

# GUIDE TO TROUBLESHOOTING DATA INTERCHANGE

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AEMO has prepared this Guide to Troubleshooting Data Interchange (Guide) to provide guidance on the use of the Data Interchange software under the National Gas or Electricity Rules (Rules), as at the date of publication.

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### Documents made obsolete

The release of this document changes earlier versions of Guide to Troubleshooting Data Interchange.

### Distribution

Available to the public.

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### Notes

No notes

### Further information

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

AEMO Information and Support Hub

Phone: 1300 AEMO 00 (1300 236 600) and follow the prompts.

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

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## Glossary

These abbreviations, symbols, and special terms assist the reader's understanding of the terms used in this document. For definitions of these terms, the reader should always refer to the applicable market Rules.

### A

#### **AEMO**

Australian Energy Market Operator

#### **AES**

Advanced Encryption Standard

#### **AEST**

Australian Eastern Standard Time

### B

#### **Batcher**

pdrBatcher

### C

#### **CSV**

Comma-separated values; a file format for exchanging data.

---

**D**

**DBA**

Database administrator

**DBMS**

Database management system

**DI**

Data Interchange

**DR**

Disaster recovery

---

**E**

**EMMS**

Wholesale Electricity Market Management System; software, hardware, network and related processes.

**energy market systems web portal**

Single web portal interface to access AEMO's IT systems.

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**F**

**FTP**

File transfer protocol

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**L**

**Loader**

pdrLoader

---

**M**

**MarketNet**

AEMO's private network available to participants having a participant ID.

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**N**

**NEM**

National Electricity Market

**NER**

National Electricity Rules

**NGR**

National Gas Rules

---

**P**

**PA**

Participant Administrator; manages participant organisations user access and security.

**Participant ID**

Registered participant identifier

**PDR**

Participant Data Replication

**Pre-production**

Test and training environment, typically showing much less activity, if any.

**Production**

Live environment, actively reflecting the currently available data.

**R**

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**Rules**

The National Electricity or Gas Rules.

**Z**

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**ZIP**

The file compression format used for exchanging data with AEMO.



# 1 Introduction

In this chapter:

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## 1.1 Purpose

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This guide provides assistance with troubleshooting Data Interchange software issues.

If you require more understanding of Data Interchange (DI), for example what it does, and how to use it, consult the individual guides in the Data Interchange software document set, see "Related resources" below.

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This document is written in plain language for ease of reading. Where there is a discrepancy between the Rules, and information or a term in this document, the Rules take precedence.

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## 1.2 Audience

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This guide is relevant to Data Interchange software registered participants requiring assistance with troubleshooting their Data Interchange environments.

## 1.3 Related resources

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Table 1 below describes the Data Interchange documentation set. Guides are periodically updated, please ensure you are reading the latest version.

*Table 1: Data Interchange resources*

Name	Description
Guide to Setting up a standard Data Interchange environment	A one page guide with the steps required to setup a standard DI environment.

Name	Description
EMMS Data Interchange Guide	Provides an overview of the components for managing, monitoring and replicating data between AEMO's Wholesale Energy Market Systems and registered participant's local DBMS conforming to the MMS Data Model.
Data Subscription Services User Guide	<p>Describes the web-based application in the energy market systems web portal allowing participants to:</p> <ul style="list-style-type: none"> <li>• View a catalogue of all available files.</li> <li>• Subscribe to the files containing the data you need to populate your local DBMS.</li> <li>• Identify the files you are currently subscribed to.</li> <li>• Unsubscribe from files no longer required.</li> <li>• Obtain the MMS Data Model scripts for building and maintaining your local DBMS.</li> </ul>
Participant Data Replication Batcher User Guide (pdrBatcher)	The pdrBatcher is responsible for moving files between remote and local folders.
Participant Data Replication Loader User Guide (pdrLoader)	The pdrLoader parses AEMO-supplied .CSV files into a local DBMS conforming to the MMS Data Model.
Replication Manager User Guide	Manages the configuration settings and monitors the status of the replication of data from AEMO's systems to a participant's DBMS conforming to the MMS Data Model.
Guide to Troubleshooting Data Interchange (this document)	Provides assistance with troubleshooting Data Interchange issues.
MMS Data Model Report	The MMS Data Model is the definition of the interface to participants of data published by AEMO. A DBMS conforming to the MMS Data Model can contain a local copy of all current participant-specific data recorded in AEMO's database. The MMS Data Model includes database tables, indexes, and primary keys.
MMS Data Model Package Summary	
MMS Data Model Table to File to Report Relationships workbook	

Data Interchange software and associated documentation is available from the following locations:

- Releases directory on the participant file share: FTP to 146.178.211.25 > Data Interchange, pdrBatcher, pdrLoader, or Replication Manager.
- Data Subscription web application in the energy market systems web portal:
  - Production: <https://portal.prod.nemnet.net.au>
  - Pre-production: <https://portal.preprod.nemnet.net.au>
- **Data Interchange** web page on AEMO's website.

## 1.4 How to use this guide

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Use the "Contents" on page ii to identify the Data Interchange area you have an issue with or use the "Index" on page 36 to find the question you need an answer for.

**Text in this format**, indicates a direct hyperlink with further details of the resource listed in "References" on page 35.

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## 1.5 What's in this guide?

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- Chapter 2 "Data Interchange Architecture" on page 4 explains what it Data Interchange is for, the components, the requirements and how to access Data Interchange.
- Chapter 3 "Data Management" on page 12 provides assistance with data management such as, data sharing and daily data volumes.
- Chapter 4 "Database Issues" on page 15 provides assistance with managing your participant DBMS.
- Chapter 5 "File Auto-recovery" on page 21 provides assistance with data recovery issues.
- Chapter 6 "File Issues" on page 26 provides assistance with issues around receiving files to your participant DBMS.
- Chapter 7 "Error Messages" on page 30 provides assistance with error messages you may receive.
- Chapter 8 "Monitoring and Housekeeping" on page 31 describes how to monitor your DBMS and what you need to do to keep your installation running smoothly.
- Chapter 9 "Needing Help" on page 33 provides information to assist participants with IT related issues and provides guidance for requesting assistance from AEMO.
- Chapter 10 "References" on page 35 is a resource section containing related information that may assist you and describes where to find resources mentioned throughout this guide.

