



OMA DS Management Object

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1. Scope

This document defines the DS Management Object, which offers a standardized way to represent data sync settings within a device's OMA Device Management tree.

The DS Management Object is defined using the OMA DM Device Description Framework (DDF) and the DS Management Object has standardized points of extension to permit implementation-specific parameters to accompany the standardized parameters. This added flexibility is intended to encourage the use of the standardized object while not unnecessarily restricting individual vendor innovations.

2. References

2.1 Normative References

- [AUTH-RFC791] *RFC 791, Internet Protocol, DARPA, 1981,*
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[URL:http://www.ietf.org/rfc/rfc2119.txt](http://www.ietf.org/rfc/rfc2119.txt)

2.2 Informative References

3. Terminology and Conventions

3.1 Conventions

The key words “SHALL”, “SHALL 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

| | |
|-------------------------|--|
| Data Sync Client | An entity refers to the protocol role when the application issues SyncML request messages. For example in data synchronization, the ‘Sync’ SyncML Command in a SyncML Message. |
| Data Sync Server | An entity refers to the protocol role when an application issues SyncML response messages. For example in the case of data synchronization, a ‘Results’ Command in a SyncML Message. |
| Device | Equipment which is normally used by users for communications and related activities. |
| User | An entity which uses services. Example: a person using a data synchronization service. |

3.3 Abbreviations

| | |
|-------------|-----------------------------|
| DM | Device Management |
| DS | Data Synchronization |
| DTD | Document Type Definition |
| HTTP | HyperText Transfer Protocol |
| MO | Management Object |
| NAP | Network Access Point |
| OBEX | Object Exchange Protocol |
| URI | Uniform Resource Identifier |
| WSP | Wireless Session Protocol |
| XML | Extensible Mark-up Language |

4. Introduction

To avoid the situation where each device vendor defines a specialized and non-standard arrangement for managing Data Sync settings, this specification defines the DS Management Object to permit the standardized representation and management of DS settings on devices.

4.1 Version 1.0

The DS MO version 1.0 aims to provide the configuration parameters for the DS Client.

The DS MO version 1.0 can be used for both DS 1.2.x enabler and DS 2.0 enabler.

5. Standardized OMA DS Management Object

The OMA DS management object is used to represent and manage OMA DS settings for the DS client on a managed device. Please refer to [DMStdObj] for the definition and description of "management object".

If DS MO is provisioned together with other management object(s) during bootstrap then [DMTNDs] and [DMBOOT] MUST be used.

The DS Management Object is compatible with OMA DM [OMADM] protocol version 1.2 or any later compatible version.

Management Object Identifier for the DS Management Object SHALL be: "urn:oma:mo:oma-dsmo:1.0".

The following figure provides the structure of the DS management object.

