



Enabler Validation Plan for Converged Personal Network Service

Candidate Version 1.0 – 13 Mar 2012

Open Mobile Alliance
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1. Scope

This document details the Validation plan for the CPNS v1.0 Enabler Release. The successful accomplishment of the validation activities will be required for the Enabler to be considered for Approved status.

The validation plan for the CPNS v1.0 Enabler Release specifications is based on testing expectations in the Enabler Test Requirements (ETR). While the specific test activities to be performed are described in the Enabler Test Specification (ETS) the test environment is described in this plan. This test environment details infrastructure, operational and participation requirements identified for the needed testing activities.

1.1 Assumptions

None.

1.2 Exclusions

None.

2. References

2.1 Normative References

- [CPNS-AD] “Converged Personal Network Service Requirements”, Open Mobile Alliance™, OMA-AD-CPNS-V1_0, URL:<http://www.openmobilealliance.org/>
- [CPNS-ETR] “Enabler Test Requirements for Converged Personal Network Service” Open Mobile Alliance™, OMA-ETR-CPNS-V1_0, URL:<http://www.openmobilealliance.org/>
- [CPNS-ETS] “Enabler Test Specification for Converged Personal Network Service”, OMA-ETS-CPNS-V1_0-20110311-D, URL:<http://www.openmobilealliance.org/>
- [CPNS-RD] “Converged Personal Network Service Requirements”, Open Mobile Alliance™, OMA-RD-CPNS-V1_0, URL:<http://www.openmobilealliance.org/>
- [CPNS-TS] “Converged Personal Network Service Core Technical Specification” Open Mobile Alliance™, OMA-TS-CPNS_Core-V1_0, URL:<http://www.openmobilealliance.org/>
- [IOPPROC] “OMA Interoperability Policy and Process”, Version 1.8, Open Mobile Alliance™, OMA-ORG-IOP_Process-V1_10, URL:<http://www.openmobilealliance.org/>
- [RFC2119] “Key words for use in RFCs to Indicate Requirement Levels”, S. Bradner, March 1997, URL:<http://www.ietf.org/rfc/rfc2119.txt>

2.2 Informative References

- [OMADICT] “Dictionary for OMA Specifications”, Version 2.8, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_8, URL:<http://www.openmobilealliance.org/>

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

CPNS Device	See [CPNS-RD]
CPNS Entity	There are three identified logical entities: PNE, PN GW and CPNS Server. In the CPNS v1.0, the CPNS server entity resides in the core network and the PNE and/or PN GW entity resides in the CPNS device.
Group Key Decryption Key (GKDK)	Key used by PNE to decrypt Group Key when using broadcast based Group Key delivery from PN GW to PNE.
Group Key Encryption Key (GKEK)	Key used by PN GW to encrypt Group Key when using broadcast based Group Key delivery from PN GW to PNE.
Group Owner	A PNE which requests creation of the Service Group or is granted ownership of the Service Group by CPNS Server or former Group Owner. It is authorized to expel member PNE from a Service Group, delete a Service Group and pass the ownership to another PNE.
Mode	See [CPNS-RD]
PN Inventory	See [CPNS-RD]
Secure Storage	A storage that stores the key material (e.g., Entity User Key (EUKey), Group Key, protected Password,...) to protect against unauthorized access
SG Inventory	A list of Service Group(s) and the information of Service Group which includes information of group members.

3.3 Abbreviations

OMA	Open Mobile Alliance
CPNS	Converged Personal Network Service
PR	Problem Report
PNE	Personal Network Element
PN GW	Personal Network Gateway
CD CPNS	Content Delivery Converged Personal Network Service Sub-working Group

4. Enabler Validation Description

The validation of this enabler will be made by the successful execution of test cases defined on the [CPNS-ETS] and that satisfy the agreed test requirements listed in [CPNS-ETR].

A summary of test results will be the evidence that those test cases were executed. The lack of open Problem Reports will be the evidence the test cases were successful executed and the reasons for any failure resolved as not a specification issue.

More details can be found later in this document.

