

Attunity Replicate 6.4 Release Notes - March 2019

Replicate 6.4 introduces several new features and important enhancements including support for using credentials stored in an external "vault", support for using log-based CDC with SAP HANA source, and the ability to publish data to Hortonworks Schema Registry via the Kafka target endpoint.

Notes In addition to these release notes, customers are also encouraged to read the release notes for all versions later than their current version.

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Upgrade to the latest version and then:

1. Open the console and delete the relevant internal parameters.
2. Add the deleted internal parameters back again.
3. Save and the task and then run it.

Multiple Data Folders

When upgrading a Replicate installation with multiple Data folders, only the default Data folder (<Product_Dir>\Data) will be automatically upgraded. The other Data folders need to be updated manually by running the following command:

```
repuictl.exe -d <data_folder_path> setup install
```

Upgrading Replicate Server on Linux

When upgrading from Replicate 5.5 or 6.0 configured with the "data" folder in a non-default location, you must add the following parameter to the upgrade command:

```
data=existing_replicate_data-directory
```

Example (when Replicate is installed in the default installation folder):

```
data=/opt/mydatadir/ rpm -U[vh] areplicate-6.2.0-102.x86_64.rpm
```

Kafka Target Endpoint

Avro Logical Types - Backward Compatibility Support

Replicate 6.2 introduced support for [Avro Logical Data Types](#), with new mappings for some data types. On upgrade, the internal parameter `useOldUintMapping` will be automatically set in order to maintain backward compatibility with the previous data type mappings.

Replicate-to-Avro Data Type Mappings Prior to Replicate 6.2:

UI4 --> INT

UI8 --> LONG

Replicate-to-Avro Data Type Mappings from Replicate 6.2:

UI4 --> LONG

UI8 --> STRING

If you wish to use the new mappings, simply disable this parameter.

Oracle Source Endpoint

Customers upgrading from versions earlier than Replicate 6.0 should set the **Archived redo logs destination identifier** value to the correct DEST_ID. Note that the specified destination must be accessible by Attunity Replicate.

If the **Archived redo logs destination identifier** is not specified (i.e. "0"), Attunity Replicate will use the minimal existing DEST_ID.

IBM DB2 for z/OS Source Endpoint

Due to enhancements made to the Attunity R4Z (previously known as R4DB2) installation procedure as well as the underlying logic, upgrading the Attunity R4Z component on z/OS from versions prior to 6.1 is not supported. Consequently, customers with Replicate versions prior to 6.1 and who wish to use the IBM DB2 for z/OS Source endpoint will need to perform a clean installation of R4Z.

For detailed instructions, refer to the *Attunity R4Z Installation and Configuration Guide*.

File Target Endpoint

From Attunity Replicate 6.0, when the **Add metadata header with data types** option is enabled in the endpoint settings' **General** tab, Replicate data types will be added to the header. To allow customers who enabled this option to continue working with their existing setup after upgrade, the `syntax=FileSyntaxV1` internal parameter was added.

After upgrading, customers with existing tasks that wish to switch to the Replicate data types should:

1. Stop the task.
2. Clear the `syntax=FileSyntaxV1` internal parameter in the **Advanced** tab.
3. Restart the task.

Upgrading the Attunity Replicate Console Only

The following issue applies when upgrading from versions earlier than Replicate 6.0 *only*.

Upgrading only the Attunity Replicate Console in a configuration whereby the Attunity Replicate Console component is installed on one machine and the Attunity Replicate Server component is installed on another, is currently not supported.

Workaround:

1. Uninstall the old Attunity Replicate Console version.
2. Install the new Attunity Replicate Console version.
3. Run the following command from <PRODUCT_DIR>\bin:

```
RepUiCtl.exe repository upgrade --repository ..\Data\GlobalRepo.sqlite
```
4. Restart the Attunity Replicate UI Server service.

The source endpoint will now be SAP Application (DB).

6. Open the endpoint and re-enter the password.
7. Click **Test Connection** to verify that a connection can be established to the database.
8. Reload the task(s).

