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# 3GPP Forge User Manual for CT WG delegates

## 1 Scope

The present document provides guidelines to 3GPP CT1, CT3, CT4 and CT6 delegates for using 3GPP Forge tool.

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## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

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## 3 Definitions, symbols and abbreviations

The following definitions are used.

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## 4 3GPP Forge User Account

### 4.1 Introduction

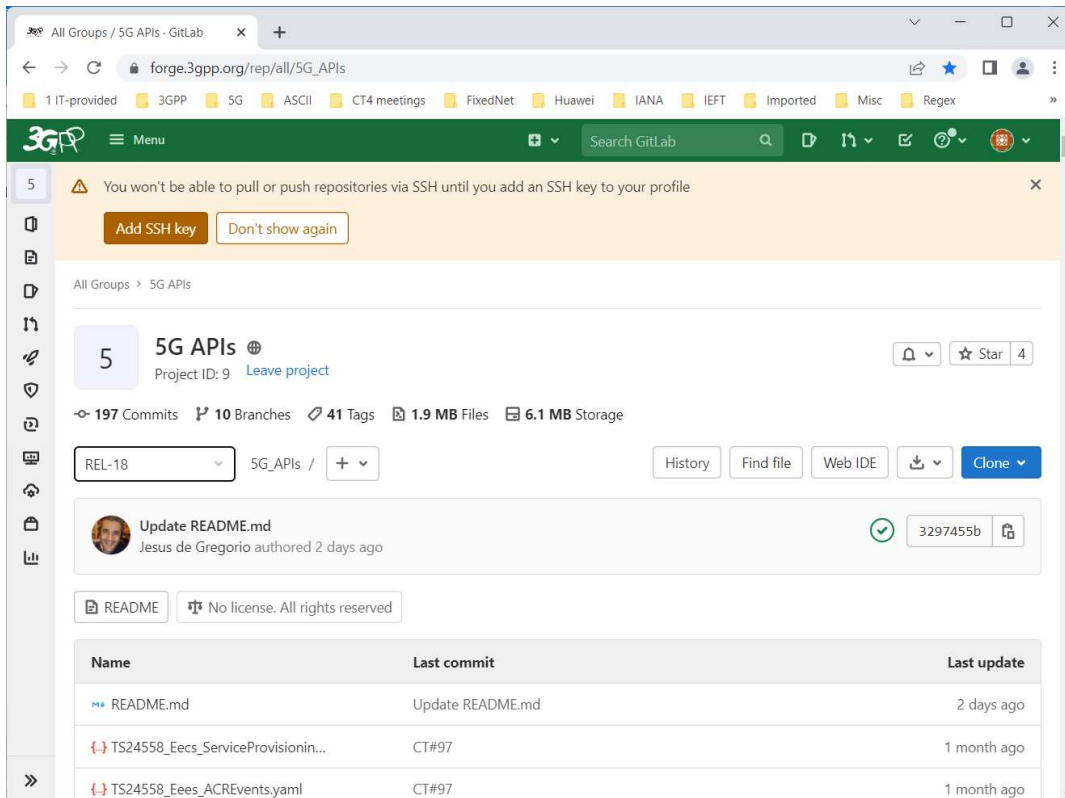
This paper can be used as a user manual for the 3GPP Forge tool. Once the reader gets familiar with the Forge tool, the reader may find other, equally effective ways for achieving the same goals.

3GPP delegates need to have an EOL accounts for accessing various 3GPP and ETSI tools, including 3GPP Forge. Check <https://portal.etsi.org/createaccount#/home>.

If you already have an EOL account, check if you have necessary access rights to 3GPP Forge tool by logging at this site [https://forge.3gpp.org/rep/all/5G\\_API](https://forge.3gpp.org/rep/all/5G_API).

### 4.2 Creating 3GPP Forge User Account

If you have necessary access rights, you will see the "+ ^" control icon (see the below snapshot). Otherwise, contact your WG support team at MCC.



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## 5 Common tasks

### 5.1 Making yaml file

3GPP Forge tool helps the user to check the syntax of an OpenAPI yaml file and also to cross check if the references to the reused data types are correct.

