

# Shadows Of The Past

## Analysis of Git Repositories

**JavaLand 2017**

**Dirk Mahler**



# AGENDA

- Motivation
- jqAssistant
- The Git Graph
- Demo
- Q&A

## Shadows Of The Past – Analysis Of Git Repositories

# Motivation



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→ <http://codescene.io>

Adam Tornhill

<https://pragprog.com/book/atcrime/your-code-as-a-crime-scene>

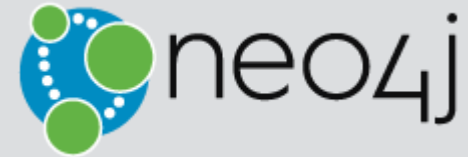
## Shadows Of The Past – Analysis Of Git Repositories

**jQAssistant**

# jQAAssistant

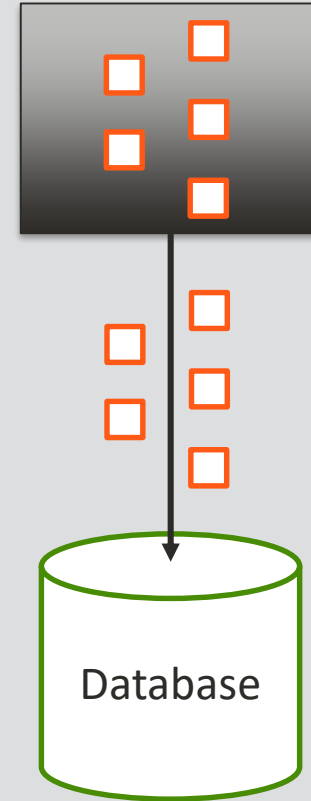
<http://jQAAssistant.org>

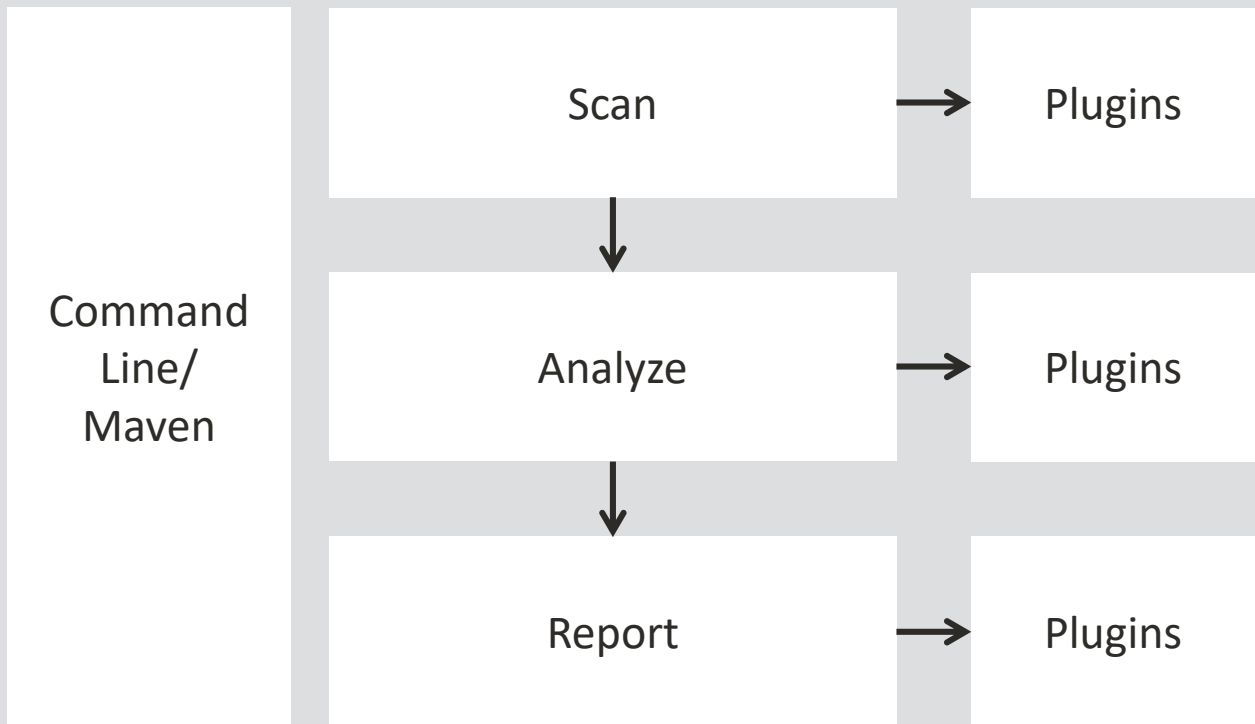
- Open Source: GPLv3
- Current release: 1.2.0
  - initiated: 03/2013
  - first stable release: 04/2015
- Neo4j Community Edition
  - <http://neo4j.org>
  - embedded, no installation necessary



## ■ The Idea

- Scan software structures
- Store in a database
- Execute queries
  - Explore
  - Add high level concepts
  - Find constraint violations
- Create reports







