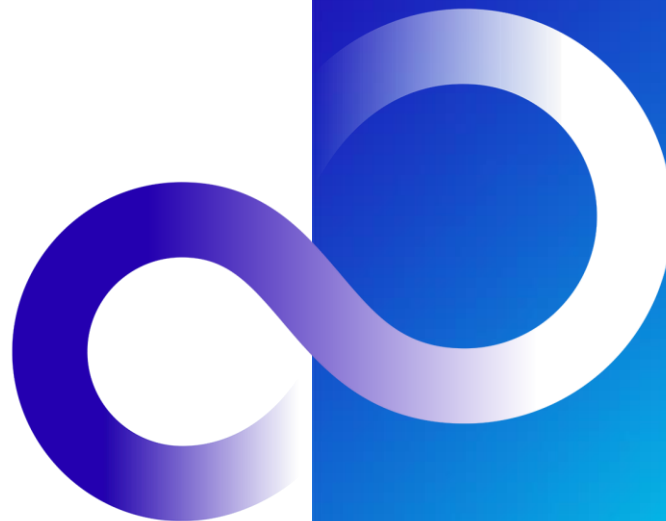


Using the API

Fujitsu Limited



Revision History

Version	Date	Reason for Changes
1.0	July 27, 2023	First Version
1.1	September 27, 2023	English edits
1.2	February 2, 2024	Screenshots update
1.3	February 22, 2024	Add procedures for agreeing individual terms of use for each technology

- This document explains how to use the API published on the Fujitsu Research Portal
- Users must first create a Fujitsu Research Portal account and sign in
 - For how to create an account, please refer to the document "Creating an Account"
- To use an API published on the Fujitsu Research Portal, users must first grant an API access token to the Authorization header.
 - For how to issue an API access token, please refer to the document "Issuing an API Access Token"

Notes

The contents of this manual may differ from the latest version.

- This document outlines two ways to use the API published on the Fujitsu Research Portal:
 1. Calling the API from the Fujitsu Research Portal
 2. Calling the API using [cURL](#) or other tools.
 - As cURL and [Postman](#) can be used in the same way, they are interchangeable within this document.
- Note: There is a limit to the number of times an API can be called from the Fujitsu Research Portal
 - Limit 5 requests/minute per user
 - As requests are counted per user, calls to a separate API will still be included in this number



- After signing in to the portal, click the “Technologies/List of Technologies” button at the top right or center of the navigation bar to go to the "Technologies" page.
- On the "Technologies" page, choose the technology you'd like to use and click the "Try Here" button.

Fujitsu Web3 Components - Fujitsu Web3 Acceleration Platform



Transparent Trust Transfer (Tr3)

Ensure authenticity and non-tampering in workflows involving the exchange of data within and between organizations in a way that can be verified even offline.

Try Here



Fujitsu Data e-TRUST

Manage data transaction records in a tamper-proof manner in addition to securing proof of the origin, ownership, and authenticity of circulating data.

Try Here



ConnectionChain

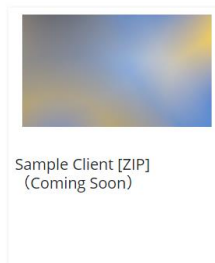
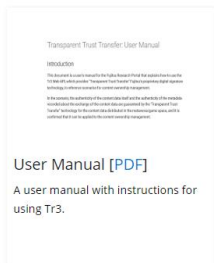
Link various digital asset transaction processes by connecting multiple blockchains, enabling the entire process to be executed automatically as a single transaction.

Try Here

Transparent Trust Transfer (Tr3)

For data exchanged within and between organizations, Tr3 ensures who made changes when, as well as whether the changes were approved, whether the data has been tampered with, and whether the data been processed in the order defined by a predefined workflow by attaching a digital signature each time it is processed. As the digital signatures are embedded in the data itself, users can safely send the ensured data outside of their organization.

Documents



Try the Technology

- Click the "Try the Technology" button
 - 「Try the Technology」: Appears if you are not logged in, or if you are logged in but do not agree to the technical terms



← Cancel

FUJITSU

Enter a number below that we can send a code via SMS to authenticate you.

