MMS DATA MODEL INSTALLATION NOTE

PREPARED BY: IT Wholesale Solutions

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This Document Identification

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Notes: updated disclaimer, so removed executive overview

Documents made obsolete: The release of this document changes only the version of the *MMS Data Model Installation Note*. No documents are made obsolete by releasing this document.

Table of Contents

1. Reference

1.1 Abbreviations

Abbreviation	Abbreviation Explanation
CSV	A file with data in a Comma Separated Variable (text-based) format
MMS	Market Management System; software, hardware, network and related processes to implement the National Electricity Market (NEM)
NER	National Electricity Rules; also often just called the Rules
Participant Data Replication	Provides a simple interface to MMS to collect CSV files published to a participant's directory on the participant fileserver and then parse those files into a local database instance. Configuration is set by a monitor application, Replication Manager
PDR	Participant Data Replication
RDBMS	Relational Data Base Management System (e.g. Oracle, SQL Server)
Replication Manager	Manages the configuration settings and monitors the status of the replication of data from AEMO's systems to a database instance local to the participant
Rules	National Electricity Rules (NER)

TABLE 1: ABBREVIATIONS

1.2 References

The README text file in each MMS Data Model Build Pack contains a list of files in the pack, plus notes specific for the particular RDBMS.

Products implementing the transfer of data from AEMO (such as Participant Data Replication) are distinct from the MMS Data Model, although the configuration of those products depends on the MMS Data Model.

The CSV data published on the AEMO website is a subset of data available from the Market Management System, being the public information only.

2. Introduction

2.1 Purpose

This document (*MMS Data Model Installation Note*) lists the minimum infrastructure, and steps required for setting up the MMS Data Model on a suitably prepared database. For notes relevant to each RDBMS, please refer to the README.txt file in each release set.

2.2 MMS Data Model Overview

The MMS Data Model is the definition of the interface to participants of data published by AEMO from the NEM system. A database conforming to the MMS Data Model can contain a replica of all current participant-specific data recorded in the main NEM production database.

The target databases have been called such names as the Participant Database, the Participant InfoServer and the Replica Database.

The MMS Data Model includes database tables, indexes and constraints. The model is currently exposed as a physical model, so is different in presentation for each RDBMS. However, the same base model underlies all the physical models published by AEMO.

The MMS Data Model is the target model for products transferring data from AEMO to each participant. The most up-to-date products supplied by AEMO for data transfer is Participant Data Replication (PDR). Some participants use a custom solution. Compatibility of the transfer products with the MMS Data Model is the responsibility of those products and their configuration. AEMO's intention is to supply the data transfer products pre-configured to deliver data consistent with the MMS Data Model, noting differences where they occur (e.g. for historical reasons).

2.3 Assumptions

Creating a database instance complying with the MMS Data Model assumes you have:

- An installed database shell matching one of the available sets of scripts, including the ability to connect (i.e. services) (see Infrastructure Requirements on page 7).

- Access to a data feed to populate the database. To obtain data from AEMO, contact the AEMO Information and Support Hub on phone 1300 236 600 (option 1 then 2) or email supporthub@aemo.com.au.

3. Inventory

The MMS Data Model Build Pack is a compressed file (.zip) containing files appropriate for each supported RDBMS version. The Build Pack name is like mms data model <RDBMSid> v#.#.zip.

AEMO maintains the MMS Data Model in a common base, and generates scripts and physical model documentation to suit each specific RDBMS. The MMS Data Model Build Pack contains a README file identifying each file in the pack by filename, plus notes regarding any pre-install and post-install conditions.

The following is a generic list of all the contents potentially delivered in each MMS Data Model Build Pack. Not all Build Packs have all files, so check the README for the definitive list for each Build Pack.

3.1 Build

The \Build directory delivered in each MMS Data Model Build Pack contains the software and a README text file.

- Main installation script or batch file for full install, typically full_mms_data_model_main.sql or full_mms_data_model_main.bat; creates all tables, indexes and constraints for the MMS Data Model, including execution of a pre-create and a post-create script for special purposes and site-specific customising.

Run the file for full install only if you are installing the MMS Data Model on a new database as a fresh install.

- Main upgrade script or batch file, typically upgrade_mms_data_model_main.sql or upgrade_mms_data_model_main.bat; upgrades tables, indexes and constraints from the previous MMS Data Model to the current version, including execution of a pre-alter and a post-alter script for special purposes and site-specific customising.

  Run the upgrade file only if you have the structure corresponding to the previous MMS Data Model.

- Create full data model, typically create_mms_data_model.sql; generated script creates all tables, indexes and constraints for the current MMS Data Model.

- Drop full data model, typically drop_mms_data_model.sql: generated script removes all tables, indexes and constraints added by the main installation script for full install.

- Upgrade installation script, typically alter_mms_data_model.sql; generated script installs changes since previous release of MMS Data Model.

- Pre-install scripts, typically pre_create_mms_data_model.sql and pre_alter_mms_data_model.sql: useful and necessary pre-installation work, and also a convenient place to make localisation changes necessary before the creation or upgrade of the MMS Data Model.

- Post-install scripts, typically post_create_mms_data_model.sql and post_alter_mms_data_model.sql: useful and necessary post-installation work, and a convenient place to make localisation changes necessary after the creation or upgrade of the MMS Data Model.

- Database validation scripts, typically check_installed_version.sql: ensuring that previous updates to the MMS Data Model are in place before applying the current update.

