

D2.13 — 1st PathoCERT Open Access activities report

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ABSTRACT	This deliverable presents the Open Access Policy for the PathoCERT project. All partners of the PathoCERT project are obliged to comply to this deliverable regarding the outputs of PathoCERT. The PathoCERT Open Access policy is in compliance with the H2020 Open Access policy. Two Open Access repositories where created, a Community portal in Zenodo and a repository in GitHub. All outputs (research publications, research data, open-source software) that comply with the Open Access policy should be uploaded to these repositories by all partners. Finally, all the produced Open Access outputs of PathoCERT during the first 9 months are listed.				

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Executive summary

This document presents the Open Access Policy of the PathoCERT program. All PathoCERT partners will comply to this policy regarding its produced outputs. Section 1 introduces the Open Access Policy in accordance with H2020 guidelines. Section 2 presents a summary of the Open Access Activities during the first 9 months of the PathoCERT project. Section 3 describes the steps taken to set up a Community Portal on the Zenodo platform and a PathoCERT GitHub repository. Section 4 provides the Open Access guidelines and procedure for each kind of produced output. The outputs include research papers, research results such as datasets, and open source software.

Appendix A illustrates visually the Open Access submission procedure. Appendix B explains the procedure for creating an ORCID account. Appendix C presents the embargo policies per publisher and Appendix D presents guidelines on choosing the appropriate license.



1 Introduction

In accordance with its H2020 Grant Agreement of PathoCERT, the project partners are obligated to disseminate the project results to the public and in scientific publications, as soon as possible. In addition, the partners must ensure open access (free of charge online access) to all peer-reviewed scientific publications related to PathoCERT.

Open access implies the ability of anyone to read online, download, print, copy, distribute, search and link publications and data. Publications include journals and conference papers, and is strongly encouraged for pre-prints, monographs, books, proceedings, and reports. Specifically, researchers must deposit a machine-readable copy of the published or final peer-reviewed manuscript accepted for publication, in a suitable online repository. The manuscript should be made open access within 6 months of publication. There are two models for open access publication:

1) "Green" Model

- a) Self-archiving of published or final peer-reviewed version¹, immediately or after an embargo period (at most 6 months)
- b) EC provides a template agreement between the Publisher and the Journal if needed²

2) "Gold" Model

- a) Publishing in an Open/Hybrid Access journal.
- b) The manuscript must also be made accessible through a different online repository
- c) Publication expenses are covered by H2020 during the project (Article 6.2.D.3 of the H2020 Grant Agreement)



The Open Access obligation does not limit the right to protect the Intellectual Property; if relevant, IP should first be protected and then proceed to public dissemination of the results, in accordance to the dissemination and PathoCERT Data Management Plan (DMP). A workflow overview is provided in the figure below.

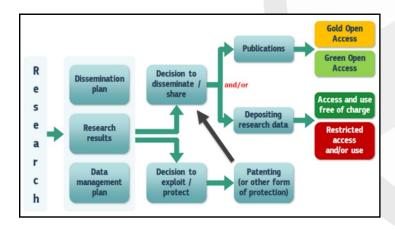


Figure 1. Flow for choosing open access model

¹ In accordance with some publisher guidelines (e.g., IEEE), authors can publish the "accepted" version of their papers but not "published" version. Accepted is the version revised with the review suggestions, accepted for publication, whereas published is reviewed/accepted version with copy-editing/proof-reading/formatting.

 $^{{}^2\}underline{\text{http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-oa-guide-model-for-publishing-a} \ \underline{\text{en.pdf}}$

Moreover, in accordance with the ERC Guidelines for Open Access³, private repositories such as ResearchGate and Academia.edu do not count as OA repositories, as they require users to register to access content. Furthermore, posting on a personal, institutional or project specific webpage or in a publicly accessible Dropbox account is not sufficient to satisfy the requirements.

Open Access is a major part of the PathoCERT project and a key priority of its Communication Strategy. Opening access to research results produced by members of the consortium, allows other interested parties to build on-top of that work and promotes further research, innovation activities and entrepreneurship. Moreover, this will have a significant impact on the way research is shared and knowledge is managed within the project, thus enhancing scientific excellence.

To this end, PathoCERT has developed an Open Access guideline to be implemented by the partners. The guideline aims to reinforce the project's commitment to disseminate results and in scientific publications and promote the principle of open access where possible for peer-reviewed scientific publications related to the project. *All PathoCERT researchers should be aware and follow the PathoCERT Open Access guidelines*.

