

Project Proposal

Jenkins uses the Fingerprinting engine to trace usages of artifacts, credentials and other objects within the system. It includes a local XML-based database and extensible WebUIs. For example, see the Docker Traceability Plugin documentation [here](#).

In the Jenkins projects there is ongoing activity to externalize storages. This activity happens as a part of Cloud Native Special Interest Group, see the [Pluggable Storage page](#). One of the topics is having an external Fingerprint storage which would allow achieving the following goals:

- Fingerprints are stored in external system so that they do not go to the local storage JENKINS_HOME
It includes storage of extensible data structures supported in the current Jenkins architecture
- Fingerprints can be stored in a single database for multiple Jenkins instances (and other systems) so that it allows tracing artifacts within the entire CI/CD flow
- There are new APIs to query data from external storages in efficient ways. New REST API or GraphQL endpoints can be introduced in the Jenkins core or in a plugin

The project would include:

- Introducing a new FingerprintStorage extension point in the Jenkins core
- Rework the current implementation to the FingerprintLazyLoadLocalStorage
- Create a new reference implementation in a plugin. This reference implementation may use any kind of storage system (SQL, NoSQL, etc.) depending on the applicant's preference and justification. PostgreSQL or Elasticsearch are the recommended ones

The project may also include:

- Security hardening of the Fingerprint engine in Jenkins, e.g. switching from md5 indexing of fingerprints to stronger hashing algorithm (e.g. sha1 or stronger)
- Updating Web UI to improve representation of Fingerprints in Jenkins and in external Widget (e.g. using REST API and JavaScript, for example)
- Any other enhancements proposed by students

Links

- [Pluggable Storage Project](#) in the Cloud Native Jenkins SIG
- [Fingerprinting documentation on Jenkins Wiki](#)

Quick-start guide

- Install Jenkins
- Create a simple job which publishes an artifact, with fingerprinting enabled
- Create a second job which consumes the artifact, e.g. using the Copy Artifacts plugin
- Explore the fingerprinting UI
- Explore Docker image traceability in Jenkins, see [this blogpost](#) as an entry point

Newbie-friendly issues

- [JIRA Query](#)