SAS® Energy Forecasting 3.2 Installation Guide, Second Edition

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Table of Contents

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Chapter 1 — Pre-install 2

Pre-Installation Tasks 2

Verify System Requirements 2
Obtain a Deployment Plan 2
Create a SAS Software Depot 2
Set UNIX Directory Permissions 2
Defining User Accounts 3

Chapter 2 — Installation Configuration 4

PostgreSQL password configuration 6

Configure account SAS Energy Forecasting Server User 8

Installing and Configuring the Forecast Server Client 9

Chapter 3 — Post-Installation Tasks 9

Loading Data 9

Sample Input Data Extraction 9

Tree initialization 13

Overview 13
Example UTIL_LOC_DIM (from sample data) 13
Initializing the tree 14
Updating the tree 14

Chapter 4 — SAP HANA Configuration 15

Configure the SAS Metadata Server 15

Create a SAP HANA Server Definition in Metadata 15
Create/Update a Group for HANA Authorization 18

Set up a LIBNAME Statement in an Energy Forecasting Reporting Exit 18

Configuring a SAS Energy Forecasting job for SAP HANA 18

Chapter 5 — Sample Reports 20

Sample Report Data Extraction 20

Sample Report Data 21

Sample Visual Analytics Reports 22

Instructions for importing SAS Energy Forecasting Sample Reports 22

Chapter 6 — Update In Place 50

Chapter 7 — Migration 50

Appendix 1: Launch SAS as the SAS Administrator 51

Chapter 1 — Pre-install

Pre-Installation Tasks

Verify System Requirements

Review the system requirements documentation to ensure that your system meets the appropriate requirements. For more information, see System Requirements for SAS Energy Forecasting. You can access this document from

http://support.sas.com/documentation/installcenter/.

Obtain a Deployment Plan

Before you can install SAS Energy Forecasting, you must obtain a deployment plan. The deployment plan is a summary of the software that is installed and configured during your installation. A deployment plan file, named plan.xml, contains information about what software should be installed and configured on each machine in your environment. This plan serves as input to the SAS installation and configuration tools. SAS includes a standard deployment plan. You can use this standard plan or create your own plan. For more information, see “About Deployment Plans” in SAS Intelligence Platform: Installation and Configuration Guide, which is located at **http://support.sas.com/documentation/onlinedoc/intellplatform**.

Create a SAS Software Depot

Download the software that is listed in your SAS Software Order with SAS Download Manager. A SAS Software Depot is created, which includes the SAS installation data (SID) file. The SID file is used by the SAS system to install and license SAS software. It is a control file that contains license information that is required to install SAS. After you have downloaded SAS Software Depot, you can then use SAS Deployment Wizard to install your software. Verify that Base SAS (SAS) is listed as a selected product. Then, select additional products specific to your environment. For more information, see “Creating a SAS Software Depot” in SAS Intelligence Platform: Installation and Configuration Guide at **http://support.sas.com/documentation/onlinedoc/intellplatform**.

Set UNIX Directory Permissions

Note: This is a new permissions requirement that is introduced in SAS 9.4.

To deploy SAS Energy Forecasting in UNIX environments, you must create and grant WRITE permissions on the /etc/opt/vmware/vfabric directory. Refer to the SAS Pre-Installation Checklist that is included with your deployment plan for instructions about how to set up this directory.

Defining User Accounts

SAS Energy Forecasting uses the standard user accounts and groups that SAS software uses. See the pre-installation checklist that is included in the deployment plan for details about standard user accounts and groups. For more information about deployment plans, see **http://support.sas.com/documentation/onlinedoc/intellplatform**. For information about creating groups and adding user accounts for specific environments, see your Linux or Windows documentation.

Prior to installation, two users must exist and have access to the machine where the data of SAS Energy Forecasting is installed. You can use different account names from the examples provided but the accounts should be separate.

- The first account is needed for the SAS Spawned Servers account. This is part of the platform installation. For example, sassrv.
- The second account is used for the SAS Energy Forecasting Server User account. For example, sassef. The SAS Energy Forecasting Server User account is used to perform many operations within the SAS Energy Forecasting user interface, for example, creating projects, running diagnoses, deleting forecasts, etc.

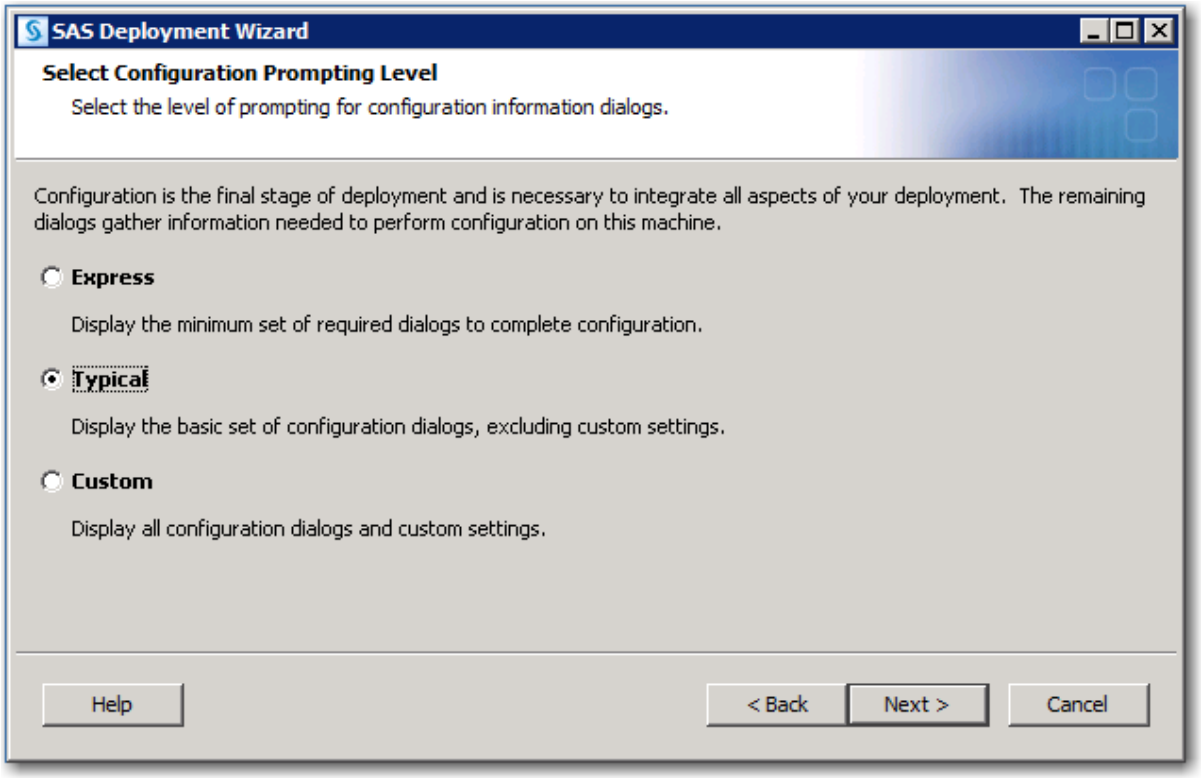
Both of these accounts need full access to the EnergyForecasting folder, all descendant folders, under SASConfig/Lev1/SASApp/Data. If you choose to create your projects in folders outside of the configuration directory, then the accounts will need full access to the folders and files in those locations.

Note: If you create folders and files with the SAS Energy Forecasting Batch Interface using a different account, then you must ensure that the SAS Energy Forecasting Server User account has full access to the same folders and files if you subsequently wish to manage those projects from the SAS Energy Forecasting user interface. This can be performed using standard operating system authorization facilities, for example, the Computer Management administrative dialog on Windows or the chmod command on Unix.

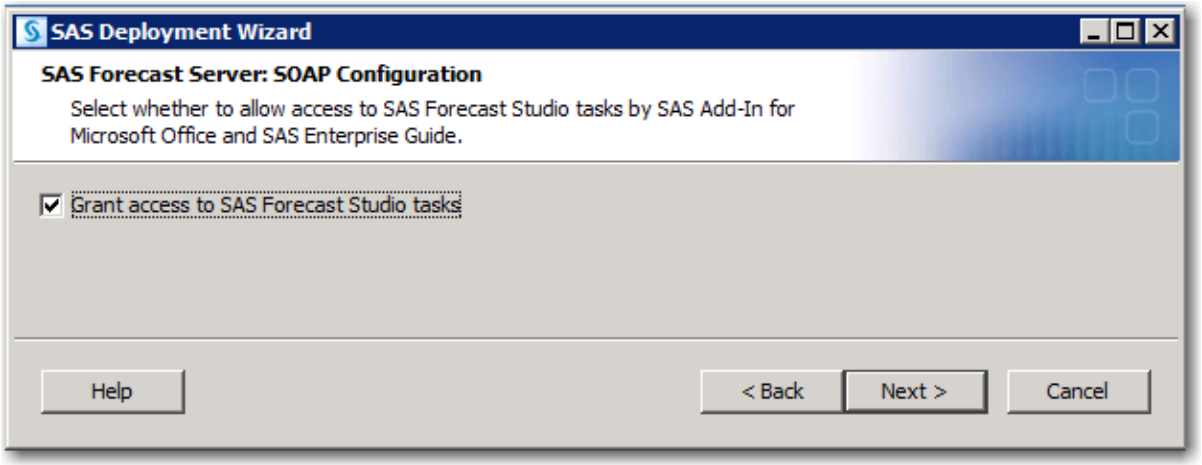
Additional Note: If you are running SAS Forecast Server Client, you need an additional spawned server account. You use the sassrv account during the first pass of the SAS Deployment Wizard. In the second pass of the SAS Deployment Wizard (when you are configuring SAS Forecast Server Client), you need a second spawned server account (such as sasfsc). This user account is associated with the second application server context, so only users of SAS Forecast Server Client have access to SAS Forecast Server Client data.

Chapter 2 — Installation Configuration

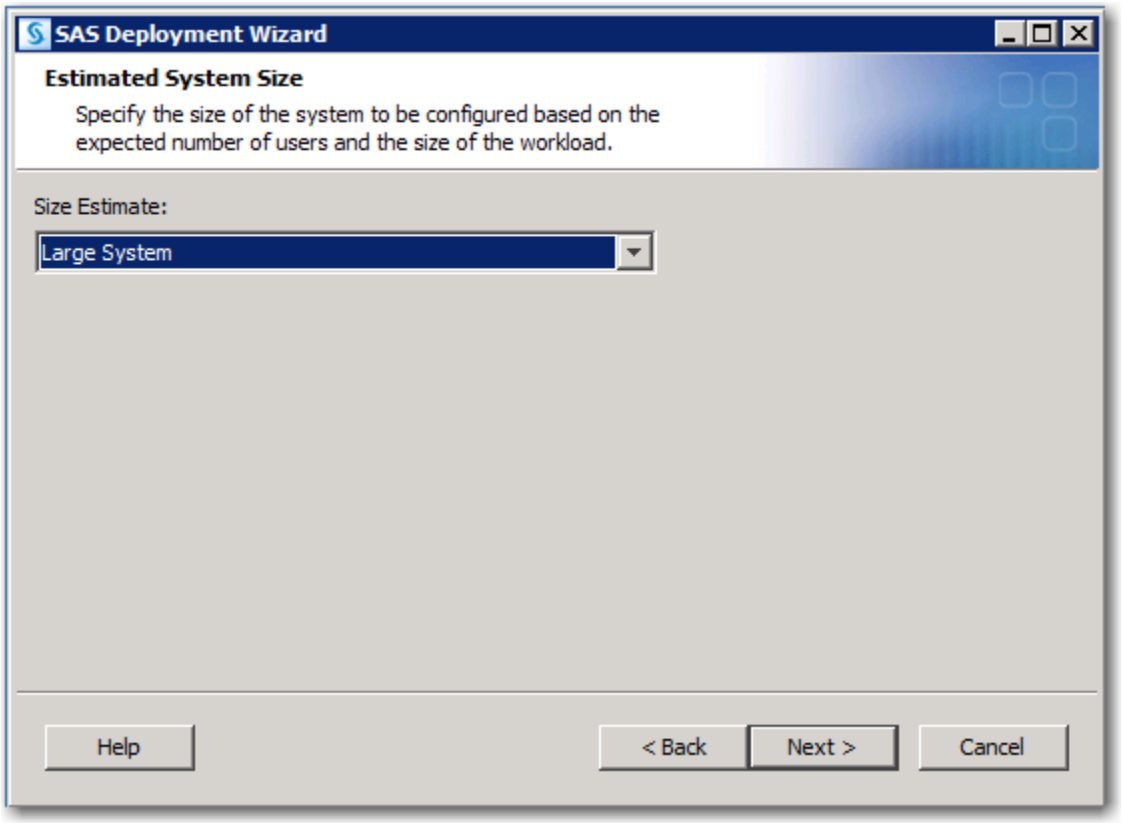
In the Select Configuration Prompting Level step, select **Typical**. Click **Next**.



In the SAS Forecast Server: SOAP Configuration step, select **Grant access to SAS Forecast Studio tasks** to allow access to these tasks by SAS Add-In for Microsoft Office and SAS Enterprise Guide. Click **Next**.



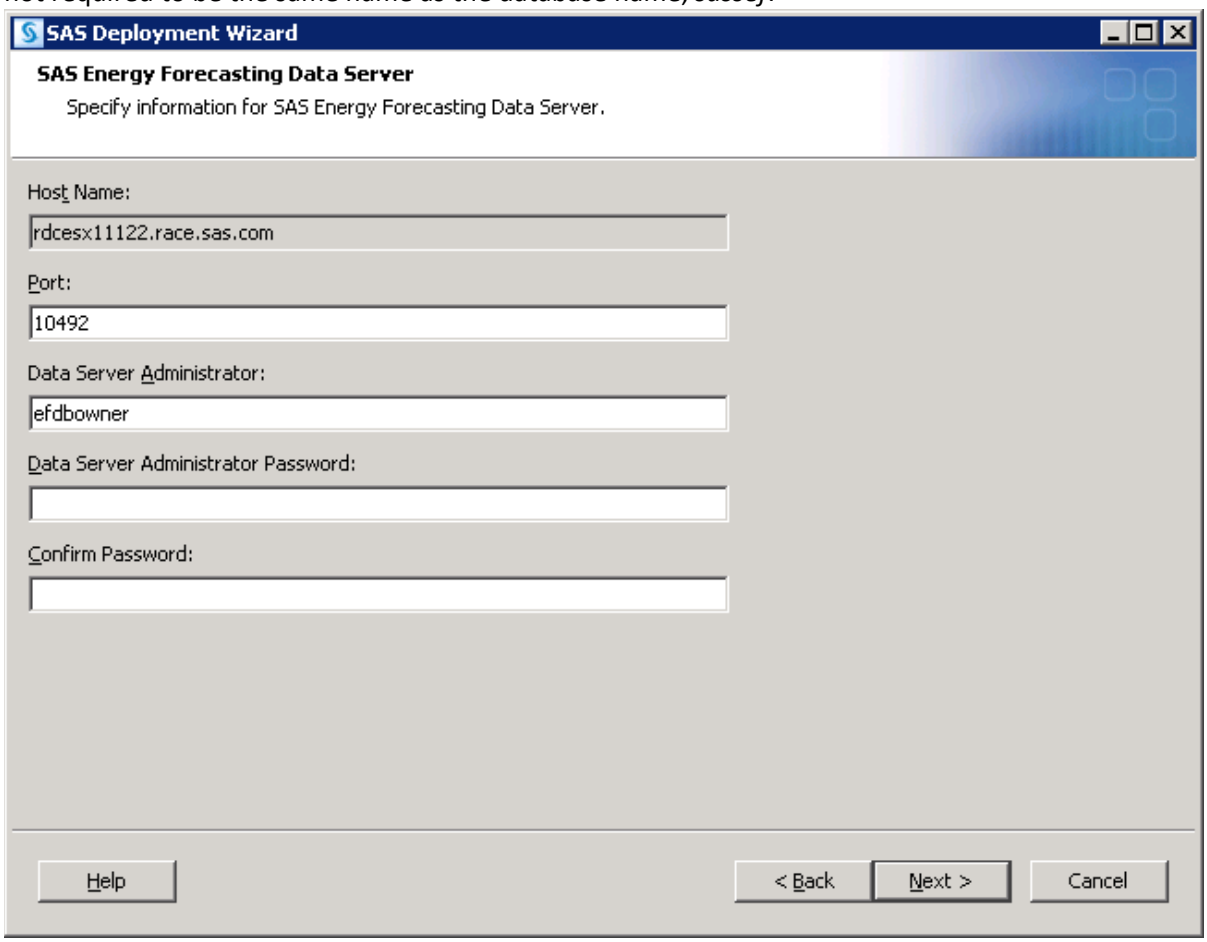
The recommended selection for Estimated System Size is **Large System**.



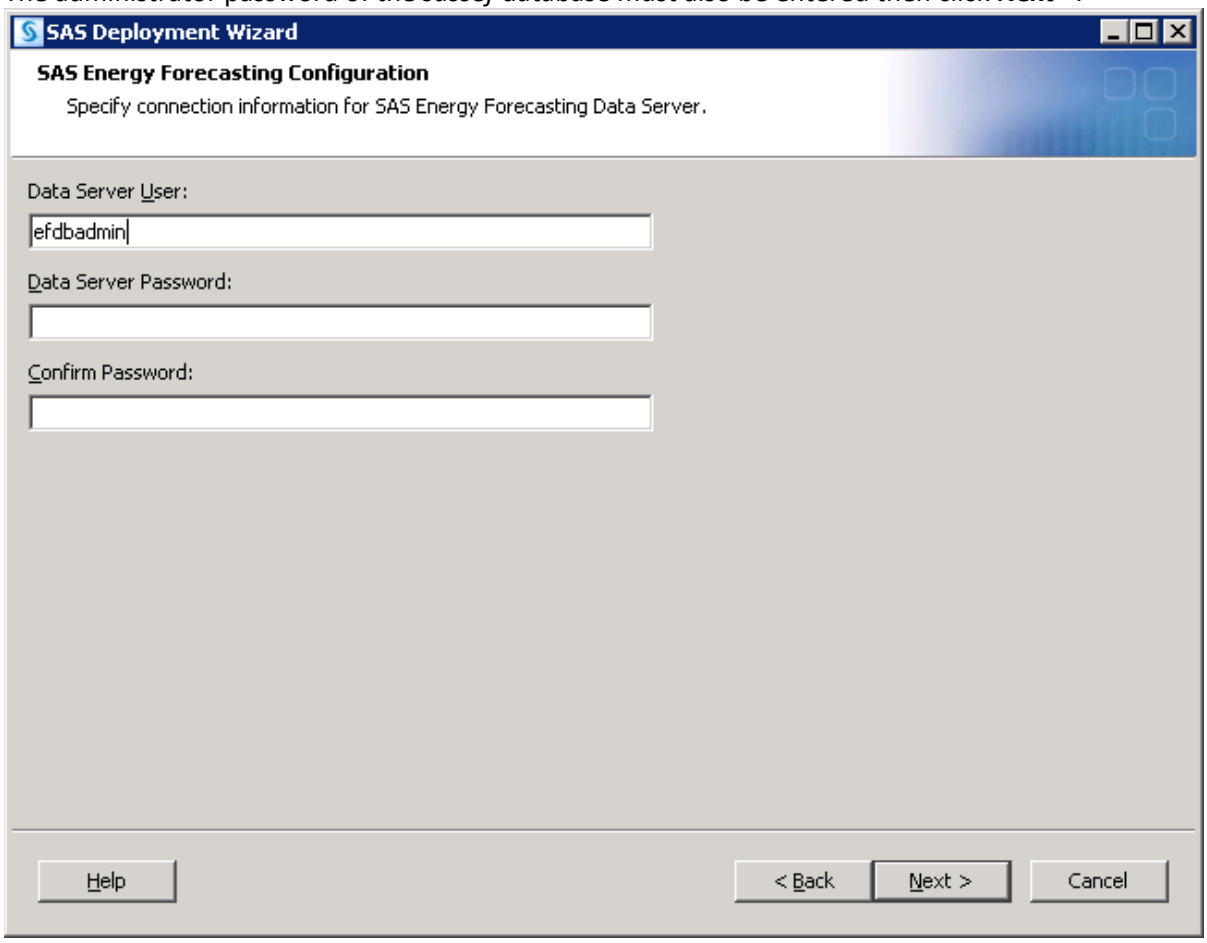
PostgreSQL password configuration

The SAS Energy Forecasting solution is deployed with its own instance of PostgreSQL database which has the database name of **sassef**. There are two accounts created with the database, an owner and an administrator account. The solution runs using the owner account to modify the database. The password for the owner account of the *sassef* database must be entered, then click **Next >**.

Note: The user defined for SAS Energy Forecasting Server User account in Defining User Accounts is not required to be the same name as the database name, *sassef*.

