

Today's Class: Improving FileMaker Custom App Performance

Instructor: Mark Richman





FM ACADEMY Companies

kyologic® dbservices IT Solutions™
Thinking ahead.


SKELETONKEY

360 works™

 App Works
Smart apps geared to work for you

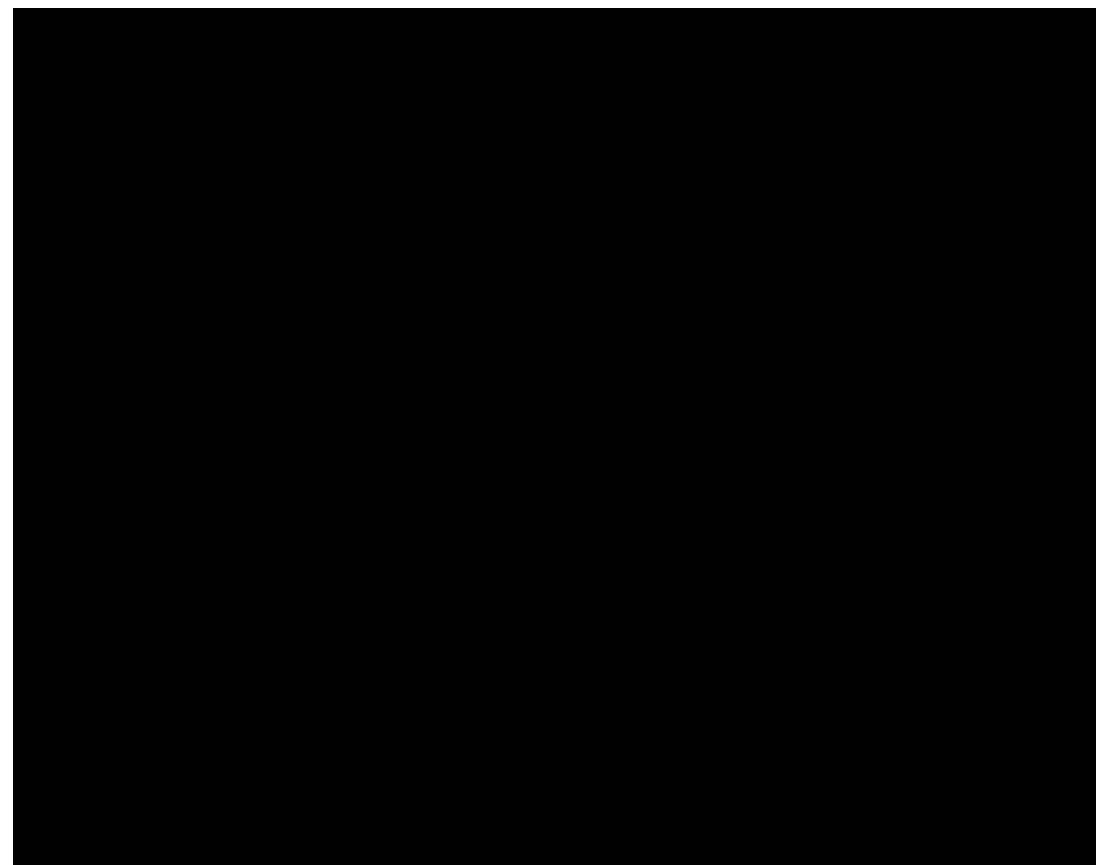
 MainSpring TIME TO INNOVATE.

