Enabler Test Specification for DM DiagMon V1_1

Candidate Version 1.1 – 10 Jan 2012

Open Mobile Alliance

OMA-ETS-DiagMon-V1_1-20120110-C

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1. Scope

This document describes in detail available test cases for DiagMon 1.1

The test cases are split in two categories, conformance and interoperability test cases.

The conformance test cases are aimed to verify the adherence to normative requirements described in the technical specifications.

The interoperability test cases are aimed to verify that implementations of the specifications work satisfactory.

If either conformance or interoperability tests do not exists at the creation of the test specification this part should be marked not available.

2. References

2.1 Normative References

[IOPPROC] "OMA Interoperability Policy and Process", Open Mobile Alliance™, OMA-ORG-IOP_Process-, 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

[ERELD] "Enabler Release Document for DiagMon 1.1", Open Mobile Alliance™, OMA-ERELD-DiagMon-V1_1, URL:http://www.openmobilealliance.org/

2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Version 2.7, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_7, URL:http://www.openmobilealliance.org/

[OMADM] OMA Device Management, Version 1.2. Open Mobile Alliance™. 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.

The following numbering scheme is used:

xxx-y.z-con-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
’con’	Indicating this test is a conformance test case
number	Leap number for the test case

Or

xxx-y.z-int-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
’int’	Indicating this test is a interoperability test case
number	Leap number for the test case

3.2 Definitions

Device	see [OMADICT]
Device Management	Management of the Device configuration and other managed objects of Devices from the point of view of the various Management Authorities. Device Management includes: - Setting initial configuration information in Devices - Subsequent updates of persistent information in Devices - Retrieval of management information from Devices - Processing events and alarms generated by Devices
Diagnostics and Monitoring Function	Functions in a device that can be remotely invoked by a Diagnostics and Monitoring System, that, when invoked, executes a diagnostics related logic to return results
Diagnostics and Monitoring System	A system that is associated with the Device Management System and is also under the administration of a management authority. It employs the standard Device Management System interaction with a (set of) device(s). The Diagnostics and Monitoring System provides enhancements to the Device Management System to support Diagnostics and Monitoring.
Trap	A mechanism employed by a management authority to enable the Device to capture and report events and other relevant information generated from various components of the Device, such as a protocol stack, device drivers, or applications.

3.3 Abbreviations

AD	Architecture Document
DDF	Device Description Framework

DiagMon	Diagnostics and Monitoring
DiagMon 1.1	Diagnostics and Monitoring Functions
MO	Management Object
OMA	Open Mobile Alliance
RD	Requirements Document
URI	Uniform Resource Identifier
URL	Uniform Resource Locator

4. Introduction

The purpose of this document is to provide test cases for Device Management DiagMon Enabler Release 1.1.

This document describes in detail available test cases for Device Management DiagMon 1.1 Enabler Release, http://www.openmobilealliance.org/.

The implementation of some features is optional for the Clients and/or the Servers in the DiagMon Enabler. The tests associated with these optional features are marked as "(Includes Optional Features)" in the test specification.

The following items on an overall level are needed to adequately test the DM DiagMon 1.1 Enabler:

- A DM Client in the device that is configured to interact with a DM Server
- A DM Server capable of accessing and setting the DM DiagMon Management Objects (MO's) in a device
- An SCTS (SyncML Conformance Test Suite), if necessary

Detailed information will be included in the specific test case descriptions.

The DM DiagMon 1.1 Enabler tests are carried out using OMA DM 1.2 protocols [OMADM].

5. DM DiagMon 1.1 Conformance Test Cases

Not Available.

6. DiagMon 1.1 Interoperability Test Cases

6.1 DiagMon-1.1-int-001 MO Integrity of a DiagMon Function

Test Case Id	DiagMon-1.1-int-001
Test Object	Client and Server device under test.
Test Case Description	To validate the integrity of a Diagnostics and Monitoring function on the device which is not an "always available" function
Specification Reference	Section 5
SCR Reference	DIAG-T-001-M DIAG-T-002-M DIAG-T-003-O DIAG-T-004-M
ETR Reference	None
Tool	None
Test code	None
Preconditions	1. The Device has a diagnostic and monitoring capability that is manageable by the DiagMon MO. 2. The function is not defined as "always available" 3. The function's MO may contain the Status node 4. The function's MO contains the Operations/Start node 5. The function's MO may contain the Operations/Stop node
Test Procedure	1. In the DM Server, configure to retrieve the tree structure of the diagnostics and monitoring function under test. 2. Establish the connection triggered by DM Server using notification message. 3. Complete the DM session. 4. Check the DM session has completed successfully.
Pass-Criteria	1. DM sessions complete without errors. 2. The returned tree structure contains the nodes listed in the preconditions with the expected characteristics.

