



Release Notes

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Release Notes for Splice Machine

Welcome to the 2.7 Release of Splice Machine, originally released February, 2018. Our release notes are presented in these topics:

Topic	Description
Splice Machine Database Release Notes (page 4)	<p>Release notes for the Splice Machine database, which is the basis for both our <i>Database-as-Service</i> and <i>On-Premise Database</i> products. These release notes are presented in these topics:</p> <ul style="list-style-type: none">» New Features and Changes (page 5)» Improvements (page 15)» Issues Fixed (page 22)» Limitations and Workarounds (page 41) <p>Each note category contains the base release notes, and links to incremental (patch) update notes.</p>
Splice Machine Database-as-Service Product (page 45)	Release notes specific to changes in our database-as-a-service product.
Splice Machine On-Premise Database Product (page 47)	Release notes specific to changes in our on-premise database product.



Most of the features incorporated into the release 2.7 of Splice Machine have also been backported into version 2.5.1. The documentation and release notes for v2.5.1 are found here: <https://doc.splicemachine.com/2.5.1> (<https://doc.splicemachine.com/2.5.1>)

The product is available to build from open source (see <https://github.com/splicemachine/spliceengine> (<https://github.com/splicemachine/spliceengine>)), as well as prebuilt packages for use on a cluster or cloud.

Release Notes for Splice Machine

Welcome to the 2.7 Release of Splice Machine, originally released February, 2018. The release notes for our database are presented in these topics:

- » [New Features and Changes \(page 5\)](#)
- » [Improvements \(page 15\)](#)
- » [Issues Fixed \(page 22\)](#)
- » [Limitations and Workarounds \(page 41\)](#)

Each of the above topics contains the release notes for the initial Release, along with links to release notes for incremental (patch) versions that have been released since then.



Most of the features incorporated into the release 2.7 of Splice Machine have also been backported into version 2.5.1. The documentation and release notes for v2.5.1 are found here: <https://doc.splicemachine.com/2.5.1>
(<https://doc.splicemachine.com/2.5.1>)

New Features and Changes in Release 2.7 of the Splice Machine Database

The Splice Machine database is used in both our Database-Service and On-Premise Database products.


This page describes the major new features added to the Splice Machine database since the 2.5 GA Release of Splice Machine. With the exception of a few features note in the [New Features Only Available in v2.7 section \(page 5\)](#) below, all of these features have added to both the 2.7 and 2.5.1 Releases of the Splice Machine database.




Splice Machine Release 2.6 was an interim release in September, 2017, which coincided with the initial release of our Database-as-a-Service product. All changes in v2.6 have also been incorporated into both the 2.7 and 2.5.1 Releases of the Splice Machine database.

New Features Only Available in Splice Machine Release 2.7

These features have been added to Release 2.7 of Splice Machine, and have not been backported to Release 2.5.1:

JIRA-ID	Description
Internal	Add support for AVRO format for external tables.
Internal	Query Logging
Internal	Add MacOS version of our ODBC driver. <div> This is a provisional feature that has not yet been as thoroughly tested as it will be.</div>

JIRA-ID	Description
Internal	<p>JDBC Driver Improvements</p> <div>  <p>This is a provisional feature that has not yet been as thoroughly tested as it will be.</p> </div>

New Features in Available in Splice Machine Releases 2.7 and 2.5.1

Each section in this topic includes a list of major new in each interim Splice Machine release since the 2.5 GA Release (2.5.0.1707) on March 1, 2017.

- » [Patch Release 2.5.0.1805 \(page 6\)](#)
- » [Patch Release 2.5.0.1804 \(page 7\)](#)
- » [Patch Release 2.5.0.1803 \(page 7\)](#)
- » [Patch Release 2.5.0.1802 \(page 7\)](#)
- » [Patch Release 2.5.0.1749 \(page 8\)](#)
- » [Patch Release 2.5.0.1748 \(page 8\)](#)
- » [Patch Release 2.5.0.1747 \(page 9\)](#)
- » [Patch Release 2.5.0.1745 \(page 9\)](#)
- » [Patch Release 2.5.0.1735 \(page 11\)](#)
- » [Patch Release 2.5.0.1729 \(page 13\)](#)

2.5.0.1805 Patch Release 5-Feb-18

JIRA-ID	Description
Internal	Improve export performance
Internal	Fix illegal merge join

JIRA-ID	Description
Internal	Prevent incremental backup from losing changes

2.5.0.1804 Patch Release 28-Jan-18

JIRA-ID	Description
Internal	Add hint useDefaultRowCount and defaultSelectivityFactor
Internal	Fix upsert index
Internal	Vacuum disabled tables
Internal	Cache more database properties
Internal	Fix database restore from s3
Internal	Retry write workload on host unreachable exceptions

2.5.0.1803 Patch Release 21-Jan-18

JIRA-ID	Description
Internal	Add system procedure to enable/disable all column statistics
Internal	Close FutureIterator to avoid race condition

2.5.0.1802 Patch Release 14-Jan-18

JIRA-ID	Description
Internal	Clean up incremental changes from offline regions that were offline before full backup
Internal	Add ignore txn cache

JIRA-ID	Description
Internal	Handle CannotCommit exception correctly
Internal	Reduce lengthy lineage of transformation for MultiProbeTableScan operation
Internal	Add JDBC timeout support
Internal	Get keytab file name correctly

2.5.0.1749 Patch Release 26-Dec-17

JIRA-ID	Description
Internal	Exclude metrics jar for cdh platforms
Internal	Add missing getEncodedName() method

2.5.0.1748 Patch Release 18-Dec-17

JIRA-ID	Description
Internal	Fix inconsistent selectivity with predicate order change
Internal	Delete data by region without scanning
Internal	Adjust selectivity estimation by excluding skewed default values
Internal	Propagate SORT elimination to outer joins
SPLICE-1920	Tooling to fix data dictionary corruption

