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SAS® Offer Optimization for Communications 5.21

Installation and Configuration Guide

SAS® Documentation

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Chapter 1 — About This Guide

Overview

This document has five major sections:

Chapter 2 — Pre-Installation Instructions on page 3.
Chapter 3 — Installation Instructions on page 5.
Chapter 4 — Post-Installation Instructions on page 9.
Chapter 5 — Validation Instructions on page 21.
Chapter 6 — Unconfiguring SAS Offer Optimization for Communications on page 27.

Prerequisites

Before you start with the installation, see *Systems Requirements—SAS Offer Optimization for Communications 5.21* for information about third-party software and operating system specifications. This document is available at the following location:

`http://support.sas.com/documentation/installcenter/en/ikbppofrsr/64688/HTML/default/index.html.`

Technical Support

Please visit the SAS Technical Support Web site, `http://support.sas.com`, for installation updates.

For product documentation, please visit the SAS Technical Support Documentation Web site `http://support.sas.com/documentation/onlinedoc/securedoc/index_offeropt.html`.

Note to the reader:

Words in examples that are enclosed in < (less than) or > (greater than) symbols are meant to be replaced with information from your system.

For example, *<SAS installation path>* should be replaced with the path where you installed SAS. If you installed SAS in Program Files on your D drive, then replace <SAS *installation path*> with `D:/Program Files/SASHome`.

<*SAS configuration path*> should be replaced with the path where your configuration is installed. If you installed the configuration on the `/opt` path and used a configuration name of `Config93`, then replace *<SAS configuration path>* with `/opt/SAS/Config93`.

Chapter 2 — Pre-Installation Instructions

Setting Up the Oracle Database

The following subsections explain the procedures that you have to complete in order to set up the Oracle database. You must set up the Oracle database before you install SAS Offer Optimization for Communications 5.21 by using the SAS Deployment Wizard.

Prerequisites

Before you set up the Oracle database, make sure that you have completed the following instructions:

1. Install Oracle database software (Oracle Database 11g Standard Edition or Oracle Database 11g Enterprise Edition) on the Data server.
2. Create a database instance with an appropriate listener service entry. This guide refers to the listener service entry as "OOC."
3. Install Oracle 11g ODAC (Oracle Data Access Components) software on the server-tier machine.
4. Create a listener service entry named OOC on the server-tier machine, by using Oracle Net Configuration Assistant. The listener service entry should point to the OOC database instance that is created on the Data server.

Set Up the OOC Oracle Database

To set up the OOC Oracle database, complete these steps with the profile of an Oracle super user or system user:

1. Log on to the OOC database instance from the data-tier or server-tier machine. To do so, complete these steps:
   a. Go to the command prompt.
   b. Type `sqlplus <system username>/<system password>@OOC as sysdba`
2. At the SQL prompt, create the OOC Oracle users and schemas by using the following set of commands.

   Note: *In the following commands, replace <User Password> with the actual password string. Also, make sure that you use the same user name or schema name as mentioned in the commands listed below.*

```
SPOOL <log filename>
CREATE USER REF IDENTIFIED BY <REF Password>;
GRANT CONNECT, RESOURCE TO REF;
CREATE USER DIM IDENTIFIED BY <DIM Password>;
GRANT CONNECT, RESOURCE TO DIM;
CREATE USER FACT IDENTIFIED BY <FACT Password>;
GRANT CONNECT, RESOURCE TO FACT;
CREATE USER MISC IDENTIFIED BY <MISC Password>;
GRANT CONNECT, RESOURCE TO MISC;
CREATE USER BASE IDENTIFIED BY <BASE Password>;
GRANT CONNECT, RESOURCE TO BASE;
CREATE USER DABT_ADM IDENTIFIED BY <DABT_ADM Password>;
GRANT CONNECT, RESOURCE TO DABT_ADM;
```

```
CREATE USER BPPAPTBL IDENTIFIED BY <BPPAPTBL Password>;
GRANT CONNECT, RESOURCE TO BPPAPTBL;
CREATE USER BPPINF IDENTIFIED BY <BPPINF Password>;
GRANT CONNECT, RESOURCE TO BPPINF;
CREATE USER BPPEXEC IDENTIFIED BY <BPPEXEC Password>;
GRANT ALL PRIVILEGES TO BPPEXEC;
SPOOL OFF
EXIT
```

3. Open the log file that is created after you complete step 2. Make sure that the log file does not contain any errors.

   Note: *The log file is created in the physical directory from where you launch SQLPLUS.*

Configure the ORACLE_HOME and the Shared Library Path Variables

When you install SAS Offer Optimization for Communications using the SAS Deployment Wizard, SAS/ACCESS Interface to Oracle is used to create tables. In order to complete this task successfully, you must configure the ORACLE_HOME and the shared library path variable. For details, see "SAS/ACCESS Interface to Oracle Software" in *Configuration Guide for SAS 9.3 Foundation for UNIX Environments*. This guide is available at the following location: http://support.sas.com/documentation/installcenter/en/ikfdtnunxcg/64205/PDF/default/config.pdf.

Chapter 3 — Installation Instructions

Overview

This section provides instructions to install SAS Offer Optimization for Communications on a single physical server along with SAS 9.3 Enterprise Intelligence Platform.