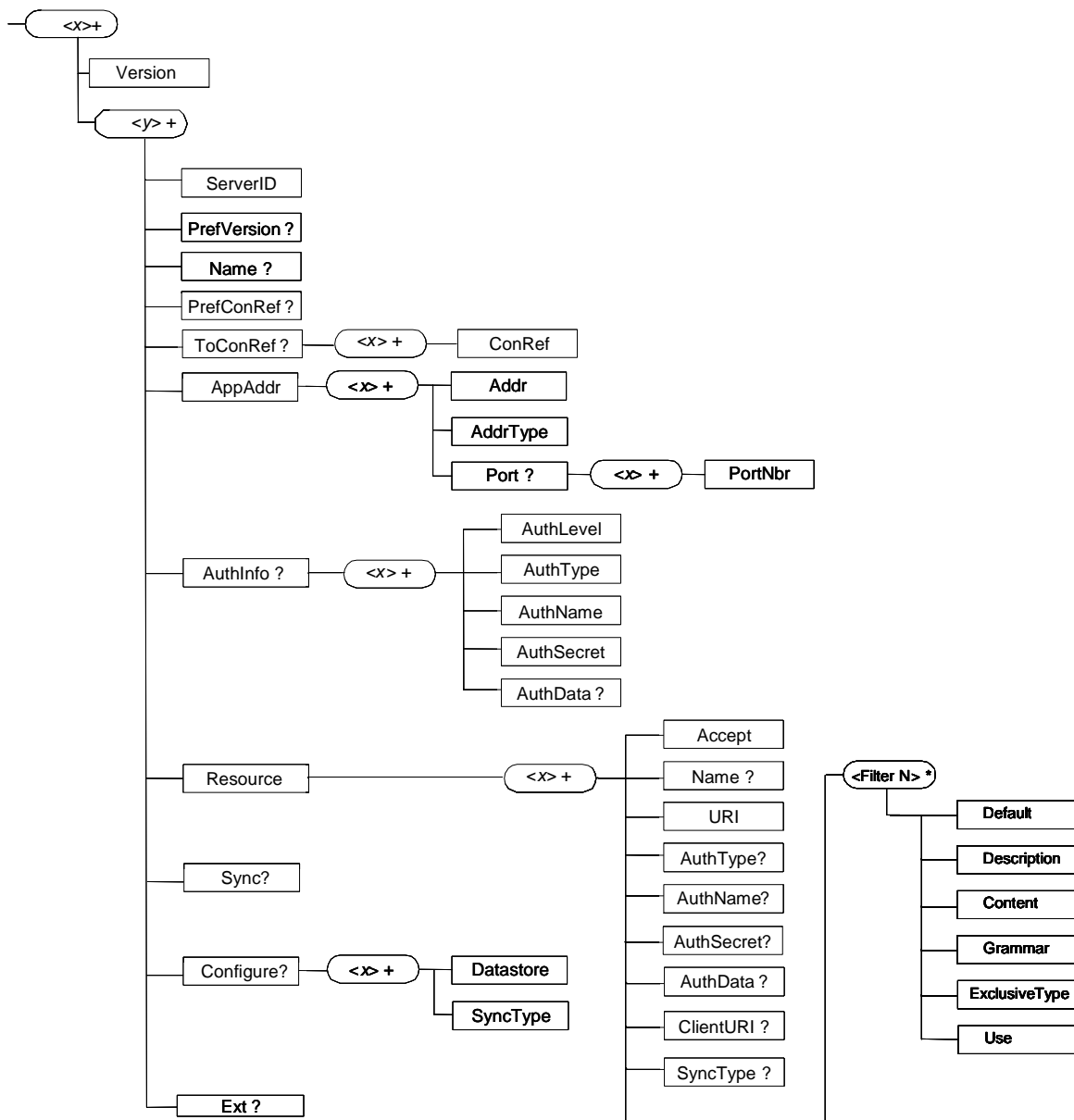


Figure 1: OMA DS Management Object tree

5.1 Management Object Parameters

This section describes the parameters for the OMA DS Management Object.

5.1.1 Node: <x>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | OneOrMore | Node | Get |

This interior node acts as a placeholder for one or more accounts or for a fixed node. Each instance of this node refers to a different DS Client in the device. Devices MUST build the Name property of this node according to the following structure: *common prefix* + *instance number* + *client manufacturer*. The *common prefix* value MUST be "SyncAgent" while *instance number* is a string starting from "1". *Client manufacturer* is an implementation dependant string.

As an example, a device implementing this specification with the above recommendations, will instantiate two DS Clients using a common prefix set to "SyncAgent" in the following way:

Client 1, Name property value for <x> = "SyncAgent1Huawei"

Client 2, Name property value for <x> = "SyncAgent2Funambol".

5.1.2 Node: <x>/Version

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies the version of the DS Management Object.

5.1.3 Node: <y>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | OneOrMore | Node | Get |

This interior node acts as a placeholder for one or more accounts. Each account MUST depict one single Data Sync Server. The device MUST ensure that one instance of <y> can only exist under one single <x>. In other words, each instance of <y> refers to a different and unique DS Server (see §5.1.4 further reference).

