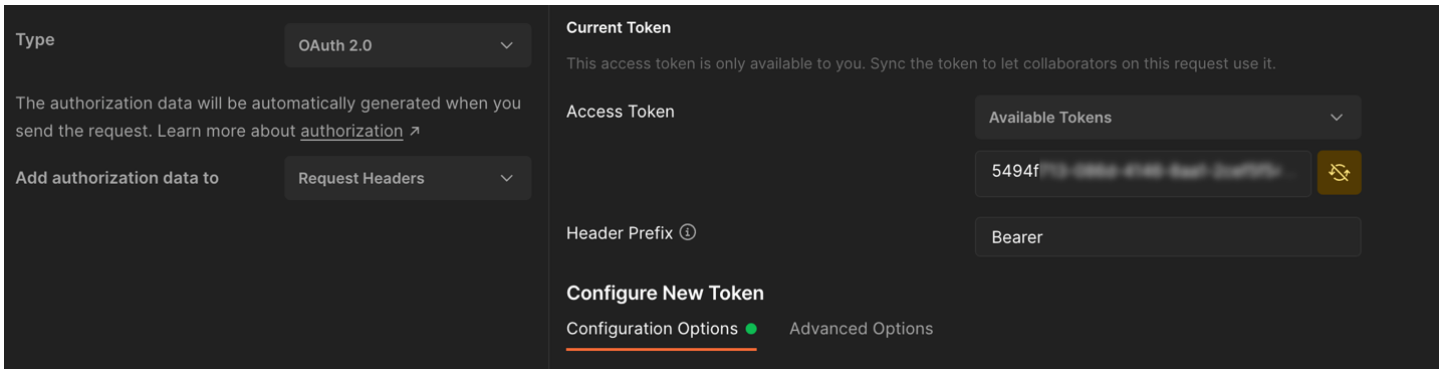
3. Select ‘Get New Access Token’ button.



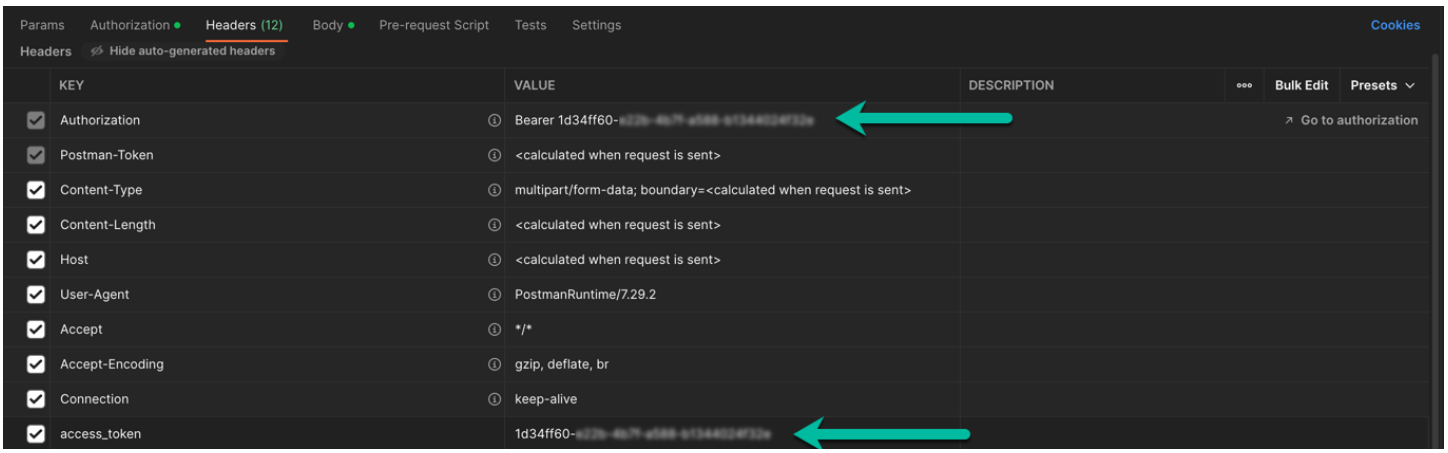
The below prompt will appear if the request is successful.



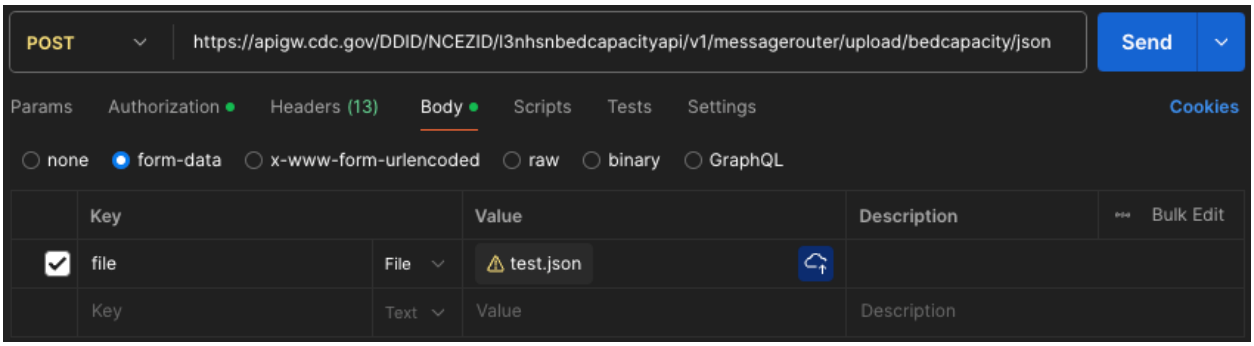
4. Select the generated access token in the ‘Access Token’ dropdown at the top of the **Authorization** tab. The ‘Token Name’ chosen in step 2a. should appear in the dropdown.