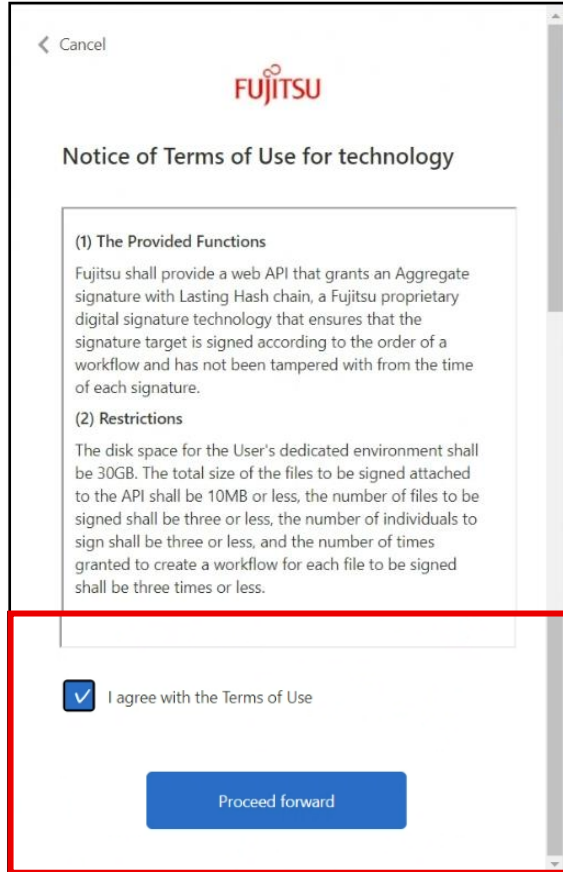
[Redacted]

Enter your verification code below, or send a new code

905678

Verify Code

- In the pop-up, enter the "verification code" that was delivered to SMS in the form and click the "Verify Code" button.

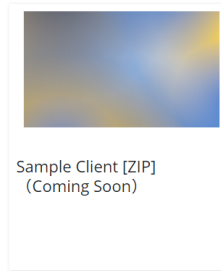
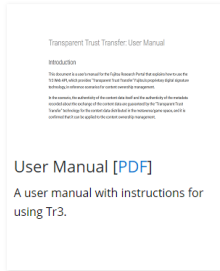


- Check the "Notice of Terms of Use for technology" and if you agree, check the "I agree with the Terms of Use" check box and click the "Proceed forward" button.
 - If you don't agree, click Cancel at the top to close the screen.

Transparent Trust Transfer (Tr3)

For data exchanged within and between organizations, Tr3 ensures who made changes when, as well as whether the changes were approved, whether the data has been tampered with, and whether the data been processed in the order defined by a predefined workflow by attaching a digital signature each time it is processed. As the digital signatures are embedded in the data itself, users can safely send the ensured data outside of their organization.

Documents



Try the API

- Click the "Try the API" button at the bottom of the "Try the APIs" page to go to the "API Specification" page.
 - 「Try the API」: Appears when you are logged in and you accept the technical terms

Transparent Trust Transfer (Tr3) | Transparent Trust Transfer (Tr3)

Search operations | API definition | Changelog

Cancel the workflow specified by workflow ID. **Try It**

Cancel the workflow specified by workflow ID. Workflow ID is the part that corresponds the file name without the extension which is response of /workflow and /sign APIs. After cancelling the workflow, the registered information of the workflow will be deleted.

Tr3 does not allow user to create multiple workflows from one ASIC-E file to avoid double spend (performing multiple workflows from same one ASIC-E file). Hence, it is not able to create another workflow without cancelling previous workflow created from the same ASIC-E file.

Request

DEL https://staging-apigateway-research.global.fujitsu.com/tr3-en/workflows/{flow_id}

Request parameters

DEL Cancel the workflow specified b...
POST Register a workflow and target file...
GET Search portal user information
POST The second and subsequent users...
POST Verify an ASIC-E file signed by usin...

- On the "API Specification" page, choose the API you'd like to use from the list of APIs on the left.
- Check the API headers, parameters, and body, then click the "Try It" button at the top right to go to the "Try It" page.

Calling the API on the Fujitsu Research Portal 7-1/9

Transparent Trust Transfer (Tr3)
/ Register a workflow and target files and attach initial signature.

