

Unlocking the Potential of the **Autodesk Vault Data API**

Class ID 1343



About the speaker

Christian Gessner

@COOLORANGE

Christian Gessner is a co-founder and Head of Research & Innovation at COOLORANGE.

In this role, he drives research into cutting-edge technologies that enable customers to effectively automate, implement, and customize Autodesk CAD, PDM, and PLM solutions, ensuring seamless integration with enterprise systems.

With over 25 years of experience in full-stack software development, Christian specializes in Autodesk product data and lifecycle management and Microsoft development technologies. Before founding COOLORANGE, he was a member of the data management software engineering team at Autodesk.



Vault Data API Agenda

01

Differences between Vault Data API and SDK

02

Vault Data API fundamentals

03

Sample: Microsoft Teams Integration

04

Sample: AI Chatbot

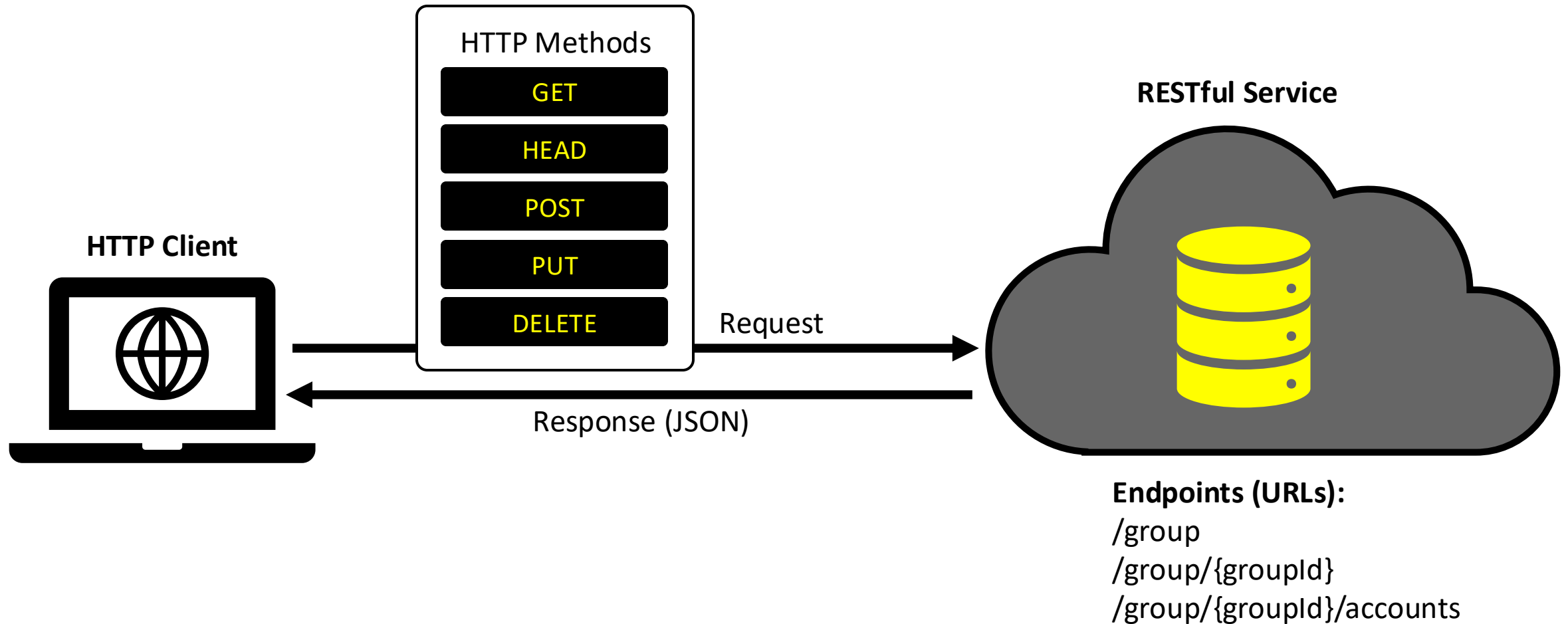


“ The Vault Data API provides a comprehensive set of RESTful endpoints that allow developers to interact with Vault data stored on the Vault server. ”

https://aps.autodesk.com/en/docs/vaultdataapi/v2/developers_guide/overview/

RESTful Web Services Explained

REST = Representational State Transfer



Technology Comparison

Vault Data API vs. Vault SDK



Feature	Vault Data API	Vault SDK
Language Neutral	Yes	No (limited to C#/.NET)
Access Mechanism	RESTful JSON over HTTP	.NET API libraries (DLLs)
Platform Support	Web, mobile, cloud + desktop	Windows desktop
Installation & Setup	Lightweight (HTTP calls)	SDK installation required
Compatibility	Cross-version compatible (2025.2, 2026, 2026.1...)	Major version only
Upgrades	Server-side (API versions)	SDK redeployment required
Documentation	Online: https://aps.autodesk.com	VaultSDK.chm & VS templates
Typical Use Cases	Cloud integrations & apps, dashboards	Client extensions + jobs

