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GROUP SPECIFICATION

Permissioned Distributed Ledger (PDL);
Proof of Concepts Framework

Disclaimer

Reference
DGS/PDL-005_DLT_PoC

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Permissioned Distributed Ledger (PDL).

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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1   Scope

The present document specifies a framework for use within ETSI PDL ISG to coordinate and promote public demonstrations of Proof of Concept (PoC) validating key technical components developed in PDL.

2   References

2.1   Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

Not applicable.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1]   ETSI GR PDL 001: "Permissioned Distributed Ledger (PDL); Landscape of Standards and Technologies".

[i.2]   ETSI GR PDL 002: "Permissioned Distributed Ledger (PDL); Applicability and compliance to data processing requirements".

[i.3]   ETSI GR PDL 003: "Permissioned Distributed Ledger (PDL); PDL Application Scenarios".

[i.4]   ETSI Directives.

NOTE: Available at https://portal.etsi.org/Resources/ETSI-Directives.

3   Definition of terms, symbols and abbreviations

3.1   Terms

For the purposes of the present document, the following terms apply:

PDL ISG PoC proposal: initial description of a PoC Project, submitted as a contribution for review and acceptance by the PDL ISG before the PoC Project starts

NOTE: See annex A.

PDL ISG PoC report: detailed description of the results and findings of a PoC project, submitted once the PoC Project has finished

manufacturer: company having a substantial capacity to develop and/or produce and/or install and/or maintain products to be used in, or directly or indirectly connected to, an electronics communications network

>   NOTE: An association or organization of such manufacturers also falls within this category. (Member categories from Rules of procedure in ETSI Directives [i.4].)

PoC demo objective: detailed description of one particular aspect that the PoC team intends to demonstrate and how it will be achieved

PoC project: activity oriented to perform a PoC according to the framework described in the present document

PoC review team: entity in charge of administering the PoC activity process

PoC scenario report: collection of PoC Demo Objectives

>   NOTE: See annex B.

PoC team: organizations participating in the PoC Project

research institution: non-for-profit organization, having research results among its primary activity objectives

>   NOTE: An association or organization of such research institutions also falls within this category. (Member categories from Rules of procedure in ETSI Directives [i.4].)

service provider: organization participating in a PDL infrastructure, and providing means for it to run

>   NOTE: An association or organization of such service providers also falls within this category. This category includes public and private organizations, for- and non-for-profit. (Member categories from Rules of procedure in ETSI Directives [i.4].)

3.2   Symbols

Void.

3.3   Abbreviations

For the purposes of the present document, the following abbreviations apply:

CDPR	Compliance to Data Processing Requirements
CTI	Centre for Testing and Interoperability
DAO	Destination Advertisement Object
EG	Expert Group
ICT	Image Constraint Token/Information & Communication Technology
ISG	Industry Specification Group
PDL	Permissioned Distributed Leger
PKI	Public Key Infrastructure
PoC	Proof of Concept
URL	Universal Resource Location
WG	Working Group
WI	Work Item

4   PDL ISG PoC Framework

4.1   Rationale

The ISG PDL is committed to start from already available experiences in the field of permissioned distributed ledgers, leveraging on them, and seeking for the definition of open and well-known operational mechanisms to validate, scale, build consensus, operate, automate, assure, manage events these infrastructures. A key element of the intended group activity is related to the execution of proof-of-concept demonstrations. While any given PoC demonstration event impacts its immediate audience, it is expected the cumulative set of PoC demonstration events provides a measure of industry impact from these PDL concepts.

The objective for the PoCs is to build commercial awareness and confidence and encourage development of an open ecosystem by integrating components from different players.

This framework outlines:

- rationale for PDL ISG PoCs;

- PDL ISG PoC process;

- submission, format and criteria for PDL ISG PoC Proposals;

- review and acceptance criteria of PoC Proposals;

- PDL ISG PoC Report format and requirements;

- ETSI support for PoC team.

These PoCs shall be scoped taking the PDL use cases as a working basis and address the technical challenges and approaches being progressed.

4.2   Call for PoCs

The ETSI PDL ISG calls for PoC proposals during the lifetime of the ISG. Details will be made publicly available on the ETSI PDL ISG portal.

4.3   PDL ISG PoC Proposal Review

4.3.1   General

The PDL PoC Review Team is responsible for administering this PDL ISG PoC process. The PDL PoC Review Team shall collect and distribute the PDL ISG PoC Proposals and announce the accepted PDL ISG PoC Proposal based on the review against the PDL ISG PoC acceptance criteria of clause 4.4.

