

iPReS Problem Statement

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Introduction and Context

The Internationalization (i18n) Product Retrieval Service (iPReS) project is a planned web service and client providing i18n-type (internationalized) access to products and product metadata contained within [NASA JPL's Physical Oceanography Distributed Active Archive Center](#), otherwise known as PO.DAAC. PO.DAAC is an element of the [Earth Observing System Data and Information System \(EOSDIS\)](#). The EOSDIS provides science data to a wide community of users for NASA's Science Mission Directorate. The mission of the PO.DAAC is to preserve NASA's ocean and climate data and make these universally accessible and meaningful.

Stakeholders

Project Team

Everyone

Client Team

Name: Ms Kathryn O'Brien

Organization: Cloudera

Role: Managing non-technical interaction with Engineering team

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Name: Dr. Chris Mattmann

Organization: Jet Propulsion Laboratory

Role: Management of technical aspects as required throughout the project

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Name: Dr. Lewis John McGibbney

Organization: Jet Propulsion Laboratory

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Engineering Team

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Client Agent

Name: Kevin McGrath
Organization: Oregon State University
Role: Capstone Program Manager and go-between for Client Team and Engineering Team
Contact:

Problem Statement

The iPreS project aims to make this data more accessible and meaningful by providing full language translation capabilities on top of existing PO.DAAC functionality. There is strong motivation to make this data accessible to the wider, worldwide scientific community, thus the service should offer translation from English to a large number of relevant languages, making all the data accessible via a web service similar to PO.DAAC. The planned supported languages are:

Arabic, Bulgarian, Catalan, Chinese Simplified, Chinese Traditional, Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Haitian Creole, Hebrew, Hindi, Hmong Daw, Hungarian, Indonesian, Italian, Japanese, Klingon, Klingon (plqaD), Korean, Latvian, Lithuanian, Malay, Maltese, Norwegian, Persian, Polish, Portuguese, Romanian, Russian, Slovak, Slovenian, Spanish, Swedish, Thai, Turkish, Ukrainian, Urdu, Vietnamese and Welsh.

Project Definition

- Analysis of both the PO.DAAC web services API and the Apache Tika translate API
- Creation of a web service and client which (a) consumes existing PO.DAAC Oceanography data and metadata, and (b) translates this data into target languages and exposes the translated data and metadata as a RESTful API.
- The service and client will leverage Apache Tika translation services, and likely other Apache technologies such as CXF and Tomcat which aid in development of a web service.
- As this is a JVM-based web service, some freedom can be given as far as the language to develop in. The development team proposes Clojure, as it is designed to handle

concurrency and run on web services; however, Java will be leveraged in places where Clojure may not fit the bill. A technology spike in Clojure, Scala, and Kotlin will be performed, however, to ascertain viability of all three reasonable JVM alternatives to Java.

- A simple Github-hosted webpage for the project explaining briefly its purpose and providing links to various resources and relevant documentation.

Project Scope

- A more Agile approach to development, with coding and testing done early and often, and less focus on the ceremony as it pertains to documentation.
- Monthly meetings to formally discuss what was accomplished, what actions to take, and what next to accomplish for the month moving forward.
- Basic web development for a Github webpage.
- Learning period for getting the team more acquainted with Clojure and a proper development environment.
- A trip to JPL to possibly attend a conference and potentially announce the project.

Deliverables

- A complete end-to-end iPRes service which will complement the existing PO.DAAC service running at JPL.
- Documentation, as needed, pushed to the Github repository.
- Project website which will act as the main source of information for both the project team as well as those wishing to use the software. Additionally/alternatively this would be accompanied by a project wiki for more dynamic documentation or for user tutorials.
- Engagement with the scientific community in an attempt to test and validate the usefulness of the iPReS software in addressing the aim of opening up data contained within PO.DAAC to the larger scientific community.