



# SAS<sup>®</sup> Demand Forecasting for Retail 4.2-SP3

Installation Guide

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**SAS® Demand Forecasting for Retail 4.2-SP3: Installation Guide**

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## CHAPTER

# 1

# Document Introduction

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## 1.1 Overview of the Document

SAS Demand Forecasting for Retail enables the retailers to build, deploy, and monitor forecasting models to optimize their merchandise planning process.

This document describes the procedures that are involved in installing and configuring SAS Demand Forecasting for Retail for merchandise planning application.

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## 1.2 Audience

This document should be read by the business domain experts, business consultants, data architects, analytical modelers, data management specialists, application developers, instructors, testers, and solution specialists in the service provider's project team, as well as IT analysts, system administrators, application developers, and database administrators in the customer's project team.

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## 1.3 Purpose of This Document

Use this document as step-by-step guide for installing different components of SAS Demand Forecasting for Retail.





CHAPTER

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# Installation Overview

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## 2.1 Prerequisite Software

The SAS software that are required to be installed before installing the SAS Demand Forecasting for Retail are listed in the table below.

Table 1. Software Requirements

| Software  | Installed On              | Version        |
|---|---------------------------|----------------|
| SAS Merchandise Planning                        | Server                    | 6.1.2 or 6.1.3 |
| SAS Enterprise BI Server                        | Server                    | 9.1.3 SP4      |
| SAS Forecast Server Mid-Tier Components         | Server                    | 2.1            |
| SAS Forecast Server Clients – Forecast Studio   | Server and grid node      | 2.1            |
| SAS High-Performance Forecasting (HPF)          | Server and each grid node | 2.3            |
| E9BB61 SAS MSG Hotfix (Windows and/or UNIX)     | Server and each grid node | -              |
| E9HP04 SAS HPF 2.3 Hotfix (Windows and/or UNIX) | Server and each grid node | -              |

**Note:** For Standalone mode, installation and configuration of the SAS Merchandise Planning suite is not required.

**Note:** If the solution is not run in grid environment then all the components listed in the table above are installed on the server only.

**Note:** This document does not describe the installation procedure for software components that are a prerequisite for this installation. Before commencing the installation procedure for SAS Demand Forecasting for Retail, ensure that the software components detailed in this section are successfully installed.

---

## 2.2 Platforms Supported

SAS Demand Forecasting for Retail supports the following platforms:

Table 2. Platforms Supported

| <b>Platform</b> | <b>Version</b>   |
|-----------------|------------------|
| IBM AIX         | 5.3              |
| Sun Solaris     | 9 (2.9) <64 Bit> |
| Windows         | XP/Server 2003   |

---

## 2.3 Databases Supported

SAS Demand Forecasting for Retail supports the following databases:

Table 3. Databases Supported

| <b>Database</b> | <b>Version</b>                                    |
|-----------------|---|
| Oracle          | 10g Enterprise Edition Release 10.2.0.1.0 onwards |
| IBM UDB/DB2     | Only UDB with AIX is supported by SAS             |





# CHAPTER 3

## Installing SAS Demand Forecasting for Retail

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### 3.1 Overview of the Installation Process

Here are the high-level steps that are performed to install SAS Demand Forecasting for Retail:

1. Install SAS Demand Forecasting for Retail Analytics Package
2. Configure SAS Demand Forecasting for Retail
3. Upgrade SAS Merchandise Planning database
4. Upgrade SAS Merchandise Planning metadata

For installing SAS Demand Forecasting for Retail in the Standalone mode, only the following steps are performed:

1. Install SAS Demand Forecasting for Retail Analytics Package
2. Configure SAS Demand Forecasting for Retail

After the solution is installed and configured, sales history data for at least 18 months must be made available for the solution to function. Alternatively, **independent variables such as Event, Promotion, and so on**, can be added using external input files (CSV files). For details about the file structures, see *SAS Demand Forecasting for Retail: Data Dictionary*.

## 3.2 Installing SAS Demand Forecasting for Retail Analytics Package

Copy and unzip SAS Demand Forecasting for Retail package (dfr\_4.2\_sp3.zip) at the location where the solution is to be installed. The code root (**mx\_analytics**) and data root (**/mx\_analytics/Data**) are completely configurable and can be placed on any server separately. If required, the input, output, archive, staged, and interim paths can also be configured. However, the subdirectories in **mx\_analytics** folder and **Data** folder must remain same.

**Note:** For solution installation on a platform other than Windows, transfer all the source code files to destination platform using FTP command-line utility with ASCII upload.

The following table lists the directories and subdirectories that are created when the solution package is unzipped.

Table 4. Contents of mx\_analytics Folder

| Directory              | Description   | *Example Files   |
|------------------------|---|--|
| mx_analytics           | <ul style="list-style-type: none"> <li>Root directory</li> <li>Configuration file</li> <li>Execution scripts</li> </ul>                       | <ul style="list-style-type: none"> <li>params.sas</li> <li>process_server.sas</li> <li>process_server.sh</li> <li>process_server.bat</li> <li>batch_sample.sas</li> <li>batch_sample.sh</li> <li>batch_sample.bat</li> </ul> |
| /doc                   | Documentation and installation  | <ul style="list-style-type: none"> <li>dfr42.map</li> <li>dfr42_db2_maxapp.sql</li> <li>dfr42_db2_maxdata.sql</li> <li>dfr42_oracle.sql</li> <li>I18N.sas</li> <li>smd2ds.sas</li> </ul>                                     |
| /dfrcode               | DFR Code files  | mm_forecast.sas  |
| /macode                | Merchandise Analytic Support Code   | <ul style="list-style-type: none"> <li>mm_archive.sas</li> <li>mm_extract12.sas</li> <li>utils2.sas</li> </ul>   |
| /logs                  | <ul style="list-style-type: none"> <li>Process server log</li> <li>Forecast job logs</li> </ul>   | <ul style="list-style-type: none"> <li>ps.log, inst.txt</li> <li>ma_3001.log</li> </ul>  |
| /reports               | Forecast report   | Fr_[ProjName]_3001.html  |
| reports/plots/[projid] | Report support files  | .html files  |
| /nls                   | Contains the SAS message file   | dfrmsg_en.smd  |
| /Data                  | <ul style="list-style-type: none"> <li>Data root</li> <li>Default job parameter data set</li> <li>Forecast job parameter data sets</li> </ul> | <ul style="list-style-type: none"> <li>jobparam.sas7bdat</li> <li>jobparam_3001.sas7bdat</li> </ul>  |
| Data/input             | <ul style="list-style-type: none"> <li>Input to the forecast process</li> <li>Extract data set</li> <li>Time data set</li> </ul>              | <ul style="list-style-type: none"> <li>e_3001.sas7bdat</li> <li>f_3001.sas7bdat</li> <li>t_3001.sas7bdat</li> </ul>  |

