FMSync

An Open Source Solution for Synchronising Distributed Archaeological Databases in a Centralised Open Access System

Felix Kußmaul[1]

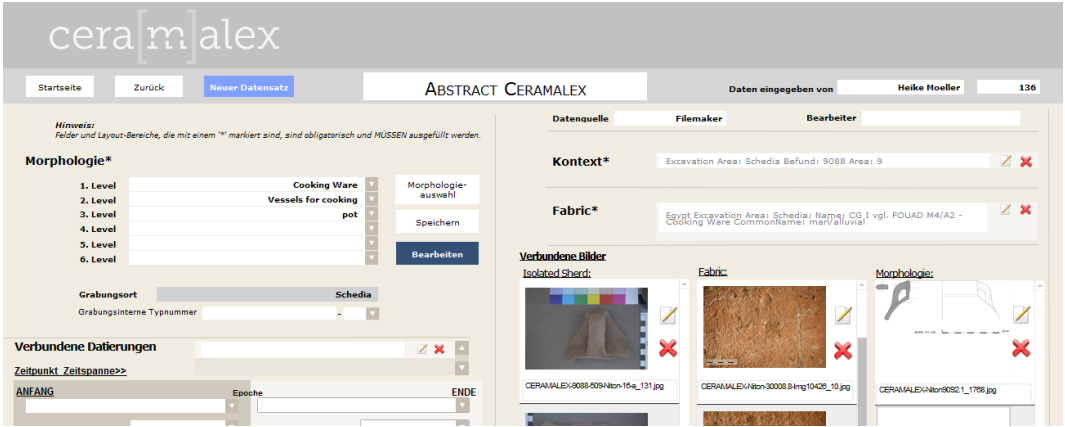
CAA 2018, Tübingen

21 March 2018

[1]Archäologisches Institut, Universität zu Köln

Motivation

FileMaker Pro is widespread across archaeological projects, e. g.:



