Oracle® R Enterprise

Release Notes

Release 1.5.1

E83205-02

April 2017

These release notes contain important information about Release 1.5.1 of Oracle R Enterprise.

New Features in Oracle R Enterprise 1.5.1

Oracle R Enterprise 1.5.1 has some new features that are compatible with Oracle Database Release 12.1.0.2 and earlier, and other new features compatible with Oracle Database Release 12.2.0.1.

New Features for Oracle Database Release 12.1.0.2 and Earlier

Oracle R Enterprise 1.5.1 has the new `OREdplyr` package, improved performance of row ordering in `ore.frame` objects, and faster loading of the Oracle R Enterprise packages.

OREdplyr Package for Data Manipulation

The `dplyr` package provides a grammar of data manipulation functions for `data.frame` objects and `numeric` objects. The new `OREdplyr` package implements much of this functionality for `ore.frame` and `ore.numeric` objects. This enables in-database execution of `dplyr` functionality such as selecting, filtering, ordering, and grouping columns and rows, and joining, summarizing, sampling, and ranking rows.

Related Topics:

Data Manipulation Using OREdplyr

New Features for Oracle Database Release 12.2.0.1

Oracle R Enterprise 1.5.1 has the new graph analytics package `OAAgraph` and has new functions in the Oracle R Enterprise Data Mining package `OREdm`.

OAAgraph Package
: The `OAAgraph` package provides an R interface to the powerful Oracle Spatial and Graph Property Graph In-Memory Analyst (PGX) for use in combination with Oracle R Enterprise and database tables.

New Features of the OREdm Package
: The `OREdm` package has some new functions that use in-database Oracle Data Mining algorithms to create models in the database and new arguments for some functions.

OAAgraph Package

The `OAAgraph` package provides an R interface to the powerful Oracle Spatial and Graph Property Graph In-Memory Analyst (PGX) for use in combination with Oracle R Enterprise and database tables.

The package provides a single, unified interface supporting the complementary use of machine learning and graph analytics technologies.

Graph analytics use graph representations of data, in which data entities are nodes and relationships are edges. Machine learning produces models that identify patterns in data for both descriptive and predictive analytics. Together, these technologies complement and augment one another.

Related Topics:

Graph Analysis Using OAAgraph

New Features of the OREdm Package

The `OREdm` package has some new functions that use in-database Oracle Data Mining algorithms to create models in the database and new arguments for some functions.

New Functions in the OREdm Package

New functions in the `OREdm` Oracle Data Mining package that use in-database algorithms are the following:

- `ore.odmEM`, Expectation Maximization Models
- `ore.odmESA`, Explicit Semantic Analysis Models
- `ore.odmRAlg`, Extensible R Algorithm Models
- `ore.odmSVD`, Singular Value Decomposition Models

The `ore.odmRAlg` enables users to use registered R scripts to create models that use the Oracle Data Mining in-database model framework.

Other new functions are the following:

- `partitions`, which returns partition names from a partitioned model
- `settings`, which returns the Oracle Data Mining parameter settings used to build the model.

New Arguments to Some Functions for Oracle Data Mining Model Build Configuration and Text Processing

The new arguments for some of the data mining model functions are:

- `odm.setting`
- `ctx.setting`

`odm.setting`

The `odm.setting` value is a list that specifies Oracle Data Mining parameter settings. Both Oracle Data Mining global and algorithm-specific parameters can be specified to configure the model build. Some new features are enabled through the parameter settings. For example, you can use this argument to specify the creation of a partitioned model, which is an ensemble model that consists of multiple sub-models. When you specify the parameter `ODMS_PARTITION_COLUMNS` and the names of the columns by which to partition the input data, the function returns a model with a sub-model for each partition. The partitions are based on the unique values found in the columns.

Partitioned models can automate scoring by allowing you to reference the top-level model only, which causes the proper sub-model to be chosen based on the values of the partitioned column or columns for each row of data to be scored.

`ctx.setting`

With this argument, you can specify Oracle Text attribute-specific settings. You specify the columns that should be treated as text and the type of text transformation to apply.

This argument applies to the following functions:

- `ore.odmESA`, Explicit Semantic Analysis
- `ore.odmGLM`, Generalized Linear Models
- `ore.odmKMeans`, *k*-Means

- `ore.odmNMF`, Non-Negative Matrix Factorization
- `ore.odmSVD`, Singular Value Decomposition
- `ore.odmSVM`, Support Vector Machines

Note: To create an Oracle Text policy, the user must have the `CTXSYS.CTX_DDL` privilege.

Related Topics:

Building Oracle Data Mining Models

Other Changes

Oracle R Enterprise Release 1.5.1 has the following other changes, which are in effect for Oracle Database 12*c* Release 12.2.0.1 and earlier releases.