## ■ Available scanner plugins

ZIP

JAR, WAR, EAR

GZ

\*.class

\*.properties

\*.yaml

MANIFEST.MF

/META-INF/services/\*

web.xml

application.xml

beans.xml

pom.xml

surefire-reports.xml

\*.xsd

Liquibase

CheckStyle

FindBugs

JaCoCo

Git

## ■ Plugin API is public

M2 Repository

RDBMS Schema

## ■ Getting Started – Maven Project

```
<build>
  <plugins>
    <plugin>
      <groupId>com.buschmais.jqassistant</groupId>
      <artifactId>jqassistant-maven-plugin</artifactId>
      <version>1.x.x</version>
    </plugin>
  </plugins>
</build>
```

- mvn install
- mvn jqassistant:scan
- mvn jqassistant:server  
→ <http://localhost:7474>

## ■ The Git Plugin

```
<plugin>  
  <groupId>com.buschmais.jqassistant</groupId>  
  <artifactId>jqassistant-maven-plugin</artifactId>  
  <version>1.x.x</version>  
  <scanIncludes>  
    <scanInclude>  
      <path>${project.basedir}/.git</path>  
    </scanInclude>  
  </scanIncludes>  
  <dependency>  
    <groupId>de.kontext-e.jqassistant.plugin</groupId>  
    <artifactId>jqassistant.plugin.git</artifactId>  
    <version>1.1.4</version>  
  </dependency>  
</plugin>
```

**Shadows Of The Past – Analysis Of Git Repositories**

# **The Git Graph**



- Explore Git Using Queries
  - Which author did a commit?



- Let's convert this to ASCII art...
  - () as nodes
  - -[]-> as directed relationships

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( ) - [ ] - > ( )

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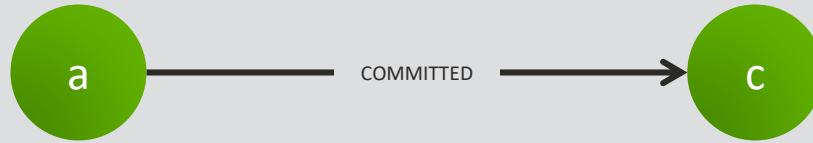


- Let's convert this to ASCII art...
  - () as nodes
  - -[]-> as directed relationships

(a) - [] -> (c)



- Explore Git Using Queries
  - Which author did a commit?



- Let's convert this to ASCII art...
  - () as nodes
  - -[]-> as directed relationships

(a) - [ :COMMITTED ] -> (c)

- Explore Git Using Queries
  - Which author did a commit?



- Let's convert this to ASCII art...
  - () as nodes
  - -[]-> as directed relationships

`(a:Author) - [ :COMMITTED ] -> (c:Commit)`

- Explore Git Using Queries
  - Which author did a commit?



- Pattern matching is the core principle of Cypher

MATCH

`(a:Author) -[:COMMITTED] -> (c:Commit)`

RETURN

`a.name, c.message`

## Shadows Of The Past – Analysis Of Git Repositories

**Demo**

# ■ DukeCon

The screenshot shows a web browser window displaying the DukeCon website. The browser's address bar shows the URL <https://programm.javaland.eu/2017/>. The website has a teal header with a search bar and navigation icons. On the left side, there is a sidebar with filter options: 'Filter-Optionen' (with a 'Zurücksetzen' button), 'Aktiv' (checked), 'Nur Favoriten' (unchecked), 'Zielgruppe', 'Sprache', 'Track', and 'Ort'. The main content area displays a list of sessions for Tuesday, 28.03., 11:00 (40 min). The sessions listed are:

- Schatten der Vergangenheit - Analyse von Git-Repositories** by Dirk Mahler (Quantum 3+4, 250 stars, 38 IDE & Tools)
- Beyond Lambdas - the Aftermath** by Daniel Sawano, Daniel Deogun (Eventhalle, 400 stars, 75 Core Java & JVM-Sprachen)
- Panel-Diskussion: Java EE 8 Status** by Andreas Badelt (Neptun, 120 stars, 9 Java EE - Early Adopters)
- Microservices mit Java OSGi ist doch die Lösung** by Uwe Schulz (Quantum UG, 60 stars, 63 Newcomer)
- Code-Golf** (Community Hall, 6 stars)

Below this section, a vertical time indicator shows 12:00, followed by sessions for 12:00:

- It's Java, Jim, But Not As We Know It!** by Simon Ritter (Silverado Theater, 1000 stars, 86 Core Java & JVM-Sprachen)
- Produktiver programmieren - Aha-Erlebnisse mit Multi-Clipboards, Application Launcher und Editor-Shortcuts** by Dominik Hirt (Dienstag, 28.03., 12:00 (40 min))

At the bottom of the page, there are links for 'Impressum', 'Datenschutz', and 'Nutzungsbedingungen', and a note 'powered by DukeCon'.

[https://github.com/DirkMahler/dukecon\\_server](https://github.com/DirkMahler/dukecon_server) (fork)

# Questions & Answers

Web: [jqassistant.org](http://jqassistant.org)

Twitter: [@jqassistant](https://twitter.com/jqassistant)

Google Group: [jqAssistant](https://groups.google.com/jqassistant)

Stackoverflow Tag: [jqAssistant](https://stackoverflow.com/questions/tagged/jqassistant)