Open Source based Software Composition Analysis at scale

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FOSDEM 2024

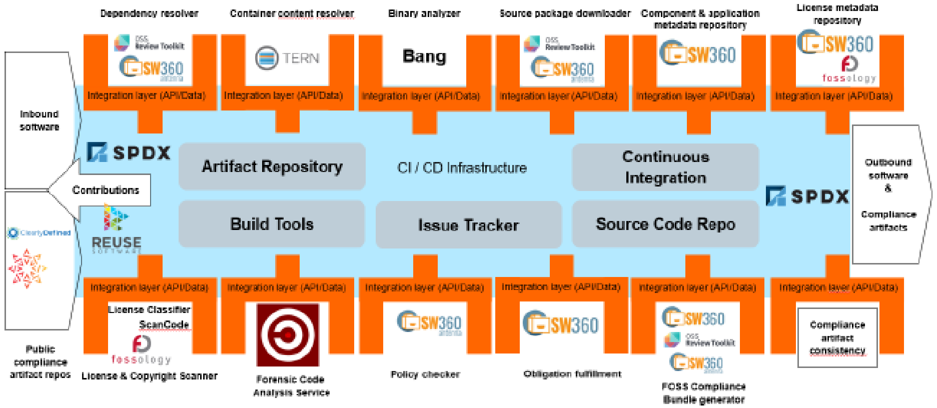
Reference Tooling Work Group

We are building an open source compliance toolchain ecosystem with open source tools as an open source project.
To accomplish this we:

- Use existing independent tooling projects
- Provide reference workflows to allow their adoption
- Provide the concepts and glue to ensure easy interoperability and integration in existing environments
- Provide reference turnkey toolchains that can be used without fees by anybody

World-Wide Collaboration, World-Wide Availability

Example Automation Implementation Using Open Source Tools



Join Us in Creating a New Era for Open Source Compliance

Mailing List: oss-based-compliance-tooling@groups.io

Subscription page: https://groups.io/g/oss-based-compliance-tooling

Online meetings: Bi-weekly - Invitations are sent to the mailing list

Website: https://oss-compliance-tooling.org/

And of course we are on GitHub:

https://github.com/Open-Source-Compliance/Sharing-creates-value

Background

Background

Our journey – the beginning

Mission: Open Source Management automation for JAVA/Maven projects.

Target Fact Sheet (simplified) - JAVA/Maven

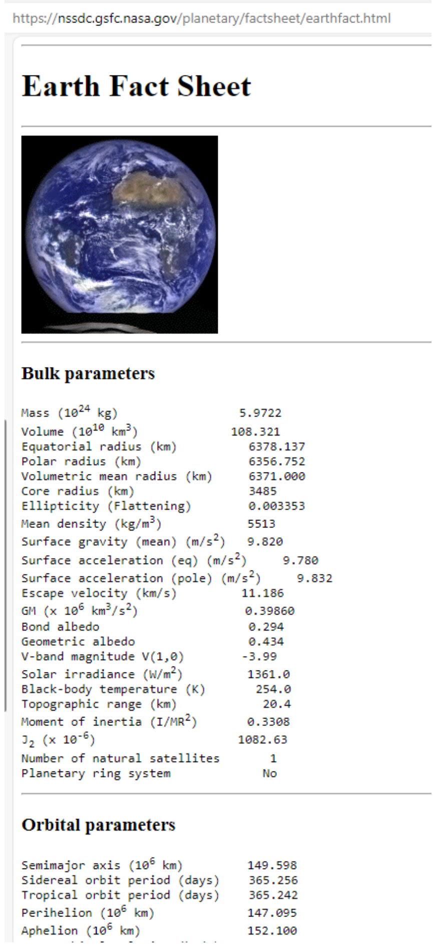
Environment Parameters

- Business context: Server-based applications, fat clients
- Distribution context: hosted/distributed
- Development context: explorative / deterministic
- Development Mode: Agile / classic using agile methods
- Build mode: CI/CD, Jenkins

Open Source Parameter

- Open Source Use: only permissive licenses
- Open Source snippets: forbidden
- OSM Concept: binary identification via hashes, hash matching
- Package identification: package manager
- Component paradigm: 1 component ⇔ 1 source
- Metadata Source: central (commercial) database

Mission completed?



https://nssdc.gsfc.nasa.gov/planetary/factsheet/earthfact.html

Earth Fact Sheet

Bulk parameters

Mass (10^{24} kg)	5.9722
Volume (10^{10} km^3)	108.321
Equatorial radius (km)	6378.137
Polar radius (km)	6356.752
Volumetric mean radius (km)	6371.000
Core radius (km)	3485
Ellipticity (Flattening)	0.003353
Mean density (kg/m^3)	5513
Surface gravity (mean) (m/s^2)	9.820
Surface acceleration (eq) (m/s^2)	9.780
Surface acceleration (pole) (m/s^2)	9.832
Escape velocity (km/s)	11.186
GM (x 10^6 km^3/s^2)	0.39860
Bond albedo	0.294
Geometric albedo	0.434
V-band magnitude V(1,0)	-3.99
Solar irradiance (W/m^2)	1361.0
Black-body temperature (K)	254.0
Topographic range (km)	20.4
Moment of inertia (I/MR^2)	0.3308
J_2 (x 10^{-6})	1082.63
Number of natural satellites	1
Planetary ring system	No

Orbital parameters

Semimajor axis (10^6 km)	149.598
Sidereal orbit period (days)	365.256
Tropical orbit period (days)	365.242
Perihelion (10^6 km)	147.095
Aphelion (10^6 km)	152.100

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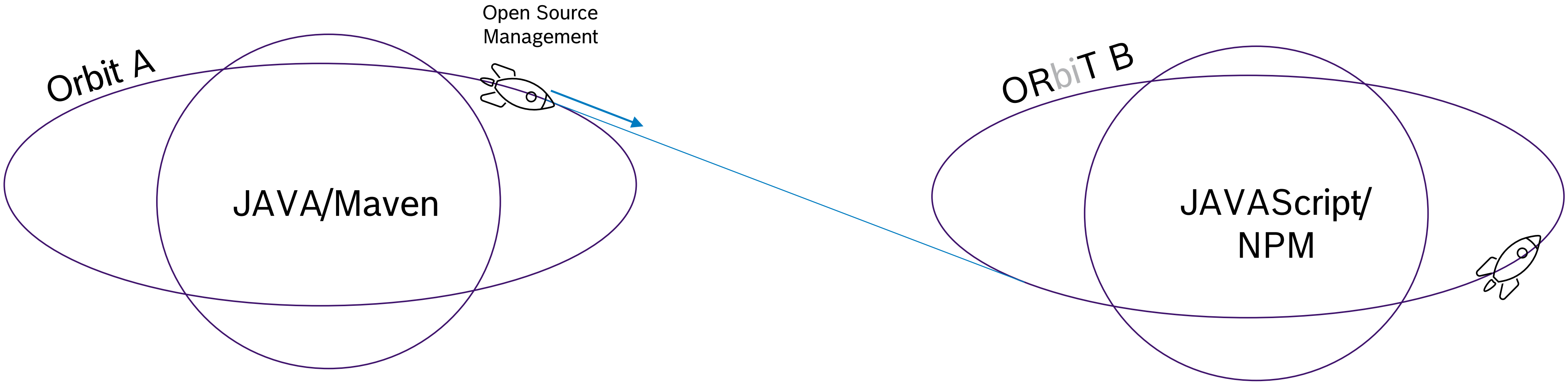
Source: https://nssdc.gsfc.nasa.gov/planetary/factsheet/earthfact.html

Background

Our journey – orbit transfer



Background
Our journey – the next mission

Open Source Management automation for JAVAscript/NPM projects.

