

Taming a Collaborative OPM Reference Manual

OPM-OP:

Markus Blatt, Matthew Goodfield

NORCE: Håkon Hægland

OPM Summit 2024

Oslo

April 10, 2024

Remembering great People taken from **OPM** OPEN POROUS MEDIA



Figure: Ove Sævareid (NORCE) and David Baxendale (OPM-OP) left us 2023

Replacing one takes more than one



- Reservoir Engineer and Writer: Matthew Goodfield (OPM-OP)
- Specialist for LibreOffice and Python: Håkon Hægland (NORCE)
- Me as the slow reviewer
- Fixers: External people, e.g. Peter Kirkham

Writing documentation is easy



OPM / opm-simulators

Search: Type to search

Code Issues 238 Pull requests 113 Actions Projects Wiki Security Insights

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about diff comparisons](#).

base: release/2022.10 ← compare: release/2023.04 ✖ Can't automatically merge. Don't worry, you can still create the pull request.

Discuss and review the changes in this comparison with others. [Learn about pull requests](#) Create pull request

Commits 1,041 Files changed 326 14 contributors

Commits on Sep 27, 2022

Simple speedup for opencl level_scheduling Tong Dong Qiu committed on Sep 27, 2022	2690917 <>
Do not reorder the matrix for GPU Tong Dong Qiu committed on Sep 27, 2022	e327142 <>
Removed GRAPH_COLORING opencl reordering option. ... Tong Dong Qiu committed on Sep 27, 2022	4241064 <>
Use exact instead of approximate inverted diagonal blocks for ChowPatel Tong Dong Qiu committed on Sep 27, 2022	24f8f7c <>
Bugfix: use full matrix for spmv ... Tong Dong Qiu committed on Sep 27, 2022	d30073a <>
Removed outdated functions	5c4d1a3 <>

Let's be more realistic



Just looking at one repository: opm-simulators

period	PRs	commits
since 2023.10	280	566
2023.04-2023.10	552	237
2022.10-2023.04	502	321
2022.04-2022.10	406	201
2021.10-2022.04	377	203
2021.04-2021.10	320	679
2020.04-2021.04	238	502

Developers speak different languages



- Many natural languages
- Lots of different scientific background
- Main audience: Reservoir Engineers

We love to write documentation



Famous last words of developers

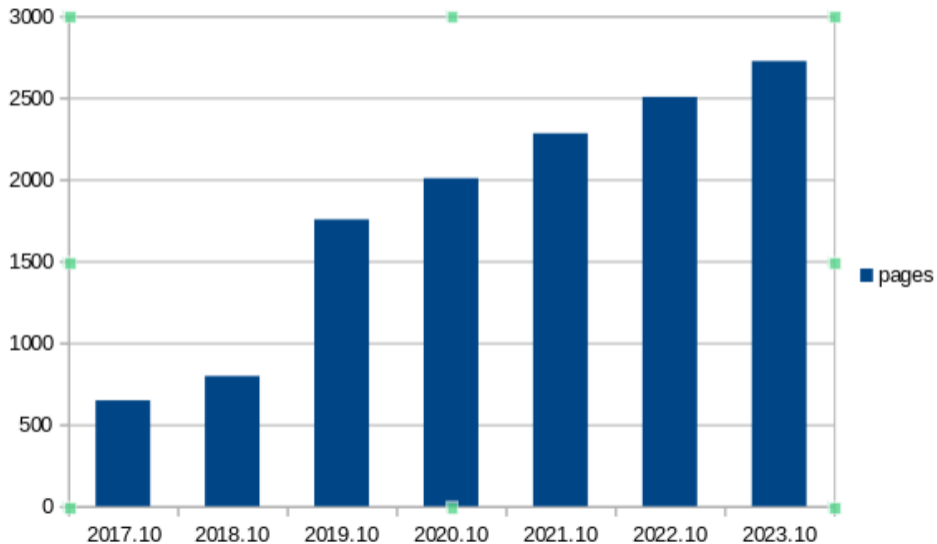
- This is now working, let's make PR.
- I'll document it later...
- Our (code) documentation is always up to date

A Blackbox-Manual that writes itself



- Written by experienced reservoir engineer
- Manual revision control
- Contributors send text for new keywords
- Developer review of pre-version(?)