| Directory                    | Description  | *Example Files   |
|------------------------------|--|--|
|                              | <ul style="list-style-type: none"> <li>Location, Time, and Merchandise hierarchy reference data sets</li> <li>Secondary effect input data</li> </ul>                     | <ul style="list-style-type: none"> <li>dfr_likeitem.txt</li> <li>ext_event_data.csv</li> <li>ext_promo_file.csv</li> <li>ext_weather_abt.csv</li> <li>ext_price_file.csv</li> </ul>  |
| Data/staged                  | <ul style="list-style-type: none"> <li>Staged data to the HPF process</li> <li>Split data sets</li> <li>Filtered out records from the filter process</li> </ul>          | <ul style="list-style-type: none"> <li>f_3001_[x]</li> <li>f_filter_3001_[x]</li> </ul>  |
| Data/staged/work/[w_proj id] | Temporary work area for HPF process  |  |
| Data/interim                 | Output data from the HPF Process   |  |
| Data/interim/dp              | Control metadata sets  | <ul style="list-style-type: none"> <li>f_3001_meta.sas7bdat</li> <li>f_3001_forecast_meta.sas7bdat</li> <li>f_3001_ctrl_tab.sas7bdat</li> </ul>  |
| Data/interim/dia             | Diagnose output  | <ul style="list-style-type: none"> <li>cat_f_3001_[x].sas7bcat</li> <li>d_est_f_3001_[x].sas7bdat</li> </ul>   |
| Data/interim/for             | <ul style="list-style-type: none"> <li>Fit output</li> <li>Forecast output</li> </ul>  | <ul style="list-style-type: none"> <li>f_est_f_3001_[x].sas7bdat</li> <li>outfor_f_3001_[x].sas7bdat</li> <li>outsum_f_3001_[x].sas7bdat</li> <li>outstat_f_3001_[x].sas7bdat</li> </ul>   |
| Data/recon                   | Reconciliation output  | rm_f_3001_[x].sas7bdat   |
| Data/output                  | <ul style="list-style-type: none"> <li>Forecast job output</li> <li>Exception data set</li> <li>Import output (as a data set)</li> <li>Recon output data sets</li> </ul> | <ul style="list-style-type: none"> <li>fe_3001.sas7bdat</li> <li>rm_f_3001_final.sas7bdat</li> <li>rm_f_3001_m1_11.sas7bdat</li> <li>rm_f_3001_m2_11.sas7bdat</li> <li>rm_f_3001_m3_11.sas7bdat</li> <li>rm_f_3001_m4_11.sas7bdat</li> </ul> |
| Data/archive                 | Archive the rm (forecast), outstat, and outsum data sets   | Archive_##_[projid]_[archive date] where date is YYYYMMDD  |

**Note:** \*Uses sample job ID=3001 that has four levels of merchandise and one level of location and week (lv5time) scope.

### 3.2.1 Import the Parameter Table

The solution provides a SAS data set called Jobparam. This data set is in SAS Xport Transport File (XPT) format and must be imported in the respective operating system (OS).

Jobparam contains all the required parameters for a job. These parameters control forecasting workflow and other features described in this document. Some of these parameters are related to the user interface. Other parameters control functions of the forecast job.

To import Jobparam SAS data set in the respective OS, run the following SAS program in Base SAS Editor.

```
%let paramfilepath=<Path of Params.sas file>;
%include "&paramfilepath/params.sas";
Filename jp "&path_data/jobparam.xpt";
PROC CIMPORT data=mmdata.jobparam file=jp;
RUN;
```

### 3.3 Configuring SAS Demand Forecasting for Retail

The main path of configuration file params.sas is the root (mx\_analytics) directory. Perform the following steps to configure the solution:

1. Modify (if required) the parameters listed in the following table such that they point to the appropriate folders.

Table 5. Parameters Table

| Parameter   | Sample Value   | Description   |
|-------------|--|---|
| PATH_PGM    | d:/sas_project/mx_analytics  | Path for the Analytics folder.  |
| PATH_DATA   | Single machine setup: d:/Data<br>Grid setup: Ensure that Data folder is shared across network and should be accessible by all nodes. Provide shared path.                | Path to the data directory.<br>In case of grid environment, use the network pathname to the server and shared folder. |
| PATH_REPORT | Single machine setup: mx_analytics/Reports<br>Grid setup: Ensure that report folder is shared across network and should be accessible by all nodes. Provide shared path. | Path for the Report.  |

2. Modify the following variables in param.sas to assign Maxdata and Maxapp libraries appropriately.

- %let dbtype=oracle;
- %let dbpassword="{sas001}bWFkbWYyeQ==";
- %let dsn=MX6;

Where, MX6 is the Oracle database name that is being used. If IBM UDB/DB2 is used, then uncomment and modify the database property of UDB libnames and comment the Oracle LIBNAME statements.

**Note:** For standalone mode, libraries to Oracle or IBM UDB/DB2 are not required. Therefore, library statements for MAXDATA and MAXAPP and %let statements for above three parameters are either removed or commented.

3. Modify the following parameters in params.sas:
  - %LET BIMETADATAHOST=Server Name where SAS Metadata Server installed;
  - %LET BIMETADATAPORT=Metadata Port Number;
  - %LET BIMETADATAUSER=SAS User Name;
  - %LET BIMETADATAPASSWORD=Password;
  - %LET SHARE\_SERVER\_NAME= Name of share server;

- %LET SHARE\_SERVER\_USER=SAS User Name;
- %LET SHARE\_SERVER\_PASSWORD=Password;

The following table gives the description and examples of these parameters.

| Parameter             | Sample Value   | Description  |
|-----------------------|--|--|
| BIMETADATAHOST        | localhost  | Address of the SAS Metadata Server.  |
| BIMETADATAPORT        | 8561   | TCP port for the SAS Metadata Server.  |
| BIMETADATAUSER        | sasadm   | User for logging on to the SAS Metadata Server.  |
| BIMETAPROTOCOL        | bridge   | Network protocol for communicating with the SAS Metadata Server.   |
| BIMETADATAREPOS       | foundation   | Default SAS Metadata Repository to use on the SAS Metadata Server.   |
| SHARESERVERHOST       | localhost or machine name that contains data folder. | The host that contains the data folder.  |
| BIMETADATAPASSWORD    | password   | Password for the SAS Metadata Server.  |
| BIMETASERVERNAME      | SASMain  | SAS Metadata server Name.  |
| SHARE_SERVER_NAME     | __8551   | Name of SAS Share Server.<br>Use the SAS Share Server ID found under the Properties/Options tab in the SAS Management Console as the value for this parameter. |
| SHARE_SERVER_USER     | sasadm   | User for logging on to the SAS Share Server.   |
| SHARE_SERVER_PASSWORD | password   | Password for the SAS Share Server.   |

4. Modify the files `process_server.sh`, `process_server.bat`, `batch_sample.sh`, and `batch_sample.bat` such that paths to both, **mx\_analytics** directory and `sas.exe` run-time executable are accurate for the current installation.