2.5.0.1747 Patch Release 08-Dec-17

JIRA-ID	Description
Internal	Terminate backup timely if it has been cancelled
Internal	Prepend schemaname to columns in PK conditions in update statement generated by MERGE_DATA_FROM_FILE
Internal	Fix column misalignment for join update through mergesort join
Internal	Bound the outer join row count by the left outer table's row count
Internal	Parameter sanity check for region operations
Internal	Populate default value for column of DATE type in defaultRow with the right type (regression fix for SPLICE-1700)
SPLICE-1700	Avoid updating existing physical rows when adding not-null
SPLICE-1802	Create index by HFile loading(2.5)

2.6.1.1745 Patch Release 08-Dec-17



2.6 was an interim release that has been folded in to 2.5

JIRA-ID	Description
Internal	Add region name and id to compaction job description
Internal	Add more logging
Internal	Enhance MultiProbeIndexScan to apply for cases where inlist is not the leading index/PK column

JIRA-ID	Description
Internal	Add logs around task failure in Spark
Internal	Make table level select privileges to column level
Internal	Add back synchronous backup/restore
Internal	Add check for actionAllowed
Internal	Exclude flatten and restart scripts
Internal	Move the bulkimport/bulkdelete test in DefaultIndexIT to a separate file under hbase_sql so it won't run for mem platform
Internal	Add parameter to ignore missing transactions from SPLICE_TXN
Internal	Keep alive backup
SPLICE-1802	Create index by HFile loading
Internal	Synchronize access to shared ArrayList
Internal	Fix automatic DROP of temp tables
Internal	Enhance subquery processing logic to convert eligible where subqueries
Internal	Allow first connection on Kerberized cluster
Internal	Large variance in simple select query execution time
SPLICE-1700	Avoid updating existing physical rows when adding not-null column with default value
Internal	Allow distributed execution for splice client
Internal	Avoid index creation timeout
Internal	Flatten correlated Scalar Subquery in Select clause
Internal	Null checking for region operations

JIRA-ID	Description
Internal	Avoid sort if some of the index columns are bound with constant
Internal	Set rowlocation for index lookup

Splice Patch Release 2.5.0.1735

JIRA ID	Description
SPLICE-31	Our JDBC driver now supports Kerberos authentication.
SPLICE-662	Our JDBC client now distributes query requests across multiple nodes without losing transactions, which provides a more even distribution of work across the cluster, resulting in better performance.
SPLICE-1320	Adds ARRAY data type
SPLICE-1372	<p>We've added two new system procedures for working with database operations that are currently running on a server:</p> <ul style="list-style-type: none"> » The SYSCS_UTIL.SYSCS_GET_RUNNING_OPERATIONS (page 0) system procedure displays a list of the operations running on the server to which you are currently connected. » You can use this procedure to find the UUID for an operation, which you can then use for purposes such as terminating an operation with the SYSCS_UTIL.SYSCS_KILL_OPERATION (page 0) system procedure.

JIRA ID	Description
SPLICE-1373	<p>We've made two significant changes in logging:</p> <ul style="list-style-type: none">» Statement logging is now enabled by default. To modify this, see the Using Logging (page 0) topic.» Logs are stored, by default, in your region server's log directory. You can modify the location of the logs with a code snippet that is described in the Installation Guide (page 0) page for your platform (Cloudera, Hortonworks, or MapR).
SPLICE-1482	Improves import performance by using Hfiles.
SPLICE-1512	Allows use of multiple DISTINCT operations in aggregates.
SPLICE-1591	Adds an option to purge deleted rows when performing a major compaction.
SPLICE-1603	Adds a clause to the ANALYZE TABLE command to allow analyzing via sampled statistics, rather than analyzing the entire table.
SPLICE-1607	You can now configure and use SSL/TLS secured JDBC connections to your Splice Machine database. We support both basic encrypted connections and peer-authenticated connections. Please see our Configuring SSL/TLS topic (page 0) for more information.
SPLICE-1617	Adds support for suppressing NULLs when creating an index to address a situation where most rows in a table contain the default (NULL) value, which wastes storage and causes bad distribution of rows across regions.
SPLICE-1669	Supports bulk delete via HFiles, bypassing the HBase write path.
SPLICE-1671	Added the ability to take snapshots of tables (and their indexes).

JIRA ID	Description
SPLICE-1701	Adds ability to monitor memory usage by HBase JVM through JMX.
SPLICE-1760	The new SYSCS_UTIL.GET_SESSION_INFO" (page 0) system procedure reports information about your current session, including the hostname and session ID for your current session. You can use this information to correlate your Splice Machine query with a Spark job: the same information is displayed in the Job Id (Job Group) in the Spark console.
Internal	<p>We've added a number of built-in system procedures that allow you to work directly with table and index regions; some customers use these to optimize processing of recent data while optimizing storage of older data:</p> <ul style="list-style-type: none"> » SYSCS_UTIL.COMPACT_REGION (page 0) » SYSCS_UTIL.GET_ENCODED_REGION_NAME (page 0) » SYSCS_UTIL.GET_REGIONS (page 0) » SYSCS_UTIL.GET_START_KEY (page 0) » SYSCS_UTIL.MAJOR_COMPACT_REGION (page 0) » SYSCS_UTIL.MERGE_REGIONS (page 0)
Internal	Imports data without overwriting generated or default values contained in non-imported columns.
Internal	Our ODBC Driver now supports BLOB and CLOB objects.

Splice Patch Release 2.5.0.1729 01-Aug-17

JIRA ID	Description
Internal	add a system procedure MERGE_DATA_FROM_FILE to achieve a limited fashion of merge-into

JIRA ID	Description
Internal	Implement Kerberos JDBC support (2.5)
SPLICE-1482	HBase Bulk Import
SPLICE-1591	Allow Physical Deletes in a Table
SPLICE-1603	Support sample statistics collection (via Analyze)
SPLICE-1671	Enable snapshot with bulk load procedure

For a full list of JIRA's for the Community/Open Source software, see <https://splice.atlassian.net> (<https://splice.atlassian.net>)

Improvements in Release 2.7 of the Splice Machine Database

The Splice Machine database is used in both our Database-Service and On-Premise Database products.