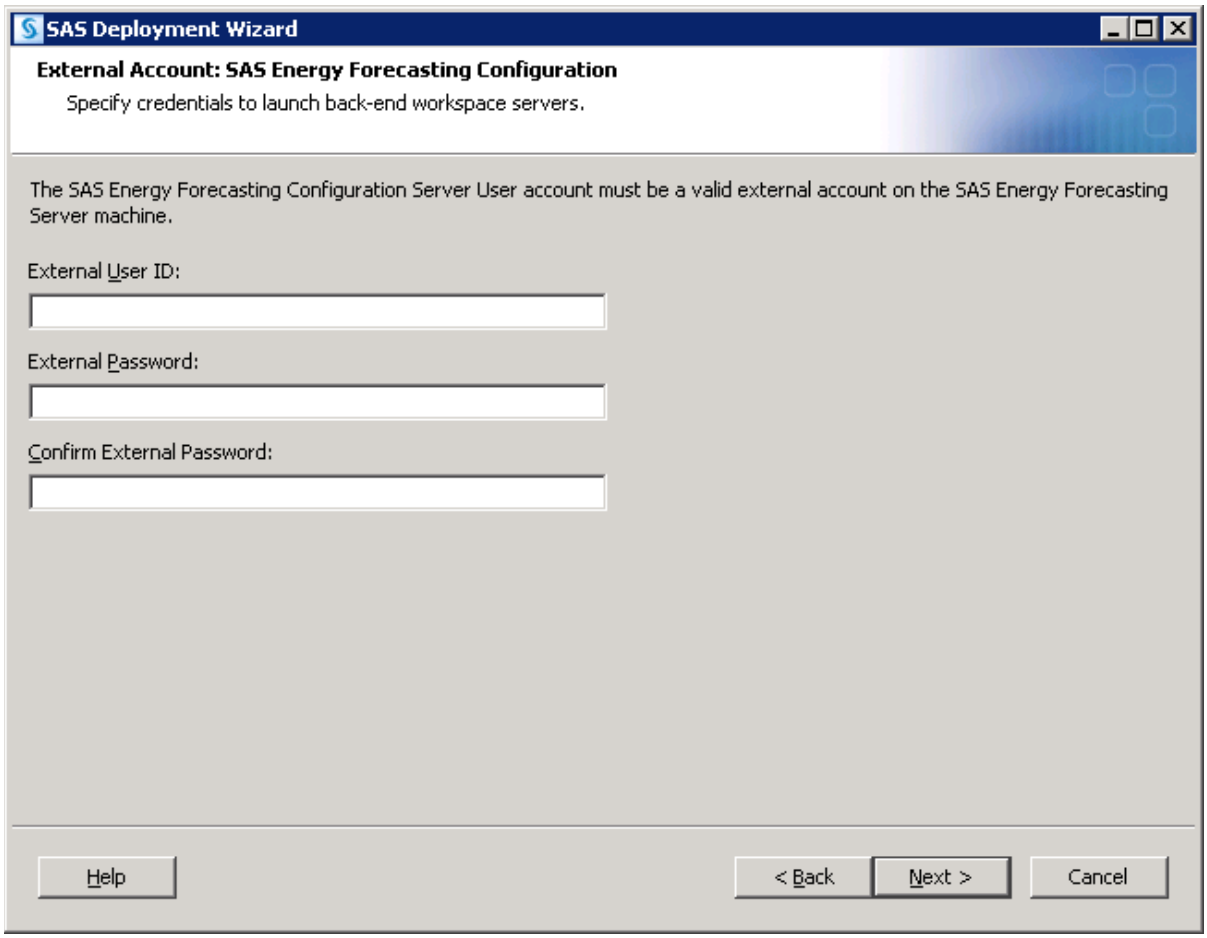


The administrator password of the *sassef* database must also be entered then click **Next >**.



Configure account SAS Energy Forecasting Server User

In the pre-install step, a user account which was created for the SAS Energy Forecasting Server User account. The account name was sassef**.** Enter that username in the External User ID text box with the appropriate domain name for Windows. Enter the password associated with the user, and click **Next >**.



Installing and Configuring the Forecast Server Client

A second pass of the SDW will be needed if installing the Forecast Server Client. Please refer to **How to Install and Configure SAS Forecast Server** and **Installing and Configuring SAS Forecast Server Client** in the SAS Forecast Server 14.1 Administrator's Guide. The user name and password for accessing this document are in the SAS Pre-Installation Checklist that is included with your deployment plan.

Chapter 3 — Post-Installation Tasks

At the end of the installation process, SAS Deployment Wizard writes an instructions file called **Instructions.html** to the Documents directory in your SAS configuration directory.

The **Instructions.html** file contains additional information and details for configuring your installation. You can review this file for any additional steps to your installation.

Loading Data

Energy Forecasting requires electricity load data. You have the option of loading your own data or the sample input data. If you choose to load your own data, please refer to the data model in the SAS Energy Forecasting 3.2 User's Guide. If you would prefer to load the sample input data, please refer to the **Sample Input Data Extraction** section below for instructions.

Sample Input Data Extraction

There is sample input data delivered with the solution. The sample input data is located at **SASHome\SASFoundation\9.4\enfcsvr\sasmisc** for Windows and at **SASHome/SASFoundation/9.4/misc/enfcsvr** for Linux. Following are the steps to import the sample input data to a directory on the server.

1. Unzip the file SAS_Energy_Forecasting_sample_data.zip to a drive on the server.

2. Launch SAS as the SAS Administrator (See Appendix 1) and open sef_import_sample_data.sas.

3. Determine the encoding of the SAS session by following the directions at: http://support.sas.com/documentation/cdl/en/nlsref/61893/HTML/default/viewer.htm#a002605216.htm.
   - If the encoding is not wlatin1 or UTF8, then base SAS session must be modified for this step to be wlatin1 or UTF8.

4. Make the following modifications to sef_import_sample_data.sas prior to running:
   - Set the mart_type macro variable at the top of sef_import_sample_data.sas to specify the desired type of sample data mart. Valid values:
     1. ALL – loads the data for all of the utilites in one folder: ALL_LOCS
     2. SINGLE – loads all of the utility specific data folders: CT, MASS, ME, etc.
     3. BOTH – loads the data from 1 and 2

   - Change the input_directory parameter in the sef_import_sample_data macro definition to the location where SAS_Energy_Forecasting_sample_data.zip was unzipped. This folder will contain all of the .dpo files.

   - Change the output_directory parameter in the sef_import_sample_data macro definition to the location where the sample data should be loaded.

   - Change the encoding parameter in the sef_import_sample_data macro to the encoding value determined above (wlatin1 or UTF8).

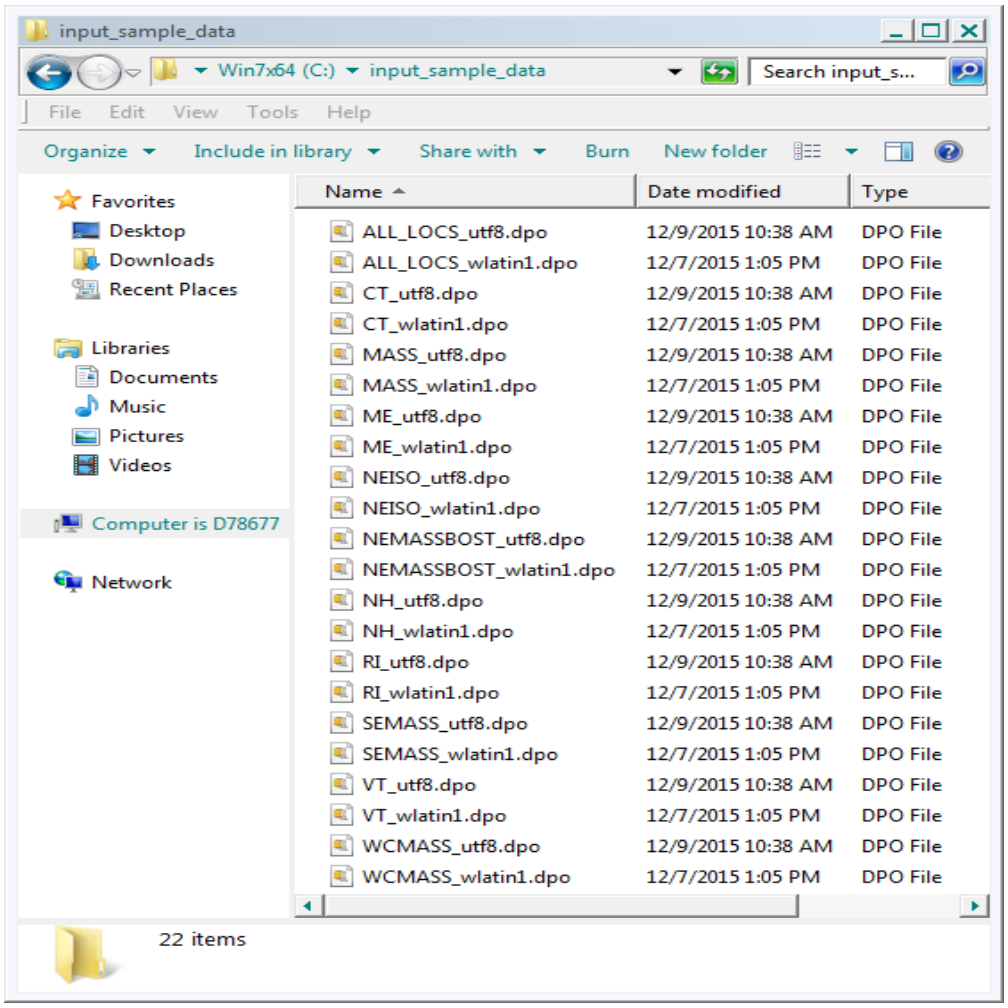
5. Run the sef_import_sample_data sas code using the SAS Admin.

This example shows modifications being made to sef_import_sample_data.

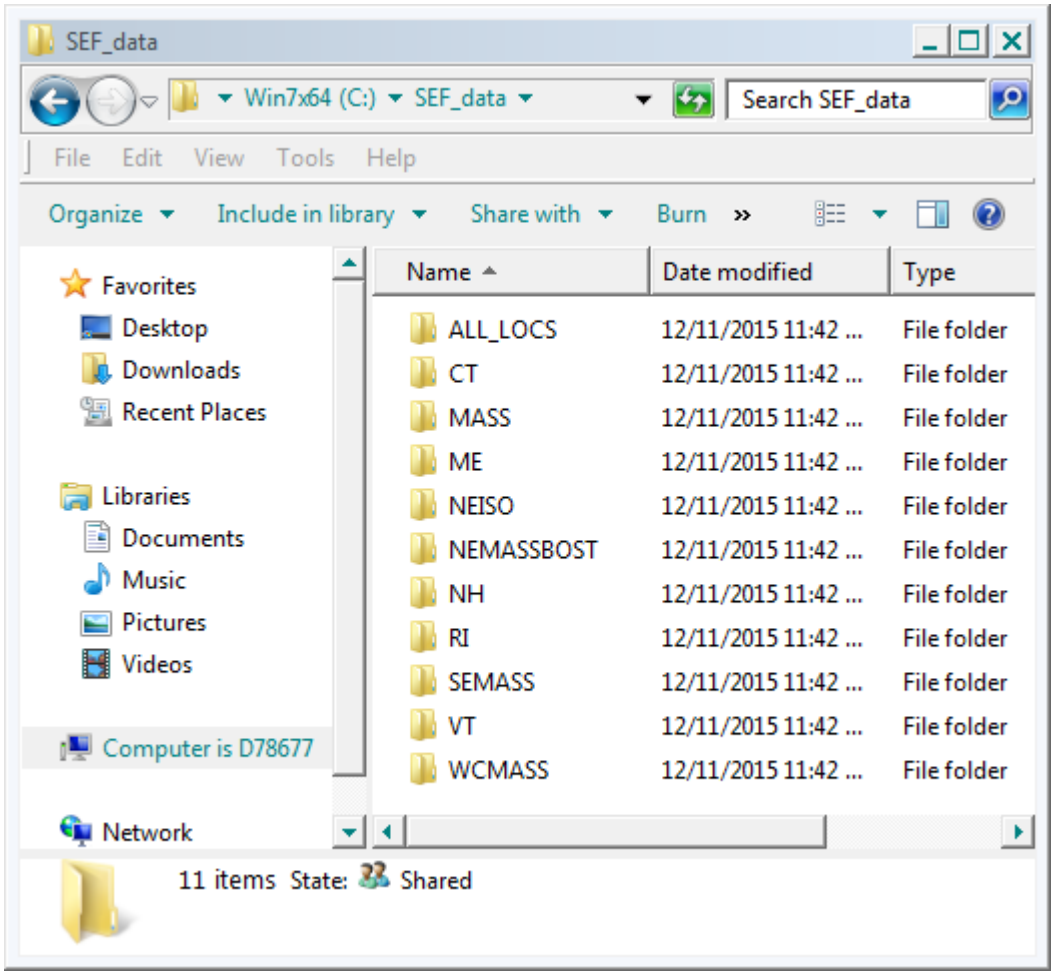
```
%let mart_type=BOTH;

%macro sef_import_sample_data(input_directory=C:\input_sample_data,
                              output_directory=C:\SEF_data,
                              encoding=wlatin1,
                              zone=
                             );
```

Run sef_import_sample_data with input directory shown below.


input_sample_data
Win7x64 (C:) ▸ input_sample_data
Search input_s...
File Edit View Tools Help
Organize Include in library Share with Burn New folder
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer is D78677
Network
Name
Date modified
Type
ALL_LOCS_utf8.dpo 12/9/2015 10:38 AM DPO File
ALL_LOCS_wlatin1.dpo 12/7/2015 1:05 PM DPO File
CT_utf8.dpo 12/9/2015 10:38 AM DPO File
CT_wlatin1.dpo 12/7/2015 1:05 PM DPO File
MASS_utf8.dpo 12/9/2015 10:38 AM DPO File
MASS_wlatin1.dpo 12/7/2015 1:05 PM DPO File
ME_utf8.dpo 12/9/2015 10:38 AM DPO File
ME_wlatin1.dpo 12/7/2015 1:05 PM DPO File
NEISO_utf8.dpo 12/9/2015 10:38 AM DPO File
NEISO_wlatin1.dpo 12/7/2015 1:05 PM DPO File
NEMASSBOST_utf8.dpo 12/9/2015 10:38 AM DPO File
NEMASSBOST_wlatin1.dpo 12/7/2015 1:05 PM DPO File
NH_utf8.dpo 12/9/2015 10:38 AM DPO File
NH_wlatin1.dpo 12/7/2015 1:05 PM DPO File
RI_utf8.dpo 12/9/2015 10:38 AM DPO File
RI_wlatin1.dpo 12/7/2015 1:05 PM DPO File
SEMASS_utf8.dpo 12/9/2015 10:38 AM DPO File
SEMASS_wlatin1.dpo 12/7/2015 1:05 PM DPO File
VT_utf8.dpo 12/9/2015 10:38 AM DPO File
VT_wlatin1.dpo 12/7/2015 1:05 PM DPO File
WCMASS_utf8.dpo 12/9/2015 10:38 AM DPO File
WCMASS_wlatin1.dpo 12/7/2015 1:05 PM DPO File
22 items

The following results are produced.



Tree initialization

Overview

The SAS Energy Forecasting solution requires a hierarchal structure of the utility locations that will allow the user to forecast for the parent utility location or one of its children utility locations. This hierarchy can also be used to reconcile the predicted load values of the children utility locations with the predicted load values of their parent utility location or vice versa. To create the necessary hierarchy in the SAS Energy Forecasting user interface, a mapping must be created using the dataset util_loc_dim. The value of UTIL_LOC_CD will be the value used as the mapping between the SAS Energy Forecasting user interface and the input data when diagnosing and forecasting utilities.

The columns from the util_loc_dim dataset may be represented as a tree structure of utilities. This tree structure will have at least one root node, but may have more. This will allow easier location of utilities to select for diagnose/forecasts within the SAS Energy Forecasting user interface, and customization by the consultants setting up the input data.

Tree Initialization should not be attempted when migrating or updating in place as the tree initialization should already have occurred at time of installation.

Example UTIL_LOC_DIM (from sample data)

The sample data that is shipped with SAS Energy Forecasting has the following util_loc_dim dataset columns and values. Some columns in the dataset have been removed from the table for clarity.

UTIL_LOC_DIM_RK	UTIL_LOC_CD	UTIL_LOC_NM	UTIL_LOC_DESC	PARENT_UTIL_LOC_CD
1	CT	Connecticut	Connecticut zone	NEISO
2	MASS	Massachusetts	Massachusetts region	NEISO
3	ME	Maine	Maine zone	NEISO
4	NEISO	New England ISO	New England ISO Company	
5	NEMASSBOST	NE Mass and Boston	Northeast Massachusetts and Boston zone	MASS
6	NH	New Hampshire	New Hampshire zone	NEISO
7	RI	Rhode Island	Rhode Island zone	NEISO

8	SEMASS	SE Mass	Southeast Massachusetts zone	MASS
9	VT	Vermont	Vermont zone	NEISO
10	WCMASS	Western and Central Mass	Western and Central Massachusetts zone	MASS

The sample data has a single root utility called NEISO, row number 4. It is the root because the column PARENT_UTIL_LOC_CD is blank. The NEISO utility has six children which are, CT, MASS, ME, NH, RI, and VT. The utility MASS has three children NEMASSBOST, SEMASS and WCMASS.

NEISO								
CT	MASS			ME	ME	NH	RI	VT
	NEMASSBOST	SEMASS	WSMASS					

Initializing the tree

When the dataset util_loc_dim is configured with all the utilities, the tree can be initialized with the macro *%seftree*, passing the directory where dataset util_loc_dim resides. Launch SAS as the SAS Administrator (See Appendix 1) and run the command:

%seftree(source_dir=<directory containing dataset util_loc_dim>);

At the completion of the *%seftree* macro the system is ready to associate a utility code to a diagnose.

Updating the tree

If there is a change to the utilities in the solution, utilities added or removed, the tree that was created in the previous section will need to be updated. To update the tree with new or removed data the macro *%sefutree* is used. Launch SAS as the SAS Administrator (See Appendix 1) and run the command:

%sefutree(source_dir=<directory containing dataset util_loc_dim>);

At the completion of the *%sefutree* macro, the SAS Energy Forecasting user interface will display utilities when the select node control is selected when creating a diagnose.

Note: If a utility code is not present in the updated dataset util_loc_dim that was in the original dataset util_loc_dim, there may be some loss of data in postgres. The data in the data tier will be saved. The compare is performed by using the util_loc_dim_rk value in the util_loc_dim table. For utility codes that are not changing, the util_loc_dim_rk for those codes should be the

same in the current and new util_loc_dim tables. If the util_loc_dim_rk values are changed then the utility node will be viewed as new and the old utility node will be deleted.

The system protects against deleting utility nodes that have forecast that are part of a reconciliation. If a %sefutree is ran and the new hierarchy deletes a node that is part of a reconciliation, the system will through an error. This is to protect against deleting time-series data that has been used in a reconciliation. If the desire is to remove a utility node that is part of reconciliation, first delete the reconciliation in the UI, then run the %sefutree and the utility node will be removed.

Chapter 4 — SAP HANA Configuration

SAP HANA is an in-memory computing platform that performs analytic and transactional processing on large data sets. To store energy forecasting reporting data in an SAP HANA system, you must install and configure SAP HANA before you install SAS Energy Forecasting.

To use SAP HANA with SAS Energy Forecasting, complete the following steps:

- Install the latest version of the SAP HANA Server for Support Package Stack (SPS) of the SAP HANA platform. For information about how to obtain and install the software, see *SAP HANA Master Guide* at **http://help.sap.com/hana_appliance/**.
- Install the 64-bit ODBC driver for SAP HANA, which is provided with the SAP HANA client. For information about how to install and configure the ODBC driver, see *SAP HANA Client Installation Guide* at **http://help.sap.com/hana_appliance/**.
- Configure the ODBC data source for use with SAS/ACCESS Interface to SAP HANA. For details about creating this data source, see *Configuration Guide for SAS 9.4 Foundation* for your operating system. This documentation is available with the SAS 9.4 Install Center Documentation at **http://support.sas.com/documentation/installcenter/94/**.

After those steps are complete, perform the steps below to enable SAP HANA within SAS Energy Forecasting.

