

Release Notes

Amazon Redshift JDBC Data Connector 1.2.55

Released July 2021

These release notes provide details of enhancements, features, known issues, and workflow changes in Amazon Redshift JDBC Connector 1.2.55, as well as the version history.

Enhancements & New Features

Support for Java 11

The connector now supports Java 11.

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.55.

- When calling `getFunctionColumns(null, null, null, null)`, the connector returns the "Invalid operation: negative substring length not allowed" error.
- When a `NoticeResponse` message is received during the prepare phase, the connector becomes unresponsive.

Known Issues

The following are known issues that you may encounter due to limitations in the data source, the connector, or an application.

- User defined operators containing a question mark (?) are not processed correctly.

A question mark at the beginning and/or end of a user defined operator is recognized as a parameter and not as a part of the operator as there is no way to distinguish if '?' is part of the operator or not in this case.

- Strings containing PWD not parsed correctly.

If the property name following PWD is not a valid property name supported by Redshift, it is treated as a part of the PWD value. This is because PWD can

contain '&', ';' and '=' meaning the connector does not know where the PWD value stops until it finds the next valid property name following a ';'.

For example:

- `jdbc:redshift://[HOST]:5439/simba?UID=[UID]&PWD=[PWD]&BlockingRowsMode=0`: the extracted PWD is `[PWD]` .
 - `jdbc:redshift://[HOST]:5439/simba?UID=[UID]&PWD=[PWD]&UnknownSetting=0`: the extracted PWD is `[PWD]&UnknownSetting=0`.
- The connector does not accept multi-statement queries that contain output parameters.
 - The connector does not support daylight saving time when inserting TIMETZ data in PreparedStatement's setObject() and setTime() functions.
 - The connector cannot return the fractional seconds and timezone components for TIMETZ data in CallableStatement's getTime() function when it is used for stored procedure output parameter.
 - The connector cannot return REFCURSOR data as OBJECT data for Redshift instances running on a single-node cluster.

When working with a single-node cluster, the connector can only return REFCURSOR data as VARCHAR data.

This limitation exists because single-node clusters do not support the FETCH ALL command syntax that is required for returning REFCURSOR data as OBJECT data. If you attempt to retrieve REFCURSOR data this way, the connector returns the following error message: "FETCH ALL not supported in single-node clusters".

- Temporal functions are returned as UTC dates or timestamps.

In the latest version of the open-source PostgreSQL driver, temporal functions are returned in the user's local time zone. Version 8.4 of the open-source driver returns temporal functions as UTC dates or timestamps instead. The Amazon Redshift JDBC Connector is consistent with version 8.4 of the open-source driver.

Workflow Changes

The following changes may disrupt established workflows for the connector.

Version 1.2.51

Removed support for DSILogLevel

Beginning with this release, the driver no longer supports the `DSILogLevel` connection property. For more information about logging configuration, see the *Installation and Configuration Guide*.

Version 1.2.50

New third-party dependency

Beginning with this release, the driver uses the third-party library `antlr4-4.5.3.jar`.

Version 1.2.41

Removed support for JDBC 4.0 and 4.1 (Java 6 and 7)

Beginning with this release, the driver no longer supports JDBC 4.0 (Java 6) and JDBC 4.1 (Java 7). For a list of supported JDBC versions, see the *Installation and Configuration Guide*.

Version History

Version 1.2.54

Released April 2021

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.54.

- When executing the `"UNLOAD ('select-statement') TO 's3://object-path/name-prefix' authorization [option [...]]"` command, the connector does not identify the double-quoted identifiers correctly in the `'select-statement'` query and replaces the generic SQL parameter `"?"` markers with the Redshift `"$i"` markers.
- When executing the `"UNLOAD ('select-statement') TO 's3://object-path/name-prefix' authorization [option [...]]"` command and the `'select-statement'` query contains a semi-colon (`;`), the connector returns a "no viable alternative" error.

- When `SSL` is set to `false` and IAM authentication is used, the connector attempts to connect.

