How-To Guide: Data Replication Framework (DRF) Doc for IS-U Industry Solution

Applies to

MDG EAM Objects by Prometheus Group

Summary

Data Replication always refers to business object types, which are based on data models. You can define business object types in the Define Business Objects customizing activity or in the Define Business Objects Available for Replication customizing activity. In EAM ISU, the replication of ISU objects from MDG Hub to connected client systems can be scheduled, triggered and monitored using the Data Replication Framework (DRF) in connect with ALE.

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Table of Contents

Introduction

Data Replication always refers to business object types, which are based on data models. You can define business object types in the Define Business Objects customizing activity or in the Define Business Objects Available for Replication customizing activity.

In EAM ISU, the replication of ISU Objects from MDG Hub to connected client systems can be scheduled, triggered and monitored using the Data Replication Framework (DRF) in connect with ALE.

This document describes the essential activities that needs be performed to replicate an ISU Object from one client/system to another client/system using ALE IDoc communication.

Prerequisites

The following prerequisites should be completed and verified:

1. Verify the EAM ISU Business Configuration Set Activation.

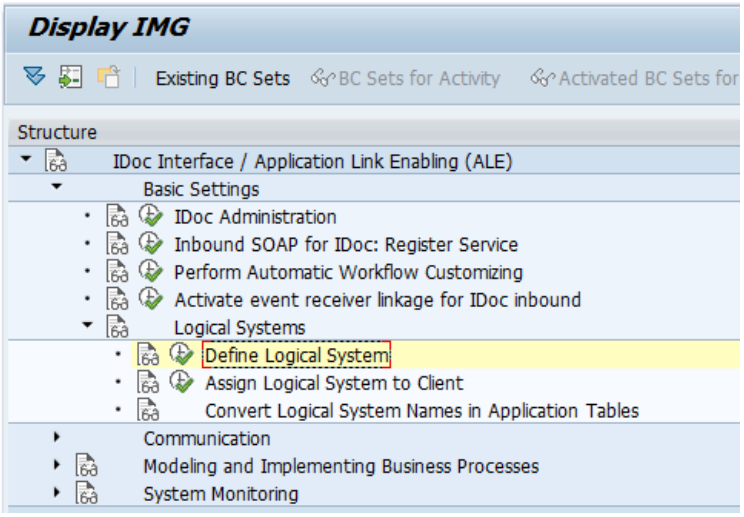
   The Business Configuration Set activation step mentioned in configuration guide for EAM ISU titled as “UGI_EAM_9.2_ConfigurationGuide.docx” should have been completed.

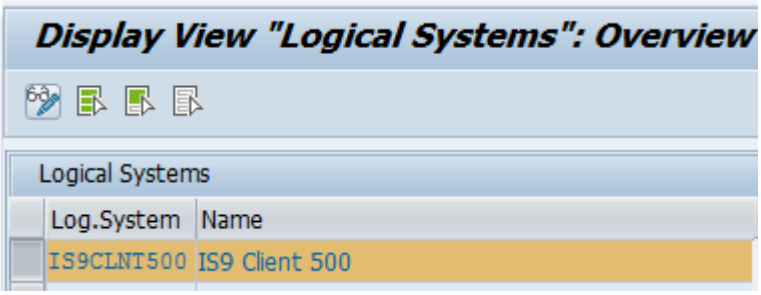
   This activation step brings in the prerequisite data required to carry out the following set of activities for DRF Replication.

2. Verify Logical Systems.

   Both sending and receiving client/system should be defined as Logical Systems and they need to be assigned to the relevant clients. This can be verified as following.

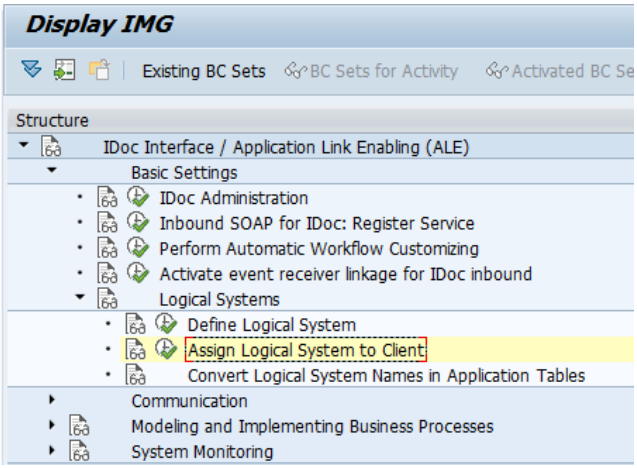
   Run transaction SALE and choose Basic Settings > Logical Systems > Define Logical System

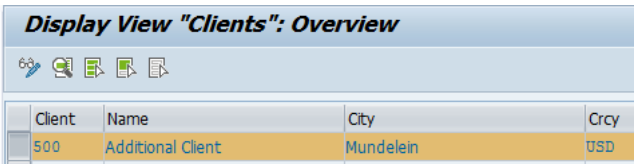




   To verify both the clients/systems are assigned to the relevant clients,

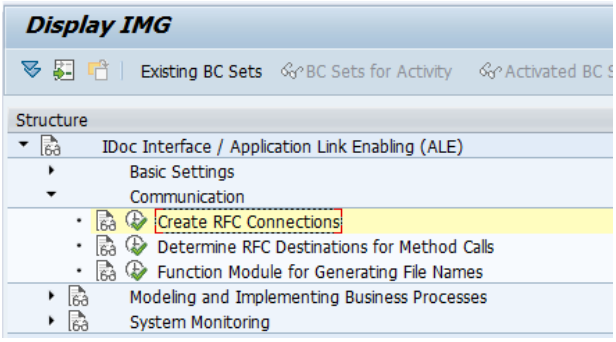
3. Run transaction SALE and choose Basic Settings > Logical Systems > Assign Logical System to Client.

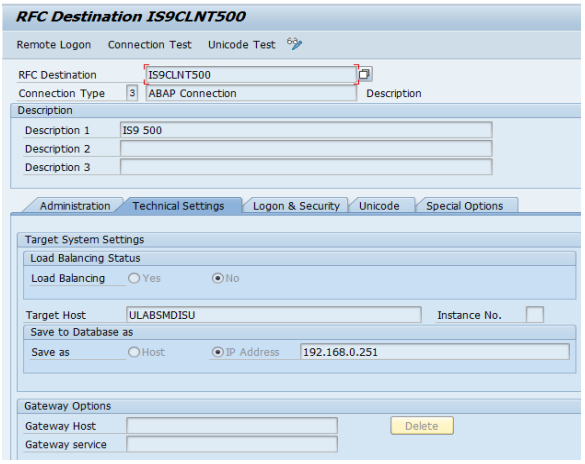




4. Verifying the RFC Connections.

   Run transaction SALE and choose Communication > Create RFC Connections. The target partner system/client should be defined here as an ABAP connection with a connection type 3 and with the same name as the target logical system. A connection test also needs to be performed.





5. Define an ALE tRFC port using transaction code (t-code) WE21. Use the RFC created in the earlier step to define this tRFC port.