Before FMSync: Sharing Data

FileMaker *A*

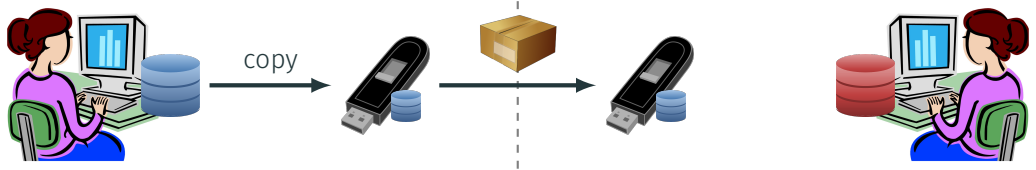
FileMaker *B*

Before FMSync: Sharing Data

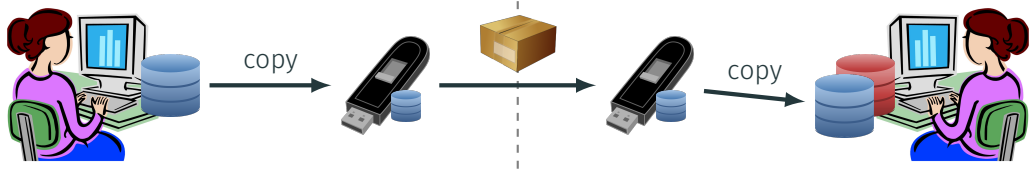
FileMaker *A*

FileMaker *B*

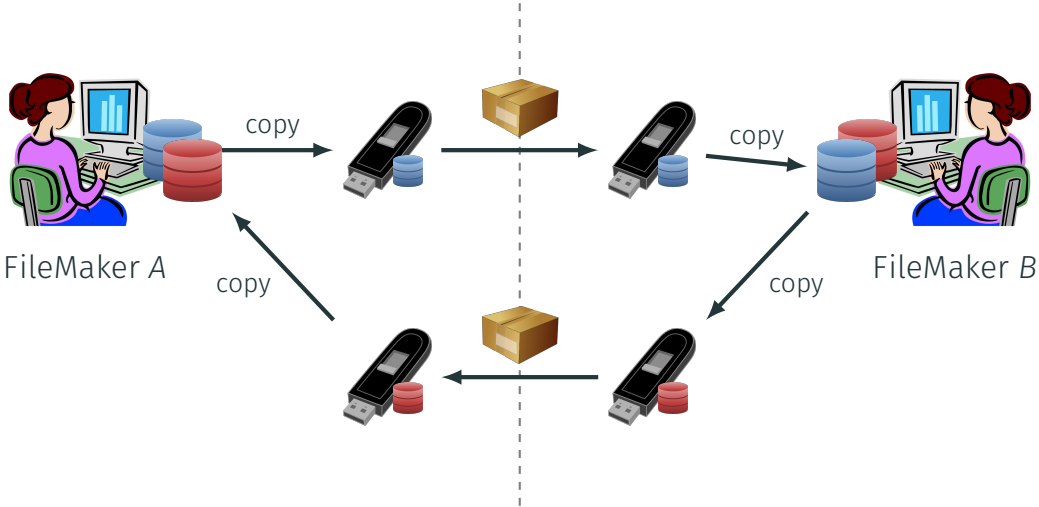
Before FMSync: Sharing Data



Before FMSync: Sharing Data

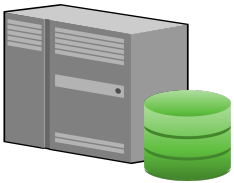


Before FMSync: Sharing Data



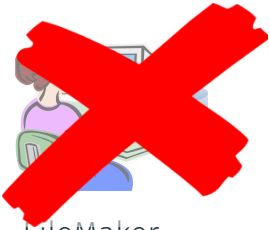
Before FMSync: Publishing Data

FileMaker

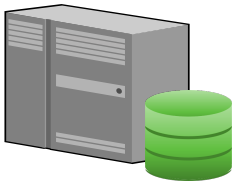


MySQL / Oracle / ...

Before FMSync: Publishing Data

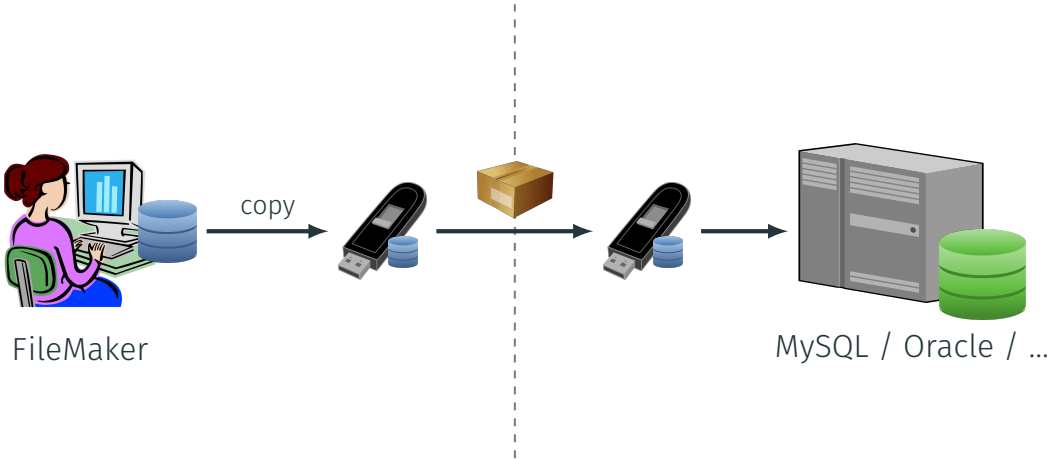


FileMaker



MySQL / Oracle / ...

Before FMSync: Publishing Data



Before FMSync: Publishing Data

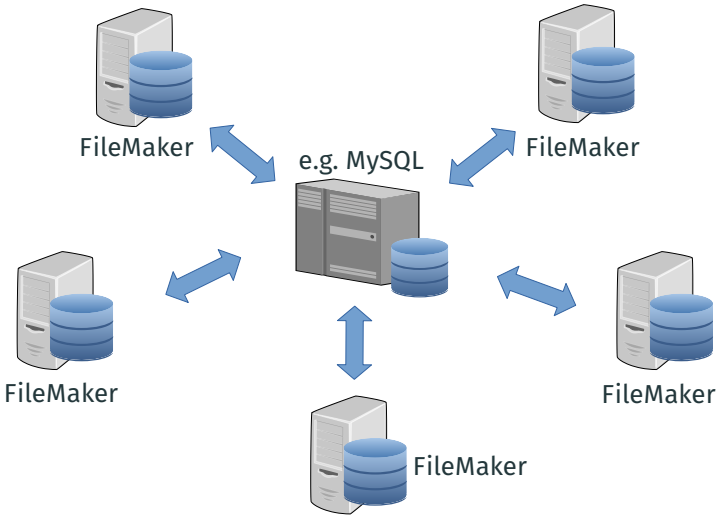
FileMaker

copy

...

