



ramco

Ramco Aviation Solution

Version 5.7.6

Enhancement Notification

Data Replication

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TABLE OF CONTENTS

DATA REPLICATION	4
ABILITY TO REPLICATE MASTER DATA ACROSS OPERATING UNITS OF AN ENTERPRISE	4
<i>Background</i>	4
<i>Change Details</i>	4
<i>Enabling Data Replication for the installation</i>	4
<i>Central Data Replication Configurator</i>	4
1. Setup Operating Units for Data Replication.....	5
2. Setup Entities for Data Replication	7
3. Setup Data Elements for Replication	8
4. Setup Data Subscription for Recipient Unit	9
5. Setup Default Values for Data Elements	10
6. Set options.....	11
7. Initialize Operating Unit.....	12
<i>Data Replication Review</i>	13
8. Review / Reinitiate Data Replication	14
<i>Annexure</i>	17

DATA REPLICATION

Ability to replicate master data across operating units of an enterprise

Reference: AHBF-8675

Background

Business enterprise comprises of various functions, with operating relationships established among them. Large organizations may be structured as multiple operating units, with operating networks spanning these units. The operating units may be completely independent, or have some form of collaborative relationship among them, ranging from financial, operational or policy standardization. These operating units can also be distinct legal entities, geographically dispersed and are operationally independent. Large business enterprise envisage standardization of core functions administered across the various operating units, with an intent to establish common practices, reduce data definitions, inconsistencies and standard reporting.

Centralized master data management becomes inevitable in order to achieve standardization of functions across operating units. The business need w.r.t centralized master data management is in the context that if a master data set is configured by one or the centralized business unit, then another business unit requiring the same data set should not be required to re-do the masters, rather, re-use the available definitions. Data replication feature facilitates replication of master data across operating units.

Change Details

A new business process “Data Replication” is developed to share data among operating units. Data Replication business process comprise of two business components; **Central Data Replication Configurator** and **Data Replication Review**.

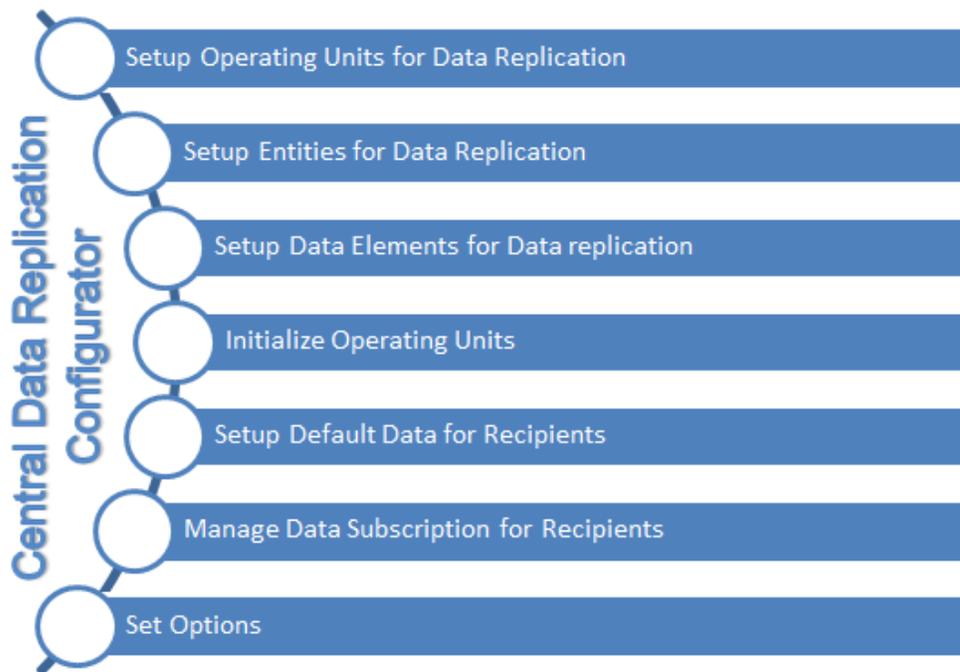
Enabling Data Replication for the installation

In the OU where **Central Data Replication Configurator** business component is deployed the option “Allow Data Replication across Companies?” needs to be set as “Yes”. This option is available in the **Set Global Parameters** activity in the **Installation Parameter setup** business component under the **Finance Setup** business process. Only after enabling this option, Central Data Replication Configurator setup can be initiated.