Lots of pages and growing



Quirks



- Source not openly available
- Not all LibreOffice can open it on every machine

Openly available on GitHub

A screenshot of a web browser displaying the GitHub repository page for "OPM / opm-reference-manual". The browser's address bar shows the URL "https://github.com/OPM/opm-reference-manual". The repository page includes a navigation bar with options like Code, Issues (9), Pull requests (15), Discussions, Actions, Projects, Security, Insights, and Settings. Below the navigation bar, the repository name "opm-reference-manual" is shown as "Public". There are buttons for "Edit Pins", "Unwatch" (8), "Fork" (4), and "Star" (1). The main content area shows the "main" branch with 1 branch and 1 tag. A search bar "Go to file" is present. A commit by "blattms" is highlighted, showing a merge pull request #211 from "blattms/final-202310-rev0" with 622 commits, made 3 weeks ago. A table lists files and their commit history:

File	Commit Description	Time
.github/workflows	Added GitHub actions workflow	2 months ago
assets	Updated README.md	last month
docker	Fixed typo	2 months ago
fonts	Added README file	3 months ago
keyword-names	[fix] Rename ROCKWNODE to ROCKWNOD as it shoul...	last month
parts	Fixed formatting of bookmark I in footer.	3 weeks ago
scripts/python	Add script to remove undefined span tags	last month
.gitignore	Tell git to ignore libreoffice lockfile .-lock<filename>#	3 months ago
LICENSE	Added Readme and License	8 months ago
README.md	Added extra paragraph with warning	last month

The right sidebar contains an "About" section with the text "No description, website, or topics provided." and a list of repository features: Readme, View license, Activity, Custom properties, 1 star, 8 watching, 4 forks, and Report repository. Below that is a "Releases" section showing "Release 2023.10" as the latest release, made 3 days ago. The "Packages" section is also visible at the bottom.

Remove styles to make XML easier

A screenshot of a GitHub pull request page. The browser address bar shows the URL "https://github.com/OPM/opm-reference-manual/pull/27". The page title is "Fix master styles #27". A purple "Merged" badge is visible. The pull request was merged by "blattms" on Dec 19, 2023. The comment section shows a comment from "hakonhagland" dated Dec 16, 2023, which includes details about removing bookmarks from master-styles sections in subdocuments. The right sidebar shows settings for Reviewers, Assignees, Labels, Projects, and Milestones, all currently set to "None yet".

Fix master styles by h x +

https://github.com/OPM/opm-reference-manual/pull/27

120%

OPM / opm-reference-manual

Type to search

Code Issues 9 Pull requests 15 Discussions Actions Projects Security Insights Settings

Fix master styles #27

Edit <> Code

Merged blattms merged 1 commit into OPM:main from hakonhagland:fix_master_styles on Dec 19, 2023

Conversation 5 Commits 1 Checks 0 Files changed 3 +149 -32

hakonhagland commented on Dec 16, 2023 • edited Collaborator

[Builds on PR #26, which should be merged first]

Created script to remove bookmarks. See [#25 \(comment\)](#) for background.

Created a script to remove bookmarks from master-styles section in sub documents. These bookmarks should be removed since they refer to references in the main document. They will therefore be displayed as broken references when sub documents are opened in libreoffice.

Also removed bookmarks from the file master-styles.xml file since this file is used by the add keyword command.

Next, I plan to use this script on all the sub documents and submit the changes to the subdocuments as separate PRs. Since there are over 1400 subdocuments, I plan to submit changes in a sequence of PRs to make the review easier. One for each chapter.