This issue has been resolved. Now, in this case, the connector returns an error immediately and does not attempt to connect.

- When `AuthMech` is set to `DISABLE`, the connector connects to the server through TLS/SSL.
- When calling `getProcedureColumns()` and `getFunctionColumns()` for variable length data types, the connector returns `NULL` for the `COLUMN_SIZE` and `BUFFER_LENGTH` columns.
- `getObject(int, Class<T>)` does not support the `BigInteger` class.

This issue has been resolved. Support for the `BigInteger` class has now been added to `getObject(int, Class<T>)`.

- `getObject(int, Class<T>)` does not support the `LocalDateTime` and `OffsetDateTime` classes.

This issue has been resolved. Support for the `LocalDateTime` and `OffsetDateTime` classes, and special handling for infinity and -infinity timestamp conversions have now been added to `getObject(int, Class<T>)`.

- When executing a query and the server returns an error message with a hint, the connector does not display the hint.

Version 1.2.53

Released January 2021

Enhancements & New Features

Updated Jackson libraries

The driver now uses the following libraries for the Jackson JSON parser:

- `jackson-annotations-2.11.3` (previously 2.10.1)
- `jackson-core-2.11.3` (previously 2.10.1)
- `jackson-databind-2.11.3` (previously 2.10.1)
- `jackson-dataformat-cbor-2.11.3` (previously 2.10.1)

Updated Antlr library

The driver now uses antlr4-runtime-4.8-1.jar. Previously, the driver used antlr4-4.5.3.jar.

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.53.

- For non-external tables, when the percent sign (%) is used as the schemaPattern for getTables() or getColumns(), the driver returns an empty result set.
- When setting a NULL value as the first parameter index using setObject() in batch execution, the driver returns a NullPointerException.
- When retrieving a large number of IAM connections, a throttling issue occurs.
- The driver logging file named `RedshiftJDBC_connection_ext_[number].log` was removed.

This issue has been resolved. The logging file has been added back. For more information, see the *Installation and Configuration Guide*.

- The AWS credentials expire earlier than expected.

Version 1.2.51

Released November 2020

Enhancements & New Features

Return metadata from multiple data stores

The driver can now return metadata from multiple Redshift databases and clusters. To enable this, set the `DatabaseMetadataCurrentDbOnly` property to 0. For more information, see the *Installation and Configuration Guide*.

Query group labels

The driver can now apply a user-defined label to all queries made from a connection. To do this, specify the label with the `QueryGroup` connection property. For more information, see the *Installation and Configuration Guide*.

Improved block comment recognition

Block comment (`/* */`) recognition has been improved, making query processing faster.

Improved driver logging

The driver logging has been improved for IAM connections.

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.51.

- The driver mistakenly recognizes any occurrence of `[$tag]$ (.)$ [$tag]$` as a dollar-quoted string.

As a workaround, if the same identifier containing a `$` is used in a query, the identifier must be enclosed in double quotes (`"`).

- The driver incorrectly translates `"CALL procedureName(arg1, arg2, ... argi)"` to `"SELECT procedureName(arg1, arg2, ... argi)"` when it fails to retrieve parameter information for the procedure.
- This issue has been resolved. Now, if the `CALL` statement is not enclosed in curly braces (`{ }`), there are no modifications done to the query.
- The driver incorrectly treats a quoted identifier as the actual procedure name when trying to retrieve procedure parameter information, and therefore is not able to find the procedure information.

This issue has been resolved. The driver now strips double quotes around the procedure name for quoted identifiers before attempting to retrieve the procedure information.

- In some cases, when using the Browser Azure AD plugin, a race condition occurs and the connection fails intermittently.
- In some cases, using a password in a connection URL causes the connection to fail with the error message `"[Amazon](500310) Invalid operation: password authentication failed for user "xxxx"."`, even when the password is correct.
- In some cases, batches with multiple parameter sets are not initialized correctly.
- When `SQLProcedureColumns()` is called for a stored procedure with multiple `OUT` parameters, only one `OUT` parameter is returned.
- When using `getClientInfoProperties`, `NAME` returns `APPLICATIONNAME`.