Scott Howard Consulting
Designing software that fits



Mark Richman, Skeleton Key

- Co-founder and President, Skeleton Key
- FileMaker Business Alliance Platinum
- 26+ years experience creating FileMaker solutions
- Author of several FileMaker, Inc. white papers on design and performance
- Frequent speaker at the Annual FileMaker Developer Conference (aka, DevCon)
- Co-founder and President, Brightsource IT
- 30+ years experience IT and intra-networking infrastructure



Today's Class: Improving FileMaker Custom App Performance

Instructor: Mark Richman





Agenda

- The Problem
- A Solution
- Performance Improvements
- Optimization Resources
- Practical Examples
- Advanced Techniques

+ The Problem

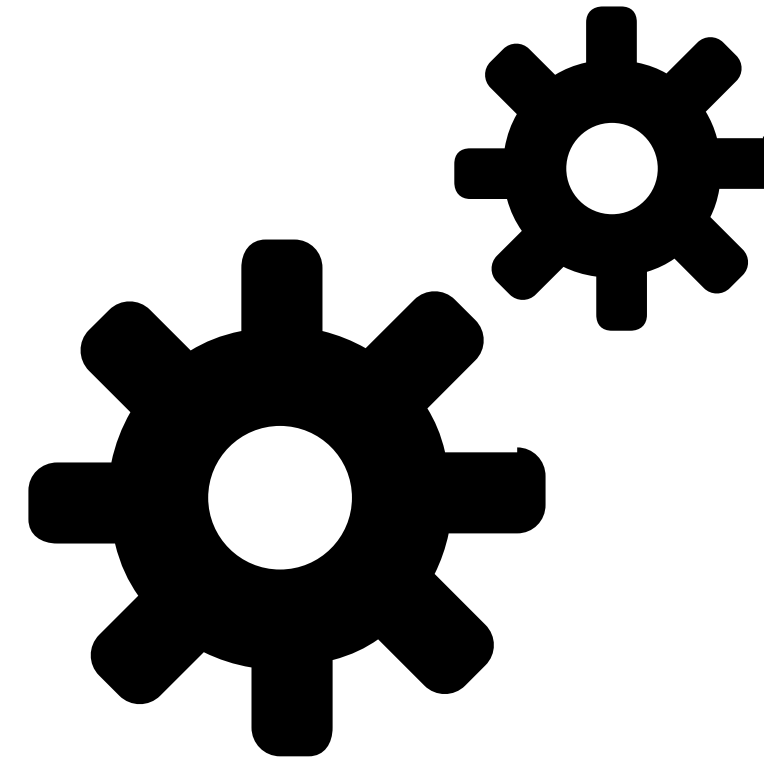
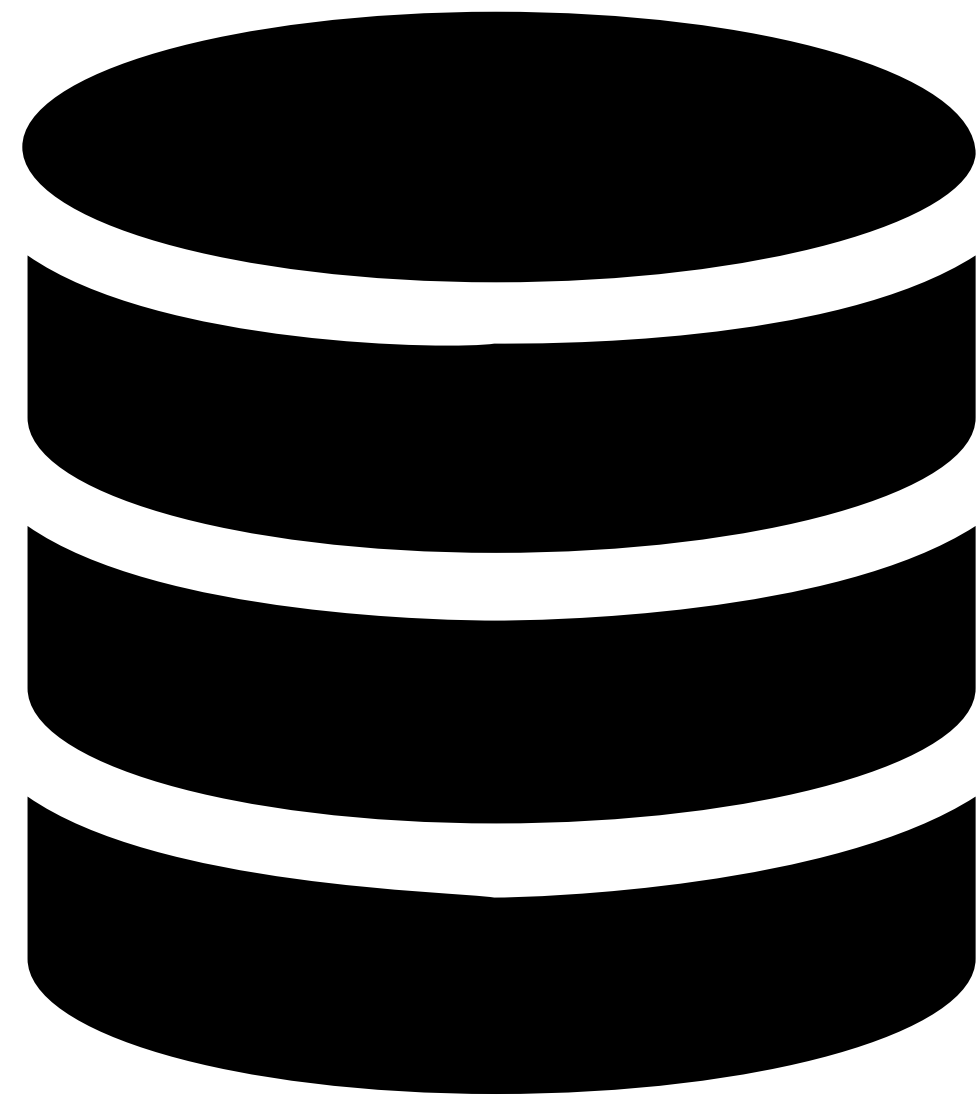


