

# Introduction to the FileMaker Data API

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**FileMaker**  
**Devcon**  
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# Who am I?

## Steve Winter

- FileMaker, web application and software developer >20 years!
- Run Matatiro Solutions
- Regular DevCon speaker
- Active Open Source developer

**matatiro**solutions  
filemaker web development

# Introduction to the FileMaker Data API

## Expectation management

- This is a beginner session!
- That said, it will move quite quickly
- Demo file and code to replicate everything I do
- First presented at DevCon 2018

# Topics to cover

An introduction to REST

Where REST and CRUD meet

Our friendly Postman

Authentication and tokens

Configuring FileMaker Server and a FileMaker custom app

Interacting with other systems

# The end at the beginning

FileMaker based inventory management

WordPress based website

Want to be able to display product data, prices, availability etc on site

WordPress plugin is available for you to use

Demo

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# An introduction to REST

“

Representational State Transfer (REST) is an architectural style that defines a set of constraints and properties based on HTTP.

Web Services that conform to the REST architectural style, or RESTful web services, provide interoperability between computer systems on the Internet.

”

Wikipedia

# An introduction to REST

“

REST-compliant web services allow the requesting systems to access and manipulate **textual representations** of **web resources** by using a **uniform** and **predefined** set of **stateless** operations.

”

Wikipedia

# HTTP methods

## GET

“

The GET method requests a representation of the specified resource.

Requests using GET should only retrieve data and should have no other effect.

”

Wikipedia

# HTTP methods

## POST

“

The POST method requests that the server accept the entity enclosed in the request as a new subordinate of the web resource identified by the URI

”

Wikipedia

# HTTP methods

## PATCH

“

The PATCH method applies partial modifications to a resource.

”

Wikipedia

# HTTP methods

## DELETE

“

The DELETE method deletes the specified resource.

”

Wikipedia

# Resource URI and FileMaker

Begin with `https://<server>`, then

- **C** POST `/fmi/data/v1/databases/<database>/layouts/<layout>/records`
- **R** GET `/fmi/data/v1/databases/<database>/layouts/<layout>/records/<?recordId>`
- **U** PATCH `/fmi/data/v1/databases/<database>/layouts/<layout>/records/<recordId>`
- **D** DELETE `/fmi/data/v1/databases/<database>/layouts/<layout>/records/<recordId>`

Demo

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QuickTime Player ITG01Demo (os-x-10.12.2-fms-17-release.shared)

Records: 5000 Total (Unsorted)

Layout: Contact...ils | Tablet View As: Preview

### Contact Detail

Photo

Title

First: Alphonse

Last: Mailliard

COMPANY INFO

Company: Phenix Label Co Inc

Job Title

Website: http://www.alphonsemailliard.

ADDRESS

Address 1: 4730 N 16th St

Address 2

City: Phoenix

State: AZ

Postal Code: 85016

Country

CONTACT GROUP

Group

EMAIL

Work: alphonse@mailliard.com

Personal

PHONE / FAX

Mobile

Office: 602-234-4986

Personal

Fax: 602-234-6955

NOTES

Postman My Workspace

FileMaker Data API demo

Create record X Get single record Modify record Get multiple records Delete record

POST https://fms17.msdev.co.uk/fmi/data/v1/databases/ITG01Demo/layouts/ContactsAPI/records

Authorization Headers (1) Body Pre-request Script Tests

form-data x-www-form-urlencoded raw binary JSON (application/json)

```

1 {
2   "fieldData": {
3     "Title": "Sir",
4     "First": "Fred",
5     "Last": "Spoon",
6     "Company": "FileMaker Inc",
7     "Job Title": "Chief Cook and Bottle Wash"
8   }
9 }

```

Response

Hit the Send button to get a response.

# A word of caution

The FileMaker Data API URIs use the internal recordID of a record

FileMaker recordIDs won't always refer to the same record

This makes the stateless part of REST **very** important

But what about security?

# Don't Panic

# But what about security?

1. You have to enable the FileMaker Data API on your server
2. You have to enable the fmrest extended privilege for at least one user
3. That user has to authenticate before they can use the API

# Enable FileMaker Data API

Demo

# FileMaker Server 17

## Admin Console Sign In

User Name
Password

Sign In

[Password Help](#)



# Data usage

Included in your server license

Number of users x 2Gb per month x 12 months = annual allowance

3 users x 2Gb per month x 12 = 72Gb

Outbound traffic only

Aggregated across all users, not just those who use the FileMaker Data API. Error 953 when exceeded.

