

Hortonworks Data Platform

Release Notes

(December 15, 2017)

Hortonworks Data Platform: Release Notes

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The Hortonworks Data Platform, powered by Apache Hadoop, is a massively scalable and 100% open source platform for storing, processing and analyzing large volumes of data. It is designed to deal with data from many sources and formats in a very quick, easy and cost-effective manner.

The Hortonworks Data Platform consists of the essential set of Apache Software Foundation projects that focus on the storage and processing of Big Data, along with operations, security, and governance for the resulting system. This includes Apache Hadoop – which includes MapReduce, Hadoop Distributed File System (HDFS), and Yet Another Resource Negotiator (YARN) – along with Ambari, Falcon, Flume, HBase, Hive, Kafka, Knox, Oozie, Phoenix, Pig, Ranger, Slider, Spark, Sqoop, Storm, Tez, and ZooKeeper. Hortonworks is the major contributor of code and patches to many of these projects. These projects have been integrated and tested as part of the Hortonworks Data Platform release process and installation and configuration tools have also been included.

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1. HDP 2.6.4 Release Notes

This document provides you with the latest information about the Hortonworks Data Platform (HDP) 2.6.4 release and its product documentation. In addition to the standard information provided by HDP release notes, you will also find information on:

- [Component Differences between HDP and IOP \[3\]](#)
- [Fixed Issues for IOP \[6\]](#)
- [Known Issues for IOP \[6\]](#)

1.1. Component Versions

The official Apache versions of all HDP 2.6.4 components are listed below. All components listed here are official Apache releases of the most recent stable versions available.

The Hortonworks approach is to provide patches only when necessary, to ensure the interoperability of components. Unless you are explicitly directed by Hortonworks Support to take a patch update, each of the HDP components should remain at the following package version levels, to ensure a certified and supported copy of HDP 2.6.4.

Official Apache versions for HDP 2.6.4:

- Apache Accumulo 1.7.0 ¹
- Apache Atlas 0.8.0
- Apache Calcite 1.2.0
- Apache DataFu 1.3.0
- Apache Falcon 0.10.0 ¹
- Apache Flume 1.5.2 ¹
- Apache Hadoop 2.7.3
- Apache HBase 1.1.2
- Apache Hive 1.2.1
- Apache Hive 2.1.0
- Apache Kafka 0.10.1 ¹
- Apache Knox 0.12.0
- Apache Mahout 0.9.0+ ¹
- Apache Oozie 4.2.0
- Apache Phoenix 4.7.0

¹Refer to [Deprecation Notices](#) for more information on deprecation plans for these components.

- Apache Pig 0.16.0
- Apache Ranger 0.7.0
- Apache Slider 0.92.0 ¹
- Apache Spark 1.6.3
- Apache Spark 2.2.0
- Apache Sqoop 1.4.6
- Apache Storm 1.1.0 ¹
- Apache TEZ 0.7.0
- Apache Zeppelin 0.7.3
- Apache ZooKeeper 3.4.6

Later versions of a few Apache components are sometimes bundled in the HDP distribution in addition to the versions listed above. In this case, these later versions are listed in the [Technical Previews](#) table and should not substitute for the Apache component versions of the above list in a production environment.

Additional component versions:

- Cascading 3.0.0 ¹
- Druid 0.10.1
- Hue 2.6.1 ^{1 2}



Note

For information on open source software licensing and notices, please refer to the Licenses and Notices files included with the software install package.

1.2. New Features

This section highlights new features in HDP 2.6.4.

No new features are included in this release.

1.3. Upgrading from IOP 4.2.5 to HDP 2.6.4

This section covers everything you need to know about migrating from IOP 4.2.5 to HDP 2.6.4.

1.3.1. Guidelines for Migrating from IOP to HDP

For instructions on upgrading from IOP 4.2.5 to HDP 2.6.4, see the [IOP to HDP Migration](#) guide.

²Hue is not supported on IBM PPC.

1.3.2. Component Differences between HDP and IOP

When you upgrade from IOP 4.2.5 to HDP 2.6.4, the configuration of available components and features will differ slightly. Below are:

- The components that are available in HDP 2.6.4 that were not available in IOP 4.2.5.
- The components in both IOP 4.2.5 and HDP 2.6.4 that are upgraded to a newer version in HDP.
- The components that are the same version for both IOP 4.2.5 and HDP 2.6.4.
- The components in both IOP 4.2.5 and HDP 2.6.4 that are downgraded to an older version in HDP.
- The components that were previously available in IOP but are no longer available after the upgrade.

1.3.2.1. New Components for IOP Users

These components are available to IOP users after upgrading to HDP 2.6.4:

- Atlas 0.8.0
- Avatica 1.8.0
- Calcite 1.2.0
- Calcite_hive 2 1.10.0
- Datafu 1.3.0
- Hive2 2.1.0
- Storm 1.1.0
- Tez 0.7.0
- Tez_Hive2 0.8.4
- Zeppelin 0.7.3

1.3.2.2. Upgraded Components for IOP Users

These components are upgraded to a newer version for IOP users after upgrading to HDP 2.6.4:

- Ambari
 - HDP: 2.5.2
 - IOP: 2.2.0
- Hive
 - HDP: 1.2.1000

- IOP: 1.2.1
- Kafka
 - HDP: 0.10.1.1
 - IOP: 0.10.1.0
- Knox
 - HDP: 0.12.1
 - IOP: 0.11
- Ranger
 - HDP: 0.7.0
 - IOP: 0.6.2
- Slider
 - HDP: 0.92.0
 - IOP: 0.90.2
- Spark
 - HDP: 1.6.3
 - IOP: 1.6.1
- Spark2
 - HDP: 2.2.0
 - IOP: 2.1.0

1.3.2.3. Identical Components for IOP Users

These components are the same version in both IOP 4.2.5 and HDP 2.6.4:

- Hadoop 2.7.3
- Pig 0.16.0
- Sqoop 1.4.6
- Solr 6.3 (IOP Solr Management Pack)

1.3.2.4. Downgraded Components for IOP Users

These components are downgraded to an older version for IOP users after upgrading to HDP 2.6.4:

- Flume

- HDP: 1.5.2
- IOP: 1.7.0
- HBase
 - HDP: 1.1.2
 - IOP: 1.2.4
- Oozie
 - HDP: 4.2.0
 - IOP: 4.3.0
- Phoenix
 - HDP: 4.7.0
 - IOP: 4.8.1

1.3.2.5. Features that are New for IOP Users

These features were not previously supported in HDP 2.6.1 but are now available to IOP users after upgrading to HDP 2.6.4.

Added 1.7.x Features to Flume 1.5.2:

- Flume-Kafka Source with new Consumer ([FLUME-2821](#))
- Flume-Kafka-Sink with new Producer ([FLUME-2822](#))
- Kafka Source/Sink should optionally read/write Flume records ([FLUME-2852](#))
- Make raw data appearing in log messages explicit ([FLUME-2954](#))
- Handle offset migration in the new Kafka Channel ([FLUME-2972](#))
- Handle offset migration in the new Kafka Source ([FLUME-2983](#))
- Bug fixes: [FLUME-2915](#), [FLUME-2920](#), [FLUME-2963](#)



Tip

See the [Apache Flume Component Guide](#) for more details and access to the Flume 1.5.2 User Guide and Developer Guide.

1.3.2.6. Features No Longer Available for IOP Users

These components were previously supported in IOP 4.2.5 but are no longer available to IOP users after upgrading to HDP 2.6.4.

- TITAN
- R4ML

- SYSTEMML
- JNBG

These features were previously supported in IOP 4.2.5 but are no longer available to IOP users after upgrading to HDP 2.6.4:

- SwiftFS support
- CMX Compression library
- Knox Proxy for UI
- Ambari Quick Links for UI based on Knox Proxy

1.3.3. Fixed Issues for IOP

The fixed issues listed here are issues that were specifically addressed to support the migration from IOP to HDP.

There are no new issues related to IOP integration that were addressed in this release.

1.3.4. Known Issues for IOP

This section lists all the known issues specifically related to upgrading from IOP 4.2.5 to HDP 2.6.4.

Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
BUG-86825	AMBARI-21800 , AMBARI-21820	Ambari	<p>Description of Problem: Some services have issue coming up after express upgrade on IOP clusters</p> <p>Workaround: For a detailed workaround, see Post-upgrade Tasks.</p>
BUG-86945	N/A	Ranger	<p>Summary: On IOP migrated cluster, if solr cloud is on then audit to solr is failing for storm due to unauthorised error</p> <p>Description of Problem: Audits for Ranger Storm plugin are not written when using Ambari Infra/SolrCloud.</p> <p>Workaround:</p> <ol style="list-style-type: none"> 1. Add Storm to the configuration by changing Ambari Infra → Advanced → Advanced infra-solr-security-json → Ranger Audit Service Users from: <pre>{default_ranger_audit_users},hrt_qa</pre> to: <pre>{default_ranger_audit_users},hrt_qa,storm</pre> 2. Restart Ambari infra-solr. 3. If a different principal is used in <code>/etc/storm/conf/storm_jaas.conf</code> under StormClient, use that principal in the above config instead of storm.
BUG-86948	N/A	Ambari	<p>Summary: Oozie Hive job failed with NoClassDefFoundError</p> <p>Description of Problem: If Oozie HA is enabled, Oozie Hive jobs may fail with the following error in the yarn application log:</p>

Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
			<pre><<< Invocation of Main class completed <<<</pre> <p>Failing Oozie Launcher, Main class [org.apache.oozie.action.hadoop.HiveMain], main() threw exception, org/apache/hadoop/hive/shims/ShimLoader java.lang.NoClassDefFoundError: org/apache/hadoop/hive/shims/ShimLoader at org.apache.hadoop.hive.conf.HiveConf\$ConfVars.<clinit>(HiveConf.java:400) at org.apache.hadoop.hive.conf.HiveConf.<clinit>(HiveConf.java:109) at sun.misc.Unsafe.ensureClassInitialized(Native Method)</p> <p>Workaround: Use the following as workaround steps:</p> <ol style="list-style-type: none"> 1. Run the following command as the oozie user: oozie admin -oozie http://<oozie-server-host>:11000/oozie -sharelibupdate 2. Rerun the oozie hive job to verify.
BUG-86967	N/A	Ambari, YARN	<p>Description of Problem: After upgrading from BigInsights 4.2.0 or 4.2.5 to HDP 2.6, ATS applications remain in the active directory and are never moved to the done directory upon completion. This is due to an incorrect property specified in yarn-site.</p> <p>Workaround:</p> <p>Set the following property in yarn-site:</p> <pre>Property Name: yarn.timeline-service.store-class Property Value: org.apache.hadoop.yarn.server.timeline.EntityGroupFSTimelineStore</pre> <p>After setting this property, restart any stale components.</p>
BUG-86976	N/A	Ranger	<p>Summary: RPC Protection Type is not being set on the IOP migrated cluster</p> <p>Description of Problem: Test connection fails for HDFS repository.</p> <p>Workaround: In Ranger UI, edit the HDFS repository and set <i>hadoop.rpc.protection</i> parameter to a value of <i>authentication</i>.</p>

1.4. Deprecation Notices

This section points out any technology from previous releases that has been deprecated, moved, or removed from this release. Use this section as a guide for your implementation plans.