Central Data Replication Configurator

Data Replication Configurator is the framework to setup, manage and control data sharing across operating units. Configurator setup involves the following; identifying the operating

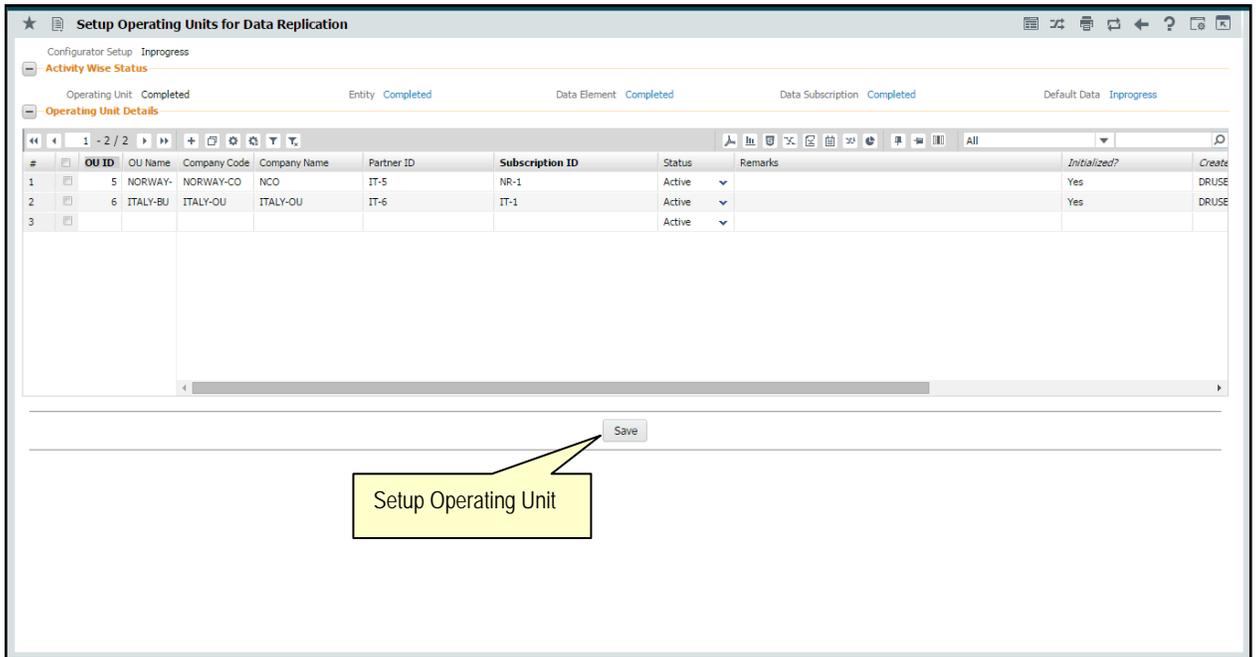
units for data sharing, setting up entity level and data element level rules for replication and setting up options governing the replication process. It also facilitates identifying operating unit specific value (referred as Default Value) for certain data elements like Warehouse, Material Planner etc. that are unique for each operating unit. The framework has provisions to downgrade the central data replication rules for one or more data elements specific to an operating unit, as required for its business operations. Once the setup is completed, each operating unit needs to be initialized using the initialization process. Upon initialization of an operating unit the master data (identified through entities and data elements) will be replicated as per the replication rules. Post initialization, any new master data that is created or changes made to an existing master data record will be replicated to other operating units that are already initialized, then and there.



1. Setup Operating Units for Data Replication

Setup Operating Units for Data Replication facilitates identification of Operating Units which are involved in the data replication process. This user interface lists all the operating units participating in data sharing model. It is also possible to add new operating units and replicate all the data which was created and is in use. If any of the operating unit needs to be removed from the data sharing process, then the operating unit can be inactivated. Once inactivated an operating unit cannot be activated again.

This activity can be launched from **Data Replication** business process and **Central Data Replication Configurator** component.



Activity Wise Setup Status

Setting up of configurator involves setting up of various activities i.e., setting up operating units, entities, data elements, default value and subscriber level replication strategy, of the configurator business component. Activity status can be any one of the following:

- **Pending:** Signifies the activity setup has not started.
- **Inprogress:** Signifies the activity setup is Inprogress.
- **Completed:** Signifies the activity setup is completed.

Configurator Setup: Refers to the overall status of the configurator setup across all activities. If all the activities involved in the setup process are completed then overall configurator setup can be updated as “Completed” from “Inprogress” by selecting the option “Configurator Setup Completed?” as “Yes” in the Set Options activity under Central Data Replication Configurator business component. This option is primarily given to facilitate administrator to review the setup, make necessary changes if required and then mark it as completed.

