Device Capability Management Object

Approved Version 1.0 – 10 Apr 2012

Open Mobile Alliance

OMA-TS-DCMO-V1_0-20120410-A

Contents

Figures

Tables

1. Scope

This document defines the Device Capability Management Object employed in a Device Capability management process that leverages OMA DM protocol [DMPRO]. It also defines client and server-side behaviour associated with Device Capability Management Object necessary to manage the Device Capabilities.

The DCMO enabler is based on OMA DM enabler and makes use of the functionalities provided by OMA DM v1.2 [DMPRO] protocol to remotely manage the device capabilities.

The mechanisms defined in this document fulfils the functional capabilities needed to support DCMO enabler as described in the DCMO Requirements document [DCMO-RD] and comply to the architecture defined in DCMO Architecture document [DCMO-AD].

2. References

2.1 Normative References

[DCMO-AD] "DCMO Architecture", Version 1.0, Open Mobile Alliance, OMA-AD_DCMO-V1_0, URL: http://www.openmobilealliance.org/

[DCMO-RD] "DCMO Requirements", Version 1.0, Open Mobile Alliance, OMA-RD_DCMO-V1_0, URL: http://www.openmobilealliance.org/

[DMPRO] "OMA Device Management Protocol", Version 1.2, Open Mobile Alliance, OMA-TS-DM_Protocol-V1_2, URL:http://www.openmobilealliance.org/

[DMREPRO] "OMA DM Representation Protocol", Version 1.2, Open Mobile Alliance, OMA-TS-DM_RepPro-V1_2, URL: http://www.openmobilealliance.org/

[DPE-TS] "Device Profile Evolution Technical Specification", Open Mobile Alliance, OMA-TS-DPE-V1_0, 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

[SCRRULES] "SCR Rules and Procedures", Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL: http://www.openmobilealliance.org/

2.2 Informative References

[DMStdObj] "OMA Device Management Standardized Objects", Version 1.2, Open Mobile Alliance™ OMA-TS-DM-DMStdObj-V1_2, URL: http://www.openmobilealliance.org

[DMTND] "OMA Device Management Tree and Description", Version 1.2, Open Mobile Alliance™ OMA-TS-DM-DMTND-V1_2, URL: http://www.openmobilealliance.org

[OMADICT] "Dictionary for OMA Specifications", Version 2.7, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_7, 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” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

DCMO Alert	DCMO specific alerts which convey the result of DCMO Operations or report the discovery of new device capability via DM Generic Alert mechanism [DMPRO].
DCMO Operations	Operations (e.g. enable, disable) which may be invoked on a Device Capability MO.
Device	see [OMADICT]
Device Capability	Physical characteristics and related parameters supported by a device.
Management Object	A data model for information which is a logical part of the interfaces exposed by DM components.
Primitive	Operation that transfers Device Capability to a different state.

3.3 Abbreviations

CDMA	Code Division Multiple Access
DCMO	Device Capability Management Object
DM	Device Management
DPE	Device Profile Evolution
EDGE	Enhanced Data Rate for GSM Evolution
GNSS	Global Navigation Satellite System
GPRS	General Packet Radio Service
GPS	Global Positioning System
LTE	Long Term Evolution
MO	Management Object
MOI	Management Object Identifier
NFC	Near Field Communication
OMA	Open Mobile Alliance
TD-SCDMA	Time Division-Synchronous Code Division Multiple Access
USB	Universal Serial Bus
WCDMA	Wideband Code Division Multiple Access
WLAN	Wireless Local Area Network
WiMAX	Worldwide Interoperability for Microwave Access

4. Introduction

Mobile devices are becoming more and more advanced with many features, such as Cameras, Bluetooth, USB, keyboard, peripheral and more. In many circumstances Enterprises, regulations and others have policies against the usage of some features but allow the use of other features available on mobile devices. Therefore there is a need for selectively enabling and disabling device capabilities.

The DCMO enabler targets to specify the mechanisms required for the remote management of device capabilities. In particular it will address the ability of remote enablement and disablement of device capabilities. The device capability information will be exposed by DCMO to facilitate management of the Device Capabilities. The DCMO enabler also specifies the mechanisms to convey the result of DCMO Operations or report the discovery of new device capability via DM Generic Alert mechanism [DMPRO].

The objective of this document is to define the Device Capability Management Object and associated client and server-side behaviour for managing device capabilities.