Feature Comparison

Vault Data API vs. Vault SDK

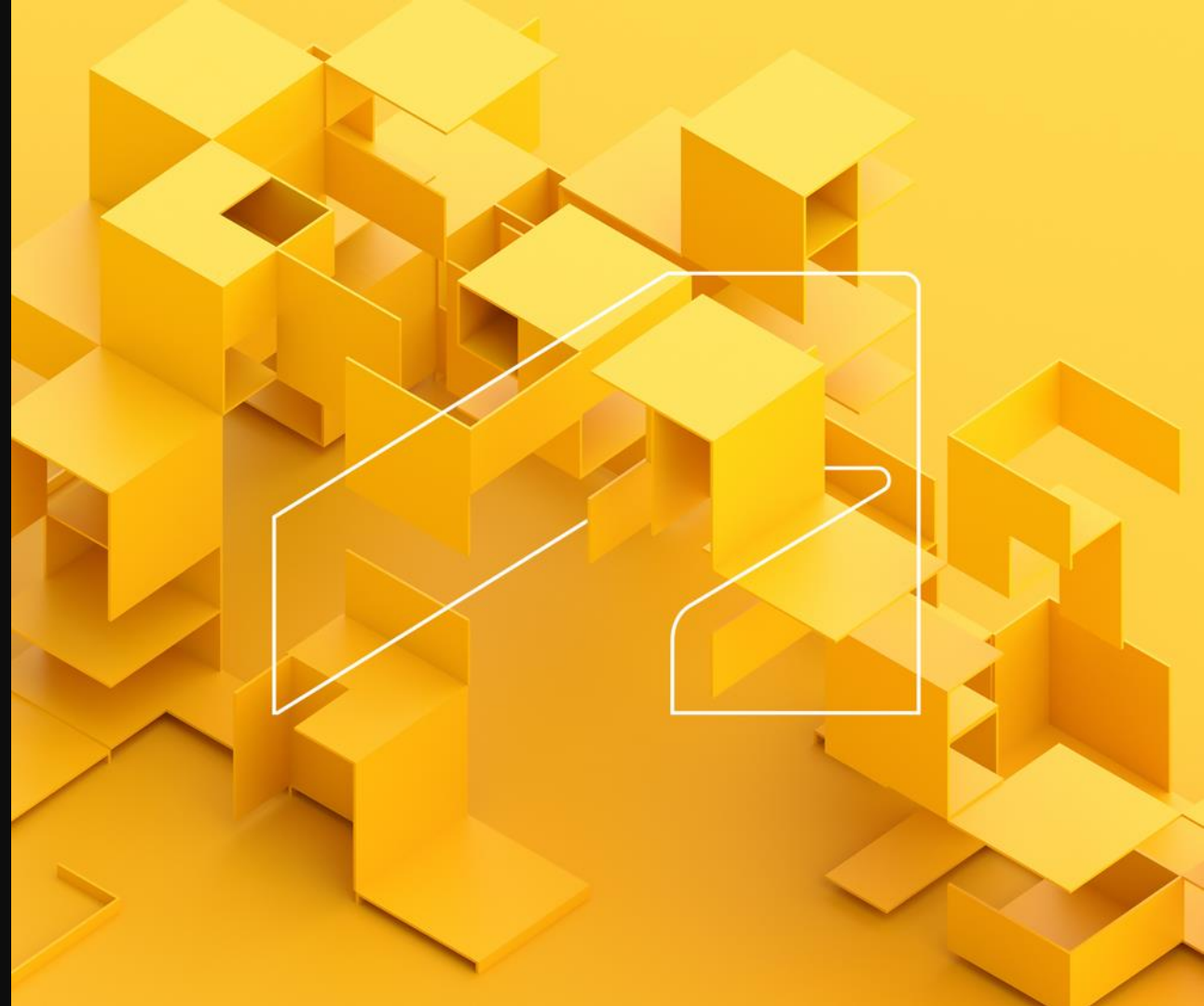


Feature	Vault Data API	Vault SDK
Vault UI Extensions	No	Yes
Vault Custom Jobs	No	Yes
Vault Event Handlers	No	Yes
Vault Custom Numbering	No	Yes
Query/Read Vault Entity Data	Yes	Yes
Write Vault Entity Data	No	Yes
Read/Write Vault Options	Yes	Yes
Submit Vault Jobs	Yes	Yes

Fundamentals of the Vault Data API

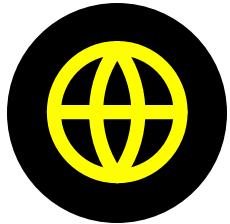
Autodesk Vault Data API

#AU2025



Vault Data API Fundamentals

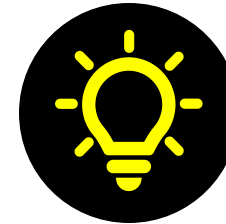
Basic knowledge to master the Vault Data API



API Access



Authorization

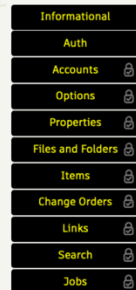
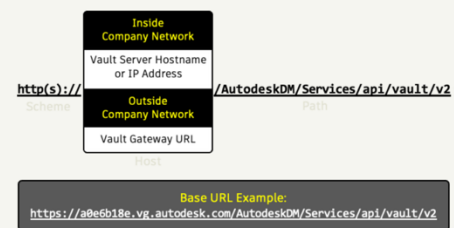


Common Concepts



Resources

API Access & Endpoints

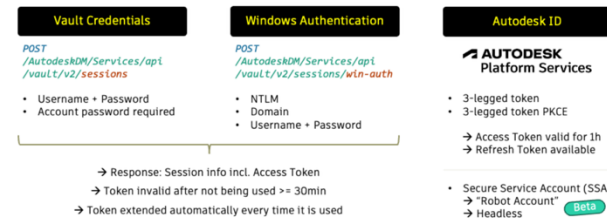


SD 1343 - Unlocking the Potential of the Autodesk Vault Data API

- Base URL
- Informational Endpoints

Authentication

How to get an Access Token

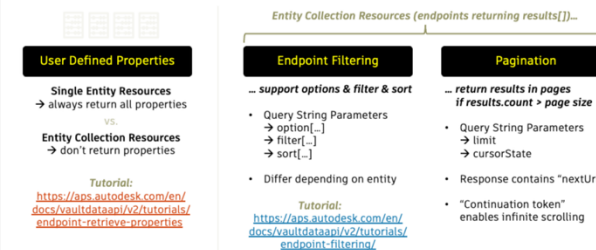


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- Vault
- Windows
- Autodesk ID

Common Concepts

Single Entity Resources & Entity Collection Resources



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- Properties
- Options | Filter | Sort
- Pagination