ETSI Centre for Testing and Interoperability (CTI) will further evaluate the PoC according to the criteria acceptance principles and provide the PDL PoC Review Team with a confirmation of meeting the acceptance criteria (as in clause 5.1) as required by clause 4.4.

The PDL PoC Review Team will provide a response to the PoC team within 30 days after receipt of the PDL ISG PoC proposal.

4.3.2   Accepted PDL ISG PoC Proposals

The PDL PoC Review Team will send an email to the PoC team to confirm the acceptance of the PDL ISG PoC Proposal.

The PDL PoC Review Team will send an email to the 'PDL_POC@LIST.ETSI.ORG' list to announce each accepted PDL ISG PoC Proposal to the PDL ISG community.

The PDL PoC Review Team will post accepted PDL ISG PoC proposals on a publicly accessible ETSI PDL ISG portal. A "List of Accepted Proposals" will be kept on the ETSI PDL Wiki page.

Accepted PDL ISG PoC proposals are expected to be executed by the PoC team and a PoC Report is also expected to be submitted by the PoC team at completion.

4.3.3   Rejected PDL ISG PoC Proposals

The PDL PoC Review Team will send an email to the PoC team to notify them that the PDL ISG PoC proposal has been rejected with the reason based on the criteria of clause 4.4.

No further action will be taken by the PDL ISG on rejected proposals. PoC teams may submit revised PDL ISG PoC Proposals for future consideration.

NOTE: This should be reported to the PDL management list and informally to the next meeting.

4.4   PDL ISG PoC Proposal Acceptance Criteria

The criteria for acceptance of PDL ISG PoC proposals are:

1) The PDL ISG PoC proposal shall contain the information requested in the format of the PDL ISG PoC Proposal Template of clause A.1, referred to as the PoC team. This will be checked by ETSI CTI and the PoC Review Team.

2) The organizations participating in a PoC team shall include at least:

   a) two manufacturers; or

   b) one manufacturer plus a research institution; or

   c) one manufacturer or research institution and employing, for all PoC purposes, open-source components.

   In all cases, the PoC team shall include a service provider, and this service provider shall be a member of the ISG PDL (refer to clause A.1.1).

3) The PDL ISG PoC team proposal shall address at least one goal relevant to PDL i.e. related with PDL application scenarios or use cases, PDL requirements, or the suitability of PDL architecture aspects (refer to clause A.1.3.1). The output of the PoC should provide feedback to the ISG PDL that should support the improvement of the output of the existing WIs. Alignment with existing activities is required.

4) The PDL ISG PoC team proposal shall indicate the venue where the PoC will be demonstrated (e.g. PoC team member lab, industry trade show, etc.) (refer to clause A.1.5).

5) A PoC team project timeline shall be provided (refer to clause A.1.4).

Any PDL ISG PoC proposal which meets these required elements will be accepted.

A summary table of Use cases from [i.2] and requirements [i.3] is shown in table 1.

Table 1: Main Areas of CDPR & PDL Applications

HORIZONTAL DOMAIN	VERTICAL DOMAIN
Identity Management: individuals, objects, legal entities and processes	eGovernment: Properties, benefits records
Data Management: data sharing	Healthcare: Health records, Prescriptions
Logistics and Supply-Chain	Industries: Manufacturing distribution
Security Management	Automotive and IoT: Supply chain, data integrity, Autonomous vehicles
Digital Evidence	Commerce, digital evidence admissible in court
Invoicing Management	Finance- securities trading, Trade finance, Micro-credits and remittance, insurance
Crypto-structures and DAO	Utilities: Share records and trading, Energy Sector, Smart-Metering, Smart-grids, Telecommunications, Water and Waste management
Contract Management: Smart Contracts	Media and Social Media: Intellectual Properties management, e-Sport, Culture, Art, Advertisement
Comodity Management	Yield management, Agriculture
Decision Management: A.I.-decision traceability	Education: e-learning, Diplomas validation
Privacy management	Healthcare, Automotive and IoT, Commerce, Finance-securities trading, Utilities
Infrastructure Management	ICT: Internet resource management, Trust infrastructure (e.g. PKI), Network security

4.5   PDL ISG PoC Report

Once an PDL ISG PoC team project is concluded, a PDL ISG PoC Report with the PoC results is expected to be provided to PDL ISG as a contribution to an ISG PDL face to face meeting or be announced on the 'ISG_PDL@list.etsi.org' mailing list. A PoC Wiki section of the ETSI portal via a link on the PDL home page will also indicate this report.

