

DELIVERABLE

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D4.3 - Functions of the Open Source Portal

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EXECUTIVE SUMMARY

Deliverable D4.3 reports the functions of the Open Source Portal and the requirements for each associated Open Source project web site. Specifically, this deliverable sets out the direction for how the work in WP6 will be conducted. Each open source project utilises established work practices for community based open source projects hosted on open platforms. The Open Source Portal shall constitute a cohesive entry point to all open source projects. As such it provides links to developed and provided resources (including source code, executables, and test files) and tools (including software configuration management system, mailing lists, and build environment) used in each open source project. Developed and provided resources will be available during and after the conduction of the formal PREFORMA project. With adoption of best practices from community driven open source projects and adherence to full transparency for all digital assets, contracted organisations are well placed to successfully establish thriving and long-term sustainable open source communities of relevance for memory institutions and other stakeholder groups.

1 INTRODUCTION

PREFORMA (PREservation FORMAts for culture information/e-archives) is a Pre Commercial Procurement (PCP) project financially supported by the European Commission under its FP7-ICT Programme. The objective of deliverable D4.3 is to report the functions of the Open Source Portal and the requirements for the associated Open Source project web sites. Specifically, this deliverable sets out the direction for how the work in WP6 will be conducted.

The PREFORMA web site contains a dedicated section (portal) which provides references to each open source project that is maintained on a specific development platform. The portal includes exact references to collaboration tools, source code, build environment, executables, test files, and other information related to each open source project.

Each Open Source project focuses on one type of file format and all developments of software, and associated digital assets, related to the project (e.g. roadmaps, instructions, issues, email communication, forum dialogues, documentation, synthetic test files related to the file format handled by the project, etc.) will be available on an open development platform (GitHub or equivalent). Further, early establishment of each Open Source project is fundamental for establishing effective processes for interaction with organisations that control each specific file format, which is to be implemented in the Open Source project. The contracted company is expected to establish a proactive approach for establishing effective processes for interaction with organisations that control each specific file format.

Each open source project utilises established work practices for community based open source projects. This includes iterative development with frequent releases of source code, executables, and all associated development assets necessary for using different versions (development versions, stable versions, deployed versions) of software developed and provided by each open source project. Any user can use and test the latest development version of the software at any time in order to provide feedback and bug reports on issue trackers, user mailing lists, and other channels used by the open source project for interacting and providing feedback. Similarly, any user can also use and test any stable version of the software released on open source the project website. Stable versions (provided on a monthly basis) have been exposed to a certain level of QA in the development process. In addition, each open source project also provides deployed version (selected stable versions), also referred to as LTS versions (provided before each formal delivery to the PREFORMA project), which are exposed to additional QA and aimed to be supported during a longer time window by the open source project.

All released software provided in development version, stable version, and deployed version are kept available at the open source project website during and after the PREFORMA project. At this point in time it is expected that each open source project has successfully developed a vibrant and sustainable open source community and it is therefore in the interest of all stakeholders that there is continued development in each project. This is also required by the specific open source licenses chosen, which goes beyond the time frame for the PREFORMA project.

The rest of this document is organised as follows. Section 2 presents requirements for each open source project web site, section 3 describes the template layout for the portal page, and section 4 summarises and concludes the content of the deliverable.

Finally, two Appendix are provided, the first one (Appendix A) to clarify the requirements for the open source projects in terms of executable, source code, and build environment that they need to make available on their specific development platforms; the second one (Appendix B) presents how the Open Source Portal section of the PREFORMA website has been implemented and will look like.

2 REQUIREMENTS FOR OPEN SOURCE PROJECT WEB SITES

This section presents requirements for each open source project web site.

2.1 DOCUMENTATION AND CODING PRACTICES

It is essential for an open source project to have effective documentation both in terms of text and documents separated from the source code, and comments in the source code. Such documentation shall describe all relevant aspects of the open source project including source code, APIs, how to use the source code and executables (e.g. quick introductions and hands-on examples). A fully documented software manual shall also be provided for each open source project. A characteristic of many successful open source project (including the Apache Foundation projects¹ and LibreOffice²) is that they provide effective documentation targeted for different stakeholder groups. Provision of such effective documentation is needed in order to ease and facilitate an efficient development process, maintain and sustain the current base of contributors, and attract new external contributions (since a poorly documented open source project is less attractive for new contributors looking for an open source project to join). Each open source project shall also adopt appropriate coding practices (also known as coding standards or coding styles) for source code development. In particular, code comments (as enforced by coding practices) are part of the documentation in an open source project. Research shows that improved documentation can contribute to increased participation in an open source project³, and that code commenting constitutes an important aspect of learning and skills development in an open source project⁴. Such documentation is therefore very important for building vibrant and sustainable open source communities.

Successful community based open source projects are highly collaborative with significant contributions from different contributors representing different organisations and stakeholder groups. A key aspect for promoting sustainable communities is transparency and effective documentation for all relevant stakeholder groups. Documentation must account for different needs, including clarifying how to: use the software; copy and maintain different versions of the

¹ <http://projects.apache.org>

² <http://www.libreoffice.org/>

³ Mockus, A., Fielding, R.T., Herbsleb, J.D. (2002) Two case studies of open source software development: Apache and Mozilla. *ACM Transactions on Software Engineering and Methodology* 11(3), 309-346.

⁴ Gamalielsson, J., Grahn, A. and Lundell, B. (2012) Learning through analysis of coding practices in FLOSS projects. In Robles et al. (Eds.) *Proceedings of FLOSSEdu 2012: FLOSS Education - Long-term Sustainability*, Tampere University of Technology, Tampere, ISBN 978-952-15-2938-2, ISSN 1797-836X, pp. 13-19.

software; distribute (and re-distribute) the software to other users in other organisations; understand the precise functionality (including exactly how the file format is implemented) of the software through source code and its associated documentation; contribute to improve software (e.g. by providing 'easy-hacks' and guidelines for how to contribute to different aspects of the source code).

Each open source project is expected to evolve detailed documentation concerning precisely how technical specifications of file formats are being interpreted and implemented in software. Such details is critical feedback for organisations maintaining technical specifications of file formats and from open provision of details concerning precise interpretations of different parts of a technical specification has been (and should be) interpreted will constitute a very valuable resource for the broader open source and standards communities. With evolving precision in such open publication (via issue trackers and other means in each Open Source project) there will be an ongoing process for scrutiny of interpretations that eventually promotes improved quality of both how technical specifications should be clarified and how technical specifications should be interpreted and implemented in software. In fact, it is well known that⁵ “For most software standards the formal specification is insufficient and the actual standard may differ from across implementations.” Further, research shows that for file format standards: there are different problematic issues related to clarity and detail in the specification of standards; implementations of a specification of a standard may deviate from the specification; and there are different kinds of influences between the specification of a standard and its implementations in software systems⁶.

For these reasons, it is of uttermost importance that each open source project provides transparent documentation which clarify all details concerning precise interpretation and design decisions related to the relationship between technical specifications (as documented in the specification) and technical specification (as implemented in software). Such documentation must clarify the precise details concerning how a specific feature in a technical specification of a file format has been implemented (with full transparency from the specific section in the technical specification and the specific part in the source code, and vice versa). In particular, all deviations and uncertainties in interpretations must be highlighted in such documentation and the open source project must keep full transparency between different versions of specifications and versions of source code of the software.

2.2 DEVELOPMENT PLATFORM AND TOOLS

In PREFORMA, each specific open source project is focused on one of the three media types: text, image, and A/V.

⁵ FLOSSPOLIS (2005) “An Economic Basis for Open Standards”, Deliv. D4

⁶ Gamalielsson, J. and Lundell, B. (2013) Experiences from implementing PDF in open source: challenges and opportunities for standardisation processes, In Jakobs, K. (Ed.) Proceedings of the 8th IEEE Conference on Standardization and Innovation in Information Technology (SIIT 2013), ISBN 3-86130-802-9, <http://dx.doi.org/10.1109/SIIT.2013.6774572>, IEEE, Piscataway, pp. 39-49.

An overarching goal for each open source project is to establish a long-term sustainable community by adopting best practices from open source development which adheres to community norms and values⁷. This includes use of an effective development platform (GitHub or equivalent) that is recognised amongst the broader open source community.

More specifically, each open source project shall utilise:

- A software configuration management system (such as Git) to provide full transparency and traceability in the development process
- One mailing list focused on development aspects
- One mailing list focused on user aspects
- One issue tracker focused on development of software in the project
- One issue tracker focused on feedback from use of software concerning conformance to file formats in the project

Further, an open source project may (if found appropriate) also utilise a number of other tools to aid collaboration and development, such as:

- Wikis
- Forums
- Additional mailing lists
- Additional issue/bug trackers
- Open platforms for social networking (e.g. Diaspora)
- Open platforms for microblogging (e.g. Identi.ca from status.net)

An important overarching principle for development and use of the development platform is that all information provided on the platform for each open source project is self contained in order to ease migration of the entire open source project to another platform for hosting the open source project. From previous research it is well known that migration of open source projects between different platforms may require significant effort⁸.