1.4.1. Terminology

Items in this section are designated in the following way:

Deprecated	Technology that Hortonworks is removing in a future HDP release. Marking an item as deprecated gives you time to plan for removal in a future HDP release.
Moving	Technology that Hortonworks is moving from a future HDP release and is making available via an alternative Hortonworks offering or subscription.

Marking an item as moving gives you time to plan for removal in a future HDP release and plan for the alternative Hortonworks offering or subscription for the technology.

Removed Technology that Hortonworks has removed from HDP and is no longer available or supported as of this release. Take note of technology marked as Removed since it can potentially affect your upgrade plans.

1.4.2. Deprecated Components and Product Capabilities

The following components are **marked deprecated** from HDP and will be **removed** in a future HDP release:

Component or Capability	Status	Marked Deprecated as of	Target Release for Removal	Comments
Apache Falcon	Deprecated	HDP 2.6.0	HDP 3.0.0	Contact your Hortonworks account team for the replacement options.
Apache Flume	Deprecated	HDP 2.6.0	HDP 3.0.0	Consider Hortonworks DataFlow as an alternative for Flume use cases.
Apache Mahout	Deprecated	HDP 2.6.0	HDP 3.0.0	Consider Apache Spark as an alternative depending on the workload.
Apache Slider	Deprecated	HDP 2.6.0	HDP 3.0.0	Apache Slider functionality will be absorbed by Apache YARN.
Cascading	Deprecated	HDP 2.6.0	HDP 3.0.0	
Hue	Deprecated	HDP 2.6.0	HDP 3.0.0	Consider Ambari Views as the alternative.

The following components are **marked moving** from HDP and will be **moved** in a future HDP release to an alternative Hortonworks Subscription and Offering:

Component or Capability	Status	Marked Moving as of	Target Release for Move
Apache Accumulo	Moving	HDP 2.6.0	HDP 3.0.0
Apache Kafka	Moving	HDP 2.6.0	HDP 3.0.0
Apache Storm	Moving	HDP 2.6.0	HDP 3.0.0
Cloudbreak	Moving	HDP 2.6.0	HDP 3.0.0

1.4.3. Deprecated OSs, Java Versions, Databases, and Platforms

The following technologies are **deprecated** from HDP and will be **removed** in a future HDP release:

Technology	Status	Marked Deprecated as of	Target Release for Removal
Oracle JDK 1.7	Deprecated	HDP 2.6.0	HDP 3.0.0
OpenJDK 7			

Technology	Status	Marked Deprecated as of	Target Release for Removal
Ubuntu 12	Deprecated	HDP 2.6.0	HDP 3.0.0

Please contact Hortonworks Support or your Hortonworks Account Team if you have any questions.

1.5. Unsupported Features

This section lists features that are not officially supported by HDP. Although the features listed in the Technical Preview and Community Features sections exist within HDP, Hortonworks does not currently support them. The features listed in the IOP Features section were previously supported in IOP but are no longer supported when upgrading to HDP 2.6.4.

- [Technical Preview Features \[9\]](#)
- [Community Features \[10\]](#)

1.5.1. Technical Preview Features

The following features are available within HDP 2.6.4 but are not ready for production deployment. Hortonworks encourages you to explore these technical preview features in non-production environments and provide feedback on your experiences through the [Hortonworks Community Forums](#).

Table 1.1. Technical Previews

Component	Feature
HBase and Phoenix	<p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • HBase storage quota on HDFS • HBase backup/restore supports bulk loaded data • Phoenix repair tool - A repair tool for corrupted system tables (PHOENIX-3165) • Backup and restore • Phoenix operability with Microsoft .NET Driver • Phoenix Storage Handler for Hive integration • Cell-level ACLs • Column Family Encryption • Phoenix-Spark Integration • RPC Throttling • Support for <code>init.d</code> scripts
HDFS	<p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • G1 GC support for HDFS
Hive	<p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • Stored Procedures Client-Side • LLAP / Spark security interface

Component	Feature
	<ul style="list-style-type: none"> Phoenix Storage Handler for Hive integration
Ranger	Introduced in a previous release: <ul style="list-style-type: none"> Support for S3 authorization in Ranger Hive Plugin
Slider	Introduced in a previous release: <ul style="list-style-type: none"> Support for Docker-based application packaging (SLIDER-780)
Spark	New in this release: <ul style="list-style-type: none"> ORC feature & performance improvements towards Parquet Parity Introduced in a previous release: <ul style="list-style-type: none"> Spark SQL Ranger integration for row and column security, for Spark 2.1 DataSet API GraphX
Storm	Introduced in a previous release: <ul style="list-style-type: none"> Storm SQL: run SQL queries over streaming data in Storm Automatic back pressure Pacemaker daemon Resource-aware scheduling
YARN	Introduced in a previous release: <ul style="list-style-type: none"> Add support for network I/O isolation/scheduling for containers (YARN-2140) NodeManager: add cgroup support for disk I/O isolation (YARN-2619)

1.5.2. Community Features

The following features are developed and tested by the Hortonworks community but are not officially supported by Hortonworks. These features are excluded for a variety of reasons, including insufficient reliability or incomplete test case coverage, declaration of non-production readiness by the community at large, and feature deviation from Hortonworks best practices. Do not use these features in your production environments.

Table 1.2. Community Features

Component	Feature
Falcon	Introduced in a previous release: <ul style="list-style-type: none"> Prism Server User Recipes
HBase	Introduced in a previous release: <ul style="list-style-type: none"> HBase Column Family Encryption: use HDFS data at rest encryption instead Use of memcached as block cache is unsupported (HBASE-13170)

Component	Feature
	<ul style="list-style-type: none"> • ZooKeeper-less region assignment • Region size balancing (HBASE-13103)
HDFS	<p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • HTTPFS (HDFS-2179) <p>HTTPFS is used with Hue, in combination with Knox, and standalone as an API gateway. We highly recommend that you replace HTTPFS with Knox where possible.</p> <ul style="list-style-type: none"> • NameNode Federation (HDFS-1052) • Disk Hot Swap (HDFS-1362) • Block-volume device choosing (HDFS-1804) • viewFS (HADOOP-7257)
Knox	<p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • Storm REST APIs
Slider	<p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • Simplified Application Packaging
Spark	<p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • Spark Standalone • Spark on Mesos • Jupyter/iPython Notebook
YARN	<p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • Fair Scheduler • MapReduce Eclipse Plug-in • MapReduce Uber AM
Zeppelin	<p>For R interpreter support (ZEPPELIN-156), only the following subset of the interpreters are enabled by default:</p> <ul style="list-style-type: none"> • Spark • Hive • Shell • Markdown • R • Livy • Angular <p>The following interpreters are not enabled by default:</p> <ul style="list-style-type: none"> • Phoenix <p>Introduced in a previous release:</p> <ul style="list-style-type: none"> • The ability to share a note by sharing its URL. This is due to a lack of proper access control over with whom and how a note can be shared.

1.6. Upgrading to HDP 2.6.4

If you already have HDP 2.6.0 installed, upgrading your cluster to HDP 2.6.4 means:

- Keeping the same configuration files you used for HDP 2.6.0.
- Keeping the same data and metadata in the same location you used for HDP 2.6.0
- Installing any new components (added for the first time in HDP 2.6.0) side-by-side with existing components

1.6.1. Before you begin

- Ensure that you know which HDP components you need to upgrade at your installation.
- Decide whether you are going to upgrade using a [local repository](#) or a [remote repository](#).
- If you are using the Falcon service, install the Berkeley DB prior to performing an upgrade.

See the [Prerequisite to Installing or Upgrading Falcon](#) in the Data Movement and Integration guide.

1.6.2. Upgrade options

- If you are upgrading your cluster manually, use the [Non-Ambari Upgrade Guide](#).
- If you are upgrading your cluster through Ambari, use the [Ambari Upgrade Guide](#)

More information:

- [Upgrading HDP](#)
- [Register and Install HDP Version](#)
- [Obtain the HDP repos](#)

1.7. Behavioral Changes

Behavioral changes denote a marked change in behavior from the previously released version to this version of software. In HDP 2.6.4, behavioral changes affect the following Hadoop components.

Table 1.3. Behavioral Changes

Hortonworks Bug ID	Apache Component	Apache JIRA	Summary	Details
BUG-90722	Hive2	HIVE-17079	LLAP: Use FQDN by default for work submission	Previous Behavior: The default value of <code>LLAP_DAEMON_AM_USE_FQDN</code> is <code>false</code> . New Behavior: The default value of <code>LLAP_DAEMON_AM_USE_FQDN</code> is now <code>true</code> .

Hortonworks Bug ID	Apache Component	Apache JIRA	Summary	Details
BUG-91117	Zeppelin	ZEPPELIN-1962	Queries takes lot of time from Zeppelin Jdbc Interpreter.	<p>Previous Behavior: Hive queries like “show databases” from Zeppelin Jdbc interpreter take a lot of time whereas the same query completes in seconds from Beeline. Multiple thread dump from Hive Jdbc Interpreter process running in Zeppelin Server machine will show a thread performing “SqlCompleter.getDataModelMetadataCompletions” is in RUNNABLE state which confirms the issue.</p> <p>New Behavior: A patch to disable SQL Completer feature (ZEPPELIN-1962) is available as a workaround. This makes JDBC work with lower latency at the cost of completion functionality. In a future update of Zeppelin, we plan to include a re-write of SQL Completer functionality to improve the performance.</p>
BUG-91359	Hive, Hive2	HIVE-17963	Hive job creates buckets. Since there are duplicate bucket files, the subsequent validation query (select *) fails to return correct number of records.	<p>Previous Behavior: Setting the property HIVE_EXEC_MOVE_FILES_FROM_SOURCE_DIR could potentially cause runaway tasks to write files to temp directories for non-blobstore file-systems.</p> <p>New Behavior: Use HIVE_BLOBSTORE_SUPPORTED_SCHEMES to distinguish blobstores from other file-systems. When moving blobstores or renaming a directory that contains a blobstore, each file is individually moved from the source directory to the destination instead of simply renaming the source directory.</p>

1.8. Apache Patch Information

The following sections list patches in each HDP 2.6.4 component beyond what was fixed in the base version of the Apache component.

