

A photograph of a man in a kitchen. He is wearing a blue denim shirt and has a small earring. He is holding a large bunch of spaghetti in his hands and is in the middle of eating it. The background shows a kitchen counter with some dishes and a window.

Open sourcing a library

How hard can that be?

Johan Hutting

October 9th, 2024 @ Devoxx



do your thing



#WhoAmI

Whenever someone asks what do you do...

“I develop things and talk about them”

What I actually do:

- Full-stack Engineer at ING (business) Products
- Part-time Developer advocate on engineering culture
- *Backend Guild* organising committee
- Java User Group Noord co-organiser
- *Global tech speakers community* core member
- Mentor others
- And occasionally I speak for a larger audience (*Devoxx, Voxxed Trieste, JCON, We are Developers Berlin*)

The journey to open sourcing a library

- “My” Library
- Maintenance / support
- Publishing
- Takeaways

Benefits of open sourcing your code

You can show off your developer, design and architectural skills.

Receive broader feedback.

Collaboration with other developers.

Inspire others and use it for examples.

There are downsides as well: the recent xz malware is a clear example.

Motivation

Once in a while I pick an achievable challenge
to extend my skills and knowledge.

Plus, open-source poses a challenge: how can you give back to the community?

Do not use open-source libraries to extend your resume but commit yourself!

Open source @ ING

Open sourced web components



Lion

open-issues 131 open PRs 41 TODOs unknown

[Website](#) · [Fundamentals](#) · [Guides](#) · [Components](#) · [Blog](#)

Lion is a set of highly performant, accessible and flexible Web Components.!

They provide an unopinionated, white-label layer that can be extended to your own layer of components.

- **High Performance:** Focused on great performance in all relevant browsers with a minimal number of dependencies.
- **Accessibility:** Aimed at compliance with the WCAG 2.2 AA standard to create components that are accessible for everybody.
- **Flexibility:** Provides solutions through Web Components and JavaScript classes which can be used and extended to fit all needs.
- **Modern Code:** Lion is distributed as pure es modules.
- **Exposes functions/classes and Web Components:** Ships a functionality in its most appropriate

Visualized orchestration framework



Baker

CI passing Maven Central v4.1.0 codecov 79%

Baker is a library that provides a simple and intuitive way to orchestrate microservice-based process flows.

You declare your orchestration logic as a recipe using the Java, Kotlin, or Scala DSL. A recipe consists of interactions (system calls), ingredients (data), and events .

Bakers ability to visualize recipes provides a powerful communication tool that helps product owners, architects, and engineers to have a common understanding of the business process. This feature allows you to easily share your recipe with others, enabling collaboration and feedback.

The library (a façade to parse save games of a classic)



10:49 AM

Diablo II: resurrected



Challenge: calculating item bonuses

CHARACTER

FJØERICH

LEVEL 82 PALADIN

STRENGTH	162	ZEAL Damage	3087-3949
DEXTERITY	165	HOLY FIRE Damage	486-1208
VITALITY	257	ZEAL Attack Rating	1299
		Defense	1261
		Stamina	402 / 402
		Life	1025 / 1025
BONUS: +265% DIFFICULTY PENALTY: -40% 249 / 443 MAX: +35%			
Fire Resistance	95%	Lightning Resistance	81%
Cold Resistance	76%	Poison Resistance	75%

FJØERICH (21.7%)

LVL: 82 GOLD: 103K [9864K] MF: 242

S+R: 162 FIRE%: 95 FRW: 20

DEX: 165 LG+H%: 81 FCR: 30 (48)

VIT: 267 COLD%: 76 FBR: 0 LIFE: 1025 / 1025

ENE: 35 POIS%: 76 FHR: 66 (86)

EL (2), TIR, NEF (2), B+H (4), I+H (5), TAL (4), RAL (8), OR+ (10), THUL (21), AMN (22), SOL (16), SHAEL (7), DOL (13), HEL (3), IO (3), LEM

ANCIENT'S PLEDGE, BLACK, EDGE, HOLY THUNDER, HONOR, INSIGHT+, KING'S GRACE, LEAF, LORE, MALICE, MYTH, NADIR, PATTERN, PEACE,

LAS+ UPDATED: 17:49

INVENTORY

MANA: 249 / 443

103195

The image shows a character build for a Level 82 Paladin named Fjøerich. The character has high Strength (162), Dexterity (165), and Vitality (257). Bonuses include +265% damage, +35% attack rating, and +35% life. The inventory contains various items such as a sword, helmet, armor, gloves, ring, belt, book, scroll, key, and coins. The mana bar shows 249 out of 443.