Approach

FMSync: Topology



Wait a second!

Yo, Felix! 'Tis nuthin nu.

> ***SymmetricDS*** *supports [...] Oracle, MySQL, MariaDB, PostgreSQL, MS SQL Server (including Azure), IBM DB2 (UDB, iSeries, and zSeries), H2, HSQLDB, Derby, Firebird, Interbase, Informix, Greenplum, SQLite, Sybase ASE, Sybase ASA (SQL Anywhere), Amazon Redshift, MongoDB, and VoltDB databases.*
>
> `https://www.symmetricds.org/`

Wait a second!

Yo, Felix! 'Tis nuthin nu.

> ***SymmetricDS*** *supports [...] Oracle, MySQL, MariaDB, PostgreSQL, MS SQL Server (including Azure), IBM DB2 (UDB, iSeries, and zSeries), H2, HSQLDB, Derby, Firebird, Interbase, Informix, Greenplum, SQLite, Sybase ASE, Sybase ASA (SQL Anywhere), Amazon Redshift, MongoDB, and VoltDB databases.*

`https://www.symmetricds.org/`

Purchase Quote

Quote Date	**2018-03-09**
Quote Number	
Expiration	**2018-04-08**

	Product	QTY	Unit Price	Extended Price
FM160277LL	FileMaker Server 16 FLT Perpetual Volume License + 1 Year Maintenance (10 users)	1	US$4,284.00	US$4,284.00
			Subtotal:	US$4,284.00
			Shipping:	US$0.00
			Estimated Tax:	US$0.00
			Total:	US$4,284.00

- Proprietary, badly written software
- Still totally not worth the price

Our Solution

... is better than the existing ones, since

- it is open source (GPL 3 license)
- it is free
- it allows open access scenarios
- it is Java-based, thus platform-independent and flexible
- it is user-friendly
- it allows to already keep data in sync while collecting

Our Solution

... is better than the existing ones, since

- it is open source (GPL 3 license)
- it is free
- it allows open access scenarios
- it is Java-based, thus platform-independent and flexible
- it is user-friendly
- it allows to already keep data in sync while collecting

Our Solution

... is better than the existing ones, since

- it is open source (GPL 3 license)
- it is free
- it allows open access scenarios
- it is Java-based, thus platform-independent and flexible
- it is user-friendly
- it allows to already keep data in sync while collecting

Our Solution

... is better than the existing ones, since

- it is open source (GPL 3 license)
- it is free
- it allows open access scenarios
- it is Java-based, thus platform-independent and flexible
- it is user-friendly
- it allows to already keep data in sync while collecting

Our Solution

... is better than the existing ones, since

- it is open source (GPL 3 license)
- it is free
- it allows open access scenarios
- it is Java-based, thus platform-independent and flexible
- it is user-friendly
- it allows to already keep data in sync while collecting

Our Solution

... is better than the existing ones, since

- it is open source (GPL 3 license)
- it is free
- it allows open access scenarios
- it is Java-based, thus platform-independent and flexible
- it is user-friendly
- it allows to already **keep data in sync while collecting**