## 2 Data Interchange Architecture

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The resources for this section are the [Participant Data Replication Batcher User Guide](#), [Participant Data Replication Loader User Guide](#), and [Guide to setting up a standard Data Interchange environment](#).

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### 2.1 About Data Interchange

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Data Interchange is a set of cooperating applications to replicate data between AEMO's Energy Market Systems and participants' local DBMS conforming to the MMS Data Model, including management and monitoring.

AEMO provides working applications to participants to assist with the replication of data between AEMO and participant systems. Each participant is responsible for setting up their own systems and satisfying their requirements for data, including deciding if the complexity of using Data Interchange is a better business decision than using the simpler web portal applications suitable for small operators.

Data Interchange has two core elements:

1. AEMO-side reporting applications that generate structured .CSV files into the participant file server.
2. Participant-side software to replicate data from the participant file server to participants' local DBMS.

## 2.2 Data Interchange components

Table 2 below describes the components required for a full installation of Data Interchange.

*Table 2: Data Interchange components*

Component	Description
MMS Data Model	Establishes the target tables in a participant's DBMS conforming to the MMS Data Model.
Participant Data Replication Batcher (pdrBatcher)	Responsible for transferring files to and from AEMO's participant file server.
Participant Data Replication Loader (pdrLoader)	Responsible for loading files from participant's local file repository to the participant's DBMS.
Replication Manager	Manages the operation of the pdrLoader using a graphical user interface (Windows only).
Data Subscription	The web application in the energy market systems web portal allowing registered participants to: <ul style="list-style-type: none"> <li>• Obtain the latest MMS Data Model scripts for building and maintaining their DBMS</li> <li>• Subscribe and unsubscribe to the report files available in the participant file server</li> <li>• View the entire list of available files. <b>Note:</b> AEMO recommends subscribing to all available files and selectively loading them into your DBMS as required.</li> </ul>
Data Delivery	The web application in the energy market systems web portal allowing registered participants to: <ul style="list-style-type: none"> <li>• View the Data Interchange Status Dashboard</li> <li>• Make a file delivery query</li> <li>• Re-request files</li> <li>• View your organisation's data sharing arrangements.</li> </ul>

Component	Description
Performance Monitor	The web application in the energy market systems web portal allowing registered participants to view a graphical interface of the current Data Interchange Performance Monitor environment run and managed by AEMO. Participants not receiving data, or experiencing data delays can contrast the data delivery performance of their Data Interchange environment to AEMO's Data Interchange performance environment.
Data Interchange bundles	<p>All the components necessary for a new installation of Data Interchange are bundled together into compressed files; each bundle is for a specific DBMS and version of the MMS Data Model.</p> <p>The Data Interchange bundles are available from:</p> <ul style="list-style-type: none"> <li>• The <b>Data Interchange</b> web page on AEMO's website.</li> <li>• The Releases directory: FTP to 146.178.211.25 &gt; Data Interchange.</li> </ul>

Data Interchange software and associated documentation is available from the following locations:

- Releases directory on the participant file share: FTP to 146.178.211.25 > Data Interchange, pdrBatcher, pdrLoader, or Replication Manager.
- Data Subscription web application in the energy market systems web portal:
  - Production: <https://portal.prod.nemnet.net.au>
  - Pre-production: <https://portal.preprod.nemnet.net.au>
- **Data Interchange** web page on AEMO's website.

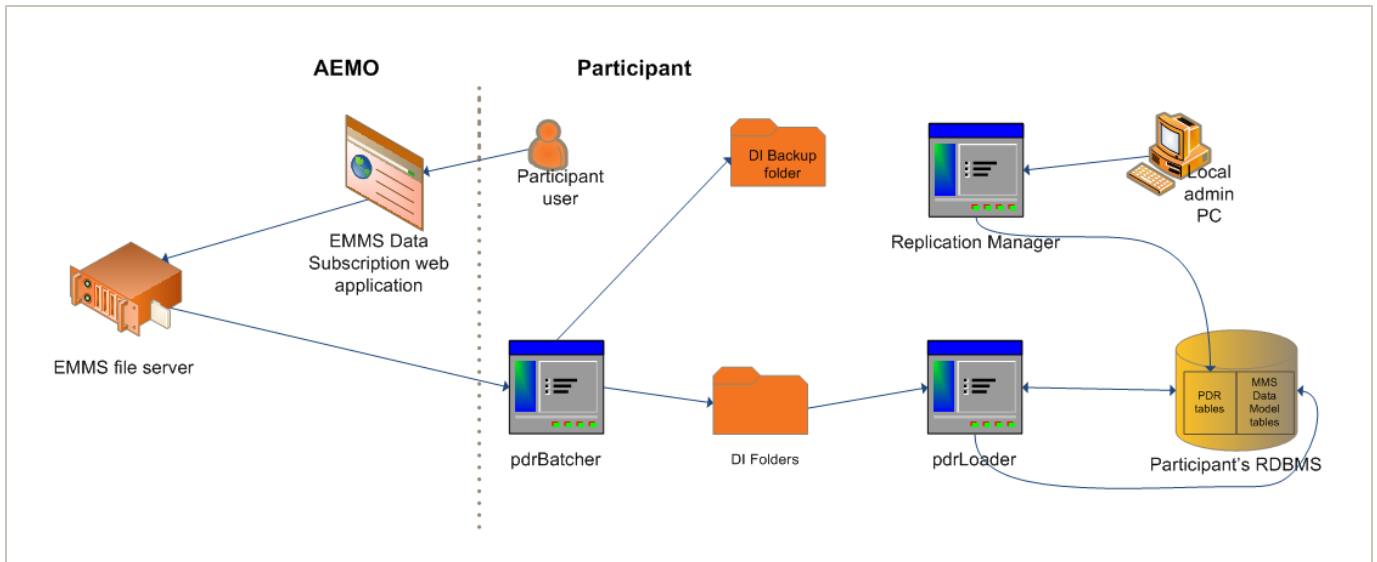
## 2.3 Standard Data Interchange implementation

AEMO recommend setting up your first Data Interchange environment in pre-production. Once you have a successful pre-production installation (used for testing), you can replicate it in production to receive live market data. Be careful to always keep the pre-production and production data entirely separate.