This page describes all of the significant improvements made in the Splice Machine database since the 2.5 GA Release of Splice Machine. With only one noted exception, all of the improvements listed here have been made in both the 2.7 and 2.5.1 Releases of the Splice Machine database.



Splice Machine release 2.6 was an interim Release in September, 2017, which coincided with the initial Release of our Database-as-a-Service product. All changes in v2.6 have also been incorporated into both the 2.7 and 2.5.1 Releases of the Splice Machine database.

Each section in this topic includes a list of significant improvements in each interim Splice Machine Release since the 2.5 GA Release (2.5.0.1707) on March 1, 2017.

- » [Patch Release 2.5.0.1805 \(page 16\)](#)
- » [Patch Release 2.5.0.1804 \(page 16\)](#)
- » [Patch Release 2.5.0.1803 \(page 16\)](#)
- » [Patch Release 2.5.0.1802 \(page 16\)](#)
- » [Patch Release 2.5.0.1749 \(page 17\)](#)
- » [Patch Release 2.5.0.1748 \(page 17\)](#)
- » [Patch Release 2.5.0.1747 \(page 17\)](#)
- » [Patch Release 2.5.0.1745 \(page 17\)](#)
- » [Patch Release 2.5.0.1735 \(page 18\)](#)
- » [Patch Release 2.5.0.1729 \(page 20\)](#)

2.5.0.1805 Patch Release 5-Feb-18

JIRA-ID	Description
SPLICE-2022	spark job description for compaction

2.5.0.1804 Patch Release 28-Jan-18

JIRA-ID	Description
No improvements in this patch release.	

2.5.0.1803 Patch Release 21-Jan-18

JIRA-ID	Description
SPLICE-1987	Add fully qualified table name into HBASE TableDisplayName Attribute

2.5.0.1802 Patch Release 14-Jan-18

JIRA-ID	Description
SPLICE-1975	Allow JavaRDD<Row> to be passed for CRUD operations in SplicemachineContext
SPLICE-1991	Add info to Spark UI for Compaction jobs to indicate presence of Reference Files

2.5.0.1749 Patch Release 26-Dec-17

JIRA-ID	Description
SPLICE-1973	Exclude Kafka jars from splice-uber.jar for all platforms
SPLICE-1984	Parallelize MultiProbeTableScan and Union Operations

2.5.0.1748 Patch Release 18-Dec-17

JIRA-ID	Description
No improvements in this patch release.	

2.5.0.1747 Patch Release 08-Dec-17

JIRA-ID	Description
SPLICE-1351	Upgrade Sketching Library from 0.8.1 - 0.8.4
SPLICE-1948	Increase test timeout
SPLICE-1948	Initialize Splice Spark context with user context
SPLICE-1951	Remove protobuf installation instructions


2.6.1.1745 Patch Release 08-Dec-17



2.6 was an interim release that has been folded in to 2.5

JIRA-ID	Description
SPLICE-1302	Add minimum parallelism for Spark shuffles
SPLICE-1951	Remove protobuf installation instructions from
SPLICE-1948	Initialize Splice Spark context with user context
SPLICE-1948	Increase test timeout

Splice Patch Release 2.5.0.1735

JIRA ID	Description
SPLICE-398	Support drop view if exists
SPLICE-949	Built-in function ROUND added
SPLICE-1222	Implement in-memory subtransactions
SPLICE-1351	Upgrade Sketching Library from 0.8.1 - 0.8.4
SPLICE-1372	Control-side query control
SPLICE-1479	Iterator based stats collection
SPLICE-1497	Add flag for inserts to skip conflict detection
SPLICE-1500	Skip WAL for unsafe imports
SPLICE-1513	Create Spark Adapter that supports both 1.6.x and 2.1.0 versions of Spark
SPLICE-1516	Enable compression for WritePipeline
SPLICE-1517	Orc Reader Additions <div data-bbox="613 1719 1187 1832">  <p>This improvement has not been backported into release 2.5.1.</p> </div>

JIRA ID	Description
SPLICE-1555	Enable optimizer trace info for costing
SPLICE-1568	Core Spark Adapter Functionality With Maven Build
SPLICE-1619	Update the Spark Adapter to 2.1.1
SPLICE-1681	Introduce query hint "skipStats" after a table identifier to bypass fetching real stats from dictionary tables
SPLICE-1702	Removed LocatedRow construct from the execution tree
SPLICE-1703	Changed size==0 to isEmpty()
SPLICE-1714	Ignore "should not give a splitkey that equates to startkey" exception
SPLICE-1725	External table documentation updated
SPLICE-1729	Handle 'drop table table_name if exists'
SPLICE-1733	Support type conversion Varchar to INT
SPLICE-1739	Added CREATE SCHEMA IF NOT EXISTS functionality
SPLICE-1752	Support inserting int types to char types
SPLICE-1756	Introduce database property collectIndexStatsOnly to specify the collect stats behavior
SPLICE-1760	Enhancement to provide corresponding Spark JobID when Splice jobs or queries are submitted through Spark
SPLICE-1785	Too many tasks are launched in the last stage of bulk import
SPLICE-1834	Remove EFS FileSystem
SPLICE-1835	Remove MBeanResultSet
SPLICE-1836	Remove SpliceCsvTokenizer
SPLICE-1837	Remove Old Cost Estimate Implementation.