Can purchase additional data if necessary

FileMaker Server Admin localhost:16001/admin-console/app/dashboard

# FileMaker Server 17

Tuesday, August 7, 2018, 15:16 SERVER 1 [Sign Out](#)

Dashboard Databases Backups Configuration Connectors Administration

## System Overview

1 Total Connections | 42 / 44 Hosted Databases

**FileMaker Pro** 1 Connections [?](#) **FileMaker Go** 0 Connections **FileMaker WebDirect** 0 Connections **Additional** 0 Connections [?](#)

Server Name Matatiro Solutions FileMaker Server	FileMaker Server License Expiration 05/18/2021, 23:59	<b>FileMaker Data API Annual Limit</b> 22.4 MB / 120 GB
Server IP Addresses 54.38.71.50 2001:0:9d38:6abd:e9:2cc7:c9d9:b8cd	SSL Certificate Expires on 2020-06-27 23:59:59 UTC <a href="#">Details</a>	ODBC and JDBC Connections 0 / Unrestricted
Server Version 17.0.1.146	Last Backup 08/07/2018, 00:00	FileMaker Script Engine Connections 0 / 25

## Volume Status

57% Disk Used

Space Remaining: 42.5 GB  
Total Space Used: 57.2 GB / 99.7 GB

## System Statistics

Time	Value (Percent)
1	12.5
2	13.5
3	14.5
4	15.5
5	16.5
6	17.5
7	18.5
8	14.5

# Enable the fmrest extended permission

Demo



# That user has to authenticate

Demo

- Filter
- History Collections
- FileMaker Data API demo  
6 requests
- POST Authenticate
  - POST Create record
  - GET Get single record
  - POST Get multiple records
  - PATCH Modify record
  - DEL Delete record

- Authenticate
- Create record
- Get single record
- Modify record
- Get multiple records
- Delete record

Authenticate

Examples (0)

POST https://fms17.msdev.co.uk/fmi/data/v1/databases/ITG01Demo/sessions

Params Send Save

- Authorization Headers (1) Body Pre-request Script Tests

Cookies Code

TYPE

Basic Auth

The authorization header will be automatically generated when you send the request. [Learn more about authorization](#)

Preview Request

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. [Learn more about variables](#)

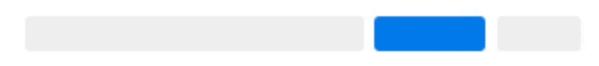
Username DataAPIFullAccess

Password Qwerty1!

Show Password

Response

Hit the Send button to get a response.



# Putting it all together

We know what REST is

Our server is ready

Our app file is ready

We have a user with the right credentials

Let us go forth and connect with the world!

# Connecting WordPress

Demo

# Using FileMaker Go to connect

Demo

# What else can we do

Call scripts

Upload container content

Logout

Fetch ValueLists (since v18)

Gather other metadata (since v18)

# Connecting from JavaScript

Demo

# Upload container content

Demo

# FileMaker Data API documentation

https://<server>/fmi/data/apidoc

The screenshot shows a web browser displaying the FileMaker Data API documentation. The browser's address bar shows the URL `fms-18.msdev.co.uk/fmi/data/apidoc/`. The page features a left sidebar with the FileMaker logo and a search bar. The main content area is titled "FileMaker Data API (1.0.0)" and includes a navigation menu with items like "metadata", "auth", "records", "scripts", "container", and "globals". Below the navigation, there is a "Product info" section with the description "Retrieves information about the FileMaker Server or FileMaker Cloud host" and a "PATH PARAMETERS" section. On the right side, a dark-themed panel displays a REST client interface for the endpoint `GET /fmi/data/{version}/productInfo`, showing a "Response samples" section with a status code of `200`.

# Integration resources

## Lots of 'packages' to help make things easier

- See: <https://community.filemaker.com/docs/DOC-9197>
- FileMaker: examples in the demo files for this session
- JavaScript: see the resources for this session
- PHP: by Mark Denyse, <https://github.com/driftwoodinteractive/fmPDA>
- .NET: by Wim Decorte, [https://github.com/wimdecorte/FMdotNet\\_\\_DataAPI](https://github.com/wimdecorte/FMdotNet__DataAPI)
- Python: by David Hamann, <https://github.com/davidhamann/python-fmrest>
- node.js:
  - feathers: by Todd Geist, <https://github.com/geistinteractive/feathers-filemaker>
- WordPress: see resources from this session
- NativeScript: see resources from this session

# Questions?

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# Session Materials

<https://bit.ly/fds-dapi>

# JOIN::TABLE

bringing FileMaker® developers and non-profits together

[jointable.org](http://jointable.org)

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