



Globus Online Transfer API

Integrating Portals and rich client applications with the Globus Online Transfer Service.



Outline

- **Review of Transfer Service concepts**
- **REST and API concepts**
 - **Authentication**
 - **Base URL**
- **Overview of Transfer API use cases:**
 - **Activate Endpoints**
 - **List Directory Contents**
 - **Submit Transfers**
 - **Monitor Transfer Progress**



The Transfer Service

- **Task** - batch of file transfers operations submitted together, identified by ID string
- **Subtask** - individual file transfer operation, e.g. copying a file, expanding a directory
- **Endpoint** - bookmark for a gridftp server
- **Activation** - delegating temporary credential to transfer service
- **Event** – errors and information about the progress of a subtask



Transfer API Concepts

<https://transfer.api.globusonline.org>

- A web application for programs, not for humans
- Self-hosted documentation
- Data oriented instead of command oriented – commands become URLs
- Runs over HTTPS
- Data is represented as JSON, XML, or HTML
- Lists are paged (default 10); most support filtering
- HTTP request methods: GET, POST, PUT, DELETE



From Command Line to REST

- **status**
- **details ID**
- **details -t ID**
- **endpoint-list**
- **events ID**
- **Is NAME/PATH**
- **/task_list**
- **/task/ID**
- **/task/ID/subtask_list**
- **/endpoint_list**
- **/task/ID/event_list**
- **/endpoint/NAME/Is?
path=PATH**



Authentication

- **SSL client authentication – grid certificate and key required, configured via the GUI. Shared with CLI for gsi-ssh authentication.**
- **Oauth (future)**
- **Cookie (temporary) - For testing purposes. Obtained by signing in to www.globusonline.org.**



Base URL

<https://transfer.api.globusonline.org/VERSION>

Current Version: v0.10

- **All URLs are given relative to the base URL, e.g. /tasksummary.**
- **Python and Java client libraries also use relative URLs, prepending the base URL. This is the recommended best practice.**



Activation

`POST /endpoint/NAME/autoactivate`

`POST /endpoint/NAME/activate`

- **Auto-activate first: uses cached credentials from related endpoints.**
- **If that fails, a list of `activation_requirements` is returned. Note: not an error.**
- **Fill in requirements, possibly prompting the user, and POST to `/endpoint/Name/activate`.**



Directory Listing

GET /endpoint/NAME/ls?path=...

- **Endpoint must be activated first**
- **Default path - “~/”, or “/” for anonymous ftp.
Note: may not exist.**
- **Supports standard sorting and filtering options.**



Transfer

GET /transfer/submission_id

POST /transfer

- **The submission id is used for 'once and only once' submission.**
- **Create a transfer document, adding transfer_item subdocuments for each source/destination pair.**
- **POST the document, getting the task_id from the response.**



Monitoring

GET /task/ID

GET /task/ID/subtask_list

GET /task/ID/event_list

GET /subtask/ID

GET /subtask/ID/event_list

- For tasks, use the `task_id` from the transfer result, not the `submission_id`.
- For subtasks, get the `task_id` from the `subtask_list`.



Error Handling

- **Fields: code, message, request_id, resource**
- **ServerError – our fault, file a bug report**
- **ClientError – your fault**
- **ExternalError – someone else's fault (e.g. external myproxy or gridftp server)**
- **ServiceUnavailable – scheduled down time**



Tutorial

<https://transfer.api.globusonline.org/gw12.html>



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