Challenge: personalization

CHARACTER

LONGESTPOSSIBLE

LEVEL 27 ASSASSIN

STRENGTH	26	ATTACK Damage	4-21
DEXTERITY	42	WAKE OF FIRE	
VITALITY	145	ATTACK Rating	265
ENERGY	30	Defense	77
		Stamina	304 / 304
		Life	549 / 549
		Mana	148 / 148
		Fire Resistance	75%
		Lightning Resistance	34%
		Cold Resistance	51%
		Poison Resistance	75%

LONGESTPOSSIBLE (73.8%)

LVL: 27 GOLD: 60K [7604K] MP: 33

S+R: 26 FIRE%: 75 FRW: 26

DEX: 42 LG+H%: 34 FCR: 25 [27]

VIT: 145 COLD%: 51 FBR: 0 LIFE: 549 / 549

ENE: 30 POIS%: 76 FHR: 26 [27]

EL. TIR (4), NEF (3), E+H (2), I+H (3), RAL (5), OR+ (6), THUL (16), AMN (10), SOL (10), SHAEL (4), DOL (8), HEL (3), LEM

HONOR, KING'S GRACE, LEAF, LORE, MALICE, MYTH,
NADIR, PEACE, RADIANCE, RHYME, SHELL,
STRENGTH, TREACHERY, ZEPHYR

LAS+ UPDATED: 17:58

INVENTORY

STEALTH
LONGESTPOSSIBLE's LEATHER ARMOR 'TALETH'

DEFENSE: 14
DURABILITY: 24 OF 24
REQUIRED STRENGTH: 15
REQUIRED LEVEL: 17
+25% FASTER RUN/WALK
+25% FASTER CAST RATE
+25% FASTER HIT RECOVERY
+6 TO DEXTERITY
REGENERATE MANA 15%
+15 MAXIMUM STAMINA
POISON RESIST +30%
MAGIC DAMAGE REDUCED BY 3
MANA: 148 / 148
SOCKETED (2)

SHIFT + LEFT CLICK TO UNEQUIP

Library challenges

- Which elements to open source?
- There are many open-source licenses as well
- Figuring out where to release and how to do so
- There are many variables in the game that have impact, but fortunately the game is mod-friendly.
- Java reads bytes in big endian, while the game uses little endian.
- Figuring out what a bit value means took a lot of reading and tinkering

```
i.g.p.d.parser.ItemParser - Skipping 8 extra bits on A Jade Figurine for specific quest items such as a Jade Figurine as they  
end on a boundary and result in parse errors when not skipping a byte.  
i.g.p.d.parser.ItemParser - If something breaks, it's caused by not skipping 2-3 bits below this line on item Scroll of Inifuss.  
i.g.p.d.parser.ItemParser - If something breaks, it's caused by not skipping 2-3 bits below this line on item Mephisto's Soulstone.
```

Anonymous?

Managing open-source support can be challenging!
And gamers can be overly attached/opinionated.

So, I released it under a nickname people already knew:

<https://github.com/Paladijn/d2rsavegameparser>

<https://github.com/Paladijn/d2rsavegameparser-examples>

• [maven-release-plugin] prepare release d2rsavegameparser-1.0.0	↳ Johan	24/12/2023, 17:25
• adjusted to https - mental note: don't use old articles for reference.	Paladijn	24/12/2023, 17:22
• Revert "[maven-release-plugin] prepare release d2rsavegameparser-1.0.0"	Paladijn	24/12/2023, 17:20
• [maven-release-plugin] prepare release d2rsavegameparser-1.0.0	Paladijn	24/12/2023, 17:14
• Adjusting scm config	Paladijn	24/12/2023, 17:13
• Revert "[maven-release-plugin] prepare release d2rsavegameparser-1.0.0"	Paladijn	24/12/2023, 17:12
• [maven-release-plugin] prepare release d2rsavegameparser-1.0.0	Paladijn	24/12/2023, 17:06

