DPF Manager

The open source
COMMUNITY

www.easyinnova.com

Initial Presentation

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Business Plan

Final Conclusions

Prof. JOSEP LLUÍS de la ROSA
Full Professor at University of Girona
peplluis@eia.udg.edu
CEO at Easy Innova

UNIVERSITY OF GIRONA
www.udg.edu

EASY INNOVA
www.easyinnova.com

Consortium & People Involved

Easy Innova, S.L. (Spain)
Spin-off of the University of Girona

Certified by: TECNIO Be tech. Be competitive — Generalitat de Catalunya

Member of: AENOR Asociación Española de Normalización y Certificación — CTN50/SC1 Subcommittee

Know-how:

- R&D Projects
- Platform Architectures
- Digital Preservation
- IPR
- Standards
- Artificial Intelligence
- Open Source Projects

Dr. Miquel Montaner
CTO

Robert Sallo
R&D Manager

Xavi Tarrés
Senior Developer

Antonio López
Senior Developer

Dr. Víctor Torres
R&D Manager

University of Girona (Spain)
Agents Research Lab

Know-how:

- R&D
- Open Source
- Digital Preservation

Prof. Dr. Josep Lluís de la Rosa
Full Professor and Researcher

Dr. Albert Trias
R&D Manager

University of Basel (Switzerland)
Digital Humanities Lab

Know-how:

- Cultural Heritage
- TIFF
- Image Formats
- Digital Preservation

Prof. Dr. Lukas Rosenthaler
Full Professor and Researcher

Dr. Peter Fornaro
Managing Director

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Consortium Background

Relevant background related to PREFORMA:

Easy Innova:

- Specialised in artificial intelligence technology transfer and R&D projects
- World class provider of FIFA (UK), Beezy (USA), RES (Belgium), RS (SP)
- Extending the software intelligence in Digital Preservation since 2007
- Full member of AENOR/CTN50 SC1 (Spanish mirror of ISO/TC 171)

University of Basel:

- Working on TIFF format since 1990 – 25 years of experience
- Extensive knowledge on all image formats
- Specialized in image formats for Digital Preservation
- Strong working relationship with more than 30 memory institutions
- Participation in numerous image and digital preservation R&D projects
- Extensive contribution to the scientific community with indexed articles
- In process of joining the Swiss National Standards Organization

University of Girona:

- Working on digital preservation in +5 R&D projects since 2007
- Contribution to the scientific community with +20 international papers
- Inventors of the Self Preserving Digital Objects
- Member of INTERPARES

Memory Institutions Partners

Strong working relationship with the following 34 memory institutions:

Memory institution	City	Country
Archäologische Bodenforschung	Basel	Switzerland
Arxiu municipal de l'Ajuntament de Girona	Girona	Spain
Biblioteca de la Universitat de Girona	Girona	Spain
Bibliothéque cantonale et universitaire	Fribourg	Switzerland
Bundesamt für Zivilschutz, Sektion Kulturgüterschutz	Bern	Switzerland
Dokumentationsbibliothek	St. Moritz	Switzerland
Eidg. Archiv für Denkmalpflege	Bern	Switzerland
Freilichtmuseum Ballenberg	Brienz	Switzerland
Gemeindearchiv	Riehen	Switzerland
Hochschule für Kunst und Gestaltung, Grafische Sammlung	Zürich	Switzerland
Indiana University, Digital Library	Bloomington	USA
Kanton Appenzell A. Rh.	Herisau	Switzerland
Kantonsmuseum Baselland	Liestal	Switzerland
Kantonsspital Basel	Basel	Switzerland
Kunsthistorisches Institut Max-Planck-Institut	Florenz	Italy
Kunstmuseum	Basel	Switzerland
Museum der Kulturen	Basel	Switzerland
Museum für Glasmalerei	Romont	Switzerland
Museum für Kommunikation	Bern	Switzerland
Paul Sacher Stiftung	Basel	Switzerland
Pestalozzi-Gesellschaft Oberwil	Oberwil	Switzerland
Rahvusarhiiv	Tallin	Estonia
Rechtshistorische Bildstelle Uni ZH	Zürich	Switzerland
Römerstadt Augusta Raurica	Augst	Switzerland
Schweizer Radio DRS	Basel	Switzerland
Schweizerische Landesbibliothek	Bern	Switzerland
Schweizerisches Bundesarchiv	Bern	Switzerland
Schweizerisches Landesmuseum	Zürich	Switzerland
Stiftsbibliothek	St. Gallen	Switzerland
Stiftung Luftbild Schweiz	Regensdorf	Switzerland
Tate Gallery	London	United Kingdom
Verlag Paul Haupt	Bern	Switzerland
Yale University Press	London	United Kingdom
Zentrum Paul Klee	Bern	Switzerland

Participation on Relevant R&D Projects

Easy Innova and UdG projects:

durafile

GEPID

MIP MINT
MICRO-TRADING BASED PRESERVATION SYSTEM

PYRAMID

PRESERVA

PROTAGE

it is forever
preservation of digital photography

Universiy of Basel projects:

ALSAH

RESEAU/NETZWERK CINEMA CH

Peviar
Permanent Visual Archive

ASSH

DANOK
Datenbank- und Archivierungsnetzwerk oberrheinischer Kulturträger

AFRESA
Automatic System for Scanning, Reconstruction and Registration of Archival Film

Relevant Scientific Articles

Easy Innova and UdG relevant publications:

- Olvera, J.A., de la Rosa, J. Ll*., Time Machine: Projecting the Digital Assets onto the Future Simulation Environmen*t. PAAMS 2015, June 03-05, Salamanca, Spain (accepted)
- J. L. de la Rosa and José Antonio Olvera, *First Studies on Self-Preserving Digital Objects,* Frontiers in Artificial Intelligence and Applications – AI Research & Development, Vol. 248, pp. 213-222: October 2012, IOS Press.
- A. Trias i Mansilla and J. Ll. de la Rosa i Esteva, *Survey of social search from the perspectives of the village paradigm and online social networks*, The Journal of Information Science (JIS), Vol: 39 no. 5 688-707, Oct 2013
- J.A. Olvera, J. Ll. de la Rosa, and P. Carrillo, *Combinatorial and Multi-Unit Auctions Applied to Digital Preservation,* Artificial Intelligence Research and Development, pp:265-268, L. Museros et al. (Eds.) IOS Press, in press, 2015
- Xiaolong Jin, Jianmin Jiang, and Josep Lluis de la Rosa. *PROTAGE: Long-Term Digital Preservation Based on Intelligent Agents and Web Services.* ERCIM News, vol. 8, pp. 15-16, 2010
- Boleslaw Szymanski, Josep Lluis de la Rosa, and Mukkai Krishnamoorthy, *An Internet Measure of the Value of Citations*, ISSN 0020-0255, Information Sciences, Elsevier, INS, Vol.185 (1): 18-31, February 15, 2012
- Josep Lluís de la Rosa i Esteva, Jose Antonio Olvera Cañizares. La preservación digital como asunto social: motivación al archivo personal. Tábula, n. 17, pp. 29-49 (2014). ISSN 1132-6506.
- J A Olvera & J L de la Rosa. *An Outline of the Application of Agents to Digital Preservation and an Introduction to Self Preservation Aware Digital Objects,*13th European Agents Systems Summer School,Girona,Catalonia,July1-15,2011
- Josep Lluis de la Rosa i Esteva, Albert Trias, Raivo Ruusalepp, Kuldar AAs, Alex Moreno, Eloy Roura, Albert Bres, and Teresa Bosch. *Agents that Supply Knowledge exchange in Long-Term Digital Preservation.* eChallenges e-2010 Conf. Procs.. IIMC Intl. Info. Mngement Corp. Warsaw, Oct 27-29, 2010
- Josep Lluis de la Rosa, Albert Trias, Raivo Ruusalepp, Kuldar Aas, Alex Moreno, Eloy Roura, Albert Bres, and Teresa Bosch. *Agents for Social Search in Long-Term Digital Preservation.* 6th Intl Conf. on Semantics, Knowledge and Grid, SKG 2010, Nov 1-3, Ningbo, China
- J.L. de la Rosa, Albert Trias, Esteve del Acebo, Silvana Aciar, and Hugo Quisbert. *Shout and Act: an Algorithm for Digital Objects Preservation inspired from Rescue Robots.* InDP 1st Intl. W. in Digital Preservation, JCDL 2009. Austin, Texas, USA.
- de la Rosa, J.L., Trias, A., del Acebo, E., Aciar, S., and Quisbert, H. *Crew Intelligence Systems for Digital Objects Preservation.* SIAAS-09 – 2nd Swarm Intelligence Algorithms and Applications Symposium. Edinburgh, Scotland

University of Basel relevant publications:

- Lukas Rosenthaler, Peter Fornaro and Claire Clivaz, “National Data Curation and Service Center for Digital Research Data in the Humanities”, Proceedings Digital Humanities 2014 (to be published)
- Peter Fornaro, Andreas Wasmer, Lukas Rosenthaler and Rudolf Gschwind, “Monolith: Materialised Bits, the Digital Rosetta Film”, Proceedings Digital Humanities 2014 (to be published)
- Tobias Schweizer, Andreas Wassmer, Lukas Rosenthaler, “Long-term Access to Primary Research Data as a Challenge to Migration”, in Archiving 2014, Society for Imaging Science and Technology (to be published)
- Tobias Schweizer and Lukas Rosenthaler, “Building Digital Editions on the Basis of a Virtual Research Environment”, Proceedings of the Digital Humanities Congress 2012. Studies in the Digital Humanities. Sheffield: HRI Online Publications, 2014. Available online at: http://www.hrionline.ac.uk/openbook/book/dhc2012
- Lukas Rosenthaler, “Technische Herausforderungen in den Digital Humanities“, in: Bulletin der Schweizerischen Akademie der Geistes- und Sozialwissenschaften, Bern (4/2013)
- Ivan Subotic, Lukas Rosenthaler and Heiko Schuldt, “A Distributed Archival Network for Process-Oriented Autonomic Long-Term Digital Preservation“, ACM Proceedings of the Joint Conference On Digital Libraries
- Ivan Subotic, Lukas Rosenthaler, Heiko Schuldt, “A Benchmark for RDF-based Metadata Management in Distributed Long-Term Digital Preservation“, Proceedings of the 3rd International Workshop on Data Engineering Meets the Semantic Web (DESWEB, ICDE 2012 Proceedings)
- Ivan Subotic, Heiko Schuldt, Lukas Rosenthaler, “The DISTARNET Approach to Reliable Autonomic Long-Term Digital Preservation”, Proceedings of DASFAA 2011, Hong Kong, 2011
- Rudolf Gschwind, Lukas Rosenthaler im Gespräch mit Ute Holl, “Migration der Daten, Analyse der Bilder Persistente Archive”, Zeitschrift für Medienwissenschaft 1/2010, pp. 103-1011, 2010, ISSN 1869-1722

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Digging Further into Stakeholders Needs

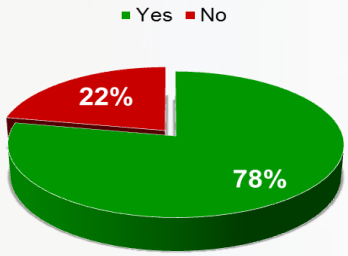
Deeper needs analysis of the PREFORMA requirements:

- Questionnaire for Intl. Memory Institutions
- Our knowledge and experience

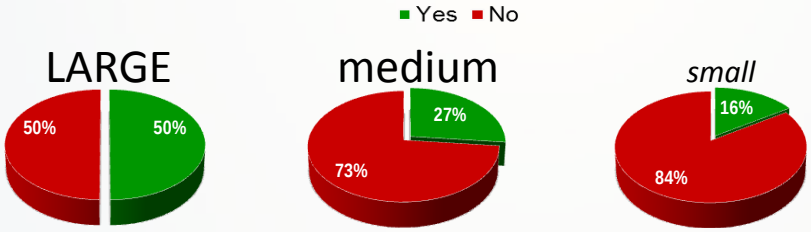
Few Relevant Findings:

+50 SO FAR answers

Are you aware of the importance of well formatted file structure following the standards and how it influences in his preservability?



Do you use any software, like JHOVE, in order to check a well formatted file or its standard compliance?



LARGE = 40 X medium = 1600 X *small*

* Regarding number of digital images

Questionnaire for Memory Institutions

The purpose of this questionnaire is to get a better understanding of the needs and current technologies used by Memory Institutions for the digital preservation of their assets.

The information obtained from this questionnaire will be used for decision making purposes by the European Union PREFORMA project (PREservation FORMAts, http://www.preforma-project.eu). The aim of the project is to address the challenges of implementing good quality standardised file formats for preserving data content in the long term.

The questionnaire has been created and is managed by Easy Innova, an R&DI centre specialised in innovation, artificial intelligence and European programs, in collaboration with the University of Girona and the University of Basel.

*Obligatorio

Easy Innova — University of Girona, Spain — University of Basel, Switzerland

Do they apply the OAIS model to their memory institution?

75% LARGE do

33% medium do

21% *small* do

Questionnaire: https://docs.google.com/forms/d/1YiXxRN70xae9JnEPxsvGNMoF8N8iMxfKvtuHU6mX0RM/viewform

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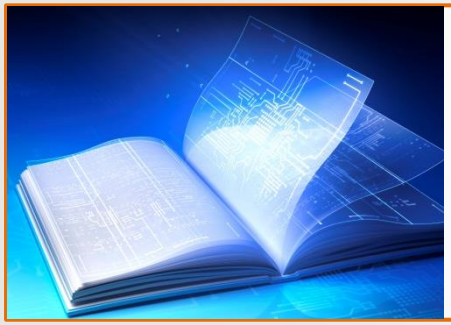
TIFF Format – State of the Art

It is there!

- Tiff was the major file (digital master) for archival purposes
  - TIFF is a final rendered image
  - TIFF is 16bit
  - TIFF is lossless
  - TIFF is professional
  - TIFF is multichannel and multilayer
- Many archives and museums store TIFF files
  - because the others do it
  - because it is of large data volume
  - because it is widely used and well documented

88% Memory Institutions



It is simple but complex!

- The basic technical structure of a TIFF file is relatively simple but it historical “evolution“ made it to a complex format (eg metadata)
- The TIFF standard is referring to numerous other standards
- The baseline TIFF is not often found in real world applications

It has some derivates!