Configure the SAS Metadata Server

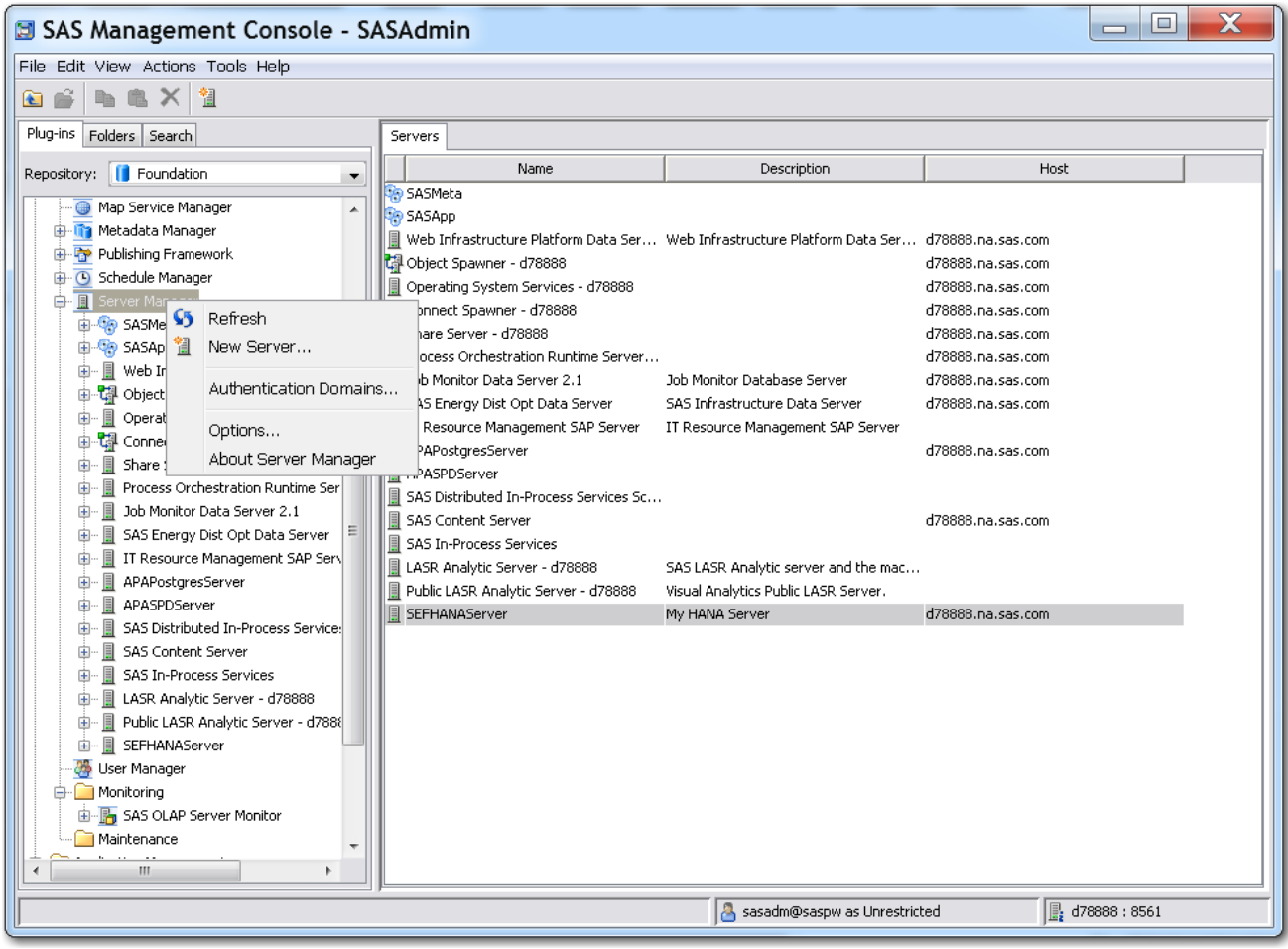
There are two tasks that must be performed in the SAS Management Console to configure the Metadata Server for SAS Energy Forecasting to use SAP HANA:

- Create a SAP HANA server definition so that an authentication domain is registered.
- Create a SAP HANA Users group to authorize access into SAP HANA.

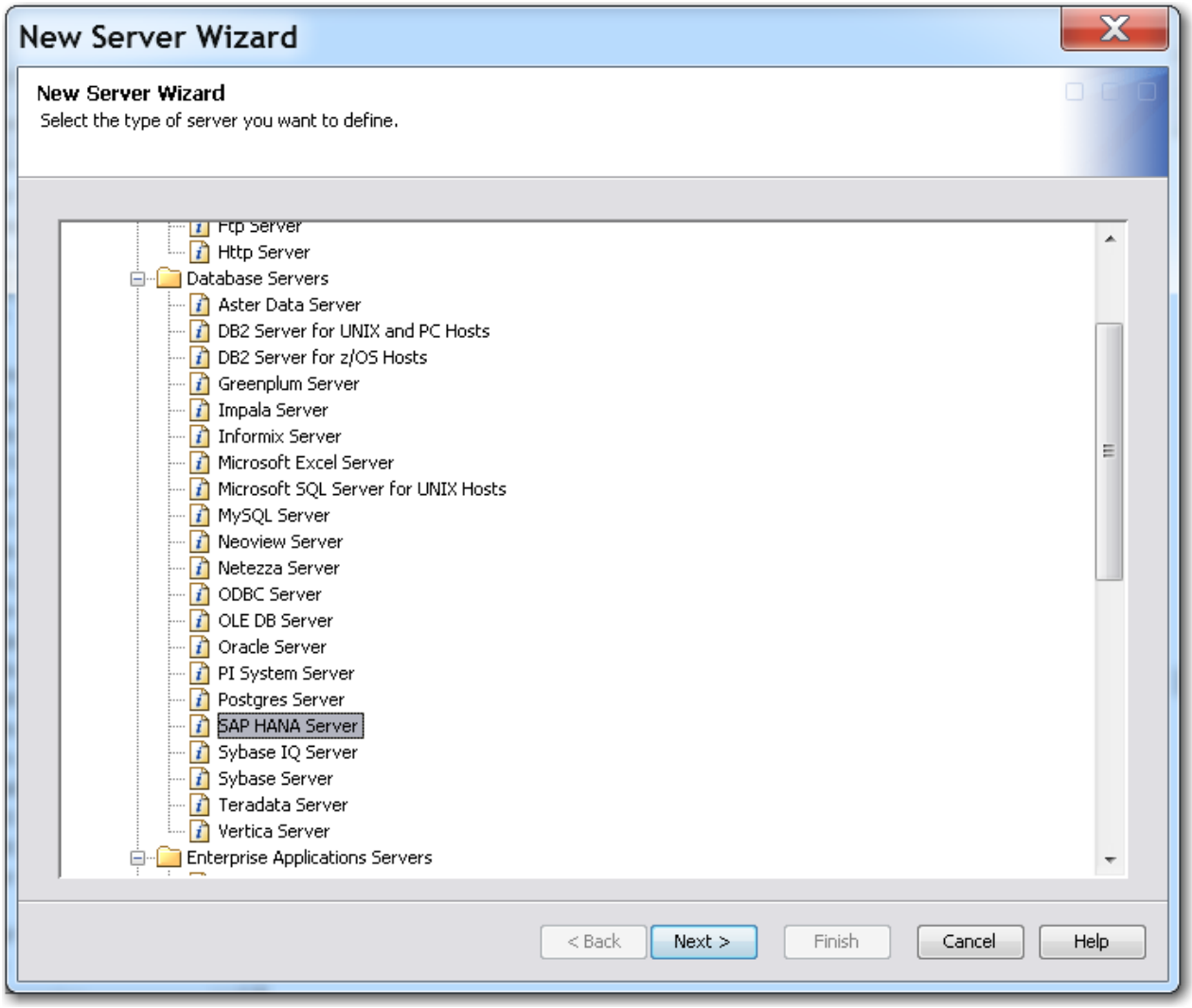
Create a SAP HANA Server Definition in Metadata

The primary purpose of this step is to define a HANA authentication domain.

1. Logon to SAS Management Console as an administrative user or user who has the capability to define servers.
2. On the Plug-ins tab in SAS Management Console, select **Environment Management** -> **Server Manager**.
3. Right-click **Server Manager** and select "**New Server…**"



4. Select **Resource Templates** -> **Servers** -> **Database Servers** -> **SAP HANA Server** and click **Next >**.



5. Enter a name to identify the SAP HANA server definition, for example, **`SEFSAPHANAServer`**, and then click **Next >**.
6. In the **Associated Machine** field, select the server on which SAP HANA is installed, and then press **Next >**.

   Note: If the server is not listed, click **New** to enter the fully qualified host name for the server and add it to the list.

7. Click **Server Information**, and then click **Options**. Specify the following information:
   - the fully qualified host name or IP address for the SAP HANA server name
   - the full path to the ODBC driver
   - the instance number for the SAP HANA server

   Click **OK** to save the server information.
8. In the **Authentication Domain** field, create a new authentication domain via the New… button if an appropriate domain has not been defined yet, for example **`sefsaphana_auth`**.

9. Click **Next >** to verify your settings, then click **Finish** to create the server definition.

Create/Update a Group for HANA Authorization

This group will be used to store the SAP HANA database credentials for other users or groups to use.

1. Logon to SAS Management Console as an administrative user or user who has the capability to manage users or groups.
2. On the **Plug-ins** tab, select **User Manager**. Then select **Actions** -> **New**-> **Group**.
3. On the **General** tab, create a group **Energy Forecasting HANA Users**
4. On the **Members** tab, move the **Energy Forecasting Server User** name into the **Current Members** area by pressing the button in the middle.
5. On the **Accounts** tab, select **New** and specify the following information:
    - the user name for SAP HANA
    - the password
    - the authentication domain that you specified when defining the server, for example, **`sefsaphana_auth`**

Click **OK** to save the user information. Click **OK** to save the new group.

Set up a LIBNAME Statement in an Energy Forecasting Reporting Exit

Create a **.sas** file anywhere on the file system of your SAS Energy Forecasting installation. The name and directory can be of your choosing, for example, **C:\SEF\exits\hana_libref.sas**. Edit that file in a text editor, creating a **LIBNAME** statement for the SAP HANA database schema. For example:

```
     LIBNAME freport SAPHANA INSERTBUFF=30000
TABLE_TYPE=column
     DBCOMMIT=30000 SERVER="hana.mycompany.com" INSTANCE=02
     SCHEMA=SEFSAPHANA AUTHDOMAIN="sefsaphana_auth";
```

A few points:

- The libref must be **freport**. (not case sensitive)
- The server, authdomain, and instance values should match the values that you entered earlier when configuring the SAS Metadata Server in SAS Management Console.

This completes the configuration of SAP HANA for SAS Energy Forecasting.

Configuring a SAS Energy Forecasting job for SAP HANA

When setting up a forecasting job in the SAS Energy Forecasting user interface, you must fill in the job parameters appropriately to write the report data to HANA:

1. On the **Report Data** tab of the forecast definition parameters, specify **HANA** for the Reporting Mart.

2. Specify the name of the SAP HANA Server that matches the name entered in the SAS Management Console.
3. Specify the SAP HANA instance value.
4. Specify the SAP HANA schema value.
5. Specify the SAP HANA authentication domain.
6. On the **System** tab, specify the path and file name of the Reporting Exit you created earlier that establishes the **freport** LIBNAME.
7. Save the definition and run the job.
8. Confirm that the tables were written to SAP HANA.

Note: Also see "Work with SAP HANA" in the SAS Energy Forecasting: User's Guide at **http://support.sas.com/documentation/solutions/ef/3.2/efug.pdf.**

Chapter 5 — Sample Reports

In addition to providing sample input data that you can use to quickly produce energy forecasts, SAS Energy Forecasting includes sample report data that you can view with the SAS Visual Analytics Report Viewer which is packaged with SAS Energy Forecasting. The data files associated with the sample reports are not visible within SAS Energy Forecasting but are based on the sample input data provided with the solution. You can use the SAS Visual Analytics Administration and Reporting solution provided with SAS Energy Forecasting to access and modify the data files and associated queries as needed to produce other types of reports.

Sample Report Data Extraction

The files to extract sample report data are located in **SASHome\SASFoundation\9.4\enfcsvr\sasmisc** in Windows and **SASHome/SASFoundation/9.4/misc/enfcsvr** for Linux. Following are the steps to import the sample report data to a directory on the server.

1. Unzip the file SAS_Energy_Forecasting_report_data.zip to any directory of your choosing using Winzip, gzip, or similar tool.

2. Launch SAS as the SAS Administrator (See Appendix 1) and open sef_import_report_data.sas.

3. Make the following modifications to sef_import_report_data.sas prior to running:
   - Change the input_directory parameter in the sef_import_report_data macro definition to the location where SAS_Energy_Forecasting_Report_data.zip was unzipped in step #1. This folder will contain all of the .dpo files.

   - Change the output_directory parameter in the sef_import_report_data macro definition to the location where the sample data should be loaded. It is recommended, but not required, that the output_directory parameter be set to **C:\SEF_Output** on Windows or **/SEF_Output** on Linux. Installing to a different named location will necessitate minor editing when setting up the reports in SAS Visual Analytics.

   - Change the encoding parameter in the sef_import_report_data macro to either wlatin1 or utf8. The default is wlatin1. Note that your SAS session encoding must match this parameter.

4. Run the sef_import_report_data.sas code using the SAS Admin.

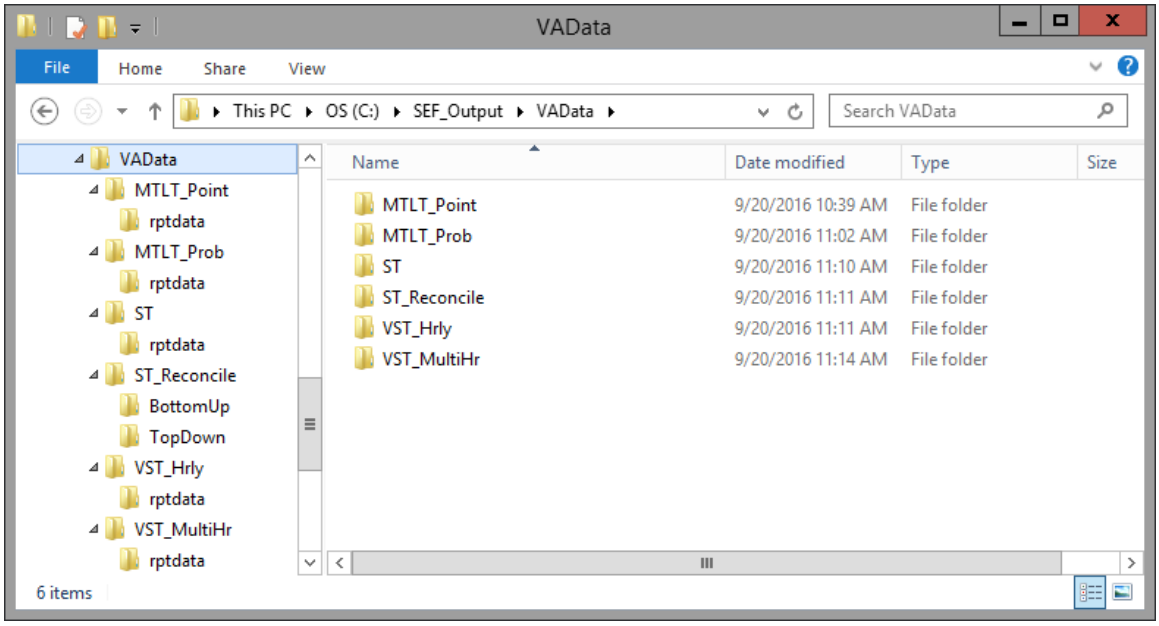
Sample Report Data

Example:

This example shows modifications being made to sef_import_report_data.sas.

```
%macro sef_import_report_data  (input_directory=C:\my_unzipped_file_directory,
                                output_directory=C:\SEF_Output,
                                encoding=wlatin1,
                                report=
                               );
```

The following results are produced.



Sample Visual Analytics Reports

The sample VA report data is contained in a SAS Package (.spk file) located in **SASHome\SASFoundation\9.4\enfcsvr\sasmisc** in Windows and **SASHome/SASFoundation/9.4/misc/enfcsvr** for Linux.

Following are the steps to import the sample VA report to a directory on the server and install the sample reports.

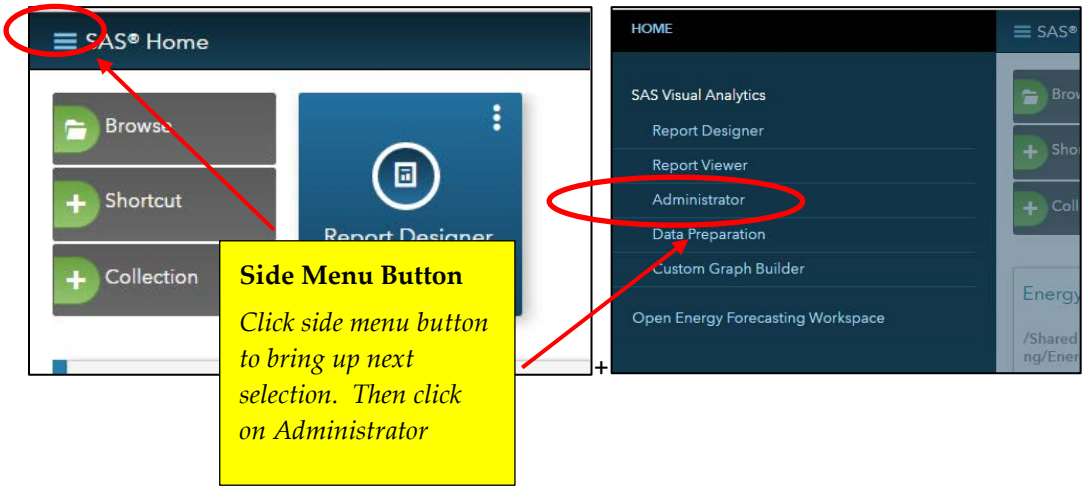
1. Start the LASR servers using SAS Visual Analytics.
2. Import the SAS Package for EF Sample Reports using SAS Management Console.
3. Install EF Sample Reports using SAS Visual Analytics.

Instructions for importing SAS Energy Forecasting Sample Reports

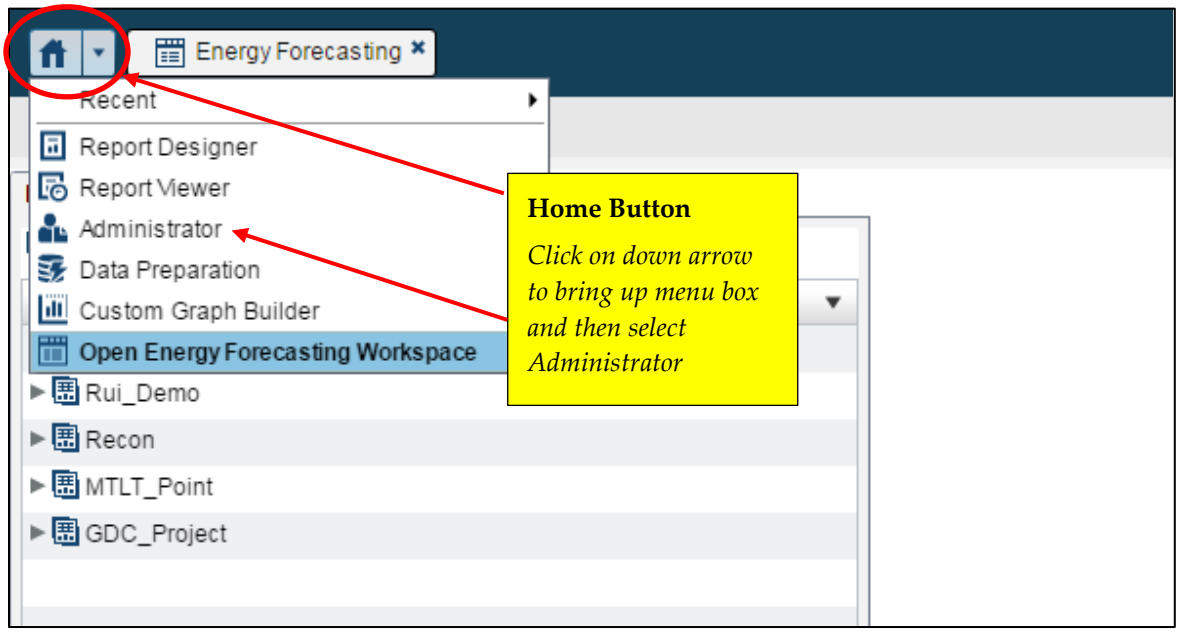
Step 1 – Start the LASR Servers

Prior to importing the SAS EF Sample Report data files, the LASR servers need to be started from SAS Visual Analytics Administration and Reporting (VAAR) included with SAS Energy Forecasting.