Every Software Platform Requires Optimization

- Reconciling form and function is an everything kind of topic
- Every domain has platform constraints
- Every development conference has common session themes:
 - UX
 - UI
 - Mobile
 - Performance
 - Optimization



Decisions Decisions



+ A Solution



A Four Step program

1. Identify the Problem
2. Gather Information
3. Adopt New Habits
4. Rinse and Repeat



A Four Step program

1. Identify the Problem ✓
2. Gather Information
3. Adopt New Habits
4. Rinse and Repeat



Performance Improvements

Gather Information



Performance Changes in FileMaker 15

- iOS Application SDK
- Portal In-line Progress Bar
- Truncate Table
- Top Call Logging (on FileMaker Server)
- Cache Temp File Persistence (for both FileMaker Go AND FileMaker Pro)

+ iOS Application SDK

- **Info**

- *"The iOS App SDK allows you to build a standalone iOS app from your FileMaker solution."*
- *"Users can access your FileMaker solution similar to other iOS apps without having to install FileMaker Go."*

- **Pros:**

- Streamlines installation and launch of custom apps
- Allows file structure (e.g., layouts) to reside locally on the device

- **Cons**

- No automated update mechanism



Portal In-line Progress Bar

- **Info**

- Displayed when portal content rendering will take more than a second
- Allows the user to interact with other aspects of the layout in the interim

- **Pros**

- Nothing to develop – it just works
- Smoother portal rendering
- Improved user experience

- **Cons**

- Not a solution for slow portal problems
- Not something you can use 'deliberately'



Truncate Table

- **Info**

- Truncate Table [With dialog: On/Off; <Current Table>/Table: "<table name>"]
- *"Deletes all records in the specified table regardless of the current found set"*
- *"Attempts to lock all records in the table before deleting them"*
- *"Does not delete related records even if the relationship is set up to do so"*

- **Pros**

- Great for cleaning up temporary tables, e.g. for virtual lists or data processing
- Can be used in a series to simulate a cascading effect

- **Cons**

- Caveats above



Top Call Logging

- **Info**

- Must be deliberately turned on to capture data
- Path: /FileMaker Server/Logs/TopCallStats.log
- Captures the top 25 client request that had the longest elapsed time to complete
- Adheres to the same(?) interval and log size as other client statistics
- See Advanced Techniques (below)

- **Pros**

- Detailed analysis

- **Cons**

- Detailed analysis
- Mapping required to internal structure IDs



Cache Temp File Persistence

- **Info**

- Originally appeared in FileMaker Go 14
- Compares last cache file to current file state and discards changes
- Only downloads what it needs right away

