Standard Operating Procedure

SYN500 – Advanced Data Migration Code Promotion

VERSION 1.0

DOCUMENT HISTORY

Version	Comments	Date	Changed by
1.0	1st Draft	21st September 2020	A Lund
1.1	Updated path to locate Crawl All Transform Objects	11/28/2022	E Warden

Contents

1 Code Promotion Overview

This standard operating procedure defines Syniti's recommended approach for implementing an end-to-end code promotion process within a migration project that uses the Stewardship Tier's Advanced Data Migration solution. This procedure is required on projects that utilize multiple Stewardship Tier instances to manage design, build and execution activities.

The following is the recommended instance promotion set up:

Development Life Cycle

In order to effectively manage change, it is recommended that design/mapping and relevancy specifications are agreed, and that the associated ADM transformation is built and unit tested against the agreed specification. This will ensure that the project has a baseline (per object) against which to manage inevitable changes arising out of functional testing using migrated data or during business validation activities.

The following diagram shows the recommended development life cycle up to point of transport of code into the 2nd Stewardship Tier. At this point, it is recommended that the full change management process is implemented.

NOTE: This flow is typically on an object-by-object basis.
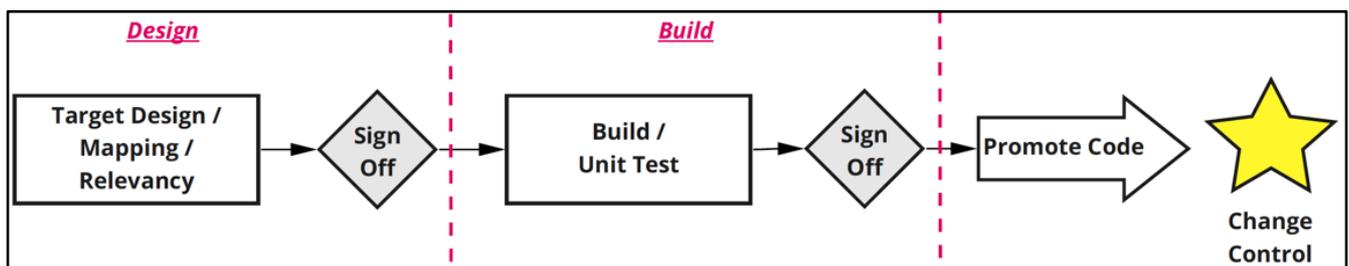
It is recommended that projects implement an issue/defect management tool that enables defects resulting from preload/postload validation or functional testing to logged against specific ADM Wave / Process Area / Objects and to be classified as either a "Migration Defect" (requirement defined and implemented incorrectly) or a "New Migration Requirement" (new migraition requirement not in previously specified). Ensuring that all migration changes follow this process will provide project managers with important data through which to manage the project. For example, differentiating new requirements from defects may help justify change requests for additional resource and registering defects against ADM Wave / Process Area / Objects will enable status reports to be easily enriched with issue/defect information.

Once the ADM code has been promoted into the next Stewardship Tier instance, it is likely that a load cycle will be conducted, and the resulting data be used to support functional testing. If issues are discovered during the load cycle, either due to errors in the process or feedback during preload and postload validation, it is recommended that they are logged as issues/defects and either fixed as part of the load cycle or parked and fixed at a later date. During functional testing, defects may be raised that are subsequently indentifed as data migration issues. While this is considered a project defect, investigation is needed to be able to understand whether the highlighted issue is a defect of the built solution or a new requirement. Depending on the root cause analysis, it will either be fixed or designs (relevancy, target design, field mapping or value mapping) will need to be updated and the associated code built.
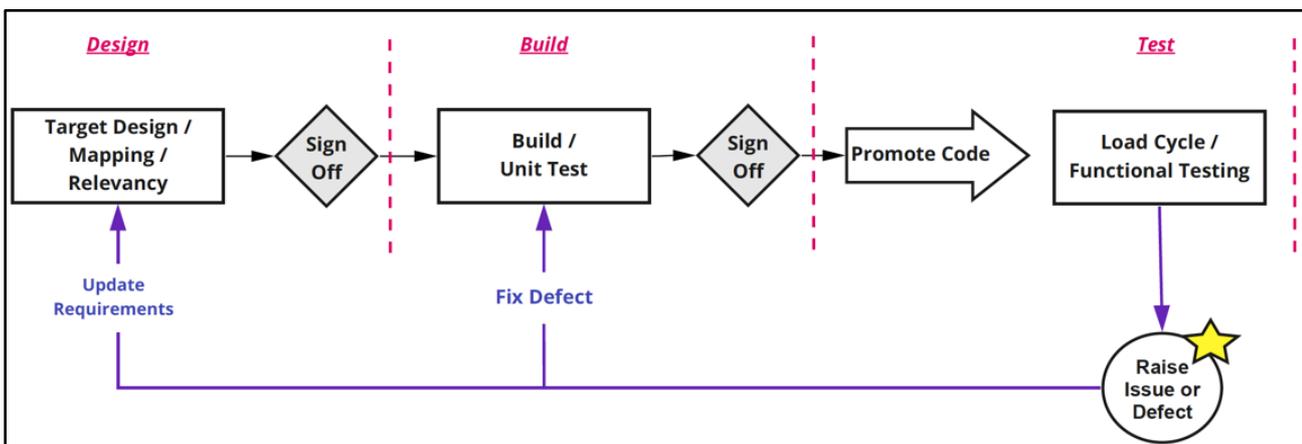

Advanced Data Migration: Code Promotion Approach

When considering what code needs to be promoted through the development landscape, it is important to understand which additional Stewardship Tier platform components are being used in addition to the ADM solution and whether any other third-party tools, such SAP Data Services or Dell Boomi (Syniti Connect) are part of the solution.

The following diagram shows the recommended approach to packaging and transporting ADM Solutions and includes a reference to recommended technology to be used to manage the process.

Refer to section Create Code Promotion Package for a step-by-step guide explaining how to create these packages.
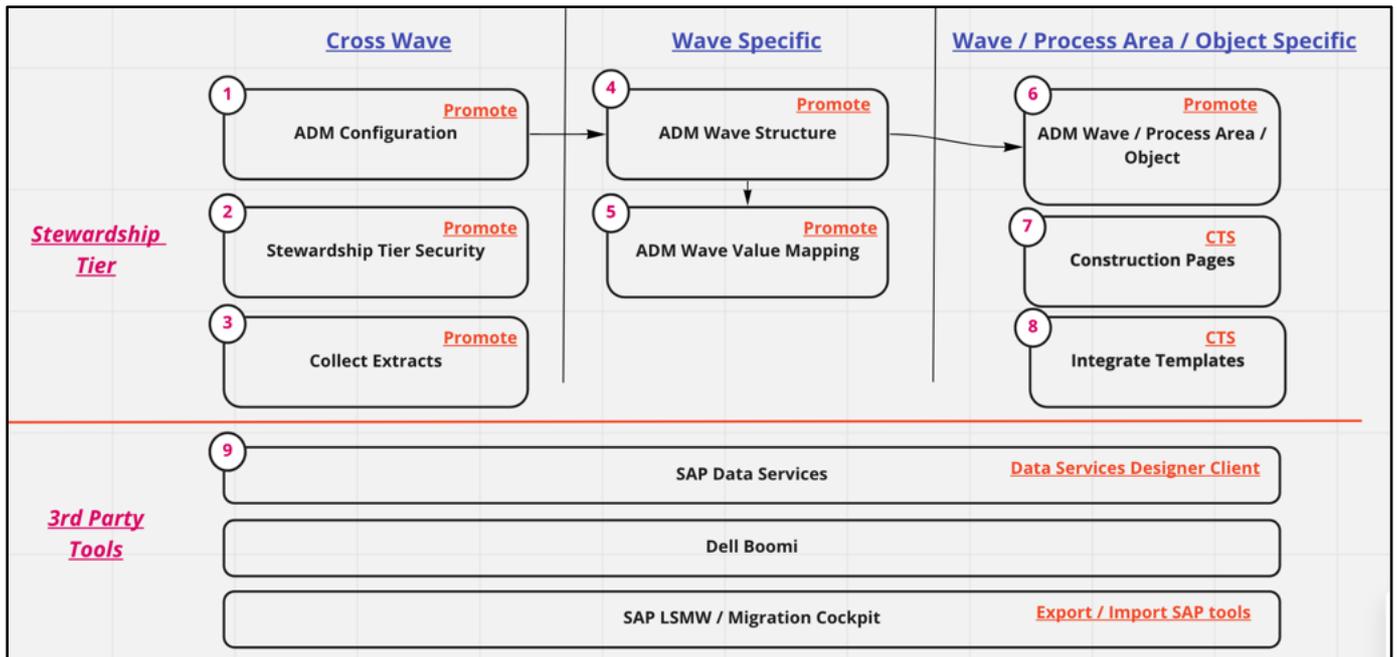
2 Who Performs this Procedure

It is recommended that users with the following roles are involved the code promotion process:

- **Code Promotion Lead—**responsible for defining and managaing the overall code promotion process
  - **Stewardship Tier role**: Promote Code Promotion Manager
- **Code Promoter(s)—**responsible for creating code promotion packages and transporting them through the landscape.
  - **Stewardship Tier role**: Promote Code Promotion Manager
- **Code Promotion Approver(s)—**responsible for reviewing and approving code promotion packages
  - **Stewardship Tier role**: Promote Approver

3 Migration Wave Code Promotion Planning

Before starting to package code ready for transport, it is recommended that time is taken to understand the overall technology landscape (Stewardship Tier Instance, Instance of third-party tools, etc) and to consider what activities will be performed where. It is recommended that a matrix is developed to ensure that all stakeholders are aligned. From a Stewardship Tier perspective, Syniti recommends that the approach defined below is adopted, and this procedure and supporting configuration in the Stewardship Tier is aligned to these rececommendations. Deviations from this approach will require modifications to the approach outline here.

Recommended Migration Activities by Stewardship Tier Instance

The following matrix defines the high-level activities that Syniti recommends be perform in/from a typical three-tier Stewardship Tier landscape.

PHASE	ACTIVITY	STEWARDSHIP TIER INSTANCE		
		DEVELOPMENT	QUALITY	PRODUCTION
Design	Target Design	Yes	No	No
	Field Mapping	Yes	No	No
	Value Mapping*	Optional	Optional	Optional
Build	Source Rules / Reports	Yes	No	No
	Target Rules / Reports	Yes	No	No
	Load Tool	Yes	No	No
	Data Construction Pages	Yes	No	No
Execute	Construct Data**	Optional	Optional	Optional
	Extract Source Data	Yes	Yes	Yes
	Extract Target Data	Yes	Yes	Yes
	Execute Transformation	Yes	Yes	Yes
	Preload Validation	Yes	Yes	Yes
	Load Data	Yes	Yes	Yes
	Post Load Validation	Yes	Yes	Yes

*Value Mapping: Typically, full source extracts from production systems are done within the development environment. This allows profiling of data based on the active records and the associated value mapping to be done in development, and then transported through the landscape. In some project's scenarios, production source data is not permitted in development Stewardship Tier landscapes. Therefore, profiling and value mapping may need to happen in other instances.

**Construct Data: The collection of data via Construction pages requires careful consideration in terms of where users are instructed to perform these tasks. It is not advisable to keep redirecting users to different Stewardship Tier instances depending on load cycles as this causes confusion. However, depending on the complexity of Data Construction pages and the availability of Stewardship Tier instances, projects need to provide clear guidance on where these activities occur. Syniti's general guidance is that the construction of data should be done in the Stewardship Tier instance 1 level removed from the Development instance, so in a three-tier Development > Quality > Production environment. In this scenario, Data Construction web pages would be created in Development and be transported to Quality and users would log enter/maintain the data in the Quality System for all load cycles. This approach allows changes to Data Construction web pages to be made and tested in development before being transported to Quality in a controlled manner. In projects where the provision of Quality/Production Stewardship Tier environments is being done in a just-in-time manner, then users may need to start constructing data in Development and then switch to Quality once this environment is available.

Recommended Master Instance of Solution Component and Code Promotion Approach

The following sections define the recommended strategy for maintaining Stewardship Tier application data, SQL code and load tool followed by the recommended approach for Transport.
Security

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
Security	Users	Maintain in Each Instance	Manual Activity
	Application Roles	Maintain in Development Only	Promote
	Content Roles	Maintain in Each Instance	Manual Activity

Data Sources

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
Data Sources	Data Sources	Maintain in Development Only	Promote -> Manual Update
	SQL Databases	Maintain in Each Instance	Promote or Manual Create
	System Types	Maintain in Development Only	Promote

Collect

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
Collect	Targets	Maintain in Each Instance	Promote or Manual Create
	Target Sources	Maintain in Each Instance	Promote or Manual Create
	Target Source Tables	Maintain in Each Instance	Promote or Manual Create
	Extract Source Data	Maintain in Each Instance	Manual Activity
	Extract Target Data	Maintain in Each Instance	Manual Activity

ADM Configuration

| SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
ADM Config	Objects	Maintain in Development Only	Promote
	Process Area	Maintain in Development Only	Promote
	Load Cycles	Maintain in Development Only	Promote
	Planning Groups	Maintain in Development Only	Promote

ADM Console

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
ADM Console	Wave / Process Area / Object	Maintain in Development Only	Promote
	Wave Planning Groups	Maintain in Development Only	Promote
	Wave Load Cycles	Maintain in Development Only	Promote
	Wave / Process Area / Object / Targets	Maintain in Development Only	Promote
	Target Sources	Maintain in Development Only	Promote
	Target Design	Maintain in Development Only	Not Promoted
	Field Groups	Maintain in Development Only	Not Promoted
	Lookup Table Configuration	Maintain in Development Only	Promote
	Target Rules (Simple / Complex)	Maintain in Development Only	Not Promoted

ADM Map

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
ADM Map	Field Mapping	Maintain in Development Only	Not Promoted
	Value Mapping	Project Decision	Promote

Data Construction

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
Construction	DataConstruction WebApp Pages	Maintain in Development Only	CTS
	DataConstruction WebApp Page Data	Project Decision	Collect

ADM Transform

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
ADM Transform	Target Table	Maintain in Development Only	Promote
	Target Reports	Maintain in Development Only	Promote
	Target Rules	Maintain in Development Only	Promote
	Target Remediation Reports	Maintain in Development Only	Promote
	Target Exports	Maintain in Development Only	Promote
	Target Report User Assignment	Maintain in Each Instance	Promote Once -> Manual Activity
	Target Source Table	Maintain in Development Only	Promote
	Target Source Rules	Maintain in Development Only	Promote
	Target Source Reports	Maintain in Development Only	Promote

SQL Objects

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
SQL Objects	Target Tables	Maintain in Development Only	Promote
	Source Tables	Maintain in Development Only	Promote
	Source Rules Views / Procedures	Maintain in Development Only	Promote
	Source Report Views	Maintain in Development Only	Promote
	Target Reports Views	Maintain in Development Only	Promote
	Target Rules Views / Procedures	Maintain in Development Only	Promote
	Target Export Views	Maintain in Development Only	Promote
	Remediation Rule Views / Procedures	Maintain in Development Only	Promote
	Supporting Rule Tables	Maintain in Development Only	Promote
	Static Cross Reference Tables	Maintain in Development Only	Promote
	Load Cycle Specific Cross Refence Tables	Maintain in Development Only	Promote
	Custom Functions	Maintain in Development Only	Promote

SQL Data

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
SQL Data	Supporting Rule Data	Maintain in Development Only	Promote
	Static Cross Reference Data	Maintain in Development Only	Promote
	Load Cycle Specific Cross Refence Data	Maintain in Each Instance	Manual Activity

Load Tools

SOLUTION COMPONENT TYPE	SOLUTION COMPONENT	STEWARDSHIP TIER DATA MAINTENANCE APPROACH	TRANSPORT APPROACH TO NEXT TIER
Load Tool	Integrate	Maintain in Development Only	CTS
	LSMW	Maintain in Development Only	Export / Import
	Migration Cockpit	Maintain in Development Only	Export / Import
	SAP Data Services	Maintain in Development Only	Export / Import
	Dell Boomi	Maintain in Development Only	Export / Import

4 Procedure Steps

4.1 Create Code Promotion Packages

This section details the steps that need to be performed to create the Code Promotion Packages defined within Syniti's recommended approach for promoting ADM solutions.
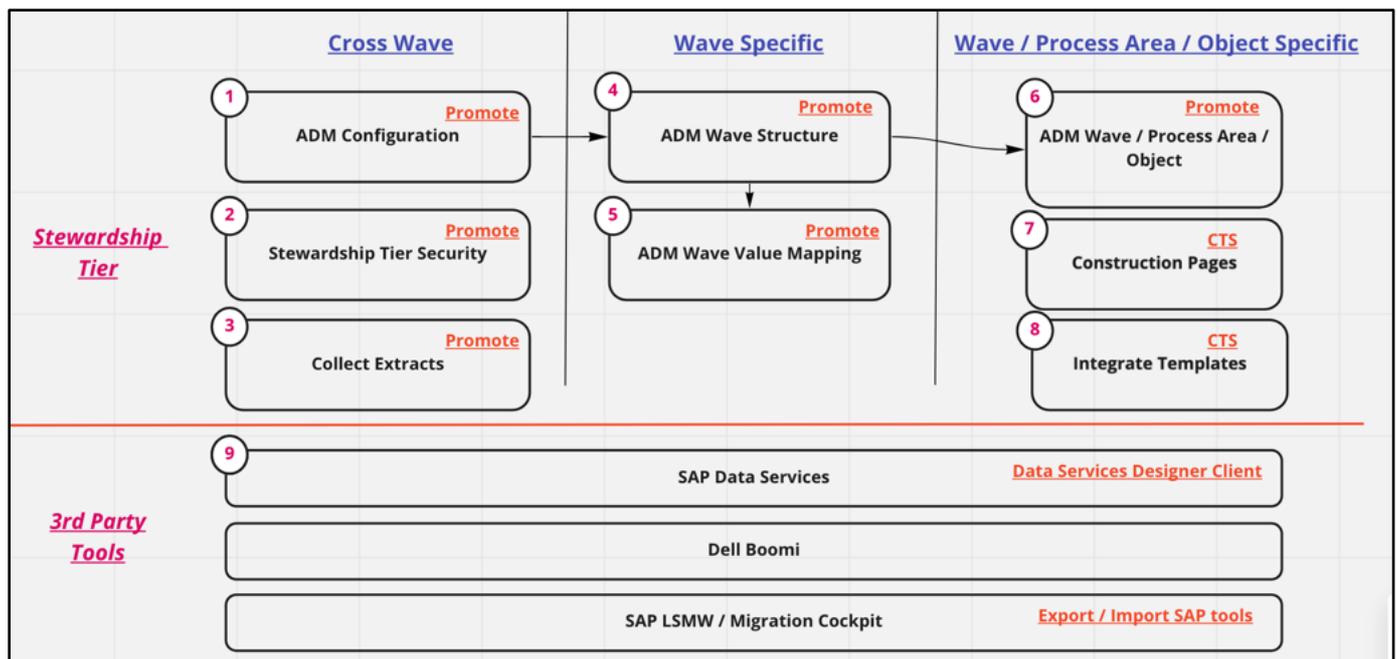
If projects need to deviate from this approach, adaptations to the process will need to be made. It Is recommended that a copy of this document is made, and the project specific procedure documented.

