

## IS-ENES – WP4

### D 4.4 – CDO complete web site accessible via the v.E.R.C. portal

#### Abstract:

This document describes the development and The current status of the CDO project management website and its integration into the v.E.R.C portal is described here. The web service around CDO provides an interface to the user community for their input as well as deploying information about CDO. Its essential parts are accessible via the v.E.R.C service.

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## Table of Contents

REVISION TABLE .....	2
TABLE OF CONTENTS.....	3
EXECUTIVE SUMMARY .....	4
1. INTRODUCTION .....	1
2. REQUIREMENTS.....	2
3. SUMMARY .....	4
APPENDIX A : ACRONYMS.....	5

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## **Executive Summary**

This document describes the development and current status of the CDO project management website and its integration into the v.E.R.C portal. The intention of the web service around CDO is to provide an interface to the user community for easy access of their input as well as deploying information about CDO. Its essential parts have to be accessible via the v.E.R.C service.

After an evaluation phase of comparing different tools a test installation of the Redmine framework ([www.redmine.org](http://www.redmine.org)) was realized. Redmine is a general-purpose project management web framework. It has been customized and extended to fit the needs of CDO and is now the default platform for CDO users.

The service is integrated into the network architecture of the institute; it is openly accessible via <https://code.zmaw.de/projects/cdo> and additionally v.E.R.C embeds CDO under <https://verc.enes.org/models/software-tools/cdo>.

## **1. INTRODUCTION**

The aim of the CDO website is to provide multiple tasks. Basically users have to be able to get information about any aspect of CDO. On the other hand, developers should easily get input by users for creating new functionalities. Both aspects have to be handled by the same web service. This requires a versatile platform which is capable of creating and maintaining such different elements of software projects and can create interconnections between both of them. The platform needs basic facilities in managing and deploying multiple releases of CDO.

Another important aspect is the possibility of creating spin-off projects within the same framework. For a long term consideration this is crucial.

Therefore an evaluation as well a testing phase were achieved to carefully take the decision for the right framework.

## **2. REQUIREMENTS**

### **2.1. ANALYSIS**

A transparent development platform was meant to be the main service behind the web site of CDO. This means that fundamental things like

- ▲ Detailed documentation on installing CDO
- ▲ Complete html documentation for each of CDOs operators
- ▲ Tips for Best practices, FAQ and Tutorial
- ▲ User forum
- ▲ Download area

have to be provided, because they are essential to give users easy access to all of CDOs functionality and the ability to exchange experience concerning CDO.

In addition an issue tracking system is the key feature for any community driven development. It facilitates co-operation between users and developers and offers both groups a central place to maintain their feature requirements and bug reports. It allows users a direct contact with the developers as well as the possibility to influence the work on their requirements continuously.

Furthermore the framework behind the CDO website needs to be flexible enough to handle multiple projects. In fact CDOs are a modular software package consisting of an independent IO library called CDI. CDI itself is used by many climate models. It should also be possible to create spin-off projects within this framework to keep the close connection to the original project.

The web service has to support an easy way of creating web content, because users rather want to be focused on content than on highly complex web pages. Consequently a complex CMS has to be avoided. On the other hand a basic structuring is required, because the v.E.R.C portal has to be able to access different parts of the CDO web service separately.

Furthermore there are technical aspects, which are important for a stable, dynamic and long running web service. The underlying software needs an active development team and a large user base. Its setup, configuration and user management should be simple and related services like databases and web servers have to be commonly used software tools. This will ease further manageability.

### **2.2. TEST AND IMPLEMENTATION**

Within an evaluation phase different frameworks were analysed on their facilities concerning the requirements mentioned above. Moreover the extensibility of each product was checked, because we expected requirements unknown during the analysis phase. Since the user community is large and growing, scalability was also an important testing issue.

After completing this phase the decision was taken to use Redmine as a starting point for

further application. Redmine is a widely used tool for commercial and non-commercial software projects providing the infrastructure for most of the requirements identified. It offers automatic self-registration, a sophisticated role based access mode to all aspects of a project and is built on a largely accepted open source web development framework. This guarantees a continuous development, bug fixing and the implementation of new features.

In a 3-4 month testing period Redmine was successfully checked against the requirements. Aside from this it is comparatively easy for users and developers to create and change web contents with Redmine. Multiple releases and customization were tested on their usability concerning CDO. Non-functional tests regarding self-registration and the integration into the established network infrastructure had to take place for later manageability and maintenance. New syntax highlighting features and the ability to display html inline were added to Redmine. It was also managed to extend Redmine to use project wide cascading style sheets instead of a global one.

In the end of 2009 an internal CDO web service built on this extended version of Redmine was started. It was filled with the current documentation and installation guide lines. The version control system, which is used for CDO development, was connected to the Redmine service and developers started to use the tracking system for further work on CDO.

As a first spin-off the above-mentioned CDI library was used to create another project. The same was done in the beginning of 2010 for Afterburner, the default post processor the climate model ECHAM which uses CDI, too.

Together with the CDO release from March 2010 the new service was made publicly available in parallel to the former CDO website. Known users were informed about the new web service via the CDO mailing list. Also the v.E.R.C. development team was briefed about this and CDO was included in one of the testing versions of the portal.

Maintainers of source packages and pre-compiled packages of CDO for different kinds of unix-like platforms were contacted separately to ensure the ongoing CDO support on these systems. This was successfully done for MacOS, Debian GNU/Linux, FreeBSD and Fedora. The web service was also very helpful for the collaboration with DWD to create a CDO version for MS Windows, which was released on the new CDO site only.

During this phase of increasing activity with users and external developers the availability of news feeds for many parts of the website turned out to be a very important aspect for the communication. By now every user was able to subscribe to RSS/Atom feeds on the list of issues, on one or all forums, project wide news, wiki changes or on any change in source code repository. This was and will be also highly useful for the internal collaboration of the CDO developers.

During the last quarter of 2010, the old CDO web site was taken off-line, because all relevant information had been moved to the new CDO page.

### **3. SUMMARY**

The current CDO project page provides basic and advanced features of a sophisticated open source project management service. It contains a complete documentation on every operator of CDO, a detailed installation guide for multiple platforms, a list of solutions for frequently arising problems and a tutorial, which is still short but evolving.

Users have the opportunity to get in contact with each other on a single platform using dedicated forums. This will help other users solving their problems in a faster way. Forums are also utilized for discussions about new features between users and developers. These forums highly improve the acceptance of CDO and represent a great support to the development team. It marks the entry point of a user driven development.

The issue tracking system takes this aspect a step further. Focusing on certain topics, it ensures the transparency of the current work: Responsibilities, design decisions and implementation are available to any user. This facilitates to precisely implement the features discussed in the forums influenced by the user community. It is an extensively used feature of the new web service.

The new project management page of CDO has replaced the old CDO web site completely and is now widely accepted by users. It tuned out to be highly useful for users and developers. One year after publication, the community is still growing. By means of the intense evaluation and testing phase the underlying infrastructure forming the basis is prepared to scale and thus be successful in the long term.

Main parts of the new CDO web page are directly accessible from the v.E.R.C portal, namely the homepage, the user guide and the download area. As prospective outlook is planned that v.E.R.C will be able to handle news feeds. Furthermore visitors of the v.E.R.C web service will be informed about new releases of CDO automatically.

## **APPENDIX A : ACRONYMS**

CDO: Climate Data Operators

MPI: Max-Planck-Institute for Meteorology

CMS: Content Management System