5. TestFest Activities

5.1 Enabler Test Guidelines

5.1.1 Minimal Test Configuration

The enabler intends to test the components of the following diagram:

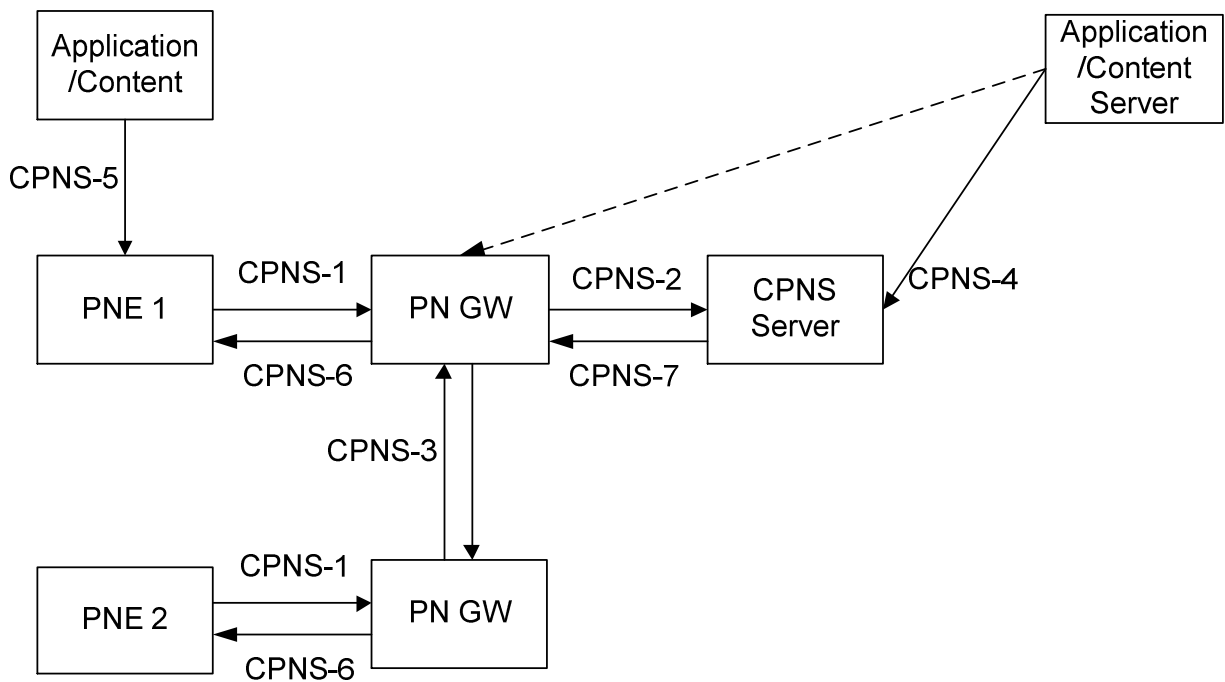


Figure 1: Logical architecture

5.1.2 Minimal Participation Guidelines

The ideal participation on test activities is 3 devices of each category, namely:

- 3 PNE
- 3 PN GW
- 3 CPNS servers
- External Content Provider (for full execution of test cases)

However maybe it will be difficult to get 3 gateways and 3 servers so lower participation is needed to be accepted. At least 2 PNEs, one with UI capabilities and the other without, 2 PN GWs and one CPNS server are required.

5.1.3 Optimal TestFest Achievement Test Case Priority Guidelines

This list represents the current prioritised test cases that the participants should attempt to perform at the event. In order to facilitate maximum test coverage of the functionality of the enabler over a number of TestFests, this list may be modified by the IOP WG between test events to reflect the latest priorities. The the ETS Test Cases listed below represent all of the Test Cases for the Enabler that it is thought can be executed in a single test session at an OMA TestFest. The ones market as priority A are not intended to be the only tests executed at a TestFest, and teams are encouraged to execute the priority B test cases if they are able to do so in the time allowed.