POST /workflows

Authorization ^

Developer_Portal_Access_Token authorization_code

Parameters ^
+ Add parameter

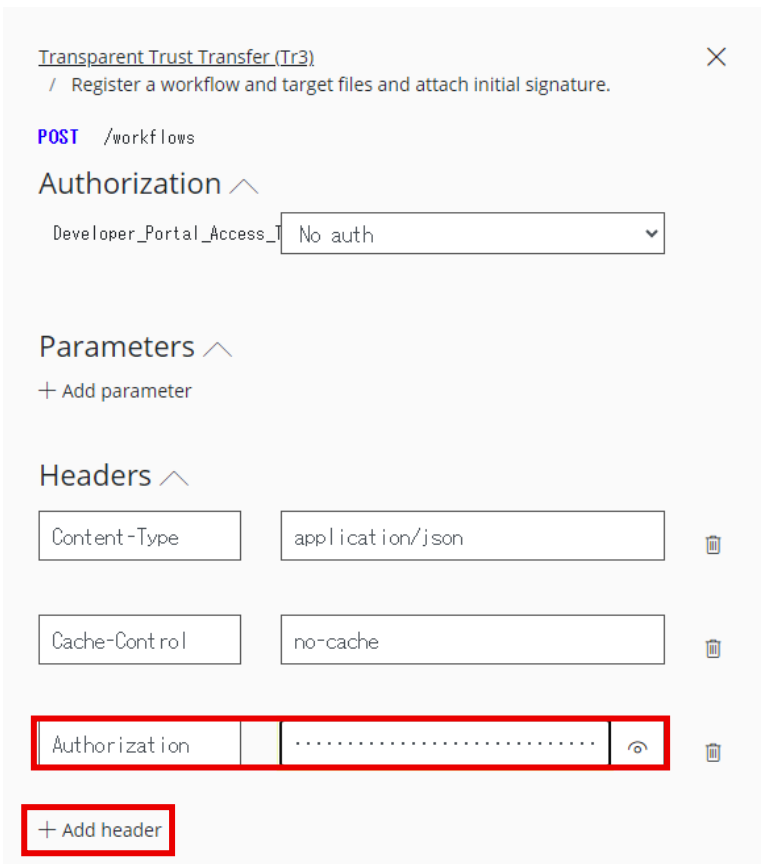
Headers ^

Content-Type	application/json	🗑️
Cache-Control	no-cache	🗑️
Authorization	🗑️

+ Add header

- On the "Try It" page, open the "Authorization" tab and select "authorization_code" for the "Developer_Portal_Access_Token" field.
- Once selected, the "Headers" tab is automatically populated with the "Authorization" field and the API access token, which can be obtained after authentication.

Calling the API on the Fujitsu Research Portal 7-2/9



Transparent Trust Transfer (Tr3) ×
/ Register a workflow and target files and attach initial signature.

POST /workflows

Authorization ^
Developer_Portal_Access_T No auth ▾

Parameters ^
+ Add parameter

Headers ^

Content-Type	application/json	🗑️
Cache-Control	no-cache	🗑️
Authorization	🗑️

+ Add header

- To use a pre-acquired API access token, click "+ Add header" at the bottom of the "Header" tab, add the "Authorization" field and enter "Bearer eyJ..."
 - "eyJ..." is the pre-acquired API access token

HTTP response

```
HTTP/1.1 201 Created

connection: keep-alive
content-type: application/json
date: Fri, 07 Jul 2023 12:38:35 GMT
transfer-encoding: chunked

{
  "files": [
    {
      "name": "97d661ae-3e1d-461c-8b3b-de1d9d5045e1.asice",
      "data": "UESDBA0AAAaAAJFk51aKIIFHwAAAB0AAAAIAAAAAbWItZXR5cG9hcnBsaWNhdGlvbi92bmQuZXRzaS5hc2ljLWUremIwUESDBBQACAgIAJFk51YAA
AAAAAAAAAAAAAAAAZAAATUVUQS1JTkYvQUxIMS9hdWRpdEuanNvbh10wQrCMBT7I3
eeMItRVvC6ehKUsbKKh+pza8V2TzYGc+zf7YSEQAJJkBX1x2I6wTB+CcIQNO9at
rAyT/MFraI2R8PjwkcaMya1SZ3hkNKPPoZ1YrGIG+B2QXq33k8bTot1L5p1KWlqxS
1KJEUof2EJv7kZYxgwjzLYHONcGFpnD/CyxIfJXuI4oNE3wn+FbD/ANQSWcIsxRXY
5QAAAcsAAAAUESDBBQACAgIAJFk51YAAAAAAAAAAAAAAAAATUVUQS1JTkYvQU
xIMS9zaWcxLmpzb26VUk2zmzgQ/CtbvMYTg429z6nag0ACy88jLCywcceVCgGAE/oi
NI90W/vfIbzc55RLd1Br1TPfOP6PHrR59HAER6D11/hitl/Y4exR1Z3+Q98t590eo
n1kLr7x19Zc6z7rSVL9/HpcEIP3hkUHQn3pIkdf00xkodW/a81CyrZCiLqqoJOLZB
46jvCqI+r5cD1dIi5k1tJUnAhQDZsbkrSAL/GA/2qdhdr8WS2RARhVWKE86XGB3X8b
445hP/lgkSAXp5++cZou3Ef6S74lhMS09ptHlrIrgoFai5cncdPRZUA84V02QAjXr
```

- Check the results of the HTTP request response that is displayed

As a response of this API, a file (name: file name and data: Base64-encoded data of the ASIC-E file containing the target file) is returned. Here, the file name (name) is in the form of (flowId).asic, where flowId is a unique ID that represents the workflow (workflow ID).