Getting Started

Before you begin with the installation, complete these steps:

1. Refer to *SAS 9.3 Intelligence Platform: Installation and Configuration Guide*. This guide is available at the following location: `http://support.sas.com/documentation/onlinedoc/intellplatform/`.
2. Download your software into a SAS Software Depot that is accessible to all machines on which you want to complete the installation.
3. Copy your plan files to a suitable location, such as `<SAS plan file path>/plan.xml`

Install SAS Server Software and SAS Offer Optimization for Communications

To install SAS Offer Optimization for Communications and other relevant SAS products by using the SAS Deployment Wizard, complete these steps:

1. Start the SAS Deployment Wizard.

   Note: *By default, the SAS Deployment Wizard for SAS Offer Optimization for Communications has multiple managed servers. For a* ***Typical*** *installation, the SAS Deployment Wizard enforces multiple managed servers. However, for a* ***Custom*** *installation, it is recommended that you do not deselect the* ***Multiple Managed Server*** *check box.*

2. Refer to *Using Version 9.2 of the SAS Business Intelligence Platform to Assign Unique SAS Application Servers to SAS Offer Optimization for Communications: Technical Paper*, which is available at the following location: `http://support.sas.com/documentation/onlinedoc/securedoc/index_offeropt.html`. This technical paper provides installation instructions for a clean installation and an up-sell scenario installation. Choose the correct scenario and follow appropriate instructions according to your installation requirements.

   Note: *Perform step 3 when you reach the first screen of the SAS Deployment Wizard that enables you to configure SAS Offer Optimization for Communications.*

3. Enter the following details for SAS Foundation for Communications Server Configuration Database Configuration.

Field name	Description
Host name	Enter the database server name. For example, the database server name can be `dbserver01.abc.com`.
Port number	Review the port number on which the database services are running.
User name	Displays BPPEXEC as the value for the database user. You cannot change this value.
Password	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again, and then click **Next**.

4. Enter the following details for SAS Foundation for Communications Server Configuration Oracle Configuration.

Field name	Description
Oracle Service name	Enter the service name for your Oracle database. The default service name is *OOC*.
Listener service connection name	Enter the listener service connection name that is created as mentioned in the pre-installation instructions in this guide. The default service connection name is *OOC*. Click **Next**.

5. Enter the following details for the REF and DIM schemas.

Field name	Description
REF schema user name	Displays the user name of the REF schema. You cannot change this value.
REF schema password	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again.
DIM schema user name	Displays the user name of the DIM schema. You cannot change this value.
DIM schema password	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again, and then click **Next**.

6. Enter the following details for the BASE and FACT schemas.

Field name	Description
BASE schema user name	Displays the user name of the BASE schema. You cannot change this value.
BASE schema password	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again.
FACT schema user name	Displays the user name of the FACT schema. You cannot change this value.
FACT schema password	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again, and then click **Next**.

7. Enter the following details for the MISC schema.

Field name	Description
MISC schema user name	Displays the user name of the MISC schema. You cannot change this value.
MISC schema password	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again, and then click **Next**.

8. Enter the following details for the BPPAPTBL and DABT_ADM schemas.

Field name	Description
BPPAPTBL schema user name	Displays the user name of the BPPAPTBL schema. You cannot change this value.
BPPAPTBL schema password	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again.
DABT_ADM schema user name	Displays the user name of the DABT_ADM schema. You cannot change this value.
DABT_ADM schema user name	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again, and then click **Next**.

9. Enter the following details for the BPPINF schema.

Field name	Description
BPPINF schema user name	Displays the user name of the BPPINF schema. You cannot change this value.
BPPINF schema password	Enter the appropriate password for the above user name.
Confirm Password	Enter the same password again, and then click **Next**.

10. In the **SAS Offer Optimization for Communications Mid-Tier: JDBC Jar file** dialog box, specify the complete path where your JDBC jar file is located.

    Note: *Make sure that you select the JDBC jar file from the user Oracle installation directory, which is* `$ORACLE_HOME/sqldeveloper/jdbc/lib`. *It is recommended that you should not select the jar file from any other location. Otherwise, you might encounter errors when you start working with the SAS Offer Optimization for Communications interface.*

11. Click **Next**.
12. Click **Finish** to close the SAS Deployment Wizard after you complete the installation.

    Note: *SAS Offer Optimization for Communications is deployed on Managed Server SASServer11 according to your application server. Check whether this server is running. If it is not running, then start it manually from the appropriate application console.*

Chapter 4 — Post-Installation Instructions

Overview

The post-installation instructions are categorized based on the following components:

1. Foundation data mart
2. Customer analytics
3. SAS Offer Optimization for Communications application

Make sure that you perform the instructions in the sequence listed above.

Note:

- In order to work with the SAS Offer Optimization for Communications application, perform the instructions that are detailed for steps 1, 2, and 3.
- If you want to work with Customer Analytics, then perform the instructions that are detailed for steps 1 and 2.
- If you want to configure the Foundation data mart only, then perform the instructions that are detailed for step 1.

Create User in SAS Management Console

The user who executes the INSERT scripts that are mentioned in the instructions below needs access to the libraries that are predefined in the SAS environment. In order to enable the user to have this capability, you have to define this user in SAS Management Console.

To define the user who will execute the INSERT scripts, complete these steps:

1. Log on to SAS Management Console with the default profile of sasadm user.
2. Define the user with the following access permissions:
   - **Role:** Metadata Server: Unrestricted
   - **Group:** Communication Common Oracle User Group
3. Close SAS Management Console.

Step 1: Instructions for Foundation Data Mart

This section explains the post-installation instructions for the Foundation data mart.

Define Permissions for Data and Logs Folders

You must grant full permissions to the default user, sassrv, who will access the data that is populated in the Foundation data mart.