The list includes:

5.1.3.1 AUTHENTICATION

Description	Test Case Id	Priority
EUKey assignment to PN GW no secure element usage	CPNS-1.0-int-1	A
Key Assignment for PNE with UI Capabilities	CPNS-1.0-int-2	A
Key Assignment for PNE w/o UI Capabilities secure PAN	CPNS-1.0-int-3	A
Key Assignment for PNE w/o UI Capabilities not secure PAN	CPNS-1.0-int-4	A

5.1.3.2 PN MANAGEMENT

Description	Test Case Id	Priority
PN Establishment - PNE Initiated	CPNS-1.0-int-5	A
PN Establishment - PN GW Initiated	CPNS-1.0-int-6	A
PNE Management - PN GW Inviting	CPNS-1.0-int-7	A
PNE Management - PNE Inviting	CPNS-1.0-int-8	A
PNE Management - PNE Joining	CPNS-1.0-int-9	B
PNE Management - PNE Leaving	CPNS-1.0-int-10	B
PNE Management - PNE Expulsion	CPNS-1.0-int-11	B
PNE Management - PN Release - PN GW Initiated	CPNS-1.0-int-12	B
PNE Management - PN Release – PNE Initiated	CPNS-1.0-int-13	B

5.1.3.3 GROUP MANAGEMENT

Description	Test Case Id	Priority
Service Group creation	CPNS-1.0-int-14	A
Service Group Invitation	CPNS-1.0-int-15	A
Service Group Expulsion	CPNS-1.0-int-16	B
Service Group Join	CPNS-1.0-int-17	B
Service Group Leave	CPNS-1.0-int-18	B
Service Group Release	CPNS-1.0-int-19	B
Service Group Transfer	CPNS-1.0-int-20	A
Service Group Query	CPNS-1.0-int-21	A

5.1.3.4 GROUP KEY MANAGEMENT

Description	Test Case Id	Priority
Group Key creation - Unicast based Group Key delivery	CPNS-1.0-int-22	A
Group Key creation - Broadcast based Group Key delivery	CPNS-1.0-int-23	A
Group Key creation - Hybrid Group Key delivery	CPNS-1.0-int-24	B
Group Key Update when member leaves - Unicast based Group Key delivery	CPNS-1.0-int-25	A
Group Key Update when member leaves - Broadcast based Group Key delivery	CPNS-1.0-int-26	A
Group Key Update when member leaves - Hybrid Group Key delivery	CPNS-1.0-int-27	B
Periodic Group Key Update - Unicast based Group Key delivery	CPNS-1.0-int-28	A

Description	Test Case Id	Priority
Periodic Group Key Update - Broadcast based Group Key delivery	CPNS-1.0-int-29	A
Periodic Group Key Update - Hybrid Group Key delivery	CPNS-1.0-int-30	B
Group Key deletion	CPNS-1.0-int-31	A
GKDK assignment	CPNS-1.0-int-32	A

5.1.3.5 SERVICE DISCOVERY

Description	Test Case Id	Priority
Reactive – External Content Provider	CPNS-1.0-int-33	B
Reactive – Remote PNE as content provider	CPNS-1.0-int-34	A
Reactive method with access control	CPNS-1.0-int-35	A
Proactive – External Content Provider	CPNS-1.0-int-36	B

5.1.3.6 SERVICE PUBLICATION

Description	Test Case Id	Priority
From PNE (PN Establishment originating PNE)	CPNS-1.0-int-37	A
From PNE (PN Establishment invited PNE)	CPNS-1.0-int-38	A
From PNE via standalone Service Publication	CPNS-1.0-int-39	B
From external content provider – creating Service Description	CPNS-1.0-int-40	B
From external content provider – replacing Service Description	CPNS-1.0-int-41	B

5.1.3.7 SERVICE DELIVERY

Description	Test Case Id	Priority
External content provider	CPNS-1.0-int-42	B
PNE as a content provider	CPNS-1.0-int-43	A

