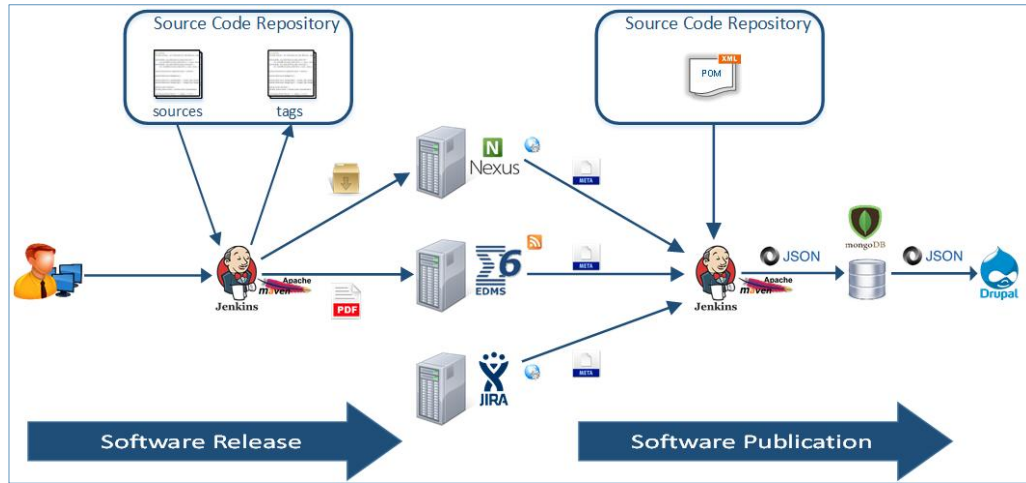


The software implemented by the CERN Industrial Controls and Safety group covers all layers of the control systems, ranging from front-end devices up to the SCADA HMI and web visualization. Most of the software is built for both MS Windows and Linux. Build and release processes were traditionally left up to the developers leading to a very heterogeneous set of mechanisms, which in some cases were cumbersome, error prone or very specific, thus requiring expert knowledge to make a release. The Automatic Release Service fully automates the software release and publication procedures.

## Architecture & Technologies

ARES uses standard technologies to automate software releases and publications:

- SVN as source code repository
- Jenkins to trigger the releases
- Maven implements the release and publication tasks
- Nexus as software repository
- EDMS as documentation repository
- Drupal as web content management
- MongoDB as data source for software publications



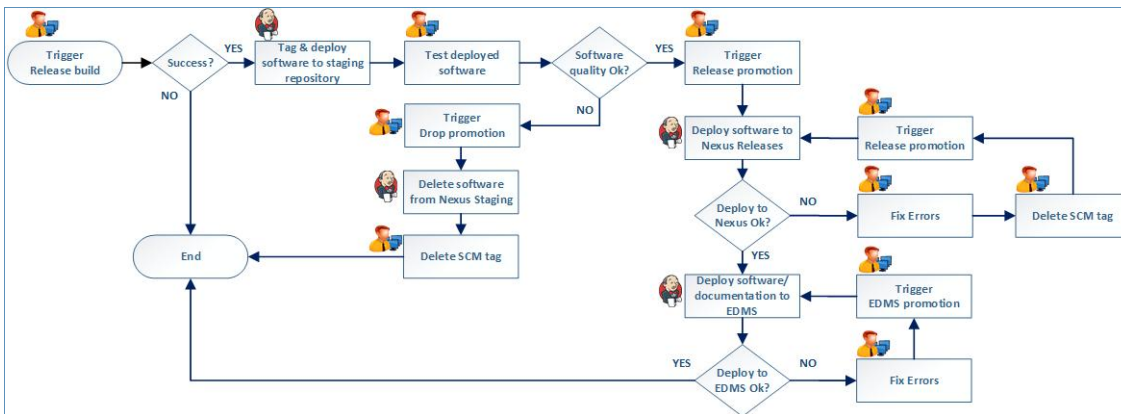
ARES Architecture & Technologies

## Software Release

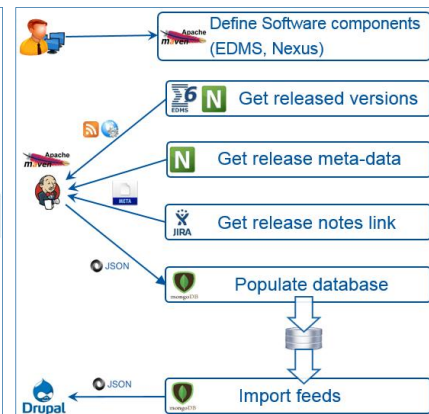
## Software Publication

- ARES checks out the code from SVN, compiles the sources, executes the unit tests and packages the compiled binaries
- The code is tagged in SVN and the packaged binaries are deployed to a staging repository in Nexus
- The developer executes the integration tests and quality assurance procedures
- The software and documentation are now ready to be published

- Nexus, EDMS and Jira are used as data sources to obtain information about the releases
- This information is stored in a non-relational database
- Drupal imports this information from the database using a JSON feeds importer
- The imported data is mapped onto a Drupal content type and visualized using different views



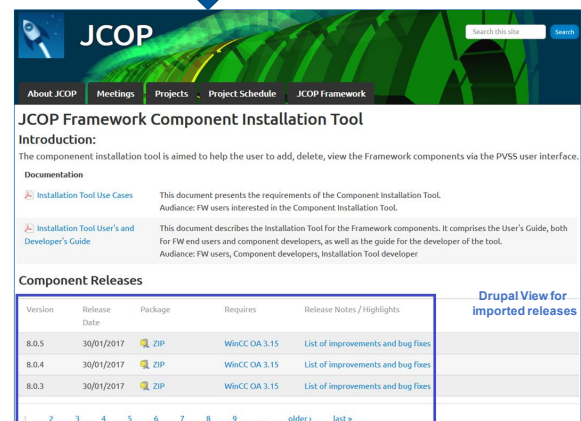
Release Workflow



Publication Workflow

## Conclusion

- ARES optimizes the time and work required to carry out a new release
- It allows to release more frequently, thus reacting quicker to user requests
- Each authorized person can trigger a release (no expert knowledge required)
- Versions published in websites are consistent with the releases in the repositories
- ARES is used to release all components of the BE-ICS industrial control frameworks
- More than three hundred and forty releases completed since March 2016



Component Website