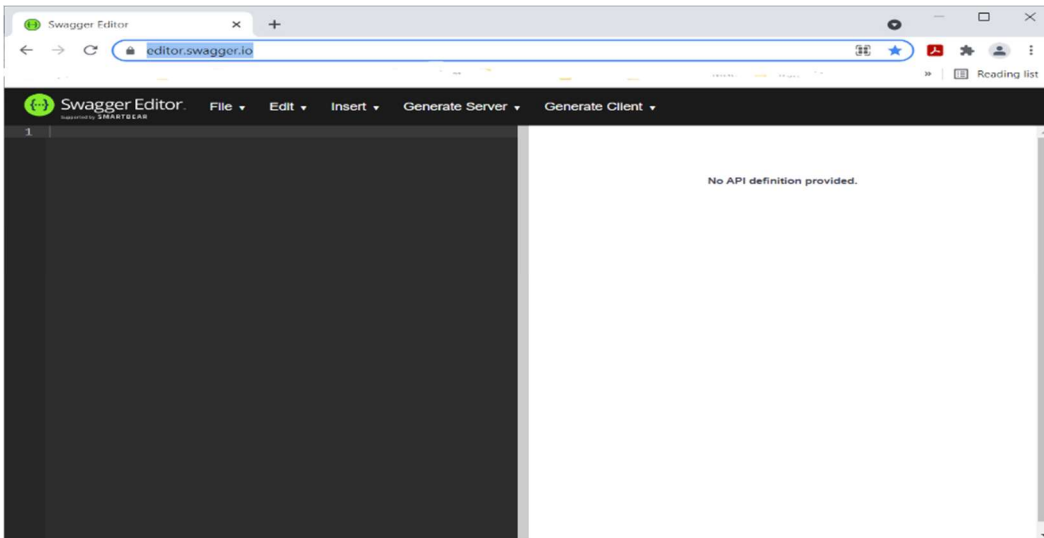
For creating a yaml file, the following steps should be executed.

- Download from the web and install Notepad++ app. This is very similar to Notepad, but can parse yaml text, i.e. the Notepad++ shows the resource structure and it also shows the line numbers.
- Copy-paste the OpenAPI code, which you want to check into a new Notepad++ file and save it in .txt format.
- Check the syntax of the created OpenAPI module with the Swagger tool at <https://editor.swagger.io>.