Tr3

Request

POST <https://staging-apigateway.research.global.fujitsu.com/tr3-en/workflows>

Request body

application/json

WorkflowsPostRequest

{ }

One of:

[PostWorkflowsRequest](#)

[PostWorkflowsRequestForNextALH](#)

PostWorkflowsRequest

Name	Required	Type	Description
addedFiles[].name	true	string	file name

- Follow the same steps outlined in "Calling the API on the Fujitsu Research Portal" 1-3 to navigate to the "API Specification" page, select the API you'd like to use, and confirm the contents
- On the "API Specification" page, under the "Request" field, note "HTTP method" and "URL"
- If necessary, also note "Request parameters," "Request headers," and "Request body"

HTTP request ^

curl

Reveal secrets Copy

```
curl -v -X POST "https://apigateway.research.global.fujitsu.com/tr3/workflows" -H "Content-Type: application/json" -H "Cache-Control: no-cache" -H "Authorization: .....
```

- Follow the same steps outlined in "Calling the API on the Fujitsu Research Portal" 4 to navigate to the "Try It" page
- From the drop-down menu under the "HTTP request" tab, choose "cURL" and click "Copy" to copy the cURL command
 - Clicking "Reveal secrets" displays the API access token, which then can be copied from the screen
- Following the same steps outlined in "How to Call the API from cURL, etc." 2, paste the copied command into a cURL-compatible terminal and execute

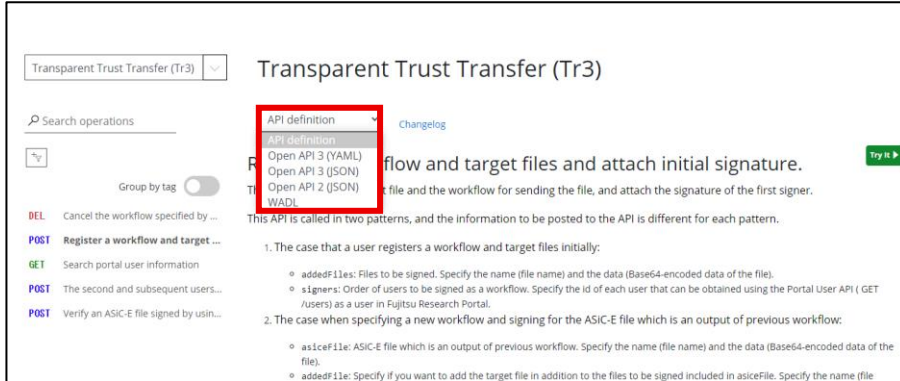
- Check the results displayed

```
HTTP/1.1 200 OK
Connection: Keep-Alive

HTTP/1.1 201 Created
Date: Fri, 07 Jul 2023 12:53:30 GMT
Content-Type: application/json
Transfer-Encoding: chunked
Connection: keep-alive
Request-Context: appId=cid-v1:3e4a2ee0-9d54-482f-9411-b7c2e3aed497

{"files": [{"name": "87f02a96-29d5-454a-9d98-ff15fb355c76.asice", "data":
"UESDBAoAAAgAAK5m51aKIflFhWAAAB8AAAAIAAAAbWltZXR5cGVhcHBsawNhdGlvbi92b
mQuZXRzaS5hc2ljLWUrem1wUESDBBQACAgIAK5m51YAAAAAAAAAAAAAAAAZAAATUVUQS1
JTkYvQUxIMS9hdWRpdDEuanNvbh1OUQuCMBj8L9+zhU0iHPTqegoKcbjoYfWlw7T5hTIw8
b83hTs07uDuJkDbND3w2wReuxdwQD3o7bvPCCRrGC3lKtKuCE9BmZa50bJKH4wCiiL6uVG
SRhSfgOxqlIs8nRf91bL41tLQktWSOhRI6tIdY/Mw0jKmEWG+J9Db1lvf1na9wFKWbdJDR
LljfJ9xliuY/1BLBwj+ww0MkwAAAKwAAABQSwMEFAAICAgArmbnVgAAAAAAAAAAAAAAAAABc
AAABNRVRBLU1ORi9BTegxL3NpZzEuanNvbPvSTbPiNhD8Kymumw22nyGPrpcBlmQjHiMjI
RtM7cVrs8YWH2/BrG218t9XkGRPUUq6qNSjme1p9Z+j+7UefRoBVegj4+EYLefu0L+Xdev
+1twu59Gvo37izPD+2tZf6yJv9/b1x8cKaMT4L5hKxUKGkaJP9PMZGAuuBm0UrivUsQBVL
ERx00e+3+EqY2+XHTONQ22sWzc0hQAi5Cb23kEahYdkcE/15v29nHMxJO1I15FUiD1Bh2W
2L0+EE1E+PSu412catcYlYn3DNu4k9G3iPDV6EFU9D1Cmk2uJE6pY6ZcAUHTd0ATM6fww8M
```

- Selecting a format from "API definition" at the center of the "API Specification" page downloads the API specifications in that format



Thank you