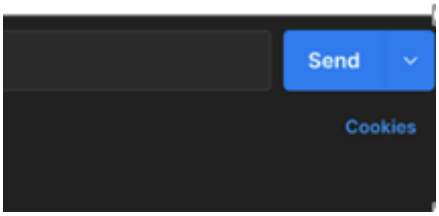
5. In the **Headers** tab, you should now see a Key named ‘Authorization’ with a value starting with ‘Bearer’.



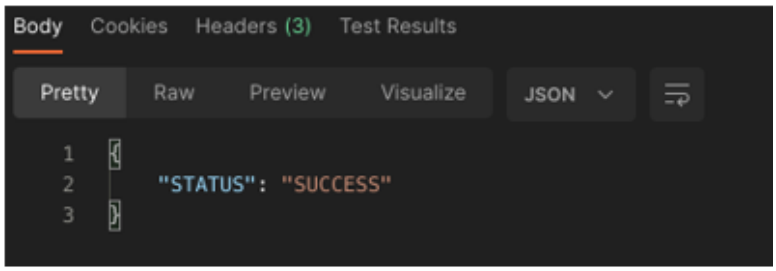
6. In the **Body** tab, select the ‘form-data’ radio button. Under Key, select ‘file’. Under Value click the ‘Select Files’ button to choose a file to upload. Ensure the file is a .json file.



7. Select the Send button.



8. In the response window, you should receive the message: {“STATUS”: “SUCCESS”}



Possible Errors

- {"Error":"oAuth Token Validation Failed", "Reason":"Failed OAuth 2.0}
    - This typically means your token has expired. Try generating another token and trying again. Be sure to select the newest token.

- "detail": "Could not upload file. file extension must be '.json'."
    - The API only excepts file with the ‘.json’ extension.

- "detail": "Vendor not found for email XXXXX."
    - The email associated with your account doesn’t have rights to create Bed Capacity data.

- Not Found
    - SAMS was unable to find the endpoint. Double check that your URL is correct.

API CSV UPLOAD CURL COMMANDS

Use Curl to get Access Token:

curl -u "<NHSN client id goes here>:<NHSN secret goes here>" -X POST
--header "Content-Type: application/x-www-form-urlencoded"
-d "grant_type=password&username=<your SAMS system username>&password=<your SAMS system password>&scope=email profileid"
https://apigw.cdc.gov/auth/oauth/v2/token

Use Curl to Upload Bed Capacity JSON file:

curl --location --request POST 'https://apigw.cdc.gov/DDID/NCEZID/l3nhsnbedcapacityapi/v1/messagerouter/upload/bedcapacity/json'
--header 'authorization: Bearer <Bearer token here from step #1 here>'
--header 'access_token: <Bearer token here from step #1 here>'
--form 'file=@"test.json"'

FREQUENTLY ASKED QUESTIONS

What is the NHSN Bed Capacity Submission API?
A machine-to-machine protocol designed to upload NHSN Bed Capacity in batch mode. It is secured using OAuth 2.0 Connect ID. You will need to use OAuth 2.0 to access the API.

What SAMS activity will I need to access the NHSN API?
National Healthcare Safety Network – NHSN Bed Capacity_System

Why do I have to pass the access_token header?
This is temporary and is required. Please pass the **access_token** as a header without the keyword "Bearer" as passed in the Authorization header.

For example:
Authorization: Bearer 3bf8d961-5f45-40b6-9021-2af0c1c77717
access_token: 3bf8d961-5f45-40b6-9021-2af0c1c77717

Why am I getting the message "Could not get userinfo for token"?
Ensure you are passing the **access_token** header and it does not contain the keyword "Bearer". It is the access token received from the SAMS authorization server.

For example:
Authorization: Bearer 3bf8d961-5f45-40b6-9021-2af0c1c77717
access_token: 3bf8d961-5f45-40b6-9021-2af0c1c77717

How long is the access token good for?
The access token expires frequently. You will need to request a valid access token (i.e., hasn't expired) before accessing the endpoints.

Where do I get the Client ID and Client Secret?
After requesting access to the API and approval in SAMS, you will receive an encrypted e-mail with the ID and secret.

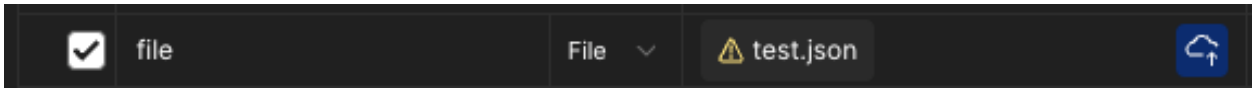
Why am I getting the message "User is not a member of a SAMS Activity"?
Ensure you are using the correct endpoint and have the **NHSN Bed Capacity_System** activity in SAMS.