You can only have one DI implementation connected to one EMMS file server environment. For example, you can have your pre-production environment connected to the EMMS file server pre-production environment and your production environment connected to the EMMS file server production environment.

Figure 1 on next page describes the standard Data Interchange implementation which is a single pdrLoader instance for each database.

Figure 1: standard Data Interchange implementation



## 2.4 Requirements

Successfully implementing and managing Data Interchange requires good IT skills, including networking, database management, batch file management, and disaster recovery.

To use Data Interchange requires:

- A user name, password, and user rights, provided by your company's participant administrator (PA), providing access to the Data Interchange web applications in the energy market systems web portal, see "User rights access" on the facing page.
- A DBMS supporting the MMS Data Model. The MMS Data Model supports versions of Oracle and Microsoft SQL Server.
- Java runtime engine suitable for the target DBMS. The distribution file from AEMO contains supported JDBC drivers for Oracle and SQL Server.
- The Replication Manager software runs on Windows OS only, other Data Interchange software components run on both Windows and Unix-like operating systems.
- For accessing the energy market systems web portal, Microsoft Internet Explorer version 7 or later, although the recommended version is Microsoft Internet Explorer 8.

## 2.5 User rights access

---

Your company's participant administrator (PA) grants you permission to use the Data Interchange software components. The entities required for access to each component are listed below. Where a participant user has user rights assigned by more than one participant, they interactively choose the participant they represent, using the **Set Participant** option.

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For more information about user administration and the Set Participant option, see the [Guide to User Rights Management](#).

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### 2.5.1 Data Subscription

- EMMS - Data Subscription - Maintain and View Data
- EMMS - Data Subscription - View Data

### 2.5.2 Data Delivery

- EMMS - Data Interchange

### 2.5.3 Performance Monitor

- EMMS - Data Interchange - Performance Monitor

## 2.6 Can the PDR software run on a UNIX platform?

---

Yes, the software is written in Java which is a platform independent language. Shell script wrappers are provided for both pdrBatcher and the pdrLoader that may need to be customised to the particular flavour of Unix that is being used.

## 2.7 Can pdrBatcher and pdrLoader run on the same server?

---

Yes, they can also run on the database server itself. They are provided as separate products to allow for more complex and secure networking configurations.



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## 2.8 How can I setup FTP access to AEMO systems?

---

To enable FTP access using participant ID(s), participants contact their company's IT Security contact or participant administrator (PA) to obtain the credentials issued by AEMO.

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## 2.9 What is the recommended FTP mode to run the pdrBatcher?

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AEMO recommends running FTP in PASSIVE mode at all times, as per the default configuration for the pdrBatcher.

Using ACTIVE FTP mode may work, however, it is less reliable because there are potential issues with the FTP port number being decided at the participant end and hence collisions can occur on the AEMO server. ACTIVE FTP mode may not work with certain networking configurations.

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## 2.10 Can I run multiple instances of pdrLoader against a single database?

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AEMO has not specifically tested this scenario and recommends using the standard set-up described in the *Guide to Setting up a standard Data Interchange environment*. A standard Data Interchange implementation is a single pdrLoader instance for each database, see "Standard Data Interchange implementation" on page 6.

---

## 2.11 Can I run multiple instances of pdrBatcher or pdrLoader out of a single installation directory?

---

Yes, but each must have its own set of working directories and log file.

---

Setting up multiple instance of the pdrBatcher and pdrLoader out of a single installation directory requires sophisticated technical knowledge of Data Interchange. AEMO recommends setting up a standard Data Interchange environment to verify it is working before attempting to run multiple instances from a single installation directory, see "Standard Data Interchange implementation" on page 6.

---

Use the config and log4j command line parameters when invoking the application from the batch or shell script. These same parameters can be adjusted in the Windows service wrapper.

This is useful when setting up a disaster recovery (DR) pdrBatcher that has a main configuration to point to the production pdrBatcher to extract report files for the DR environment. In this case, setup a separate invocation script pre-configured that launches the DR pdrBatcher against the AEMO production system to bring up the DR site for production duties quickly.

---

## 2.12 Can I send the logging output of pdrBatcher and pdrLoader to the same log file?

The two processes should use separate log files, particularly when using the DailyRollingFile appender in log4j.

---

## 2.13 How do I setup a disaster recovery environment using PDR?

To setup a disaster recovery (DR) environment:

Setup the production environment to have a pdrBatcher configuration that tees outgoing directories (Reports and ReportsTrickle) to two separate staging directories. The production pdrLoader consumes files from one of these directories into your production database. The DR pdrBatcher then points to the alternate set of staging directories fed by the production pdrBatcher and feeds these files to the DR pdrLoader.

An equivalent return path from the DR pdrLoader Request directory must feed files back to the production pdrLoader Request directory so these can be chain fed back to AEMO's systems, for help see, the [Participant Data Replication Batcher User Guide](#).

---

The most critical configuration aspect is that each pdrLoader must have a unique instance\_identifier defined in the properties configuration file.

---

---

## 2.14 What is the difference between trickle feed and normal CSV feed?

The trickle feed provides a mechanism for a low priority catch-up, and fills in data gaps in historical data when there is idle time. The CSV feed is the real time data feed and has priority over any backfill operations.

---

## 2.15 Can I retrieve a historical file that I was not subscribed to?

---

No, AEMO only keeps a record of reports that each Participant ID was subscribed to at the time that a report was generated. AEMO recommends subscribing to all available files and selectively loading them into your DBMS as required.