Why underestimation is bad

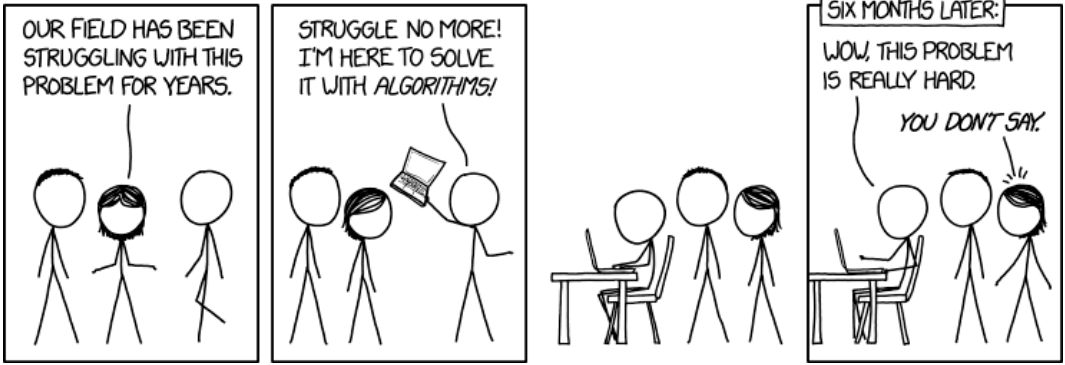
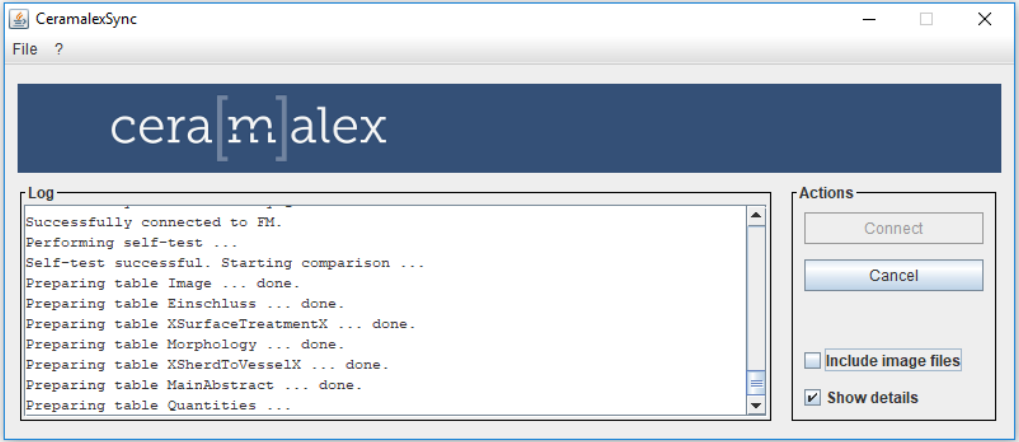


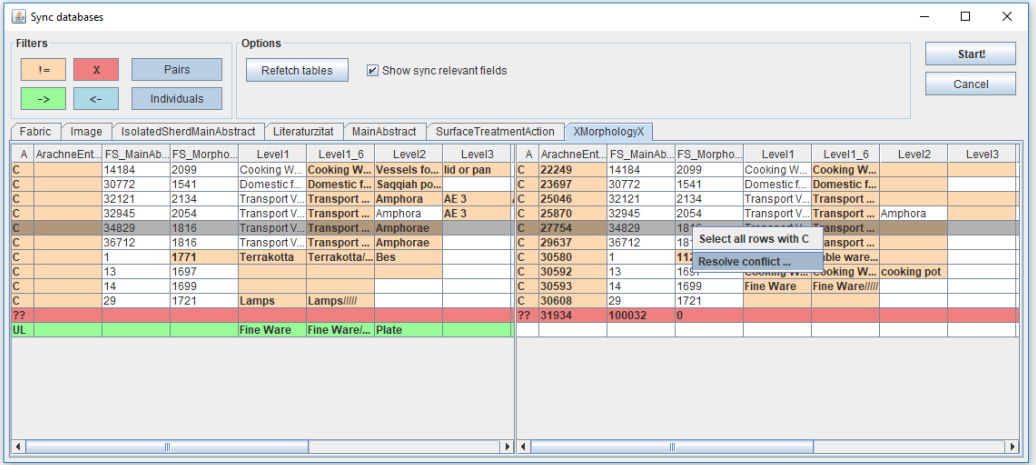
Figure 1: I can relate to this. [xkcd.com/1831]

Implementation

Main Window


CeramalexSync
File ?
ceramalex
Log
Successfully connected to FM.
Performing self-test ...
Self-test successful. Starting comparison ...
Preparing table Image ... done.
Preparing table Einschluss ... done.
Preparing table XSurfaceTreatmentX ... done.
Preparing table Morphology ... done.
Preparing table XSherdToVesselX ... done.
Preparing table MainAbstract ... done.
Preparing table Quantities ...
Actions
Connect
Cancel
Include image files
Show details

Detail Window



sync!!