Bed Capacity Upload: https://apigw.cdc.gov/DDID/NCEZID/l3nhsnbedcapacityapi/v1/messagerouter/upload/bedcapacity/json

Why am I getting the message "error_description":"GET not permitted"?
Ensure all requests use the HTTP method **POST** and **not GET**. For example, using curl, add "--request POST".

Why am I getting the message "Failed OTK Require OAuth 2.0 Token"?
Please obtain an OAuth 2.0 Token using curl or Postman before accessing the NHSN API. You will need to pass **Authorization** and **access_token** headers with this token. Also, you cannot access the upload or download endpoints directly from a Web browser. You need to access the endpoints via OAuth.

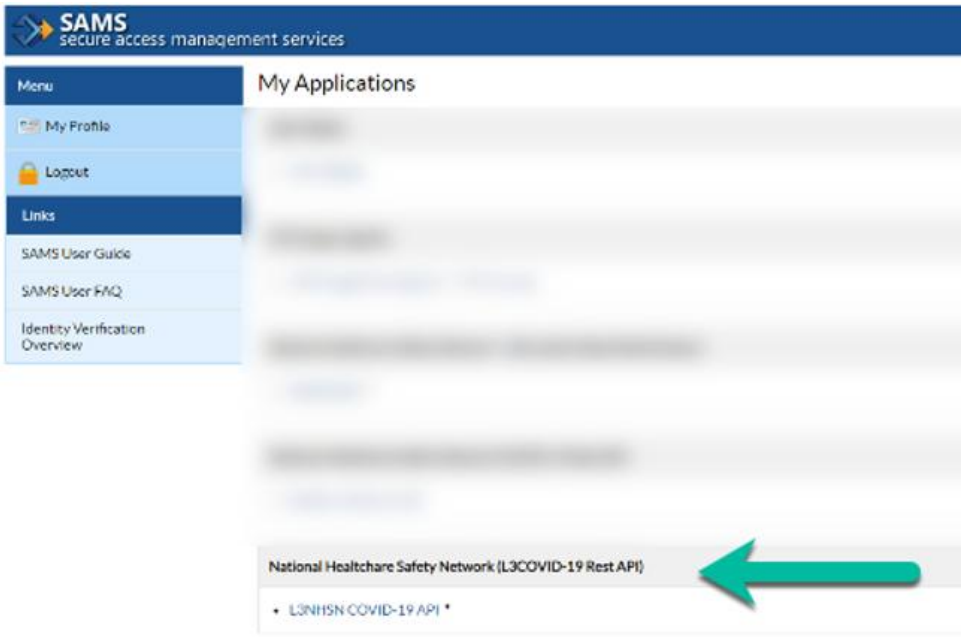
Why am I getting the message "Could not upload file. At least one file must be attached"?
Ensure you are sending multipart-mime and using the "file" keyword to indicate the file name being uploaded. Ensure the file extension is .json.



NHSN Daily/Weekly Hospital Respiratory Data (HRD) API

SAMS ACTIVITY

Login to the SAMS Portal and ensure you have access to the National Healthcare Safety Network (L3COVID-19 Rest API) task.