Depending on the operating system of your machine, use appropriate commands to grant all permissions to the sassrv user for the following folders:

`<SAS configuration path>/Lev1/Applications/SASFoundforComm5.2/Data`

`<SAS configuration path>/Lev1/Applications/SASFoundforComm5.2/Logs`

Run the DDL Script

To update Foundation data mart tables, complete these steps:

1. Go to the *<SAS configuration path>*/Lev1/*<SAS Application Server context name>* folder.
2. Depending on whether the operating system is Windows or UNIX, run the `sas.bat` or the `sas.sh` file respectively. For example, on the Windows machine, run the `C:/SAS/Config93/Lev1/SASApp/sas.bat` file.
3. Open the `cfdn_execute_ddls_m1.sas` macro.
   On a Windows computer, this macro is located in the following folder:
   <SAS installation path>/SASFoundation/9.3/comfdnsrv/sasmisc/ddl.
   On a UNIX computer, this macro is located in the following folder:
   <SAS installation path>/SASFoundation/9.3/misc/comfdnsrv/ddl.
4. Enter the appropriate values for the macro parameters.
   a. Specify the appropriate value for the FILE_PATH parameter depending on whether the operating system is Windows or UNIX. For Windows environment, enter this path as *<SAS installation path>*/SASFoundation/9.3/comfdnsrv/sasmisc/ddl. For UNIX environment, enter this path as *<SAS installation path>*/SASFoundation/9.3/misc/comfdnsrv/ddl.
   b. Specify the value, BPPEXEC, for the USER parameter.
   c. Specify the appropriate value for the PASSWORD parameter.
   d. Specify the appropriate value for the PATH parameter.
5. Click **Save**.
6. Click **Run**.
7. To ensure successful execution of the DDL script, select **View > Log** on the menu.
8. Close Base SAS.

Update and Run INSERT Scripts

The INSERT scripts for the Foundation data mart insert appropriate values into format and parameter tables that are required for running ETL jobs in the Foundation data mart.

To update and run INSERT scripts, complete these steps:

1. Go to the *<SAS configuration path>*/Lev1/*<SAS Application Server context name>* folder.
2. Depending on whether the operating system is Windows or UNIX, run the `sas.bat` or the `sas.sh` file respectively. For example, on the Windows machine, run the `C:/SAS/Config93/Lev1/SASApp/sas.bat` file.
3. Open the `all_comfdn_data_inserts.sas` macro. This macro is located in the following folder:
   <SAS configuration path>/Lev1/SASApp/SASEnvironment/SASFoundForComm5.2/SASCode/insertscripts.
4. Enter appropriate values for the macro parameters.
   a. Specify the value, *BPPEXEC,* for the USER parameter.
   b. Specify the value, *MISC,* for the SCHEMA parameter.

c. Specify the appropriate value for the PATH parameter.

d. Specify the password for the MISC schema in the procedure block and also change the pwfile path according to your environment.

```
proc pwencode in='BPPEXEC' out=pwfile;
run;
```

e. Specify the *<SAS configuration path>*/Lev1/SASApp/SASEnvironment/SASFoundForComm5.2/SASCode/insertscripts value for the SCRIPTS_ROOT parameter.

5. Click **Save**.
6. Click **Run**.
7. To ensure successful execution of the INSERT scripts, select **View → Log** on the menu.
8. Open the `all_comfdn_data_inserts_m1.sas` macro. This macro is located in the *<SAS configuration path>*/Lev1/SASApp/SASEnvironment/SASFoundForComm5.2/SASCode/insertscripts folder.
9. Repeat steps from 4 to 7.
10. Close Base SAS.

Import SAS Packages

To import SAS packages, complete these steps:

1. Open SAS Management Console with the default profile of sasadm user.
2. Select the **Folders** tab.
3. Right-click **Products** and select **Import SAS Package**.
4. In the Import from SAS Package wizard, complete these steps:

   a. Click **Browse** and select the `cfdn_metadata_m1.spk` file. The path for this file might differ depending on the operating system of the machine. On a Windows machine, this file is located in the *<SAS installation path>*/SASFoundation/9.3/comfdnsrv/sasmisc/Config/Deployment/Packages folder.

   b. Click **OK**.

   c. Click **Next** until you reach the Summary page. The import process starts when you click **Next** on this page.

   Note: *Before the import process begins, certain warning messages are displayed. For example, the following warning messages are displayed:*

   WARN - The column "RECHARGE_ARPU" was not found in the target table "CUST_MTH_SUMMARY_F", it will be added to the table.

   WARN - The column "RECHARGE_ARPU" was not found in the target table "CUST_MTH_SUMMARY_INCR_TMP", it will be added to the table.

   WARN - The column "RECHARGE_ARPU" was not found in the target table "CUST_PREV_MTH_ARPU_TMP", it will be added to the table.

   These warnings indicate that the changes that are mentioned in the message will be applied to the metadata. Therefore, ignore these warnings and proceed with the import process.

d. After the import process is complete, a message is displayed to indicate that the package is imported successfully. Click **View Log** to see the details of the objects that are imported.

e. Click **Finish**.

5. Repeat steps 3 and 4 to import the following packages. Make sure that you import the SAS packages in the order that is mentioned below:

   a. `<SAS installation path>/SASFoundation/9.3/comfdnsrv/sasmisc/etl/Packages/cfdn_jobs_m1.spk`

   b. `<SAS installation path>/SASFoundation/9.3/comfdnsrv/sasmisc/Config/Deployment/Packages/cfdn_cubes_m1.spk`

   c. `<SAS installation path>/SASFoundation/9.3/comfdnsrv/sasmisc/Config/Deployment/Packages/cfdn_infomaps_m1.spk`

6. Close SAS Management Console.

Step 2: Instructions for Customer Analytics

This section explains the post-installation instructions for the analytical components of SAS Offer Optimization for Communications:

- Customer Retention
- Customer Segmentation
- Cross-Sell and Up-Sell
- Analytical Configuration Tables

Create User for SAS Enterprise Miner

Analytical models for customer retention, customer segmentation, and cross-sell and up-sell are created using SAS Enterprise Miner. Therefore, you must create a dedicated external user ID, which can be used for creating projects and developing analytical models in SAS Enterprise Miner.

