SAS® Energy Forecasting 3.1 Installation Guide

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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 tier of SAS Energy Forecasting is installed. You can use different account names from the examples provided but the accounts should be separate.

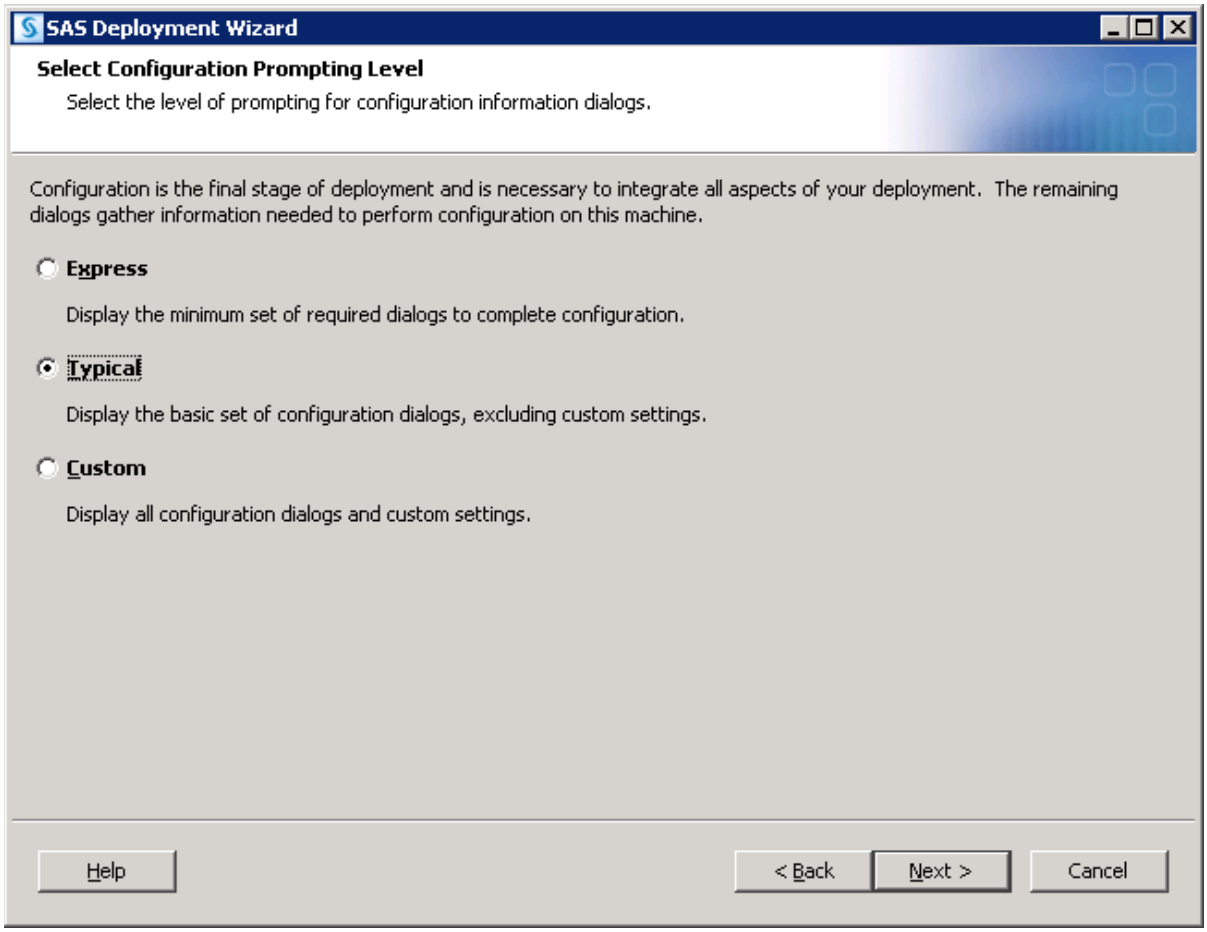
- The first account is needed for the SAS Spawned Servers account. This is part of the platform installation. For example, sassrv.
- The second account is used for the SAS Energy Forecasting Server User account. For example, sassef.

Both of these accounts need full access to the EnergyForecasting folder, and all descendant folders, under **SASConfig/Lev1/SASApp/Data**.

