

CodiMD in CERNBox

Leveraging the WOPI protocol to provide collaborative markdown editing

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CS3 Online Workshop 2021

Workshop - CodiMD in CERNBox
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Context and motivation

- CERNBox is the central storage for user data at CERN and evolves as t
- Clear need for a proper Markdown editor in CERNBox - and in Science
 - Quite a popular format as well, close to 1M `.md` files in CERNBox
 - Compares with 3.6M Office files, 2.8M `.tex` files, and over 60
 - CodiMD already piloted at CERN and well received

Context and motivation

- CERNBox is the central storage for user data at CERN and evolves as the Apps Hub
 - Collabora, DrawIO, MS Office, OnlyOffice, SWAN, ...
- Clear need for a proper Markdown editor in CERNBox, as well as for the **ScienceMesh** infrastructure
 - Quite a popular format, close to 1M .md files in CERNBox at CERN
 - Compares with 3.6M Office files and 2.8M LaTeX files
 - CodiMD ([HackMD.io](https://hackmd.io)'s open source edition) already piloted at CERN and well received

The integration

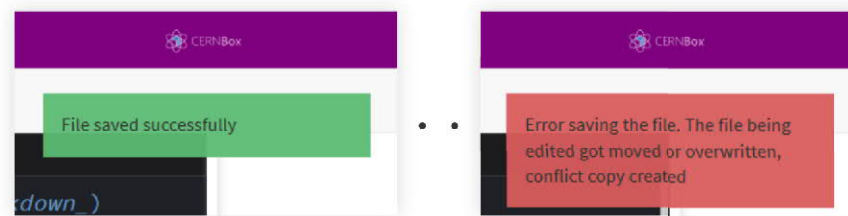
- Original idea developed in the context of the **CS3MESH4EOSC** EU project
- CodiMD provides a REST API (unofficial, but being expanded)
 - Good enough to push/pull content from an external storage system
 - Code base easy to extend
- CERNBox provides a **WOPI**(-like) endpoint
 - Vendor-neutral, http-based open protocol designed to ease the integration of Office-like applications

Why WOPI?

- WOPI-enabled apps can benefit from a high-level API on top of what an EFSS system can offer
 - Native support for locking and collaborative editing
- WOPI was integrated in CERNBox since 2017
 - Microsoft Office Online, lately Collabora Online
(cf. talk on *OnlyOffice and Collabora Online at CERN*)

User experience: opening files, auto save

- CodiMD patched to introduce an *Appliance mode*:
 - No *New* or *Publish* buttons, *Slide Mode* in evidence
 - Visual feedback when files saved to the storage or in case of errors



- Code available in the [CERN GitLab](#)
 - +210/-60 LoC, no architectural modifications
- If a note contains pictures, it's saved back as a single `.zmd` (for *zipped markdown*) bundle

Behind the scene - 1/2

- CodiMD backend extended with a webhook
 - Send a notification each time a file is modified, including some context metadata
- A *WOPI Bridge* component added to connect to storage
 - Technically, a *WOPI client*
 - Stateless microservice, listening to those notifications
 - And throttling the WOPI PutFile operations
 - /open endpoint to GetFile from storage and push to CodiMD

Behind the scene - 2/2

- Opportunistic use of the **WOPI Lock API** to store the **state**
 - Mapping WOPISrc URIs and access tokens to CodiMD's noteid hashes
 - Enables collaborative editing and save after close
 - Of course, files can be moved/modified externally
 - Conflict handling managed by the WOPI server
- Prototype code available in the [CS3Org GitHub repo](#)
 - Generic, non-CodiMD-specific design
 - Applicable to other collaborative apps that do not support the WOPI protocol natively

Further deployments and next steps

- This integration is also available within **ScienceMesh**, and being prototyped at several partner sites
 - Uni Münster was the first deployment outside CERN
 - Documentation available at developer.sciencemesh.io
- Will move soon to production, pending the improved sharing model in CERNBox
 - CodiMD sharing is as easy as copy&paste of the URL
- The CodiMD patches are relatively self-contained
 - Can be merged upstream without altering a standalone setup

That's all! Questions?

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