To create a user for SAS Enterprise Miner, complete these steps:

1. Open SAS Management Console with the default profile of sasadm user.
2. Select the **Plug-ins** tab.
3. Expand **Environment Management**.
4. Right-click **User Manager** and select **New → User**. The **New User Properties** dialog box appears.
5. Select the **General** tab.

   a. Enter the appropriate name and description of the user.

   b. Click **OK**.

6. Select the **Groups and Roles** tab.

   a. Select **Metadata Server: Unrestricted** from the **Available Groups and Roles** list and move it to the **Member of** list.

   b. Select **SAS System Services** from the **Available Groups and Roles** list and move it to the **Member of** list.

c. Click **OK**.

7. Select the **Accounts** tab.
   a. Click **New**. The **New Login Properties** dialog box appears.
   b. Enter appropriate **User ID** and **Password**.
   c. Select ***DefualtAuth*** as the **Authentication Domain**.
   d. Click **OK**.
8. Close SAS Management Console.

Configure Extension Node for Sample SAS Enterprise Miner Models

The following sample SAS Enterprise Miner models are packaged with SAS Offer Optimization for Communications:

- Customer retention
- Customer segmentation
- Cross-sell and up-sell

You must configure the extension node for these models.

To configure the extension node, complete these steps:

1. Copy the following files to a suitable location on your computer. The subsequent instructions refer to this location as *<Extension node path>*.
   - `Writeback.sas` and `Writeback_macros.sas`

     These files are available in the *<SAS configuration path>*`/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASMacro` folder.
   - `Writeback.xml`

     On a Windows machine, this file is available in the *<SAS installation path>*`/SASFoundation/9.3/bppsrv/sasmisc/sampleeminermodels/writebacknode` folder.

     On a UNIX machine, this file is available in the *<SAS installation path>*`/SASFoundation/9.3/misc/bppsrv/sampleeminermodels` folder.
   - `Writeback.16.gif` and `Writeback.32.gif`

     On a Windows machine, these files are available in the *<SAS installation path>*`/SASFoundation/9.3/bppsrv/sasmisc/sampleeminermodels/writebacknode/images` folder.

     On a UNIX machine, these files are available in the *<SAS installation path>*`/SASFoundation/9.3/misc/bppsrv/sampleeminermodels/writebacknode/images` folder.
2. Open Base SAS.
3. In the Explorer window, create a new library.
   a. Enter a suitable name for the library.
   b. Specify the path where you want to create the library.
   c. Click **OK**.

4. To create a new catalog, right-click the library name and select **New**.
   a. In the **New Member Group** window, select the **Catalog icon** and click **OK**.
   b. Enter ***Writeback*** and click **OK**.
5. Double-click the **Writeback** catalog.
   a. Right-click and select **New**.
   b. In the New Entry in **<*Library name*>.Writeback** window, select **Source Program**.
   c. In the **Notepad** window, right-click and select **File → Open**.
   d. Select the **`Writeback.sas`** file from the *<Extension node path>*.
   e. Close the source code editor. A file with name `Untitled` will appear in the **Explorer** pane.
   f. Right-click this file and select **Rename**.
   g. Enter the filename. The filename must be same as the name of the sas file that is used to create the source program. For example, rename the file as `Writeback`.
   h. Repeat steps from 5a to 5g for the `Writeback_macros.sas` file.
6. Close Base SAS.
7. Copy the Writeback catalog from the location in which you created the library to a folder, which the sashelp library can read. For example, on a Windows machine, you can copy the catalog to the *<SAS installation path>*`/SASFoundation/9.3/core/sashelp` folder. On a UNIX machine, you can copy the catalog to the *<SAS installation path>/SASFoundation/9.3/sashelp* folder.
8. In the `users` folder, create a folder named, `emext`. For example, on a Windows machine, you can create this folder in the `C:/Users/`*<User Name>* folder.
9. Copy the `writeback.xml` and the `Writeback.32.gif` files from the *<Extension node path>* location to the `emext` folder.
10. Rename the `Writeback.32.gif` file to `Writeback.gif`.
11. Log on to SAS Management Console with the profile of an administrator.
12. In the left pane, select the **Plug-ins** tab.
13. Expand **Application Management → Configuration Manager**.
14. Expand **SAS Application Infrastructure**.
15. Right-click **Enterprise Miner Mid-Tier Services 7.1** and select **Properties**.
16. On the **Advanced** tab, provide the path mentioned in the step 8 as the value of the `dminemid.components.extra.dir` parameter.
17. Click **OK**.
18. Close SAS Management Console.

Define Permissions for Data and Logs Folders

You must grant full permissions to the dedicated user that you create for performing tasks in SAS Enterprise Miner.

Depending on the operating system of your machine, use appropriate commands to grant all permissions to the user for the following folders:

<SAS configuration path>/Lev1/Applications/SASOfferOptForCommServer5.2/Data

<SAS configuration path>/Lev1/Applications/SASOfferOptForCommServer5.2/Logs

Update and Run INSERT Scripts

The INSERT scripts for the customer analytics component insert data into Analytical Configuration Tables.

To update and run INSERT scripts, complete these steps:

1. Go to the *<SAS configuration path>*/Lev1/<SAS Application Server context name> folder.
2. Depending on whether the operating system is Windows or UNIX, run the `sas.bat` or the `sas.sh` file respectively. For example, on the Windows machine, run the `C:/SAS/Config93/Lev1/SASApp/sas.bat` file.

