



Integrated Core Services Architecture

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EPOS (European Plate Observing System) is a large scale research infrastructure within the ESFRI (European Strategic Forum for Research Infrastructures) roadmap. EPOS is now in IP (implementation phase) after a successful PP (preparatory phase). EPOS consists of essentially two components, one ICS (Integrated Core Services) representing the integrating ICT (Information and Communication Technology) and many TCS (Thematic Core Services) representing the scientific domains. The architecture developed, demonstrated and agreed within the project during the PP is now being developed utilising co-design with the TCS teams and agile, spiral methods within the ICS team.

The ICS architecture is based around microservices grouped into major components. The major components communicate through a standard bus architecture thus allowing component (or microservice) replacement as necessary. A GUI (Graphical User Interface) communicates with the ICS, starting with AAAI (authentication, authorisation, accounting infrastructure) and then utilises querying on the metadata catalog to discover and contextualise assets of interest supported by the TCS and documented as metadata. Appropriate asset metadata are used to drive further queries executing on TCS resources or to construct a workflow to be executed across TCS, possibly also utilising ICS-D (ICS-Distributed, essentially large-scale computing resources with or without appropriate geoscience software services). Mappers provide a homogeneous view over heterogeneous assets, both in importing TCS metadata to the ICS catalog and in accessing TCS heterogeneous assets.

The architecture is designed to integrate with e-Infrastructures such as GRID or CLOUD facilities and particularly ongoing work includes integration into the EOSC (European Open Science Cloud). The EPOS architecture has been proposed as a template both for other Environmental Science RIs (Research Infrastructures) and for EarthCube.