4.1.1   1 - Create ADM Configuration Promotion Package

Syniti recommends that the Stewardship Tiers Promote component is used to transport any key changes to configuration and new master data.

Step 1: Create ADM Configuration Package Group

1. Navigate to **Promote > Packages**.
2. Add New Package Group.
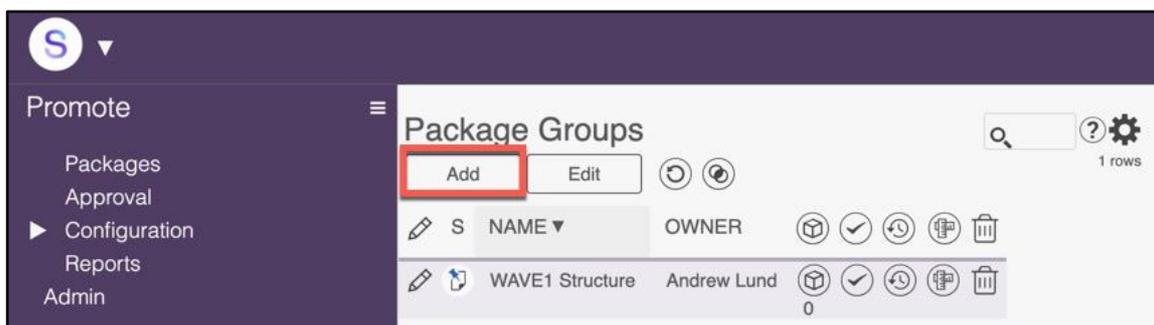
3. Enter "ADM Configuration" in the **NAME** field and the name of Package Group owner in the **OWNER** field. The name in the OWNER field is soley for reference purposes.

4. Click **Save**.

Step 2: Copy Packages from Template

1. Click the **Copy Template** button on the *Horizontal* View of 'ADM Configuration' Package Group. This will open the *Copy Template* page in the child pane.
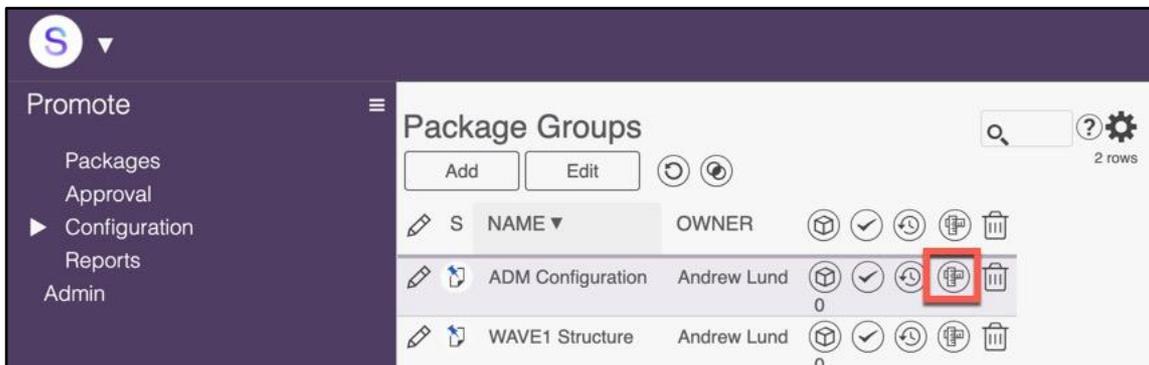
2. Click **Edit**.
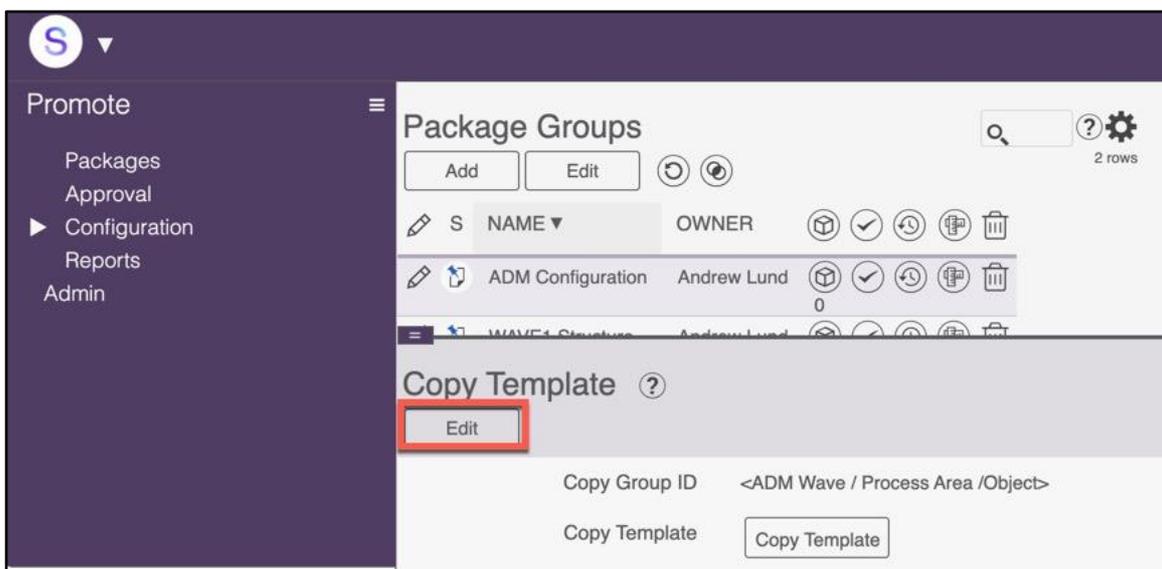
3. Select **<ADM Configuration>** from the **Copy Group ID** drop down list and click **Save**.

4. Click **Copy Template**.

5. Click the **Packages** button on the *Horizontal* View of 'ADM Configuration' Package Group. This will open the *Packages* page in the child pane. Verify that two packages called 'Console Configuration' and 'Transform Configuration' have been automatically added and that the **Destination ID** is set to the Stewardship Tier to where the data/code needs to be sent.

> **NOTE:** No additional filtering criteria needs to be assigned to these packages.
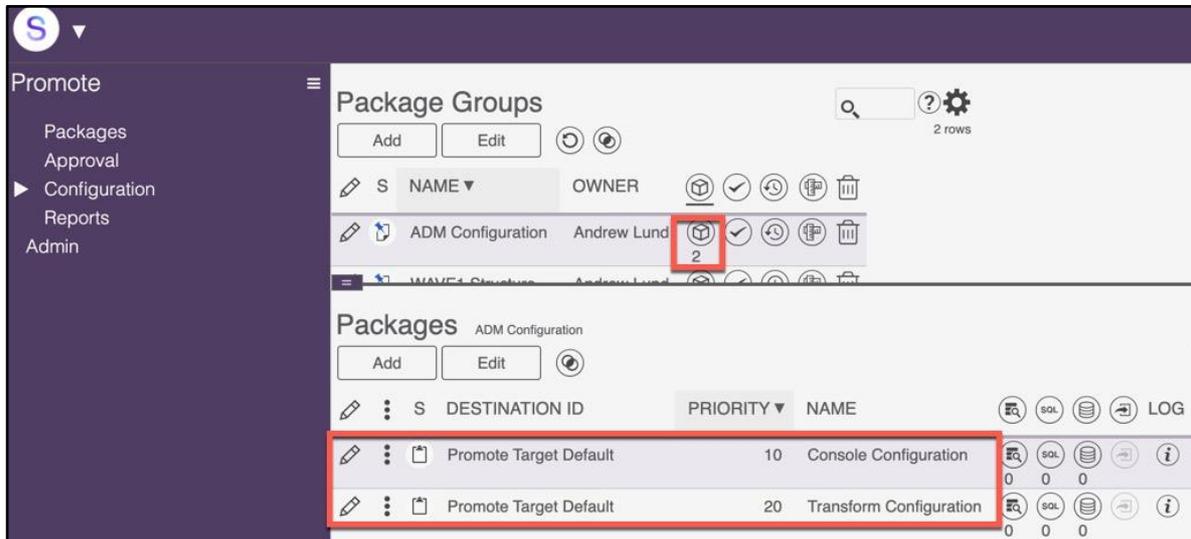
NOTE: If any additional master data, configuration data needs to be transported, new Structure – Data packages can be created and added to this Package Group.

4.1.2   2 - Create Security Promotion Package

Syniti recommends that the Stewardship Tiers Promote component is used to transport any custom Security Roles that provide users with access to the Stewardship Tier application.

Before transporting roles, it is important that associated WebApp Groups also exist in the destination system.

Step 1: Create Security Role Package Group

1. Navigate to **Promote > Packages**.
2. Click **Add** New Package Group.
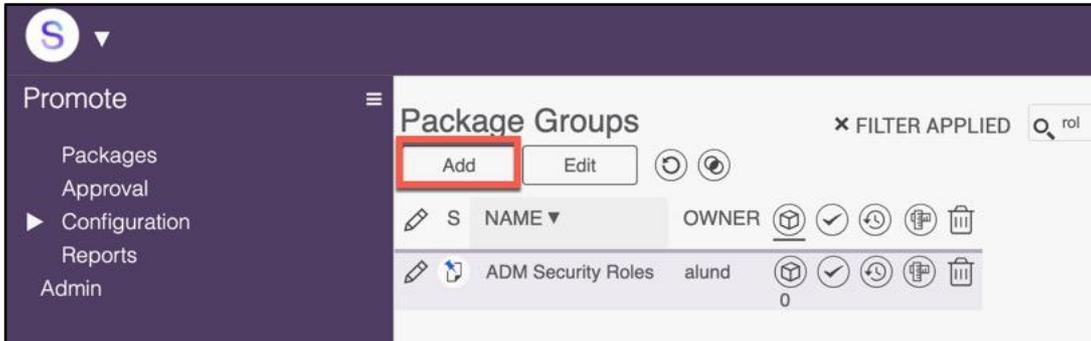
3. Enter "ADM Security Role" in the **NAME** field depending on what is being transported. Enter the name of Package Group owner in the **OWNER** field. The name in the OWNER field is soley for reference purposes.

Step 2: Add New Package to Package Group

1. Select the **ADM Security Role** Package Group and in the child pane (*Packages* page) and click **Add** New Package.
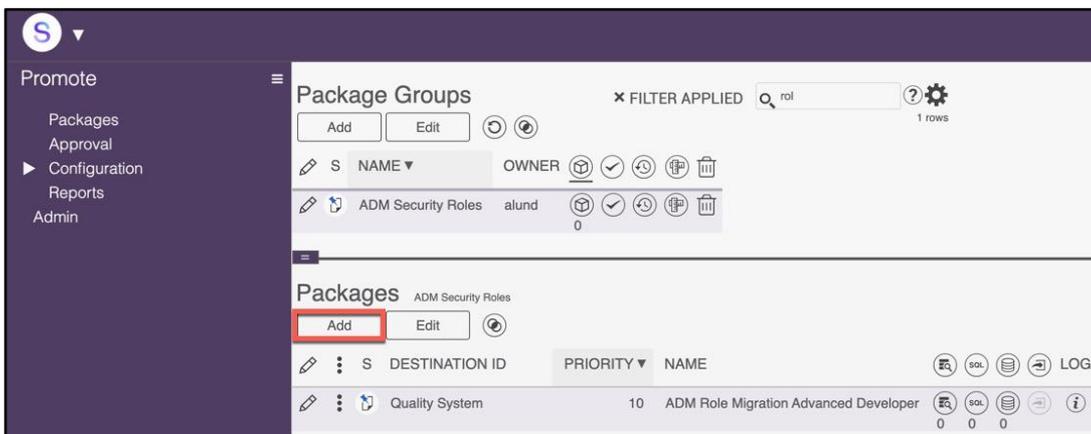
1. Select the Destination Stewardship Tier instance.
2. Enter a Priority.
3. Enter Package Name 'ADM Role {NAME}' where {NAME} is the name of role being transported.
4. Click **Save**.

Step 3: Assign Structure Data to Package and Set Filtering Criteria

This example assumes filtering on a Collect Target and Target Source.

1. Open the 'ADM Role {NAME}' Package in the *Vertical* View.
2. Click the **Data Structure** Tab.
3. Select **Structure Data ID** value 'Administration - Role.'
4. Select **Data Focus** value 'Cransoft.Role.'
5. Select **Structure Data Focus Simple Field** value 'Name.'

6. Select the relevant Role from the **Structure Data Focus Simple Value** field.
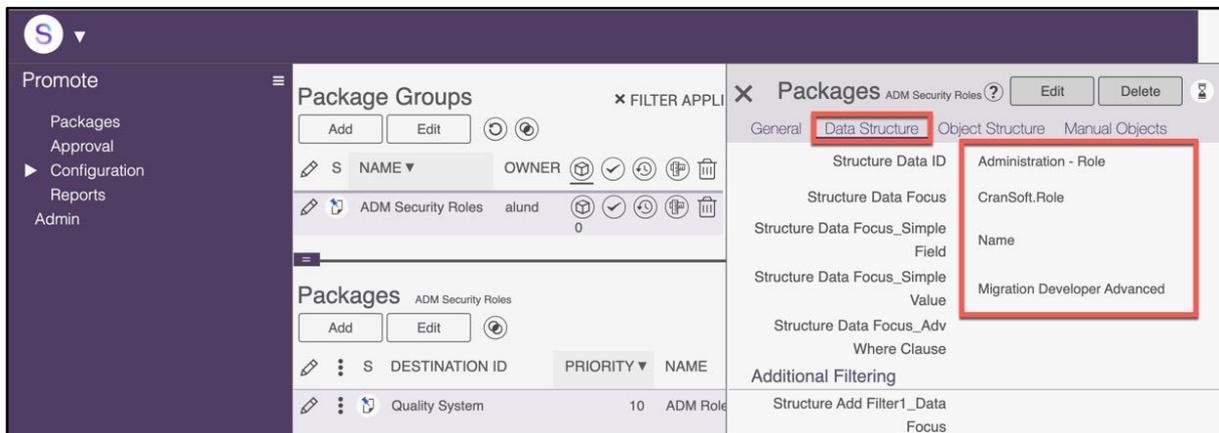
If multiple roles need to be transported, Steps 2 & 3 should be repeated.

4.1.3   3 - Create Collect Promotion Package

4.1.4   Syniti recommends that the Stewardship Tiers Promote component is used to transport Collect Target Source Table extracts with single Package Group used to transport all tables within a Collect Target/Source combination.

Step 1: Create Collect Target Source Package Group

1. Navigate to **Promote > Packages**.

2. Click **Add** New Package Group.
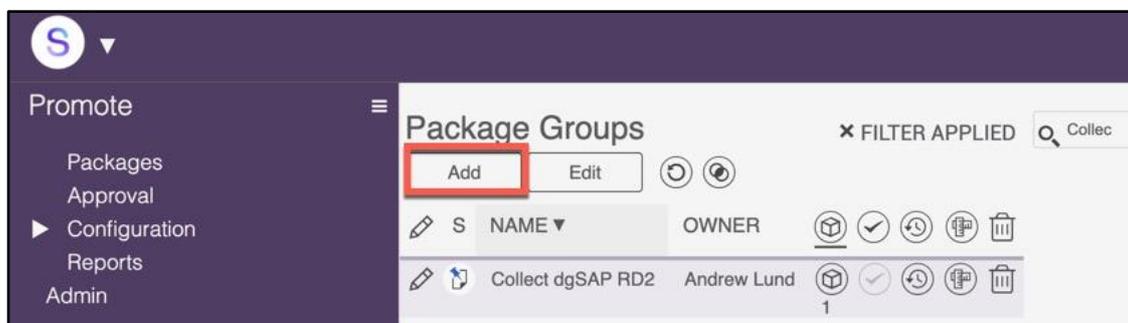
3. Enter "Collect {Target} - {Source}" in the **NAME** field depending upon what is being transported. Enter the name of Package Group owner in the **OWNER** field. The name in the OWNER field is soley for reference purposes.

   Replace {Target} with the name of the Collect Target being transported. Replace {Source} with the name of the Collect Target Source being transported.

