

# R5 Federated ML application at edge API Document

- [Introduction](#)
- [FATE-Flow REST API](#)
  - [DataAccess](#)
  - [Job](#)
    - [Tracking](#)
    - [Pipeline](#)
    - [Model](#)
  - [Table](#)
- [FATE-Flow Client Command Line Interface](#)
  - [Usage](#)
  - [JOB\\_OPERATE](#)
  - [JOB](#)
  - [TASK\\_OPERATE](#)
  - [TRACKING](#)
    - [DATA](#)
    - [Table](#)
    - [Model](#)

## Introduction

FATE-Flow is the job scheduling system of the federated learning framework FATE, which realizes the complete management of the federated learning job life cycle, including data input, training job scheduling, indicator tracking, model center and other functions. It provides CLI and HTTP API for users to manage data and federated jobs.

## FATE-Flow REST API

- HTTP Method: POST
- Content-Type: application/json

### DataAccess

#### **/v1/data/upload**

- request structure
  - namespace: Required,String: upload data table namespace
  - table\_name: Required,String: upload data table name
  - work\_mode: Required,Integer: eggroll's working mode
  - file: Required, String: upload file location
  - head: Required,Integer: determine if there is a data header
  - partition: Required,Integer: set the number of partitions to save data
  - module: Optional,String: If you need to use the data of the machine where the FATE-Flow server is located, this value is not empty.
  - use\_local\_data: Optional,String: If you need to use the data of the machine where the FATE-Flow server is located, this value is 0.
  - drop: Optional, Integer: When the cluster deployment uses the same table to upload data, it is necessary to carry the drop parameter,0 represents overwriting upload, 1 represents deleting the previous data and re-uploading
- response structure
  - job\_id: upload job id,String
  - data: return data for submitting job ,Object

#### **/v1/data/download**

- request structure
  - namespace: Required,String: download data table namespace
  - table\_name: Required,String: download data table name
  - output\_path: Required, String: download file location
  - work\_mode: Required,Integer:working mode
  - delimiter: Optional,String: download data delimiter
- response structure
  - job\_id: download job id,String
  - data: return data for submitting job ,Object

#### **/v1/data/upload/history**

- request structure
  - job\_id: Optional,String:download job id
  - limit: Optional, Integer:Limit quantity
- response structure

- retcode: return code,Integer
- retmsg: return code description,String
- data: return data for submitting job ,Object

## Job

### /v1/job/submit

- request structure
  - job\_runtime\_conf: Required,Object: configuration information for the currently submitted job
  - job\_dsl: Required,Object: dsl of the currently submitted job
- response structure
  - job\_id: job id of the currently submitted job,String
  - data: return data for submitting job ,Object

### /v1/job/stop

- request structure
  - job\_id: Required, String: job id
- response structure
  - job\_id: job id of the currently submitted job,String
  - retmsg: return code description,String

### /v1/job/query

- request structure
  - job\_id: Optional,String: job id
  - name: Optional,String: job name
  - description: Optional,String: job description
  - tag: Optional,String:Optional,String: job tag
  - role: Optional,String: job role
  - party\_id: Optional,String: job party id
  - roles: Optional,String: job roles
  - initiator\_party\_id: Optional,String: initiator's party id
  - is\_initiator: Optional,Integer: mark if it is the initiator
  - dsl: Optional,String: job dsl
  - runtime\_conf : Optional,String: configuration information for the job
  - run\_ip: Optional,String: job run ip
  - status: Optional,String: job status
  - current\_steps: Optional,String:record component id in DSL
  - current\_tasks: Optional,String: record task id
  - progress: Optional,Integer: job progress
  - create\_time: Optional,Integer: job create time
  - update\_time: Optional,Integer:job update time
  - start\_time: Optional,Integer: job start time
  - end\_time: Optional,Integer: job end time
  - elapsed: Optional,Integer: job elapsed time
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: job data, Array

### /v1/job/update

- request structure
  - job\_id: Required,String: job id
  - role: Required,String: job role
  - party\_id: Required,String: job party id
  - notes: Required, String: remark Information
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String

### /v1/job/config

- request structure
  - job\_id: Optional,String: job id
  - name: Optional,String: job name
  - description: Optional,String: job description
  - tag: Optional,String:Optional,String: job tag

