

# **Enabler Validation Plan for Device Profile Evolution**

Candidate Version 1.0 – 29 Jun 2010

**Open Mobile Alliance** OMA-EVP-DPE-V1\_0-20100629-C

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# 1. Scope

This document details the Validation plan for the Device Profile Evolution 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 Device Profile Evolution 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 so far.

#### 1.2 Exclusions

None so far.

## 2. References

#### 2.1 Normative References

[IOPPROC] "OMA Interoperability Policy and Process", Version 1.6, Open Mobile Alliance™,

OMA-ORG-IOP\_Process-V1\_6, <u>URL:http://www.openmobilealliance.org/</u>

[RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997,

URL:http://www.ietf.org/rfc/rfc2119.txt

[DPE-RD] "Device Profile Requirements", Open Mobile Alliance™, OMA-RD-DPE-V1 0,

URL:http://www.openmobilealliance.org/

[DPE-AD] "Device Profile Evolution Architecture", Open Mobile Alliance™, OMA-AD-DPE-V1 0,

URL:http://www.openmobilealliance.org/

[DPE-MO] "OMA DPE Management Object", Open Mobile Alliance<sup>TM</sup>, OMA-TS-DPE MO -V1 0,

URL:http://www.openmobilealliance.org/

[DPE-TS] "Device Profile Evolution Technical Specification", Open Mobile Alliance<sup>TM</sup>, OMA-TS-DPE-

V1 0, URL:http://www.openmobilealliance.org/

[PUSH-OTA] "Push OTA Protocol Specification". Open Mobile Alliance™. OMA-WAP-TS-PushOTA.

URL:http://www.openmobilealliance.org/

[PUSH-PAP] "Push Access Protocol Specification". Open Mobile Alliance<sup>TM</sup>. OMA-WAP-TS-PAP

URL:http://www.openmobilealliance.org/

[PUSH-MSG] "Push Message Specification". Open Mobile Alliance<sup>TM</sup>. OMA-TS-Push Message.

URL:http://www.openmobilealliance.org/

[IOPETR] "Enabler Test Requirements for Device Profile Evolution", Version 1.0, Open Mobile

Alliance™, OMA-DPE-ETR-V1\_0, <u>URL:http://www.openmobilealliance.org/</u>

**[IOPETS]** "IOP Enabler Test Specifications for Device Profile Evolution", Version 1.0, Open Mobile

Alliance<sup>TM</sup>, OMA-DPE-ETS-V1 0, <u>URL:http://www.openmobilealliance.org/</u>

[DPE-EICS-Client] "Client Enabler Implementation Conformance Statement for Device Profile Evolution",

Version 1.0, Open Mobile Alliance™, OMA-EICS-DPE-Client-V1\_0,

URL:http://www.openmobilealliance.org/

[DPE-EICS-Server] "Server Enabler Implementation Conformance Statement for Device Profile Evolution",

Version 1.0, Open Mobile Alliance™, OMA-EICS-DPE-Server-V1\_0,

URL:http://www.openmobilealliance.org/

## 2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Version 2.7, Open Mobile Alliance<sup>TM</sup>,

OMA-ORG-Dictionary-V2\_7, <u>URL:http://www.openmobilealliance.org/</u>

## 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

**Core Vocabulary** A set of properties associated with the dynamic aspects of devices, which are were considered of key

importance to establish in [DPE-TS] as property vocabulary entries in DPE 1.0.

**Device** See [OMADICT].

DPE Client An entity fulfilling the client requirements of DPE.

DPE Server An entity fulfilling the server requirements of DPE.

**Device Capability** The overall set of characteristics and related parameters supported by a Device.

**Device Property** A hardware, software, or network characteristic that [is] associated with the Device Capability of a Device at

a given point in time. A Device property can be either static or dynamic.

**Dynamic Device** 

**Property** 

A Device property that may change its value e.g. as a result of hardware, software or configuration changes.

Static Device Property A Device property that does not change its value. Examples are display resolution, processor type, etc.

**Terminal** See [OMADICT].

Test Fest Interoperability event organised by OMA where can exercise interconnection between early

implementations.