JIRA ID	Description
SPLICE-1838	Remove Left Over Aggregate Plumbing
SPLICE-1839	Remove Serial Encoding Package
SPLICE-1840	Remove Dead PhysicalStatsStore
SPLICE-1841	Remove ScanInfo class and Interfaces
SPLICE-1842	Derby Utils Dead Code Cleanup
SPLICE-1845	Tweak Kryo Serde for Missing Elements
SPLICE-1851	Remove concurrent.traffic package
SPLICE-1873	Added documentation for GET_SESSION_INFO
SPLICE-1875	Added documentation for GET_RUNNING_OPERATIONS and KILL_OPERATION
SPLICE-1879	KeyBy Function on Control is a multimap index vs. a map function
SPLICE-1880	Modify ReduceByKey to execute lazily and not use Multimaps.
Internal	Added SplicemachineContext.g
Internal	Bcast implementation dataset vs rddetConnection() to enable commit/rollback in Scala
Internal	Bcast implementation dataset vs rdd
Internal	Add logging to Vacuum process

Splice Patch Release 2.5.0.1729 01-Aug-17

JIRA ID	Description
SPLICE-398	Support 'drop view if exists' for 2.5

JIRA ID	Description
SPLICE-774	Support upgrade from K2 (2.5)
SPLICE-1479	iterator based stats collection (2.5)
SPLICE-1516	Enable compression for WritePipeline
SPLICE-1500	Skip WAL for unsafe imports (2.5)
SPLICE-1555	Enable optimizer trace info for costing
SPLICE-1681	Introduce query hint "skipStats"
SPLICE-1701	JXM mbean server for cache and enginedriver exec service
SPLICE-1729	Support 'drop table t_name if exists' for 2.5
SPLICE-1756	introduce database property collectIndexStatsOnly to specify the collect stats behavior
SPLICE-1769	Improve distributed boot process
Internal	Bcast implementation dataset vs rdd
Internal	prune query blocks based on unsatisfiable conditions
Internal	Add logging to Vacuum process
Internal	Restore breaks transaction semantics(2.5)

For a full list of JIRA's for the Community/Open Source software, see <https://splice.atlassian.net> (<https://splice.atlassian.net>)

Bug Fixes in Release 2.7 of the Splice Machine Database

The Splice Machine database is used in both our Database-Service and On-Premise Database products.

This page describes all of the issues that have been fixed in the Splice Machine database since the 2.5 GA Release of Splice Machine. With only one noted exception, all of the fixes listed here have been applied to both the 2.7 and 2.5.1 Releases of the Splice Machine database.



Splice Machine Release 2.6 was an interim release in September, 2017, which coincided with the initial Release of our Database-as-a-Service product. All changes in v2.6 have also been incorporated into both the 2.7 and 2.5.1 Releases of the Splice Machine database.

Each section in this topic includes a list of issues fixed in each interim Splice Machine Release since the 2.5 GA Release (2.5.0.1707) on March 1, 2017.

- » [Patch Release 2.5.0.1805 \(page 23\)](#)
- » [Patch Release 2.5.0.1804 \(page 23\)](#)
- » [Patch Release 2.5.0.1803 \(page 23\)](#)
- » [Patch Release 2.5.0.1802 \(page 24\)](#)
- » [Patch Release 2.5.0.1749 \(page 24\)](#)
- » [Patch Release 2.5.0.1748 \(page 24\)](#)
- » [Patch Release 2.5.0.1747 \(page 25\)](#)
- » [Patch Release 2.5.0.1745 \(page 25\)](#)
- » [Patch Release 2.5.0.1735 \(page 26\)](#)
- » [Patch Release 2.5.0.1729 \(page 36\)](#)


2.5.0.1805 Patch Release 5-Feb-18

JIRA-ID	Description
SPLICE-1995	Correct imported rows

2.5.0.1804 Patch Release 28-Jan-18

JIRA-ID	Description
SPLICE-1717	Asynchronous transaction resolution in compactions
SPLICE-2012	HMaster doesn't exit after shutdown

2.5.0.1803 Patch Release 21-Jan-18

JIRA-ID	Description
SPLICE-1900	<p>Incorrect error message while reading data from Empty external table of AVRO file format.</p> <div> This improvement has not been backported into release 2.5.1.</div>
SPLICE-2004	Fix inconsistency between plan logged in log and that in the explain

2.5.0.1802 Patch Release 14-Jan-18

JIRA-ID	Description
SPLICE-1870	Fix update through index lookup path
SPLICE-1927	Amend pattern string for detecting splice machine ready to accept connections
SPLICE-1998	Modify splice 2.5 log file's time stamp format to ISO8601

2.5.0.1749 Patch Release 26-Dec-17

JIRA-ID	Description
SPLICE-1983	OOM in Spark executors while running TPCH1 repeatedly

2.5.0.1748 Patch Release 18-Dec-17

JIRA-ID	Description
SPLICE-1970	Exclude metrics jars from splice-uber.jar to avoid class loader issues when using Spark Adapter
SPLICE-1978	Add null check to GET_RUNNING_OPERATIONS

2.5.0.1747 Patch Release 08-Dec-17

JIRA-ID	Description
SPLICE-865	Check if enterprise version is activated and if the user try to use column privileges.
SPLICE-1784	Query does not scale on 4000 regions (2.5)
SPLICE-1895	Wait for wrap up before closing remote query client (2.5)
SPLICE-1906	Make coprocessors throw only IOExceptions
SPLICE-1908	Add check for actionAllowed
SPLICE-1921	Fix wrong result with sort merge inclusion join for spark path
SPLICE-1928	Decode region start/end key by fetching actual rowkey
SPLICE-1930	Fixes an issue where maven uses platform installed protobuf
SPLICE-1934	WordUtils.wrap() from commons-lang3 3.5 is broken
SPLICE-1937	Add cdh5.12 platform (2.5)
SPLICE-1961	Missing splice_spark module in pom.xml

2.6.1.1745 Patch Release 08-Dec-17



2.6 was an interim release that has been folded in to 2.5

JIRA-ID	Description
SPLICE-1784	Trying to do cutpoints again
SPLICE-1887	Fix memory leak for merge join

JIRA-ID	Description
SPLICE-1906	Make coprocessors throw only IOExceptions
SPLICE-1915	Enable query logging by default
SPLICE-1921	Fix wrong result with sort merge inclusion join for spar
SPLICE-1895	Wait for wrap up before closing remote query client
SPLICE-1928	Decode region start/end key by fetching actual rowkey
SPLICE-1934	WordUtils.wrap() from commons-lang3 3.5 is broken

Splice Patch Release 2.5.0.1735

JIRA ID	Issue Description
SPLICE-8	Make CTAS work with case sensitive names
SPLICE-57	Drop backing index and write handler when dropping a unique constraint
SPLICE-77	Order by column in subquery not projected should not be resolved
SPLICE-79	Generate correct insert statement to import char for bit column
SPLICE-612	Fix wrong result in right outer join with expression in join condition
SPLICE-737	GetTableNumber should return -1 if it cannot be determined
SPLICE-835	Mapping TEXT column creation to CLOB
SPLICE-865	Check if enterprise version is activated and if the user try to use column privileges.