⁷ For an overview, see for example: Bacon, J. (2009) *The Art of Community: Building the New Age of Participation*, O'Reilly, ISBN: 978-0-596-15671-8, Chapter 2, pp. 22-63 ; Fogel, K. (2005) *Producing Open Source Software: How to Run a Successful Free Software Project*, O'Reilly Media, Inc., <http://producingoss.com/>

⁸ See for example: Gamalielsson, J. and Lundell, B. (2014) Sustainability of Open Source software communities beyond a fork: How and why has the LibreOffice project evolved?, *The Journal of Systems and Software*, Vol. 89, March, pp. 128-145.

2.3 SOURCE CODE

All software developed and maintained in each open source project will be provided under two specific open source licenses (www.opensource.org), namely: both Mozilla Public License “MPL v2.0 or later” and under GNU General Public license 3.0 “GPLv3 or later”. This implies that all source code from the open source project that is necessary for creating an executable can be distributed (in a cascade) under these specific licenses to anyone. For example, a user at the memory institution Riksarkivet can download the complete source code for all software maintained in the open source project and redistribute the downloaded complete source code (under these specific licenses) to another organisation wishing to use the software.

There shall be an up-to-date roadmap with detailed milestones for different (development version, stable version, and deployed (LTS) version) releases. Each open source project is expected to release a new development version of all source code each night to be available for download in a single file for each deployment platform. This implies that any user will be able to download and compile an up-to-date version of all source code for deployment platforms relevant for PREFORMA.

There shall always be source code available for download (provided in a single file) for several different deployment platforms (at least for: MS Windows 7, Mac OSX, common Linux distributions including Ubuntu, Fedora, Debian, and Suse). For each platform specific source code version (development version, stable version, and deployed (LTS) version) there shall always be an up-to-date corresponding executable that can be downloaded as a single file. In addition, all old versions (including nightly versions) of source code and corresponding executables shall be available for download over time.

Further, related to each open source project, all digital assets associated with the open source project will be provided under the Creative Commons (CC) license Attribution- ShareAlike 4.0 International (CC BY-SA 4.0) and hosted on the open platform.

The “MPLv2 or later” version and the “GPLv3 or later” version of the software that are developed, maintained, and distributed shall always be identical.

2.4 BUILD ENVIRONMENT

For each executable of developed software that are provided in an open source project, open source tools (provided under any license approved by Open Source Initiative⁹) for creation of the executable from the source code shall be provided for download. This ensures adherence to community values and traceability between an executable and its associated complete source code. This implies that for each deployment platform (at least for: MS Windows 7, Mac OSX, common Linux distributions including Ubuntu, Fedora, Debian, and Suse) the open source project shall provide a file which contains all necessary open source tools that can be used

⁹ <http://www.opensource.org/licenses>

(without access to the Internet) to create an executable for that platform. This means that at least six such files (containing open source tools) shall be available for download from the open source project. For example, a user wishing to create of an executable for MS Windows 7 from the source code provided by the open source project on the open platform will (in principle) undertake the following steps:

- 1) The complete source code for MS Windows 7 is downloaded as a single file (e.g. “source-mswin7.zip”) from the open source project and extracted on the local machine.
- 2) The complete build environment for MS Windows 7 is downloaded as a single file (e.g. “buildenvironment-mswin7.zip”) from the open source project and extracted on the local machine.
- 3) The build environment is used on the local machine (which now is not connected to the Internet) to create an executable (e.g. “application-mswin7.exe”) from the extracted source code.

Further, as part of the content of the complete source code for each specific platform, detailed instructions for how to use the build environment to create the executable from the downloaded source code. The instructions must be provided for both technical and non-technical users, and there must be easy to follow detailed step-by-step instructions.

In addition, separate detailed instructions for how to build executables in which source code from different open source projects are integrated into one single executable must also be provided (see further section 2.4)

2.5 EXECUTABLES

There shall always be executables for several different platforms (at least for: MS Windows 7, Mac OSX, common Linux distributions including Ubuntu, Fedora, Debian, and Suse). For each platform specific executable there shall always be an up-to-date corresponding source code that can be downloaded as a single file.

For each executable of developed software that are provided in an open source project, instructions for how to create the executable from the source code shall always be provided.

For each open source project it is required that executables are provided for several different mandatory deployment contexts.

First, using any **standard web browser**¹⁰ any individual, both working for a memory institution and other interested individuals, can use the open source software which is provided for use at the open source project website for checking conformance for a specific file format. When using the software in this way an individual user can upload a single file (or a set of files) available in a

¹⁰ For the purpose of this document, a standard web browser refers to the most recent stable release of each of the following web browsers: Chrome, Firefox, Internet Explorer, and Opera.

directory at the individual user's client computer for conformance checking, and results will be displayed in the web browser and reported in a file which the user can download and store locally. In this deployment context, any user can use and test the latest development version, stable version, and deployed version of the software at any time via use of any of the four standard web browsers.

Second, when using an **executable for download and use as standalone system at memory institutions** any individual, both working for a memory institution and other interested individuals, can use the open source software. In such a deployment context the software is provided for checking conformance for a specific file format using a standalone system running on client computers or local servers within the organisational context at the memory institution. When using the software in this way an individual user can provide a single file (or a set of files) available in a directory at the individual user's client computer for conformance checking, and results will be reported on screen and in a file which can be stored on the local system. In this deployment context, any user can download, install, use and test the latest development version, stable version, and deployed version of the software at any time via a standalone system. Such deployed versions are also made available (by the main responsible company for each open source project) on the open source development platform. Hence, executables of developed software will be provided on the open development platform at least for the following deployment platforms: MS Windows 7, Mac OSX, common Linux distributions including Ubuntu, Fedora, Debian, and Suse.

Third, in order to ease use at each memory institution, **each contracted partner is also required to integrate the software developed** in the open source project they are contracted for with software developed in other open source projects. Such integration is possible since all open source projects use identical licensing conditions for all software maintained and distributed (i.e. Mozilla Public License "MPL v2.0 or later" and GNU General Public license 3.0 "GPLv3 or later"). Integration of software is required for combining pairs of the three media types (i.e. text & image, text & A/V, and image & A/V) and also a complete integration of all three media types (i.e. text & image & A/V). For example, an organisation contracted for developing software for the text media type is required to provide three different executables of software which has been integrated (i.e. one executable which integrates text & image, one executable which integrates text & A/V, and one executable which integrates text & image & A/V). All these three integrated executables must be made available for download as standalone executables for download and use as standalone systems. These standalone systems (which include software from three open source projects) must meet all the requirements stated under the second deployment option.

The "MPLv2 or later" version and the "GPLv3 or later" version of the software that are developed, maintained, and distributed shall always be identical.

2.6 DEVELOPMENT AND PROVISION OF TEST FILES

For effective development of open source software in PREFORMA, it is essential that all developments (and experiences from use) of synthetic test files related to the specific file format will be provided on the open platform. Therefore, experiences from use (i.e. outputs from use of the conformance checker) will also be hosted on the open platform. During the design phase, synthetically developed test files will be iteratively developed and hosted on the open platform. This is a very important aspect of the approach taken in PREFORMA, and it is central for

promotion of external interest for the conformance checker to be developed on the open platform. The open source approach has the potential to provide participating suppliers with a number of business opportunities.

In addition, additional files for testing the developed software may also be provided by memory institutions, PREFORMA partners, and other stakeholders interested in development in the open source project provided on the open platform. It is important to include files which are perceived to be correct and files which are perceived to be incorrect in the process of developing software. Scrutiny of files is an important enabler for improving quality of developed software and the quality of the technical specification of the file format.

All synthetic files developed for the file format will be provided under the Creative Commons (CC) license Attribution- ShareAlike 4.0 International (CC BY-SA 4.0) and hosted on the open platform.

Each open source project is required to establish an interaction and maintain active involvement with standardisation organisations.

Each contracted organisation will improve standards by:

- active involvement in further development of the standard
- establishing effective processes for interaction between the open source project (incl. provision of experiences from use of open source software with synthetic and 'real' files from the open source project) and relevant standards organisations
- providing feedback to (other) software providers (which implement the file format)

Further, developers (contracted and from the broader open source community) and users of the open source conformance checker are expected

- to engage in interaction with the open source project and the evolving technical specifications of each relevant file format for provision of feedback related to specifications of file formats in software and in standards (e.g. by becoming active on mailing lists; issue trackers; forums, etc.)
- to engage in development of synthetic test files for the open source project that conform to the technical specification of the file format (i.e. such test files will be maintained by the open source project as a resource for scrutiny of the exact interpretation of the file format, and will thereby aid in development of the software).
- to engage in development of synthetic test files for the open source project that by design deliberately deviate from the technical specification of the file format. For each such test file there shall be a proposed associated error message which details precisely how the specific file deviates from the technical specification of the file format. All such files with associated proposed error messages need to be scrutinised by the open source project and openly available for the organisation maintaining the technical specification of the file format (i.e. such test files will be maintained by the open source project as a resource for scrutiny of the exact interpretation of the file format, and will thereby aid in development of the software).
- to engage in interaction with the open source project concerning relevance of specific synthetically generated test files and its associated proposed error message (e.g. by

becoming active on mailing lists; issue trackers; forums, etc.). Such interaction also includes need for new synthetic test files in order to establish a comprehensive and relevant set of test files.