### 3.3 Abbreviations

DC DPE Client

**DPE** Device Profile Evolution

**DS** DPE Server

ERDEF Enabler Requirement Definition
ERELD Enabler Release Definition
ETR Enabler Test Requirements
OMA Open Mobile Alliance

OMNA Open Mobile Naming Authority

**RFC** Request for Comments

SP Service Provider
UAProf User Agent Profile
WBXML WAP Binary XML

WSP Wireless Session Protocol

# 4. Enabler Validation Description

The validation of DPE with market ready implementations will require some test applications that exercise external interfaces provided by DPE.

The validation of this enabler will be above all focused on the functionalities where there is enough complexity on the operations between clients and servers that inclusion in the IOP program is warranted.

A conformance testing program for clients and servers is by all means encouraged but will not be a requirement for the validation of the enabler specifications.

### 5. TestFest Activities

#### 5.1 Enabler Test Guidelines

### 5.1.1 Minimal Test Configuration

For the testing of this enabler the minimum configuration is:

- A DPE Server
- A DPE Test Service Provider with ability to exercise the DPE-3 interface
- A DPE Client with ability to determine the value of static and dynamic device properties selected from the DPE Core Vocabulary
- One or several transport technologies like on protocol stack below.

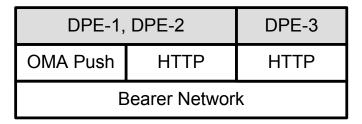


Figure 1: DPE Enabler Protocol Stack

### 5.1.2 Minimal Participation Guidelines

The minimum number of participants for a test fest session is:

- 2 DPE clients
- 1 DPE servers

## 5.1.3 Optimal TestFest Achievement Guidelines

The ETS Test Cases listed below represent a subset of all the Test Cases for the Enabler that it is thought can be executed in a test session at an OMA TestFest. This list is intended to facilitate maximum test coverage of the functionality of the enabler within a test session. It is not intended to be the only tests executed at a TestFest, and teams are encouraged to execute more tests if they are able to do in the time allowed.

Description	Test Case Id	Priority
DPE-1.0-int-001	DPE-1 Client Initiated Registration	High
DPE-1.0-int-002	DPE-1 Server Initiated Registration	High
DPE-1.0-int-010	DPE-2 Property Query	High
DPE-1.0-int-011	DPE-2 Property Policy Set and Report	High
DPE-1.0-int-012	DPE-2 Property Policy Release	High

DPE-1.0-int-020	DPE-2 Group Set and Query	High
DPE-1.0-int-021	DPE-2 Group Release	High
DPE-1.0-int-022	DPE-2 Group Policy Set and Report	High
DPE-1.0-int-023	DPE-2 Group Policy Release	High
DPE-1.0-int-030	DPE-2 Any-Change Policy	High
DPE-1.0-int-031	DPE-2 Exact-Match Policy	High
DPE-1.0-int-032	DPE-2 List-Match Policy	High
DPE-1.0-int-033	DPE-2 In-Range Policy	High
DPE-1.0-int-034	DPE-2 Out-Of-Range Policy	High
DPE-1.0-int-035	DPE-2 Property-Support Policy	High
DPE-1.0-int-036	DPE-2 Scheduled Policy	High
DPE-1.0-int-040	DPE-3 Property Query	High
DPE-1.0-int-041	DPE-3 Property Policy Set and Report	High
DPE-1.0-int-042	DPE-3 Property Policy Release	High
DPE-1.0-int-050	DPE-3 Group Set and Query	High
DPE-1.0-int-051	DPE-3 Group Release	High
DPE-1.0-int-052	DPE-3 Group Policy Set and Report	High
DPE-1.0-int-053	DPE-3 Group Policy Release	High
DPE-1.0-int-060	DPE-3 Any-Change Policy	High
DPE-1.0-int-061	DPE-3 Exact-Match Policy	High
DPE-1.0-int-062	DPE-3 List-Match Policy	High
DPE-1.0-int-063	DPE-3 In-Range Policy	High
DPE-1.0-int-064	DPE-3 Out-Of-Range Policy	High
DPE-1.0-int-065	DPE-3 Property-Support Policy	High
DPE-1.0-int-066	DPE-3 Scheduled Policy	High
DPE-1.0-int-070	DPE-3 Client ID Query	High
DPE-1.0-int-071	DPE-3 Client ID Report	High
DPE-1.0-int-080	DPE-1 commands in HTTP responses	High
DPE-1.0-int-081	DPE-2 commands in HTTP responses	High

**Table 1: Listing of Tests Case priorities** 

# 5.2 Enabler Test Requirements

## 5.2.1 Test Infrastructure Requirements

The diagram below details the test infrastructure required to test the enabler.