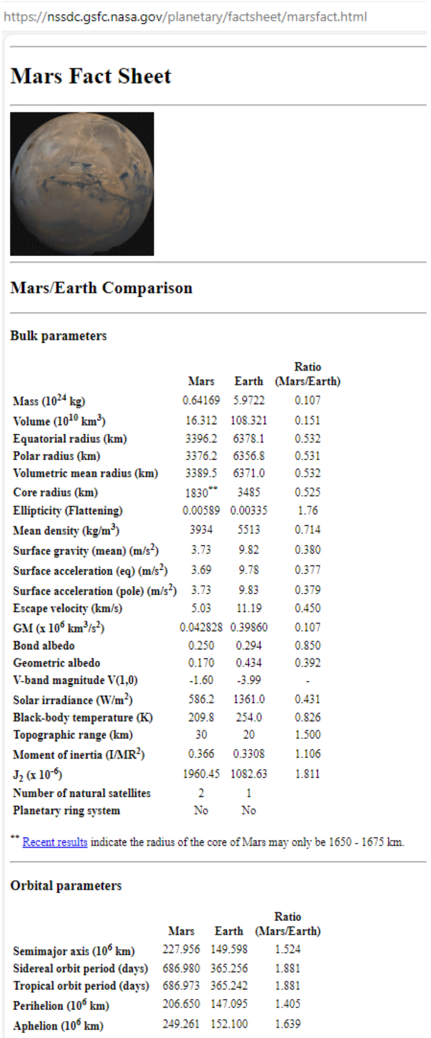
Target Fact Sheet (simplified) - JAVAScript/NPM

Environment Parameters

- Business context: Web applications
- Distribution context: distributed
- Development context: explorative / deterministic
- Development Mode: Agile / classic using agile methods
- Build mode: CI/CD, Jenkins

Open Source Parameter

- Open Source Use: only permissive license
- Open Source snippets: forbidden
- OSM Concept: binary identification via hashes, hash matching ⚡ => recursive dependency resolution
- Package identification: package manager
- Component paradigm: 1 component ⇔ 1 source ⚡ => n:m; download sources and scan
- Metadata Source: central (commercial) database ⚡ => local database with scan results and curations



https://nssdc.gsfc.nasa.gov/planetary/factsheet/marsfact.html

Mars Fact Sheet

Mars/Earth Comparison

Bulk parameters

	Mars	Earth	Ratio (Mars/Earth)
Mass (10^{24} kg)	0.64169	5.9722	0.107
Volume (10^{10} km^3)	16.312	108.321	0.151
Equatorial radius (km)	3396.2	6378.1	0.532
Polar radius (km)	3376.2	6356.8	0.531
Volumetric mean radius (km)	3389.5	6371.0	0.532
Core radius (km)	1830**	3485	0.525
Ellipticity (Flattening)	0.00589	0.00335	1.76
Mean density (kg/m^3)	3934	5513	0.714
Surface gravity (mean) (m/s^2)	3.73	9.82	0.380
Surface acceleration (eq) (m/s^2)	3.69	9.78	0.377
Surface acceleration (pole) (m/s^2)	3.73	9.83	0.379
Escape velocity (km/s)	5.03	11.19	0.450
GM (x 10^6 km^3/s^2)	0.042828	0.39860	0.107
Bond albedo	0.250	0.294	0.850
Geometric albedo	0.170	0.434	0.392
V-band magnitude V(1,0)	-1.60	-3.99	-
Solar irradiance (W/m^2)	586.2	1361.0	0.431
Black-body temperature (K)	209.8	254.0	0.826
Topographic range (km)	30	20	1.500
Moment of inertia (I/MR^2)	0.366	0.3308	1.106
J_2 (x 10^{-6})	1960.45	1082.63	1.811
Number of natural satellites	2	1	
Planetary ring system	No	No	

** Recent results indicate the radius of the core of Mars may only be 1650 - 1675 km.

Orbital parameters

	Mars	Earth	Ratio (Mars/Earth)
Semimajor axis (10^6 km)	227.956	149.598	1.524
Sidereal orbit period (days)	686.980	365.256	1.881
Tropical orbit period (days)	686.973	365.242	1.881
Perihelion (10^6 km)	206.650	147.095	1.405
Aphelion (10^6 km)	249.261	152.100	1.639

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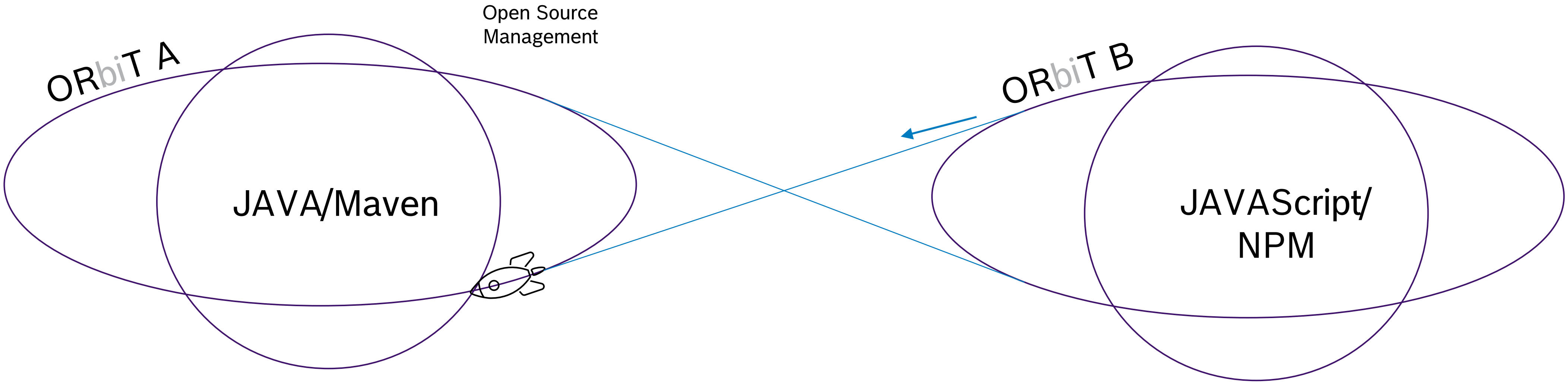
Source: https://nssdc.gsfc.nasa.gov/planetary/factsheet/marsfact.html

Background

Our journey – transfer of learnings



Background
Our journey – utilizing the momentum

Open Source Management automation for Embedded systems.

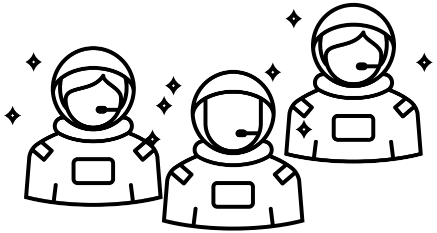
Target Fact Sheet (simplified) – Embedded C / Conan

Environment Parameters

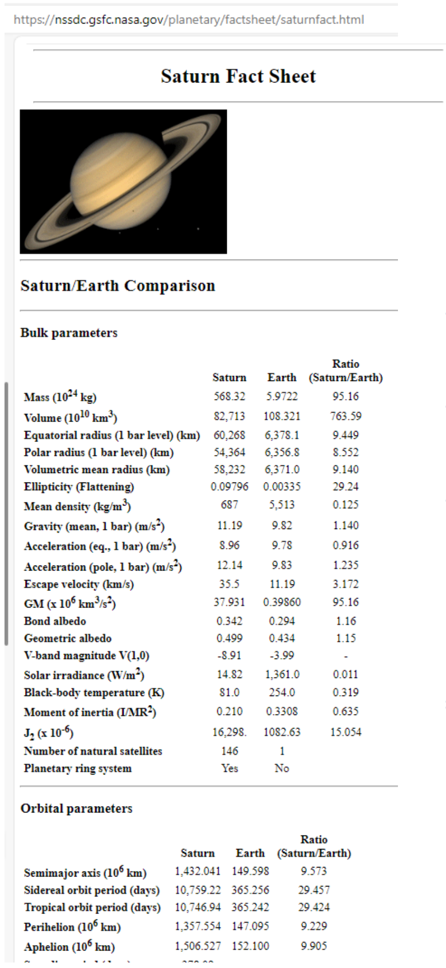
- Business context: Embedded Software for devices
- Distribution context: distributed
- Development context: deterministic
- Development Mode: scaled agile framework
- Build mode: regular incremental builds, Github action, limited scaling options => ORT-Server