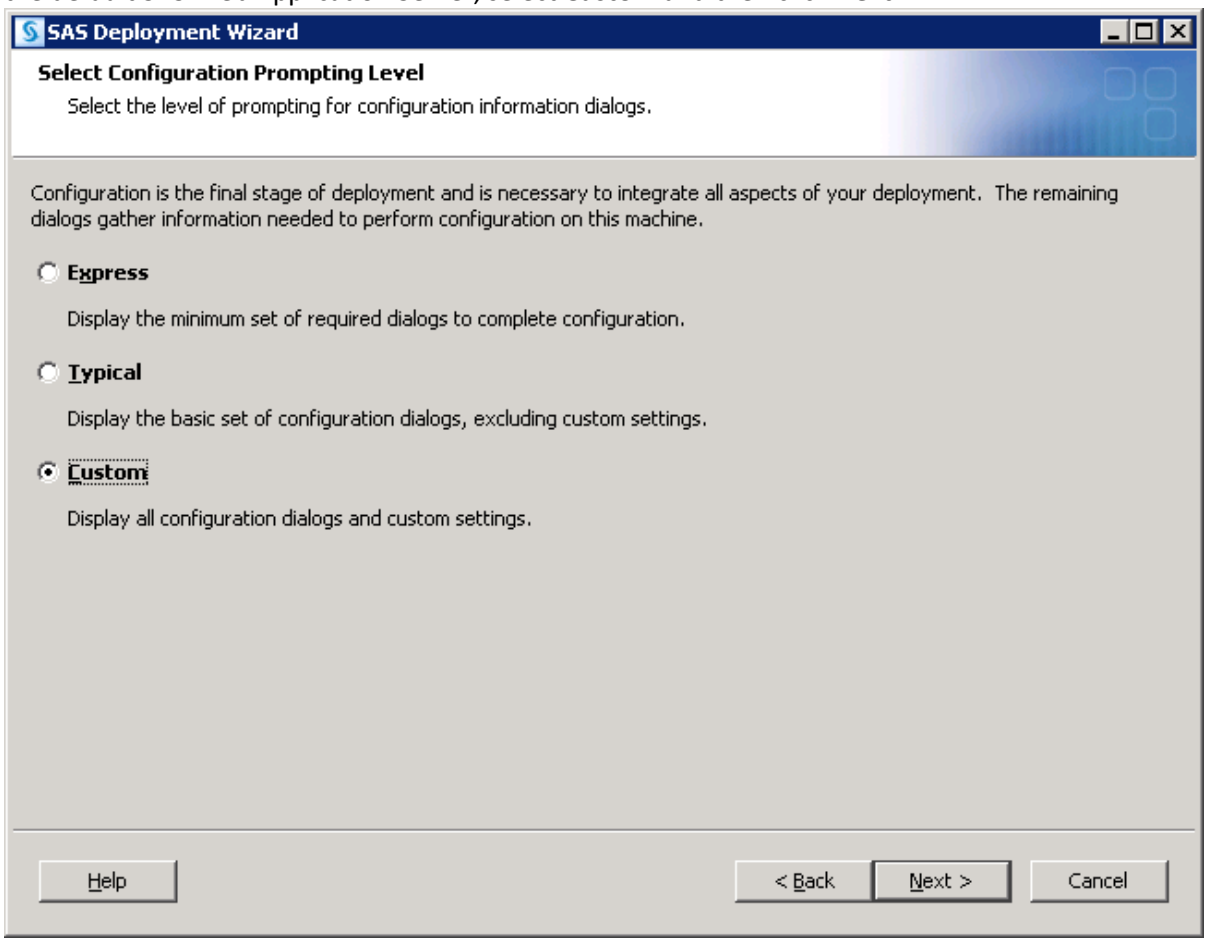
Chapter 2 — Installation Steps

Typical or Custom install

There is a choice of installing the SAS Energy Forecasting in its own Web Application Server instance or installing on the default SAS Web Application Server, default name of SASServer1. To have SAS Energy Forecasting use the default SAS Web Application Server, select a **Typical** prompting level and then click **Next >**.