- to engage in provision of relevant test files from memory institutions for the open source project that conform (or do not conform) to the technical specification of the file format (i.e. such test files will be maintained by the open source project as a resource for scrutiny of the exact interpretation of the file format, and will thereby aid in development of the software).
- to engage in interaction with the open source project concerning availability (or lack of) test files from memory institutions. Such interaction also includes need for additional test files from memory institutions in order to establish a comprehensive and relevant set of test files.

3 TEMPLATE LAYOUT FOR THE OPEN SOURCE PORTAL

This section presents requirements for the Open Source Portal for each open source project.

The PREFORMA website contains a dedicated section for the Open Source Portal, which presents a web page in order to provide an overview of all open source projects. From this overview page it is possible to reach a dedicated page for each open source project. On this overview page each open source project shall be selectable (and linked to) and there shall be a title and a short description (2-3 sentences) of each open source project.

From each dedicated open source project page on the PREFORMA website there will be a number of specific links to specific resources provided by each open source project which is hosted on an open platform (GitHub or equivalent). The rest of this section details requirements for the content on each dedicated open source project page on the PREFORMA Open Source Portal. At time of writing, specific links to resources provided by each open source project are not yet available. Therefore, this section will use indicative conceptual links to precisely what will be provided from each open source project.

Each dedicated open source project page on the PREFORMA website will contain the following sections:

- Overview
- Documentation and coding practices
- Collaboration and development tools
- Source code
- Build environment
- Executables
- Test files

For the remainder of this section we detail each of these sections.

3.1 OVERVIEW

The Overview section on the dedicated open source project page on the PREFORMA website shall contain a short general description of the open source project (e.g. one paragraph).

3.2 DOCUMENTATION AND CODING PRACTICES

The Documentation and coding practices section on the dedicated open source project page on the PREFORMA website shall contain an exact link to the open source project page on the open platform containing the documentation and coding practices for the software developed and maintained in the open source project.

3.3 COLLABORATION AND DEVELOPMENT TOOLS

The Collaboration and development tools section on the dedicated open source project page on the PREFORMA website shall (at least) contain exact links to the following resources on the open platform:

- Software configuration management system
- Mailing list focused on development aspects
- Mailing list focused on user aspects
- Issue tracker focused on development of software
- Issue tracker focused on feedback from use of software concerning conformance to file formats

In addition, there may also be a number of other exact links to additional resources provided by the open source project for collaboration and development on the open platform (GitHub or Equivalent).

3.4 SOURCE CODE

The Source code section on the dedicated open source project page on the PREFORMA website shall (at least) contain exact links to the single archive file containing the complete source code necessary for each deployment platform. The archive file shall be possible to extract using an open source tool (which is to be provided together with the build environment). This section must include provision of exact links to the open source project page on the open platform containing the following files:

- Complete source code for MS Windows 7
- Complete source code for Mac OSX
- Complete source code for Ubuntu Linux
- Complete source code for Fedora Linux
- Complete source code for Debian Linux
- Complete source code for Suse Linux

3.5 BUILD ENVIRONMENT

The Build environment section on the dedicated open source project page on the PREFORMA website shall (at least) contain exact links to the single archive file containing the complete build environment necessary creating an executable from the downloaded complete source code (see section 3.3) for each deployment platform. It must be possible to create an executable even when the system is not connected to the Internet. The archive file shall be possible to extract using an open source tool (which is to be provided together with the build environment). This section must include provision of exact links to the open source project page on the open platform containing the following files:

- Complete build environment for MS Windows 7
- Complete build environment for Mac OSX
- Complete build environment for Ubuntu Linux
- Complete build environment for Fedora Linux
- Complete build environment for Debian Linux
- Complete build environment for Suse Linux

3.6 EXECUTABLES

The Executables section on the dedicated open source project page on the PREFORMA website consists of two conceptually separated parts for: use in standard web browser; and use as standalone system (possibly after integration with software developed in other open source projects).

The first part in the Executables section on the dedicated open source project page on the PREFORMA website shall contain an exact link to a webpage where the web browser version can be accessed.

The second part in the Executables section on the dedicated open source project page on the PREFORMA website shall (at least) contain exact links to the executable for standalone and integrated software from different open source projects for each deployment platform. The archive file shall be possible to extract using an open source tool (which is to be provided together with the build environment). This section must include provision of exact links to the open source project page on the open platform as detailed below. Together with each executable provided on the dedicated open source project page there shall also be a link to the associated complete source code and the build environment by which the executable can be built from the source code. See appendix A for details.

For each open source project implementing **text**, the open source project provided on the open platform shall contain the following files (see appendix A1 for further details):

- Executable, source code, and build environment for text
- Executable, source code, and build environment for text & image
- Executable, source code, and build environment for text & A/V
- Executable, source code, and build environment for text & image & A/V

for each of the following build environments: MS Windows 7, Mac OSX, Ubuntu Linux, Fedora Linux, Debian Linux, Suse Linux.

For each open source project implementing **image**, the open source project provided on the open platform shall contain the following files (see appendix A2 for further details):

- Executable, source code, and build environment for image
- Executable, source code, and build environment for text & image
- Executable, source code, and build environment for image & A/V
- Executable, source code, and build environment for text & image & A/V

for each of the following build environments: MS Windows 7, Mac OSX, Ubuntu Linux, Fedora Linux, Debian Linux, Suse Linux.

For each open source project implementing **AV**, the open source project provided on the open platform shall contain the following files (see appendix A3 for further details):

- Executable, source code, and build environment for A/V
- Executable, source code, and build environment for text & A/V
- Executable, source code, and build environment for image & A/V
- Executable, source code, and build environment for text & image & A/V

for each of the following build environments: MS Windows 7, Mac OSX, Ubuntu Linux, Fedora Linux, Debian Linux, Suse Linux.

Assuming there is one open source project per media type, there will be one standalone software for each media type, two different integrations of all pairs, and three different integrations of all three media types. This contributes to ensure interoperability between developed solutions.

3.7 TEST FILES

The Test files section on the dedicated open source project page on the PREFORMA website shall for each technical specification of a specific file format contain exact links to the open source project page on the open platform containing:

- Synthetic test files for the open source project that conform to the technical specification of the file format
- Synthetic test files for the open source project that by design deliberately deviate from the technical specification of the file format (with proposed associated error messages)
- Relevant test files from memory institutions for the open source project that conform (or do not conform) to the technical specification of the file format

Further, results from testing specific test files with a specific version of the software and its associated outcome shall also be maintained by the open source project. Such information is essential for promoting involvement amongst contributors in the broader open source community and stimulation of interest from stakeholders representing different organisations maintaining technical specifications of file format standards. For this reason, a specific issue tracker shall be used (as specified in 3.2). Further, this is supplemented with provision of summary reports from feedback concerning potential issues with respect to conformance to file formats. Such reports are intended as a useful resource for feedback to standardisation organisations to be utilised in improving the quality of the technical specification of the file format. Exact links to the open source project page on the open platform containing these reports shall be provided.

4 CONCLUSION

Each PREFORMA open source project is hosted on an open platform commonly used for hosting such projects (e.g. GitHub or equivalent) from the start of the design phase and will utilise best practices from community based open source projects. Consequently, the PREFORMA project expects that each open source project utilises such best practices, which include: iterative development with frequent releases (“nightly builds”); proactive involvement in open source communities (respecting values); provision of executables for download (beyond usage via web); feedback and bug reports on issue trackers, mailing lists, etc.; and that several concurrent releases are kept on the platform, including: development version, stable version, and deployed (LTS) version (and for reasons of traceability also all old versions).

To maximise acceptance amongst potential contributors from the broader open source communities it is essential that each open source project adhere to accepted community values and norms. An essential aspect of this is that all development takes place on recognised open platforms that potential contributors are familiar with, something which is critical for attracting external contributions to each open source project. Adoption of best practices for open source development include use of best practices for community based open source projects. Early establishment of each open source project on an open platform is important for creating awareness amongst all potentially interested stakeholders and potential contributors, and constitutes a prerequisite for establishing a vibrant long-term sustainable business community related to each open source project.

Establishing sustainable open source communities can be challenging and there are a number of issues which need to be thoroughly understood. As observed in a study from an analysis of practitioner experiences in open source companies¹¹:

“It is important to thoroughly understand how each community works and act according to its ‘informal rules’. From a corporate perspective, it is clear that the big challenge is to properly understand this and handle the difficult balance between the shorter-term corporate goal and the longer-term goal of establishing a mutualistic relationship with Open Source communities.”

¹¹ Lundell, B., Lings, B., and Lindqvist, E. (2010) Open Source in Swedish companies: where are we?, Information Systems Journal, 20(6), pp. 519-535.

APPENDIX A

This appendix contains detailed requirements concerning provision of executables, associated source code, and build environment for each open source project.