Step 2: Add New Package to Package Group

1. Select the 'Collect XXX' Package Group and in the child pane (*Packages* page) and click **Add** New Package.
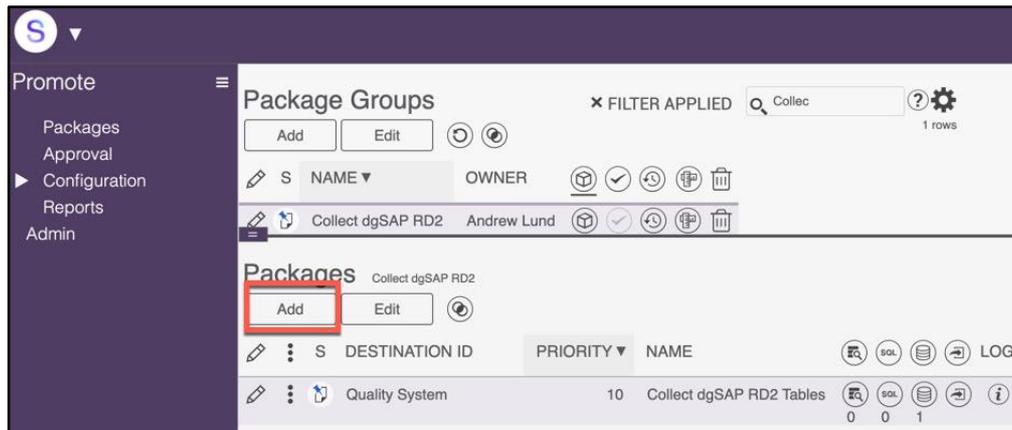
5. Select the Destination Stewardship Tier instance.

6. Enter a Priority.

7. Enter a Package Name.

8. Click **Save**.

Step 3: Assign Structure Data to Package and Set Filtering Criteria

This example assumes filtering on a Collect Target and Target Source

1. Open the Collect XXX Package in the *Vertical* View.

2. Click the **Data Structure** Tab.

3. Select **Structure Data ID** value 'Collect – Target Source Table.'

4. Select **Data Focus** value 'DataGarage.dgTarget.'

5. Select **Structure Data Focus Simple Field** value 'Target.'

6. Select the relevant value from the **Structure Data Focus Simple Value** field.

The filter to select which Collect Target to compare/transport has been set. Additional filtering criteria can now be applied to select a specific Collect Target Source.

From within the Additional Filtering section:

1. Select **Structure Add Filter 1 Focus** value 'DataGarage.dgTargetSource.'

2. Select **Structure Add Filter 1 Focus Simple Field** value 'Source.'

3. Select the relevant value from the **Structure Add Filter 1 Focus Simple Value** field.
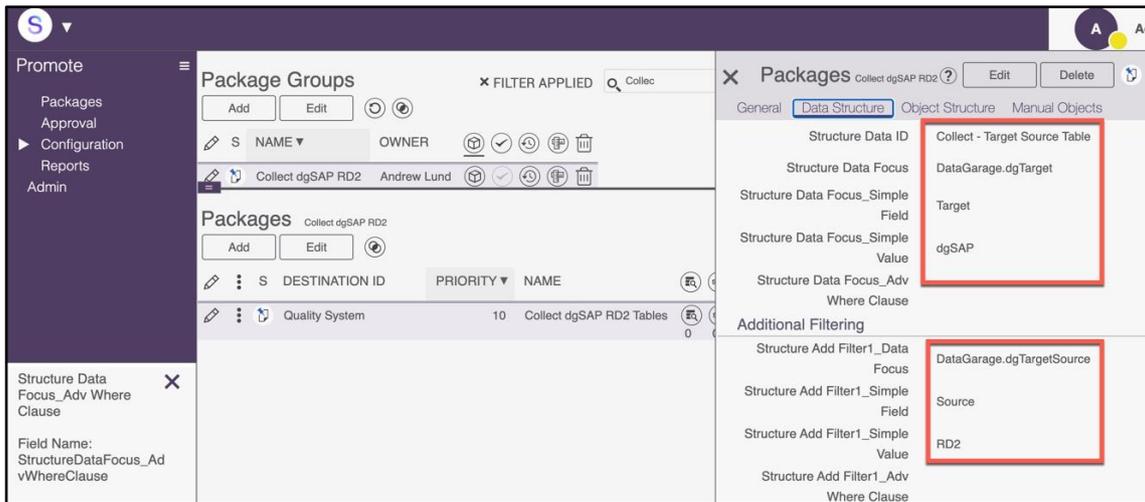
4.1.5 4 – Create ADM Wave Structure Promotion Package

Syniti recommends that the Stewardship Tiers Promote component is used to transport the ADM Wave Structure with a Package Group used to transport a single Waves full Wave / Process Area / Object / Target / Target Source structure plus any Data Source Registry records that are used by the Wave.

Step 1: Create ADM Wave Structure Package Group

1. Navigate to **Promote > Packages**.

2. Add New Package Group.
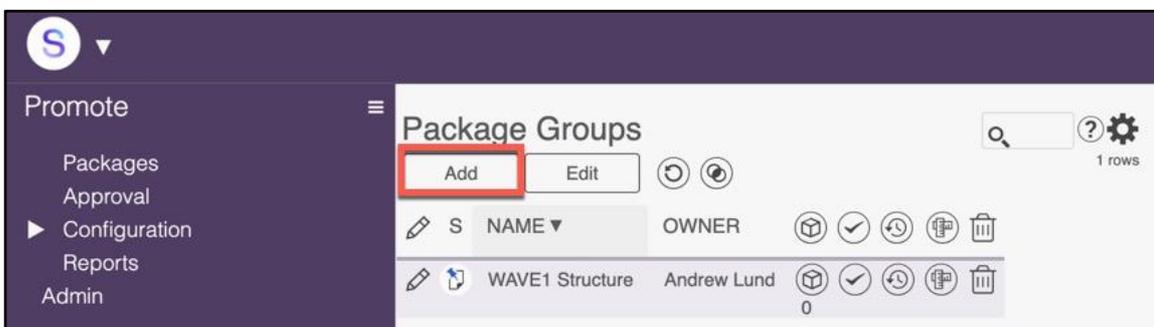
3. Enter "{WAVE NAME} Wave Structure" in the **NAME** field and the name of Package Group owner in the **OWNER** field. The name in the OWNER field is soley for reference purposes.

   Replace {WAVE NAME} with the name of the Wave being transported.

4. Click **Save**.

Step 2: Copy Packages from Template

1. Click the **Copy Template** button on the *Horizontal* View of '{WAVE NAME} Wave Structure Package Group. This will open the *Copy Template* page in the child pane.

2. Click **Edit**.

3. Select <ADM Wave Structure> from the **Copy Group ID** drop down list and click **Save**.

4. Click **Copy Template**.

5. Click the **Packages** button on the *Horizontal* View of '{WAVE NAME} Wave Structure' Package Group. This will open the *Packages* page in the child pane. Verify that seven packages called 'Application Data Sources,' 'Source Data Sources,' 'Target Data Sources,' 'Migration Object Data Sources,' 'Data Services Data Sources,' 'Wave Structre,' and '**Validate any Promoted Data Source on Destination**' have been automatically added and that the Destination ID is set to the Stewardship Tier to where the data/code needs to be sent.
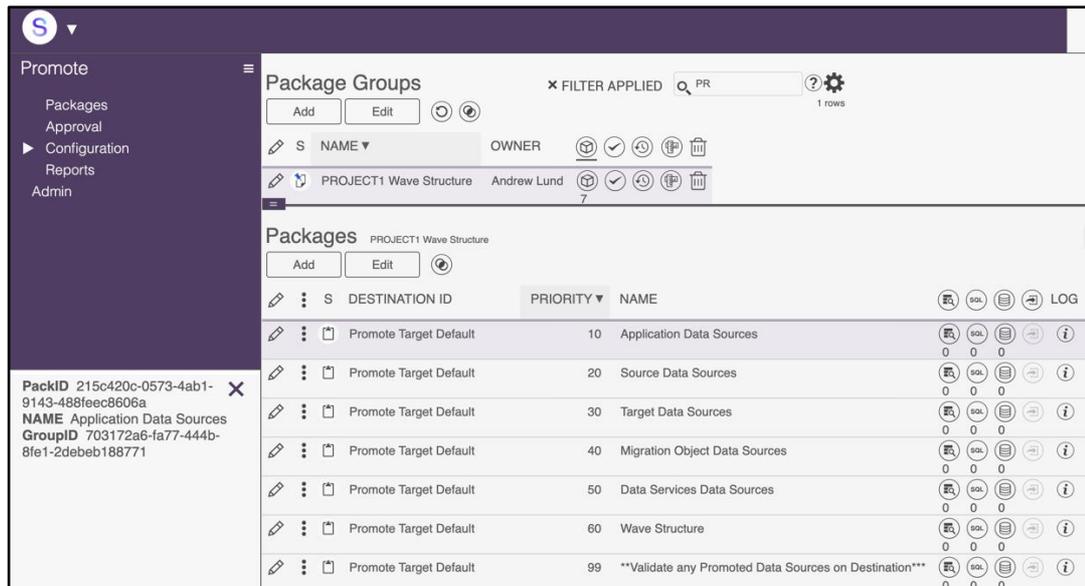
Step 3: Apply Package Filtering to Application Data Sources Package

1. Open **Application Data Sources** Package record in the *Vertical* View, navigate to the Data Structure tab and in **Structure Data Focus_Adv Where Clause** field, substitute the #ExternalDataSource1# and #ExternalDataSource2# for the names of the application data sources that need to be transported.
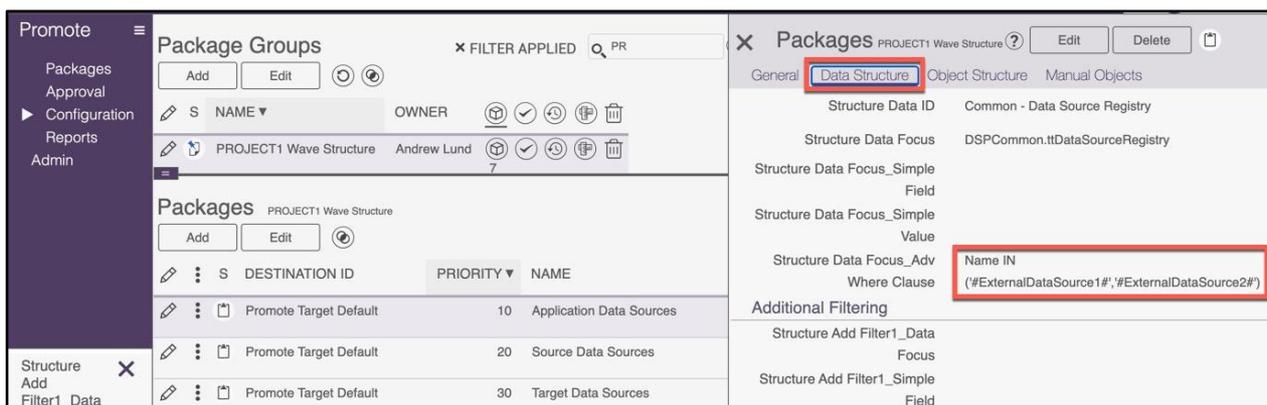
NOTE: If no Application Data Sources need to be transported, this package can be deleted.

Step 4: Apply Package Filtering to Source Data Sources Package

1. Open Source Data Sources (sdb* Data Sources / Databases) Package record in the *Vertical* View, navigate to the **Data Structure** tab and in **Structure Data Focus_Adv Where**

Clause field, substitute the #sdbDataSource1# and #sdbDataSource2# for the names of the source data sources that need to be transported.
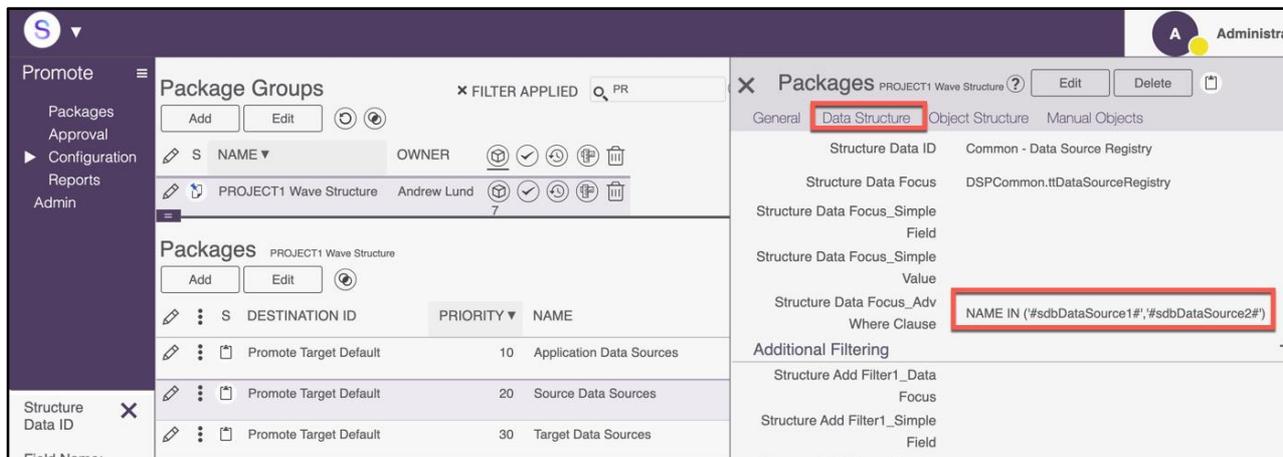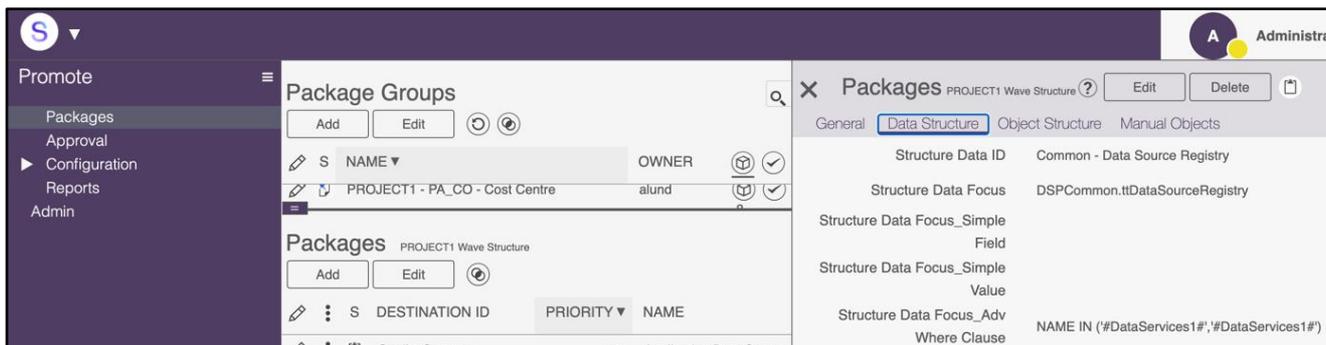

2. Navigate to the **Object Structure** tab and in **Structure Object Where Clause** field, substitute the #sdbDataSource1# and #sdbDataSource2# for the names of the Source Data Sources that need to be transported.
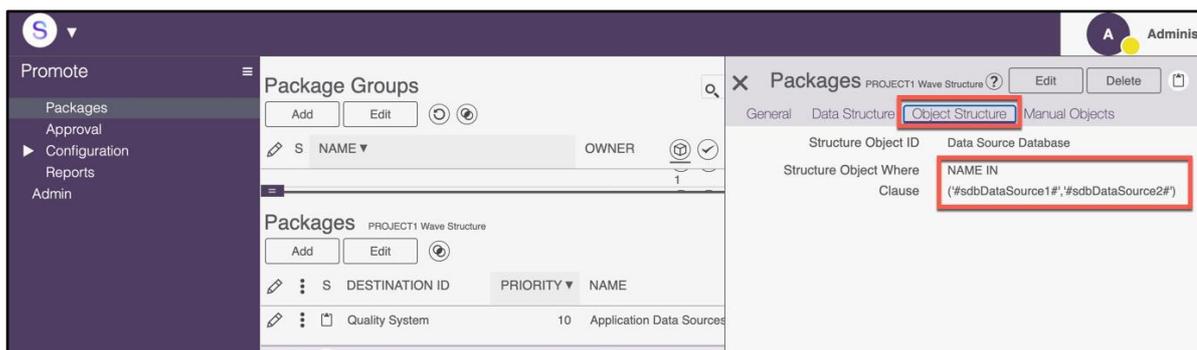
NOTE: If no Source Data Sources need to be transported, then this package can be deleted.

