

Cloudera Streaming Analytics 1.11.1

Release Notes

Date published: 2019-12-17

Date modified: 2024-04-16

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What's new in Cloudera Streaming Analytics

Cloudera Streaming Analytics 1.11.1 covers new features beside the core streaming functionality of Apache Flink and SQL Stream Builder.

Rebase to Apache Flink 1.16.3

Apache Flink 1.16.3 is supported in Cloudera Streaming Analytics 1.11.1.

For more information on what is included in the Apache Flink 1.16.3 version, see the [Apache Flink 1.16.3 Release Announcement](#) and [Release Notes](#).

Support on CDP Private Cloud Base 7.1.7

Beside CDP Private Cloud Base 7.1.9, CSA 1.11.1 is also supported on CDP Private Cloud Base 7.1.7. For more information, see the [Support Matrix](#) page.

Fixed issues

Review the list of Flink and SQL Stream Builder issues that are resolved in Cloudera Streaming Analytics 1.11.1.

- CSA-5138 - SQL job submissions with UDF JARs fail when checkpointing is enabled
- CSA-5006 - SSB non-required configuration breaks generate missing credentials
- CSA-5048 - Generate correct default log configuration for SSB jobs
- CSA-5122 - SSB keeps reconciling after a failed job
- CSA-5126 - Undeterministic classloader behavior with flink-metrics-kafka and kafka-connector resulting in job failure
- CSA-5138 - Cannot submit SQL jobs with UDF JARs when checkpoints enabled
- FLINK-20539 - Type mismatch when using ROW in computed column

Known issues and limitations

Learn about the known issues in Flink and SQL Stream Builder, the impact or changes to the functionality, and the workaround in Cloudera Streaming Analytics 1.11.1.

SQL Stream Builder

CSA-4960 - Invalid job schemas for existing SSB jobs

After successfully upgrading to CSA 1.11.1 from CSA 1.8.0 or lower versions, migrating the existing jobs produce invalid job schemas in the admin database.

The `mv_config` object is stored in the `mv_config` column of the SSB jobs table. You need to manually update the jobs table to resolve the issue:

- If an existing `mv_config` includes an unknown `create` field, the field must be deleted.
- If an existing `mv_config` includes the `minRowRetentionCount` deprecated key, the key should be changed to `min_row_retention_count`.

The following `mv_config` objects show an invalid and valid example:

- Valid `mv_config` object:

```
{ "name": "quizzical_benz", "retention": 300, "min_row_reten
tion_count": 0, "recreate": false, "key_column_name": "", "a
pi_key": null, "ignore_nulls": false, "require_restart": fal
se, "enabled": false }
```

- Invalid mv_config object:

```
{ "create": false, "name": "quizzical_benz", "retention": 300,
  "minRowRetentionCount": 0, "recreate": false, "key_column_name": "", "api_key": null, "ignore_nulls": false, "require_restart": false, "enabled": false }
```

ENGESC-23078 - Job not found after successful job creation

After successfully creating a job in SSB, the SQL job is not found due to tables having empty values. This issue is indicated with the following error message in the log files:

```
java.lang.IllegalArgumentException: argument "content" is null
```

The issue only applies when upgrading from a CSA version lower than 1.9.0.

Update the empty values with null string in the mv_config and checkpoint_config fields as shown in the following example:

```
UPDATE jobs SET mv_config = 'null' WHERE mv_config IS NULL;
UPDATE jobs SET checkpoint_config = 'null' WHERE checkpoint_config IS NULL;
```

CSA-4858 - Kerberos encryption type detection does not always work correctly for SSB

SSB detects no supported encryption types even though there is a list of allowed encryption types in the krb5.conf file. This causes an error when generating keytabs from the principal and password pair.

1. Run ktutil on your cluster.
2. Change the configuration with the following commands:

```
addent -password -p <username> -k 1 -e aes256-cts
wkt /tmp/new_keytab.keytab
```

3. Upload the new keytab on Streaming SQL Console.

Auto discovery is not supported for Apache Knox

You need to manually configure Knox with SQL Stream Builder to enable Knox authentication.

Complete the configuration based on the CDP Private Cloud Base version you use. For more information, see the [Enabling Knox authentication for SSB](#) documentation.

SSB service fails when using Active Directory (AD) Kerberos authentication

If you use AD Kerberos for authentication and the Load Balancer URL is not provided, it can cause the SQL Stream Builder (SSB) service to fail. The issue is caused by the keytab generation. When the keytab is generated by Cloudera Manager it requires the principals from the AD for the Load Balancer host, and without no host specified for the Load Balancer, the SSB service cannot be started by Cloudera Manager. This issue also persists when the Load Balancer role is not deployed or used with SSB.