³ ERC Guidelines on Implementation of Open Access to Scientific Publications and Research Data, 21 April 2017

2 Summary of Open Access Activities

The tables below provide a summary of the Open Access outputs during the period of the 1st deliverable.

Table 1. Open Access Publications

Туре	Title	Authors	Title of the Journal or Proceedings	Number, date	Open Access (Green or Gold)	Peer- review	DOI	Repository Link
Journal	A social media analytics platform visualising the spread of COVID-19 in Italy via exploitation of automatically geotagged tweets	S. Andreadis, G. Antzoulatos, T. Mavropoulos, P. Giannakeris, G. Tzionis, N. Pantelidis, K. Ioannidis, A. Karakostas, I. Gialampoukidis, S. Vrochidis, I. Kompatsiaris	Online Social Networks and Media	23, May 2021, 100134	Yes – Gold	Yes	https://doi.org/10. 1016/j.osnem.202 1.100134	https://zenodo. org/record/469 6382
Presentati on	Project Overview: Pathogen Contamination Emergency Response Technologies	D. Eliades	Nicosia Risk Forum	Nov 2020	Green	No	https://zenodo.org /record/4800819	https://zenodo. org/record/480 0819

Table 2. Open datasets

Title	DOI of dataset	Links	Accessible	Reusable	Linked Publication	DOI of Publication	
The project has not produced open datasets during this period							

3 Setup of PathoCERT Open Access Platforms

During the first period, the following activities were implemented by the project:

- Creation of the PathoCERT Community Portal on Zenodo
- Creation of the PathoCERT GitHub repository
- Preparation of Open Access guidelines for the research teams involved in PathoCERT including instructions for Open Access publications, Open Research Data, Open Software Code, and Reproducible Research (included in this deliverable).

A detailed description of each activity is provided in the following subsections.

3.1 PathoCERT Open Access Zenodo Community

PathoCERT uses **zenodo.org**, an on-line platform for managing open access and open research data. Zenodo is a data repository maintained by CERN and is now part of OpenAIRE, an EC-supported tool which connects publications to funded projects. Zenodo can accept papers, presentations, posters, code (can be linked with GitHub repositories), video and other data formats. Documents at Zenodo have a unique identification and can be linked internally with other data or externally (e.g., on arXiv). The Open Access platform which will collect the data produced from the project, can be found in the following link: (https://zenodo.org/communities/pathocert-2020/). An Open Access publication is shown in the figure below. The Portal is currently being populated with publications and research data that can be linked with software code on the PathoCERT GitHub repository.

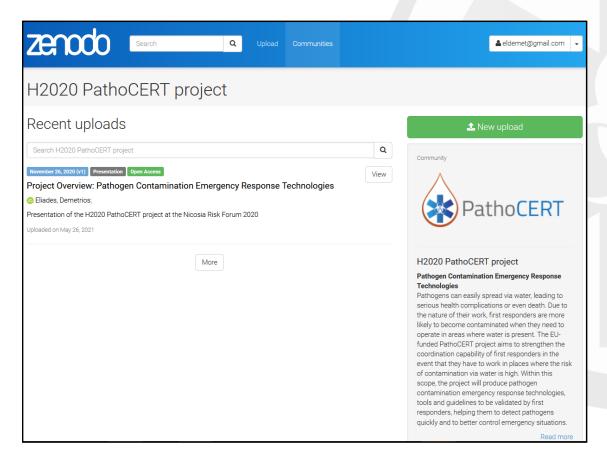


Figure 2. PathoCERT Zenodo Community

3.2 PathoCERT Open Code GitHub Repository

PathoCERT uses github.com, an on-line platform for managing the distribution of open-source code. GitHub can be integrated with Zenodo, and the code can support a wide variety of licenses, including EUPL. Through the repository, the project partners can share code that they produce, which may accompany scientific publications for reproducibility or other toolkits. In addition the repository can act as a collection of open-source tools related to the PathoCERT objectives, "forked" from different repositories, to support reusability. The repository can be found at https://github.com/h2020pathocert.