---

Participants can load public data from the Monthly DVD archive sent to your company's IT Security Contact. The [AEMO Information and Support Hub](#) can advise who this if if you don't know.

---

## 2.16 How long is information retained on the AEMO online archive?

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AEMO has sized hardware to retain approximately six month's worth of files for all participants.

## 3 Data Management

In this chapter:

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<b>3.2 Receiving data for more than one participant ID through a single directory?</b> .....	<b>12</b>
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The resource for this section is the [Replication Manager User Guide](#).

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### 3.1 Estimated daily volumes using pdrBatcher

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AEMO estimates the following daily volumes:

- Number of files: 2500 files per day (subscription to all packages and reports).
- Data volumes: 1.2 GB monthly compressed public .CSV files plus participant's private data.

### 3.2 Receiving data for more than one participant ID through a single directory?

---

Each participant ID can share their data with other participant IDs, subject to an authorised request. Implementing data sharing means the full “Data Interchange” data set (including private data) for the requesting participant ID is made available to another participant's set of folders in the participant file server, as nominated in the request. The sharing of data is for both pre-production and production.

The energy market systems web portal displays the status of any data sharing agreements you have implemented in the [Data Interchange>Data Delivery>Data Sharing](#) interface.

Each participant ID wanting to set up a data sharing agreement with another Participant ID must request it in writing on a company letterhead authorised by a senior executive to the [AEMO Information and Support Hub](#). Figure 2 on next page provides an example of the information AEMO requires.

Figure 2: example of data sharing agreement request

<Company name> < ABN>for <participant ID> <requests|authorises> AEMO to make available <company name> < ABN>for <participant ID> the full subscription data set (including private data) to <company name> < ABN><participant ID> using the EMMS Data Interchange and Data Subscription services. This is to remain in place until advised in writing.  
A letter from <Company name> < ABN> for <participant ID> confirming this is forthcoming.

---

For more details about data sharing, see [Guide to Information Systems](#).

---

### 3.3 Does data sharing impact the other participant ID's file subscriptions?

---

No, file subscriptions are on a per participant ID basis. It is possible for a Participant ID to subscribe to a file and receive data for another participant ID which is not subscribed to that same file.

### 3.4 Is data delivered in pre-production the same as data in production?

---

No, MMS data sets provided in the pre-production environment are different to the production environment.

Only periodic MMS data feeds (such as DISPATCH) are regularly available in pre-production, with non-periodic feeds available on an ad hoc basis.

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Under no circumstances should a participant point their production Data Interchange implementation to the AEMO pre-production environment.

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### 3.5 Are there data gaps if a report was active, then set inactive, and then reactivated?

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The pdrLoader populates the MMS Data Model when a report is set to active. When a report is set to inactive, the file is processed but no data is loaded to the database, which can cause data gaps.

The data can be recovered using the re-request facilities available in the Replication Manager by making a re-request that spans the period when the report was made inactive.

## 4 Database Issues

In this chapter:

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The resources for this section are the [MMS Data Model Report](#), [Replication Manager User Guide](#), [Data Subscription Services User Guide](#), [Participant Data Replication Loader User Guide](#) and [Participant Data Replication Batcher User Guide](#).

---

### 4.1 How can I tell if my database is up-to-date?

---

To tell if your database is up-to-date:

1. Using the Replication Manager, select Replication, and then Monitor Replication.
2. Click the MANIFEST tab to view the data showing all known data discrepancies in the database.
3. Alternatively, inspect the PDR\_MANIFEST\_LOG table directly, looking for rows with a status other than RECONCILE.

## 4.2 Turning off data loaded to a specific table?

---

To turn off data loaded to a specific table, set the report record data corresponding to the table to inactive using either:

- The Replication Manager.
- Edit the data in the IS\_ACTIVE column of the appropriate row(s) in the PDR\_REPORT\_RECORDS table.

This is a local configuration that AEMO systems have no knowledge of, so you will still receive the data in the .CSV file that is generated to your CSV Reports directory.

## 4.3 Cannot insert non-existent table

---

Check and action the following:

1. pdrLoader configurations match with the version of the MMS Data Model installed in the local DBMS.
2. Check for rows in PDR\_REPORT\_RECORDS where IS\_ACTIVE=1 and whether the DESTINATION\_TABLE exists in your local DBMS.
3. Apply any MMS Data Model updates to ensure your local schema is kept up-to-date.

## 4.4 Database errors observed in pdrLoader log

---

Check and action the following:

1. Database Space issues observed:
  - Resolve database space issues, reprocess the files, or let auto file recovery resolve data gaps.
2. Primary key violations observed:
  - Check the SEQUENTIAL\_PROCESS flag in PDR\_REPORT\_TYPE\_CONFIG for the associated report type and set to 1 if necessary. Refer to the MMS Data Model pdrLoader configuration for reference configuration settings.
3. Check the transaction\_type values comply with standard configuration.
4. Ensure the pdrLoader is configured using the correct db\_handler in the properties configuration file.



#### 5. Database access issues:

- Verify the target database is accessible using the database access credentials configured in the pdrLoader environment.
- Verify the Java runtime environment is correctly defined in the pdrEnvironment.bat and the pdrServiceInstall.bat.
- Check the database account password/encrypted? Resolve any issues.