5. Set appropriate user permissions for `..mx_analytics/data/interim/dp` folder.

For Windows, from the DOS prompt, type: **cacls [directory path] /E /G [USERNAME]:F**

For example, if `sasadm` is the user name, then

```
cacls c:/sas/retail/mx_analytics/data/interim/dp /E /G sasadm:F
```

For UNIX, use either **Chmod -R 777 [directory path]** or **chown -R[user] [directory path]**

6. If grid environment is enabled then share **Data** folder (located in `mx_analytics/Data`) and assign full permissions to it.

### 3.3.2 Modify and Configure SMD File

The file, `dfrmsg_en.smd` contains messages for SAS Demand Forecasting for Retail. Modification to these messages is done in this (`dfrmsg_en.smd`) file. The default setting of messages in this file is in English language.

For the solution to display messages in a location-specific language, `dfrmsg_xx.smd` file is created with messages in the local language, where `xx` is the code for that language.

The two SAS files that enable all the solution messages in the log file (`mx_analytics/logs/ma_[projid].log`) are:

- ❑ **I18N.sas:** This file is used to create `dfrmsg` (solution messages) data set. This data set is used to display all messages in the log file. The file, `I18N.sas` requires an input message file called `dfrmsg_en.smd`, which is the default message file provided by the solution.
- ❑ **smd2ds.sas:** This file contains the routine `smd2ds` that converts `.smd` file to SAS data set.

These files are available in `mx_analytics/doc` folder.

**Note:** `I18N.sas` file must be executed after installing and configuring SAS Demand Forecasting for Retail. This file must be executed before executing any forecast request. Also, if there are any modifications done in the `.smd` file, then this file must be executed for the changes to become applicable.

Execute the following steps to enable messages in the solution:

1. Open `I18N.sas` file in the SAS session.
2. Specify path for files `param.sas` and `smd2ds.sas`.
3. Assign appropriate value to the variable `LOCAL_LANG` for the specific language to be used. For example, set `LOCAL_LANG= fr` for French language (default value is `LOCAL_LANG=en` for English language).
4. Execute `I18N.sas` file that creates `dfrmsg` data set in the Catalog library.

**Note:** If there is a change in the default language then before executing `I18N.sas` user must provide the language specific `.smd` file (`dfrmsg_xx.smd`) at the location `mx_analytics/nls`. The file, `dfrmsg_en.smd` is present at this location by default.

Execute the following steps to create language-specific `.smd` file:

1. Create a copy of `dfrmsg_en.smd` file at the location `mx_analytics/nls` and rename this file with appropriate language code. For example, for French language, name the file as `dfrmsg_fr.smd`. Do not remove `dfrmsg_en.smd` file from this location.
2. Replace the messages in the new file with appropriate language-specific messages. Do not modify the variable names in the locale specific `.smd` file. For example, for `MA_CHECK_LOG_ERR = "Error: Check log. No import was done."` change the message in locale and variable name `MA_CHECK_LOG_ERR` must remain same.

**Note:** SAS software must be configured to the specific local language to display the messages in that local language.

3. Save the file and execute `I18N.sas` file to apply the changes.
4. Verify changes in `dfrmsg` data set that is present in the Catalog library. The data set `dfrmsg` contains the default messages in English as well as in the locale-specific language set by the user. Messages are displayed based in the local language that is set for the SAS software.

## 3.4 Upgrading SAS Merchandise Planning Database

**Note:** For Standalone mode, this section is not applicable.

The following steps are required to upgrade SAS Merchandise Planning database to make it compatible for use by SAS Demand Forecasting for Retail use. Both ORACLE and IBM DB2/UDB are supported.

The database script files (dfr42\_oracle.sql, dfr42\_db2\_maxdata, and dfr42\_db2\_maxapp) are modified and then executed on the database to upgrade it. These files are provided in **mx\_analytics/doc** folder.

The database script file for ORACLE is dfr42\_oracle.sql. Log on as Maxdata user to execute this upgrade.

The script files for UDB/DB2 are dfr42\_db2\_maxdata and dfr42\_db2\_maxapp. Log on as Maxdata and Maxapp user, respectively, to execute these upgrades.

Modifications to the script files that are based on specific customer requirements are outlined below. These requirements are gathered from customer's Solution Definition Worksheet that is created by SAS Merchandise Planning business consulting group.

1. Forecast versions. The table maxdata.fcast\_version contains one row per version as required by the merchandise planning business process. Rows are either edited or added such that each forecast version has one row. The following two versions are shipped with SAS Demand Forecasting for Retail. However, these versions can be modified. The fcast\_version\_id key must be unique.

```
insert into maxdata.fcast_version (FCAST_VERSION_ID,
FCAST_VERSION_NM) values (1,'Orig Forecast');

insert into maxdata.fcast_version (FCAST_VERSION_ID,
FCAST_VERSION_NM) values (2,'Curr Forecast');
```

**Note:** All versions require execution of p\_add\_partitions\_mfversion procedure. See the mfact\_version table in given the next section.

2. Add or modify the fields in the table maxdata.mfact\_version. This table contains the final forecast data that is stored within SAS Merchandise Planning system. The keys must be left intact in this table but all other fields can be modified to accommodate the forecasting business process for a customer. Any change to these tables must also have the corresponding Map file change.

### 3.4.1 Create the Mfact\_version Table

This version of SAS Demand Forecasting for Retail requires the mfact\_version table to be partitioned on time\_id and fv\_version\_id.

Here is a sample creation statement for mfact\_version:

```
CREATE TABLE "MAXDATA"."MFACT_VERSION"
("MERCH_LEVEL" NUMBER(6,0) NOT NULL ENABLE,
"MERCH_ID" NUMBER(10,0) NOT NULL ENABLE,
"LOCATION_LEVEL" NUMBER(6,0) NOT NULL ENABLE,
"LOCATION_ID" NUMBER(10,0) NOT NULL ENABLE,
"TIME_LEVEL" NUMBER(6,0) NOT NULL ENABLE,
"TIME_ID" NUMBER(10,0) NOT NULL ENABLE,
"FV_VERSION_ID" NUMBER(10,0) NOT NULL ENABLE,
"FC_SALES_R" NUMBER,
"FC_SALES_U" NUMBER
) PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
STORAGE( BUFFER_POOL DEFAULT)
TABLESPACE "MMAX_MAXDATA"
PARTITION BY RANGE ("TIME_LEVEL", "TIME_ID")
SUBPARTITION BY LIST ("FV_VERSION_ID")
```

```
(PARTITION "MFVER_47_1_DEFAULT" VALUES LESS THAN (47, 1)
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
STORAGE( BUFFER_POOL DEFAULT)
TABLESPACE "MMAX_MAXDATA" NOLOGGING NOCOMPRESS
(SUBPARTITION "MFVER_47_1_DEFAULT_1" VALUES (1)
TABLESPACE "MMAX_MAXDATA" ) );
```

A stored procedure (p\_add\_partitions\_mfversion) is provided to add partitions that are based on time table, maxapp.lvxtime. This table varies by customer so partitions must be added for each implementation. To execute the procedure, open an SQL tool and run the following code for each version.

```
Execute p_add_partitions_mfversion (2004, 2010, 1);
```

where, the parameters are Start Year, End Year, and Version ID.