Reviewers: No reviews

Assignees: No one—[assign yourself](#)

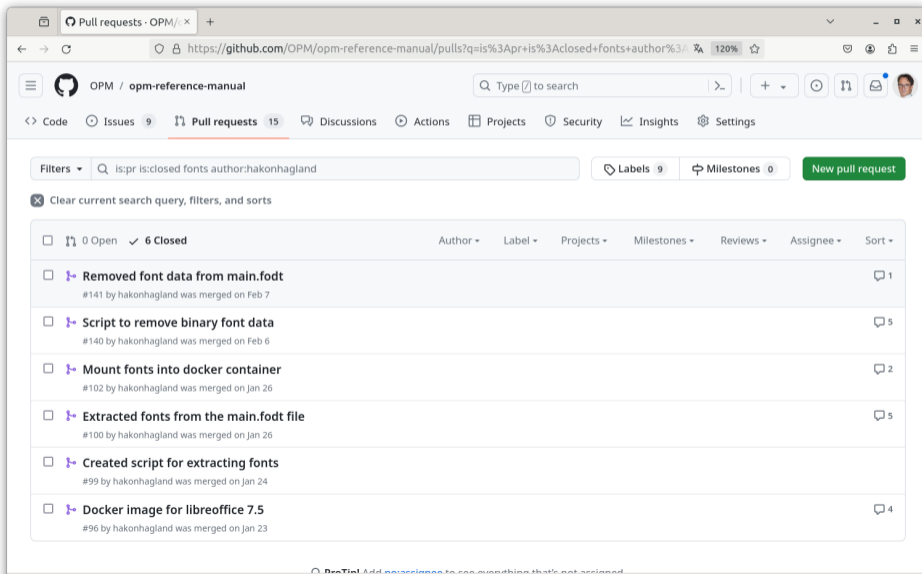
Labels: None yet

Projects: None yet

Milestone: No milestone

hakonhagland mentioned this pull request on Dec 16, 2023

No need for embedded fonts



OPM / opm-reference-manual

Code Issues 9 Pull requests 15 Discussions Actions Projects Security Insights Settings

Filters Labels 9 Milestones 0 [New pull request](#)

Clear current search query, filters, and sorts

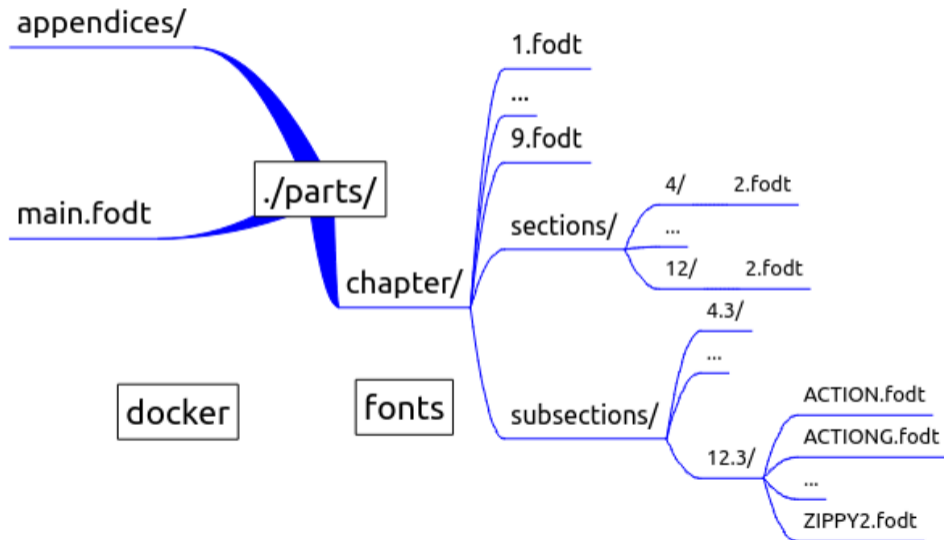
<input type="checkbox"/>	<input type="checkbox"/>	0 Open	<input checked="" type="checkbox"/>	6 Closed	Author	Label	Projects	Milestones	Reviews	Assignee	Sort
<input type="checkbox"/>	Removed font data from main.fodt	#141	by hakonhagland	was merged on Feb 7					1		
<input type="checkbox"/>	Script to remove binary font data	#140	by hakonhagland	was merged on Feb 6					5		
<input type="checkbox"/>	Mount fonts into docker container	#102	by hakonhagland	was merged on Jan 26					2		
<input type="checkbox"/>	Extracted fonts from the main.fodt file	#100	by hakonhagland	was merged on Jan 26					5		
<input type="checkbox"/>	Created script for extracting fonts	#99	by hakonhagland	was merged on Jan 24							
<input type="checkbox"/>	Docker image for libreoffice 7.5	#96	by hakonhagland	was merged on Jan 23					4		