An PDL ISG PoC Report should contain the information requested in the PDL ISG PoC Report Template of clause B.1 to notify the PDL ISG that the PoC team has completed their PoC Project. PoC teams are encouraged to provide additional technical details on the results of their PoC project using the report format provided in clause B.2.

The PDL PoC Review Team will present a list of all the PDL ISG PoC Reports to the ISG plenary after proper evaluation of contents.

PoC team members who are participants of ISG PDL may bring technical proposals based on PoC results to PDL ISG as regular contributions.

5   Overall Roles and Activities within PoCs

5.1   PDL ISG PoC Proposal Submission

PoC team formation is beyond the scope of the PDL ISG. The PoC team shall prepare an PDL ISG PoC Proposal according to the PDL ISG PoC Proposal template in clause A.1. The PoC Proposal shall be submitted to the PDL ISG as a contribution uploaded on the ETSI Portal and a link to the contribution shall be sent by the PDL PoC Review Team to the dedicated e-mail distribution list 'ISG_PDL@LIST.ETSI.ORG' with [PDL ISG PoC Proposal] in the subject line.

5.2   General

PDL ISG participant activities when forming PoC teams and executing PoC projects are outside the scope of the PDL ISG. The PDL ISG shall not manage individual PoC Projects nor get involved in forming PoC teams or executing PDL ISG PoC proposals.

5.3   ETSI CTI Role

The ETSI Centre for Testing and Interoperability (CTI) has experience in supporting the organization of technology evaluations and interoperability events, in many ways similar to PoCs. This experience may be useful in assisting the PoC Teams with administration and project management support including:

- Formation of the PoC team

- Preparation of the PDL ISG PoC proposal

- Development of the PDL ISG PoC Scenario Report

- Collecting and reporting results in a PoC Report

- Providing feedback to the ISG

- Administration, logistics, etc.

CTI is not a test lab. CTI assistance is free of charge for ISG participants. ISG participants may request CTI assistance by contacting 'CTI_Support@etsi.org' by email where the subject should include [PDL ISG PoC].

PoC team members are not required to make use of CTI support. Other ISG members or commercial entities may provide additional or similar services.

5.4   Other roles and responsibilities

PDL ISG: The PDL ISG is interested in the outcome of the PoC projects. In the context of the PoC framework, it is in charge of:

- identifying PoC topics;

- identifying expected contributions and timelines for PoC topics;

- processing the contributions made by the PoC teams on those topics.

PoC Review Team: Entity in charge of administering the PoC activity process. It is in charge of:

- maintaining and making available the PoC topics;

- reviewing PoC proposals and PoC reports against the acceptance criteria;

- declaring the acceptance/refusal of each PoC;

- notifying acceptance/refusal of each PoC in the PDL_POC@list.etsi.org' mailing list;

- compiling the accepted PoC Proposals and Reports and making them available to the PDL ISG;

- monitoring the PoC project timelines, and sending the appropriate reminders to the PoC teams (for expected contributions, PoC report, etc.).

PoC team: Group of organizations participating in one PoC project. The PoC Team is in charge of:

- writing the PoC proposal;

- executing the PoC and collecting the relevant data;

- writing the PoC report;

- submitting the expected contributions to the ISG PDL.