**Note:** New versions require re-execution of this statement with new version ID.

The dfr\_ tables need to be updated with all core data fields in mfact\_version table. The following insert statements are shipped by default and should be modified and re-executed as needed to ensure all forecast fields in mfact\_version are inserted into dfr\_fact\_tables.

```
insert into DFR_FACT_TABLES (MMX_TBL_NAME, MMX_COL_NAME, MERCH_AGG_RULE,
LOC_AGG_RULE, TIME_AGG_RULE)values ('MFACT_VERSION', 'FC_SALES_R', 'SUM',
'SUM', 'SUM');
```

```
insert into DFR_FACT_TABLES (MMX_TBL_NAME, MMX_COL_NAME, MERCH_AGG_RULE,
LOC_AGG_RULE, TIME_AGG_RULE)values ('MFACT_VERSION', 'FC_SALES_U', 'SUM',
'SUM', 'SUM');
```

## 3.5 Upgrading SAS Merchandise Planning Map File

**Note:** For Standalone mode, this section is not applicable.

Execute the following steps to upgrade SAS Merchandise Planning Map file:

1. The changes that are needed for SAS Merchandise Planning Map file are in `mx_analytics/doc/dfr42.map`. Add these changes to SAS Merchandise Planning system Map file, which is in `..retail/plan61/config` directory. For example, `C:/SAS/retail/plan61/config`.

**Note:** It is advisable to create a copy of the system Map file before modifying it.

2. Modify the Map file to add additional Map file fields and tables. Microsoft WordPad can be used to modify the Map file.
3. After modifying the Map file, recompile it with MFEdit.exe program as described in the next section.
4. Start SAS Merchandise Planning server. See *SAS Merchandise Planning Installation* documentation for more information about restarting *SAS Merchandise Planning Servers*.

The following sections give the details of each step.

### 3.5.1 Modify the Map File

To update Map file before executing SAS Demand Forecasting for Retail solution:

1. Add tables in table section. These table line codes are added toward the beginning of the Map file. Search for “219” from top of the file and insert the following lines if they do not exist in the file.

```
624 , BATCH_ANALYTIC_LKUP , BATCH_ANALYTIC_LKUP , maxapp.batch_analytic_l
kup , SUID , N
```



```

628,ma_merch_levels,ma_merch_levels,maxdata.ma_merch_levels,SUID,N
629,ma_loc_levels,ma_loc_levels,maxdata.ma_loc_levels,SUID,N
630,ma_time_levels,ma_time_levels,maxdata.ma_time_levels,SUID,N
631,ma_mlt,ma_mlt,maxapp.ma_mlt,SUID,N
632,reconidir,reconidir,maxdata.reconidir,S,N
635,actslike_lkup,actslike_lkup,maxdata.actslike_lkup,S,N,Y
636,newitem_lkup,newitem_lkup,maxapp.newitem_lkup,S,N,Y

```

2. Add MAXDATA.PLANWORKSHEET records. Search for “21127” and place the following fields after that part of the Map file.

These fields define the user interface for SAS Demand Forecasting for Retail that is presented to the user in **SAS Merchandise Planning-Plan Management** window.

**Note:** Specific customer implementations might require additional user interface fields.

DFR 4.2

```
;LOCATION ACTS LIKE PARAMETER DEM 04/07
```

```

22409,0,2,4,0,F,N,N,0,0,Acts
like1,8,acts_like,INTEGER,NONE,NULL,0,0,N,Y,N,2401,2405,0,0,N,Y,0,0
,0,0,Location

```

```
;MERCH ACTS LIKE PARAMETERS DEM 04/07
```

```

8630,0,8,16,0,F,N,N,0,0,Acts
like1,40,acts_like1,NUMERIC,NONE,NULL,0,0,N,Y,N,64818,64819,0,0,N,0
,0,0,0,0,Merchandise,0,0,1

```

```

8631,0,8,16,0,F,N,N,0,0,Acts
like2,40,acts_like2,NUMERIC,NONE,NULL,0,0,N,Y,N,64818,64819,0,0,N,0
,0,0,0,0,Merchandise,0,0,1

```

```

8632,0,8,16,0,F,N,N,0,0,Acts
like3,40,acts_like3,NUMERIC,NONE,NULL,0,0,N,Y,N,64818,64819,0,0,N,0
,0,0,0,0,Merchandise,0,0,1

```

```

8633,0,8,16,0,F,N,N,0,0,NP Parent
Level,40,act_parent_lev,NUMERIC,COMMA,0,12,0,N,Y,N,65763,65764,0,0,
N,0,0,0,0,0,Merchandise,0,0,1

```

```

8634,0,8,16,0,F,N,N,0,0,NP Pct
Adjust,40,act_pct_adjust,NUMERIC,PERCENT,0,12,0,N,Y,N,0,0,0,0,N,0,0
,0,0,0,0,Merchandise,0,0,1

```

```

8635,0,8,16,0,F,N,N,0,0,NP Start
Date,40,act_start_date,DATE,DATE,NULL,0,0,N,Y,N,0,0,0,0,N,0,0,0,0,0
,Merchandise,0,0,1

```

```

8636,0,8,16,0,F,N,N,0,0,NP End
Date,40,act_end_date,DATE,DATE,NULL,0,0,N,Y,N,0,0,0,0,N,0,0,0,0,0,M
erchandise,0,0,1

```

```
;
```

```
;Begin DFR - Remove if DFR not used
```

```

45009,0,31,94,0,F,N,N,0,0,Analytic
Request,204,analytic_lkup_id,INTEGER,NONE,0,0,0,N,Y,Y,45042,45043,0
,0,Y,0,0,0,0,0,0

```

```

45010,0,31,94,0,F,N,N,0,0,Analytic Error
Id,204,analytic_err_id,INTEGER,NONE,1,0,0,N,N,Y,0,0,0,0,Y,0,0,0,0,0
,0

