Technology Overview

DSpace open source software is free to use, and community supported.

DSpace consists of both a frontend (User Interface) and a backend (REST API & other machine interfaces). A brief overview of the technologies used for each is provided below.

DSpace Frontend (UI) Technologies

The DSpace Frontend provides the User Interface which allows people to interact with DSpace. It requires a DSpace backend, and cannot be run standalone.

The DSpace Frontend is built on the Angular platform, written in the Typescript language. It uses Bootstrap & HTML5 for theming/styling & strives for WCAG 2.1 AA alignment. The frontend also uses Angular Universal for "server-side rendering", which allows it to function even when Javascript is unavailable in the browser.

More information on installing the DSpace Frontend can be found in the Installing DSpace guide.

DSpace Backend (REST API) Technologies

The DSpace Backend provides the REST API, which is required by the DSpace Frontend. It also provides additional machine interfaces for interacting with data in DSpace, such as OAI-PMH, SWORDv2 Server, SWORDv1 Server and various command-line (CLI) tools. The DSpace backend can be run standalone, but it doesn’t provide a user friendly web interface (which is why the DSpace frontend is recommended).

The DSpace Backend is built on Spring Boot, written in Java. The REST API portion of the backend is built on Spring Technologies, including Spring REST, Spring HATEOAS, and aligns with Spring Data REST. The REST API uses the Spring Data REST Hal Browser as a basic web interface for exploring the REST API.

The DSpace Backend requires a relational database (usually PostgreSQL), used to store all the metadata and relationships between objects. All files uploaded into DSpace are stored on the filesystem (any operating system is supported). Apache Solr is also required, and is used to index all objects for searching/browsing.

More information on installing the DSpace Backend can be found in the Installing DSpace guide. More information on the REST API specifically can be found in our REST Contract.