Step 5: Apply Package Filtering to Target Data Sources Package

1. Open Target Data Sources (dg* Data Sources / Databases) Package record in the *Vertical* View, navigate to the **Data Structure** tab and in **Structure Data Focus_Adv Where Clause** field, substitute #dgTarget1# and #dgTarget2# for the names of the Target Data Sources that need to be transported.
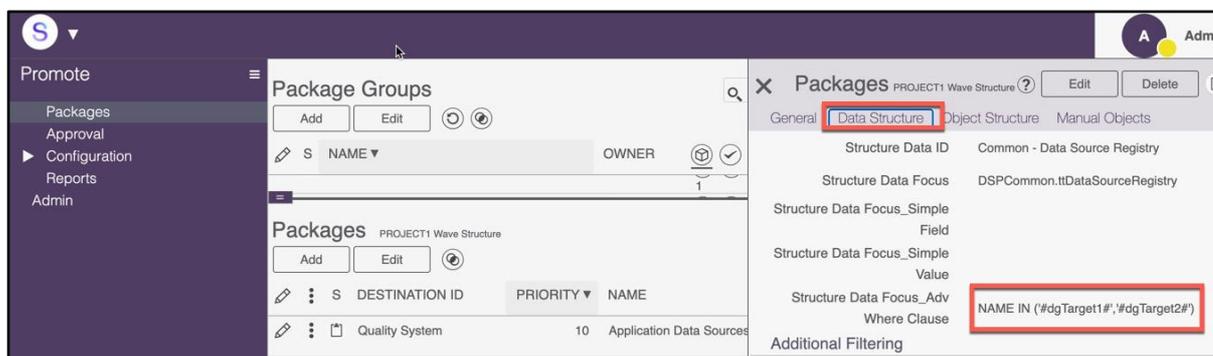
2. Navigate to the **Object Structure** tab and in **Structure Object Where Clause** field, substitute the #dgTarget1# and #dgTarget2# for the names of the Target Data Sources that need to be transported.
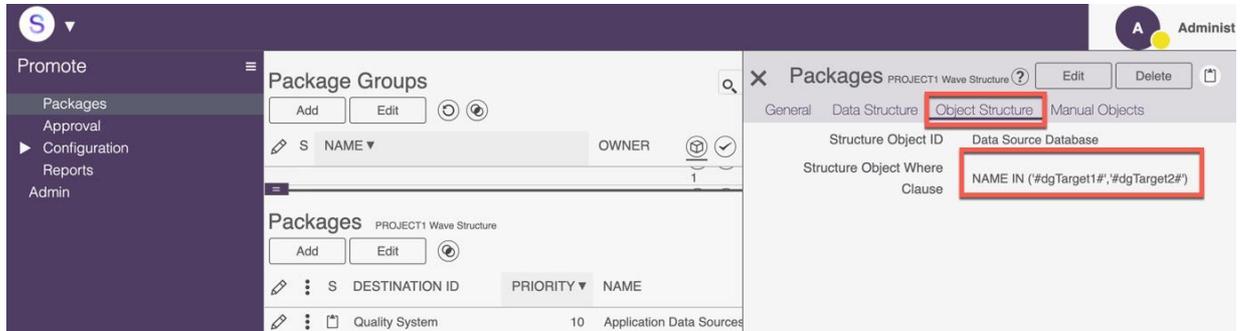
NOTE: If no Target Data Sources need to be transported, then this package can be deleted.

Step 6: Apply Package Filtering to **Migration Object Data Sources** Package

1. Open Migration Object Data Sources (dsw* Data Sources / Databases) Package record in the *Vertical* View, navigate to the **Data Structure** tab and in **Structure Data Focus_Adv Where Clause** field, substitute #dswWave1# and #dswWave2# for the names of the Migration Object Data Sources that need to be transported.
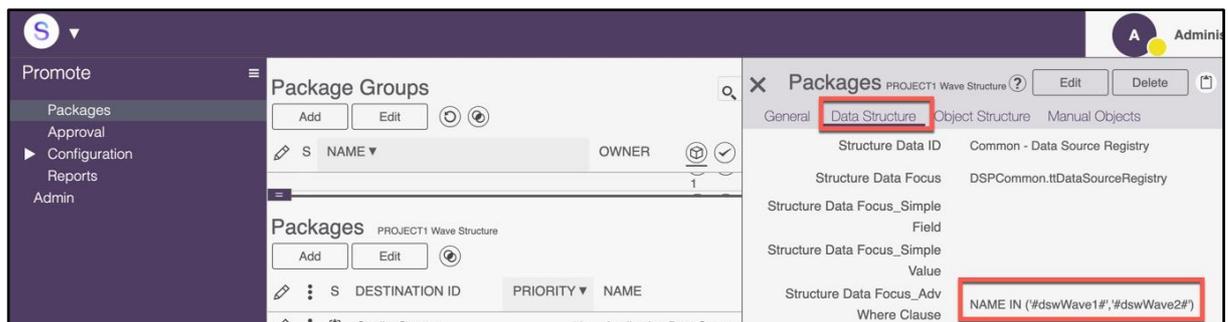
2. Navigate to the **Object Structure** tab and in **Structure Object Where Clause** field, substitute the #dswWave1# and #dswWave2# for the names of the Migration Object Data Sources that need to be transported.
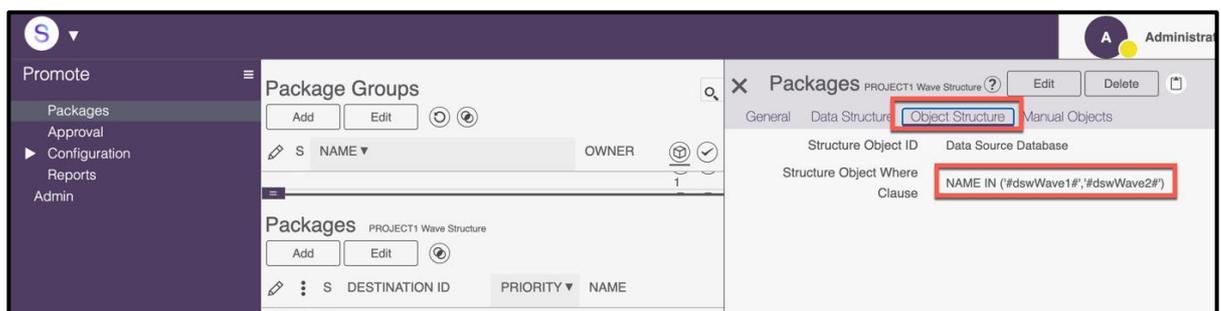
Step 7: Apply Package Filtering to Data Services Data Sources Package

1. Open Data Services Repository Data Sources Package record in the *Vertical* View, navigate to the **Data Structure** tab and in **Structure Data Focus_Adv Where Clause** field, substitute #DataServices 1# and # DataServices 2# for the names of the Data Services Repository Data Sources that need to be transported.

2. Navigate to the **Object Structure** tab and in **Structure Object Where Clause** field, substitute the #DataServices1# and # DataServices 2# for the names of the Data Services Repository Data Sources that need to be transported.
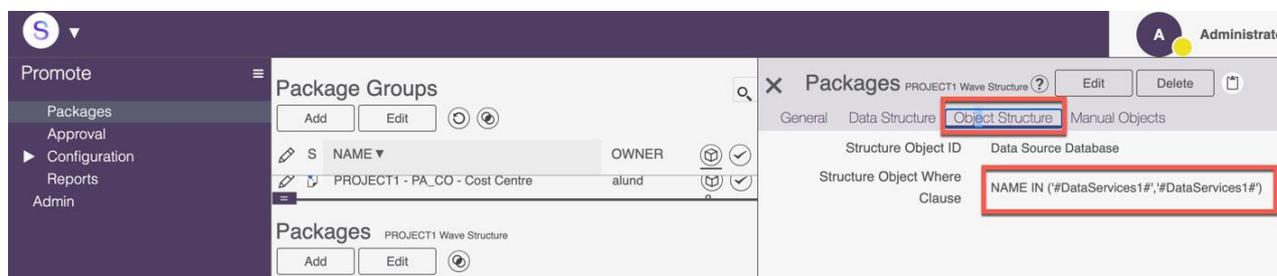
NOTE: If no SAP Data Services Repository Data Sources need to be transported, then this package can be deleted.

Step 8: Apply Package Filtering to Wave Structure Package

1. Open Wave Structure Package record in the *Vertical* View, navigate to the **Data Structure** tab and from the **Structure Data Focus_Simple Value** field, select the name of the Wave whose sucture needs to be transported.
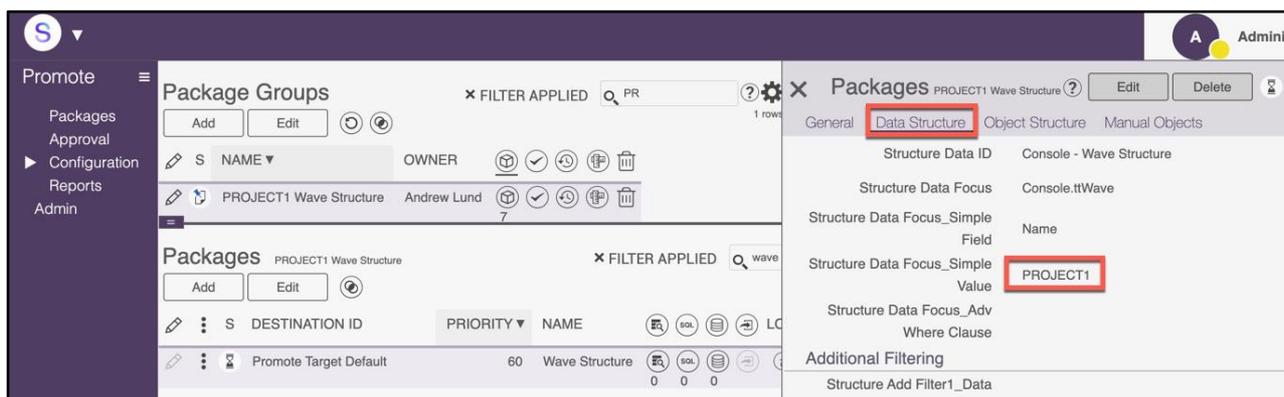
4.1.6   5 – Create ADM Wave Value Mapping Promotion Package

Syniti recommends that the Stewardship Tiers Promote component is used to transport ADM Wave Value Mapping with a Package Group used to transport a single Waves Source to Target Value mapping.

Step 1: Create ADM Wave Value Mapping Package Group

1. Navigate to **Promote > Packages**.

2. Add New Package Group.
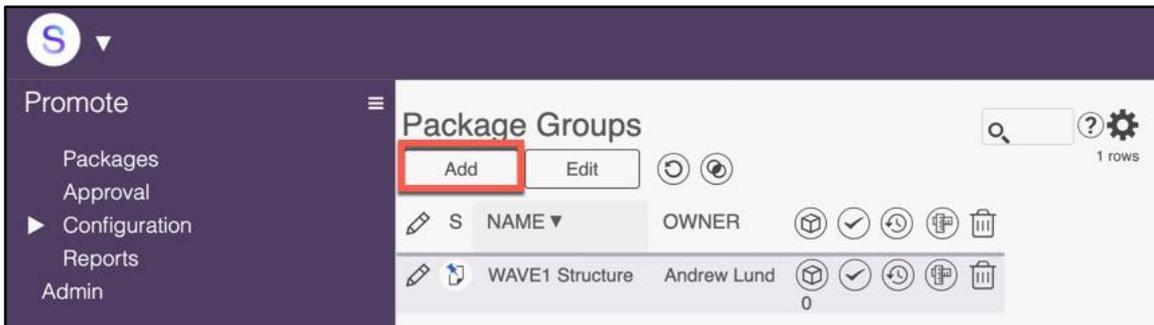
3. Enter "{WAVE NAME} Wave Value Mapping" in the **NAME** field and the name of Package Group owner in the **OWNER** field. The name in the OWNER field is soley for reference purposes.

   Replace {WAVE NAME} with the name of the Wave being transported.

4. Click **Save**.

Step 2: Copy Packages from Template

1. Click the **Copy Template** button on the *Horizontal* View of '{WAVE NAME} Wave Value Mapping Package Group. This will open the *Copy Template* page in the child pane.

2. Click **Edit**.

3. Select <ADM Wave Value Mapping> from the **Copy Group ID** drop down list and click **Save**.

4. Click **Copy Template**.

5. Click the **Packages** button on the *Horizontal* View of '{WAVE NAME} Wave Value Mapping' Package Group. This will open the *Packages* page in the child pane. Verify that a single package called 'Wave Value Mapping' has been automatically added and that the Destination ID is set to the Stewardship Tier to where the data/code needs to be sent.
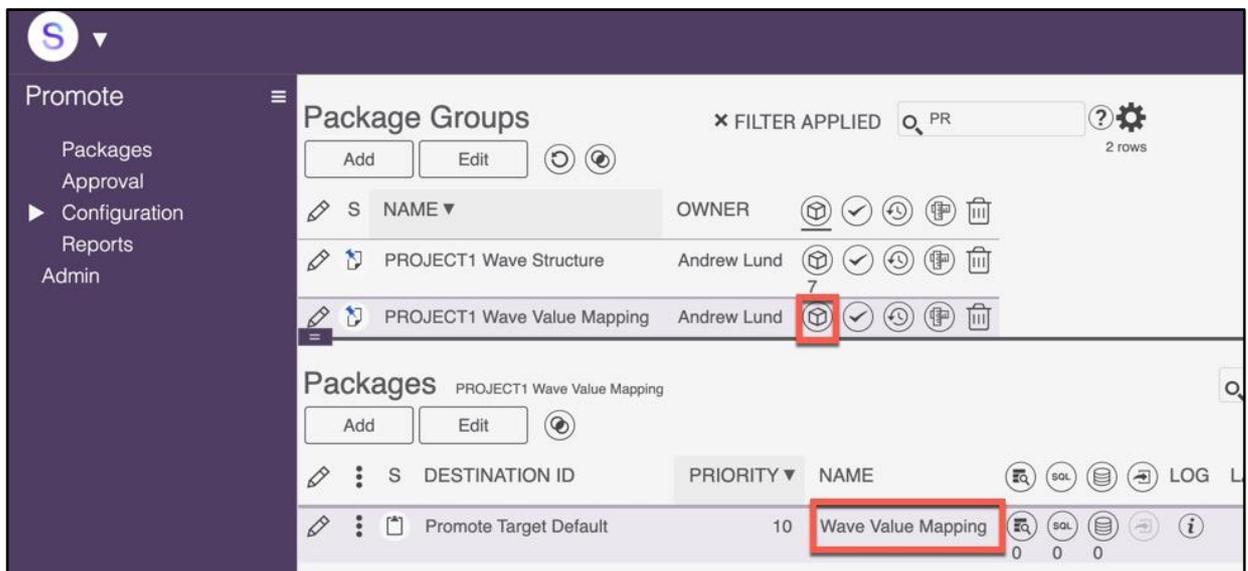
Step 3: Apply Package Filtering to Wave Value Mapping Package

1. Open Wave Value Mapping Package record in the *Vertical* View, navigate to the **Data Structure** tab and from the **Structure Data Focus_Simple Value** field, select the name of the Wave whose sucture needs to be transported.
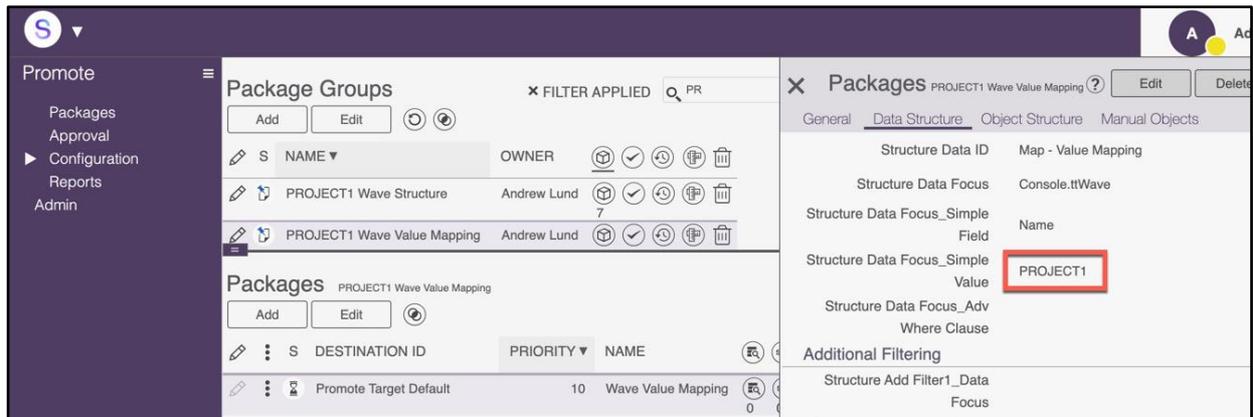
4.1.7 6 - Create ADM Wave Process Area Object Promotion Package (All Transform Objects)

Syniti recommends that the Stewardship Tiers Promote component is used to Transport Wave – Process Area – Objects on an object-by-object basis. The approach is recommended because it is within individual Wave – Process Area – Objects where most of the application data and SQL objects reside and therefore where most change occurs. There is a Template Package called '<ADM Wave / Process Area / Object>' that has been created to provide the framework for promoting Wave – Process Area – Object. This template contains the following packages:

Each package requires 'Data Structure' and 'Object Structure' filtering to be applied that is specific to a Wave / Process Area / Object on their *Vertical* Views. A typical project could have 50+ objects; therefore, a feature to automatically create Package Groups for all active Wave / Process Area / Objects has been created.