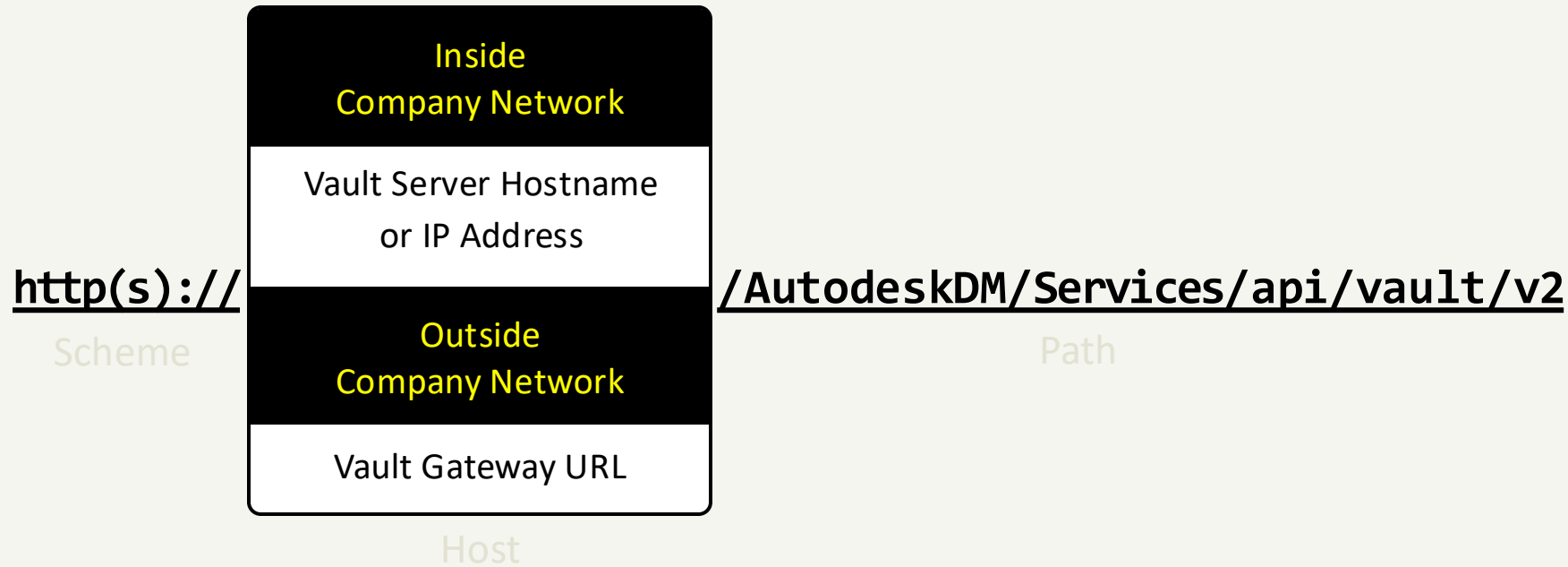
Resources



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- RTFM
- Server Errors
- Server Logs
- Vault Thin Client

API Access & Endpoints



Base URL Example:

<https://a0e6b18e.vg.autodesk.com/AutodeskDM/Services/api/vault/v2>

Informational

Auth

Accounts



Options



Properties



Files and Folders



Items



Change Orders



Links














Search



Jobs



Vault Data API Endpoints

▼  Informational	> GET Get all Vault options	▼  Items
> GET Get Openapi Specification	> POST Creates a vault option	> GET Get item versions
> GET Get server information	> GET Get a vault option	> GET Get an item version
> GET Get all Knowledge Vaults	> PATCH Update a vault option	> GET Get file associations for item version
> GET Get a Knowledge Vault	> DEL Delete a vault option	> GET Get child items for item version
▼  Auth	▼  Property	> GET Get parent items for item version
> POST Create session with Vault credentials	> GET Get all property definitions	> GET Get thumbnail for item version
> POST Create a session with Windows authentication	> GET Get a property definition	> GET Get all items
> GET Get current session	▼  Files and Folders	> GET Get an item
> DEL Delete current session	> GET Get file versions	> GET Get Change Orders for item
▼  Accounts	> GET Get a file version	> GET Get version history for item
> GET Get all groups	> GET Generate signed download URL for a file version	▼  Change Orders
> GET Get a group	> GET Download file version content	> GET Get all change orders
> GET Get group account information by specific type	> HEAD Get file version content metadata	> GET Get a change order
> GET Get all profile attribute definitions	> GET Get the LMV root for file version	> GET Get change order files
> GET Get a profile attribute definition	> GET Get items for file version	> GET Get change order associated entities
> GET Get user roles	> GET Get markups for file version	> GET Get change order comments
> GET Get an user role	> GET Get a markup for file version	> GET Get change order comment attachments
> GET Get all users	> GET Download file version thumbnail	▼  Links
> GET Get an user	> GET Get visualization attachments for file version	> GET Get all links
> GET Get user accounts	> GET Get child associations for file version	> GET Get a link
> GET Get an user account	> GET Get parent associations for file version	▼  Search
▼  Options	> GET Get a file	> GET Basic search
> GET Get system options	> GET Get change orders for file	> POST Advanced search
> POST Create a system option	> GET Get versions history for file	▼  Jobs
> GET Get a system option	> GET Get a folder	> POST Create a job
> PATCH Update a system option	> GET Get folder contents	> GET Get job queue status
> DEL Delete a system option	> GET Get subfolders	> GET Get a job

Informational Endpoints

No Authentication required



OpenAPI Specification

GET
/AutodeskDM/Services/api
/vault/v2/openapi-spec.yml

Vault Data API's specification:

- Functionalities
- Methods
- Parameters
- Data structures
- Endpoint documentation

Import in Postman, Swagger...



Server Information

GET
/AutodeskDM/Services/api
/vault/v2/server-info

Vault Server Information:

- Product name + version

Knowledge Vault(s)