## 4.5 Data not replicated for all tables

---

Check and action the following:

1. Timestamp is current on heartbeat\_load.out file in pdrLoader log directory.
2. pdrLoader is running, restart if necessary.
3. pdrLoader reports are activated for loading – confirm using Replication Manager or querying PDR\_REPORT\_TYPE\_CONFIG
4. pdrLoader JDBC connectivity configuration is set to the correct database.
5. Build up of any files in the Error Directory, see "Files in Error directory" on page 27
6. pdrLoader log for inactivity timeout or any other errors. Restart the pdrLoader.
7. pdrLoader reports directory is valid. Ensure the local directory path of the pdrBatcher is correctly feeding files to the pdrLoader.
8. pdrBatcher for file downloads, see "pdrBatcher not receiving any files" on page 28.
9. File build up in Loader Reports/Queue directory.
  - Check the correct file mask is applied for the Loader thread.
  - Verify the pdrLoader.properties for this file type. Using a specific thread? Using a catch all thread(s)?
10. Data Interchange file processed for this table?
  - Check the Replication Manager Last replicated to find the last processed time of a file for this table.
  - Investigate if not within the business cycle.
11. Last uploaded time of a file for this table:
  - Check the Replication Manager Record Type details>Lastupdated.
  - Investigate if not within the business cycle.
12. Latest file process status for any error messages:
  - Use the Replication Manager, select Record Type>Record Type details>Logs>Error Logs.

- Use the following SQL: pdr\_report\_audit table. (eg: DISPATCHIS)  
 Select \* from pdr\_report\_audit where report\_type='DISPATCHIS' and file\_receive\_time =(select max(file\_receive\_time) from pdr\_report\_audit where report\_type='DISPATCHIS');
- Investigate and resolve any errors.

## 4.6 Data not loading to a table

---

Ensure the following is in place:

1. The MMS Data Model configuration is loaded.
  - Check for a row in PDR\_REPORT\_RECORDS associated with the DESTINATION\_TABLE and that IS\_ACTIVE is set to 1 to enable data loading.
2. Verify the table is accessible for read and write using the database access credentials configured in the pdrLoader environment.
3. Ensure the relevant report is set ACTIVE for loading. Use the Replication Manager or view the PDR\_REPORT\_TYPE\_CONFIG table directly.
4. Ensure you are subscribed to the relevant reports in the Data Subscription web application to view the report subscriptions for your PARTICIPANT ID.
5. Ensure your pdrBatcher has connectivity to AEMO's systems. Check the log file for inactivity timeout messages.
6. Ensure your MarketNet account is not locked out. Try establishing an FTP session from a command prompt.

## 4.7 System requesting MANIFEST reports but they are not received

---

Check the following items:

1. Ensure your pdrBatcher is properly configured for the return path from the pdrLoader request directory to the EXPORT/DATA\_INTERCHANGE directory on the participant file server.
2. Ensure you are subscribed to the MANIFEST file using the Data subscription web application.
3. Verify the status of your instance using the Data Interchange>Data Delivery interface in the energy market systems web portal.
4. Check if the manifest request was acknowledged or rejected in the PDR\_REQUEST\_LOG table.

## 4.8 pdrBatcher inactivity timeout

---

Check and action the following:

1. pdrBatcher inactivity time out value:
  - Adjust `batcher_inactivity_timeout=450` (if required, assuming a subscription to a period five-minute file, for example DISPATCHIS).
2. Ensure appropriate threads are set for activity monitoring. See the standard configuration delivered with the application.
3. pdrBatcher logs for any errors:
  - Restart the pdrBatcher, if required.

## 4.9 pdrLoader inactivity timeout

---

Check and action the following:

1. pdrBatcher is getting files:
  - Restart the pdrBatcher.
2. pdrLoader inactivity time out value in `pdrLoader.properties`:
  - Adjust `file_load_inactivity_timeout=450` if required
3. pdrLoader logs for any errors, dead loader threads:
  - Restart the pdrLoader.

## 4.10 Primary key violations

---

The pdrLoader should not normally experience primary key violations because it checks for the existence of data before inserting new rows. If there is a violation, check and action the following:

1. The most common reason for a primary key violation is that the loader is attempting to insert the same data from two different files, for example BID and BID\_AS files. Two separate loader threads are trying to load the same data at the same time from separate files and one fails on key violation. Under these circumstances, the pdrLoader re-requests the file that had the PK violation and reloads it so there is no overall failure. The resolution is to unsubscribe from the duplicate data using the Data Subscription web application.
2. Ensure the sequential\_process flag is set (=1) for the corresponding file type in accordance with standard PDR configuration. In particular, for files that result in UPDATE transactions.
3. A defect in Oracle 11g R1 on the Windows platform can also cause primary key violations. For an Oracle 11g installation, please ensure the Oracle 11g database handler (db\_handler) is configured in the pdrLoader properties file as it contains a workaround for this defect.

## 4.11 Some tables within a file type not loaded

---

Check and action the following:

1. Does the pdrLoader configuration match the Data Interchange file?
  - Apply the correct MMS Data Model pdrLoader configurations.
2. pdrLoader configuration (PDR\_REPORT\_RECORDS) for this table:
  - Set the configuration version ACTIVE in the Replication Manager record Type details.

## 4.12 Data is not populated in a column

---

The pdrLoader only loads data from the .CSV file having a matching column name, to a column name in the target table. In the case where the .CSV file contains additional data that does not directly map to a database column, the data is ignored.

The data for the primary key columns of any target table must be included in the .CSV file otherwise the pdrLoader is unable to process that content. The resolution for unpopulated data columns is to:

1. Ensure you are subscribed to the latest MMS Data Model files.
2. Restart the pdrLoader. The pdrLoader caches information about the target database structure for performance reasons.

# 5 File Auto-recovery

In this chapter:

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<b>5.2 How does auto-recovery work?</b> .....	<b>21</b>
<b>5.3 Missing data not recovered</b> .....	<b>23</b>
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The resources for this section are the [MMS Data Model Report](#), [Replication Manager User Guide](#), [Data Subscription Services User Guide](#), [Participant Data Replication Loader User Guide](#) and [Participant Data Replication Batchers User Guide](#).

---

## 5.1 What is auto-recovery

---

Auto-recovery is functionality built into the pdrLoader that provides an assurance of guaranteed receipt and commit to the participant DBMS of all published data to a participant.

## 5.2 How does auto-recovery work?

---

The pdrLoader periodically issues a manifest request. This only occurs when the loader is idle and there are no files waiting to be loaded. The manifest request is a small text file that contains a date-time stamp that is the end date-time of the last transaction manifest received. If it is a first time manifest, then the current date-time is used.