   Note: *A few error messages might be displayed when you run the* `sas.bat` *or the* `sas.sh` *file. These errors occur because the required data sets are not available in the* `<SAS configuration path>/Lev1/Applications/SASOfferOptForCommServer5.2/Data/dabt_data/param` *folder. These data sets are created when you perform the subsequent steps listed below. Therefore, ignore these errors and proceed further.*
3. Open the `all_ca_data_inserts.sas` macro. This macro is located in the following folder:
   <SAS configuration path>/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode/insertscripts
4. Enter appropriate values for the macro parameters.
   a. Specify the value, *BPPEXEC*, for the USER parameter.
   b. Specify the value, *DABT_ADM*, for the SCHEMA parameter.
   c. Specify the appropriate value for the PATH parameter.
   d. Specify the value of the DABTDATA_ROOT parameter. You can get this value from the *<SAS configuration path>*/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode/auto_declare.sas file.
   e. Specify the password for the DABT_ADM schema in the procedure block and also change the pwfile path according to your environment.

      ```
      proc pwencode in='BPPEXEC' out=pwfile;
      run;
      ```
   f. Specify the *<SAS configuration path>*/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode/insertscripts value for the SCRIPTS_ROOT parameter.
5. Click **Save**.
6. Click **Run**.
7. To ensure successful execution of the INSERT scripts, select **View → Log** on the menu.

8. Open the `all_ca_data_inserts_m1.sas` macro. This macro is located in the *<SAS configuration path>*`/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode/insertscripts` folder.
9. Repeat steps from 4 to 7.
10. Close Base SAS.

Include Files in Analytics Autoexec File

To include files in the `autoexec` file, complete these steps:

1. Open Base SAS.
2. Open the `auto_declare.sas` file that is located in the following folder:
   <SAS configuration path>`/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode`
3. Append the following statements at the bottom of the code:

```
%include "&autoexec_root./cfdn_initialize.sas";
%include "&autoexec_root./autoexec_cm.sas";
%include "&autoexec_root./autoexec_flex.sas";
```

4. Click **Save**.
5. Open the `cfdn_autodeclare_crcs.sas` file that is located in the following folder:
   <SAS configuration path>`/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode`
6. Append the following statement at the bottom of the code:

```
%include "&cfdn_crcs_autodeclare_path./cfdn_initialization_crcs.sas";
```

7. Click **Save**.
8. Close Base SAS.
9. Restart the Object Spawner.

Step 3: Instructions for SAS Offer Optimization for Communications Application

This section explains the post-installation instructions for the SAS Offer Optimization for Communications application.

Define Permissions for Data and Logs Folders

You must grant full permissions to the default user, sassrv, who will access the data that is populated in the Application data mart.

Depending on the operating system of your machine, use appropriate commands to grant all permissions to the user for the following folders:

<SAS configuration path>`/Lev1/Applications/SASOfferOptforCommServer5.2/Data`

<SAS configuration path>`/Lev1/Applications/SASOfferOptforCommServer5.2/Logs`

Change Library Definitions in SAS Management Console

In SAS Offer Optimization for Communications, if users run multiple projects at the same time, then Oracle might display the error message, "ORA-08177: Cannot serialize access for this transaction." As a result, the project runs might fail. In order to resolve this problem, you have to change the library definitions.

To change the library definitions, complete these steps:

1. Log on to SAS Management Console and connect to the default profile of sasadm.
2. Select the **Plug-ins** tab.
3. Expand **Environment Management → Data Library Manager → Libraries.**
4. Right-click the library name, **BPPAPTBL,** and select **Properties**.
5. On the **Options** tab, click **Advanced Options**.
6. On the **Locking** tab, change the value for **Lock type for updating** to *ROW*.
7. Click **OK**.
8. Repeat steps from 4 to 7 for all the other libraries that are listed below the **Libraries** folder.
9. Close SAS Management Console.

Update and Run DDL Script

To update SAS Offer Optimization for Communications tables, complete these steps:

1. Go to the `<SAS configuration path>/Lev1/<SAS Application Server context name>` folder.
2. Depending on whether the operating system is Windows or UNIX, run the `sas.bat` or the `sas.sh` file respectively. For example, on the Windows machine, run the `C:/SAS/Config93/Lev1/SASApp/sas.bat` file.
3. Open the `bpp_update_apdm_m1.sas` macro. This macro is located in the `<SAS installation path>/SASFoundation/9.3/bppsrv/sasmisc/ddl` folder.
4. Enter appropriate values for the macro parameters.
   a. Specify the value, BPPEXEC, for the USER parameter.
   b. Specify the value, BPPAPTBL, for the SCHEMA parameter.
   c. Specify the appropriate value for the PATH parameter.
   d. Specify the password for the BPPAPTBL schema in the procedure block and also change the pwfile path according to your environment.
   ```
   proc pwencode in='BPPEXEC' out=pwfile;
   run;
   ```
   e. Specify the `<SAS installation path>/SASFoundation/9.3/bppsrv/sasmisc/ddl` value for the SCRIPTS_ROOT parameter.
5. Click **Save**.
6. Click **Run**.
7. To ensure successful execution of the DDL script, select **View → Log** on the menu.
8. Close Base SAS.

Update and Run INSERT Scripts

The INSERT scripts for the SAS Offer Optimization for Communications application component insert prerequisite data into some of the tables of the Application data mart.