Step 1: Create Package Group for All Wave / Process Area Objects
1. Click **Advanced Promote Actions** in the *Navigation* menu.
2. Click the **Crawl All Transform Objects** button.
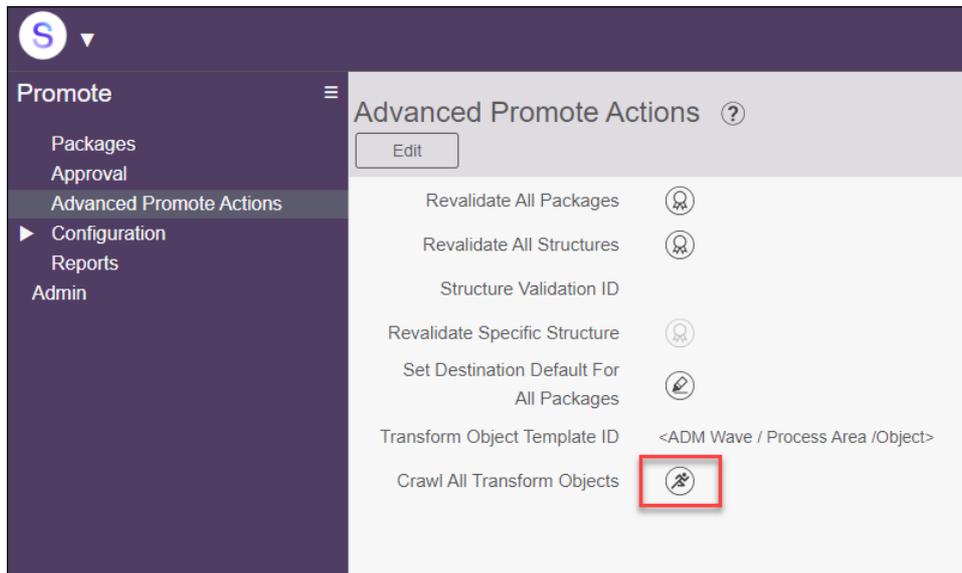
This will create a Package Group for all active Wave – Process Area – Objects and will automatically add the filter criteria to all packages.
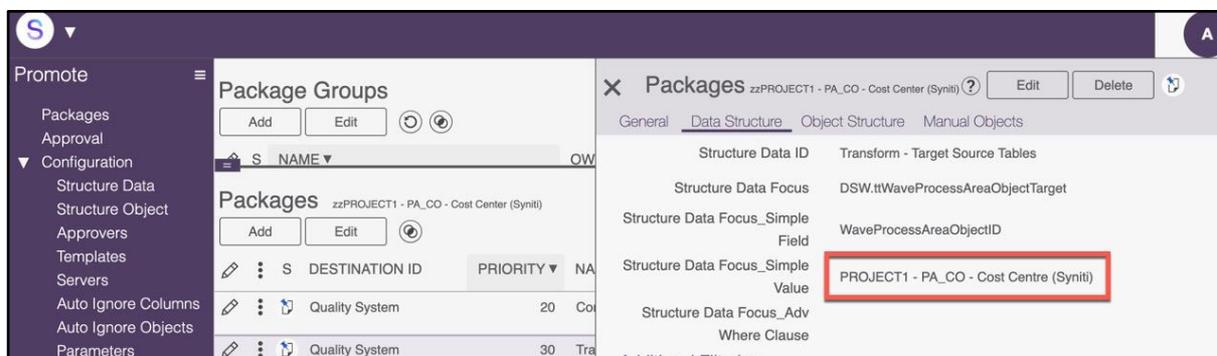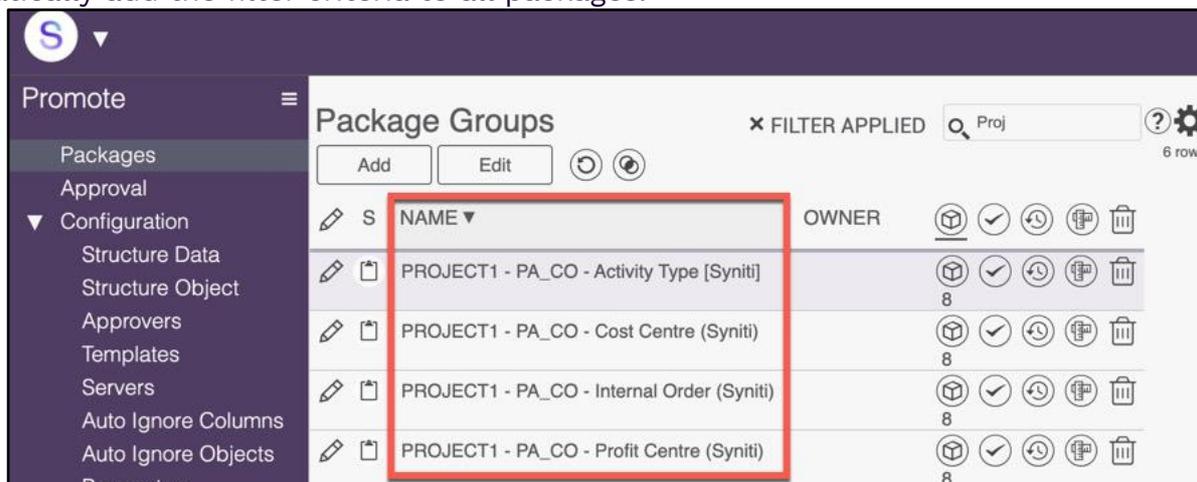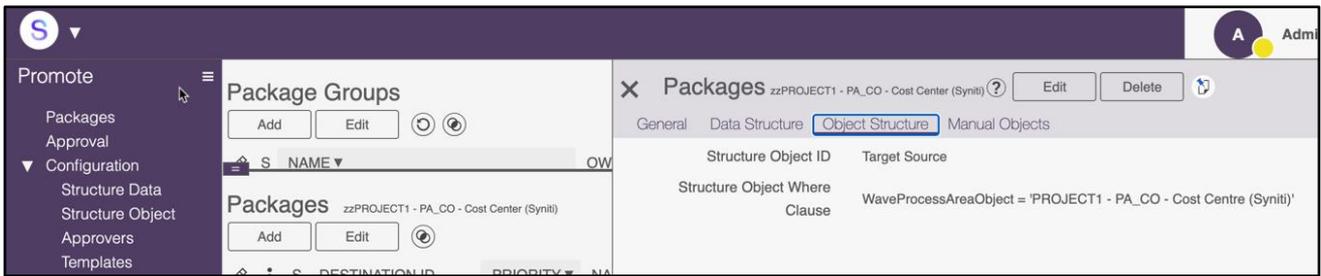
4.1.8 7 – Create Construction Page Promotion Package

Syniti recommends that the Stewardship Tier's CTS tool is used to transport Data Construction pages.

In order to perform this step, the following information is required:

- List of the Construction Pages to be transported
- List of SQL Tables (and associated databases) used by the Construction pages to be transported

Step 1: Generate Create Table SQL Scripts

1. Navigate to SQL Server Management Studio.
2. Right click **Database** and select **Tasks > Generate Scripts**.
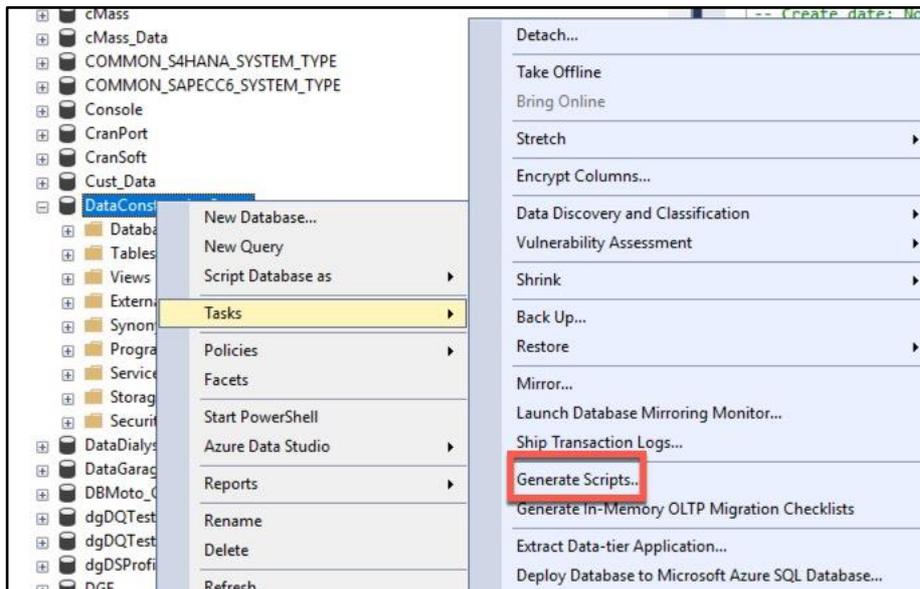
3. Select the required tables and click **Next**.
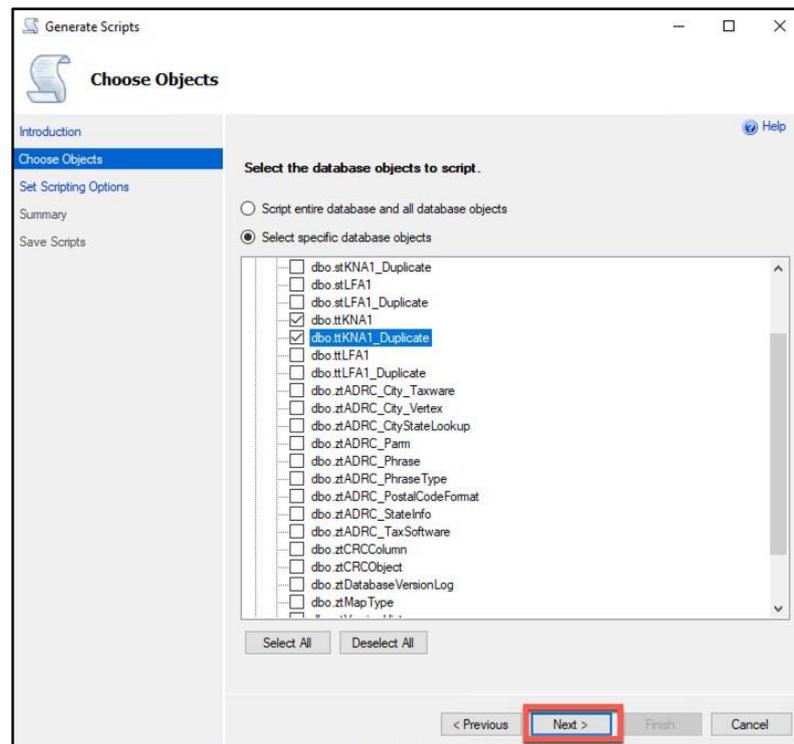
4. Save as Script File > Enter a filename and click **Next**, click **Next** and the file will then save.
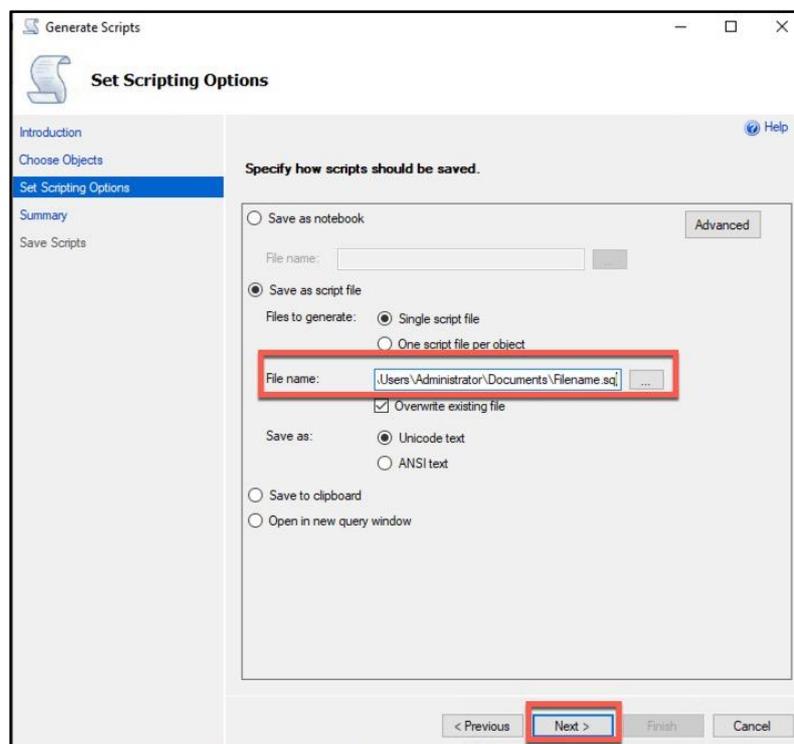
Step 2: Create Data Construction Page CTS Package

1. Navigate to **Admin > CTS > Build**.
2. Add New Package.
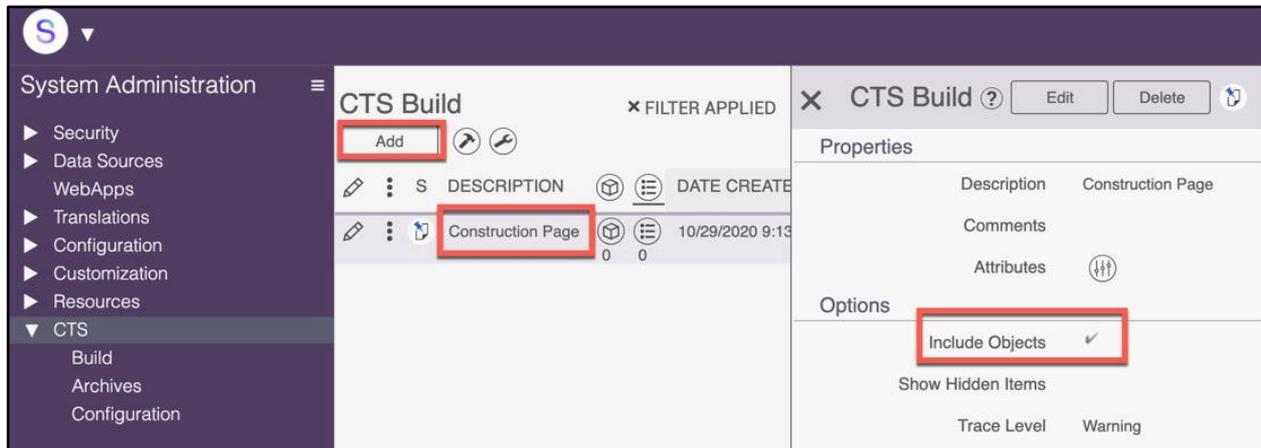
3. Enter Description '{Wave} Construction Pages' where {Wave} is the name of the Wave to which the Construction page belong transported.

4. Click **Save**.

5. On the *Vertical* View, ensure that **Include Objects** is checked. This will ensure that the associated SQL views and procedures are also transported.

NOTE: CTS does not automatically include tables; therefore, the table should be manually scripted and executed on the destiniation database.

6. Click the **Items** button.
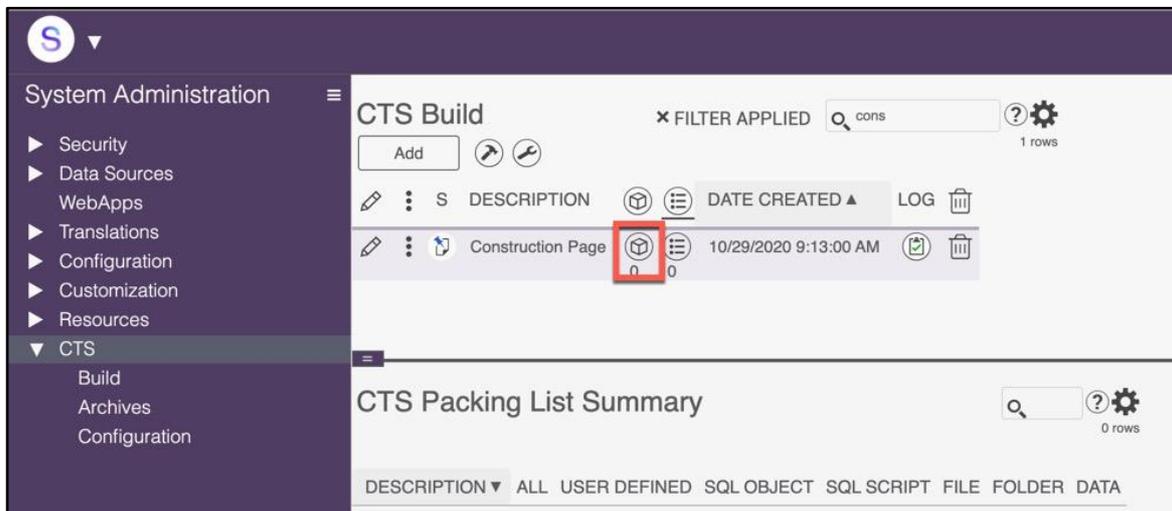
7. Add CTS Item.

8. Select **CTS Config Item ID** Cransoft - Page. This will add WebAppID and PageID in the CTS Item Key child pain.

9. Select the Construct for WebAppID and select the relevant name of the Construction page from the **Value** drop-down list.
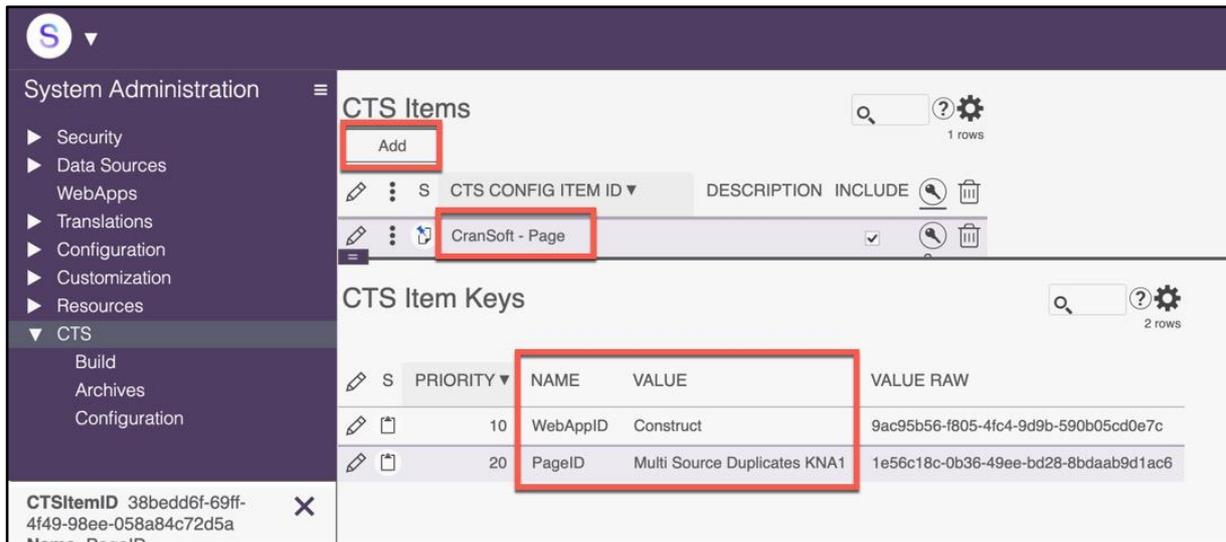
If multiple Contruction pages are being transported, then multiple CTS items need to be added.