How to Setup Operating Units for Data Replication?

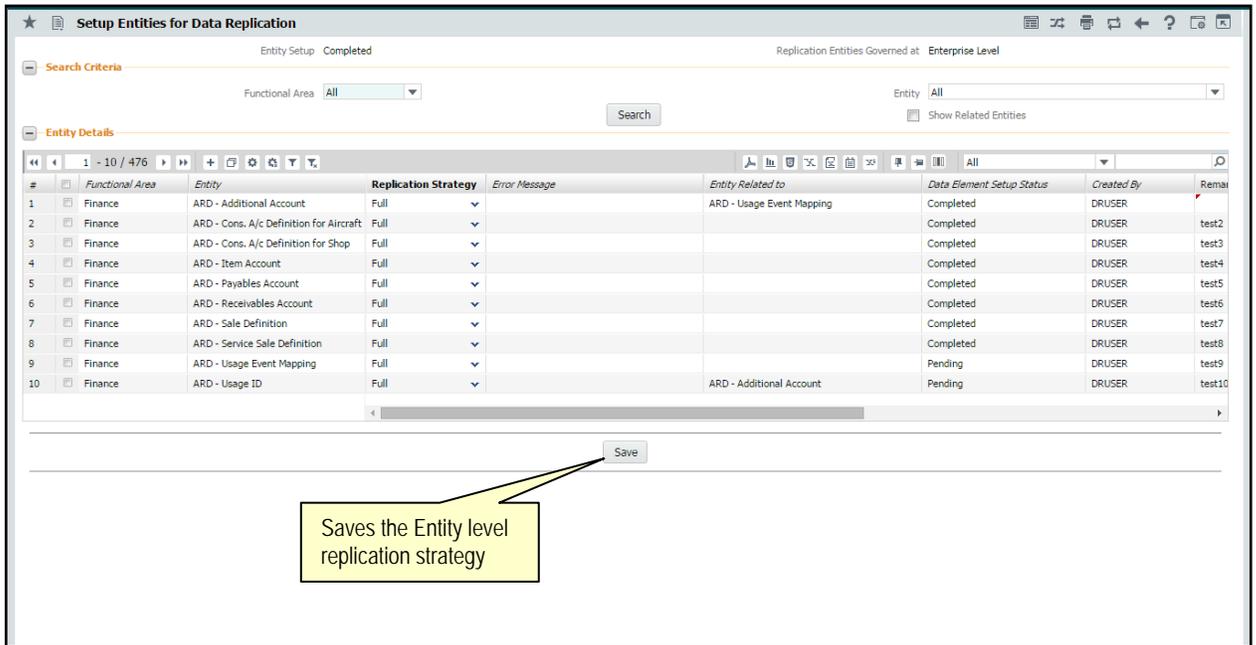
- i. Launch the Activity “Setup Operating Units for Data Replication” from Data Replication business process and “Central Data Replication Configurator” component.
- ii. On launch of the screen, enter the “OU ID” of the operating units participating in data sharing, Status should be “Active” and click on Save.

Note:

- a. Ensure that the OU ID entered is same as the OU ID configured during deployment.
- b. Ensure that OU ID and Subscription ID are unique.

2. Setup Entities for Data Replication

The entities that need to be replicated are identified in **Setup Entities for Data Replication** activity. For example, Part, Supplier, Customer etc., are listed as entities. The list of entities that are available for replication will be displayed in the multiline. Against each entity select a value for the field “Replication Strategy”. This can be any one of; Initial, Full or None. For entities that needs to be replicated, replication strategy should be set as “Initial” or “Full” as required for the business. If the Replication Strategy is chosen as “Initial” then for all the corresponding data elements of the entity at best the replication strategy can be set as “Initial”. Whereas if it is “Full”, Data Element level replication strategy for the entity can be set as “Initial” or “Full” etc., as permitted. If an entity need not be replicated then the strategy needs to be chosen as “None”.



- “Replication Entities Governed at” will be displayed as “Enterprise Level”. This identifies that the Entities identified for replication will be replicated among all the operating companies participating in data sharing arrangement.
- Data Element Setup Status represents the status of data element setup corresponding to the entity. It can be Pending, Inprogress or Completed. If the entity is not participating in replication then, Data Element Setup Status will be “Not Applicable”.