bisschen zur syncmainmain

Foreign Key Difficulty

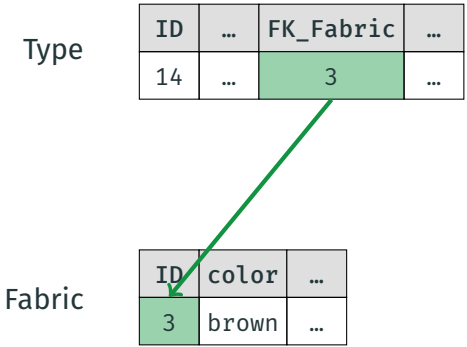
Type

ID	…	FK_Fabric	…
14	…	3	…

Fabric

ID	color	…
3	brown	…

Foreign Key Difficulty



Foreign Key Difficulty

Type

ID	…	FK_Fabric	…
14	…	3	…

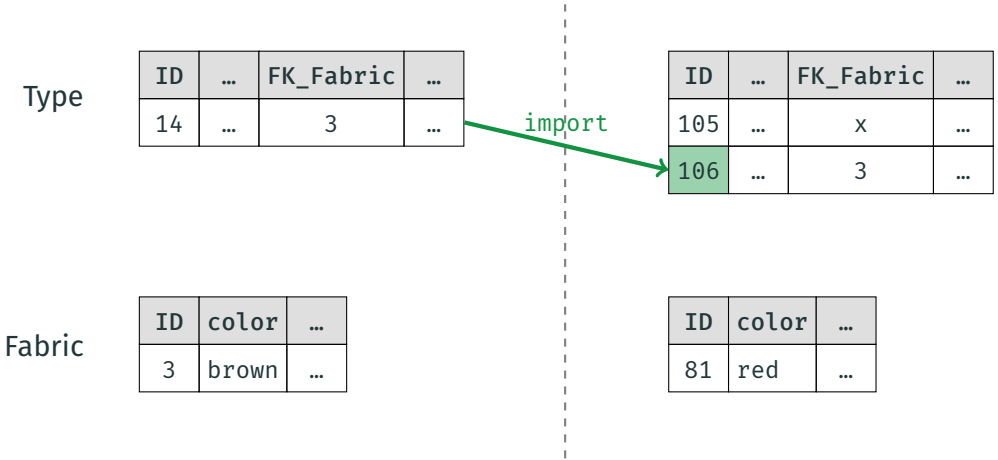
ID	…	FK_Fabric	…
105	…	x	…

Fabric

ID	color	…
3	brown	…

ID	color	…
81	red	…

Foreign Key Difficulty



Foreign Key Difficulty

Type

ID	…	FK_Fabric	…
14	…	3	…

ID	…	FK_Fabric	…
105	…	x	…
106	…	3	…

Fabric

ID	color	…
3	brown	…

import

ID	color	…
81	red	…
82	brown	…

Foreign Key Difficulty

Type

ID	…	FK_Fabric	…
14	…	3	…

ID	…	FK_Fabric	…
