

Kafka Streams KIP Overview

This page is an overview of all adopted and discard KIPs. For current KIP discussions go the [parent page](#).

Adopted

- **Kafka 3.6:**
 - [KIP-923: Add A Grace Period to Stream Table Join](#)
 - [KIP-925: Rack aware task assignment in Kafka Streams](#) (partially implemented)
 - [KIP-941: Range queries to accept null lower and upper bounds](#)
- **Kafka 3.5:**
 - [KIP-399: Extend ProductionExceptionHandler to cover serialization exceptions](#)
 - [KIP-869: Improve Streams State Restoration Visibility](#) (partially implemented)
 - [KIP-884: Add config to configure KafkaClientSupplier in Kafka Streams](#)
 - [KIP-889: Versioned State Stores](#)
 - [KIP-904: Kafka Streams - Guarantee subtractor is called before adder if key has not changed](#)
 - [KIP-907: Add Boolean Serde to public interface](#)
 - [KIP-914: DSL Processor Semantics for Versioned Stores](#)
- **Kafka 3.4:**
 - [KIP-770: Replace "buffered.records.per.partition" & "cache.max.bytes.buffering" with "{statestore.cache}/{input.buffer}.max.bytes"](#) (partially implemented)
 - [KIP-837: Allow MultiCasting a Result Record.](#)
 - [KIP-862: Self-join optimization for stream-stream joins](#)
 - [KIP-865: Support --bootstrap-server in kafka-streams-application-reset](#)
- **Kafka 3.3:**
 - [KIP-812: Introduce another form of the `KafkaStreams.close\(\)` API that forces the member to leave the consumer group](#)
 - [KIP-820: Extend KStream process with new Processor API](#)
 - [KIP-825: introduce a new API to control when aggregated results are produced](#)
 - [KIP-834: Pause / Resume KafkaStreams Topologies](#)
 - [KIP-846: Source/sink node metrics for Consumed/Produced throughput in Streams](#)
- **Kafka 3.2:**
 - [KIP-471: Expose RocksDB Metrics in Kafka Streams](#) (completed; partially implemented in v2.4)
 - [KIP-591: Add Kafka Streams config to set default state store](#)
 - [KIP-708: Rack aware StandbyTask assignment for Kafka Streams](#)
 - [KIP-791: Add Record Metadata to State Store Context](#)
 - [KIP-796: Interactive Query v2](#)
 - [KIP-805: Add range and scan query over kv-store in IQv2](#)
 - [KIP-806: Add session and window query over kv-store in IQv2](#)
 - [KIP-811: Add config repartition.purge.interval.ms to Kafka Streams](#)
- **Kafka 3.1:**
 - [KIP-633: Deprecate 24-hour Default Grace Period for Windowed Operations in Streams](#) (completed; partially implemented in v3.0)
 - [KIP-761: Add Total Blocked Time Metric to Streams](#)
 - [KIP-763: Range queries with open endpoints](#)
 - [KIP-766: fetch/findSessions queries with open endpoints for SessionStore/WindowStore](#)
 - [KIP-775: Custom partitioners in foreign key joins](#)
 - [KIP-783: Add TaskId field to StreamsException](#)
- **Kafka 3.0:**
 - [KIP-622: Add currentSystemTimeMs and currentStreamTimeMs to ProcessorContext](#)
 - [KIP-623: Add "internal-topics" option to streams application reset tool](#)
 - [KIP-633: Deprecate 24-hour Default Grace Period for Windowed Operations in Streams](#) (partially implemented; completed in v3.1)
 - [KIP-666: Add Instant-based methods to ReadOnlySessionStore](#)
 - [KIP-715: Expose Committed offset in streams](#)
 - [KIP-732: Deprecate eos-alpha and replace eos-beta with eos-v2](#)
 - [KIP-733: change Kafka Streams default replication factor config](#)
 - [KIP-741: Change default serde to be null](#)
 - [KIP-466: Add support for List<T> serialization and deserialization](#)
 - [KIP-695: Further Improve Kafka Streams Timestamp Synchronization](#)
 - [KIP-725: Streamlining configurations for WindowedSerializer and WindowedDeserializer.](#)
 - [KIP-740: Clean up public API in TaskId and fix TaskMetadata#taskId\(\)](#)
 - [KIP-743: Remove config value 0.10.0-2.4 of Streams built-in metrics version config](#)
 - [KIP-744: Migrate TaskMetadata and ThreadMetadata to an interface with internal implementation](#)
- **Kafka 2.8:**
 - [KIP-418: A method-chaining way to branch KStream](#)
 - [KIP-572: Improve timeouts and retries in Kafka Streams](#) (completed; partially implemented in v2.7)
 - [KIP-614: Add Prefix Scan support for State Stores](#)
 - [KIP-659: Improve TimeWindowedDeserializer and TimeWindowedSerde to handle window size](#)
 - [KIP-663: API to Start and Shut Down Stream Threads](#)
 - [KIP-696: Update Streams FSM to clarify ERROR state meaning](#)
 - [KIP-671: Introduce Kafka Streams Specific Uncaught Exception Handler](#)
 - [KIP-680: TopologyTestDriver should not require a Properties argument](#)
 - [KIP-689: Extend `StreamJoined` to allow more store configs](#)
- **Kafka 2.7:**
 - [KIP-450: Sliding Window Aggregations in the DSL](#)
 - [KIP-478 - Strongly typed Processor API](#)
 - [KIP-572: Improve timeouts and retries in Kafka Streams](#) (partially implemented; completed in v2.8)
 - [KIP-607: Add Metrics to Kafka Streams to Report Properties of RocksDB](#)
 - [KIP-613: Add end-to-end latency metrics to Streams](#) (completed; partially implemented in v2.6)