Lots of other author work

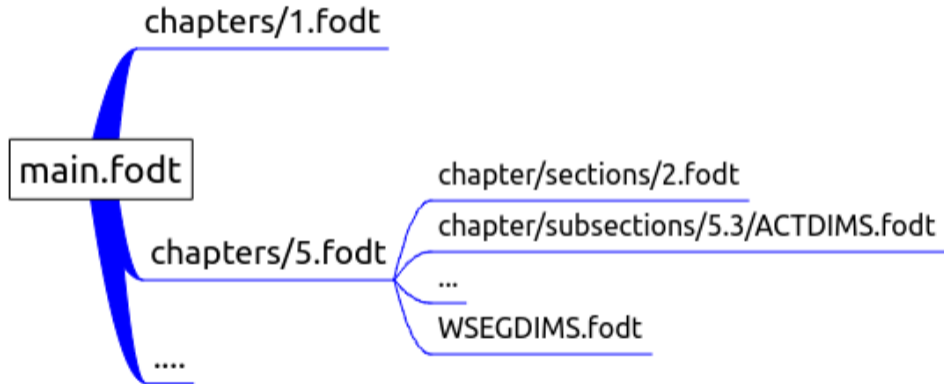


- New keywords
- Lots of fixes
- about 300 PRs

Document file directory layout



Document master document layout



Python scripts



- for repetitive editing tasks
- for building and running docker

Docker LibreOffice Version



Takes care of correct version and fonts

Easiest way for developers (same old)



Write good PR descriptions for those 500 PRs

- What changed?
- Why?
- Categorize it

Best way for (small) changes

```
4 parts/chapters/subsections/12.3/DRSDTR.fodt Viewed ...
@@ -4383,7 +4383,7 @@ Updated with AFR/TSA Rev-D comments and new keywords.</dc:description><meta:init
4383 4383 <text:p text:style-name="P14710">Table <text:sequence text:ref-name="refTable564"
text:name="Table" text:formula="ooow:Table+1" style:num-format="1">12.22</text:sequence>: DRSDTR
Keyword Description</text:p>
4384 4384 <text:p text:style-name="P15538"/>
4385 4385 <text:p text:style-name="_40_TextBody">Note this keyword can be used in history matching field
performance to control the availability of the movable gas phase.</text:p>
4386 - <text:p text:style-name="_40_TextBody">See also the VAPPAR keyword in the SOLUTION section and the
DRSDT, DRVDT and DRVDTR keywords in the SCHEDULE section that controls how vaporized oil is treated
and the rate at which the dissolved phase ratio increases within a grid block.</text:p>
4386 + <text:p text:style-name="_40_TextBody">See also the VAPPARS keyword in the SOLUTION section and
the DRSDT, DRVDT and DRVDTR keywords in the SCHEDULE section that controls how vaporized oil is
treated and the rate at which the dissolved phase ratio increases within a grid block.</text:p>
4387 4387 <text:p text:style-name="_40_TextBody">This keyword is not supported by OPM Flow but has no effect
on the results so it will be ignored but is documented here for completeness, as it is expected to be
available in the next release of OPM Flow.</text:p>
4388 4388 <text:h text:style-name="P18563" text:outline-level="4"><text:bookmark-start
text:name="__RefHeading__Toc716565_3964674244"/>Examples<text:bookmark-end
```

Figure: Edit the xml files if possible

Adding new keywords



Creates new keyword file in subsection 4.3 with appropriate links to it

```
fodt-add-keyword --maindir=../parts \  
--keyword=HELLO --section=4.3 \  
--title="Hello World" --status=green
```

Using LibreOffice



- Only edit leaf documents
- Use docker image if possible
- Only use default styles, etc.

