

Consolidation of OpenQuake Engine Documentation

<https://github.com/gem/oq-engine/wiki/Google-Season-of-Docs-2023-Project>

RESULTS: [New OpenQuake engine documentation website!](#)

GEM Foundation

GEM is a non-profit organization that drives a global collaborative effort to assess and communicate earthquake risk worldwide using the latest science and technology.

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Problem Statement

Even though the OpenQuake project has been widely adopted by the earthquake science and engineering community and has had significant impact already within its first decade of existence, with a staff of fewer than 30 employees, of which only a few are dedicated exclusively to the development of OpenQuake, some aspects of the software (particularly its documentation) have lagged.

Currently, the existing OpenQuake documentation is in different formats and scattered across different locations, ranging from:

- the [project GitHub](#) repository, which contains installation instructions, FAQs, and a few one-off doc pages
- sphinx-generated HTML doc sites for its [basic](#) and [advanced](#) user manuals
- a [YouTube channel](#) containing playlists of video tutorials, and
- static PDF documents explaining the underlying earthquake [hazard](#) and [risk](#) science

The main desired outcome of the documentation project was to restructure and consolidate all the existing information into a single location and format.

Proposal Abstract

The main objectives of the Consolidation for OpenQuake Engine Documentation project were defined as:

- Create a layered structure by which the existing OpenQuake documentation will be organized, following the [four quadrant documentation system](#).
- Create a location to serve as an online repository for all existing OpenQuake documentation.
- Migrate the content of the current HTML websites for the [basic](#) and [advanced](#) user guides, following the proposed structure.
- Transform the static PDF documents for the underlying [hazard](#) and [risk](#) science, so that it can be uniformly accessed in the newly formed online repository.
- Host the locations for the relevant YouTube training videos, for each of the existing modules.

We had estimated that this work would take **four months** to complete.

Project Description

Creating the proposal

How did you come up with your Google Season of Docs proposal? What process did your organization use to decide on an idea? How did you solicit and incorporate feedback?

A senior risk engineer (@raoanirudh) from the GEM foundation heard about the Google Season of Docs opportunity and reached out to the Product Manager (PM) about the need to upgrade the OpenQuake Engine documentation. We were interested in the possibility to obtain funds to hire a temporary person from outside the organization, dedicated specifically as a technical writer.

The PM brought the possibility to the Secretary General of the organization, who liked the idea and recognized the need to do something about the current state of the documentation, as well as identified other sources of internal funding that could be used to justify investing the time of the internal technical team.

The PM set up a proposal along with @raoanirudh and submitted it for review by the management team. After a short process it was accepted and cleared for submission. The Head of the IT department (@pslh) was involved from the inception, checking the legal terms of the potential acceptance, and creating the Open Collective account to oversee payments.

Budget

Include a short section on your budget. How did you estimate the work? Were there any unexpected expenses? Did you end up spending less than the grant award? Did you allocate funds properly or were some items you budgeted for more/less/unnecessary? Did you have other funds outside of Google Season of Docs that you were able to use?

The original budget requested to the Google Season of Docs grant was as follows:

Budget item	Amount	Running Total	Notes/justifications
Technical writer consolidation of existing documentation of the OpenQuake Engine	\$5310	\$5310	Equivalent amount to 5000EUR, the contract with the technical writer will be given in Euros, since the organization is located in Italy
Project swag (6 t-shirts, 50 stickers)	\$150	\$5460	
TOTAL		\$5460	

The budget was defined only considering the costs of the technical writer, the amount was decided based on previous experience with creating temporary part-time contracts in Italy. Due to changes in the exchange rates between Euros and US Dollars, the funds budgeted for project swag had to be used for the contract of the technical writer.

Aside from the funds requested from Google, the project used funds from the United States Agency for International Development (USAID), through an ongoing project called [FORCE](#). These funds were used to allocate the time of the internal team (mainly @raoanirudh and @CatalinaYepes) who was involved in the definition of the documentation structure and organization.