API CSV UPLOAD ENDPOINT SETUP

Postman Setup – HRD Daily/Weekly Upload CSV

1. Create a new **HTTP Post** request using the request URL:

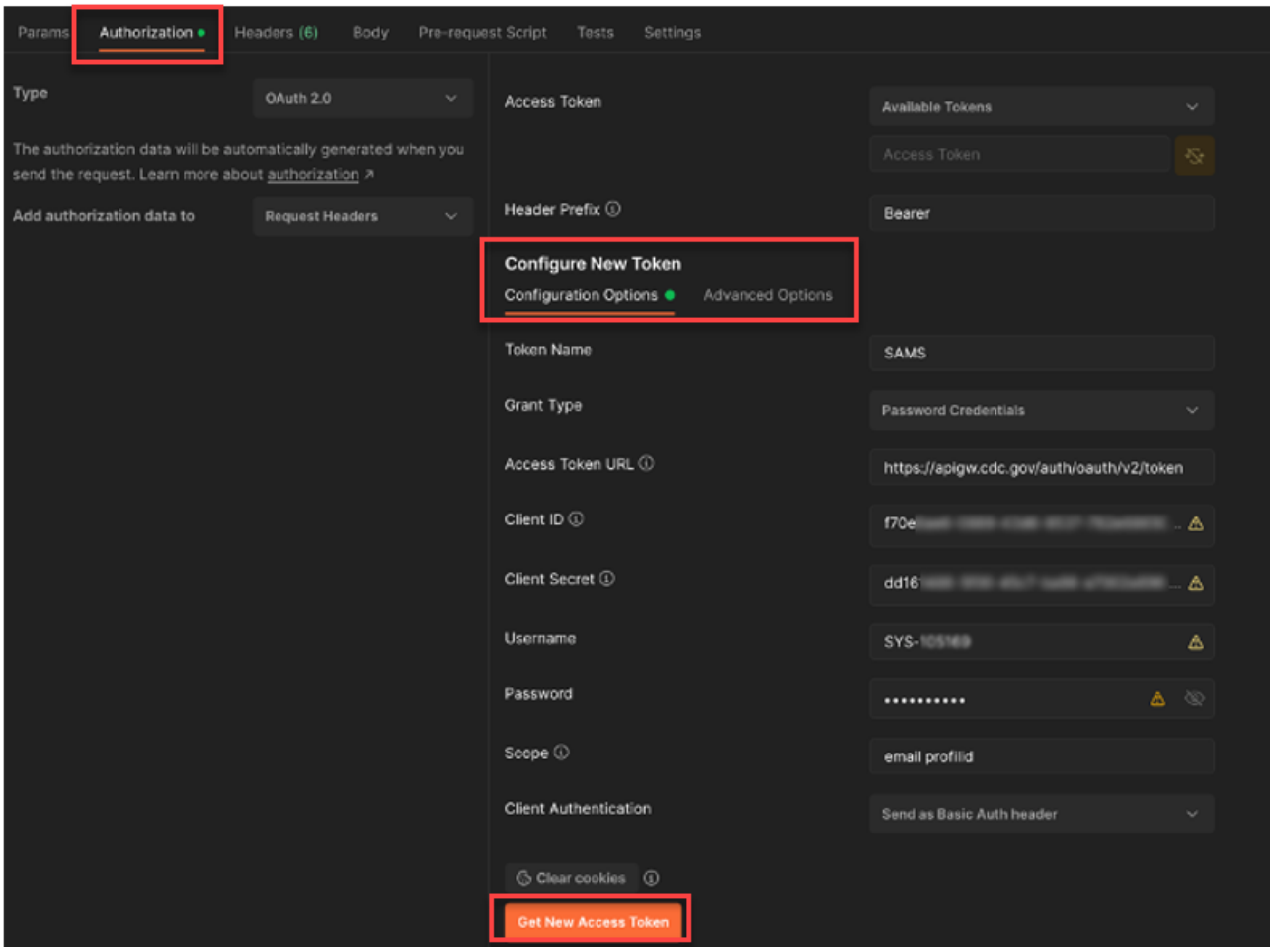
   Daily:
   https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/upload/daily/csv
   Weekly:
   https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/upload/weekly/csv

2. From the **Authorization** tab, create a new OAuth 2.0 Access Token entering the following values:
   a. Token Name
      i. Enter any name you want to identify the token (e.g., SAMS). The token name will be used later.
   b. Grant Type (dropdown)

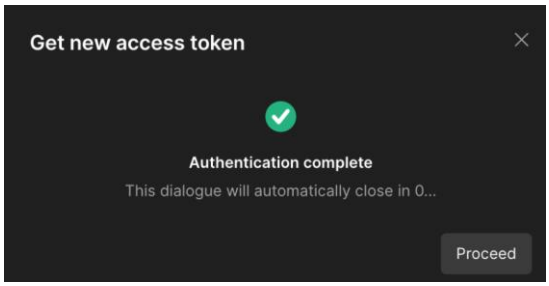
i. Select ‘Password Credentials’

c. Access Token URL
   i. https://apigw.cdc.gov/auth/oauth/v2/token
d. Client ID
   i. Provided by System Admin
e. Client Password
   i. Provided by System Admin
f. Username
   i. Refer to Step 5 - from the SAMS portal.
g. Password
   i. Refers to the System Account Password set in the SAMS portal
h. Client Authentication (dropdown)
   i. Select ‘Send as Basic Auth header’

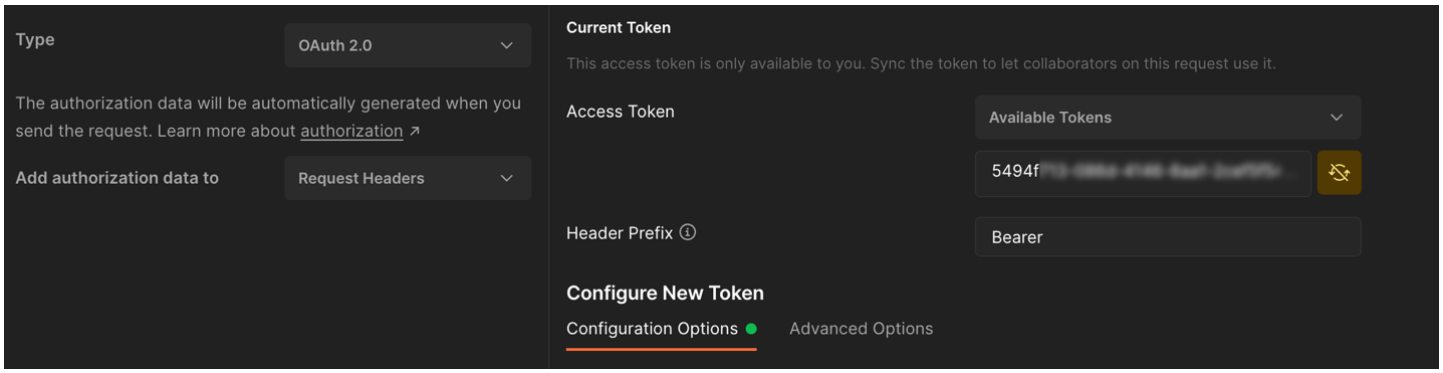
3. Select ‘Get New Access Token’ button.