Create and Distribution IDoc Distribution Model in SALE

To create and distribute IDoc Distribution Model in SALE, use the following steps:

Create and Maintain Distribution Model in Sending Client/System

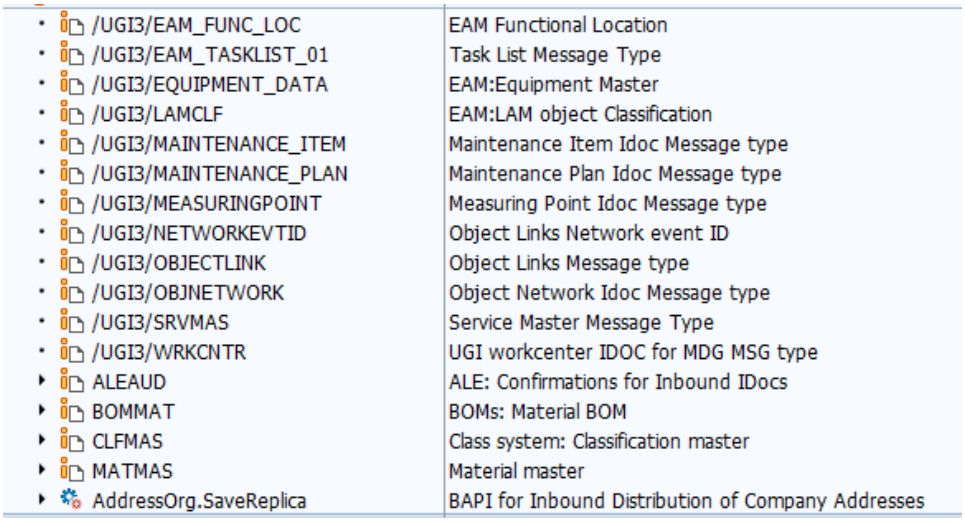
Use the following steps to create and maintain the distribution model in sending client/system:

1. Run transaction SALE and choose Modelling and Implementing Business Processes > Maintain Distribution Model and Distribute Views.

   Alternatively, you can run the t-code BD64.
2. Switch to Change mode and click on “Create Model View” button.
3. Enter short text and technical name.
4. Save the Model View.
5. Select the Model View created above and click on the “Add Message Type” or “Add BAPI” button based on the message type.
6. For Message Type, enter the logical system name for the sending and receiving client/system and the Message Type.
7. For BAPI, enter the logical system name for the sending and receiving client/system, Object name/Interface and the Method.
8. Click on “Continue” button.
9. Repeat this for the following list of message types and BAPIs.

Type	Message Type	Object/Interface	Method
Message Type	/UGI3/EAM_FUNC_LOC		
Message Type	/UGI3/EAM_TASKLIST_01		
Message Type	/UGI3/EQUIPMENT_DATA		
Message Type	/UGI3/LAMCLF		
Message Type	/UGI3/MAINTENANCE_ITEM		
Message Type	/UGI3/MAINTENANCE_PLAN		
Message Type	/UGI3/MEASURINGPOINT		
Message Type	/UGI3/NETWORKEVTID		
Message Type	/UGI3/OBJECTLINK		
Message Type	/UGI3/OBJNETWORK		
Message Type	/UGI3/SRVMAS		
Message Type	/UGI3/WRKCNTR		
BAPI		AddressOrg	SaveReplica

10. Click on the “Save” button.
    An example of the Model View is displayed in the following screen.



Generate Partner Profiles in Sending System/Client

Use the following steps to generate partner profiles in sending system/client:

1. Run transaction SALE and choose Modelling and Implementing Business Processes > Partner Profiles > Generate Partner Profiles.
   Alternatively, you can run the t-code BD82.
2. Enter the created Model View and in the Partner System field enter the logical system name of the receiving client/system.

3. For the authorized users, enter the ALE-User (the default value is ALEREMOTE) and for the remaining fields enter the following and execute.

Type Field	Value
Version	3
Pack Size	1
Output Mode	Pass IDoc immediately
Inb. Parameters: Processing	Trigger Immediately

4. To verity the Partner Profiles generated, run the t-code WE20 and from the Partner Profiles menu and select the Partner Type LS and then select the logical system of the receiving client/system.

   In the detail screen, under the Outbound parmtrs., the following message types should appear along with the respective Basic types.

Distribute Model View to Receiving System/Client

Use the following steps to distribute the model view to receiving system/client:

1. Run t-code SALE and select the Modelling and Implementing Business Processes > Maintain Distribution Model and Distribute Views.

   Alternatively, run the t-code BD64.
2. Select the created Model View and from the menu choose Edit > Model View > Distribute.
3. In the popup, verify that correct receiving client/system is selected and choose Enter.
4. In the receiving client/system, run t-code BD64 and verify that the Model View is created.

Generate Partner Profiles in Receiving System/Client

Use the following steps to generate partner profiles in receiving system/client:

1. Run transaction SALE and choose Modelling and Implementing Business Processes > Partner Profiles > Generate Partner Profiles.

   Alternatively, run the t-code BD82.
2. Enter the created Model View and in the Partner System field enter the logical system name of the sending client/system.
3. For the authorized users, enter the ALE-User, and for the remaining fields enter the following and execute.

   The default value is ALEREMOTE for ALE-User.

Field	Value
Version	3
Pack Size	100
Output Mode	Pass IDoc immediately
Inb. Parameters: Processing	Trigger by background program

4. To verity the Partner Profiles generated, run the t-code WE20 and from the Partner Profiles menu, select the Partner Type LS and then select the logical system of the sending client/system.

5. In the detail screen, under the Inbound parmtrs. the following Message type should appear along with the respective Process Code.

ISU – Connection Object

Message type	Message Variant	Message Function	Process Code
/UGI3/EAM_FUNC_LOC	ISU	CO	/UGI3/CONOBJ
ADRMAS			BAPI
CLFMAS			CLFM

ISU – Device

Message type	Message Variant	Message Function	Process Code
/UGI3/EQUIPMENT_DATA	ISU	DV	/UGI3/DEVLICE
ADRMAS			BAPI
CLFMAS			CLFM

ISU – Device Location

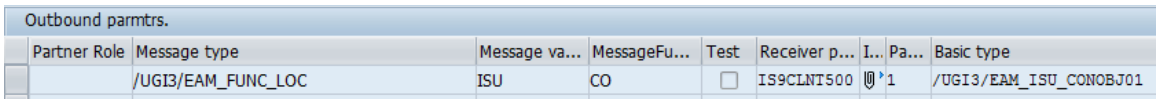
Message type	Message Variant	Message Function	Process Code
/UGI3/EAM_FUNC_LOC	ISU	DL	/UGI3/DEVLOC
ADRMAS			BAPI
CLFMAS			CLFM

