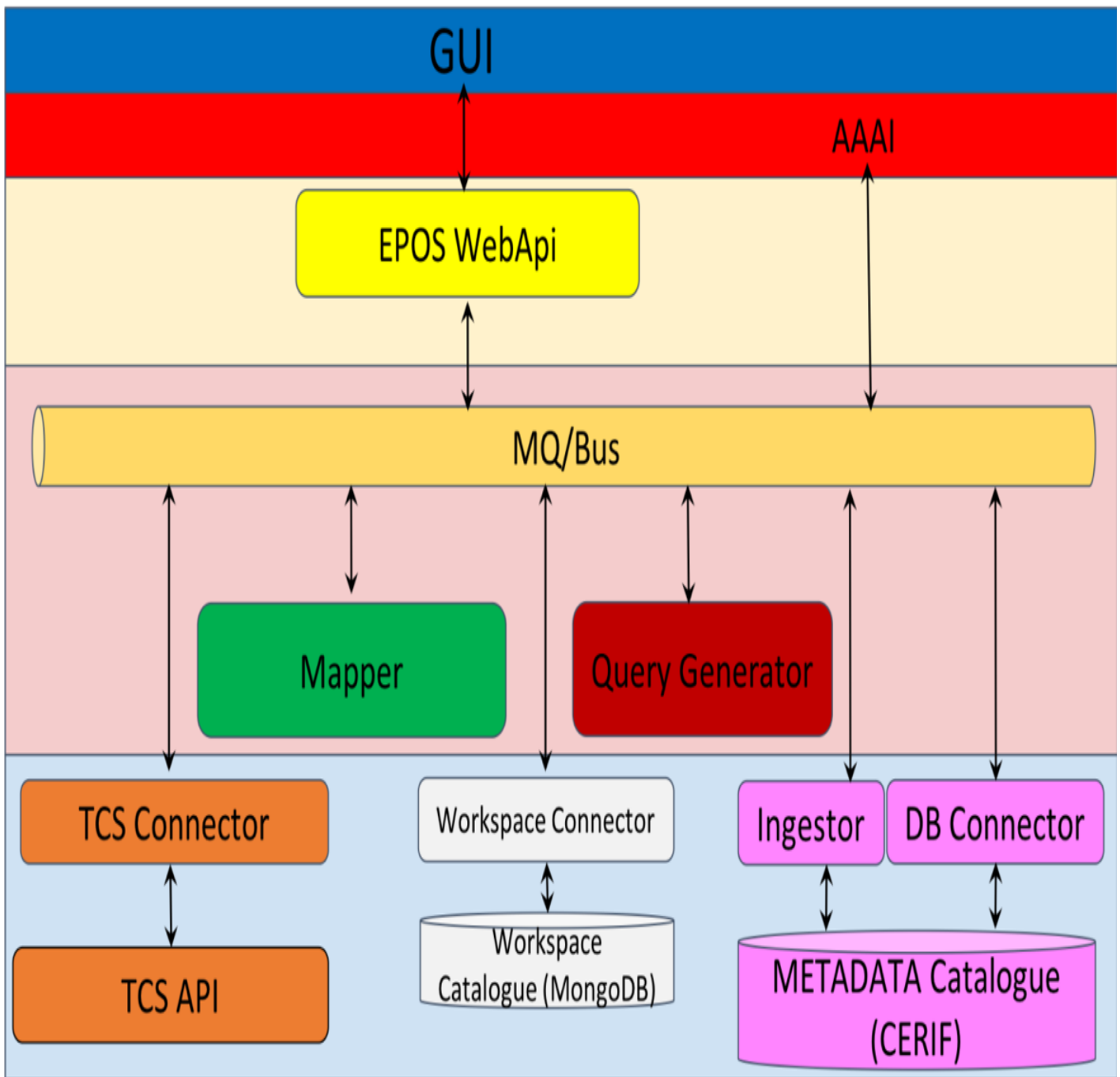


## ICS Architecture

The ICS (Integrated Core Services) provides the "core" or central hub of the EPOS e-infrastructure ensuring interoperability between the data and services provided by the TCSs and the National Research Infrastructures (NRIs). The ICS system architecture has been designed to provide the tools to facilitate the discovery of data, data products, software and services (DDSS) and the integration of these resources to fulfil users requests across the EPOS community.

The system architecture of the ICS is composed of several modular components which are depicted in the figure below (include diagram) and described below:



- Ingestor

This component takes care of inserting metadata information file into the metadata catalog ([CERIF](#) database).

- Workspace Connector

It is used to store information about user workspaces.

- **Workspace Catalogue (MongoDB)**

The workspace catalogue takes care of storing all the information concerning workspace, workspace item and workspace configurations. Implemented using MongoDB.

- **Metadata Catalogue**

Stores metadata about the various [DDSS](#) elements provided by the Thematic Core Services (TCS's) which has been harmonised to a common standard known as [CERIF](#) (Common European Research Infrastructure Format) to facilitate efficient searching.

- **TCS Connector**

Allows [TCS](#) API's developed for converting [DDSS](#) elements to a [TCS](#) specific metadata standard to be connected into the [ICS](#), for example by providing wrappers to extract and store this metadata in the Metadata Catalogue.

- **Query Generator**

This component creates an SQL query from the parameters provided by the Web API and passes this to the Metadata Catalogue so that the relevant data can be retrieved via the database connector.

- **Mapper**

Software to perform mapping functions between the highly normalised [CERIF](#) data model and other metadata schemas such as [TCS](#) specific metadata formats, and the "EPOS metadata baseline" consisting of a minimum set of the most commonly used metadata elements.

- **Message Queue/Bus**

Provides a system management function by orchestrating the interaction between the other modules in order to satisfy user requests.

- **Workflow Manager**

Execute specific workflows for example to process data using specific software using appropriate workflow engines.

- **EPOS WebAPI**

This component performs the connection between the graphical user interface ([GUI](#)) and other system components. For example by formatting the query parameters input to the [GUI](#) by the user and directing these to the Query Generator.

- AAI (Authentication, Authorisation, Accounting, Infrastructure)

This module will manage and interoperate with all the major [AAI](#) services such as SAML, OAuth, OpenID, X.509, and related products such as Shibboleth and EduGAIN.

- GUI (Graphical User Interface)

Providing the interface to the user and allowing them to firstly query the [DDSS](#) elements of interest, and then specify appropriate workflows to process the data.

*Each component is described in detail in the [EPOS TCS-ICS Integration guidelines Level 2](#).*