The below prompt will appear if the request is successful.

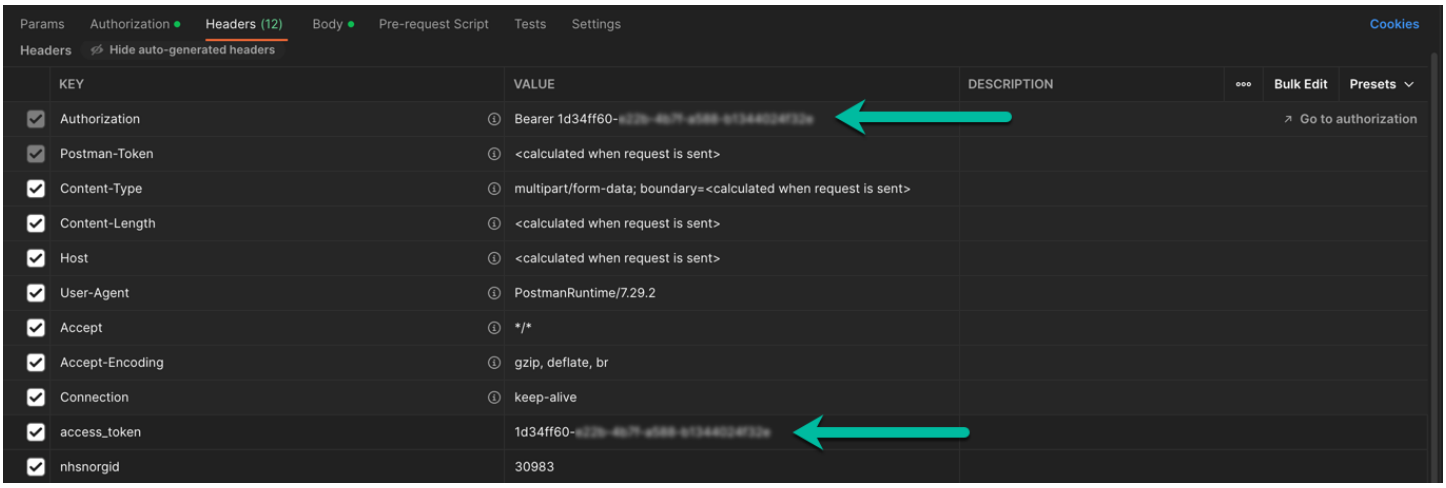


4. Select the generated access token in the 'Access Token' dropdown at the top of the **Authorization** tab. The 'Token Name' chosen in step 2a. should appear in the dropdown.

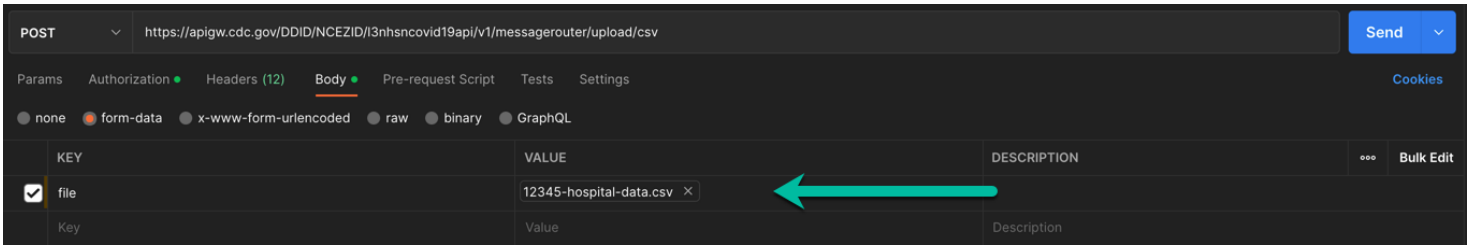


5. In the **Headers** tab, you should now see a Key named 'Authorization' with a value starting with 'Bearer'. Add another Key 'nhsnorgid' with the value of the NHSN Organization ID you would like to upload data for.

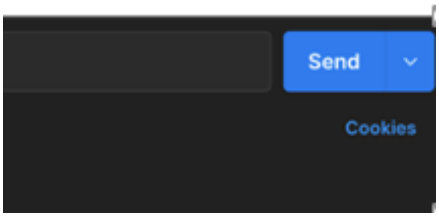
   Note: For bulk submission of HRD data for a Group, the NHSN Organization ID refers to the Group ID.



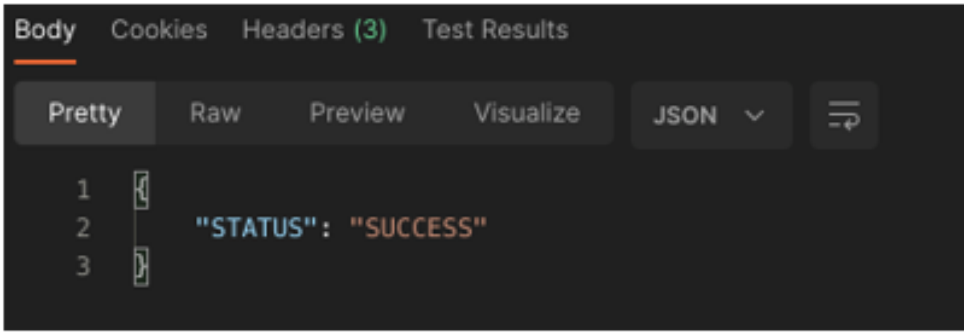
6. In the **Body** tab, select the ‘form-data’ radio button. Under Key, select ‘file’. Under Value click the ‘Select Files’ button to choose a file to upload.