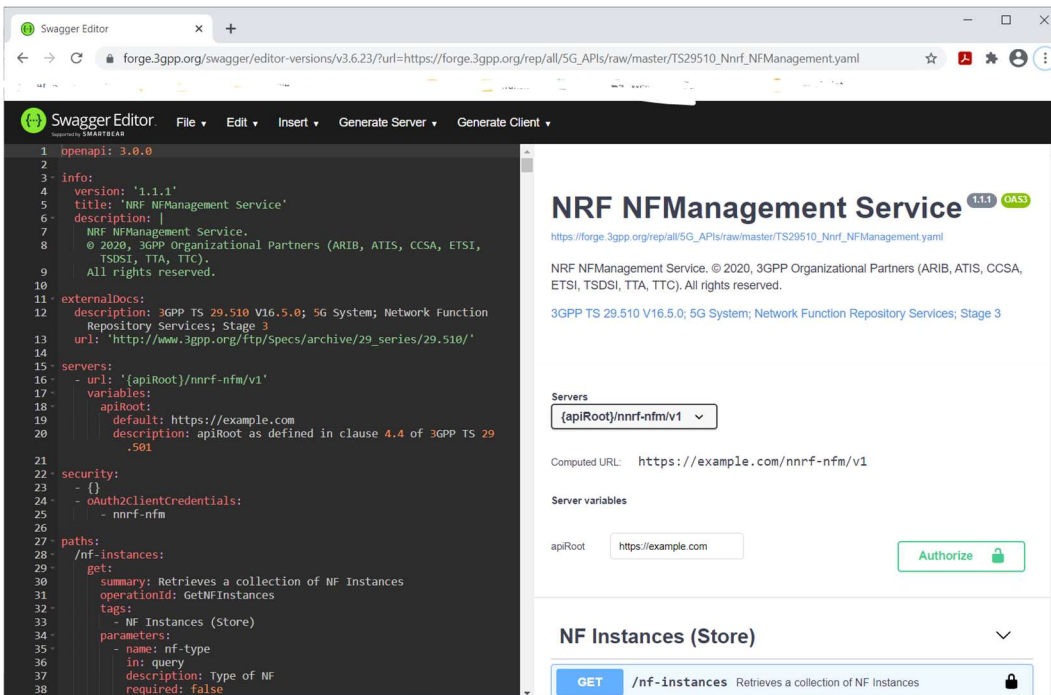
### 5.2 Syntax check with Swagger

In order to quickly check the syntax, follow the below steps.

- Click the File tab at the top of the Swagger Editor controls (see also the below snapshot).
- Import the .yaml or .txt file with modified API code you want to debug or simply copy/paste it in the left pane.



- The left pane will show the OpenAPI code (see the below snapshot), while the right pane will show the service contents, like methods, etc (see also the below snapshot).
- At the top of the right pane you will see either an error or a success message.



The Error messages may not appear to be informative, but will give you a tip on which line the problem starts. You must start with fixing the first error, because most likely subsequent errors are caused by this one.

Typically, swagger finds indentation errors. Each of the next level entries shall be shifted to the right with two white space characters.

Swagger finds all syntactical and also semantical errors. Once you fix all syntactical errors, you can check the file for other types of errors with 3GPP Forge tool.

## 5.3 Using 3GPP Forge tool

For using the 3GPP Forge tool, follow the below steps.

- Go to the 3GPP Forge GitLab repository: [https://forge.3gpp.org/rep/all/5G\\_APIs](https://forge.3gpp.org/rep/all/5G_APIs).
- Sign in with ETSI AOL credentials. Btw, these credentials work also for Jenkins (<https://forge.3gpp.org/jenkins>).

- You can use any of the branches, but 'REL-18' branch is selected by default and it is fine to use this. The changes you make cannot be saved, which keep the source code safe.
- Select the branch of the release for which you want to change the yaml file. Typically, this is related to the next CT plenary, e.g. 'Rel17-draft-TSG98'.
- Scroll down to the bottom of the page to "OpenAPI Specification Files for 3GPP 5G Core Network".
- Locate the API you're interested in, e.g. NRF NfManagement as in the below example (see the below snapshot).

## NRF (NF Repository Function)

- NF Management (Editor) (UI)
- NF Discovery (Editor) (UI)
- Oauth2 Access Token Request (Editor) (UI)
- Bootstrapping (Editor) (UI)

- Click on the "Editor" link, which shows also the API code (see the below snapshot). The "UI" link is less useful, because it does not show the API code.