Participants

Who worked on this project (use usernames if requested by participants)? How did you find and hire your technical writer? How did you find other volunteers or paid participants? What roles did they have? Did anyone drop out? What did you learn about recruiting, communication, and project management?

The project was carried out internally by the Product Manager (@andresabarca-gem) leading the administrative process and main point of contact, with both @raoanirudh and @CatalinaYepes leading the technical management.

A call for applications to find a technical writer was published in the [OpenQuake Engine user forum](#), as well as through the Google Season of Docs website. Over 50 applications were received for the position and ultimately Basar Yucel (@basaryucell) was selected, for being the only applicant with previous experience as a user of the OpenQuake engine, as well as being located in Italy, where the headquarters of the GEM Foundation are located.

Overall, the internal team had no problems organizing the work with @basaryucell and we were very happy with working with him. He had to learn a lot of the basics of product documentation tools (such as Markdown, Sphinx and Git) and ended up being a productive member of the project.

Timeline

Give a short overview of the timeline of your project (indicate estimated end date or intermediate milestones if project is ongoing). Did the original timeline need adjustment?

The original schedule of the project went through delays, mainly due to changes in the initial organization structure that had been chosen before starting the project. After the project had begun, and the internal technical team started distributing the existing documentation into the [four quadrant system](#), it became evident that the structure was not ideal for the user experience of the OpenQuake engine, and that ultimately contributing to its update and future development would suffer.

Initial Schedule	Action Items	Adjusted Schedule
May	• Orientation • Inventory of existing documentation • Definition of consolidated documentation structure • Definition and application of initial documentation satisfaction survey	June
June - July	• Migrate static documentation to HTML • Create website location for consolidated documentation • Populate website with all existing documentation	July-September
August	• Review and testing of consolidated documentation • Final changes requested by project members • Consolidated documentation goes live	October-November
November	• Application of final documentation survey • Writing of project completion report	November

At the time of writing this report, the main pending issue is that the old documentation resources have not yet been removed from the internet and replaced by the new documentation outcomes. The reason for this is that the delay did not allow sufficient time for testing and feedback from some internal users. The IT department, in charge of the main development of the OpenQuake documentation is still performing the transition, and we did not want to risk leaving the software without documentation, in case problems or changes arise with the new one.

Results

What was created, updated, or otherwise changed? Include links to published documentation if available. Were there any deliverables in the proposal that did not get created? List those as well. Did this project result in any new or updated processes or procedures in your organization?

The main objective of the project, the establishment of a single website hosting or redirecting to all documentation resources for the OpenQuake Engine, was accomplished. The new documentation site is live [at this location](#).

All the existing resources of documentation were identified and either migrated to the new site under the new structure, or referenced from the new site. A list of the elements that now reside in the new documentation, or are referenced there, is shown in Figure 1.

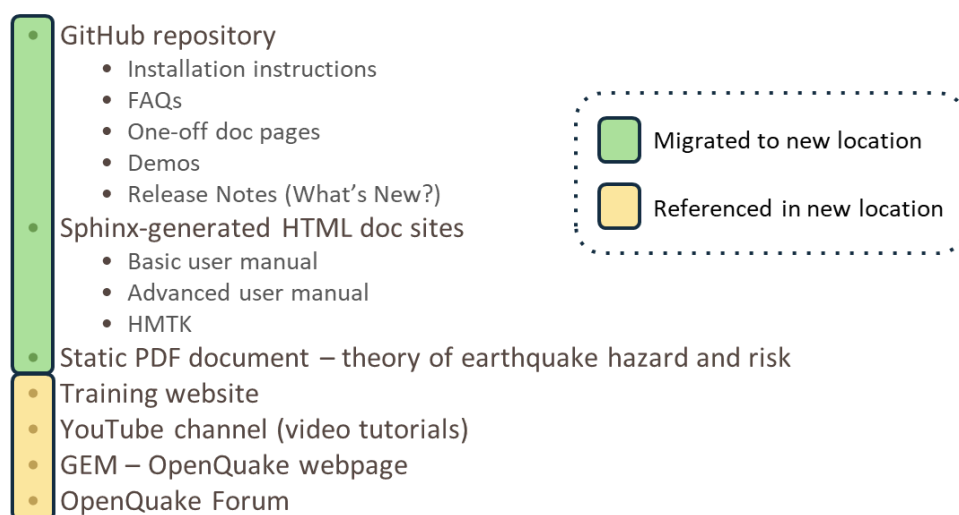


Figure 1: Organization of existing resources in new documentation

The new documentation structure was organized in six main quadrants, each containing different sections targeted for different users of the OpenQuake engine, as shown in Figure 2.