4.1.9 8 - Create Integrate Promotion Package

Syniti recommends that the Stewardship Tier's CTS tool is used to transport Integrate Categories/Processes.

In order to perform this step, the following information is required:

- List of the Integrate Category(s) to be transported
- List of SQL Tables (and associated database) used by Integrate Templates assigned to the Category(s) to be transported

Step 1: Generate Create Table SQL Scripts

1. Navigate to SQL Server Management Studio.
2. Right-click **Database** and select **Tasks > Generate Scripts**.
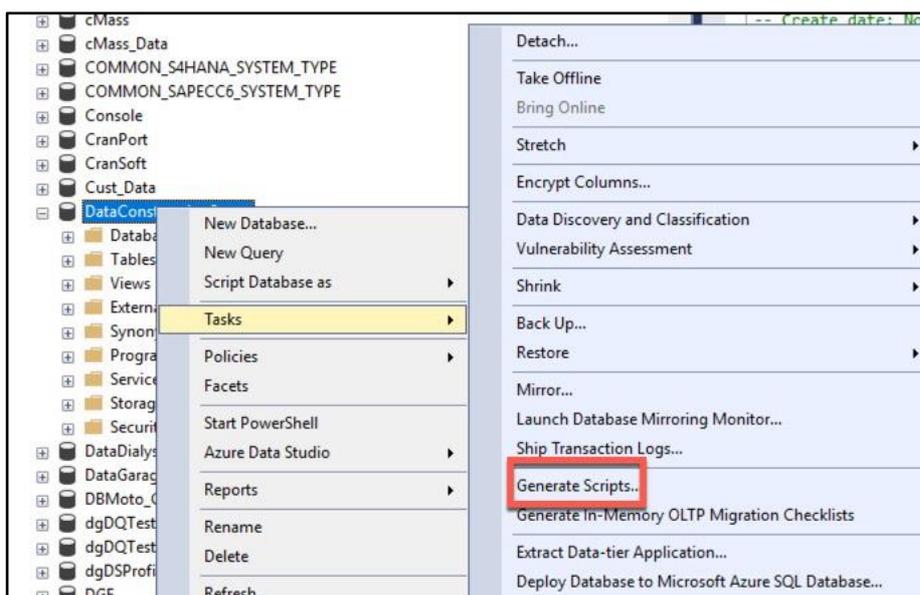
3. Select the required tables and click **Next**.
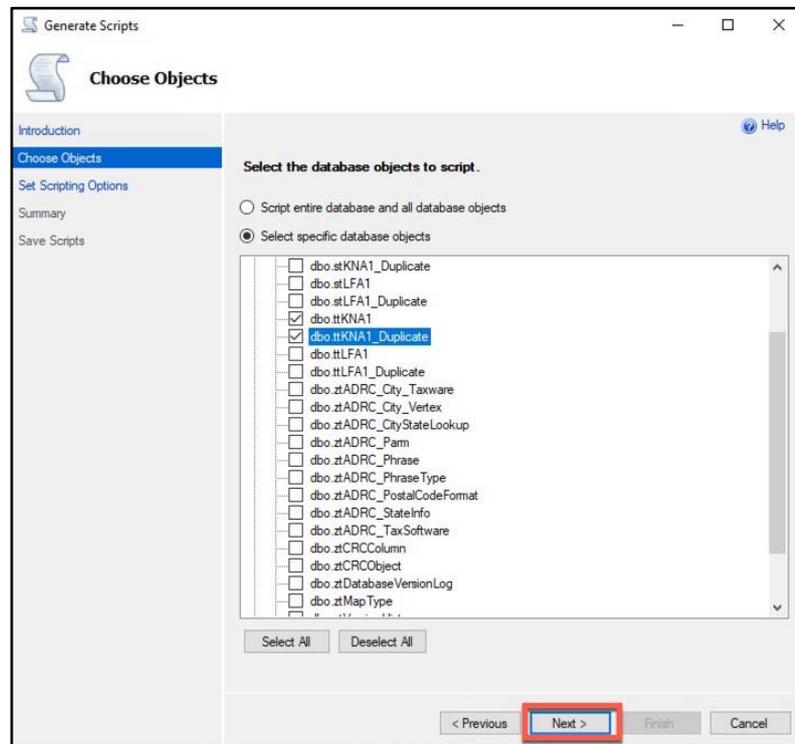
4. Save as Script File > Enter a filename and click **Next**, click **Next** and the file will then save.
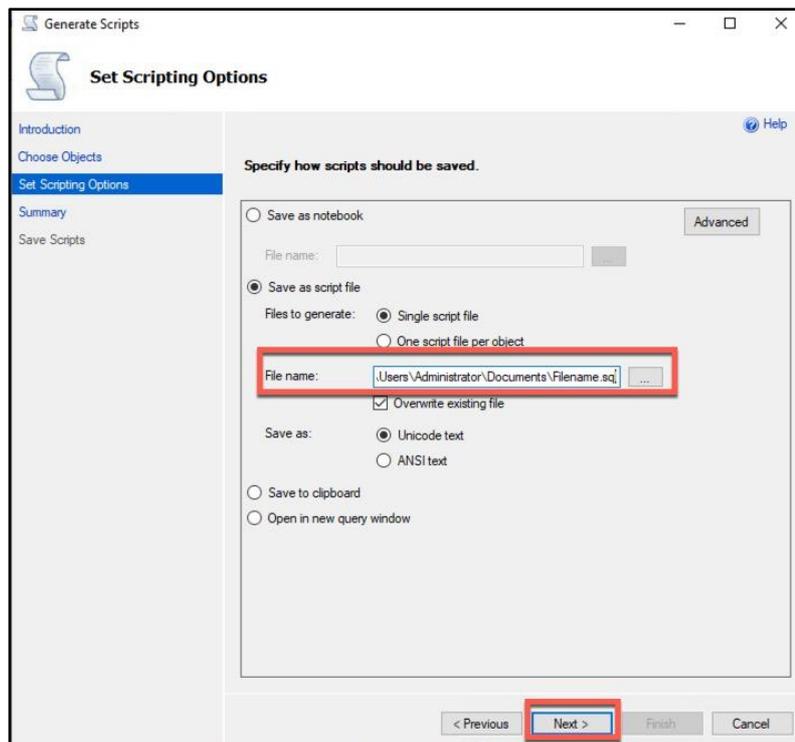
Step 2: Create Integrate Category CTS Package

1. Navigate to **Admin > CTS > Build**.

2. Add New Package.
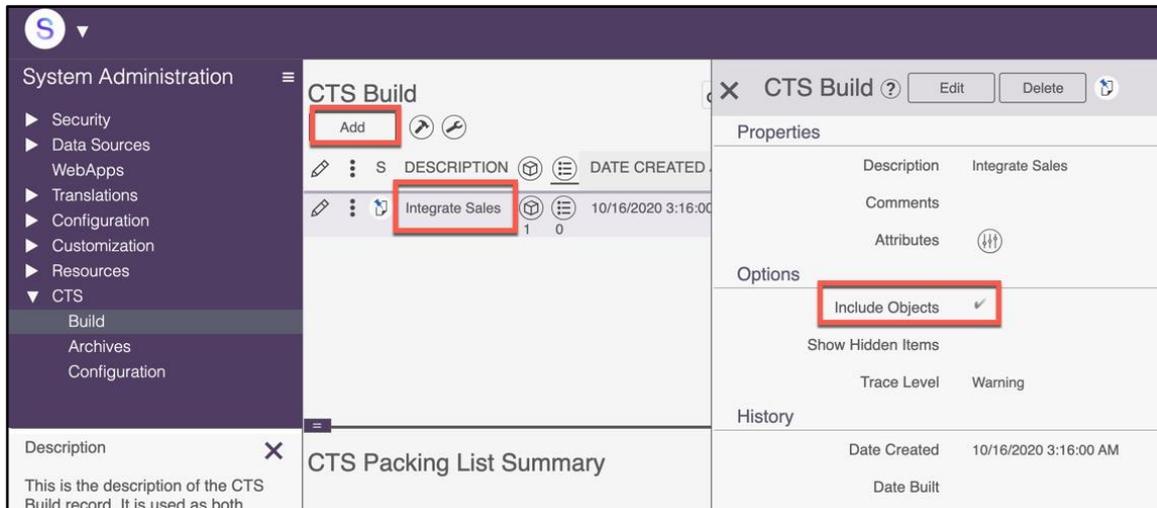
3. Enter **Description** 'Integrate {Category}' where {Category} is the name of the Category to be transported.

4. Click **Save**.

5. On the *Vertical* View, ensure that Include Objects is checked. This will ensure that the associated SQL views and procedures are also transported.

NOTE: CTS does not automatically include tables, therefore, the table should be manually scripted and executed on the destiniation database.

6. Click the **Items** button.
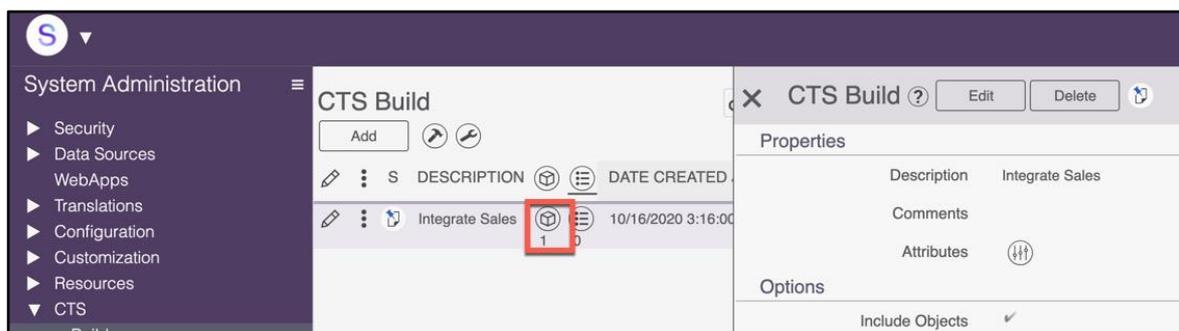
7. Add CTS Item.

8. Select **CTS Config Item ID** 'Integrate – Integrate Category'. This will add TeamID in the CTS Item Key child pane.

9. Select the name of the Integrate Category from the **Value** drop-down list.
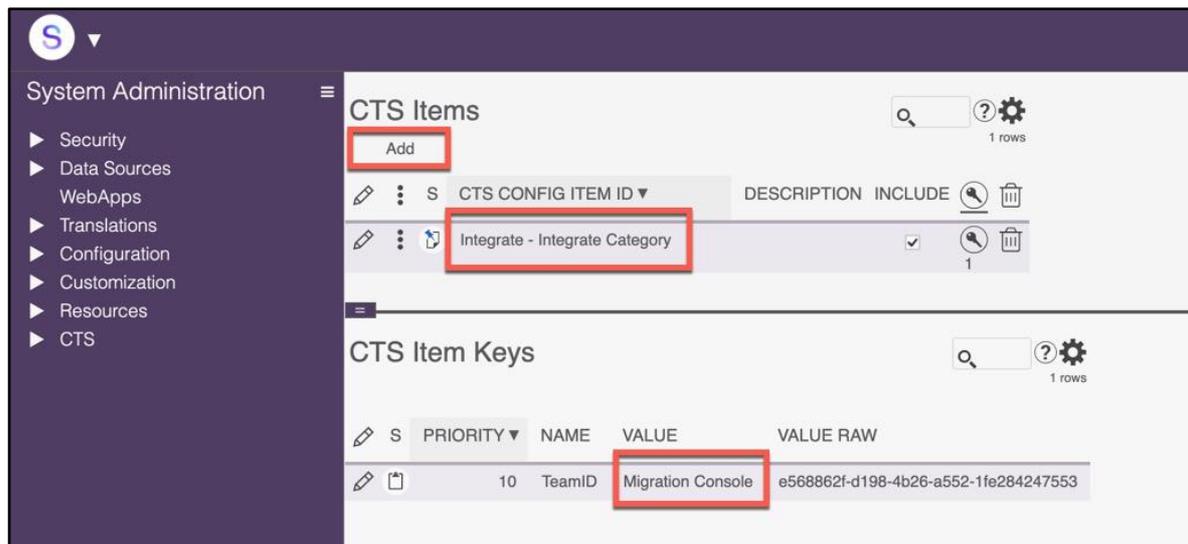
4.1.10 9 - Create Promotion Packages for Third-party Tools

The procedure for managing code within third-party tools is out of scope for this procedure. Local procedures will need to be developed for these aspects of a migration solution.

4.2 Promote Code

This section details the steps that need to be followed to run the process to transport code between Stewardship Tier environments. Since many of the steps are repeated depending upon what is being promoted, this section contains step-by-step instructions of how to perform key activities followed by a comprehensive 'Runbook' that specifies all the steps that need to be run.

The Runbook can also be downloaded from the following location:

https://docs.google.com/spreadsheets/d/17angkQGSzlotoeD3erYp8vzPqhNq0DARoIibVosXd-c/edit#gid=1596904173

It is recommended that this Runbook is updated to reflect the steps performed the specific project and to expand the Runbook to include other activities related to new Stewardship Tier environment build. This will ensure a smooth transition from Development to Quality to Production environments.

4.2.1 Compare Promote Package Group

Promote enables the records/SQL objects defined by the configuration and filters within a package to be compared against a destinaition Stewardship Tier instance.

1. To run a comparison for all Packages, select a Package Group and click the **Compare** button on the *Package Groups* page.

2. To run a comparison for individual Packages, select a Package and click the **Compare** button on the *Packages* page. If multiple packages need to be compared, select multiple records by pressing SHIFT then selectin the records.

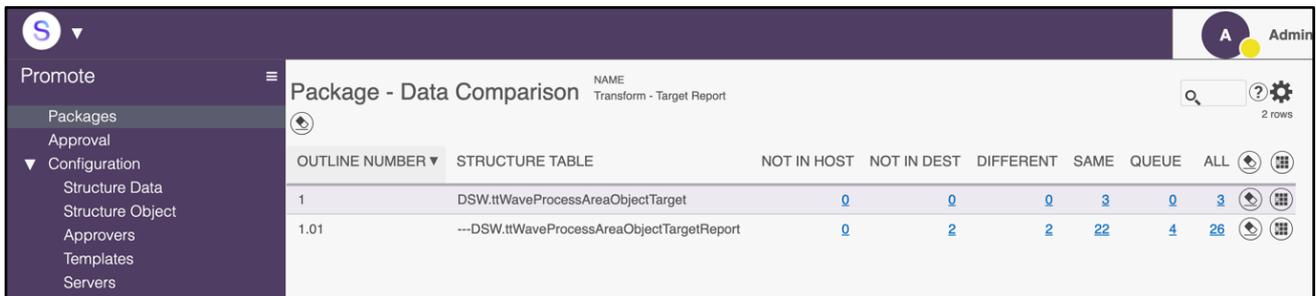## 4.2.2 Review Promote Package Data Comparison Results

After a comparison has been completed, the Data icon shows the record count of the differences between records in the Host and Desitination systems. A difference is considered one of the following:

- A record that exists in the host but not the destination
  - **Default Action:** Insert record into destination
- A record that exists in the host and destination but whose compare columns contains a difference
  - **Default Action:** Update destination record
- A record the exists in the destinaition but not the host
  - **Default Action:** Delete record from destination

1. To review Data differences, click the **Data** button on a specific Package.
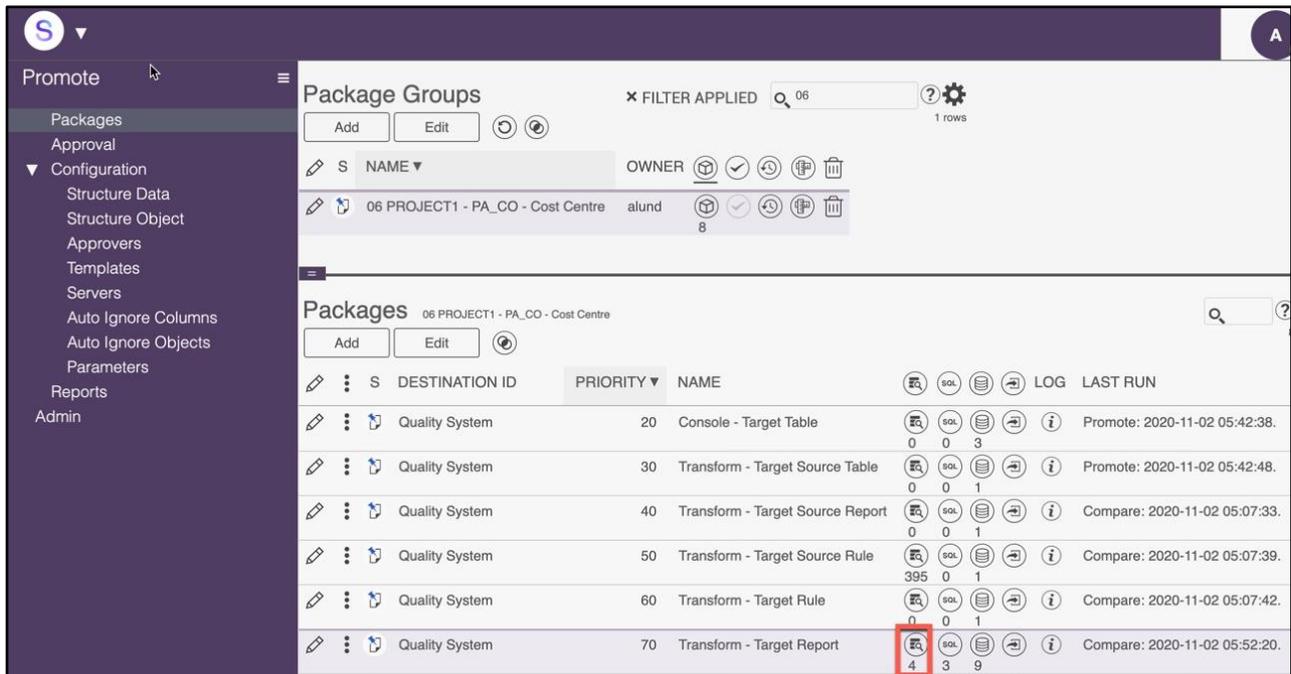
2. Click the hyperlink for the specific table/type of change of interest.