5. Device Capability Management Framework

5.1 Device Capability

In the context of DCMO, the Device Capabilities are physical characteristics and related parameters supported by a Device, which MAY include camera, memory, display screen, keyboard, USB port, Bluetooth, WLAN, etc.

The metadata associated with a Device Capability consists of property, group and description. The values of the metadata SHOULD be provided by the DPE Vocabulary [DPE-TS].

5.1.1 Device Capability State Machine and Primitives

Primitives trigger transition of a Device Capability from one state to another. The Device internal operations and state transitions MUST appear to be atomic. If a state transition fails the DCMO Client MUST reverse the operation and makes sure the Device Capability remains in the previous state.

The Device Capability MUST be in one of the following states:

a) Enabled State

b) Disabled State

The Enable/Disable Primitives which can be executed by the authorized DCMO Client or DCMO Server are described below:

Primitive	Description	Applicable states	Post-Primitive state	Primitive support
Enable	This Primitive is used to enable a Device Capability within the Device.	Disabled	Enabled	MUST be supported
Disable	This Primitive is used to disable a Device Capability within the Device.	Enabled	Disabled	MUST be supported

The following state diagram shows the transitions:

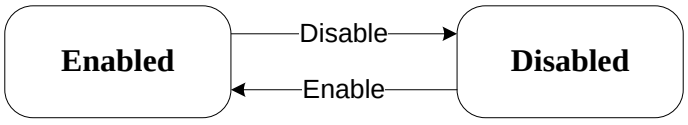

Figure 1: Device Capability State Machine

5.1.1.1 Enabled state

In the Enabled State the Device Capability is is enabled. In this state the Device Capability is allowed to work when it is attached to the Device.

The DCMO Client MUST support this state.

5.1.1.2 Disabled State

In the Disabled State the Device Capability is disabled. In this state the Device Capability is not allowed to work.

The DCMO Client MUST support this state.

6. Standardized Device Capability Management Object

6.1 Introduction to Management Objects (Informative)

Management objects are the entities that can be manipulated by management actions carried over the OMA DM protocol. A Management Object can be as small as an integer or large and complex like a background picture, screen saver, or security certificate. The OMA DM protocol is neutral about the contents, or values, of the Management Objects and treats the node values as opaque data.

6.1.1 Definition and description of Management Objects

OMA DM Management Objects are defined using the OMA DM Device Description Framework [DMTND], or DDF. The use of this description framework produces detailed information about the device in question. However, due to the high level of detail in these descriptions, they are sometimes hard for humans to digest and it can be a time consuming task to get an overview of a particular object's structure.

In order to make it easier to quickly get an overview of how a Management Object is organized and its intended use, a simplified graphical notation in the shape of a block diagram is used in this document. Even though the notation is graphical, it still uses some printable characters, e.g. to denote the number of occurrences of a node. These are mainly borrowed from the syntax of DTDs for XML. The characters and their meaning are defined in the following table.

Character	Meaning
+	one or many occurrences
*	zero or more occurrences
?	zero or one occurrences

If none of these characters is used the default occurrence is exactly once.

There is one more feature of the DDF that needs to have a corresponding graphical notation, the un-named block. These are blocks that act as placeholders in the description and are instantiated with information when the nodes are used at run-time. Un-named blocks in the description are represented by a lower case character in italics, e.g. *x*.

Each block in the graphical notation corresponds to a described node, and the text is the name of the node. If a block contains an *x,* it means that the name is not known in the description and that it will be assigned at run-time. The names of all ancestral nodes are used to construct the URI for each node in the Management Object. It is not possible to see the actual parameters, or data, stored in the nodes by looking at the graphical notation of a Management Object.

For a further introduction to this graphical notation, please refer to [DMStdObj].

6.2 DDF compliance

The Management Object descriptions in this document are normative. However, the descriptions also contain a number of informative aspects that could be included to enhance readability or serve as examples. Other informative aspects are, for instance, the ZeroOrMore and OneOreMore elements, where implementations may introduce restrictions. All these exceptions are listed here:

- All XML comments, e.g. "<!-- some text -->", are informative.
- The descriptions do not contain an RTProperties element, or any of its child elements, but a description of an actual implementation of this object MAY include these.

