SAS Fans Trondheim and Tromsø

SAS Migration strategies to SAS Viya4 from SAS 9.4

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SAS Content Migration

Steps

- Run SAS Content Assessment
- Export content from SAS 9.4
- Prepare target environment - SAS Viya4
  - Create Mappings, Configure Environments etc.
- Import content to SAS Viya4
  - Scripted import – demo
  - Manual import – demo
- Unit test
  - Need to test imported content
- Validate content
  - Validation means check for data consistency and results are alike as SAS 9.4

New Import Interface

Import Interface

Import tab for import.

Mapping Set tab to manage mappings

Can selectively import

- Select source package
- Perform Mapping
- Preview and Import
- View Results

Mapping Interface

A central aspect of importing is the creation, refinement, and application of mappings. Mappings govern the transformation of exported resources for use in the target environment.

Four categories of Mapping

Mapping Sets can be loaded from and Saved to the Infrastructure Data Server
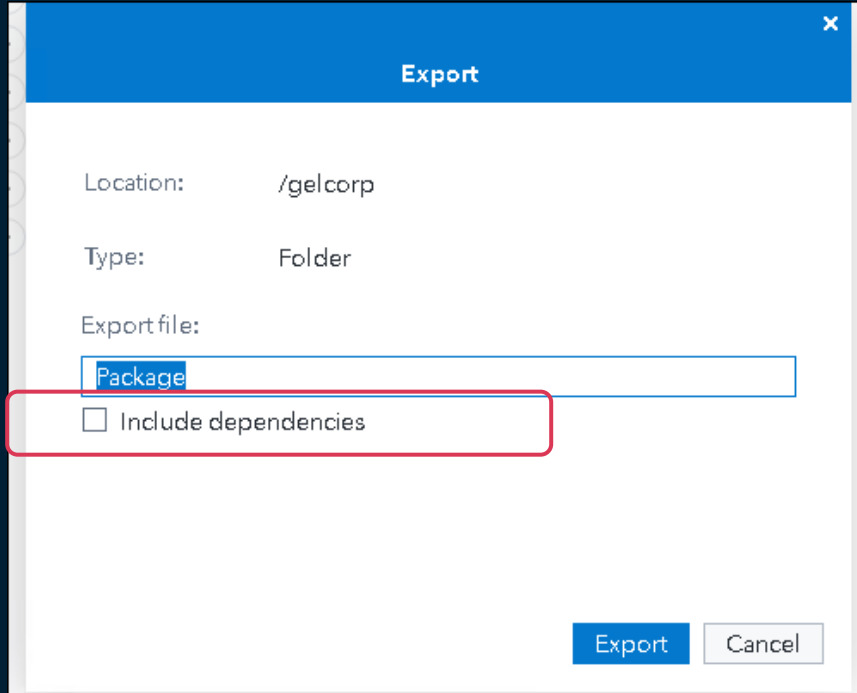
Mappings can be edited interactively

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Selective Import of Content
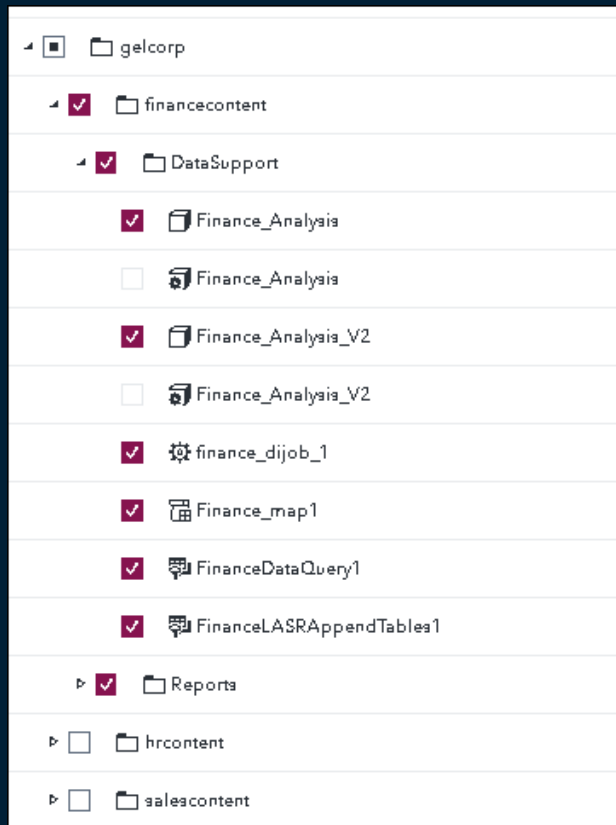
2021.2.1 Include Dependencies


```
sas-viya transfer export
-u /folders/folders/82e2f89b-a53e-4c74-b8d0-de5ab3049acc
   --include-dependencies
```

Relocate Content During Import

Specify target location.