Change Partner Profile Inbound Parameter in Receiving Client/System

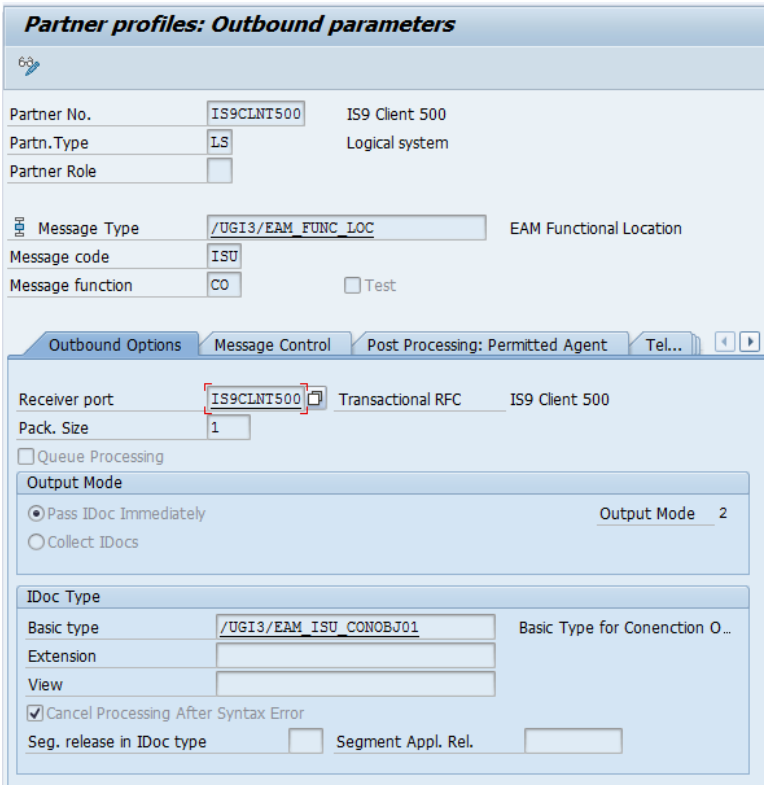
ISU – Connection Object

Use the following steps to change the partner profile system/client:

1. Run t-code WE20 and choose Partner Type LS > Click on the Logical System name of the sending client/system.
2. In the detail screen, under the Inbound parmtrs. select the Message Type /UGI3/EAM_FUNC_LOC and click on “DetailsScreenInboundParameter” button.



3. In the section Processing by Function Module, click on the “Trigger Immediately” radio button.

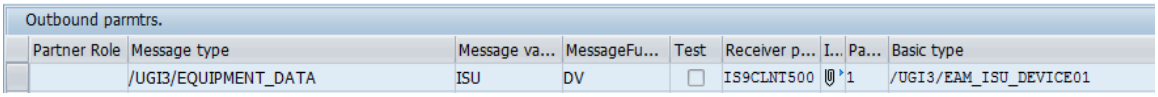


4. Click on “Save” button to save the changes.

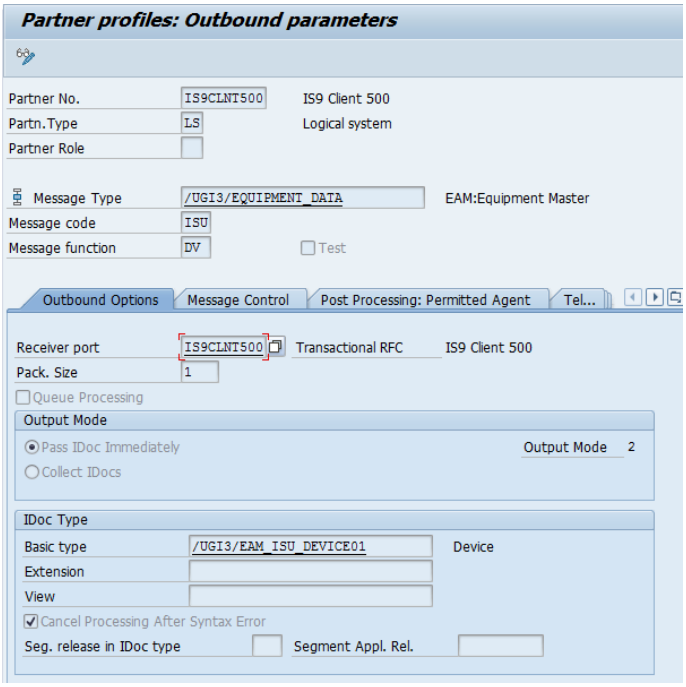
ISU – Device

Use the following steps to change the partner profile system/client:

1. Run t-code WE20 and choose Partner Type LS > click on the Logical System name of the sending client/system.
2. In the detail screen, under the Inbound parmtrs. select the Message Type /UGI3/EQUIPMENT_DATA and click on “DetailsScreenInboundParameter” button.



3. In the section Processing by Function Module, click on the “Trigger Immediately” radio button.

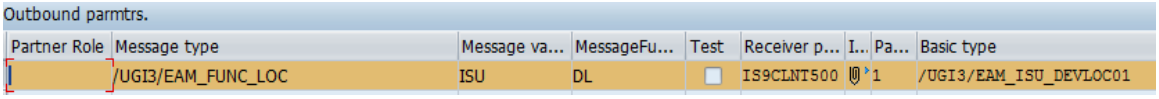


4. Click on “Save” button to save the changes.

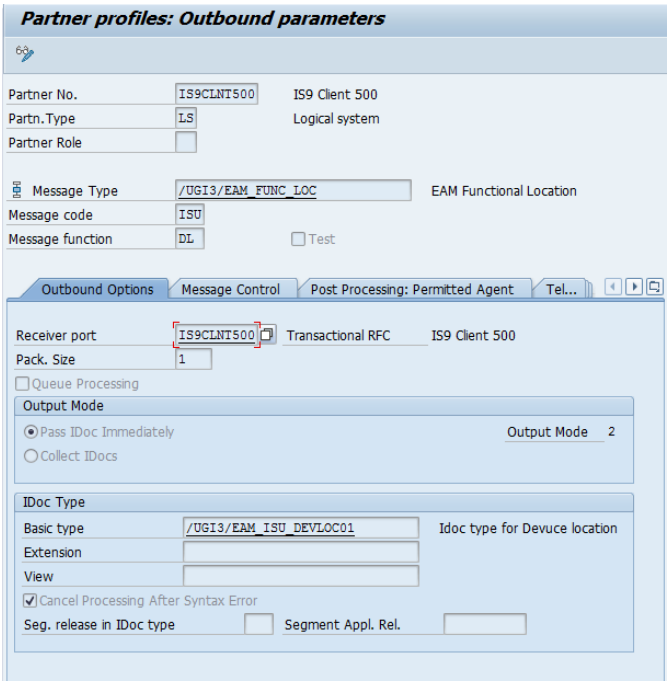
ISU – Device Location

Use the following steps to change the partner profile system/client:

1. Run t-code WE20 and choose Partner Type LS > click on the Logical System name of the sending client/system.
2. In the detail screen, under the Inbound parmtrs. select the Message Type /UGI3/EAM_FUNC_LOC and click on “DetailsScreenInboundParameter” button.



