

# Introduction to Device Management



## Concepts

This table explain briefly the concepts around Device Management Enabler (or service) its protocol and how device functions are exposed (via a management tree) to the remote server

Concept	Description	Diagram
<b>Device Management, (DM) Enabler</b>	The <i>OMA DM Client</i> exposes the device internal data to the <i>OMA DM Server</i> in the form of a hierarchic tree known as the “ <b>DM Tree</b> ”: it is made up of different building blocks (or sub-trees) called <b>Management Objects</b> providing specific functionality in the management of devices. In other words, the management of a device feature consists of the management of the DM Tree, which virtualizes the device features and functionalities.	<p>The diagram illustrates the architecture of Device Management. On the left, a smartphone icon represents the <b>Device Management Enabler (DM Client)</b>. It is connected to a box labeled <b>Resources</b> (Parameters or any type of objects, executables, trap). This box is connected via a <b>Device specific interface</b> to a dashed box representing the <b>DM Tree</b>. Inside the DM Tree, there are several blue squares representing <b>Management Objects (MO)</b>. The DM Tree is connected to a <b>DM server</b> (represented by a server icon) through the <b>DM interface (DM Protocols)</b>. Below the DM interface, a double-headed arrow indicates the supported operations: <b>Add, get, replace, exec, copy, result, status, etc.</b></p>

<b>Device Management Protocol</b>	<p>Protocol Commands:</p> <ul style="list-style-type: none"> <li>• <b>Get:</b> Retrieves the value associated with the target node in the <b>Management Tree</b></li> <li>• <b>Replace:</b> Sets the value associated with the target node, overwriting the previous value of the node</li> <li>• <b>Add:</b> Creates a new node at the specified location in the <b>Management Tree</b>. The new node can be a leaf node or the root node for a management object</li> <li>• <b>Delete:</b> Deletes a node, and the entire sub-tree beneath that node, if one exists</li> <li>• <b>Exec:</b> Executes a predefined function, that is statically bound to the target node, on the device. Examples include initiating software download, running a diagnostic test etc.</li> <li>• <b>Copy:</b> Replicates the structure and the node values associated with a sub-tree at one location to a different location within the <b>Management Tree</b>.</li> </ul>
<b>Device Management Tree</b>	<p>The <b>OMA DM protocol</b> supports the notion of <b>Management Objects (MOs)</b>. These are abstract representations of remotely manageable capabilities exposed by the device. All the available <b>MOs</b> pertaining to a device are organized in a hierarchical tree structure known as the <b>Management Tree</b>. The <b>Management Tree</b> may be looked upon as the complete management view of a device's configuration and operational status. Different <b>DM Servers</b> may "see" different trees, depending upon their access rights to different portions of the <b>Management Tree</b>.</p>