Devices MUST build the Name property of this node according to the following structure: *common prefix* + *instance number*. The *common prefix* value MUST be "SyncServer" while *instance number* is a string starting from "1".

As an example, a device implementing this specification with the above recommendations, will instantiate two <y> nodes using a common prefix set to "SyncServer" in the following way:

Server 1, Name property value for <y> = "SyncServer1"

Server 2, Name property value for <y> = "SyncServer2".

5.1.4 Node: <x>/<y>/ServerID

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies the server identifier for the Data Sync Server being used.

5.1.5 Node: <x>/<y>/PrefVersion

| Status | Occurrence | Format | Access |
|----------|------------|--------|---------------|
| REQUIRED | ZeroOrOne | Chr | Get / Replace |

This leaf node specifies either the DS protocol version which SHOULD be used between the DS Client and the DS Server (E.g. Client initiated sync or Server initiated sync) or a list of supported versions ordered by priority (regardless of the support for multiple simultaneous sync sessions). In the case of a list of supported versions ordered by priority, PrefVersion MUST include protocol versions separated by commas (“,”) with no spaces (“ ”) between them (e.g. “2.0,1.2” means 2.0 has higher priority than 1.2).

Interpretation of this leaf node depends on the occurrence, the number of protocols supported by the DS Client and the actual value of the character string as indicated in the following table:

| Occurrence | Multi-protocol Client | PrefVersion value | Interpretation |
|------------|-----------------------|-------------------|-------------------------|
| Zero | No | | See Detail (1) |
| | Yes | | See Details (3) and (4) |
| One | No | Null | See Detail (1) |
| | Yes | | See Details (3) and (4) |
| | No | 1.2 | See Detail (1) |
| | Yes | | See Detail (2) |
| | No | 2.0 | See Detail (1) |
| | Yes | | See Detail (2) |

Detail (1): Single-protocol clients that receive notifications for protocol versions they do not support MUST send back a Status Code 513 (Protocol Version Not Supported) indicating in the `Item` element type the protocol version they actually support.

Detail (2): The initiator SHOULD use the preferred protocol.

Detail (3): When a multi-protocol server tries to synchronize with a client in which the PrefVersion is set to NULL or is not initialized and it has no preferred version information from an out-of-band mechanism, the server SHOULD try the highest protocol version it is capable of supporting and then the others in descending order.

Detail (4): When a multi-protocol client tries to synchronize with a server and its PrefVersion is set to NULL or is not initialized and it has no preferred version information from an out-of-band mechanism, the client SHOULD try the highest protocol version it is capable of supporting and then the others in descending order.

5.1.6 Node: <x>/<y>/Name

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | Get |

This optional leaf node specifies user displayable name for the Data Sync Server.

5.1.7 Node: <x>/<y>/PrefConRef

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | Get |

This optional leaf node specifies a reference to preferred connectivity. It is expected that either a PROXY or NAP MO is specified, but other, implementation-specific connections may be referenced. The PROXY and NAP MO are described in [ConnMO]. The values of this node could be URI to a management object or implementation specific identifier.

Example: `./AP/ThisOperator/NAPDef/1/ThisItem`

5.1.8 Node: <x>/<y>/ToConRef

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Node | Get |

This optional interior node is used to allow application to refer to a collection of connectivity definitions. Several connections may be listed for a given application under this interior node.

5.1.9 Node: <x>/<y>/ToConRef/<x>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | OneOrMore | Node | Get |

This interior node acts as a placeholder for one or more linkage to connectivity parameters.

5.1.10 Node: <x>/<y>/ToConRef/<x>/ConRef

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node indicates the linkage to connectivity parameters.

Example: `./AP/ThisOperator/NAPDef/1/ThisItem`

5.1.11 Node: <x>/<y>/AppAddr

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Node | Get |

This node is used to specify (multiple) DS Server address(es).

