



# DATA MODEL INSTALLATION NOTE

Provides information about manually upgrading or installing the  
Electricity or Gas Data Models

Version: 2.00

Published: 1 November 2017





## IMPORTANT NOTICE

### **Purpose**

This document provides information about upgrading or installing the Electricity or Gas Data Models.

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### **Distribution**

Available to the public.

### **Document Identification**

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Last update: Wednesday, 1 November 2017 11:13 AM

### **Version History**

Version 2.00 updated for Data Models gas v1.3 and electricity v4.27 releases December 2017.

### **Documents made obsolete**

The release of this document changes only the version of Data Model Installation Note.

### **Further Information**

For further information, please visit AEMO's website [www.aemo.com.au](http://www.aemo.com.au) or contact:

AEMO's Support Hub      Phone: 1300 AEMO 00 (1300 236 600) and follow the prompts.

Email: [supporthub@aemo.com.au](mailto:supporthub@aemo.com.au)

### **Feedback**

Your feedback is important and helps us improve our services and products. To suggest improvements, please contact AEMO's Information and Support Hub.



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# 1 INTRODUCTION

## 1.1 Purpose

This document explains the minimum infrastructure and steps required for setting up the Data Model on a suitably prepared database, using the client software (opposed to the GUI software).

**For help installing one of the GUI packages, see [Data Model GUI Installer Guide](#).**

## 1.2 Data Model Overview

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

**Previous names for these databases are: [Participant Database](#), [Participant InfoServer](#), and the [Replica Database](#).**

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

The Data Model is the target model for products transferring data from AEMO to each participant. The most up-to-date product supplied by AEMO for data transfer is Participant Data Replication (PDR). Some participants use a custom solution. Compatibility of the transfer products with the 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 Data Model, noting differences where they occur (such as for historical reasons).

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

**For more details, see [Guide to Participant Data Replication Batchter](#) and [Guide to Participant Data Replication Loader](#).**

## 1.3 Assumptions

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

- An installed database shell matching one of the available sets of scripts, including the ability to connect, see [Infrastructure Requirements](#) on page 8.



## Data Model Installation Note

### Introduction

- Access to a data feed to populate the database. Participants can fully populate the tables with baseline data by copying each file into the pdrLoader input folder for the matching source environment, for either production or pre-production.

**You can find baseline data in the Participant File Server\MarketData\Baseline folder.**



## 2 INVENTORY

The Data Model Package is a compressed file (.zip) containing files appropriate for each supported DBMS version. The Package name is like Data Model <DBMSid> v#.#.zip.

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

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

### 2.1 Build

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

1. 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 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 Data Model on a new database as a fresh install.**
2. 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 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 Data Model.**
3. Create full data model, typically create\_mms\_data\_model.sql; generated script creates all tables, indexes and constraints for the current Data Model.
4. 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.
5. Upgrade installation script, typically alter\_mms\_data\_model.sql; generated script installs changes since previous release of Data Model.
6. Pre-install scripts, typically pre\_create\_mms\_data\_model.sql and pre\_alter\_mms\_data\_model.sql: useful and necessary pre-installation work and a convenient place to make localisation changes necessary before the creation or upgrade of the Data Model.
7. 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 Data Model.



8. Database validation scripts, typically `check_installed_version.sql`: ensuring that previous updates to the Data Model are in place before applying the current update.
9. `check_installed_schema.sql`: this script is used during full install to verify the schema does not include any of previous installs.
10. Create directory utility, typically `create_dir.bat`: creates a given directory if not already existing, otherwise advises existence.
11. Create directories utility, typically `create_directories.sql`: for Oracle, creates a directory or directories intended for tablespaces.
12. README text file, typically `README.txt`: packing list and references to DBMS-specific related installation instructions.

## 2.2 Documentation

The `\documentation` directory delivered in each Data Model Package contains the documentation delivered in the Data Model Package:

- [Installation Note](#) (this document), typically `Data Model Installation Note v#.##.pdf`: notes for installation.
- [Data Model Report](#), typically `Data Model Report.pdf`: comprehensive report lists all tables in the 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 `Data Model Package Summary.pdf`: for each package in the Data Model, shows a diagram and lists the tables.
- [Data Model Upgrade Report](#), typically `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 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.



### 3 INFRASTRUCTURE REQUIREMENTS

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

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

Disk space	Size depends on data growth management strategy.
DBMS setup	Creation of the DBMS, including set up.
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	A compatible operating system to run each application. Most applications run on Windows and Unix-like operating systems.
Data transfer product	Check the suitability of the chosen data transfer product(s) for your DBMS version (since AEMO's products have an independent development cycle to the Data Model, and are suitable only in certain environments).

The Data Model installation excludes the following:

- Initial set 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 DBMSs. For details, refer to the README in the relevant Data Model Package and the comments in the scripts.
- Replication software or configuration tables (see Participant Data Replication installation and documentation).
- Replication management (see Replication Manager).





