

Developer Documentation Briefing

What is it?

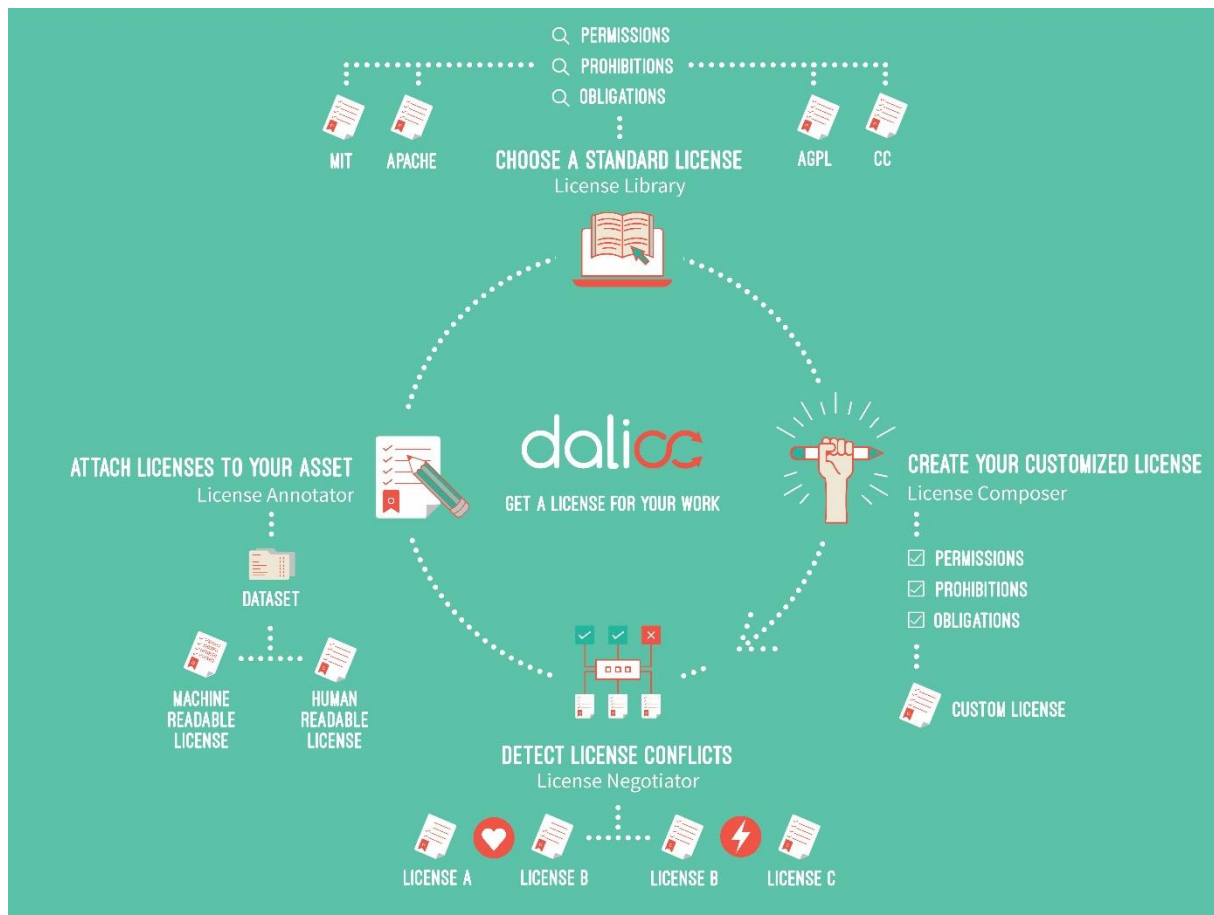
DALICC stands for Data Licenses Clearance Center. It is a software framework that supports lawyers, inhouse legal experts, innovation managers, software & application developers and data engineers in the legally secure reutilization of third party data and software. The DALICC framework supports the automated clearance of rights, thus helping to detect licensing conflicts and significantly reducing the costs of rights clearance in the creation of derivative digital works.