- TIFF/EP (ISO 12234-2) — Camera Raw File
- TIFF/IT (ISO 12639) — Transfer between high end publishing systems
- TIFF-F (RFC 2306) — Recommendation for fax application
- TIFF-FX (RFC 3949) — Recommendation for internet fax application

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TIFF Preservation Issues

Preservation facts about TIFFs!

- Most users do not know what kind of TIFF is stored, some do not even know what software has been used to create the files.
- It is common sense that a TIFF is good for “archival use“ and this “fact” has been communicated over quite some time.
- For most users a file is defined by the filename extension, eg TIFF and nothing else

It needs a clear definition of allowed and forbidden features in a TIFF File

Technical preservation facts about TIFFs!

- The baseline TIFF itself cannot be chosen as archival master file format because some important features are lacking, eg 16bits / channel or CCITT Group 3 or Group 4 or LZW compression, that are widely used in archives.
- It is important to define recommendations or boundaries for the correct creation and validation of TIFF in archives

But what is the correct subset of features?

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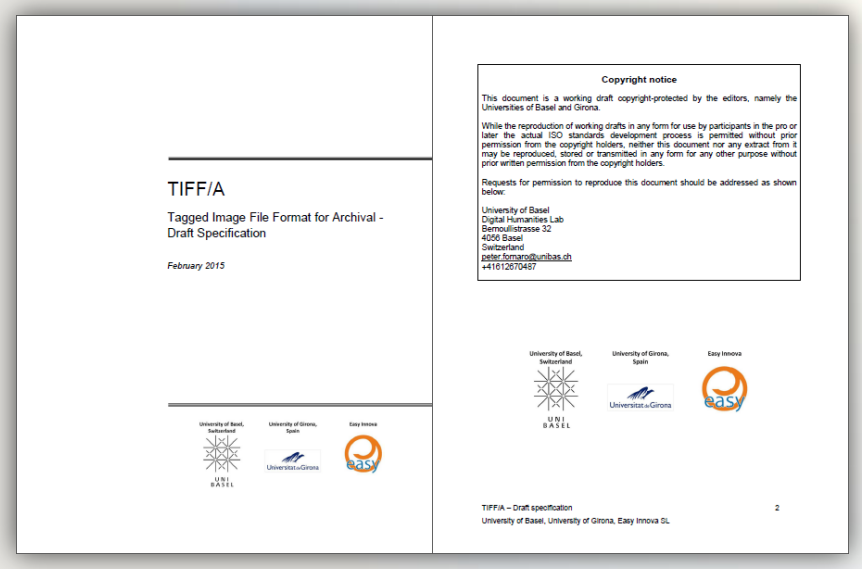
TIFF/A Standard Proposal

TIFF for Archives!

- The PDF/A is a subset of PDF that is conform to archival needs
- The TIFF/A is similar to that concept a result of a conformance checked TIFF.

What does it mean?

- It is a TIFF that is optimized for the archival needs regarding quality (image, metadata) and permanence.
- It has mandatory, optional and forbidden tags.
- It is enriched by recommendations for standardized meta-data
- It is taking care of the all already archived TIFFs



TIFF/A

Tagged Image File Format for Archival - Draft Specification

February 2015

University of Basel, Switzerland | University of Girona, Spain | Easy Innova

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+41612670487

University of Basel, Switzerland | University of Girona, Spain | Easy Innova

1st draft already prepared!

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Home Screen

New configuration

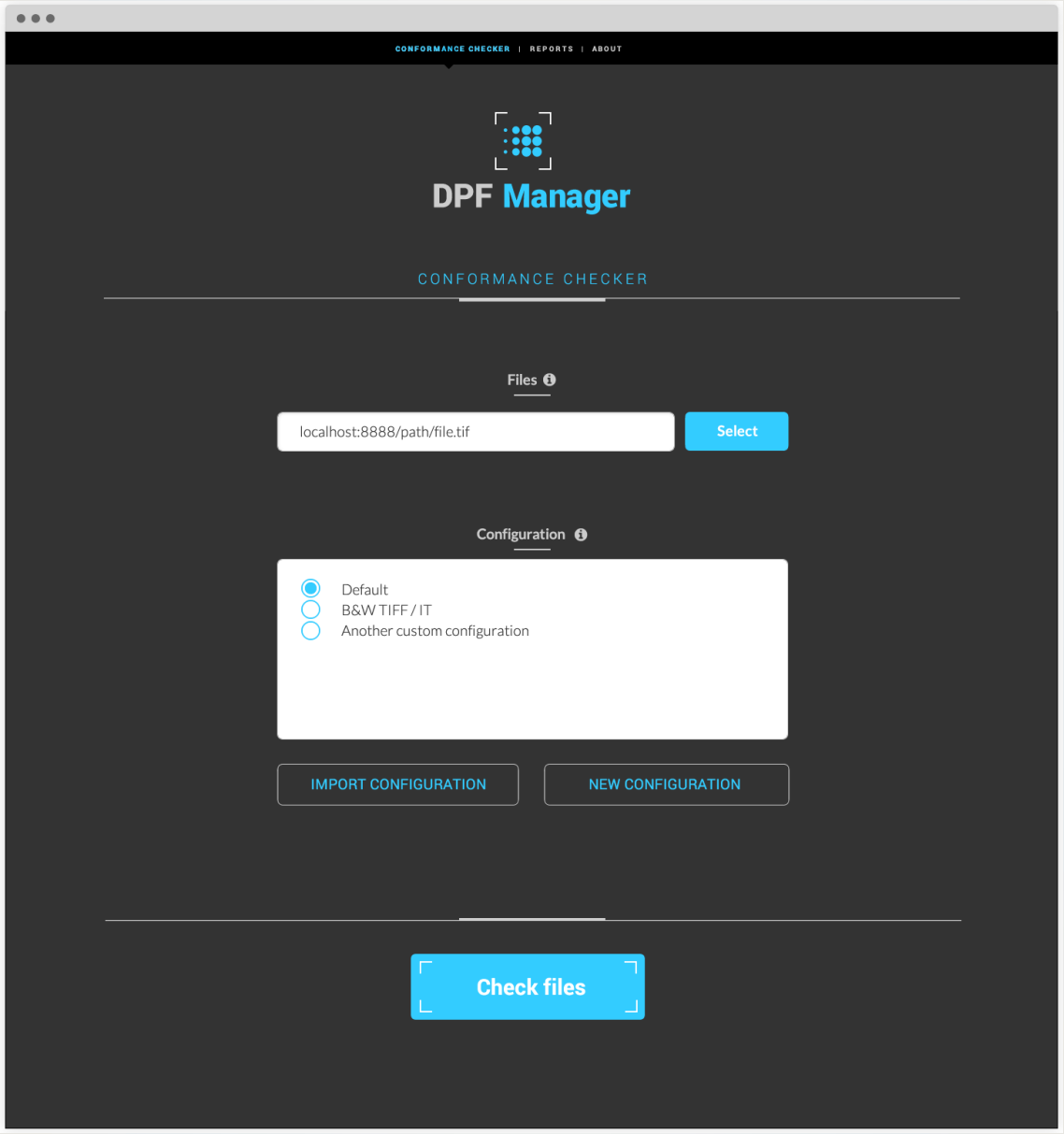
- Implementation checker
- Policy checker
- Reporter
- Metadata fixer
- Periodical checks
- Summary

Check files

- Multiple file report
- Single file report

View historical data

- List of previous reports



New Configuration > Implementation Checker

New configuration

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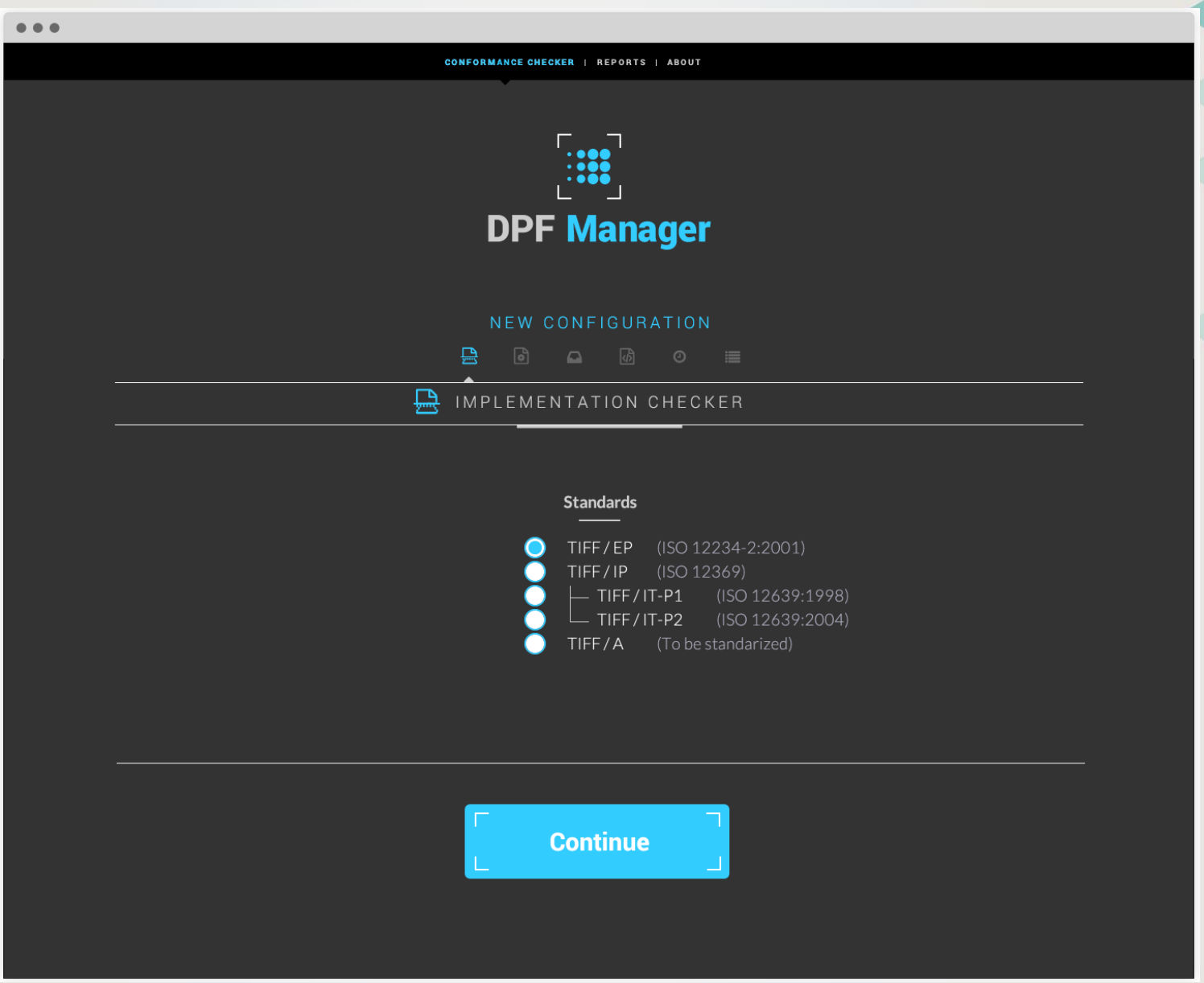

New Configuration > Policy Checker

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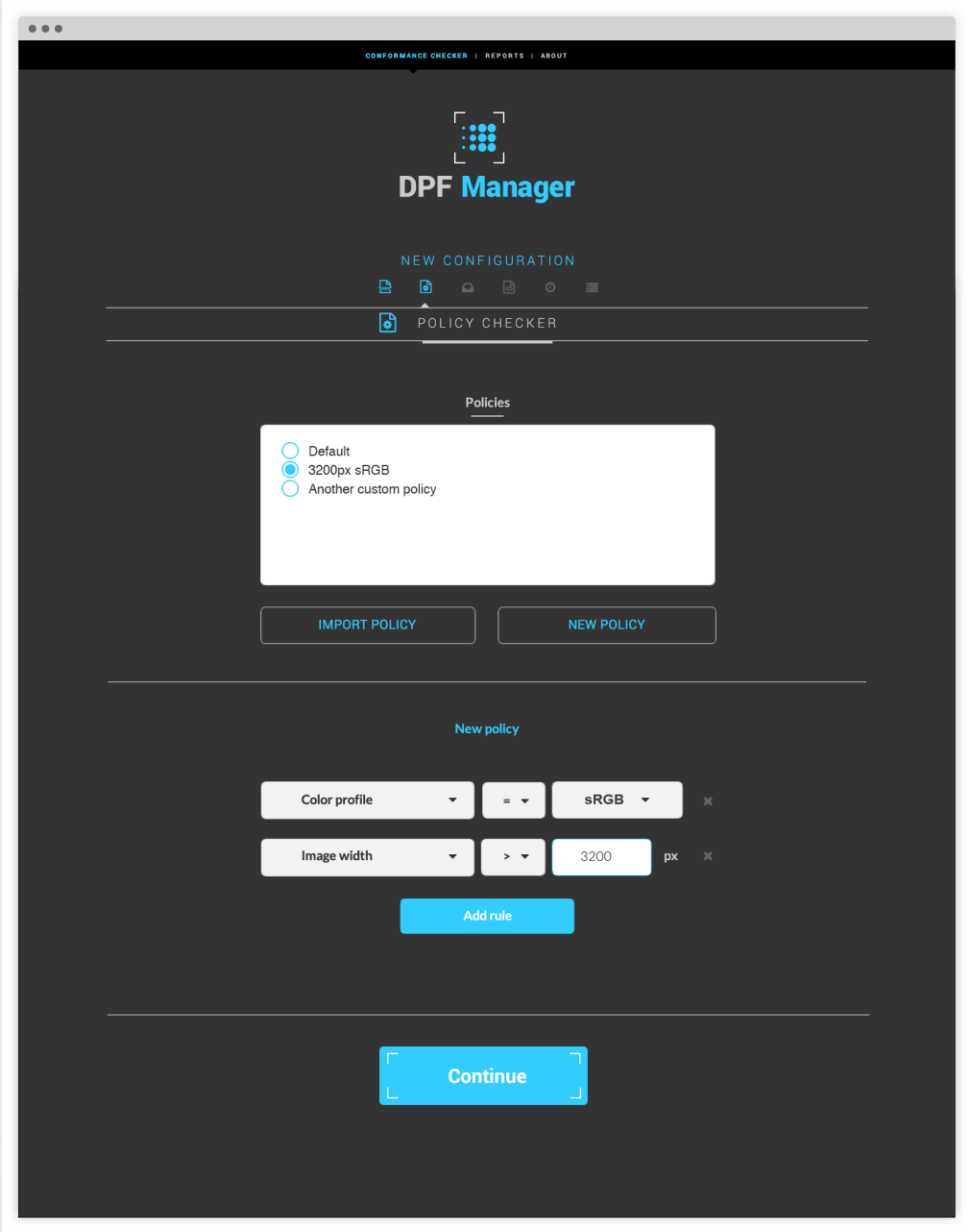