- [Hadoop \[14\]](#)
- [Accumulo \[199\]](#)
- [Atlas \[199\]](#)
- [DataFu \[209\]](#)
- [Falcon \[210\]](#)
- [Flume \[210\]](#)
- [HBase \[213\]](#)
- [Hive \[222\]](#)
- [Kafka \[245\]](#)
- [Knox \[246\]](#)
- [Mahout \[247\]](#)

- [Oozie \[248\]](#)
- [Phoenix \[254\]](#)
- [Pig \[260\]](#)
- [Ranger \[260\]](#)
- [Slider \[266\]](#)
- [Spark \[267\]](#)
- [Sqoop \[282\]](#)
- [Storm \[285\]](#)
- [Tez \[288\]](#)
- [Zeppelin \[290\]](#)
- [ZooKeeper \[291\]](#)

1.8.1. Hadoop

This release provides Hadoop Common 2.7.3 and the following Apache patches:

- [HADOOP-13700](#): Remove unthrown IOException from TrashPolicy#initialize and #getInstance signatures.
- [HADOOP-13709](#): Ability to clean up subprocesses spawned by Shell when the process exits..
- [HADOOP-14059](#): typo in s3a rename(self, subdir) error message.
- [HADOOP-14542](#): Add IOUtils.cleanupWithLogger that accepts slf4j logger API.
- [HDFS-9887](#): WebHdfs socket timeouts should be configurable.
- [HDFS-9914](#): Fix configurable WebhDFS connect/read timeout.
- [MAPREDUCE-6698](#): Increase timeout on TestUnnecessaryBlockingOnHistoryFileInfo.testTwoThreadsQueryingDifferentJobOfSameUser.
- [YARN-4550](#): Some tests in TestContainerLanch fails on non-english locale environment.
- [YARN-4717](#): TestResourceLocalizationService.testPublicResourceInitializesLocalDir fails Intermittently due to IllegalArgumentException from cleanup.
- [YARN-5042](#): Mount /sys/fs/cgroup into Docker containers as readonly mount.
- [YARN-5318](#): Fix intermittent test failure of TestRMAdminService#testRefreshNodesResourceWithFileSystemBasedConfigurationProvider.
- [YARN-5641](#): Localizer leaves behind tarballs after container is complete..

- [YARN-6004](#): Refactor `TestResourceLocalizationService#testDownloadingResourcesOnContainer` so that it is less than 150 lines.
- [YARN-6078](#): Containers stuck in Localizing state.
- [YARN-6805](#): NPE in `LinuxContainerExecutor` due to null `PrivilegedOperationException` exit code..

HDP 2.6.3 provided Hadoop Common 2.7.3 and the following Apache patches:

- [HADOOP-1023](#): Add more logging in WASB page blob read function.
- [HADOOP-1026](#):. Logging bug in WASB causing out of index exception.
- [HADOOP-1540](#):. Support file exclusion list in distcp.
- [HADOOP-1540](#): breaks backward compatibility.
- [HADOOP-3733](#): "s3x:" URLs break when Secret Key contains a slash, even if encoded.
- [HADOOP-5323](#):. Trash documentation should describe its directory structure and configurations.
- [HADOOP-5470](#): `RunJar.unJar()` should write the last modified time found in the jar entry to the uncompressed file.
- [HADOOP-5732](#): Add `SFTPFileSystem`.
- [HADOOP-7139](#):. Allow appending to existing `SequenceFiles`.
- [HADOOP-7256](#): Resource leak during failure scenario of closing of resources.
- [HADOOP-7713](#): `dfs -count -q` should label output column.
- [HADOOP-7713](#): `dfs -count -q` should label output column.
- [HADOOP-7817](#):. `RawLocalFileSystem.append()` should give `FSDDataOutputStream` with accurate `.getPos()`.
- [HADOOP-7930](#): Kerberos relogin interval in `UserGroupInformation` should be configurable (xiao chen via rkanter) .
- [HADOOP-8151](#): Error handling in snappy decompressor throws invalid exceptions.
- [HADOOP-8436](#): NPE In `getLocalPathForWrite` - path, conf - when the required context item is not configured.
- [HADOOP-8437](#): `getLocalPathForWrite` should throw `IOException` for invalid paths.
- [HADOOP-8751](#): NPE in `Token.toString()` when `Token` is constructed using null identifier.
- [HADOOP-8818](#):. Use equals instead `==` in `MD5MD5CRC32FileChecksum` and `TFileDumper`.
- [HADOOP-8934](#): Shell command `ls` should include sort options.

- [HADOOP-9121](#):. InodeTree.java has redundant check for vName while throwing exception.
- [HADOOP-9242](#):. Duplicate surefire plugin config in hadoop-common.
- [HADOOP-9477](#):. Add posixGroups support for LDAP groups mapping service.
- [HADOOP-10035](#): Cleanup TestFilterFileSystem.
- [HADOOP-10048](#): LocalDirAllocator should avoid holding locks while accessing the filesystem.
- [HADOOP-10300](#):. Allowed deferred sending of call responses.
- [HADOOP-10365](#): BufferedOutputStream in FileUtil#unpackEntries() should be closed in finally block.
- [HADOOP-10406](#): TestIPC.testIpcWithReaderQueuing may fail.
- [HADOOP-10597](#): RPC Server signals backoff to clients when all request queues are full.
- [HADOOP-10597](#): RPC Server signals backoff to clients when all request queues are full.
- [HADOOP-10774](#): Update KerberosTestUtils for hadoop-auth tests when using IBM Java.
- [HADOOP-10775](#):. Shell operations to fail with meaningful errors on windows if winutils.exe not found.
- [HADOOP-10823](#): TestReloadingX509TrustManager is flaky.
- [HADOOP-10829](#): Iteration on CredentialProviderFactory.serviceLoader is thread-unsafe.
- [HADOOP-10965](#): Print fully qualified path in CommandWithDestination error messages.
- [HADOOP-10971](#): Add -C flag to make `hadoop fs -ls` print filenames only.
- [HADOOP-11031](#):. Design Document for Credential Provider API.
- [HADOOP-11098](#): [JDK8] Max Non Heap Memory default changed between JDK7 and 8.
- [HADOOP-11180](#): Change log message "token.Token: Cannot find class for token kind kms-dt" to debug.
- [HADOOP-11212](#): NetUtils.wrapException to handle SocketException explicitly.
- [HADOOP-11218](#): Add TLSv1.1,TLSv1.2 to KMS, HttpFS, SSLFactory.
- [HADOOP-11252](#): RPC client does not time out by default.
- [HADOOP-11262](#): Enable YARN to use S3A.
- [HADOOP-11361](#): Fix a race condition in MetricsSourceAdapter.updateJmxCache.
- [HADOOP-11404](#): Clarify the "expected client Kerberos principal is null" authorization message.

- [HADOOP-11418](#): Property "io.compression.codec.lzo.class" does not work with other value besides default.
- [HADOOP-11491](#):. HarFs incorrectly declared as requiring an authority.
- [HADOOP-11572](#): s3a delete() operation fails during a concurrent delete of child entries.
- [HADOOP-11572](#): s3a delete() operation fails during a concurrent delete of child entries.
- [HADOOP-11581](#): Multithreaded correctness Warnings #org.apache.hadoop.fs.shell.Ls.
- [HADOOP-11613](#):. Remove commons-httpclient dependency from hadoop-azure.
- [HADOOP-11628](#): SPNEGO auth does not work with CNAMEs in JDK8. (Daryn Sharp via stevel).
- [HADOOP-11677](#): Add cookie flags for logs and static contexts.
- [HADOOP-11685](#): StorageException complaining "no lease ID" during HBase distributed log splitting.
- [HADOOP-11687](#): Ignore x-* and response headers when copying an Amazon S3 object.
- [HADOOP-11692](#):. Improve authentication failure WARN message to avoid user confusion.
- [HADOOP-11713](#): ViewFileSystem should support snapshot methods.
- [HADOOP-11717](#): Add Redirecting WebSSO behavior with JWT Token in Hadoop Auth.
- [HADOOP-11772](#): RPC Invoker relies on static ClientCache which has synchronized(this) blocks.
- [HADOOP-11780](#): Prevent IPC reader thread death. .
- [HADOOP-11785](#):. Reduce the number of listStatus operation in distcp buildListing.
- [HADOOP-11802](#): DomainSocketWatcher thread terminates sometimes after there is an I/O error during requestShortCircuitShm.
- [HADOOP-11812](#):. Implement listLocatedStatus for ViewFileSystem to speed up split calculation.
- [HADOOP-11819](#): HttpServerFunctionalTest#prepareTestWebapp should create web app directory if it does not exist.
- [HADOOP-11827](#):. Speed-up distcp buildListing() using threadpool.
- [HADOOP-11846](#): TestCertificateUtil.testCorruptPEM failing on Jenkins JDK8.
- [HADOOP-11859](#): PseudoAuthenticationHandler fails with httpcomponents v4.4.
- [HADOOP-11864](#):. JWTRedirectAuthenticationHandler breaks java8 javadocs.
- [HADOOP-11876](#):. Refactor code to make it more readable, minor maybePrintStats bug.
- [HADOOP-11901](#): BytesWritable fails to support 2G chunks due to integer overflow.