```

```

;----- SOLUTIONS UI -----

;DFR 4.2

45011,0,31,94,0,F,N,N,0,0,Forecast
Version,204,fcast_version,INTEGER,NONE,1,0,0,N,Y,Y,45054,45055,0,0,
Y,0,0,0,0,0,0

45012,0,31,94,0,F,N,N,0,0,Forecast New
Items,204,fcast_newitem,INTEGER,NONE,0,0,0,N,Y,Y,45072,45073,0,0,Y,
0,0,0,0,0,0

45013,0,31,94,0,F,N,N,0,0,Forecast Lowest Levels
Only,204,fcast_reconcile,INTEGER,CHECKBOX,0,0,0,N,Y,Y,0,0,0,0,Y,0,0,
,0,0,0,0

45014,0,31,94,0,F,N,N,0,0,Forecast Recon
Merch,204,fcast_recon_merch,INTEGER,NONE,0,0,0,N,Y,Y,45058,45059,0,
0,Y,0,0,0,0,0,0

45015,0,31,94,0,F,N,N,0,0,Forecast Recon
Loc,204,fcast_recon_loc,INTEGER,NONE,0,0,0,N,Y,Y,45060,45061,0,0,Y,
0,0,0,0,0,0

45016,0,31,94,0,F,N,N,0,0,Forecast Recon
Hier,204,fcast_recon_hier,INTEGER,NONE,1,0,0,N,Y,Y,45064,45065,0,0,
Y,0,0,0,0,0,0

;maxapp.batch_analytic_lkup

45042,0,0,0,0,F,Y,N,0,0,Batch Analytic
Id,624,analytic_lkup_id,INTEGER,NONE,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,
,0,0,0

45043,0,0,0,0,F,N,N,0,0,Batch Analytic
Name,624,analytic_name,VARCHAR2,STRING,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,
,0,0,0,0

;maxdata.actslike_lkup

45044,0,0,0,0,F,N,N,0,0,Acts like
ID,635,ID,NUMERIC,None,NULL,16,0,Y,N,Y,0,0,0,0,Y,2,0,1,0,1,0

45045,0,0,0,0,F,N,N,0,0,Acts like
name,635,NAME,VARCHAR,STRING,NULL,16,0,N,Y,Y,0,0,0,0,Y,2,0,1,0,1,0

45046,0,0,0,0,F,N,N,0,0,Sleevelength,635,sleevelength,VARCHAR,STRIN
G,NULL,25,0,N,Y,Y,0,0,0,0,Y,2,0,1,0,1,0

45047,0,0,0,0,F,N,N,0,0,Topbottom,635,topbottom,VARCHAR,STRING,NULL
,25,0,N,Y,Y,0,0,0,0,Y,2,0,1,0,1,0

45048,0,0,0,0,F,N,N,0,0,Fashionbasic,635,fashionbasic,VARCHAR,STRIN
G,NULL,25,0,N,Y,Y,0,0,0,0,Y,2,0,1,0,1,0

45049,0,0,0,0,F,N,N,0,0,Silhouette,635,silhouette,VARCHAR,STRING,NU
LL,25,0,N,Y,Y,0,0,0,0,Y,2,0,1,0,1,0

45050,0,0,0,0,F,N,N,0,0,Line of
Business,635,lineofbusiness,VARCHAR,STRING,NULL,25,0,N,Y,Y,0,0,0,0,
Y,2,0,1,0,1,0

45051,0,0,0,0,F,N,N,0,0,Department,635,department,VARCHAR,STRING,NU
LL,25,0,N,Y,Y,0,0,0,0,Y,2,0,1,0,1,0

45052,0,0,0,0,F,N,N,0,0,Category,635,category,VARCHAR,STRING,NULL,2
5,0,N,Y,Y,0,0,0,0,Y,2,0,1,0,1,0

```

```

45053,0,0,0,0,F,N,N,0,0,Sub
Category,635,subcategory,VARCHAR,STRING,NULL,25,0,N,Y,Y,0,0,0,0,Y,2
,0,1,0,1,0

45054,0,0,0,0,F,Y,N,0,0,forecast version
id,226,FCAST_VERSION_ID,INTEGER,NONE,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0
,0,0,0

45055,0,0,0,0,F,N,N,0,0,forecast version
Name,226,FCAST_VERSION_NM,VARCHAR2,STRING,NULL,0,0,N,Y,Y,0,0,0,0,Y,
0,0,0,0,0,0

;maxdata.ma_merch_levels

45058,0,0,0,0,F,Y,N,0,0,merch levels
id,628,id,INTEGER,NONE,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

45059,0,0,0,0,F,N,N,0,0,merch levels
name,628,name,VARCHAR2,STRING,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

;maxdata.ma_loc_level

45060,0,0,0,0,F,Y,N,0,0,loc levels
id,629,id,INTEGER,NONE,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

45061,0,0,0,0,F,N,N,0,0,loc levels
name,629,name,VARCHAR2,STRING,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0;
maxdata.fcast_version

;maxdata.ma_time_levels

45062,0,0,0,0,F,Y,N,0,0,time levels
id,630,id,INTEGER,NONE,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

45063,0,0,0,0,F,N,N,0,0,time levels
name,630,name,VARCHAR2,STRING,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

;maxdata.ma_mlt

45064,0,0,0,0,F,Y,N,0,0,MLT
id,631,id,INTEGER,NONE,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

45065,0,0,0,0,F,N,N,0,0,MLT
name,631,name,VARCHAR2,STRING,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

;maxdata.reconidir

45066,0,0,0,0,F,Y,N,0,0,merch level
id,632,id,INTEGER,NONE,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

45067,0,0,0,0,F,N,N,0,0,merch level
name,632,name,VARCHAR2,STRING,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

;maxapp.newitem_lkup

45072,0,0,0,0,F,Y,N,0,0,newitem
id,636,id,INTEGER,NONE,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

45073,0,0,0,0,F,N,N,0,0,newitem
name,636,name,VARCHAR2,STRING,NULL,0,0,N,Y,Y,0,0,0,0,Y,0,0,0,0,0,0

;END DFR

```

3. Within the entity 2, level 4 (search for 2, 4) section, insert the following lines:

```
;LOCATION ACTS LIKE PARAMETER DEM 04/07
```

```
22409,0,2,4,0,F,N,N,0,0,Acts
like1,8,acts_like,INTEGER,NONE,NULL,0,0,N,Y,N,2401,2405,0,0,N,Y,0,0
,0,0,Location
```

4. Within the entity 8, level 16 (search for 8, 16) section, insert the following new lines.

```
;MERCH ACTS LIKE PARAMETERS DEM 04/07

8630,0,8,16,0,F,N,N,0,0,Acts
like1,40,acts_like1,NUMERIC,NONE,NULL,0,0,N,Y,N,64818,64819,0,0,N,0
,0,0,0,0,Merchandise,0,0,1

8631,0,8,16,0,F,N,N,0,0,Acts
like2,40,acts_like2,NUMERIC,NONE,NULL,0,0,N,Y,N,64818,64819,0,0,N,0
,0,0,0,0,Merchandise,0,0,1

8632,0,8,16,0,F,N,N,0,0,Acts
like3,40,acts_like3,NUMERIC,NONE,NULL,0,0,N,Y,N,64818,64819,0,0,N,0
,0,0,0,0,Merchandise,0,0,1

8633,0,8,16,0,F,N,N,0,0,NP Parent
Level,40,act_parent_lev,NUMERIC,COMMA,0,12,0,N,Y,N,65763,65764,0,0,
N,0,0,0,0,0,Merchandise,0,0,1

8634,0,8,16,0,F,N,N,0,0,NP Pct
Adjust,40,act_pct_adjust,NUMERIC,PERCENT,0,12,0,N,Y,N,0,0,0,0,N,0,0
,0,0,0,0,Merchandise,0,0,1

8635,0,8,16,0,F,N,N,0,0,NP Start
Date,40,act_start_date,DATE,DATE,NULL,0,0,N,Y,N,0,0,0,0,N,0,0,0,0,0
,Merchandise,0,0,1

8636,0,8,16,0,F,N,N,0,0,NP End
Date,40,act_end_date,DATE,DATE,NULL,0,0,N,Y,N,0,0,0,0,N,0,0,0,0,M
erchandise,0,0,1
```

