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European eInvoicing Standard in Italy

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| **Project number** | INEA/CEF/ICT/A2017/1560867 2017-IT-IA-0150 |
| **Project acronym** | EeISI |
| **Project title** | European eInvoicing Standard in Italy |
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Design of the eDelivery architecture for «Fattura elettronica – il servizio delle Camere di Commercio»

Deliverable D3.10

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| **Note** | - |
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**Version Control**

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| Version | Date | Author | Description of change |
| 1.0.0 | 30/11/2018 | Infocamere (Doni, Squarcina) |  |
| 1.0.1 | 31/03/2020 | Roberto Reale | Technical review and quality assessment |
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Glossary

|  |  |
| --- | --- |
| **B2B** | Business to Business |
| **B2C** | Business to Consumer/Citizen |
| **B2G** | Business to Government |
| **BII** | Business Interoperability Interfaces |
| **C2G** | Citizen to Government |
| **CCTS** | Core Component Technical Specification |
| **CEF** | Connecting Europe Facility |
| **CEM** | Certified Electronic Mail – Legal Mail (PEC Posta Elettronica Certificata in Italy) |
| **CEN** | European Committee for Standardisation |
| **CII** | Cross Industry electronic Invoice |
| **CIUS** | Core Invoice Usage Specification |
| **DSI** | Digital Service Infrastructures |
| **EDIFACT** | Electronic Data Interchange For Administration, Commerce and Transport |
| **EMSFEI** | European Multi-Stakeholder Forum on eInvoicing |
| **e-SENS** | Electronic Simple European Networked Services |
| **FatturaPA** | Public administration electronic invoice framework (FatturaPubblica Amministrazione) |
| **G2G** | Government to Government |
| **INEA** | Innovation and Networks Executive Agency |
| **OASIS** | Organization for the Advancement of Structured Information Standards |
| **PEPPOL** | Pan-European Public Procurement Online |
| **PEPPOL-BIS** | Pan-European Public Procurement Online Business Interoperability Specifications |
| **SDI** | Electronic exchange system in Italy (Sistema Di Interscambio) |
| **UBL** | Universal Business Language |
| **UN/CEFACT** | United Nations Centre for Trade Facilitation and Electronic Business |
| **UNTDID** | UN Trade Data Interchange Directory |
| **URI** | Uniform Resource Identifier |
| **URL** | Uniform Resource Location |
| **URN** | Uniform Resource Name |
| **XML** | Extensible Mark-up Language |

# Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application.

* EN 16931-1:2017 Electronic invoicing - Part 1: Semantic data model of the core elements of an electronic invoice
* CEN/TS 16931-2:2017 Electronic invoicing - Part 2: List of syntaxes that comply with EN 16931-1
* CEN/TS 16931-3-1:2017 Electronic invoicing - Part 3 - 1: Syntax bindings of the core elements of an electronic invoice - Syntax binding methodology
* CEN/TS 16931-3-2:2017 Electronic invoicing - Part 3 - 2: Syntax bindings of the core elements of an electronic invoice - Binding to ISO/IEC 19845 (UBL 2.1)
* CEN/TS 16931-3-3:2017 Electronic invoicing - Part 3 - 3: Syntax bindings of the core elements of an electronic invoice - Binding to UN/CEFACT XML
* CEN/TS 16931-3-4:2017 Electronic invoicing - Part 3 - 4: Syntax bindings of the core elements of an electronic invoice - Binding to ISO/IEC 9735 (UN/EDIFACT)
* ISO 3166 1, Codes for the representation of names of countries and their subdivisions — Part 1: Country codes
* ISO 4217, Codes for the representation of currencies
* ISO 639 2, Codes for the representation of names of languages
* ISO 8601, Data elements and interchange formats — Information interchange — Representation of dates and times
* ISO 15000-5, Electronic Business Extensible Markup Language (ebXML) — Part 5: Core Components Specification (CCS)
* ISO 6523, Information technology — Structure for the identification of organizations and organization parts
* ISO/IEC 19845, Information technology -- Universal business language version 2.1 (UBL v2.1)

Moreover the following Italian documentation is referenced in this deliverable:

* Schema del file xml FatturaPA versione 1.2 - xsd
* Specifiche tecniche del formato della FatturaPA versione 1.2.1- pdf
* Rappresentazione tabellare del tracciato FatturaPA versione 1.2.1- pdf
* Rappresentazione tabellare del tracciato FatturaPA versione 1.2.1- excel
* Foglio di stile per la visualizzazione della FatturaPA versione 1.2.1 - xslt
* generica Foglio di stile per la visualizzazione della Fattura Ordinaria versione 1.2.1 - xslt
* Elenco modifiche al tracciato FatturaPA - pdf
* Suggerimenti per la compilazione della FatturaPA versione 1.5

# Introduction

## 

## Purpose

The purpose of this document is to describe the High-level Architecture of the eDelivery architecture for «Fattura elettronica – il servizio delle Camere di Commercio ».

## Scope

Definition of a software platform that will provide an Access Point based on the open source solution Oxalis/Domubus and of all components necessary to automate the transmission of the eInvoices into Peppol Network:

* Usage of open source technologies.
* Modularity in the internal design.
* Extendibility guaranteed by components packaged as plugins and deployed as separate modules.
* Clear logging.
* External configuration that guides the application behavior and composition.
* Integrability with interfaces in standard technologies that allow an easy discovery of the exposed methods.
* Small footprint on hardware resources.

The Access Point is decoupled from the Portal and managed through a scheduled batch process with high transmission frequency. Based on the open source solution Oxalis 4 and adherent to the AS2 specifications and in the future AS4 as available DIFI plugin and Domibus Access Point. Reference SMP for the Access Point, for this process, is SMP made available by Intercenter.

## References

|  |  |  |
| --- | --- | --- |
| **Deliverable** |  | **Author** |
| D2.11 | EeISI\_D2.11-eDelivery gap analysis for «Fattura elettronica – il servizio delle Camere di Commercio » Rel.1.0.0 | Infocamere |

Tab 1 | References list

## Constraints and Assumptions

Here are detailed some considerations regarding the major technical an functional constraints that have some impact on the software design.

|  |  |  |
| --- | --- | --- |
| **Constraint** | **Description** | |
| **AS2 Protocol** | | Access Point will be developed with Oxalis 4.0.2 with AS2 protocol and it will be integrated with the AS4 plug-in distribuited by DIFI and Domibus |
| **AS4 Protocol** | | Use Domibus Access Point when the AS4 protocol replaces the AS2 protocol |

# Requirements

## Functional Requirements

The Access Point will provide the following functionalities.

1. The portal provides the invoice file in a specific file system folder. The delivery notification is made available for the callback process in another specific folder.
2. The system also manages a folder for archiving transmissions and a specific folder for transmission errors.
3. Transmission batch reads from the folder the invoice file and the participand ID of destination.

## Non-Functional Requirements

The application functionalities must be implemented accordingly to current Infocamere design guidelines and must provide:

* extensive logging.
* adequate technical description.
* based on open source components.
* easy to integrate with standard interfaces.
* solid and stable.

ready to operate with adequate performances.

# Architecture views

This is a high level overview of all the involved components and the relationship between them.

We have divided this section in:

* Components catalogue. In this section we list all the components that are part of the solution.
* Diagrams. We have drawn the application landscape diagram