- role: Optional,String: job role
- party\_id: Optional,String: job party id
- roles: Optional,String: job roles
- initiator\_party\_id: Optional,String: initiator's party id
- is\_initiator: Optional,Integer: mark if it is the initiator
- dsl: Optional,String: job dsl
- runtime\_conf : Optional,String: configuration information for the job
- run\_ip: Optional,String: job run ip
- status: Optional,String: job status
- current\_steps: Optional,String:record component id in DSL
- current\_tasks: Optional,String: record task id
- progress: Optional,Integer: job progress
- create\_time: Optional,Integer: job create time
- update\_time: Optional,Integer:job update time
- start\_time: Optional,Integer: job start time
- end\_time: Optional,Integer: job end time
- elapsed: Optional,Integer: job elapsed time
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: config data, Object

#### /v1/job/task/query

- request structure
  - job\_id: Optional,String: job id
  - name: Optional,String: job name
  - description: Optional,String: job description
  - tag: Optional,String:Optional,String: job tag
  - role: Optional,String: job role
  - party\_id: Optional,String: job party id
  - roles: Optional,String: job roles
  - initiator\_party\_id: Optional,String: initiator's party id
  - is\_initiator: Optional,Integer: mark if it is the initiator
  - dsl: Optional,String: job dsl
  - runtime\_conf : Optional,String: configuration information for the job
  - run\_ip: Optional,String: job run ip
  - status: Optional,String: job status
  - current\_steps: Optional,String:record component id in DSL
  - current\_tasks: Optional,String: record task id
  - progress: Optional,Integer: job progress
  - create\_time: Optional,Integer: job create time
  - update\_time: Optional,Integer:job update time
  - start\_time: Optional,Integer: job start time
  - end\_time: Optional,Integer: job end time
  - elapsed: Optional,Integer: job elapsed time
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: tasks data, Array

## Tracking

#### /v1/tracking/job/data\_view

- request structure
  - job\_id: Required,String: job id
  - role: Required,String: role information
  - party\_id: Required,Integer: party id
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: job view data,Object

#### /v1/tracking/component/metric/all

- request structure
  - job\_id: Required,String: job id
  - role: Required,String: role information
  - party\_id: Required,Integer
  - component\_name: Required,String: component name
- response structure

- retcode: return code,Integer
- retmsg: return code description,String
- data: all metric data,Object

#### **/v1/tracking/component/metrics**

- request structure
  - job\_id: Required,String: job id
  - role: Required,String: role information
  - party\_id: Required,Integer
  - component\_name: Required,String: component name
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: metrics data,Object

#### **/v1/tracking/component/metric\_data**

- request structure
  - job\_id: Required,String: job id
  - role: Required,String: role information
  - party\_id: Required,Integer: party id
  - component\_name: Required,String: component name
  - meric\_name: Required,String: metric name
  - metric\_namespace: Required,String: metric namespace
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: metric data, Array
  - meta: metric meta, Object

#### **/v1/tracking/component/parameters**

- request structure
  - job\_id: Required,String: job id
  - role: Required,String: role information
  - party\_id: Required,Integer: party id
  - component\_name: Required,String: component name
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: output parameters, Object

#### **/v1/tracking/component/output/model**

- request structure
  - job\_id: Required,String: job id
  - role: Required,String: role information
  - party\_id: Required,Integer: party id
  - component\_name: Required,String: component name
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: output model, Object
  - meta: component model meta,Object

#### **/v1/tracking/component/output/data**

- request structure
  - job\_id: Required,String: job id
  - role: Required,String: role information
  - party\_id: Required,Integer: party id
  - component\_name: Required,String: component name
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: output data, Array
  - meta: schema header information, Object

## Pipeline

### /v1/pipeline/dag/dependency

- request structure
  - job\_id: Required,String:job id
  - role: Required,String: role information
  - party\_id: Required,Integer: party id
- response structure
  - retcode: return code,Integer
  - retmsg: return code description,String
  - data: pipeline dag dependency data,Object

## Model

### /v1/model/load

- request structure
  - initiator: Required,Object: job initiator information, including party\_id and role
  - job\_parameters: Required,Object: job parameters information, including work\_mode, model\_id and model\_version
  - role: Required,Object: role information of the parties
  - servings: Optional,Array: fate serving address and port
- response structure
  - job\_id:job id, String
  - retcode: return code, Integer
  - retmsg: return code description, String
  - data: status info, Object