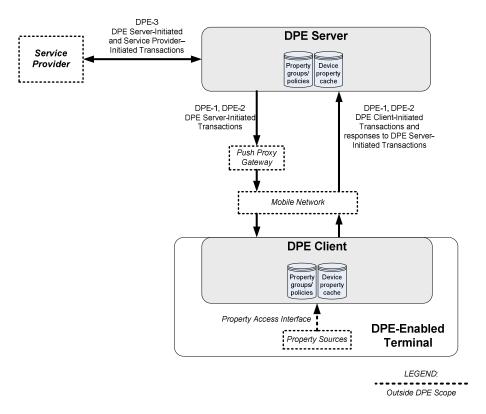


Figure 2: DPE Test environment

Fundamental equipment is:

- A HTTP capable infrastructure with IP connectivity via Ethernet, Wi-Fi or UMTS/GPRS;
- A WAP Push Server with DPE support, for DPE Servers without native OMA Push-OTA protocol support
- A DPE Test Service Provider with ability to exercise the DPE-3 interface

Optional equipment is:

\_

#### 5.2.2 Enabler Execution Flow

Several use case oriented scenarios are shown below.

#### 5.2.2.1 Use Case: User has installed a memory card

A user has a memory-card capable device. The Service Provider has been informed of this capability previously, and established a report policy for the memory capabilities of the user's device. When the user inserts a memory card, the DPE Client reports the card size and free space. The DPE Server forwards the report to the Service Provider.

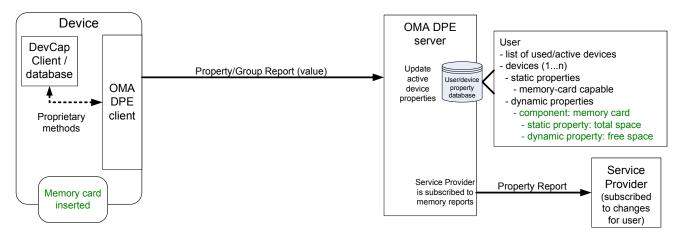


Figure 3: Use Case: User has installed a memory card

#### 5.2.2.2 Use Case: Photo Blog

A novice blogger uses a blog widget and starts a new entry. The Service Provider wants to ensure that the user is offered options personalized to their current device capabilities. But the blog widget cannot report device capabilities directly, so the Service Provider queries the current camera capability from the DPE Server. The DPE Server queries the DPE Client, and reports the result to the Service Provider. The Service Provider determines that the user's device is photo-capable, has two cameras, and is in low-resolution mode. The Service Provider personalizes the response based upon this information, offering options and guidance that simplify the user's blogging experience.

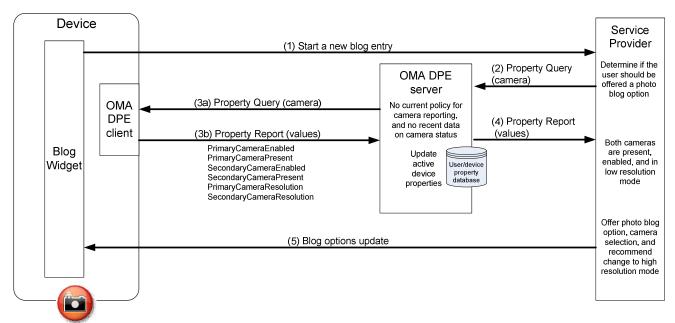


Figure 4: Use Case: Photo Blog

#### 5.2.2.3 Use Case: Photo Blog

When the user switches devices, upon device startup the DPE Client establishes an association with the DPE Server. The DPE Server updates its current device database for the user. The DPE Server informs any Service Providers that are subscribed to changes for the user, if a change has occurred for a monitored property.