## 4 SUPPORTED DBMS

DBMS	Package name	Compatibility issues
Oracle 11g	Data Model Oracle11g v#.#.zip	The scripts refer to tablespaces, and the supplied pre-create script creates the necessary tablespaces and schema owner (using a single configuration).
Oracle 12c	Data Model Oracle12c v#.#.zip	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 or later.
Microsoft SQL Server 2012	MMS Data Model MSSQLServer2012 v#.#.zip	None known at time of publication.
Microsoft SQL Server 2014	MMS Data Model MSSQLServer2014 v#.#.zip	Requires pdrLoader v7.3 or later.



## 5 INSTALLATION INSTRUCTIONS

The following instructions assume you have decompressed the package (Data Model <DBMSid> v#.#.zip) to a suitable directory.

These are the manual instructions for installing the client, for example **MMSDM\_CLI\_MSSQLServer2012\_vn.nn**.  
If you are using a GUI installer package, for example **MMSDM\_GUI\_MSSQLServer2012\_vn.nn** see **Data Model GUI Installer Guide**.

### 5.1 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 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.

### 5.2 Back Out Full

- Use an SQL tool to run the drop full data model (drop\_mms\_data\_model.sql).

### 5.3 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 NEEDING HELP

### 6.1 AEMO's Support Hub

#### 6.1.1 Contacting the support hub

Participants request assistance through AEMO's Support Hub using one of the following methods:

- Phone: 1300 AEMO 00 (1300 236 600) and follow the prompts.  
For non-urgent issues, normal coverage is 8:00 AM to 6:00 PM on weekdays, Australian Eastern Standard Time (AEST).
- Email: [supporthub@aemo.com.au](mailto:supporthub@aemo.com.au)
- The Customer Portal, <http://helpdesk.preprod.nemnet.net.au/nemhelplite/> allows you to log your own requests for assistance. For access credentials, see your organisation's IT security contact or participant administrator.

**Please note that AEMO recommends participants call AEMO's Support Hub for all urgent issues, whether or not you have logged a call in the Customer Portal.**

#### 6.1.2 Information to provide

Please provide the following information when requesting assistance from AEMO:

- Your name
- Organisation name
- Participant ID
- System or application name
- Environment: production or pre-production
- Problem description
- Screenshots

For AEMO software-related issues please also provide:

- Version of software
- Properties or log files
- Replication Manager support dump and instance name (if Data Interchange problem)

### 6.2 Feedback

Your feedback is important and helps us improve our services and products. To suggest improvements, please contact AEMO's Support Hub.



## 6.3 Related resources

[Baseline data](#), data intended for initial loading into a participant's empty DBMS. It provides key standing data immediately prior to commencing the routine data feed. Participants can fully populate the tables with baseline data by copying each file in the Participant File Server\MarketData\Baseline folder into the pdrLoader input folder for the matching source environment, for either production or pre-production.

[Data Model GUI Installer Guide](#), covers the installation of the Data Model when using one of the MMS Data Model GUI Installers.

[Data Model Report](#), describes the entire Data Model, including tables, primary keys, and columns.

[Data Model Package Summary](#), is a subset of the report, listing only the Data Model tables.

[Data Model Table to File to Report Relationships workbook](#), details the relationships between the MMS Data Model tables and the files. The Glossary worksheet provides a brief description of the fields and content.

[Data Model Upgrade Report](#), a subset of the Data Model Report covering only the packages and tables affected by the upgrade from the previous version of the Data Model.

[Electricity data](#), the CSV data published on the AEMO website is a subset of data available from AEMO's wholesale system, EMMS. AEMO's website > Electricity or Gas > Data.

[Guide to AEMO CSV Data Format Standard](#), describes the CSV data format standard used within flat files provided to participants from AEMO's wholesale system. Its primary function is to provide sufficient information to allow participants to understand the CSV data format used for exchanging data with AEMO.

[Guide to Participant Data Replication Batchter \(pdrBatcher\)](#), covers the set up and use of the application responsible for transferring files to and from AEMO's participant file server to the participant's local Data Interchange folders.

[Guide to Participant Data Replication Loader \(pdrLoader\)](#), covers the set up and use of the application responsible for loading files to and from participant's local Data Interchange folders to the participant's DBMS.

[README](#) text file in each Data Model bundle contains a list of files and notes specific to each DBMS.

[Replication Manager](#), an interactive user interface allowing participants to configure and interrogate the pdrLoader.

[Guide to setting up a standard Data Interchange environment](#), explains how to set up a standard implementation of Data Interchange.

[Guide to upgrading a standard Data Interchange environment](#), explains how to upgrade your Data Interchange environment for a new Data Model release.

[Guide to Troubleshooting Data Interchange](#), provides assistance with troubleshooting Data Interchange software issues.



## 7 GLOSSARY

Abbreviation	Abbreviation Explanation
CSV	A file with data in a Comma Separated Variable (text-based) format.
EMMS	Electricity Market Management System; software, hardware, network and related processes to implement the National Electricity Market (NEM).
Participant Data Replication	Provides a simple interface 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 soon to be replaced by pdrMonitor.
PDR	Participant Data Replication
DBMS	Database 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 soon to be replaced by pdrMonitor.