- KIP-616: Rename implicit Serdes instances in kafka-streams-scala
- KIP-617: Allow Kafka Streams State Stores to be iterated backwards
- KIP-626: Rename StreamsConfig config variable name
- KIP-648: Renaming getter method for Interactive Queries
- KIP-662: Throw Exception when Source Topics of a Streams App are Deleted
- **Kafka 2.6:**
 - KIP-221: Enhance DSL with Connecting Topic Creation and Repartition Hint
 - KIP-401: TransformerSupplier/ProcessorSupplier StateStore connecting
 - KIP-441: Smooth Scaling Out for Kafka Streams
 - KIP-444: Augment metrics for Kafka Streams (completed; partially implemented in v2.4 and v2.5)
 - KIP-446: Add changelog topic configuration to KTable suppress
 - KIP-447: Producer scalability for exactly once semantics (Kafka Streams changes; broker/client side changes already implemented v2.5)
 - KIP-557: Add emit on change support for Kafka Streams (partially implemented)
 - KIP-571: Add option to force remove members in StreamsResetter
 - KIP-594: Expose output topic names from TopologyTestDriver
 - KIP-613: Add end-to-end latency metrics to Streams (partially implemented; completed in v2.7)
- **Kafka 2.5:**
 - KIP-150 - Kafka-Streams Cogroup
 - KIP-444: Augment metrics for Kafka Streams (partially implemented in v2.4 and v2.5; completed in v2.6)
 - KIP-523: Add KStream#toTable to the Streams DSL
 - KIP-527: Add VoidSerde to Serdes
 - KIP-530: Consider renaming 'UsePreviousTimeOnInvalidTimeStamp' class to 'UsePartitionTimeOnInvalidTimeStamp'
 - KIP-535: Allow state stores to serve stale reads during rebalance
 - KIP-562: Allow fetching a key from a single partition rather than iterating over all the stores on an instance
- **Kafka 2.4:**
 - KIP-213 Support non-key joining in KTable
 - KIP-307: Allow to define custom processor names with KStreams DSL (completed; partially implemented in v2.3)
 - KIP-345: Introduce static membership protocol to reduce consumer rebalances (completed; partially implemented in v2.3)
 - KIP-429: Kafka Consumer Incremental Rebalance Protocol
 - KIP-444: Augment metrics for Kafka Streams (partially implemented in v2.4 and v2.5; completed in v2.6)
 - KIP-470: TopologyTestDriver test input and output usability improvements
 - KIP-471: Expose RocksDB Metrics in Kafka Streams (partially implemented; completion blocked)
 - KIP-474: To deprecate WindowStore#put(key, value)
 - KIP-479: Add StreamJoined config object to Join
 - KIP-528: Deprecate PartitionGrouper configuration and interface
- **Kafka 2.3:**
 - KIP-258: Allow to Store Record Timestamps in RocksDB (partially implemented; not completed yet inactive)
 - KIP-307: Allow to define custom processor names with KStreams DSL (partially implemented; completed in v2.4)
 - KIP-313: Add KStream.flatTransform and KStream.flatTransformValues (completed; partially implemented in v2.2)
 - KIP-331 Add default implementation to close() and configure() for Serializer, Deserializer and Serde
 - KIP-345: Introduce static membership protocol to reduce consumer rebalances (partially implemented; completed in v2.4)
 - KIP-428: Add in-memory window store
 - KIP-442: Return to default max poll interval in Streams
 - KIP-443: Return to default segment.ms and segment.index.bytes in Streams repartition topics
 - KIP-445: In-memory Session Store
 - KIP-453: Add close() method to RocksDBConfigSetter
 - KIP-462: Use local thread id for KStreams
- **Kafka 2.2:**
 - KIP-313: Add KStream.flatTransform and KStream.flatTransformValues (partially implemented; completed in v2.3)
 - KIP-376: Implement AutoClosable on appropriate classes that want to be used in a try-with-resource statement
 - KIP-386: Standardize on Min/Avg/Max metrics' default value
 - KIP-393: Time windowed serde to properly deserialize changelog input topic
 - KIP-414: Expose Embedded ClientIds in Kafka Streams
 - KIP-420: Add Single Value Fetch in Session Stores
- **Kafka 2.1:**
 - KIP-206: Add support for UUID serialization and deserialization
 - KIP-312: Add Overloaded StreamsBuilder Build Method to Accept java.util.Properties
 - KIP-319: Replace segments with segmentInterval in WindowBytesStoreSupplier
 - KIP-321: Update TopologyDescription to better represent Source and Sink Nodes
 - KIP-324: Add method to get metrics() in AdminClient
 - KIP-328: Ability to suppress updates for KTables (partially implemented; not completed yet inactive)
 - KIP-330: Add retentionPeriod in SessionBytesStoreSupplier
 - KIP-353: Improve Kafka Streams Timestamp Synchronization
 - KIP-356: Add withCachingDisabled() to StoreBuilder
 - KIP-358: Migrate Streams API to Duration instead of long ms times
 - KIP-365: Materialized, Serialized, Joined, Consumed and Produced with implicit Serde
 - KIP-366: Make FunctionConversions deprecated
 - KIP-372: Naming Repartition Topics for Joins and Grouping
- **Kafka 2.0:**
 - KIP-244: Add Record Header support to Kafka Streams Processor API
 - KIP-245: Use Properties instead of StreamsConfig in KafkaStreams constructor
 - KIP-251: Allow timestamp manipulation in Processor API
 - KIP-261: Add Single Value Fetch in Window Stores
 - KIP-265: Make Windowed Serde to public APIs
 - KIP-267: Add Processor Unit Test Support to Kafka Streams Test Utils
 - KIP-268: Simplify Kafka Streams Rebalance Metadata Upgrade
 - KIP-270 - A Scala Wrapper Library for Kafka Streams
 - KIP-274: Kafka Streams Skipped Records Metrics