- [HADOOP-11918](#): Listing an empty s3a root directory throws FileNotFoundException.
- [HADOOP-11924](#):. Tolerate JDK-8047340-related exceptions in Shell#isSetSidAvailable preventing class init.
- [HADOOP-11932](#): MetricsSinkAdapter may hang when being stopped.
- [HADOOP-11960](#): Enable Azure-Storage Client Side logging.
- [HADOOP-12001](#):. Fixed LdapGroupsMapping to include configurable Posix UID and GID attributes during the search.
- [HADOOP-12006](#):. Remove unimplemented option for from document in branch-2: 7.
- [HADOOP-12009](#): Clarify FileSystem.listStatus() sorting order & fix FileSystemContractBaseTest:testListStatus. backport to 2.8.
- [HADOOP-12017](#): Hadoop archives command should use configurable replication factor when closing.
- [HADOOP-12043](#): Display warning if defaultFs is not set when running fs commands.
- [HADOOP-12045](#): Enable LocalFileSystem#setTimes to change atime.
- [HADOOP-12049](#): Control http authentication cookie persistence via configuration.
- [HADOOP-12052](#):IPC client downgrades all exception types to IOE, breaks callers trying to use them.
- [HADOOP-12054](#): RPC client should not retry for InvalidToken exceptions. .
- [HADOOP-12056](#): Use DirectoryStream in DiskChecker#checkDirs to detect errors when listing a directory.
- [HADOOP-12058](#):. Fix dead links to DistCp and Hadoop Archives pages.
- [HADOOP-12059](#):. S3Credentials should support use of CredentialProvider.
- [HADOOP-12061](#):. Incorrect command in single cluster setup document.
- [HADOOP-12073](#): Azure FileSystem PageBlobInputStream does not return -1 on EOF.
- [HADOOP-12074](#): in Shell.java#runCommand() rethrow InterruptedException as InterruptedIOException.
- [HADOOP-12076](#):. Incomplete Cache Mechanism in CredentialProvider API.
- [HADOOP-12087](#): [JDK8] Fix javadoc errors caused by incorrect or illegal tags. (Akira AJISAKA via stevel).'
- [HADOOP-12089](#): StorageException complaining " no lease ID" when updating FolderLastModifiedTime in WASB.
- [HADOOP-12095](#): org.apache.hadoop.fs.shell.TestCount fails.
- [HADOOP-12097](#): Allow port range to be specified while starting webapp.

- [HADOOP-12100](#): ImmutableFsPermission should not override applyUmask since that method doesn't modify the FsPermission.
- [HADOOP-12103](#): Small refactoring of DelegationTokenAuthenticationFilter to allow code sharing.
- [HADOOP-12107](#): long running apps may have a huge number of StatisticsData instances under FileSystem.
- [HADOOP-12119](#): hadoop fs -expunge does not work for federated namespace.
- [HADOOP-12158](#): Improve error message in TestCryptoStreamsWithOpensslAesCtrCryptoCodec when OpenSSL is not installed.
- [HADOOP-12159](#): Move DistCpUtils#compareFs() to org.apache.hadoop.fs.FileUtil and fix for HA namespaces.
- [HADOOP-12161](#): Add getStoragePolicy API to the FileSystem interface.
- [HADOOP-12169](#): ListStatus on empty dir in S3A lists itself instead of returning an empty list. author: Pieter Reuse.
- [HADOOP-12173](#): NetworkTopology::add calls toString always.
- [HADOOP-12185](#): NetworkTopology is not efficient adding/getting/removing nodes.
- [HADOOP-12186](#): ActiveStandbyElector shouldn't call monitorLockNodeAsync multiple times.
- [HADOOP-12189](#): Improve CallQueueManager#swapQueue to make queue elements drop nearly impossible.
- [HADOOP-12191](#): Bzip2Factory is not thread safe.
- [HADOOP-12213](#): Interrupted exception can occur when Client#stop is called.
- [HADOOP-12229](#): Fix inconsistent subsection titles in filesystem.md.
- [HADOOP-12230](#): hadoop-project declares duplicate, conflicting curator dependencies.
- [HADOOP-12232](#): Upgrade Tomcat dependency to 6.0.44.
- [HADOOP-12239](#): StorageException complaining " no lease ID" when updating FolderLastModifiedTime in WASB.
- [HADOOP-12242](#): Add in-page TOC to filesystem specification pages.
- [HADOOP-12252](#): LocalDirAllocator should not throw NPE with empty string configuration.
- [HADOOP-12258](#): Need translate java.nio.file.NoSuchFileException to FileNotFoundException to avoid regression.
- [HADOOP-12259](#): Utility to Dynamic port allocation.
- [HADOOP-12269](#): Update aws-sdk dependency to 1.10.6.

- [HADOOP-12280](#):. Skip unit tests based on maven profile rather than NativeCodeLoader.isNativeCodeLoaded.
- [HADOOP-12284](#):. UserGroupInformation doAs can throw misleading exception.
- [HADOOP-12291](#):. Add support for nested groups in LdapGroupsMapping.
- [HADOOP-12292](#): Make use of DeleteObjects optional.
- [HADOOP-12296](#):. when setnetgrent returns 0 in linux, exception should be thrown.
- [HADOOP-12304](#): Applications using FileContext fail with the default file system configured to be wasb/s3/etc.
- [HADOOP-12317](#): Applications fail on NM restart on some linux distro because NM container recovery declares AM container as LOST.
- [HADOOP-12324](#): Better exception reporting in SaslPlainServer. .
- [HADOOP-12325](#): RPC Metrics : Add the ability track and log slow RPCs.
- [HADOOP-12334](#): Change Mode Of Copy Operation of HBase WAL Archiving to bypass Azure Storage Throttling after retries.
- [HADOOP-12345](#): Pad hostname correctly in CredentialsSys.java.
- [HADOOP-12346](#): Increase some default timeouts / retries for S3a connector.
- [HADOOP-12348](#): MetricsSystemImpl creates MetricsSourceAdapter with wrong time unit parameter.
- [HADOOP-12350](#): WASB Logging: Improve WASB Logging around deletes, reads and writes.
- [HADOOP-12358](#): Add -safely flag to rm to prompt when deleting many files.
- [HADOOP-12359](#):. hadoop fs -getmerge doc is wrong.
- [HADOOP-12366](#):. expose calculated paths.
- [HADOOP-12374](#): Description of hdfs expunge command is confusing.
- [HADOOP-12386](#): RetryPolicies.RETRY_FOREVER should be able to specify a retry interval. (Sunil G via wangda) .
- [HADOOP-12404](#): Disable caching for JarURLConnection to avoid sharing JarFile with other users when loading resource from URL in Configuration class.
- [HADOOP-12406](#):. Fixed AbstractMapWritable.readFields to use the thread's ClassLoader to load class instead of System ClassLoader.
- [HADOOP-12407](#): Test failing: hadoop.ipc.TestSaslRPC.
- [HADOOP-12413](#): AccessControlList should avoid calling getGroupNames in isUserInList with empty groups.

- [HADOOP-12415](#):. Add io.netty dependency to hadoop-nfs and to hadoop-hdfs, needed to build Bigtop successfully, see BIGTOP-2049.
- [HADOOP-12416](#):. Trash messages should be handled by Logger instead of being delivered on System.out.
- [HADOOP-12416](#):. Trash messages should be handled by Logger instead of being delivered on System.out."
- [HADOOP-12418](#): TestRPC.testRPCInterruptedSimple fails intermittently.
- [HADOOP-12423](#): Handle failure of registering shutdownhook by ShutdownHookManager in static block.
- [HADOOP-12426](#):. Add Entry point for Kerberos health check.
- [HADOOP-12437](#): Allow SecurityUtil to lookup alternate hostnames.
- [HADOOP-12438](#): TestLocalFileSystem tests can fail on Windows after HDFS-8767 fix for handling pipe.
- [HADOOP-12440](#): TestRPC#testRPCServerShutdown did not produce the desired thread states before shutting down.
- [HADOOP-12441](#): Fixed kill-command behavior to work correctly across Oses by using bash shell built-in.
- [HADOOP-12442](#): Display help if the command option to 'hdfs dfs' is not valid (Contributed by nijel) .
- [HADOOP-12444](#): Support lazy seek in S3AInputStream. Rajesh Balamohan via stevel.
- [HADOOP-12449](#): TestDNS and TestNetUtils failing if no network.
- [HADOOP-12453](#): Support decoding KMS Delegation Token with its own Identifier. .
- [HADOOP-12457](#): [JDK8] Fix a failure of compiling common by javadoc.
- [HADOOP-12463](#): Fix TestShell.testGetSignalKillCommand failure on windows.
- [HADOOP-12464](#):. Interrupted client may try to fail-over and retry.
- [HADOOP-12465](#):. Incorrect javadoc in WritableUtils.java.
- [HADOOP-12469](#): distcp should not ignore the ignoreFailures option.
- [HADOOP-12472](#): Make GenericTestUtils.assertExceptionContains robust.
- [HADOOP-12478](#):. Shell.getWinUtilsPath() has been renamed Shell.getWinutilsPath().
- [HADOOP-12481](#):. JWTRedirectAuthenticationHandler doesn't Retain Original Query String.
- [HADOOP-12482](#):. Race condition in JMX cache update.

- [HADOOP-12483](#): Maintain wrapped SASL ordering for postponed IPC responses. (Daryn Sharp via yliu) .
- [HADOOP-12484](#): Single File Rename Throws Incorrectly In Potential Race Condition Scenarios.
- [HADOOP-12508](#): delete fails with exception when lease is held on blob.
- [HADOOP-12520](#):. Use XInclude in hadoop-azure test configuration to isolate Azure Storage account keys for service integration tests.
- [HADOOP-12526](#):. there are duplicate dependency definitions in pom's.
- [HADOOP-12533](#): Introduce FileNotFoundException in WASB for read and seek API.
- [HADOOP-12535](#):. Run FileSystem contract tests with hadoop-azure.
- [HADOOP-12537](#): S3A to support Amazon STS temporary credentials.
- [HADOOP-12540](#): TestAzureFileSystemInstrumentation#testClientErrorMetrics fails intermittently due to assumption that a lease error will be thrown.
- [HADOOP-12542](#): TestDNS fails on Windows after HADOOP-12437.
- [HADOOP-12545](#):. Hadoop javadoc has broken links for AccessControlList, ImpersonationProvider, DefaultImpersonationProvider, and DistCp.
- [HADOOP-12548](#):. Read s3a creds from a Credential Provider.
- [HADOOP-12551](#): Introduce FileNotFoundException for WASB FileSystem API.
- [HADOOP-12555](#):. WASB to read credentials from a credential provider.
- [HADOOP-12559](#):. KMS connection failures should trigger TGT renewal.
- [HADOOP-12564](#):. Upgrade JUnit3 TestCase to JUnit 4 in org.apache.hadoop.io package.
- [HADOOP-12565](#):. Replace DSA with RSA for SSH key type in SingleCluster.md.
- [HADOOP-12568](#):. Update core-default.xml to describe posixGroups support.
- [HADOOP-12570](#):. HDFS Secure Mode Documentation updates.
- [HADOOP-12573](#): TestRPC.testClientBackOff failing.
- [HADOOP-12577](#): Bump up commons-collections version to 3.2.2 to address a security flaw.
- [HADOOP-12588](#):. Fix intermittent test failure of TestGangliaMetrics.
- [HADOOP-12589](#): Fix intermittent test failure of TestCopyPreserveFlag.
- [HADOOP-12590](#): TestCompressorDecompressor failing without stack traces.
- [HADOOP-12602](#):. TestMetricsSystemImpl#testQSize occasionally fails.