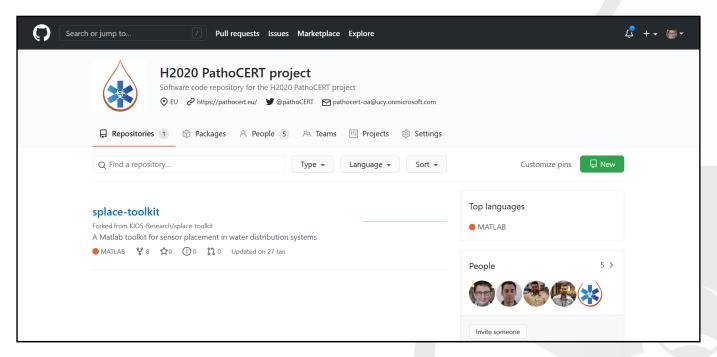


Figure 3. PathoCERT Code Repository

4 PathoCERT Open Access Guidelines

4.1 PathoCERT Open Access Publications

For the OA guidelines, we define the following three stages in publication:

- > Stage 1: The **Submitted Pre-print** is a manuscript submitted to a journal/conference for review. The authors have the copyright of this version.
- > Stage 2: The **Accepted Pre-print**, is an updated version of the submitted pre-print created by the authors after the peer-review process.
- > Stage 3: **Published,** is the version created by the journal which includes their copy-editing, proof-reading and formatting. The journal has the copyright of this version, as authors are asked to explicitly transfer their copyright to the journal. (Note that in some journals/conferences the copyright is "Creative Commons License", and in that case, the authors have the right to use the Published paper as in the case of Accepted Pre-prints for open access purposes.)

The following general guidelines should be taken into consideration by the PathoCERT partners:

- All **Accepted Pre-prints** of journals/conference publications **must be made available online** as soon as possible, that is, after being assigned a DOI by the publisher and possibly following an embargo period if required by the publisher.
- All **Accepted Pre-prints** related to H2020 projects must be made available online within at most 6 months.
- The OA obligation does not limit the right to protect the Intellectual Property (IP); if relevant, IP should first be protected and then proceed to public dissemination of the manuscript.
- **Pre-prints** of journals/conference publications **may be made available** as soon as the paper is submitted for review.

The following steps should be considered:

- 1. Manuscript accepted for publication (Accepted Pre-print):
 - Make sure you are allowed to deposit the accepted pre-print in an open access repository. For your convenience, the embargo policies of several publishers are summarized in 0. If not listed in 0, you can check the publisher's website.
 - If you need further assistance, you should contact the PathoCERT PMST for help.
- 2. **Login to PathoCERT Zenodo Community**⁴ (e.g., using your ORCID account) and select *Upload*.
 - If you do not have an ORCID account yet, please create one following the guidelines in Appendix B.
- 3. **Upload publication files** (e.g., the *Accepted Pre-print*). The main points in steps (c) (o) are illustrated in Appendix A.

⁴ https://zenodo.org/deposit/new?c=pathocert-2020

- For some IEEE journals/conferences, you can download the Accepted version from https://authorgateway.ieee.org/, under "Completed Articles" on the text "Accepted Manuscript"
- Never use the version that is available online on the publisher's website, unless it
 explicitly says that it is Open Access with a Creative Commons License.
- For Elsevier Gold Open Access articles, the document should contain a Cross Mark
 logo and a DOI link to the formal publication on ScienceDirect.
- 4. **Specify the Communities**; these should include at least the following:
 - "H2020 PathoCERT project"
 - If some of the authors of the paper have received funding from other projects which have established Zenodo Communities, you can add them here.
- 5. **Select type of upload and publication type** (e.g., Publication/Journal Article).
- 6. **Digital Object Identifier** (DOI)
 - If the publisher has already produced a DOI, use the DOI of the publisher. If a DOI has not been issued yet, the authors should wait until the DOI has been issued, as they are not able to change the Zenodo DOI at a later stage.
 - If the document does not have a DOI and the publisher will not create one, then leave the field empty and Zenodo will assign a new DOI.

7. Publication date

Specify the date that the document (e.g., journal article, conference paper, book chapter, etc.) was first made available online, as it appears on the publisher's website.

- 8. **Specify basic publication information** (such as title, authors, affiliations, keywords etc.).
- 9. Specify description
 - Enter the abstract of the paper

10. Additional Notes

- Add any Non-EU funding agencies (e.g., National funding)
- For IEEE publications, you need to add the following:
 - The following copyright note:
 - "© 20xx IEEE. Personal use of this material is permitted. Permission from IEEE must be obtained for all other uses, in any current or future media, including reprinting/republishing this material for advertising or promotional purposes, creating new collective works, for resale or redistribution to

servers or lists, or reuse of any copyrighted component of this work in other works."

- Full citation in IEEE style plus the IEEE DOI.
- For Springer publications, you need to add the following:

"The final publication is available at Springer via http://dx.doi.org/[insert DOI]".

- 11. **Decide license** (e.g., CC-BY-SA).
 - For more details regarding the different licenses there is a guide included in Appendix D.