### /v1/model/bind

- request structure
  - service\_id: Required,String: service id
  - initiator: Required,Object: job initiator information, including party\_id and role
  - job\_parameters: Required,Object: job parameters information, including work\_mode, model\_id and model\_version
  - role: Required,Object: role information of the parties
  - servings: Optional,Array: fate serving address and port
- response structure
  - retcode: return code, Integer

### /v1/model/transfer

- request structure
  - name: Required,String: model version
  - namespace: Required,String: model id
- response structure
  - retcode: return code, Integer
  - retmsg: return code description, String
  - data: model data, Object

## Table

### /v1/table/table\_info

- request structure
  - create: Optional, Boolean: whether to create
  - namespace: Optional,String: download data table namespace, need to be used with table\_name
  - table\_name: Optional,String: download data table name, need to be used with namespace
  - local: Optional,Object: local configuration
  - role: Optional,Object: role information
  - data\_type: Optional,String: download file data type
  - gen\_table\_info: Optional,Boolean: tag table information
- response structure
  - retcode: return code, Integer
  - retmsg: return code description, String
  - data: table information

## **/v1/table/delete**

- request structure
  - namespace: Optional,String: download data table namespace, need to be used with table\_name
  - table\_name: Optional,String: download data table name, need to be used with namespace
- response structure
  - retcode: return code, Integer
  - retmsg: return code description, String
  - data: table information

# FATE-Flow Client Command Line Interface

## Usage

```
python fate_flow_client.py -f $command
```

## JOB\_OPERATE

### **submit\_job**

- description: submit a pipeline job
- parameter:
  - -c -config: runtime conf path, Required
  - -d -dsl: dsl path, Required

```
python fate_flow_client.py -f submit_job -c examples/test_hetero_lr_job_conf.json -d examples/test_hetero_lr_job_dsl.json
```

### **stop\_job**

- description: cancel job or stop job
- parameter:
  - -j -job\_id: job id, Required

```
python fate_flow_client.py -f stop_job -j $job_id
```

### **query\_job**

- description: query job information by filters
- parameter:
  - -j -job\_id: filter by job id, Optional
  - -r -role : filter by role, Optional
  - -p -party\_id: filter by party id, Optional
  - -s -status: filter by status, Optional

```
python fate_flow_client.py -f query_job -j $job_id
```

### **clean\_job**

- description: clean processor,data table and metric data
- parameter:
  - -j -job\_id: filter by job id, Optional
  - -r -role : filter by role, Optional
  - -p -party\_id: filter by party id, Optional
  - -cpn -component\_name: component name, Optional

```
python fate_flow_client.py -f clean_job -j $job_id
```

### **data\_view\_query**

- description: query data view information by filters
- parameter: -j -job\_id: filter by job id, Optional -r -role : filter by role, Optional -p -party\_id: filter by party id, Optional -s -status: filter by status, Optional

```
python fate_flow_client.py -f data_view_query -j $job_id
```

## JOB

### job\_config

- description: download the configuration of this job
- parameter:
  - -j -job\_id: job id, Required
  - -r -role : role, Required
  - -p -party\_id: party id, Required
  - -o -output\_path: config output directory path, Required

```
python fate_flow_client.py -f job_config -j $job_id -r $role -p $party_id -o $output_path
```

### job\_log

- description: download the log of this job
- parameter:
  - -j -job\_id: job id, Required
  - -o -output\_path: config output directory path, Required

```
python fate_flow_client.py -f job_log -j $job_id -o $output_path
```

## TASK\_OPERATE

### query\_task

- description: query task information by filters
- parameter:
  - -j -job\_id: filter by job id, Optional
  - -cpn -component\_name: filter by component name, Optional
  - -r -role : filter by role, Optional
  - -p -party\_id: filter by party id, Optional
  - -s -status: filter by status, Optional

```
python fate_flow_client.py -f query_task -j $job_id
```

## TRACKING

### component\_parameters

- description: query the parameters of this component
- parameter:
  - -j -job\_id: job id, Required
  - -cpn -component\_name: component name, Required
  - -r -role: role, Required
  - -p -party\_id: party id, Required

```
python fate_flow_client.py -f component_parameters -j $job_id -r $role -p $party_id -cpn $component_name
```

### component\_metric\_all

- description: query all metric data
- parameter:
  - -j -job\_id: job id, Required
  - -cpn -component\_name: component name, Required
  - -r -role: role, Required
  - -p -party\_id: party id, Required

```
python fate_flow_client.py -f component_metric_all -j $job_id -r $role -p $party_id -cpn $component_name
```