New Configuration > Reporter

New configuration

- Implementation checker
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- **Reporter**
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- Summary

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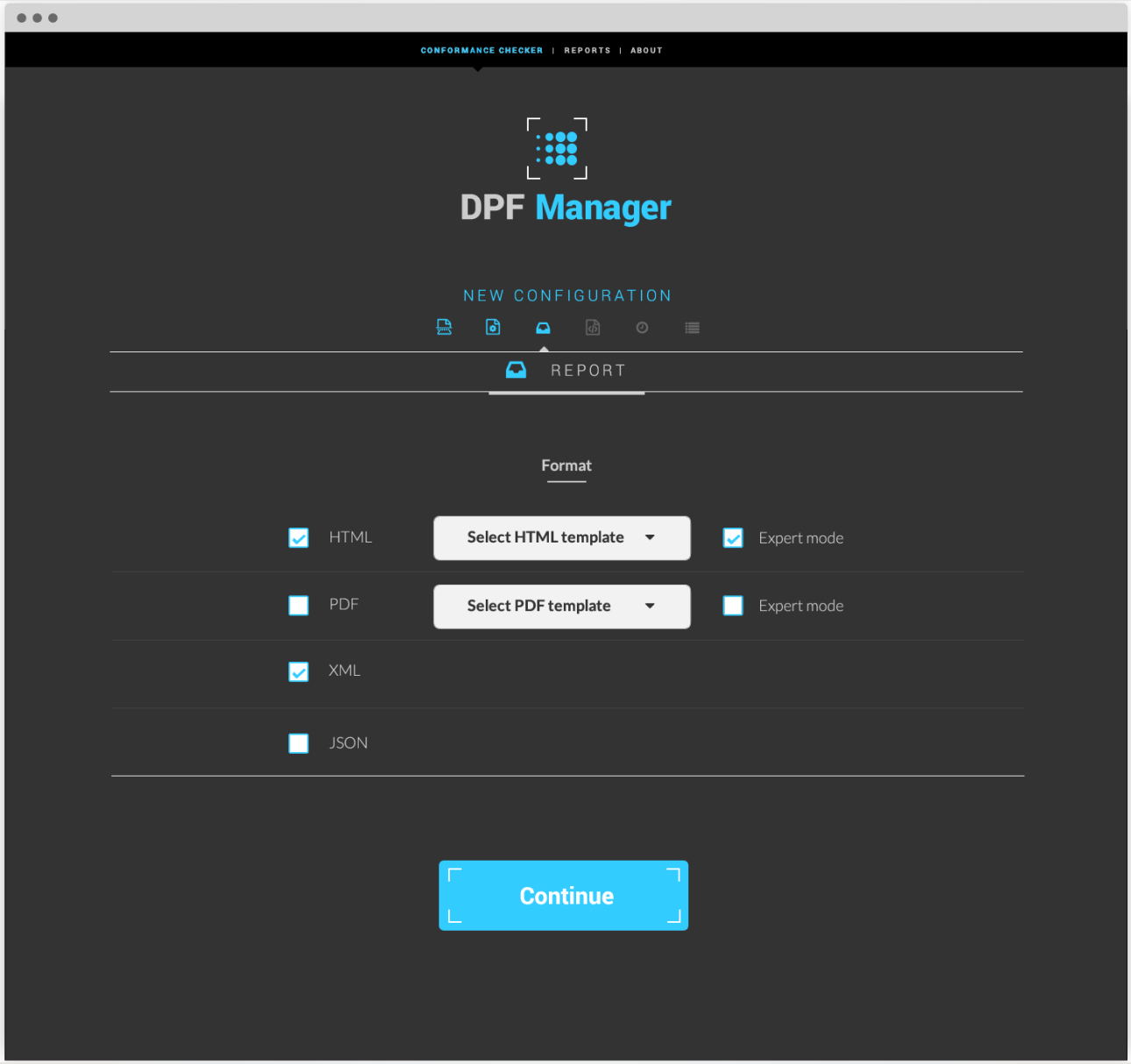

New Configuration > Metadata Fixer

New configuration

- Implementation checker
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- Reporter
- **Metadata fixer**
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- Summary

Check files

- Multiple file report
- Single file report

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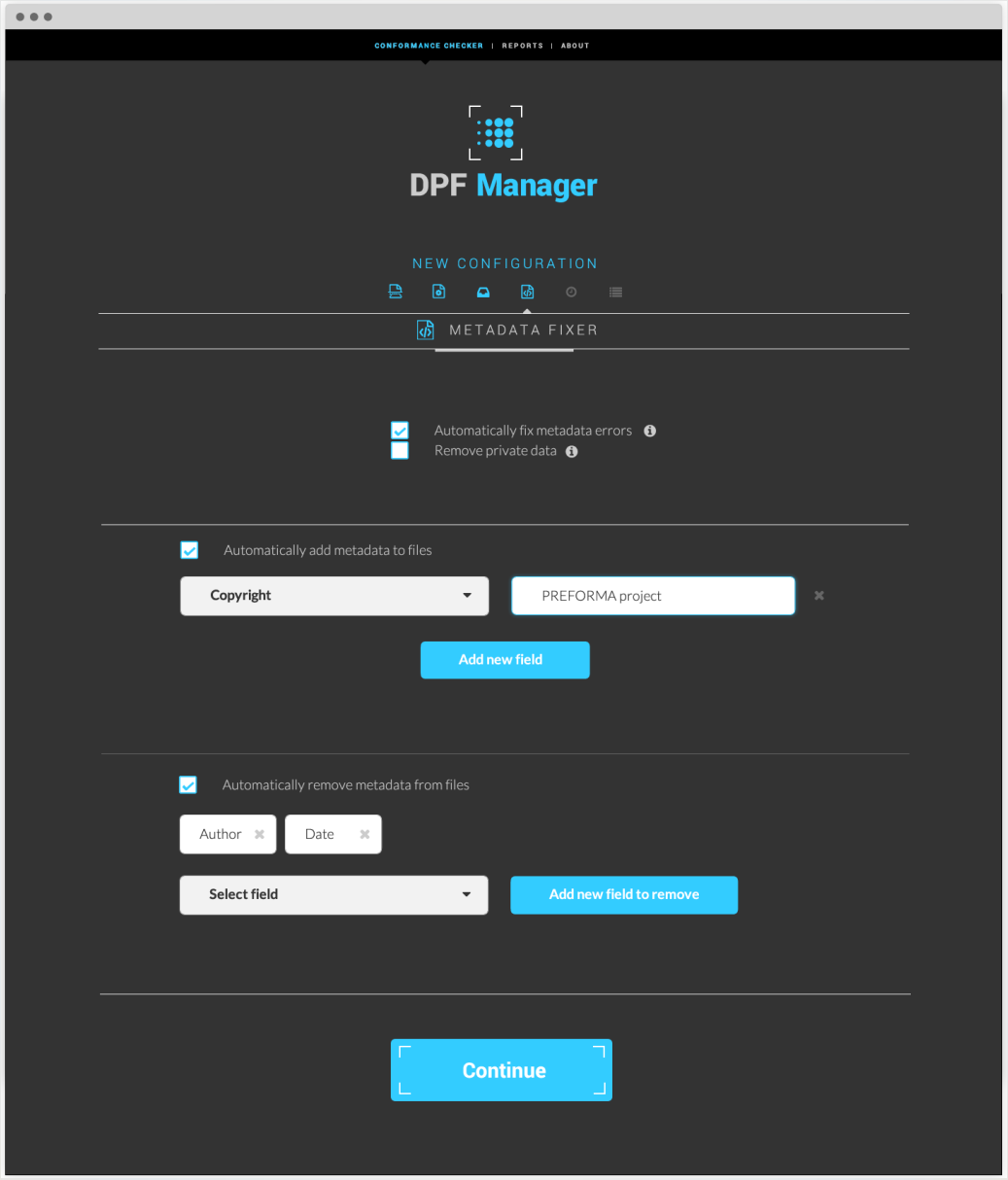

New Configuration > Periodical Checks

New configuration

- Implementation checker
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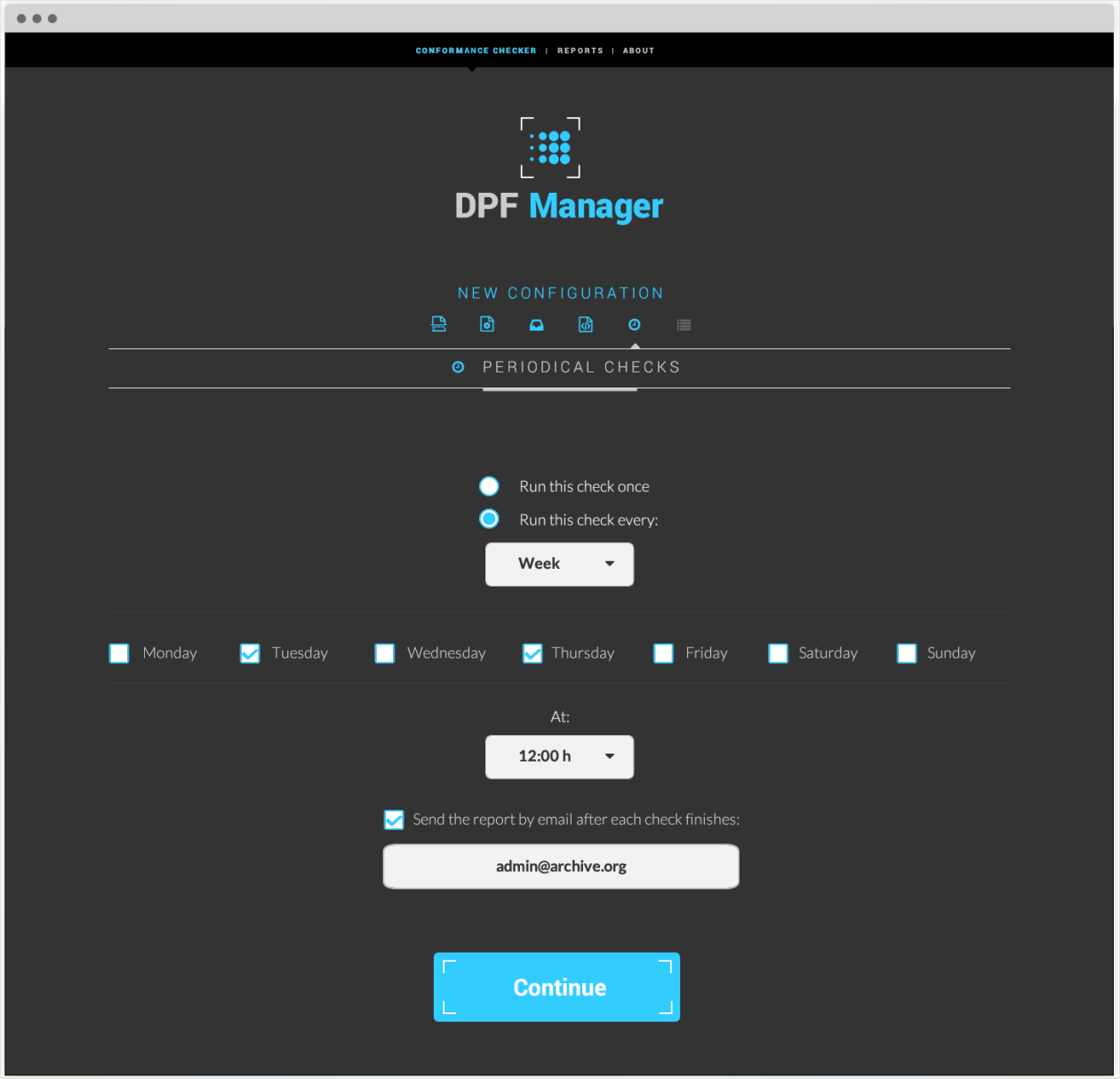

