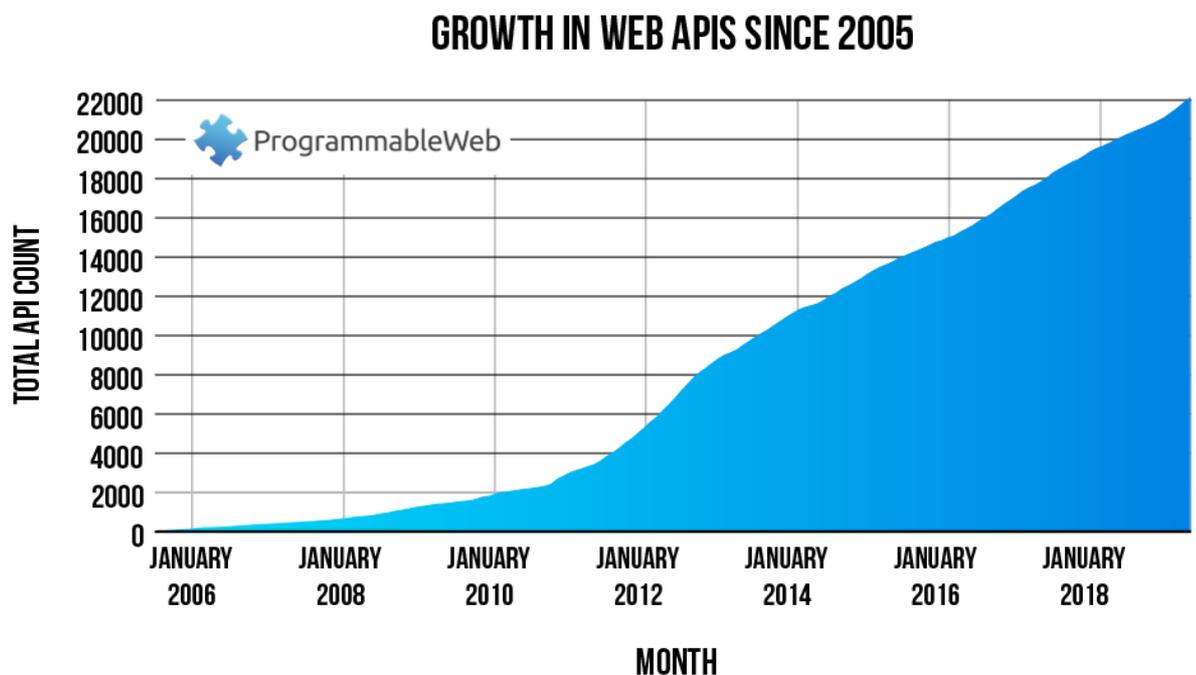


# Working with (REST) API's from FileMaker

## Why a session about working with API's?

- Since a couple years working more and more with APIs
  - o Since 2017 most of the HTTP methods and cURL options are available natively
  - o Previous BE/MBS/... Plugin needed
- There are more and more APIs out there



- o Mostly lightweight, ideal for the mobile world
- Safer authentication possible
  - o <https://www.soliantconsulting.com/soliant-tv/webinar-playlist/>
- But not always simple, uniform, ... its often comes to getting the details correct!

So, when you do not have much experience, ideal moment to learn working with API's  
When you do have some or a lot of experience, ideal moment to share you knowledge.

How do we start?

## HOW DO WE START?

Every API has the same patterns, but every integration will be different

Getting the good documentation/support

An integration with an API falls or stands with how good the API is.

But what does 'good' mean?

A lot can go wrong at the APIs side:

- Poor documentation
- Poor error handling
- Security complexity
- Unexpected and undocumented releases
- Poor support

A normal web API request:

- Authentication & authorisation
  - o Basic auth, API key
  - o oAuth 2
    - Application vs. User authentication
  - o Signature
  - o ...
- Endpoint
- HTTP Method
- Body & Header

