

The PREFORMA Challenge

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WP2 Lead



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PREFOMA - Information Day
Brussels, 4th April 2014



Empower memory institutions to gain full control over the technical properties of digital content intended for long-term preservation.



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i.e. container, encoding,
embedded metadata,
etc.

Empower memory institutions to gain full control over the **technical properties** of digital content intended for long-term preservation.



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Empower organisations to gain full control over the technical properties of **digital content** intended for long-term preservation.

i.e. text, image, sound and moving image



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Empower memory institutions to gain full control over the technical properties of **digital content** intended for long-term preservation

i.e. deposited & digitized content



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Empower memory institutions to gain full control over the technical properties of digital content intended for **long-term preservation.**

i.e. developing a preservation strategy (transformation, re-packaging, emulation)



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Challenge R&D



i.e. targeting people that control the software for producing preservation files

Empower memory institutions to **gain full control** over the technical properties of digital content intended for long-term preservation by memory institutions.



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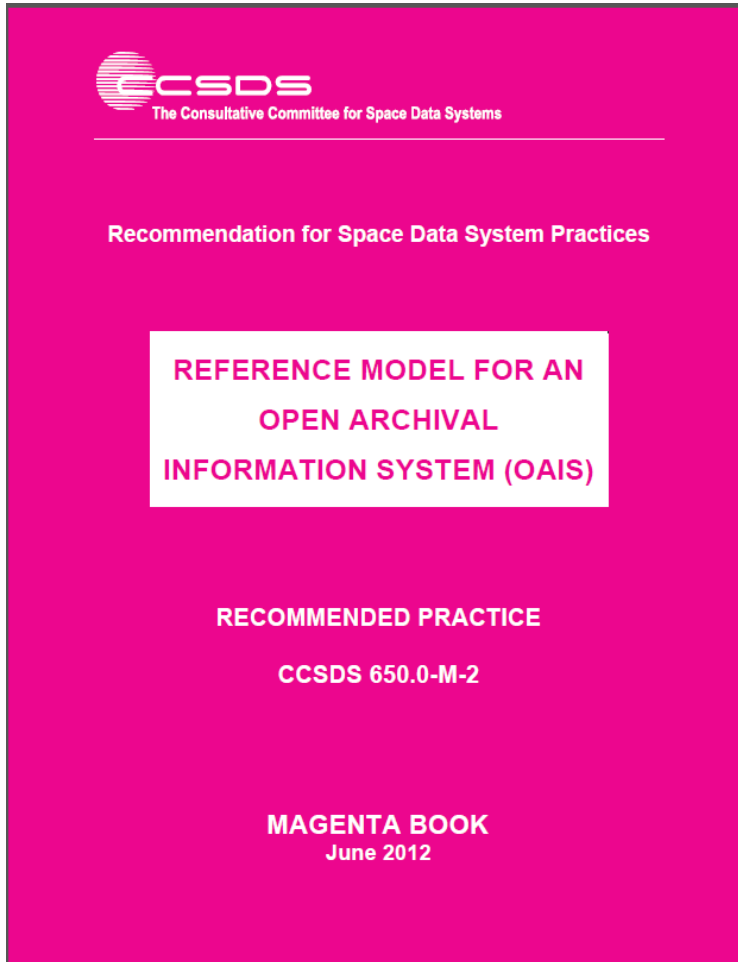
- ❑ Develop an **open source conformance checker** that:
 - checks if a file complies with standard specifications
 - checks if a file complies with the acceptance criteria of the memory institution
 - reports back to human and software agents
 - perform simple fixes

- ❑ Establish an ecosystem around an **open source reference implementation** that:
 - generates useful feedback for those who control software
 - advances improvement of the standard specification
 - advances development of new business cases for managing preservation files



OAIS environment

(ISO 14721 / CCSDS 650)



- ❑ Obtain sufficient control of the information provided to the level needed to ensure Long Term Preservation
- ❑ Ensure that the information to be preserved is Independently Understandable to the Designated Community.