[maven-release-plugin] prepare release d2rsavegameparser-1.0.0

47df55b1 Johan <johan@johans-mac-mini.kpn> on 24/12/2023 at 17:25

↳ d2rsavegameparser-1.0.0



Paladijn

Paladijn

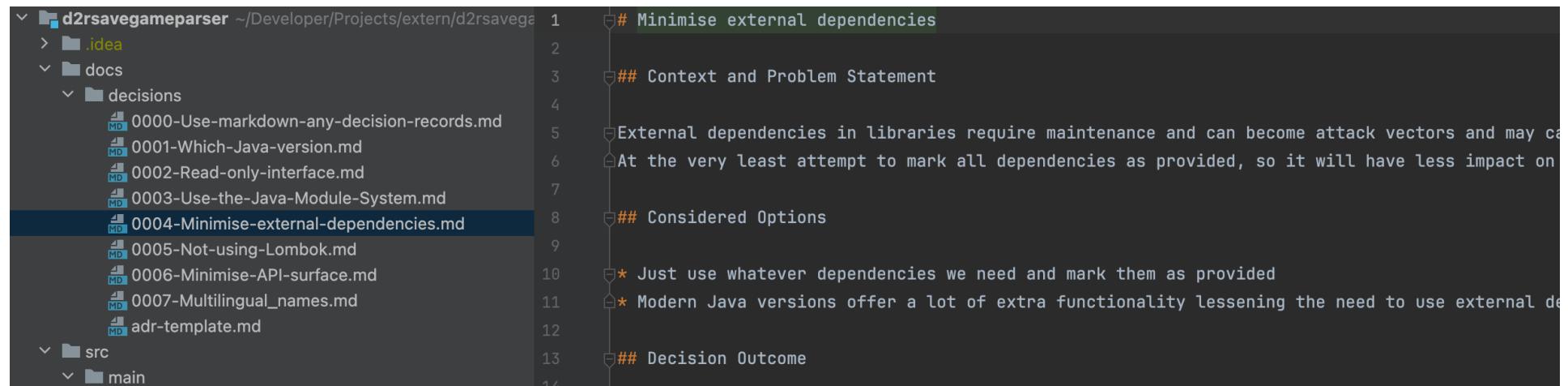
Follow

Secondary account for Diablo and stream related software

Maintenance: documentation

You want to go beyond “just read the code”.

- Exercise your tech writing with JavaDoc
- Add example code/implementation
- Document decisions with **MADR**: Markdown Any Decision Records



The screenshot shows a terminal window with a file tree on the left and a preview of a MADR document on the right. The file tree shows a directory structure for a project named 'd2rsavegameparser' located at '~/Developer/Projects/extern/d2rsavega'. The 'docs' directory contains a 'decisions' folder with several Markdown files (0001-0007 and adr-template.md). The terminal preview shows the content of '0004-Minimise-external-dependencies.md'. The document starts with a section titled '# Minimise external dependencies' and discusses the context and problem statement, considered options, and decision outcome.

```
1 # Minimise external dependencies
2
3 ## Context and Problem Statement
4
5 External dependencies in libraries require maintenance and can become attack vectors and may ca
6 At the very least attempt to mark all dependencies as provided, so it will have less impact on
7
8 ## Considered Options
9
10 * Just use whatever dependencies we need and mark them as provided
11 * Modern Java versions offer a lot of extra functionality lessening the need to use external de
12
13 ## Decision Outcome
14
```

Maintenance: upgrades made easy

For dependencies I've used:

```
mvn versions:display-dependency-updates
```

Along with

```
mvn versions:update-properties
```

For larger-scale migrations and corrections OpenRewrite is a wonderful tool.

Specific use-cases:

- Migrate Java 17 to 21
- Correct package name
- Add license header
- Remove unused imports
- Migrate to AssertJ

Maintenance: Community building

Communities come in two types: those that use your library and those that use the apps built with it.

Developers are looking for an easy-to-use library that fits their needs.

Application users aren't interested in clear, well documented code but look for functionality instead.

