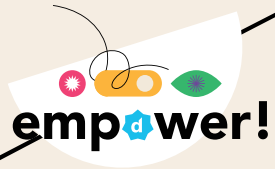


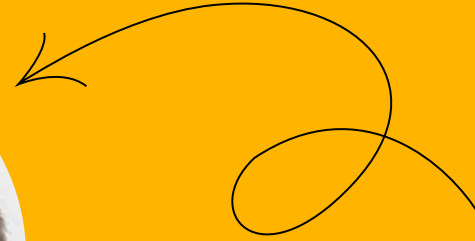
Welc**d**me



User-Defined APIs

[YOUR TRAINER THIS SESSION]

Principal
DevOps
Engineer



Thomas
Ghysbrecht

thomas.ghysbrecht@skyline.be



Agenda



Fundamentals track

1. Introduction on User-Defined APIs
 1. API Token
 2. API Script
 3. API Definition
2. Hands-on exercise
3. Performance guide
4. DataMiner Documentation
5. What's new since last Empower

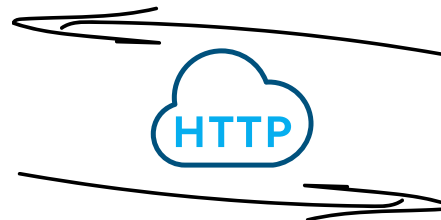
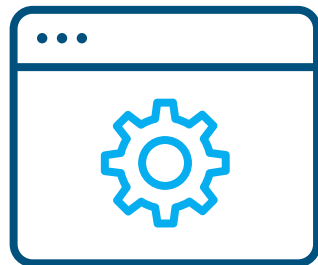


Introduction on User-Defined APIs

User-Defined APIs - Introduction

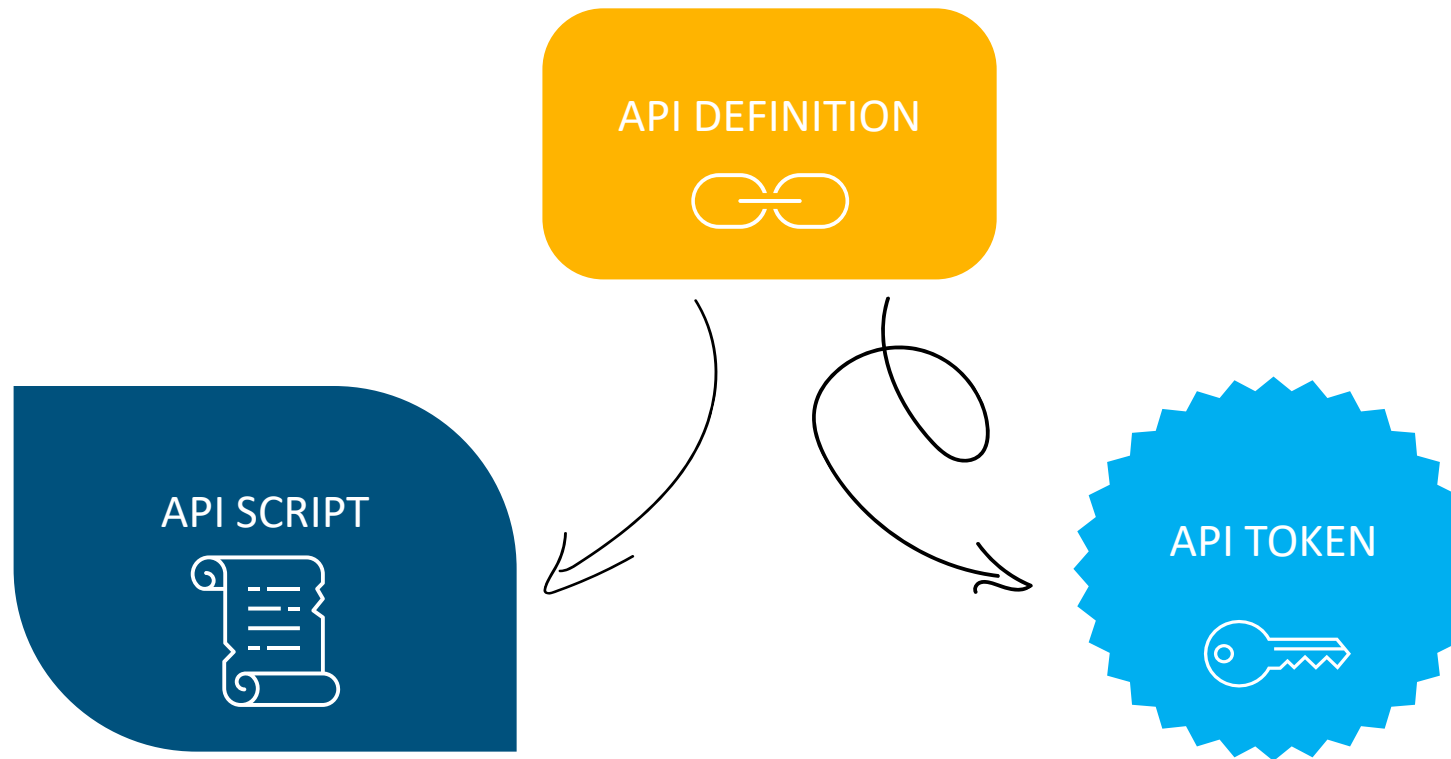
- Expose an **automation script** as an HTTP API on a pre-defined URL path
- Control access using **tokens**
- Available since 10.3.6