New Configuration > Summary

New configuration

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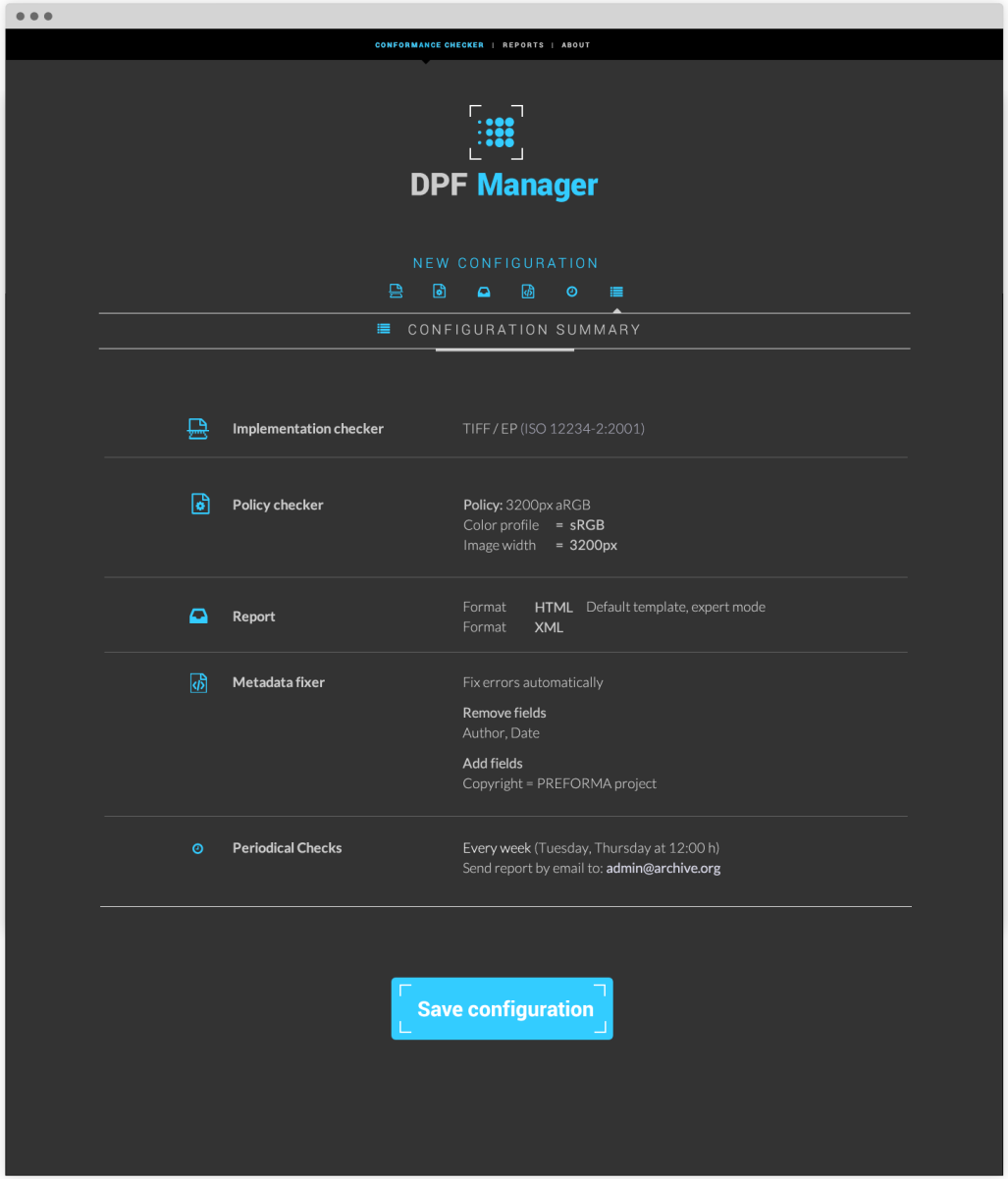

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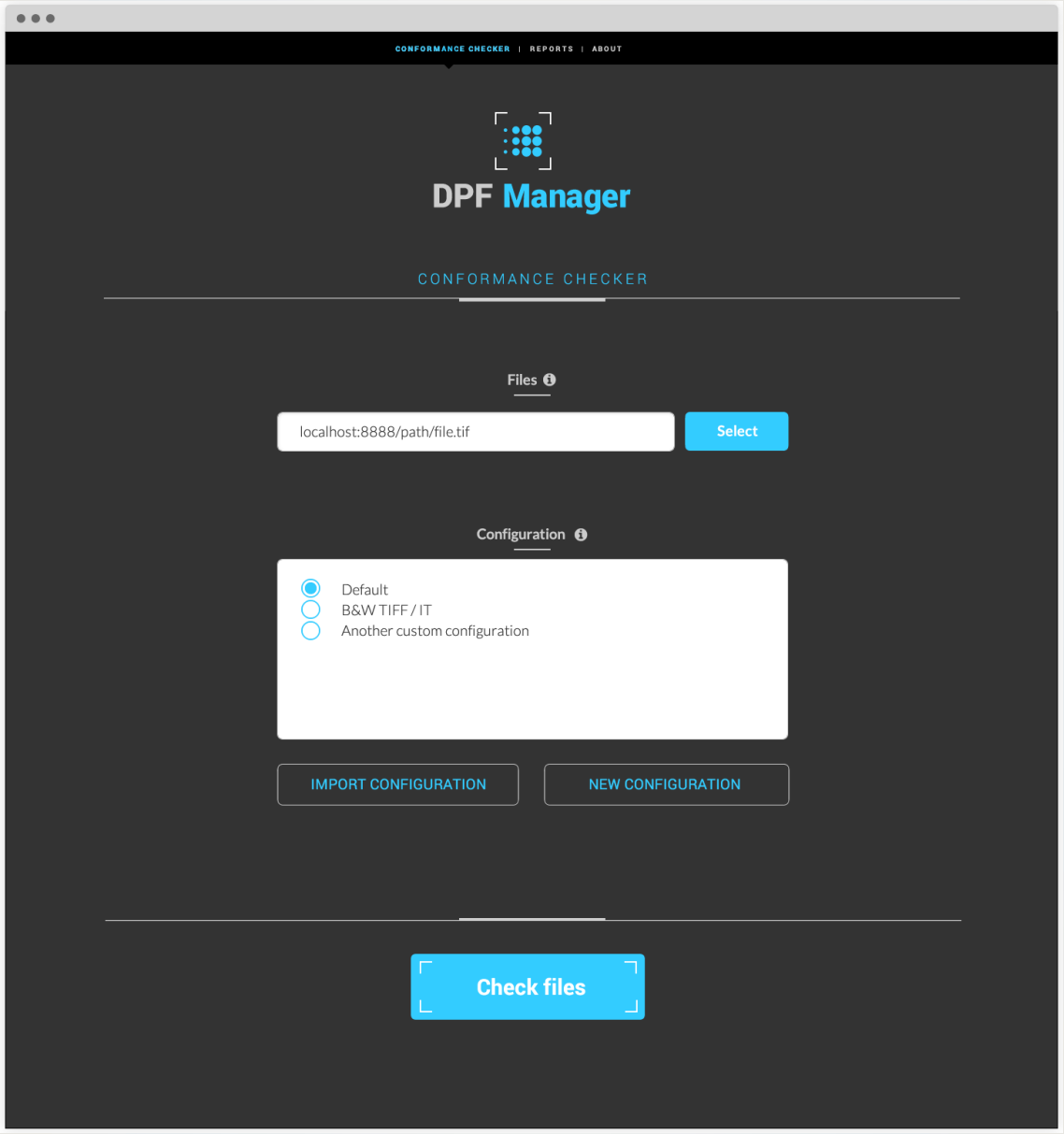

Check Files > Multiple File Report

New configuration

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Check files

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- Single file report

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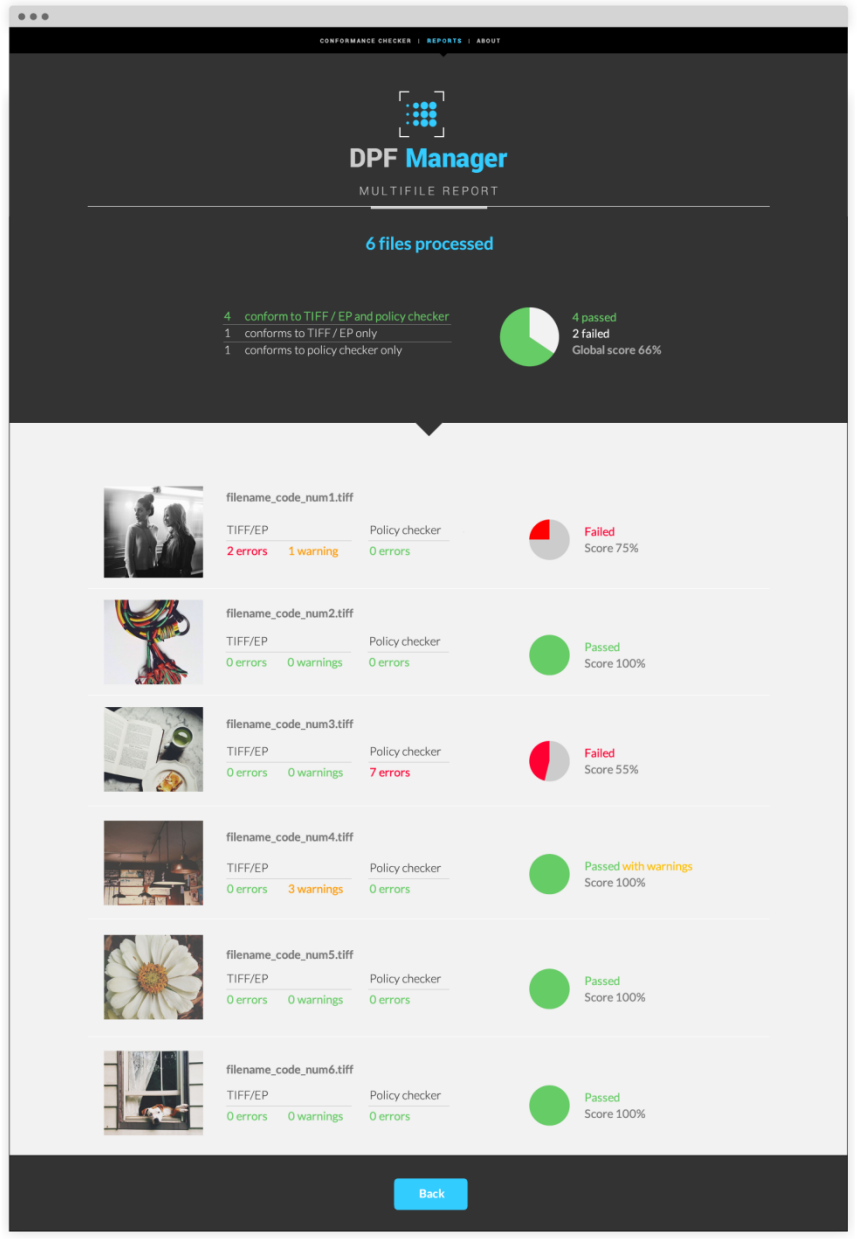

Check Files > Single File Report

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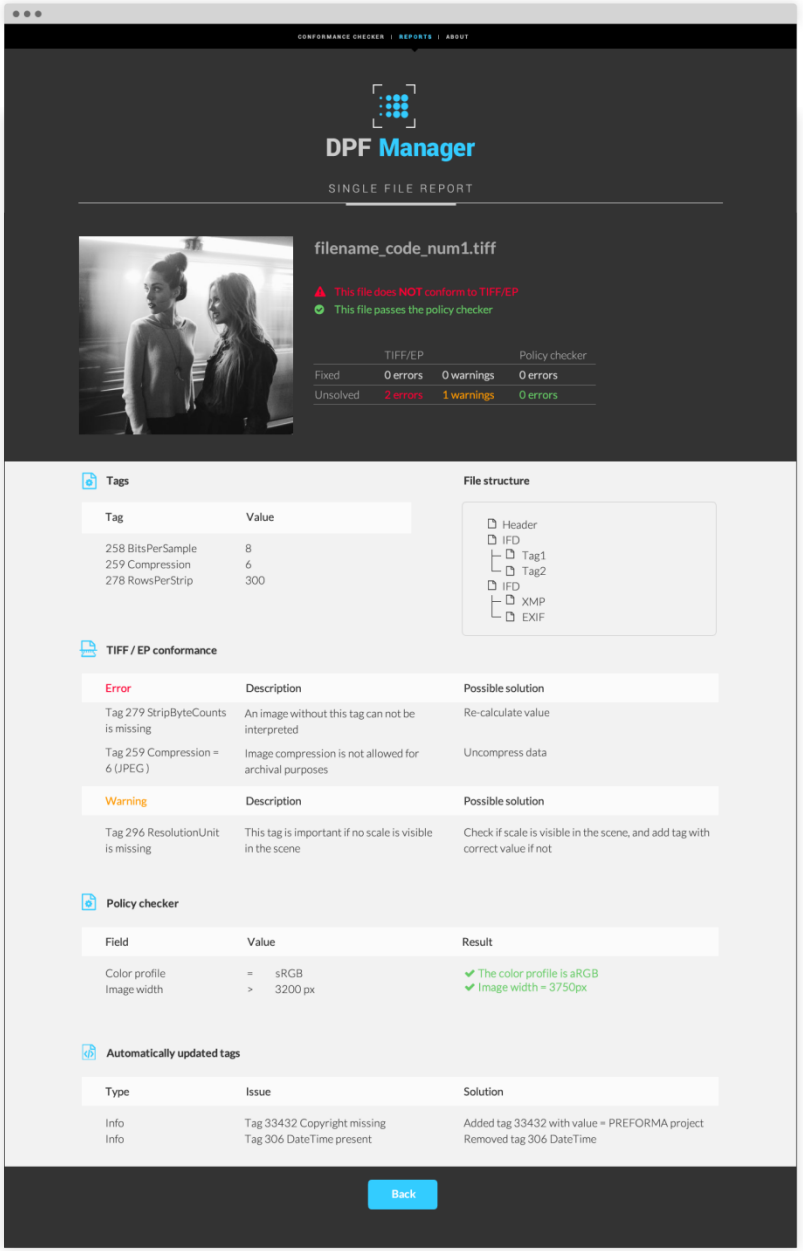

