



Standard Browser Management Object

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1. Scope

This specification defines a Management Object to describe browser favorites for mobile terminals. It is based firmly on the previously released OMA Client Provisioning Application Characteristic, “w2” [OMAW2]. No additional configuration elements are introduced into this new management object over what was provided in w2: The primary purpose of this release is to provide a schema for use with OMA DM 1.2 which is compatible with OMA CP w2.

The present specification defines a data schema only and does not define any behavioral requirements.

2. References

2.1 Normative References

- [ConnMO] “OMA Connectivity Enabler”, Version 1.0, Open Mobile Alliance™
OMA-ERELED-ConnMO-V1_0,
[URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [OMADM] “OMA Device Management Enabler”, Version 1.2, Open Mobile Alliance™
OMA-ERELED-DM-V1_2,
[URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [RFC1738] “Uniform Resource Locators (URL)”, IETF Network Working Group, December 1994,
[URL:http://www.ietf.org/rfc/rfc1738.txt](http://www.ietf.org/rfc/rfc1738.txt)
- [RFC2119] “Key words for use in RFCs to Indicate Requirement Levels”, S. Bradner, March 1997,
[URL:http://www.ietf.org/rfc/rfc2119.txt](http://www.ietf.org/rfc/rfc2119.txt)
- [RFC2617] “HTTP Authentication: Basic and Digest Access Authentication”, J. Franks, etc., June 1999,
[URL:http://www.ietf.org/rfc/rfc2617.txt](http://www.ietf.org/rfc/rfc2617.txt)

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/](http://www.openmobilealliance.org/)
- [OMAW2] “w2: AC for the Browsing Enabler”, ac_w2_browsing-v1.0, October 2003,
[URL:http://www.openmobilealliance.org/](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](http://www.openmobilealliance.org)
- [DMStdObj] “OMA Device Management Standardized Objects”, Version 1.2, Open Mobile Alliance™
OMA-TS-DM-DMStdObj-V1_2,
[URL: http://www.openmobilealliance.org](http://www.openmobilealliance.org)

3. Terminology and Conventions

3.1 Conventions

This is an informative document, which is not intended to provide testable requirements to implementations.

3.2 Definitions

Please refer to [OMADICT].

3.3 Abbreviations

BMO	Browser Management Object
CP	Client Provisioning
DDF	Device Description Framework
DM	Device Management
OMA	Open Mobile Alliance

4. Introduction

The main objective of this data definition specification is to provide a means for specifying browser favorites and homepage in an OMA DM management environment. These settings can also be specified using the *w2* application characteristic [OMAW2] in an OMA CP provisioning environment. It is anticipated that this data definition specification can be used together with *w2* in an environment that utilizes both OMA DM and OMA CP enablers.

5. Justification

The main objective is to ensure that browser favorites and homepage settings can be specified in an OMA DM environment.

6. Standardized Browser 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 blocks. 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 name within less than and greater than character, 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 defined 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 OneOrMore 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 OneOrMore 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. In other case the node MAY be supported by the client.

6.3 The Browser Management Object

6.3.1 Introduction

The Browser Management Object facilitates management of Browser parameters.

The HomePage node is a special bookmark, in that the browser will automatically go the URL defined for the HomePage/URL. The Favorites are the top-level bookmarks for the browser - similar to toolbars on many modern browsers. The Folders node may contain more bookmarks and folders, but is not required to exist if folders are not supported. OMA DM [OMADM] protocol compatibility for the BMO is version 1.2 or any later compatibility version.