This issue has been resolved. Now, ApplicationName is returned.

- getSchemas() does not narrow down results to the specified schemaPattern.

Version 1.2.50

Released November 2020

Enhancements & New Features

Improved query processing

The query processing engine can now properly identify comments and quoted strings, and therefore process queries correctly.

Filter DbGroups

You can now configure the driver to filter all DbGroups that are received from the SAML response in the Azure, Browser Azure, and Browser SAML authentication types. To do this, specify the filter with the `DbGroupsFilter` connection property. For more information, see the *Installation and Configuration Guide*.

Support for registerOutParameter

The driver now supports registerOutParameter with a parameter name for stored procedures.

Rename OMNI datatype to SUPER

Data of type OMNI is now known as SUPER. For more information, see the *Installation and Configuration Guide*.

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.50.

- When using getTypeInfo with PRECISION and MAXIMUM_SCALE columns, the driver returns incorrect values.
- When java.sql.DatabaseMetaData is not used, read-only mode is not set.
- When BlockingRowsMode is enabled, query cancel is unresponsive.

- When executing a parameterized SELECT query with a SUPER (previously named OMNI) column in the WHERE clause, the driver returns an error.
- When the IAM role is set to the China region, the driver fails to parse a SAML assertion.
- When SQLColumns is called for NUMERIC and DECIMAL columns in late binding view, the driver returns an error.
- If more than one TIME data is selected, fractional seconds are not included in the column.

Version 1.2.47

Released July 2020

Enhancements & New Features

Support for getFunctions()

The driver now supports the getFunctions() catalog function.

Support for getFunctionColumns()

The driver now supports the getFunctionColumns() catalog function.

Support for OMNI data

The driver now supports data of type OMNI. For more information, see the *Installation and Configuration Guide*.

Support for TIME data

The driver now supports data of types TIME and TIMETZ. For more information, see the *Installation and Configuration Guide*.

Specify relying party trusts

You can now configure the driver to allow different relying party trusts for AD FS authentication. To do this, when the authentication type is AD FS, specify the relying party with the `loginToRp` connection property. For more information, see the *Installation and Configuration Guide*.

Support for read-only mode

You can now configure the driver to use read-only mode. To do this, set the new `ReadOnly` property to `true`. For more information, see the *Installation and Configuration Guide*.

Additionally, you can change the read-only settings by using the `setReadOnly` API call.

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.47.

- `DatabaseMetaData.supportsBatchUpdates` is incorrectly set to `false`.
This issue has been resolved. `DatabaseMetaData.supportsBatchUpdates` is now set to `true` to match the driver capability.
- When a cluster restarts, the driver becomes unresponsive.
- When using `PreparedStatement`, query cancel is unresponsive after retrieving the first few rows.
- When there are multiple `RAISE` statements in a stored procedure, the driver does not return values.
- When retrieving a `NULL` value using `getString()` from a column of `GEOMETRY` data type, the driver returns a `NullPointerException`.
- When `getProcedureColumns` is called more than once within the same connection, the driver returns an error.
- When using IAM authentication, the SAML response parsing is not secure.
- When using IAM authentication, the profile name in `~/.aws/config` is not detected.
- When using numeric data in late binding views, the driver returns incorrect `DECIMAL_DIGITS` values in `SQLColumns`.

Version 1.2.45

Released May 2020

Enhancements & New Features

Lowercase DbGroups

You can now configure the driver to lowercase all DbGroups that are received from the identity provider. To do this, set the new `ForceLowercase` property to `true`. For more information, see the *Installation and Configuration Guide*.

Support for GEOMETRY data

The driver now supports data of type GEOMETRY. For more information, see the *Installation and Configuration Guide*.