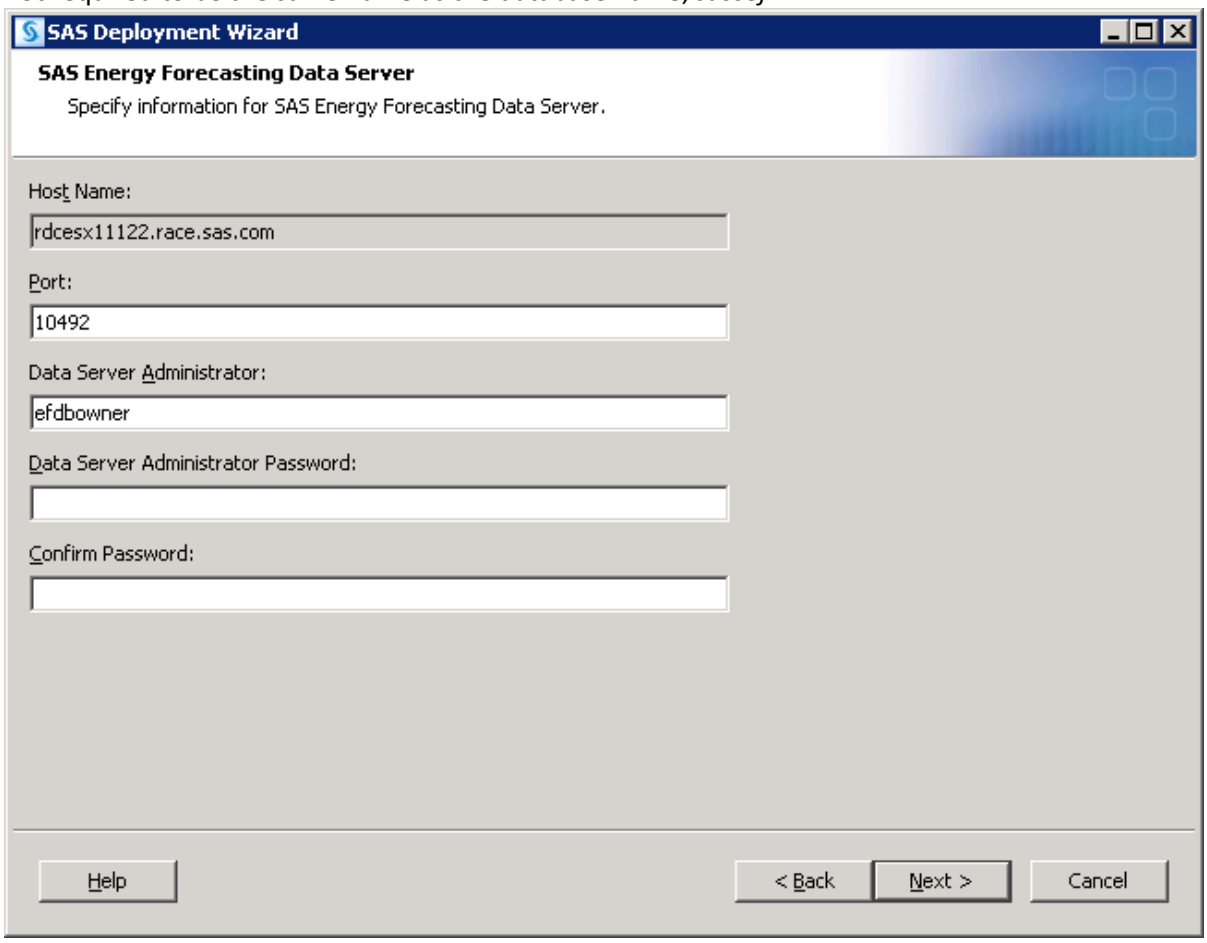
However if the SAS Energy Forecasting Web Application Server instance should be separate from the default SAS Web Application Server, select **Custom** and then click **Next** >.