Appendix A1: requirements for open source projects implementing text

Appendix A2: requirements for open source projects implementing image

Appendix A3: requirements for open source projects implementing A/V

APPENDIX A1: REQUIREMENTS FOR OPEN SOURCE PROJECTS IMPLEMENTING TEXT

For each provided **executable**, a link to the associated complete **source code** and a link to the associated complete **build environment** shall also be provided which is needed to produce an (identical) executable. Each heading (see below) represents a unique combination of three monthly deliverables (executable, source code, and build environment) from each open source project and information on its associated deployment platform. Totally there are 24 unique combinations of monthly deliverables (uniquely identified by a number for each heading) from each open source project. Since each project is separately hosted on GitHub (or equivalent) there will be no naming conflicts with respect to use of filenames (as detailed in the requirements below).

Each month each open source project shall deliver one executable (provided in one zip-file: “**execNN-YYYY-MM-DD.zip**”), the complete corresponding source code for the executable (provided in one zip-file: “**srcNN-YYYY-MM-DD.zip**”), and the complete build environment (provided in one zip-file: “**buildenvNN-YYYY-MM-DD.zip**”) by which the executable can be built from the source code on the platform for which the files are provided. For example, the combination “Executable, source code, and build environment for text & image for Fedora Linux” has the sequential number 14, and its executable, associated source code, and build environment use the same sequential number in their filenames and the delivery from this open source project on 2015-06-30 shall be provided under the following filenames: “**exec14-2015-06-30.zip**”, “**src14-2015-06-30.zip**”, “**buildenv14-2015-06-30.zip**”. Hence, a user on the Fedora Linux platform shall be able to download and directly use the executable (provided in “**exec14-2015-06-30.zip**”) on this platform. Further, the same user on the Fedora Linux platform shall be able to download the complete source code (provided in “**src14-2015-06-30.zip**”) and download the build environment (provided in “**buildenv14-2015-06-30.zip**”) and by use of these locally (without access to Internet and external software) produce an executable which is identical to what is provided in the file “**exec14-2015-06-30.zip**”. Under each heading the most recent version shall always be listed at the top, and all previously released versions shall always be provided below.

For each open source project implementing **text**, the open source project provided on the open platform shall contain all monthly releases for the following (totally 24) unique combinations of monthly deliverables:

1: Executable, source code, and build environment for text for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec01-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src01-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv01-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec01-2015-06-30.zip**”), “Complete source code” (filename “**src01-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec01-2015-05-30.zip**”), “Complete source code” (filename “**src01-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec01-2015-04-30.zip**”), “Complete source code” (filename “**src01-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-04-30.zip**”)

2: Executable, source code, and build environment for text & image for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec02-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src02-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv02-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec02-2015-06-30.zip**”), “Complete source code” (filename “**src02-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec02-2015-05-30.zip**”), “Complete source code” (filename “**src02-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec02-2015-04-30.zip**”), “Complete source code” (filename “**src02-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-04-30.zip**”)

3: Executable, source code, and build environment for text & A/V for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec03-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src03-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv03-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec03-2015-06-30.zip**”), “Complete source code” (filename “**src03-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec03-2015-05-30.zip**”), “Complete source code” (filename “**src03-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec03-2015-04-30.zip**”), “Complete source code” (filename “**src03-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-04-30.zip**”)

4: Executable, source code, and build environment for text & image & A/V for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec04-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src04-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv04-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec04-2015-06-30.zip**”), “Complete source code” (filename “**src04-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec04-2015-05-30.zip**”), “Complete source code” (filename “**src04-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec04-2015-04-30.zip**”), “Complete source code” (filename “**src04-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-04-30.zip**”)

5: Executable, source code, and build environment for text for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec05-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src05-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv05-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec05-2015-06-30.zip**”), “Complete source code” (filename “**src05-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec05-2015-05-30.zip**”), “Complete source code” (filename “**src05-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec05-2015-04-30.zip**”), “Complete source code” (filename “**src05-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-04-30.zip**”)

6: Executable, source code, and build environment for text & image for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec06-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src06-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv06-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec06-2015-06-30.zip**”), “Complete source code” (filename “**src06-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec06-2015-05-30.zip**”), “Complete source code” (filename “**src06-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec06-2015-04-30.zip**”), “Complete source code” (filename “**src06-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-04-30.zip**”)

7: Executable, source code, and build environment for text & A/V for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec07-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src07-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv07-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec07-2015-06-30.zip**”), “Complete source code” (filename “**src07-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec07-2015-05-30.zip**”), “Complete source code” (filename “**src07-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec07-2015-04-30.zip**”), “Complete source code” (filename “**src07-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-04-30.zip**”)

8: Executable, source code, and build environment for text & image & A/V for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec08-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src08-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv08-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec08-2015-06-30.zip**”), “Complete source code” (filename “**src08-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec08-2015-05-30.zip**”), “Complete source code” (filename “**src08-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec08-2015-04-30.zip**”), “Complete source code” (filename “**src08-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-04-30.zip**”)

9: Executable, source code, and build environment for text for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec09-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src09-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv09-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec09-2015-06-30.zip**”), “Complete source code” (filename “**src09-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec09-2015-05-30.zip**”), “Complete source code” (filename “**src09-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec09-2015-04-30.zip**”), “Complete source code” (filename “**src09-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-04-30.zip**”)

10: Executable, source code, and build environment for text & image for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec10-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src10-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv10-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec10-2015-06-30.zip**”), “Complete source code” (filename “**src10-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec10-2015-05-30.zip**”), “Complete source code” (filename “**src10-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec10-2015-04-30.zip**”), “Complete source code” (filename “**src10-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-04-30.zip**”)

11: Executable, source code, and build environment for text & A/V for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec11-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src11-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv11-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec11-2015-06-30.zip**”), “Complete source code” (filename “**src11-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec11-2015-05-30.zip**”), “Complete source code” (filename “**src11-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec11-2015-04-30.zip**”), “Complete source code” (filename “**src11-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-04-30.zip**”)

12: Executable, source code, and build environment for text & image & A/V for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec12-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src12-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv12-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec12-2015-06-30.zip**”), “Complete source code” (filename “**src12-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec12-2015-05-30.zip**”), “Complete source code” (filename “**src12-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec12-2015-04-30.zip**”), “Complete source code” (filename “**src12-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-04-30.zip**”)

13: Executable, source code, and build environment for text for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec13-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src13-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv13-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec13-2015-06-30.zip**”), “Complete source code” (filename “**src13-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec13-2015-05-30.zip**”), “Complete source code” (filename “**src13-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec13-2015-04-30.zip**”), “Complete source code” (filename “**src13-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-04-30.zip**”)

14: Executable, source code, and build environment for text & image for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec14-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src14-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv14-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec14-2015-06-30.zip**”), “Complete source code” (filename “**src14-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec14-2015-05-30.zip**”), “Complete source code” (filename “**src14-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec14-2015-04-30.zip**”), “Complete source code” (filename “**src14-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-04-30.zip**”)

15: Executable, source code, and build environment for text & A/V for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec15-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src15-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv15-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec15-2015-06-30.zip**”), “Complete source code” (filename “**src15-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec15-2015-05-30.zip**”), “Complete source code” (filename “**src15-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec15-2015-04-30.zip**”), “Complete source code” (filename “**src15-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-04-30.zip**”)

16: Executable, source code, and build environment for text & image & A/V for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec16-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src16-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv16-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec16-2015-06-30.zip**”), “Complete source code” (filename “**src16-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec16-2015-05-30.zip**”), “Complete source code” (filename “**src16-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec16-2015-04-30.zip**”), “Complete source code” (filename “**src16-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-04-30.zip**”)

17: Executable, source code, and build environment for text for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec17-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src17-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv17-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec17-2015-06-30.zip**”), “Complete source code” (filename “**src17-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec17-2015-05-30.zip**”), “Complete source code” (filename “**src17-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec17-2015-04-30.zip**”), “Complete source code” (filename “**src17-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-04-30.zip**”)

18: Executable, source code, and build environment for text & image for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec18-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src18-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv18-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec18-2015-06-30.zip**”), “Complete source code” (filename “**src18-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec18-2015-05-30.zip**”), “Complete source code” (filename “**src18-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec18-2015-04-30.zip**”), “Complete source code” (filename “**src18-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-04-30.zip**”)

19: Executable, source code, and build environment for text & AV for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec19-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src19-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv19-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec19-2015-06-30.zip**”), “Complete source code” (filename “**src19-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec19-2015-05-30.zip**”), “Complete source code” (filename “**src19-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec19-2015-04-30.zip**”), “Complete source code” (filename “**src19-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-04-30.zip**”)

20: Executable, source code, and build environment for text & image & AV for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec20-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src20-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv20-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec20-2015-06-30.zip**”), “Complete source code” (filename “**src20-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec20-2015-05-30.zip**”), “Complete source code” (filename “**src20-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec20-2015-04-30.zip**”), “Complete source code” (filename “**src20-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-04-30.zip**”)

21: Executable, source code, and build environment for text for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec21-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src21-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv21-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec21-2015-06-30.zip**”), “Complete source code” (filename “**src21-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec21-2015-05-30.zip**”), “Complete source code” (filename “**src21-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec21-2015-04-30.zip**”), “Complete source code” (filename “**src21-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-04-30.zip**”)