3. In the section Processing by Function Module, click on the “Trigger Immediately” radio button.



4. Click on “Save” button to save the changes.

Define DRF Replication Model in Sending Client/System

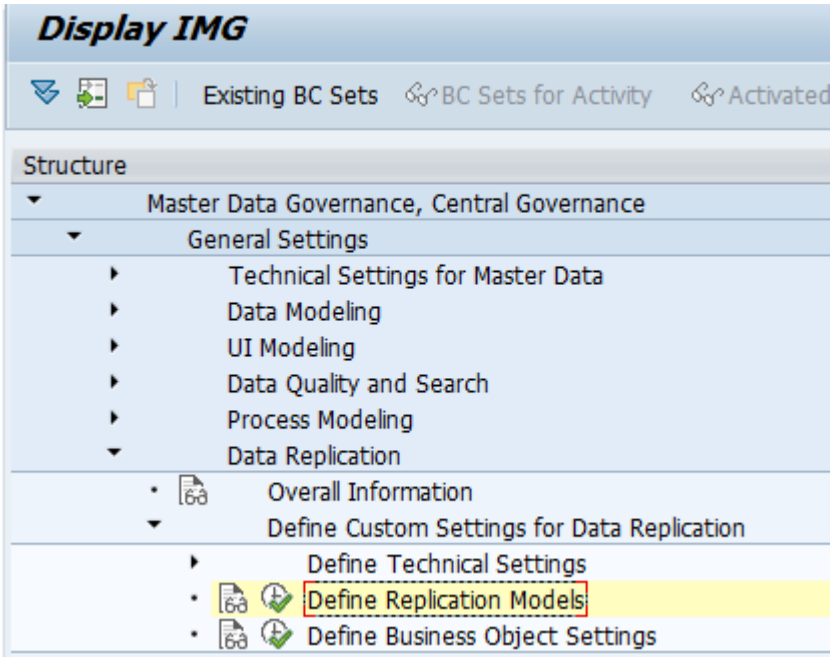
To define a DRF Replication Model in sending client/system, use the following steps:

- Create a New Replication Model
- Assign Outbound Implementation
- Assign Target Systems for Replication Model and Outbound Implementation
- Verify the Outbound Parameter in the Outbound Implementation
- Assign Outbound Parameter to Replication Model and Outbound Implementation
- Activate the Replication Model
- Data Replication

Create a New Replication Model

Use the following steps to create a new Replication model:

1. Run t-code MDGIMG and select General Settings > Data Replication > Define Custom Settings for Data Replication > Define Replication Models.

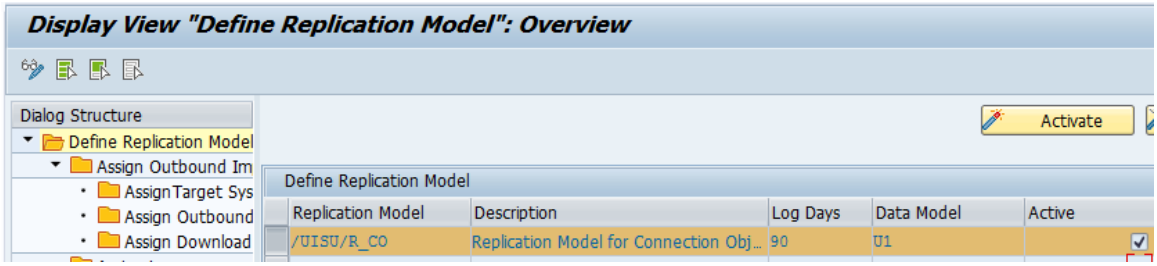


2. Click on the “New Entries” button and enter the name for the Replication Model and its description.
3. Enter the Log Days as per the requirement.
   Log Days implies to the days after which the application log for data replication can be deleted.

ISU – Connection Object

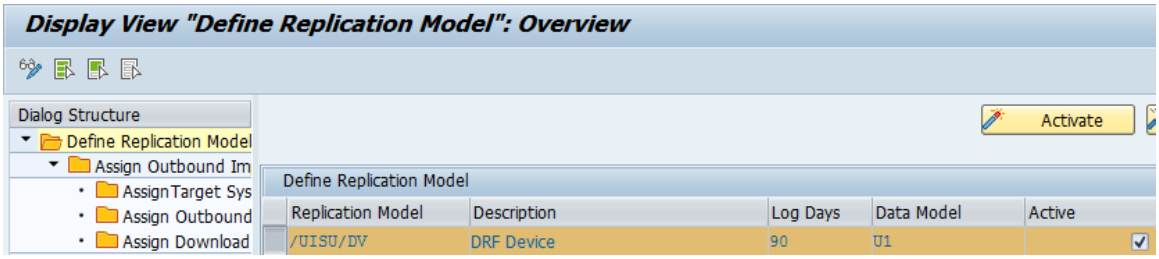
Enter the Data Model as AR and save the Replication Model.

Replication Model	Description	Log Days	Data Model
/UISU/R_CO	Replication Model for Connection Object	90	U1



ISU – Device

Enter the Data Model as AR and save the Replication Model.



Replication Model	Description	Log Days	Data Model
/UISU/R_DV	Replication Model for Device	90	U1

ISU – Device Location

Enter the Data Model as AR and save the Replication Model.

Replication Model	Description	Log Days	Data Model
/UISU/R_DL	Replication Model for Device Location	90	U1

Assign Outbound Implementation

Use the following steps to assign an outbound implementation:

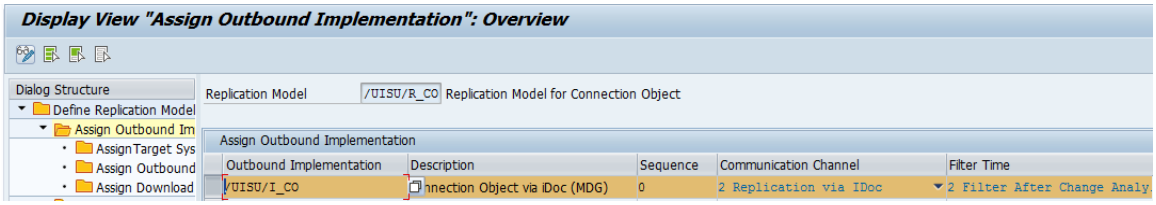
1. Run t-code MDGIMG and select General Settings > Data Replication > Define Custom Settings for Data Replication > Define Replication Models.
2. Select the created Replication Model and click on the Assign Outbound Implementation folder.

ISU – Connection Object

Enter field values as in the following table and save the Replication Model.

Outbound Implementation	Sequence	Communication Channel	Filter Time
/UISU/I_CO	1	2 (Replication via IDoc)	2 (Filter After Change Analysis)

A sample screen is displayed with an example:

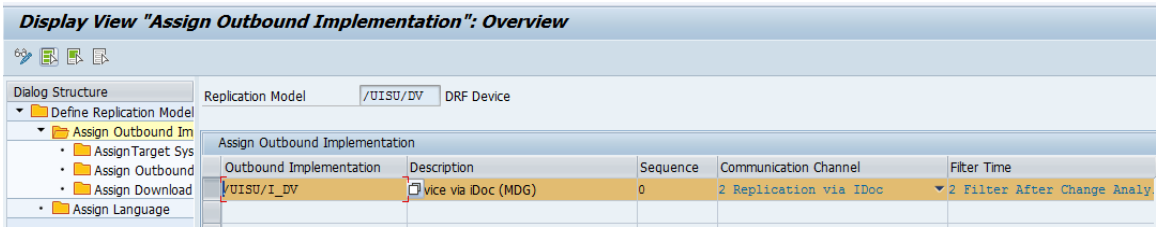


ISU – Device

Enter field values as in the following table and save the Replication Model.