3. Review the differences and decided what action to take. The available decisions are as follows:
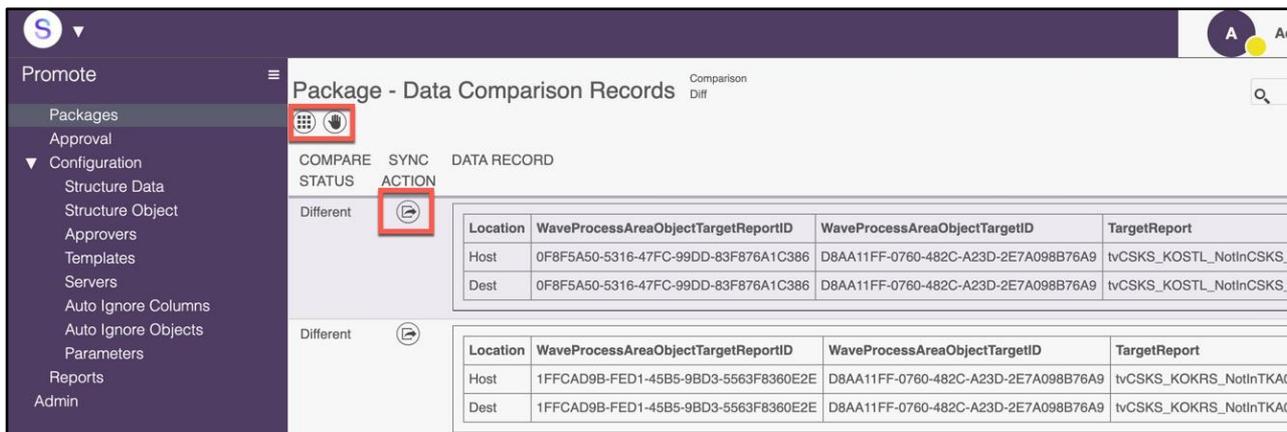
Not In Destination

Queue Difference (Insert into destination)

Ignore Difference (No Action)

Different:

Queue Difference (Update destination record)

Ignore Difference (No Action

Not In Host:

Queue Difference (Delete from destination)

Ignore Difference (No Action)

4.2.3   Review Promote Package SQL Comparison Results

After a comparison has been completed, the SQL icon shows the record count of the differences between SQL objects in the Host and Desitination systems. A difference is considered one of the following:

- An SQL object that exists in the host but not the destination
    - **Default Action:** Create Object in destination database

- An SQL object that exists in the host and destination but whose syntax differs
    - **Default Action:** Drop and Recreate Object in destination database

1. To review Data differences, click the **SQL** button on a specific Package.
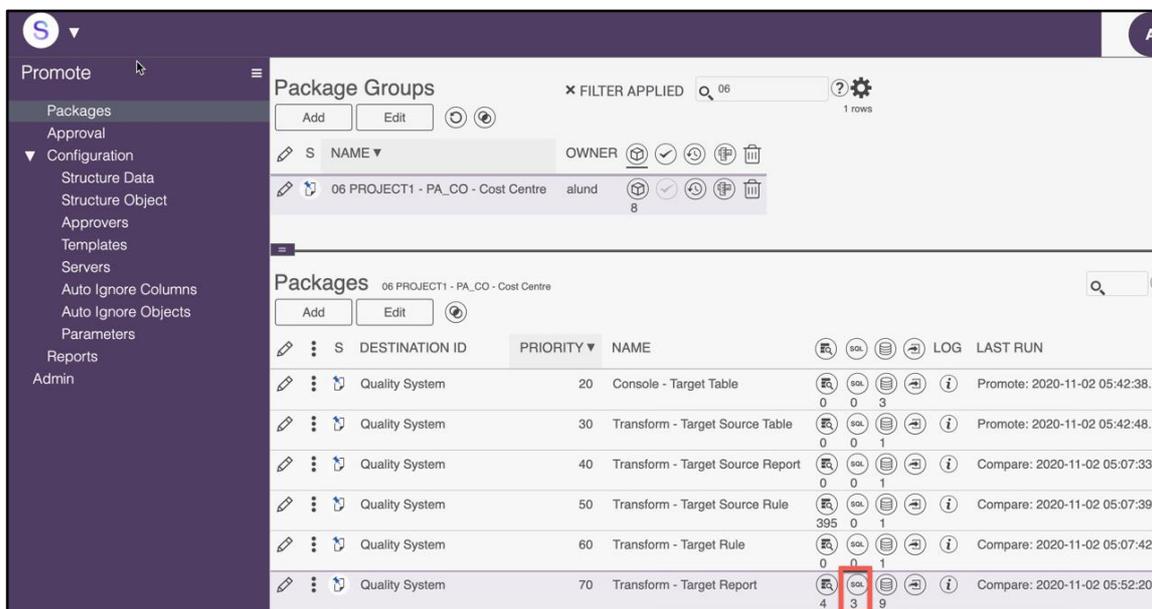
2. Click the hyperlink for the specific change type and database of interest.

Package - Object Comparison - Per Database

NAME
Transform - Target Report

DATABASE ▼	PROTECTED	NOT IN DEST	DIFFERENT	SAME	QUEUE	ALL
cMap	✔	0	0	9	0	9
Console	✔	0	0	21	0	21
CranSoft	✔	0	0	4	0	4
dgSAP	✔	0	2	5	0	7
DSPCommon	✔	0	0	13	0	13
DSW	✔	0	0	3	0	3
dswPROJECT1_CO		2	1	33	3	36
dswPROJECT1_FI		0	0	1	0	1
dswPROJECT1_MM		0	0	2	0	2

3. Review the differences and decided what action to take. The available decisions are as follows:

   Not In Destination

   Queue Difference (Create Object in Destination Database)

   Ignore Difference (No Action)

   Different:

   Queue Difference (Recreate Object in Destination Database)

   Ignore Difference (No Action)

4. To Review SQL differences between objects in host and destination, the **SQL** button can be clicked.
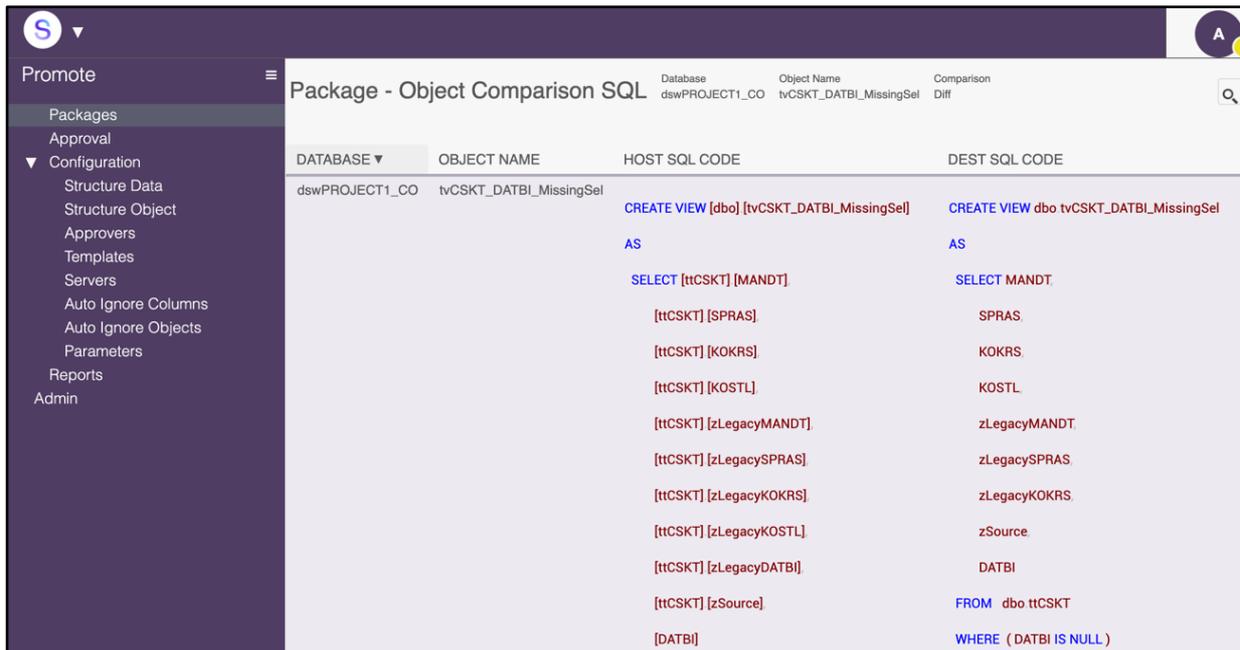
5. When dealing with differences to SQL Table Objects, there is an option to change the table definition while preserving the records in the tables. Consider this option when transporting table changes to prevent and data loss.
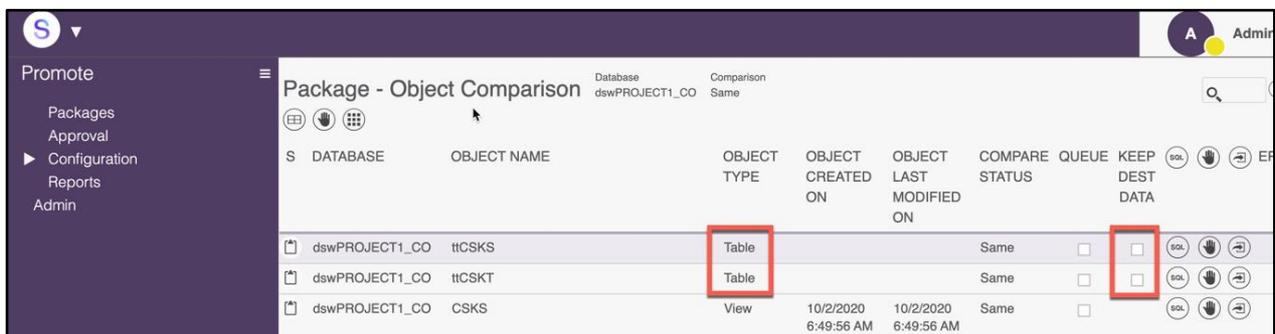

4.2.4 Submit Promote Package Group for Approval

The Promote application has an Approval Mode that when activated requires a Package Group to be approved before it's Packages can be transported.

Once the data and SQL object changes for specific package have been reviewed, click the **Request Approval** button.
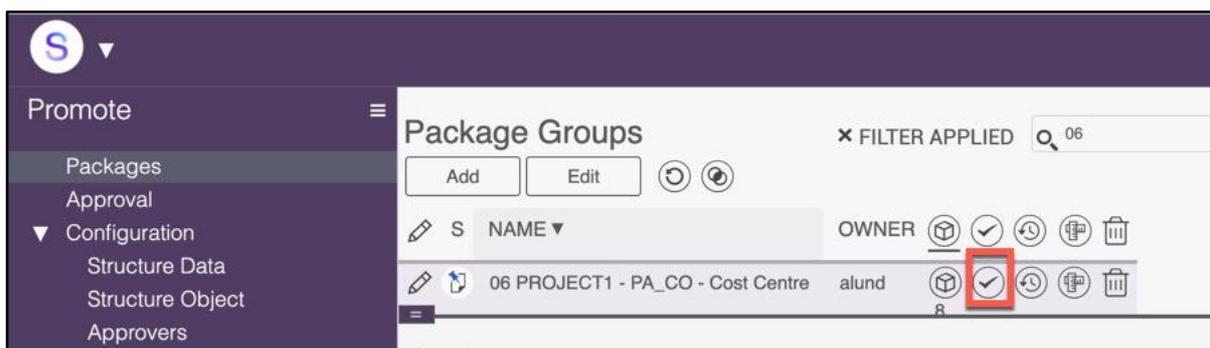
This will send an Approval notification (email and in application message) to all users that are assigned to the 'Promote Approver' role. Approvers can be identified by selecting Approvers from **Promote > Configuration** menu.
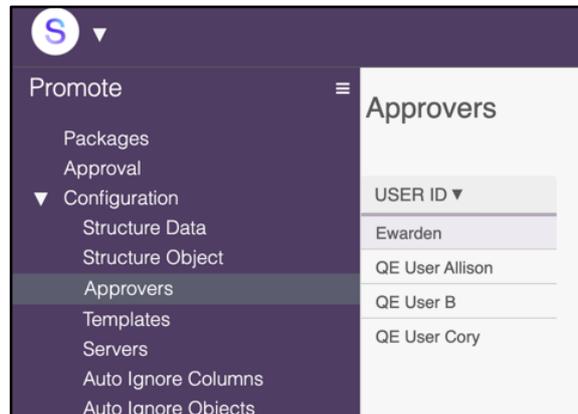
4.2.5 Approve Promote Package Group

In order to approve a package group, an Approver needs to log into the Stewardship Tier and navigate to **Promote > Approval**.

From here, they can select the Package Group that requires approval and the review the Data and SQL changes. They can also confirm with project team members that the associated changes have been successfully tested. If they are satisified with the changes, they can add a **Defect ID**, check the **Testing Completed in Dev** check box and then click the **Approve Request** button.
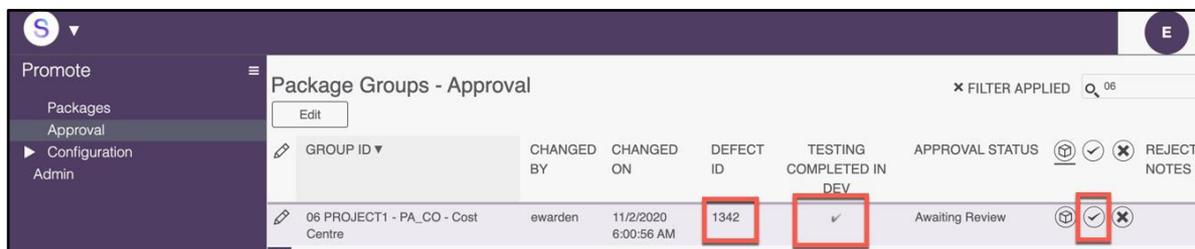

4.2.6 Transport Promote Package

If Promote Approval Mode is activated, a Package can only be transported if it has an approved Approval Request. If Approval Mode is deactivated, then a package can be transport without being approved. To transport a package:
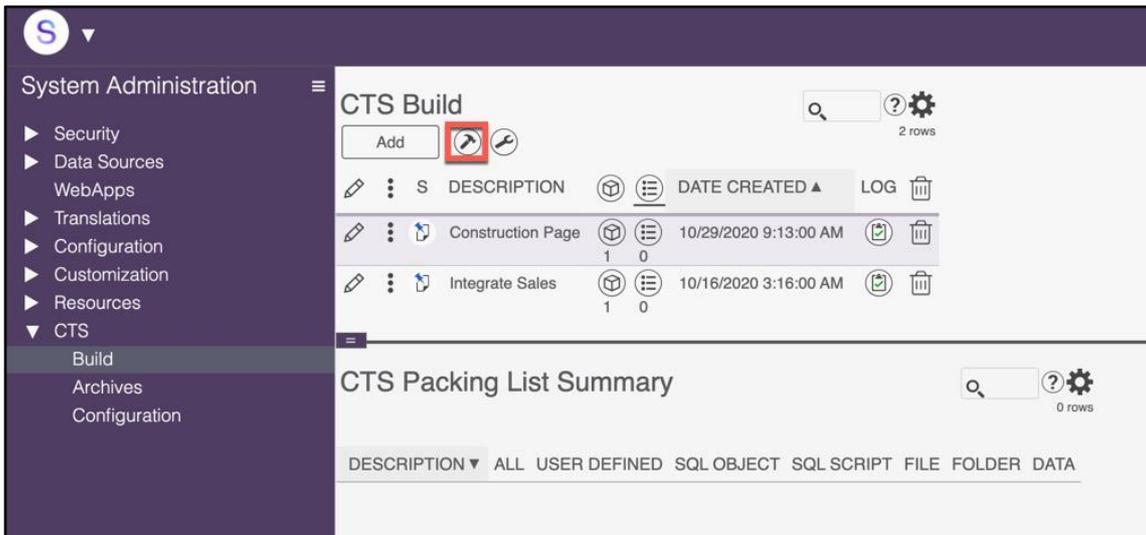
1. Select **Package**.
2. Click **Transport** button.