7. Select the Send button.



8. In the response window, you should receive the message: {“STATUS”: “SUCCESS”}



Possible Errors

- {"Error":"oAuth Token Validation Failed", "Reason":"Failed OAuth 2.0}
    - This typically means your token has expired. Try generating another token and trying again. Be sure to select the newest token.

- "detail": "'nhsnorgid' header is required."
    - A file cannot be uploaded without the ‘nhsnorgid’ header. This tells us which Organization/Facility you wish to upload this data for.

- "detail": "Could not upload file. file extension must be '.csv'."
    - The API only excepts file with the ‘.csv’ extension.

- "detail": "Could not get email address for facility XXXXX."
    - The email associated with your account doesn’t have rights to create new HRD data for the given NHSN Organization ID.

- Not Found
    - SAMS was unable to find the endpoint. Double check that your URL is correct.

API CSV Upload Curl Commands:

Use Curl to get Access Token:

curl -u "<NHSN client id goes here>:<NHSN secret goes here>" -X POST
--header "Content-Type: application/x-www-form-urlencoded"
-d "grant_type=password&username=<your SAMS system username>&password=<your SAMS system password>&scope=email profileid"
https://apigw.cdc.gov/auth/oauth/v2/token

Use Curl to Upload HRD Daily CSV file:

curl --location --request POST
'https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/upload/daily/csv'
--header 'authorization: Bearer <Bearer token here from step #1 here>'
--header 'access_token: <Bearer token here from step #1 here>'
--header 'nhsnorgid: <your orgid here>'
--form 'file=@"test.csv"'

Use Curl to Upload HRD Weekly CSV file:

curl --location --request POST
'https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/upload/weekly/csv'
--header 'authorization: Bearer <Bearer token here from step #1 here>'
--header 'access_token: <Bearer token here from step #1 here>'
--header 'nhsnorgid: <your orgid here>'
--form 'file=@"test.csv"'

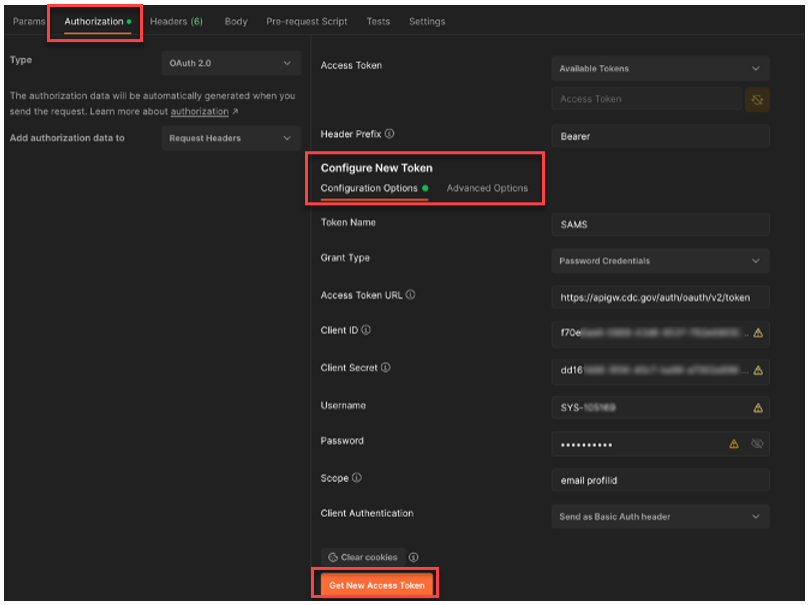
API CSV DOWNLOAD ENDPOINT SETUP

Postman Setup - Download CSV

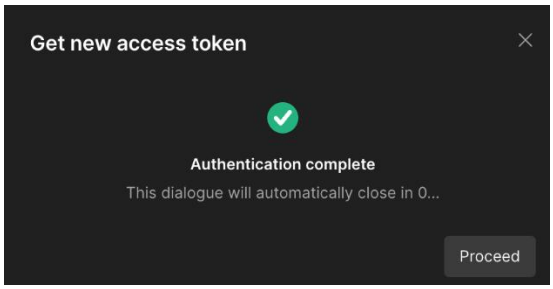
1. Create a new **HTTP Post** request using the request URL: https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/download/csv

2. From the **Authorization** tab, create a new OAuth 2.0 Access Token entering the following values:
    a. Token Name
        i. Enter any name you want to identify the token (e.g., SAMS). The token name will be used later.
    b. Grant Type (dropdown)
        i. Select 'Password Credentials'
    c. Access Token URL
        i. https://apigw.cdc.gov/auth/oauth/v2/token
    d. Client ID
        i. Provided by System Admin
    e. Client Password
        i. Provided by System Admin
    f. Username
        i. Refer to Step 5 - from the SAMS portal.
    g. Password
        i. Refers to the System Account Password set in the SAMS portal
    h. Client Authentication (dropdown)
        i. Select 'Send as Basic Auth header'