22: Executable, source code, and build environment for text & image for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec22-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src22-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv22-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec22-2015-06-30.zip**”), “Complete source code” (filename “**src22-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec22-2015-05-30.zip**”), “Complete source code” (filename “**src22-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec22-2015-04-30.zip**”), “Complete source code” (filename “**src22-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-04-30.zip**”)

23: Executable, source code, and build environment for text & A/V for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec23-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src23-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv23-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec23-2015-06-30.zip**”), “Complete source code” (filename “**src23-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec23-2015-05-30.zip**”), “Complete source code” (filename “**src23-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec23-2015-04-30.zip**”), “Complete source code” (filename “**src23-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-04-30.zip**”)

24: Executable, source code, and build environment for text & image & A/V for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec24-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src24-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv24-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec24-2015-06-30.zip**”), “Complete source code” (filename “**src24-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec24-2015-05-30.zip**”), “Complete source code” (filename “**src24-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec24-2015-04-30.zip**”), “Complete source code” (filename “**src24-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-04-30.zip**”)

APPENDIX A2: REQUIREMENTS FOR OPEN SOURCE PROJECTS IMPLEMENTING IMAGE

For each provided **executable**, a link to the associated complete **source code** and a link to the associated complete **build environment** shall also be provided which is needed to produce an (identical) executable. Each heading (see below) represents a unique combination of three monthly deliverables (executable, source code, and build environment) from each open source project and information on its associated deployment platform. Totally there are 24 unique combinations of monthly deliverables (uniquely identified by a number for each heading) from each open source project. Since each project is separately hosted on GitHub (or equivalent) there will be no naming conflicts with respect to use of filenames (as detailed in the requirements below).

Each month each open source project shall deliver one executable (provided in one zip-file: “**execNN-YYYY-MM-DD.zip**”), the complete corresponding source code for the executable (provided in one zip-file: “**srcNN-YYYY-MM-DD.zip**”), and the complete build environment (provided in one zip-file: “**buildenvNN-YYYY-MM-DD.zip**”) by which the executable can be built from the source code on the platform for which the files are provided. For example, the combination “Executable, source code, and build environment for image for Mac OSX” has the sequential number 5, and its executable, associated source code, and build environment use the same sequential number in their filenames and the delivery from this open source project on 2015-06-30 shall be provided under the following filenames: “**exec05-2015-06-30.zip**”, “**src05-2015-06-30.zip**”, “**buildenv05-2015-06-30.zip**”. Hence, a user on the Mac OSX platform shall be able to download and directly use the executable (provided in “**exec05-2015-06-30.zip**”) on this platform. Further, the same user on the Mac OSX platform shall be able to download the complete source code (provided in “**src05-2015-06-30.zip**”) and download the build environment (provided in “**buildenv05-2015-06-30.zip**”) and by use of these locally (without access to Internet and external software) produce an executable which is identical to what is provided in the file “**exec05-2015-06-30.zip**”. Under each heading the most recent version shall always be listed at the top, and all previously released versions shall always be provided below.

For each open source project implementing **image**, the open source project provided on the open platform shall contain all monthly releases for the following (totally 24) unique combinations of monthly deliverables:

1: Executable, source code, and build environment for image for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec01-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src01-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv01-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec01-2015-06-30.zip**”), “Complete source code” (filename “**src01-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec01-2015-05-30.zip**”), “Complete source code” (filename “**src01-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec01-2015-04-30.zip**”), “Complete source code” (filename “**src01-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-04-30.zip**”)

2: Executable, source code, and build environment for text & image for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec02-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src02-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv02-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec02-2015-06-30.zip**”), “Complete source code” (filename “**src02-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec02-2015-05-30.zip**”), “Complete source code” (filename “**src02-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec02-2015-04-30.zip**”), “Complete source code” (filename “**src02-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-04-30.zip**”)

3: Executable, source code, and build environment for image & A/V for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec03-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src03-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv03-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec03-2015-06-30.zip**”), “Complete source code” (filename “**src03-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec03-2015-05-30.zip**”), “Complete source code” (filename “**src03-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec03-2015-04-30.zip**”), “Complete source code” (filename “**src03-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-04-30.zip**”)

4: Executable, source code, and build environment for text & image & A/V for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec04-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src04-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv04-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec04-2015-06-30.zip**”), “Complete source code” (filename “**src04-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec04-2015-05-30.zip**”), “Complete source code” (filename “**src04-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec04-2015-04-30.zip**”), “Complete source code” (filename “**src04-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-04-30.zip**”)

5: Executable, source code, and build environment for image for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec05-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src05-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv05-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec05-2015-06-30.zip**”), “Complete source code” (filename “**src05-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec05-2015-05-30.zip**”), “Complete source code” (filename “**src05-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec05-2015-04-30.zip**”), “Complete source code” (filename “**src05-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-04-30.zip**”)

6: Executable, source code, and build environment for text & image for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec06-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src06-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv06-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec06-2015-06-30.zip**”), “Complete source code” (filename “**src06-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec06-2015-05-30.zip**”), “Complete source code” (filename “**src06-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-05-30.zip**”)

- Links to version 2015-04-30 of “Executable” (filename “**exec06-2015-04-30.zip**”), “Complete source code” (filename “**src06-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-04-30.zip**”)

7: Executable, source code, and build environment for image & A/V for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec07-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src07-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv07-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec07-2015-06-30.zip**”), “Complete source code” (filename “**src07-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec07-2015-05-30.zip**”), “Complete source code” (filename “**src07-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec07-2015-04-30.zip**”), “Complete source code” (filename “**src07-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-04-30.zip**”)

8: Executable, source code, and build environment for text & image & A/V for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec08-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src08-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv08-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec08-2015-06-30.zip**”), “Complete source code” (filename “**src08-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec08-2015-05-30.zip**”), “Complete source code” (filename “**src08-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec08-2015-04-30.zip**”), “Complete source code” (filename “**src08-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-04-30.zip**”)

9: Executable, source code, and build environment for image for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec09-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src09-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv09-YYYY-MM-DD.zip**”)
- ...

- Links to version 2015-06-30 of “Executable” (filename “**exec09-2015-06-30.zip**”), “Complete source code” (filename “**src09-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec09-2015-05-30.zip**”), “Complete source code” (filename “**src09-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec09-2015-04-30.zip**”), “Complete source code” (filename “**src09-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-04-30.zip**”)

10: Executable, source code, and build environment for text & image for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec10-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src10-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv10-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec10-2015-06-30.zip**”), “Complete source code” (filename “**src10-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec10-2015-05-30.zip**”), “Complete source code” (filename “**src10-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec10-2015-04-30.zip**”), “Complete source code” (filename “**src10-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-04-30.zip**”)

11: Executable, source code, and build environment for image & A/V for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec11-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src11-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv11-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec11-2015-06-30.zip**”), “Complete source code” (filename “**src11-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec11-2015-05-30.zip**”), “Complete source code” (filename “**src11-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec11-2015-04-30.zip**”), “Complete source code” (filename “**src11-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-04-30.zip**”)

12: Executable, source code, and build environment for text & image & AV for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec12-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src12-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv12-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec12-2015-06-30.zip**”), “Complete source code” (filename “**src12-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec12-2015-05-30.zip**”), “Complete source code” (filename “**src12-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec12-2015-04-30.zip**”), “Complete source code” (filename “**src12-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-04-30.zip**”)

13: Executable, source code, and build environment for image for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec13-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src13-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv13-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec13-2015-06-30.zip**”), “Complete source code” (filename “**src13-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec13-2015-05-30.zip**”), “Complete source code” (filename “**src13-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec13-2015-04-30.zip**”), “Complete source code” (filename “**src13-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-04-30.zip**”)

14: Executable, source code, and build environment for text & image for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec14-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src14-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv14-YYYY-MM-DD.zip**”)
- ...