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OAIS environment

(OAIS functions)



- Quality assurance** at Ingest time
- Generate AIP** at Ingest time
- Archival Information Update** at Ingest time.
- Replace Media** in the Archival Storage system.

- Establish Standards and Policies** for establishing and maintaining the Archive system.
- Monitor Designated Community** to track changes in their service requirements and available product technologies.
- Develop Preservation Strategies and Standards** that enable the Archive to make informed trade-offs.



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File formats



Content type		Standard specifications
TEXT		<ul style="list-style-type: none">• PDF/A-1• PDF/A-2• PDF/A-3
IMAGE		<ul style="list-style-type: none">• TIFF 6.0 Part 1: Baseline Tiff Uncompressed
MOVING IMAGE	Containers	<ul style="list-style-type: none">• MXF OP1a• MKV• OGG
	Video/Image	<ul style="list-style-type: none">• Lossless JPEG2000• FFV1• Dirac
	Audio	<ul style="list-style-type: none">• LPCM



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Conformance checker

Use Cases



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Conformance checker

Use Cases



☐ Conformance Checking at **Creation** Time

Have Producers pro-actively check if technical properties of a file meet the acceptance criteria of an OAIS Archive.



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Conformance checker

Use Cases



- ❑ Conformance Checking at **Creation** Time
- ❑ Conformance Checking at **Transfer** Time

Have OAIS Archives check the technical properties of files ingested, assessing whether they meet the acceptance criteria for ingest.



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Conformance checker

Use Cases



- ❑ Conformance Checking at **Creation** Time
- ❑ Conformance Checking at **Transfer** Time
- ❑ Conformance Checking at **Digitization** Time

Have OAIS Archives check the technical properties of digital representations of collection items if they meet the requirements specified in the digitization tender.



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Conformance checker

Use Cases



- ❑ Conformance Checking at **Creation** Time
- ❑ Conformance Checking at **Transfer** Time
- ❑ Conformance Checking at **Digitisation** Time
- ❑ Conformance Checking at **Migration** Time

Have OAIS Archives check the technical properties of files that are repackaged or transcoded, following the rules defined in the preservation strategy.



Conformance checker

Deployment (allow for)



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Conformance checker

Deployment (allow for)



☐ PREFORMA website (deliverable)

Deployment at the PREFORMA project website, demonstrating the scope and functionality of the tool.



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Conformance checker

Deployment (allow for)



PREFORMA website (deliverable)

Stand-alone

Allow for packaging it in an executable and run it on a PC. For small organizations without centralized IT infrastructure.



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Conformance checker

Deployment (allow for)



PREFORMA website (deliverable)

Stand-alone

Networked

Allow for deployment in network based solutions (dedicated server, cloud solutions) for digital repositories.



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Conformance checker

Deployment (allow for)



PREFORMA website (deliverable)

Stand-alone

Networked

Integration in legacy systems

Allow for plugging it into
proprietary legacy systems
via API's.



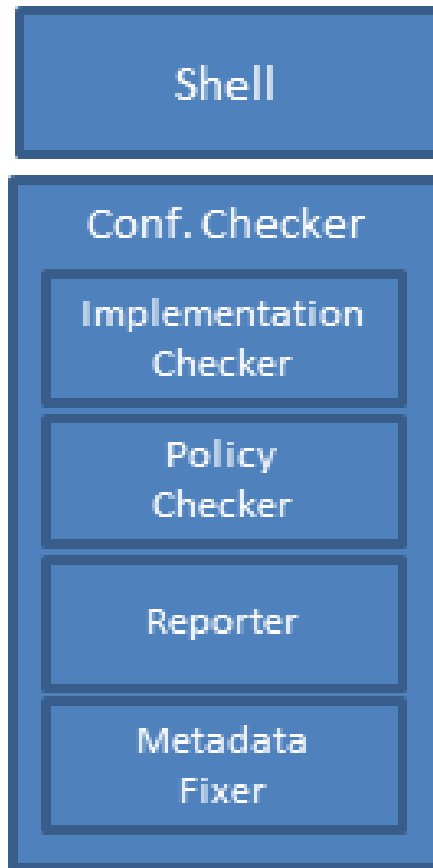
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Conformance checker Components