- If a default value for a leaf node is specified in a description, by the DefaultValue element, an implementation MUST supply its own appropriate value for this element. If the DefaultValue element is present in the description of a node, it MUST be present in the implementation, but MAY have a different value.
- The value of all Man, Mod, Description and DFTitle elements are informative and included only as examples.
- Below the interior nodes Ext and BearerParams, an implementation may add further nodes at will.
- The contents of the AccessType element MAY be extended by an implementation.
- If any of the following AccessType values are specified, they MUST NOT be removed in an implementation: Copy, Delete, Exec, Get, and Replace.
- If the AccessType value Add is specified it MAY be removed in an implementation if the implementation only supports a fixed number of child nodes.
- An implementation MAY replace the ZeroOrMore or OneOreMore elements with ZeroOrN or OneOrN respectively. An appropriate value for *N* must also be given with the …*OrN* elements.

6.2.1 Conformance Definitions

The status definition in the node definitions indicates if the client supports that node or not. If the status is "Required" then the client MUST support that node in the case the client supports the parent node.

7. Device Capability Management Object

7.1 Figure of the Management Object (Informative)

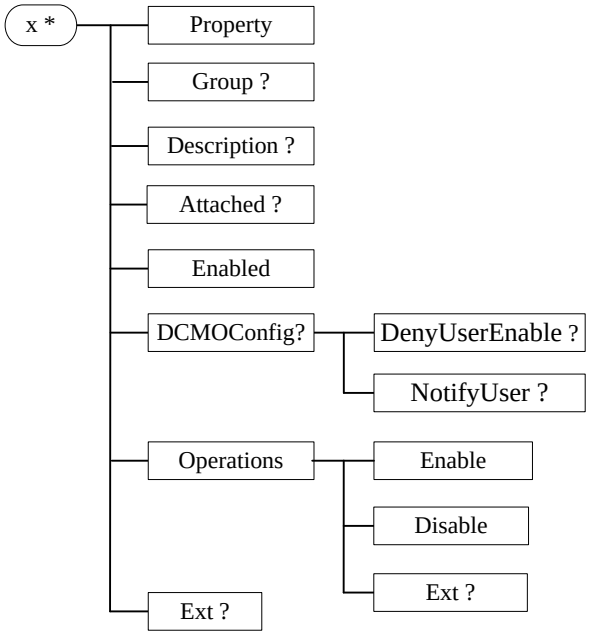

Figure 2: Device Capability Management Object

7.2 Device Capability Management Object Parameters

Device Capability Management Object consists of following parameters:

<x>

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Get

This interior node groups together the parameters of a DCMO for a particular Device Capability. The ancestor elements of this node define the position in the DM tree of this MO. For each Device Capability that is going to be managed, a corresponding DCMO instance will be available to make it capable to be managed by the DCMO Server.

The type of this node MUST be the DCMO MOI 'urn:oma:mo:oma-dcmo:1.0'.

<x>/Property

Status	Tree Occurrence	Format	Min. Access Types
Required	One	chr	Get

This leaf node specifies the property name, which is defined in section 6.2 "DPE vocabulary List" of [DPE-TS], for a Device Capability.

<x>/Group

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

This node specifies the group name, defined in section 6.1 “Grouping of properties” of [DPE-TS],for a collection of Device Capabilities.

<x>/ Description

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

This leaf node specifies the description for this Device Capability.

<x>/Attached

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	bool	Get

This leaf node indicates whether the Device Capability is removable and whether it is currently attached to the device. If the leaf exists then the Device Capability is removable. If the value of this node is “True” the Device Capability is currently attached to the device; if the value of this node is “False” the Device Capability is currently detached from the device;

<x>/Enabled

Status	Tree Occurrence	Format	Min. Access Types
Required	One	bool	Get

This leaf node indicates whether the Device Capability is enabled regardless whether the Device Capability is attached or not. If the value of this node is “True” the Device Capability is in Enabled State. If the value of is “False” the Device Capability is in Disabled State;

The ‘Attached’ property is independent of ‘Enabled’ property. A Device Capability MAY have ‘True’ as value for ‘Enabled’ node while having ‘False’ as value for the ‘Attached’ node. That means the Device Capability is still not available and can’t be used until it is attached to the Device, but will be useable once the Device Capability is attached.

<x>/DCMOConfig

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

This interior node groups together the configuration parameters for the DCMO.