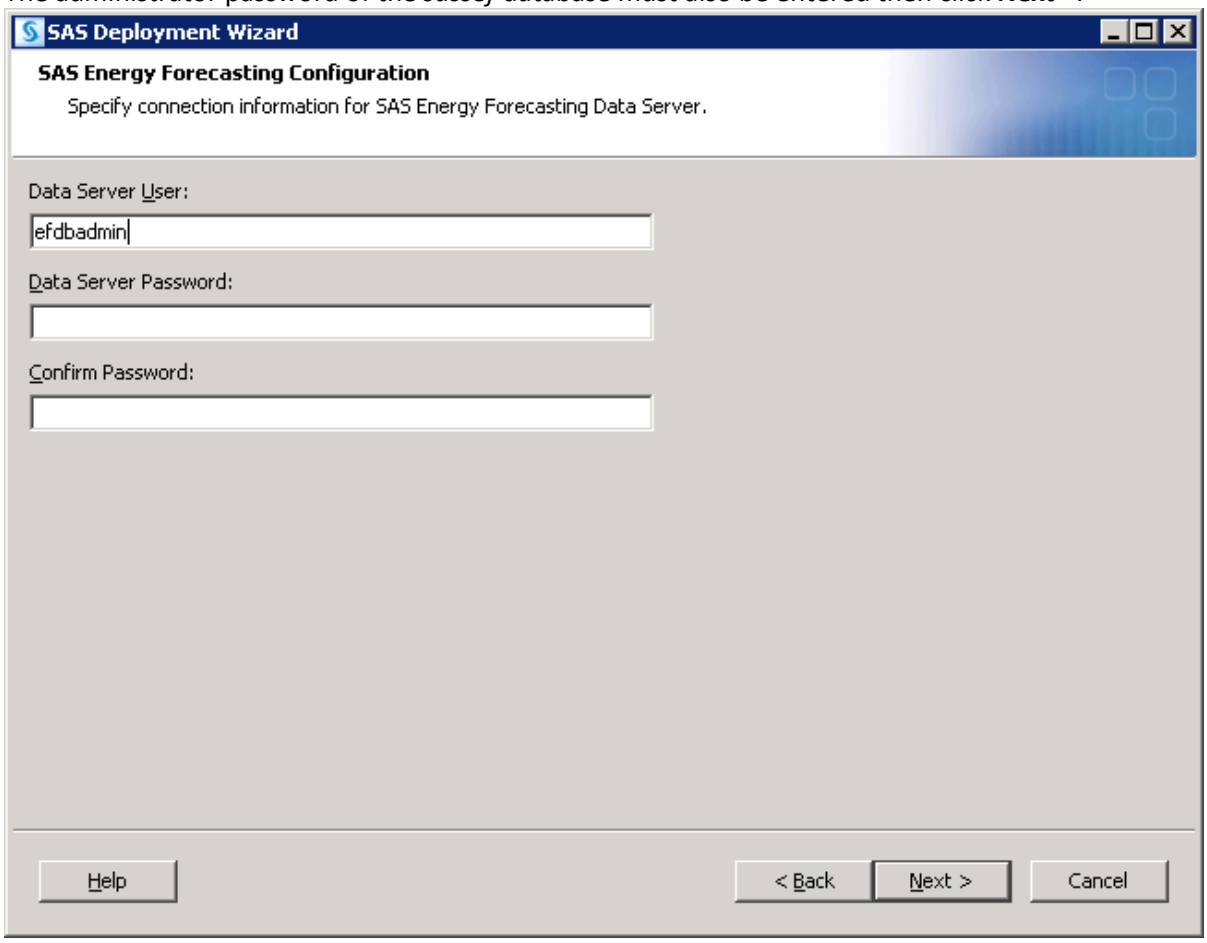
Postgres password configuration

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*.