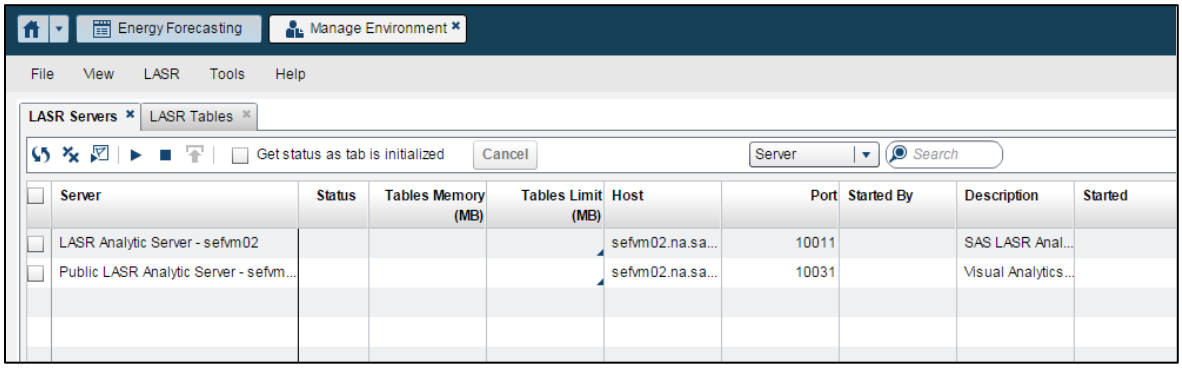
1. The user needs to sign into SAS Energy Forecasting with a metadata identity that is a member of the Visual Analytics Data Administrator group with Visual Analytics Data Building role.
2. Once SAS Energy Forecasting is initiated, there are two possible starting screens that could be displayed.
    a. If SAS Energy Forecasting starts with the SAS Home page, click on the side menu button located next to the SAS Home icon and select Administrator.



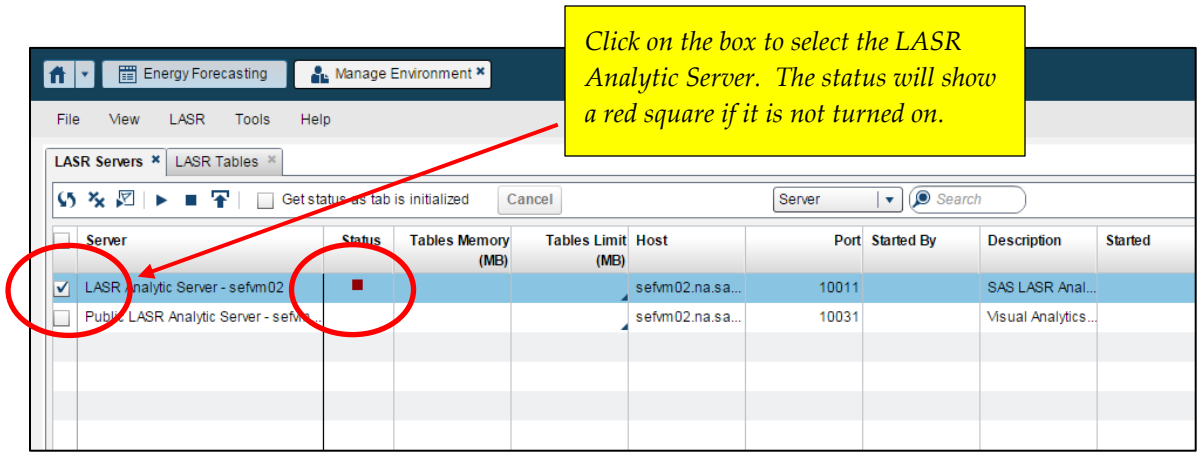
b. If SAS Energy Forecasting starts with the Energy Forecasting screen, click on the Home down arrow and select Administrator.

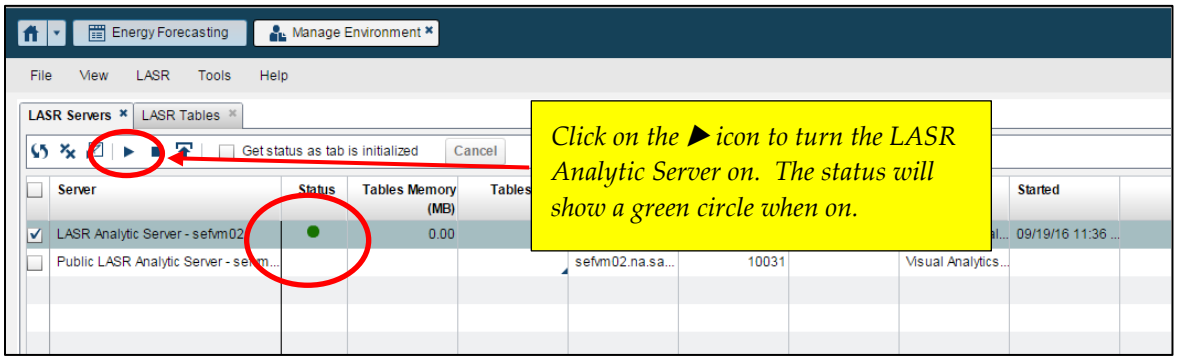


3. After selecting Administrator, the Manage Environment screen will appear showing the LASR servers that are available.



To see the status of the LASR Analytic Server, click on the box to the left of the server name. If the box shows a red square then the server is not on. To turn the server on, select the ▶ icon to start the selected servers. Only the "LASR Analytic Server" needs to be turned on.

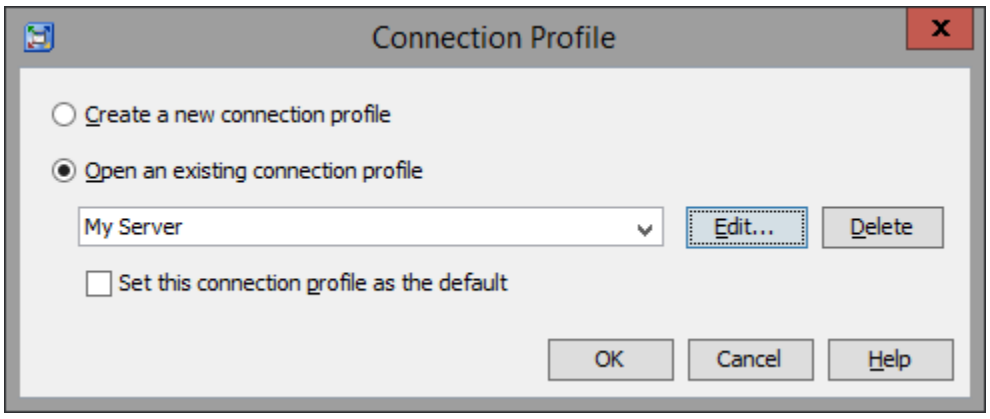




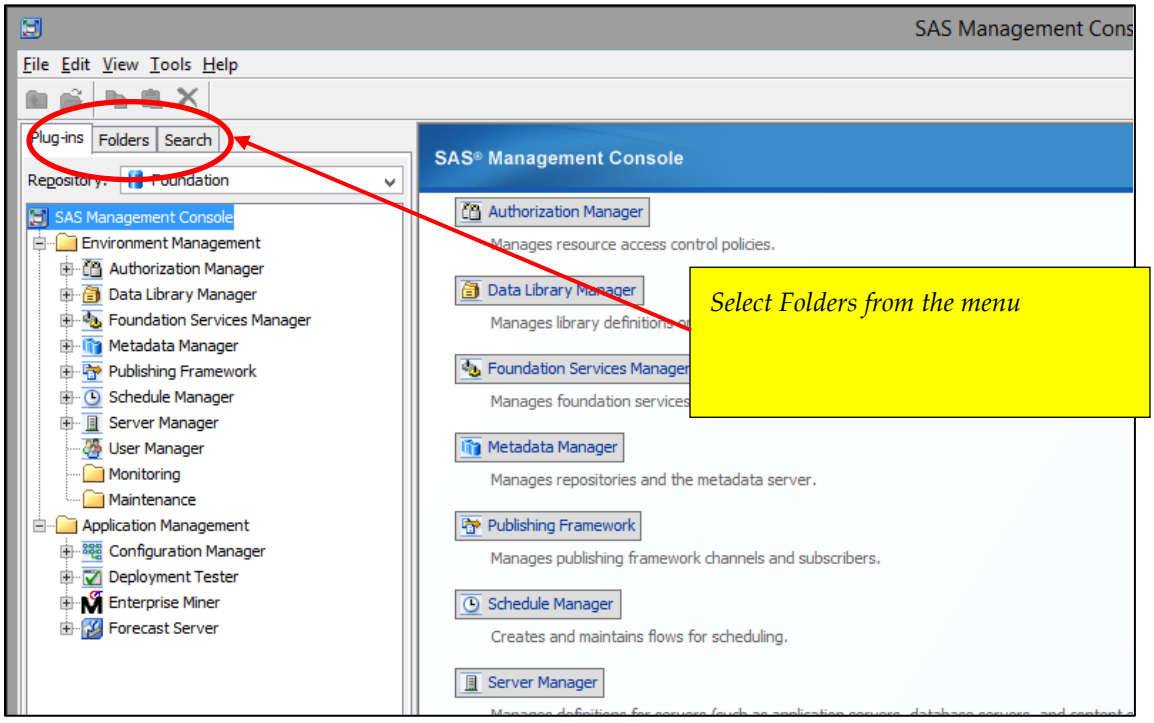
This completes Step 1. Close access to the LASR servers by clicking on the "x" in the Manage Environment tab. SAS Energy Forecasting can remain open since you will need it in Step 3.

Step 2 – Import the SAS Package for EF Sample Reports

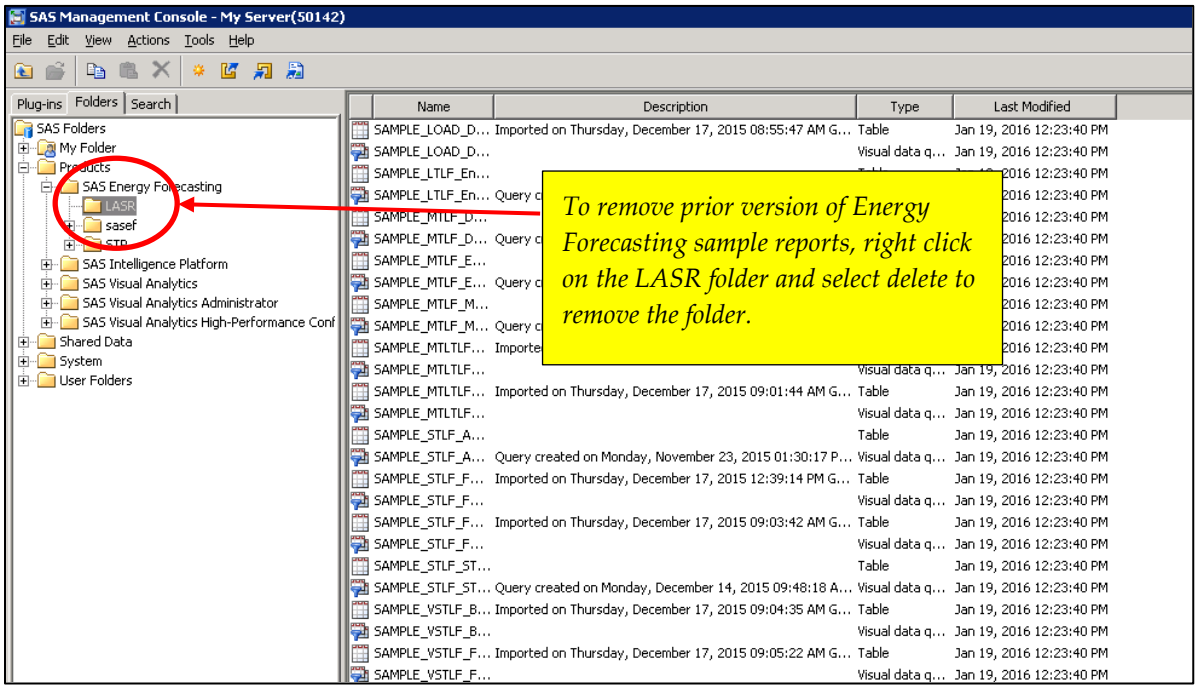
After starting SAS Management Console, a connection profile box should appear. If no connection profile exists, you will need to create one for the server. If one is displayed, select OK to proceed.



1. At the SAS Management Console screen, select **Folder**s from the menu and then expand **SAS Folders** to show Products\SAS Energy Forecasting.

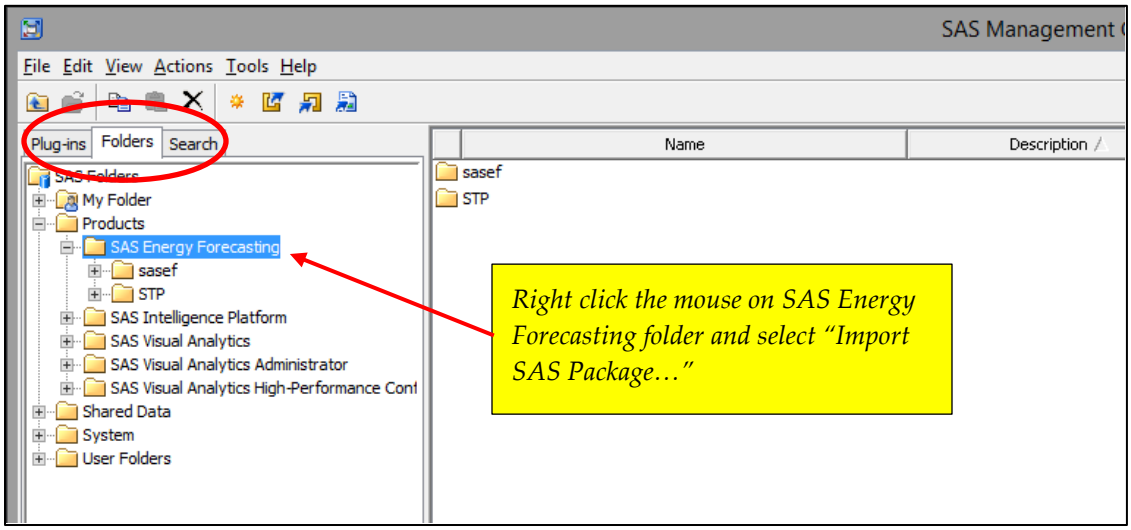


If you see a prior version of Energy Forecasting reports under the LASR folder, you will need to delete this folder before starting the new install of EF Sample Reports.

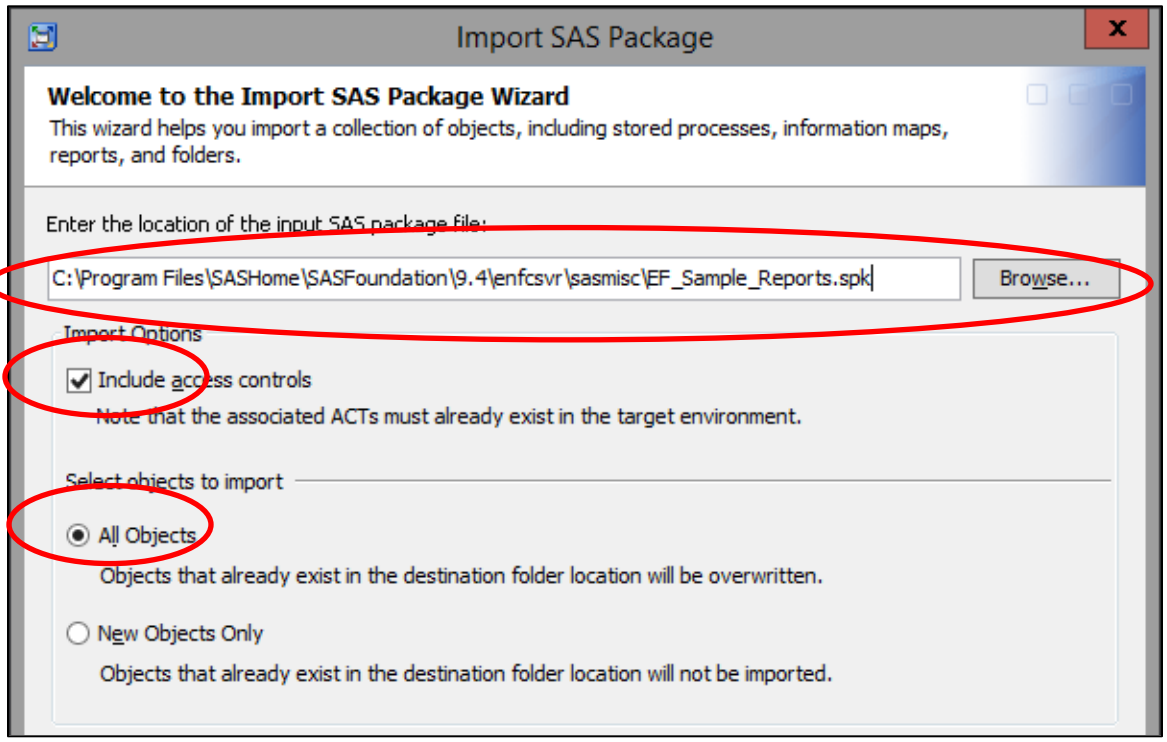


2. You may select a different location to where you would like to import the EF Sample Reports but this will require some additional directory mapping later in the install instructions.

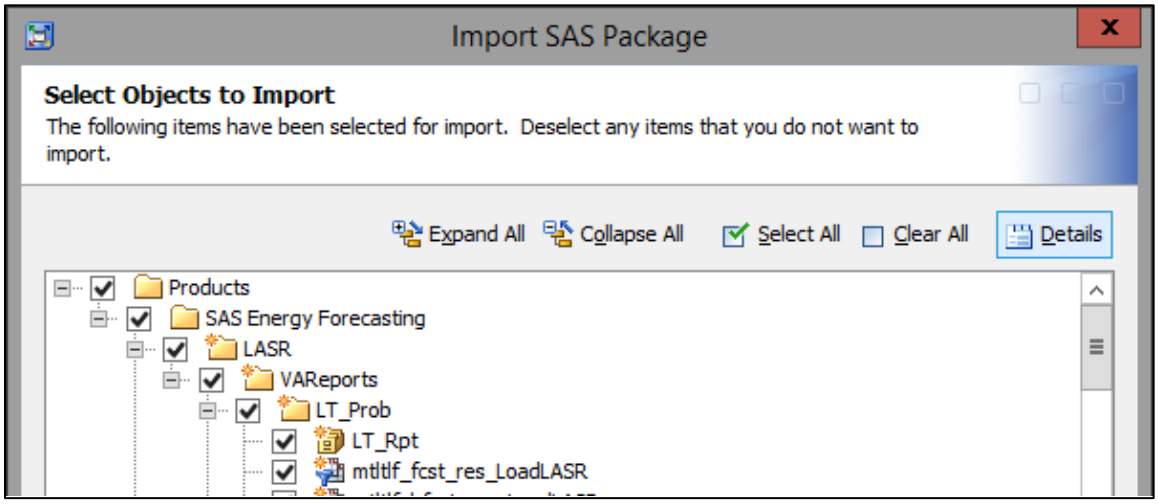
   Right click the mouse on SAS Energy Forecasting folder or other folder of your choice and select "Import SAS Package…".