LibreOffice does not care about nice diffs

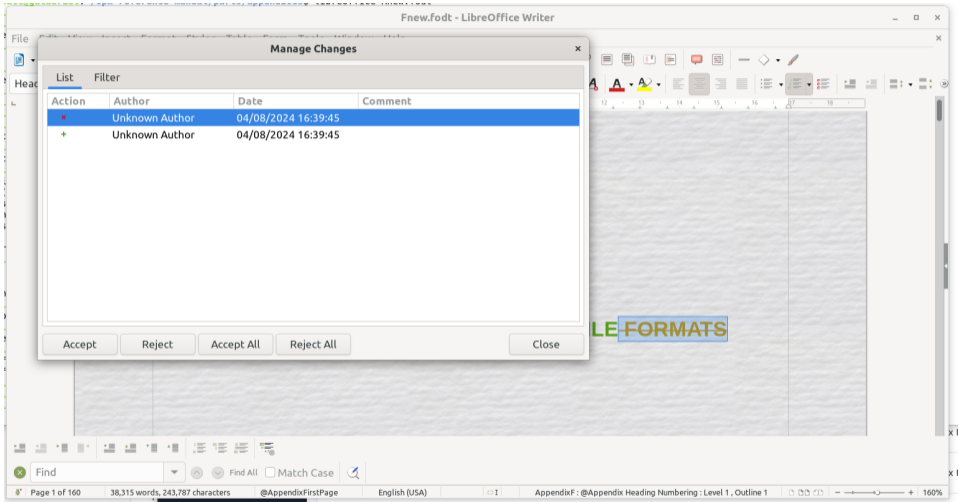


```
4 / 4 + [ ] [ ]
Tilix: mblatt@galadriel: ~/opm-reference-manual/parts/appendices

1: mblatt@galadriel: ~/opm-reference-manual/parts/appendices
diff --git a/parts/appendices/A.fodt b/parts/appendices/A.fodt
index 38fd3e5..19e92be 100644
--- a/parts/appendices/A.fodt
+++ b/parts/appendices/A.fodt
@@ -1,6 +1,7 @@
<?xml version="1.0" encoding="UTF-8"?>
+
+<office:document xmlns:officeooo="http://openoffice.org/2009/office" xmlns:css3t="http://www.w3.org/TR/css3-text/" xmlns:grddl="http://www.w3.org/2003/g/data-view#" xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:form="urn:openoffice:names:experimental:ooxml-odf-interop:xmlns:form:1.0" xmlns:xsl="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:chart="urn:oasis:names:tc:opendocument:xmlns:chart:1.0" xmlns:svg="urn:oasis:names:tc:opendocument:xmlns:svg-compatible:1.0" xmlns:text="urn:oasis:names:tc:opendocument:xmlns:text:1.0" xmlns:ooo="http://openoffice.org/2004/cal" xmlns:style="urn:oasis:names:tc:opendocument:xmlns:style:1.0" xmlns:oooow="http://openoffice.org/2004/writer" xmlns:meta="urn:oasis:names:tc:opendocument:xmlns:meta:1.0" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:rpt="http://openoffice.org/2005/report" xmlns:draw="urn:oasis:names:tc:opendocument:xmlns:drawing:1.0" xmlns:config="urn:oasis:names:tc:opendocument:xmlns:config:1.0" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:fo="urn:oasis:names:tc:opendocument:xmlns:xsl-fo-compatible:1.0" xmlns:ooo="http://openoffice.org/2004/office" xmlns:office="urn:oasis:names:tc:opendocument:xmlns:office:1.0" xmlns:dr3d="urn:oasis:names:tc:opendocument:xmlns:dr3d:1.0" xmlns:table="urn:oasis:names:tc:opendocument:xmlns:table:1.0" xmlns:number="urn:oasis:names:tc:opendocument:xmlns:datatypes:1.0" xmlns:of="urn:oasis:names:tc:opendocument:xmlns:of:1.2" xmlns:calcext="urn:org:documentfoundation:names:experimental:calc:xmlns:calcext:1.0" xmlns:tableooo="http://openoffice.org/2009/Table" xmlns:drawooo="http://openoffice.org/2010/draw" xmlns:loext="urn:org:documentfoundation:names:experimental:office:xmlns:loext:1.0" xmlns:dom="http://www.w3.org/2001/xml-events" xmlns:field="urn:openoffice:names:experimental:ooo-ms-interop:xmlns:field:1.0" xmlns:math="http://www.w3.org/1998/Math/MathML" xmlns:form="urn:oasis:names:tc:opendocument:xmlns:form:1.0" xmlns:script="urn:oasis:names:tc:opendocument:xmlns:script:1.0" xmlns:xforms="http://www.w3.org/2002/xforms" office:version="1.3" office:meta-type="application/vnd.oasis.opendocument.text">
+<office:meta>
+<meta:creation-date>2023-05-18T17:05:55.227000000</meta:creation-date>
+<meta:editing-duration>PT5H27M43S</meta:editing-duration>
+<meta:editing-cycles>23</meta:editing-cycles>