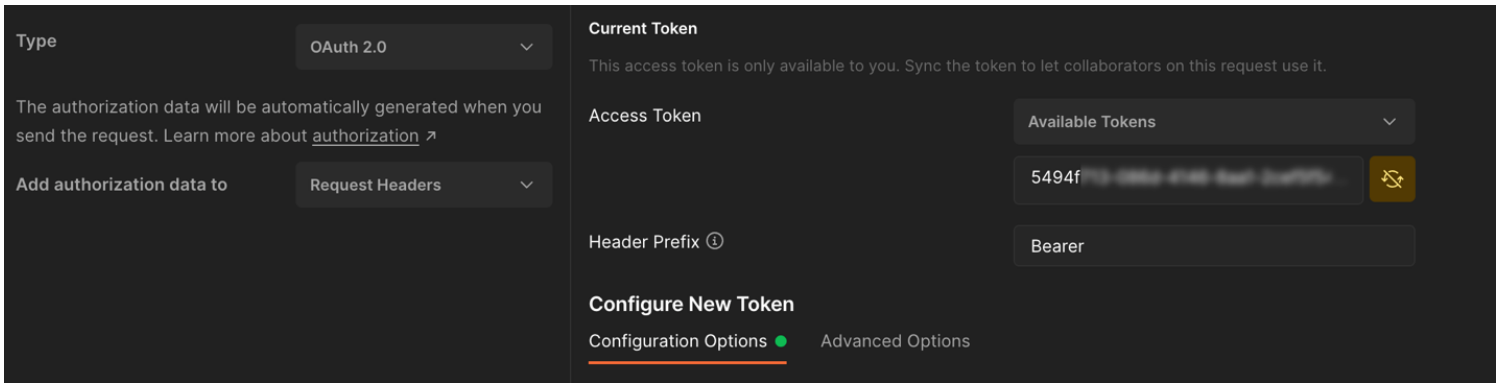
3. Select 'Get New Access Token' button.



The below prompt will appear if the request is successful.

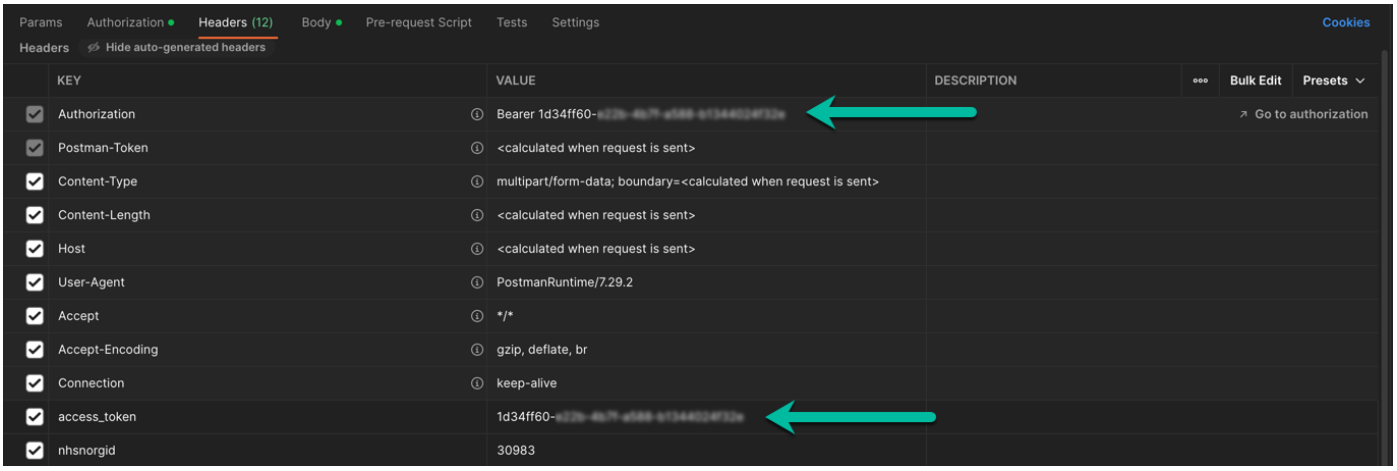


4. Select the generated access token in the 'Access Token' dropdown at the top of the **Authorization** tab. The 'Token Name' chosen in step 2a. should appear in the dropdown.

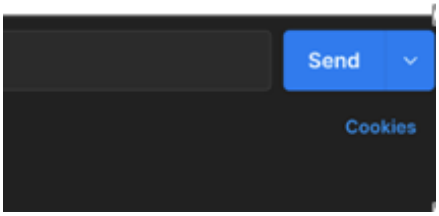


5. In the **Headers** tab, you should now see a Key named 'Authorization' with a value starting with 'Bearer'. Add another Key 'nhsnorgid' with the value of the NHSN Organization ID you would like to upload data for.

   Note: For bulk submission of HRD data for a Group, the NHSN Organization ID refers to the Group ID.



6. Select the Send button.



7. In the response window, you should see the data. You can save the response as a file by clicking ‘Save Response’ and selecting ‘Save to a file’.