GET <https://ziine.skyline.be/api/custom/db/health>



User-Defined APIs - Introduction

What is a user-defined API?



User-Defined APIs - Introduction

API automation script



```
public class Script
{
    public void Run(IEngine engine)
    {
        // Script logic
    }
}
```



```
using Skyline.DataMiner.Automation;
using Skyline.DataMiner.Net.Apps.UserDefinableApis;
using Skyline.DataMiner.Net.Apps.UserDefinableApis.Actions;

public class Script
{
    [AutomationEntryPoint(AutomationEntryPointType.Types.OnApiTrigger)]
    public ApiTriggerOutput OnApiTrigger(IEngine engine, ApiTriggerInput requestData)
    {
        var method = requestData.RequestMethod;
        var route = requestData.Route;
        var body = requestData.RawBody;

        return new ApiTriggerOutput
        {
            ResponseBody = $"Received {method} request for route: '{route}' with body: '{body}'",
            ResponseCode = (int) StatusCode.Ok,
        };
    }
}
```


User-Defined APIs - Introduction

API automation script

API SCRIPT



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        };
    }
}
```

ENTRY POINT



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User-Defined APIs - Introduction

API automation script

API SCRIPT



```
using Skyline.DataMiner.Automation;
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            ResponseCode = (int) StatusCode.Ok,
        };
    }
}
```

GET, PUT, POST
or DELETE



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User-Defined APIs - Introduction

API automation script

API SCRIPT



```
using Skyline.DataMiner.Automation;
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        };
    }
}
```

calculator/add



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User-Defined APIs - Introduction

API automation script

API SCRIPT



```
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        };
    }
}
```

← { "id" : "a5s78ed" }



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User-Defined APIs - Introduction

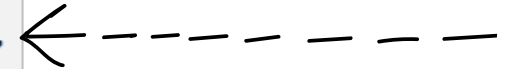
API automation script



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        };
    }
}
```



User-Defined APIs - Introduction

API Token



- **Secret:**
 - Must be included with every API request
 - Stored securely in the database
 - Generated according to minimum requirements
 - Can be (temporarily) disabled
- **Name**

A screenshot of a "Create API token" dialog box. It has a title bar with a blue 'd' icon and a close button. The "Name:" field contains "Calculator API - Dev token". The "Secret:" field contains a long alphanumeric string "Q13LusNOXG7XeHTDq0prX3VBHi/ZL8JJ5R7NIXN8F68=" and a "Copy" button. A red rectangular box highlights a warning message: "For security reasons, this secret will only be shown now. You will not be able to retrieve it again when you have closed this window." At the bottom right is a "Copy and close" button.


User-Defined APIs - Introduction

API Definition

- **Script name**
- **Description** (optional)
- **URL route** (must be unique)
- **Token(s)**

API DEFINITION



 User-defined API

Script:

CalculatorAPI

Description:

Calculator API capable of adding 2 numbers together

URL:

http(s)://<HOSTNAME>/api/custom/calculator/add

Method to be executed:

☒ OnApiTrigger method with argument

Raw body

☐ Run method (no output)

Tokens:

Show selected tokens

Search tokens

New token...