The screenshot shows the Swagger Editor interface. On the left, the OpenAPI specification is displayed in a dark-themed editor. The specification includes the following details:

```

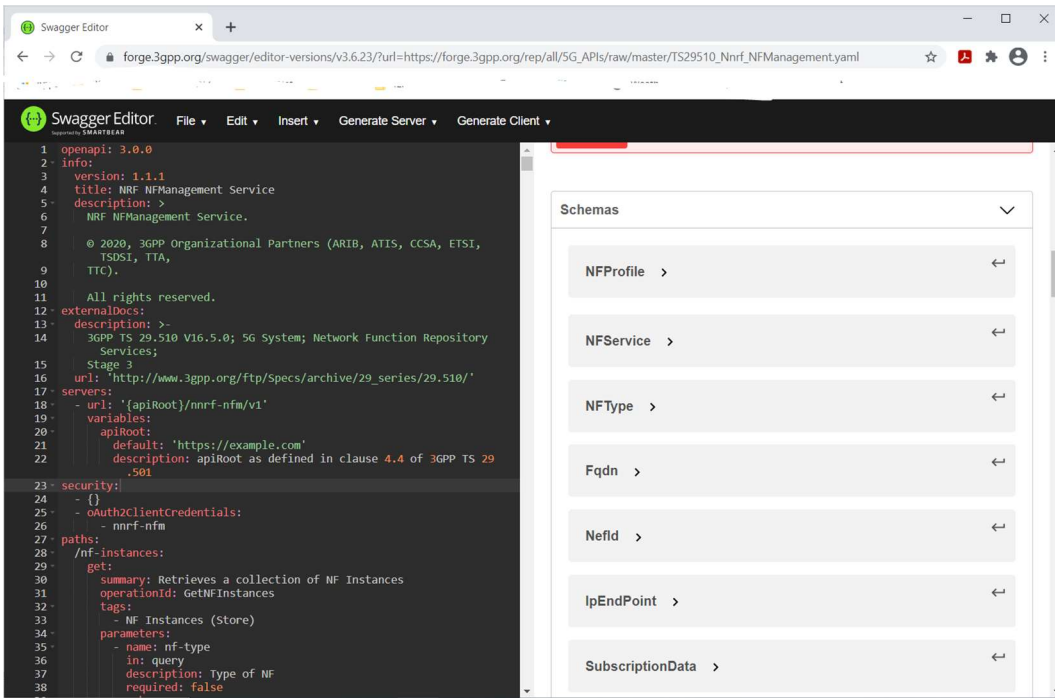
1 openapi: 3.0.0
2 info:
3   version: 1.1.1
4   title: NRF NfManagement Service
5   description: >
6     NRF NfManagement Service.
7
8   © 2020, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI,
9     TSDSI, TTA,
10    TTC).
11  All rights reserved.
12 externalDocs:
13   description: >
14     3GPP TS 29.510 V16.5.0; 5G System; Network Function Repository
15     Services;
16     Stage 3
17     url: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.510/'
17 servers:
18   - url: '{apiRoot}/nrf-nfm/v1'
19     variables:
20       apiRoot:
21         default: 'https://example.com'
22         description: apiRoot as defined in clause 4.4 of 3GPP TS 29
23         .501
23 security:
24   - {}
25   - oauth2clientcredentials:
26     - nrf-nfm
27 paths:
28   /nf-instances:
29     get:
30       summary: Retrieves a collection of NF Instances
31       operationId: GetNFInstances
32       tags:
33         - NF Instances (Store)
34       parameters:
35         - name: nf-type
36           in: query
37           description: Type of NF
38           required: false

```

On the right, the visual API explorer shows the following endpoints:

- NF Instances (Store)**
  - GET /nf-instances: Retrieves a collection of NF Instances
  - OPTIONS /nf-instances: Discover communication options supported by NRF for NF Instances
- NF Instance ID (Document)**
  - GET /nf-instances/{nfInstanceID}: Read the profile of a given NF Instance
  - PUT /nf-instances/{nfInstanceID}: Register a new NF Instance
  - PATCH /nf-instances/{nfInstanceID}: Update NF Instance profile
  - DELETE /nf-instances/{nfInstanceID}: Deregisters a given NF Instance
- Subscriptions (Collection)**
  - POST /subscriptions: Create a new subscription

- Click on the HTTP methods, e.g. GET in the right pane and the window will expand.
- You will see if there are any links to other OpenAPI yaml files or not. If there are, the debugger will also show if the links are working or not.
- Also check the dependencies with the other yaml files, e.g. if a method uses a data type defined in another OpenAPI file.
- Click on the Subscription and Schemas (e.g. NFProfile, etc.) to check the references and links (see the below snapshot).