- Create directory utility, typically create_dir.bat: creates a given directory if not already existing, otherwise advises existence.

- Create directories utility, typically create_directories.sql: for Oracle, creates a directory or directories intended for tablespaces.

- README text file, typically README.txt: packing list and references to RDBMS-specific related installation instructions.

3.2   Documentation

The \documentation directory delivered in each MMS Data Model Build Pack contains the documentation delivered in the MMS Data Model Build Pack:

- Installation Note (this document), typically MMS Data Model Installation Note v#.##.pdf: notes for installation

- Data Model Report, typically MMS Data Model Report.pdf: comprehensive report lists all tables in the MMS Data Model together with descriptions, columns, indexes and constraints, plus diagrams. The Data Model Report has the tables grouped into packages.

- Data Model Package Summary, typically MMS Data Model Package Summary.pdf: for each package in the MMS Data Model, shows a diagram plus lists the tables.

- Data Model Upgrade Report, typically MMS Data Model Upgrade Report.pdf: a subset of the Data Model Report covering only the packages and tables affected by the upgrade from the previous version of the MMS Data Model.

- Data Model Changes, typically Upgrade Database Generation Log.txt: lists changes as a result of running the alter script.

- Sample log files, typically with the name including "(sample)": log files from a run of the scripts, potentially useful for comparison with your own logs.

4. Infrastructure Requirements

The MMS Data Model has a separate Build Pack to suit each of several RDBMS versions. Testing of each version confirms the resulting database as matching the MMS Data Model. Versions of the RDBMSs not listed below may be workable providing you accept AEMO cannot support other versions.

The following items common to all RDBMSs are the responsibility of the installer.

Disk space	Size depends on data growth management strategy.
RDBMS setup	Creation of the RDBMS, including setting up for use.
Growth management	Procedures and processes to remove data, consistent with data inflow rates, data relationships and disk space constraints
Security	Prevention of unauthorised access
Hardware	System capacity and environment to handle processing of data feed from AEMO.
Operating system	AEMO uses Windows 2000. Other operating systems may be suitable.
Data transfer product	Check the suitability of the chosen data transfer product(s) for your RDBMS version (since AEMO's products have an independent development cycle to the MMS Data Model, and are suitable only in certain environments).

The MMS Data Model installation excludes the following:

- Initial setting up of the database software or the database environment (if necessary). AEMO provides limited support for setting up some parts of the database environment in particular RDBMSs. For details, refer to the README in the relevant MMS Data Model Build Pack and the comments in the scripts.

- Replication software or configuration tables (e.g. see Participant Data Replication installation and documentation).

- Replication management (see Replication Manager).

5. Supported RDBMSs

5.1 Oracle 11g

5.1.1 Build Pack name

MMS Data Model Oracle11g v#.#.zip

5.1.2 Compatibility issues

The scripts refer to tablespaces, and the supplied pre-create script creates the necessary tablespaces and schema owner (using a single configuration).

5.2 Oracle 12c

5.2.1 Build Pack name

MMS Data Model Oracle12c v#.#.zip

5.2.2 Compatibility issues

The scripts refer to tablespaces, and the supplied pre-create script creates the necessary tablespaces and schema owner (using a single configuration).

Requires pdrLoader >= v7.3

5.3 Microsoft SQL Server 2008

5.3.1 Build Pack name

MMS Data Model MSSQLServer2008 v#.#.zip

5.3.2 Compatibility issues

None known (at time of publication).

5.4 Microsoft SQL Server 2012

5.4.1 Build pack name

MMS Data Model MSSQLServer2012 v#.#.zip

5.4.2 Compatibility issues

Requires pdrLoader >= v7.3

6. Installation Instructions

The following instructions assume you have decompressed the Build Pack (mms data model <RDBMSid> v#.#.zip) to a suitable directory.

6.1 Full Install

1. Edit the main script (full_mms_data_model_main.xxx) to provide details relevant to your own installation, including the location of the directory for the log files. Follow the guidelines given in the instruction comments in the scripts.
   Avoid making any changes to the generated script at the core of each script (e.g. create_mms_data_model.sql and alter_mms_data_model.sql). To make changes appropriate to your own installation, adapt the pre- and post- scripts. With careful crafting, you can minimise changes to your own pre- and post- scripts from one version of MMS Data Model to the next.
2. Run the main script (full_mms_data_model_main.xxx). For Oracle, login to SQL-Plus with sufficient rights to create tablespaces and the schema owner.
3. Review the log files for any errors. The log file for the script creating or checking the existence of the directory for logging is in the script directory (as specified in the main script). All other logs are in the directory as specified in the main script.
   - The difference in the table count from pre- and post- log files shows how many tables were created successfully.
   - For Oracle, review the free space available on each tablespace.
4. If any errors occur during installation, the main installation script can exit without executing further script calls. Review the log files, correct the errors and re-run the main script. Previously created objects may need to be dropped before re-running the main script.

6.2 Back Out Full

- Use an SQL tool to run the drop full data model (drop_mms_data_model.sql).

6.3 Upgrade Install

- Run the upgrade installation script (upgrade_mms_data_model_main.xxx), in a similar manner as described above for a full install.

6.4 Assistance / issues

To obtain assistance from AEMO or to advise suggested improvements to the MMS Data Model Build Packs, contact the AEMO Information and Support Hub by email supporthub@aemo.com.au.