Lvl: 61

414K

(0)

MF: 30

115

96

254

30

90

0

42

75

45

75

15

Alternate html by streamer Twitch.tv/Goatunnheim

LVL 🌶: 46 Gold 🛒: 1K + [229K Stash]
Str 💪: 55 Fire 🔥: 32% FRW ⚔: 25
Dex ✂: 41 Lgth ⚡: 4% FCR 🧑: 55 / 63
Vit 💀: 180 Cold 💧: 42% FHR: 25 (30)
Ene 💩: 45 Psn 🍃: 25% MF: 19

Tir, Nef x2, Tal, Ral x2, Thul, Sol, Shael x2

Full rejuvs: 0

Small rejuvs: 26

Terror 🕸️: 0

Hate 🕸️: 0

Dest 🕸️: 0

Last updated: 16:35

[Game] Diablo says: Not even death can save you from
me...

1:43:30 12

DIABLO

Demon

ENTERING CHAOS SANCTUARY

NEW SKILL



MANA: 289 / 294



Done building your library – how do you share it?



Publishing options: JitPack.io



- Free for open source
- Easy to upload
- Requires users to config another repo
- Unclear on security/abuse



**GitHub Packages is
free for public
repositories**

We love open source

your experience on our websites and to display personalized

Publishing options: GitHub packages

- Free for open source
- Easy to integrate in release build
- Requires users to config another repo
and set up a GitHub token for access
- Unclear how well they scan the repository

Publishing options: Maven central

- Free for open source
- No extra user configuration required
- Apparently difficult to set up

The screenshot shows a YouTube video player. At the top left is the channel logo for 'Josh Long' with a blue checkmark and the handle '@starbuxman'. The video title 'The Secret' is partially visible at the top right. The main content area contains a tweet from Josh Long. The tweet reads:
I think getting .jars into maven central via maven and gradle is utterly broken. It should be infinitely easier, akin to Dockerhub. I have an account, I'm signed in, I can publish. No need for staging, all this nonsense around what's in my pom.xml, a handful of different maven plugins, etc.
./mvnw maven:doTheThing
And it should be lightning quick. It's literally kilobytes. The idea that it takes more than a second is ridiculous

At the bottom left of the video player, the timestamp '2:51 AM · Sep 26, 2024' and the view count '14.8K Views' are displayed.

the following talk on YouTube: *The Secret*

12th, 2024.
n!

Publishing: Sonatype central

This is the same old Maven central, but the interface has been modernized.

You can log in with

- Your own account
- Google SSO
- Your GitHub account (which I used)

The requirements to publish remain identical,
but plugins are being updated/maturing.

Sonatype central requirements

- You need to own the domain
- Along with the jar you'll need to supply
 - The pom file
 - Javadoc (although... 1% coverage is probably fine)
 - Sources
- MD5 and SHA-1 checksums for all four files
- You'll need to sign the four files with PGP
<https://central.sonatype.org/publish/requirements/gpg/> has a solid guide!
- License and developer information need to be specified
- If you're uploading manually a zip with a specific layout is required
- Once your jar is published... it will remain published

The process

“Easiest” would be to use the maven-release along with the sonatype publishing plugin.
This works great, until I start to upload...

```
[INFO] Generate checksums for dir: io/github/paladijn/d2rsavegameparser/1.3.0
[INFO] [INFO] Going to create /Users/johan/Projects/github/d2rsavegameparser/target/checkout/target/central-
[INFO]
[INFO] Created bundle successfully /Users/johan/Projects/github/d2rsavegameparser/target/checkout/target/cen
[INFO]
[INFO] Going to upload /Users/johan/Projects/github/d2rsavegameparser/target/checkout/target/central-publish
[INFO]
[ERROR] Unable to upload bund Resolved in plugin 0.5.0
[INFO] java.lang.RuntimeException: Invalid request. Status: 500 Response body:
[INFO]      at org.sonatype.central.publisher.client.httpClient.UploadPublisherEndpoint.call (UploadPublisher

[DEBUG] http-outgoing-0 << "{\"error\":{\"message\":\"Internal Server Error\"}}"
[DEBUG] http-outgoing-0 << HTTP/1.1 500 Internal Server Error
[DEBUG] http-outgoing-0 << Date: Sat, 11 May 2024 10:39:45 GMT
```

Using the web portal

The tag is already committed and pushed;
The bundle properly created (this can also be done manually);
So we can use the web portal instead as described on:
<https://central.sonatype.org/publish/publish-portal-upload/#maven>

Publishing Settings

[Namespace](#) [Deployments](#)

Deployments

Release 1.3.0	PENDING
Created 2 seconds ago	
io.github.paladijn.d2rsaveg ameparser:1.2.0	PUBLISHED

Deployment Info

Release 1.3.0	PENDING
Deployment ID	e37c3659-e92f-4b2c-97c5-0968500fa4a3
Created	2 seconds ago

Drop Publish

Validation successful!