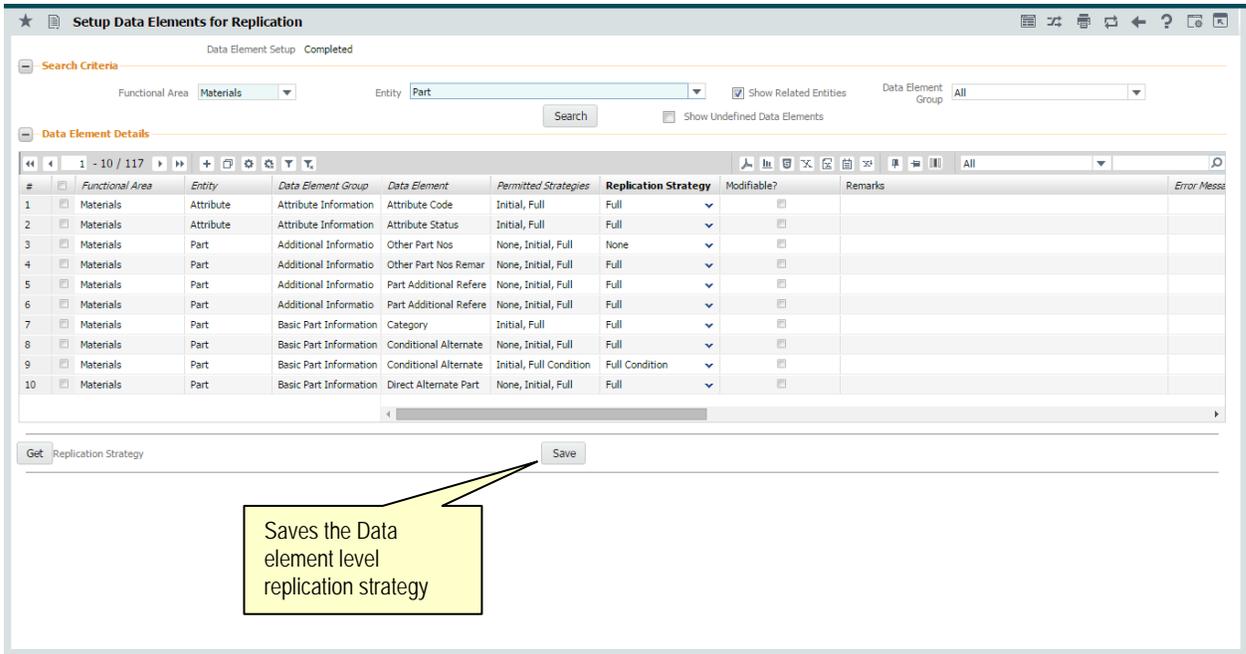
Also if an entity needs to be replicated, then all the entities related to the entity needs to be replicated. Entity Related To will display the dependent entity information. For example, if a part needs to be replicated, then the UOM should also be replicated as it is a dependent entity.

How to Setup Entities for Data Replication?

- i. Launch the Activity “Setup Entities for Data Replication” from Data Replication business process and “Central Data Replication Configurator” component.
- ii. On launch of the screen, select the search criteria and click on search. System will display the entities in the multiline.
- iii. Select the replication strategy and click “Save” button. It is also possible to export the contents to excel and import the file setting the replication strategy.

3. Setup Data Elements for Replication

This activity facilitates identification of replication strategy at the data element level corresponding to the entities that are identified for replication. Data Element is a logical group of individual constituent data, for example, Data Element “Shelf Life Details” has the following constituents; Shelf Life Unit, Designed Shelf Life, Minimum Shelf Life, Alert Value, Shelf Life Extendable?. Against each data element, permitted strategies are displayed, which can be any one or combination of Full, Full condition, Initial, None or Default Value that is possible. If a data element is specific to operating company i.e., cannot be set globally, then the permitted strategy for the data element will only be “Default Value”. Replication strategy for a data element can be set any one of the permitted strategy for the data element. Also, for each data element, “Modifiable?” flag can be selected if the replication strategy is allowed to be modified i.e., downgraded, for specific operating units. This activity can be launched from “Data Replication” business process and “Central Data Replication Configurator” component.



How to Setup Data Element?

- i. Launch the Activity “Setup Data Element for Replication” from Data replication business process and “Central Data Replication Configurator” component.
- ii. On launch of the screen, select the search criteria and click on search.
- iii. Select the Replication Strategy and if required “Modifiable?” flag for all the Data Elements and click “Save” button.

