

Association Pull feature of SAP NetWeaver Mobile



Applies to:

EhP1 of SAP NetWeaver Mobile 7.1 and higher. For more information, visit the [Mobile homepage](#).

Summary

It's always good thing to have the data objects' back-end changes arrive on the mobile device, along with the changes of the related data objects – in the same synchronization cycle. 'Association Pull' is a feature which helps in achieving this in SAP NetWeaver mobile.

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Table of Contents

Introduction	3
Association Pull in Download Direction	3
Association Pull in Upload Direction	4
Synchronous Association Pull.....	4
Asynchronous Association Pull.....	4
Specific Object Pull	5
Pull without Association	5
Limitations and Recommendations	5
Related Content.....	6
Copyright.....	7

Introduction

Association pull is a feature where backend changes to associated data object instances are pulled to DOE and device whenever the parent objects are been pulled or pushed from backend. It works in such a way that it also pulls new associated object instances and deleted instances. Since complete keys are required to do this, association pull is possible only for objects having complete association. It doesn't works with partial association.

Here are some real time examples.

1) Consider a sales order scenario where there are two data objects 'Order' and 'Product'. If administrator wants only products which are part of some service order needs to be downloaded to DOE, then 'Association Pull' can be configured for Order data object, provided complete association exist between Order and Product. So when Order data object is loaded from backend, the corresponding associated 'Product' data object instances are loaded into DOE from backend.

2) Consider a service order scenario where there are two data objects 'Time Confirmation' and 'Order'. Service person goes to the customer place, fixes the problem, updates the 'Time Confirmation' detail, and sync with DOE. Consider backend has logic where it completes the corresponding associated service order when the time confirmation sent is final. Unless until this order change detail are pulled from backend to DOE, the service person will still see the 'Order' in 'In Process' state, though its completed by backend. In such a scenario if synchronous association pull is configured for 'Time Confirmation' data object, then corresponding changes to 'Order' instance will also be downloaded from backend and sent to device along with the confirmation of 'Time confirmation' changes. So service person can see the corresponding 'Order' state changed to 'Complete'.

Association Pull in Download Direction

Whenever delta load or key push is done for a parent object, for all instances corresponding associated object instance is checked for changes and been pulled to DOE if any. In order to use this feature backend configuration parameter 'PULL_ASSOCIATED_DELTA' should be configured for parent data object and corresponding adapter with value 'X'.

Fig: Configuring Association Pull

Backend configuration

The screenshot displays the 'Parameter Configuration' interface. At the top, there are fields for 'Software Component Version' and 'Data Object' with 'Filter' and 'Reset' buttons. Below this is the 'Parameter Key and Name' section, which contains a table of parameters. The 'PULL_ASSOCIATED_DELTA' parameter is highlighted in yellow. Below the parameter table is the 'Parameter List' section, which contains a table with columns for 'SWCV Name', 'Data Object Name', and 'Text Value'. The 'TEST_DS_CRM, 1.0 of SAP' SWCV Name is associated with the 'ORDER' Data Object Name and has a 'Text Value' of 'X'.

Performance Relevant	Parameter Name	Description
<input checked="" type="checkbox"/>	BACKEND_MAX_QUEUES	MAXIMUM NUMBER OF QUEUES FOR BACKEND LOAD
<input checked="" type="checkbox"/>	BACKEND_PACKAGE_SIZE	PACKAGE SIZE USED IN GETMASSDATA
<input checked="" type="checkbox"/>	COMPARE_MEMO	Compare memo fields explicitly if backend says there is an update on the memo fields
<input checked="" type="checkbox"/>	PULL_ASSOCIATED_DELTA	NAMESPACE FOR MOBILE MIDDLEWARE PARAMETERS.
<input type="checkbox"/>	ACTIVE_ADAPTER	ACTIVE ADAPTER FOR THIS CLIENT

SWCV Name	Data Object Name	Text Value
TEST_DS_CRM, 1.0 of SAP	ORDER	X

Note:

- Developer can also decides whether 'Association Pull' need to be performed or not during runtime for specific parent instances. In order to do that the BADI 'SDOE_OVERRIDE_ASSOC_PULL_BADI' has to be implemented.
- The badi will have message body and message header as input. Based on the data downloaded, user can configure pull by calling following message header API.

MBO_MESSAGE_INT_HDR->> SET_ASSOC_PULL (ASSOC_PULL = 'X').

Association Pull in Upload Direction

Association pull feature is also applicable whenever a device uploads for a parent data object instance. Changes to associated data objects are pulled to DOE and sent to all subscribed devices.

In order to do this a custom service should be added in client inbound after validation flow i.e.) 'MMW_FLOW_INBOUND_CLIENT_AV' as first service of the flow.

For performance reasons most of the operations and flow in DOE works in asynchronous way. Association pull works in either synchronous or asynchronous way to get the data to DOE and device.

Synchronous Association Pull

Synchronous association pull is more helpful in device upload flow where device is interested in getting the associated instance in immediate sync with DOE along with confirmation for upload.

All the related changes available in backend for the associated data object instances are synchronously pulled to the syncing device. In some cases associated object instances might be present in middleware but pending for extract. In these cases, associated instances are extracted and sent to device.

In upload flow of custom service, following API on message internal header should be used to set the association pull flag.

```
SMMW_MSG_INTHDR_WRAPPER-> SET_ASSOC_PULL (ASSOC_PULL = 'S').
```

Pass the below flag for corresponding behavior.

Synchronous association pull – 'S'

Asynchronous association pull – 'X'

No association pull – 'N'.

Doing this in custom service gives advantage of overriding association pull configuration in runtime. If none of this flag is set in custom service, then only runtime goes with association pull configuration. More over user can also set the flag only on certain circumstances.

For example in the service order scenario discussed, order will be closed in backend, only if time confirmation uploaded is marked as final. So synchronous association pull can be enabled only if the incoming message is final time confirmation. This will avoid doing unnecessary pull and compare of associated data object.

Asynchronous Association Pull

It works in asynchronous way and ensures that immediate associated objects are pulled to DOE and device. Since this works in asynchronous way, the uploading device might not get the data in next sync cycle. Asynchronous association pull is most preferred for performance reason.

Note:

- Synchronous association pull is not possible in delta download direction.

Specific Object Pull

This also allows user to pull only specific associated object. When there are 5 associated data objects for a parent data object, user can configure pull only for 2 data objects. So only corresponding 2 data object instances are pulled to DOE.

In order to do this following message internal header has to be used in custom service or BADI for upload or delta load direction respectively.

```
SMMW_MSG_INTHDR_WRAPPER-> SET_ASSOC_PULL_DO( ASSOCIATED_DOS )
```

User has to call this API by passing data object ids of associated object which needs to be pulled. If this is not used then all associated objects will be pulled by default.

Pull without Association

For scenarios where there is no complete association between data objects, but runtime has knowledge about the pull object's complete backend keys, then following function module can be called in either BADI or custom service to pull the corresponding data object.

```
SDOE_BE_PULL_FOR_KEYS.
```

This accepts data object id, gateway details and backend keys.

Limitations and Recommendations

Limitations

- For performance reasons, synchronous association pull works only for immediate associated data objects. For further levels, it works asynchronously provided association pull configuration exists for second level object.
- Since synchronous association pull needs synchronous extract, data objects having item level filter are not supported.

Recommendations:

- If associated data object is backend triggered, then association pull should not be configured for the parent object. This will result in some redundant operations which kills performance.

Related Content

Please also look into the following references

[Creating Custom Service](#)

[FAQ](#)

For more information, visit the [Mobile homepage](#).

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