- Links to version 2015-06-30 of “Executable” (filename “**exec14-2015-06-30.zip**”), “Complete source code” (filename “**src14-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec14-2015-05-30.zip**”), “Complete source code” (filename “**src14-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec14-2015-04-30.zip**”), “Complete source code” (filename “**src14-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-04-30.zip**”)

15: Executable, source code, and build environment for image & A/V for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec15-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src15-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv15-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec15-2015-06-30.zip**”), “Complete source code” (filename “**src15-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec15-2015-05-30.zip**”), “Complete source code” (filename “**src15-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec15-2015-04-30.zip**”), “Complete source code” (filename “**src15-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-04-30.zip**”)

16: Executable, source code, and build environment for text & image & A/V for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec16-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src16-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv16-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec16-2015-06-30.zip**”), “Complete source code” (filename “**src16-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec16-2015-05-30.zip**”), “Complete source code” (filename “**src16-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec16-2015-04-30.zip**”), “Complete source code” (filename “**src16-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-04-30.zip**”)

17: Executable, source code, and build environment for image for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec17-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src17-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv17-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec17-2015-06-30.zip**”), “Complete source code” (filename “**src17-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec17-2015-05-30.zip**”), “Complete source code” (filename “**src17-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec17-2015-04-30.zip**”), “Complete source code” (filename “**src17-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-04-30.zip**”)

18: Executable, source code, and build environment for text & image for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec18-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src18-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv18-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec18-2015-06-30.zip**”), “Complete source code” (filename “**src18-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec18-2015-05-30.zip**”), “Complete source code” (filename “**src18-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec18-2015-04-30.zip**”), “Complete source code” (filename “**src18-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-04-30.zip**”)

19: Executable, source code, and build environment for image & A/V for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec19-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src19-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv19-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec19-2015-06-30.zip**”), “Complete source code” (filename “**src19-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec19-2015-05-30.zip**”), “Complete source code” (filename “**src19-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec19-2015-04-30.zip**”), “Complete source code” (filename “**src19-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-04-30.zip**”)

20: Executable, source code, and build environment for text & image & A/V for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec20-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src20-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv20-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec20-2015-06-30.zip**”), “Complete source code” (filename “**src20-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec20-2015-05-30.zip**”), “Complete source code” (filename “**src20-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec20-2015-04-30.zip**”), “Complete source code” (filename “**src20-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-04-30.zip**”)

21: Executable, source code, and build environment for image for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec21-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src21-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv21-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec21-2015-06-30.zip**”), “Complete source code” (filename “**src21-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec21-2015-05-30.zip**”), “Complete source code” (filename “**src21-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec21-2015-04-30.zip**”), “Complete source code” (filename “**src21-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-04-30.zip**”)

22: Executable, source code, and build environment for text & image for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec22-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src22-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv22-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec22-2015-06-30.zip**”), “Complete source code” (filename “**src22-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec22-2015-05-30.zip**”), “Complete source code” (filename “**src22-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec22-2015-04-30.zip**”), “Complete source code” (filename “**src22-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-04-30.zip**”)

23: Executable, source code, and build environment for image & A/V for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec23-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src23-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv23-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec23-2015-06-30.zip**”), “Complete source code” (filename “**src23-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec23-2015-05-30.zip**”), “Complete source code” (filename “**src23-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec23-2015-04-30.zip**”), “Complete source code” (filename “**src23-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-04-30.zip**”)

24: Executable, source code, and build environment for text & image & A/V for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec24-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src24-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv24-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec24-2015-06-30.zip**”), “Complete source code” (filename “**src24-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec24-2015-05-30.zip**”), “Complete source code” (filename “**src24-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec24-2015-04-30.zip**”), “Complete source code” (filename “**src24-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-04-30.zip**”)

APPENDIX A3: REQUIREMENTS FOR OPEN SOURCE PROJECTS IMPLEMENTING A/V

For each provided **executable**, a link to the associated complete **source code** and a link to the associated complete **build environment** shall also be provided which is needed to produce an (identical) executable. Each heading (see below) represents a unique combination of three monthly deliverables (executable, source code, and build environment) from each open source project and information on its associated deployment platform. Totally there are 24 unique combinations of monthly deliverables (uniquely identified by a number for each heading) from each open source project. Since each project is separately hosted on GitHub (or equivalent) there will be no naming conflicts with respect to use of filenames (as detailed in the requirements below).

Each month each open source project shall deliver one executable (provided in one zip-file: “**execNN-YYYY-MM-DD.zip**”), the complete corresponding source code for the executable (provided in one zip-file: “**srcNN-YYYY-MM-DD.zip**”), and the complete build environment (provided in one zip-file: “**buildenvNN-YYYY-MM-DD.zip**”) by which the executable can be built from the source code on the platform for which the files are provided. For example, the combination “Executable, source code, and build environment for text & image & A/V for Debian Linux” has the sequential number 20, and its executable, associated source code, and build environment use the same sequential number in their filenames and the delivery from this open source project on 2015-06-30 shall be provided under the following filenames: “**exec20-2015-06-30.zip**”, “**src20-2015-06-30.zip**”, “**buildenv20-2015-06-30.zip**”. Hence, a user on the Debian Linux platform shall be able to download and directly use the executable (provided in “**exec20-2015-06-30.zip**”) on this platform. Further, the same user on the Debian Linux platform shall be able to download the complete source code (provided in “**src20-2015-06-30.zip**”) and download the build environment (provided in “**buildenv20-2015-06-30.zip**”) and by use of these locally (without access to Internet and external software) produce an executable which is identical to what is provided in the file “**exec20-2015-06-30.zip**”. Under each heading the most recent version shall always be listed at the top, and all previously released versions shall always be provided below.

For each open source project implementing **A/V**, the open source project provided on the open platform shall contain all monthly releases for the following (totally 24) unique combinations of monthly deliverables:

1: Executable, source code, and build environment for A/V for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec01-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src01-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv01-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec01-2015-06-30.zip**”), “Complete source code” (filename “**src01-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec01-2015-05-30.zip**”), “Complete source code” (filename “**src01-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec01-2015-04-30.zip**”), “Complete source code” (filename “**src01-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv01-2015-04-30.zip**”)

2: Executable, source code, and build environment for text & A/V for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec02-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src02-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv02-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec02-2015-06-30.zip**”), “Complete source code” (filename “**src02-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec02-2015-05-30.zip**”), “Complete source code” (filename “**src02-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec02-2015-04-30.zip**”), “Complete source code” (filename “**src02-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv02-2015-04-30.zip**”)

3: Executable, source code, and build environment for image & A/V for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec03-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src03-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv03-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec03-2015-06-30.zip**”), “Complete source code” (filename “**src03-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec03-2015-05-30.zip**”), “Complete source code” (filename “**src03-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec03-2015-04-30.zip**”), “Complete source code” (filename “**src03-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv03-2015-04-30.zip**”)

4: Executable, source code, and build environment for text & image & A/V for MS Windows 7:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec04-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src04-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv04-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec04-2015-06-30.zip**”), “Complete source code” (filename “**src04-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec04-2015-05-30.zip**”), “Complete source code” (filename “**src04-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec04-2015-04-30.zip**”), “Complete source code” (filename “**src04-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv04-2015-04-30.zip**”)

5: Executable, source code, and build environment for A/V for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec05-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src05-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv05-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec05-2015-06-30.zip**”), “Complete source code” (filename “**src05-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec05-2015-05-30.zip**”), “Complete source code” (filename “**src05-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec05-2015-04-30.zip**”), “Complete source code” (filename “**src05-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv05-2015-04-30.zip**”)

6: Executable, source code, and build environment for text & A/V for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec06-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src06-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv06-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec06-2015-06-30.zip**”), “Complete source code” (filename “**src06-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec06-2015-05-30.zip**”), “Complete source code” (filename “**src06-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec06-2015-04-30.zip**”), “Complete source code” (filename “**src06-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv06-2015-04-30.zip**”)

7: Executable, source code, and build environment for image & A/V for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec07-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src07-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv07-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec07-2015-06-30.zip**”), “Complete source code” (filename “**src07-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec07-2015-05-30.zip**”), “Complete source code” (filename “**src07-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec07-2015-04-30.zip**”), “Complete source code” (filename “**src07-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv07-2015-04-30.zip**”)

8: Executable, source code, and build environment for text & image & A/V for Mac OSX:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec08-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src08-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv08-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec08-2015-06-30.zip**”), “Complete source code” (filename “**src08-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec08-2015-05-30.zip**”), “Complete source code” (filename “**src08-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec08-2015-04-30.zip**”), “Complete source code” (filename “**src08-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv08-2015-04-30.zip**”)

9: Executable, source code, and build environment for A/V for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec09-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src09-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv09-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec09-2015-06-30.zip**”), “Complete source code” (filename “**src09-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec09-2015-05-30.zip**”), “Complete source code” (filename “**src09-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec09-2015-04-30.zip**”), “Complete source code” (filename “**src09-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv09-2015-04-30.zip**”)

10: Executable, source code, and build environment for text & A/V for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec10-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src10-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv10-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec10-2015-06-30.zip**”), “Complete source code” (filename “**src10-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec10-2015-05-30.zip**”), “Complete source code” (filename “**src10-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec10-2015-04-30.zip**”), “Complete source code” (filename “**src10-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv10-2015-04-30.zip**”)

11: Executable, source code, and build environment for image & A/V for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec11-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src11-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv11-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec11-2015-06-30.zip**”), “Complete source code” (filename “**src11-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec11-2015-05-30.zip**”), “Complete source code” (filename “**src11-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec11-2015-04-30.zip**”), “Complete source code” (filename “**src11-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv11-2015-04-30.zip**”)

12: Executable, source code, and build environment for text & image & A/V for Ubuntu Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec12-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src12-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv12-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec12-2015-06-30.zip**”), “Complete source code” (filename “**src12-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec12-2015-05-30.zip**”), “Complete source code” (filename “**src12-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec12-2015-04-30.zip**”), “Complete source code” (filename “**src12-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv12-2015-04-30.zip**”)

13: Executable, source code, and build environment for A/V for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec13-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src13-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv13-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec13-2015-06-30.zip**”), “Complete source code” (filename “**src13-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec13-2015-05-30.zip**”), “Complete source code” (filename “**src13-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec13-2015-04-30.zip**”), “Complete source code” (filename “**src13-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv13-2015-04-30.zip**”)