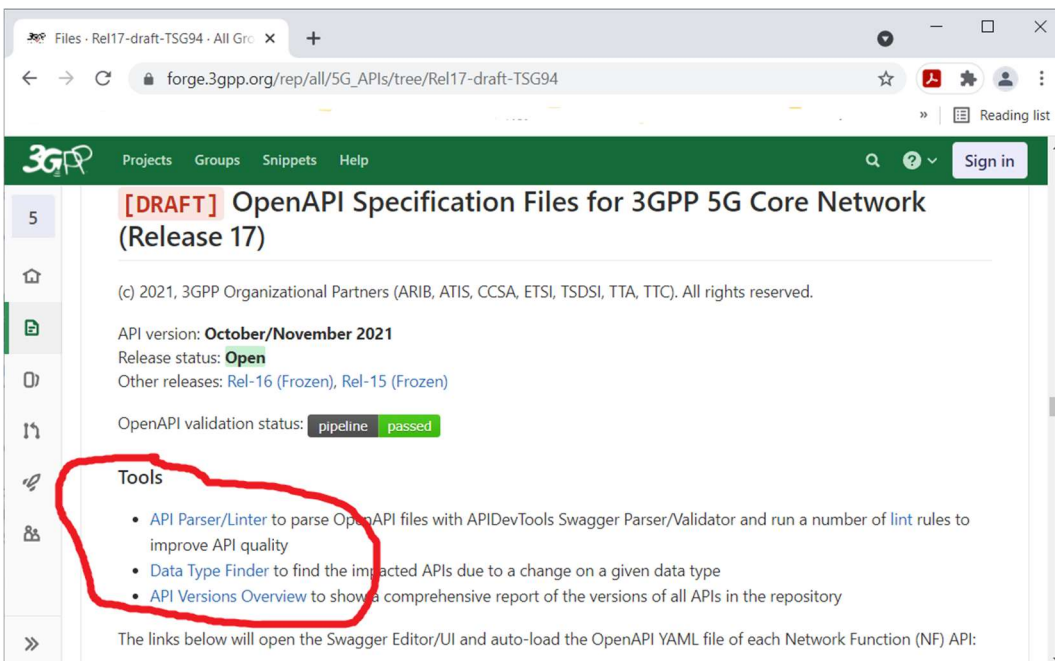
## 6 Guidelines for rapporteurs

### 6.1 Checking updated OpenAPI with 3GPP Forge tool

If you have not uploaded the target API, follow the guidance instructions in clause 6.2 "Adding new API to 3GPP Forge".

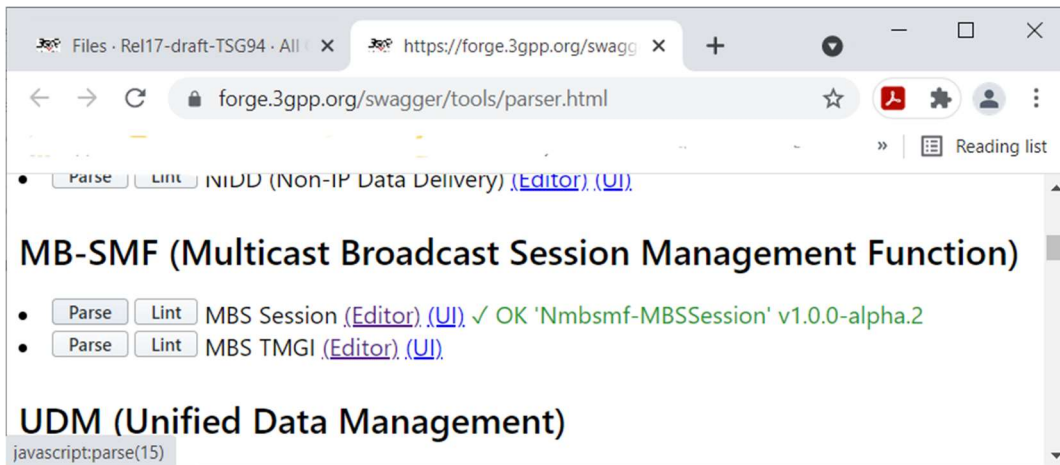
Otherwise:

- Locate "OpenAPI Specification Files for 3GPP 5G Core Network" section and locate Tools (see the below snapshot).