Tasks that were Started from Timestamp

Note Applies when upgrading from Replicate 5.5, 6.2 or 6.3.

Usually, when capturing changes from tasks that were started from timestamp, Replicate applies the changes to the target immediately. However, after upgrading, the changes for tasks that were started from timestamp *before* the upgrade will only be applied when the current time is reached, resulting in target latency. The severity of the latency will depend on how far the task has progressed at the time of upgrade. So, for example, the target latency for a task that was started from timestamp one week before the upgrade will be greater than that of a task that was started from timestamp the day before the upgrade (assuming that the amount of changes captured by both tasks is identical).

You can avoid latency issues by waiting until these tasks have reached the current time before upgrading.

Attunity Enterprise Manager (AEM) Compatibility

Replicate 6.4 is compatible with AEM 6.4 only.

New and Enhanced Features

The following section lists the new and enhanced features for this version.

External Credentials Support

Many organizations prefer to keep secrets in a dedicated "vault" as a means of protecting against unauthorized privileged account access, impersonation, fraud, and theft. Storing secrets in a vault also eliminates manually intensive, time consuming and error prone administrative processes.

From version 6.4, Replicate can be extended using a custom vault add-on API, thereby adding an additional layer of security while easing administration of endpoints.

Support for Log-Based CDC with SAP HANA Source

An option to capture changes directly from the SAP HANA logs has been added to the SAP HANA source endpoint. To support this new option, the **Advanced** tab now displays two options **Trigger-based CDC** (the existing CDC method) and **Log-based CDC** (the new CDC method).

Log-based CDC is faster and has a smaller system footprint than Trigger-based CDC. However, in order to capture changes, it creates a `$rowid$` column on the target as a Unique Index *instead of* the original Primary Key/Unique Index. Additionally, Log-based CDC does not support multitenant containers and the TRUNCATE statement.

Note Log-based CDC is currently in beta.

Amazon S3 Target Endpoint Improvements

A new **Switch role after assuming SAML role** STS option has been added to the Amazon S3 target endpoint storage settings. When used together with the **SAML Role ARN** (previously named **Role ARN**) option, the role will be switched after initial login.

Microsoft Azure ADLS Target Endpoint Improvements

Support for the following features and functionality have been added to the Microsoft Azure ADLS target endpoint:

- » File Upload Optimizer and Parallel Load
- » The addition of a **Browse** button to the **Target folder** field, both eases configuration and reduces the possibility of error by allowing users to select the target folder (instead of manually specifying the path).

Replicate Add-Ons API

When developing add-ons for Replicate (such as **User-Defined Transformations** and [External Credentials](#)), best practice dictates that the add-on's memory allocations and logging capabilities should be managed by Replicate, rather than independently. To facilitate this functionality, an API for Replicate add-ons is now available. For usage instructions, please refer to *Replicate Add-Ons API* in the Replicate Help.

Support for Using a Non-Sysadmin User with the Microsoft SQL Server Source Endpoint

From Replicate 6.4, customers that do not want to grant sysadmin privileges to the Replicate user, will be able to specify a user with non-sysadmin privileges in the Replicate Microsoft SQL Server source endpoint. While more secure, this option involves much more manual configuration, details of which can be found in *Setting up a Non-Sysadmin User* (under "Using Microsoft SQL Server as a Source") in the Replicate Help.

Note This feature is currently in beta.

SAP Application (DB) Source Endpoint Improvements

Support for the Microsoft SQL Server and IBM DB2 for LUW backend databases (endpoints) has been added to the recently introduced SAP Application (DB) source endpoint.

Support for Running Replicate in a Docker Container

To address the needs of the growing number of organizations using containers, Replicate 6.4 introduces support for running Replicate for Linux in a Docker container. To facilitate this functionality, two scripts are provided. The first script creates the required Dockerfile which can then be used by customers to create a Docker image. The second script runs the Docker image, thus creating a new container. Full instructions can be found in the README file provided with the scripts.

Note Docker support is currently in beta.

Other Enhancements

» **Oracle Source:**

» Capturing change from tables created using the CREATE TABLE AS statement is now supported.