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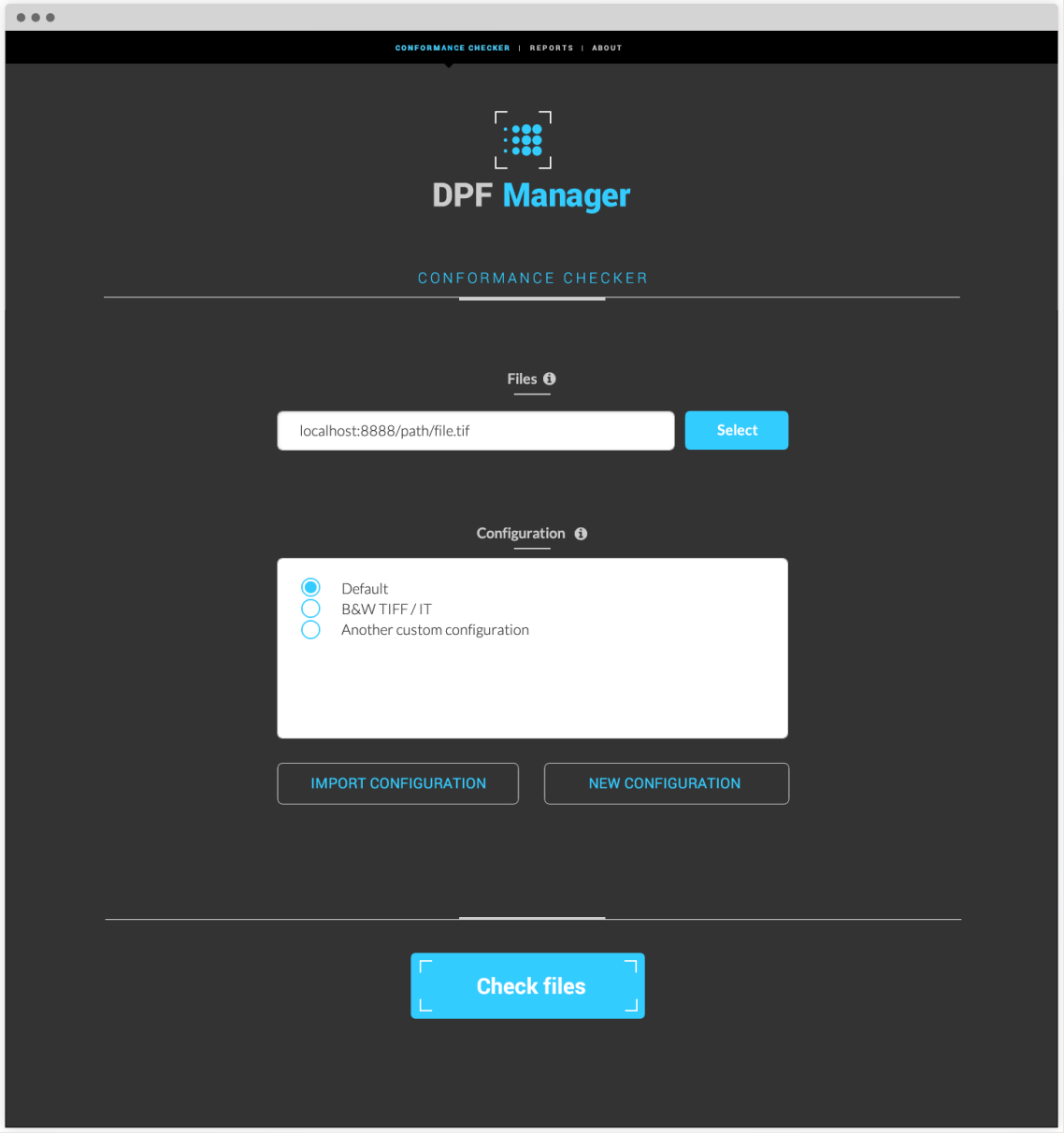

Report History

New configuration

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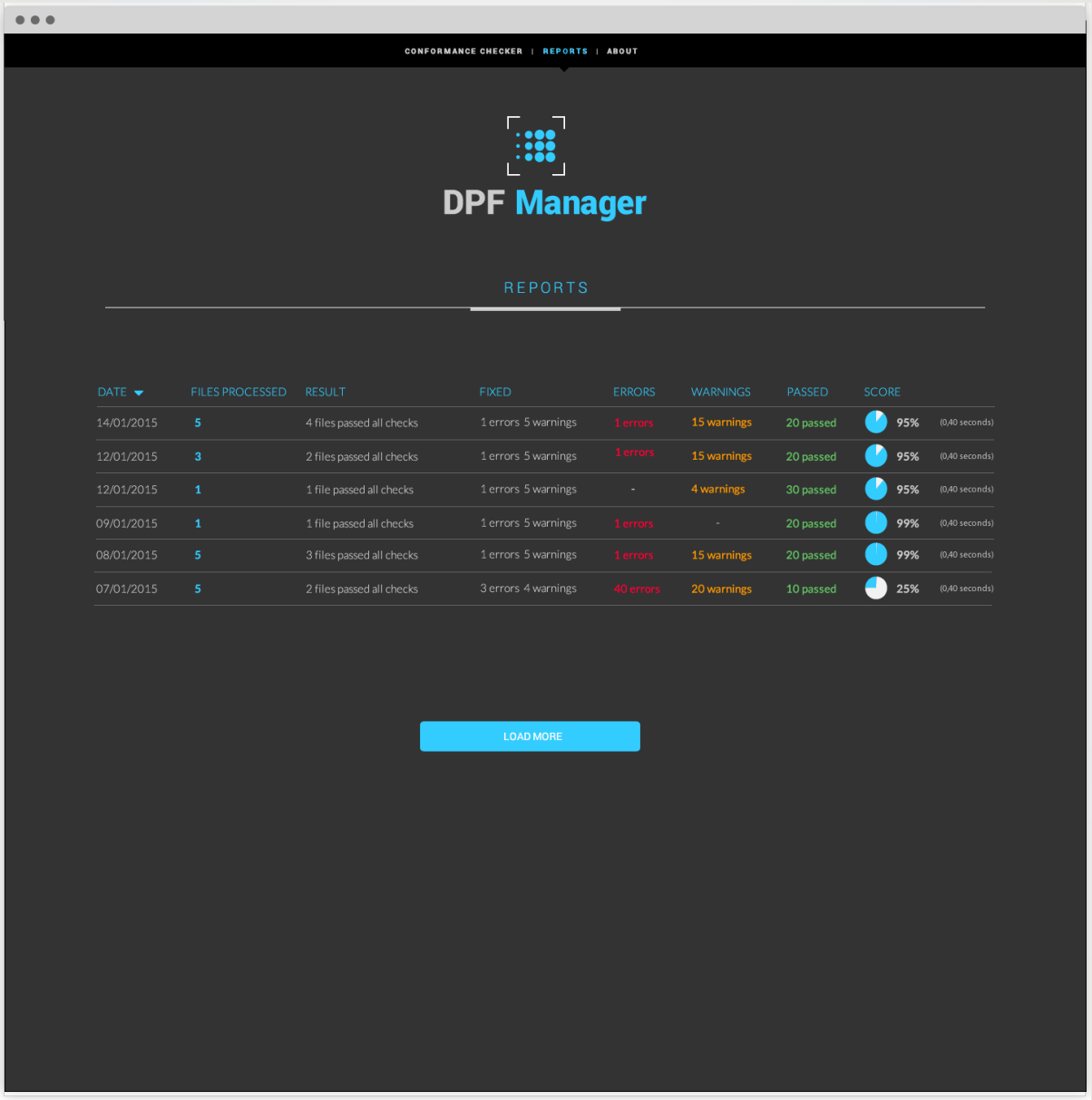

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  1. How DPF Manager will work (Graphical User Interface)
  2. Design principles
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  4. Other interfaces & 3rd party integrations
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- Final Conclusions

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EASY INNOVA
www.easyinnova.com

Design Principles

use of standards

well know design patterns = legible & maintainable code

simplicity

users/developers: simple design with fast learning curve

modularity

easy to develop, test, deploy & maintain

DPF Manager

shell-cc independence

zero configuration

decoupling

event driven, scalable and easy to extend

start from scratch

cc core:
no reuse of existing code

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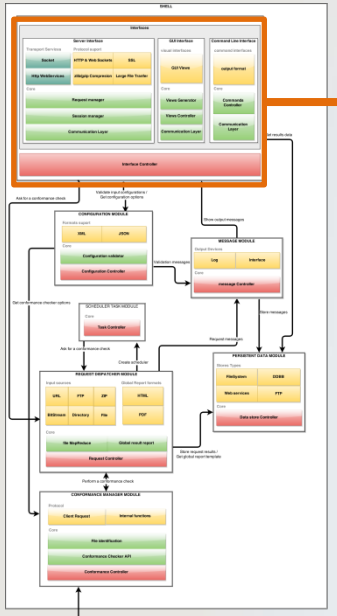
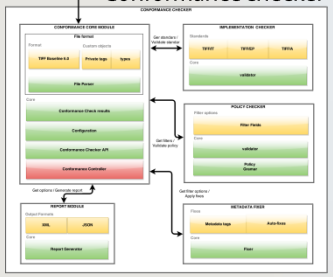
Architecture

Shell



Conformance checker



Shell > Interface module

INTERFACE MODULE

Interfaces

Server Interface

Transport Services

- Socket
- Http WebServices

Protocol suport

- HTTP & Web Sockets
- SSL
- zlib/gzip Compresion
- Large File Tranfer

Core

- Request manager
- Session manager
- Communication Layer

GUI Interface

visual interfaces

- GUI Views

Core

- Views Generator
- Views Controller
- Communication Layer

Command Line Interface

command interfaces

- output format

Core

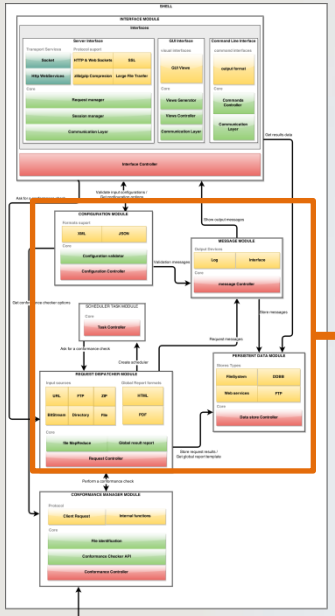
- Commands Controller
- Communication Layer

Ge

Interface Controller

Architecture

Shell



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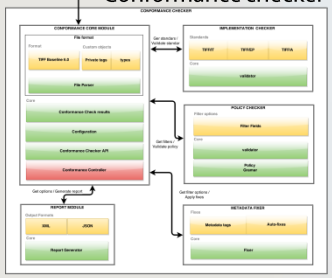
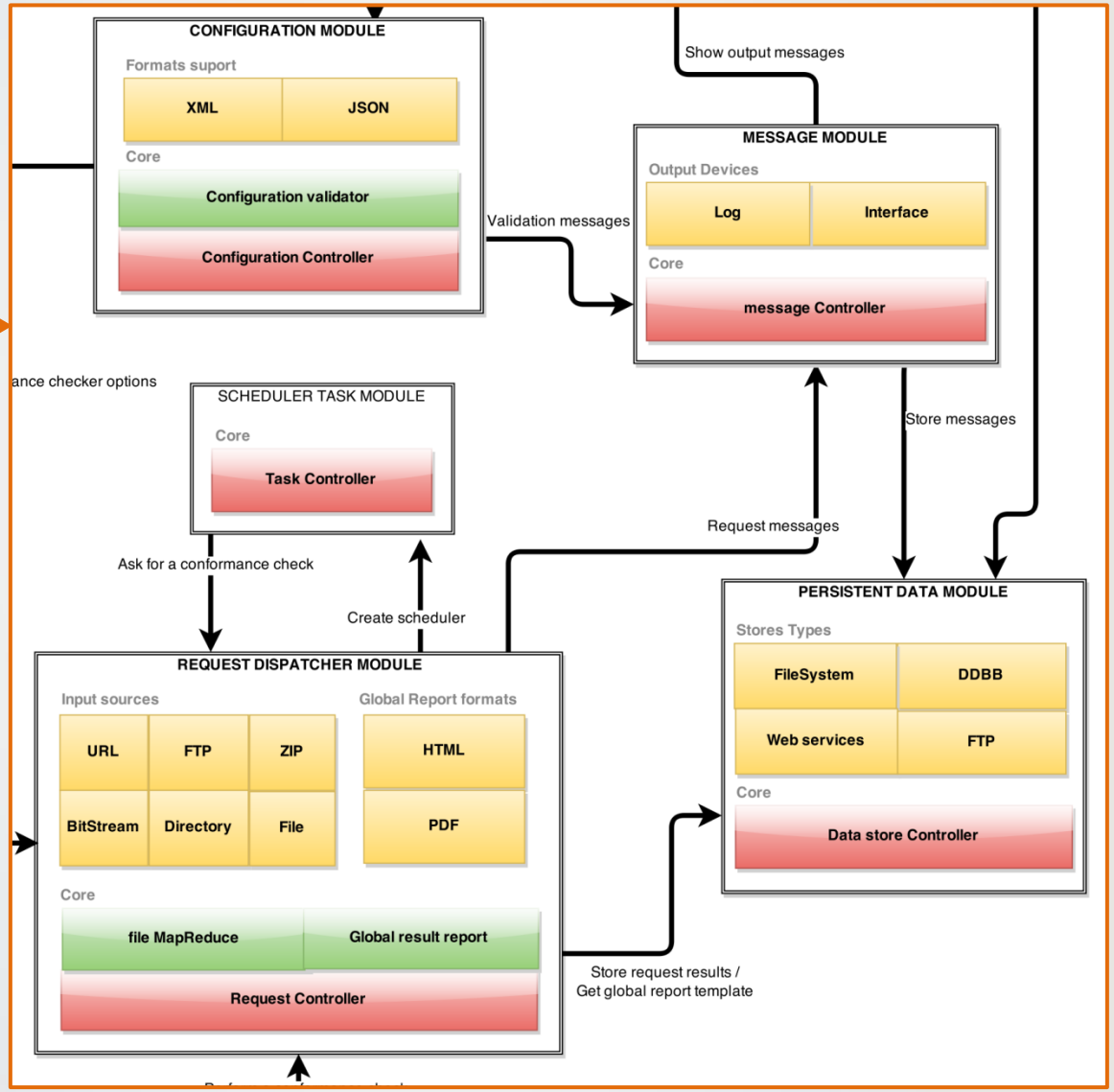
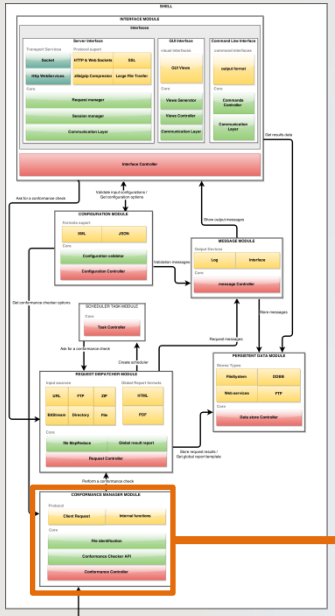