Outbound Implementation	Sequence	Communication Channel	Filter Time
/UISU/I_DV	1	2 (Replication via IDoc)	2 (Filter After Change Analysis)

A sample screen is displayed with an example:

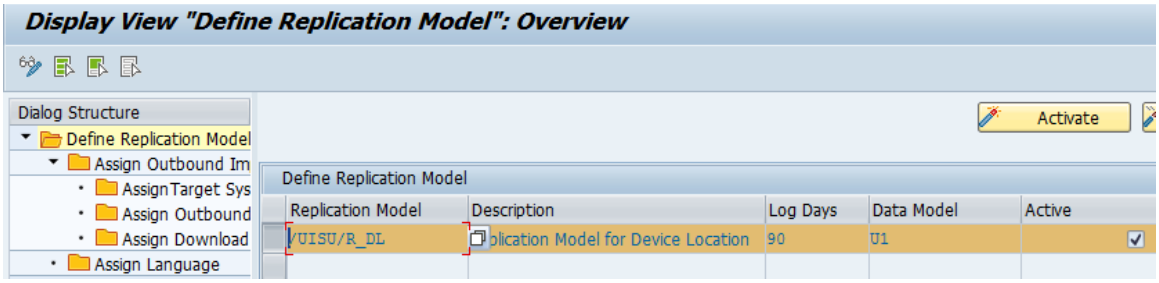


ISU – Device Location

Enter field values as in the following table and save the Replication Model.

Outbound Implementation	Sequence	Communication Channel	Filter Time
/UISU/I_DL	1	2 (Replication via IDoc)	2 (Filter After Change Analysis)

A sample screen is displayed with an example:



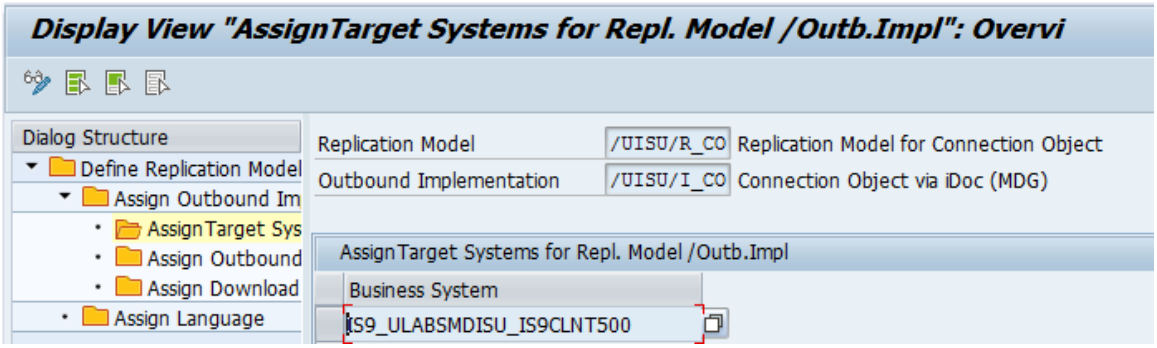
Assign Target Systems for Replication Model and Outbound Implementation

Use the following steps to assign target systems for Replication Model and Outbound Implementation:

1. Run t-code MDGIMG and choose General Settings > Data Replication > Define Custom Settings for Data Replication > Define Replication Models.
2. Select the created Replication Model and click on the folder Assign Outbound Implementation.
3. Select the assigned Outbound Implementation and click on the folder Assign Target Systems for Repl. Model/Outb.Impl.
4. Enter the Business System name of the receiving client/system. This Business System should have already been created in the sending client/system.

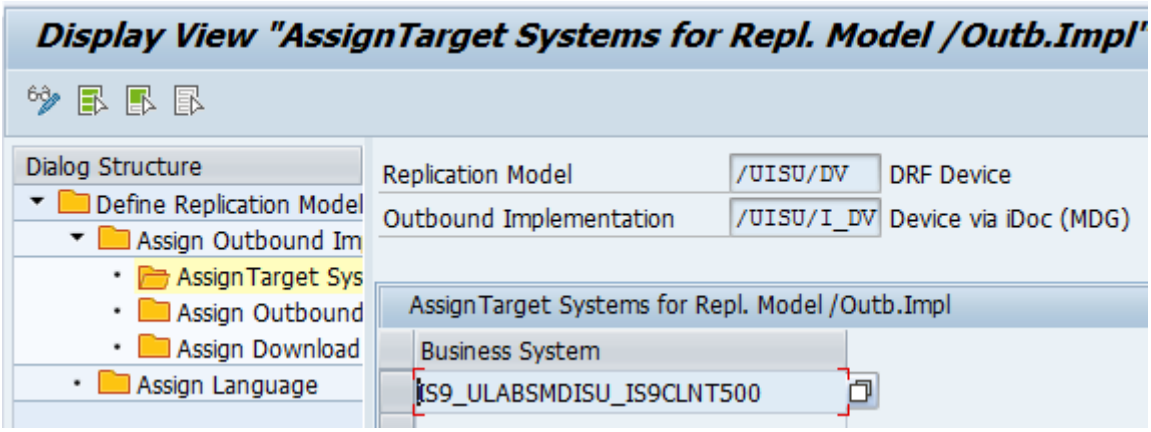
ISU – Connection Object

A sample screen is displayed with an example:



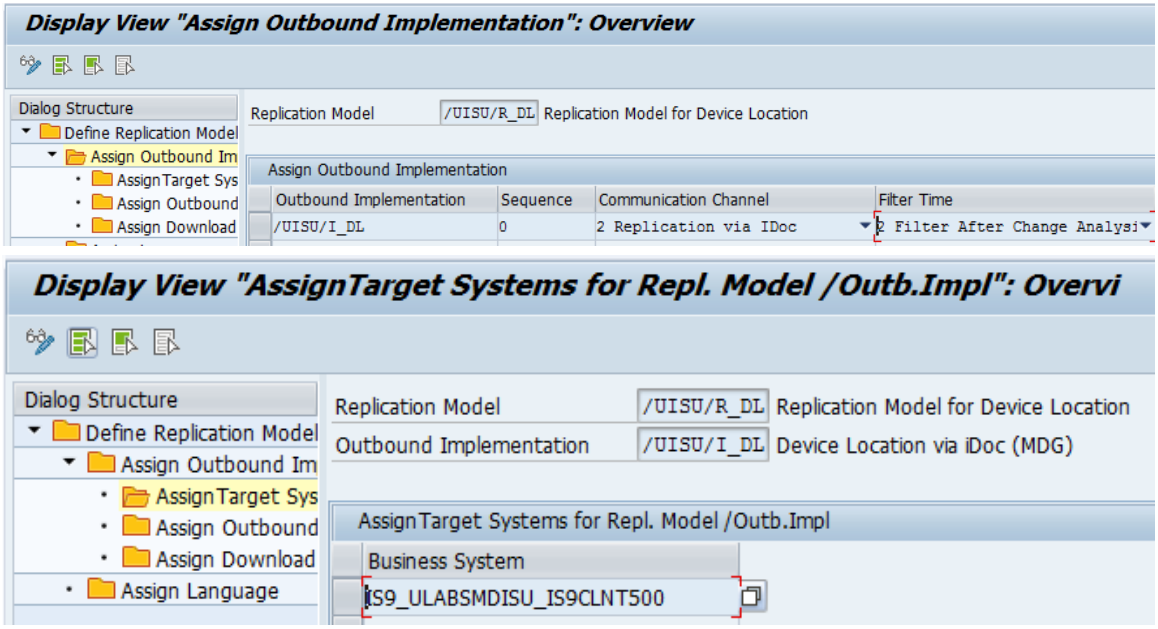
ISU – Device

A sample screen is displayed with an example:



ISU – Device Location

A sample screen is displayed with an example:



Verify the Outbound Parameter in the Outbound Implementation

ISU – Connection Object

Use the following steps to verify the outbound parameter in the Outbound Implementation:

1. Run t-code MDGIMG and select General Settings > Data Replication > Enhance Default Settings for Outbound Implementations > Define Outbound Implementations.
2. Select the Outbound Implementation /UISU/I_CO and click on the Assign Outbound Parameter folder.
3. If the Outbound Parameter PACK_SIZE_BULK exists, proceed with the next step as described in Assign Outbound Parameter to Replication Model and Outbound Implementation.
4. If the Outbound Parameter PACK_SIZE_BULK does not exist, then click on “New Entries” button and enter the following field values.