4. Setup Data Subscription for Recipient Unit

This activity facilitates downgrading of replication strategy at the data element level for specific operating unit as required. Hierarchy of replication status is as follows; Full, Full condition, Initial and None, as allowed for the data element i.e., permitted strategies. For example, if the central replication strategy selected for a data element is “Full” then it can be downgraded to “Initial”. However, it is not possible to upgrade replication strategy i.e., Initial cannot be modified as Full at operating unit level. This activity can be launched from “Data Replication” business process and “Central Data Replication Configurator” component.

Enhancement Notification

Manage Data Subscription for Recipients

Recipient Unit: IT-1

Search Criteria: Functional Area: Materials, Entity: Part

Data Elements Details

#	Functional Area	Entity	Data Element Group	Data Element	Central Repl. Strategy	Permitted Strategies	Modifiable?	Replication Strategy	Remarks
1	Materials	Part	Basic Part Information	Category	Full	Initial, Full	No	Full	
2	Materials	Part	Basic Part Information	Conditional Alternate	Full	None, Initial, Full	No	Full	
3	Materials	Part	Basic Part Information	Conditional Alternate	Full Condition	Initial, Full Condition	No	Full Condition	
4	Materials	Part	Basic Part Information	Direct Alternate Part	Full	None, Initial, Full	No	Full	
5	Materials	Part	Basic Part Information	Direct Alternate Part 5	Full Condition	Initial, Full Condition	No	Full Condition	
6	Materials	Part	Basic Part Information	Kit Composition	Full Condition	Initial, Full Condition	No	Full Condition	
7	Materials	Part	Basic Part Information	Kit Composition Rema	Full	None, Initial, Full	No	Full	
8	Materials	Part	Basic Part Information	Kit Information	Full	None, Initial, Full	No	Full	
9	Materials	Part	Basic Part Information	Kit Information Remar	Full	None, Initial, Full	No	Full	
10	Materials	Part	Basic Part Information	Misc Part Details	Full	None, Initial, Full	No	Full	

Save

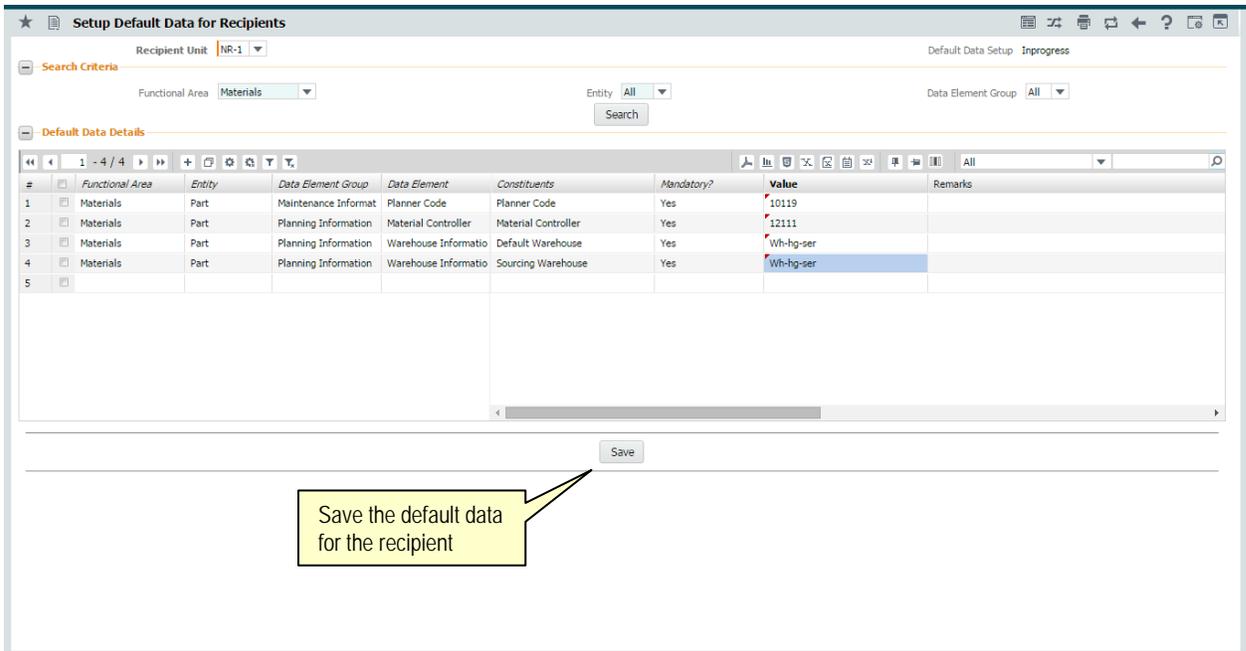
Saves the replication strategy at recipient unit level

How to Setup Data Element Subscription for each Recipient Unit

- Launch the Activity "Setup Data Element Subscription for Recipient Unit" from Data replication business process and "Central Data Replication Configurator" component.
- On launch of the screen, select the Recipient Unit for whom replication strategy for one or more data elements needs to be down graded
- Select search criteria and click on search.
- Downgrade the Replication strategy as required and click "Save" button.