<x>/DCMOConfig/DenyUserEnable

Status	Tree Occurrence	Format	Min. Access Types
Required	ZeroOrOne	bool	Get

This leaf node specifies whether the user is able to enable a Device Capability. If the node is not present or the value is False, the user is allowed to enable the Device Capability. If the node is present and the value is True, the user is not allowed to enable the Device Capability.

<x>/DCMOConfig/NotifyUser

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	bool	Get

This leaf node specifies whether the user is notified with the DCMO Operation result when enable/disable Primitive is executed. If the node is not present or the value is ‘False’, the user will not be notified about the result of the operation. If the node is present and the value is ‘True’, the user will be notified about the result of the operation.

<x>/Operations

Status	Tree Occurrence	Format	Min. Access Types
Required	One	node	Get

This node is a parent node for Operations that can be executed for Device Capability in the device.

<x>/Operations/Enable

Status	Tree Occurrence	Format	Min. Access Types
Required	One	null	Exec

This node is used with Exec command to enable the Device Capability to transfer the Device Capability from Disabled State to Enabled state.

<x>/Operations/Disable

Status	Tree Occurrence	Format	Min. Access Types
Required	One	null	Exec

This node is used with Exec command to disable the Device Capability to transfer the Device Capability from Enabled State to Disabled State.

<x>/Operations/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

This node designates a branch of the Operations sub-tree into which vendor extensions MAY be added, permanently or dynamically. Ext sub trees, such as this one, are included at various places in the Device Capability Management Object to provide flexible points of extension for vendor-specific parameters. However, vendor extensions MUST NOT be defined outside of one of these Ext sub-trees.

<x>/Ext

Status	Tree Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

This node designates a branch of the <x> sub-tree into which vendor extensions MAY be added, permanently or dynamically. Ext sub trees, such as this one, are included at various places in the Device Capability Management Object to provide flexible points of extension for vendor-specific parameters. However, vendor extensions MUST NOT be defined outside of one of these Ext sub-trees.

8. Groups and Device Capabilities from DPE Vocabulary

Device properties are classified into four groups in DPE Vocabulary [DPE-TS] as follow:

- Hardware
- I/O
- Connectivity
- Software

The DCMO Enabler will be responsible to manage the Device Capabilities fall into the first three groups. In particular those Device Capabilities need to support Primitives defined in section 5.1.1. The following Device Capabilities defined in DPE Vocabulary [DPE-TS] are able to be managed by DCMO Enabler.

Group Name	Device Capability Name	Description
Hardware	ExternalMemory	Used to enable/disable the removable card memory or storage disk.
	Display	Used to enable/disable the display screen.
	Camera	Used to enable/disable the camera.
	Speaker	Used to enable/disable the speaker.
I/O	Tethering	Used to enable/disable the device to be attached to other devices.
	AudioInputEncoder	Used to enable/disable the audio input encoder.
	AttachedDevice	Used to enable/disable the capability to allow other devices to be attached to this device.
	Keyboard	Used to enable/disable the keyboard
	InputPeripheral	Used to enable/disable the input peripheral.
	OutputPeripheral	Used to enable/disable the output peripheral.
	USB	Used to enable/disable the USB port.
	SerialPort	Used to enable/disable the serial port.
	ParallelPort	Used to enable/disable the Parallel port.
	GPS	Used to enable/disable GPS capability
	GNSS	Used to enable/disable GNSS capability
Connectivity	Bluetooth	Used to enable/disable the Bluetooth connectivity.
	WLAN	Used to enable/disable the WLAN connectivity.
	Infrared	Used to enable/disable the Infrared connectivity.
	WCDMA	Used to enable/disable the WCDMA connectivity
	GPRS	Used to enable/disable the GPRS connectivity
	EDGE	Used to enable/disable the EDGE connectivity
	CDMA	Used to enable/disable the CDMA connectivity
	WiMAX	Used to enable/disable the WiMAX connectivity
	LTE	Used to enable/disable the LTE connectivity
	NFC	Used to enable/disable the NFC connectivity
	TD-SCDMA	Used to enable/disable the TD-SCDMA connectivity

Table 1: Groups and Device Capabilities

9. Behaviour associated with the Management Object

9.1 Exec command semantics

In the DCMO tree the Exec command is only allowed to target Primitives under Operations nodes. After an Exec command to one of the Primitives under Operations node, the DCMO Client MUST send response to the DCMO Server in either of the following ways:

1. Asynchronously if the Exec command is acceptable and will be executed asynchronously.
    - The DCMO Client MUST return status code 202 ("Accepted for processing") for Exec command defined in [DMREPRO]
    - Upon completion of the asynchronous operation, the DCMO Client MUST send an alert back to the server by using the Generic Alert defined in [DMPRO].
2. Synchronously: If the Exec command is acceptable and executed synchronously.
    - If the Exec command is performed, the DCMO Client MUST return appropriate DCMO Result Code in <Status>/<Data> element defined in section 9.5.