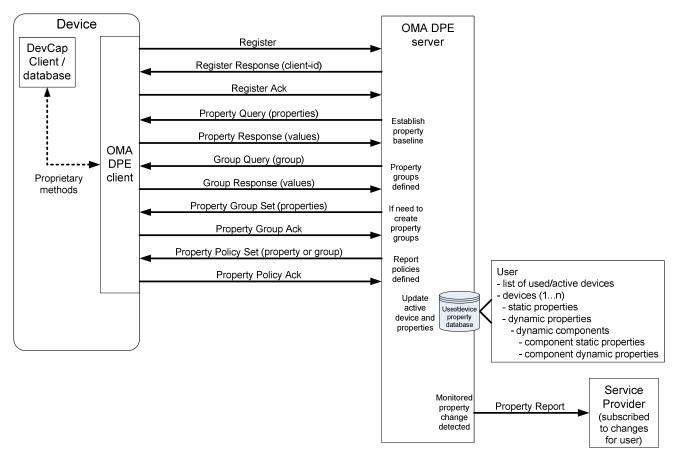


Figure 5: Use Case: Photo Blog

## 5.2.3 Test Content Requirements

It will be made the best effort in order to provide test content for a consistent execution of the available test cases. On the event of not having the content, the test fest participants will have to agree the test content to use.

#### 5.2.4 Test Limitations

#### **5.2.4.1** Physical

As long as the infrastructure resources identified above are available at least remotely, no physical limitations are known.

#### 5.2.4.2 Resources

The lack of any of the transport infrastructures referred in 5.2.1 will avoid the applicable test cases to be executed. It can happen that some test cases will never have the necessary conditions to be executed.

#### 5.2.5 Test Restrictions

None to the knowledge of the authors.

#### 5.2.6 Test Tools

If possible the following tools will be provided as test tools required for the Test Fest:

- A DPE Test Service Provider with ability to exercise the DPE-3 interface

#### 5.2.6.1 Existing Tools to be used

Optionally and in case of communication problems it is recommended to use a network analyzer like Wireshark to create traces for trouble shooting.

#### 5.2.6.2 Test Tool Requirements

DPE defines a set of interfaces via which Service Providers can obtain DPE-based information via the DPE Server. In order to exercise DPE functions as they are intended to operate, test drivers/support will be needed on both Service Provider sides. The main purpose of a test driver is to be the trigger for execution of specific test scenarios that validate DPE Client and DPE Server functions and DPE-internal interfaces. The test drivers would not need to be a full implementation of an example Service Provider application. The requirements for these test drivers should be further analyzed in the IOP phase, e.g. considering these approaches:

- test drivers can be developed as server applications, e.g. using PHP
- DPE Server vendors can provide their own test tools as used in pre-IOP conformance testing

## 5.3 Resources Required

For the test fest the minimum number of resources is two DPE Clients and one DPE Server.

## 5.4 Tests to be performed

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

### 5.4.1 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 the ETS [IOPETS] and any special comments are noted.

Test Case Id	Test Description	Special Conditions
DPE-1.0-int-001	DPE-1 Client Initiated Registration	
DPE-1.0-int-010	DPE-2 Property Query	
DPE-1.0-int-011	DPE-2 Property Policy Set and Report	
DPE-1.0-int-012	DPE-2 Property Policy Release	
DPE-1.0-int-020	DPE-2 Group Set and Query	
DPE-1.0-int-021	DPE-2 Group Release	
DPE-1.0-int-040	DPE-3 Property Query	DPE Server only
DPE-1.0-int-041	DPE-3 Property Policy Set and Report	DPE Server only
DPE-1.0-int-042	DPE-3 Property Policy Release	DPE Server only
DPE-1.0-int-050	DPE-3 Group Set and Query	DPE Server only
DPE-1.0-int-051	DPE-3 Group Release	DPE Server only
DPE-1.0-int-070	DPE-3 Client ID Query	DPE Server only
DPE-1.0-int-071	DPE-3 Client ID Report	DPE Server only

Table 2: Listing of Tests for Entry Criteria for TestFest

## 5.4.2 Testing to be performed at TestFest

The following tests 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 the ETS [IOPETS] and any special comments are noted.