Open Source Parameter

- Open Source Use: permissive licenses, weak copyleft licenses
- Open Source snippets: forbidden, use with exception
- OSM Concept: project.spdx.yml-files combined with snippet and license and copyright scanning
- Package identification: manually maintained project spdx.yml-files
- Component paradigm: 1 source ⇔ different binaries
- Metadata Source: source code



Team consisting of Open Source Office members and automation developers



https://nssdc.gsfc.nasa.gov/planetary/factsheet/saturnfact.html

Saturn Fact Sheet

Saturn/Earth Comparison

Bulk parameters

	Saturn	Earth	Ratio (Saturn/Earth)
Mass (10^{24} kg)	568.32	5.9722	95.16
Volume (10^{10} km^3)	82,713	108.321	763.59
Equatorial radius (1 bar level) (km)	60,268	6,378.1	9.449
Polar radius (1 bar level) (km)	54,364	6,356.8	8.552
Volumetric mean radius (km)	58,232	6,371.0	9.140
Ellipticity (Flattening)	0.09796	0.00335	29.24
Mean density (kg/m^3)	687	5,513	0.125
Gravity (mean, 1 bar) (m/s^2)	11.19	9.82	1.140
Acceleration (eq., 1 bar) (m/s^2)	8.96	9.78	0.916
Acceleration (pole, 1 bar) (m/s^2)	12.14	9.83	1.235
Escape velocity (km/s)	35.5	11.19	3.172
GM (x 10^6 km^3/s^2)	37.931	0.39860	95.16
Bond albedo	0.342	0.294	1.16
Geometric albedo	0.499	0.434	1.15
V-band magnitude V(1,0)	-8.91	-3.99	-
Solar irradiance (W/m^2)	14.82	1,361.0	0.011
Black-body temperature (K)	81.0	254.0	0.319
Moment of inertia (I/MR^2)	0.210	0.3308	0.635
J_2 (x 10^{-6})	16,298.	1082.63	15.054
Number of natural satellites	146	1	
Planetary ring system	Yes	No	

Orbital parameters

	Saturn	Earth	Ratio (Saturn/Earth)
Semimajor axis (10^6 km)	1,432.041	149.598	9.573
Sidereal orbit period (days)	10,759.22	365.256	29.457
Tropical orbit period (days)	10,746.94	365.242	29.424
Perihelion (10^6 km)	1,357.554	147.095	9.229
Aphelion (10^6 km)	1,506.527	152.100	9.905

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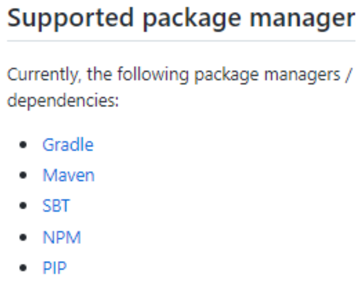
Source: https://nssdc.gsfc.nasa.gov/planetary/factsheet/saturnfact.html

Going back in time in: https://github.com/oss-review-toolkit/ort/

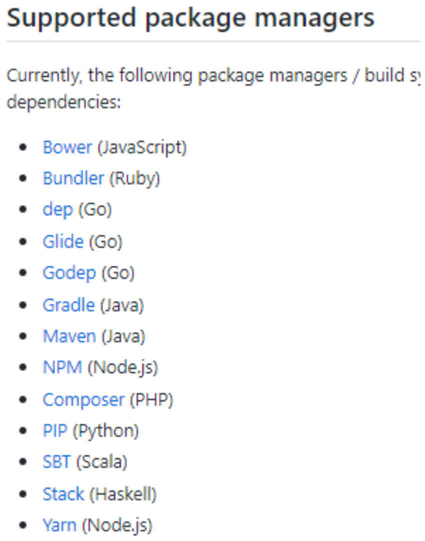


Supported package manager

Currently, the following package managers /
dependencies:

- Gradle
- Maven
- SBT
- NPM
- PIP

JAN 2018

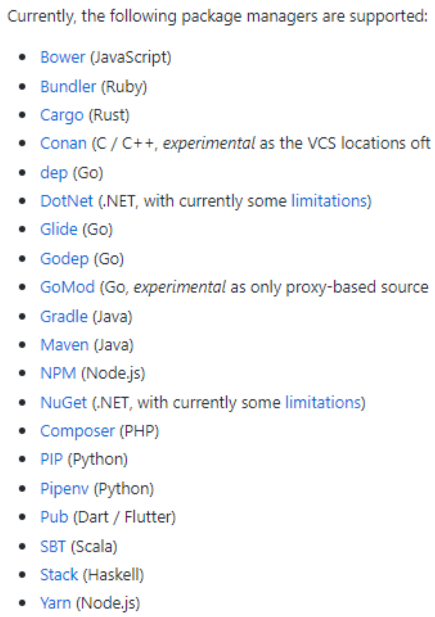


Supported package managers

Currently, the following package managers / build sy
dependencies:

- Bower (JavaScript)
- Bundler (Ruby)
- dep (Go)
- Glide (Go)
- Godep (Go)
- Gradle (Java)
- Maven (Java)
- NPM (Node.js)
- Composer (PHP)
- PIP (Python)
- SBT (Scala)
- Stack (Haskell)
- Yarn (Node.js)

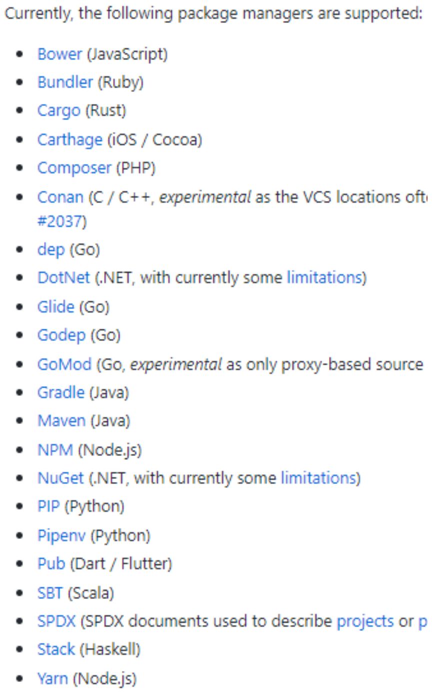
JAN 2019



Currently, the following package managers are supported:

- Bower (JavaScript)
- Bundler (Ruby)
- Cargo (Rust)
- Conan (C / C++, *experimental* as the VCS locations oft
- dep (Go)
- DotNet (.NET, with currently some limitations)
- Glide (Go)
- Godep (Go)
- GoMod (Go, *experimental* as only proxy-based source
- Gradle (Java)
- Maven (Java)
- NPM (Node.js)
- NuGet (.NET, with currently some limitations)
- Composer (PHP)
- PIP (Python)
- Pipenv (Python)
- Pub (Dart / Flutter)
- SBT (Scala)
- Stack (Haskell)
- Yarn (Node.js)

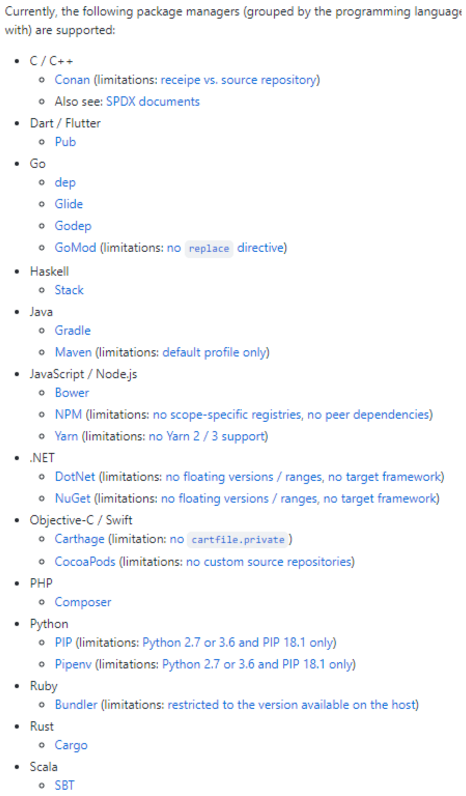
JAN 2020



Currently, the following package managers are supported:

- Bower (JavaScript)
- Bundler (Ruby)
- Cargo (Rust)
- Carthage (iOS / Cocoa)
- Composer (PHP)
- Conan (C / C++, *experimental* as the VCS locations oft
#2037)
- dep (Go)
- DotNet (.NET, with currently some limitations)
- Glide (Go)
- Godep (Go)
- GoMod (Go, *experimental* as only proxy-based source
- Gradle (Java)
- Maven (Java)
- NPM (Node.js)
- NuGet (.NET, with currently some limitations)
- PIP (Python)
- Pipenv (Python)
- Pub (Dart / Flutter)
- SBT (Scala)
- SPDX (SPDX documents used to describe projects or p
- Stack (Haskell)
- Yarn (Node.js)

JAN 2021



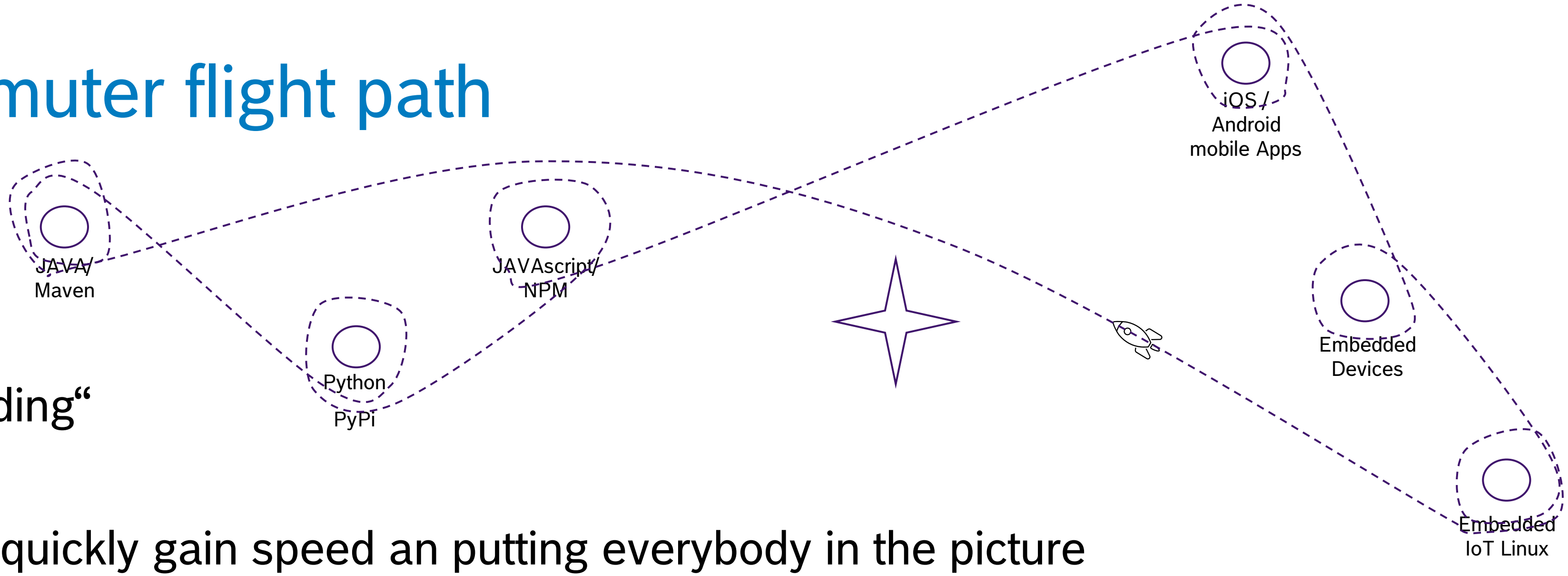
Currently, the following package managers (grouped by the programming languag
with) are supported:

- C / C++
  - Conan (limitations: receipe vs. source repository)
  - Also see: SPDX documents
- Dart / Flutter
  - Pub
- Go
  - dep
  - Glide
  - Godep
  - GoMod (limitations: no `replace` directive)
- Haskell
  - Stack
- Java
  - Gradle
  - Maven (limitations: default profile only)
- JavaScript / Node.js
  - Bower
  - NPM (limitations: no scope-specific registries, no peer dependencies)
  - Yarn (limitations: no Yarn 2 / 3 support)
- .NET
  - DotNet (limitations: no floating versions / ranges, no target framework)
  - NuGet (limitations: no floating versions / ranges, no target framework)
- Objective-C / Swift
  - Carthage (limitation: no `cartfile.private`)
  - CocoaPods (limitations: no custom source repositories)
- PHP
  - Composer
- Python
  - PIP (limitations: Python 2.7 or 3.6 and PIP 18.1 only)
  - Pipenv (limitations: Python 2.7 or 3.6 and PIP 18.1 only)
- Ruby
  - Bundler (limitations: restricted to the version available on the host)
- Rust
  - Cargo
- Scala
  - SBT

Today

Background

„at scale“ – commuter flight path



Experience from „Onboarding“

- „Fact sheets“ helpful to quickly gain speed an putting everybody in the picture
  - For new team members
  - For the „customer“ development teams that needed support

- Mandatory concept documentation based on standardized template accelerated evolution
  - Initial documentation => reuse => iterative improvement => standardization => automation
  - Find reusable solutions faster by reducing search range with the help of „fact sheets“

Background
Our journey – the next stop

Open Source Management automation for Embedded IoT Linux systems.

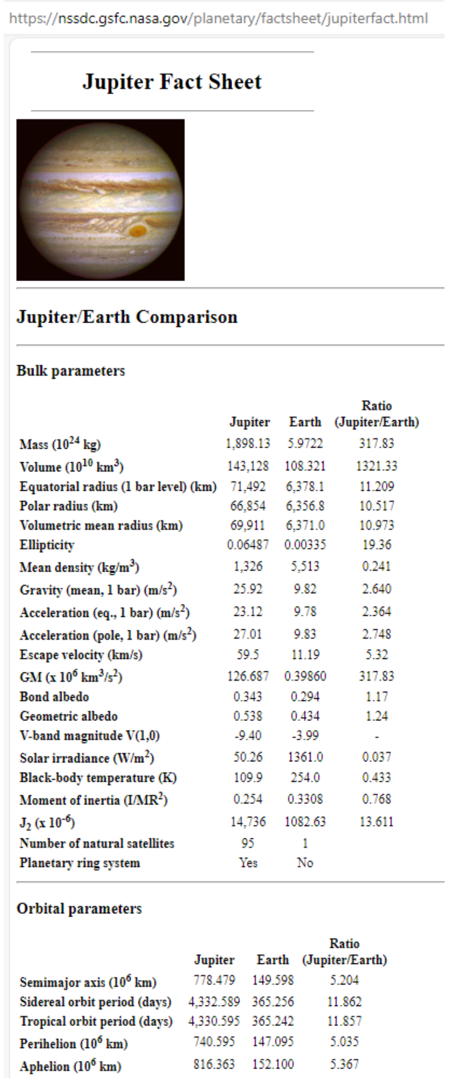
Target Fact Sheet (simplified) – Embedded IoT LINUX

Environment Parameters

Business context:	Internet of things
Distribution context:	distributed
Development context:	deterministic
Development Mode:	classic using agile methods
Build mode:	development builds/release builds