☐ Demo labs - John Smith (Disabled)

☐ Example inc. - Jane Doe

☐ Placeholder Ltd. - HR

☒ Ziine - John Doe

☒ Ziine - MCR

Create

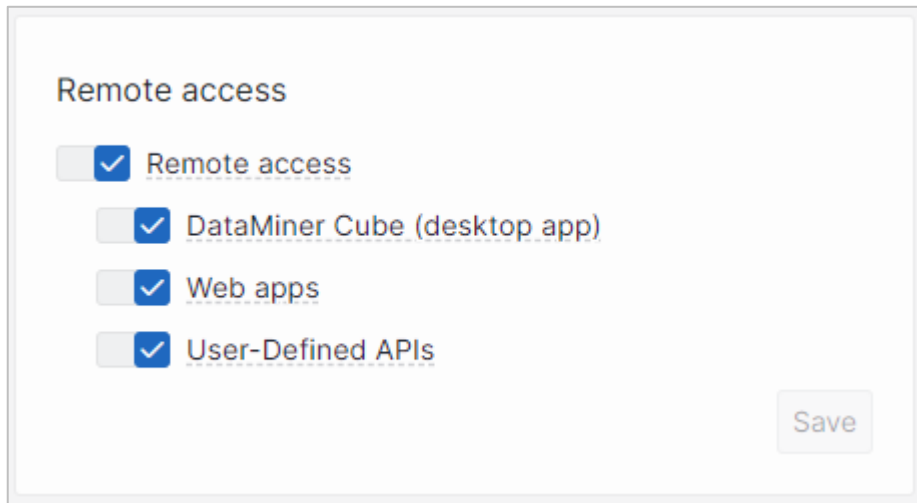
Hands-on time!

Create your own User-Defined API

Hands-on

Before we get started

- Make sure you have allowed API access through the cloud



Remote access

☒ Remote access

☒ DataMiner Cube (desktop app)

☒ Web apps

☒ User-Defined APIs

Save



[https ://
<MyDataMiner>-<MyOrganization>
.on.dataminer.services/api/custom/...](https://<MyDataMiner>-<MyOrganization>.on.dataminer.services/api/custom/...)

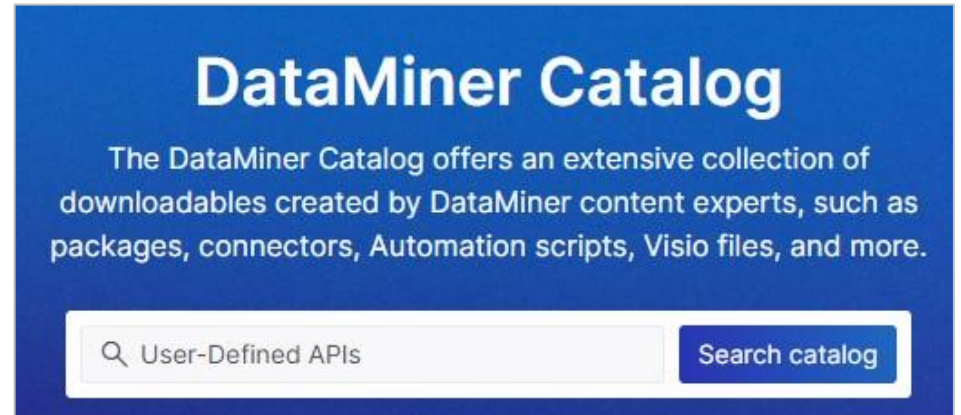
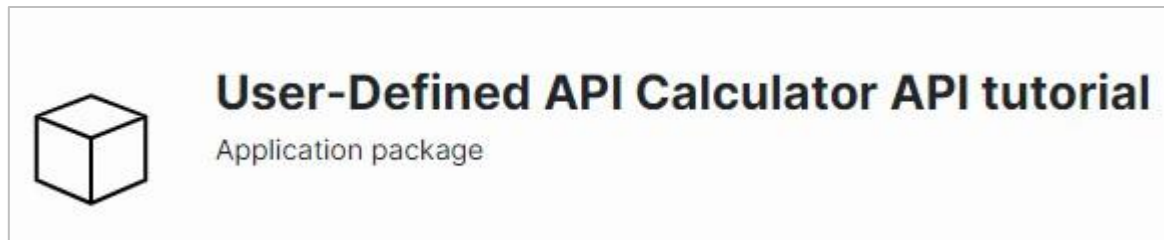


<https://admin.dataminer.services>

Hands-on

Deploy catalog package

1. Go to '**catalog.dataminer.services**'
2. Search for '**User-Defined API**'
3. Install 'User-Defined APIs Calculator API tutorial'



We need Postman, make sure it is installed!
-> <https://www.postman.com/downloads/>



Hands-on

Deploy catalog package

- Enter the URL:
 - <your DaaS>/api/custom/calculator/add
- Enter the token:
 - **Authorization > Bearer Token**
- Enter a body:
 - Choose **Body > Raw > Text**
 - Enter two numbers in the text box
 - Example: "1,2"
- Click **send** and check the response.