105	…	x	…
106	…	3	…

Fabric

ID	color	…
3	brown	…

ID	color	…
81	red	…
82	brown	…

Foreign Key Difficulty

Type

ID	…	FK_Fabric	…
14	…	3	…

ID	…	FK_Fabric	…
105	…	x	…
106	…	3	…

Fabric

ID	color	…
3	brown	…

ID	color	…
81	red	…
82	brown	…

Foreign Key Difficulty

Type

ID	…	FK_Fabric	…
14	…	3	…

Fabric

ID	color	…
3	brown	…

ID	…	FK_Fabric	…
105	…	x	…
106	…	3	…

ID	color	…
81	red	…
82	brown	…

Foreign Key Difficulty: Solution

Type

ID	…	FKF	FKP
5	…	29	8

Fabric

ID	…	FKC
29	…	3

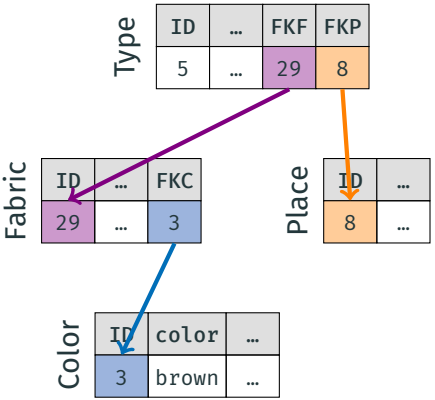
Place

ID	…
8	…

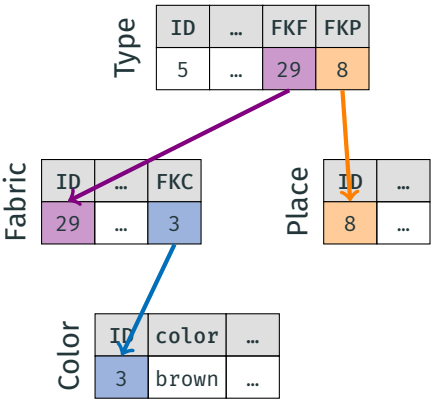
Color

ID	color	…
3	brown	…