GET
/AutodeskDM/Services/api
/vault/v2/vaults/{{id}}

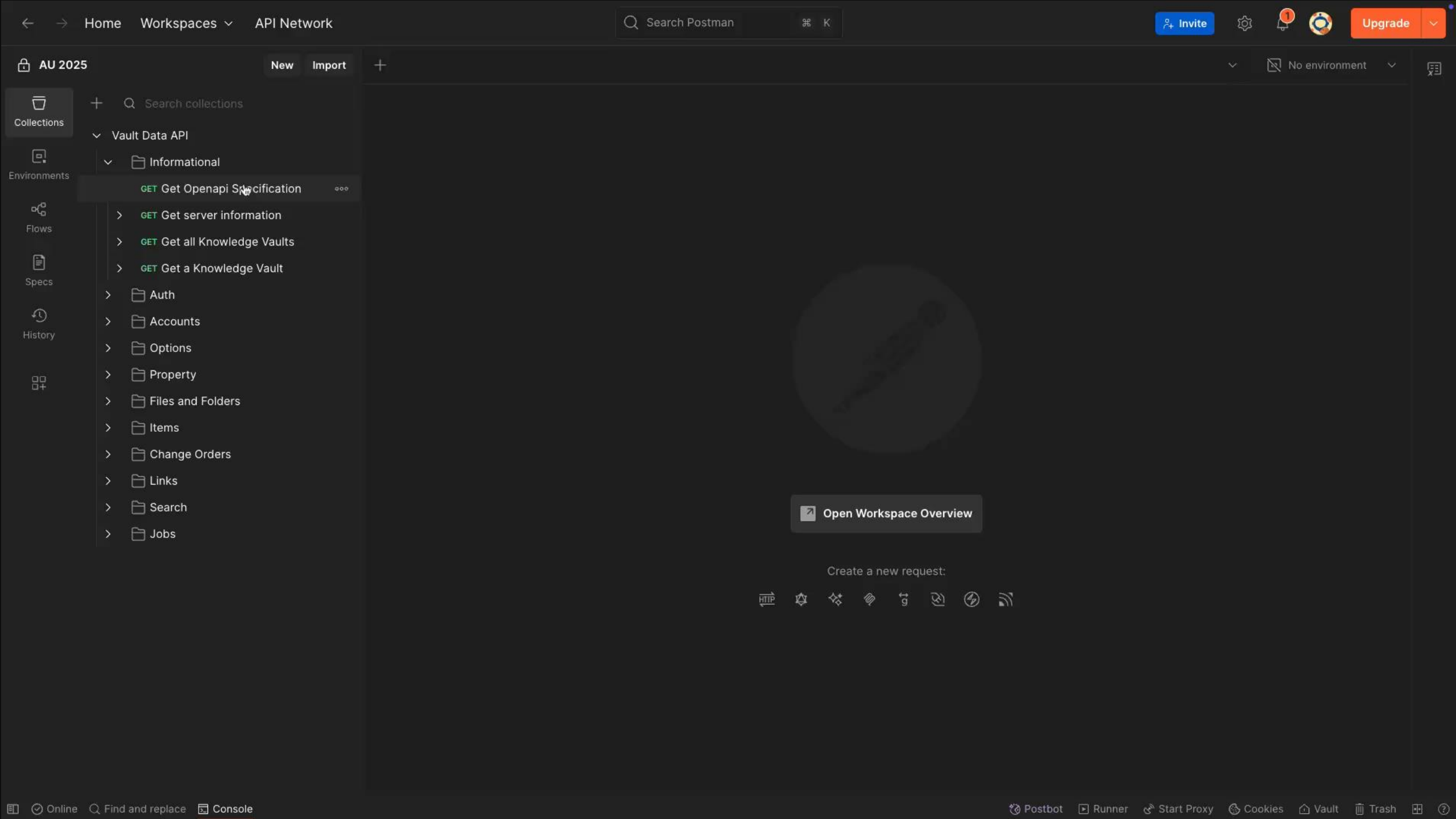
Vaults 'Databases':

- Vault name + ID



Check the [Class Handout](#) for detailed step-by-step instructions on how use the OpenAPI specification to import all Vault Data API endpoints into Postman!





Authentication

How to get an Access Token



Vault Credentials

POST
/AutodeskDM/Services/api
/vault/v2/sessions

- Username + Password
- Account password required

Windows Authentication

POST
/AutodeskDM/Services/api
/vault/v2/sessions/win-auth

- NTLM
- Domain
- Username + Password

Autodesk ID



- 3-legged token
- 3-legged token PKCE

→ Access Token valid for 1h
→ Refresh Token available

→ Response: Session info incl. Access Token
→ Token invalid after not being used \geq 30min
→ Token extended automatically every time it is used

- Secure Service Account (SSA)
 - “Robot Account”
 - Headless

Beta

Authentication

How to get an Access Token: Example with Vault Credentials



Request:

```
POST /AutodeskDM/Services/api/vault/v2/sessions
HTTP/1.1
Host: a0e6b18e.vg.autodesk.com
Content-Type: application/json
Accept: application/json
Content-Length: 122
```

```
{
  "input": {
    "vault": "PDMC-Sample",
    "userName": "christian",
    "password": "myPassword",
    "appCode": "Postman"
  }
}
```

Response:

```
{
  "id": "e9bf95b1-b03d-4447-95dd-82d8c0924a81",
  "accessToken": "V:e9bf95b1-b03d-4447-95dd-82d8c0924a81",
  "createDate": "2025-09-19T14:36:40.3179771Z",
  "vaultInformation": {
    "id": "139",
    "name": "PDMC-Sample",
    "guid": "00000000-0000-0000-0000-000000000000",
    "url": "/AutodeskDM/Services/api/vault/v2/vaults/139"
  },
  "userInformation": {
    "id": "56",
    "name": "Christian Gessner",
    "email": "christian.gessner@coolorange.com",
    "authTypes": "Vault, Autodesk",
    ...
  }
}
```

Authorization

How to use the Access Tokens (Authorization Request Header)



Request with an Access Token acquired by Vault Credentials / Windows Authentication:

```
GET /AutodeskDM/Services/api/vault/v2/vaults/139/file-versions?limit=100 HTTP/1.1
Host: a0e6b18e.vg.autodesk.com
Accept: application/json
Authorization: Bearer V:e9bf95b1-b03d-4447-95dd-82d8c0924a81
```

Request with an Access Token acquired by APS Authentication or SSA:

```
GET /AutodeskDM/Services/api/vault/v2/vaults/139/file-versions?limit=100 HTTP/1.1
Host: a0e6b18e.vg.autodesk.com
Accept: application/json
Authorization: Bearer eyJhbGciOiJSUzI1NiIsImtpZCI6IlZiakZvUzhQU3lYODQyMV95dndvRUdRdFJEa19SUzI1NiJ9.eyJzdWIiOiIyIiIsImJFa19tpZCI6IlZiakZvUzhQU3lMDA5MDcxNzA4MjE3MzAiLCJhdWQiOiJWbVpaR3M2MUFBa2E1Qm....._w--y7M1xouavLpLexNw
```

Tutorial: <https://aps.autodesk.com/en/docs/oauth/v2/tutorials/get-3-legged-token/>

Postman: <https://aps.autodesk.com/blog/using-3-legged-oauth-v2-postman>

Common Concepts

Single Entity Resources & Entity Collection Resources



User Defined Properties

Single Entity Resources
→ always return all properties

vs.