5. Add these lines into the FACT TABLES SECTION. Search for 61237 or 61914.

These changes modify the import field definitions into the forecast database table. Note that specific customer implementations are required to be modified in the fields that are imported. In this case, replace the **fc\_sales\_r** and **fc\_sals\_u** fields with as many fields as necessary to hold the imported forecast.

```
61914,1000,34,1,0,F,N,N,0,0,Version
ID,223,FV_VERSION_ID,INTEGER,NONE,NULL,10,0,Y,N,Y,0,0,0,0,Y,0,0,0,0
,0,0

61915,933,34,1,0,F,N,N,0,0,Merch
Level,223,MERCH_LEVEL,NUMERIC,NONE,NULL,6,0,Y,N,Y,0,0,0,0,Y,0,0,0,0
,0,0

61916,202,34,1,0,F,N,N,0,0,Merch
ID,223,MERCH_ID,INTEGER,NONE,NULL,10,0,Y,N,Y,0,0,0,0,Y,0,0,0,0,0,0,0

61917,999,34,1,0,F,N,N,2101,2,Location
ID,223,LOCATION_ID,INTEGER,NONE,NULL,10,0,Y,N,Y,0,0,0,0,Y,0,0,0,0,0
,0

61918,360,34,1,0,F,N,N,0,0,Location
Level,223,LOCATION_LEVEL,NUMERIC,NONE,NULL,6,0,Y,N,Y,0,0,0,0,Y,0,0,
0,0,0,0

61919,362,34,1,0,F,N,N,0,0,Time
Level,223,TIME_LEVEL,NUMERIC,NONE,NULL,6,0,Y,N,Y,0,0,0,0,Y,0,0,0,0,
0,0

61920,960,34,1,0,F,N,N,0,0,Time
ID,223,TIME_ID,INTEGER,NONE,NULL,10,0,Y,N,Y,0,0,0,0,Y,0,0,0,0,0,0,0
```

```
61921,0,34,1,0,F,N,N,0,0,Sls Tot R
FC,223,FC_SALES_R,NUMERIC,MONEY,NULL,0,0,N,N,Y,0,0,0,N,Y,Sls Tot
R,1,FC,1,Sales
```

```
61923,0,34,1,0,F,N,N,0,0,Sls Tot U
FC,223,FC_SALES_U,NUMERIC,COMMA,NULL,0,0,N,N,Y,0,0,0,N,Y,Sls Tot
U,1,FC,1,Sales
```

### 3.5.2 Compile the Map File

After Map file is updated, the metadata tool MFEdit.exe is run to create an XML metadata file. After starting MFEdit, use **Open** command to find and open the MAP file that was edited in the previous step. The following window appears.

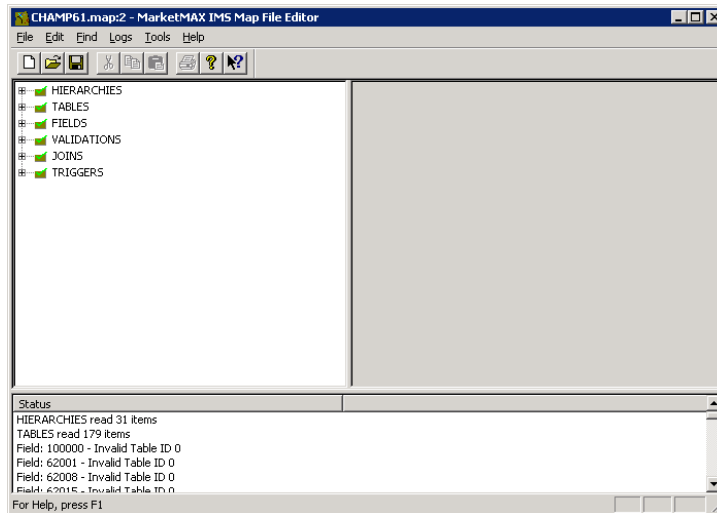


Figure 1. MFEdit.exe Program to Compile a Map File

Select **File/Save As** and key the text “.xml” at the end of .map to have “[map filename].map.xml”. Save this file in the directory in which \*.map file was edited.

### 3.5.3 Calcrules Table

To enable seeding from the forecasted fields, rows are required in the metadata Maxapp.Calcrules table. Here are the samples for forecasting based on the recommended forecast fields given in the earlier sections. Additions or modifications might be necessary.

```
insert into maxapp.calcrules
(field_type,title,field_id,calculation,field_version,agg_rule_id,field_uni
t,field_subtype,dv_id,agg_time_lvl,agg_merch_lvl,agg_loc_lvl,field_unit_id
,kpi_id,initialize,metadata_version_id,editable) values ('Sales','F-Sls
Tot R FC',61921,'{61921}','FC','1','value','Sls Tot
R',NULL,NULL,NULL,NULL,1,1,NULL,1,0)
```

### 3.5.4 Restart the SAS Merchandise Planning Server

The SAS Merchandise Planning Server must be restarted at this stage.

**Note:** See SAS Merchandise Planning installation documentation for more information about restarting SAS Merchandise Planning servers.

### 3.5.5 Configure the SAS Merchandise Business View

To configure the SAS Merchandise Business View:

1. After SAS Merchandise Planning server is restarted, in the **Plan Management** view of either **Assortment** or **Financial Planning**, click **Business View**.
2. Click **New** to create a new business view. Name the view as **Forecast**. The **Business View Editor** window appears.
3. In the **Plan Type** drop-down list, select **Plan Worksheet** and add the following KPIs: Name, Description, Cell Count, Merchandise/Location/Time From and To Levels, Analytic Request, Batch Error Msg, and all the fields beginning with “Forecast”, such as Forecast Version.
4. Save this view and apply the updated view in the **Plan Management** window. To do this, select the view and click **OK**. Use these options to make a forecast request.