5.1.3.8 DEVICE CAPABILITIES

Description	Test Case Id	Priority
Device Capabilities Query - PNE queried	CPNS-1.0-int-44	B
Device Capabilities Query - PN GW queried	CPNS-1.0-int-45	B
Device Capabilities Change Notification - PNE initiated	CPNS-1.0-int-46	B
Device Capabilities Change Notification - PN GW initiated	CPNS-1.0-int-47	B

5.1.3.9 USAGE STATISTICS COLLECTION AND REPORTING

Description	Test Case Id	Priority
Initiated by Application on the PNE side	CPNS-1.0-int-48	B
Initiated by application on the Server side	CPNS-1.0-int-49	B

5.1.3.10 STATUS MANAGEMENT

Description	Test Case Id	Priority
Status Subscription – Subscribe	CPNS-1.0-int-50	B
Status Subscription – Unsubscribe	CPNS-1.0-int-51	B
Status Publication and Notification - Inactive	CPNS-1.0-int-52	B
Status Publication and Notification - Active	CPNS-1.0-int-53	B

5.2 Enabler Test Requirements

5.2.1 Test Infrastructure Requirements

To be added later

5.2.2 Enabler Execution Flow

The typical CPNS flow that will be exercised during the test sessions is:

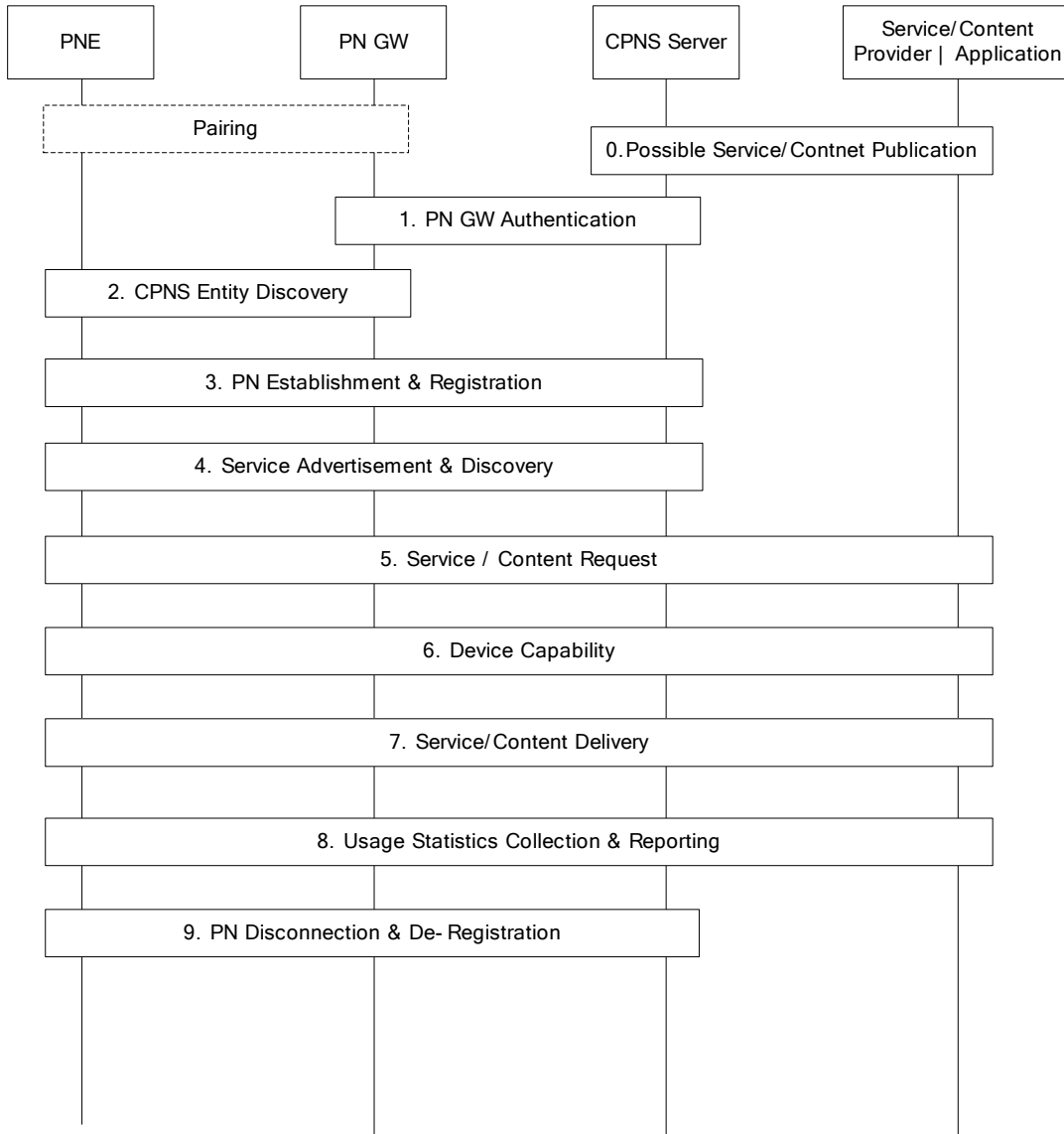


Figure 2: CPNS typical flow

5.2.3 Test Content Requirements

To be added later

5.2.4 Test Limitations

5.2.4.1 Physical

Some scenarios might be difficult to execute. A more in deep analyses has to be made after the conclusion of the [CPNS-ETS]

5.2.4.2 Resources

No limitation identified so far

5.2.5 Test Restrictions

No test restriction identified so far.

5.2.6 Test Tools

For the moment no test tool required.

5.2.6.1 Existing Tools to be Used

None.

5.2.6.2 Test Tool Requirements

Not applicable at the moment

5.2.7 Resources Required

It will be required at least one resource to operate each of the 3 components under test.

5.3 Tests to be Performed

The following sections describe the tests related to the formal TestFest validation activities.

5.3.1 Entry Criteria for TestFest