Mapping Set Interface

Mapping Sets can be managed separately from the import process:

- Loaded and Saved from/to the Infrastructure Data Server
- Uploaded from a JSON File
- Edited
- Merged
- Deleted

SAS Libraries

Viya Compute libraries can now be:

- Defined in the resources section of Viya Compute Contexts
- Managed in SAS Studio
- Assigned automatically when compute sessions start.
- Created when importing V9 path-based SAS libraries.

SAS Libraries

On Import V9 SAS Libraries can now create both a CAS Library and a Compute Library

Import to CAS and Compute

Mapping

Content	Users and Groups	Tables	Properties	Other		Mapping set: System default ▾	⑦	Save ▾

Resources & Properties	Old Value	New Value
◢ Financial Data		
DirPath	/gelcontent/gelcorp/finance/data	/gelcontent/gelcorp/finance/data
CASServer		cas-shared-default ▾
ImportTargetEnvs	CAS, Compute	CAS, Compute
ComputeContexts	SAS Studio compute context, SAS Job Execution compute context	SAS Studio compute context, SAS Job Execution compute context

Select Compute Contexts to Create Library

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Enterprise Guide Project to Studio Flow

What Happens

Each process flow is converted to a SAS Studio Flow
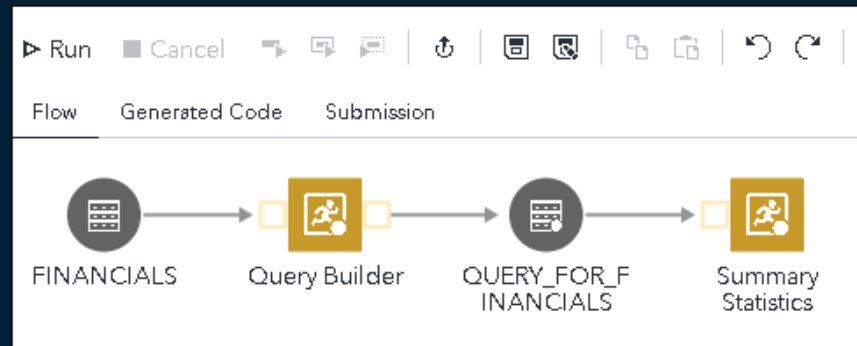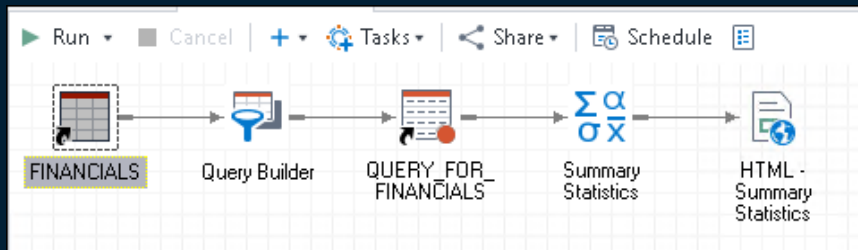
Resultant studio flows may often require some changes to be fully functional.