To update and run insert scripts, complete these steps:

1. Go to the *<SAS configuration path>*/Lev1/<SAS Application Server context name> folder.
2. Depending on whether the operating system is Windows or UNIX, run the `sas.bat` or the `sas.sh` file respectively. For example, on the Windows machine, run the `C:/SAS/Config93/Lev1/SASApp/sas.bat` file.
3. Open the `all_ooc_data_inserts.sas` macro. This macro is located in the *<SAS configuration path>*/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode/insertscripts folder.
4. Enter appropriate values for the macro parameters.
   a. Specify the value, *BPPEXEC*, for the USER parameter.
   b. Specify the value, *BPPAPTBL*, for the SCHEMA parameter.
   c. Specify the appropriate value for the PATH parameter.
   d. Specify the password for the BPPAPTBL schema in the procedure block and also change the pwfile path according to your environment.
      ```
      proc pwencode in='BPPEXEC' out=pwfile;
      run;
      ```
   e. Specify the *<SAS configuration path>*/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode/insertscripts value for the SCRIPTS_ROOT parameter.
5. Click **Save**.
6. Click **Run**.
7. To ensure successful execution of the INSERT scripts, on the menu, select **View → Log**.
8. Open the `all_ooc_data_inserts_m1.sas` macro. This macro is located in the *<SAS configuration path>*/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode/insertscripts folder.
9. Repeat steps from 4 to 7.
10. Open the `all_inf_data_inserts.sas` macro. This macro is located in the following folder:
    <SAS configuration path>/Lev1/SASApp/SASEnvironment/SASOfferOptForCommServer5.2/SASCode/insertscripts.
11. Enter appropriate values for the macro parameters.
    a. Specify the value, *BPPEXEC*, for the USER parameter.
    b. Specify the value, *BPPINF*, for the SCHEMA parameter.
    c. Specify appropriate values for the PASSWORD and PATH parameters.
12. Click **Save**.
13. Click **Run**.
14. To ensure successful execution of the INSERT scripts, on the menu, select **View → Log**.

15. Close Base SAS.

Import SAS Packages

1. Open SAS Management Console.
2. Select the **Folders** tab.
3. To import the SAS package for ETL jobs, complete these steps:
   a. Right-click **Products** and select **Import SAS Package**. In the Import from SAS Package wizard, complete these steps:
   b. Click **Browse** and select the path of the `ca_jobs_m1.spk` file. The path for this file might differ depending on the operating system of the machine. For example, on the Windows machine, the package is located in the *<SAS installation path>*/`SASFoundation/9.3/bppsrv/sasmisc/etl/Packages` folder.
   c. Click **OK**.
   d. Click **Next** until you reach the Summary page. The import process starts when you click **Next** on this page.

      Note: *Before the import process begins, certain warnings are displayed. For example, the following warning messages are displayed:*

      WARN - The column "OFFER_TYPE_CD" was not found in the target table "PRE_PD_USAGE_RECHARGE_B", it will be added to the table.

      WARN - The column "TOT_PYMNT_METHOD_CNT" was not found in the target table "PST_PD_CUST_ACCT_SNPSHT_B", it will be added to the table.

      WARN - The column "TOT_BOUNCED_PYMNT_CNT" was not found in the target table "PST_PD_CUST_ACCT_SNPSHT_B", it will be added to the table.

      WARN - The column "TOT_BOUNCED_PYMNT_AMT" was not found in the target table "PST_PD_CUST_ACCT_SNPSHT_B", it will be added to the table.

      WARN - The column "BILL_DUE_DT" was not found in the target table "PST_PD_PAYMENT_DRVD_B", it will be added to the table.

      These warnings indicate that the changes that are mentioned in the message will be applied to the metadata. Therefore, ignore these warnings and proceed with the import process.
   e. After the import process is complete, a message is displayed to indicate that the package imported successfully. Click **View Log** to see the details of the objects that are imported.
   f. Click **Finish**.
4. To import the SAS package file, `ooc_reports_m1.spk` for cross-sell and up-sell reports, repeat steps from 3a to 3f. On a Windows machine, this file is located in the following folder: *<SAS installation path>*/`SASBestPricePlanForCommunicationsMidTier/5.2/Config/Deployment/Packages`.
5. Close SAS Management Console.

Chapter 5 — Validation Instructions

Overview

After you have completed the post-installation instructions, make sure that you validate the components that you have installed.

Verify the UI Setup of SAS Offer Optimization for Communications

Make sure that you can successfully log on to SAS Offer Optimization for Communications by using the sasadm or sasdemo user IDs.

To log on to SAS Offer Optimization for Communications, complete these steps:

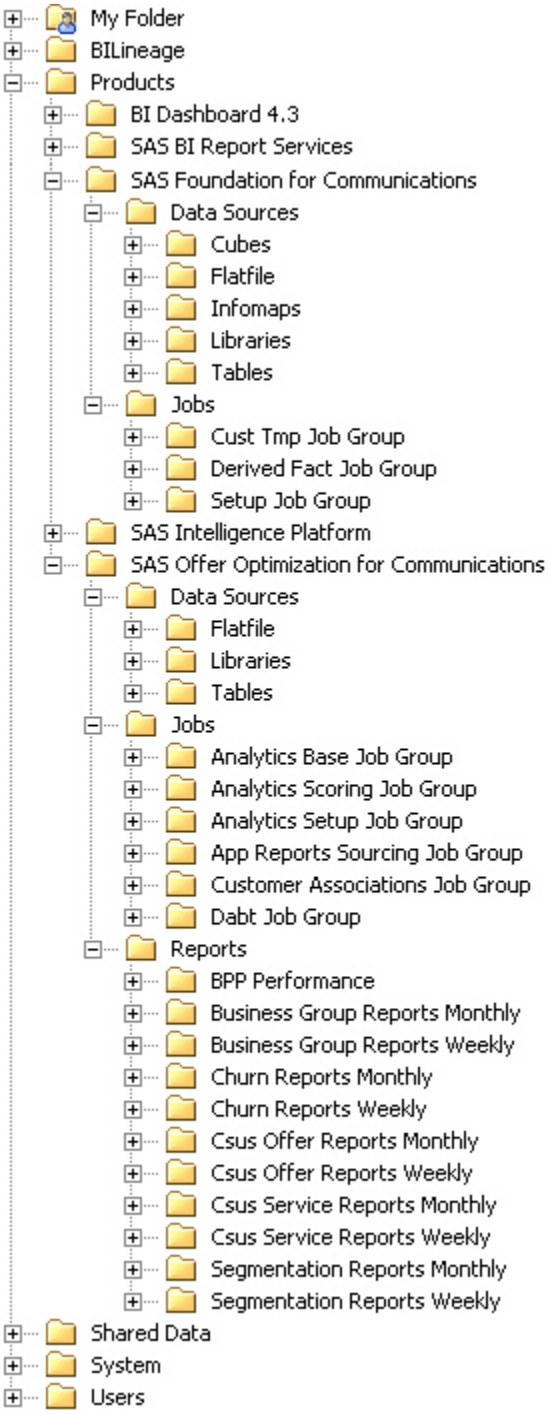
1. In the address field of your browser specify the appropriate URL, `http://<server_host_name>:<server_port>/SASOfferOptForComm`. For example, you can enter the URL as `http://server01.abc.com:8080/SASOfferOptForComm`
2. In the **User name** box, enter the user ID as ***sasadm*** or ***sasdemo***.
3. Specify the appropriate password.
4. Click **Log On**. The main application window appears.
5. On Application menu, click **Log Off**.

Verify the Metadata Layout

To verify that all the required metadata components are created successfully, complete these steps:

1. Log on to SAS Management Console with a certain profile.
2. In the left pane, select the **Folders** tab.
3. Expand **Products → SAS Foundation for Communications** and **Products → SAS Offer Optimization for Communications**.

4. Confirm that the following subfolders are created in each of these folders.



5. Close SAS Management Console.

Validating the Installed Components

Verify the Software Component for SAS Offer Optimization for Communications

To verify that the software component for SAS Offer Optimization for Communications is created with the appropriate properties, complete the following steps:

1. Log on to SAS Management Console with the profile of an administrator.
2. In the left pane, select the **Plug-ins** tab.
3. Expand **Application Management → Configuration Manager → SAS Application Infrastructure**.
4. Locate the **Offer Opt for Comm 5.2** component.
5. Right-click **Offer Opt for Comm 5.2** and select **Properties**.
6. On the **Connection** tab, verify the configuration details. For example, the following configuration details can be displayed:
   - **Communication Protocol**: HTTP
   - **Host Name**: <*host name*>.apac.sas.com
   - **Port Number**: 8080
   - **Service**: SASOfferOptForComm
7. On the **Advanced** tab, make sure that the **WebApp.ConfigHome** property points to the correct configuration file. For example, the **WebApp.ConfigHome** property can point to the configuration file, located at: `<SAS configuration path>/Lev1/Web/Applications/SASOfferOptForComm5.2/BPPConfiguration.xml`
8. Close SAS Management Console.

Verify Roles and Capabilities

To verify that appropriate roles and capabilities are created, complete the following steps:

1. Log on to SAS Management Console with the profile of an administrator.
2. In the left pane, select the **Plug-ins** tab.
3. Expand **Environment Management** and select **User Manager**.
4. In the right pane, make sure that the following roles or groups are available:

Group Name or Role Name	Group or Role
Offer Opt for Comm Analysts	Group
Offer Opt for Comm: Administration	Role
Offer Opt for Comm: Analysis	Role
Offer Opt for Comm: Viewing	Role

5. Right-click on any one of the roles and select **Properties**.
6. On the **Capabilities** tab, make sure that the capabilities of SAS Offer Optimization for Communications are defined for this role. Also, confirm that all the role-specific capabilities are selected.
7. Close SAS Management Console.

Verify the Stored Processes

To verify that the stored procedures are registered appropriately, complete the following steps:

1. Log on to SAS Management Console with the profile of an administrator.
2. In the left pane, select the **Folders** tab.
3. Expand **System → Applications → SAS Offer Optimization for Communications → Offer Opt for Comm Server 5.2**.
4. Select **select ooc_stp** and in the right pane verify that 27 stored processes are registered.
5. Close SAS Management Console.

Verify the Database Connections

JBOSS

To confirm that the data source is valid, complete the following steps:

1. Go to the `<JBOSS_HOME>/server/SASServer11/deploy` folder.
2. Locate the `BPPDataSource-ds.xml` file.
3. Open the file and check if the connection URL tag has the correct entry. For example, the entry can be `<connection-url>jdbc:oracle:thin:@//dbserver01.abc.com:1521/<service name></connection-url>`

WebSphere

To confirm that the data source is valid, complete the following steps:

1. Log on to WebSphere Admin Console.
2. In the left pane, select **Resources → JDBC → Data sources**.
3. In the right pane, select **BPPDataSource**.
4. Verify the following details:
   a. The **JNDI name** is the same as mentioned in the BPPConfiguration file.
   b. Check the URL in the Oracle data source properties. For example, the URL can be `jdbc:oracle:thin:@//dbserver01.abc.com:1521/<service name>`.
5. Log off from WebSphere Admin Console.