JIRA ID	Issue Description
SPLICE-976	Do not allow odbc and jdbc requests other than splice driver
SPLICE-1023	Add more info in the message for data import error
SPLICE-1062	Retry if region location cannot be found
SPLICE-1098	Prevent nonnull selectivity from being 0
SPLICE-1116	Fixing OrderBy Removal from set operations since they are now hashed based
SPLICE-1122	Deleting a table needs to remove the pin for the table.
SPLICE-1160	Report syntax error instead of throwing NPE for topN in set operation
SPLICE-1208	Fix mergeSortJoin overestimate by 3x
SPLICE-1211	Open and close latency calculated twice for NLJ
SPLICE-1290	Adding Batch Writes to the dictionary
SPLICE-1294	Poor Costing when first part of PK is not =
SPLICE-1320	Fix Assertion Placement and Comment Out test to get build out
SPLICE-1323	Add null check for probevalue
SPLICE-1324	Making Sure SQLTinyInt can SerDe
SPLICE-1329	Memory leak in SpliceObserverInstructions
SPLICE-1349	Serialize and initialize BatchOnceOperation correctly
SPLICE-1353	Export to S3
SPLICE-1357	Fix wrong result for right outer join that is performed through spark engine

JIRA ID	Issue Description
SPLICE-1358	CREATE EXTERNAL TABLE can failed with some specific users in hdfs,
SPLICE-1359	SanityManager.DEBUG messages create a lot of noise in derby.log
SPLICE-1360	Adding SQL Array Data Type Basic Serde Functions
SPLICE-1361	Kerberos keytab not picked up by Spark on Splice Machine
SPLICE-1362	Synchronize access to internalConnection's contextManager
SPLICE-1369	Store external table on S3
SPLICE-1370	INSERT, UPDATE, DELETE error message for pin tables
SPLICE-1374	Bad file in S3
SPLICE-1375	Fix concurrency issues reporting failedRows
SPLICE-1379	The number of threads in the HBase priority executor is inadequately low
SPLICE-1386	Load jar file from S3
SPLICE-1395	Add a generic error message for import failure from S3
SPLICE-1410	Make the compilation of the pattern static
SPLICE-1411	Resolve over clause expr when alias from inner query is used in window fn
SPLICE-1423	Add null check for bad file directory
SPLICE-1424	Removing Unneeded Visitor from FromTable
SPLICE-1425	Fix data type inconsistencies with unary functions and external table based on TEXT data format

JIRA ID	Issue Description
SPLICE-1430	Remove pin from dictionary and rely on spark cache to get the status of pins & Fix race condition on OlapNIOLayer
SPLICE-1433	Fix drop pinned table
SPLICE-1438	Fix the explain plan issues
SPLICE-1443	Add logging to debug "can't find subpartitions" exception
SPLICE-1443	Skip cutpoint that create empty partitions
SPLICE-1446	Check schema for ext table only if there's data
SPLICE-1448	Make sure SpliceSpark.getContext/Session isn't misused
SPLICE-1452	Correct cardinality estimation when there is missing partition stats
SPLICE-1453	Fixing Calculating Stats on Array Types
SPLICE-1461	Add null check on exception parsing
SPLICE-1461	Wrap exception parsing against errors
SPLICE-1462	Adding Mesos Scheduling Option to Splice Machine
SPLICE-1463	Sort results in MemStoreKVScanner when needed
SPLICE-1464	Bypass schema checking for csv file
SPLICE-1469	Set hbase.rowlock.wait.duration to 0 to avoid deadlock
SPLICE-1470	Make sure user transaction rollbacks on Spark failure
SPLICE-1473	Allow user code to load com.splicemachine.db.iapi.error
SPLICE-1478	Fixing Statement Limits
SPLICE-1479	iterator based stats collection
SPLICE-1480	Allow N Tree Logging

JIRA ID	Issue Description
SPLICE-1481	Unnecessary Interface Modifier
SPLICE-1489	Make Predicate Pushdown defaulted for ORC
SPLICE-1490	Bringing Derby Style Forward
SPLICE-1491	Remove Array Copy for Key From Insert
SPLICE-1526	Handle CodecPool manually to avoid leaking memory
SPLICE-1531	Fixed ThreadLocal in AbstractTimeDescriptorSerializer
SPLICE-1533	Eliminate duplicates in the IN list
SPLICE-1541 SPLICE-1543	Fix IN-list issues with dynamic bindings and char column
SPLICE-1550	Recursive Init Calls
SPLICE-1559	bulkImportDirectory is case sensitive
SPLICE-1561	Allowing Clients to turn off cache and lazily execute
SPLICE-1567	Set remotecost for merge join
SPLICE-1578	Upgrade from 2.5 to 2.7
SPLICE-1582	Apply memory limit on consecutive broadcast joins
SPLICE-1584	Fix IndexOutOfBoundsException exception when not all column stats are collected and we try to access column stats for estimation.
SPLICE-1586	Prevent NPE when Spark job fails
SPLICE-1589	All transactions are processed by pre-created region 0
SPLICE-1597	Fix issue with cache dictionary when SYSCS_UTIL.SYSCS_UPDATE_SCHEMA_OWNER is called .