Open Source Parameter

Open Source Use:	copyleft license
Open Source snippets:	forbidden
OSM Concept:	SBOM generated by build, component scanning or matching against database
Package identification:	purl, hashes, …
Component paradigm:	source2binary-files, recipes, …
Metadata Source:	collaboratively maintained public database; upstream first



https://nssdc.gsfc.nasa.gov/planetary/factsheet/jupiterfact.html

Jupiter Fact Sheet

Jupiter/Earth Comparison

Bulk parameters

	Jupiter	Earth	Ratio (Jupiter/Earth)
Mass (10^{24} kg)	1,898.13	5.9722	317.83
Volume (10^{10} km^3)	143,128	108.321	1321.33
Equatorial radius (1 bar level) (km)	71,492	6,378.1	11.209
Polar radius (km)	66,854	6,356.8	10.517
Volumetric mean radius (km)	69,911	6,371.0	10.973
Ellipticity	0.06487	0.00335	19.36
Mean density (kg/m^3)	1,326	5,513	0.241
Gravity (mean, 1 bar) (m/s^2)	25.92	9.82	2.640
Acceleration (eq., 1 bar) (m/s^2)	23.12	9.78	2.364
Acceleration (pole, 1 bar) (m/s^2)	27.01	9.83	2.748
Escape velocity (km/s)	59.5	11.19	5.32
GM (x 10^6 km^3/s^2)	126.687	0.39860	317.83
Bond albedo	0.343	0.294	1.17
Geometric albedo	0.538	0.434	1.24
V-band magnitude V(1,0)	-9.40	-3.99	-
Solar irradiance (W/m^2)	50.26	1361.0	0.037
Black-body temperature (K)	109.9	254.0	0.433
Moment of inertia (I/MR^2)	0.254	0.3308	0.768
J_2 (x 10^{-6})	14,736	1082.63	13.611
Number of natural satellites	95	1	
Planetary ring system	Yes	No	

Orbital parameters

	Jupiter	Earth	Ratio (Jupiter/Earth)
Semimajor axis (10^6 km)	778.479	149.598	5.204
Sidereal orbit period (days)	4,332.589	365.256	11.862
Tropical orbit period (days)	4,330.595	365.242	11.857
Perihelion (10^6 km)	740.595	147.095	5.035
Aphelion (10^6 km)	816.363	152.100	5.367

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Source: https://nssdc.gsfc.nasa.gov/planetary/factsheet/jupiterfact.html

Background

Goals and needs

- Find match: Map your needs and
  … find existing solutions
  … find birds of a feather

Fact sheets

- Share and reuse

Generic architecture model

Standardized representation

- Standardizing while keeping flexibility

Example: Finding clothes online

1st limitation of search range

Women OR Men OR Kids

2nd limitation of search range

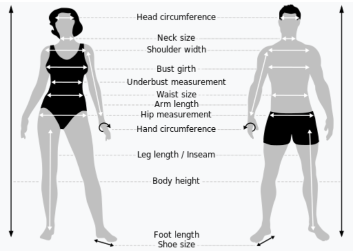
Clothing OR Shoes OR Sportswear OR …

3rd limitation of search range

Jackets OR T-Shirts OR Pants OR …

4th limitation of search range

Size ? Determine parameters



Source: https://commons.wikimedia.org/wiki/File:Body_measures_SVG.svg

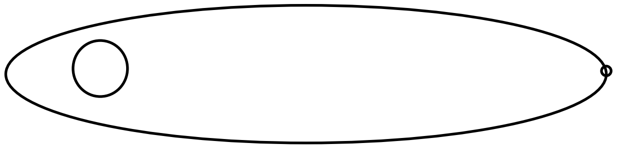
„Fact sheet“

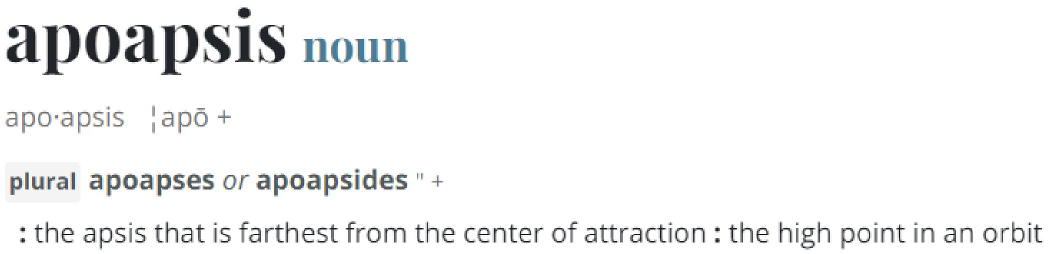
Size Chart
XS, S, M, L, XL

Get overview of all clothes matching to your parameters

Eclipse Apoapsis

Eclipse Apoapsis
New project proposal





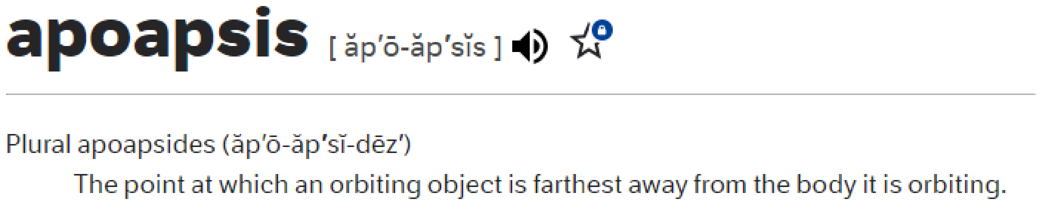
apoapsis noun

apo·apsis ¦apō +

plural **apoapses** *or* **apoapsides** " +

: the apsis that is farthest from the center of attraction **:** the high point in an orbit

Source: https://www.merriam-webster.com/dictionary/apoapsis



apoapsis [ăp′ō-ăp′sĭs]

Plural apoapsides (ăp′ō-ăp′sĭ-dēz′)

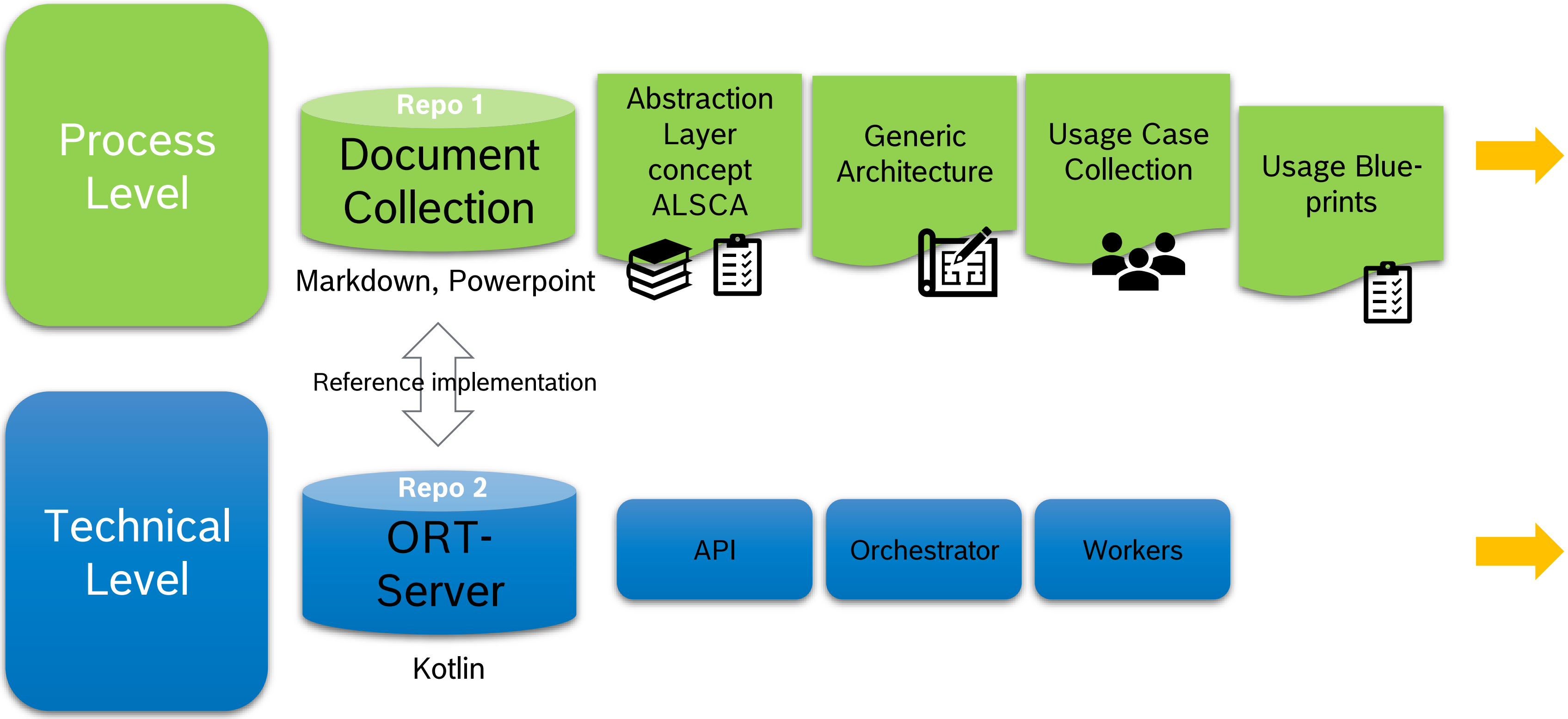
The point at which an orbiting object is farthest away from the body it is orbiting.