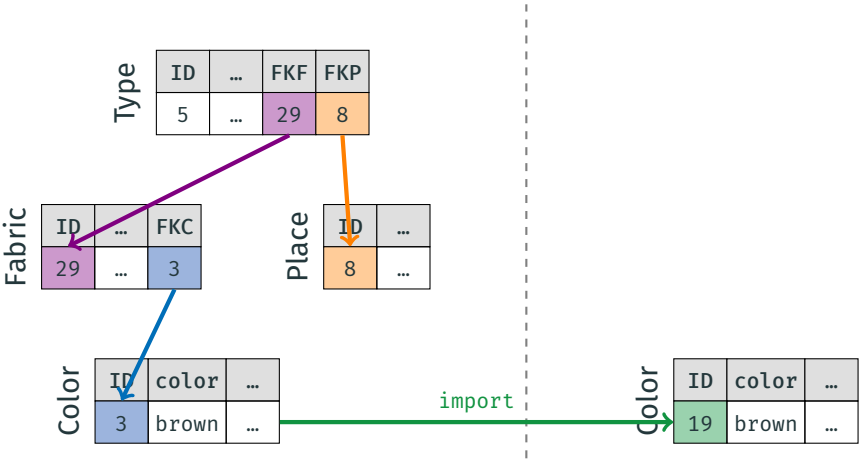
Foreign Key Difficulty: Solution



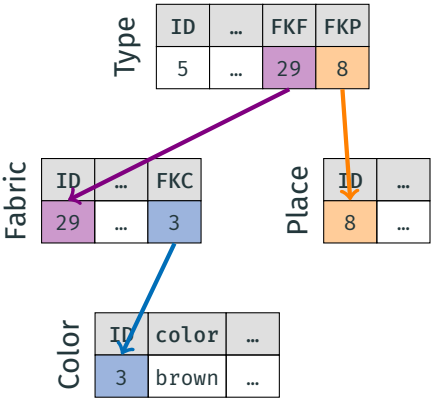
Foreign Key Difficulty: Solution

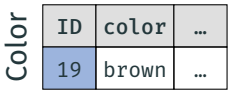


Foreign Key Difficulty: Solution

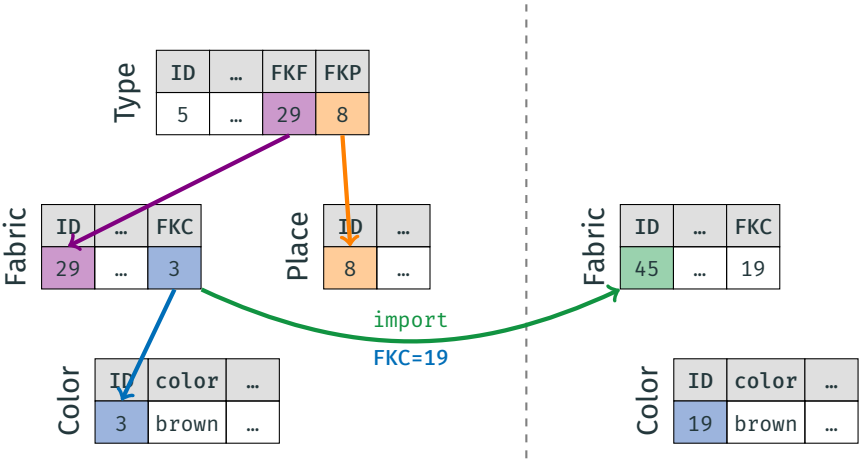


Foreign Key Difficulty: Solution

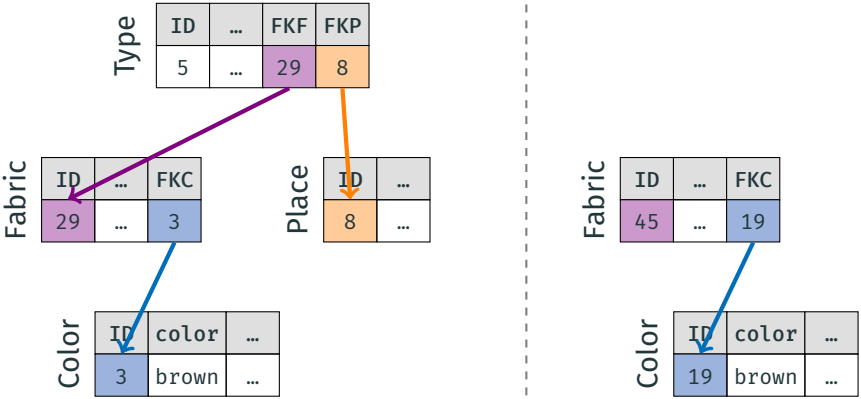




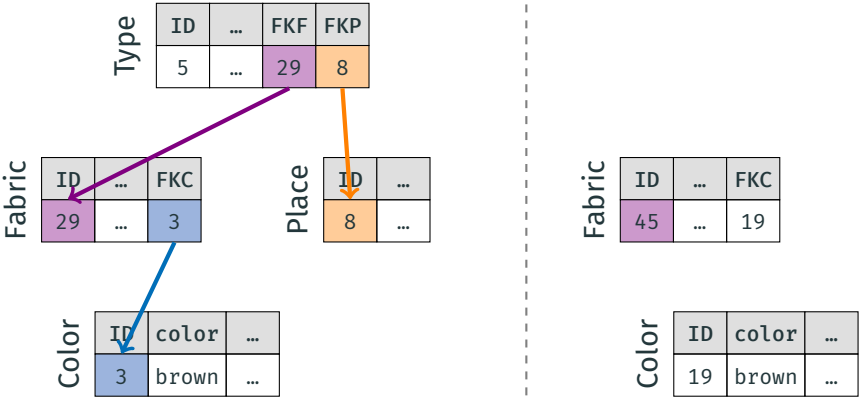
Foreign Key Difficulty: Solution



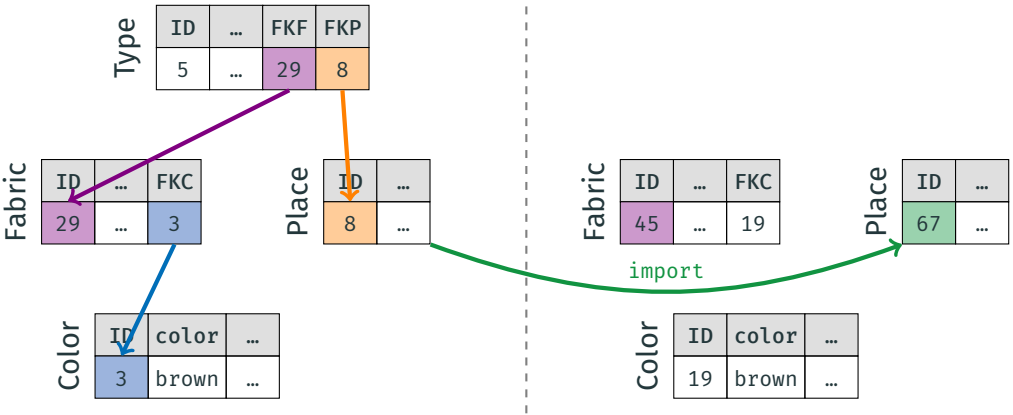
Foreign Key Difficulty: Solution



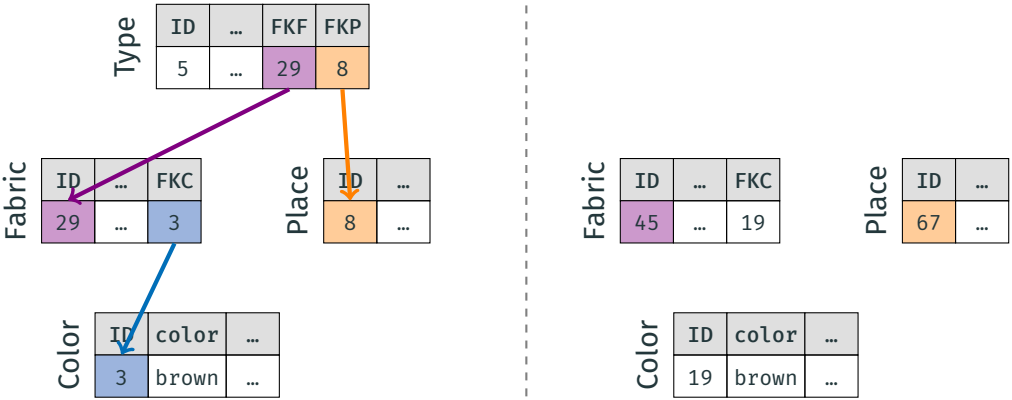
Foreign Key Difficulty: Solution



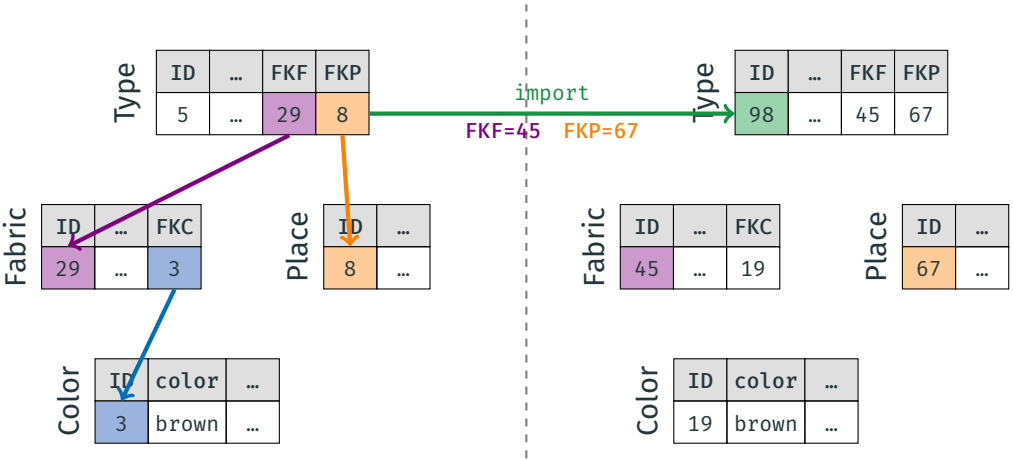