JIRA ID	Issue Description
SPLICE-1601	Fix wrong result for min/max/sum on empty table without groupby
SPLICE-1609	Normalize row source for split_table_or_index procedure
SPLICE-1611	TPC-C workload causes many prepared statement recompilations
SPLICE-1613	Ignore saveSourceCode IT for now
SPLICE-1621	Fix select from partitioned orc table error
SPLICE-1622	Return only latest version for sequences
SPLICE-1624	Load pipeline driver at RS startup
SPLICE-1628	Don't raise exception if path doesn't exist
SPLICE-1628	Parallelize hstore bulkLoad step in Spark
SPLICE-1637	Enable compression for HFile gen in bulk loader
SPLICE-1639	Fix NPE due to Spark static initialization missing
SPLICE-1640	Apply memory limit check for consecutive outer broadcast join and derived tables
SPLICE-1660	Delete Not Using Index Scan due to index columns being required for the scan.
SPLICE-1675	Merge partition stats at the stats collection time
SPLICE-1682	Perform accumulator check before txn resolution
SPLICE-1684	Fix stats collection logic for ArrayIndexOutOfBoundsException in the presence of empty partition and some column stats disabled
SPLICE-1690	Merge statistics on Spark
SPLICE-1696	Add ScanOperation and SplcieBaseOperation to Kryo

JIRA ID	Issue Description
SPLICE-1698	StringBuffer to StringBuilder
SPLICE-1699	Removing Unused Imports
SPLICE-1703	Replace size() == 0 with isEmpty()
SPLICE-1704	Replace double quotes with isEmpty
SPLICE-1707	Fix Tail Recursion Issues
SPLICE-1708	Do not use KeySet where entryset will work
SPLICE-1711	Replace concat with +
SPLICE-1712	Remove Constant Array Creation Style
SPLICE-1737	Fix value outside the range of the data type INTEGER error for analyze table statement.
SPLICE-1744	Removing Dictionary Check
SPLICE-1748	Fixing Role Cache Usage
SPLICE-1749	Fix delete over nestedloop join
SPLICE-1759	HBase Master generates 1.1GB/s of network bandwidth even when cluster is idle
SPLICE-1769	Improve distributed boot process
SPLICE-1773	Unifying the thread pools
SPLICE-1781	Fixing Object Creation on IndexTransformFunction
SPLICE-1784	Fixing Serial Cutpoint Generation
SPLICE-1784	Query does not scale on 4000 regions
SPLICE-1791	Make username's more specific to resolve concurrent conflicts
SPLICE-1792	BroadcastJoinMemoryLimitIT must be executed serially

JIRA ID	Issue Description
SPLICE-1795	Fix NullPointerException for update with expression, and uncomment test case in HdfsImport related to this bug
SPLICE-1798	Parallel Queries can fail on SPS Descriptor Update...
SPLICE-1813	Transaction are not popped from transaction stack when releasing savepoints
SPLICE-1824	NullPointerException when collecting stats on ORC table
SPLICE-1850	Couldn't find subpartitions in range exception with external tables
SPLICE-1853	Wrong count(*) result for partitioned external table
SPLICE-1854	wrong result query orc table with predicate on date column
SPLICE-1858	Join result is wrong for a partitioned external table
SPLICE-1860	Error analyzing table when columns contains zero length data
SPLICE-1865	Boolean operator <> is broken with external tables
SPLICE-1867	SHOW TABLES is broken
SPLICE-1874	Large table scan runs on control with predicate of high selectivity
Internal	Allow more packages to be loaded from user code
Internal	Drop and re-create foreign key write handler after truncating a table
Internal	Name space null check
Internal	Fix table number to allow predicate push down
Internal	Remove check for collecting schema level stats for external table

JIRA ID	Issue Description
Internal	Explicitly unset ordering
Internal	Redo nested connection on Spark fix
Internal	Avoid bad file naming collision
Internal	Allow inner table of broadcast join to be any FromTable
Internal	Fix stat collection on external table textfile
Internal	Resubmit to Spark if we consume too many resouces in control
Internal	Fix a couple issues that cause backup to hang
Internal	Clean up timeout backup
Internal	Bind select statement only once in insert into select
Internal	Concatenate all iterables at once to avoid stack overflow error
Internal	Prune query blocks based on unsatisfiable conditions
Internal	Fix hash join column ordering
Internal	Throw BR014 for concurrent backup
Internal	Fix incremental backup hang
Internal	Restore cleanup
Internal	Continue processing tables when one doesn't have a namespace
Internal	Restore a chain of backup(2.5)
Internal	Correct postSplit
Internal	Fixing S3 File System Implementation

JIRA ID	Issue Description
Internal	Allowing SpliceClient.isClient to allow distributed execution for inserts
Internal	Fix Driver Loading in Zeppelin where it fails initially
Internal	Fix a problem while reading orc byte stream
Internal	Disable dictionary cache for hbase master and spark executor
Internal	Fix Orc Partition Pruning
Internal	Making sure schema is ejected from the cache correctly
Internal	Disable Spark block cache and fix broadcast costing
Internal	Fixing ClosedConnectionException
Internal	Clean up backup endpoint to avoid hang
Internal	Update the error message when partial record is found
Internal	Suppress false constraint violation during retry
Internal	Avoid deleting a nonexistent snapshot
Internal	Keep the column indexes zero based for new orc stats collection job
Internal	Correct a query to find indexes of a table
Internal	Spark job has problems renewing a kerberos ticket
Internal	Support ColumnPosition in GroupBy list
Internal	Fix wrong result for broadcast with implicit cast from int to numeric type
Internal	Fix limit on multiple partitions on Spark

Splice Patch Release 2.5.0.1729 01-Aug-17

JIRA ID	Description
SPLICE-77	order by column in subquery not projected should not be resolved
SPLICE-79	generate correct insert statement to import char for bit column
SPLICE-612	fix wrong result in right outer join with expression in join condition
SPLICE-774	Reset statistics during upgrade
SPLICE-774	Wait for master to clear upgrade znode
SPLICE-1023	add more info in the message for data import error
SPLICE-1098	prevent nonnull selectivity from being 0
SPLICE-1294	Poor Costing when first part of PK is not =
SPLICE-1395	add a generic error message for import failure from S3
SPLICE-1423	clean up import error messages for bad file
SPLICE-1438	fix the explain plan issues
SPLICE-1443	Skip cutpoint that create empty partitions
SPLICE-1452	correct cardinality estimation when there is missing partition stats
SPLICE-1461	Wrap exception parsing against errors
SPLICE-1469	Set hbase.rowlock.wait.duration to 0 to avoid deadlock
SPLICE-1470	Make sure user transaction rollbacks on Spark failure
SPLICE-1473	Allow user code to load com.splicemachine.db.iapi.error
SPLICE-1478	Fixing Statement Limits