Before receiving the Exec command, the following Pre-Condition needs to be satisfied:

- <X>/Operations… (at least one Operation sub-node for the Primitive to be executed)

The Exec command targeting a child node of an Operations node starts the execution of a chosen Primitive. For example:

```
<Exec>
    <CmdID>3</CmdID>
    <Item>
        <Target>
            <LocURI>./DCMO/Capability1/Operations/Enable</LocURI>
        </Target>
    </Item>
</Exec>
```

There are two scenarios that a DCMO Server disables a specific Device Capability:

- The DCMO Server disables the Device Capability and allows other entities, e.g. user or other DM Server to re-enable it.
- The DCMO Server disables the Device Capability and disallows other entities, e.g. user or other DM Server to re-enable it.

The DCMO Server MUST set the 'DenyUserEnable' value to 'True' under the <x> node of a specific Device Capability if it does not allow the user to enable the Device Capability. If the value is set to 'True' and Exec is successfully executed targeting Disable Primitive, the DCMO Client MUST ensure the user is not able to re-enable the corresponding Device Capability.

The DCMO Server MUST assign the appropriate Exec permission on 'Enable' /'Disable' node to control whether other DM Server is allowed to enable/disable a Device Capability.

The DCMO Server MUST set the 'NotifyUser' value to 'True' under the <x> node of a specific Device Capability if it wants the user to be notified with the DCMO Operation result. If the value is set to 'True' and Exec is successfully executed targeting Enable/Disable Primitive, the DCMO Client MUST ensure the user is notified with the result of the DCMO Operation.

9.2 Expose Device Capability in Management Tree

The dynamic node <x> together with its child nodes represents a specific Device Capability exposed by the device to the DCMO Server. The DCMO Client MUST reflect the state of the Device Capability in the values of 'Attached' node and/or 'Enabled' node whenever the state changes as described below:

- For a non-removable Device Capability, the 'Attached' node MUST NOT be present.
- For a removable Device Capability, the 'Attached' node MUST be present. The DCMO Client MUST update the value of 'Attached' node depends on whether the Device Capability is attached to the device. The DCMO Client MUST detect the changed Device Capability. Only the DCMO Client MUST update the value of 'Attached' node. The DCMO Server MUST NOT update the value of 'Attached' node.
- The DCMO Client MUST update the value of 'Enabled' node after the successful execution of Enable or Disable operation. The 'Enabled' node MAY be updated by either the DCMO Client or DCMO Server.

If there are no existing nodes for an attached Device Capability that is supported by the Device, the DCMO Client MUST create the nodes and assign appropriate values for the Device Capability.

9.3 Synchronous Result Reporting

If the Exec command is executed synchronously and succeeds, the DCMO Client MUST send result for Exec command as described below:

- The <Data> element MUST contain a valid DCMO Result Code defined in section 9.5
- The URI of the Primitive node on which the Exec command was invoked – Used to identify the source MUST be included in the <Source>/<LocURI> of <Status>/<Item> element.

The following is the example message:

```
<Status>
  <MsgRef>1</MsgRef>
  <CmdRef>2</CmdRef>
  <Cmd>Exec</Cmd>
  <Data>1200</Data>       <!--DCMO Result status Code -->
  <Item>
    <Source>
      <LocURI>./DCMO/Capability123/Operations/Enable</LocURI>
    </Source>
  </Item>
</Status>
```

9.4 Asynchronous Result Reporting Using Generic Alert

If the Exec command is executed asynchronously, the device MUST send a DCMO Alert to the DCMO Server about the result of the operation via a Generic Alert message. Reader can refer to [DMPRO] for detail information about Generic Alert mechanism. The alert message includes the following data:

- The URI of the Primitive node on which the Exec command was invoked MUST be included in the <Source>/<LocURI> element
- An integer Result Code – Used to report result of the operation. The appropriate DCMO Result Code defined in section 9.5 MUST be included in an Item/Data element.