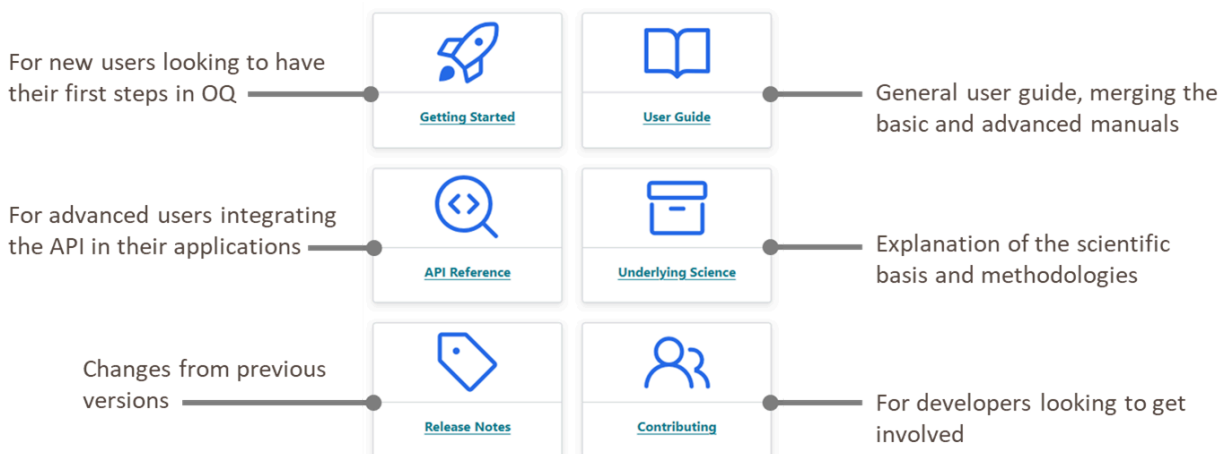


Figure 2: Structure chosen for the new documentation

Metrics

What metrics did you choose to measure the success of the project? Were you able to collect those metrics? Did the metrics correlate well or poorly with the behaviors or outcomes you wanted for the project? Did your metrics change since your proposal? Did you add or remove any metrics? How often do you intend to collect metrics going forward?

The metrics that were chosen to track the results of the project were related to three main components: the number of website locations that a user needs to access to review the existing OpenQuake documentation, the perceived satisfaction from OpenQuake users (measured with a survey), improvements of the SEO of the OpenQuake documentation.

We would consider the project successful if, three months after publication of the new documentation:

- The totality of existing OpenQuake documentation can be accessed through a single website
- The perceived rating of the OpenQuake documentation, as evidenced by the results from the surveys to be carried out at the beginning and end of the project, increases by 30%
- The website created for the documentation comes as a top results when searching “OpenQuake documentation” in Google

Metric Results

In terms of the first metric, it can be considered accomplished since the new documentation does represent a single point of entry for all previously existing documentation resources.

As per the second metric, [an initial satisfaction survey](#) was carried out in the beginning of July, where we received feedback and suggestions from [47 users of the OpenQuake engine](#) in terms of their perceived user experience and recommendations about how to restructure the documentation.