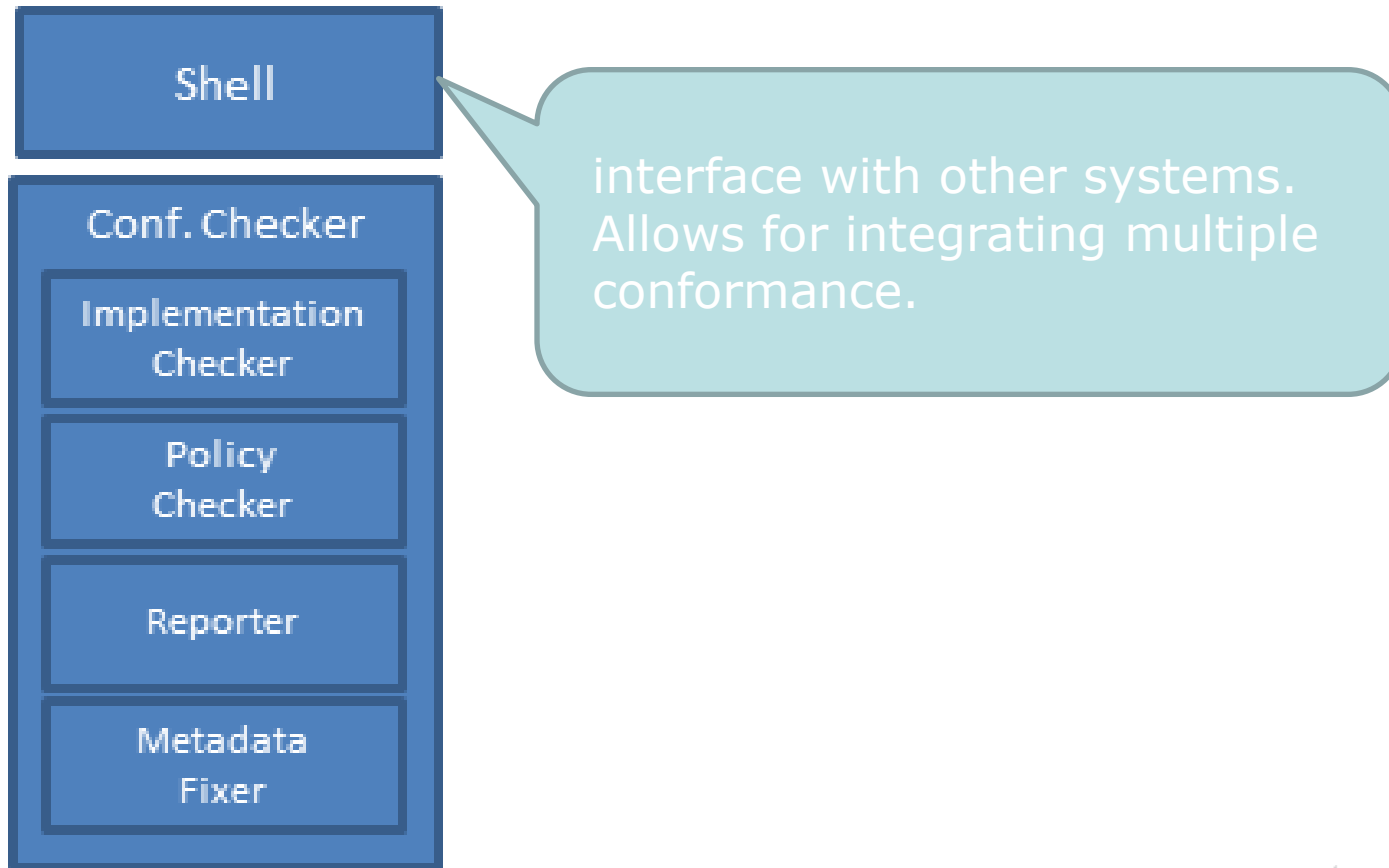
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Conformance checker Components



