Deploying the SAS Solution for IFRS9

Deployment Details and Package Contents

Solution: SAS Solution for IFRS9

Solution release version: v01.2020

Package files:

- RGF_IFRS9_v01_2020.zip
- RGF_CRTOOL_01_2020.zip

Deployment Instructions

Installing SAS Solution for IFRS9 requires:

1> SAS Risk Stratum Enterprise installed and configured. For installing SAS Risk Stratum Enterprise refer SAS Risk Stratum Core documentation : RSC_V01_2020

2> SAS Risk Stratum Core (v01.2020) installed and configured : RSC_V01_2020

3> Prepare solution schema within the RGF database. Details on how to run the scripts to do this are found in the 'Prepare your Databases' section of the RGF Administration guide. Examples are included below.

- Run the PrepareSchema utility for a database schema named `ifrs9dr` (IFRS9 data repository). WARNING: Do not run the InitDatabase utility for the ifrs9dr schema. It is automatically initialized when running the content after it is loaded.

Examples of how to run these scripts are given here. Specific parameter values and directory locations will vary depending on your installation:

Windows with Postgres database:

1. Navigate to the Postgres database scripts directory:

   cd
   "C:\SASConfig\Lev1\Applications\SASRiskGovernanceFrameworkAdministrativeTools\dbscripts\PostgreSQL"
   Update the %PATH% variable to include the path to the psql executable. For example, for the SAS internal postgres database:

   set PATH=%PATH%;C:\SASHome\SASWebInfrastructurePlatformDataServer\9.4\bin;

2. Run the command to prepare the 'ifrs9dr' schema:

PrepareSchema.cmd -U rgfdbuser -h localhost -p 10522 rgfdbname ifrs9dr

LINUX with Postgres database:

1. Navigate to the Postgres database scripts directory:

   cd
   /opt/SASConfig/Lev1/Applications/SASRiskGovernanceFrameworkAdministrativeTools/dbscripts/PostgreSQL

   Update the $PATH variable to include the path to the psql executable. For example, for the SAS internal Postgres database:

   export PATH=/opt/SASHome/SASWebInfrastructurePlatformDataServer/9.4/bin:$PATH

2. Run the command to prepare the 'ifrs9dr' schema:

   ./PrepareSchema.sh -U rgfdbuser -h localhost -p 10522 rgfdbname ifrs9dr

For more detailed information about these pre-deployment tasks, see the *SAS Risk Governance Framework: Installation and Configuration Guide*.

Next, verify your environment. Do the following:

1. Ensure that all SAS services are started and that you can log into the RGF web application in a browser with the RGF Administrator (ex: http{s}://<midtierHost>:<RGFPort>/SASRiskGovernanceFramework).

   Note: A successful login will take you SAS Risk Stratum Core home page.

2. Verify the environment. In the command line on the server tier, navigate to the *SAS-configuration-directory*/Applications/SASRiskGovernanceFrameworkAdministrativeTools/dbscripts directory and run one the following commands:
   - **verifyEnvironment.sh** (UNIX)
   - **verifyEnvironment.cmd** (Windows)

   Confirm that the command successfully completes without a prompt required.

Deployment Instructions (Windows)

To deploy the content package on Windows:

1. Login to the SAS server tier machine as the SAS installation user.
2. Ensure that all SAS services are started.
3. Download the files RGF_CRTOOL_01_2020.zip and RGF_IFRS9_v01_2020.zip from the solution download site.

4. Create a folder for the release tool (for example, C:\temp\rgf\tool).
5. Create a folder for the solution content in the SAS Infrastructure for Risk Management federated area:
   SAS-Configuration-Directory\AppData\SASIRM**fa.ifrs9.2020.01**
6. Unzip RGF_CRTOOL_01_2020.zip into the release tool folder (for example, C:\Temp\rgf\tool).
7. Unzip RGF_IFRS9_v01_2020.zip into the release content folder (for example, *SAS-Configuration-Directory*\AppData\SASIRM**fa.ifrs9.2020.01**). Once unzipped, confirm that the Excel file actions.xlsx is present in this directory.
8. Open a Windows command prompt and run it as an administrator. Right-click **Command Prompt** and select **Run as administrator**.
9. On the command line, ensure that the SOLR server is started. Example (run from the SOLR host machine:

   C:\solr-5.5.5\bin\solr start

10. On the command line, navigate to the release (for example, C:\Temp\rgf\tool). Confirm the file cdt_wx6.cmd is in this directory.
11. Run the **cdt_wx6.cmd** file from the command line with the following parameters:

    cdt_wx6.cmd /metaserver:<*metadata_host_name*> /metaport:<*metadata_port*> /metarepository:<*metadata_repository*> /metauser:<*rgfadmin_ userid*> /metapass:< *rgfadmin_ password*> /lev_path:<*SAS_configuration_directory*> /content_path:<*content_path*> /actions_xlsx*:<actions.xlsx>* /log_path:<*log_path*>

    where:

    - <*metadata_host_name*> is the fully qualified name of the metadata host (for example, metadatahost.company.com). The default host is **localhost**.
    - <*metadata_port*> is the metadata server port. The default port is **8561**.
    - <*metadata_repository*> is the metadata server repository. The default repository is **Foundation**.
    - <*rgfadmin_ userid*> is the name of the rgfadmin operating system user account, including the domain. See 'Configure Install User' step in SAS Risk Stratum Core dcoumentation.
    - <*rgfadmin _password*> is the password for the <*rgfadmin_ userid*> account.
      Note: It is recommended that you encrypt this password for security purposes. To do this, run following statement in your SAS editor and copy the output from the console window to the file:
      `proc pwencode in='rgfadmin _password'; run;`
    - <*SAS_configuration_directory*> is the SAS configuration directory path, including the Lev directory (for example, C:\SASConfig\Lev1).
    - <*content_path*> is the absolute path to the release content (for example, C:\SASConfig\Lev1\AppData\SASIRM**fa.ifrs9.2020.01**).

- *<actions_xlsx>* is the Microsoft Excel actions file in the content dir. The default file is **actions.xlsx**.
- *<log_path>* is the absolute path to the log directory of install (For example, C:\Temp\rgf\log).

Example:

```
cdt_wx6.cmd /metaserver:myserver.com /metaport:8561
/metarepository:Foundation /metauser:somedomain\rgfadmin
/metapass:_password_ /lev_path:C:\SAS\Config\Lev1 /content_path:
C:\SAS\Config\Lev1 \AppData\SASIRM\fa.ifrs9.2020.01
/log_path:C:\Temp\rgf\log
```

It might take some time for the content to load. Logs for this command are found in the *log_path* directory specified on the command line.

12. Once the execution completes, the console should show a SAS exit code. Exit codes **0** or **1** indicate successful completion.
13. Review the cr_tool.log file in the *log_path* directory for all actions performed by the tool. You can search for the string 'RUNNING' to review what actions were performed. Check for any errors. (The same errors also appear on the command prompt console.)
14. On your middle tier machine, restart SASServer8 and SASServer12.

Deployment Instructions (Linux)

To deploy the content package on Linux:

1. Using a terminal window, sign in to the SAS server tier as the SAS installation user (for example, sasinstall). Set umask to 0002. This enables the SAS installation user and the SAS General Servers user to access all files with Read/Write access.
2. Ensure that all SAS services are started.
3. Download the RGF_CRTOOL_01_2020.zip and RGF_IFRS9_v01_2020.zip files from the solution download site.
4. Create a folder for the release tool (for example, /tmp/rgf/tool).
5. Create a folder for the solution content in the SAS Infrastructure for Risk Management federated area.
   (For example, *SAS-Configuration-Directory*/AppData/SASIRM/**fa.ifrs9.2020.01**.)
6. Unzip the file RGF_CRTOOL_01_2020.zip into the release tool folder
   (for example, /tmp/rgf/tool).
7. Unzip the file RGF_IFRS9_v01_2020.zip into the release content folder.
   (For example, *SAS-Configuration-Directory*/AppData/SASIRM/**fa.ifrs9.2020.01**.) Once unzipped, confirm that the Excel file actions.xlsx is present in this directory.
8. Ensure that the SOLR server is started. Example (run from the SOLR host machine):

   /opt/solr-5.5.5/bin/solr start

9. On the command line, navigate to the release tool directory (for example, /tmp/rgf/tool). Confirm the file **cdt_unix.sh** is in this directory.
10. Run **cdt_unix.sh** script with the following parameters.

    sh cdt_unix.sh -metaserver <*metadata_host_name*> -metaport <*metadata_port*>-metarepository <*metadata_repository*> -metauser <*rgfadmin_ userid* > -metapass <*rgfadmin _password*> -lev_path <*SAS_configuration_directory* > -content_path <*content_path*> -log_path <*log_path*>

    where:

    - <*metadata_host_name*> is the fully qualified name of the metadata host (for example, metadatahost.company.com). The default host is **localhost**.
    - <*metadata_port*> is the metadata server port. The default port is **8561.**
    - <*metadata_repository*> is the metadata server repository. The default repository is **Foundation**.
    - <*rgfadmin_ userid*> is the name of the rgfadmin user account. See 'Configure Install User' step in SAS Risk Stratum Core documentation.
    - <*rgfadmin _password*> is the password for the <*rgfadmin_ userid*> account. *Note:* It is recommended that you encrypt this password for security purposes. To do this, run following statement in your SAS editor and copy the output from the console window to the file:
      `proc pwencode in='rgfadmin _password'; run;`
    - <*SAS_configuration_directory*> is the SAS configuration directory path, including the Lev directory (for example, /opt/SASConfig/Lev1).
    - <*content_path*> is the absolute path to the release content (for example, /opt/SASConfig/Lev1/AppData/SASIRM/**fa.ifrs9.2020.01**). <*actions_xlsx*> is the Microsoft Excel actions file in the content dir. The default file is **actions.xlsx**.
    - <*log_path*> is the absolute path to the log directory of install (for example, /tmp/rgf/log).

    Example:

    ```
    sh cdt_unix.sh -metaserver myserver.com -metaport 8561 -metarepository
    Foundation -metauser rgfadmin -metapass _password_ -lev_path
    /opt/SASConfig/Lev1 -content_path
    /opt/SASConfig/Lev1/AppData/SASIRM/fa.ifrs9.2020.01 -actions_xlsx
    actions.xlsx -log_path /tmp/rgf/log
    ```

    Note: It might take some time for the content to load. Logs for this command are found in the `log_path` directory.

10. After the execution completes, the console should show a SAS exit code. Exit codes 0 or 1 indicate successful completion.

11. Review the cr_tool.log file in the `log_path` directory for all actions performed by the tool. You can search for the string 'RUNNING' to review what actions were performed. Check for any errors. (The same errors also appear on the command prompt console.)
12. After the tool successfully runs, on your middle tier machine, restart SASServer8 and SASServer12.

Post-Deployment Instructions

1. Login to SAS Management Console using the SAS administrator and remove the below groups and roles for the RGF Administrator user
- Roles: Metadata Server: Unrestricted.
- Groups: SAS Administrators, SAS Regulatory Reporting Database Users.

2. Ensure that the operating system account, (typically sassrv), for the SAS General Servers metadata group has write permission to the 'Reportmart' folder and all of its subfolders. This folder is created here by default:

   SAS-Configuration-Directory\AppData\SASIRM

3. a. Open the file *<content_path>*/rgf/sas/config/install_post_rgf_server_restart.sas in SAS Studio or SAS Enterprise Guide with the rgfadmin user.
   b. Update the parameters at the top of the file as follows. The highlighted values will be site-specific.

```
/* Federated Area Id (as specified in SMC) */
%let irm_fa_id = ifrs9.2020.01;
/* Configuration set */
%let config_set_id = IFRS9;

/* Server connection credentials */
%let metaserver = localhost;
%let sasAdminUser = sasadm@saspw;
%let sasAdminPassword = SAS Admin Password;

/* Username and password used to register the Data Definition instance
in RGF */
%let sasUser = rgfadmin;
%let sasPassword = RGF Admin Password;
```

   c. Ensure that the 'LASR Analytic Server' is started.
   d. Run the edited file

4. If you are using Oracle 12c or higher you must set `MAX_STRING_SIZE` = EXTENDED . See Details at *https://docs.oracle.com/database/121/REFRN/GUID-D424D23B-0933-425F-BC69-9C0E6724693C.htm#REFRN10321*

Post-Deployment Verification

To verify the deployment has completed successfully, sign into the SAS Solution for IFRS9 URL using the rgfadmin user. For example:

http://<midtierHost>:<RGFPort>/SASRiskGovernanceFramework

Navigate through the main menu icons on the main navigation bar and for each category, navigate to the subcategory items. Ensure that no errors display about missing screen definitions. To confirm, use the UI to create a new cycle business object.

For information on the usage and configuration of the IFRS9 product, see the SAS Solution for IFRS9 Reference manual at this URL:

http://<midtierHost>:<IRMPort>/SASIRMServer/irmcontent/<IFRS9_FA_ID>/doc/index.html

For example:

http://midtierhost.company.com:7980/SASIRMServer/irmcontent/fa.ifrs9.2020.01/doc/index.html