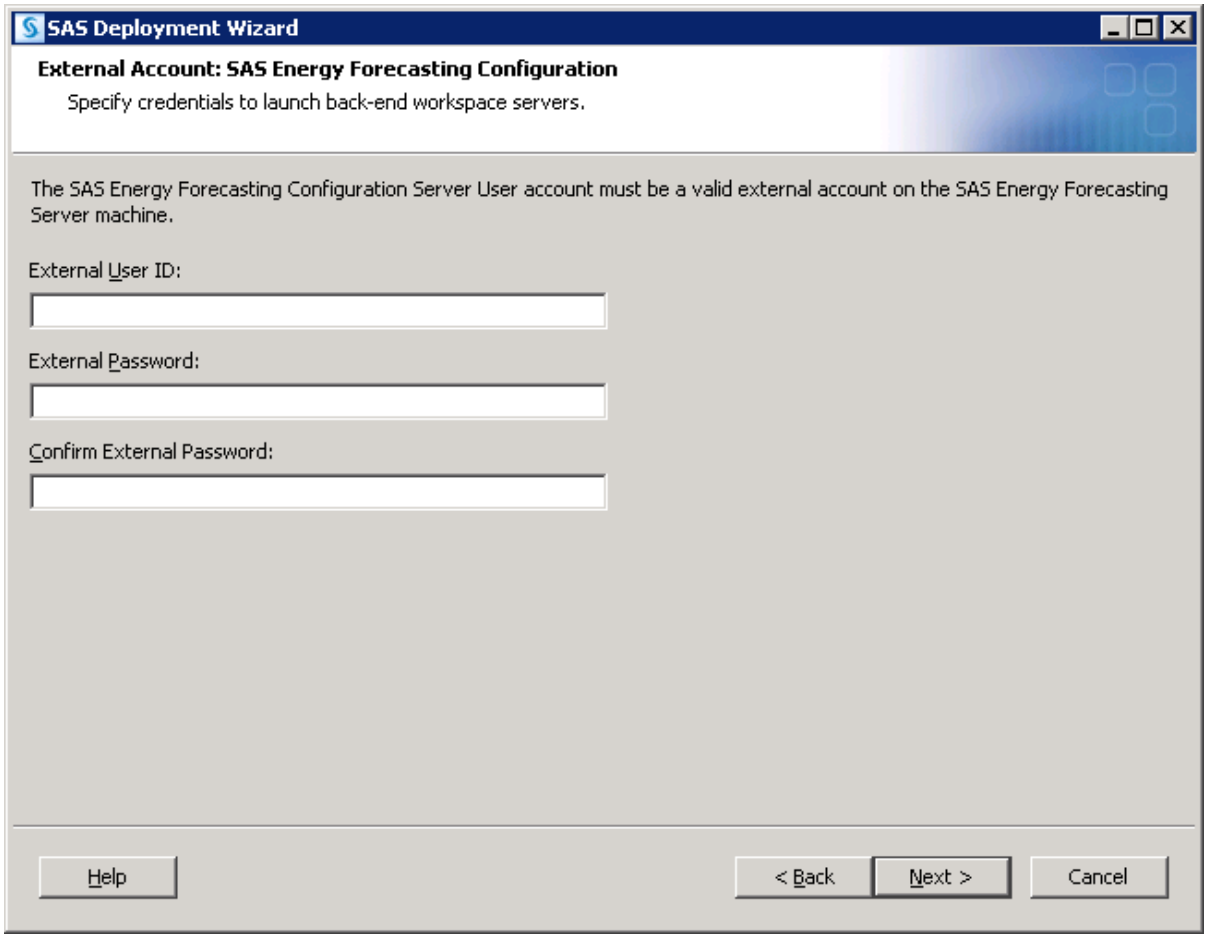
The administrator password of the *sassef* database must also be entered then click **Next >**.



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 >.


SAS Deployment Wizard
External Account: SAS Energy Forecasting Configuration
Specify credentials to launch back-end workspace servers.
The SAS Energy Forecasting Configuration Server User account must be a valid external account on the SAS Energy Forecasting Server machine.
External User ID:
External Password:
Confirm External Password:
Help
< Back
Next >
Cancel

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.

Install hotfix R19015

Follow the instruction provided at http://hotfix.na.sas.com/itp4/cgi-bin/xitp4_1.pl?R19015 to install the hotfix.

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>

Tree initialization

Overview

The SAS Energy Forecasting solution requires a mapping from the UI to the data tier. This mapping is defined in the conformed dataset util_loc_dim. The following table shows the pertinent columns in the util_loc_dim dataset for this mapping.

Column Name	Column Description
UTIL_LOC_DIM_RK	Key
UTIL_LOC_CD	The short code for the utility – mapped from UI to data tier
UTIL_LOC_NM	The name of the utility that will be shown in the ui
UTIL_LOC_DESC	The description of the UI
PARENT_UTIL_LOC_CD	The parent of this row, column UTIL_LOC_CD blank means root

The value of UTIL_LOC_CD will be the value used as the mapping between the UI and the data tier when diagnosing and forecasting utilities. It is the common link and is passed from the UI to the data tier.

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 UI, and customization by the consultants setting up the customer data.

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. There are some columns removed for explanatory purposes.

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 session 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 session and run the command:

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

At the completion of the sefutree macro, the UI will see utilities when select node 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.