GET | https://dataminer.example.com/api/custom/calculator/add

Params Authorization Headers (9) **Body** Scripts Tests Settings

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL **Text** v

1 1,2

Body Cookies (1) Headers (12) Test Results

Pretty Raw **Preview** Visualize

3



Hands-on

Advanced Exercises

- On the DataMiner docs, there are **additional advanced exercises!**

<https://aka.dataminer.services/UDA-Advanced>

Performance guide

Best practices

Performance guide

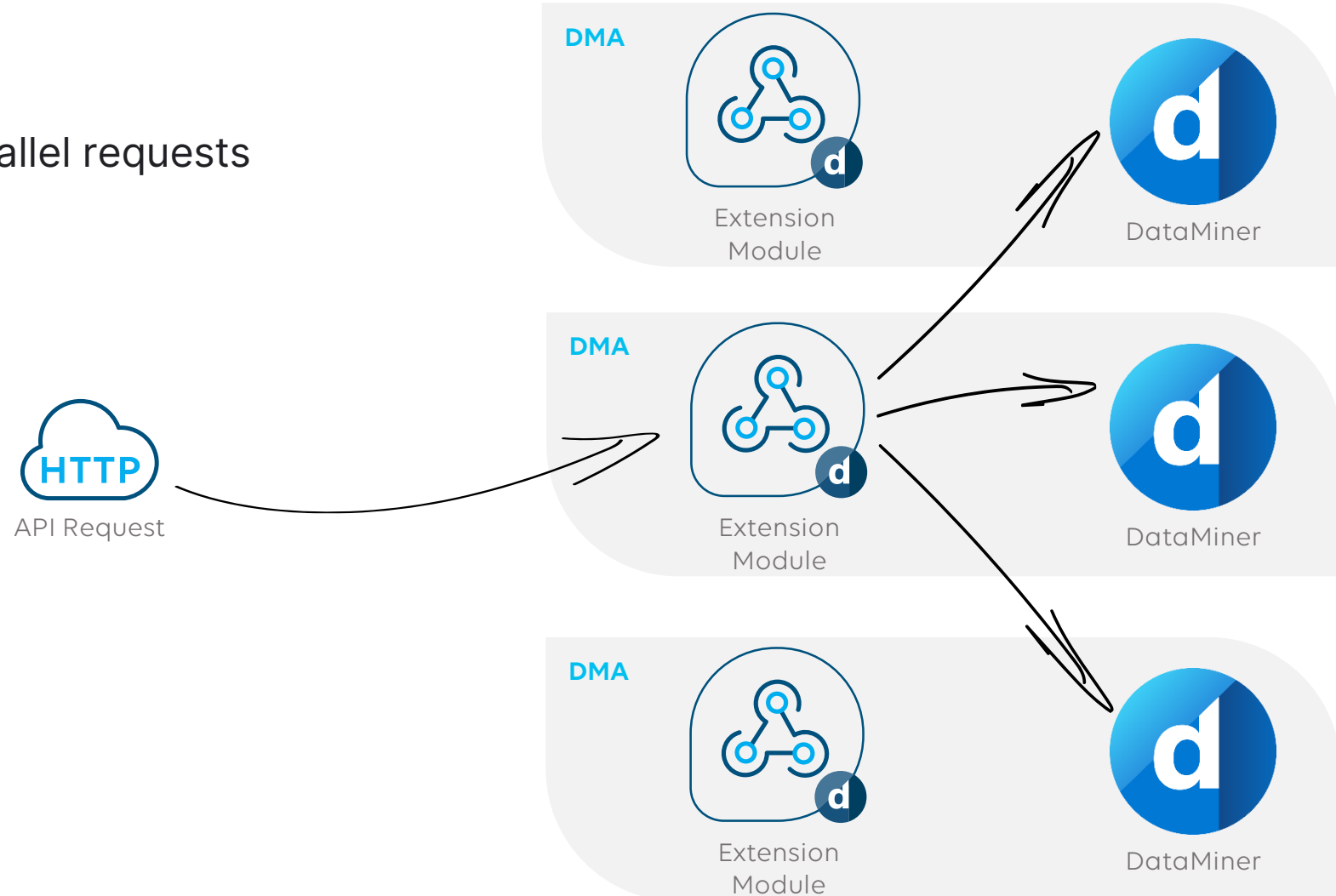
Best practices

- Avoid **long operations**
 - Your API can only be as fast as your API script code
 - Consider using asynchronous flows to start a long operation and later on get its status
- Avoid very **large request/response bodies**
 - Can significantly impact the performance
 - **29MB hard limit**, but stay WAY below this...