- [HADOOP-12603](#): TestSymlinkLocalFSFileContext#testSetTimesSymlinkToDir occasionally fail.
- [HADOOP-12604](#): Exception may be swallowed in KMSClientProvider.
- [HADOOP-12605](#): Fix intermittent failure of TestIPC.testIpcWithReaderQueuingi.
- [HADOOP-12608](#): Fix exception message in WASB when connecting with anonymous credential.
- [HADOOP-12609](#): Fix intermittent failure of TestDecayRpcScheduler.
- [HADOOP-12613](#):. TestFind.processArguments occasionally fails.
- [HADOOP-12617](#): SPNEGO authentication request to non-default realm gets default realm name inserted in target server principal.
- [HADOOP-12622](#): Improve the loggings in RetryPolicies and RetryInvocationHandler.
- [HADOOP-12634](#): Change Lazy Rename Pending Operation Completion of WASB to address case of potential data loss due to partial copy.
- [HADOOP-12635](#):. Adding Append API support for WASB.
- [HADOOP-12636](#): Prevent ServiceLoader failure init for unused FileSystems.
- [HADOOP-12653](#): Use SO_REUSEADDR to avoid getting "Address already in use" when using kerberos and attempting to bind to any port on the local IP address.
- [HADOOP-12659](#):. Incorrect usage of config parameters in token manager of KMS.
- [HADOOP-12663](#): Remove Hard-Coded Values From FileSystem.java.
- [HADOOP-12666](#): Support Microsoft Azure Data Lake - as a file system in Hadoop.
- [HADOOP-12667](#):s3a to support createNonRecursive API.
- [HADOOP-12668](#): Support excluding weak Ciphers in HttpServer2 through ssl- server.conf.
- [HADOOP-12672](#): RPC timeout should not override IPC ping interval.
- [HADOOP-12675](#): Fix description about retention period in usage of expunge command.
- [HADOOP-12678](#): Handle empty rename pending metadata file during atomic rename in redo path.
- [HADOOP-12682](#):. Fix TestKMS#testKMSRestart* failure.
- [HADOOP-12688](#):. Fix deadlinks in Compatibility.md.
- [HADOOP-12689](#): S3 filesystem operations stopped working correctly.
- [HADOOP-12691](#):. Add CSRF Filter for REST APIs to Hadoop Common.
- [HADOOP-12691](#):. Move files to correct location.

- [HADOOP-12696](#): Add tests for S3Filesystem Contract.
- [HADOOP-12699](#): TestKMS#testKMSProvider intermittently fails during 'test rollover draining'.
- [HADOOP-12700](#): Remove unused import in TestCompressorDecompressor.java.
- [HADOOP-12706](#):. TestLocalFsFCStatistics#testStatisticsThreadLocalDataCleanUp times out occasionally.
- [HADOOP-12711](#):. Remove dependency on commons-httpclient for ServletUtil.
- [HADOOP-12715](#):. TestValueQueue#testgetAtMostPolicyALL fails intermittently.
- [HADOOP-12716](#): KerberosAuthenticator#doSpnegoSequence use incorrect class to determine isKeyTab in JDK8.
- [HADOOP-12717](#):. NPE when trying to rename a directory in Windows Azure Storage FileSystem.
- [HADOOP-12723](#):S3A: Add ability to plug in any AWSCredentialsProvider.
- [HADOOP-12731](#): Remove useless boxing/unboxing code.
- [HADOOP-12736](#):. TestTimedOutTestsListener#testThreadDumpAndDeadlocks sometimes times out.
- [HADOOP-12738](#): Create unit test to automatically compare Common related classes and core-default.xml.
- [HADOOP-12751](#): While using kerberos Hadoop incorrectly assumes names with '@' to be non-simple. (Bolke de Bruin via stevel).
- [HADOOP-12752](#):. Improve diagnostics/use of envvar/sysprop credential propagation.
- [HADOOP-12758](#):. Extend CSRF Filter with UserAgent Checks.
- [HADOOP-12761](#):. incremental maven build is not really incremental.
- [HADOOP-12765](#): HttpServer2 should switch to using the non-blocking SslSelectChannelConnector to prevent performance degradation when handling SSL connections. .
- [HADOOP-12767](#): Update apache httpclient version to 4.5.2; httpcore to 4.4.4.
- [HADOOP-12772](#):. NetworkTopologyWithNodeGroup.getNodeGroup() can loop infinitely for invalid 'loc' values.
- [HADOOP-12773](#):. HBase classes fail to load with client/job classloader enabled.
- [HADOOP-12774](#): s3a should use UGI.getCurrentUser.getShortname() for username.
- [HADOOP-12776](#): Remove getaclstatus call for non-acl commands in getfacl.
- [HADOOP-12780](#):. During WASB atomic rename handle crash when one directory has been renamed but not file under it.

- [HADOOP-12782](#):. Faster LDAP group name resolution with ActiveDirectory.
- [HADOOP-12786](#):. "hadoop key" command usage is not documented.
- [HADOOP-12787](#): KMS SPNEGO sequence does not work with WEBHDFS.
- [HADOOP-12788](#): OpensslAesCtrCryptoCodec should log which random number generator is used.
- [HADOOP-12789](#):. log classpath of ApplicationClassLoader at INFO level.
- [HADOOP-12792](#):. TestUserGroupInformation#testGetServerSideGroups fails in chroot.
- [HADOOP-12793](#):. Write a new group mapping service guide.
- [HADOOP-12794](#): Support additional compression levels for GzipCodec.
- [HADOOP-12795](#):. KMS does not log detailed stack trace for unexpected errors.
- [HADOOP-12800](#):. Copy docker directory from 2.8 to 2.7/2.6 repos to enable pre-commit Jenkins runs.
- [HADOOP-12801](#): Suppress obsolete S3FileSystem tests.
- [HADOOP-12804](#): Read Proxy Password from Credential Providers in S3 FileSystem.
- [HADOOP-12805](#):. Annotate CanUnbuffer with @InterfaceAudience.Public.
- [HADOOP-12807](#): S3AFileSystem should read AWS credentials from environment variables.
- [HADOOP-12810](#):. FileSystem#listLocatedStatus causes unnecessary RPC calls.
- [HADOOP-12817](#): Enable TLS v1.1 and 1.2.
- [HADOOP-12825](#): Log slow name resolutions.
- [HADOOP-12828](#): Print user when services are started.
- [HADOOP-12829](#): StatisticsDataReferenceCleaner swallows interrupt exceptions.
- [HADOOP-12831](#): LocalFS/FSOutputSummer NPEs in constructor if bytes per checksum set to 0.
- [HADOOP-12844](#): Recover when S3A fails on IOException in read().
- [HADOOP-12846](#):. Credential Provider Recursive Dependencies.
- [HADOOP-12847](#):. hadoop daemonlog should support https and SPNEGO for Kerberized cluster.
- [HADOOP-12849](#): TestSymlinkLocalFSFileSystem fails intermittently.
- [HADOOP-12851](#):. S3AFileSystem Uptake of ProviderUtils.excludeIncompatibleCredentialProviders.
- [HADOOP-12853](#):. Change WASB documentation regarding page blob support.

- [HADOOP-12870](#):. Fix typo administration in CommandsManual.md.
- [HADOOP-12871](#):. Fix dead link to NativeLibraries.html in CommandsManual.md.
- [HADOOP-12872](#):. Fix formatting in ServiceLevelAuth.md.
- [HADOOP-12875](#): [Azure Data Lake] Support for contract test and unit test cases.
- [HADOOP-12878](#):. KMS SPNEGO sequence does not work with WEBHDFS.
- [HADOOP-12886](#): Exclude weak ciphers in SSLFactory through ssl-server.xml.
- [HADOOP-12891](#): S3FileSystem should configure Multipart Copy threshold and chunk size.
- [HADOOP-12893](#):. Update LICENSE.txt and NOTICE.txt.
- [HADOOP-12893](#):. Update LICENSE.txt and NOTICE.txt.
- [HADOOP-12893](#):. Update LICENSE.txt and NOTICE.txt".
- [HADOOP-12895](#): SSLFactory#createSSLConnectionFactory exception message is wrong.
- [HADOOP-12901](#):. Add warning log when KMSSClientProvider cannot create a connection to the KMS server.
- [HADOOP-12902](#):. JavaDocs for SignerSecretProvider are out-of-date in AuthenticationFilter.
- [HADOOP-12903](#): IPC Server should allow suppressing exception logging by type,.
- [HADOOP-12903](#): IPC Server should allow suppressing exception logging by type, not log 'server too busy' messages.
- [HADOOP-12906](#): AuthenticatedURL should convert a 404/Not Found into an FileNotFoundException.
- [HADOOP-12916](#):. Allow RPC scheduler/callqueue backoff using response times.
- [HADOOP-12926](#): lz4.c does not detect 64-bit mode properly.
- [HADOOP-12929](#):. JWTRedirectAuthenticationHandler must accommodate null expiration time.
- [HADOOP-12943](#): Add -w -r options in dfs -test command.
- [HADOOP-12947](#):. Update documentation Hadoop Groups Mapping to add static group mapping, negative cache.
- [HADOOP-12950](#): ShutdownHookManager should have a timeout for each of the Registered shutdown hook.
- [HADOOP-12954](#): Add a way to change hadoop.security.token.service.use_ip (rkanter) .
- [HADOOP-12958](#): PhantomReference for filesystem statistics can trigger OOM. .