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 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:

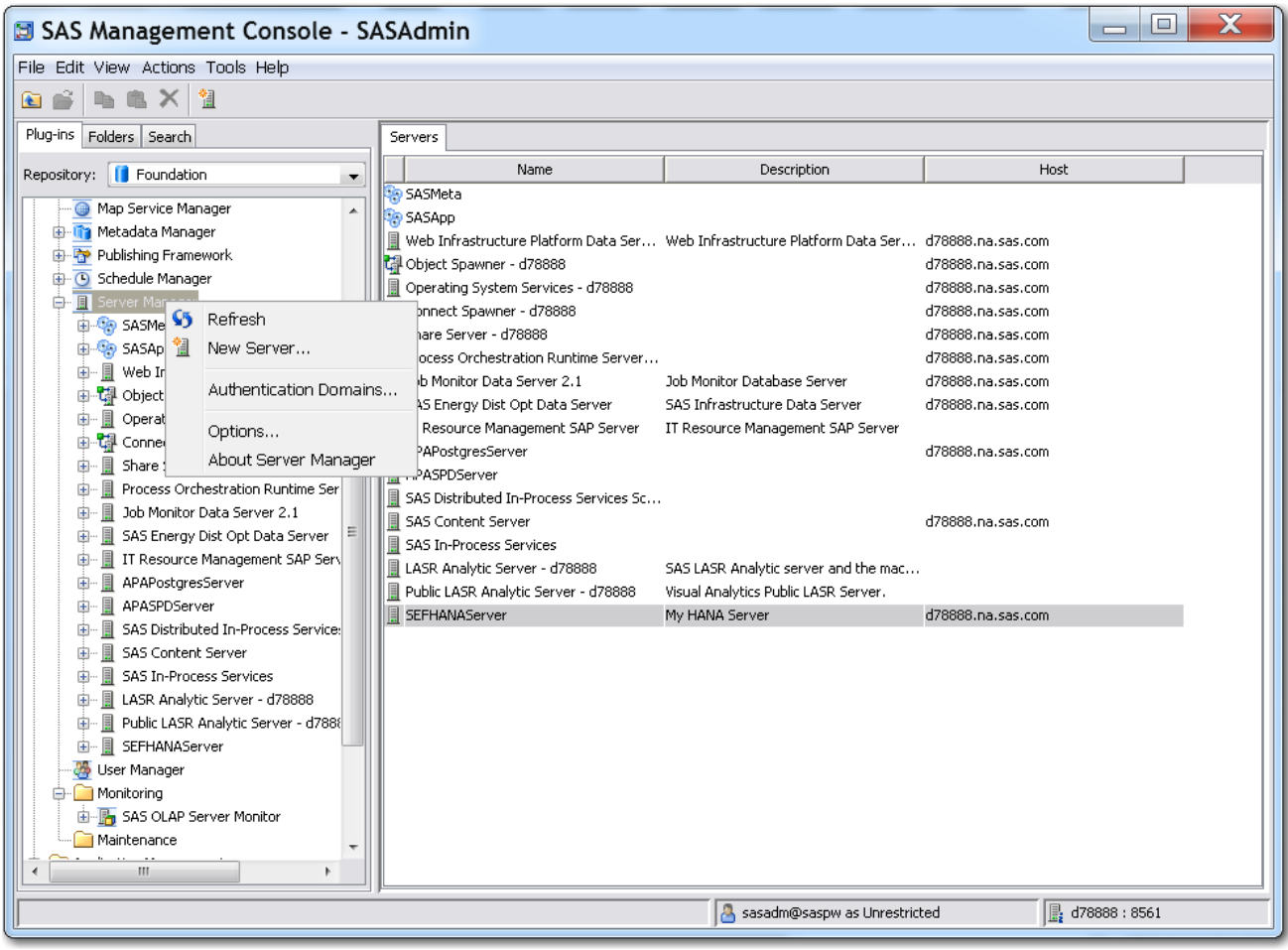
- Create a SAP HANA server definition so that an authentication domain is registered.
- Create a SAP HANA Users group to authorize access into SAP HANA.