For Elsevier, the recommended licence is CC-BY-NC-ND

- 12. **Specify H2020 grant title** (as it is registered in CORDIS) or its number
 - Grant Title: PathoCERT, number: 883484.
 - Note that the publication manuscript should include the following
 acknowledgment: "This work was supported by the European Union's Horizon 2020
 research and innovation programme under grant agreement No 883484
 PathoCERT".
- 13. **Link related identifiers**, e.g., if this manuscript has previous/same versions store elsewhere, or link with its datasets and code.
- 14. Add journal/conference bibliographical data.
 - For conference papers add the place where the conference took place as <city, country>.
- 15. Save & publish; this will submit your manuscript for approval by the PathoCERT Open Access team (Dr Christos Laoudias and Dr Demetrios Eliades).

4.2 PathoCERT Open Research Data

Open Access to research data refers to the right to access and reuse results of experiments, a practice which is the default for Horizon 2020 projects. Data should be "as open as possible, as closed as necessary". This includes:

- Underlying data: needed to validate scientific publications, including metadata. This includes datasets, configuration files, data for figures used in a publication, etc.
- > Other data: curated data or raw data, associated metadata, in accordance to the PathoCERT DMP.

The guide is defined as follows:

- For all publications, the data required to reproduce the study should make an effort to be made available through the PathoCERT Zenodo Community.
- Data can be referred to within the paper through their URI as supplementary material.
- Readers, where possible, should be able to reproduce figures or to reproduce experimental results.
- Readers, where possible, should have access to open-source and/or executable format of the code.
- All researchers involved in PathoCERT should be aware of the specifications in the PathoCERT DMP.
- Before proceeding with providing open access for a research dataset, confirm that you are allowed to do so. Even if in principle the dataset can be shared, make sure whether specific information about the data must be kept confidential. Finally, make also sure that you know under which license the data can be made publicly available.
- In case of doubt, PathoCERT partners can discuss this issue with the PathoCERT Data Manager.

The following guidelines should be considered to implement this policy for datasets that supplement scientific publications, as well as standalone datasets, i.e., those that are not related to any scientific publication:

- 1. Make sure that the data file(s) you plan to upload do not contain words and terms that cannot be understood by others (for example, data column titles in an excel spreadsheet that make sense only to you)
- 2. Create the README file to accompany the data file(s).
 - a) You may create one README file for each data file or a single README file to describe a dataset that has multiple, related files. In the former case, name the README files so that they are easily associated with the data file that each one describes.
 - b) Write your README document as a plain text file (.txt). Format the document so it is easy to read (e.g., separate important pieces of information with blank lines).
 - c) You are advised to include the following information in the README file(s) (if applicable). **The**points marked with asterisk are compulsory. For the optional points, please do not skip them if
 they are applicable. Nevertheless, the provided information need not be confined by the following
 list, but additional information may be added if needed.

- i) *File names and brief description of each file or file type, including where in the research process each data file lies (e.g., raw data, processed/analysed data)
- ii) Creator of the dataset (if the creator of the dataset itself and the data files is not the same person, specify both/all of them)
- iii) Description of relationship between files of file dependencies
- iv) Definitions of acronyms or other project-specific designations
- v) Description of the parameters/variable and units of measure for each parameter/variable, symbols used to record missing data values
- vi) Uncertainty and accuracy of measurements
- vii) Method(s) for collecting or generating the data, as well as the methods used for processing the data (if processes/analysed data is contributed)
- viii) Specialized software used to produce the data and/or needed to read them.
- ix) Known problems that limit the data's usability or other caveats (e.g., sampling problems, limitation of measurement equipment, etc.)
- x) Date(s) the dataset was collected and last modified
- xi) Example records for each data file (or file type)
- xii) *License under which the data are published / other restrictions placed on the data
- xiii) Links to publications that cite or use the data
- xiv) Recommended citation for the data
- 3. If the final submission of a publication related to the uploaded dataset is not done yet, then you are advised to update the manuscript by adding a reference to the dataset through its URL.
- 4. Upload the data files together with the corresponding README file(s) to the online repository (More detailed instructions about this step will be provided as soon as the online repository is released and is ready to accept datasets).

Uploading datasets to PathoCERT Zenodo Community

- 1. In case you want to upload the dataset to the **PathoCERT Zenodo Community**, login using your ORCID account and select *Upload*.
- 2. Select type of upload and publication type (e.g., Dataset).
- 3. Upload dataset (make sure that the dataset complies with the Findability, Accessibility, Interoperability, and Reusability (FAIR) requirements, i.e. it can be read by widely available readers using a non-proprietary format, it is human readable and unencrypted, a description of its parameters is provided, it has a reusable license, etc.)
- 4. Specify publication information (title, authors, affiliations, etc.).
- 5. Specify access rights, such as Open Access.
- 6. Decide license (e.g., CC-BY-SA or EUPL).
 - a) For more details regarding the different licenses a guide is included in Appendix D.