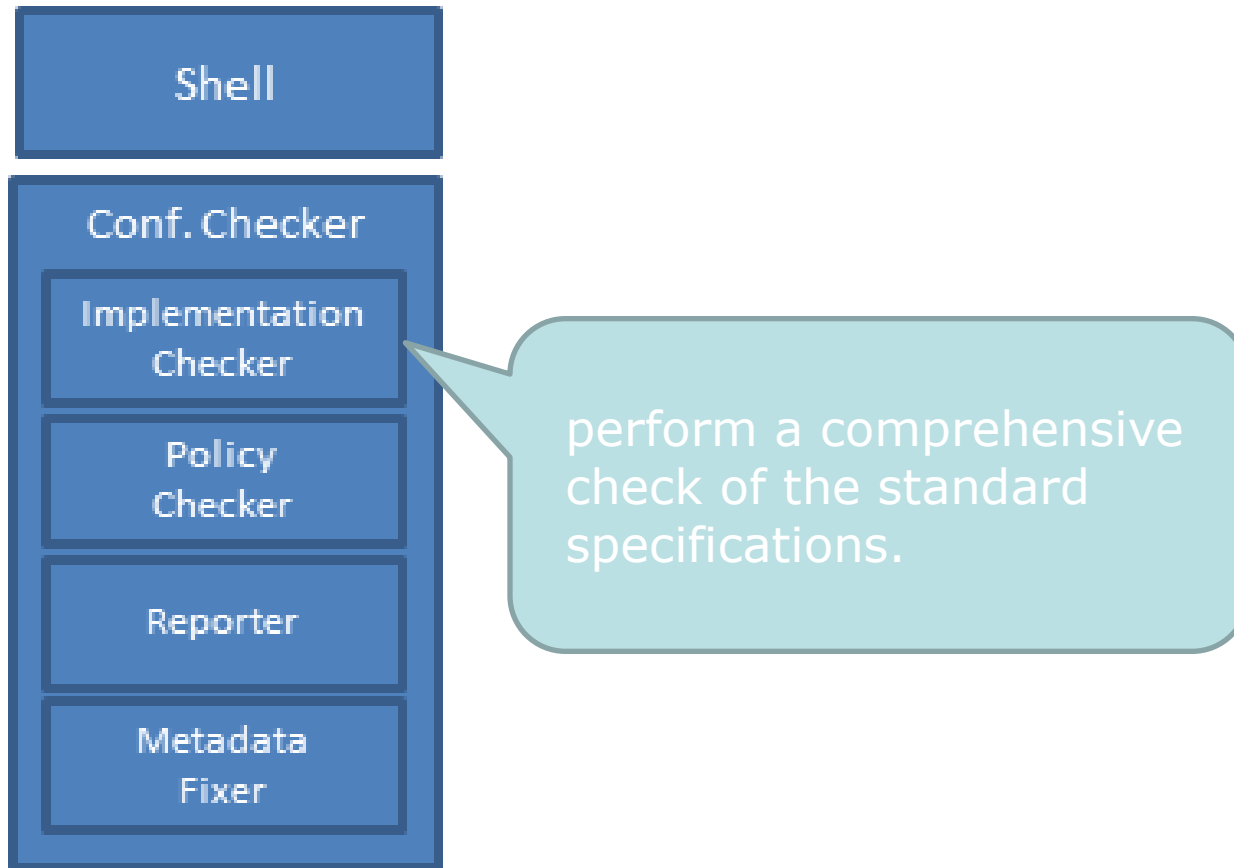
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Conformance checker Components