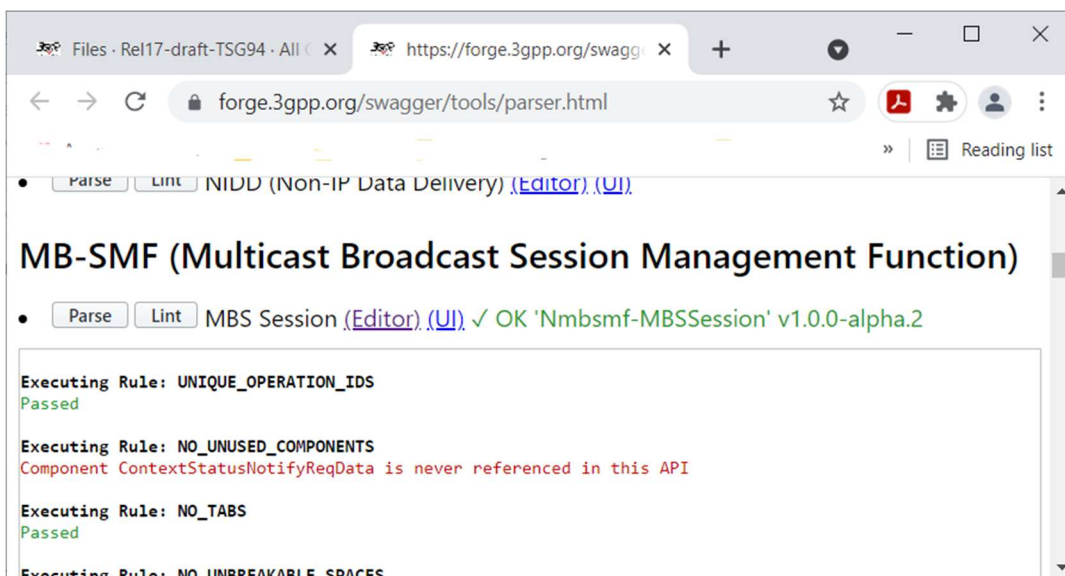


- Click on API Parser/Linter link. New window opens (see the below snapshot).

- Locate the network function, e.g. MB-SM, which provides the API service you are debugging and press the Parse button.
- If all is good, you'll see 'Ok' message.



- Press the Lint button and the tool will give you multiple messages (see the below snapshot).
- Some should be Ok, while others may not, but this is not as big of a problem and parse errors are.