WebLogic

To confirm that the datasource is valid, complete the following steps:

1. Log on to WebLogic Admin Console.
2. In the left pane, select **Services → JDBC → Data sources**.
3. In the right pane, select **BPPDataSource**.
4. Make sure that the **JNDI name** is the same as mentioned in the BPPConfiguration file.
5. On the **Connection Pool** tab, verify the URL in the Oracle data source properties. For example, the URL can be `jdbc:oracle:thin:@//dbserver01.abc.com:1521/<service name>`.
6. Log off from WebLogic Admin Console.

Verify the Entries in the Autoexec File

To verify that the Autoexec file has valid entries:

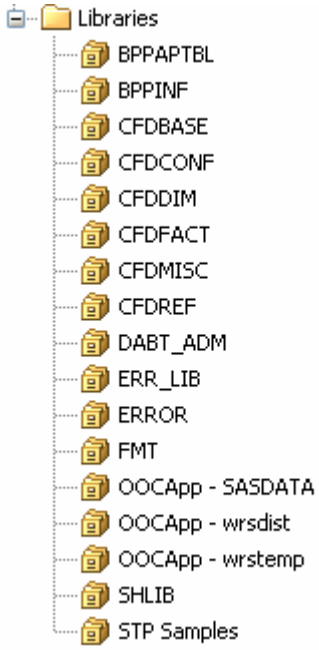
1. Go to the `<SAS configuration path>/SASApp` folder.
2. Open the `appserver_autoexec.sas` file.
3. Make sure that the following entries are available:

```
%include "<SAS configuration path>/SASApp/bppsrvc_autoexec.sas";
%include "<SAS configuration path>/SASApp/comfdnsrvc_autoexec.sas";
```

Verify the Predefined Libraries

To confirm that the predefined libraries are created appropriately, complete these steps:

1. Log on to SAS Management Console with the profile of an administrator.
2. In the left pane, select the **Plug-ins** tab.
3. Expand **Environment Management → Data Library manager → Libraries**.
4. Make sure that the following libraries are created:



5. Close SAS Management Console.

Perform Administrative Tasks

After you complete the post-installation tasks, you have to perform certain administrative tasks. For details, see *SAS Offer Optimization for Communications: Administrator's Guide*. This document is available at the following location:
http://support.sas.com/documentation/onlinedoc/securedoc/index_offeropt.html

Chapter 6 — Unconfiguring SAS Offer Optimization for Communications

Pre-Unconfiguration Tasks

You must perform the following tasks before you unconfigure SAS Offer Optimization for Communications:

Delete OLAP Cube Metadata

To delete the OLAP cubes metadata, complete these steps:

1. Log on to SAS Data Integration Studio and connect to the sasadm profile.
2. In the left pane, select the **Folders** tab.
3. Expand **Products → SAS Foundation for Communications → Data Sources → Cubes**.
4. If a cube is built, right-click the cube and select **Maintain → Delete Physical Cube.**
5. Right-click the same cube and select **Delete**. This step deletes the cube metadata.
6. Repeat steps 4 and 5 for all the other cubes.
7. Close SAS Data Integration Studio.

Create a Backup of Metadata Customizations

To create a backup of metadata customizations that you might want to use later, complete these steps:

1. Log on to SAS Management Console and connect to the sasadm profile.
2. In the left pane, select the **Folders** tab.
3. Expand **Products**.
4. Back up the following folders if you have made any customizations that you might want to save for later use, and then delete the folders:
   - SAS Foundation for Communications
   - SAS Offer Optimization for Communications
5. Close SAS Management Console.

Create a Backup of Your Configuration Data

Create a backup of the following folders if you want to maintain a copy of your previous data:

`<SAS configuration path>/Applications/SASFoundforComm5.2`

`<SAS configuration path>/Applications/SASOfferOptforCommServer5.2`

Create a Backup of Your Application Data

Create a backup of your application data that you have maintained in the Oracle database by using a suitable archival or backup method.

Removing the Configuration Using SAS Deployment Manager

The **Remove Existing Configuration** feature of SAS Deployment Manager provides an automated way to remove the SAS Offer Optimization for Communications configuration from your environment. However, this feature does not remove the configuration completely. You have to perform certain manual steps in order to remove the complete configuration.

After you run the **Remove Existing Configuration** feature, SAS Deployment Manager displays the summary of components that were successfully unconfigured and also the summary of components that need to be removed manually.

Post-Unconfiguration Tasks

After you use SAS Deployment Manager to unconfigure SAS Foundation for Communications and SAS Offer Optimization for Communications, perform the following tasks to complete the unconfiguration process:

1. Restart the Object Spawner.
2. Log on to SAS Management Console and connect to the sasadm profile.
3. In the left pane, select the **Folders** tab.
4. Expand **SAS Folders → Shared Data**.
5. Delete **<*Offer Optimization-Specific Application Server*>-OLAP Schema**. For example, the schema name can be OOCApp-OLAP Schema.
6. On the **Plug-ins** tab, expand **Environment Management → Server Manager**.
7. Delete **<*Offer Optimization-Specific Application Server*>-OLAP Server**. For example, the server name can be OOCApp-OLAP Server.
8. On the **Folders** tab, expand **SAS Folders → Products**.
9. Delete all metadata in the following folders and then delete the folders also:
   - SAS Offer Optimization for Communications
   - SAS Foundation for Communications
10. Close SAS Management Console.
11. Delete the following physical folders:
    - `<SAS configuration path>/Applications/SASOfferOptforCommServer5.2`
    - `<SAS configuration path>/Applications/SASFoundforComm5.2`
12. If you also unconfigured the Offer Optimization-Specific Application Server when you unconfigured SAS Offer Optimization for Communications, then delete the following folder: `<SAS configuration path>/<Offer Optimization-Specific Application Server>`. For example, the folder can be `C:/SAS/Config93/Lev1/OOCApp`.