- [HADOOP-12962](#):. KMS key names are incorrectly encoded when creating key.
- [HADOOP-12963](#):Allow using path style addressing for accessing the s3 endpoint.
- [HADOOP-12964](#): Http server vulnerable to clickjacking.
- [HADOOP-12973](#): Make DU pluggable.
- [HADOOP-12975](#): Add jitter to CachingGetSpaceUsed's thread.
- [HADOOP-12977](#):s3a to handle delete("/", true) robustly.
- [HADOOP-12982](#):Document missing S3A and S3 properties.
- [HADOOP-12984](#):. Add GenericTestUtils.getTestDir method and use it for temporary directory in tests (Contributed by Steve Loughran and Vinayakumar B.
- [HADOOP-12985](#):. Support MetricsSource interface for DecayRpcScheduler Metrics.
- [HADOOP-12989](#):. Some tests in org.apache.hadoop.fs.shell.find occasionally time out.
- [HADOOP-12993](#): Change ShutdownHookManger complete shutdown log from INFO to DEBUG.
- [HADOOP-12994](#):. Specify PositionedReadable, add contract tests, fix problems.
- [HADOOP-13008](#):. Add XFS Filter for UIs to Hadoop Common.
- [HADOOP-13011](#): Clearly Document the Password Details for Keystore-based Credential Providers.
- [HADOOP-13018](#): Make Kdiag check whether hadoop.token.files points to existent and valid files.
- [HADOOP-13024](#): Distcp with -delete feature on raw data not implemented.
- [HADOOP-13026](#): Should not wrap IOExceptions into a AuthenticationException in KerberosAuthenticator.
- [HADOOP-13028](#):add low level counter metrics for S3A; use in read performance tests. contributed by: stevel patch includes.
- [HADOOP-13030](#): Handle special characters in passwords in KMS startup script.
- [HADOOP-13034](#): Log message about input options in distcp lacks some items.
- [HADOOP-13037](#): Refactor Azure Data Lake Store as an independent FileSystem.
- [HADOOP-13039](#):. Add documentation for configuration property ipc.maximum.data.length.
- [HADOOP-13042](#):. Restore lost leveldbjni LICENSE and NOTICE changes.
- [HADOOP-13047](#):S3a Forward seek in stream length to be configurable.
- [HADOOP-13052](#):. ChecksumFileSystem mishandles crc file permissions.

- [HADOOP-13058](#):S3A FS fails during init against a read-only FS if multipart purge.
- [HADOOP-13065](#): Add a new interface for retrieving FS and FC Statistics.
- [HADOOP-13072](#): WindowsGetSpaceUsed constructor should be public.
- [HADOOP-13079](#): Add -q option to Ls to print ? instead of non-printable characters.
- [HADOOP-13084](#): Fix ASF License warnings in branch-2.7.
- [HADOOP-13098](#):. Dynamic LogLevel setting page should accept case-insensitive log level string.
- [HADOOP-13103](#): Group resolution from LDAP may fail on javax.naming.ServiceUnavailableException.
- [HADOOP-13105](#):. Support timeouts in LDAP queries in LdapGroupsMapping.
- [HADOOP-13113](#):Enable parallel test execution for hadoop-aws. Chris Nauroth via stevel.
- [HADOOP-13116](#):Jets3tNativeS3FileSystemContractTest does not run.
- [HADOOP-13122](#):Customize User-Agent header sent in HTTP requests by S3A. Chris Nauroth via stevel.
- [HADOOP-13130](#): s3a failures can surface as RTEs, not IOEs.
- [HADOOP-13131](#):. Add tests to verify that S3A supports SSE-S3 encryption.
- [HADOOP-13138](#): Unable to append to a SequenceFile with Compression.NONE.
- [HADOOP-13139](#):Branch-2: S3a to use thread pool that blocks clients.
- [HADOOP-13140](#): FileSystem#initialize must not attempt to create StorageStatistics objects with null or empty schemes.
- [HADOOP-13145](#):In DistCp, prevent unnecessary getFileStatus call when not preserving metadata.
- [HADOOP-13146](#): Refactor RetryInvocationHandler.
- [HADOOP-13155](#):. Implement TokenRenewer to renew and cancel delegation tokens in KMS.
- [HADOOP-13158](#):S3AFileSystem#toString might throw NullPointerException due to null cannedACL.
- [HADOOP-13159](#):. Fix potential NPE in Metrics2 source for DecayRpcScheduler.
- [HADOOP-13162](#):. Consider reducing number of getFileStatus calls in S3AFileSystem.mkdirs.
- [HADOOP-13163](#):Reuse pre-computed filestatus in Distcp-CopyMapper.
- [HADOOP-13164](#):Optimize S3AFileSystem::deleteUnnecessaryFakeDirectories.

- [HADOOP-13168](#): Support Future.get with timeout in ipc async calls.
- [HADOOP-13169](#): Randomize file list in SimpleCopyListing.
- [HADOOP-13171](#): Add StorageStatistics to S3A; instrument some more operations.
- [HADOOP-13179](#): GenericOptionsParser is not thread-safe because commons-cli OptionBuilder is not thread-safe.
- [HADOOP-13183](#): S3A proxy tests fail after httpclient/httpcore upgrade.
- [HADOOP-13188](#): S3A file-create should throw error rather than overwrite directories.
- [HADOOP-13192](#): org.apache.hadoop.util.LineReader cannot handle multibyte delimiters correctly.
- [HADOOP-13197](#): Add non-decayed call metrics for DecayRpcScheduler.
- [HADOOP-13202](#): Avoid possible overflow in org.apache.hadoop.util.bloom.BloomFilter#getNBytes. .
- [HADOOP-13203](#): S3a: Consider reducing the number of connection aborts by setting correct length in s3 request.
- [HADOOP-13204](#): Add support for SSE-KMS and SSE-C in s3a filesystem.
- [HADOOP-13207](#): Specify FileSystem listStatus, listFiles and RemoteIterator.
- [HADOOP-13208](#): S3A listFiles(recursive=true) to do a bulk listObjects instead of walking the pseudo-tree of directories.
- [HADOOP-13212](#): Provide an option to set the socket buffers in S3AFileSystem.
- [HADOOP-13213](#): Small Documentation bug with AuthenticatedURL in hadoop-auth.
- [HADOOP-13237](#): s3a initialization against public bucket fails if caller lacks any credentials.
- [HADOOP-13239](#): Deprecate s3:// in branch-2.
- [HADOOP-13241](#): document s3a better.
- [HADOOP-13242](#): Authenticate to Azure Data Lake using client ID and keys.
- [HADOOP-13244](#): o.a.h.ipc.Server#Server should honor handlerCount when queueSizePerHandler is specified in constructor.
- [HADOOP-13249](#): RetryInvocationHandler need wrap InterruptedException in IOException when call Thread.sleep.
- [HADOOP-13251](#): Authenticate with Kerberos credentials when renewing KMS delegation token.
- [HADOOP-13252](#): Tune S3A provider plugin mechanism.
- [HADOOP-13254](#): Create framework for configurable disk checkers (yufeigu via rkanter) .

- [HADOOP-13255](#):. KMSSClientProvider should check and renew tgt when doing delegation token operations.
- [HADOOP-13257](#): Improve Azure Data Lake contract tests.
- [HADOOP-13263](#):. Reload cached groups in background after expiry.
- [HADOOP-13270](#):. BZip2CompressionInputStream finds the same compression marker twice in corner case, causing duplicate data blocks.
- [HADOOP-13280](#): FileSystemStorageStatistics#getLong("readOps") should return readOps + largeReadOps.
- [HADOOP-13283](#): Support reset operation for new global storage statistics and per FS storage stats.
- [HADOOP-13285](#):. DecayRpcScheduler MXBean should only report decayed CallVolumeSummary.
- [HADOOP-13287](#): TestS3ACredentials#testInstantiateFromURL fails if AWS secret key contains +.
- [HADOOP-13288](#): Guard null stats key in FileSystemStorageStatistics.
- [HADOOP-13290](#): Appropriate use of generics in FairCallQueue.
- [HADOOP-13291](#): Probing stats in DFSOpsCountStatistics/S3AStorageStatistics should be correctly implemented.
- [HADOOP-13299](#): JMXJsonServlet is vulnerable to TRACE. (Haibo Chen via kasha) .
- [HADOOP-13305](#): Define common statistics names across schemes.
- [HADOOP-13309](#): Document S3A known limitations in file ownership and permission model.
- [HADOOP-13315](#): FileContext#umask is not initialized properly.
- [HADOOP-13316](#): Enforce Kerberos authentication for required ops in DelegationTokenAuthenticator.
- [HADOOP-13320](#): Fix arguments check in documentation for WordCount v2.0.
- [HADOOP-13323](#): Downgrade stack trace on FS load from Warn to debug.
- [HADOOP-13324](#): s3a tests don't authenticate with S3 frankfurt (or other V4 auth only endpoints).
- [HADOOP-13336](#):S3A to support per-bucket configuration.
- [HADOOP-13350](#):. Additional fix to LICENSE and NOTICE.
- [HADOOP-13351](#): TestDFSClientSocketSize buffer size tests are flaky.
- [HADOOP-13352](#): Make X-FRAME-OPTIONS configurable in HttpServer2.

- [HADOOP-13353](#): LdapGroupsMapping getPassword shouldn't return null when IOException throws. .
- [HADOOP-13354](#): Update WASB driver to use the latest version (4.2.0) of SDK for Microsoft Azure Storage Clients.
- [HADOOP-13368](#): DFSOpsCountStatistics\$OpType#fromSymbol and s3a.Statistic#fromSymbol should be O(1) operation.
- [HADOOP-13381](#): KMS clients should use KMS Delegation Tokens from current UGI.
- [HADOOP-13382](#): Remove unneeded commons-httpclient dependencies from POM files in Hadoop and sub-projects, while adding it in to the only place it is still needed, hadoop-openstack. Ported to Hortonworks HDP-2.5 by Matt Foley.
- [HADOOP-13387](#): users always get told off for using S3 —even when not using it.
- [HADOOP-13389](#): TestS3ATemporaryCredentials.testSTS error when using IAM credentials.
- [HADOOP-13392](#): [Azure Data Lake] OAuth2 configuration should be default set to true when AdlFileSystem is configured.
- [HADOOP-13393](#): Omit unsupported fs.defaultFS setting in ADLS documentation.
- [HADOOP-13403](#): AzureNativeFileSystem rename/delete performance improvements.
- [HADOOP-13405](#): doc for fs.s3a.acl.default indicates incorrect values.
- [HADOOP-13406](#): S3AFileSystem: Consider reusing filestatus in delete() and mkdirs().
- [HADOOP-13422](#): ZKDelegationTokenSecretManager JaasConfig does not work well with other ZK users in process.
- [HADOOP-13433](#): Race in UGI.reloginFromKeytab.
- [HADOOP-13434](#): Add quoting to Shell class.
- [HADOOP-13443](#): KMS should check the type of underlying keyprovider of KeyProviderExtension before falling back to default. .
- [HADOOP-13446](#): Support running isolated unit tests separate from AWS integration tests.
- [HADOOP-13447](#): Refactor S3AFileSystem to support introduction of separate metadata repository and tests.
- [HADOOP-13458](#): LoadBalancingKMSClientProvider#doOp should log IOException stacktrace. .
- [HADOOP-13459](#): hadoop-azure runs several test cases repeatedly, causing unnecessarily long running time.
- [HADOOP-13461](#): NPE in KeyProvider.rollNewVersion. .
- [HADOOP-13466](#): Add an AutoCloseableLock class. (Chen Liang) .