5. Setup Default Values for Data Elements

Setup Default Values for Data Elements facilitates setting up of default values for Data Elements that are specific to each operating company. Some data elements like Material Planner, Warehouse are specific to an operating unit at the same time it is required for replication of entities like Part for example. This activity can be launched from "Data Replication" business process and "Central Data Replication Configurator" component.



How to Setup Default Values for each operating Unit?

- i. Launch the Activity “Setup Default Values for Data Elements” from Data replication business process and “Central Data Replication Configurator” component.
- ii. On launch of the screen, select the Recipient Unit for which Default Value needs to be provided.
- iii. Select search criteria as required and click the “Search” button. System will display the Data Elements for which default value needs to be set.
- iv. Enter the Default Value and click “Save” button.

6. Set options

The Set options involved in data replication are available in Business Process “Data Replication”, “Central Data Replication Configurator” component and “Set Options” activity. The Set options are broadly classified under the two categories “Entity Status for Replication” and “Configurator Setup”.

Configurator Setup

The options under the category “Configurator Setup” enables the organization to make configuration level modifications required. The following options are available.

Enhancement Notification

Parameter	Description	Permitted Values
Configurator Setup Completed?	This option can be used to indicate if Configurator Setup is completed. This option needs to be set as "Yes" after completing the set up process and prior to initialization.	Enter '0' for 'No' , '1' for 'Yes'
Allow modification of Data Replication Setup even if the Configurator Setup is "Completed"?	This option can be used to indicate if modification of data replication setup is allowed after completion of Configurator setup. This option can be used to stop user from modifying setup if it's already in completed status.	Enter '0' for 'No' , '1' for 'Yes'

Entity Status for Replication

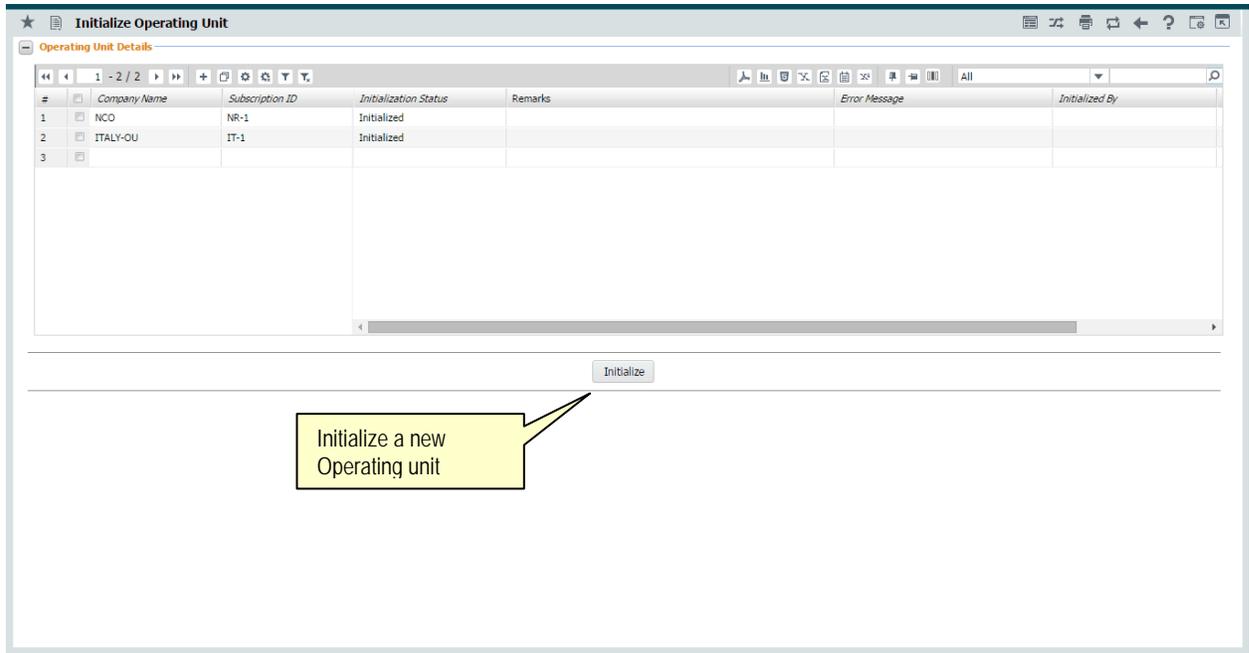
The options under the category "Entity Status for Replication" enable the organization to define the status of the replicated entities that needs to be updated after successful replication in all the recipient units.