- Updated supporting packages `DBI` and `ROracle`
- Requirement for R 3.3.0; as with earlier releases of Oracle R Enterprise, Oracle recommends that you use Oracle R Distribution
- A new RPM for Oracle R Distribution, R-core-extra-3.3.0-1.el6.x86_64.rpm

R-3.3.0 depends on newer versions of several third party compression libraries and no longer contains bundled copies of them. This means that R 3.3.0 won't build against Linux 6 as is, because the native versions of these libraries are older than those that R-3.3.0 requires.

The R-core-extra RPM contains the required versions of these libraries and is provided as a convenience for users of Oracle Linux 6. Adding the location of the libraries in R-core-extra to `LD_LIBRARY_PATH` removes the need to built these libraries separately. Oracle Linux 7 introduces the required versions of these libraries, but the R-core-extra RPM is provided as a convenience if needed.

See Also: For information on installing Oracle R Distribution using RPMs, see Installing Oracle R Distribution on Linux in *Oracle R Enterprise Installation and Administration Guide*

Oracle R Enterprise 1.5.1 Platform and Configuration Requirements

Oracle R Enterprise runs on 64-bit platforms only.

Both client and server components are supported on each of the platforms described in this topic.

Table 1-1 Oracle R Enterprise Platform Requirements

Oracle R Enterprise Platform Requirements

Table 1-1 (Cont.) Oracle R Enterprise Platform Requirements

Operating System	Hardware Platform	Description
Linux x86-64	Intel and AMD	• 64-bit Oracle Linux Releases 6 and 7 • 64-bit Red Hat Enterprise Linux Releases 6 and 7 Oracle Linux may be running on Oracle Exadata Database Machine.
Oracle Solaris on x86-64 (64-Bit) Oracle Solaris on SPARC-64 (64-Bit)	Intel and SPARC	• 64-bit Oracle Solaris 10 update 11 through Oracle Solaris 11 for both SPARC and x86-64 (Intel) platforms • Oracle SPARC SuperCluster • Oracle Solaris Studio (formerly Sun Studio) 12u3 or later Oracle Solaris may be running on Oracle Exadata Database Machine.
IBM AIX on POWER Systems (64-Bit)	IBM	64-bit IBM AIX 5.3 or higher
Microsoft Windows x64 (64-Bit)	Intel	64-bit Microsoft Windows

Table 1-2 Oracle R Enterprise Configuration Requirements and Server Support Matrix

Oracle R Enterprise Configuration Requirements and Server Support Matrix

Oracle R Enterprise Version	Open Source R or Oracle R Distribution	Oracle Database Release
1.5.1	3.3.0	11.2.0.4, 12.1.0.1, 12.1.0.2, 12.2.0.1
1.5	3.2.0	11.2.0.4, 12.1.0.1, 12.1.0.2
1.4.1	3.0.1, 3.1.1	11.2.0.3, 11.2.0.4, 12.1.0.1, 12.1.0.2
1.4	2.15.2, 2.15.3, 3.0.1	11.2.0.3, 11.2.0.4, 12.1.0.1
1.3.1	2.15.1, 2.15.2, 2.15.3	11.2.0.3, 11.2.0.4, 12.1.0.1
1.3	2.15.1	11.2.0.3, 11.2.0.4, 12.1.0.1
1.2	2.15.1	11.2.0.3, 11.2.0.4, 12.1.0.1
1.1	2.13.2	11.2.0.3, 11.2.0.4, 12.1.0.1
1.0	2.13.2	11.2.0.3, 11.2.0.4, 12.1.0.1

Note: In Oracle Database Release 12.1.0.2, for some embedded R operations to be successful, both Oracle R Enterprise releases 1.4.1 and 1.5 require the database patch -- 20173897 WRONG RESULT OF GROUP BY FROM A TABLE RETURNED BY EXTPROC (Patch).

Bugs Fixed in Oracle R Enterprise 1.5.1

Oracle R Enterprise 1.5.1 fixes the problems listed in this topic.

Table 1-3 Bugs Fixed in Oracle R Enterprise 1.5.1

Bugs Fixed in Oracle R Enterprise 1.5.1

Number	Description
18561846	ORE.PUSH: MIXING R AND ORE OBJECT NAMES CAN RESULT IN REMOVAL OF TEMP TABLE
21901178	VIEW CREATED BY ORE.CREATE ON ORE.FRAME DOES NOT PRESERVE IN MULTIPLE SESSION
22198902	ORE.STEPWISE RETURNS RESIDUALS AS 0 AND NO P-VALUES
22283078	ORE.DROP INCORRECTLY HANDLES VIEWS
22607954	DB TABLES WITH SPECIAL CHARACTER IS NOT ACCESSIBLE IN ORE
23512913	ORE.RANDOMFOREST DOES NOT ACCEPT SINGLE INDEPENDENT VARIABLE
25417402	STEPWISE DEMO FAILS INTERMITTENTLY

About Upgrading to Oracle R Enterprise 1.5.1

Upgrading to Oracle R Enterprise Release 1.5.1 from Release 1.5 or earlier version.

Oracle R Enterprise 1.5.1 requires open source R or Oracle R Distribution 3.3.0 or later.

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