Performance guide

Best practices

- Load balancing
- Limited amount of parallel requests
 - Based on CPU cores



Performance guide

Best practices

- Depends on a lot of factors!
 - Internet speed
 - Script logic
 - Hardware
 - Other load
 - ...



<https://aka.dataminer.services/UDA-Benchmark>

User-Defined APIs in the Docs

Documentation

Documentation

Important pages

- **Error codes** – <https://aka.dataminer.services/UDA-Errors>
 - Explains the different error codes that can be returned
- **Troubleshoot** – <https://aka.dataminer.services/UDA-Troubleshoot>
 - Information on how to troubleshoot when experiencing issues
- **Tutorials** – <https://aka.dataminer.services/UDA-Tutorials>
 - Tutorials on how to build User-Defined APIs

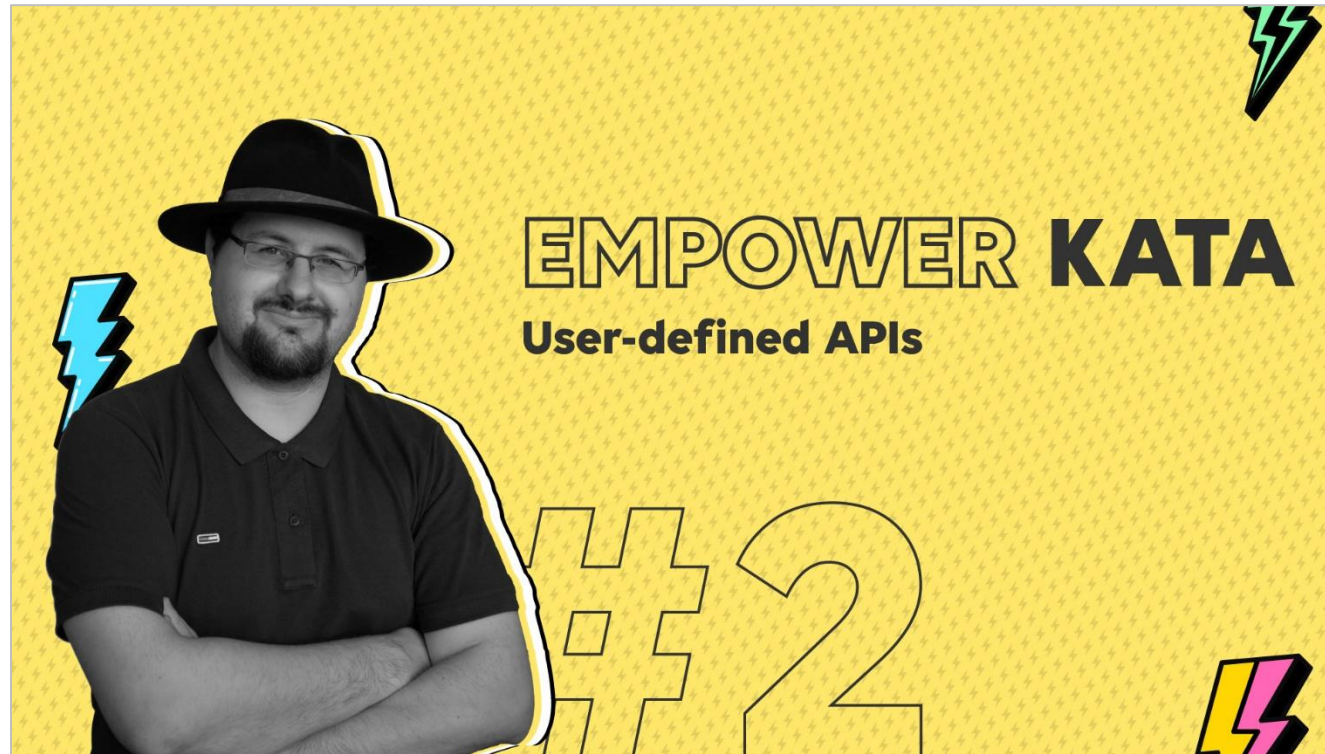


<https://aka.dataminer.services/UDA>

Documentation

Kata session

- <https://community.dataminer.services/courses/kata-2/>



What's new since last Empower

Recent exciting updates

What's new since last Empower

Caching

- Caching improvements have been made which boosted performance:
 - Internal read operations - **10x faster**
 - Creating/updating tokens and definitions - **40% faster**
 - Triggering API scripts - **3x faster**
 - Expected real-world API trigger improvement - **2x faster**

[ASK AWAY]



Questions?