The pdrBatcher transfers this request to AEMO's systems, which process the request file and provide an acknowledgement. The acknowledgement file is in the standard AEMO CSV format and is processed into the database to update the STATUS and STATUS\_DATE columns of the request in the PDR\_REQUEST\_LOG table. This update only applies if the

instance\_identifier in the response file matches the one defined in the pdrLoader.properties file. This is how the system ensures that data coming out of AEMO's systems find its way to the correct instance.

The acknowledgement of a manifest request means the report request is logged in AEMO's systems and will be delivered in a timeframe that does not have dependency on the loading of AEMO's systems. Generally, it will be within a minute of the request.

The manifest report is a list of all files that AEMO has a record of delivering to the participant directory forward of the request date-time. The returned manifest does not contain an overlap, ensuring there are no boundary conditions around the request date-time. This data (assuming again the instance identifier is appropriate) is then loaded into the PDR\_MANIFEST\_LOG table and set to a "RECONCILE" status. Additionally, the MANIFEST\_END\_DATETIME column in the PDR\_REQUEST\_LOG associated with the request is updated so the system has a record of the timestamp that AEMO's systems have provided data for. This end time becomes the request date-time of the next manifest request.

The initial RECONCILE state of data in PDR\_MANIFEST\_LOG indicates that when the reconciliation process runs, it must check all rows to see if there is a matching entry in the PDR\_REPORT\_AUDIT table with a SUCCESS status indicating the file is loaded. Files are identified by EVENT\_QUEUE\_ID, FILE\_ID, CONFIDENTIALITY columns. All rows having matching records in PDR\_REPORT\_AUDIT are then deleted from this table and under normal circumstances this leaves no rows. If there are any rows left, these rows are set to a MISSING status, making them a candidate for re-requesting.

When the re-request process runs, it extracts all rows (up to a configurable limit of 100) with a MISSING status and then generates an archive request. An archive request is a list of files that the participant system is requesting AEMO's systems to resupply using the trickle feed. A response to an archive request is on a per row and per file basis with AEMO applying a threshold to how many re-requests are accepted in any single archive request.

The archive response file is a standard AEMO CSV format file that updates the rows in the PDR\_MANIFEST\_LOG to indicate a STATUS of re-requested and the archive\_request\_id.

When the files are loaded, the rows in the PDR\_MANIFEST\_LOG are deleted the next time the reconciliation process runs, gradually clearing the gaps.

Independently of this process, a timeout thread is used to manage the scenario where a request is acknowledged by AEMO's systems but no corresponding response is received. This ensures that if AEMO's systems do not respond appropriately, the participant system can return the rows to a state where it can repeat the request and ensure all data gaps are cleared.

---

For help with the CSV format, see [Guide to AEMO CSV Data Format Standard](#).

---

## 5.3 Missing data not recovered

---

Check and action the following:

1. File automated recovery set to true:
  - Set pdrLoader.properties file for parameter file\_automated\_recovery=true.
2. Recent changes to loader parameters?
  - Restart pdrLoader to make the changes effective.
3. When was the last MANIFEST requested and its status?
  - Select request\_date, manifest\_start\_datetime, status from pdr\_request\_log  
Where request\_date= (Select max(request\_date) from pdr\_request\_log where request\_type='MANIFEST')
  - Restart the pdrLoader.
4. When was the file subscribed?
  - Missing data cannot be recovered for periods prior to the file subscription date.
5. RESPONSE set to ACTIVE so the pdrLoader can process Response files?
  - Replication Manager>main page>RESPONSE set to ACTIVE
6. MANIFEST set to ACTIVE so the pdrLoader can process the MANIFEST reports?
  - Replication Manager>main page>MANIFEST set to ACTIVE.
7. Are the acknowledgements files receive by the pdrLoader?
  - Replication Manager>main page>last update for record type RESPONSE.
8. Are the MANIFEST reports received by the pdrLoader?
  - Replication Manager>main page>last update for record type MANIFEST.
9. MANIFEST request files are sent to AEMO?
  - Check pdr>Loader>Request directory for any build up of MANIFEST request files.
  - Resolve any pdrBatcher issues for not sending the requests.

## 5.4 PDR MANIFEST log table keeps growing

---

Check and action the following:

1. The \\loader\\ReportsTrickle directory is available for the pdrLoader:
  - Analyse the pdrLoader thread configuration/masks for possible exclusions from the ReportTrickle directory.
  - Adjust the pdrLoader thread configs if required.
2. The batcher downloads the \\PARTICIPANT\_ID\\IMPORT\\REPORTS\\CSVTrickle:

- Analyse the pdrBatcher thread configuration/masks for possible exclusions from the CSVTrickle directory.
- If a single batcher is feeding multiple pdrLoaders, ensure the trickle feed is teed off to all loader instances.
- Adjust batcher thread configurations if required.

## 5.5 REQUEST not acknowledged

---

Check and action the following:

1. A batcher thread is configured to send the REQUEST pdrLoader directory files to \\PARTICIPANT\_ID\\EXPORT\\DATA\_INTERCHANGE:
  - Configure pdrBatcher thread.
2. Any REQUEST file build up in the pdrLoader request directory:
  - file\_request\_dir=c:\\pdr\\loader\\Request. Investigate for the pdrBatcher not sending the requests to AEMO.
3. RESPONSE set to ACTIVE so that Response files are processed by the pdrLoader:
  - Replication Manager>main page>RESPONSE set to ACTIVE.

## 5.6 MANIFEST request not generated

---

Check and action the following:

1. File automated recovery is set to true:
  - Check the pdrLoader.properties file for parameter file\_automated\_recovery=true.
  - Set the Parameter file\_automated\_recovery=true.
2. The participant\_identifier is correctly set in the pdrLoader.properties.
3. The instance\_identifier is unique across all Loader instances.
4. A batcher thread is configured to receive MANIFEST reports from \\PARTICIPANT\_ID\\IMPORT\\ACKNOWLEDGMENTS and deliver them to the pdrLoader reports directory.
5. A batcher thread is configured to send the REQUEST to \\PARTICIPANT\_ID\\EXPORT\\DATA\_INTERCHANGE.