### component\_metrics

- description: query the list of metrics
- parameter:
  - -j -job\_id: job id, Required
  - -cpn -component\_name: component name, Required
  - -r -role: role, Required
  - -p -party\_id: party id, Required

```
python fate_flow_client.py -f component_metrics -j $job_id -r $role -p $party_id -cpn $component_name
```

### component\_output\_model

- description: query this component model

- parameter:
  - -j --job\_id: job id, Required
  - -cpn --component\_name: component name, Required
  - -r --role: role, Required
  - -p --party\_id: party id, Required

```
python fate_flow_client.py -f component_output_model -j $job_id -r $role -p $party_id -cpn $component_name
```

### component\_output\_data

- description: download the output data of this component
- parameter:
  - -j --job\_id: job id, Required
  - -cpn --component\_name: component name, Required
  - -r --role: role, Required
  - -p --party\_id: party id, Required
  - -o --output\_path: config output path, Required
  - -limit --limit: Limit quantity, Optional

```
python fate_flow_client.py -f component_output_data -j $job_id -r $role -p $party_id -cpn $component_name -o $output_path
```

### component\_output\_data\_table

- description: view table name and namespace
- parameter:
  - -j --job\_id: job id, Required
  - -cpn --component\_name: component name, Required
  - -r --role: role, Required
  - -p --party\_id: party id, Required

```
python fate_flow_client.py -f component_output_data_table -j $job_id -r $role -p $party_id -cpn $component_name
```

## DATA

### download

- description: download table
- parameter:
  - -c --config: config path, Required

```
python fate_flow_client.py -f download -c examples/download_guest.json
```

### upload

- description: upload table
- parameter:
  - -c --config: config path, Required
  - -drop --drop: Operations before file upload, Optional

```
python fate_flow_client.py -f upload -c examples/upload_guest.json
python fate_flow_client.py -f upload -c examples/upload_guest.json -drop 0(or1)
```

### upload\_history

- description: upload table history
- parameter:
  - -j --job\_id: job id, Optional
  - -limit --limit: Limit quantity, Optional

```
python fate_flow_client.py -f upload_history -j $job_id
python fate_flow_client.py -f upload_history -limit 5
```

## Table

### table\_info

- description: query table information
- parameter:
  - -n --namespace: namespace, Required
  - -t --table\_name: table name, Required

```
python fate_flow_client.py -f table_info -n $namespace -t $table_name
```



## table\_delete

- description: delete table
- parameter:
  - -n --namespace: namespace, Optional
  - -t --table\_name: table name, Optional
  - -j --job\_id: job id, Optional
  - -cpn --component\_name: component name, Optional
  - -r --role: role, Optional
  - -p --party\_id: party id, Optional

```
python fate_flow_client.py -f table_delete -n $namespace -t $table_name
python fate_flow_client.py -f table_delete -j $job_id
```

## Model

### load

- description: load model.
- parameter:
  - -c --config: config path, Required

```
python fate_flow_client.py -f load -c $conf_path
```

- response example:

```
{
  "data": {
    "detail": {
      "guest": {
        "9999": {
          "retcode": 0,
          "retmsg": "xxx"
        }
      },
      "host": {
        "10000": {
          "retcode": 0,
          "retmsg": "xxx"
        }
      }
    },
    "guest": {
      "9999": 0
    },
    "host": {
      "10000": 0
    }
  },
  "jobId": "xxxxxxxxxxxxxxxx",
  "retcode": 0,
  "retmsg": "success"
}
```

### bind

- description: bind model.
- parameter:
  - -c --config: config path, Required

```
python fate_flow_client.py -f bind -c $conf_path
```

- response example:

```
{
  "retcode": 0,
  "retmsg": "service id is xxx"
}
```

### store

- description: store model
- parameter:
  - -c --config: config path, Required

```
python fate_flow_client.py -f store -c $conf_path
```

## restore

- description: restore mode
- parameter:
  - -c --config: config path, Required

```
python fate_flow_client.py -f restore -c $conf_path
```

## export

- description: export model
- parameter:
  - -c --config: config path, Required

```
python fate_flow_client.py -f export -c $conf_path
```

## import

- description: import model
- parameter:
  - -c --config: config path, Required

```
python fate_flow_client.py -f import -c $conf_path
```

[Next](#) [Previous](#)