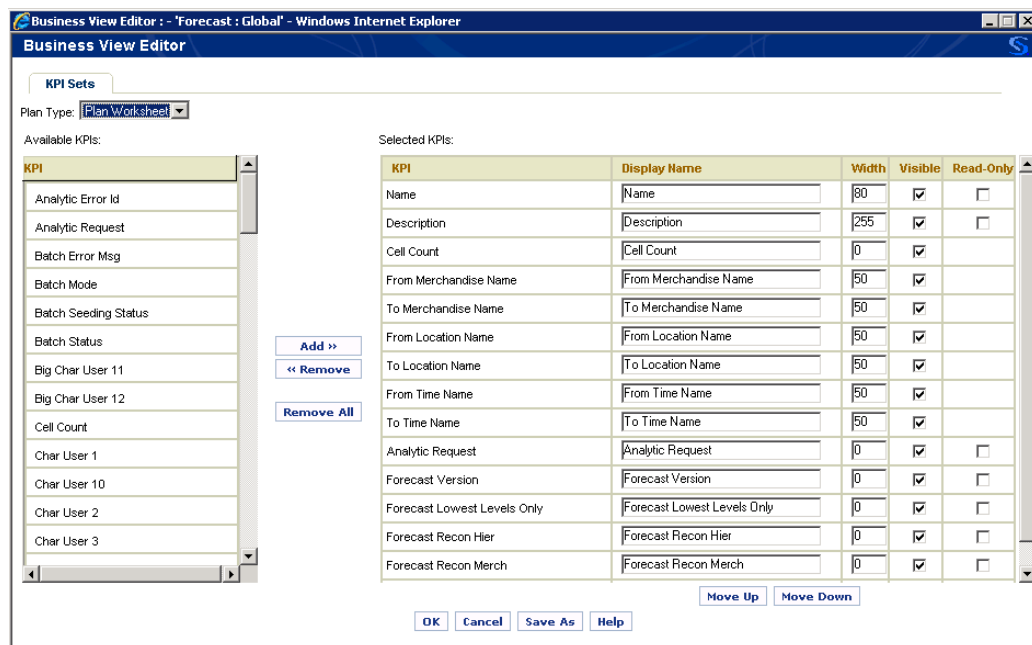


Figure 2. Creating the Forecast Plan Management View

## 3.6 Creating Macro Catalog

A SAS catalog file is created after compilation of SAS macros. This catalog file is specific to the operating system. Therefore, before executing the first forecast request from SAS Demand Forecasting for Retail on Windows or UNIX, or any other operating system, SAS catalog file need to be created on that operating system. The compilation is required to be done once after installation and after each modification to the source code.

To create SAS catalog file:

1. Open Createcatalog.sas code file in Base SAS (location: `.../mx_analytics`).
2. Edit the path that points to the code file params.sas.

**Note:** Make sure that all paths and values to parameters are specified correctly in params.sas file.

3. Execute the code.

4. Ensure that there are no errors in the log.
5. Catalog file is created in the Catalog library.

**Note:** Close all SAS sessions before executing this file.

## 3.7 Executing Forecasting Requests

This section provides details about the environment that must be set before executing forecast requests. It explains error handling, data purging, executing jobs in batches, and maintaining logs for each job.

### 3.7.1 Process Server

The process server must be started before forecast requests are created in the SAS Merchandise Planning.

The file `process_server.sh` (for UNIX) or `process_server.bat` (for Windows) is used to start the SAS process server. The process server runs in the background on SAS server and executes forecast requests. This process server is scheduled to run by an administrator.

The following figure shows a process server window:

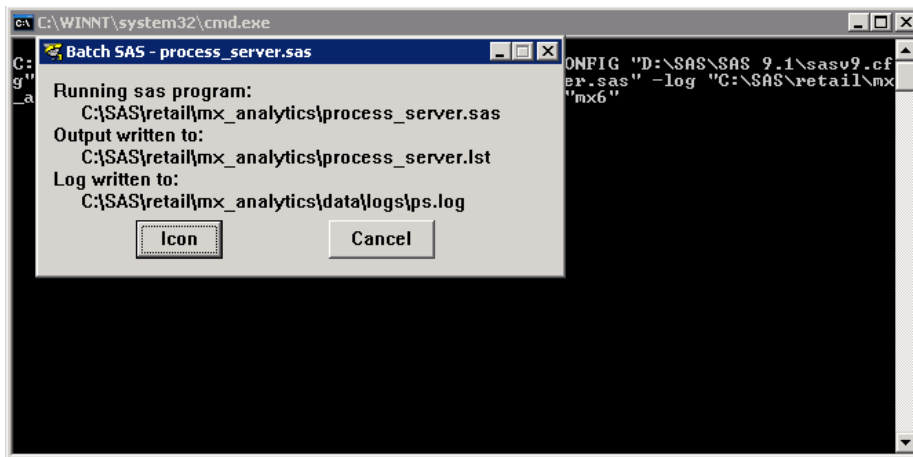


Figure 3. Process Server Execution

The files `process_server.bat` (for Windows) and `process_server.sh` (for UNIX) are located in the `/mx_analytics` directory. These files are configured and executed before the forecast jobs are defined. The file `process_server.bat` picks up forecast requests that are issued from the SAS Merchandise Planning user interface.

The execution string of the path is modified to point to the correct directories for both SAS system and `/mx_analytics` directory.

The default path for the `process_server.sh` (for UNIX) file is:

```
/appl/SAS/SAS_9.1/sas -CONFIG /appl/SAS/SAS_9.1/sasv9.cfg -sysin
./batch_worksheet.sas -log ./logs/batch_worksheet.log -noterminal -sysparm
"mx6"
```

**Note:** The directories can be modified. If they are modified, the directories must be validated.

The process server updates the log file `batch.log` in the `/logs` directory or in the directory that is configured to save the log. This log file is checked for errors if forecast jobs are not executed correctly.

### 3.7.2 Batch Execution

Create a batch file (for example, batch\_worksheet.sas) to execute the forecast requests in batch mode or in stand-alone mode. These requests can be executed from SAS console or through a scheduler program.

The following code describes the structure of a batch file named batch\_worksheet.sas.

**Note:** The following code bypasses the process server.

```

/*****/
/* INITIALIZE PARAMTERS */
/*****/

%let sysparm=mx6;
%include "c:\sas\retail\mx_analytics\params.sas";
options mprint mlogic symbolgen;

/*****/
/* RUN THE FOLLOWING DFR PROGRAMS */
/*****/
%mm_forecast(wktid=3001,dsn=&dsn.,dbtype=oracle, standalone=0,
set_analytic=1);
    
```

3001 is the SAS Merchandise Planning worksheet that is run against the forecast request. Multiple forecast requests can be executed, in sequence, by adding MM\_FORECAST calls to this code. Parameters for this code are listed in the following table:

Table 6. Parameters for Batch Execution Code

| Parameter    | Description   |
|--------------|---|
| SYSPARAM     | Database connection name. In Oracle, this is the TNSNAME string.  |
| WKTID        | forecast project ID (worksheet ID)<br><b>Tip:</b> Get the forecast project ID (worksheet ID), Select specific worksheet and see in the lower-left corner of the window in SAS Merchandise Planning. |
| PARAMFILE    | Default value is NULL. This parameter gives the alternate parameter filename if a different parameter file is needed for the same job.  |
| SET_ANALYTIC | The value of the forecast profile should be between 1 and 29  |

Run the batch\_worksheet.sh or batch\_worksheet.bat file to execute the batch\_worksheet program. Any number of batch jobs can be configured by following the previous procedure. The script file batch.worksheet.sh is provided as an example.

```

/datal/SAS/SAS/SAS_9.1/sas -sysin
/datal/mx_analytics/dfr42_dev/batch_worksheet.sas -noterminal

rc=`grep "Job completed without errors" batch_worksheet.log |wc -l`

if (( $rc > 0 )) then
echo "Completed without errors"
exit 0
fi
echo "Failed"
exit 1
    
```

The exit code is set to a return code for the scheduler application. The return code '1' represents failure and '0' represents success.