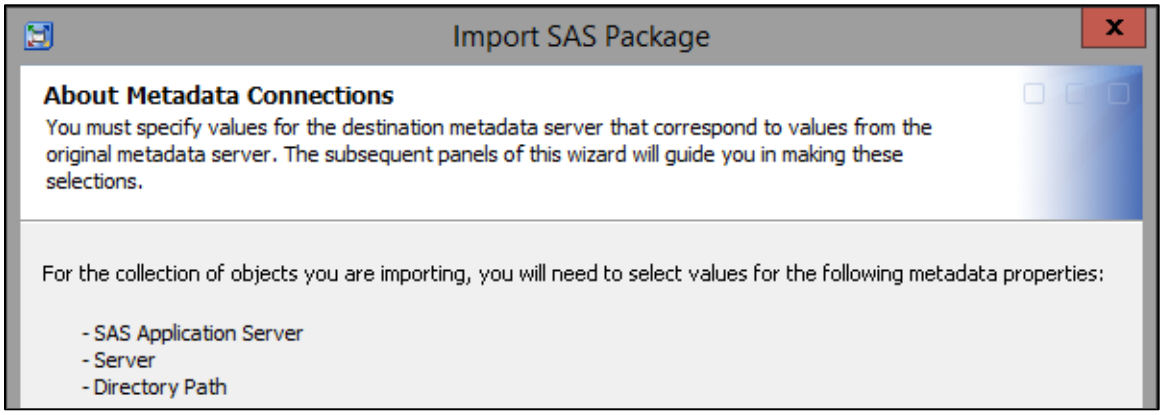
3. At the **Import SAS Package** screen
   a. Enter the path as shown or use the Browse button to select the EF_Sample_Reports.spk file
   b. Select the "Include access controls" under ***Import Options***
   c. Ensure that "All Objects" has been selected under ***Select objects to import***
   d. Click on Next button



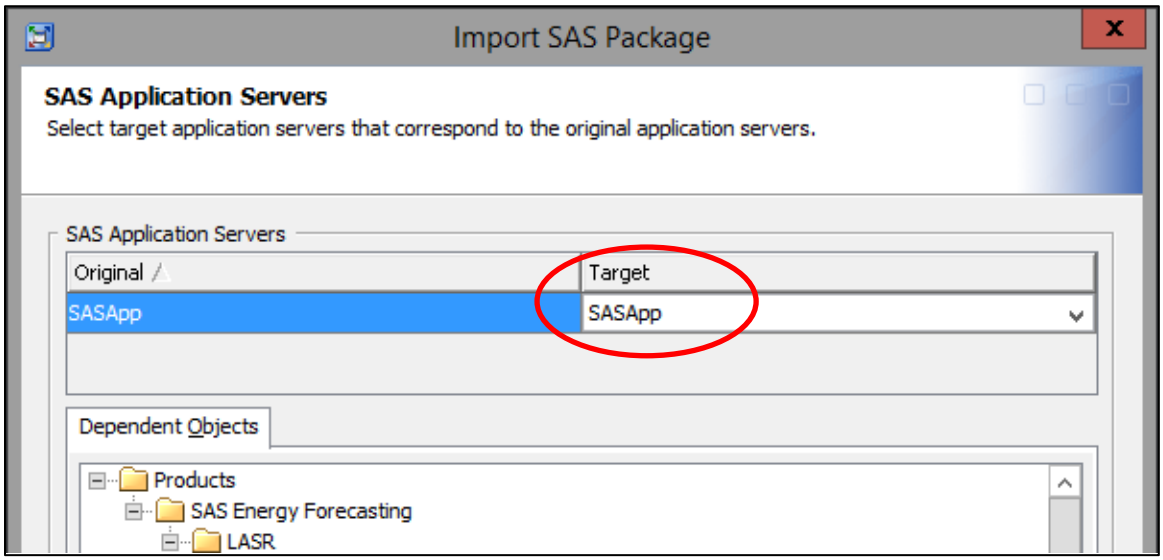
4. At the **Select Objects to Import** screen click on Next



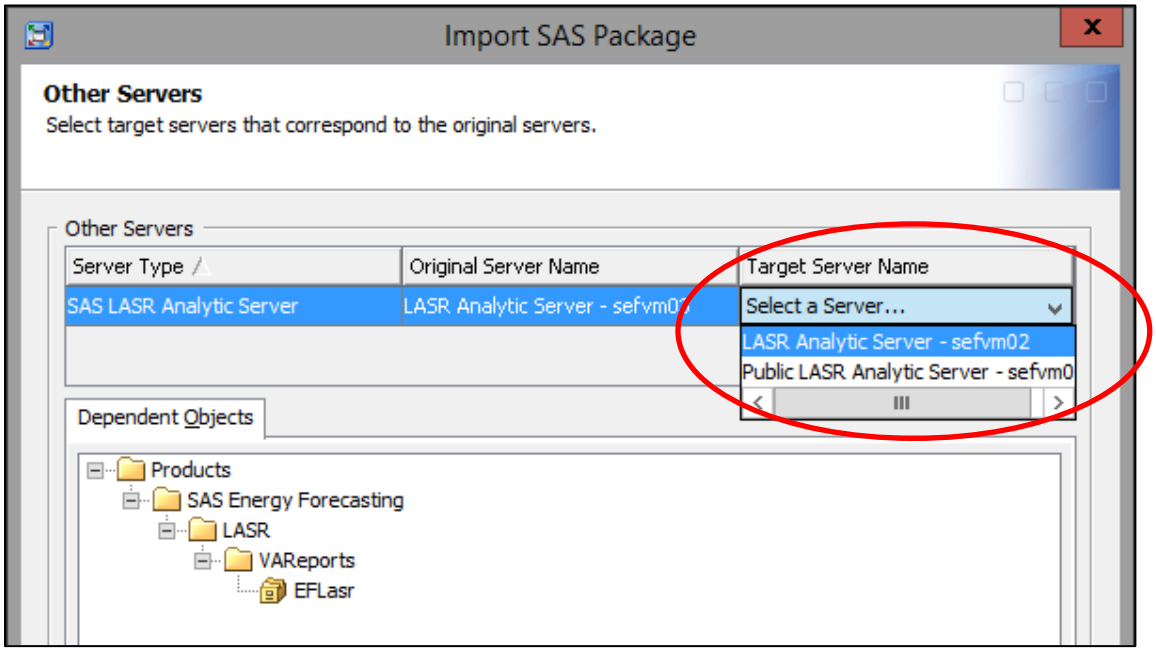
5. At the **About Metadata Connections** screen click on Next



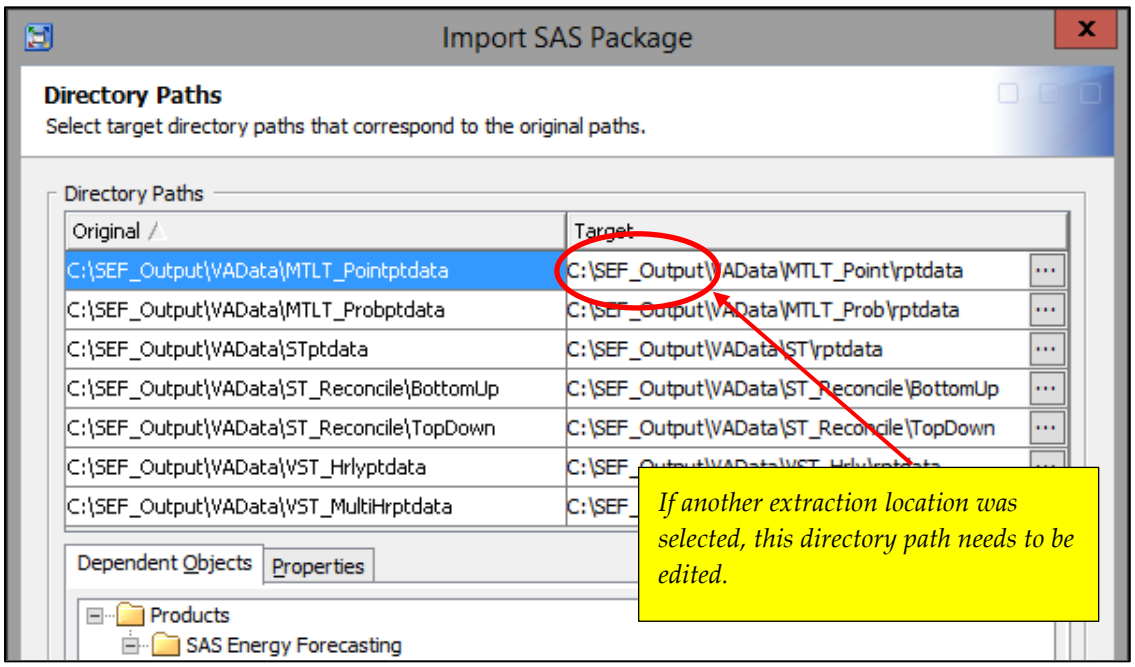
6. At the **SAS Application Servers** screen ensure the Target server is SASApp then click on Next



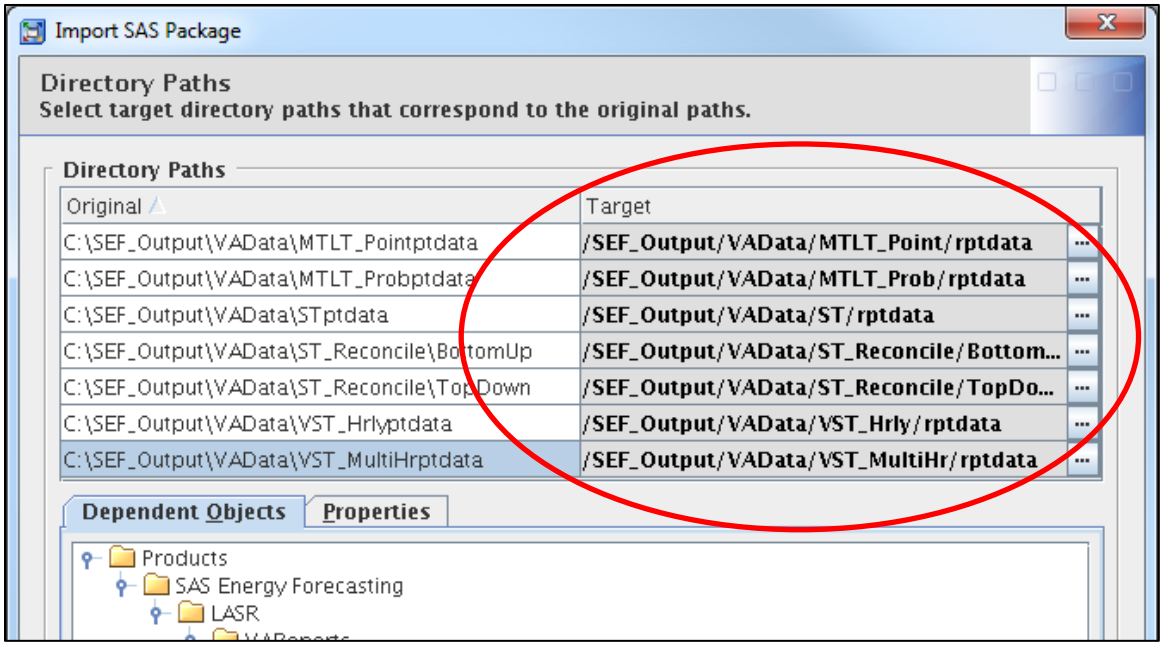
7. At the **Other Servers** screen click on the down arrow under **Target Server Name** and select "LASR Analytic Server". Click on Next.



8. At the **Directory Paths** screen click on Next for installation on the Windows platform. If you had selected a different location other than **C:\SEF_Output** during the Sample Report Data Extraction step, you will need to edit the Target directory accordingly.



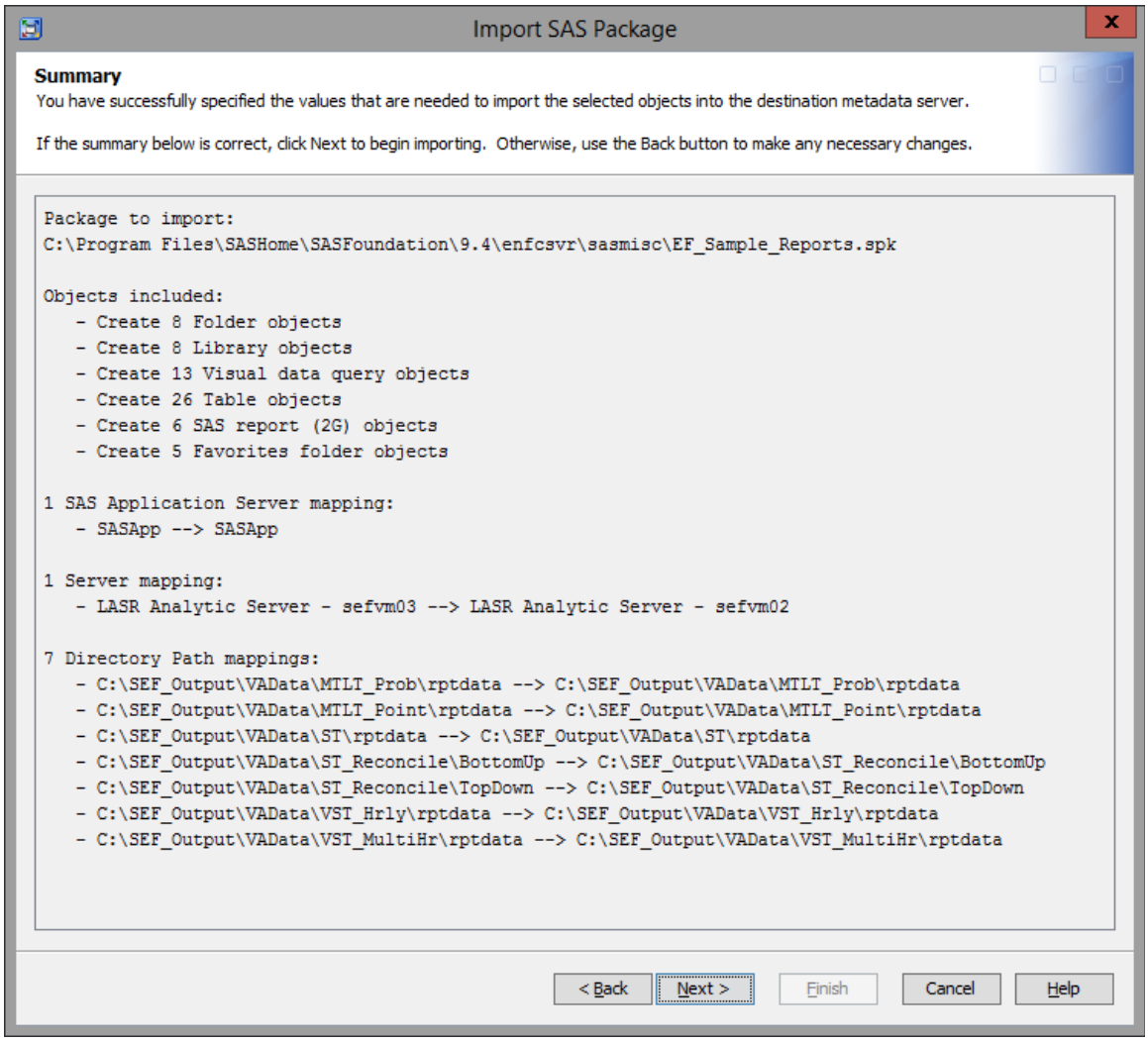
For installation on the Linux platform, the Target directories will need to be edited to conform to Linux format. If you had selected a different location other than **/SEF_Output** during the Sample Report Data Extraction step, you will need to edit the Target directory accordingly.



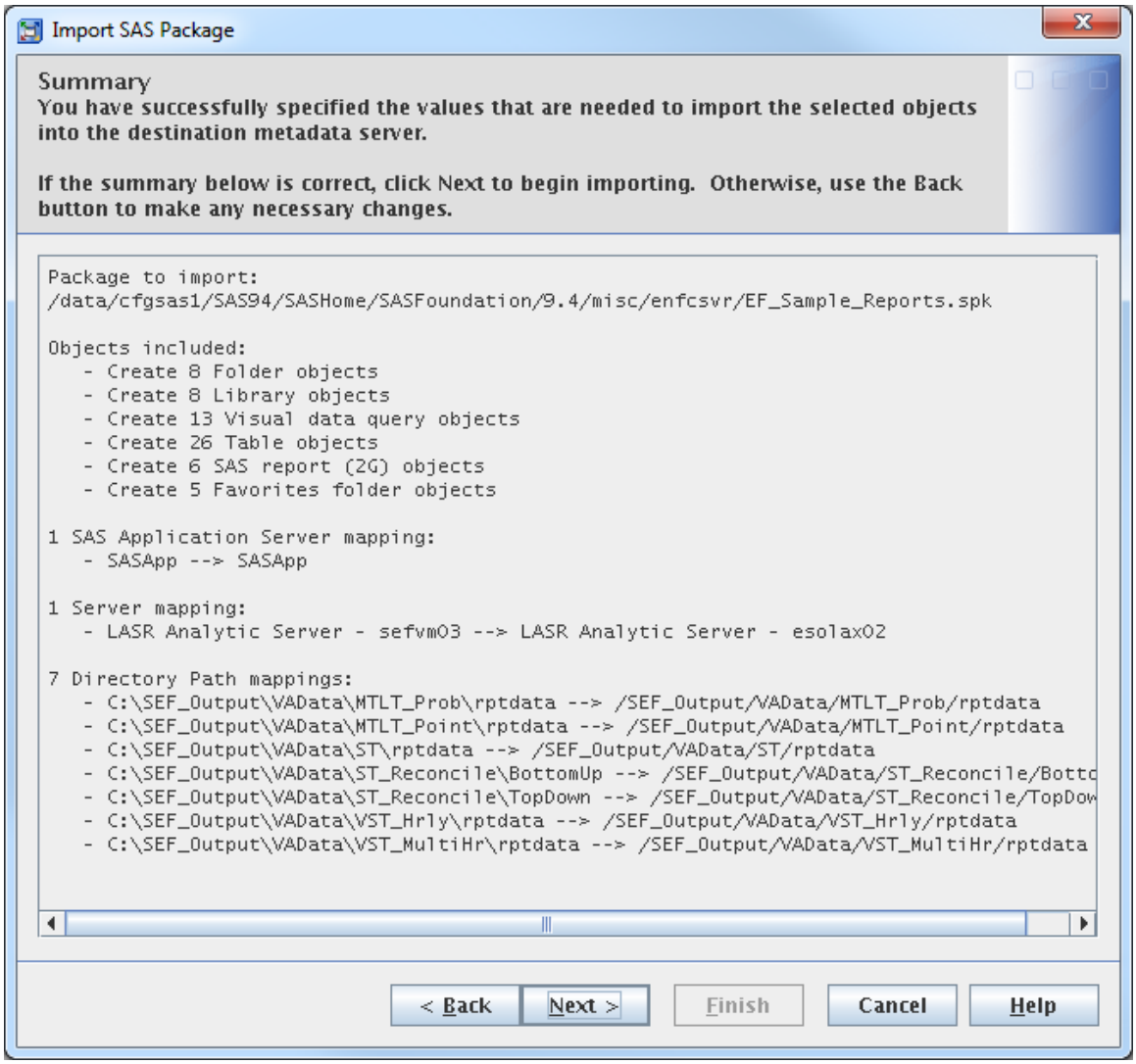
9. At the S**ummary** screen click on Next

   If you had extracted the Sample Report Data to a location other than **C:\SEF_Output**, the Directory Path mappings will look different.

Windows Platform

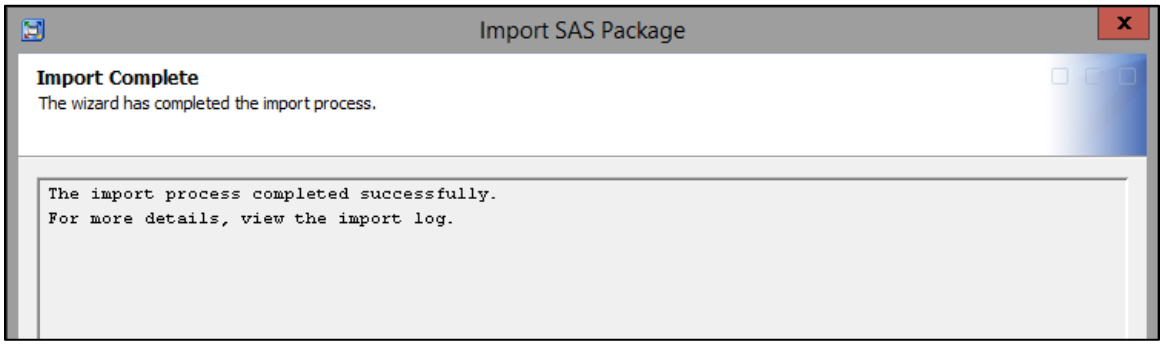


Linux Platform



If you had extracted the Sample Report Data to a location other than **/SEF_Output**, the Directory Path mappings will look different.

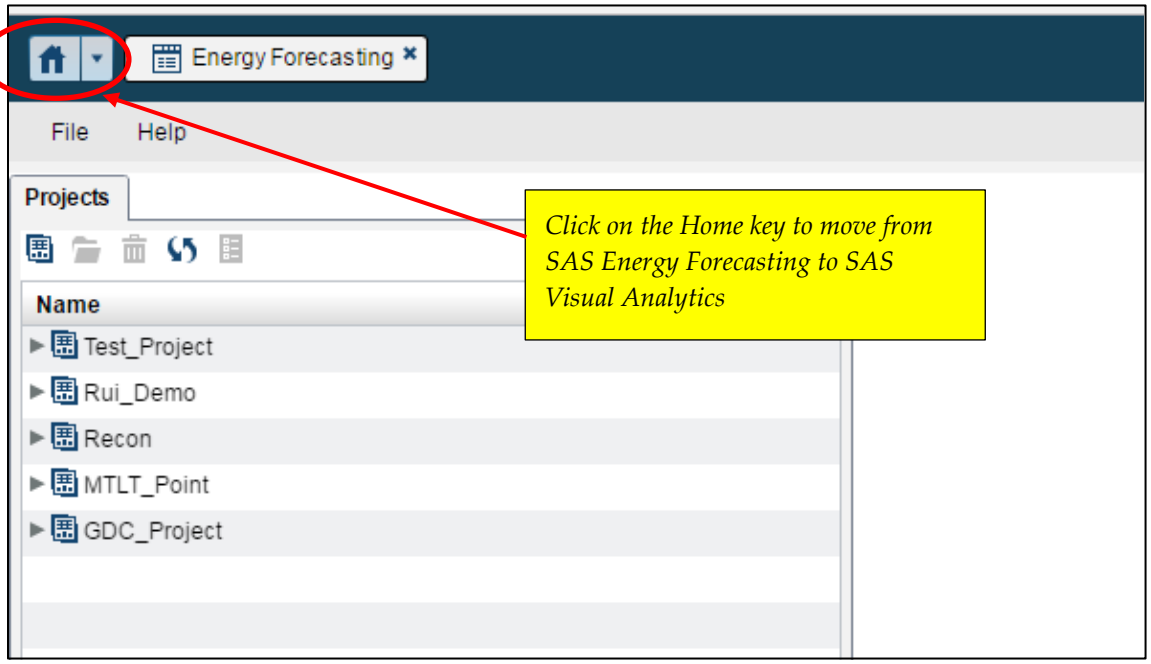
10. At the **Import Complete** screen you should see a successful completion message. If you had selected a different directory other than SAS Folders/Products/SAS Energy Forecasting to import the EF_Sample_Reports.spk file, then you may see the import process completed successfully but with warnings messages. These warning messages are associated with the directory mapping for the Favorite folder objects which will be corrected during the installation of the EF Sample Reports in SAS Visual Analytics in Step 3.