Source: https://www.dictionary.com/browse/apoapsis

- Apoapsis is a good opportunity, if you want to transfer to another object‘s orbit.

- Details see
- https://projects.eclipse.org/proposals/eclipse-overlay

Eclipse Apoapsis
Overview and planned Outputs



Process Level

Repo 1

Document Collection

Markdown, Powerpoint

Abstraction Layer concept ALSCA

Generic Architecture

Usage Case Collection

Usage Blue-prints

Reference implementation

Technical Level

Repo 2

ORT-Server

Kotlin

API

Orchestrator

Workers

Match your needs to available solutions and jump-start process definition

Build your own recursive Dependency Resolution Service

Eclipse Apoapsis
Dependencies

SPDX®

OPENCHAIN

Open Source Tooling Group

SPDX3.x Operation Profile

Capability Map

Process Level

Technical Level

PostgreSQL

APACHE ACTIVEMQ®

KEYCLOAK

Kotlin

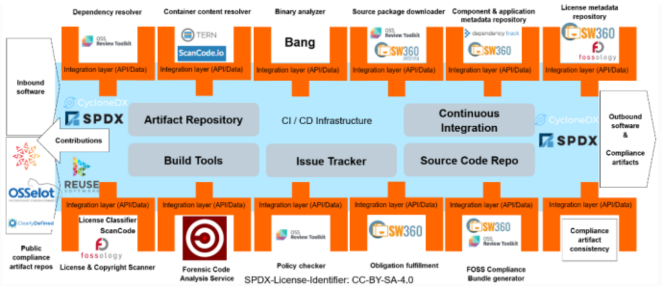
RabbitMQ

docker

Ktor

kubernetes

OSS Review Toolkit



Dependency resolver
Container content resolver
Binary analyzer
Source package downloader
Component & application metadata repository
License metadata repository
OSS Review Toolkit
TERN
ScanCode.io
Bang
SW360
dependency track
fossology
Integration layer (API/Data)
Inbound software
CycloneDX
SPDX
Artifact Repository
CI / CD Infrastructure
Continuous Integration
Outbound software & Compliance artifacts
Contributions
Build Tools
Issue Tracker
Source Code Repo
REUSE SOFTWARE
OSSelot
ClearlyDefined
License Classifier
ScanCode
Public compliance artifact repos
License & Copyright Scanner
Forensic Code Analysis Service
Policy checker
Obligation fulfillment
FOSS Compliance Bundle generator
Compliance artifact consistency
SPDX-License-Identifier: CC-BY-SA-4.0

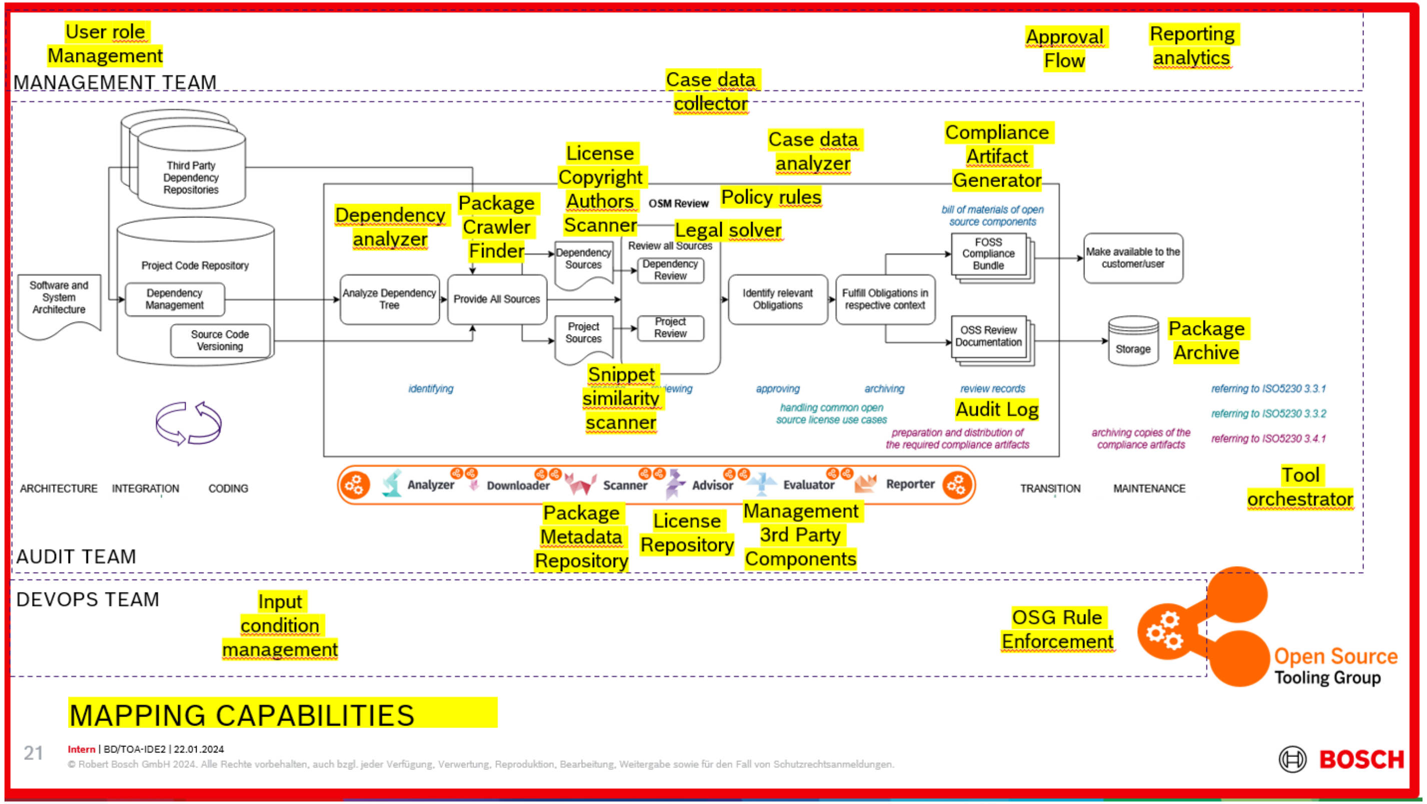
Source: https://oss-compliance-tooling.org/Tooling-Landscape/Toolchain-description/