14: Executable, source code, and build environment for text & AV for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec14-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src14-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv14-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec14-2015-06-30.zip**”), “Complete source code” (filename “**src14-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec14-2015-05-30.zip**”), “Complete source code” (filename “**src14-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec14-2015-04-30.zip**”), “Complete source code” (filename “**src14-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv14-2015-04-30.zip**”)

15: Executable, source code, and build environment for image & AV for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec15-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src15-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv15-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec15-2015-06-30.zip**”), “Complete source code” (filename “**src15-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec15-2015-05-30.zip**”), “Complete source code” (filename “**src15-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec15-2015-04-30.zip**”), “Complete source code” (filename “**src15-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv15-2015-04-30.zip**”)

16: Executable, source code, and build environment for text & image & AV for Fedora Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec16-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src16-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv16-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec16-2015-06-30.zip**”), “Complete source code” (filename “**src16-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec16-2015-05-30.zip**”), “Complete source code” (filename “**src16-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec16-2015-04-30.zip**”), “Complete source code” (filename “**src16-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv16-2015-04-30.zip**”)

17: Executable, source code, and build environment for A/V for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec17-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src17-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv17-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec17-2015-06-30.zip**”), “Complete source code” (filename “**src17-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec17-2015-05-30.zip**”), “Complete source code” (filename “**src17-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec17-2015-04-30.zip**”), “Complete source code” (filename “**src17-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv17-2015-04-30.zip**”)

18: Executable, source code, and build environment for text & A/V for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec18-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src18-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv18-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec18-2015-06-30.zip**”), “Complete source code” (filename “**src18-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec18-2015-05-30.zip**”), “Complete source code” (filename “**src18-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec18-2015-04-30.zip**”), “Complete source code” (filename “**src18-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv18-2015-04-30.zip**”)

19: Executable, source code, and build environment for image & A/V for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec19-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src19-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv19-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec19-2015-06-30.zip**”), “Complete source code” (filename “**src19-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec19-2015-05-30.zip**”), “Complete source code” (filename “**src19-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec19-2015-04-30.zip**”), “Complete source code” (filename “**src19-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv19-2015-04-30.zip**”)

20: Executable, source code, and build environment for text & image & A/V for Debian Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec20-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src20-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv20-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec20-2015-06-30.zip**”), “Complete source code” (filename “**src20-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec20-2015-05-30.zip**”), “Complete source code” (filename “**src20-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec20-2015-04-30.zip**”), “Complete source code” (filename “**src20-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv20-2015-04-30.zip**”)

21: Executable, source code, and build environment for A/V for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec21-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src21-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv21-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec21-2015-06-30.zip**”), “Complete source code” (filename “**src21-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-06-30.zip**”)

- Links to version 2015-05-30 of “Executable” (filename “**exec21-2015-05-30.zip**”), “Complete source code” (filename “**src21-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec21-2015-04-30.zip**”), “Complete source code” (filename “**src21-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv21-2015-04-30.zip**”)

22: Executable, source code, and build environment for text & A/V for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec22-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src22-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv22-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec22-2015-06-30.zip**”), “Complete source code” (filename “**src22-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec22-2015-05-30.zip**”), “Complete source code” (filename “**src22-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec22-2015-04-30.zip**”), “Complete source code” (filename “**src22-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv22-2015-04-30.zip**”)

23: Executable, source code, and build environment for image & A/V for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec23-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src23-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv23-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec23-2015-06-30.zip**”), “Complete source code” (filename “**src23-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec23-2015-05-30.zip**”), “Complete source code” (filename “**src23-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec23-2015-04-30.zip**”), “Complete source code” (filename “**src23-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv23-2015-04-30.zip**”)

24: Executable, source code, and build environment for text & image & A/V for Suse Linux:

- Links to most recent version (YYYY-MM-DD) of “Executable” (filename “**exec24-YYYY-MM-DD.zip**”), “Complete source code” (filename “**src24-YYYY-MM-DD.zip**”), “Complete build environment” (filename “**buildenv24-YYYY-MM-DD.zip**”)
- ...
- Links to version 2015-06-30 of “Executable” (filename “**exec24-2015-06-30.zip**”), “Complete source code” (filename “**src24-2015-06-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-06-30.zip**”)
- Links to version 2015-05-30 of “Executable” (filename “**exec24-2015-05-30.zip**”), “Complete source code” (filename “**src24-2015-05-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-05-30.zip**”)
- Links to version 2015-04-30 of “Executable” (filename “**exec24-2015-04-30.zip**”), “Complete source code” (filename “**src24-2015-04-30.zip**”), “Complete build environment” (filename “**buildenv24-2015-04-30.zip**”)

APPENDIX B OPEN SOURCE PORTAL SECTION OF THE PREFORMA WEBSITE

This appendix presents the first version of the Open Source Portal and shows how it has been integrated in the PREFORMA website.

The entry page (<http://www.preforma-project.eu/open-source-portal.html>) provides an overview and references to each open source project that is currently working in the prototyping phase. It acts as an entry point for all interested suppliers and memory institutions allowing easy navigation to all externally hosted resources.



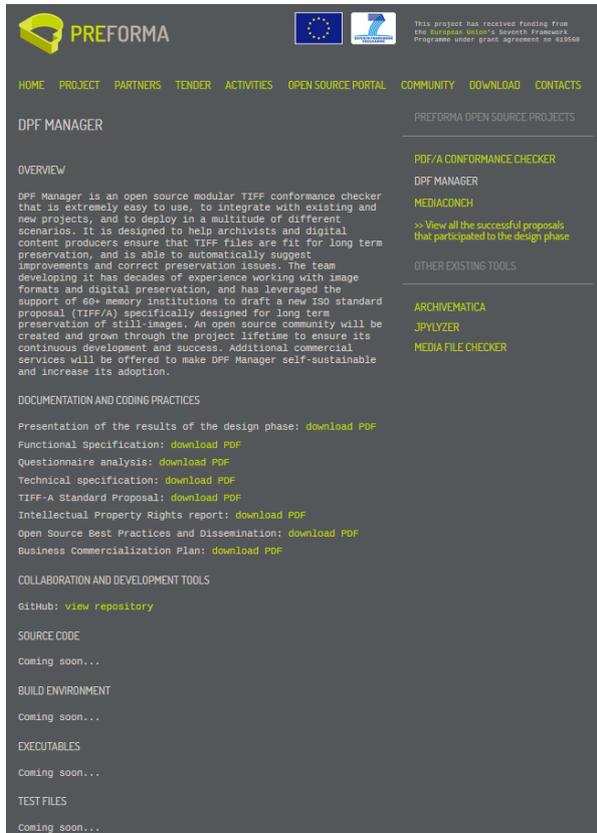
The screenshot shows the 'OPEN SOURCE PORTAL' section of the PREFORMA website. At the top, there is a navigation menu with links: HOME, PROJECT, PARTNERS, TENDER, ACTIVITIES, OPEN SOURCE PORTAL, COMMUNITY, DOWNLOAD, and CONTACTS. The main content area is titled 'OPEN SOURCE PORTAL' and contains an introductory paragraph: 'This section provides an overview and references to each open source project that is currently working in the prototyping phase. It acts as an entry point for all interested suppliers and memory institutions allowing easy navigation to all externally hosted resources.' Below this, there are three project entries:

- PROJECT N.1. VeraPDF: THE PDF/A CONFORMANCE CHECKER ACCEPTED INDUSTRY-WIDE**
by *Open Preservation Foundation, PDF Association, Digital Preservation Coalition, Dual Lab, KEEP SOLUTIONS*
A unique collaboration, the VeraPDF Consortium brings together an end user community and a software industry rooted in the principle of interoperability based on ISO standardized technology... [access project page >>](#)
- PROJECT N.2. DPF MANAGER: DIGITAL PRESERVATION FORMATS MANAGER**
by *Easy Innova*
DPF Manager is an open source modular TIFF conformance checker that is extremely easy to use, to integrate with existing and new projects, and to deploy in a multitude of different scenarios... [access project page >>](#)
- PROJECT N.3. MEDIACONCH - CONFORMANCE CHECKING FOR AUDIOVISUAL FILES**
by *MediaArea.net*
MediaConch is an extensible, open source software project consisting of an implementation checker, policy checker, reporter and fixer that targets preservation-level audiovisual files for use in memory institutions... [access project page >>](#)

On the right side of the page, there is a section titled 'PREFORMA OPEN SOURCE PROJECTS' with a list of projects: PDF/A CONFORMANCE CHECKER, DPF MANAGER, MEDIACONCH, and a link '>> View all the successful proposals that participated to the design phase'. Below this is a section titled 'OTHER EXISTING TOOLS' with a list: ARCHIVEMATICA, JPLYZER, and MEDIA FILE CHECKER. At the top right, there are logos for the European Union and the Seventh Framework Programme, along with text: 'This project has received funding from the European Union's Seventh Framework Programme under grant agreement no 619568'.