Table 1 – Test Information for MO Integrity of a DiagMon Function Interoperability Test

6.2 DiagMon-1.1-int-002 Starting a DiagMon Function

Test Case Id	DiagMon-1.1-int-002
Test Object	Client and Server device under test.
Test Case Description	To test starting a Diagnostics and Monitoring function on the device
Specification Reference	Section 5
SCR Reference	DIAG-C-001-M, DIAG-S-001-M, DIAG-S-002-M

ETR Reference	Invoke
Tool	None
Test code	None
Preconditions	6. The Device has a diagnostic and monitoring capability that is manageable by the DiagMon MO. 7. The function is not defined as "always available" 8. The function's MO contains the Status node 9. The function's MO contains the Operations/Start node 10. The function is currently not started.
Test Procedure	5. Perform a Get on the Status node and verify that the value is "Stopped". 6. start the diagnostics and monitoring function under test by performing an EXEC on the Operations/Start node 7. Establish the connection triggered by DM Server using notification message. 8. Complete the DM session. 9. Check the DM session has completed successfully. 10. Verify that the selected diagnostics and monitoring function has been started by performing a GET on the Status node and checking that its value is "Running".
Pass-Criteria	3. DM sessions complete without errors. 4. Diagnostics and Monitoring function is running 5. Result code of the Exec on the Operations/Start node marks success 6. If available, verify by other means that the function is running 7. The value of the Status node is "Running"

Table 2: Test Information for Starting a DiagMon Function Interoperability Test

6.3 DiagMon-1.1-int-003 Data Collection of a DiagMon Function

Test Case Id	DiagMon-1.1-int-003
Test Object	Client and Server device under test.
Test Case Description	To test the data collection of the Diagnostics and Monitoring function on the device
Specification Reference	Section 5.4, 6.2.1.2
SCR Reference	DIAG-C-001-M, DIAG-C-003-O, DIAG-S-002-M, DIAG-S-004-O
ETR Reference	Retrieve
Tool	None
Test code	None

Preconditions	1. The Device has a diagnostic and monitoring capability that is manageable by the DiagMon MO. 2. The function is currently not running or is not collecting data. 3. The function is not defined as "always available". Alternatively, if the function is always available, invocation of the function is implied upon installing the DiagMon function (see 6.1)
Test Procedure	1. In the DM Server, start the diagnostics and monitoring function under test via EXEC command on the <x>/Operations/Start node (step skipped for always available functions). 2. Establish the connection triggered by DM Server using notification message. 3. Complete the DM session. 4. Check the DM session has completed without any errors. 5. Check whether the selected diagnostics and monitoring function has collected data via a GET command by the server to the appropriate node(s) containing collected the DiagMon data.
Pass-Criteria	1. DM session completes without any errors. 2. Diagnostics and Monitoring data is received by the DM server via a Get command. 3. Result code(s) marks success

Table 3: Test Information for Data Collection a DiagMon Function Interoperability Test

6.4 DiagMon-1.1-int-004 Reporting DiagMon Results via Generic Alert

Test Case Id	DiagMon-1.1-int-004
Test Object	Client and Server device under test.
Test Case Description	To test results and data collection of the Diagnostics and Monitoring function on the device
Specification Reference	Section 5.4, 6.2.1.1
SCR Reference	DIAG-C-001-M, DIAG-C-002-O, DIAG-S-001-M, DIAG-S-002-M, DIAG-S-003-O
ETR Reference	Generic Alert
Tool	None
Test code	None
Preconditions	1. The Device has a diagnostic and monitoring capability that is manageable by the DiagMon MO. 2. The function is not defined as "always available".. 3. The Operations/Start node is present 4. The Status node is present 5. The function is currently stopped

Test Procedure	1. In the DM Server, start the diagnostics and monitoring function under test via 'EXEC' command on the <x>/Operations/Start node. 2. Establish the connection triggered by DM Server using notification message. 3. Complete the DM session. 4. Check the DM session has completed without any errors. 5. Device collects DiagMon data associated with the function. 6. Upon completing data collection (or after a function-defined interval), the DM Client sends the status and collected data to the DM Server via a Generic Alert.
Pass-Criteria	1. DM session completes without any errors. 2. Diagnostics and Monitoring data is received by the DM server via the Generic Alert. 3. Result code(s) marks success

Table 4: Test Information for Reporting DiagMon Results Interoperability Test

6.5 DiagMon-1.1-int-005 Stopping a DiagMon Function

Test Case Id	DiagMon-1.1-int-005
Test Object	Client and Server device under test.
Test Case Description	To test stopping data collection of the Diagnostics and Monitoring function on the device, not applicable to "always available" functions.
Specification Reference	Section 5.4, 6.2.1.2
SCR Reference	DIAG-C-001-M, DIAG-S-001-M
ETR Reference	Stop
Tool	None
Test code	None
Preconditions	1. The Device has a diagnostic and monitoring capability that is manageable by the DiagMon MO. 2. The function is currently running. 3. The function is not defined as "always available". 4. The Operations/Stop node is present 5. The Status node is present
Test Procedure	1. Establish the connection to the DM client. 2. Perform a Get on the Status node and verify that the value is "Running". 3. Stop the function by performing an 'EXEC' command on the <x>/Operations/Stop node, 4. Complete the DM session. 5. Check the DM session has completed without any errors. 6. Perform a Get on the Status node

Pass-Criteria	1. DM session completes without any errors. 2. The Get operation on Status node returns the value “Stopped”. 3. Result code(s) mark success 4. If available, verify by other means that the function is stopped

Table 5: Test Information for Stopping a DiagMon Function Interoperability Test

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 1.1 History

Document Identifier	Date	Sections	Description
OMA-DM-DiagMon 1.1	29 Nov 2011	All	Initial draft document for DiagMon version 1.1
Candidate Version OMA-ETS-DiagMon-V1_1	10 Jan 2012	n/a	Status changed to Candidate by TP TP Ref# OMA-TP-2011-0446-INP_DiagMon_v1_1_ETS_for_Candidate_Approval