Modern IT applications increasingly retrieve, store and process data from a variety of sources. This can raise questions about the compatibility of licenses and the application`s compliance with existing law. Issues of rights clearance are especially relevant in the creation of derivative works compiled from multiple sources.

Clearing and negotiating rights issues is a time-consuming, complex and error-prone task. Challenges associated with clearance issues are:

- 1) high transaction costs in the manual clearance of licensing terms and conditions,
- 2) sufficient expertise to detect compatibility conflicts between two or more licenses,
- 3) negotiation and resolution of licensing conflicts between involved parties.

To meet tackle the problems described above, the DALICC software framework will consist of four modules (see Fig. below):



License Library: Lets a user choose from a set of standard licenses.

License Composer: Lets a user create customized licenses.

License Negotiator: Checks compatibility, detects conflicts and supports conflict resolution.

License Annotator: Provides a user with a machine-readable and human-readable version of your license.

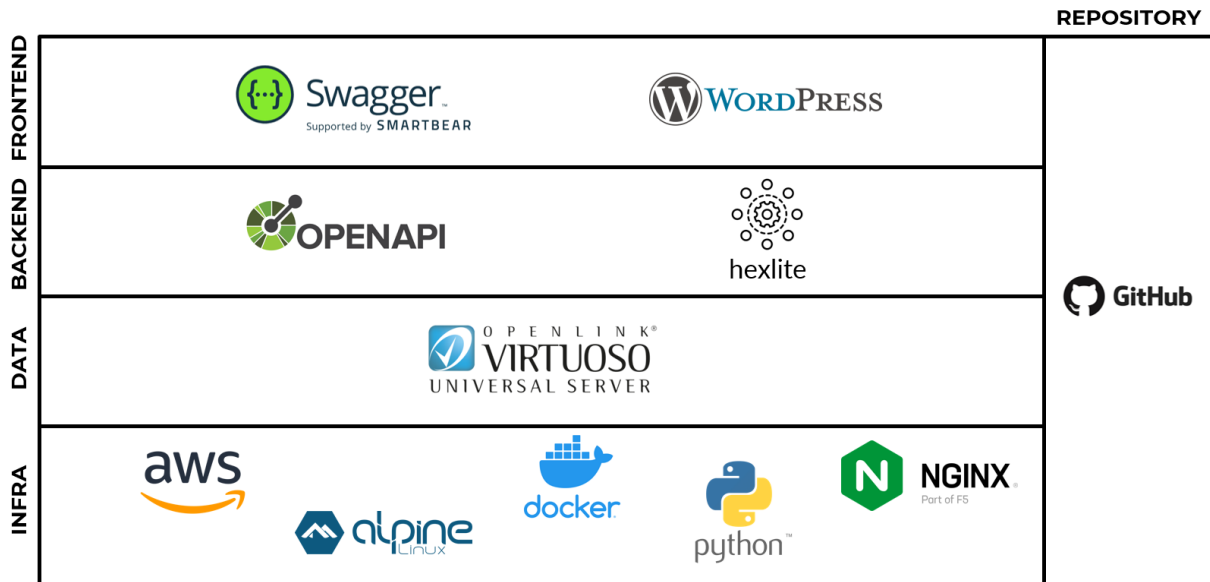
Who is it for?

- Commercial and non-commercial providers of software or data in the open source and closed source area in particular those persons (developers, project managers, sales personnel) who are entrusted with sales in addition to technical development. They can be private individuals, companies or other organizations. DALICC helps to check licensing dependencies between technical components and thus identify and solve legal problems during the engineering process. Furthermore, DALICC helps to determine under which license a new development may be published if license dependencies exist.
- Professionals or commercial providers at the interface of IT and law. These include:
 - 1) Legal professionals in legal departments within companies
 - 2) Legal service providers such as law firms specializing in IT law or
 - 3) Consulting firms in the field of digital business models (e.g. KPMG, Deloitte, E&Y).
 In addition to the above-mentioned benefits, in-house legal departments can reduce the (personnel and financial) clarification effort (through qualified information on

potential license conflicts) and law firms and consultancies can increase the profitability of their services by providing qualified information on potential license conflicts.