Fill out the Load Balancer URL parameter in Cloudera Manager regardless of using Load Balancer with SSB. For more information, see the [Enabling High Availability for SSB](#) documentation.

Flink

In Cloudera Streaming Analytics, the following SQL API features are in preview:

- Match recognize
- Top-N
- Stream-Table join (without rowtime input)

DataStream conversion limitations

- Converting between Tables and POJO DataStreams is currently not supported in CSA.
- Object arrays are not supported for Tuple conversion.
- The java.time class conversions for Tuple DataStreams are only supported by using explicit TypeInformation: LegacyInstantTypeInfo, LocalTimeTypeInfo.getInfoFor(LocalDate/LocalDateTime/LocalTime.class).
- Only java.sql.Timestamp is supported for rowtime conversion, java.time.LocalDateTime is not supported.

Kudu catalog limitations

- CREATE TABLE
 - Primary keys can only be set by the kudu.primary-key-columns property. Using the PRIMARY KEY constraint is not yet possible.
 - Range partitioning is not supported.
- When getting a table through the catalog, NOT NULL and PRIMARY KEY constraints are ignored. All columns are described as being nullable, and not being primary keys.
- Kudu tables cannot be altered through the catalog other than simply renaming them.

Schema Registry catalog limitations

- Currently, the Schema Registry catalog / format only supports reading messages with the latest enabled schema for any given Kafka topic at the time when the SQL query was compiled.
- No time-column and watermark support for Registry tables.
- No CREATE TABLE support. Schemas have to be registered directly in the SchemaRegistry to be accessible through the catalog.
- The catalog is read-only. It does not support table deletions or modifications.
- By default, it is assumed that Kafka message values contain the schema id as a prefix, because this is the default behaviour for the SchemaRegistry Kafka producer format. To consume messages with schema written in the header, the following property must be set for the Registry client: store.schema.version.id.in.header: true.

Behavioral changes

Learn about the change in certain functionality of Flink and SQL Stream Builder (SSB) that has resulted in a change in behavior from the previously released version of Cloudera Streaming Analytics.

SQL Stream Builder

Summary:

CSA-5081 - Configurable author and committer for source control

Previous behavior:

A hard-coded committer name and email address is used for the project source control in SSB uses a hard-coded committer name and email. This can cause issues if the Git remote repository has certain validations in place.

New behavior:

The author and committer for project source control can be configured in Cloudera Manager under the SSB configuration as described in [Source control of a project](#)

Unsupported features

The following features are not supported in Cloudera Streaming Analytics 1.11.1.

Limitations on CDP Private Cloud Base 7.1.7

When using Cloudera Streaming Analytics 1.11.1 with CDP Private Cloud Base 7.1.7, the following features are not supported:

- Iceberg integration
- JSON data format for Schema Registry

SQL Stream Builder

- Direct SQL Stream Builder upgrade from 1.3.0



Important: This does not impact Flink, you can directly upgrade Flink as described in the documentation.

For more information, see the [Upgrading SQL Stream Builder](#) in the 1.3.0 documentation.

Flink

- Apache Flink batch (DataSet) API
- GPU Resource Plugin
- Application Mode deployment
- SQL Client
- The following features are not supported in SQL and Table API:
 - HBase Table Connector
 - Old Planner
 - Non-windowed (unbounded) joins, distinct

Support Matrix

Before installing Cloudera Streaming Analytics, review the supported components, databases, connectors and the default ports in use for Flink and SQL Stream Builder (SSB).

Component support

Learn more about which Apache Flink component version is supported in the Cloudera Streaming Analytics (CSA) releases.

CSA version	Component version
CSA 1.11.1	Apache Flink 1.16.3
CSA 1.11.0	Apache Flink 1.16.2
CSA 1.10.0	Apache Flink 1.16.1
CSA 1.9.0	Apache Flink 1.15.1
CSA 1.8.0	
CSA 1.7.0	Apache Flink 1.14
CSA 1.6.2	
CSA 1.6.1	
CSA 1.6.0	
CSA 1.5.3	Apache Flink 1.13
CSA 1.5.1	

CSA version	Component version
CSA 1.5.0	
CSA 1.4.1	
CSA 1.4.0	Apache Flink 1.12
CSA 1.3.0	
CSA 1.2.0	Apache Flink 1.10
CSA 1.1.0	Apache Flink 1.9.1

Related Information

[CSA 1.11.0 Release Notes](#)

[CSA 1.10.0 Release Notes](#)

[CSA 1.9.0 Release Notes](#)

[CSA 1.8.0 Release Notes](#)

[CSA 1.7.0 Release Notes](#)

[CSA 1.6.2 Release Notes](#)

[CSA 1.6.1 Release Notes](#)

[CSA 1.6.0 Release Notes](#)

[CSA 1.5.3 Release Notes](#)

[CSA 1.5.1 Release Notes](#)

[CSA 1.5.0 Release Notes](#)

[CSA 1.4.1 Release Notes](#)

[CSA 1.4.0 Release Notes](#)

[CSA 1.3.0 Release Notes](#)

[CSA 1.2.0 Release Notes](#)

[CSA 1.1.0 Release Notes](#)

System Requirements

Before installing Cloudera Streaming Analytics, you should verify that you meet the system requirements. Other than CDP Private Cloud Base, you should also check the latest supported version of the needed components.