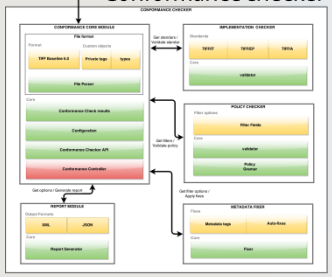


Architecture

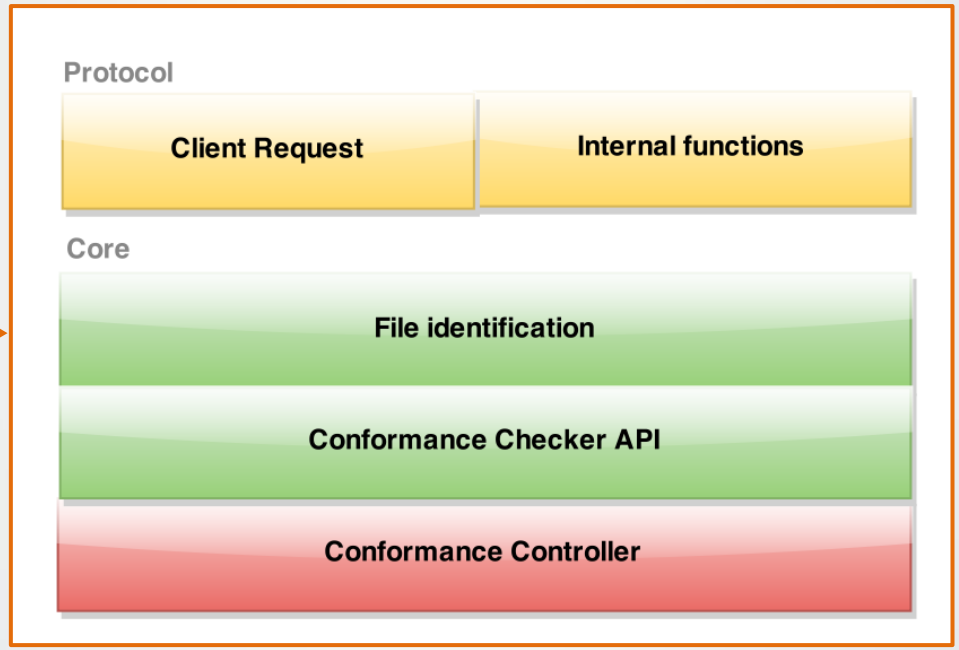
Shell



Conformance checker

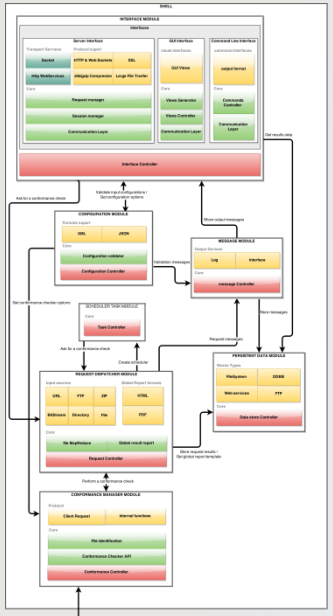


Shell > Conformance Manager module



Architecture

Shell



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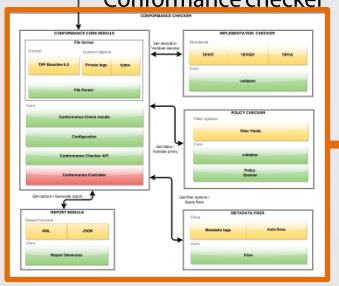
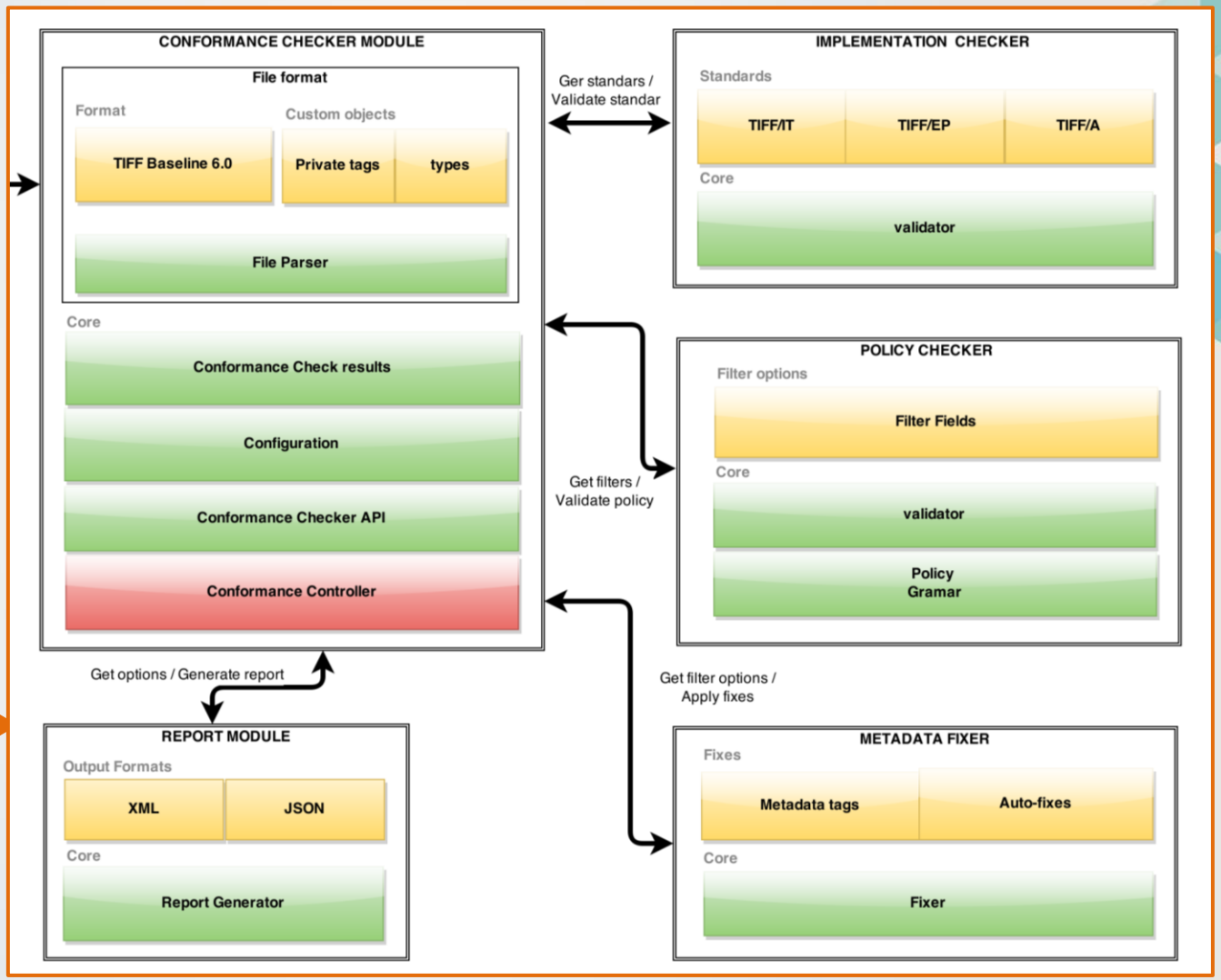


Conformance checker



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Command Line API

Aimed at:

- Human users
- Integration with legacy systems
- Integration with DAM, image editing and other relevant software
- External producers

Documentation:

- Created by technical writers

```
c:\>dpfmanager.exe -help

no option            When the dpfmanager is called without any option, the program will start
                     in GUI mode

-help                List all the available commands, with a short explanation for each one

-info                Returns a list of all the conformance checkers that are available
                     through this shell, and a structured description of what each
                     conformance checker can do

-list                Shows a list of the files that have been checked until now, with a
                     summary of the result. This includes showing the results of periodical
                     checks

-limit               Maximum number of results returned by the -list option (e.g. 100)

-page                If there are more results than -limit, request the x set of results

-files               Path to the file or group of files (using wildcards) that the user wants
                     to check

-config              Path to the configuration file

-reports_folder      Path to the folder where the generated report/s will be put

-fixed_files_folder  If the metadata fixer is invoked and as a result the original file is
                     modified or a duplicate file is created, this option allows the user to
                     define the path to the folder where these files will be put

-server              When the conformance checker is acting in client mode (-mode option), it
                     needs to know the location (IP address or name of the server and port)
-port                of the conformance checker acting in server mode.

-mode                If unspecified, the shell will start in standalone mode.

                     The mode option can have three values:
```

Webservice API

Aimed at:

- Integration with legacy systems
- Integration with DAM, image editing and other relevant software
- External producers

Documentation:

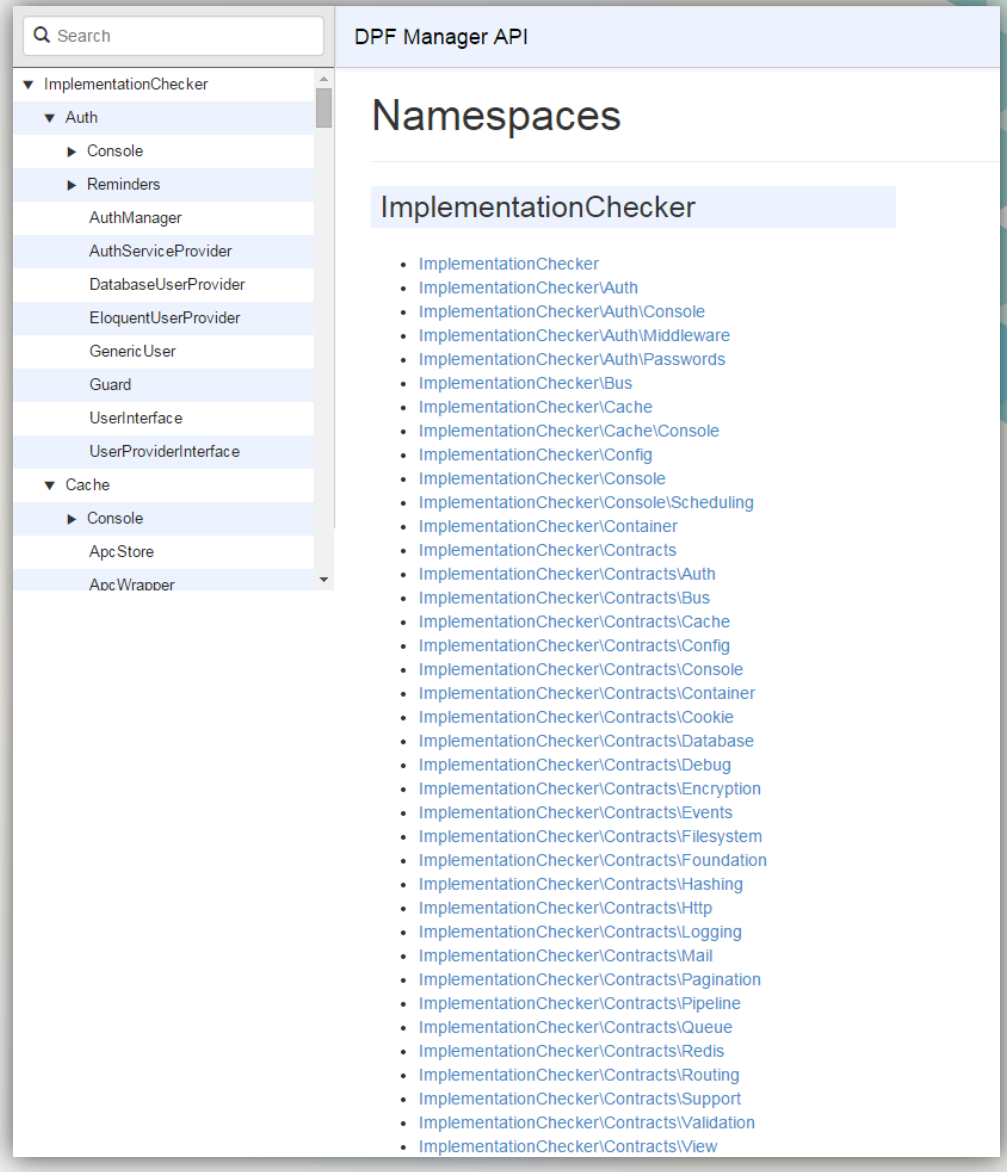
- Generated from source code comments and annotations
- Edited by technical writers

HTTP verb and end point	Description
GET /conformance_checkers	Get a list of all the conformance checkers accessible through this shell. **Input**: no parameters required **Output**: returns a list of all the conformance checkers accessible through this shell, together with a structured description of their capabilities (what the implementation checker, policy checker, reporter and metadata fixer can do)
POST /conformance_checks	Request a check for a single or multiple files. **Input**: list of files to be checked, and the configuration for the implementation checker, policy checker, reporter and metadata fixer. **Output**: returns the data needed by the users to access the final report (checking large files can take some time, so the checking process is asynchronous).
GET /conformance_checks	Returns a list of all the previous conformance checks and their result. **Input**: no parameters required, optional parameters include pagination of the results. **Output**: a list of all the files that have been checked until now, together with the result of the check.
GET /results/{request_id}	Returns the result for a given conformance checking request. **Input**: id of the request, as returned by the POST /conformance_checks call. **Output**: returns a reference to the report/s generated for that request (if the conformance checking process has finished), and to the modified files if the metadata fixer was invoked.
GET /status/{request_id}	As the conformance checking process is asynchronous, the users can check the status of the request at any time to see if it is still ongoing or has already finished. **Input**: id of the request, as returned by the POST /conformance_checks call. **Output**: the status of the request (ongoing, finished), and

Internal API

Aimed at:
- Integration with legacy systems
- Integration with DAM, image editing and other relevant software

Documentation:
- Auto generated from source code comments and annotations



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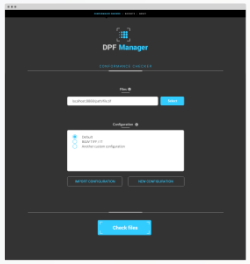
Use Scenarios

1 Standalone

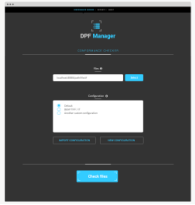


Graphic Interface

```
C:\>dpfmanager.exe -
files=/archive/*.tiff -
config=config.xml
-reports_folder=/tmp/reports -
fixed_files_folder=/tmp/files
```