» **IBM DB2 for z/OS Source** - Added support for the Parallel Load feature.

» **Hortonworks Data Platform (HDP) Target** - Support for storing data in an Amazon S3 bucket has been added as an alternative to the existing HDFS storage option.

Platforms and Endpoints

This section details new and deprecated endpoints/platforms and versions.

New Endpoints and Version Support

This section lists new endpoint(s) as well as newly supported endpoint and platform versions.

New Source Endpoints

Support has been added for the following source endpoints:

- » Microsoft Azure SQL Managed Instance

New Target Endpoints

Support has been added for the following target endpoints:

- » Google Cloud SQL for PostgreSQL (Previously supported via the PostgreSQL target)

Newly Supported Endpoint Versions

- » PostgreSQL 10.6 Source
- » My SQL 8.0.11 Source and Target
- » IBM IMS (ARC) 15 Source
- » MariaDB 10.3 Target
- » Vertica target 8.1, 9.0, and 9.1
- » Hortonworks 3.0 and 3.1

Deprecated Hadoop Versions

- » Hortonworks 2.2.x and 2.3.x
- » Cloudera 5.5, 5.6 and 5.7
- » MapR 4.0, 4.1 and 5.0

End of Life/Support and Deprecated Features

This section provides information about End of Life versions, End of Support features, and deprecated features.

Attunity Replicate 6.2

Attunity's Support and Maintenance Agreement guarantees support for three Replicate versions, as follows:

- » When the current Version Release *does not* have a minor release (i.e. x.0), then ATTUNITY shall support:
 - » The current Version Release (1)
 - » The last two (2) Minor Releases of the previous Major Release
- » When the current Version Release *does* have a minor release - for example x.1 - then ATTUNITY shall support:
 - » The last two (2) Minor Releases of the current Major Release
 - » The last one (1) Minor Release of the previous Major Release

Based on the policy outlined above, Attunity announces the end of life of Replicate 6.2. Customers who need additional time to upgrade, can do so during the six-month period following the GA release of Replicate 6.4. Nevertheless, Replicate customers are encouraged to upgrade to Replicate 6.3 or above well before the end of the six-month period. No additional maintenance charges will be introduced during this period.

Attunity understands that in certain circumstances a customer may need an additional support extension to ensure business continuity. If this is the case, please contact Attunity Support to discuss the available options.

Linux Platforms/Versions Pending Deprecation

From Replicate 6.5, support for the following platforms/versions will be discontinued:

- » SUSE Linux
- » RedHat versions 6.7, and 7.1-7.3

Component/Process	Type	Description	Ref #
SAP HANA Source	Issue	<p>An incremental value (indicating a change) would be reserved for the INDX column in the attrep_cdc_changes table before the actual transaction changes were committed to the source database.</p> <p>This would sometimes result (usually with very long transactions) in some of the source changes not being applied to the target, as Replicate would continue reading subsequent changes from the attrep_cdc_changes table without waiting for the previous transaction to complete in the source database.</p> <p>An internal parameter was added that allows customers to set the anticipated transaction length as desired (default 60 seconds).</p> <p>Logging was also enhanced to report missing changes or rolled back transactions.</p>	188936
Repository	Issue	<p>After upgrading to Replicate 6.3, resuming a task with transformations would reload the tables.</p>	188862

Component/Process	Type	Description	Ref #
		encrypted BEGIN and COMMIT transactions.	
Oracle Source - Attunity Log Reader	Issue	CDC tasks would stop unexpectedly when replicating from an Oracle standby environment.	188139
Snowflake Target	Issue	During CDC, some changes would not be applied to the target due to a connectivity issue.	187966
ODBC Infrastructure	Issue	Incorrect conversion of an internal string to the TIME data type would result in the following error: Duplicate entry '1149740' for key 'PRIMARY' during migration	187826
Teradata Target	Issue	During Full Load, DATETIME values in the following format would not be replicated to the target: 9999-12-31 XX:XX:XX	187579
Log Stream - IBM DB2 for LUW	Issue	When replicating from IBM DB2 for LUW 10.5 or below, the task would fail to start with the following error: The numeric literal "0" is not valid because its value is out of range.	187518
MySQL Source	Issue	The task would sometimes stop unexpectedly after failing to read the binlog.	187442