JIRA ID	Description
SPLICE-1497	Add flag for inserts to skip conflict detection
SPLICE-1526	Handle CodecPool manually to avoid leaking memory
SPLICE-1533	eliminate duplicates in the IN list
SPLICE-1541	fix IN-list issues with dynamic bindings and char column
SPLICE-1543	fix IN-list issues with dynamic bindings and char column
SPLICE-1559	bulkImportDirectory is case sensitive
SPLICE-1582	Apply memory limit on consecutive broadcast joins
SPLICE-1584	fix IndexOutOfBounds exception when not all column stats are collected and we try to access column stats for estimation.
SPLICE-1586	Prevent NPE when Spark job fails
SPLICE-1589	All transactions are processed by pre-created region 0
SPLICE-1601	fix wrong result for min/max/sum on empty table without groupby
SPLICE-1609	normalize row source for split_table_or_index procedure
SPLICE-1622	Return only latest version for sequences
SPLICE-1624	Load pipeline driver at RS startup
SPLICE-1628	HFile bulk load is slow to copy/move HFile to regions
SPLICE-1637	Enable compression for HFile gen in bulk loader
SPLICE-1639	Fix NPE due to Spark static initialization missing
SPLICE-1640	apply memory limit check for consecutive outer broadcast join and derived tables
SPLICE-1660	Delete Not Using Index Scan due to index columns being required for the scan.

JIRA ID	Description
SPLICE-1675	merge partition stats at the stats collection time
SPLICE-1682	Perform accumulator check before txn resolution (2.5)
SPLICE-1684	fix stats collection logic for ArrayIndexOutOfBoundsException in the presence of empty partition and some column stats disabled
SPLICE-1690	Merge statistics on Spark (2.5)
SPLICE-1692	Perform (anti)tombstone txn resolution only when needed
SPLICE-1696	Add ScanOperation and SplcieBaseOperation to Kryo
SPLICE-1702	refresh/resolve changes with latest master branch
SPLICE-1737	fix value outside the range of the data type INTEGER error for analyze table statement.
SPLICE-1749	fix delete over nestedloop join
SPLICE-1759	HBase Master generates 1.1GB/s of network bandwidth even when cluster is idle
SPLICE-1781	Fixing Object Creation on IndexTransformFunction
SPLICE-1782	Code Cleanup on BulkInsertRowIndex
SPLICE-1784	Fixing Serial Cutpoint Generation
SPLICE-1791	Make username's more specific to resolve concurrent conflicts
SPLICE-1792	BroadcastJoinMemoryLimitIT must be executed serially
SPLICE-1795	fix NullPointerException for update with expression, and uncomment test case in HdflImport related to this bug
SPLICE-1798	Parallel Queries can fail on SPS Descriptor Update...
Internal	null checking for REGEXP_LIKE

JIRA ID	Description
Internal	Resubmit to Spark if we consume too many resouces in control
Internal	Fix a couple issues that cause backup to hang
Internal	Backups block flushes forever if not stopped cleanly
Internal	bind select statement only once in insert into select
Internal	concatenate all iterables at once to avoid stack overflow error
Internal	fix hash join column ordering
Internal	throw BR014 for concurrent backup
Internal	fix incremental backup hang
Internal	Continue processing tables when one doesn't have a namespace
Internal	correct postSplit
Internal	disable dictionary cache for hbase master and spark executor
Internal	Making sure schema is ejected from the cache correctly
Internal	Disable Spark block cache and fix broadcast costing
Internal	Fixing ClosedConnectionException handling
Internal	clean up backup endpoint to avoid hang
Internal	update error message when partial record is found (2.5)
Internal	suppress false constraint violation during retry
Internal	avoid deleting a nonexist snapshot
Internal	cleanup failed backup from old build

JIRA ID	Description
Internal	correct a query to find indexes of a table
Internal	Spark job has problems renewing a kerberos ticket
Internal	support ColumnPosition in GroupBy list
Internal	fix wrong result for broadcast with implicit cast from int to numeric type
Internal	Fix limit on multiple partitions on Spark

For a full list of JIRA's for the Community/Open Source software, see
<https://splice.atlassian.net> (<https://splice.atlassian.net>)

Limitations and Workarounds in This Release of Splice Machine

This topic describes workarounds for known limitations in this Release of the Splice Machine Database. These can include previously unstated limitations or workarounds for problems that will be fixed in a future Release.

These are the notes and workarounds for known issues in this release:

- » [With Clauses and Temporary Tables \(page 41\)](#)
- » [Temporary Tables and Backups \(page 42\)](#)
- » [Natural Self Joins Not Supported \(page 41\)](#)
- » [Columnar Screen Output Gets Truncated \(page 42\)](#)
- » [TimeStamp Date Value Limitations \(page 42\)](#)
- » [ToDate Function Problem With DD Designator \(page 42\)](#)
- » [Dropping Foreign Keys \(page 42\)](#)
- » [Compaction Queue Issue \(page 43\)](#)
- » [Alter Table Issues \(page 43\)](#)
- » [Default Value for Lead and Lag Functions \(page 43\)](#)
- » [CREATE TABLE AS with RIGHT OUTER JOIN \(page 43\)](#)
- » [Import Performance Issues With Many Foreign Key References \(page 44\)](#)

With Clauses and Temporary Tables

You cannot currently use temporary tables in WITH clauses.

Natural Self Joins Not Supported

Splice Machine does not currently support NATURAL SELF JOIN operations.

Temporary Tables and Backups

There's a subtle issue with performing a backup when you're using a temporary table in your session: although the temporary table is (correctly) not backed up, the temporary table's entry in the system tables will be backed up. When the backup is restored, the table entries will be restored, but the temporary table will be missing.

There's a simple workaround:

1. Exit your current session, which will automatically delete the temporary table and its system table entries.
2. Start a new session (reconnect to your database).
3. Start your backup job.