Deployment Info

Release 1.3.0 VALIDATED

Drop Publish

Deployment ID e37c3659-e92f-4b2c-97c5-0968500fa4a3

Created 1 minute ago

Component Summary

✓ 1 out of 1 Components Validated

pkg:maven/io.github.paladijn/d2rsavegameparser@1.3.0

Grab a coffee or tea, then: success!

Deployments

Release 1.3.0 PUBLISHING

Created 2 minutes ago

io.github.paladijn.d2rsavegameparser:1.2.0 PUBLISHED

Deployment Info

Release 1.3.0 PUBLISHING

Deployment ID e37c3659-e92f-4b2c-97c5-0968500fa4a3

Created 2 minutes ago

Drop Publish

sonatype | maven central repository

[API Doc](#) [Help](#) [Browse](#) [Sign In](#)

Find OSS Components

As stewards of Central for nearly 20 years and inventors of both software supply chain management and Nexus Repository, Sonatype knows that the integrity of your build is critical.

X

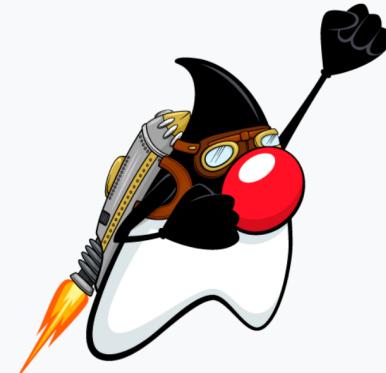
d2r 0.40 published 7 years ago in com.torodb.torod
D2M is Document-to-Relational, a module that implements the algorithm that allows a hierarchical key-value document to be transformed int...

d2rsavegameparser 1.2.0 published 3 months ago in io.github.paladijn
A library to parse savegame files of the 2021 Diablo II: Resurrected game.

Honourable mention: JReleaser

JReleaser

The quick and effortless way to release your project!

[Get started](#)[Get the code](#)

Checksums

Calculate checksums for all input files.



PGP Signatures

Sign all input files with PGP.



Release to git

Tag and release to popular git services such as GitHub, GitLab, and Gitea.



Multiple Packaging Options

Create package descriptors for Homebrew, Snapcraft, JBang, and more.



Publish Packages

Publish packages to their respective destinations and stores.



Make it official!

Announce the release to the four winds via Twitter, Sdkman, Zulip, and other services.



Build it your way

Whether you prefer CLI, Maven, Gradle, or Ant, JReleaser has you covered.

Takeaways

- It really is not as hard as it seems!
- Building a library itself has more challenges than just publishing
- Ignore older reference articles, many are outdated or simply incorrect
- The Sonatype central documentation and guide is very helpful
- Some elements are still complex (PGP for example)
- And some tooling still needs to mature
- Support, community... time will tell.

A photograph of a man with curly, reddish-brown hair and a beard, looking upwards with a thoughtful expression. He is wearing a dark grey blazer over a white shirt. The background is dark, with a bright light source visible above him, creating lens flare effects. A vertical wooden beam is on the right side.

Questions?

Follow me

 @JohanHutting

 @johanhutting.bsky.social

 @JohanHutting@foojay.social

Code:

<https://github.com/Paladijn/d2rsavegameparser>

<https://github.com/Paladijn/d2rsavegameparser-examples>

<https://github.com/Paladijn/D2Rcharviewer> (including native GraalVM .exe!)

 ing.com

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 GitHub.com/ING-bank

 Medium.com/ing-blog

 ing.it

 Facebook.com/ING

 youtube.com/@weareINGtech

 Flickr.com/INGGroup

 ing.jobs

Watch it again?

My sheets and schedule are available on
<https://github.com/jhutting/Talks/>

Most of my external talks are also available at
<https://www.youtube.com/@weareINGtech>