- **Pros**

- Nothing to develop – it just works
- Maintains cached solution data for up to 15 days
- Some logical rules govern exceptions

- **Cons**

- None



Optimization Resources

Gather Information



Oldies but Goodies

- **Schema:** Tables, joins and dependencies
- **Records:** Centricity, found sets, default for context
- **Fields:** Quantity, type and storage
- **Triggers:** See, touch and invoke
- **Communications:** Commits, round trips and notifications
- **Window Dressing:** Themes, complexity, scripting and interfaces in general
- **Technical Infrastructure:** Server HD, processor count, RAM and configuration

FileMaker Developer Conference 2009

**Under The Hood:
Pro and Server Performance**

Session ALL01

Jon Thatcher
FileMaker, Inc.

DISCOVER GOLD FILEMAKER DEVELOPER CONFERENCE 2009 FileMaker.

FileMaker Developer Conference 2011

**DES013
Practical Techniques for Improving
FileMaker WAN Performance**

Mark Richman
Skeleton Key

GO FARTHER FILEMAKER DEVELOPER CONFERENCE 2011 FileMaker.

Network Performance 101

DEV023

Mark Richman
President
Skeleton Key

PLATFORM FOR
innovation
FileMaker Developer Conference 2013

© 2013 FileMaker, Inc.

FileMaker Developer Conference 2010

**DES012
Developing for Maximum WAN Performance**

Mark Richman
Skeleton Key

Connect with your world FILEMAKER DEVELOPER CONFERENCE 2010 FileMaker.

FileMaker Developer Conference 2012

**INT001
LAN/WAN Performance : The Basics**

Mark Richman
Skeleton Key

FILEMAKER DEVELOPER CONFERENCE
**BREAK 2012
THROUGH**

FileMaker.



White Papers

- Designing Faster Custom Database Solutions for iOS, February 2012
 - <https://community.filemaker.com/docs/DOC-2268>
- iOS: Performance, April 2014
 - <https://community.filemaker.com/docs/DOC-3843>
- Design: Performance, September 2014
 - <https://community.filemaker.com/docs/DOC-4168>



DevCon 2016 Sessions (in General)

- Free DevCon 2016 Resources on the FileMaker Community
 - <https://www.community.filemaker.com>
 - No membership required for some content
 - No fee (so sign up anyway)
- A list of all sessions with related materials
 - Actual link: https://community.filemaker.com/community/devcon_2016/session_materials_2016
 - Easier link: <http://bit.ly/DevCon2016Materials>



DevCon 2016 Sessions (in Particular)

- Speedy Server-Side Data Import Techniques, Jonn Howell
- Under the Hood: Maximizing WebDirect Scalability, Vin Addala
- Under the Hood: Draco Database Engine, Clay Maeckel
- Under the Hood: Server Performance, Jon Thatcher
- Building a High-Performance Mobile Custom App, Nick Lightbody
- Powerful Event Management with Perform Script on Server, Jonn Howell
- Under the Hood: PSR benchmarking Methodology, James Qiu



DevCon 2016 Sessions (in Particular)

- Speedy Server-Side Data Import Techniques, Jonn Howell
- Under the Hood: Maximizing WebDirect Scalability, Vin Addala
- Under the Hood: Draco Database Engine, Clay Maeckel
- Under the Hood: Server Performance, Jon Thatcher
- Building a High-Performance Mobile Custom App, Nick Lightbody
- Powerful Event Management with Perform Script on Server, Jonn Howell
- Under the Hood: PSR benchmarking Methodology, James Qiu



Practical Examples

Adopt New Habits



Picking Favorites

- Use Themes
- Manage Your Found Set
- Plan for Narrow Tables
- Leverage the Server