## 5.7 pdrLoader is running but has not requested a MANIFEST

---

The pdrLoader only requests a manifest when there are no .CSV files waiting to be loaded. If you have a significant data backlog, no manifest operations occur until all the pending data is loaded. Check and action the following:

- Ensure the automated recovery feature is enabled in the pdrLoader.properties file.

## 5.8 MANIFEST timed out

---

Check and action the following:

- The timeout to receive ACK/MANIFEST report:
  - The pdrLoader.properties file\_load\_request\_timeout (default=120 sec). Increase the pdrLoader file\_load\_request\_timeout value if necessary.

## 5.9 LEGACY files keep appearing in MANIFEST

---

Check and action the following:

- If running the latest data model version, unsubscribe from LEGACY files:
  - In the Data Subscription interface in the energy market systems web portal unsubscribe from LEGACY files.
  - In Replication Manager, set LEGACY files to ABANDONED and monitor replication to avoid re-requests.

## 6 File Issues

In this chapter:

<b>6.1 Turning off a file data feed?</b> .....	<b>26</b>
<b>6.2 Manually re-requesting a file</b> .....	<b>27</b>
<b>6.3 Files in Error directory</b> .....	<b>27</b>
<b>6.4 pdrBatcher not receiving a particular file type</b> .....	<b>27</b>
<b>6.5 pdrBatcher not receiving any files</b> .....	<b>28</b>
<b>6.6 pdrLoader is repeatedly re-requesting a file</b> .....	<b>29</b>

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The resources for this section are the [MMS Data Model Report](#), [Replication Manager User Guide](#), [Data Subscription Services User Guide](#), [Participant Data Replication Loader User Guide](#) and [Participant Data Replication Batcher User Guide](#).

---

### 6.1 Turning off a file data feed?

---

To turn off a file feed, either:

1. Set the IS\_ACTIVE flag to false in the PDR\_REPORT\_TYPE\_CONFIG table for the specific file.
  - If you set the file to inactive, the file is still generated and downloaded but its content is not loaded to your MMS Data Model. In this case, AEMO maintains a copy of the file in its online archive so you can re-request it for up to six months. If you are not subscribed to a file it is not possible to re-request it at a later date.
2. Unsubscribe from the file using the Data Subscription web interface.
  - If you unsubscribe from a file it is no longer delivered to your CSV Reports directory on the AEMO file server and it is not possible to retrieve it at a later date.

---

AEMO recommends option 1 unless there is a specific reason to avoid the additional data download.

---

## 6.2 Manually re-requesting a file

---

To re-request a file:

1. Using the Replication Manager, double-click the MMS Data Model package on the front interface to see the logs form.
2. Select a block of reports and click the green re-request arrows on the toolbar.

## 6.3 Files in Error directory

---

Files in the error directory are unsuccessful loading attempts by the pdrLoader. Check and action the following:

1. Check pdrLoader Logs for relevant error and resolve.
2. Reprocess the file(s) (if file\_load\_automated\_recovery is not set to true) or let the automatic recovery to re-request.
3. Clean the directory contents periodically if auto-recovery is enabled.

## 6.4 pdrBatcher not receiving a particular file type

---

Check and action the following:

1. Is this file type subscribed?
  - Use the Data Subscription web interface to verify that the related file is subscribed to. Select Subscribe to Files and then filter by Collection and Package.
2. Is there a valid pdrBatcher thread configured for this file type?
  - Verify the pdrBatcher.properties for this file type. File download using a specific thread? OR using a catch all thread(s)?
  - Check the correct file mask is applied for the batcher thread.
3. pdrBatcher thread count matches with the number of threads configured
  - Adjust the batcher\_threads property in the pdrBatcher.properties.
4. pdrBatcher logs for any errors:
  - Check Pdr>Batcher>Log>pdr.log and explore reasons for any batcher errors.
5. Dead thread observed in the pdrBatcher log?
  - Restart the pdrBatcher to recover the dead thread.
6. The files are produced at source:
  - FTP to AEMO and check the source directory for this file type.

7. Check only a single pdrBatcher instance is reading the AEMO source:
  - If a secondary pdrBatcher exists, configure it to use an alternative source for example, a primary batcher copying to multiple directories.

## 6.5 pdrBatcher not receiving any files

---

Check and action the following:

1. Timestamp is current on heartbeat\_download.out file in pdrBatcher log directory.
2. pdrBatcher logs for any errors (Pdr>Batcher>Log>pdr.log):
  - Explore reasons for batcher errors.
3. pdrBatcher inactivity timeout observed over a longer period?
  - For example, after an AEMO bay transfer.
  - Restart Batcher for threads to recover.
4. FTP account validity:
  - Update pdrBatcher.properties with a valid FTP account, host, password (correctly encrypted?) and restart the pdrBatcher.
5. MarketNet access issues from the pdrBatcher host:
  - Try connecting to FTP directly and check authentication and response.
6. Java runtime environment is correctly defined for the pdrBatcher:
  - Update pdrEnvironment.bat (console mode) pdrServiceInstall.bat (running as service) for correct Java runtime path.
  - Restart or reinstall the pdrBatcher service.
7. Files are produced at the source:
  - FTP to AEMO and check the source directory for this file type.
8. Local directory space issues:
  - Make space available in the holding or reports directory?
  - If multiple target directories are used ensure their existence and available space.
  - Backup, clean up, archive log files to make space and restart the pdrBatcher.
9. pdrBatcher Windows service or Unix daemon is running.
10. pdrBatcher.properties file modified?
  - Restart the Batcher to make the changes effective.

## 6.6 pdrLoader is repeatedly re-requesting a file

---

The system is trying to load a file that was subscribed to but fails and continues to re-request that file until it is loaded successfully. The recovery process is based on the subscriptions setup when the file was generated, not on the current time.