+<meta:generator>LibreOffice/7.0.4.2$Linux_X86_64 LibreOffice_project/00$Build-2</meta:generator><dc:subject>OPM Flow Reference Manual</dc:subject><dc:title>OPEN POROUS MEDIA</dc:title><dc:description>To insert equations with numbering and correct Table layout type
+<office:meta>
+<meta:creation-date>2023-05-18T17:05:55.227000000</meta:creation-date>
+<meta:editing-duration>PT5H28M7S</meta:editing-duration>
+<meta:editing-cycles>24</meta:editing-cycles>
+<meta:generator>LibreOffice/7.3.7.2$Linux_X86_64 LibreOffice_project/30$Build-2</meta:generator><dc:subject>OPM Flow Reference Manual</dc:subject><dc:title>OPEN POROUS MEDIA</dc:title><dc:description>To insert equations with numbering and correct Table layout type
1) eq
2) F3
@@ -16,28 +17,30 @@ To insert a new keyword section (except for the header)
To insert standard text:
1) t0, t1, t2
2) F3
-Updated with AFR/TSA Rev-D comments and new keywords.</dc:description><meta:initial-creator>David Baxendale</meta:initial-creator><dc:date>2023-06-08T14:02:34.363000000</dc:date><dc:creator>David Baxendale</dc:creator><meta:document-statistic meta:table-count="2330" meta:image-count="166" meta:object-count="868" meta:page-count="2726" meta:paragraph-count="83761" meta:word-count="658410" meta:character-count="4459673" meta:non-whitespace-character-count="3361758"/><meta:user-defined meta:name="ClientContact">ClientContact</meta:user-defined><meta:user-defined meta:name="ClientEmail">ClientEmail</meta:user-defined><meta:user-defined meta:name="ClientOffice">ClientOffice</meta:user-defined><meta:user-defined meta:name="ClientOfficeAddress">ClientOfficeAddress</meta:user-defined><meta:user-defined meta:name="ClientRegistered">ClientRegistered</meta:user-defined><meta:user-defined meta:name="ClientRegisteredAddress">ClientRegisteredAddress</meta:user-defined><meta:user-defined meta:name="ClientTelNo">ClientTelNo</meta:user-defined><meta:user-defined meta:name="ClientTelNo">ClientTelNo</meta:user-defined><meta:user-defined meta:name="DocumentDate">DocumentDate</meta:user-defined><meta:user-defined meta:name="DocumentDate">DocumentDate</meta:user-defined><meta:user-defined meta:name="DocumentNumber">DocumentNumber</meta:user-defined><meta:user-defined meta:name="DocumentNumber">DocumentNumber</meta:user-defined>

```

LibreOffice compares Documents



Manage Changes

Action	Author	Date	Comment
-	Unknown Author	04/08/2024 16:39:45	
+	Unknown Author	04/08/2024 16:39:45	

Accept Reject Accept All Reject All Close

LE FORMATS

Page 1 of 160 38,315 words, 243,787 characters @AppendixFirstPage English (USA) Appendix F : @Appendix Heading Numbering : Level 1, Outline 1 160%

Reference Manual still writes itself



- Open development process
- Take care with libreoffice
- Matthew will make manual consistent

Contact and questions



For question about the talk or OPM and support for it please contact

Markus Blatt

support@opm-op.com

OPM-OP AS

Oscars gate 27

0352 Oslo