Enterprise Guide Project to Studio Flow
What Happens

Each process flow is converted to a SAS Studio Flow
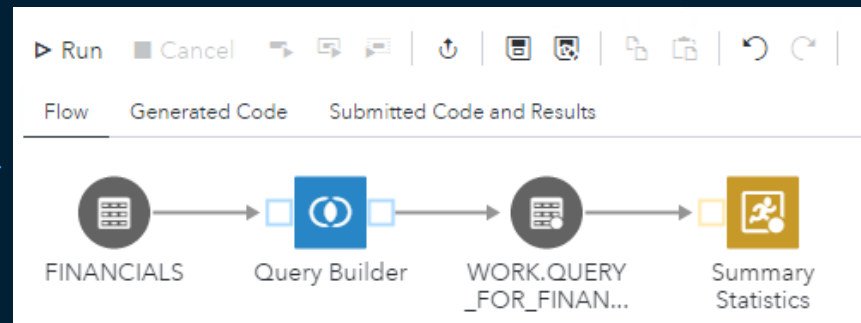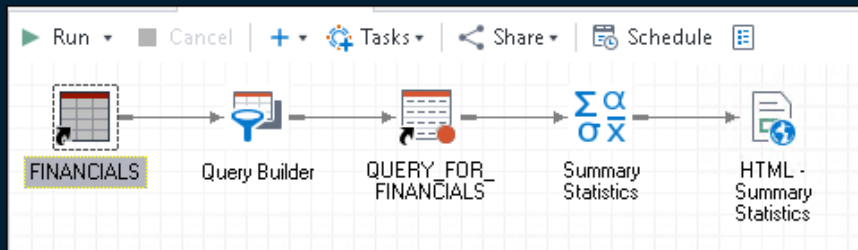
Resultant studio flows may often require some changes to be fully functional.

Enterprise Guide Tasks

- Many Enterprise Guide tasks are migrated to SAS Program Nodes in SAS Studio.

- Some EG tasks

  - Are migrated to the equivalent node in Studio e.g., Query, Data, Append, Filter, Sort etc.

  - are not supported because there is no equivalent in Viya e.g., Update Library Metadata

  - require manual updates of the resulting program node e.g., Create Format from Dataset

Future development will add support for migration of tasks to nodes with equivalent functionality.

Enterprise Guide Projects

Projects from Enterprise Guide 7 and 8 are supported.

- Individual Projects can be imported directly using Environment Manager or the transfer plugin of the sas-viya CLI.

- Multiple projects can be imported in batch with a CLI delivered with Content Assessment

  - Use Content Assessment csv output and imports all Projects in a csv file
  - OR all Projects in a directory path.

Enterprise Guide Migration strategy

- Enterprise Guide projects are often spread across
  - Network Shares/disks
  - PC
  - Metadata
  - other

- Need to allow users to import own projects
- Can do bulk load from mounted disk to Viya4

- As mentioned – Folder structure, libraries and data needs to be available to end-users

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Enterprise Guide Projects

– Scripted import

- Different approaches

– Enterprise Guide Projects that is scanned from CodeCheck Application can be used as input to migration tool

– Enterprise Guide Projects can be imported from Specific folder directly

SAS Enterprise
Guide 8.3 (64...

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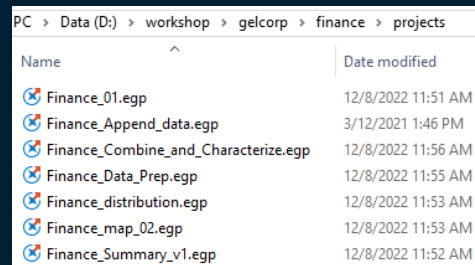
Enterprise Guide Projects

- Scripted import – demo
- SAS Content Assessment creates a list for scanned projects
  - List of SAS Enterprise Guide Project.csv

- # import EG projects based on input csv – using CodeCheck report data
  - cd /drives/d/workshop/SAS9ContentAssessment/migration/
  - ./importEGProjects.exe --sas-viya-path "D:\\ViyaHome\\CLI\\sas-viya.exe" --source-file "C:\Users\student\Downloads\List of SAS Enterprise Guide Project.csv" --root-folder "/EGProjects/Scripted"

- # import EG project that is placed in Specific folder
  - ./importEGProjects.exe --sas-viya-path "D:\\ViyaHome\\CLI\\sas-viya.exe" --source-location "D:\workshop\gelcorp\shared\projects" --root-folder "/EGProjects/Specific"

- # Environment URL
  - https://target.pdcesx02203.race.sas.com/SASStudio

PC > Data (D:) > workshop > gelcorp > finance > projects	
Name	Date modified
Finance_01.egp	12/8/2022 11:51 AM
Finance_Append_data.egp	3/12/2021 1:46 PM
Finance_Combine_and_Characterize.egp	12/8/2022 11:56 AM
Finance_Data_Prep.egp	12/8/2022 11:55 AM
Finance_distribution.egp	12/8/2022 11:53 AM
Finance_map_02.egp	12/8/2022 11:53 AM
Finance_Summary_v1.egp	12/8/2022 11:52 AM

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Enterprise Guide Migration strategy