Columnar Screen Output Gets Truncated

When using Explain Plan and other commands that generate lengthy output lines, you may see some output columns truncated on the screen.

WORKAROUND: Use the `maximumdisplaywidth=0` command to force all column contents to be displayed.

TimeStamp Date Value limitations

Dates in [TIMESTAMP Data Type \(page 0\)](#) values only work correctly when limited to this range of date values:

1678-01-01 to 2261-12-31

ToDate Function Problem With DD Designator

The [TO_DATE \(page 0\)](#) function currently returns the wrong date if you specify DD for the day field; however, specifying dd instead works properly.

WORKAROUND: Use dd instead of DD.

Dropping Foreign Keys

The DROP FOREIGN KEY clause of the [ALTER TABLE \(page 0\)](#) statement is currently unavailable in Splice Machine.

WORKAROUND: Re-create the table without the foreign key constraint.

Compaction Queue Issue

We have seen a problem in which the compaction queue grows quite large after importing large amounts of data, and are investigating a solution; for now, please use the following workaround.

Run a full compaction on tables into which you have imported a large amount of data, using the [SYSCS_UTIL.SYSCS_PERFORM_MAJOR_COMPACTION_ON_TABLE \(page 0\)](#) system procedure.

Alter Table Issues

Using ALTER TABLE against PRIMARY KEY columns does not currently work properly.

Default Value for Lead and Lag Functions

This release of Splice Machine features several new window functions, including [LAG \(page 0\)](#) do not support the default value parameter that you can specify in some other implementations. We expect to add this parameter in future releases.

CREATE TABLE AS with RIGHT OUTER JOIN

There is a known problem using the CREATE TABLE AS form of the [RIGHT OUTER JOIN \(page 0\)](#) operation. For example, the following statement currently produces a table with all NULL values:

```
CREATE TABLE t3 AS
  SELECT t1.a,t1.b,t2.c,t2.d
  FROM t1 RIGHT OUTER JOIN t2 ON t1.b = t2.c
  WITH DATA;
```

There's a simple workaround for now: create the table without inserting the data, and then insert the data; for example:

```
CREATE TABLE t3 AS
  SELECT t1.a,t1.b,t2.c,t2.d
  FROM t1 RIGHT OUTER JOIN t2 ON t1.b = t2.c
  WITH NO DATA;
```

```
INSERT INTO t3
  SELECT t1.a,t1.b,t2.c,t2.d
  FROM t1 RIGHT OUTER JOIN t2 ON t1.b = t2.c;
```

Import Performance Issues With Many Foreign Key References

The presence of many foreign key references on a table will slow down imports of data into that table.

</div> </section>

Release Notes for the Splice Machine Database-as-a-Service Product

This is a DB-Service-Only topic! [Learn about our products \(https://www.splicemachine.com/get-started/\)](https://www.splicemachine.com/get-started/)

This topic includes any release notes that are specific to the Splice Machine *Database-as-Service* product, in these sections:

- » [Features Not Yet Available \(page 45\)](#)
- » [Current Limitations \(page 45\)](#)
- » [Important Notes \(page 45\)](#)

Most of the information about changes in the Splice Machine database that underlies this product are found in the [Splice Machine database \(page 4\)](#) release notes.

Features Not Yet Available

These features are not yet available, but will be very soon:

- » TLS is not yet enabled for JDBC connections.
- » VPC Settings are not yet enabled but will be in a near future release.
- » You currently cannot cancel queries that are running through Zeppelin or JDBC tools; you can use the Spark User Interface to cancel Spark queries.

Current Limitations

These limitations exist in this release, and will be removed in the near future:

- » On a JDBC connection, individual queries or actions will time out after one hour; you can run long-running queries within a Zeppelin notebook.
- » Updating of CPU, Memory, and Disk usage graphs for clusters is currently limited: the updates are happening only intermittently.

Important Notes

These are important notes about issues you need to be aware of when using our Database Service:

- » The timestamps displayed in Zeppelin will be different than the timestamps you see in the Splice Machine Spark User Interface, depending upon your time zone.
- » Although Splice Machine backs up your database regularly, it does not back up your Zeppelin Notebook changes; please export your Notebooks regularly if you make changes.

Release Notes for the Splice Machine On-Premise Product

This is an On-Premise-Only topic! [Learn about our products \(https://www.splicemachine.com/get-started/\)](https://www.splicemachine.com/get-started/)

This topic includes release notes that are specific to the Splice Machine *On-Premise Database* product, in these sections:

- » [Supported Platforms \(page 47\)](#)
- » [Enterprise-only Features \(page 48\)](#)
- » [Running the Standalone Version \(page 48\)](#)

Most of the information about changes in the Splice Machine database that forms the basis of this product are found in the [Splice Machine database \(page 4\)](#) release notes.

After Updating

After updating to a new release of Splice Machine, you need to update your stored statement metadata by calling these two system procedures:

```
CALL SYSCS\_UTIL.SYSCS\_UPDATE\_METADATA\_STORED\_STATEMENTS\(\); \(page 0\)  
CALL SYSCS\_UTIL.SYSCS\_EMPTY\_STATEMENT\_CACHE\(\); \(page 0\)
```

Supported Platforms

The supported platforms for release 2.7 are:

- » Cloudera CDH 5.12.0, 5.8.3
- » MapR 5.2.0
- » HortonWorks HDP 2.5.5, 2.6.3

Enterprise-only Features

Some features only work on the *Enterprise Edition* of Splice Machine; they **do not** work on the Community Edition of Splice Machine. To obtain a license for the Splice Machine *Enterprise Edition*, please [Contact Splice Machine Sales \(http://www.splicemachine.com/company/contact-us/\)](http://www.splicemachine.com/company/contact-us/) today.

These are the enterprise-only features in our *On-Premise Database*:

- » Backup/Restore
- » LDAP integration
- » Column-level user privileges
- » Kerberos enablement
- » Encryption at rest

Running the Standalone Version

The supported operating systems for the STANDALONE release of Splice Machine are:

- » Mac OS X (10.8 or greater)
- » Centos (6.4 or equivalent)