Oceanotron server for marine in-situ observations

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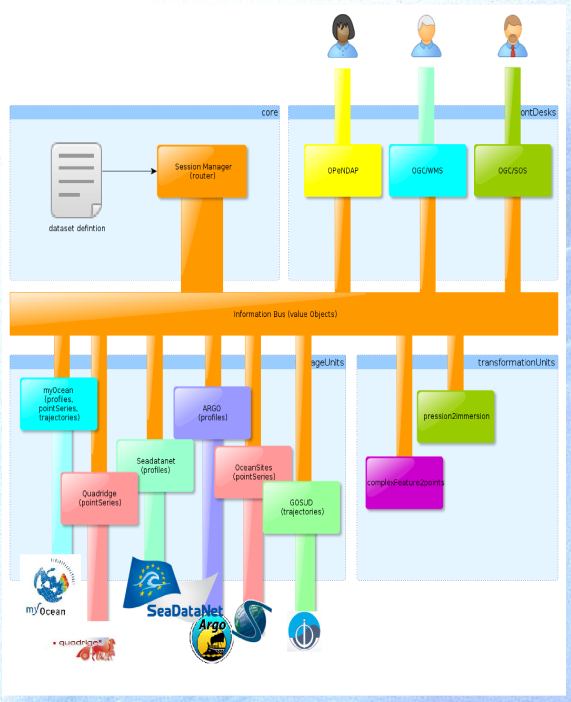
The Oceanotron is a data server dedicated to **marine in-situ observations dissemination**.
The development of the server, coordinated by IFREMER, started in 2010. It has since been chosen as the data dissemination server for MyOcean in-situ data providers. The server is now **deployed at 7 different places in Europe**. The software will also be used as an interoperability server for data products in SeaDataNet2 project.
IFREMER hosts the CORIOLIS marine in-situ data centre (http://www.coriolis.eu.org) and, as French NODC (National Oceanographic Data Centre, http://www.ifremer.fr/sismer/index_UK.htm), some other in-situ observation databases. As such IFREMER participates to numerous in-situ data management projects.
IFREMER wished to **capitalize its thematic data management expertise** in a dedicated data dissemination server called **Oceanotron**.
Knowing the diversity of **data repository formats (RDBMS, netCDF, ODV, MEDATALAS, ...)** and the temperamental nature of the **standard interoperability interface profiles (OGC/WMS, OGC/WFS, OGC/SOS, OpeNDAP, ...)**, the software architecture relies on a **ocean business data model** dedicated to marine in-situ observation features.



Oceanotron is a **web application server** which is deployed by the data providers in a tomcat application server.

The Oceanotron **architecture** is organized around an information bus on which business units are plugged. The business units roles are :

- **Storage units** : manage datasets in their natives formats
- **Transformation units** : apply transformation on observations, e.g. convert vertical coordinates, computes ocean variables, ...
- **FrontDesks** : get request from users and send results in specific protocols.

The administrator configures datasets by combining storage units and transformation units. Frontdesks disseminate a selection of datasets. Depending on the users request and the dataset definition, a **session manager** routes information between the business units.

The backbone of the application is the **information bus** on which requests and observation datasets are transiting between the business units.
On this bus, every business unit speaks the same 'ocean observation' language. The language implements in a **business data model** : requests, dataset metadata, observations (vertical profiles, point series and trajectories).
Oceantron is **opensource** and the business units are likely to be **developped by experts** in the related business domain :

module\partner	Ifremer/ Altran	University Of reading	alfred Wegener Institute	Geomatys
storage units: myOcean/OceanSites	X			
storage units: Suroit	X			
storage units: SeaDataNet			X	
frontdesks: Opendap	X			
frontdesks: OGC/WMS		X		
frontdesks: OGC/SOS				X

The shared business data model is the interface between them these expert implementations.

The shared data model has been implemented on the basis of the **CSML V2** work. It aims at complying with the **O&M** and **INSPIRE** data models.
The model implements the following **sampling features** :

Feature type	Observed dimensions
Vertical profile	Z (depth or pressure)
Point serie	T (time)
Trajectory	X (lon),Y (lat) ,Z (depth),T (time)
Point	None

In addition to observation features, **request**, **criteria** and **datasets metadata** are implemented in the model.

The detailed **UML** model is published at :
http://www.ifremer.fr/isi/oceanotron/BOUMLhtmlDoc/

The **javadoc** of the model implementation is available at :
http://www.ifremer.fr/isi/oceanotron/javadoc/

Other details about oceanotron are provided on the **forge** :
https://forge.ifremer.fr/projects/oceanotron/