5.5 PoC activity process

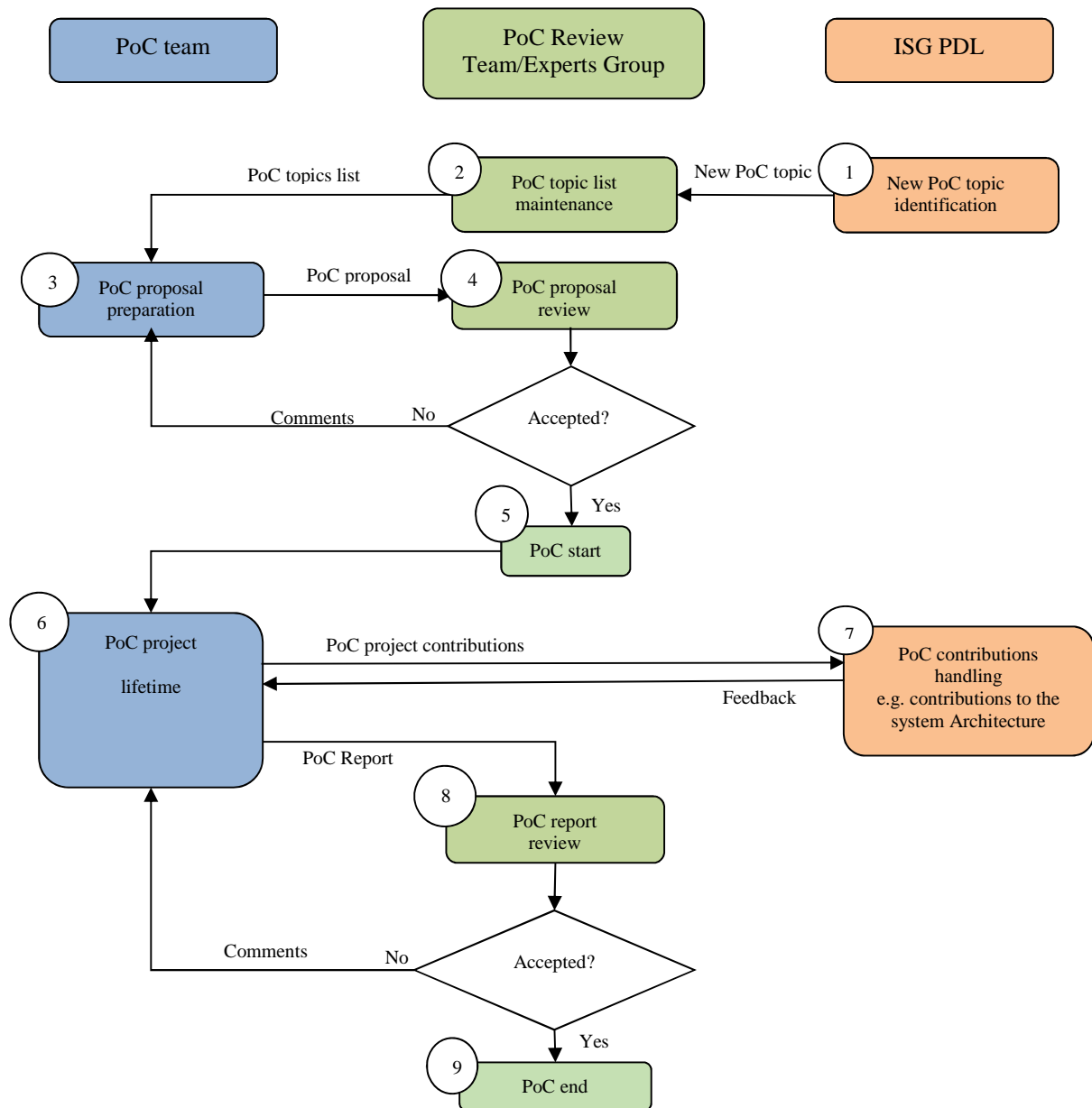Figure 1 provides a description of the PoC activity process.

Figure 1: PoC Activity Process 1

Annex A (normative):
PDL ISG - PoC Proposal Template

A.1   PoC Project Details

A.1.1   PoC Project

PoC Number (assigned by ETSI)

PoC Project Name

PoC Project Host

Short Description

A.1.2   PoC Team Members

Table A.1

	Organization name	ISG PDL participant (yes/no)	Contact (Email)	PoC Point of Contact (see note 1)	Role (see note 2)	PoC Components
1						
2						
3						
…						
NOTE 1: Identify the PoC Point of Contact with an X.						
NOTE 2: The Role will be network operator/service provider, infrastructure provider, application provider or other as given in the Definitions of ETSI Classes of membership.						

All the PoC Team members listed above declare that the information in this proposal is conformant to their plans at this date and commit to inform ETSI timely in case of changes in the PoC Team, scope or timeline.

A.1.3   PoC Project Scope

A.1.3.1   PoC Goals

    EXAMPLE: The PoC will demonstrate at least one use case of […] and report on the suitability of the PDL
                   Refence Architecture ETSI GS PDL 005 as described in clause 4.x.x bullet x.

A.1.3.2   PoC Topics

PoC Topics identified in this clause need to be taken for the PoC Topic List identified by ISG PDL and publicly available, i.e. the three topics identified in clause 4.5 of the PDL PoC Framework. PoC Teams addressing these topics commit to submit the expected contributions in a timely manner.

Table A.2

PoC Topic Description	Related WI	Expected Contribution	Target Date

A.1.3.3   Other topics in scope

List here any additional topic for which the PoC plans to provide input/feedback to the ISG PDL.

Table A.3

PoC Topic Description	Related WI	Expected Contribution	Target Date

A.1.4   PoC Project Stages/Milestones

Table A.4

PoC Milestone	Stages/Milestone description	Target Date	Additional Info
P.S	PoC Project Start		
P.D1	PoC Demo 1		Venue, F2F/Webinar
P.D1	PoC Demo 1		Venue, F2F/Webinar
…	…		
P.C1	PoC Expected Contribution 1		
P.C2	PoC Expected Contribution 2		
…	…		
P.R	PoC Report		
P.E	PoC Project End		

NOTE: Milestones need to be entered in chronological order.