11. This completes Step 2. SAS Management Console can now be closed.

Step 3 – Install EF Sample Reports

1. SAS Visual Analytics can be launched from SAS Energy Forecasting by selecting the Home key (house icon).

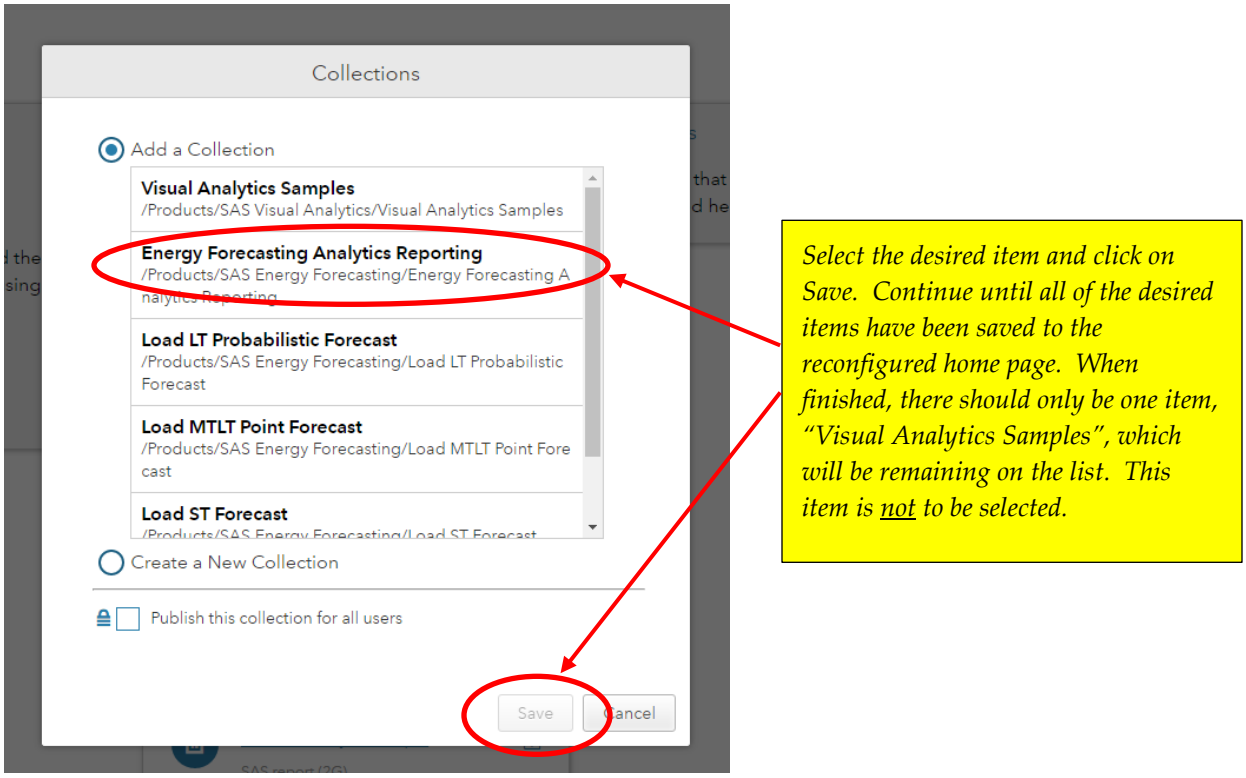


2. At the SAS Home page, the screen image can be configured to show links and favorite reports. Before the EF Sample Reports can be viewed, the SAS Home page needs to be reconfigured to simplify the process for loading the source data.

   At the SAS Home page, select "+ Collections" to begin the reconfiguration process.

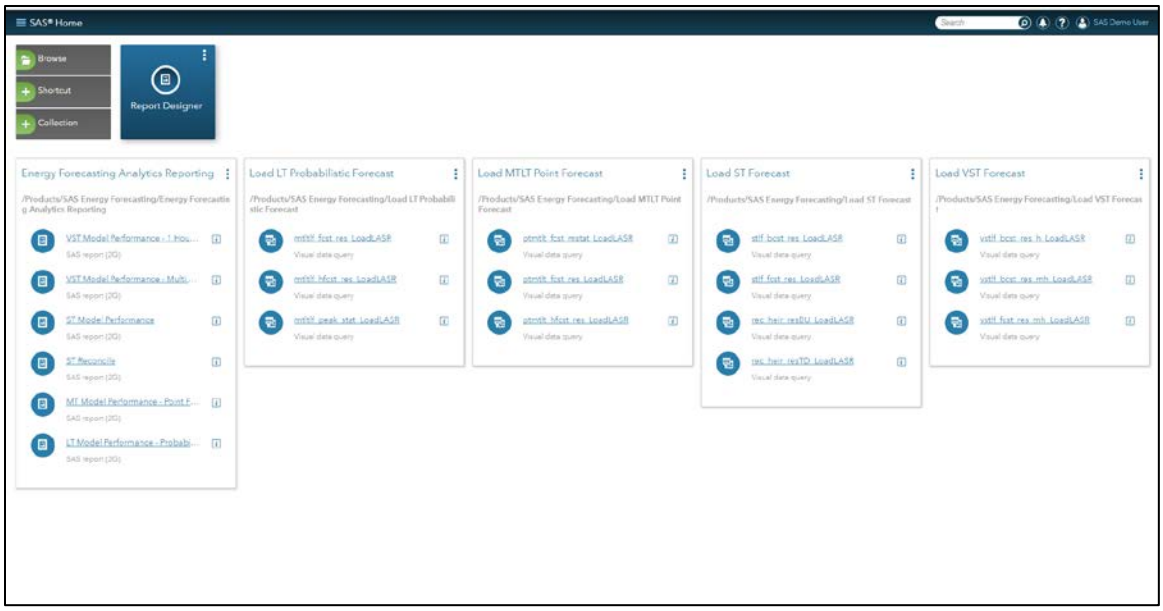
3. At the **Collections** screen, start selecting the items to be displayed on the reconfigured home page.

    a. Select “Energy Forecasting Analytics Reporting” and click Save
    b. Return to Collections and select “Load LT Probabilistic Forecast” and click Save
    c. Return to Collections and select “Load MTLT Point Forecast” and click Save
    d. Return to Collections and select “Load ST Forecast” and click Save
    e. Return to Collections and select “Load VST Forecast” and click Save

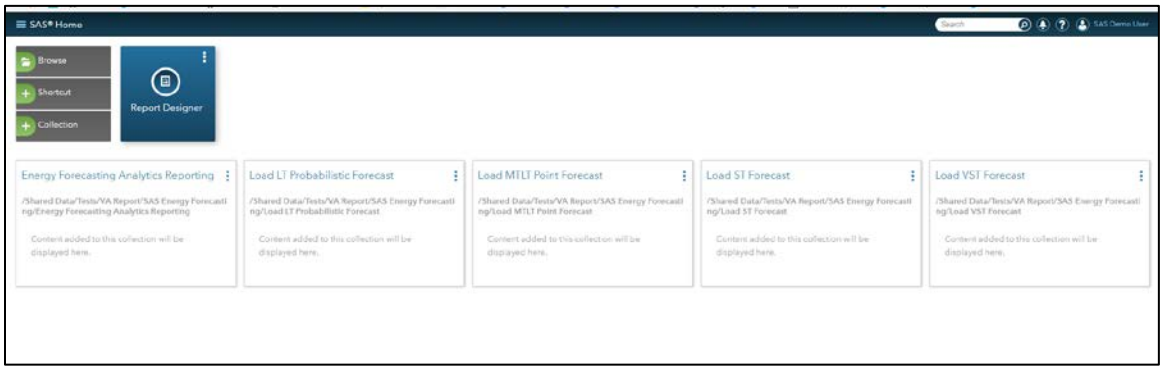


If you had selected a different directory other than /Products/SAS Energy Forecasting to import the EF_Sample_Reports.spk file, then the directory locations for the Collections will be different than shown above.

4. The new SAS Home page should look similar to the following screen if the import location in Step 2 had been specified as /Products/SAS Energy Forecasting.

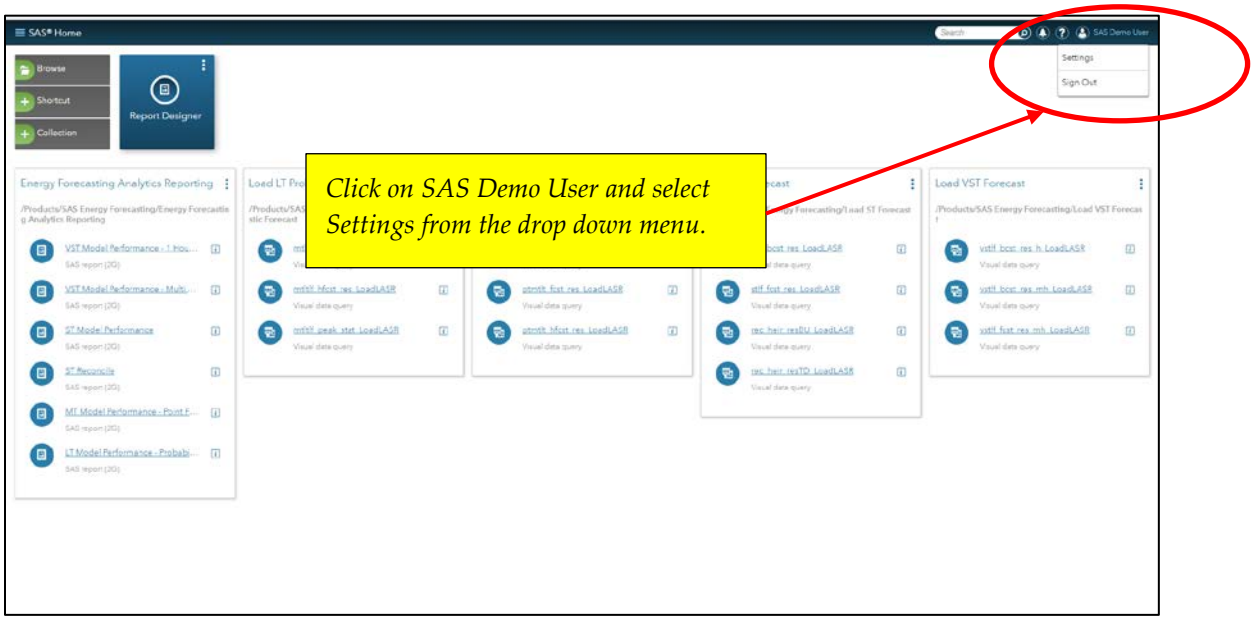


If another import location had been selected in Step 2, the SAS Home page should look similar to the following screen with the Collection boxes displaying a different directory path and having incomplete data. The missing data will be added in subsequent steps.

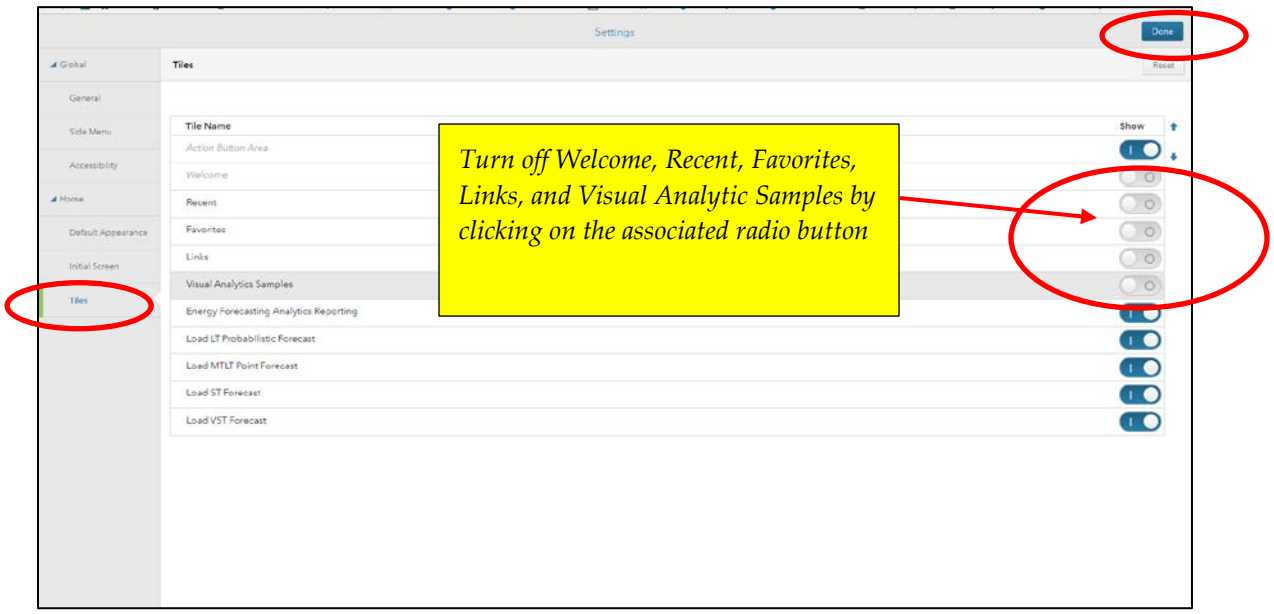


There are some items that need to be removed from the SAS Home page to clean it up.

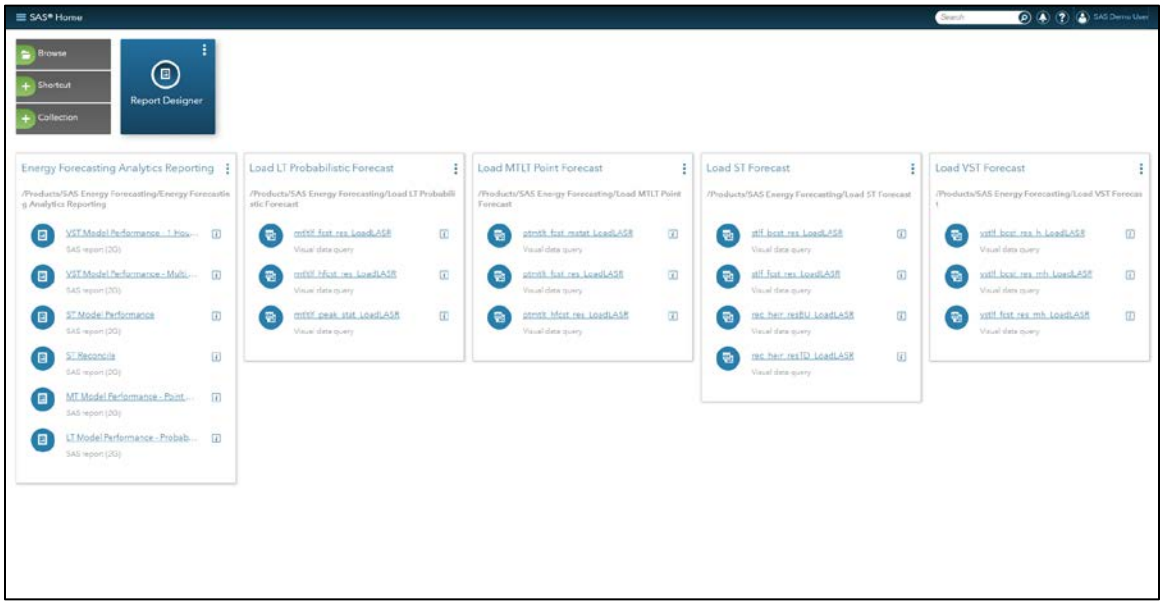
a. Click on “SAS Demo User” in the upper right hand section of the home page and select **Settings** from the drop down menu.



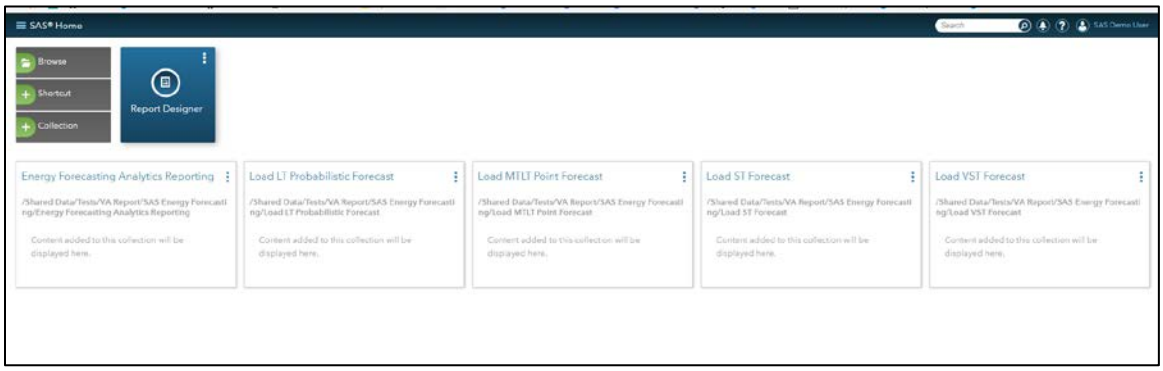
b. On the **Settings** screen, click on “Tiles” on the left hand side of the screen under Home. On the right hand side of the menu page, turn off Welcome, Recent, Favorites, Links and Visual Analytic Samples by clicking on the radio buttons. When finished click on the **Done** button in the upper right of the screen page to return to the SAS Home page.



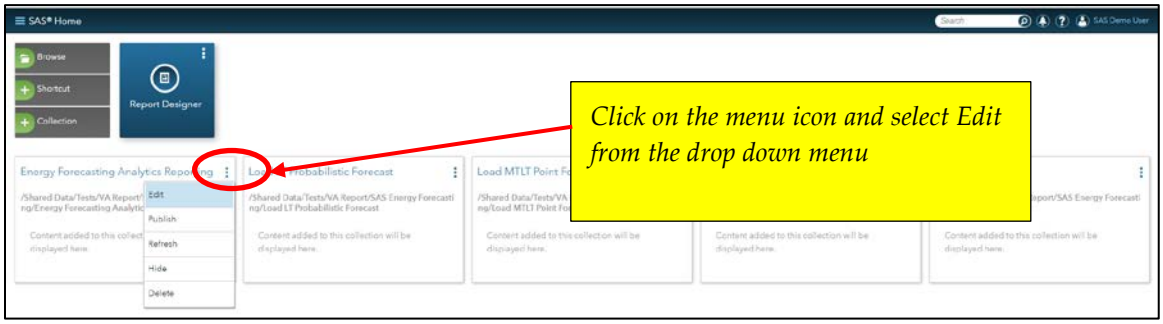
c. The reconfigured home page should now look like the following screen. If you used the Products/SAS Energy Forecasting folder to import the EF Sample Reports, you can skip the next several steps and proceed to Step 5.



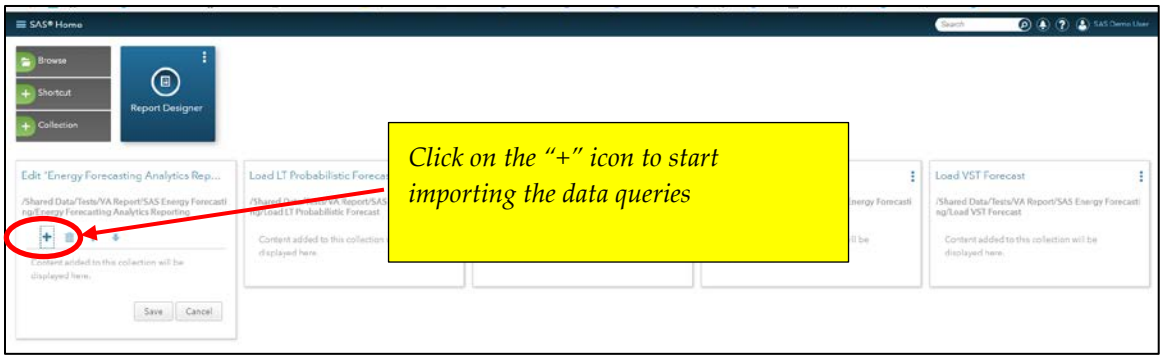
d. If another import location had been selected in Step 2, the SAS Home page should look similar to the following screen with the Collection boxes displaying a different directory path and having incomplete data.