Parameter	Description	Permitted Values
Reference Status of Entity "Customer"	This option allows the Reference Status of Customer to be updated as "Active" or "Inactive" post replication.	Enter '1' for 'Active' , '2' for 'Inactive'
Operational Status of Entity "Customer"	This option allows the Operational Status of Customer to be updated as "Active" or "Inactive" post replication.	Enter '1' for 'Active' , '2' for 'Inactive'
Status of Entity "Supplier"	This option allows the Status of Supplier to be updated as "Active" or "Inactive" post replication.	Enter '1' for 'Active' , '2' for 'Inactive'
Config. Status of Entity "Part Configuration"	This option allows the Config. Status of Part Configuration to be updated as "Fresh" or "Approved" post replication.	Enter '1' for 'Fresh' , '2' for 'Approved'
Config. Status of Entity "Model Configuration"	This option allows the Config. Status of Model Configuration to be updated as "Fresh" or "Approved" post replication.	Enter '1' for 'Fresh' , '2' for 'Approved'
Status of Entity "Part Program"	This option allows the Status of Part Program to be updated as "Fresh" or "Active" post replication.	Enter '1' for 'Fresh' , '2' for 'Active'
Status of Entity "Model Program"	This option allows the Status of Model Program to be updated as "Fresh" or "Active" post replication.	Enter '1' for 'Fresh' , '2' for 'Active'

7. Initialize Operating Unit

This activity facilitates initialization of operating units. It is required to initialize operating units to facilitate data replication. During initialization system ensures that entities that are identified for replication are not defined already in the operating unit. Also upon initialization, all the data from the source operating unit will be replicated to the operating unit that is initialized. Once an operating unit is initialized, any new master data created in the source

operating unit or modification of any master record will be propagated. This activity can be launched from “Data Replication” business process and “Central Data Replication Configurator” component.

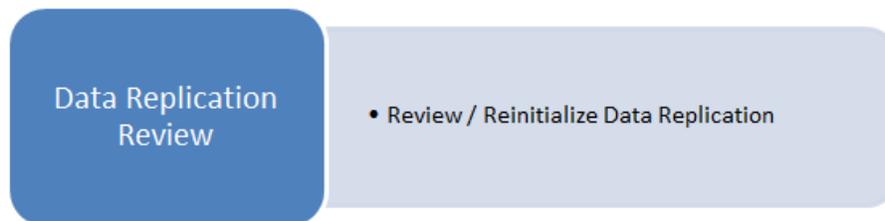


How to Initialize Operating Unit?

- i. Launch the Activity “Initialize New Operating Company”.
- ii. Select the operating unit and click on “Initialize” button.

Data Replication Review

Data Replication Review business component facilitates operating units to review the replicated data and reinitiate replication if replication had failed because of any data inconsistencies etc.



8. Review / Reinitiate Data Replication

Review / Reinitiate Data Replication facilitates the user to review any data replicated. This screen can be used by the source unit to review the status of the data propagation across participating operating units. Recipient Unit can review the status of the incoming data from the Source Unit. Recipient Unit can re-initiate the unsuccessful data propagation after clearing the exceptions. Recipient Units can review and mark the replicated records as reviewed, if required. Typically all the entities that are replicated after initialization will be displayed in this screen. This activity can be launched from “Data Replication” business process and “Data Replication Review” component.

The screenshot displays the 'Review / Reinitiate Data Replication' interface. At the top, there are search criteria including 'From / To Date' (24/08/2015 to 31/08/2015), 'Functional Area' (All), 'Entity' (All), 'Replication Status' (Pending, Success, Success-Req. Review, Failure), 'Replication Mode', 'Display Option' (Recipient Info), and 'Reviewed?'. Below the search criteria is a 'Search Results' section with a table of 10 rows. The table columns are: #, Functional Area, Entity, Entity #, Entity Description, Replication Mode, Replication Status, Reviewed?, and Comments. The 'Save' button is located below the table, and the 'Reinitiate' button is to its right. Two callout boxes provide additional information: one pointing to the 'Save' button stating 'Saves the reviewed information', and another pointing to the 'Reinitiate' button stating 'Reinitiates the replication process'.

