

API gateway

Cerebrum-seminar 2016

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- ... also known as *sgs* (<http://folk.uio.no/sgs/>)
- Cerebrum developer since February 2015

API gateway vs. API proxy

The integration project at UiO (*INT*) defines the role *API Manager*.

Why use API gateway instead of API proxy?

- Unified access for all our APIs
- Unified documentation and catalogue
- Unified caching for all APIs
- Unified logging / statistics generation for all APIs
- Access control / rate limiting for all our APIs
- (Re)mapping and (re)writing

API gateway & Cerebrum

For the time being we have settled on *Tyk API gateway*.

It uses an internal user-database and consists of the following logical components:

- Dashboard
- Developer portal
- Gateway

Dashboard

Provides a convenient web-interface for configuration and manipulation of the gateway and the different APIs.

- Dashboard
- API Usage Data
 - Activity by API
 - Activity by Key
 - Endpoint popularity
 - Geographic Distribution
 - Errors
 - Log browser
- Uptime Data
 - Service uptime dashboard
 - Uptime targets
- System Management
 - Users
 - Apis
 - Keys
 - Policies
 - Webhooks
 - Identity Management
 - Nodes & Licenses
- Portal Management
 - Settings
 - Catalogue
 - Key Requests
 - Developers
 - Pages
 - Menus

Registered API Configurations

Registered APIs				
API Name	API ID	Target	Status	Manage
digeksd-utv	50b8a74baa2448336453a62224e92e67	https://digeks-utv01.uio.no:8080/	●	Edit
SAP	4cbf24796fe84c6a58e14bd74285c598	https://sap-gwutv01.uio.no:8411/sap/opu/odata/sap/zsws	●	Edit
data.uio.no	04e279651e844deb475916b0f386143d	https://data.uio.no/studies/	●	Edit
HttpBin BasicAuth	09aae65bd17f481a46d45e3fc8a1a009	http://httpbin.org/	●	Edit
Cerebrum	7e8a4b87c9224e7f5bbb519c44412ea5	https://api.cerebrum.uio.no	●	Edit
HttpBin	c4a0f5109fc84721739649a355eff812	http://httpbin.org/	●	Edit

+ Add new API

↕ Import API

Help

This page lists all the registered API's within your tyk cluster, update or edit these API configurations and changes will propagate throughout the system to take effect.

Warning: Deleting APIs cannot be undone, and will revoke access to any keys that are currently set to have access to your API.

APIs that are greyed out are still editable, but it is not recommended, these represent system-proxies, for example, if your installation was set up to proxy the Tyk Portal via the Tyk Gateways.

Portal

Provides the API documentation and catalogue.

The screenshot shows a web browser window with the URL `https://api-pilot.usit.uio.no/portal/apis/57584b072a293bb89000033/documentation/#!/groups/get_group_resource`. The page title is "Tyk Developer Portal" and "API Catalogue". The main heading is "Cerebrum REST API" with a sub-description: "Cerebrum is a user administration system."

The page displays a list of API endpoints under the "accounts" category, which is titled "accounts : Account operations". Each endpoint is shown in a blue box with a "GET" method and a description. To the right of each endpoint are links for "Show/Hide", "List Operations", and "Expand Operations".

Method	Endpoint	Description
GET	/accounts/	List accounts
GET	/accounts/{id}	Get account information
GET	/accounts/{id}/affiliations	List affiliations for an account
GET	/accounts/{id}/contacts	Lists contact information for an account
GET	/accounts/{id}/emailaddresses	Get the email addresses for an account
GET	/accounts/{id}/groups	List groups an account is a member of
GET	/accounts/{id}/homes	List home directories for an account
GET	/accounts/{id}/posix	Get POSIX account information
GET	/accounts/{id}/quarantines	Get account quarantines

Below the "accounts" section, there are sections for "contexts : Context operations", "emailaddresses : Email address operations", "groups : Group operations", "ous : Organizational unit operations", and "persons : Person operations", each with "Show/Hide", "List Operations", and "Expand Operations" links.

At the bottom left, there is a note: "[BASE URL: /cerebrum/v1 , API VERSION: 1.0]". At the bottom right, there is a red "ERROR" button with a red icon.

At the very bottom, it says "Powered by Tyk - The Open Source API Gateway".

Portal

API Developer portal

https://api-pilot.usit.uio.no/portal/apis/57584b072a293bb89000033/documentation/#!/accounts/get_account_resource

Tyk Developer Portal API Catalogue

Cerebrum REST API

Cerebrum is an user administration system.

Show/Hide | List Operations | Expand Operations

accounts : Account operations

GET /accounts/ [List accounts](#)

GET /accounts/{id} [Get account information](#)

Response Class (Status 200)

Model | Model Schema

```
{
  "active": true,
  "contexts": [
    "string"
  ],
  "create_date": "2016-09-13T12:23:34.170Z",
  "expire_date": "2016-09-13T12:23:34.170Z",
  "href": "string",
  "id": 0,
  "name": "string",
  "owner": {
```

Response Content Type

Parameters

Parameter	Value	Description	Parameter Type	Data Type
id	<input type="text" value="(required)"/>	Account name or ID	path	string
X-Fields	<input type="text"/>	An optional fields mask	header	string

Response Messages

HTTP Status Code	Reason	Response Model
404	Not Found	

[Try it out!](#)

GET /accounts/{id}/affiliations [List affiliations for an account](#)

GET /accounts/{id}/contacts [Lists contact information for an account](#)

GET /accounts/{id}/emailaddresses [Get the email addresses for an account](#)

GET /accounts/{id}/groups [List groups an account is a member of](#)

Gateway

- Still in experimental / pilot phase
- Several APIs are already configured in Tyk (Cerebrum WS, SAP WS...)
- Support for many *authentication modes* (Auth Token, JWT, OAuth 2, Basic Auth, Open ID Connect, ...)

Official site: <https://tyk.io/>

Q&A