### 3.7.3 Standalone Mode

To run in stand-alone execution mode, the forecast project must run completely at least once.

The DFR\_STANDALONE macro is called to run the standalone forecast. This macro modifies Jobparam values and calls MM\_FORECAST macro to run the forecast.

For example:

```
%include "C:/sas/retail/mx_analytics/params.sas" ;
%include "C:/sas/retail/mx_analytics/dfr_standalone.sas" ;

%dfr_standalone(
    standalone_name=SA1,
    id=2378,
    forecast_start=03AUG2008,
    forecast_num_periods=52,
    kpis=SALES,
    dfr_merch_level=5,
    dfr_loc_level=2,
    dfr_time_level=5,
    dfr_filter_start=01FEB2007, dfr_filter_end=31AUG2008,
    dfr_filter_periods=26);
```

**Note:** For standalone parameters and Standalone input data format, refer to section 8.2 Standalone Execution in the *Demand Forecasting for Retail: User's Guide*.

### 3.7.4 Error Handling

In the **Plan Management** window of SAS Merchandise Planning, the following error fields have the error messages for a job:

| Error Field Name  | Error Field Source (maxdata.planworksheet) | Data Type  |
|-------------------|--|------------|
| Batch Error Msg   | bat_error_msg                              | char(255)  |
| Analytic Error ID | analytic_error_id                          | numeric(6) |

If no error has occurred, Batch Error Msg field displays the message "Job completed without errors". This message is displayed in the **Plan Management** window of the forecast project worksheet. If an error has occurred, **Batch Error Msg** field displays an appropriate error message

### 3.7.5 Logs

The **mx\_analytics/logs** directory contains the batch log when the process server is running. This log file is named ps.log.

For each forecast job that is executed, a log named ma\_[worksheet\_id].log is created in the **logs** directory. This log is scanned for errors at the end of each forecast process. The errors are displayed in the **Batch Error Msg** field.

Errors can be searched manually in the log file.

### 3.7.6 Data Purge

To run data purge process, the workflow parameter DFR\_WF\_PURGE is set to '1'. After each forecasting request completes, this process deletes all the data sets from the input, staged, and output libraries.





# CHAPTER 4

## Enabling DFR for SAS Grid Computing

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### 4.1 SAS Grid Environment

SAS Demand Forecasting for Retail has been designed to function with or without SAS grid infrastructure.

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#### 4.1.1 Prerequisite Software

Installation, configuration, and modification of the Platform software (Process Manager and LSF) are not in scope of this document. These activities must be done with assistance of the LSF Administrator.

To work in grid environment the following pre-requisite software must be installed on grid server and the client (nodes). Also, see the solution prerequisites mentioned in [Table 1: Software Requirements](#).

Table 7. Grid Server

| Software                 | Version |
|--------------------------|---------|
| Platform Process Manager | 3.1     |
| Platform LSF Scheduler   | 6.2     |

Table 8. Grid Client (Node)

| Software               | Version |
|------------------------|---------|
| Platform LSF Scheduler | 6.2     |

**Note:** If user encounters sign-on errors while connecting to the grid server or node, even when all options and the logon credentials provided are correct, then the hotfix E9BC30 ([http://ftp.sas.com/techsup/download/hotfix/e9\\_dbcs\\_prod\\_list.html#e9bc30](http://ftp.sas.com/techsup/download/hotfix/e9_dbcs_prod_list.html#e9bc30)) must be installed on the grid server machine. To install this hotfix, follow the instructions mentioned in the Readme file available with the hotfix.

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#### 4.1.2 Enable SAS Demand Forecasting for Retail for SAS Grid Computing

Execute the following steps to enable SAS Demand Forecasting for Retail for SAS grid computing:

1. Set the parameter DFR\_WF\_GRID in Jobparam.

In Jobparam data set, the workflow parameter DFR\_WF\_GRID is set to '1' to execute SAS Demand Forecasting for Retail in the grid environment.

Table 9. Parameter Details

| Parameter   | Description  | Default Value |
|-------------|--|---------------|
| DFR_WF_GRID | 0: Grid Environment Disabled<br>1: Grid Environment Enable | 0             |

To execute all the forecast requests in grid environment, the changes mentioned above are done in the default Jobparam (jobparam.sas7bdat) data set. However, to execute specific forecast requests in grid environment, these changes are done in worksheet-specific Jobparam (jobparam\_XXXX.sas7bdat) data set.

Jobparam data sets are located in the `/mx_analytics/Data` directory.

2. Create a custom resource group (optional).

To create a custom group of nodes that are dedicated to SAS Demand Forecasting for Retail, resource requirement parameter WORKLOAD is set using SAS Management Console and param.sas file is modified accordingly.

**Note:** The default resource for SAS Grid is SASMain. Ensure that the same resource requirement is added in the platform configuration.

To modify the WORKLOAD parameter in SAS Management Console:

- a. Click **Server Manager → SASMain → SASMain - Logical SAS Grid Server → SASMain - SAS Grid Server**.
- b. Right-click **SASMain - SAS Grid Server** and select **Properties** from the pop-up menu. The **SAS Main - SAS Grid Server Properties** window appears.
- c. Select **Options** tab.
- d. Click **Advanced Options** and set the value of WORKLOAD parameter. Click **Ok** and close **SAS Management Console**.

To add resource name, modify param.sas file by setting the resource parameter:

```
%let BIMetaServerName=Resource_Name
```

For example, if 'DFR' is the workload parameter, then

```
%let BIMetaServerName=%str(SASMain; workload=DFR);
```

**Note:** Along with the default resource requirement (SASMain), the value set for WORKLOAD must be added as a resource requirement in the platform configuration for all the nodes from where SAS Demand Forecasting for Retail is run exclusively.

3. Verify the status of the grid server and client.

Launch **SAS Management Console**. Click **Grid Manager → Grid Monitoring Server → Host Information**. The host information appears on the right panel. Ensure that the **Status** column shows **Ok** for both, server and the client nodes.