Test Case Id	Test Description	Special Conditions
DPE-1.0-int-001	DPE-1 Client Initiated Registration	_
DPE-1.0-int-002	DPE-1 Server Initiated Registration	
DPE-1.0-int-010	DPE-2 Property Query	
DPE-1.0-int-011	DPE-2 Property Policy Set and Report	
DPE-1.0-int-012	DPE-2 Property Policy Release	
DPE-1.0-int-020	DPE-2 Group Set and Query	
DPE-1.0-int-021	DPE-2 Group Release	
DPE-1.0-int-022	DPE-2 Group Policy Set and Report	
DPE-1.0-int-023	DPE-2 Group Policy Release	
DPE-1.0-int-030	DPE-2 Any-Change Policy	
DPE-1.0-int-031	DPE-2 Exact-Match Policy	
DPE-1.0-int-032	DPE-2 List-Match Policy	
DPE-1.0-int-033	DPE-2 In-Range Policy	
DPE-1.0-int-034	DPE-2 Out-Of-Range Policy	
DPE-1.0-int-035	DPE-2 Property-Support Policy	
DPE-1.0-int-036	DPE-2 Scheduled Policy	
DPE-1.0-int-040	DPE-3 Property Query	
DPE-1.0-int-041	DPE-3 Property Policy Set and Report	
DPE-1.0-int-042	DPE-3 Property Policy Release	
DPE-1.0-int-050	DPE-3 Group Set and Query	
DPE-1.0-int-051	DPE-3 Group Release	
DPE-1.0-int-052	DPE-3 Group Policy Set and Report	
DPE-1.0-int-053	DPE-3 Group Policy Release	
DPE-1.0-int-060	DPE-3 Any-Change Policy	
DPE-1.0-int-061	DPE-3 Exact-Match Policy	
DPE-1.0-int-062	DPE-3 List-Match Policy	
DPE-1.0-int-063	DPE-3 In-Range Policy	
DPE-1.0-int-064	DPE-3 Out-Of-Range Policy	
DPE-1.0-int-065	DPE-3 Property-Support Policy	
DPE-1.0-int-066	DPE-3 Scheduled Policy	
DPE-1.0-int-070	DPE-3 Client ID Query	
DPE-1.0-int-071	DPE-3 Client ID Report	
DPE-1.0-int-080	DPE-1 commands in HTTP responses	
DPE-1.0-int-081	DPE-2 commands in HTTP responses	

Table 3: Listing of Tests to be Performed at TestFest

# 5.5 Enabler Test Reporting

## 5.5.1 Problem Reporting Requirements

Normal Reporting, no special reporting required.

## 5.5.2 Enabler Test Requirements

Normal Reporting, no special reporting required.

## 6. Alternative Validation Activities

The enabler might be validated through some bilateral test sessions or several virtual test fests. In total the number of sessions should not be smaller than the ones required to validate the enabler through normal Test Fest.

No special requirements or restrictions are applicable to these methods of validation other than the one said above.

# 7. Approval Criteria

The DPE 1.0 Enabler can be put in the Approved state when:

- The Enabler has been tested successfully at 3 Test Fests
- No open PRs exist.

### 7.1 Enabler Validation Test Cases

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

Test Case Id	ETR Requirement Id	ETR Status	Notes
<test case="" id=""></test>	<etr id=""></etr>	<m> or <o></o></m>	
<test case="" id=""></test>	<etr id=""></etr>		

**Table 4: 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	Notes
	Status	
<etr id=""></etr>	<m> or</m>	
	<o></o>	

**Table 5: Non-Covered ETR Requirements** 

# Appendix A. Change History

# (Informative)

# A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

## A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions	05 Aug 2009	All	First draft
OMA-EVP-DPE-V1 0	01 Jun 2010	5.1.3,	Incorporated CR:
_		5.4.2	OMA-IOP-BRO-2010-0031-CR_DPE_EVP_Review_Updates
Candidate Version	29 Jun 2010	n/a	Status changed to Candidate by TP
OMA-EVP-DPE-V1_0			OMA-TP-2010-0247-INP_DPE_10_EVP_for_Candidate_Approval