- Specialized IT service providers in the field of RegTech and compliance management who already offer technical services or act as resellers of white label solutions. IT providers with a focus on compliance solutions can include DALICC as an additional offering in their service portfolio and offer it to their customer base as a special solution for license clarification. DALICC Framework is legally agnostic, can be extended thematically and functionally (e.g. Privacy Mgmt.) and the engine can be sold as a white label solution.

How does it work?



Deployment and Operation

- DALICC operates on a cloud infrastructure provided by Amazon Web Services¹ (AWS). This choice ensures high availability and efficient resource management for the DALICC framework.
- The underlying operating system for DALICC is Ubuntu 20.04.2 LTS², known for its stability and security.
- Deployment of the DALICC framework is streamlined and modularized using Docker³ containers. This technology allows for isolated environments, making the system more secure and easier to maintain and update. The YAML⁴ configuration file coupled with “docker-compose” runs all the DALICC framework containers, allowing for efficient orchestration and management of the various components within the

¹ <https://aws.amazon.com/what-is-aws/>

² <https://www.releases.ubuntu.com/focal/>

³ <https://www.docker.com>

⁴ <https://yaml.org/>

framework. This integration simplifies the deployment process and ensuring consistent environments.

- To further enhance the performance and reliability, DALICC employs NGINX⁵ as its configurable web server. NGINX is renowned for its high efficiency and ability to handle large volumes of concurrent connections to manage the web traffic to DALICC framework.

Development and Programming

- The core components of DALICC are developed in Python⁶, a versatile and widely used programming language known for its readability and vast library support, facilitating rapid development and integration.
- The reasoning program within DALICC is written as a HEX-program⁷. HEX-programs extend Answer Set Programming⁸ (ASP) to integrate external computation and data sources, providing a powerful tool for complex logical reasoning and decision-making processes. For the solving of these HEX-programs, DALICC utilizes hexlite⁹, an efficient, lightweight solver designed specifically for HEX-programs.

Data Management and Storage

- All the data within DALICC are stored in a Docker instance of RDF Triple Store Virtuoso¹⁰. This database is designed for efficient handling of complex queries, essential for the tasks such as conflict resolution.

Interface and User Interaction

- DALICC's API frontend is built upon FastAPI¹¹ and Swagger¹². FastAPI offers high performance and easy-to-use features for building robust APIs, and Swagger provides a user-friendly and interactive API interface for developers utilizing the OpenAPI Specification¹³. This combination simplifies the integration of DALICC's functionalities into various applications and ensures efficient, reliable, and scalable API management (See <https://api.dalicc.net/docs>).
- The user interface frontend of DALICC is developed using WordPress¹⁴. This allows for the creation of accessible, navigable, and visually appealing web pages that are seamlessly connected to the DALICC APIs, enhancing user experience and engagement (See <https://www.dalicc.net/>).

Public GitHub Repository

- The DALICC framework is maintained in a public repository on GitHub¹⁵. By doing so, we provide developers, legal professionals, and other interested parties with easy access to the source code, standard license representations, documentation, and

⁵ <https://www.nginx.com/>

⁶ <https://www.python.org/>

⁷ <http://www.kr.tuwien.ac.at/research/systems/dlvhex/>

⁸ Eiter, T., Ianni, G., & Krennwallner, T. (2009). *Answer set programming: A primer* (pp. 40-110). Springer Berlin Heidelberg.

⁹ <https://github.com/hexhex/hexlite>

¹⁰ <https://hub.docker.com/r/tenforce/virtuoso/tags>

¹¹ <https://fastapi.tiangolo.com/>

¹² <https://swagger.io/>

¹³ <https://swagger.io/specification/>

¹⁴ https://hub.docker.com/_/wordpress

¹⁵ <https://github.com/dalicc/dalicc>

latest updates. The public repository ensures that DALICC remains accessible and modifiable, supporting innovation and customization to meet specific user needs and scenarios.

This technical architecture ensures that DALICC is not only robust and reliable but also user-friendly and adaptable to various legal and IT environments. The integration of these technologies allows DALICC to efficiently manage complex licensing issues, making it a versatile tool for a wide range of users in the fields of law, IT, and compliance management.