- Scripting means:
  - Repeatability
- GIT Integration:
  - Version control of migrated content and scripts
- Use Pipelines to automate the migration:
  - Azure have Pipeline capabilities meaning we can create an automation of migration steps.
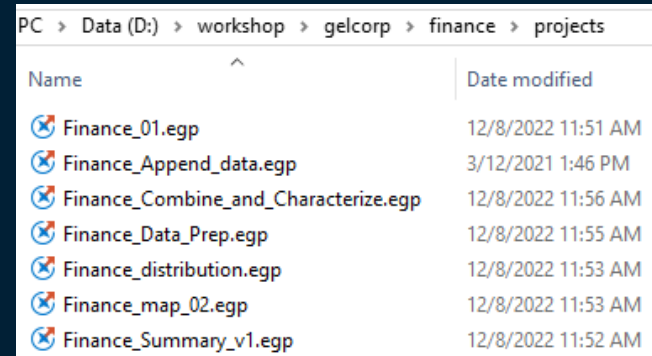 - Gitlab has this functionality also

  Lars Arne will talk more on the topic with CI/CD capabilities

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Enterprise Guide Projects

Manual import

- Manual import – demo
  - Import will add content to SAS VIya4 from an SAS EGP project
  - You need to use Environment Manager

  - Can be done without administrative user-rights

Migration Summary Report

Migration Summary Report

Enterprise Guide Migration Activity | Data Integration Studio Migration Activity | **SAS Studio Step Details** ⋮ | Summary by Step Type description | Migration Timeline

Filters: [Project.EG ✕] [Finance_01.egp; Process Flow; Project.EG ✕]

This report page shows details on a per-node basis about whether resulting steps have been successfully migrated into SAS Studio.

| Project.EG | Successfully Migrated (9) | Needs Attention (3) | Steps Not Migrated (3) |

SAS 9 Source Name ▲	OriginalType	SAS Studio Flow Name	Total Number of Steps ⋮		Studio Step Type ▼	Steps Not Migrated
Finance_01.egp	Project.EG	Process Flow	15		SAS Enterprise Guide Task	0
Finance_02.egp	Project.EG	Process Flow	10		SAS Enterprise Guide Query	0
Finance_Append_data.egp	Project.EG	Process Flow	5		Registered Table	0
Finance_Combine_and_Characterize.egp	Project.EG	Process Flow	14		ODS Result	3
Finance_Data_Prep.egp	Project.EG	Process Flow 1	5		Data	0
Finance_Data_Prep.egp	Project.EG	Process Flow	6			
Finance_distribution.egp	Project.EG	Process Flow	9			

ImportedTimeStamp	SAS 9 Source Name ▼	SAS Studio Flow Name	Studio Step Name	Studio Step Type	Studio Migration Result
2021-06-01T19:38:33.665Z	Finance_01.egp	Process Flow	FINANCIALS	Registered Table	Needs Attention
2021-06-01T19:44:41.582Z	Finance_01.egp	Process Flow	FINANCIALS	Registered Table	Needs Attention
2021-06-01T19:47:25.004Z	Finance_01.egp	Process Flow	FINANCIALS	Registered Table	Needs Attention
2021-06-01T19:38:33.665Z	Finance_01.egp	Process Flow	HTML - Choropleth Map	ODS Result	Step Omitted
2021-06-01T19:44:41.582Z	Finance_01.egp	Process Flow	HTML - Summary Statistics	ODS Result	Step Omitted
2021-06-01T19:47:25.004Z	Finance_01.egp	Process Flow	HTML - Summary Statistics	ODS Result	Step Omitted

Studio Migration Details ▼	Studio Migration Hint
Path update needed.	Referenced SAS programs are converted to SAS program nodes with a %INCLUDE statement pointing to the file location. The referenced SAS program needs to be made available to the SAS Viya software. Either place the file in a mounted location or place it in a file system that is accessible by the deployment.

Summary

- SAS 9 content can be migrated to Viya4

- Scripted migration approach is supported
  - DevOps and CI/CD would be beneficiary due to repeatability

- Manual migration is supported

- No need for administrative user-rights to-do import

- R&D are working to support migration of SAS 9 content to Viya 4 even better

- Needs some planning and structure
  - Decide what to migrate
  - Decide what not to migrate

- Content need to be in place to make a successful migration for end-users.

SAS