Component/Process	Type	Description	Ref #
		parameter that disables truncation was added. For information on setting the internal parameter, please contact Attunity Support.	
PostgreSQL Target	Issue	During a homogeneous task, a new column added to the source would be created on the target with a different data type (instead of being created with the same data type).	186573
Kafka Target		The task would fail and get stuck in an infinite loop when the input DOUBLE data type was either NAN or INFINITY. Now, a data error will be reported and a record will be inserted into the Apply Exceptions table.	186503
Oracle Target	Issue	When working in Batch Optimized Apply mode, the task would fail when updating a target row with a Unique Index if the value of the Unique Index key segment was NULL.	186466
IBM DB2 for z/OS	Issue	The various return codes resulting from the IFI connection would not be handled properly.	186406

Component/Process	Type	Description	Ref #
Hadoop Hortonworks Target	Issue	Describe table would fail to parse Primary Key information due to removal of the empty row between the column titles and the column list that appeared in previous versions.	185986
Oracle Source - Attunity Log Reader	Issue	Replicate would sometimes fail to capture DELETE operations, due to a change in the logging of DELETE operations in Oracle 12.2.	185898
ODBC Infrastructure	Issue	Recent code improvements to the ODBC infrastructure would, in rare scenarios, result in bad data when replicating from STRING to FLOAT.	185857
Snowflake Target	Issue	Failure to access Amazon S3 due to a permissions issue was not reported properly in the log.	185773
MySQL Source	Issue	TIME would be replicated incorrectly from MariaDB 10.0.32.	185620
IBM DB2 for LUW Source	Issue	The task would fail after capturing changes from a table with a LOB column, but without a Primary Key/Unique Index.	185588

Component/Process	Type	Description	Ref #
Oracle Target	Issue	When the Use direct path full load option in the Advanced tab was disabled, the Full Load process would sometimes result in data loss when loading tables with numerous columns.	184903
PostgreSQL to PostgreSQL	Issue	Replicate would sometimes fail to load or apply unbounded bit varying data type to the target database. The issue was resolved by adding an internal parameter to set the maximum size for an unbounded bit array. For information on setting the internal parameter, please contact Attunity Support.	184627
IBM DB2 for LUW Source	Issue	The task would sometimes fail while capturing a DML from a table with VALUE COMPRESSION set to the default value.	184441
File Source	Enhancement	The following error would be encountered when trying to capture changes from a file. Partial results are valid but processing is incomplete	184003

Component/Process	Type	Description	Ref #
		to data inconsistency.	
Replicate General	Issue	Excessive memory consumption was encountered after upgrade, resulting in eventual task failure.	183309
Snowflake Target	Issue	Replicating binary data to Snowflake in Batch Optimized Apply mode would fail.	182668
IBM DB2 for iSeries	Issue	Changes to dates stored in *EUR format would be parsed incorrectly.	182592
Oracle Source - Attunity Log Reader	Issue	Replicate would not capture Oracle Redo log events created using Oracle Global Transactions (dblink).	181225
Batch Optimized Apply Metadata Manager	Issue	In a Store Change only task, a NULL value would be inserted into a column that only existed on the target.	163632
Oracle Source - Attunity Log Reader	Issue	The task would crash when a table with supplemental logging on all columns was updated vertically.	163501
Amazon Redshift Target	Enhancement	Added a new internal parameter for retrying uploads to Amazon S3. For information on setting the internal parameter, please contact Attunity Support.	162844

Component/Process	Type	Description	Ref #
Notification Message	Issue	When saving a notification message that was edited with line breaks, the line breaks would be removed.	158835
IBM DB2 for Z/OS	Enhancement	Added a warning message that will inform the user what caused subtype 83.	N/A
Batch Optimized Apply	Issue	Replicate on Linux would set %I64d as the "Set Bulk Timeout" and "Set Bulk Timeout Min" value instead of the actual values.	N/A