Use Themes

- Very little new to say:
 - [Design: Performance, September 2014](#)
 - [Overview of themes in FileMaker Pro](#)
 - [Introduction to styles and themes in FileMaker Pro](#)
 - [FileMaker WebDirect - db Services](#)
 - [FileMaker Themes Best Practices - db Services](#)
- In a nutshell:
 - more efficient storage = smaller download
 - faster to render
 - easier to develop
 - better user experience

css

+ Manage Your Found Set

- Start empty handed
 - Open your solution to an empty table
- Consider the 'default' order of your script steps
 - Enter Find Mode *then* Go To Layout
- Orchestrate the user experience
 - Records that matter to that user, task or process
 - Recent history
 - Find/Filter vs. Browse/Sort





Plan for Narrow Tables

- Learn the fundamentals of monogamous relationships ;-)
 - [Data Modeling: Using One-to-One Relationships, DevCon 2015](#)
- Divide tables along 'natural' lines
 - List view vs Form view
 - Small vs Large
 - Field sets

Data Modeling: Using One-to-One Relationships

COR013

Mark Richman
Skeleton Key

© 2015 FileMaker, Inc.



+ Leverage the Server

- Learn the fundamentals of:
 - FileMaker Server Schedules
 - Perform Script on Server (PSoS) script step
 - Server-compatible script steps
 - Caching and indexing
 - Transferring a found set from the client to the server
- Mix and match





Advanced Techniques

Rinse and Repeat



Manage What You Measure

- WireShark
- Top Call Logging





WireShark

- **Info**

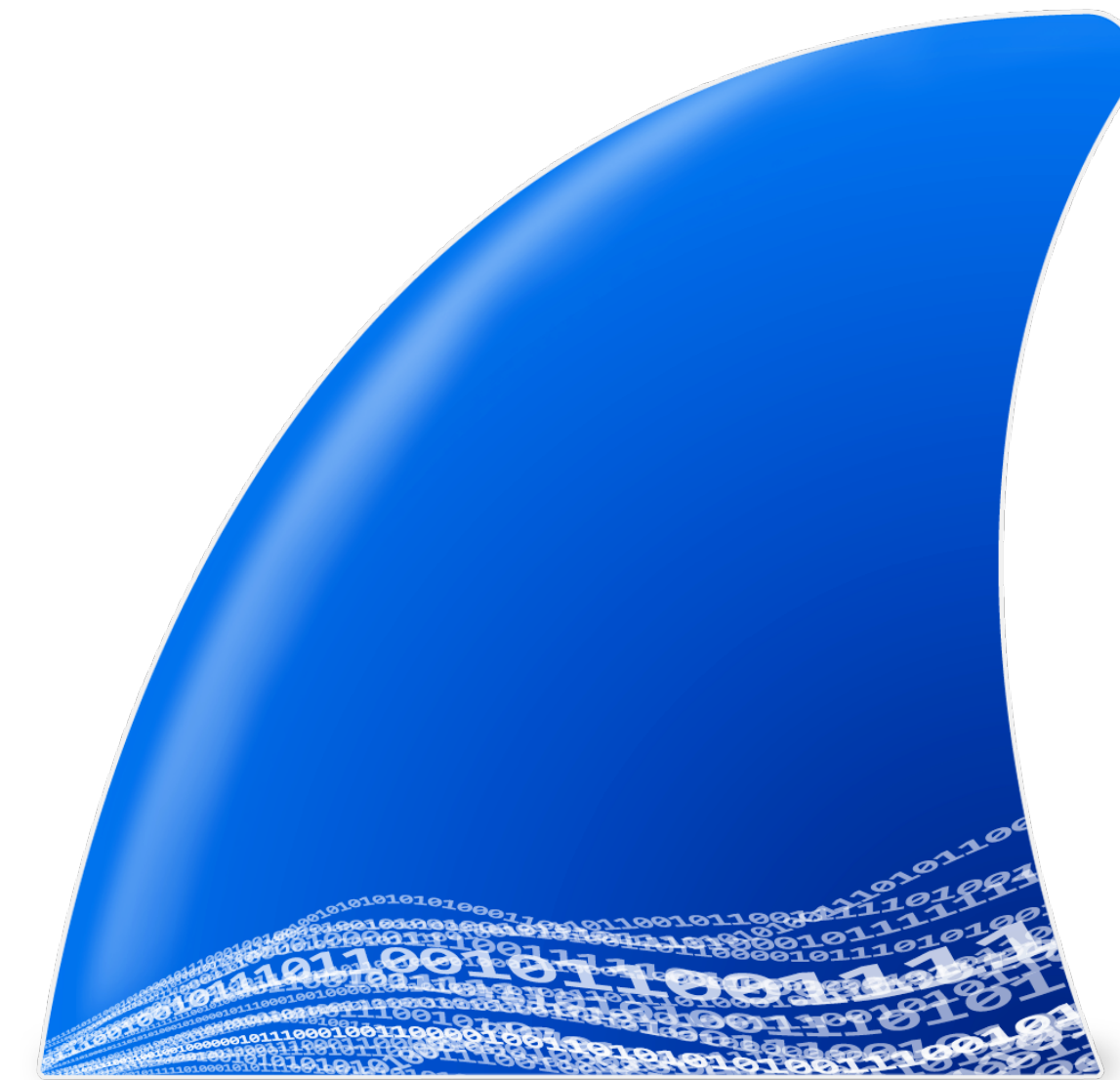
- Packet filter
- Can be used to isolate and capture IP traffic by port number