Entity Collection Resources
→ don't return properties

Tutorial:

<https://aps.autodesk.com/en/docs/vaultdataapi/v2/tutorials/endpoint-retrieve-properties>

Entity Collection Resources (endpoints returning results[])...

Endpoint Filtering

... support options & filter & sort

- Query String Parameters
 - option[...]
 - filter[...]
 - sort[...]

- Differ depending on entity

Tutorial:

<https://aps.autodesk.com/en/docs/vaultdataapi/v2/tutorials/endpoint-filtering/>

Pagination

*... return results in pages
if results.count > page size*

- Query String Parameters
 - limit
 - cursorState
- Response contains “nextUrl”
- “Continuation token” enables infinite scrolling

Pagination

How to load data in chunks (pages)



Request:

```
GET /AutodeskDM/Services/api/vault/v2/groups?limit=20
```

Specifies the limit (page size)

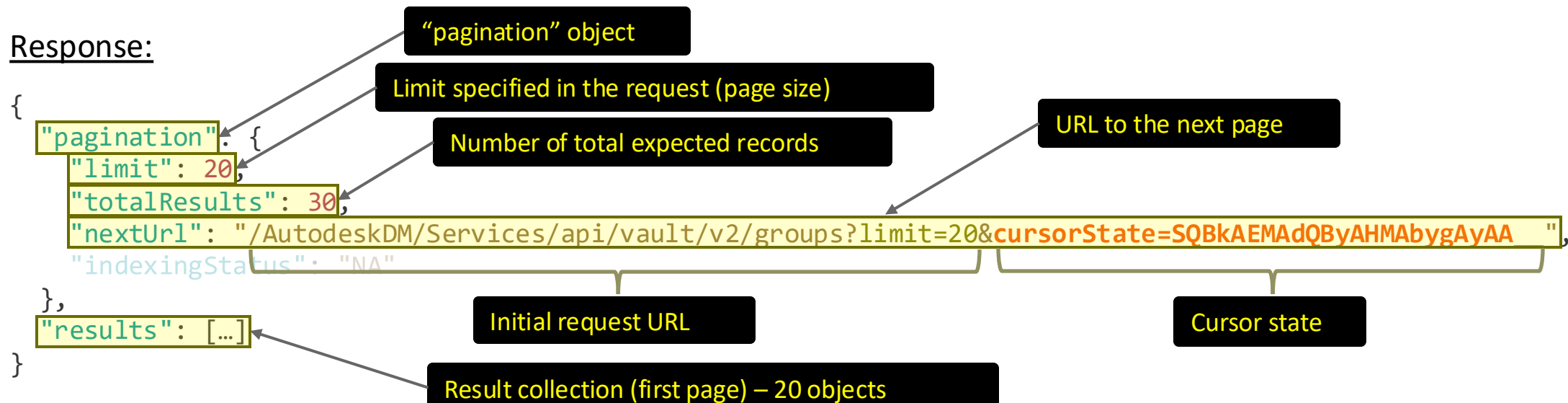
HTTP/1.1

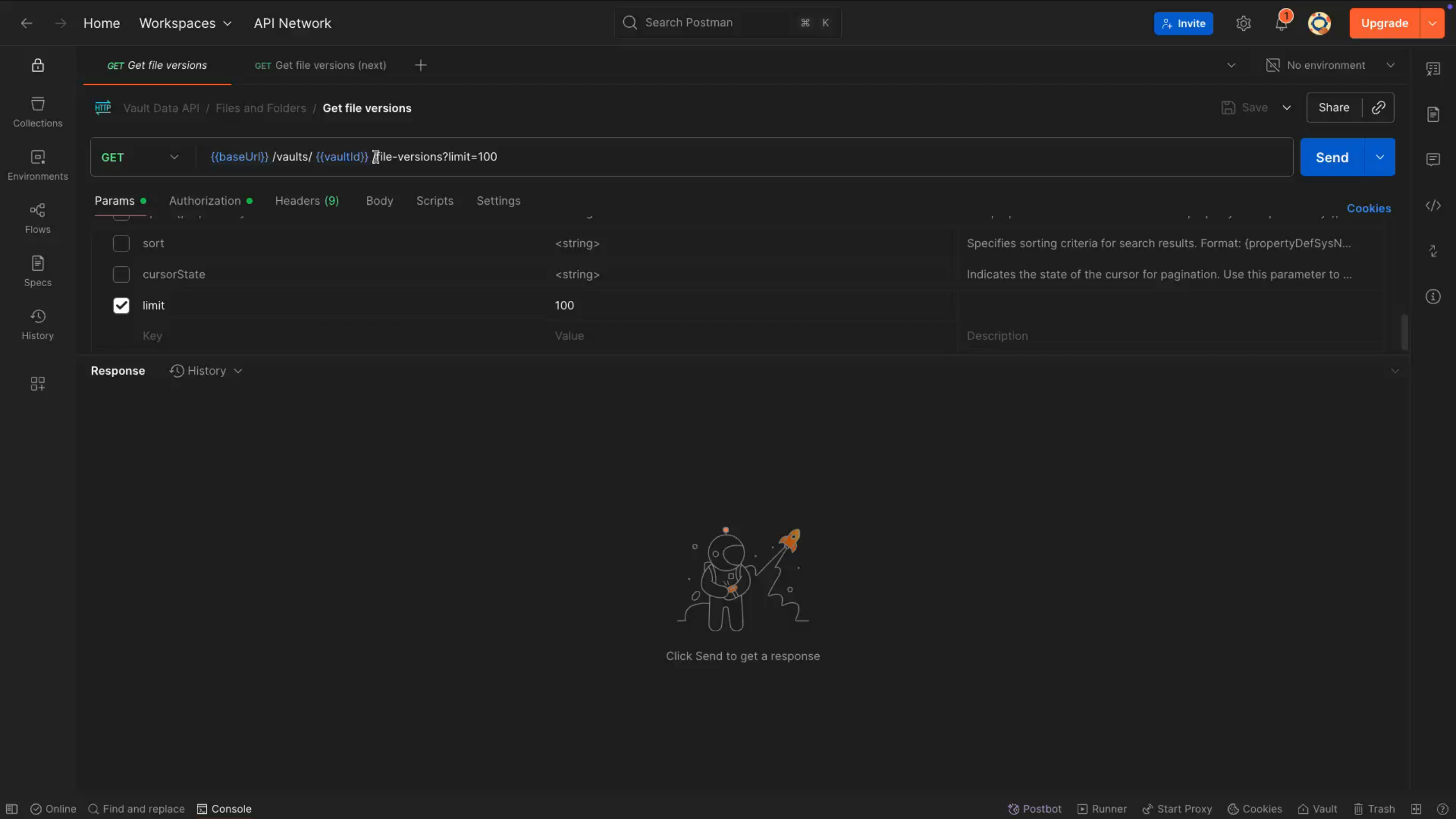
Host: a0e6b18e.vg.autodesk.com

Accept: application/json

Authorization: ...

Response:





GET

{{baseUrl}} /vaults/ {{vaultId}} file-versions?limit=100

Send

- Params
- Authorization
- Headers (9)
- Body
- Scripts
- Settings
- Cookies

<input type="checkbox"/>	sort	<string>	Specifies sorting criteria for search results. Format: {propertyDefSysN...