- KIP-276 Add StreamsConfig prefix for different consumers
- KIP-284: Set default retention ms for Streams repartition topics to Long.MAX_VALUE
- KIP-292: Add transformValues() method to KTable
- KIP-295 Add Streams Configuration Allowing for Optional Topology Optimization
- KIP-303: Add Dynamic Routing in Streams Sink
- **Kafka 1.1:**
 - KIP-149: Enabling key access in ValueTransformer, ValueMapper, and ValueJoiner (partially implemented; not completed yet inactive)
 - KIP-171 - Extend Consumer Group Reset Offset for Stream Application
 - KIP-205: Add all() and range() API to ReadOnlyWindowStore
 - KIP-210 - Provide for custom error handling when Kafka Streams fails to produce
 - KIP-220: Add AdminClient into Kafka Streams' ClientSupplier
 - KIP-224: Add configuration parameter `retries` to Streams AP
 - KIP-233: Simplify StreamsBuilder#addGlobalStore
 - KIP-239 Add queryableStoreName() to GlobalKTable
 - KIP-247: Add public test utils for Kafka Streams
- **Kafka 1.0:**
 - KIP-120: Cleanup Kafka Streams builder API
 - KIP 130: Expose states of active tasks to KafkaStreams public API
 - KIP-138: Change punctuate semantics
 - KIP 157 - Add consumer config options to streams reset tool
 - KIP-160: Augment KStream.print(), KStream.writeAsText() to allow users pass in extra parameters in the printed string
 - KIP-161: streams deserialization exception handlers
 - KIP-167: Add interface for the state store restoration process
 - KIP-173: Add prefix to StreamsConfig to enable setting default internal topic configs
 - KIP-182: Reduce Streams DSL overloads and allow easier use of custom storage engines
 - KIP-198: Remove ZK dependency from Streams Reset Tool
 - KIP-202 Move merge() from StreamsBuilder to KStream
- **Kafka 0.11.0:**
 - KIP-114: KTable state stores and improved semantics
 - KIP-123: Allow per stream/table timestamp extractor
 - KIP-121: Add KStream peek method
 - KIP-129: Streams Exactly-Once Semantics
 - KIP-134: Delay initial consumer group rebalance
 - KIP 155 - Add range scan for windowed state stores
 - KIP 156 Add option "dry run" to Streams application reset tool
- **Kafka 0.10.2:**
 - KIP-77: Improve Kafka Streams Join Semantics
 - KIP-90: Remove zkClient dependency from Streams
 - KIP-93: Improve invalid timestamp handling in Kafka Streams
 - KIP-94: Session Windows
 - KIP-97: Improved Kafka Client RPC Compatibility Policy
 - KIP-99: Add Global Tables to Kafka Streams
 - KIP-100: Relax Type constraints in Kafka Streams API
 - KIP-104: Granular Sensors for Streams
- **Kafka 0.10.1:**
 - KIP-62: Allow consumer to send heartbeats from a background thread
 - KIP-63: Unify store and downstream caching in streams
 - KIP-67: Queryable state for Kafka Streams
 - KIP-71: Enable log compaction and deletion to co-exist
- **Kafka 0.10.0:**
 - KIP-28: Add a processor client
 - KIP-32: Add timestamps to Kafka message