- [HADOOP-13467](#): Shell#getSignalKillCommand should use the bash builtin on Linux.
- [HADOOP-13470](#): GenericTestUtils\$LogCapturer is flaky.
- [HADOOP-13494](#): ReconfigurableBase can log sensitive information.
- [HADOOP-13502](#): Split fs.contract.is-blobstore flag into more descriptive flags for use by contract tests.
- [HADOOP-13512](#): ReloadingX509TrustManager should keep reloading in case of exception.
- [HADOOP-13513](#): Java 1.7 support for org.apache.hadoop.fs.azure testcases.
- [HADOOP-13535](#): Add jetty6 acceptor startup issue workaround to branch-2. .
- [HADOOP-13540](#):improve section on troubleshooting s3a auth problems.
- [HADOOP-13541](#):explicitly declare the Joda time version S3A depends on.
- [HADOOP-13546](#): Override equals and hashCode to avoid connection leakage.
- [HADOOP-13552](#): RetryInvocationHandler logs all remote exceptions.
- [HADOOP-13552](#): RetryInvocationHandler logs all remote exceptions.
- [HADOOP-13558](#): UserGroupInformation created from a Subject incorrectly tries to renew the Kerberos ticket.
- [HADOOP-13560](#): S3ABlockOutputStream to support huge (many GB) file writes.
- [HADOOP-13565](#): KerberosAuthenticationHandler#authenticate should not rebuild SPN based on client request.
- [HADOOP-13590](#): Retry until TGT expires even if the UGI renewal thread encountered exception. .
- [HADOOP-13599](#): s3a close() to be non-synchronized, so avoid risk of deadlock on shutdown.
- [HADOOP-13614](#): Purge some superfluous/obsolete S3 FS tests that are slowing test runs down.
- [HADOOP-13638](#): KMS should set UGI's Configuration object properly.
- [HADOOP-13674](#): S3A can provide a more detailed error message when accessing a bucket through an incorrect S3 endpoint.
- [HADOOP-13675](#): Bug in return value for delete() calls in WASB.
- [HADOOP-13680](#): fs.s3a.readahead.range to use getLongBytes.
- [HADOOP-13686](#): Adding additional unit test for Trash (l).
- [HADOOP-13692](#): hadoop-aws should declare explicit dependency on Jackson 2 jars to prevent classpath conflicts.

- [HADOOP-13707](#): If kerberos is enabled while HTTP SPNEGO is not configured, some links cannot be accessed. .
- [HADOOP-13710](#): Suppress CachingGetSpaceUsed from logging interrupted exception stacktrace. .
- [HADOOP-13716](#): Add LambdaTestUtils class for tests; fix eventual consistency problem in contract test setup.
- [HADOOP-13727](#): S3A: Reduce high number of connections to EC2 Instance Metadata Service caused by InstanceProfileCredentialsProvider. .
- [HADOOP-13735](#): ITestS3AFileContextStatistics.testStatistics() failing.
- [HADOOP-13737](#): Cleanup DiskChecker interface. .
- [HADOOP-13738](#): DiskChecker should perform some disk IO. .
- [HADOOP-13742](#): Expose NumOpenConnectionsPerUser as a metric. Brahma Reddy Battula. .
- [HADOOP-13749](#): KMSSClientProvider combined with KeyProviderCache can result in wrong UGI being used.
- [HADOOP-13782](#): Make MutableRates metrics thread-local write, aggregate-on-read. .
- [HADOOP-13792](#): Stackoverflow for schemeless defaultFS with trailing slash.
- [HADOOP-13801](#): regression: ITestS3AMiniYarnCluster failing.
- [HADOOP-13804](#): MutableStat mean loses accuracy if add(long, long) is used. .
- [HADOOP-13822](#): Use GlobalStorageStatistics.INSTANCE.reset() at FileSystem#clearStatistics(). Contribute by Brahma Reddy Battula .
- [HADOOP-13823](#): s3a rename: fail if dest file exists.
- [HADOOP-13824](#): FsShell can suppress the real error if no error message is present. .
- [HADOOP-13826](#): S3A Deadlock in multipart copy due to thread pool limits.
- [HADOOP-13830](#): Intermittent failure of ITestS3NContractRootDir.testRecursiveRootListing "Can not create a Path from an empty string". .
- [HADOOP-13831](#): Correct check for error code to detect Azure Storage Throttling and provide retries.
- [HADOOP-13838](#): KMSTokenRenewer should close providers.
- [HADOOP-13847](#): KMSWebApp should close KeyProviderCryptoExtension. .
- [HADOOP-13855](#): Fix a couple of the s3a statistic names to be consistent with the rest.
- [HADOOP-13857](#): S3AUtils.translateException to map (wrapped) InterruptedExceptions to InterruptedIOEs.

- [HADOOP-13863](#): Azure: Add a new SAS key mode for WASB.
- [HADOOP-13871](#):
ITestS3AInputStreamPerformance.testTimeToOpenAndReadWholeFileBlocks
performance awful.
- [HADOOP-13890](#): Maintain HTTP/host as SPNEGO SPN support and fix KerberosName
parsing.
- [HADOOP-13928](#): TestAdlFileContextMainOperationsLive.testGetFileContext1 runtime
error.
- [HADOOP-13929](#): ADLS connector should not check in contract-test-options.xml.
- [HADOOP-13930](#): Azure: Add Authorization support to WASB.
- [HADOOP-13945](#): Azure: Add Kerberos and Delegation token support to WASB client.
- [HADOOP-13956](#): Read ADLS credentials from Credential Provider.
- [HADOOP-13962](#): Update ADLS SDK to 2.1.4.
- [HADOOP-13988](#): KMSSClientProvider does not work with WebHDFS and Apache Knox w/
ProxyUser.
- [HADOOP-14017](#): User friendly name for ADLS user and group.
- [HADOOP-14019](#): Fix some typos in the s3a docs.
- [HADOOP-14028](#): S3A BlockOutputStreams doesn't delete temporary files in multipart
uploads or handle part upload failures.
- [HADOOP-14029](#): Fix KMSSClientProvider for non-secure proxyuser use case.
- [HADOOP-14038](#): Rename ADLS credential properties.
- [HADOOP-14048](#): REDO operation of WASB#AtomicRename should create placeholder
blob for destination folder.
- [HADOOP-14049](#): Honour AclBit flag associated to file/folder permission for Azure
datalake account.
- [HADOOP-14055](#): SwiftRestClient includes pass length in exception if auth fails.
- [HADOOP-14081](#):S3A: Consider avoiding array copy in S3ABlockOutputStream
(ByteArrayBlock).
- [HADOOP-14087](#): S3A typo in pom.xml test exclusions.
- [HADOOP-14091](#): AbstractFileSystem implementaion for 'wasbs' scheme. Contributed
Varada Hemeswari.
- [HADOOP-14092](#): [DOC] Typo in hadoop-aws index.md.
- [HADOOP-14092](#): Typo in hadoop-aws index.md.

- [HADOOP-14099](#): Split S3 testing documentation out into its own file.
- [HADOOP-14100](#): Upgrade Jsch jar to latest version to fix vulnerability in old versions.
- [HADOOP-14102](#): Relax error message assertion in S3A test ITestS3AEncryptionSSEC.
- [HADOOP-14113](#): Review ADL Docs.
- [HADOOP-14123](#): Remove misplaced ADL service provider config file for FileSystem.
- [HADOOP-14135](#): Remove URI parameter in AWSCredentialProvider constructors.
- [HADOOP-14138](#): Remove S3A ref from META-INF service discovery, rely on existing core-default entry.
- [HADOOP-14150](#): Implement getHomeDirectory() method in NativeAzureFileSystem.
- [HADOOP-14153](#): ADL module has messed doc structure.
- [HADOOP-14170](#): FileSystemContractBaseTest is not cleaning up test directory clearly.
- [HADOOP-14173](#): Remove unused AdlConfKeys#ADL_EVENTS_TRACKING_SOURCE.
- [HADOOP-14174](#): Set default ADLS access token provider type to ClientCredential.
- [HADOOP-14190](#): Add more on S3 regions to the s3a documentation.
- [HADOOP-14195](#): CredentialProviderFactory\$getProviders is not thread-safe.
- [HADOOP-14196](#): Azure Data Lake doc is missing required config entry.
- [HADOOP-14197](#): Fix ADLS doc for credential provider.
- [HADOOP-14204](#): S3A multipart commit failing, "UnsupportedOperationException at java.util.Collections\$UnmodifiableList.sort".
- [HADOOP-14204](#): S3A multipart commit failing, "UnsupportedOperationException at java.util.Collections\$UnmodifiableList.sort".
- [HADOOP-14205](#): No FileSystem for scheme: adl.
- [HADOOP-14214](#): DomainSocketWatcher::add()/delete() should not self interrupt while looping await().
- [HADOOP-14230](#): TestAdlFileSystemContractLive fails to clean up.
- [HADOOP-14241](#): Add ADLS sensitive config keys to default list.
- [HADOOP-14255](#): HADOOP-14428. S3A to delete unnecessary fake directory objects in mkdirs().
- [HADOOP-14255](#): S3A to delete unnecessary fake directory objects in mkdirs().
- [HADOOP-14256](#): Correct the format for "Seoul" example.
- [HADOOP-14268](#): Fix markdown itemization in hadoop-aws documents.