Before taking action to cease file requests, participants must determine the root cause and initiate remedial action required. A database space issue can result in this behaviour. Failure to properly investigate error conditions can result in data loss to the local database.

To stop re-requesting of the file, do either of the following:

1. Correct the configuration error that is causing the file not to load. A successful file load will stop this file being re-requested.
2. Use the Replication Manager to remove the file from the request cycle as follows:
  - Menu Replication>Monitor Replication>Manifest tab. Right-click the problem file and set the status to ABANDONED.
3. Alternatively, update the STATUS in PDR\_MANIFEST\_LOG to ABANDONED for the file, directly in the database.

When a file is in the ABANDONED state it is no longer requested, but the row is left in the PDR\_MANIFEST\_LOG table to record that there was an issue. You can manually delete this row from the database if you do not want to retain a permanent record.

## 7 Error Messages

In this chapter:

### 7.1 What is the error message in pdrLoader relating to report record properties? ..... 30

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The resources for this section are the [Data Subscription Services User Guide](#) and [Participant Data Replication Loader User Guide](#).

---

### 7.1 What is the error message in pdrLoader relating to report record properties?

---

This occurs if a report is processing that does not have a matching configuration loaded in the PDR\_REPORT\_RECORDS table. In this case, pdrLoader cannot process the file and generates an error message.

pdrLoader configurations to the MMS Data Model are maintained automatically:

- Confirm the PDR\_CONFIG file type is active in the Replication Manager to ensure the automated configuration delivery is enabled.

# 8 Monitoring and Housekeeping

In this chapter:

<b>8.1 What alerting can I use to monitor a PDR installation?</b> .....	<b>31</b>
<b>8.2 What do I put in place to keep a PDR installation running smoothly?</b> .....	<b>32</b>

The resources for this section are the [Participant Data Replication Batcher User Guide](#) and [Participant Data Replication Loader User Guide](#).

## 8.1 What alerting can I use to monitor a PDR installation?

Table 3 below summarises a list of potential monitoring points.

*Table 3: list of monitoring points*

Monitor	Failure Mode
The pdr.log file in the pdrBatcher or pdrLoader Log directory for text ERROR	Indicates a general error.
For a build up of files in pdrLoader reports or Reports\Queue directory	May indicate a failure of the local database, poorly performing insert queries, or a large file load backlog.
Scan log files for text “Detected inactivity timeout”	Indicates that the pdrBatcher has lost connectivity to the AEMO systems or has failed completely if the message is detected in the pdrLoader log.
Specific tables in the MMS Data Model for timeliness.	Failure of a specific business process or replication of data for that process, e.g. Select max(lastchanged) from dispatchcasesolution  Should be within 5 minutes of current time if DISPATCH data is replicating correctly.
Heartbeat file	This file is touched each time a file is processed. Check for an aging heartbeat file.

## 8.2 What do I put in place to keep a PDR installation running smoothly?

---

Ensure the following items are in place:

- Purge files from the pdrBatcher and pdrLoader Log directories older than a specified date.
- Purge files from the pdrLoader **Archive** directory older than a specified date.
- Purge files from the pdrLoader **Error** directory older than a specified date.
- For an Oracle environment, ensure that database statistics are kept up-to-date (refer to your Oracle DBA).
- You can purge rows from the PDR\_REPORT\_AUDIT table if the table reaches a size that causes issues, but AEMO recommend keeping at least 12 months online matching the AEMO file archive. The pdrLoader software contains a capability to manage this table content within a configurable data retention period.
- MarketNet passwords have a 90 day expiry, you need to have a password change process in place to ensure your password does not expire. If your password expires or becomes locked out, contact the [AEMO Information and Support Hub](#).
- AEMO wholesale systems are updated on a six-monthly release cycle which includes changes to participant interfaces. These releases are typically scheduled for production late May and November so plan to have resources available to implement the releases around this time to keep systems on a supported configuration.
- Only enable data for loading that is actually required.
- Put in place a data archiving and purging strategy to keep the overall database size within manageable limits.
- pdrBatcher and pdrLoader applications are updated on an infrequent basis. Ensure you operate on a supported software version and complete update activity to remain in support. The latest Data Interchange software versions and details of changes are published in the technical specification for each wholesale market release.



# 9 Needing Help

## 9.1 AEMO's Information and Support Hub

---

### 9.1.1 Contacting AEMO's Information and Support Hub

Assistance is requested through AEMO's Information and Support Hub using one of the following methods:

- Phone: 1300 AEMO 00 (1300 226 600) 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 Information and Support Hub for all urgent issues, whether or not you have logged a call in the Customer Portal.

---

### 9.1.2 Information to provide AEMO

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)

## 9.2 Feedback

---

To suggest improvements to this guide, please contact the [AEMO Information and Support Hub](#).

# 10 References

The resources listed in this section contain related information that may assist you.

## 10.1 AEMO's website

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- "Data Interchange", the web page containing all software and documentation relating to the Data Interchange components: <http://www.aemo.com.au/About-the-Industry/Information-Systems/Data-Interchange> (Home > About the Industry > Information Systems > Data Interchange).
- *Guide to AEMO CSV Data Format Standard*, <http://www.aemo.com.au/About-the-Industry/Information-Systems/Using-Energy-Market-Information-Systems> (Home > About the Industry > Information Systems > Using Energy Market Information Systems).
- *Guide to Information Systems*, <http://aemo.com.au/About-the-Industry/Information-Systems> (Home > About the Industry > Information Systems).
- *Guide to User Rights Management*, <http://www.aemo.com.au/About-the-Industry/Information-Systems/Using-Energy-Market-Information-Systems> (Home > About the Industry > Information Systems).
- "IT Assistance", information to assist participants with IT related issues: <http://www.aemo.com.au/About-the-Industry/Information-Systems/IT-Assistance> (Home > About the Industry > Information Systems > IT Assistance).

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