- 7. Specify the Communities; these should include at least the following:
 - a) "H2020 PathoCERT Project"
- 8. Specify H2020 grant title as it is registered in CORDIS, i.e., PathoCERT, or the grant agreement number 883484.
- 9. Link this dataset to its corresponding publication in Zenodo, in the field "Related Identifiers" choose the option: "is a supplement to this upload" and specify the URL of the uploaded dataset.

4.3 PathoCERT Open Source/Reproducible Software

Open Access to software refers to the right to access and reuse scientific code to easily reproduce the research results of a scientific paper, a practice that is the default for Horizon 2020 projects. Similar to data, software code should be "as open as possible, as closed as necessary", depending on the IP exploitation decision. Note that for result reproducibility, it is not required to release code as open source.

- PathoCERT partners may decide to exploit their IP through the use the PathoCERT GitHub repository for sharing their code.
- For reproducibility of research, partners may use a suitable platform such as *Code Ocean* (https://codeocean.com/), to support reproducibility, unless IP restrictions apply.
 - o Links to both Code Ocean and GitHub locations need to be provided in the publication located in the PathoCERT Zenodo Community.
- The license of software must adhere the PathoCERT IP guidelines. If open source, partners may consider the European Union Public License 1.2 (EUPL) or equivalent, depending on the exploitation strategy. Closed source software may still be required to be accessible to validate research results (e.g., in binary form).
- Readers of the scientific publications, where possible, must be able to reproduce figures or to reproduce experimental results.

The following guidelines should be considered to implement these guidelines:

4.3.1 GitHub Guidelines

- 1. Option 1: Open Source
 - i) Create new repository under the PathoCERT GitHub repository (https://github.com/h2020pathocert)
 - ii) Upload code and create a Release version of the software
- 2. Option 2: Closed Source
 - i) Upload compiled version to Zenodo
- 3. Go to the PathoCERT Zenodo Community, login using your ORCID account and select *Upload*.
- 4. Select upload type (e.g., Software)
- 5. Upload code or link to a GitHub release.

- 6. Specify publication information (title, authors, affiliations etc.).
- 7. Specify access rights (Open Access or Embargoed Access)
- 8. Decide license (e.g., CC-BY-SA or EUPL).
 - For more details regarding the different licenses a guide is included in Appendix D.
- 9. Specify the Communities; these should include at least the following:
 - "H2020 PathoCERT Project"
- 10. Specify H2020 grant title as it is registered in CORDIS, i.e., PathoCERT, or the grant agreement number 883484.
- 11. Link this software to its corresponding publication in Zenodo.

4.3.2 Code Ocean Guidelines

Important notes

Each user has 10hr of execution time which is renewed every month and limited disk space. If extra execution time or space is required, then you can email the team at support@codeocean.com or message them through "Intercom" (bottom right of the website).

If a capsule is executed, it will continue to execute even if you disconnect from Code Ocean. Please **be aware**, that if the code gets stack for any reason in an infinite loop, then you must "Stop Execution" by selecting again the Reproducible Run/Processing Button in order to save your *limited* execution time.

Once the code is submitted for publication then it cannot be modified. Make sure that everything works as expected before publishing your code.

The Code Ocean Platform does not allow a Graphical User Interface (GUI). Therefore, applications using a GUI, e.g., requiring high number of input parameters, need to use an external file "SetupFile.m" that includes the different inputs/parameters/options provided through the use of a GUI.

The Code Ocean Platform is Linux-based system. Therefore, any reading and writing to and from files must be changed accordingly. For example, in all parts of the code that paths are used, the "\" (used in windows-based system) must be exchanged with "/".

If your code dynamically generates temporary files in the current folder, then those files will not appear while your code is executed but will be accessible by your program during the execution.

Any call/reference to a file or function in the "code" folder (e.g. current folder of the program) can be accessed using "/code/filename"

MATLAB Example

For a MATLAB program executed from the "/code/" folder to access any input data from "data" folder can use this syntax "../data/filename". The path for any uploaded file/folder along with other options can be found when the mouse hovers over it and the arrow on its right corner is selected:

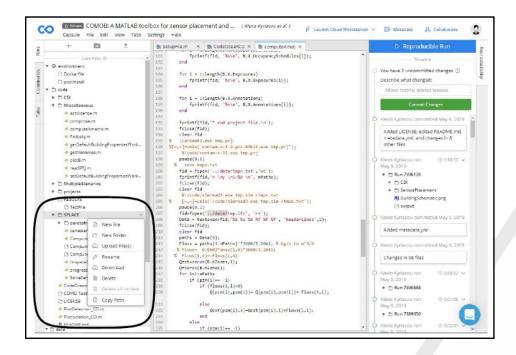


Figure 4. Uploading MATLAB code to CodeOcean

A very useful option is "copy path" that copies the paths for any file or folder.