<input type="checkbox"/>	cursorState	<string>	Indicates the state of the cursor for pagination. Use this parameter to ...
<input checked="" type="checkbox"/>	limit	100	
	Key	Value	Description



Resources

#1: Online Documentation

<https://aps.autodesk.com/en/docs/vaultdataapi/v2/reference/http>

<https://aps.autodesk.com/en/docs/vaultdataapi/v2/tutorials>

https://aps.autodesk.com/en/docs/vaultdataapi/v2/developers_guide/error_handling

Check the Class Handout for more Links and useful Tips and Tricks!



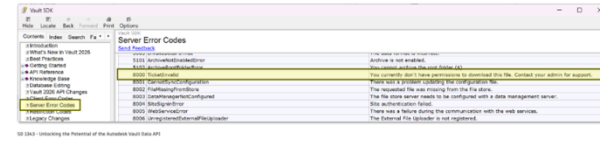
#2: VaultSDK.chm

Error Responses

Vault SDK Help - VaultSDK.chm

Error Response:

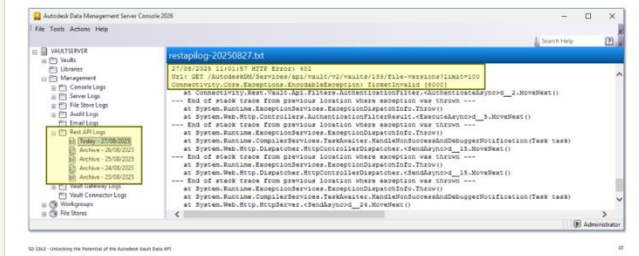
```
{
  "statusCode": 403,
  "errorCode": "9999",
  "title": "Vault error",
  "detail": "You currently do not have permissions to download this file. Contact your admin for support.",
  "params": []
}
```



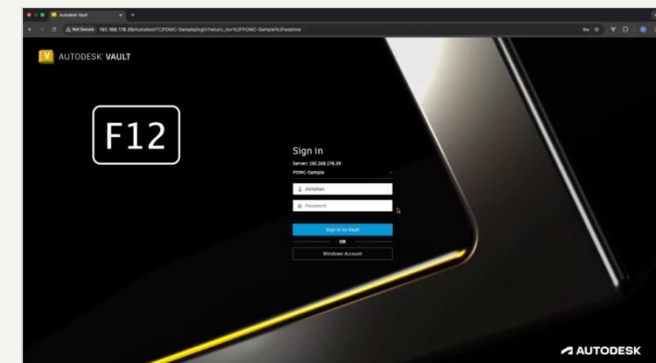
#3: ADMS API Logs

REST API Logs

Autodesk Data Management Server Console



#4: Thin Client - F12



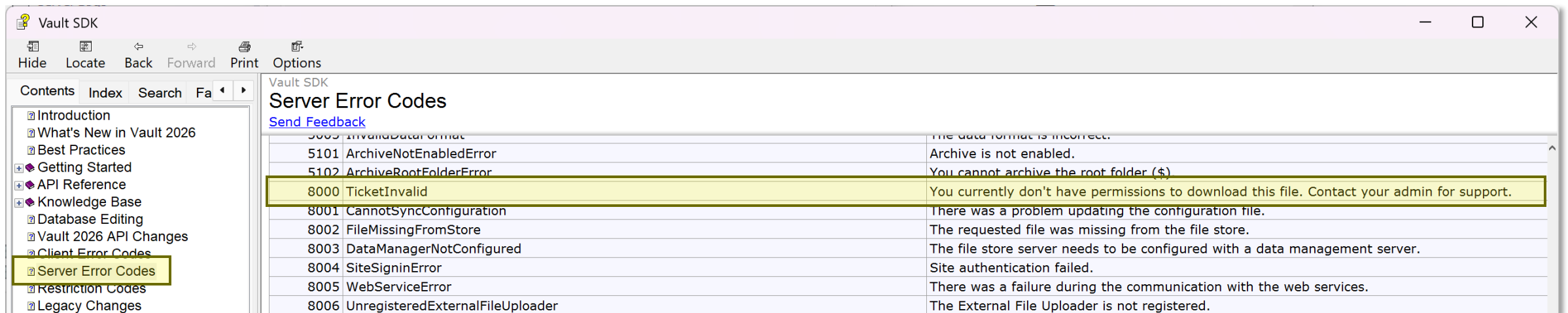
Error Responses

Vault SDK Help – VaultSDK.chm



Error Response:

```
{
  "statusCode": 401,
  "errorCode": "8000",
  "title": "Vault error",
  "detail": "You currently do not have permissions to download this file. Contact your admin for support.",
  "params": []
}
```