5.1.12 Node: <x>/<y>/AppAddr/<x>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | OneOrMore | Node | Get |

This interior node acts as a placeholder for separating one or more DS Server addresses.

5.1.13 Node: <x>/<y>/AppAddr/<x>/Addr

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This interior node is used to specify the Data Sync Server addresses, which may differ based on the used transport binding.

5.1.14 Node: <x>/<y>/AppAddr/<x>/AddrType

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies the Data Sync Server address type.

Authorities of reference and allowed values for **AddrType** are bearer-specific and are not listed here. Implementers are referred to the bearer specifications and the listed normative references describing each protocol for the proper usage context and details of each address type.

If the bearer type-specific parameter specification does not define a value for this node then the default value "IPv4" MUST be assumed and the **Addr** node MUST represent an IPv4 address [AUTH-RFC791] represented in string form dotted-decimal CIDR (Classless InterDomain Routing) notation.

5.1.15 Node: <x>/<y>/AppAddr/<x>/Port

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Node | Get |

This node specifies Port information for DS Server address.

5.1.16 Node: <x>/<y>/AppAddr/<x>/Port/<x>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | OneOrMore | Node | Get |

This interior node acts as a placeholder for separating one or more Port settings.

5.1.17 Node: <x>/<y>/AppAddr/<x>/Port/<x>/PortNbr

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies the number of a single port as a 16bit unsigned integer.

5.1.18 Node: <x>/<y>/AuthInfo

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Node | Get |

This interior node specifies authentication information.

5.1.19 Node: <x>/<y>/AuthInfo/<x>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | OneOrMore | Node | Get |

This interior node acts as a placeholder for separating one or more authentication settings.

5.1.20 Node: <x>/<y>/AuthInfo/<x>/AuthLevel

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies the authentication level. The used values are described below.

| Transport | Status | Description |
|-----------|----------|---|
| CLCRED | Optional | Credentials which used by the Data Sync Client to authenticate itself to the Data Sync Server at the DS protocol level. |
| SRVCRED | Optional | Credentials which used by the Data Sync Server to authenticate itself to the Data Sync Client at the DS protocol level. |
| OBEX | Optional | Credentials for OBEX authentication. NOTE: If this AuthLevel is selected only HTTP-BASIC, HTTP-DIGEST and TRANSPORT are possible authentication schemes. |
| HTTP | Optional | Credentials for HTTP (/WSP) authentication. NOTE: If this AuthLevel is selected, the possible authentication schemes are HTTP-BASIC, HTTP-DIGEST and TRANSPORT. Other values are not excluded. |

Table 1: AuthLevel Values

5.1.21 Node: <x>/<y>/AuthInfo/<x>/AuthType

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies the authentication scheme. The values could be "HTTP-BASIC", "HTTP-DIGEST", "BASIC", "MD5", "SHA-1", "SHA-256", "X509", "SECUREID", "SAFWORD". Other values are not excluded.

5.1.22 Node: <x>/<y>/AuthInfo/<x>/AuthName

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This optional leaf node specifies the user name for authentication. For the DS Client, the value of this node is the user identifier. For the DS Server, the value of this node is the server identifier.

5.1.23 Node: <x>/<y>/AuthInfo/<x>/AuthSecret

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | No Get |

This leaf node specifies the authentication secret/password shared between the Data Sync Client and Data Sync Server.

5.1.24 Node: <x>/<y>/AuthInfo/<x>/AuthData

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | No Get |

This node specifies the authentication data relating to the AuthType.

5.1.25 Node: <x>/<y>/Resource

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Node | Get |

This interior node specifies the list of databases.

5.1.26 Node: <x>/<y>/Resource/<x>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | OneOrMore | Node | Get |

This interior node acts as a placeholder for separating one or more databases settings.