A.1.5   Additional Details

For example, URL, planned publications, conferences, etc.

A.2   PoC Technical Details

A.2.1   PoC Overview

Describe the PoC here.

A.2.2   PoC Architecture

Include a schema outlining how the different PoC components fit in the PoC architecture.

A.2.3   PoC Success Criteria

- Explain how the proposal intends to verify that the goals are presented in clause A.1.2 have been met.

EXAMPLE: Functional (it worked, it did not work), Performance (transactions per second, throughput, processing per second, packet per second, etc.), Scalability, Availability, Service Quality.

A.2.4 Additional information

Include additional information as useful.

Annex B (normative):
PDL ISG PoC Report Template

B.1   General

The following normative disclaimer shall be included on the front page of a PoC report:

"Submission of this PDL ISG PoC Report as a contribution to the PDL ISG does not imply any endorsement by the PDL ISG of the contents of this report, or of any aspect of the PoC activity to which it refers."

B.2   PDL ISG PoC Report

B.2.1   PoC Project Completion Status

Indicate the PoC Project Status. Can the PoC be considered completed? If this is a multi-stage PoC project, indicate the Reported Stage status and plans for future Project Stages/Milestones.

- Overall PoC Project Completion Status: _____

- PoC Stage Completion Status (Optional - for Multi Stage projects only): _____

B.2.2   PDL PoC Project Participants

Specify PoC Team; indicate any changes from the PDL ISG PoC Proposal:

- PoC Project Name: _____

- Network Operator/Service Provider: _____   Contact: _____

- Manufacturer A: _____   Contact: _____

- Manufacturer B:_____   Contact: _____

- Additional Members:_____   Contact: _____

B.2.3   Confirmation of PoC Event Occurrence

To be considered complete, the PoC should have been physically demonstrated with evidence provided that the demonstration has taken place.

Provide details on venue and content of PoC demonstration event. Provide pictures and supporting literature where available. Please identify who was present at the demonstration event (optional).

- PoC Demonstration Event Details: _____

B.2.4   PoC Goals Status Report

Specify PoC Goals from PDL ISG PoC Proposal (clause A.1.2). Identify any changes from the original PDL ISG PoC Proposal with an explanation as to why the changes were made. Indicate the extent that each goal was met. Provide sufficient information for those not familiar with the PoC goals to understand what has been achieved and/or learned.

- PoC Project Goal #1: _____ Goal Status (Demonstrated/Met?) _____

List additional (optional) PoC Project Goals (follow the same format).

B.2.5 PoC Feedback Received from Third Parties (Optional)

- Where applicable, provide in a free text, feedback received from potential customers, Ecosystem partners, event audience and/or general public.

B.3 PDL PoC Technical Report (Optional)

B.3.1 General

PoC Teams are encouraged to provide technical details on the results of their PoC using the PoC Scenario Report template below.

B.3.2 PoC Contribution to PDL ISG

Use table B.1 to list any contributions to the PDL ISG resulting from this PoC Project.

Table B.1

Contribution	WG/EG	Work Item (WI)	Comments
Xxxxxx		ETSI GR PDL 001 [i.1]	*i.e. "New test proposal covering a different type of workload and proposing additional parameters for the portability templates"*
Yyyyy			*i.e. "New WI proposal addressing ...."*
...			

B.3.3 Gaps identified in PDL standardization

Use table B.2 to indicate Gaps in standardization identified by this PoC Team including which forum(s) would be most relevant to work on closing the gap(s). Where applicable, outline any action(s) the PDL ISG should take.

Table B.2

Gap Identified	Forum (PDL ISG, Other)	Affected WG/EG	WI/Document Ref	Gap details and Status
Xxxxxx	PDL		ETSI GR PDL 001 [i.1]	*i.e. "The PoC demonstrated that Dynamic reconfiguration of Service Chain as defined in xxx does not address the needs of vMME implementation. Gap is addressed by Mano WG"*
Yyyyy				
...				

B.3.4 PoC Suggested Action Items

- Provide suggested Action Items and/or further work required from the PDL ISG and/or external forums.

B.3.5 Additional messages to PDL

- Provide any feedback in a free text format to the PDL ISG. Please indicate whether the team wishes any specific message to be published or publicly quoted.

B.3.6 Additional messages to Network Operators and Service Providers?

- Are there any specific requests/messages that the team would like to convey to Network Operators and Service Providers?

History

Document history		
V1.1.1	March 2020	Publication