Discarded:

- KIP-116: Add State Store Checkpoint Interval Configuration
- KIP-132: Augment KStream.print to allow extra parameters in the printed string (duplicated by KIP-160)
- KIP-147: Add missing type parameters to StateStoreSupplier factories and KGroupedStream/Table methods (covered via KIP-182)
- KIP-165: Extend Interactive Queries for return latest update timestamp per key (covered via KIP-258)
- KIP 230: Name Windowing Joins (covered via KIP-372: Naming Repartition Topics for Joins and Grouping)
- KIP-259: Improve Streams DSL Timestamp Propagation Semantics (change did not require a KIP)
- KIP-262: Metadata should include number of state stores for task
- KIP-364: Remove implicit Materialized, Consumed and Produced (covered via KIP-365: Materialized, Serialized, Joined, Consumed and Produced with implicit Serde)
- KIP-378: Enable Dependency Injection for Kafka Streams handlers (subsumed by KIP-832)
- KIP-451: Make TopologyTestDriver output iterable (subsumed by KIP-456)
- KIP-456: Helper classes to make it simpler to write test logic with TopologyTestDriver (subsumed by KIP-470)
- KIP-472: Add header to RecordContext/KafkaProducer
- KIP-485: Make topic optional when using through() operations in DSL (subsumed by KIP-221)
- KIP-756: Move StreamsResetter tool outside of core (subsumed by KIP-906)