- The alert type MUST be included in <Meta>/<Type> element.

The following is the example message:

```
<Alert>
  <CmdID>2</CmdID>
  <Data>1226</Data>       <!-- Alert Code for Generic Alert -->
  <Item>
     <Source>
       <LocURI>./DCMO/Capability123/Operations/Enable</LocURI>
     </Source>
     <Meta>
      <Type xmlns="syncml:metinf">urn:oma:at:dcmo:1.0:OperationComplete</Type>
      <Format xmlns="syncml:metinf">int</Format>
      <Mark xmlns="syncml:metinf">warning</Mark>
     </Meta>
     <Data>1401</Data>     <!-- DCMO Result Code -->
  </Item>
</Alert>
```

9.5 DCMO Result Code

The DCMO Result Code MUST be sent as an integer value in <Item>/<Data> element of the DCMO Alert message or in response to an Exec command in case of synchronous execution. The Result Code MUST be one of the values defined below:

Result Code	Result Message	Informative Description of Status Code Usage
1200	Operation Succeeds	Operation is performed successfully
1201	Device Capability is enabled and attached	Enable operation is performed successfully and the Device Capability is currently attached.
1202	Device Capability is enabled and detached	Enable operation is performed successfully but the Device Capability is currently detached.
1203	Device Capability is disabled and User is not allowed to re-enable it	Device Capability is disabled and User is not allowed to re-enable it
1204	Device Capability is disabled and User is allowed to re-enable it	Device Capability is disabled and User is allowed to re-enable it
1400	Client Error	Client error – based on User or Device behaviour
1401	User cancelled	User chose not to accept the operation when prompted
1402	Operation Failed	The DCMO Operation failed
1450-499	Client Error – Vendor Specific	Client Error encountered for Operation with Vendor Specified Result Code

9.6 Alert Types for DCMO

The following alert types MUST be used in a Generic Alert [DMPRO] message originating from a Device Capability Management Object. The alert type is used to identify the operation that was performed on the Device.

- “urn:oma:at:dcmo:1.0:OperationComplete”: This alert type is used to claim that the alert message conveys the result of DCMO Operation(s) that was performed on the device.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-TS-DCMO-V1_0	10 Apr 2012	Status changed to Approved by TP: OMA-TP-2012-0155-INP_DCMO_V1.0_ERP_for_final_Approval

Appendix B. Static Conformance Requirements (Normative)

The notation used in this appendix is specified in [SCRRULES].

B.1 SCR for DCMO Tree Structure

Item	Function	Reference	Requirement
DCMO-T-001-M	Use of appropriate management object identifier for the DCMO root node	Section 7.2	
DCMO-T-002-M	Support for Required nodes under root node	Section 7.2	
DCMO-T-003-O	Support for Optional nodes	Section 7.2	
DCMO-T-004-M	Support for Required nodes under an Optional node if the Optional node is supported	Section 7.2	

B.2 SCR for DCMO Client

Item	Function	Reference	Requirement
DCMO-C-001-M	Support for Enable Operation	Section 7.2	
DCMO-C-002-M	Support for Disable Operation	Section 7.2	
DCMO-C-003-O	Support for Add of <x>/DCMOConfig/DenyUserEnable	Section 7.2	
DCMO-C-004-O	Support for Replace of <x>/DCMOConfig/DenyUserEnable	Section 7,2	
DCMO-C-005-O	Support to deny user enable operation when ‘DenyUserEnable’ node’s value is ‘True’	Section 7.2	
DCMO-C-006-M	Support synchronous result reporting	Section 9.3	
DCMO-C-007-M	Support asynchronous result reporting	Section 9.4	
DCMO-C-008-M	Support update the status of Device Capability in <x>/Enabled node	Section 9.2	
DCMO-C-009-M	Support update the status of Device Capability in <x>/Attached node	Section 9.2	
DCMO-C-010-M	Support adding DCMO for a Device Capability to expose it to DM Server	Section 9.2	

B.3 SCR for DCMO Server

Item	Function	Reference	Requirement
DCMO-S-001-M	Support for the Device Capability Management Object	Section 7.2	