Create a SAP HANA Server Definition in Metadata

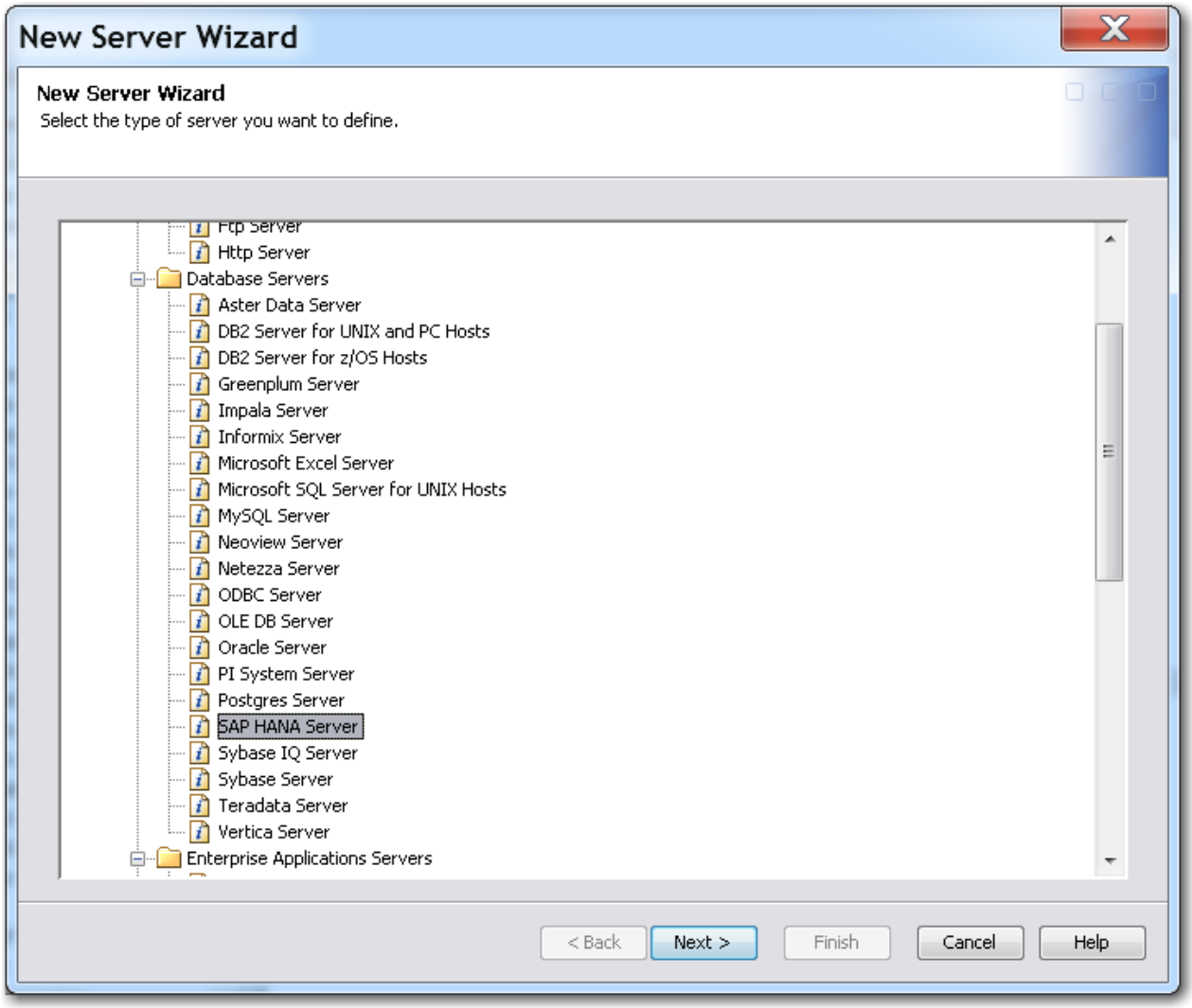
The primary purpose of this step is to define a HANA authentication domain.

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 server tier 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 client 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/3.1/efug.pdf.**

Chapter 5 — Sample Data

Sample Input Data Extraction

There is sample input data delivered with the solution. The sample data is 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 data to a directory on the server.