Process Level Outputs

Eclipse Apoapsis
Generic Architecture Description

Generic Architecture

Generic architecture model



User role Management

MANAGEMENT TEAM

Approval Flow

Reporting analytics

Case data collector

Third Party Dependency Repositories

Project Code Repository

Dependency Management

Source Code Versioning

Software and System Architecture

Dependency analyzer

Package Crawler Finder

License Copyright Authors Scanner

OSM Review

Policy rules

Legal solver

Case data analyzer

Compliance Artifact Generator

Analyze Dependency Tree

Provide All Sources

Dependency Sources

Project Sources

Review all Sources

Dependency Review

Project Review

Identify relevant Obligations

Fulfill Obligations in respective context

bill of materials of open source components

FOSS Compliance Bundle

OSS Review Documentation

Make available to the customer/user

Storage

Package Archive

identifying

Snippet similarity scanner

reviewing

approving

archiving

review records

handling common open source license use cases

Audit Log

preparation and distribution of the required compliance artifacts

archiving copies of the compliance artifacts

referring to ISO5230 3.3.1

referring to ISO5230 3.3.2

referring to ISO5230 3.4.1

ARCHITECTURE INTEGRATION CODING

Analyzer Downloader Scanner Advisor Evaluator Reporter

TRANSITION MAINTENANCE

Tool orchestrator

Package Metadata Repository

License Repository

Management 3rd Party Components

AUDIT TEAM

DEVOPS TEAM

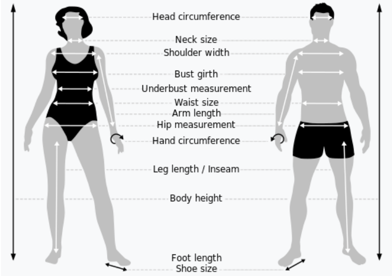
Input condition management

OSG Rule Enforcement

Open Source Tooling Group

MAPPING CAPABILITIES

BOSCH



Source: https://commons.wikimedia.org/wiki/File:Body_measures_SVG.svg

=> Starting with Open Source License Compliance, further increments with security, export control, ...

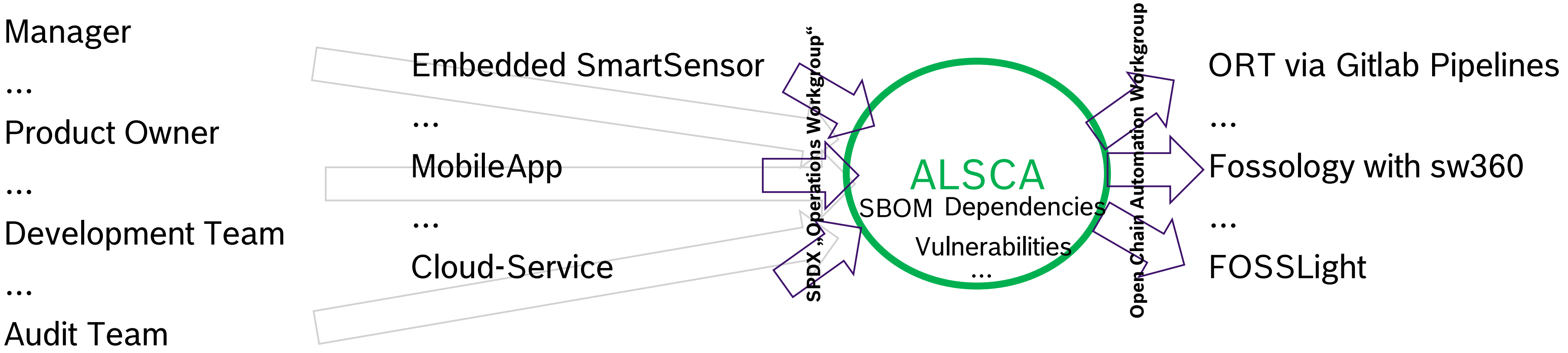
Eclipse Apoapsis
Abstraction Layer Concept

Abstraction Layer concept ALSCA

Standardized representation

Fact sheet template

Can be used holistically across all domains



Covering all kinds of products

Covering all kinds of OSM concepts

Covering all stakeholders

Keeps flexibility for the development teams to choose whatever OSM solution is suitable

Eclipse Apoapsis
Usage BluePrints

Usage Blue-prints

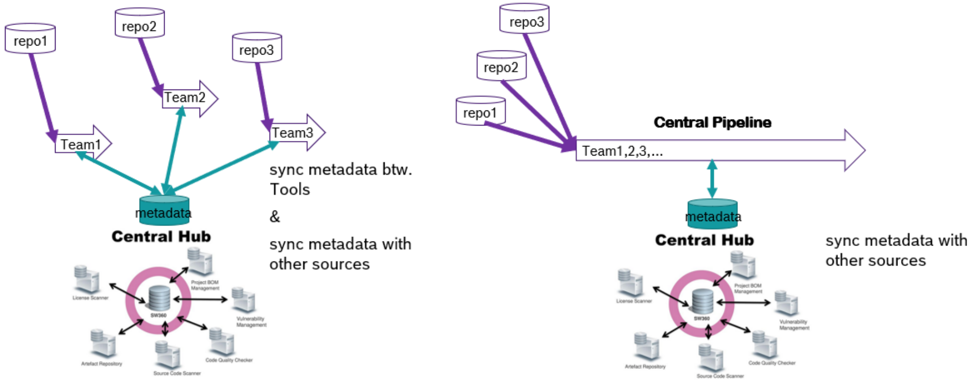
Fact sheets

Open Compliance Reference Tooling
Range of application

Open Source Tooling Group

OPENCHAIN Open Compliance Reference Tooling

- No single reference but depending on context e.g. heterogonuous vs. homogenuous OSM setups

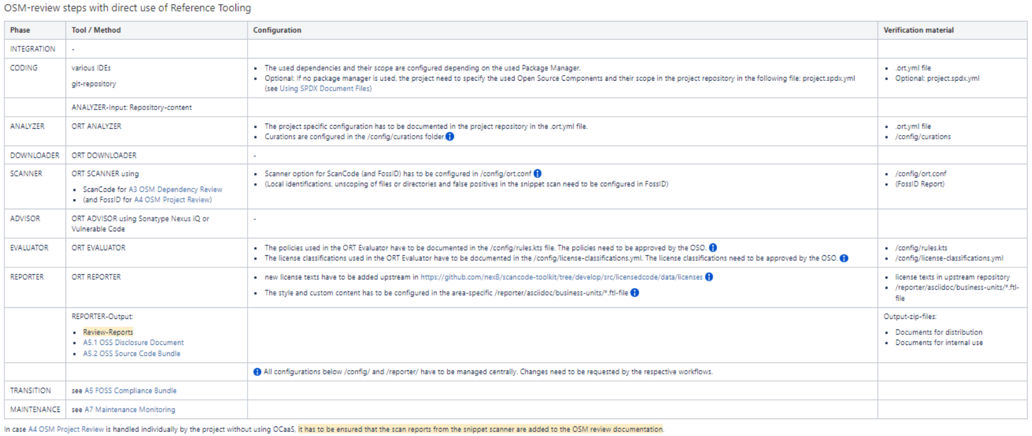


ORT via Gitlab Pipelines

ORT via Jenkins

FOSSology with sw360

FOSSLight ...