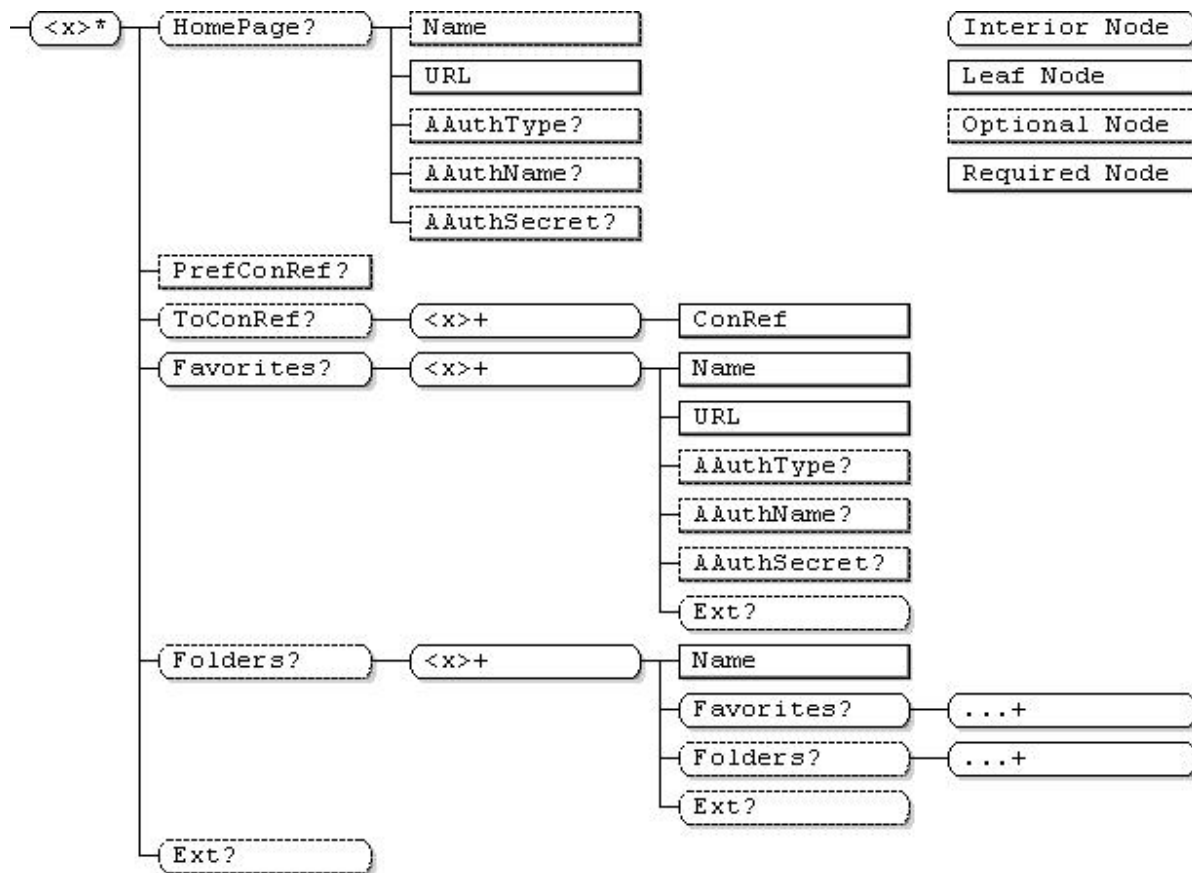


Figure 1: Browser Management Object (Informative)

6.3.2 Node Descriptions

.../<x>

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrMore	node	Get

This interior node specifies the unique object id of a *Browser Management Object*, or BMO. The purpose of this interior node is to group together the parameters of a single BMO object. The ancestor elements of this node define the position in the management tree of the BMO object. The structure of the DM tree and hence positions in the tree of management objects is out of scope of this specification.

Management Object Identifier for the BMO MO MUST be: “urn:oma:mo:oma_bmo:1.0”.

HomePage

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

This interior node is the parent node for the homepage.

HomePage/Name

Status	Occurrence	Format	Min. Access Types
Optional	One	chr	Get

This leaf node contains a name of the homepage.

HomePage/URL

Status	Occurrence	Format	Min. Access Types
Required	One	chr	Get

This leaf node contains the URL of the favorites. The node Favorites/<x>/URL defines the content of this node.

HomePage/AAuthType

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

This leaf node contains the authentication type for the homepage. The node Favorites/<x>/AAuthType defines the content of this node.

HomePage/AAuthName

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

This leaf node contains the username for the homepage. The node Favorites/<x>/AAuthName defines the content of this node.

HomePage/AAuthSecret

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	NO Get

This leaf node contains the password for the homepage. The node Favorites/<x>/AAuthSecret defines the content of this node.