The following questions were selected to evaluate the overall perception of the documentation, where users were asked to provide a number between 1-5 (1 being a bad experience and 5 an excellent one):

Question # Question:

- 1 How easy is it for you to find answers to your questions about the OpenQuake engine?
- 2 How would you rate the user friendliness of the OpenQuake engine documentation?
- 3 How would you rate the organization of the OpenQuake engine documentation?
- 4 How would you rate the sufficiency/completeness of the OpenQuake engine documentation?
- 5 How would you rate the OpenQuake engine documentation overall?

The overall score was calculated by multiplying the percentage of users for each individual score for each question and determining the average amongst all values. The following table shows the results of the initial survey.

Question #	1	2	3	4	5	TOTAL
1	0.109	0.261	0.435	0.196	0	2.72
2	0.022	0.174	0.37	0.37	0.065	3.29
3	0.022	0.065	0.37	0.391	0.152	3.59
4	0.043	0.196	0.348	0.37	0.043	3.17
5	0.022	0.065	0.37	0.413	0.13	3.56
					Overall score	3.27

A [follow up survey](#) was carried out in November (not complying with the 3 months after the publication of the new documentation) repeating the questions mentioned before. A total of [11 users](#) provided their feedback. The following table shows the results of the follow up survey.

Question #	1	2	3	4	5	TOTAL
1	0	0.182	0.091	0.636	0.091	3.64
2	0.091	0	0	0.364	0.545	4.27
3	0	0.091	0	0.364	0.545	4.36
4	0	0.091	0.091	0.545	0.273	4.00
5	0	0.091	0	0.364	0.545	4.36
					Overall score	4.13

In comparison, the initial perception was 3.27, while the new documentation received an overall score of 4.13. **This represents a comparative improvement of 26%**, which is just below the 30% target, but is still considered a significant improvement considering that still some changes and enhancements are expected in the following months.

In terms of the final metric, the Google search “OpenQuake documentation” still redirects to previous documentation resources. However, as mentioned in the Timeline section, this is due to the delay in the publication of the new documentation, which did not allow enough time to replace the previous existing resources. This metric is expected to improve in the near future.

Analysis

What went well? What was unexpected? What hurdles or setbacks did you face? Do you consider your project successful? Why or why not? (If it's too early to tell, explain when you expect to be able to judge the success of your project.)

We are very pleased with the outcome of our Google Season of Docs project and consider it a success. The new documentation is much more organized, is aligned with other top-tier software projects than the previous versions and it is much more user friendly than the previously existing situation.

We found the experience of working with Google Season of Docs very easy from the administrative front and the internal team learned a lot about how to organize a documentation project. Furthermore, our experience with the technical writer was very pleasant, with @basaryucell becoming a great ally and collaborator, who still is willing to contribute to the project.

Some setbacks were encountered in terms of delays due to changes in the original documentation organization structure. However, these changes were necessary to meet the project objectives and could not be foreseen beforehand. Overall the team stepped up to deliver a high quality result, on a reasonable timeline to close this initial part of the project, even considering the changes and setbacks.

Summary

In 2-4 paragraphs, summarize your project experience. Highlight what you learned, and what you would choose to do differently in the future. What advice would you give to other projects trying to solve a similar problem with documentation?

Overall, we are very satisfied with the outcomes obtained through the Google Season of Docs project. We achieved our main documentation objectives and the results are a great improvement to the previously existing resources. The metrics obtained are in line with our

expectations, even though not all of them are completely met as initially defined, given the circumstances and setbacks encountered.

A great part of the success was the great contribution of our internal technical managers @raoanirudh and @CatalinaYepes, who invested a lot of time and dedication to the project and were relentless in making sure that the final results were high-quality deliverables. Furthermore, our experience with our technical writer @basaryucell was great, he overcame his lack of experience with tools like Sphinx and GitHub, was always responsive and receptive to feedback and changes, and ultimately met the expectations of the internal team.

Our advice to future projects is to:

- Go for it! The experience with Google Season of Docs is very pleasant. It is an opportunity to mobilize your team into a common goal to improve your documentation.
- Be mindful of the timescale, six months can go by very fast and there is little room to implement changes and correct delays.
- Get key players of your team involved as early as possible. It is best to get their feedback when there is still time to make modifications.