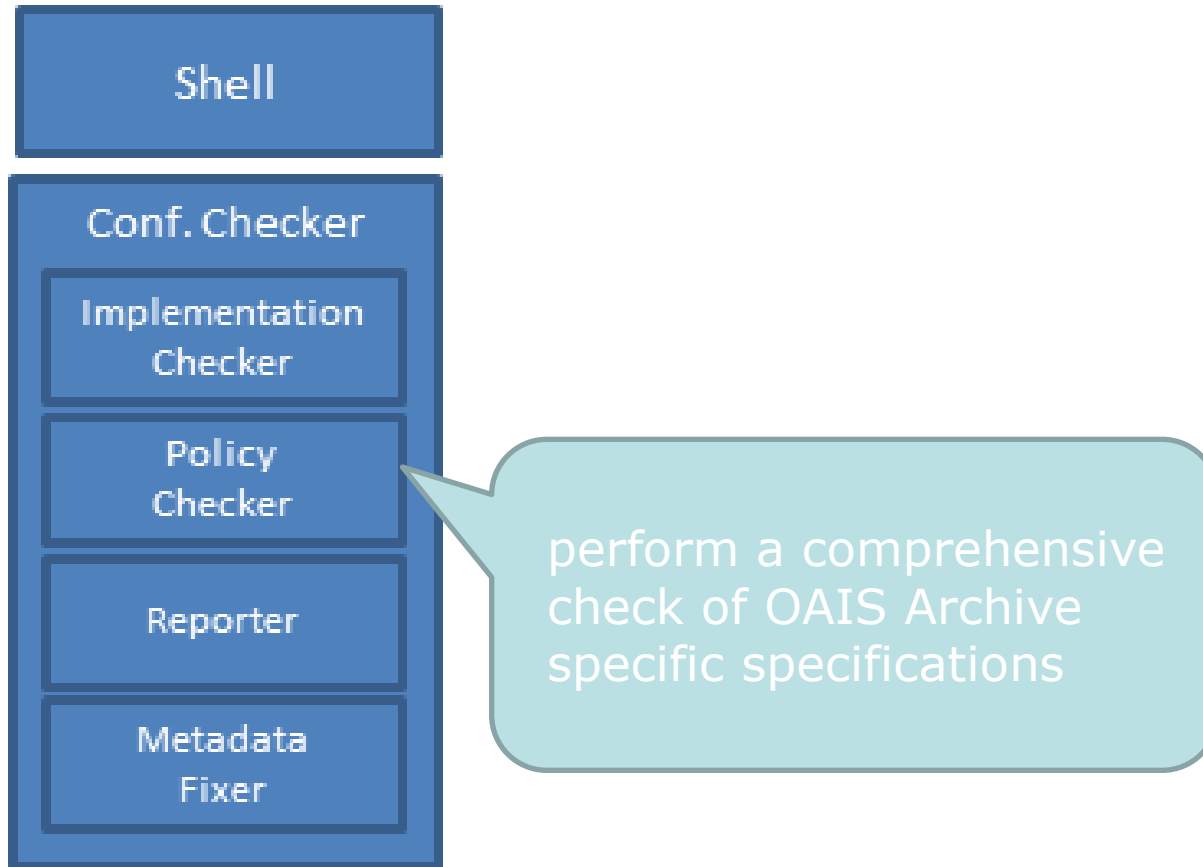
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Conformance checker Components