Outbound Parameter	Mandatory
PACK_SIZE_BULK	

5. Click on “Save” button to save the changes.

ISU – Device

Use the following steps to verify the outbound parameter in the Outbound Implementation:

1. Run t-code MDGIMG and select General Settings > Data Replication > Enhance Default Settings for Outbound Implementations > Define Outbound Implementations.
2. Select the Outbound Implementation /UGI/I_DV and click on the Assign Outbound Parameter folder.
3. If the Outbound Parameter PACK_SIZE_BULK exists, proceed with the next step as described in Assign Outbound Parameter to Replication Model and Outbound Implementation.
4. If the Outbound Parameter PACK_SIZE_BULK does not exist, then click on “New Entries” button and enter the following field values.

Outbound Parameter	Mandatory
PACK_SIZE_BULK	

5. Click on “Save” button to save the changes.

ISU – Device Location

Use the following steps to verify the outbound parameter in the Outbound Implementation:

1. Run t-code MDGIMG and select General Settings > Data Replication > Enhance Default Settings for Outbound Implementations > Define Outbound Implementations.
2. Select the Outbound Implementation /UGI/I_DL and click on the Assign Outbound Parameter folder.
3. If the Outbound Parameter PACK_SIZE_BULK exists, proceed with the next step as described in Assign Outbound Parameter to Replication Model and Outbound Implementation.
4. If the Outbound Parameter PACK_SIZE_BULK does not exist, then click on “New Entries” button and enter the following field values.

Outbound Parameter	Mandatory
PACK_SIZE_BULK	

5. Click on “Save” button to save the changes.

Assign Outbound Parameter to Replication Model and Outbound Implementation

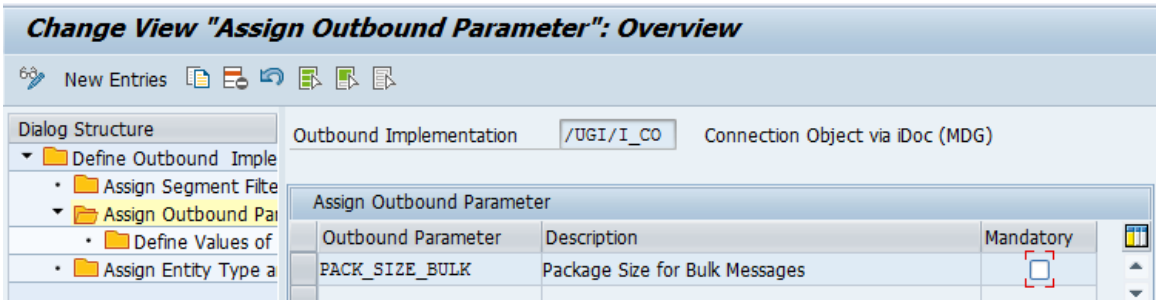
Use the following steps to assign an outbound parameter to Replication Model and Outbound Implementation:

1. Run transaction MDGIMG and select General Settings > Data Replication > Define Custom Settings for Data Replication > Define Replication Models.
2. Select the created Replication Model and click on the Assign Outbound Implementation folder.
3. Select the assigned Outbound Implementation and click on the Assign Outbound Parameter folder.
4. Enter the parameter value for the mandatory Outbound Parameter PACK_SIZE_BULK as displayed in the following table:

Outbound Parameter	Description	Mandatory	Parameter Value	Value Description
PACK_SIZE_BULK	Package Size for Bulk Messages	X	<100>	<Distribute 100 at a time>

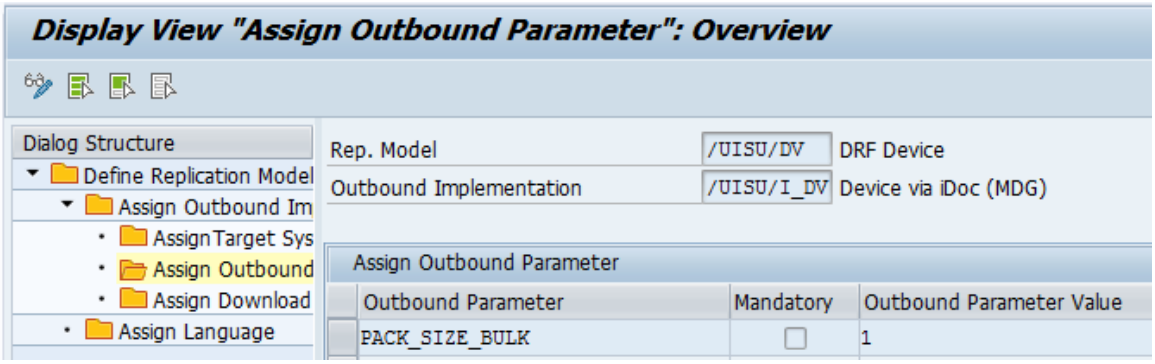
ISU – Connection Object

A sample screen is displayed with an example:



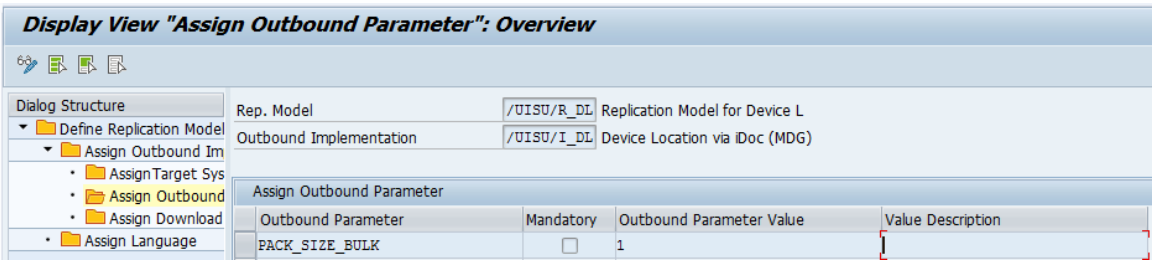
ISU – Device

A sample screen is displayed with an example:



ISU – Device Location

A sample screen is displayed with an example:



Activate the Replication Model

Use the following steps to activate the replication model:

1. Run t-code MDGIMG and select General Settings > Data Replication > Define Custom Settings for Data Replication > Define Replication Models.
2. Select the created Replication Model and click on the Activate button.