The following tests need to be performed and passed by implementations by members wishing to participate in the TestFest. This ensures minimal requisite capability of the implementations. The tests are defined in [CPNS-ETS] and any special comments are noted.

Test Case Id	Special Conditions
CPNS-1.0-int-2	None
CPNS-1.0-int-4	None
CPNS-1.0-int-5	None
CPNS-1.0-int-14	None
CPNS-1.0-int-22	None
CPNS-1.0-int-38	None

Table 1: Listing of Tests for Entry Criteria for TestFest

5.3.2 Testing to be Performed at TestFest

All the test cases need to be performed to fully cover the range of capabilities of the enabler and defined protocols. These tests are to be covered in the TestFest. The tests are defined in [CPNS-ETS] and there are no special comments to be noted.

Table 2: Listing of Tests to be Performed at TestFest

5.4 Enabler Test Reporting

5.4.1 Problem Reporting Requirements

The problem reports should be entered on the OMA PR tool at <http://www.oma-tech.org/pr/Frontpage.aspx>. The problems have to be first analysed by the IOP Champion and IOP BRO, then assigned to IOP, if a problem with the test specifications or to CD CPNS sub-working group

5.4.2 Enabler Test Requirements

Normal Reporting, no special reporting required

6. Alternative Validation Activities

The validation of the enabler can be done via test results achieved through normal test fests, via virtual test fests or bilateral test sessions.

Test results from events organised by other forums can be considered also relevant for the validation after analyses of CD CPNS and IOP BRO.

7. Approval Criteria

The CPNS 1.0 enabler can be put in the Approved state when:

- The Enabler has been tested successfully at 3 Test Fests or
- 3 PNEs and 3 PN GWs have successfully run bilateral tests sessions towards a CPNS server using a CPNS GW
- No open PRs exist.

7.1 Enabler Validation Test Cases

The following table list the set of tests that are used for enabler validation.