5.1.27 Node: <x>/<y>/Resource/<x>/Accept

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies MIME content types the database supports (in string form).

5.1.28 Node: <x>/<y>/Resource/<x>/Name

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | Get |

This optional leaf node specifies the user displayable name for database.

5.1.29 Node: <x>/<y>/Resource/<x>/URI

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies the server database URI.

5.1.30 Node: <x>/<y>/Resource/<x>/AuthType

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | Get |

This leaf node specifies the Database level authentication scheme. The values could be "HTTP-BASIC", "HTTP-DIGEST", "BASIC", "MD5", "SHA-1", "SHA-256", "X509", "SECUREID", "SAFWORD". Other values are not excluded.

5.1.31 Node: <x>/<y>/Resource/<x>/AuthName

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | Get |

This leaf node specifies the user name of Database level authentication.

5.1.32 Node: <x>/<y>/Resource/<x>/AuthSecret

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | No Get |

This leaf node specifies the secret/password of database level authentication secret.

5.1.33 Node: <x>/<y>/Resource/<x>/AuthData

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | No Get |

This node specifies the authentication data relating to the AuthType.

5.1.34 Node: <x>/<y>/Resource/<x>/ClientURI

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Chr | Get |

This optional leaf node specifies the client database URI.

5.1.35 Node: <x>/<y>/Resource/<x>/SyncType

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Int | Get |

This optional leaf node specifies the sync type of synchronization to perform on the database.

For DS 1.2.x, the value of this node is the numeric value computed using the corresponding alert code 200-205 minus 200.

For DS 2.0, the value of this node indicates the 'Direction' and 'Behaviour' sync type parameters.

The table below shows the possible values and the interpretations for DS 1.2.x and DS 2.0.

| Value | Interpretation in DS 1.2.x | Interpretation in DS 2.0 |
|-------|----------------------------|--|
| 0 | Two way | Direction: twoWay, Behaviour: Preserve |
| 1 | Slow sync | Direction: twoWay, Behaviour: Preserve Recovery Sync (include FP) |
| 2 | One way from client | Direction: fromClient, Behaviour: Preserve |
| 3 | Refresh from client | Direction: fromClient, Behaviour: Refresh |
| 4 | One way from server | Direction: fromServer, Behaviour: Preserve |

| | | |
|---|---------------------|---|
| 5 | Refresh from server | Direction: fromServer, Behaviour: Refresh |
| 6 | N/A | Direction: NoWay, Behaviour: Preserve |

5.1.36 Node: <x>/<y>/Resource/<x>/<Filter N>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrMore | Node | Get |

This interior node specifies one of the pre-defined filters. Devices MUST build the Name property of this node according to the following structure: common prefix + instance number. The *common prefix* value MUST be "Filter" while *instance number* is a string starting from "1". As an example, a device implementing this specification with the above recommendations, will instantiate two filters in the following way:

Filter 1, Name property value for <Filter N> = "Filter1"
 Filter 2, Name property value for <Filter N> = "Filter2".

5.1.37 Node: <x>/<y>/Resource/<x>/<Filter N>/Default

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Bool | Get |

Only one Field, and one Record filter may be active by default per Resource node. So, using this leaf node, the management authority can indicate which filter, among several pre-defined filters, is the default filter. Without any user intervention, this filter will be used by default by the DS client software. The possible values are "true" (default filter) or "false" (non default filter).

5.1.38 Node: <x>/<y>/Resource/<x>/<Filter N>/Description

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies a literal description of the filter: it is for example what will be displayed on the user's screen to describe the corresponding filtering.

5.1.39 Node: <x>/<y>/Resource/<x>/<Filter N>/Content

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node specifies the filter itself. Its content structure depends on Grammar (see below). This content describes a legal filter i.e. understandable by the DS server, so this content MUST be written according to the fields definitions known by the DS server.