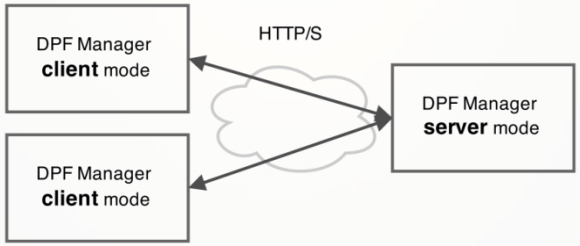
Command line

2 Client - Server




```
client:\>dpfmanager.exe
-server=80.45.32.45
-port=80
```

Client



```
server:\>dpfmanager.exe
-mode=server
```

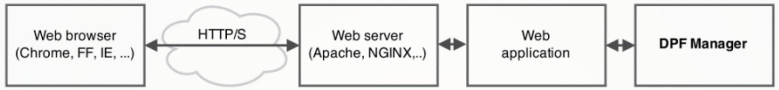
Server

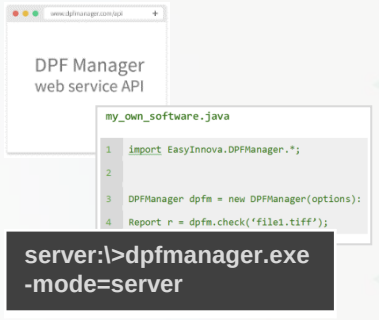
Use Scenarios

3

Web application

Browser Client

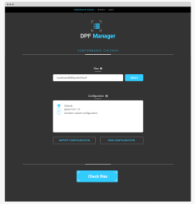




Server

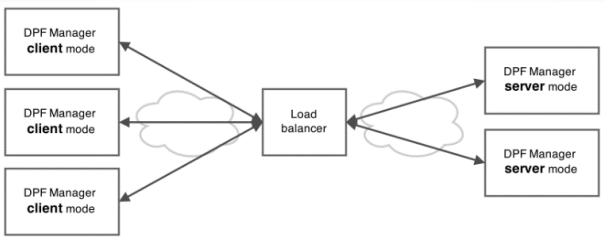
4

High availability



```
client:\>dpfmanager.exe
-server=80.45.32.45
-port=80
```

Client



```
server:\>dpfmanager.exe
-mode=server
```

Server

Use Scenarios

5

External producer

Check files before sending to archive

- Standalone
- Client – server
- Web application

6

Software developer

Integrate with DAM, image/metadata editors

```
C:\>dpfmanager.exe -files=/archive/*.tiff
-config=config.xml
-reports_folder=/tmp/reports
-fixed_files_folder=/tmp/files
```

Command line

my_own_software.java

```
1  import EasyInnova.DPFManager.*;
2
3  DPFManager dpfm = new DPFManager(options):
4  Report r = dpfm.check('file1.tiff');
```

Framework

Use Scenarios

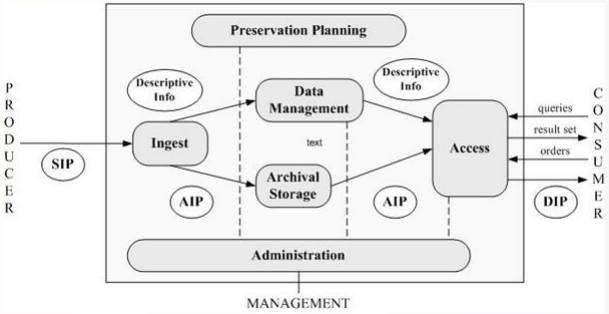
7

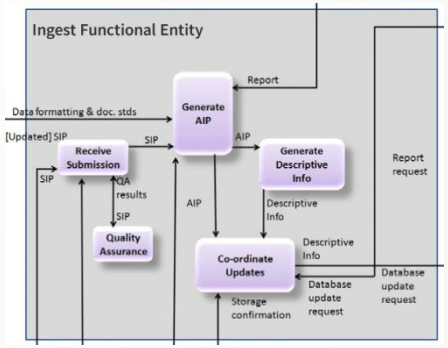
Integration with OAIS

Document lifecycle
Conformance checking at:

- **Creation**
- **Transfer**
- **Migration**
- **Digitalization**

Reference framework
QA, AIP generation





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Dissemination Plan

DPF Manager is not only a software project!!

Our objective:

Create a strong community around the DPF Manager project with a common interest: *File Format Validation for Digital Preservation (initially TIFF)*

Dissemination plan content:

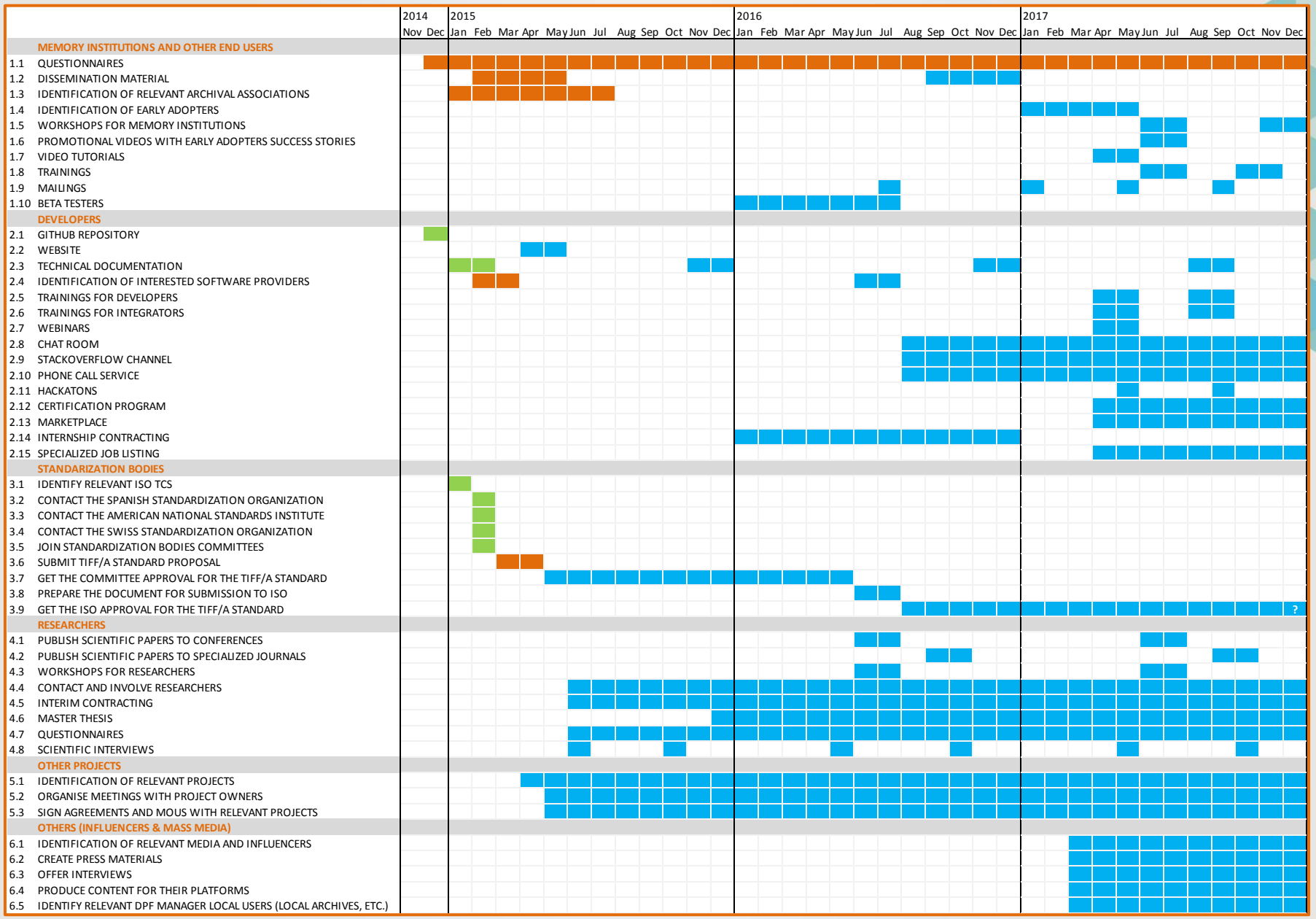
- Target audiences (6 collectives identified)
- Dissemination actions (50)
- Main dissemination channels (github & website)
- Actions calendar (next 3 years)

Open Source best practices:

- Continuous integration methodology (travis-ci.org)
- Git branches and pre-compiled executables
- Wiki, bugtracker, tutorials…
- Different roles managing the community (4)

The Dissemination Plan is a **living document** with a temporal window of **3 years**

Action Plan (2015-2017)



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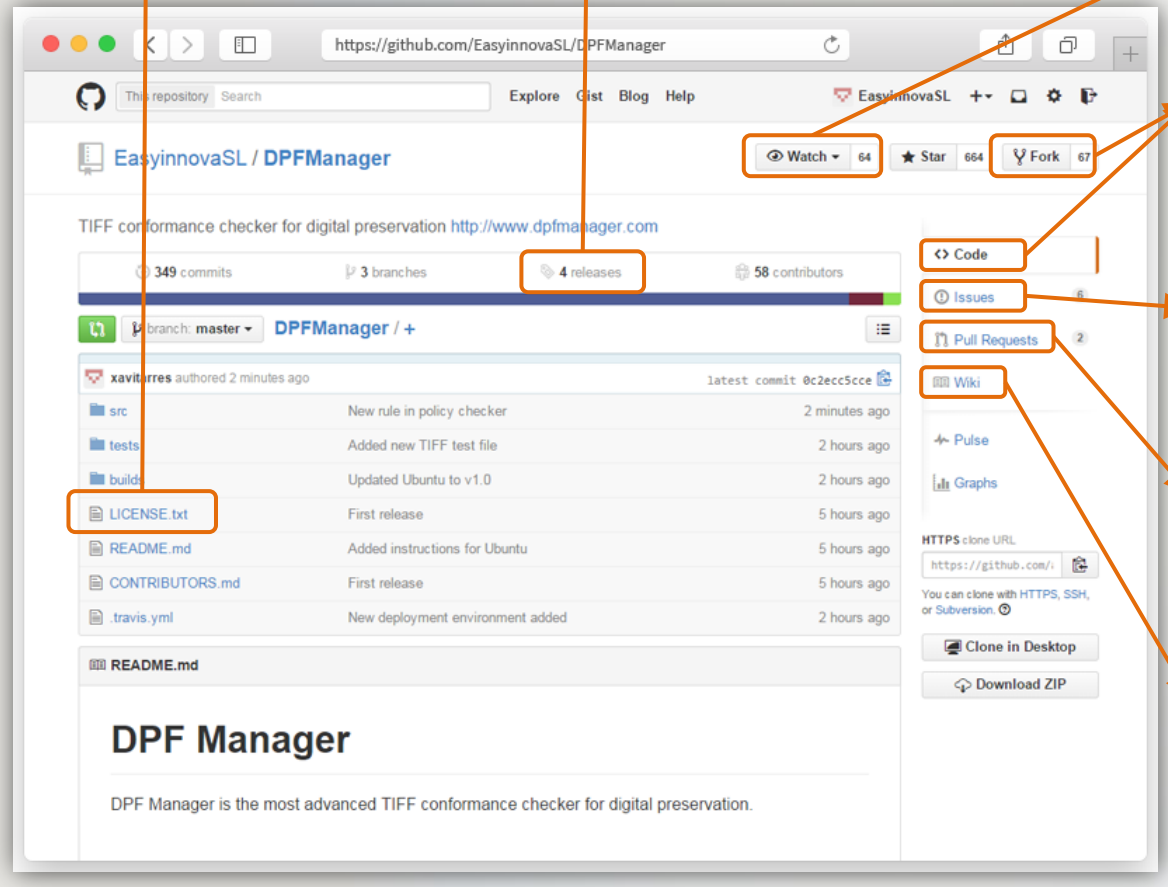
OS Community Tools – Github Repository

Clear licensing:
GPLv3 or later and MPLv2 or later

Download precompiled binaries:
Stable, beta and nightly builds for Windows, Mac OS X, Ubuntu and other popular Linux/Unix distributions

Keep an eye on the project
Stay up-to-date and get notifications when the project is updated



Fork and check the source code:
Take our code and integrate it with other software solutions like DAM and image editors

Issue manager:
Report bugs and request new features.

Contribute:
Help improve the code and functionality

Documentation:
For developers and end users: architecture and API reference, tutorials, how-tos, cookbooks, etc..

OS Community Tools – DPF Manager Website

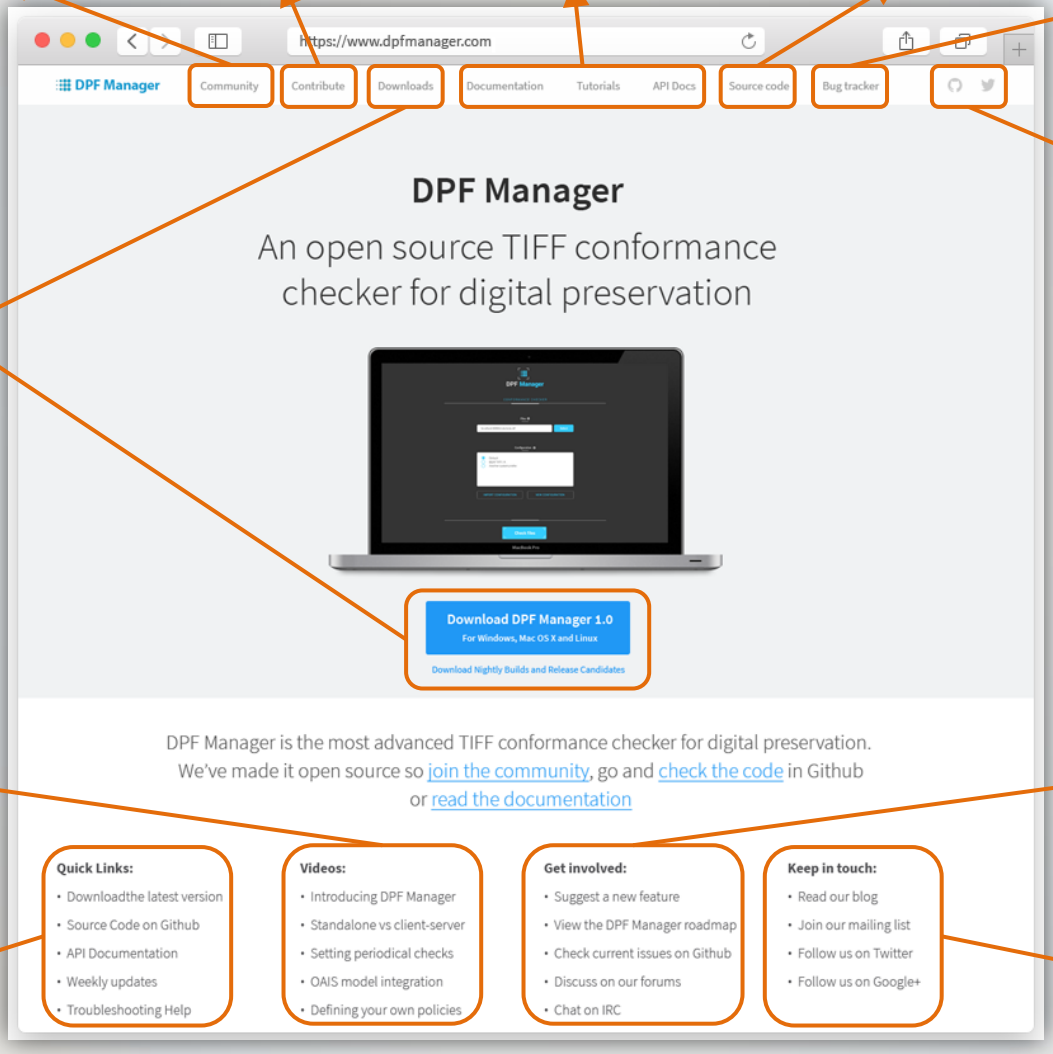
Join the community

How to contribute

Access the documentation

Get the source code

Report and help resolve bugs



Be social!