Fig. 1 Open Source Portal entry page

From this overview page it is possible to reach a dedicated page for each open source project, which provides access to the specific resources hosted on their open platforms. At time of writing, only a few resources have been made available by each project, namely the functional and technical specification produced as results of the design phase. As soon as the other resources will become available, they will be linked to these dedicated pages.



PREFORMA

HOME PROJECT PARTNERS TENDER ACTIVITIES OPEN SOURCE PORTAL COMMUNITY DOWNLOAD CONTACTS

DPF MANAGER

PREFORMA OPEN SOURCE PROJECTS

PDF/A CONFORMANCE CHECKER

DPF MANAGER

MEDIACONCH

>> View all the successful proposals that participated to the design phase

OTHER EXISTING TOOLS

ARCHIVEMATICA

JPLYZER

MEDIA FILE CHECKER

OVERVIEW

DPF Manager is an open source modular TIFF conformance checker that is extremely easy to use, to integrate with existing and new projects, and to deploy in a multitude of different scenarios. It is designed to help archivists and digital content producers ensure that TIFF files are fit for long term preservation, and is able to automatically suggest improvements and correct preservation issues. The team developing it has decades of experience working with image formats and digital preservation, and has leveraged the support of 60+ memory institutions to draft a new ISO standard proposal (TIFF/A) specifically designed for long term preservation of still-images. An open source community will be created and grown through the project lifetime to ensure its continuous development and success. Additional commercial services will be offered to make DPF Manager self-sustainable and increase its adoption.

DOCUMENTATION AND CODING PRACTICES

Presentation of the results of the design phase: [download PDF](#)
 Functional Specification: [download PDF](#)
 Questionnaire analysis: [download PDF](#)
 Technical specification: [download PDF](#)
 TIFF-A Standard Proposal: [download PDF](#)
 Intellectual Property Rights report: [download PDF](#)
 Open Source Best Practices and Dissemination: [download PDF](#)
 Business Commercialization Plan: [download PDF](#)

COLLABORATION AND DEVELOPMENT TOOLS

GitHub: [view repository](#)

SOURCE CODE

Coming soon...

BUILD ENVIRONMENT

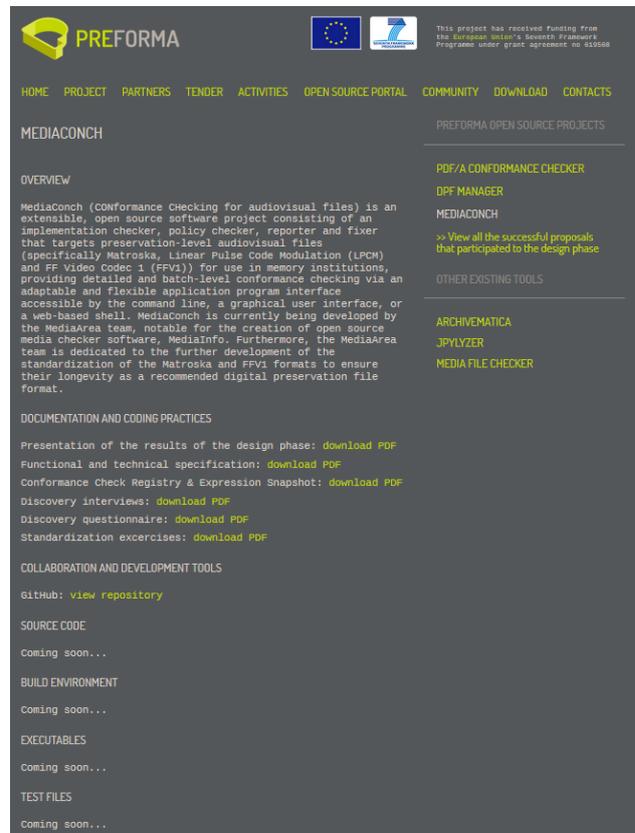
Coming soon...

EXECUTABLES

Coming soon...

TEST FILES

Coming soon...



PREFORMA

HOME PROJECT PARTNERS TENDER ACTIVITIES OPEN SOURCE PORTAL COMMUNITY DOWNLOAD CONTACTS

MEDIACONCH

PREFORMA OPEN SOURCE PROJECTS

PDF/A CONFORMANCE CHECKER

DPF MANAGER

MEDIACONCH

>> View all the successful proposals that participated to the design phase

OTHER EXISTING TOOLS

ARCHIVEMATICA

JPLYZER

MEDIA FILE CHECKER

OVERVIEW

MediaConch (Conformance Checking for audiovisual files) is an extensible, open source software project consisting of an implementation checker, policy checker, reporter and fixer that targets preservation-level audiovisual files (specifically Matroska, Linear Pulse Code Modulation (LPCM) and FF Video Codec 1 (FFV1)) for use in memory institutions, providing detailed and batch-level conformance checking via an adaptable and flexible application program interface accessible by the command line, a graphical user interface, or a web-based shell. MediaConch is currently being developed by the MediaArea team, notable for the creation of open source media checker software, MediaInfo. Furthermore, the MediaArea team is dedicated to the further development of the standardization of the Matroska and FFV1 formats to ensure their longevity as a recommended digital preservation file format.

DOCUMENTATION AND CODING PRACTICES

Presentation of the results of the design phase: [download PDF](#)
 Functional and technical specification: [download PDF](#)
 Conformance Check Registry & Expression Snapshot: [download PDF](#)
 Discovery interviews: [download PDF](#)
 Discovery questionnaire: [download PDF](#)
 Standardization exercises: [download PDF](#)

COLLABORATION AND DEVELOPMENT TOOLS

GitHub: [view repository](#)

SOURCE CODE

Coming soon...

BUILD ENVIRONMENT

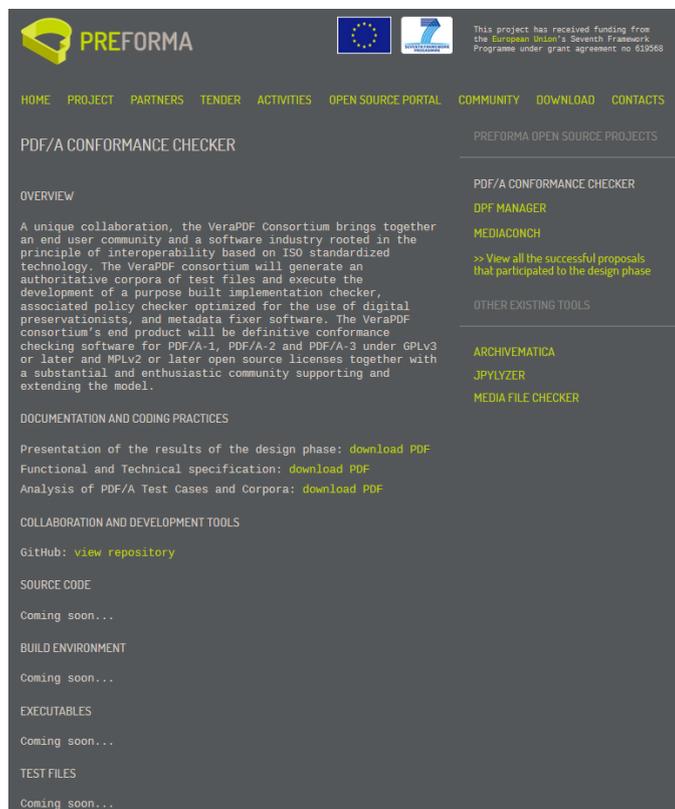
Coming soon...

EXECUTABLES

Coming soon...

TEST FILES

Coming soon...



PREFORMA

HOME PROJECT PARTNERS TENDER ACTIVITIES OPEN SOURCE PORTAL COMMUNITY DOWNLOAD CONTACTS

PDF/A CONFORMANCE CHECKER

PREFORMA OPEN SOURCE PROJECTS

PDF/A CONFORMANCE CHECKER

DPF MANAGER

MEDIACONCH

>> View all the successful proposals that participated to the design phase

OTHER EXISTING TOOLS

ARCHIVEMATICA

JPLYZER

MEDIA FILE CHECKER

OVERVIEW

A unique collaboration, the VeraPDF Consortium brings together an end user community and a software industry rooted in the principle of interoperability based on ISO standardized technology. The VeraPDF consortium will generate an authoritative corpora of test files and execute the development of a purpose built implementation checker, associated policy checker optimized for the use of digital preservationists, and metadata fixer software. The VeraPDF consortium's end product will be definitive conformance checking software for PDF/A-1, PDF/A-2 and PDF/A-3 under GPLv3 or later and MPLv2 or later open source licenses together with a substantial and enthusiastic community supporting and extending the model.

DOCUMENTATION AND CODING PRACTICES

Presentation of the results of the design phase: [download PDF](#)
 Functional and Technical specification: [download PDF](#)
 Analysis of PDF/A Test Cases and Corpora: [download PDF](#)

COLLABORATION AND DEVELOPMENT TOOLS

GitHub: [view repository](#)

SOURCE CODE

Coming soon...

BUILD ENVIRONMENT

Coming soon...

EXECUTABLES

Coming soon...

TEST FILES

Coming soon...

Fig. 2 Open Source Portal dedicated pages