Updated Jackson libraries

The JDBC 4.2 version of the driver now uses the following versions of the libraries for the Jackson JSON parser:

- jackson-annotations-2.10.1
- jackson-core-2.10.1
- jackson-databind-2.10.1
- jackson-dataformat-cbor-2.10.1

The JDBC 4 and 4.1 versions of the driver use version 2.6.x of these libraries.

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.45.

- When a query in SQLWorkbench is cancelled, the driver becomes unresponsive.
- When the Java application uses `com.amazon.redshift.api.PGTimestamp` directly, an exception occurs.
- The function `getProcedureColumns()` returns incorrect `COLUMN_TYPE`, `ORDINAL_POSITION`, and `NULLABLE` columns.
- The function `getColumns()` does not return the `IS_GENERATEDCOLUMN` column.

- When `getProcedures()` is called without a schema name filter and with a procedure name filter, it returns incorrect results.
- When the schema name includes unicode characters and the JVM is set to use the windows-1252 character set, the driver is unable to fetch table names using catalog functions.
- The `getColumns()` metadata for an external table returns "unknown type".
- When the driver uses SSO authentication, it sends duplicate parameters and the authentication request fails.
- When the driver uses PingFederate authentication, the driver incorrectly sends password to a "passwordReset" field and the authentication fails.

Version 1.2.43

Released April 2020

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.43.

- The driver cannot parse dollar-quoted string constants with a tag of one or more characters.
- The driver does not allow the usage of DCL, DDL or DML keywords as table names or column names in a statement when `setReadOnly` is set.
- Improper handling when user interrupts driver execution.

This issue has been resolved. The driver now handles `InterruptedException` and sends a cancel request to the server.

Version 1.2.41

Released February 2020

Enhancements & New Features

IAM authentication with browser plugin

You can now use a browser plugin to authenticate your connection through your identity provider's website. For more information, see the *Installation and Configuration Guide*.

Begin transactions with START TRANSACTION

You can now use START TRANSACTION as a command to start a transaction.

Improved Azure AD error messages

The driver now provides more comprehensive error messages for the Azure AD plugin.

Removal of SLF4J dependency

The driver no longer includes SLF4J as a dependency.

Resolved Issues

The following issues have been resolved in Amazon Redshift JDBC Connector 1.2.41.

- In some cases, the driver incorrectly reports a column's nullability as "Not Nullable" instead of "Unknown".
- If you cancel a query before the query is in execution, the driver returns an error.

This issue has been resolved. Now, if you cancel a query before the query is in execution, the cancellation is ignored. However, the cancel request is still recorded in the driver logs.

- If the data source does not provide a column length, the driver returns an error.
- The driver does not return time zone information when returning a string representation of a timestamp.

Version 1.2.37

Released November 2019

Enhancements & New Features

Azure AD authentication

The driver now supports authentication through Azure AD. For more information, see the *Installation and Configuration Guide*.

SAML assertion included in driver log

If single sign-on authentication is used and the `DSILogLevel` connection property is set to 6, the driver now always logs the SAML assertion.

Use DbUser from SAML assertion

The driver can now override the specified `DbUser` value with a value from the SAML assertion. To enable this, set the new `AllowDBUserOverride` connection property to 1. For more information, see the *Installation and Configuration Guide*.

Resolved Issues

The following issue has been resolved in Amazon Redshift JDBC Connector 1.2.37.

- In some cases, the driver is unable to parse complex queries.

Version 1.2.36

Released October 2019

Enhancements & New Features

Optimization of catalog functions

Prepared statement reuse now includes the external schema check query. This improves the performance of catalog functions.

Resolved Issues

The following issue has been resolved in Amazon Redshift JDBC Connector 1.2.36.

- If the driver receives a Notice response while reading data, it terminates unexpectedly.

This issue has been resolved. Now the driver continues reading data until it receives a Ready For Query or Error response.

Contact Us

For support, check the Amazon Redshift Forum at <https://forums.aws.amazon.com/forum.jspa?forumID=155> or open a support case using the AWS Support Center at <https://aws.amazon.com/support>.