- **Pros**

- Great for isolated testing

- **Cons**

- A bit complex to learn at first
- Requires analysis of dumped data
- No discrete info on what was moving or why





Top Call Logging

- **Info**

- Smart logging of detailed client statistics
- [Under the Hood: Server Performance, Jon Thatcher](#)

- **Pros**

- Great for catching the slowest stuff, even if not reported by a user

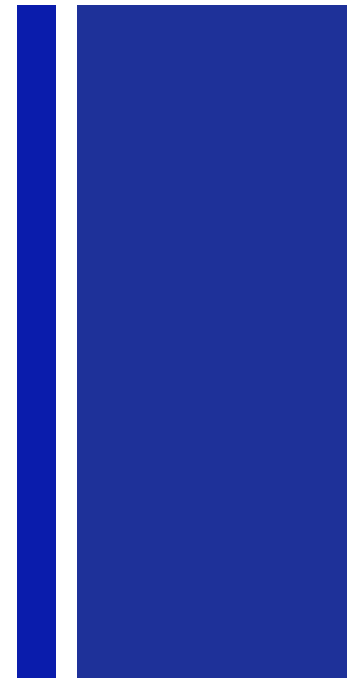
- **Cons**

- A bit complex to learn at first
- Requires analysis of dumped data
- No control over what are the top calls in an interval

+ Wrapping Up



Want to Meet After School?



If you are located in:	Contact this FM Academy member:	
<i>Georgia</i>	<i>360Works</i>	<i>www.360works.com</i>
<i>Alabama</i>	<i>Scott Howard Consulting</i>	<i>www.scotthowardconsulting.com</i>
<i>Oregon</i>	<i>AppWorks</i>	<i>www.app.works</i>
<i>Pennsylvania</i>	<i>IT Solutions</i>	<i>www.itsolutions-inc.com</i>
<i>Washington DC + Baltimore</i>	<i>MainSpring</i>	<i>www.gomainspring.com</i>
<i>Indiana</i>	<i>DbServices</i>	<i>www.dbservices.com</i>
<i>Missouri</i>	<i>Skeleton Key</i>	<i>www.skeletonkey.com</i>
<i>Connecticut + Boston</i>	<i>Kyo Logic</i>	<i>www.kyologic.com</i>
<i>Any place not mentioned above</i>	<i>The company that invited you</i>	



FM Academy Info

- Website: filemakeracademy.com
- Email: Webinar@filemakeracademy.com
- Facebook: facebook.com/FileMakerAcademy
- Twitter: twitter.com/FMAcademy_



Next Webinar!

- Tuesday, September 13th, 2016 @ 11 AM PST/2 PM EDT
- Topic: Add simple logging to your FileMaker app
- Presenter: AppWorks

+

Questions?