The changes will then be transported to the destination system and any errors returned can be viewed by clicking the **Log** button.
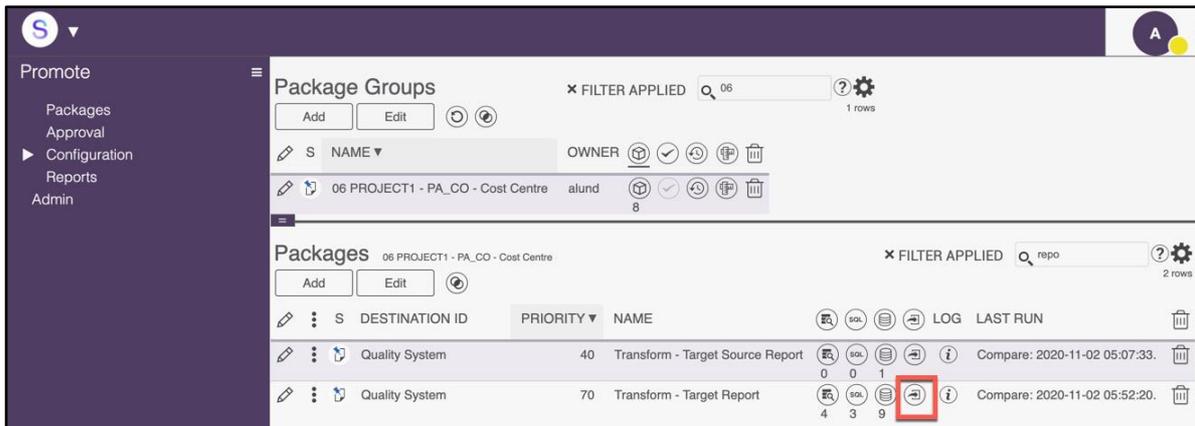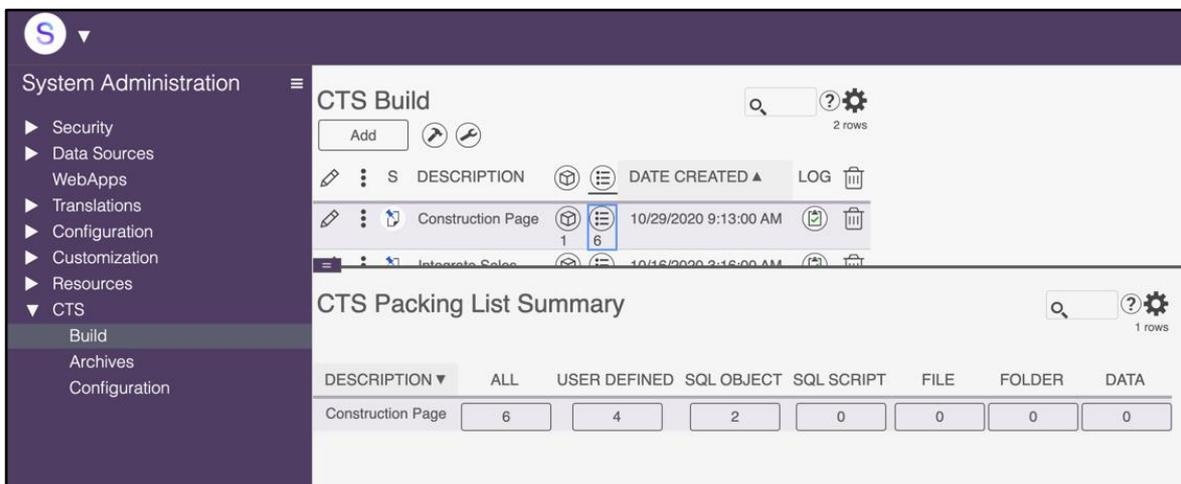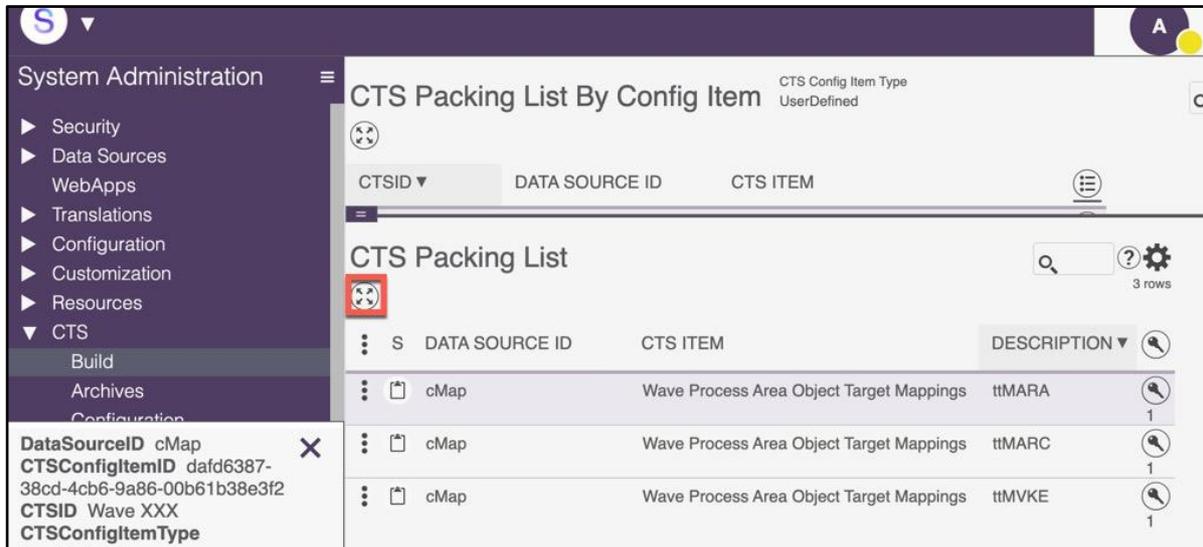
4.2.7 Build CTS Packing List

1. Navigate to **Admin > CTS > Build**, select the CTS package and then click the **Build Packing List** button.

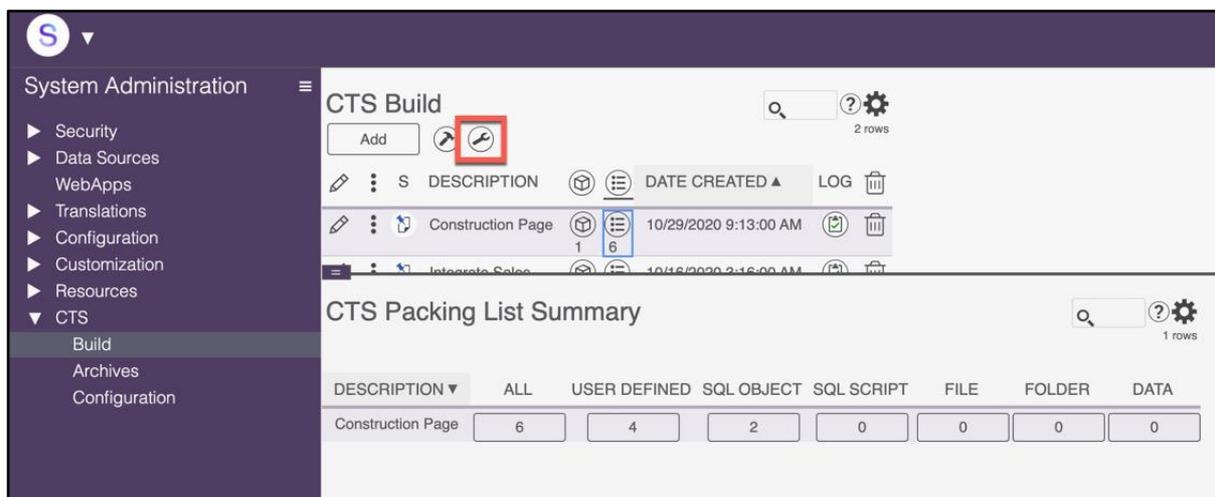2. The contents of the Packing List can then be reviewed via the *CTS Packing List Summary* page.

3. Based on the review, users can choose to exclude specific packing list items by selecting an item and clicking the **Exclude** button.
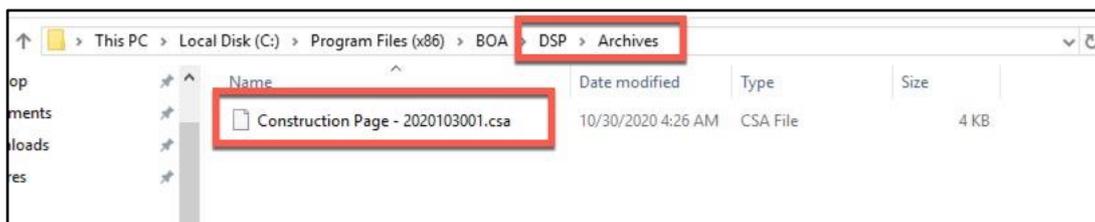

4.2.8   Build CTS Archive

Navigate to **Admin > CTS > Build**, select the CTS package and then click the **Build Archive** button.
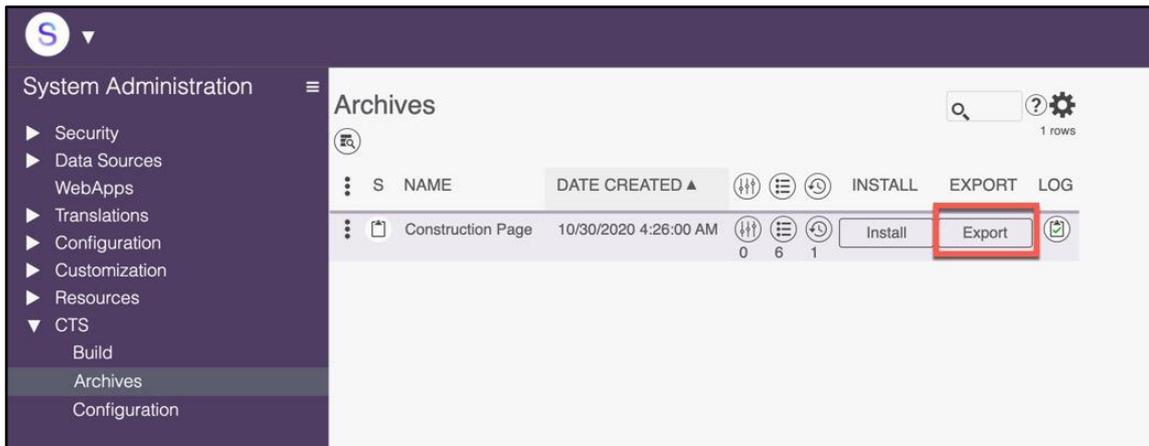

This will generate a file in the Stewardship Tier DSP/Archive folder within the installation directory.
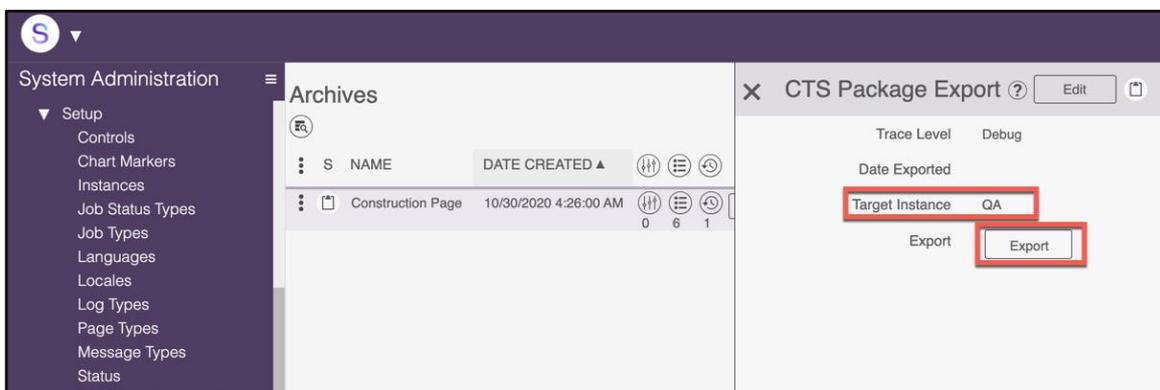

4.2.9   Export CTS Archive to Destination Stewardship Tier Instance

1. Navigate to **Admin > CTS > Archive**, select the CTS package and then click the **Export** button.

2. Select the **Target** Stewardship Tier Instance and then click **Export**.

This with transfer the the Archive file to the destination Stewardship Tier instance.

4.2.10 Install CTS Archive on Destination Stewardship Tier Instance

1. Login to the destination Stewardship Tier instance.

2. Navigate to **Admin > CTS > Archive**.

3. Select the Package that needs to be Installed and click the **Install** button.
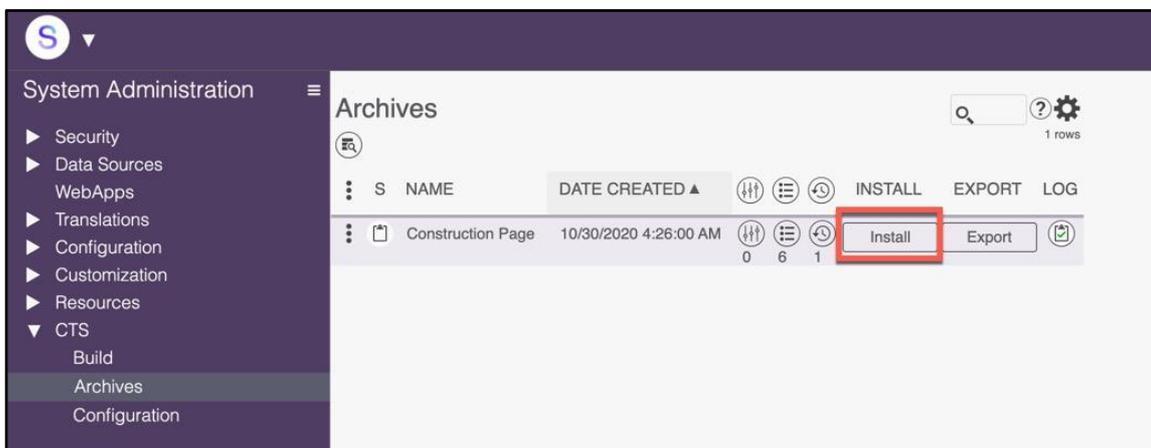
### 4.2.11 Create Migration Databases

When building a new landscape tier, all databases specific to the Wave being transported need to be created. This creation process can be done directly in MS SQL Server Managememt studio (often by a Database Administrator) or alternatively, the Promote component has functionality that allows required databases to be created programatically.

NOTE: Creating database programatically takes the settings for the model database. Therefore, if specific database file sizes or file locations need to be used it is recommended that they are created manually.

1. From within the Wave Structure Package Group, click the **Databases** icon against a Package that relates to a specific type of SQL based data source.
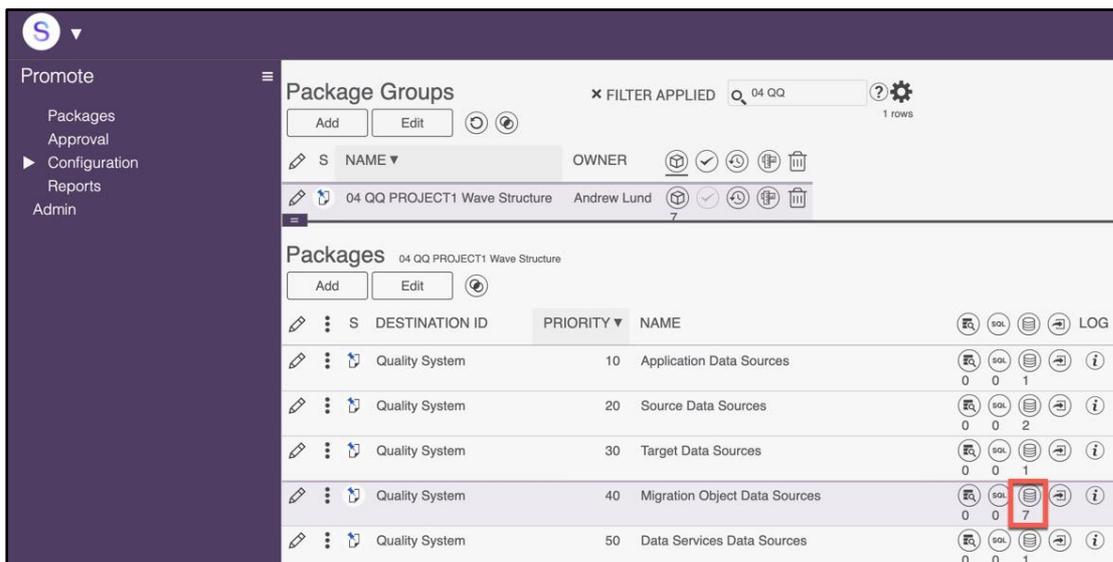
2. Select a database for which the database does not exist and click the **Create** button. This will create the database and update the **Exist in Destination** flag.
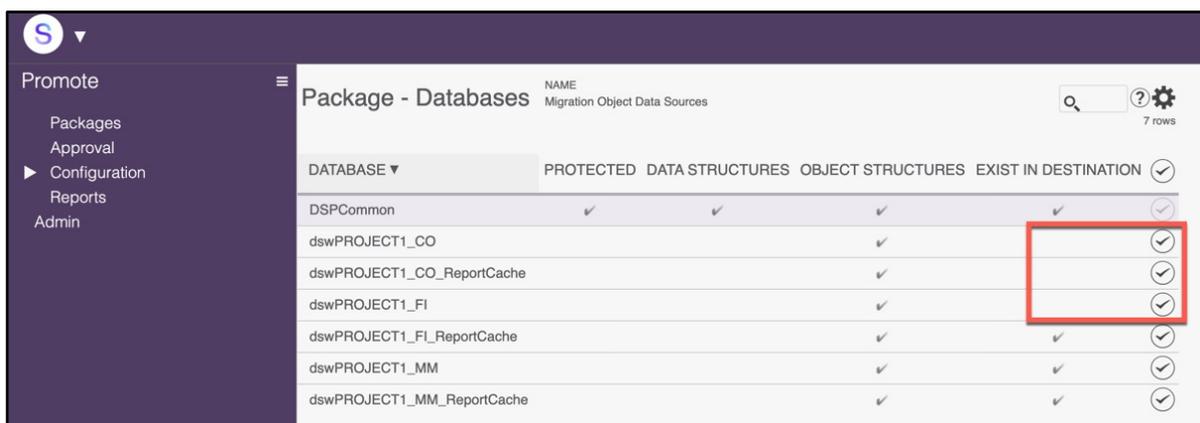
4.2.12 Update Data Source Connection Details

Transporting Data Sources excludes columns that contain connection information. Therfore, after they have been transported, the Data Sources need to have their connection details update

1. Navigate to **Common > Configuration > Settings > Data Source Registry**.

2. Select the Data Source(s) that have been transport and via the *Vertical* View of the record update the relevant connection details. Depending upon the type of Data Source, different pieces of connection information will need to be updated.

3. Once the connection details have been updated, click the **Test Connection** button to ensure the Data Source connects.