For detailed information about the supported versions of CDP Private Cloud Base, operating systems and databases, see the [Cloudera Support Matrix](#).

Apache Flink support	1.16.3	
CDP Private Cloud Base component support		
Cloudera Runtime	7.1.7 SP2 7.1.7 SP3	7.1.9 7.1.9 SP1
Atlas	2.1.0	3.0.0
HBase	2.2.3	2.4.17
HDFS	3.1.1	3.1.1
Hive	3.1.3	3.1.3
Kafka ¹	2.5.0	3.4.1
Kudu	1.15.0	1.17.0
Schema Registry	0.10.0	0.10.0

¹ Connecting to Kafka that is running on remote CDH6 or HDP3 is also supported.

Apache Flink support	1.16.3	
CDP Private Cloud Base component support		
Streams Messaging Manager	2.1.0	2.3.0

Connector support	
JDBC PostgreSQL	9.6-12
JDBC MySQL	5.7, 8
JDBC Hive	3.1.3
CDC PostgreSQL	9.6-12
CDC MySQL	5.7, 8
CDC Oracle	19.0.0
CDC Db2	11.5
CDC SQL Server	2007-2022
Iceberg	1.3.0

Default ports for Flink and SSB

You need to use the default ports of Flink and SSB when you need to reach or connect to their services. The default ports are set in Cloudera Manager, but can be changed if required.

The following table lists the default ports and the corresponding property file names for Flink and SQL Stream Builder (SSB). The ports are set by default in Cloudera Manager. You can change the ports as required using the configuration properties.

Component	Service	Port	Configuration property
Flink	Flink Dashboard	18211	historyserver.web.port
SQL Stream Builder	Streaming SQL Engine	18121	server.port
	Materialized View Engine	18131	server.port
SQL Stream Builder with Load Balancer	Streaming SQL Engine	8080	ssb.sse.loadbalancer.server.port
	Secured Streaming SQL Engine	8445	ssb.sse.loadbalancer.server.secure.port
	Materialized View Engine	8081	ssb.mve.loadbalancer.server.port
	Secured Materialized View Engine	8444	ssb.mve.loadbalancer.server.secure.port

For the default port list of the Cloudera Runtime components, see the *Ports Used by Cloudera Runtime Components* document.

Maven dependencies in Flink

Review the list of Maven dependencies to ensure the correct connector versions in your Flink applications.

Avro

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-avro</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

Confluent Registry

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-confluent-registry</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>

<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-avro-confluent-registry</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

CSV

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-csv</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

Hive

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-connector-hive_2.12</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

HBase

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-connector-hbase-2.4</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-connector-hbase-1.4</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

Iceberg

```
<dependency>
<groupId>org.apache.iceberg</groupId>
<artifactId>iceberg-flink-runtime-1.16</artifactId>
<version>1.3.0.7.1.9.0-338</version>
</dependency>
```

JSON

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-json</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

Kafka

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-connector-kafka</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

Kudu

```
<dependency>
<groupId>org.apache.bahir</groupId>
<artifactId>flink-connector-kudu_2.12</artifactId>
<version>1.1.0-csa1.11.1.0</version>
</dependency>
```

Schema Registry

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-cloudera-registry</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

Table API

```
<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-table-api-java-bridge</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>

<dependency>
<groupId>org.apache.flink</groupId>
<artifactId>flink-table-planner_2.12</artifactId>
<version>1.16.3-csa1.11.1.0</version>
</dependency>
```

For more information about how to use Maven in Flink, see the [Apache documentation](#).

Flink API Support

Cloudera Streaming Analytics (CSA) offers support for three fundamental layers of the Apache Flink API. You can use DataStream API, the ProcessFunction API and a selected subset of the SQL API to develop your Flink streaming applications.

From the DataStream and ProcessFunction APIs, the following are supported based on the support annotations provided by the Apache Flink community.

Stable (@Public)	Evolving (@PublicEvolving)
<ul style="list-style-type: none"> DataStream API 	<ul style="list-style-type: none"> ProcessFunction Stream Join Interval Join Stateful operators FsStatebackend with HDFS RocksDBStateBackend with HDFS



Note: CSA does not support batch processing (DataSet API).