#	Functional Area	Entity	Entity #	Entity Description	Replication Mode	Replication Status	Reviewed?	Comments
1	Materials	Part	213:244-001_T123		New	Success	<input type="checkbox"/>	
2	Materials	Part	213:244-001_T124		New	Pending	<input type="checkbox"/>	
3	Materials	Part	213:244-001_T125		New	Success	<input type="checkbox"/>	
4	Materials	Part	213:244-001_T126		New	Success	<input type="checkbox"/>	
5	Materials	Part	213:244-001_T127		New	Success	<input type="checkbox"/>	
6	Materials	Part	213:244-001_T128		New	Success	<input type="checkbox"/>	
7	Materials	Part	213:244-001_T129		New	Success	<input type="checkbox"/>	
8	Materials	Part	213:244-001_T130		New	Success	<input type="checkbox"/>	
9	Materials	Attribute	UT_ATTCODE		New	Failure	<input type="checkbox"/>	
10	Materials	Attribute	ATT_MLTOU		New	Success	<input type="checkbox"/>	

Point of Replication

Point of replication of entities are provided in the below table.

Functional Area	Entity	Replication Condition	
		Creation	Modification
Maintenance	Model Configuration	On Approval of the zeroth revision of Model configuration	On subsequent approval of Model configurations revision
Maintenance	Part Configuration	On Approval of the zeroth revision of Part configuration	On subsequent approval of Part configurations revision
Maintenance	Part Program	On Authorization of zeroth revision of Part Program	n subsequent approval of Part Programs revision
Maintenance	Model Program	On Authorization of zeroth revision of Model Program	On subsequent approval of Model Programs revision
Maintenance	Maintenance Task	On Authorization of Task	When any value is modified or on subsequent revision authorization.
Materials	Part	On Activation of Planning Status of the Part.	When any value is modified.
Materials	Supplier	On Activation of Supplier Status of the supplier.	When any value is modified.
Materials	Numbering Type	When transactions are mapped to the Numbering Type.	When any value is modified.
Finance	Chart of Accounts	On successful inclusion of the Account Codes	When any value is modified.
Sales	Customer	On activation of Operational Status of the Customer.	When any value is modified.
Sales	Part Pricelist	On Activation of Part Pricelist	On Activation of Part Pricelist revision Number
Sales	Service Pricelist	On Activation of Service Pricelist	On Activation of Service Pricelist revision number
Common	Quick Codes	When the Quick Code is activated.	When any value is modified.
Common	Set Options	When Set Option value is entered	When any option value is modified.
Common	Other small entities	When the Entity is activated.	When any value is modified.

View Source and Owner Information

Source and owner for the replicated data can be viewed in the following screens for the entities listed.

Entity	Screen
Customer	View Customer Record
Customer	View Sales Point Information
Part Pricelist	Manage Part Pricelist
Service Pricelist	Manage Service Pricelist
Part	View Parts Information
Supplier	View Supplier Details
Supplier	View Location Details
Numbering Type	View Numbering Type
Task	View Task
Model Configuration	View Model Configuration
Part Configuration	View Part Configuration
Model Program	Edit Maintenance Program
Part Program	View Part Program Information

Annexure

Terminologies used

Terminologies used in the data replication context are described below.

Functional Area

Functional Area can be any one of Maintenance, Materials, Finance, Sales and HRMS. It is the logical grouping of various business processes and business components of Ramco Aviation Solution. Functional Area will be a system defined value that is associated to each Entities participating in Data Replication. Functional Area will help quickly search for entities that belong to an area and helps setup/review if there are functional owners.

Entity

Entity represents a Master Data that is required to be replicated across various operating companies participating in the Data Sharing Model. Part, Supplier, Tasks etc. are examples of entity.

Data Element Group

Data element group consists of one or more data elements logically grouped within an entity. Similar data elements will be grouped under a data element group. For example, "Basic Part Information" is a data element group under the entity "Part" which contains the basic information about a part.

Data Element

Data elements represent one or a logical group of related data items that comprise a Data Element Group of an Entity.

Replication Strategy

Identifies the strategy for replication of an entity and its data element. Replication Strategy for an Entity can be Full, Initial or None. Replication Strategy for a Data Element can be Full, Full Condition, Initial or None as applicable for the data element and its constituents.

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