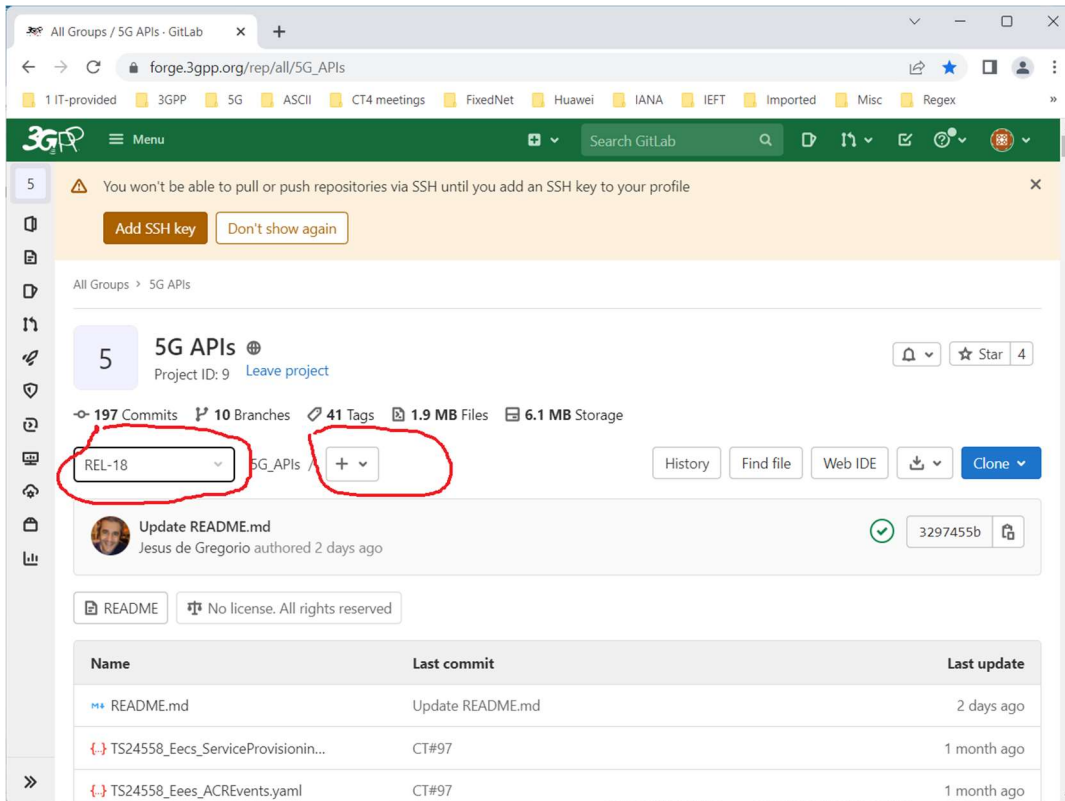


## 6.2 Adding new API to 3GPP Forge

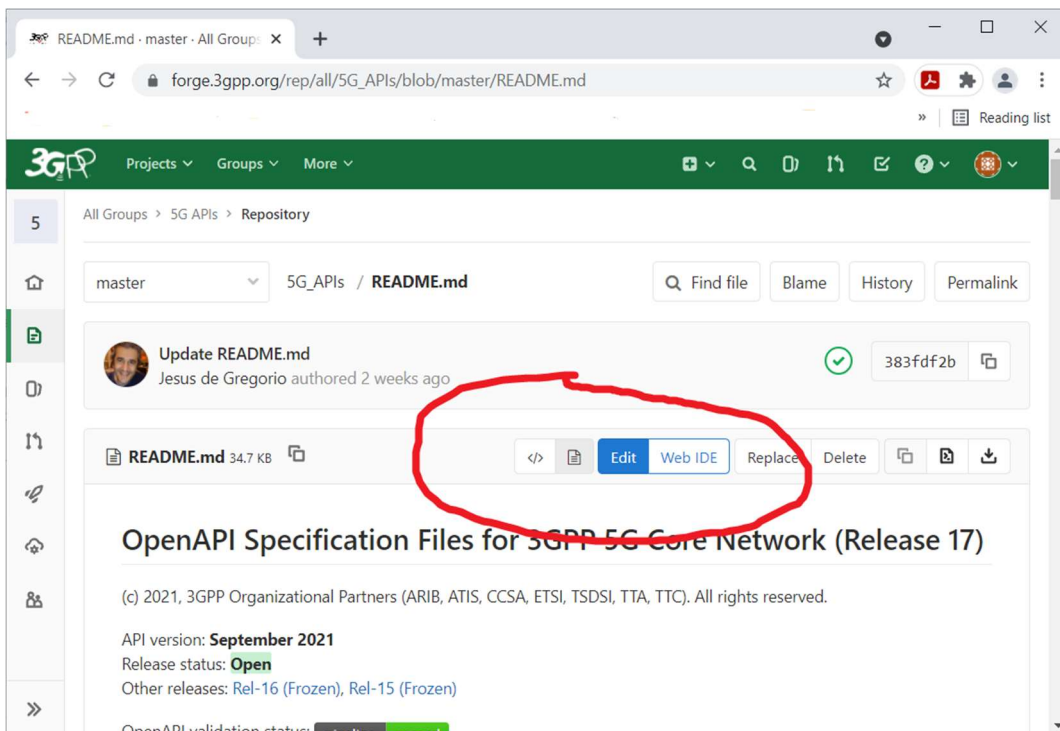
### 6.2.1 Updating the existing README.md file

Follow the below steps.

- Go to the repo: [https://forge.3gpp.org/rep/all/5G\\_APIs](https://forge.3gpp.org/rep/all/5G_APIs).
- Select branch, e.g. Rel17-draft-TSG98, from the drop-down list (see the below snapshot).
- You need to add new API to the README.md file under the selected branch.



- Next, go to the repo: [https://forge.3gpp.org/rep/all/5G\\_APIs](https://forge.3gpp.org/rep/all/5G_APIs).
- Select branch, e.g. Rel17-draft-TSG98, from the drop-down list.
- You need to edit the README.md file under the selected branch by adding new API to it.
- Fill the "Commit message" box with a tip on what you tried to do and commit the changes.