REST API Logs

Autodesk Data Management Server Console



Autodesk Data Management Server Console 2026

File Tools Actions Help

Search Help

VAULTSERVER

- Vaults
- Libraries
- Management
 - Console Logs
 - Server Logs
 - File Store Logs
 - Audit Logs
 - Email Logs
 - Rest API Logs
 - Today - 27/08/2025
 - Archive - 26/08/2025
 - Archive - 25/08/2025
 - Archive - 24/08/2025
 - Archive - 23/08/2025
 - Vault Gateway Logs
 - Vault Connector Logs
- Workgroups
- File Stores

restapilog-20250827.txt

```
27/08/2025 11:01:57 HTTP Error: 401
Url: GET /AutodeskDM/Services/api/vault/v2/vaults/139/file-versions?limit=100
Connectivity.Core.Exceptions.EncodableException: TicketInvalid [8000]
    at Connectivity.Rest.Vault.Api.Filters.AuthenticationFilter.<AuthenticateAsync>d__2.MoveNext()
--- End of stack trace from previous location where exception was thrown ---
    at System.Runtime.ExceptionServices.ExceptionDispatchInfo.Throw()
    at System.Web.Http.Controllers.AuthenticationFilterResult.<ExecuteAsync>d__5.MoveNext()
--- End of stack trace from previous location where exception was thrown ---
    at System.Runtime.ExceptionServices.ExceptionDispatchInfo.Throw()
    at System.Runtime.CompilerServices.TaskAwaiter.HandleNonSuccessAndDebuggerNotification(Task task)
    at System.Web.Http.Dispatcher.HttpControllerDispatcher.<SendAsync>d__15.MoveNext()
--- End of stack trace from previous location where exception was thrown ---
    at System.Runtime.ExceptionServices.ExceptionDispatchInfo.Throw()
    at System.Web.Http.Dispatcher.HttpControllerDispatcher.<SendAsync>d__15.MoveNext()
--- End of stack trace from previous location where exception was thrown ---
    at System.Runtime.ExceptionServices.ExceptionDispatchInfo.Throw()
    at System.Runtime.CompilerServices.TaskAwaiter.HandleNonSuccessAndDebuggerNotification(Task task)
    at System.Web.Http.HttpServer.<SendAsync>d__24.MoveNext()
```

Administrator



F12

Sign in

Server: 192.168.178.39
PDMC-Sample

christian

Password


Sign in to Vault


OR

Windows Account

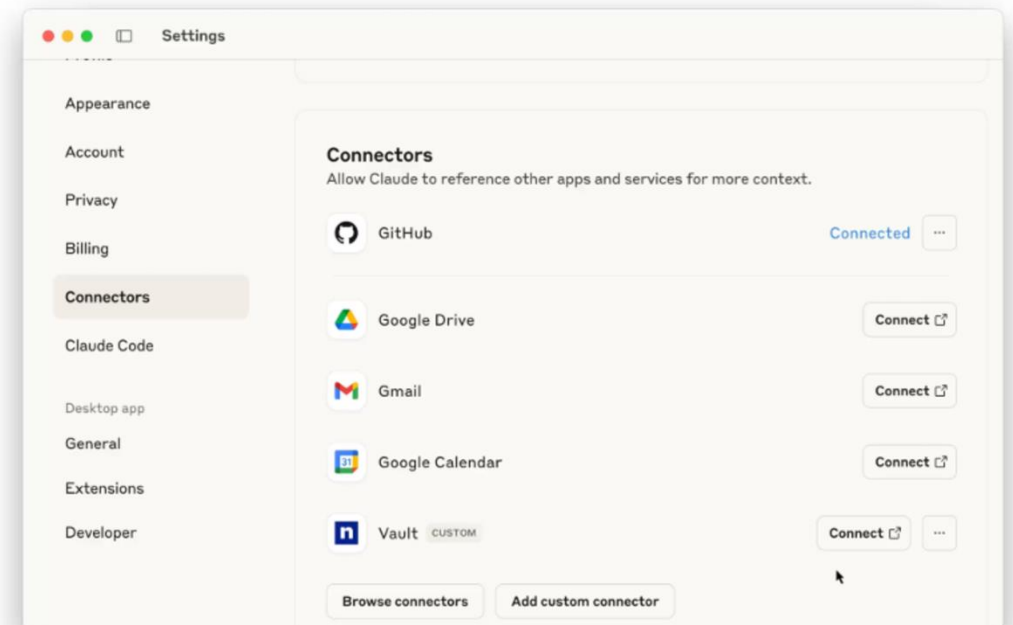
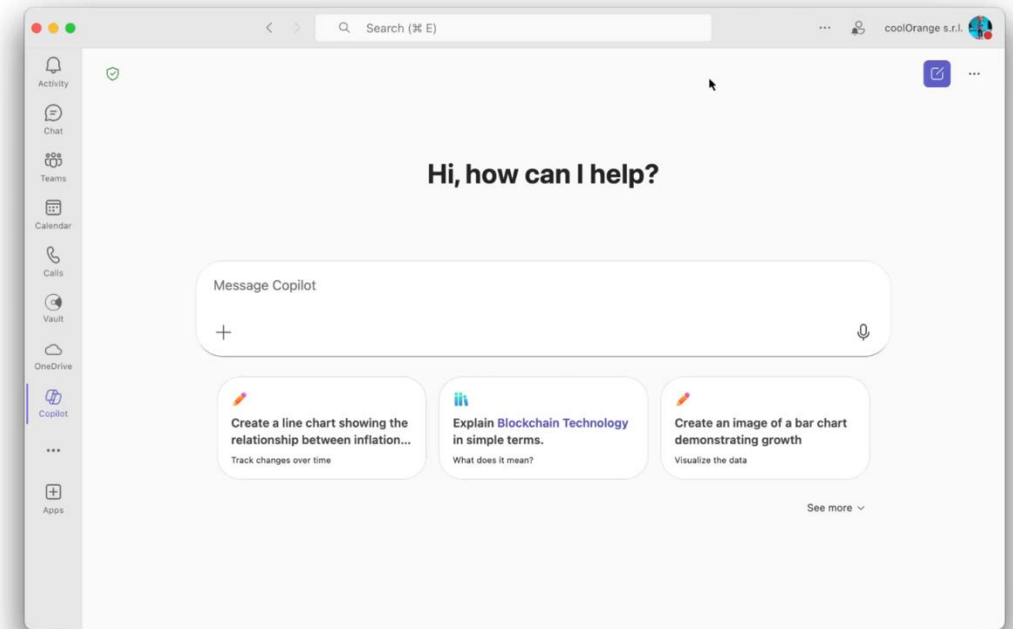
Autodesk Vault Data API in Action

