A description of the configuration options for Swift

Table 1: Description of the 27 Flink configuration parameters.

Configuration Parameters—Description	Abbr.	Range	Default
parallelism.default-The default parallelism to use for programs that have no parallelism specified.	PLDT	1-12	1
jobmanager.heap.mb - JVM heap size (in megabytes) for the JobManager.	JMHP	1024-6144	1024
taskmanager.heap.mb - JVM heap size (in megabytes) for the TaskManager.	TMHP	2048-6144	1024
taskmanager.memory.off-heap - the task manager allocates memory which is used for sorting, hash tables, and caching of intermediate results outside of the JVM heap.	TMOH	false, true	false
taskmanager.memory.fraction - The relative amount of memory that the task manager reserves for sorting, hash tables, and caching of intermediate results.	TMFT	0.1-0.9	0.7
taskmanager.memory.segment-size - The size of memory buffers used by the memory manager and the network stack in bytes.	TMSS	2KB - 2M	32KB
taskmanager.runtime.hashjoin-bloom-filters - Flag to activate/ deactivate bloom filters in the hybrid hash join implementation.	TRHB	false, true	false
taskmanager.runtime.sort-spilling-threshold - A sort operation starts spilling when this fraction of its memory budget is full.	TRSS	0.1 - 0.9	0.8
taskmanager.runtime.max-fan - The maximal fan-in for external merge joins and fan-out for spilling hash tables.	TRMF	80 - 300	128
taskmanager.network.memory.fraction - Fraction of JVM memory to use for network buffers.	TNMF	0.1 - 0.9	0.1
taskmanager.net.num-arenas - the number of Netty arenas (same to taskmanager. numberOfTaskSlots).	TNNA	1 - 4	#slot
taskmanager.net.server.numThreads - The number of Netty server thread (same to taskmanager. numberOfTaskSlots).	TNSN	1 - 4	#slot
taskmanager.net.client.numThreads - The number of Netty client threads (same to taskmanager. numberOfTaskSlots).	TNCN	1 - 4	#slot
blob.fetch.num-concurrent - The number concurrent BLOB fetches (such as JAR file downloads) that the JobManager serves .	BFNC	50 - 200	50
blob.fetch.retries - The number of retries for the TaskManager to download BLOBs (such as JAR files) from the JobManager.	BFRT	50 - 200	50
akka.framesize - Maximum size of messages which are sent between the JobManager and the TaskManagers.	AKFS	6M - 21M	10M
akka.watch.threshold - Threshold for the DeathWatch failure detector.	AKWT	8 - 21	12
taskmanager.network.memory.min - Minimum memory size for network buffers in bytes.	TNMI	32M - 1024M	64M
taskmanager.network.memory.max - Minimum memory size for network buffers in bytes.	TNMA	1024M - 4096M	1024M
taskmanager.net.sendReceiveBufferSize - The Netty send and receive buffer size(defaul to the system buffer size).	TNRB	763659- 1527317	#system buffer sizes
blob.fetch.backlog - The maximum number of queued BLOB fetches (such as JAR file downloads) that the JobManager allows.	BFBL	500 - 3000	1000
jobmanager.tdd.offload.minsize - Maximum size of the TaskDeploymentDescriptor's serialized task and job information to still transmit them via RPC.	JTOM	900 - 4096	1024
fs.overwrite-files - Specifies whether file output writers should overwrite existing files by default.	FSOF	false, true	false
fs.output.always-create-directory - File writers running with a parallelism larger than one create a directory for the output file path and put the different result files (one per parallel writer task) into that directory.	FOAC	false, true	false
compiler.delimited-informat.max-line-samples - The maximum number of line samples taken by the compiler for delimited inputs.	CDIA	9 - 20	10
compiler.delimited-informat.min-line-samples - The minimum number of line samples taken by the compiler for delimited inputs.	CDII	2 - 8	2
compiler.delimited-informat.max-sample-len - The maximal length of a line sample that the compiler takes for delimited inputs.	CDAL	1M - 10M	2M

Table 2: Description of the 34 Spark configuration parameters.

Configuration Parameters—Description	Range	Default
spark.reducer.maxSizeInFlight—Maximum size of map outputs to fetch simultaneously from each reduce task, in MB.	2–128	48
spark.shuffle.file.buffer—Size of the in-memory buffer for each shuffle file output stream, in KB.	2–128	32
spark.shuffle.sort.bypassMergeThreshold—Avoid merge-sorting data if there is no map-side aggregation.	100–1000	200
spark.speculation.interval—How often Spark will check for tasks to speculate, in millisecond.	10–100	100
spark.speculation.multiplier—How many times slower a task is than the median to be considered for speculation.	1–5	1.5
spark.speculation.quantile—Percentage of tasks which must be complete before speculation is enabled.	0–1	0.75
spark.broadcast.blockSize—Size of each piece of a block for TorrentBroadcastFactory, in MB.	2–128	4
spark.io.compression.codec—The codec used to compress internal data such as RDD partitions, and so on.	snappy, lzf,lz4	snappy
spark.io.compression.lz4.blockSize—Block size used in LZ4 compression, in KB.	2–128	32
spark.io.compression.snappy.blockSize—Block size used in snappy, in KB.	2–128	32
spark.kryo.referenceTracking—Whether to track references to the same object when serializing data with Kryo	true,false	true
spark.kryoserializer.buffer.max—Maximum allowable size of Kryo serialization buffer, in MB.	8–128	64
spark.kryoserializer.buffer—Initial size of Kryo's serialization buffer, in KB.	2–128	64
spark.driver.cores—Number of cores to use for the driver process.	1–30	1
spark.executor.cores—The number of cores to use on each executor.	4–30	core #
spark.executor.instances—The number of executors for static allocation.	6–10	2
spark.driver.memory—Amount of memory to use for the driver process, in MB.	1024–36864	1024
spark.executor.memory—Amount of memory to use per executor process, in MB.	7168–36864	1024
spark.storage.memoryMapThreshold—Size of a block above which Spark maps when reading a block from disk, in MB.	50–500	2
spark.network.timeout—Default timeout for all network interactions, in second.	20–500	120
spark.locality.wait—How long to launch a data-local task before giving up, in second.	1–10	3
spark.scheduler.revive.interval—The interval length for the scheduler to revive the worker resource, in second.	2–50	1
spark.task.maxFailures—Number of task failures before giving up on the job.	1–8	4
spark.shuffle.compress—Whether to compress map output files.	true,false	true
spark.memory.fraction—Fraction of (heap space - 300 MB) used for execution and storage.	0.5–1	0.75
spark.shuffle.spill.compress—Whether to compress data spilled during shuffles.	true,false	true
spark.speculation—If set to "true", performs speculative execution of tasks.	true,false	false
spark.broadcast.compress—Whether to compress broadcast variables before sending them. Generally a good idea.	true,false	true
spark.rdd.compress—Whether to compress serialized RDD partitions.	true,false	false
spark.serializer—Class to use for serializing objects that are sent over the network or need to be cached in serialized form.	java,kryo	java
spark.memory.storageFraction—Amount of storage memory immune to eviction, expressed as a fraction of the size of the region set aside by *spark.memory.fraction*.	0.5–1	0.5
spark.default.parallelism—The largest number of partitions in a parent RDD for distributed shuffle operations.	8–50	#
spark.memory.offHeap.enabled—If true, Spark will attempt to use off-heap memory for certain operations.	true,false	false
spark.memory.offHeap.size—The absolute amount of memory which can be used for off-heap allocation, in MB.	10–1000	0