OSM-review steps with direct use of Reference Tooling

Phase	Tool / Method	Configuration	Verification material
INTEGRATION	-		
CODING	various IDEs git-repository	• The used dependencies and their scope are configured depending on the used Package Manager. • Optional: If no package manager is used, the project need to specify the used Open Source Components and their scope in the project repository in the following file: project.spdx.yml (see Using SPDX Document Files)	• .ort.yml file • Optional: project.spdx.yml
	ANALYZER-Input: Repository-content		
ANALYZER	ORT ANALYZER	• The project specific configuration has to be documented in the project repository in the .ort.yml file. • Curations are configured in the /config/curations folder.ⓘ	• .ort.yml file • /config/curations
DOWNLOADER	ORT DOWNLOADER	-	
SCANNER	ORT SCANNER using • ScanCode for A3 OSM Dependency Review • (and FossID for A4 OSM Project Review)	• Scanner option for ScanCode (and FossID) has to be configured in /config/ort.conf ⓘ • (Local identifications, unscoping of files or directories and false positives in the snippet scan need to be configured in FossID)	• /config/ort.conf • (FossID Report)
ADVISOR	ORT ADVISOR using Sonatype Nexus iQ or Vulnerable Code	-	
EVALUATOR	ORT EVALUATOR	• The policies used in the ORT Evaluator have to be documented in the /config/rules.kts file. The policies need to be approved by the OSO. ⓘ • The license classifications used in the ORT Evaluator have to be documented in the /config/license-classifications.yml. The license classifications need to be approved by the OSO. ⓘ	• /config/rules.kts • /config/license-classifications.yml
REPORTER	ORT REPORTER	• new license texts have to be added upstream in https://github.com/nexB/scancode-toolkit/tree/develop/src/licensedcode/data/licenses ⓘ • The style and custom content has to be configured in the area-specific /reporter/asciidoc/business-units/*.ftl-file ⓘ	• license texts in upstream repository • /reporter/asciidoc/business-units/*.ftl-file
	REPORTER-Output: • Review-Reports • A5.1 OSS Disclosure Document • A5.2 OSS Source Code Bundle		Output-zip-files: • Documents for distribution • Documents for internal use
		ⓘ All configurations below /config/ and /reporter/ have to be managed centrally. Changes need to be requested by the respective workflows.	
TRANSITION	see A5 FOSS Compliance Bundle		
MAINTENANCE	see A7 Maintenance Monitoring		

In case A4 OSM Project Review is handled individually by the project without using OCaaS, it has to be ensured that the scan reports from the snippet scanner are added to the OSM review documentation.

BOSCH

Eclipse Apoapsis
Use case collection

Usage Case Collection

As a … I want to … so that …

Stakeholder:

- Development Teams
- Compliance Manager
- Security Manager
- Quality Manager
- Audit Team
- …

Also base for Test-Cases of the solutions => e.g. using Dummy repositories from OpenChain Automation Workgroup

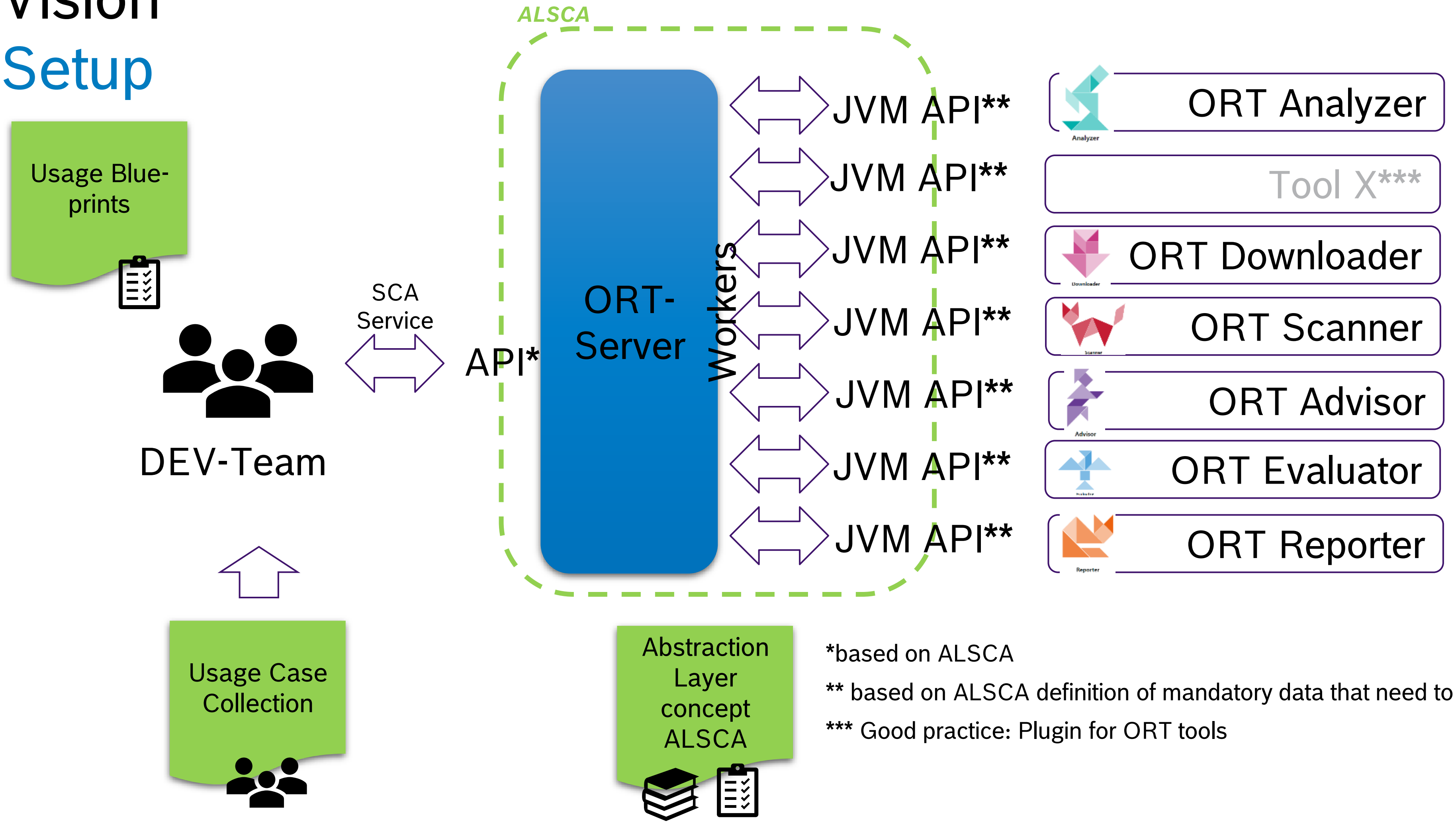
Technical Level Outputs – ORT Server

Vision
ORT Server Goals

- API (REST)
- Scalable (cloud agnostic)
- Easy setup and integration
- Keep flexibility
- Web frontend => see Outlook
- Access management
- Inventory management

Vision

Setup



*based on ALSCA

** based on ALSCA definition of mandatory data that need to be handed over

*** Good practice: Plugin for ORT tools

MVP

Project Hierarchy

- Organizations
  - Products
    - Repositories
- Access management
- User management
- User configuration
  - Credential management

REST API

- Manage project hierarchy
- Trigger runs
  - Flexible configuration
- Status updates
- Generate reports
- Query data

Components

- API
- Orchestrator
  - Manage jobs
  - Prevent duplicate work
- Workers (analyzer, scanner, ...)
  - Run individual tools
  - Separate Docker images

Integrations

- Kubernetes
- Github Action
- OpenAPI

Next steps

Next steps

- OpenChain Tooling Group meeting 7.2. with Martin Nonnenmacher
  - Meeting details see OpenChain Global Calendar: https://www.openchainproject.org/participate
- Preparation of Initial contribution
- Detailed presentation of ORT-server in ORT Community Days 6.-7.3.2024 Berlin

Outlook:

- Frontend

THANK YOU!

Open Source
Tooling Group

Join Us in Creating a New Era for Open Source Compliance

Mailing List: oss-based-compliance-tooling@groups.io

Subscription page: https://groups.io/g/oss-based-compliance-tooling

Online meetings: Bi-weekly – see OpenChain Global Calendar
https://www.openchainproject.org/participate

Website: https://oss-compliance-tooling.org /

And of course we are on GitHub:
https://github.com/Open-Source-Compliance/Sharing-creates-value