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## Improving the quality of EMI Releases by leveraging the EMI Testing Infrastructure

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What is an EMI Release? What is its life-cycle? How is its quality assured through a continuous integration and large scale acceptance testing? These are the main questions that this article will answer, by presenting the EMI release management process with emphasis on the role played by the Testing Infrastructure in improving the quality of the middleware provided by the project.

The European Middleware Initiative (EMI) is a close collaboration of four major European technology providers: ARC, gLite, UNICORE and dCache. Its main objective is to deliver a consolidated set of components for deployment in EGI (as part of the Unified Middleware Distribution, UMD), PRACE and other DCIs. The harmonized set of EMI components thus enables the interoperability and integration between Grids. EMI aims at creating an effective environment that satisfies the requirements of the scientific communities relying on it.

The EMI distribution is organized in periodic major releases whose development and maintenance follow a 5-phase yearly cycle: i) requirements collection and analysis; ii) development and test planning; iii) software development, testing and certification; iv) release certification and validation and v) release and maintenance.

In this article we present in detail the implementation of operational and infrastructural resources supporting the certification and validation phase of the release. The main goal of this phase is to harmonize into a single release the strongly inter-dependent products coming from various development teams through parallel certification paths. To achieve this goal the continuous integration and large scale acceptance testing performed on the EMI Testing Infrastructure plays a key role. The purpose of this infrastructure is to provide a system where both the production and the release candidate product versions are deployed. On this system inter-component testing by different product team testers can concurrently take place. The Testing Infrastructure is also continuously monitored through Nagios and exposed both to automatic testing and to usage by volunteer end-users. Furthermore the infrastructure size is increased with resources made available by volunteer end-users that are interested in implementing production-like deployments or specific test scenarios.

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