Foreign Key Difficulty: Solution



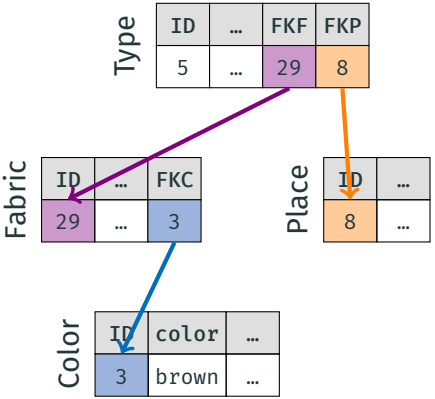
Foreign Key Difficulty: Solution

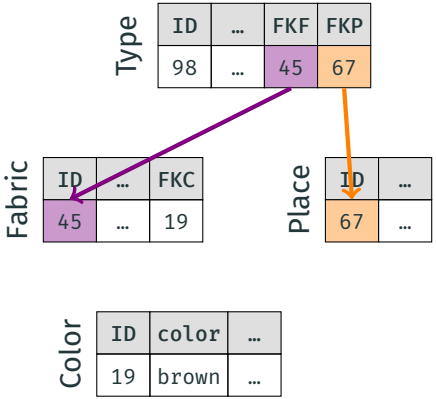


Foreign Key Difficulty: Solution

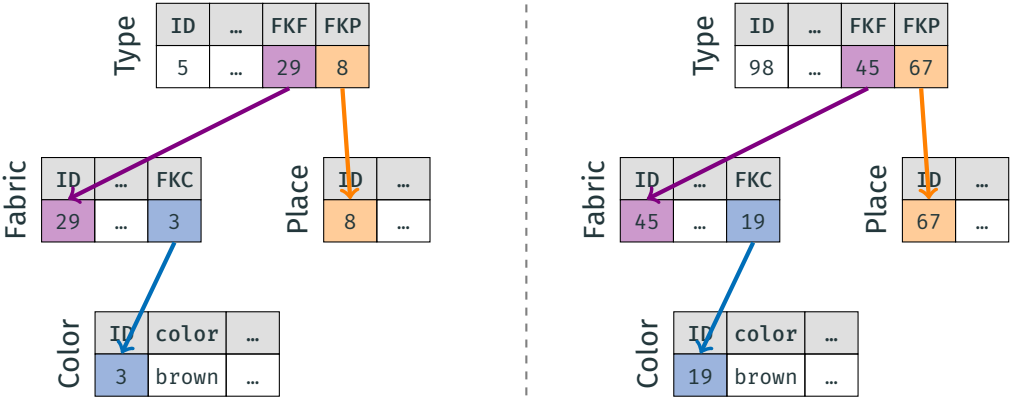


Foreign Key Difficulty: Solution





Foreign Key Difficulty: Solution



Thank you very much for your attention!

https://github.com/horle/fmsync Questions?

FMSync

An Open Source Solution for Synchronising Distributed Archaeological Databases in a Centralised Open Access System

Felix Kußmaul[1]

CAA 2018, Tübingen

21 March 2018

[1]Archäologisches Institut, Universität zu Köln