Compile .c/.cpp mex files for MATLAB

Since Code Ocean is a Linux-based platform, any compiled "mex" files under Windows will not work. To compile the files, use the following line of code at the start of the first .m file: "mex /code/filename.c". Each time the program is executed the files will recompile and the corresponding messages will appear in the main window.

If MATLAB (2017b) is the selected environment for your Capsule and the following error appear while compiling your *mex* file:

Figure 5. Error message using "mex"

Try changing the environment to MATLAB (2016b) by selecting "environment" \rightarrow "Change" \rightarrow "# older versions".

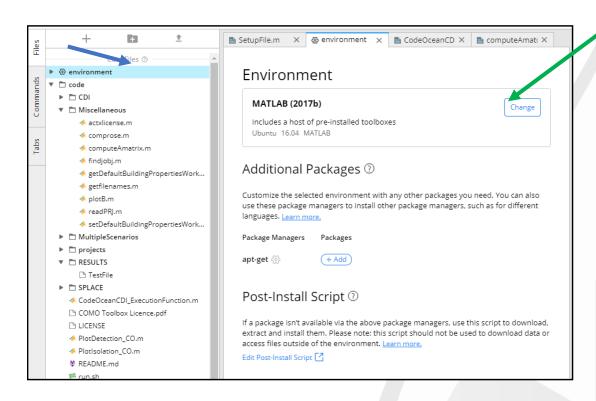


Figure 6. Changing MATLAB environment

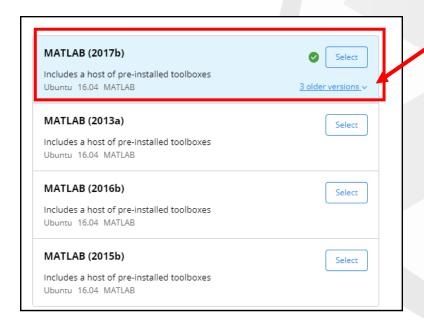


Figure 7. Changing MATLAB version

For the other programming languages supported by the server, other packages may by installed through the "environment" \rightarrow "Additional Packages".

Program Outputs

The required outputs are the results presented in the published paper. Therefore, all the outputs should be clearly identified and directly connected with the corresponding publication through their "name". The output folder allows processing of the included files after the end of the program's execution but provides no access to files during the execution. The output folder can be accessed using the path: "../results/" and produced result-figures can be exported using "saveas(gcf, '../results/figurename.png')" where gcf is the handle of the last opened MATLAB figure (note: the figures after the plot command will not appear anywhere).

For generating additional folders to the output file, the folders must be created in the "run.sh" file provided with the initial setup using the "mkdir" command:

```
#!/bin/sh

#cd /code/SPLACE/paretofront64
#mex paretofront.c
#cd ..
#cd ..
#cd ..

mkdir -p ../results/SensorPlacement
mkdir -p ../results/CDI/Detection
mkdir -p ../results/CDI/Isolation
mkdir -p ../results/CDI/Isolation
mkdir -p ../results/CDI/RawResults
mkdir -p ../results/Scenarios/RawResults

# This is the master script for the capsule. When you click "Reproducible Run", the code in this file will execute.
matlab -r "addpath(genpath('/code')); SetupFile"
```

Figure 8. Creating new directories in Code Ocean

Example Code

Multiple examples exist in the "Explore" tab in the Code Ocean website. It is useful to find the most similar example to your case and understand its realization. Each of the examples can be edited by opening it and selecting edit. A copy of the capsule that you can edit and run will be created in your personal dashboard.