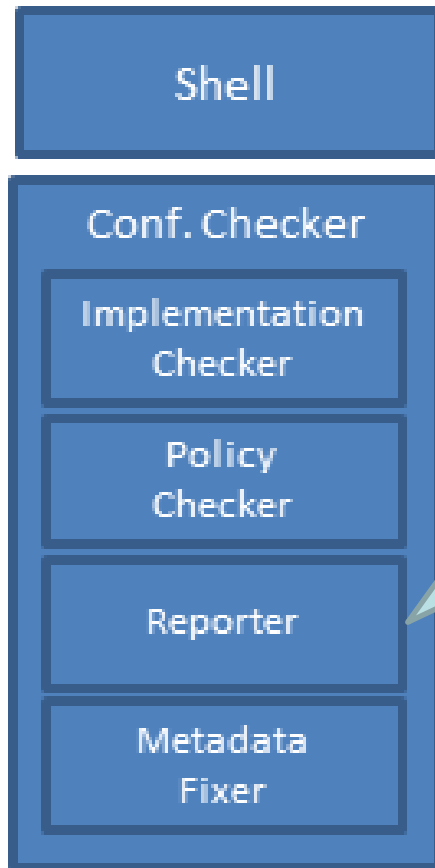
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Conformance checker Components



interpret the output of the implementation and policy checker and define multiple human and machine readable output formats.



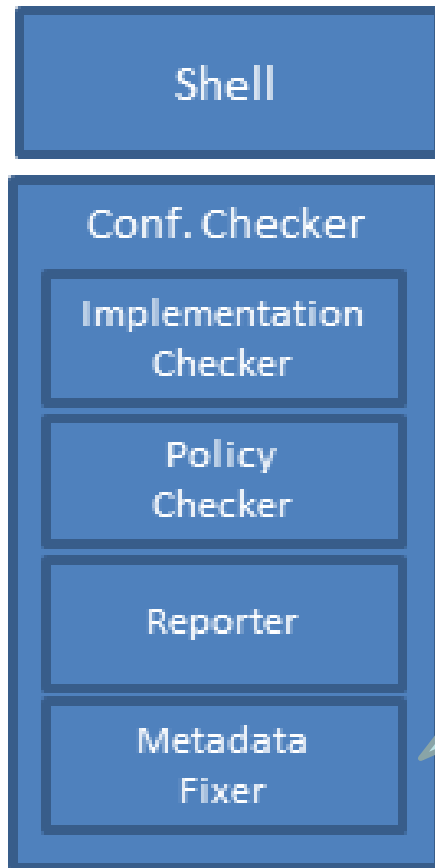
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Conformance checker Components



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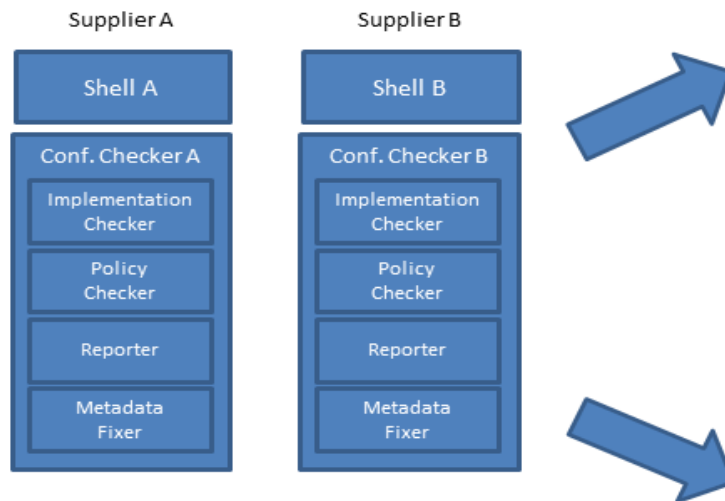


Conformance checker Modularity

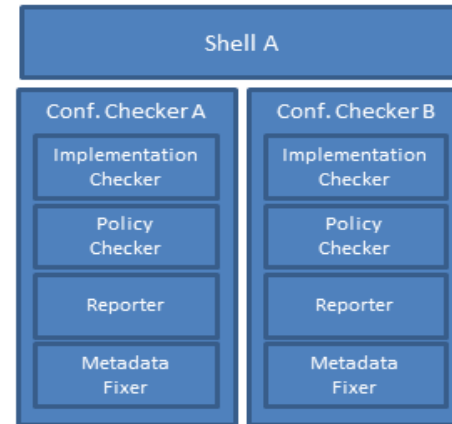


(Toolset to be deployed)