Test Case Id	ETR Requirement Id	ETR Status	Notes
CPNS-1.0-int-1	AU-001	M	
	AU-006	M	
CPNS-1.0-int-2	AU-004	M	
	CPNSED-001	M	
CPNS-1.0-int-3	AU-002	M	
	AU-005	M	
	CPNSED-001	M	
CPNS-1.0-int-4	AU-005	M	
	CPNSED-001	M	
CPNS-1.0-int-5	PNM-001	M	
CPNS-1.0-int-6	PNM-002	M	
CPNS-1.0-int-7	PNM-004	M	
CPNS-1.0-int-8	PNM-003	M	
CPNS-1.0-int-9		M	
CPNS-1.0-int-10	PNM-005	M	
CPNS-1.0-int-11	PNM-006	M	
CPNS-1.0-int-12	PNM-009	M	
CPNS-1.0-int-13	PNM-008	M	
CPNS-1.0-int-14	SGM-001	M	
CPNS-1.0-int-15	SGM-002	M	
	SGM-006	M	
CPNS-1.0-int-16	SGM-003	M	
	SGM-006	M	
CPNS-1.0-int-17	SGM-004	M	
CPNS-1.0-int-18	SGM-005	M	
	SGM-006	M	
CPNS-1.0-int-19		M	
CPNS-1.0-int-20	SGM-007	M	
CPNS-1.0-int-21	SGM-008	M	
CPNS-1.0-int-21	GKM-001	M	
CPNS-1.0-int-22	GKM-001	M	

Test Case Id	ETR Requirement Id	ETR Status	Notes
CPNS-1.0-int-23	GKM-001	M	
CPNS-1.0-int-24	GKM-001	M	
CPNS-1.0-int-25	GKM-001	M	
CPNS-1.0-int-26	GKM-001	M	
CPNS-1.0-int-27	GKM-001	M	
CPNS-1.0-int-28	GKM-001	M	
CPNS-1.0-int-29	GKM-001	M	
CPNS-1.0-int-30	GKM-001	M	
CPNS-1.0-int-31	GKM-001	M	
CPNS-1.0-int-32	GKM-001	M	
CPNS-1.0-int-33	SPD-002	M	
CPNS-1.0-int-34	SPD-002	M	
CPNS-1.0-int-35	SPD-002	M	
	SPD-003	M	
CPNS-1.0-int-36	SPD-003	M	
CPNS-1.0-int-37	SPD-001	M	
CPNS-1.0-int-38	SPD-001	M	
CPNS-1.0-int-39	SPD-001	M	
CPNS-1.0-int-40	SPD-001	M	
CPNS-1.0-int-41	SPD-001	M	
CPNS-1.0-int-42	SCD-005	M	
CPNS-1.0-int-43	SCD-005	M	
CPNS-1.0-int-44	DC-001	M	
CPNS-1.0-int-45	DC-001	M	
CPNS-1.0-int-46	DC-001	M	
CPNS-1.0-int-47	DC-001	M	
CPNS-1.0-int-48	US-001	M	
	US-002	M	
CPNS-1.0-int-49	US-001	M	
	US-002	M	
CPNS-1.0-int-50	SM-002	M	
CPNS-1.0-int-51	SM-002	M	
CPNS-1.0-int-52	SM-001	M	
	SM-004	M	
CPNS-1.0-int-53	SM-001	M	
	SM-004	M	

Table 3: Enabler Validation Test Cases

7.2 Non-Covered ETR Requirements

Any restrictions, limitations and/or infeasibility of testing of the ETR requirements should be stated in this section.

If new information about limitations and/or infeasibility of testing of any of the ETR requirements is discovered, this section should be updated accordingly.

ETR Requirement Id	ETR Status	Notes
PMN-007	M	Functionality removed from the specifications
SCD-007	M	Functionality removed from the specifications

Table 4: Non-Covered ETR Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions	10 Mar 2011	All	Initial baseline draft
OMA-CPNS-V1_0	22 Feb 2012	All	Final editing after the ETS approval
Candidate Version	13 Mar 2012	All	Status changed to Candidate by TP
OMA-CPNS-V1_0			TP ref# OMA-TP-2012-0110- INP_CPNS_V1_0_EVP_for_Candidate_approval