Appendix A. Illustration of the Open Access Publication Process

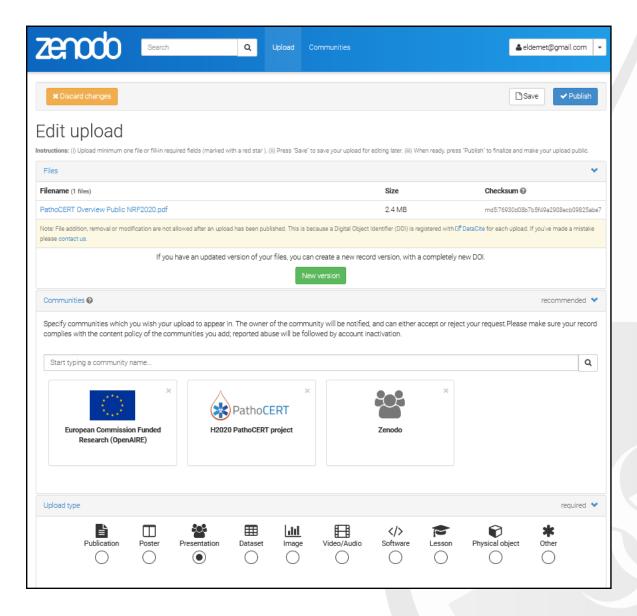


Figure 9. Uploading Open Access file in PathoCERT Zenodo community

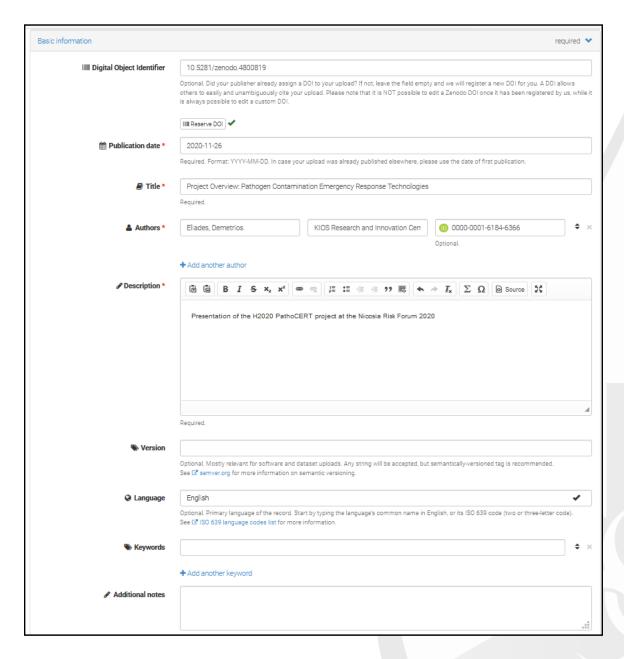


Figure 10. Entering information related to the publication

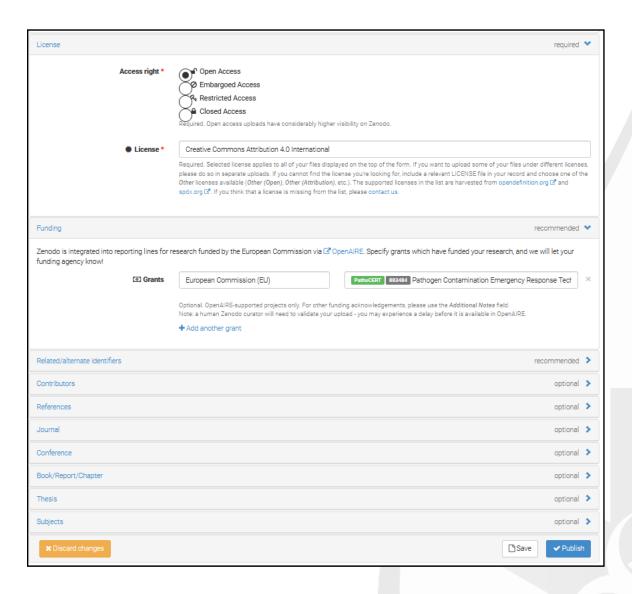


Figure 11. Adding funding information and other metadata

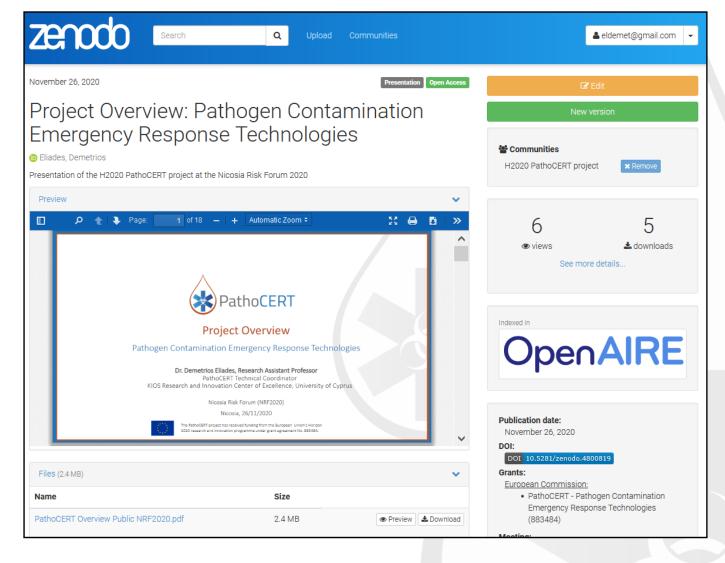


Figure 12. How the Open Access publication appears on Zenodo

Appendix B. Creating an ORCID Account

An ORCID ID is a unique identified for researchers. It is required by increasing number of publishers and funders. It can be used to automate collection of publications through its API.