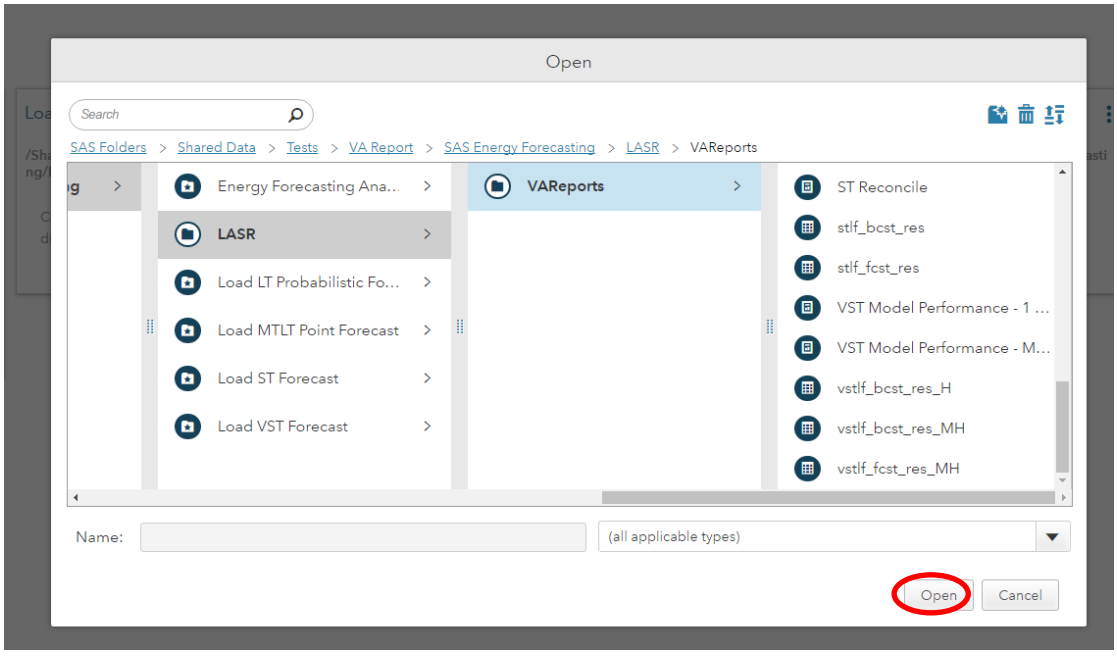
e. The next step is to edit the Collection boxes to display the data queries associated with the directory path where the import of EF Sample Reports was made. Start with the **Energy Forecasting Analytics Reporting** collection and click on the menu icon in the upper right corner. This should bring up a drop down menu from which you can select the Edit option.



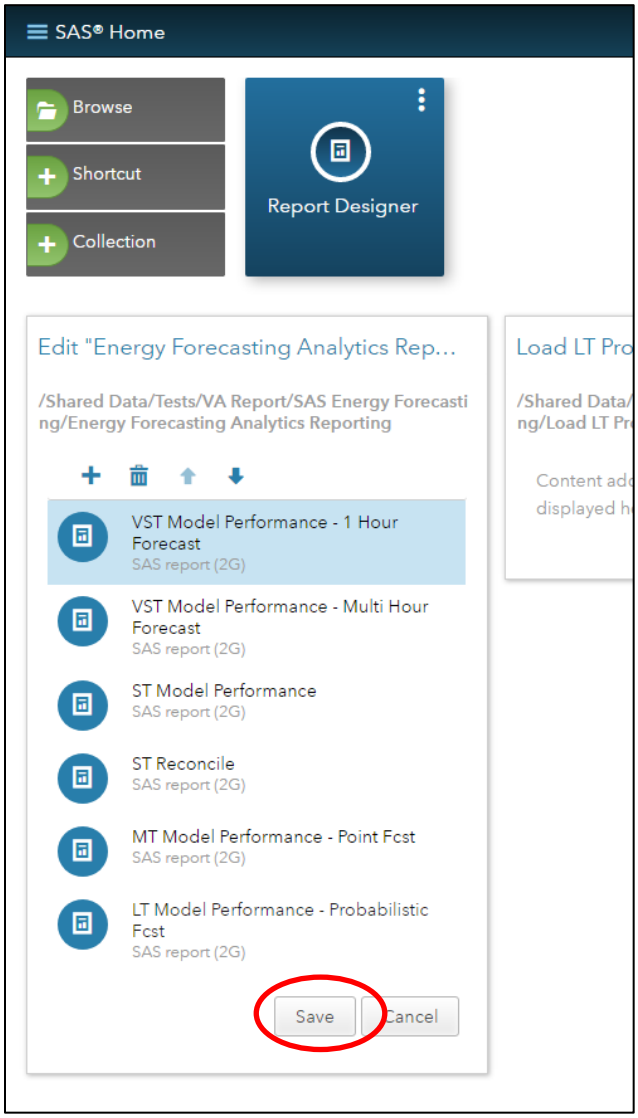
f. Upon selecting Edit, a screen similar to the one below will be displayed. At this screen click on the "+" icon to start importing the data queries.



g. At the Open screen, follow the folders where EF Sample Reports was imported and select the EF Sample Reports from the SAS Energy Forecasting/LASR/VAReports folder.
    i. Select **LT Model Performance – Probabilistic Fcst** then click Open. This will place the report into the Collections box. Click on the "+" icon to select another report from the Open screen.
    ii. Select **MT Model Performance – Point Fcst** then click Open. This will place the report into the Collections box. Click on the "+" icon to select another report from the Open screen.
    iii. Select **ST Reconcile** then click Open. This will place the report into the Collections box. Click on the "+" icon to select another report from the Open screen.
    iv. Select **ST Model Performance** then click Open. This will place the report into the Collections box. Click on the "+" icon to select another report from the Open screen.
    v. Select **VST Model Performance – Multi Hour Forecast** then click Open. This will place the report into the Collections box. Click on the "+" icon to select another report from the Open screen.
    vi. Select **VST Model Performance – 1 Hour Forecast** then click Open. This will place the report into the Collections box.



h. When all of the EF Sample Reports have been selected, click on Save. This completes the Collection for viewing the Energy Forecasting Analytics Reporting.



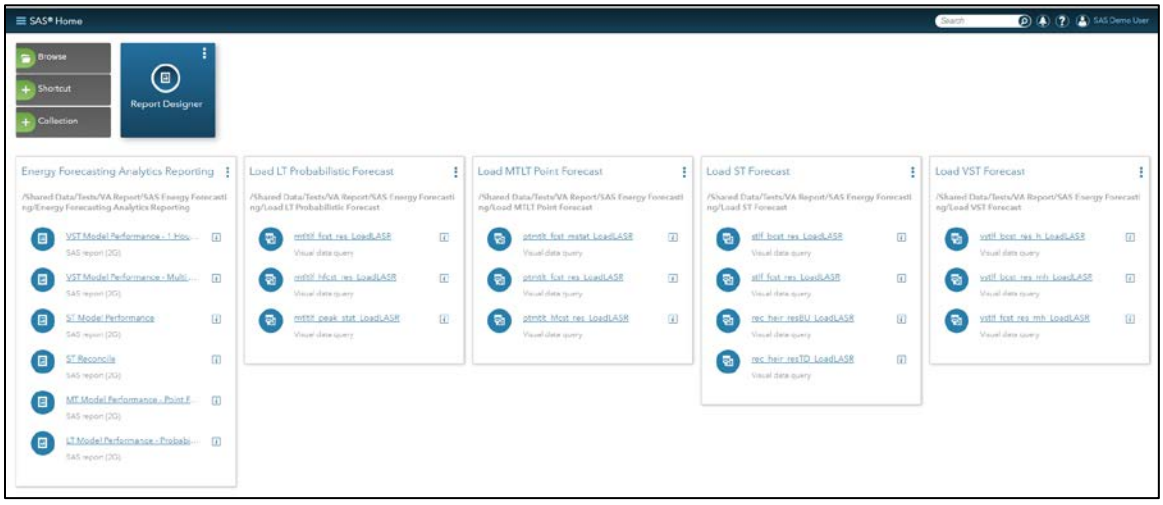
i. Next edit the **Load LT Probabilistic Forecast** collection and follow the same steps performed previously
    i. At the Open screen, follow the folders where EF Sample Reports was imported and select the data queries from the SAS Energy Forecasting/LASR/VAReports folder.
        1. Select **mtltlf_fcst_res_LoadLASR** then click Open
        2. Select **mtltlf_hfcst_res_LoadLASR** then click Open
        3. Select **mtltlf_peak_stat_LoadLASR** then click Open

j. Next edit the **Load MTLT Point Forecast** collection and follow the same steps performed previously
    i. At the Open screen, follow the folders where EF Sample Reports was imported and select the data queries from the SAS Energy Forecasting/LASR/VAReports folder.
        1. Select **ptmtlt_fcst_mstat_LoadLASR** then click Open
        2. Select **ptmtlt_fcst_res_LoadLASR** then click Open
        3. Select **ptmtlt_hfcst_res_LoadLASR** then click Open

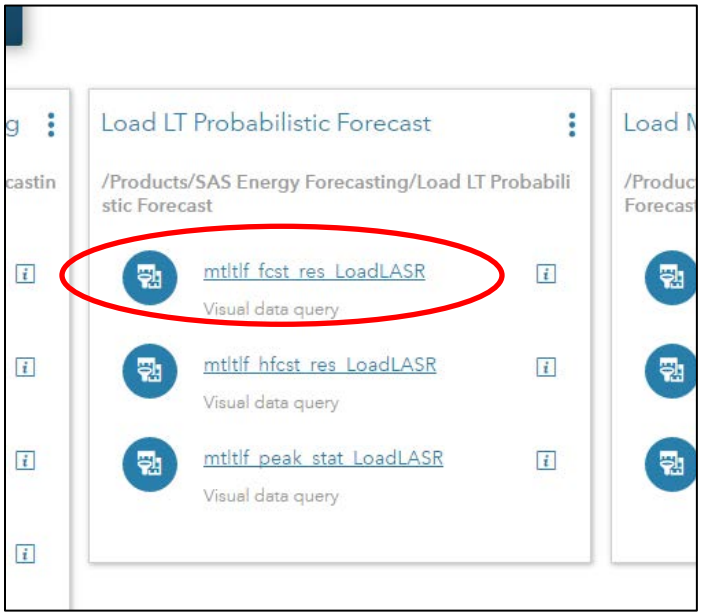
k. Next edit the **Load ST Forecast** collection and follow the same steps performed previously
    i. At the Open screen, follow the folders where EF Sample Reports was imported and select the data queries from the SAS Energy Forecasting/LASR/VAReports folder.
        1. Select **stlf_bcst_res_LoadLASR** then click Open
        2. Select **stlf_fcst_res_LoadLASR** then click Open
        3. Select **rec_heir_resBU_LoadLASR** then click Open
        4. Select **rec_heir_resTD_LoadLASR** then click Open

l. Next edit the **Load VST Forecast** collection and follow the same steps performed previously
    i. At the Open screen, follow the folders where EF Sample Reports was imported and select the data queries from the SAS Energy Forecasting/LASR/VAReports folder.
        1. Select **vstlf_bcst_res_h_LoadLASR** then click Open
        2. Select **vstlf_bcst_res_mh_LoadLASR** then click Open
        3. Select **vstlf_fcst_res_mh_LoadLASR** then click Open

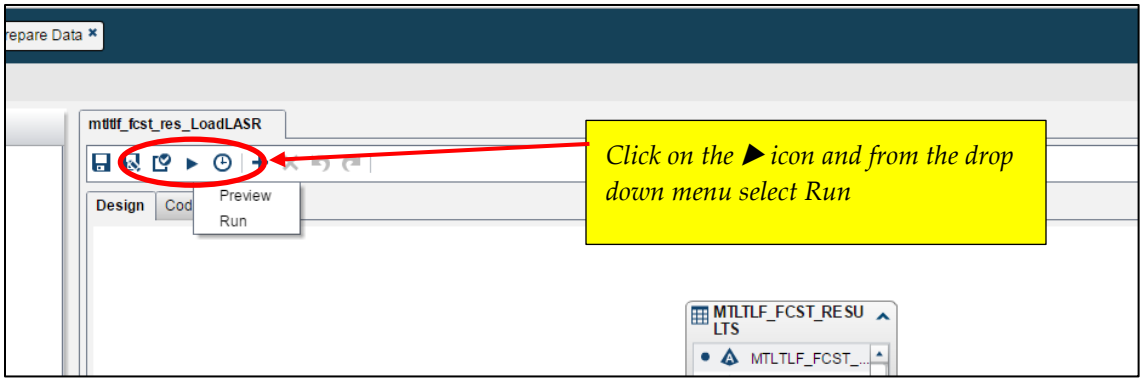
m. When completed, the SAS Home page should look similar to the screen shot below:



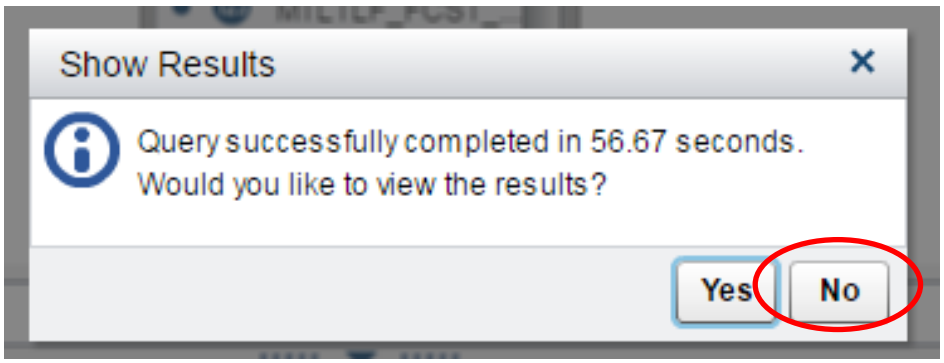
5. Load the **LT Probabilistic Forecast**
    a. From the SAS Home page, click on **mtltlf_fcst_res_LoadLASR**



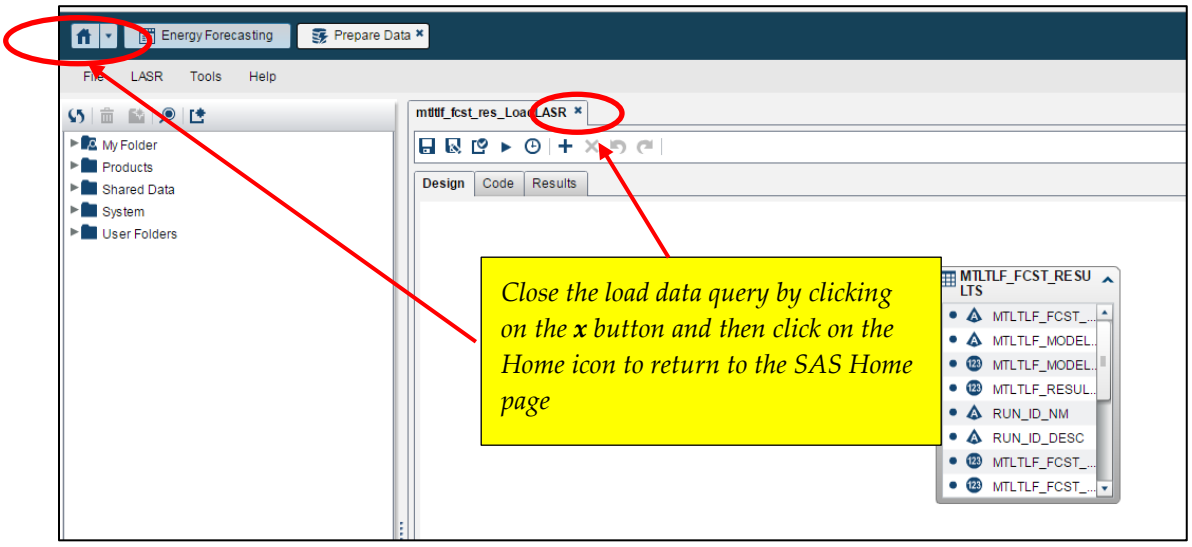
On the **Prepare Data** screen that appears, click on the ▶ icon to run the data load query



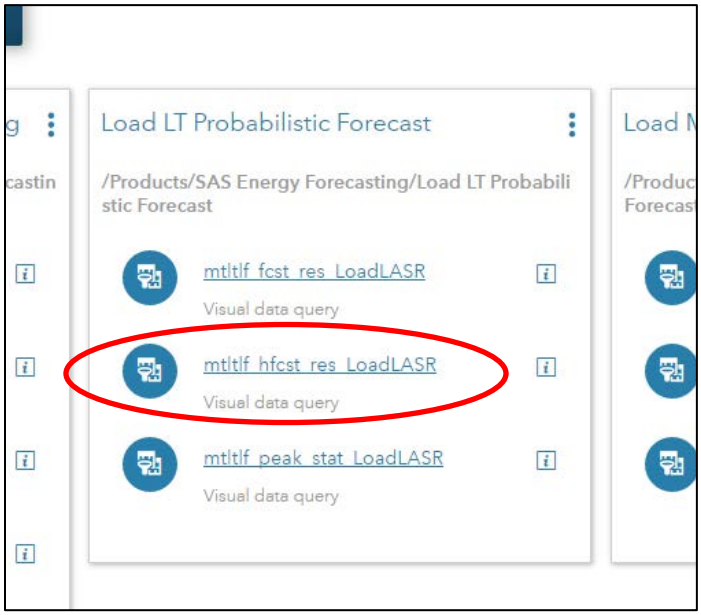
The **Show Results** screen should indicate a successful completion of running the load data query. There is no need to see the data, so click No.



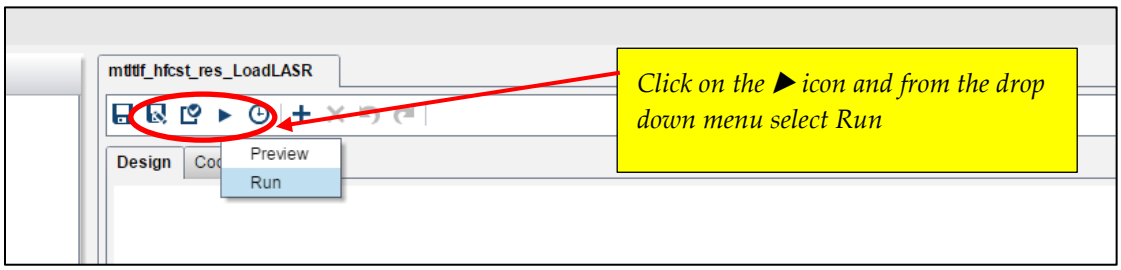
Close the load data query and return to the SAS Home page.



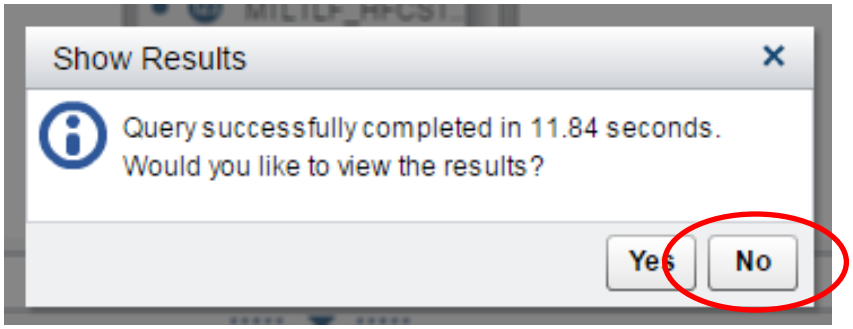
b. From the SAS Home page, click on **mtltlf_hfcst_res_LoadLASR**



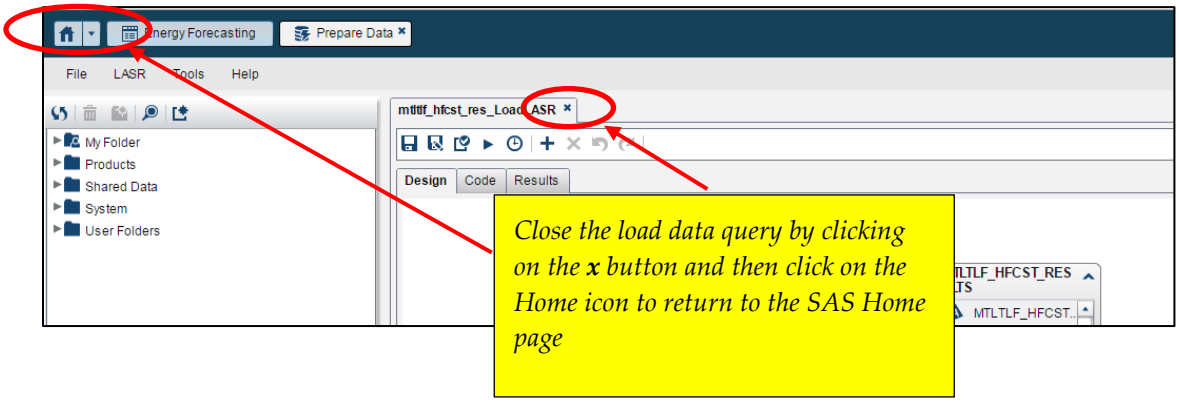
On the **Prepare Data** screen that appears, click on the ▶ icon to run the load data query



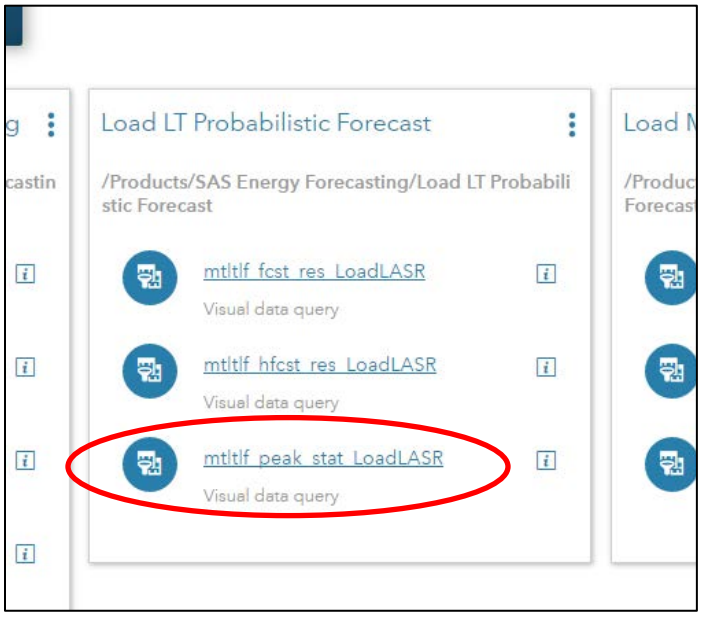
The **Show Results** screen should indicate a successful completion of running the load data query. There is no need to see the data, so click No.