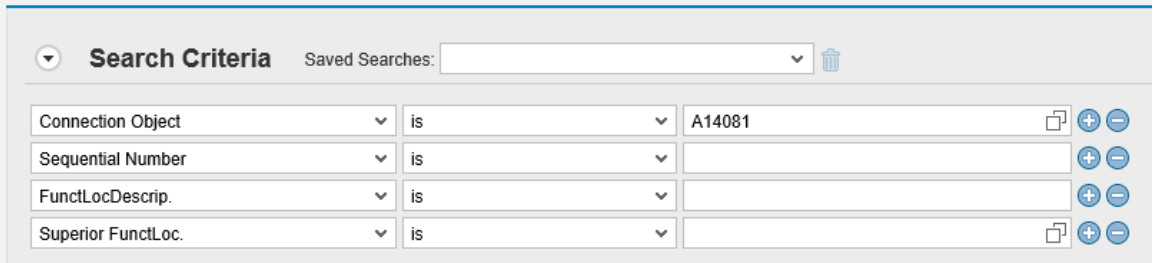
   Note: Refer to the successful activation of Replication Model in the log.

Data Replication

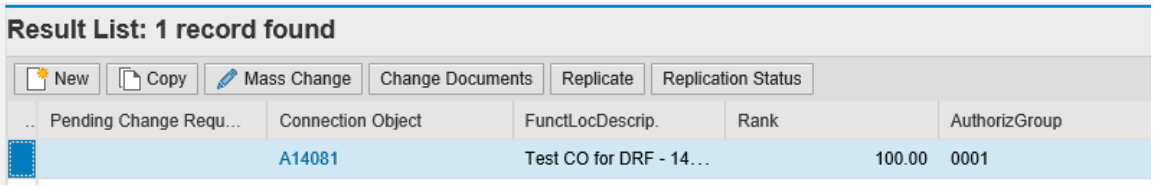
ISU – Connection Object

Use the following steps for Data Replication:

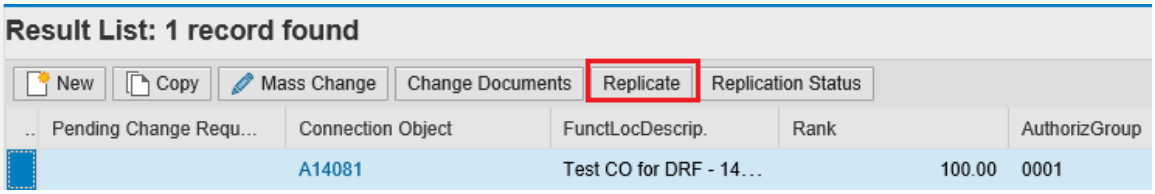
1. Search for Connection Object.



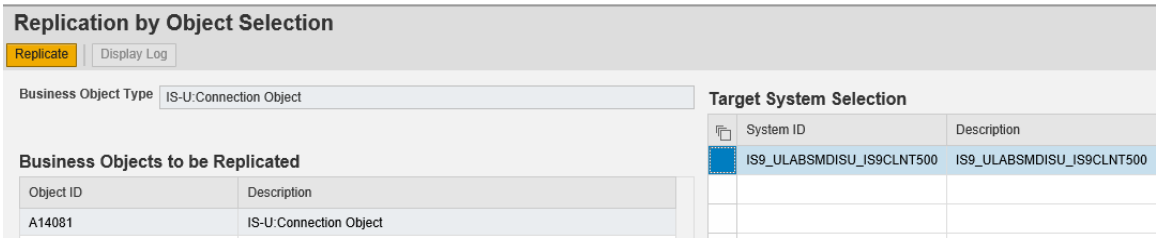
2. Select the entry from search result.



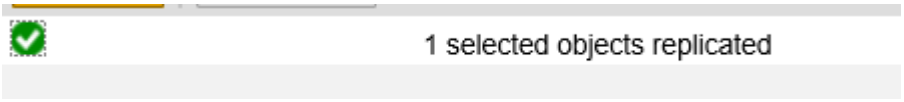
3. Click on “Replicate” button.



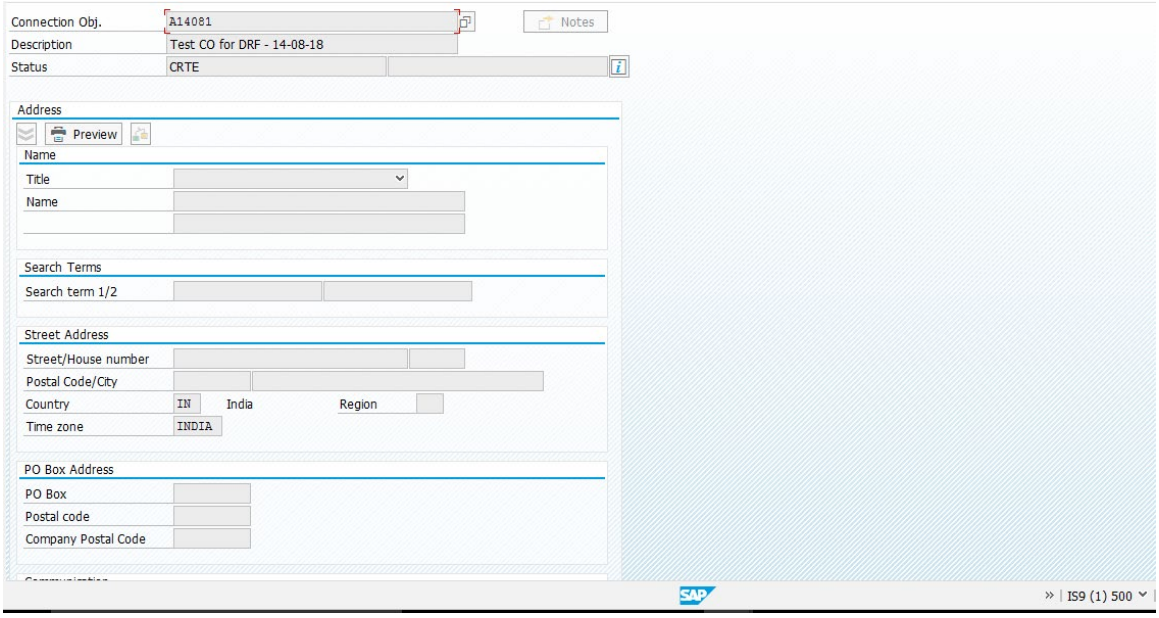
4. Select the Target System.