Possible Errors

- {"Error":"oAuth Token Validation Failed", "Reason":"Failed OAuth 2.0}
    - This typically means your token has expired. Try generating another token and trying again. Be sure to select the newest token.

- "detail": "'nhsnorgid' header is required."
    - A file cannot be uploaded without the ‘nhsnorgid’ header. This tells us which Organization/Facility you wish to upload this data for.

- "detail": "Could not get email address for facility XXXXX."
    - The email associated with your account doesn’t have rights to create new HRD data for the given NHSN Organization ID.

- Not Found
    - SAMS was unable to find the endpoint. Double check that your URL is correct.

API CSV Download Curl Commands:

Use Curl to get Access Token:

curl -u "<NHSN client id goes here>:<NHSN secret goes here>" -X POST
--header "Content-Type: application/x-www-form-urlencoded"
-d "grant_type=password&username=<your SAMS system username>&password=<your SAMS system password>&scope=email profileid"
https://apigw.cdc.gov/auth/oauth/v2/token

Use Curl to Download HRD Daily CSV file:

curl --location --request POST
'https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/download/daily/csv'
--header 'authorization: Bearer <Bearer token here from step #1 here>'
--header 'access_token: <Bearer token here from step #1 here>'
--header 'nhsnorgid: <your orgid here>'
--header 'Content-Type: application/json'

Use Curl to Download HRD Weekly CSV file:

curl --location --request POST
'https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/download/weekly/csv'
--header 'authorization: Bearer <Bearer token here from step #1 here>'
--header 'access_token: <Bearer token here from step #1 here>'
--header 'nhsnorgid: <your orgid here>'
--header 'Content-Type: application/json'

FREQUENTLY ASKED QUESTIONS

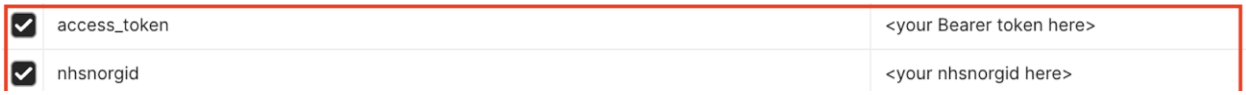
What is the NHSN HRD Daily and Weekly Data Submission API?
A machine-to-machine protocol designed to upload and download HRD Daily and Weekly data in batch mode. It is secured using OAuth 2.0 Connect ID. You will need to use OAuth 2.0 to access the API.

Note: The COVID-19 Hospital data can no longer be uploaded and can now only be downloaded as of 10/9/2024.

What SAMS activity will I need to access the NHSN API?
National Healthcare Safety Network (L3COVID-19 Rest API) - L3NHSN COVID-19 API

Why do I have to pass the access_token header?
This is temporary and is required. Please pass the **access_token** as a header without the keyword "Bearer" as passed in the Authorization header.

For example:
Authorization: Bearer 3bf8d961-5f45-40b6-9021-2af0c1c77717
access_token: 3bf8d961-5f45-40b6-9021-2af0c1c77717



Why am I getting the message "Could not get userinfo for token"?
Ensure you are passing the **access_token** header and it does not contain the keyword "Bearer". It is the access token received from the SAMS authorization server.

For example:
Authorization: Bearer 3bf8d961-5f45-40b6-9021-2af0c1c77717
access_token: 3bf8d961-5f45-40b6-9021-2af0c1c77717

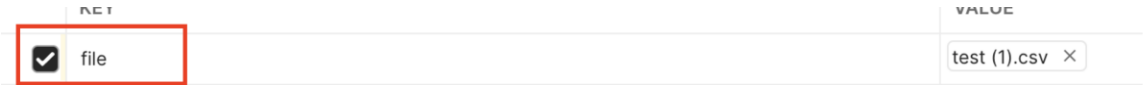
How long is the access token good for?
The access token expires frequently. You will need to request a valid access token (i.e., hasn't expired) before accessing the endpoints.

Where do I get the Client ID and Client Secret?
After requesting access to the API and approval in SAMS, you will receive an encrypted e-mail with the ID and secret.

Why am I getting the message "User is not a member of a SAMS Activity"?
Ensure you are using the correct endpoint and have the "L3NHSN COVID-19 API" activity in SAMS.

Daily Upload:
https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/upload/daily/csv
Daily Download:
https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/download/daily/csv
Weekly Upload:
https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/upload/weekly/csv
Weekly Download:
https://apigw.cdc.gov/DDID/NCEZID/l3nhsncovid19api/v1/messagerouter/download/weekly/csv

Why am I getting the message "error_description":"GET not permitted"?
Ensure all requests use the HTTP method **POST** and **not GET**. For example, using curl, add "--request POST".

Why am I getting the message "Failed OTK Require OAuth 2.0 Token"?
Please obtain an OAuth 2.0 Token using curl or Postman before accessing the NHSN API. You will need to pass **Authorization** and **access_token** headers with this token. Also, you cannot access the upload or download endpoints directly from a Web browser. You need to access the endpoints via OAuth.

Why am I getting the message "Could not upload file. At least one file must be attached"?
Ensure you are sending multipart-mime and using the "file" keyword to indicate the file name being uploaded.