5.1.40 Node: <x>/<y>/Resource/<x>/<Filter N>/Grammar

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node is used to describe the MIME type of the Content field. It specifies the grammar used in the Content and its value is similar to the one used in the Type of the filter Element (e.g. syncml:filtertype-cgi).

5.1.41 Node: <x>/<y>/Resource/<x>/<Filter N>/ExclusiveType

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Bool | Get |

This leaf node is used to distinguish between Exclusive and Inclusive filters. The possible values are “true” for an EXCLUSIVE filter, or “false” for an INCLUSIVE filter.

5.1.42 Node: <x>/<y>/Resource/<x>/<Filter N>/Use

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | One | Bool | Get |

This leaf node indicates if the filter is a Field level (“true”) or a Record level (“false”) filter.

5.1.43 Node: <x>/<y>/Sync

| Status | Occurrence | Format | Access |
|----------|------------|--------|-----------|
| OPTIONAL | ZeroOrOne | Null | Get, Exec |

This node is used with Exec command to invoke a scheduled sync. After receiving the Exec command, the DS Client will initiate a session with the DS Server using the configuration parameters as indicated in Configure sub-tree. Please refer to Appendix B for more information about the scheduled sync.

5.1.44 Node: <x>/<y>/Configure

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Node | Get |

This interior node groups together the configuration parameters for the scheduled sync.

5.1.45 Node: <x>/<y>/Configure/<x>

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| REQUIRED | OneOrMore | Node | Get |

This interior node acts as a placeholder node for a specific group of configuration parameters for the scheduled sync. After successful scheduled sync, the configurations of the Datastore and SyncType should be removed to avoid duplicate execution.

5.1.46 Node: <x>/<y>/Configure/<x>/Datastore

| Status | Occurren | Format | Access |
|----------|----------|--------|--------|
| REQUIRED | One | Chr | Get |

This leaf node is used to specify the URI of the server datastore which the server wants the client to sync with.

5.1.47 Node: <x>/<y>/Configure/<x>/SyncType

| Status | Occurren | Format | Access |
|----------|----------|--------|--------|
| REQUIRED | One | Int | Get |

This leaf node is used to specify the sync type of synchronization to perform on the datastore.

For DS 1.2.x, the value of this node is the numeric value computed using the corresponding alert code 200-205 minus 200. For example, for a server to indicate a ‘two-way sync’ (alert code is 200) the SyncType node would contain the value 0.

When the client starts a synchronization session in case of schedule sync, then in its initialization package sent to the server it must use the value of alert code used at the synchronization initialization and MUST NOT use the value of SyncType node. For example, if the value of SyncType is 0 (‘two-way sync’), then the initialization package would contain the alert code for the ‘two-way sync’ (value 200).

The client may initiate a synchronization session with an alert code which does not correspond to SyncType value. For example, if the value of SyncType is ‘two-way sync’ (value 0) then the initialization package may contain the alert code for ‘one-way from client’ (value 202).

For DS 2.0, the value of this node indicates the ‘Direction’ and ‘Behaviour’ sync type parameters recommended to the DS Client.

The table below shows the possible values and the interpretations for DS 1.2.x and DS 2.0.

| Value | Interpretation in DS 1.2.x | Interpretation in DS 2.0 |
|-------|----------------------------|--|
| 0 | Two way | Direction: twoWay, Behaviour: Preserve |
| 1 | Slow sync | Direction: twoWay, Behaviour: Preserve Recovery Sync (include FP) |
| 2 | One way from client | Direction: fromClient, Behaviour: Preserve |
| 3 | Refresh from client | Direction: fromClient, Behaviour: Refresh |
| 4 | One way from server | Direction: fromServer, Behaviour: Preserve |
| 5 | Refresh from server | Direction: fromServer, Behaviour: Refresh |
| 6 | N/A | Direction: NoWay, Behaviour: Preserve |

5.1.48 Node: <x>/<y>/Ext

| Status | Occurrence | Format | Access |
|----------|------------|--------|--------|
| OPTIONAL | ZeroOrOne | Node | Get |

The Ext node is an optional interior node where the vendor specific information about this particular application is being placed (vendor meaning application vendor, device vendor, OS vendor etc.). Usually the vendor extension is identified by vendor specific name under the ext node. The tree structure under the vendor identified is not defined and can therefore include non-standardized sub-tree. However, vendor extensions SHALL NOT be defined outside of one of these Ext sub-trees.