PrefConRef

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

This node specifies a reference to preferred connectivity. It is expected that either a Proxy MO or NAP MO [ConnMO] is specified, but other, implementation-specific connections may be referenced.

ToConRef

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

This interior node groups together network access points (or other connection objects) used by this management object to reach a network.

ToConRef/<x>

Status	Occurrence	Format	Min. Access Types
Required	OneOrMore	node	Get

This interior node distinguishes the connection object identifier nodes. There must be exactly one ConRef node for each of these interior nodes.

ToConRef/<x>/ConRef

Status	Occurrence	Format	Min. Access Types
Required	One	chr	Get

This node specifies a reference to the connectivity. It is expected that either a Proxy MO or NAP MO [ConnMO] is specified, but other, implementation-specific connections may be referenced.

Favorites

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

This is the parent node for all favorites.

Favorites/<x>

Status	Occurrence	Format	Min. Access Types
Required	OneOrMore	node	Get

This interior node distinguishes the different favorites. Management Object Identifier for this sub-tree MUST be: "urn:oma:mo:oma_bmo_favorite:1.0".

Favorites/<x>/Name

Status	Occurrence	Format	Min. Access Types
Required	One	chr	Get

This leaf node contains a name of the favorites.

Favorites/<x>/URL

Status	Occurrence	Format	Min. Access Types
Required	One	chr	Get

This leaf node contains the absolute URL for the favorites. The format is specified in [RFC1738].

Favorites/<x>/AAAuthType

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

This leaf node contains the authentication type if that is needed for the favorites.

Value	Description
HTTP-BASIC	HTTP basic authentication type according to [RFC2617]
HTTP-DIGEST	HTTP digest authentication type according to [RFC2617]

Table 1: Valid Authentication Type

Favorites/<x>/AAAuthName

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	Get

This leaf node contains the username.

Favorites/<x>/AAAuthSecret

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	chr	NO Get

This leaf node contains the password.

Folders

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

This interior node is the parent node for sub-folders of favorites.

Folders/<x>

Status	Occurrence	Format	Min. Access Types
Required	OneOrMore	node	Get

This interior node is the parent node for the folder tree. Management Object Identifier for this sub-tree MUST be: "urn:oma:mo:oma_bmo_folder:1.0".

Folders/<x>/Name

Status	Occurrence	Format	Min. Access Types
Required	One	chr	Get

This leaf node contains the name of the sub-folder.

Folders/<x>/Favorites

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrOne	node	Get

This interior node is the parent node for all favorites in this folder. See the definition for the /Favorites node above.

Folders/<x>/Favorites/...

Status	Occurrence	Format	Min. Access Types
Required	OneOrMore	node	Get

This is only to show that there is a sub-tree at this location but it is not defined in this part of the spec.

Folders/<x>/Folders

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

This interior node is the parent node for all sub-folders at this location. See the definition for the /Folders node above. The client implementation decides how many recursively folders levels are supported.

Folders/<x>/Folders/...

Status	Occurrence	Format	Min. Access Types
Required	OneOrMore	node	Get

This is only to show that there is a sub-tree at this location but it is not defined in this part of the spec.

Ext**Favorites/<x>/Ext****Folders/<x>/Ext**

Status	Occurrence	Format	Min. Access Types
Optional	ZeroOrOne	node	Get

This optional interior node designates the single top-level branch of this management object tree into which vendor extensions MAY be supported, permanently or dynamically. Ext sub trees, such as this one, are included at various places in the management objects to provide flexible points of extension for implementation-specific parameters. However, vendor extensions MUST NOT be defined outside of one of these Ext sub-trees.

7. Operational Considerations

BMO is normatively dependent on the DM 1.2 specifications. However, this normative dependency should not be seen as restricting these MO definitions only to DM clients implementing that version of the DM enabler.

For example, a management authority may exchange BMO data-files using means not specifically defined in the DM 1.2 enabler.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
Approved Version OMA-DDS-DM-BMO-V1_0	06 Apr 2010	Status changed to Approved by TP TP ref# OMA-TP-2010-0131-INP_BMO_V1_0_RRP_for_final_Approval