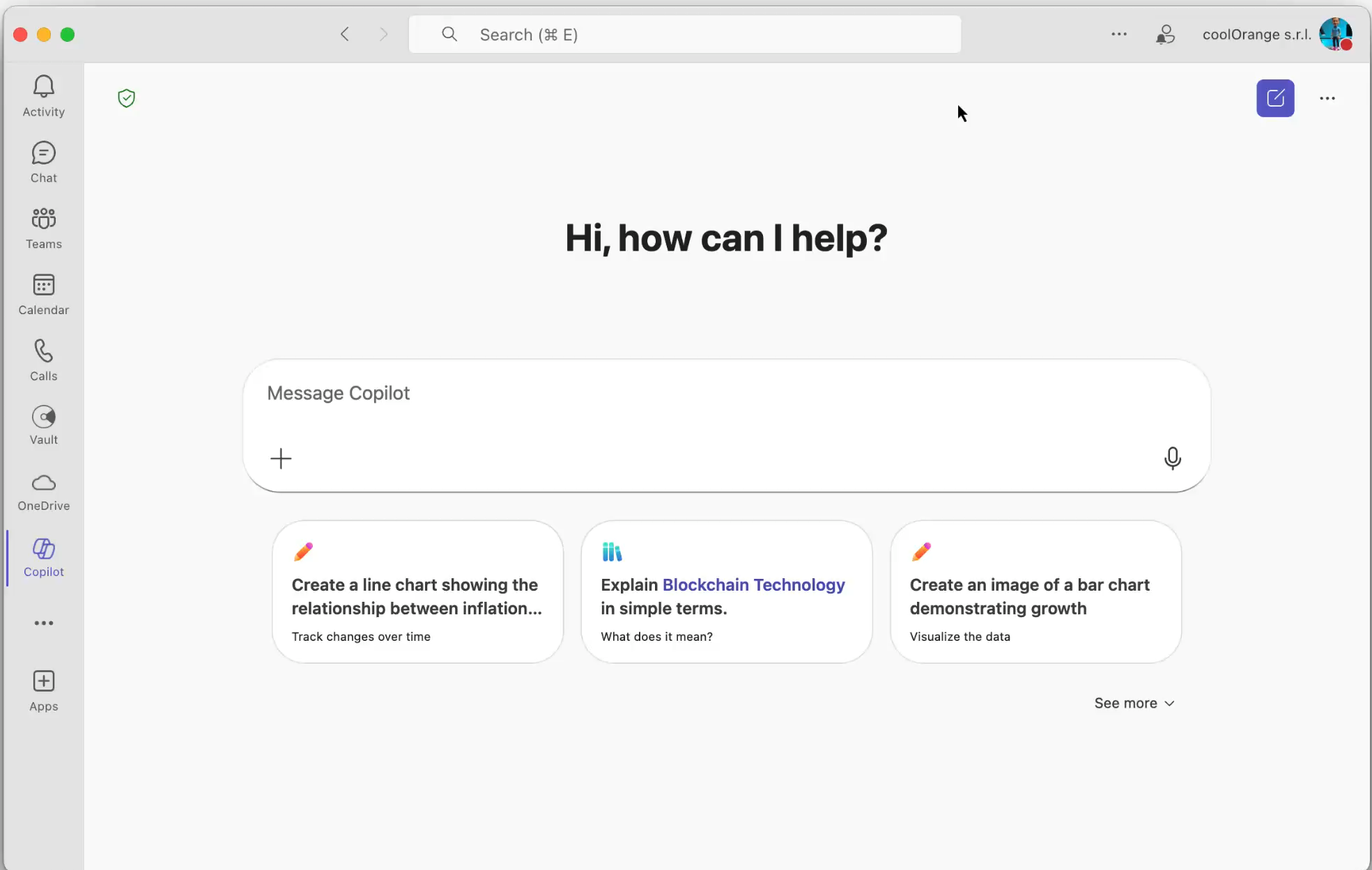
Applications that use the Vault Data API:

 Microsoft Teams App to navigate Vault

 MCP Server to enable AI assistants to query Vault

#AU2025





Search (⌘ E)



coolOrange s.r.l.



Activity



Chat



Teams



Calendar



Calls



Vault



OneDrive



Copilot



...



Apps



Hi, how can I help?

Message Copilot



Create a line chart showing the relationship between inflation...

Track changes over time



Explain **Blockchain Technology** in simple terms.

What does it mean?



Create an image of a bar chart demonstrating growth

Visualize the data

See more ▾



Settings

Appearance

Account

Privacy

Billing

Connectors

Claude Code

Desktop app

General

Extensions

Developer

Connectors

Allow Claude to reference other apps and services for more context.



GitHub

Connected



Google Drive

Connect



Gmail

Connect



Google Calendar

Connect



Vault CUSTOM

Connect



Browse connectors

Add custom connector



“

**Simplicity is the ultimate
sophistication.**

Leonardo da Vinci

”

Autodesk Vault Data API



Christian Gessner

<https://www.linkedin.com/in/christian-gessner>



COOLORANGE

POWER UP YOUR DATA

01

APS Documentation

<https://aps.autodesk.com/developer/overview/vault-data-api>

02

GitHub Code Samples

<https://github.com/autodesk-platform-services/vault-data-api-samples>

03

GitHub Class Repository

https://github.com/christiangessner/AU2025_1343

04

Contact COOLORANGE

<https://www.coolorange.com>

<https://www.linkedin.com/company/coolorange>

Join the conversation
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