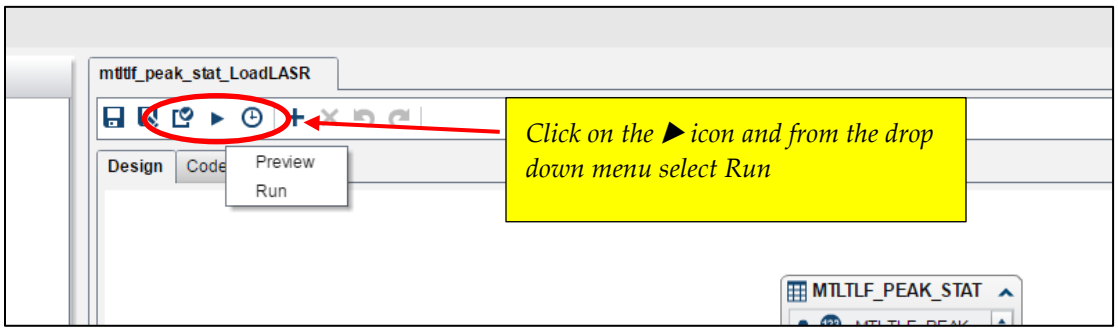
Close the load data query and return to the SAS Home page.



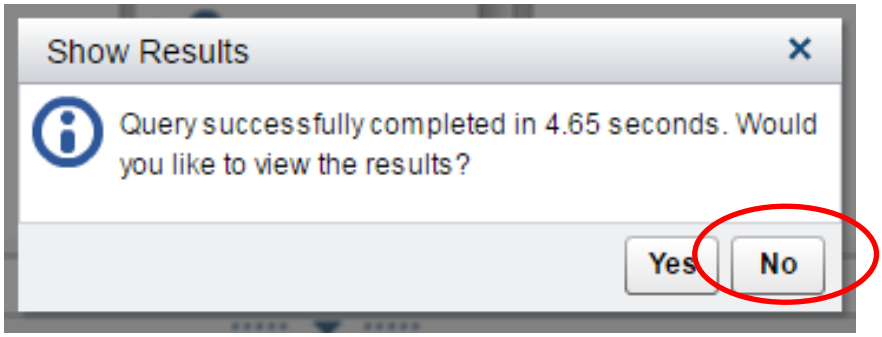
c. From the SAS Home page, click on **mtltlf_peak_stat_LoadLASR**



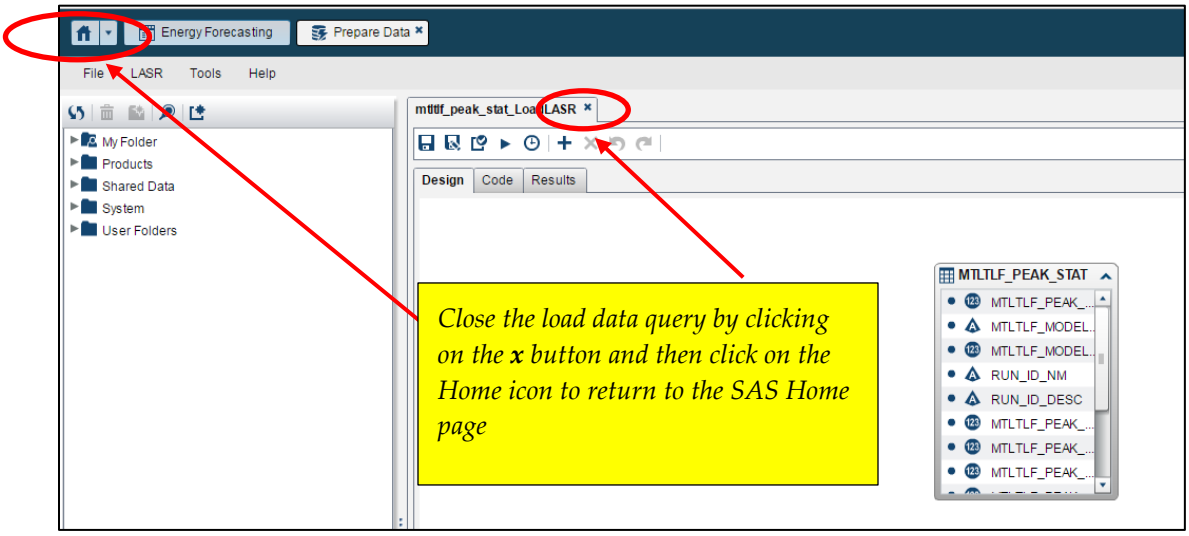
On the **Prepare Data** screen that appears, click on the ▶ icon to run the load data query



The **Show Results** screen should indicate a successful completion of running the load data query. There is no need to see the data so click No.

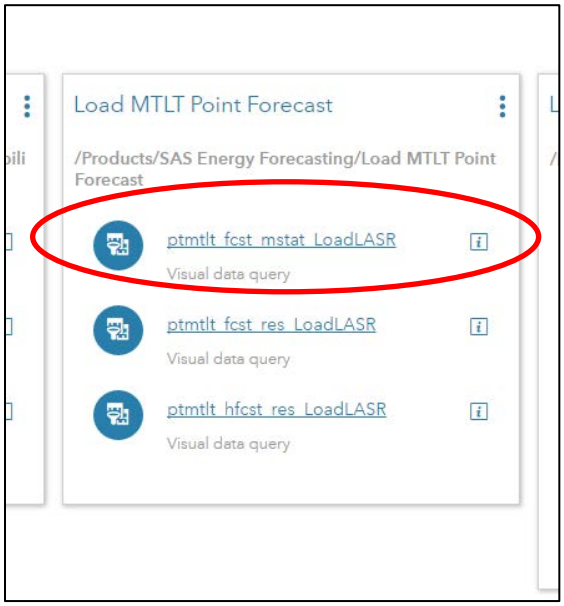


Close the load data query and return to the SAS Home page.



6. Load the **MTLT Point Forecast**

    a. From the SAS Home page, click on **ptmtlt_fcst_mstat_LoadLASR**



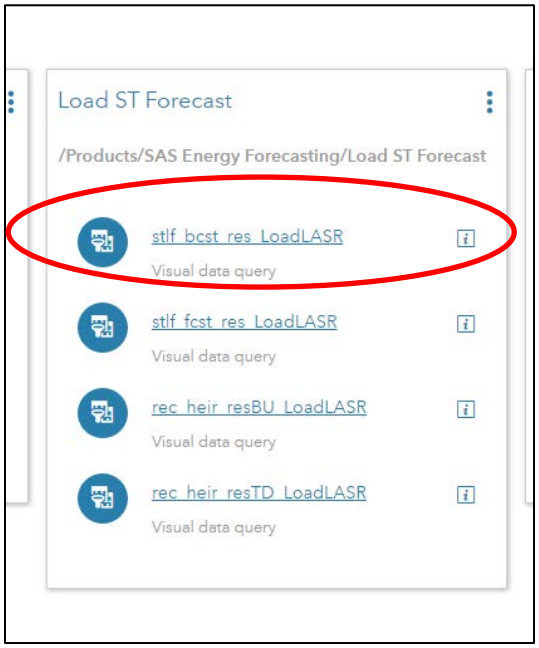
Follow the same steps as performed in loading the LT Probabilistic Forecasts

    b. From the SAS Home page, click on **ptmtlt_fcst_res_LoadLASR**

    c. From the SAS Home page, click on **ptmtlt_hfcst_res_LoadLASR**

7. Load the **ST Forecast**

    a. From the SAS Home page, click on **stlf_bcst_res_LoadLASR**



Follow the same steps as previously performed

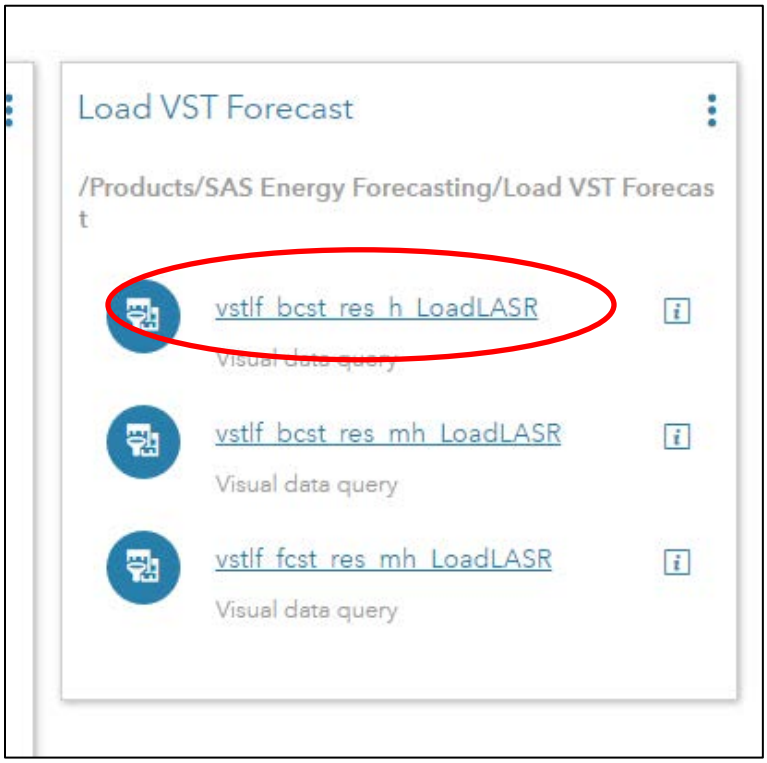
b. From the SAS Home page, click on **stlf_fcst_res_LoadLASR**

c. From the SAS Home page, click on **rec_heir_resBU_LoadLASR**

d. From the SAS Home page, click on **rec_heir_resTD_LoadLASR**

8. Load the **VST Forecast**

a. From the SAS Home page, click on **vstlf_bcst_res_h_LoadLASR**



Follow the same steps as previously performed

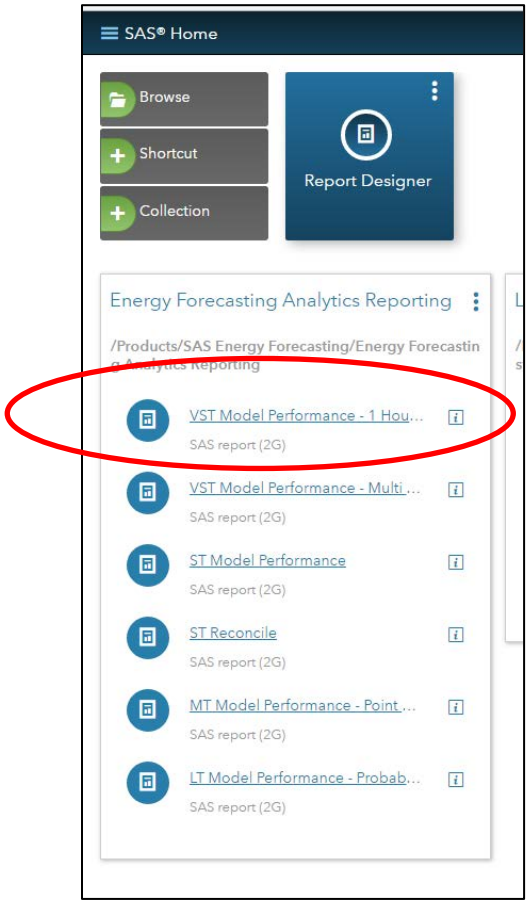
b. From the SAS Home page, click on **vstlf_bcst_res_mh_LoadLASR**

c. From the SAS Home page, click on **vstlf_fcst_res_mh_LoadLASR**

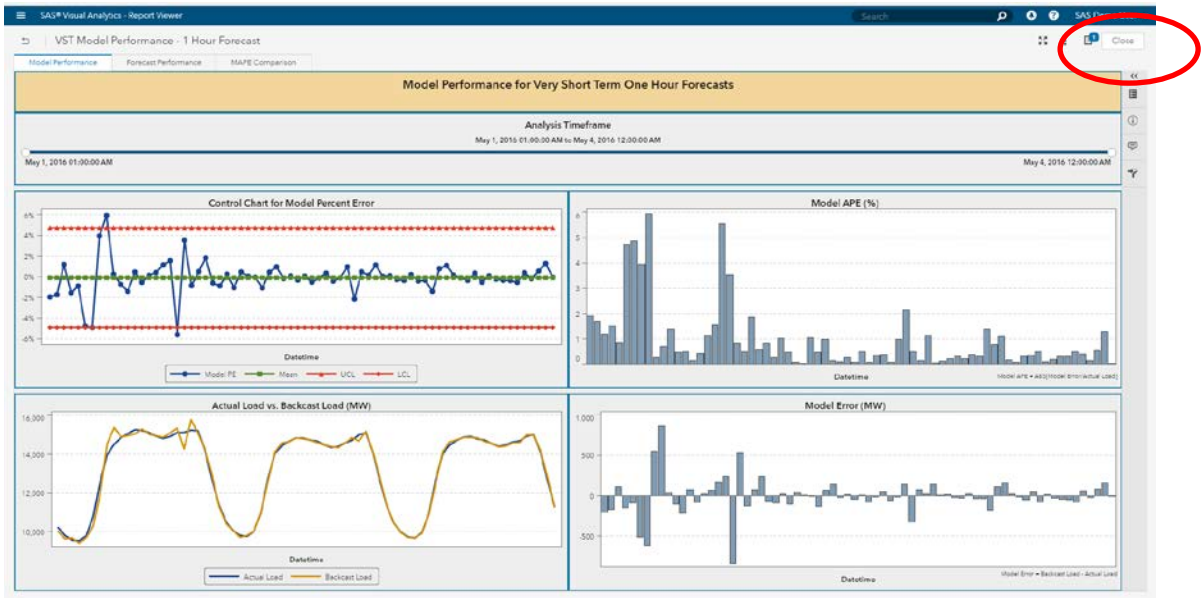
This should complete loading of the forecast data queries. The next step will produce the sample reports using SAS Visual Analytics.

9. Load the **Energy Forecasting Analytics Reporting**

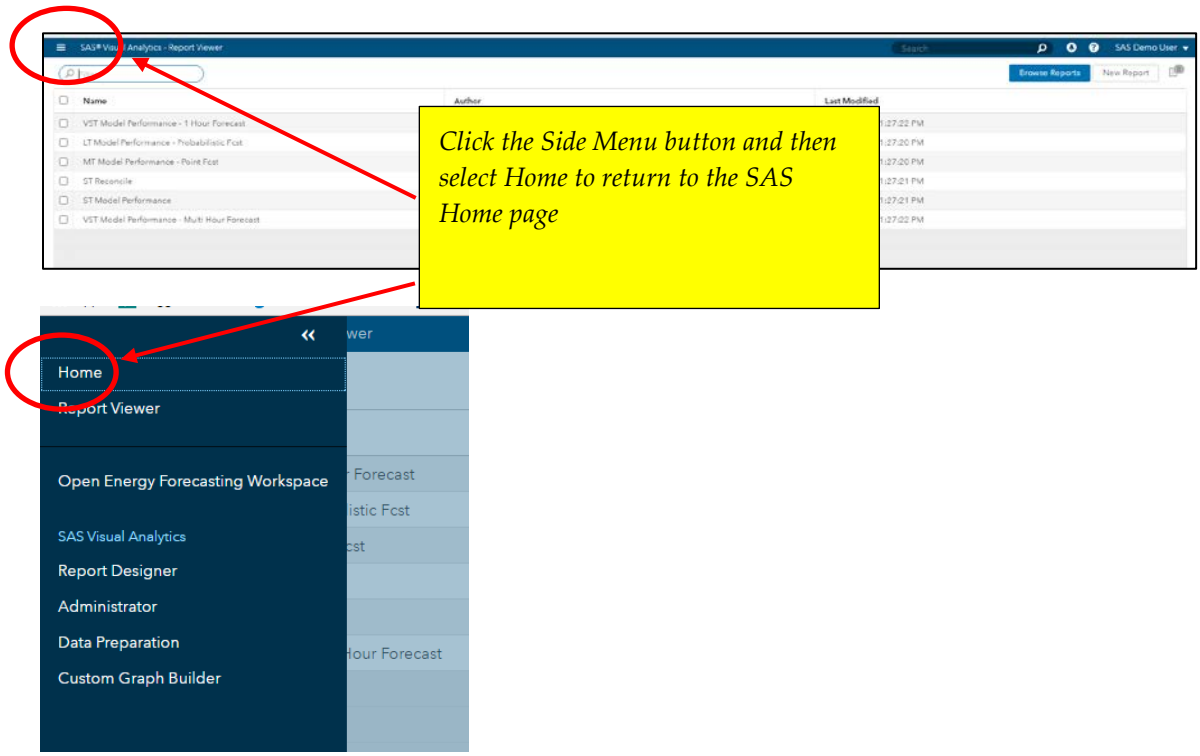
    a. From the SAS Home page, click on **VST Model Performance – 1 Hour Forecast**



After reviewing the report, close the page by clicking on the Close button at the top right hand side of the screen.



At the **Report Viewer** screen, click on the side menu button and then select Home at the top to return to the SAS Home page.



b. From the SAS Home page, click on **VST Model Performance – Multi Hour Forecast**

   After viewing the report, return to the SAS Home page to select the next report.

c. From the SAS Home page, click on **ST Model Performance**

   After viewing the report, return to the SAS Home page to select the next report.

d. From the SAS Home page, click on **ST Reconcile**

   After viewing the report, return to the SAS Home page to select the next report.

e. From the SAS Home page, click on **MT Model Performance – Point Fcst**

   After viewing the report, return to the SAS Home page to select the next report.

f. From the SAS Home page, click on **LT Model Performance – Probabilistic Fcst**

Now that all Energy Forecasting sample reports have been loaded, they can be viewed in the future by returning to the SAS Home page and selecting the report to view from the **Energy Forecasting Analytics Reporting** box.

Chapter 6 — Update In Place

Project folders are getting created with insufficient permissions, meaning only the owner of the project can edit the contents of the project folder. During an UIP, edits are being attempted by the installer on datasets contained within these folders and UIP fails as a result.

Prior to running the UIP, the permissions on all of these project folders need to be changed to grant the installer permissions to edit the datasets contained within the folders. Perform the following steps prior to UIP to modify permissions on all of the project folders.

1. Determine all project locations:
   Using the UI, right click on each project on the source system and under Properties you'll want to make note of the "Project Data Path". Make a list of all of these paths.

   If projects were created in batch, someone familiar with the locations of these projects will need to be consulted.

2. Change Permissions on project folders:
   Using the list from Step 1, change the permissions on all of these folders and their contents allowing full control.

Chapter 7 — Migration

To perform your migration, please refer to SAS® 9.4 Intelligence Platform: Migration Guide for instructions. These instructions can be found at:

http://support.sas.com/documentation/cdl/en/bimig/69173/HTML/default/viewer.htm#titlepage.htm

After the successful completion of the migration, you will need to manually copy over your input and output data for projects to work. So you don't miss any of the paths, you'll want to right click on each project on the source system and under Properties you'll want to make note of the "Input Path" and "Project Data Path". The data in these locations will need to be transferred to your target location. You do not need to manually copy your data if it resides in Lev1/SASApp/Data/EnergyForecasting as it will have already been migrated by the SMU.

Appendix 1: Launch SAS as the SAS Administrator

The SAS installer account must be an admin and have access to the SEF librefs to run the macros from the following path: %install root%/%config%/%level%/SASApp. This path is configured during install.

Windows example: c:\sas\config\lev1\sasapp\sas.bat -metauser sasadm@saspw –metapass <password>

Linux example: /install/cfgsas94/SASConfig/Lev1/SASApp/sas.sh -metauser sasadm@saspw –metapass <password>

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