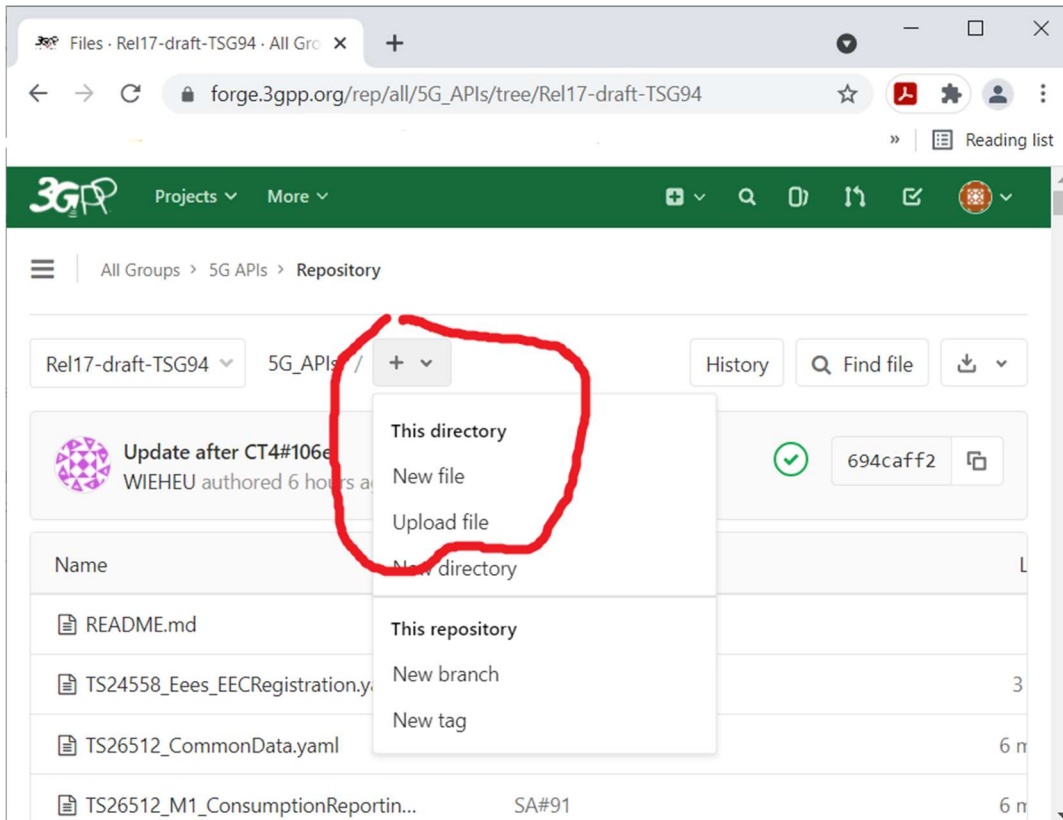


## 6.2.2 Uploading brand new yaml file

Next task is to upload new yaml file(s) to the selected branch. The filename must match the naming convention specified in 3GPP TS 29.501 clause 5.3.6.

Follow the below steps.

- Click on the "+ ^" drop down menu and select "Upload file" (see the below snapshot).
- Upload the prepared yaml file.
- Fill the "Commit message" box with a tip on what you tried to do and commit the changes.



## 6.2.3 Replacing the existing yaml file

If you wish to replace the already uploaded yaml file under the desired branch, go back to the main page ([https://forge.3gpp.org/rep/all/5G\\_APIs](https://forge.3gpp.org/rep/all/5G_APIs)), locate the yaml file and click on its link.

Push the Replace button and when done commit the changes (see the below snapshot).



TS29532\_Nmbmf\_MBSSession.y

forge.3gpp.org/rep/all/5G\_APIs/blob/Rel17-draft-TSG94/TS29532\_Nmbmf\_MBSSession.yaml

3GPP Projects Groups More

All Groups > 5G APIs > Repository

Rel17-draft-TSG94 5G\_APIs

Find file Blame History Permalink

/ TS29532\_Nmbmf\_MBSSession.yaml

Replace TS29532\_Nmbmf\_MBSSession.yaml  
gulbanigio authored 1 day ago 30688107

TS29532\_Nmbmf\_MBSSession.yaml 17.7 KB Edit Web IDE Replace Delete

```
1 openapi: 3.0.0
2
3 info:
4   title: Nmbmf-MBSSession
5   version: 1.0.0-alpha.2
6   description: |
7     <API Name> Service.
8     © 2021, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
9     All rights reserved.
10
11 externalDocs:
```