Appendix A. Static Conformance Requirements (Normative)

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

A.1 SCR for DSMO Tree Structure

| Item | Function | Reference | Status | Requirement |
|------------|--|----------------|--------|-------------|
| DSMO-T-001 | Support for indicating the correct MO Identifier for the DS MO | Section 5 | M | |
| DSMO-T-002 | Support for OMA DM 1.2 or later compatibility version | Section 5 | M | |
| DSMO-T-003 | Support for all mandatory nodes in DS MO | Section 5.1 | M | |
| DSMO-T-004 | Support for the <x>/<y>/Name node | Section 5.1.6 | O | |
| DSMO-T-005 | Support for the <x>/<y>/PrefConRef node | Section 5.1.7 | O | |
| DSMO-T-006 | Support for the <x>/<y>/ToConRef node | Section 5.1.8 | O | DSMO-T-007 |
| DSMO-T-007 | Support for the <x>/<y>/ToConRef/<x>/ConRef node | Section 5.1.10 | O | |
| DSMO-T-008 | Support for the <x>/<y>/AppAddr/<x>/Port/<x>/PortNbr node | Section 5.1.17 | O | |
| DSMO-T-009 | Support for the <x>/<y>/Resource/<x>/Name node | Section 5.1.28 | O | |
| DSMO-T-010 | Support for the <x>/<y>/Resource/<x>/ClientURI node | Section 5.1.34 | O | |
| DSMO-T-011 | Support for the <x>/<y>/Resource/<x>/SyncType node | Section 5.1.35 | O | |
| DSMO-T-012 | <x>/<y>/Resource/<x>/AuthData node | Section 5.1.33 | O | |
| DSMO-T-013 | <x>/<y>/AuthInfo/<x>/AuthData node | Section 5.1.24 | O | |
| DSMO-T-014 | <x>/<y>/Resource/<x>/<Filter N> node | Section 5.1.36 | O | |
| DSMO-T-015 | <x>/<y>/Sync | Section 5.1.43 | O | |
| DSMO-T-016 | <x>/<y>/Configure | Section 5.1.44 | O | |
| DSMO-T-017 | Support for the <x>/<y>/Ext node | Section 5.1.48 | O | |

Appendix B. Scheduled Sync (Informative)

The following flow indicates how to use DS MO together with DM Scheduling 1.0 enabler and DM 1.2 enabler to achieve scheduled sync.

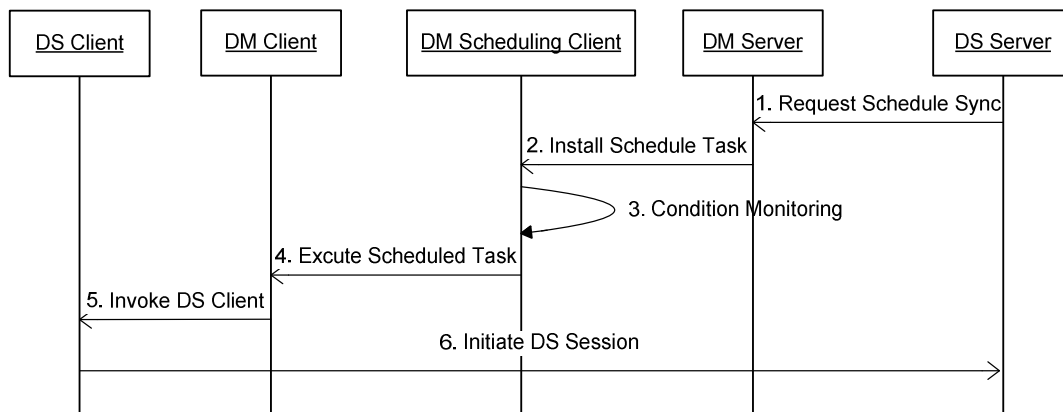


Figure 2: Scheduled Sync Flow

The detailed description for the flow is described as the following:

1. DS Server requests DM Server to create a schedule task for scheduled sync.
2. DM Server creates the schedule task and installs the schedule task to the DM Scheduling task. That is, DM Server configures the DM Scheduling MO using DM commands.
3. DM Scheduling Client monitors the conditions, especially, time condition.
4. When the conditions are satisfied, the DM Scheduling Client will invoke DM Client to execute the scheduled task. For example, the scheduled task can be:

<Exec>

... ..

<Target>

<LocURI> ./DSMO/SyncAgent1Huawei/SyncServer1/Sync</LocURI>

</Target>

</Exec>

5. When executing the schedule task, DM Client invokes the DS Client to start a sync with the configured parameters.
6. DS Client initiates a session with DS Server to start sync with the specified datastore and the specified sync types.

Note that step 1 to step 5 in the flow are out of scope of DS enabler. DS MO is just used for configuration purpose.

Appendix C. Change History

(Informative)

C.1 Approved Version History

| Reference | Date | Description |
|-----------|------|------------------|
| n/a | n/a | No prior version |

C.2 Draft Version 1.0 History

| Document Identifier | Date | Sections | Description |
|---|-------------|---|---|
| Draft Versions: OMA-TS-DS_MO-V1_0 | 05 Feb 2007 | All | First draft of specification template |
| | 22 Feb 2007 | All | Baseline agreed by DS WG |
| | 15 May 2007 | All | Version changed from 1.2 to 1.0 |
| | 9 Aug 2007 | 5 | Incorporated: OMA-DS-2007-0054-CR_DSMO_MOI Reorder the Appendix |
| | 30 Apr 2008 | 5.1.4 | Incorporated: OMA-DS-DS_1_2-2008-0003R02-CR_DSMO_Preferred_Version + some editorials on the numbering of subsequent chapters and the year of the copyright notice. |
| | 10 Jul 2008 | 5.1.4 | Incorporated: OMA-DS-2008-0059-CR_DSMO_PreferredVersion_fix |
| | 3 Sep 2008 | All | Incorporated: OMA-DS-DS_1_2-2008-0004R03-CR_DSMO_MultiClientSupport_fix |
| | 4 Sep 2008 | 5.1.11 up to 5.1.17 | Incorporated: OMA-DS-2008-0073-CR_DSMO_AddrType_fix |
| | 28 Oct 2008 | 5 | Incorporated: OMA-DS-DS_1_2-2008-0006R02-CR_DSMO_FiltersDefinitions, and some minor editorials |
| | 30 Oct 2008 | 5 Appendix B | Incorporated: OMA-DS-DS_1_2-2008-0007-CR_DSMO_Filters_bugfix OMA-DS-DS_1_2-2008-0008-CR_DSMO_Schedule_Sync |
| | 19 Nov 2008 | 2, 5 reorder of (5.1.43 to 5.1.48), 5.1.47, A, B | Incorporated: OMA-DS-DS_1_2-2008-0009R01-CR_DSMO_Clarification, and some minor editorials |
| | 11 Dec 2008 | 5 | Incorporated: OMA-DS-DS_2_0-2008-0156R01- CR_CONR_Comments_Resolution_for_DSMO |
| Candidate Version: OMA-TS-DS_MO-V1_0 | 12 Feb 2009 | n/a | Status changed to Candidate by TP TP ref # OMA-TP-2009-0074R01- INP_DS_V2_0_ERP_for_Candidate_Approval Editorial clean-up of section 2 before publication. |