Problem: how they are used is every time different

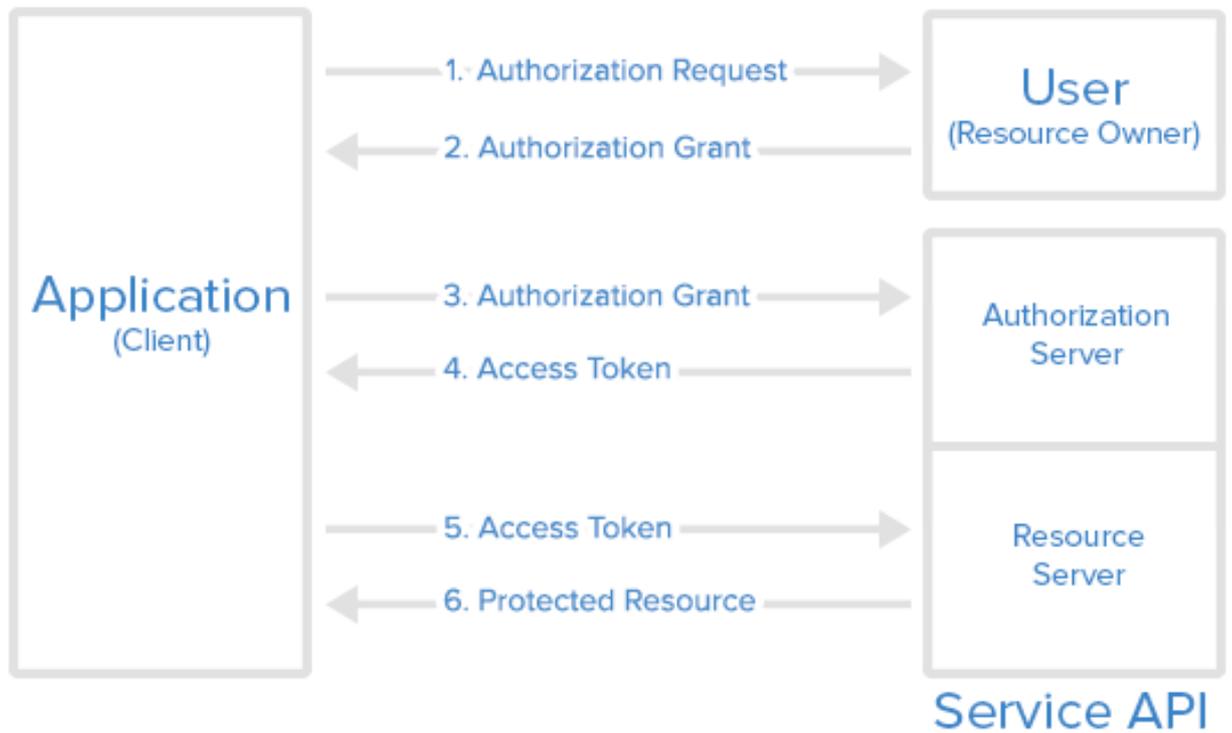
How do you start an API integration?

Youtube video, blog, ... ?

- Issue the request with cURL first
- Can we put multiple requests to automate in Postman?
- Insomnia ( API tool )
- SOAP UI ( API tool ) -> Load testing - REST and SOAP
- Generator ( geist interactive ) to transform 'normal' cURL to 'filemaker' cURL
- <https://www.soliantconsulting.com/blog/curl-options-filemaker-19/>

Doing an oAuth login

Abstract Protocol Flow



- Example of Exact
- <https://support.exactonline.com/community/s/knowledge-base#All-All-DNO-Content-gettingstarted>

Return of client code is URL encoded!

Anybody had difficulties ( and solutions ) when implementing this routine?

- Use webhook and then use php or data api to get data in filemaker

More on signing API calls

- Amazon: <https://docs.aws.amazon.com/AmazonS3/latest/API/sigv4-query-string-auth.html#query-string-auth-v4-signing-example>
- <https://goya.com.au/blog/generate-aws-signature-version-4-in-filemaker>

Take SDK of other platform and rebuild it for your FileMaker solution

A normal response:

- Headers
- Body: parsing data

Does anyone uses special (custom)functions to parse data?

Or to do other stuff with the JSON?

- JSONGetElement ( with error capture )
- JSONFunction to set params

- ArrayLength()
- NodeJS formatter ( npm -g i json )  
to run: cat <<nameofjsonfile>>.json | json
- JSONFormatElements
- MBS plugin to colorize
- myMateJSON ( on github by MrWatson )

How do we store the access and refresh token in FM?

In a global variable?

An encrypted global variable?

- Store it in a file out of filemaker?
- Store it in a secure field/table in FM encrypted with a key in a custom function

Which tools do you use?

- Postman
- Visual Studio Code
- 

## Insert from URL...

First: everything starts with the correct endpoint :-)

This the URL + location of you API call

<https://docs.microsoft.com/en-us/graph/api/overview?view=graph-rest-1.0>

Second: the cURL options...

- Use postman to test?
- No quotes needed when no spaces
- To send json
  - o Use single quotes
  - o Or use variable
- Refer to a variable: @\$variablename

Trapping for errors

- Checking the result
- Checking the result headers

Error can be Error code = 10

When no result is returned but request can be OK

## Logging

- Log API call, response, context

Central script to construct cURL request? With logging built in...

## Other short examples

- Sending binary data
- Splitting up files
- Cookies:  
<https://msdev.co.uk/adventures-in-filemaker-curl-the-cookie-jar/>
- ...

Postman to create your own docs

What do you guys find the hardest part integrating with other APIs?

Cool, handy, funny APIs...

- Convert word to pdf with Office 365 graph API
- <https://sv443.net/jokeapi/v2/joke/Programming>

Which cool/funny/... API integrations did you do lately?

Pointtopoint.com

[Monty Python - The Black Knight - Tis But A Scratch](#)