- Go to https://orcid.org/register
- Use your institutional/corporate email
- Institution/employer: Organisation legal name
- Department: Title of the department in the organisation (if it applies)
- You can link with your ResearcherID and Scopus Author IDs.
- You can synchronize publication with Scopus
- You can "trust" a different researcher to manage your account (https://orcid.org/account)

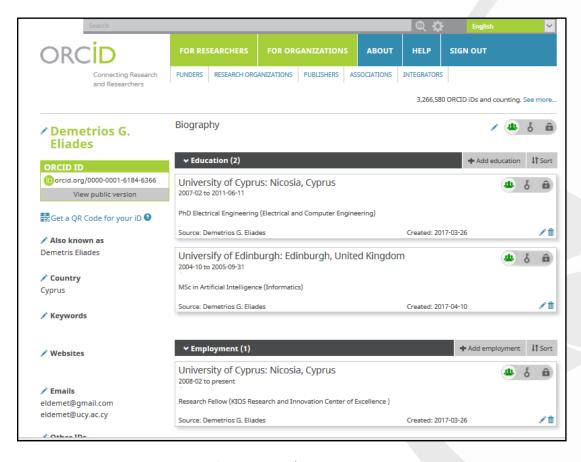


Figure 13. Example ORCID account

Appendix C. Embargo Policies per publisher

The appendix summarizes the embargo policies of different publishers for the accepted pre-prints. The accepted pre-print is the last version of the article the authors provided to the publisher after the peer-reviewing process.

IEEE

IEEE allows authors to post their accepted pre-print to the PathoCERT Zenodo Community in order to comply with the funding agency's requirement.

For some IEEE journals/conferences, you can download the accepted version from https://authorgateway.ieee.org/, under "Completed Articles / Accepted Manuscript". You are strongly encouraged to post this version if available.

Only for articles published open access by IEEE (gold open access), the author may post the final published article to the PathoCERT Zenodo Community.

Elsevier

For Elsevier publications, the author is entitled to publish the accepted pre-print to PathoCERT Zenodo Community under a CC-BY-NC-ND license after a journal-specific period that can be found at the publisher's website (https://www.elsevier.com/ about/open-science/open-access/journal-embargo-finder).

Gold open access articles may be shared according to the author-selected end-user license and should contain a CrossMark logo, the end user license, and a DOI link to the formal publication on ScienceDirect.

Springer

Springer accepted pre-prints are entitled to a 12-months embargo period.

If the article is gold open access, the final published version can be archived in PathoCERT Zenodo Community immediately.

ACM

All ACM authors retain the right to post the accepted pre-print to the PathoCERT Zenodo Community immediately in order to comply with the EC's Open Access requirements.



Appendix D. Choosing a license

Authors retain the copyright of the Open Access document. Furthermore, the authors must give explicit provide a license for others to access their manuscripts/data as well as for software.

Most typical options for data licensing include:

- Creative Commons License (CC)⁵
 - o The CC License can have additional attributes, such as BY-attribution (BY), No-Derivatives (ND), Non-Commercial (NC), Share-Alike (SA) and combinations.
 - o e.g. CC-BY: lets others distribute, remix, tweak, and build upon a work, even commercially, as long as they credit the author for the original creation.
 - o Wizard to select CC license: https://creativecommons.org/choose/
- European Union Public License (EUPL) v1.26
 - The only EU-approved copyleft license, translated in all EU languages and ratified by all EU countries.
 - o Compatible to CC-BY-SA
 - o Can be used for both code and documents as well

Most typical options for software licensing include:

- European Union Public License (EUPL) v1.2
- BSD (e.g. used by Mathworks for MATLAB community code)
- > GPL, MIT etc.

In the case of closed source, a proprietary license can be used. Authors can use the following wizard tools to help in their decisions:

- http://oss-watch.ac.uk/apps/licdiff/
- https://choosealicense.com/

⁵ https://creativecommons.org/choose/

⁶ https://joinup.ec.europa.eu/community/eupl/news/understanding-eupl-v12