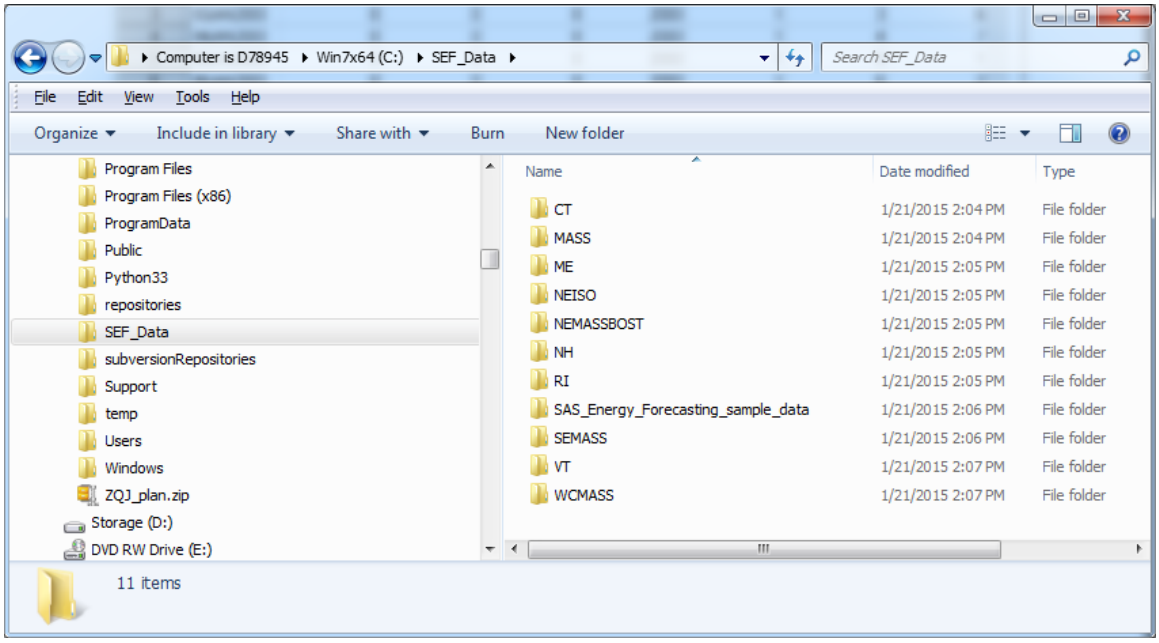
- Unzip the file SAS_Energy_Forecasting_sample_data.zip to a drive on the server
- Launch SAS as the SAS Administrator and open the unzipped .sas file sef_import_sample_data.sas
- Determine the encoding of the SAS session by following the directions at: http://support.sas.com/documentation/cdl/en/nlsref/61893/HTML/default/viewer.htm#a002605216.htm
    - If the encoding is not wlatin1 or UTF8 the base SAS session must be modified for this step to be wlatin1 or UTF8
- Include the sef_import_sample_data.sas file and edit the lines that lok like:

  %macro sef_import_sample_data (input_directory=**c:\my_unzipped_file_directory**,
  output_directory=**c:\temp**,
  encoding=**wlatin1**,
    - Change the value of **c:\my_unzipped_file_directory** to the directory where SAS_Energy_Forecasting_sample_data.zip was unzipped to
    - Change the value of **c:\temp** to the directory where the sample input data should be created at.
    - If the encoding value is UTF8 modify **wlatin1** to be UTF8
- Run the sef_import_sample_data sas code using the SAS Admin.

The sample input data will be in the directory specified by *output_directory*.

Sample Input Data

The sample data is broken into several utilities specified as folder names. Each folder will have the input data that can be used when running diagnoses and forecasts. In the following description of the sample input data, the output_directory was set to C:\SEF_Data.


Computer is D78945 ▸ Win7x64 (C:) ▸ SEF_Data ▸
Search SEF_Data
File Edit View Tools Help
Organize Include in library Share with Burn New folder
Program Files
Program Files (x86)
ProgramData
Public
Python33
repositories
SEF_Data
subversionRepositories
Support
temp
Users
Windows
ZQJ_plan.zip
Storage (D:)
DVD RW Drive (E:)
Name
Date modified
Type
CT 1/21/2015 2:04 PM File folder
MASS 1/21/2015 2:04 PM File folder
ME 1/21/2015 2:05 PM File folder
NEISO 1/21/2015 2:05 PM File folder
NEMASSBOST 1/21/2015 2:05 PM File folder
NH 1/21/2015 2:05 PM File folder
RI 1/21/2015 2:05 PM File folder
SAS_Energy_Forecasting_sample_data 1/21/2015 2:06 PM File folder
SEMASS 1/21/2015 2:06 PM File folder
VT 1/21/2015 2:07 PM File folder
WCMASS 1/21/2015 2:07 PM File folder
11 items

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