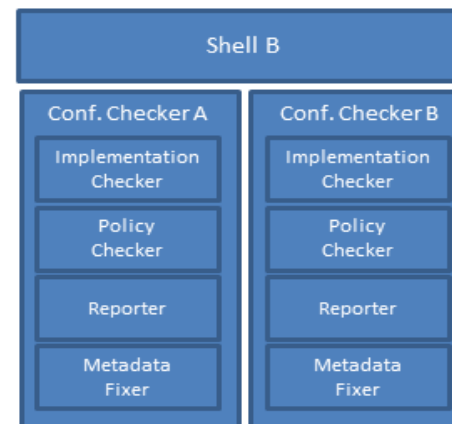
(Toolset to be tendered)



Memory institution X



Memory institution Y



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Reference implementation

Stakeholders



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Reference implementation

Stakeholders



□ Developers

those who control the software for production of preservation files (e.g. file editors, transcoders. etc...)



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Reference implementation

Stakeholders



Developers

Digital preservationists

those who control the acceptance and management of preservation files in digital repositories



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Reference implementation

Stakeholders



- Developers
- Digital preservationists
- Standardization organisations

those who maintain the formal standard specifications of file formats



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Reference implementation

Developers | OSS business models



❑ Combine with other software offerings

combine with your own software and sell it under a proprietary license



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Reference implementation

Developers | OSS business models



- ❑ Combine with other software offerings
- ❑ Selling optional proprietary extensions

develop additional components, such as checkers for other formats, while the core remains under open source



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Reference implementation

Developers | OSS business models



- ❑ Combine with other software offerings
- ❑ Selling optional proprietary extensions
- ❑ Selling professional services

provide services for
deployment, technical
support, training, consulting



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Reference implementation

Standardisation org. | standard improvement



- ❑ Establishing **contacts** with key representatives in the organisation
- ❑ Raising and contributing to resolution of (new and existing) **issues**
- ❑ Proactive interaction related to the **technical specifications**
- ❑ Proactive contributions of experiences and development of **synergies** between organisations



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Minimal requirements



- Source code / releases
- Work practices
- IPR Distribution



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Minimal requirements

Source code/releases



- ❑ Source code shall be built for **portability** between technical deployment platforms.
- ❑ Source code shall be built in a **modular** fashion for improved maintainability.
- ❑ For each **executable**:
 - the source code shall always be provided for that executable.
 - instructions for how to create the executable from the source code shall always be provided.
 - open source tools for creation of the executable from the source code shall be provided.
- ❑ There shall always be executables for **several different platforms** (at least for: MS Windows 7, Mac OSX, common Linux distributions such as Ubuntu, Fedora, Debian, and Suse).



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Minimal requirements

Work practices



- ❑ Use **effective open source work practices**.
 - use of nightly builds,
 - use of an open platform for open development (e.g. Github),
 - use of software configuration management systems (e.g. Git),
 - use of issue/bug trackers,
 - use of forums, mailing lists for different stakeholder groups (users, developers, etc.), IRC
 - provision of roadmaps,
 - provision of technical documentation,
 - provision of easy hacks, etc.
- ❑ All development of software and digital assets at **open development platforms** (e.g. GitHub, or equivalent).



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Minimal requirements

IPR Distribution



❑ Software

- All **software** developed during the PREFORMA project shall be provided under the two specific open source licenses: "GPLv3 or later" and "**MPLv2 or later**".
- All **source code** for all software developed during the PREFORMA project shall always be identical between the two specific open source licenses ("**GPLv3 or later**" and "**MPLv2 or later**").

❑ Digital assets (files & documentation)

- All digital assets developed during the PREFORMA project shall be provided under the open access license, i.e. **Creative Commons CC-BY v4.0**.
- All digital assets developed during the PREFORMA project shall be provided in **open file formats (SOU 2009:86)**.



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Thank you!

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