Download precompiled binaries

Watch video tutorials

Get involved in the project

Find what you need

Communicate with us

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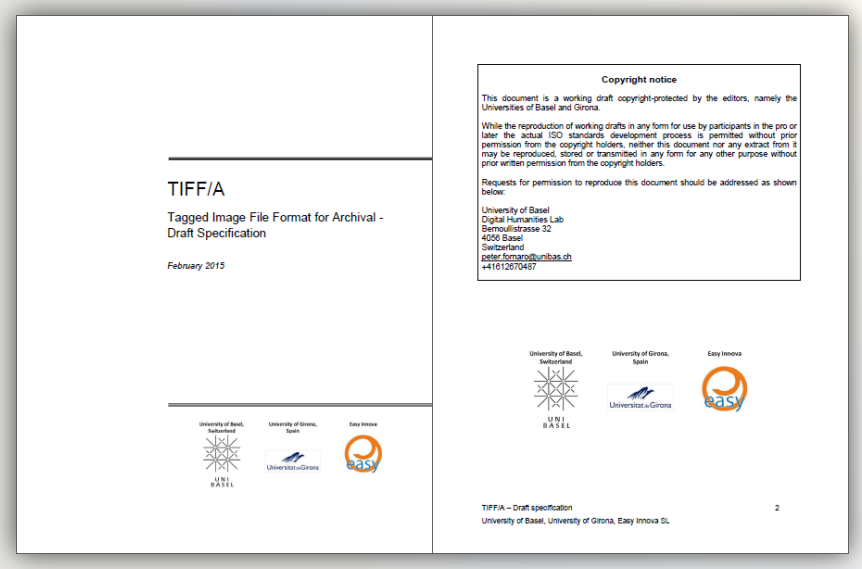
Standardization Steps

How is it done?

- [x] Development of 1st draft in close collaboration with memory institutions
- [ ] Start of a standardisation process
- [ ] Evaluation after 3 weeks by international expert group
- [ ] Set-up of workgroup by ISO to discuss the standard proposal
- [ ] Definition of final standard within < 3 years



TIFF/A

Tagged Image File Format for Archival - Draft Specification

February 2015

University of Basel, Switzerland | University of Girona, Spain | Easy Innova

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University of Basel, Switzerland | University of Girona, Spain | Easy Innova

TIFF/A – Draft specification 2

University of Basel, University of Girona, Easy Innova SL

Standardization Steps

TIFF/A Standard PROPOSAL

1 EASY INNOVA recently become a full member of AENOR/CTN50 SC1 (Spanish mirror of ISO/TC 171) That gives us rights to propose and vote on new ISO standards.

AENOR
Asociación Española de Normalización y Certificación

2 ANSI, secretariat of ISO ISO/TC 171 Document management applications committee, has invited us to a Technical Advisory Group meeting in San Jose, CA in April 21th-24th 2015 to discuss the TIFF/A proposal.

ANSI
American National Standards Institute

3 The University of Basel is in process to join the ISO/TC 171 mirror committee in SNV, the Swiss National Standards Organization.

SNV
Die Welt braucht Normen.

We already have the support of **60 memory institutions** of **14 different countries**!

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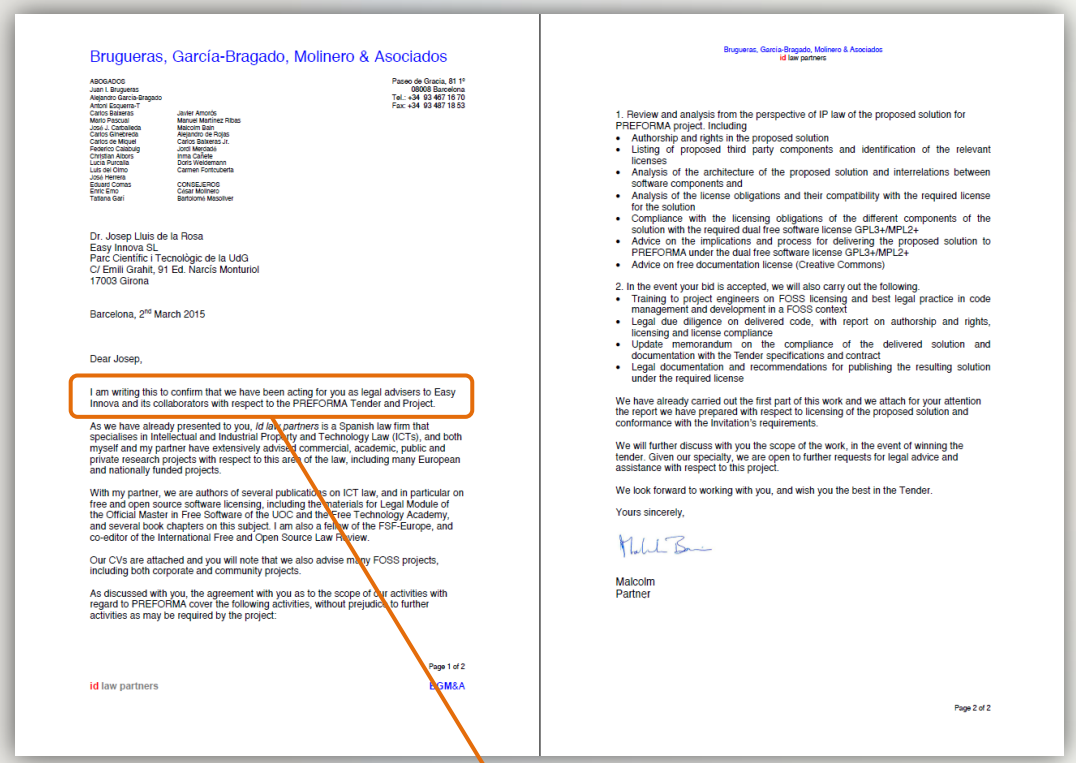
Licensing & 3rd Party Libraries

Easy Innova is under legal advice of Malcom Bain from ID Law Partners



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Inma Cañete
Doris Weidemann
Carmen Fontcuberta

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Parc Científic i Tecnològic de la UdG
C/ Emili Grahit, 91 Ed. Narcís Monturiol
17003 Girona

Barcelona, 2nd March 2015

Dear Josep,

I am writing this to confirm that we have been acting for you as legal advisers to Easy Innova and its collaborators with respect to the PREFORMA Tender and Project.

As we have already presented to you, *id law partners* is a Spanish law firm that specialises in Intellectual and Industrial Property and Technology Law (ICTs), and both myself and my partner have extensively advised commercial, academic, public and private research projects with respect to this area of the law, including many European and nationally funded projects.

With my partner, we are authors of several publications on ICT law, and in particular on free and open source software licensing, including the materials for Legal Module of the Official Master in Free Software of the UOC and the Free Technology Academy, and several book chapters on this subject. I am also a fellow of the FSF-Europe, and co-editor of the International Free and Open Source Law Review.

Our CVs are attached and you will note that we also advise many FOSS projects, including both corporate and community projects.

As discussed with you, the agreement with you as to the scope of our activities with regard to PREFORMA cover the following activities, without prejudice to further activities as may be required by the project:

Page 1 of 2

id law partners

EGM&A

Brugueras, García-Bragado, Molinero & Asociados
id law partners

1. Review and analysis from the perspective of IP law of the proposed solution for PREFORMA project. Including
- Authorship and rights in the proposed solution
- Listing of proposed third party components and identification of the relevant licenses
- Analysis of the architecture of the proposed solution and interrelations between software components and
- Analysis of the license obligations and their compatibility with the required license for the solution
- Compliance with the licensing obligations of the different components of the solution with the required dual free software license GPL3+/MPL2+
- Advice on the implications and process for delivering the proposed solution to PREFORMA under the dual free software license GPL3+/MPL2+
- Advice on free documentation license (Creative Commons)

2. In the event your bid is accepted, we will also carry out the following.
- Training to project engineers on FOSS licensing and best legal practice in code management and development in a FOSS context
- Legal due diligence on delivered code, with report on authorship and rights, licensing and license compliance
- Update memorandum on the compliance of the delivered solution and documentation with the Tender specifications and contract
- Legal documentation and recommendations for publishing the resulting solution under the required license

We have already carried out the first part of this work and we attach for your attention the report we have prepared with respect to licensing of the proposed solution and conformance with the Invitation's requirements.

We will further discuss with you the scope of the work, in the event of winning the tender. Given our specialty, we are open to further requests for legal advice and assistance with respect to this project.

We look forward to working with you, and wish you the best in the Tender.

Yours sincerely,

Malcolm
Partner

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I am writing this to confirm that we have been acting for you as legal advisers to Easy Innova and its collaborators with respect to the PREFORMA Tender and Project.

id law partners CERTIFIED

Malcolm Bain
ID LAW partners

Malcolm Bain specialises in Information Technology law and Intellectual Property law. He has a wide experience representing clients on both sides of IT transactions, with a special focus on the legal issues of open source software and content.

Licensing & 3rd Party Libraries

The legal advice includes:

- Authorship and rights in the proposed solution.
- Listing of proposed third party components and identification of the relevant licenses.
- Analysis of the architecture of the proposed solution and interrelations between software components.
- Analysis of the license obligations and their compatibility with the required license for the solution.
- Compliance with the licensing obligations of the different components of the solution with the required dual free software licenses GPL3+/MPL2+.
- Advice on the implications and process for delivering the proposed solution to PREFORMA under the dual free software license GPL3+/MPL2+.
- Advice on free documentation license Creative Commons.
- Training to project engineers on FOSS licensing and best legal practice in code management and development.
- Legal due diligence on delivered code, with report on authorship and rights, licensing and license compliance.
- Update memorandum on the compliance of the delivered solution and documentation with the Tender specifications and contract.
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- Initial Presentation
- TIFF format & preservation issues
- DPF Manager Design
- Open Source Community
- **Business Plan**
- Final conclusions

Dr. MIQUEL MONTANER
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EASY INNOVA
www.easyinnova.com

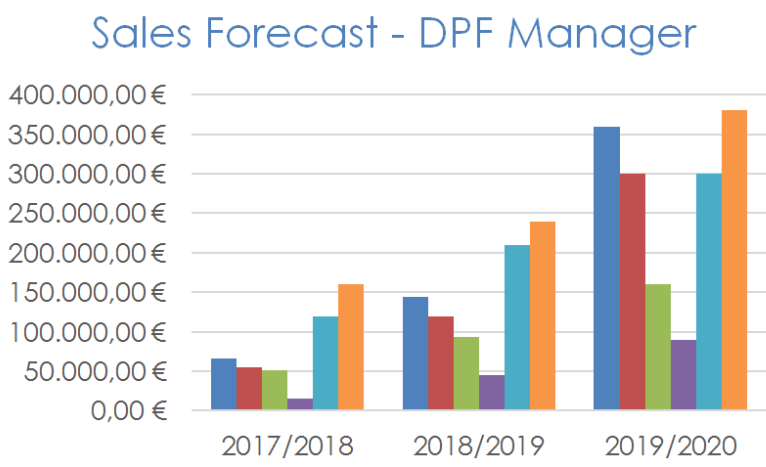
Business Plan (2017-2020)

Strategic objectives:

- A portfolio of over 300 memory institutions in 3 years
- Be present in 35 different countries in 2020
- A community of 2.000 members by the end of 2020
- A network of 50 service providers in 2020
- Over 1.5 million Euros in revenue by the end of 2020

Services (business model):

- Cloud-based SaaS service
- On premise deployment
- Tech support & maintenance contracts
- Marketplace (3rd parties modules)
- Certification for service providers
- Consultancy services & trainings



Result of the financial analysis:

With an additional investment of 200.000€ after the project, we expect by the end of the 3rd year:

- **NPV** of **874.079,86€**
- **IRR** of **218.60%**

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Final Conclusions

- **Strong team** with wide experience on TIFF, Image formats, and digital preservation
- **Open design decisions** taken accordingly an extended survey on **+memory institutions needs**
- TIFF format is **not fully suitable** for image preservation – a **TIFF/A standard** is proposed
- We already have the support of **61 memory institutions** to create the TIFF/A standard
- DPF Manager has been designed to fit the needs of all memory institutions, **of any size**
- A **simple user interface** lowers the barriers to the adoption of our solution
- Due to the **well designed architecture,** it must be ready for any **future applications**
- Fast deployment expected thanks to **integration flexibility** and **customization capabilities**

Final Conclusions

- We have a **dissemination plan** with more than 50 actions to ensure **community engagement**
- We already initiated the process with **standardization bodies** to create a new standard: **TIFF/A**
- DPF M. **fully compliant with GPL3+ and MPL2+** – Certified by Malcom Bain from ID Law Partners
- We strongly believe that DPF Manager open source platform can be a **profitable business in 2020**

DPF Manager

Thanks for your attention!
FEEL FREE TO ASK US

www.easyinnova.com