5. Click on “Replicate” button.



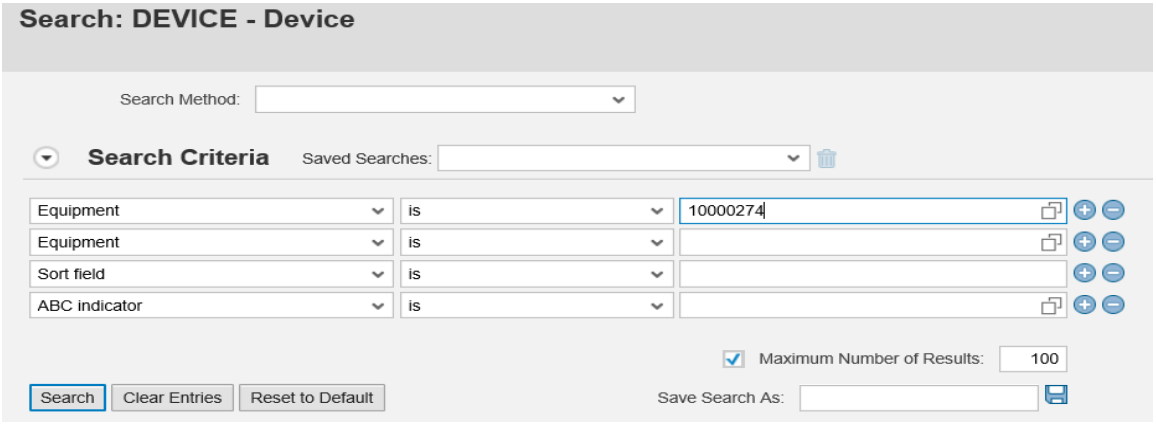
6. Login to the Target system and check whether the Connection Object is replicated or not.



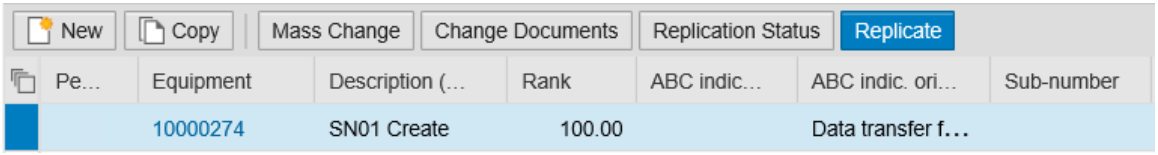
ISU – Device

Use the following steps for Data Replication:

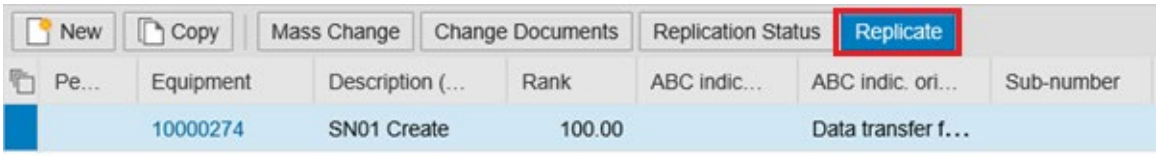
1. Open NWBC and search for device.



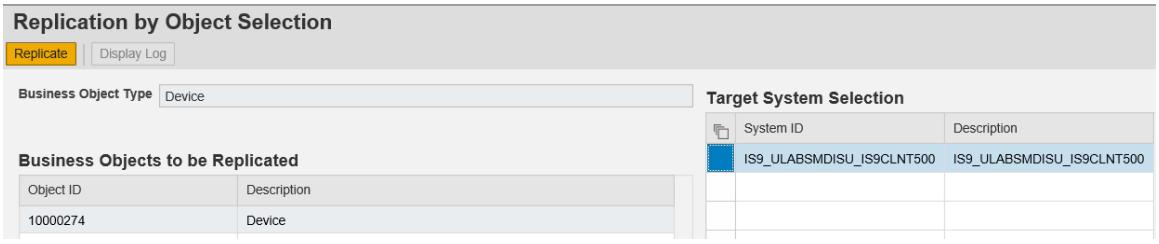
2. Select the device from the search result.



3. Click on “Replicate” button.



4. Select the target system, where device to be replicated.



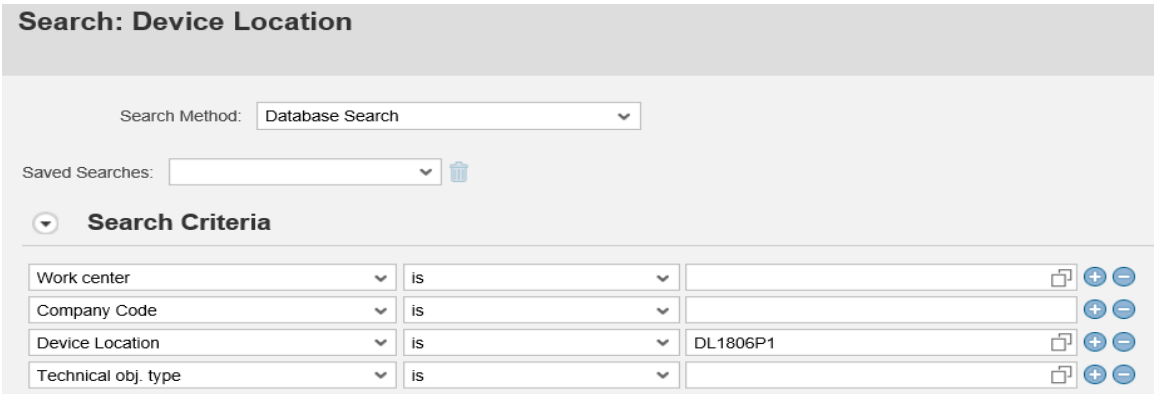
5. Click on “Replicate” button.

6. Login into target system to confirm the replication happened correctly.

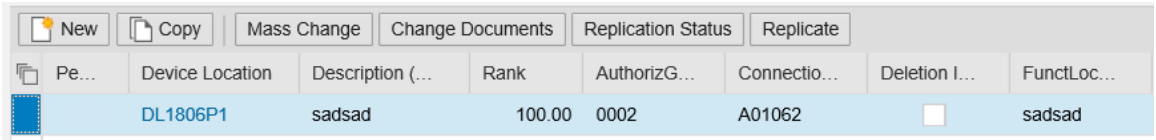
ISU – Device Location

Use the following steps for Data Replication:

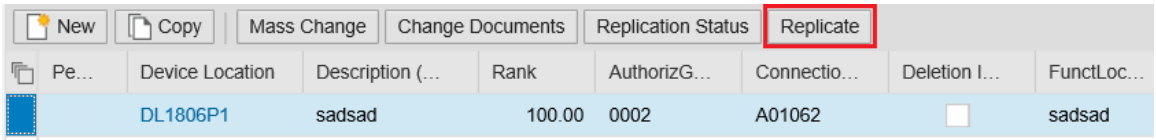
1. Open NWBC and search for Device location.



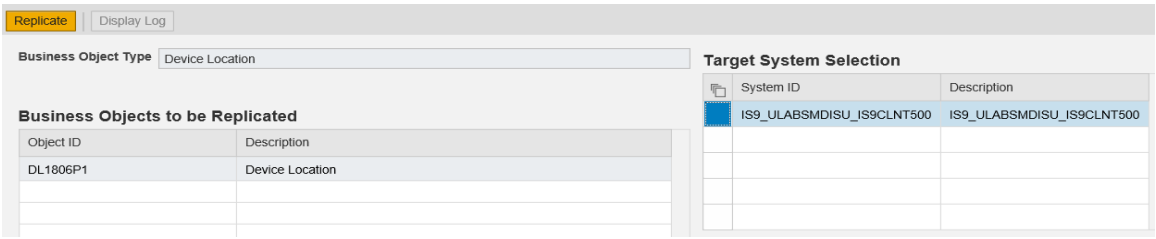
2. Select the Device location from the search result.



3. Click on “Replicate” button.



4. Select the target system, where Device location to be replicated.



5. Click on “Replicate” button.

6. Login into target system to confirm the replication happened correctly.