## Components catalogue

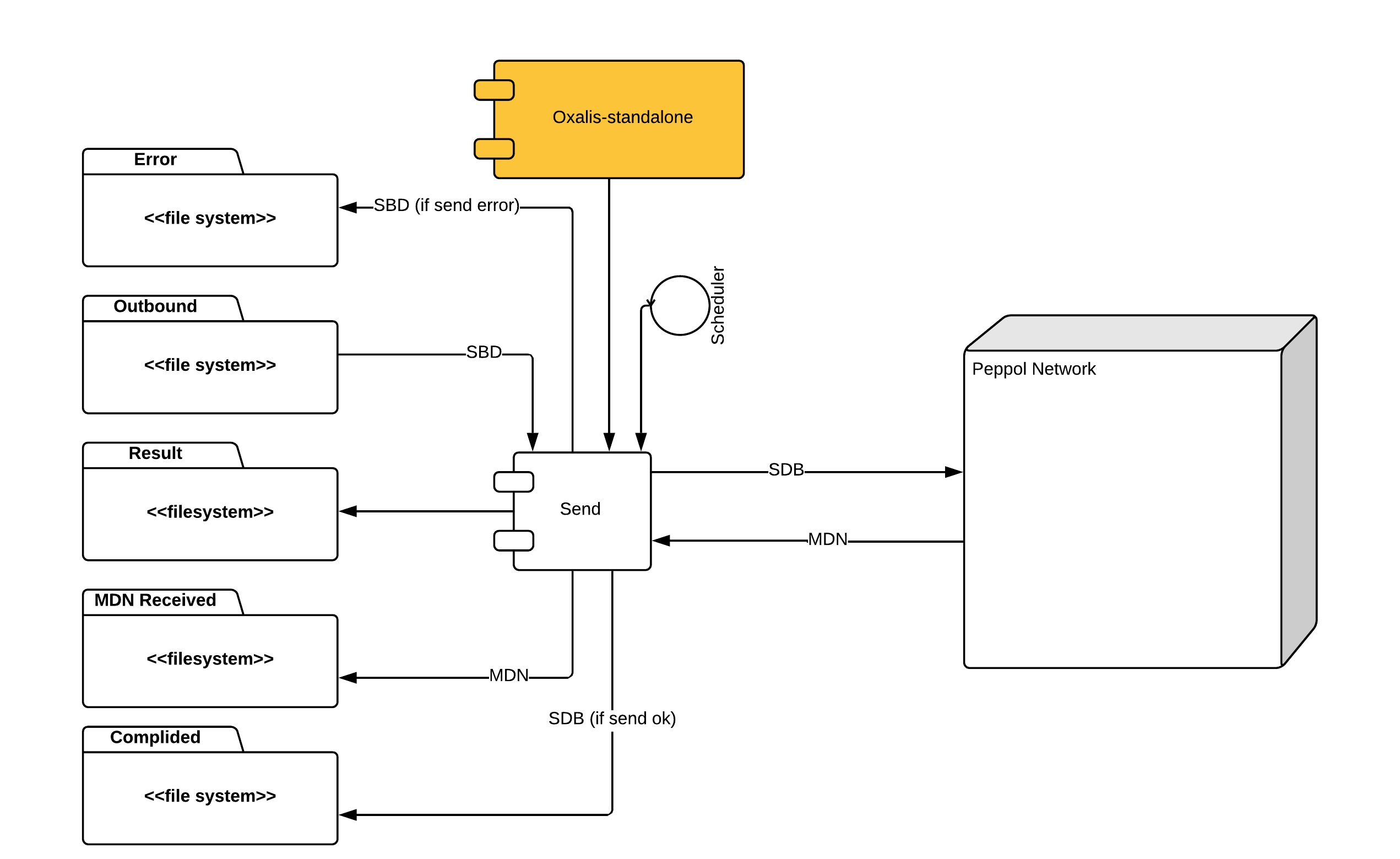
Logical components include:

**Send**

The send component is responsible for transmitting all the eInvoices in the Outbound folder to the recipient. If the transmission is positive, the send component records in the Result folder a file containing the success info of the transmission, it also records the corresponding file in the MDN folder and then archives the eInvoice file sent in the Complited folder.

In the event that the transmission has an error, the send component records in the Result folder a file containing the negative result of the transmission and stores the invoice file in the Error folder.

## Diagrams



## Technology

|  |  |
| --- | --- |
| **Type** | **Technologies** |
| **DBMS** | - |
| **Middleware** | N\A |
| **Develompment Language** | Java |
| **JVM build version** | 1.8 |
| **Build Software** | Maven 3+ |
| **Configuration framework** | - |

# Key Findings

## Architectural Decision

The following issues were analyzed and solved in order to provide a consistent software design:

|  |  |
| --- | --- |
| **Title** | **Decision** |
| **Implementation environment** | As requested by the Agreement, the eInvoice mapper will be implemented using only opens source technologies; the software libraries used by the application will follow this approach. |
| **Compatibility with pre-existing SDI system software** | The Infocamere application environment is based on a Spring Boot Framework running on JDK 8 |
| **Data persistency** | The software will save any kind of transient information in actual database present in Infocamente system. |
| **Configuration strategy** | All the properties of the software are filesystem based; the local path can be added as a Property object or injected as JNDI resource. |
| **Integrability** | The API layer is made of public java methods related to the high-level functionalities (validate, transform). |
| **Log management** | As requested by the Infocamere, the logging framework SLF4J will be used by the application. |