- [HADOOP-14274](#): Azure: Simplify Ranger-WASB policy model.
- [HADOOP-14305](#): S3A SSE tests won't run in parallel: Bad request in directory GetFileStatus.
- [HADOOP-14321](#): explicitly exclude s3a root dir ITests from parallel runs.
- [HADOOP-14324](#): Refine S3 server-side-encryption key as encryption secret; improve error reporting and diagnostics.
- [HADOOP-14349](#): Rename ADLS CONTRACT_ENABLE_KEY.
- [HADOOP-14351](#): Azure: RemoteWasbAuthorizerImpl and RemoteSASKeyGeneratorImpl should not use Kerberos interactive user cache.
- [HADOOP-14361](#): Azure: NativeAzureFileSystem.getDelegationToken() call fails sometimes when invoked concurrently.
- [HADOOP-14369](#): NetworkTopology calls expensive toString() when logging.
- [HADOOP-14428](#): s3a: mkdir appears to be broken.
- [HADOOP-14442](#): Owner support for ranger-wasb integration.
- [HADOOP-14443](#): Azure: Support retry and client side failover for authorization, SASKey and delegation token generation.3.
- [HADOOP-14464](#): hadoop-aws doc header warning #5 line wrapped.
- [HADOOP-14465](#): LdapGroupsMapping - support user and group search base.
- [HADOOP-14472](#): Azure: TestReadAndSeekPageBlobAfterWrite fails intermittently.
- [HADOOP-14478](#): Optimize NativeAzureFsInputStream for positional reads.
- [HADOOP-14500](#): Azure: TestFileSystemOperationExceptionHandling{,MultiThreaded} fails.
- [HADOOP-14512](#): WASB atomic rename should not throw exception if the file is neither in src nor in dst when doing the rename.
- [HADOOP-14520](#): WASB: Block compaction for Azure Block Blobs.
- [HADOOP-14535](#): wasb: implement high-performance random access and seek of block blobs.
- [HADOOP-14536](#): Update azure-storage sdk to version 5.3.0.
- [HADOOP-14543](#): ZKFC should use getAversion() while setting the zkacL.
- [HADOOP-14546](#): Azure: Concurrent I/O does not work when secure.mode is enabled.
- [HADOOP-14547](#): [WASB] the configured retry policy is not used for all storage operations.!
- [HADOOP-14573](#): regression: Azure tests which capture logs failing with move to SLF4J.

- [HADOOP-14583](#): wasb throws an exception if you try to create a file and there's no parent directory.
- [HADOOP-14596](#): AWS SDK 1.11+ aborts() on close() if > 0 bytes in stream; logs error.
- [HADOOP-14596](#): AWS SDK 1.11+ aborts() on close() if > 0 bytes in stream; logs error. Contributed by Steve Loughran.
- [HADOOP-14609](#): NPE in AzureNativeFileSystemStore.checkContainer() if StorageException lacks an error code.
- [HADOOP-14640](#): Azure: Support affinity for service running on localhost and reuse SPNEGO hadoop.auth cookie for authorization, SASKey and delegation token generation.
- [HADOOP-14642](#): wasb: add support for caching Authorization and SASKeys.
- [HADOOP-14658](#): branch-2 compilation is broken in hadoop-azure.
- [HADOOP-14660](#): wasb: improve throughput by 34% when account limit exceeded.
- [HADOOP-14662](#): Update azure-storage sdk to version 5.4.0.
- [HADOOP-14680](#): Azure: IndexOutOfBoundsException in BlockBlobInputStream.'
- [HADOOP-14722](#): Azure: BlockBlobInputStream position incorrect after seek.
- [HADOOP-14768](#): Honoring sticky bit during Deletion when authorization is enabled in WASB.
- [HADOOP-14769](#): WASB: delete recursive should not fail if a file is deleted.
- [HADOOP-14802](#): Add support for using container saskeys for all accesses.
- [HADOOP-14820](#): Wasb mkdirs security checks inconsistent with HDFS.
- [HADOOP-14839](#): DistCp log output should contain copied and deleted files and directories.
- [HADOOP-14845](#): Azure wasb: getFileStatus not making any auth checks.
- [HADOOP-14899](#): Restrict Access to setPermission operation when authorization is enabled in WASB.
- [HADOOP-14910](#): Upgrade netty-all jar to latest 4.0.x.Final.
- [HADOOP-14913](#): Sticky bit implementation for rename() operation in Azure WASB.
- [HADOOP-14920](#): KMSClientProvider won't work with KMS delegation token retrieved from non-Java client.
- [HADOOP-14935](#): Azure: POSIX permissions are taking effect in access() method even when authorization is enabled.
- [HDFS-27](#): HDFS CLI with --config set to default config complains log file not found error.

- [HDFS-2580](#):. NameNode#main(...) can make use of GenericOptionsParser.
- [HDFS-2043](#):. TestHFlush failing intermittently.
- [HDFS-3677](#): dfs.namenode.edits.dir.required is missing from hdfs- default.xml.
- [HDFS-3918](#): EditLogTailer shouldn't log WARN when other node is in standby mode. .
- [HDFS-4015](#): Safemode should count and report orphaned blocks.
- [HDFS-4176](#): EditLogTailer should call rollEdits with a timeout. .
- [HDFS-4185](#): Add a metric for number of active leases.
- [HDFS-4366](#): Block Replication Policy Implementation May Skip Higher-Priority Blocks for Lower-Priority Blocks.
- [HDFS-4396](#): Add START_MSG/SHUTDOWN_MSG for ZKFC.
- [HDFS-4681](#): TestBlocksWithNotEnoughRacks#testCorruptBlockRereplicatedAcrossRacks fails using IBM java.
- [HDFS-4937](#): ReplicationMonitor can infinite-loop in BlockPlacementPolicyDefault#chooseRandom.
- [HDFS-4946](#):. Allow preferLocalNode in BlockPlacementPolicyDefault to be configurable.
- [HDFS-5640](#): Add snapshot methods to FileContext.
- [HDFS-6054](#): MiniQJMHACluster should not use static port to avoid binding failure in unit test.
- [HDFS-6101](#): TestReplaceDatanodeOnFailure fails occasionally.
- [HDFS-6184](#): Capture NN's thread dump when it fails over.
- [HDFS-6407](#): Add sorting and pagination in the datanode tab of the NN Web UI.
- [HDFS-6481](#): DatanodeManager#getDatanodeStorageInfos() should check the length of storageIDs.
- [HDFS-6533](#): TestBPOfferService#testBasicFunctionalitytest fails intermittently.
- [HDFS-6581](#): merge.15.patch to Champlain. This is a consolidated patch containing all feature changes and was applied to trunk.
- [HDFS-6581](#): Support for writing to single replica in RAM. Applied.
- [HDFS-6666](#): Abort NameNode and DataNode startup if security is enabled but block access token is not enabled.
- [HDFS-6763](#): Initialize file system-wide quota once on transitioning to active.
- [HDFS-6832](#): Fix the usage of 'hdfs namenode' command.
- [HDFS-6860](#): BlockStateChange logs are too noisy.

- [HDFS-6874](#): Add GETFILEBLOCKLOCATIONS operation to HttpFS.
- [HDFS-6888](#): Allow selectively audit logging ops.
- [HDFS-6945](#): BlockManager should remove a block from excessReplicateMap and decrement ExcessBlocks metric when the block is removed.
- [HDFS-7163](#): WebHdfsFileSystem should retry reads according to the configured retry policy.
- [HDFS-7166](#): SbNN Web UI shows #Under replicated blocks and #pending deletion blocks.
- [HDFS-7284](#): Add more debug info to BlockInfoUnderConstruction#setGenerationStampAndVerifyReplicas. (Wei-Chiu Chuang via Yongjun Zhang) .
- [HDFS-7314](#): When the DFSClient lease cannot be renewed, abort open-for- write files rather than the entire DFSClient.
- [HDFS-7390](#): Provide JMX metrics per storage type.
- [HDFS-7452](#): skip StandbyException log for getCorruptFiles().
- [HDFS-7483](#): Display information per tier on the Namenode UI.
- [HDFS-7597](#): DelegationTokenIdentifier should cache the TokenIdentifier to UGI mapping.
- [HDFS-7608](#): hdfs dfsclient newConnectedPeer has no write timeout.
- [HDFS-7609](#): Avoid retry cache collision when Standby NameNode loading edits.
- [HDFS-7645](#): Fix CHANGES.txt.
- [HDFS-7645](#): Rolling upgrade is restoring blocks from trash multiple times.
- [HDFS-7701](#): Support reporting per storage type quota and usage with hadoop/hdfs shell.
- [HDFS-7725](#): Incorrect "nodes in service" metrics caused all writes to fail.
- [HDFS-7758](#): Retire FsDatasetSpi#getVolumes() and use FsDatasetSpi#getVolumeRefs() instead (Lei (Eddy) Xu via Colin P. McCabe) .
- [HDFS-7858](#): Improve HA Namenode Failover detection on the client.
- [HDFS-7890](#): Improve information on Top users for metrics in RollingWindowsManager and lower log level.
- [HDFS-7923](#): The DataNodes should rate-limit their full block reports by asking the NN on heartbeat messages.
- [HDFS-7928](#): Scanning blocks from disk during rolling upgrade startup takes a lot of time if disks are busy.
- [HDFS-7933](#): fsck should also report decommissioning replicas.
- [HDFS-7964](#): Add support for async edit logging. .

- [HDFS-7978](#):. Add LOG.isDebugEnabled() guard for some LOG.debug(..).
- [HDFS-7990](#): IBR delete ack should not be delayed.
- [HDFS-8008](#): Support client-side back off when the datanodes are congested.
- [HDFS-8008](#): Support client-side back off when the datanodes are congested.
- [HDFS-8009](#): Signal congestion on the DataNode.
- [HDFS-8009](#): Signal congestion on the DataNode.
- [HDFS-8046](#): Allow better control of getContentSummary.
- [HDFS-8055](#): NullPointerException when topology script is missing.
- [HDFS-8071](#):(Contributed by Tsz Wo Nicholas Sze).
- [HDFS-8099](#): Change "DFSInputStream has been closed already" message to debug log level.
- [HDFS-8101](#):. DFSClient use of non-constant DFSConfigKeys pulls in WebHDFS classes at runtime.
- [HDFS-8113](#): Add check for null BlockCollection pointers in BlockInfoContiguous structures.
- [HDFS-8131](#): Implement a space balanced block placement policy.
- [HDFS-8144](#): Split TestLazyPersistFiles into multiple tests.
- [HDFS-8152](#): Refactoring of lazy persist storage cases.
- [HDFS-8155](#): Support OAuth2 in WebHDFS.
- [HDFS-8180](#): AbstractFileSystem Implementation for WebHdfs.
- [HDFS-8205](#): CommandFormat#parse() should not parse option as value of option.
- [HDFS-8209](#): Support different number of datanode directories in MiniDFScluster.
- [HDFS-8211](#): DataNode UUID is always null in the JMX counter.
- [HDFS-8219](#): setStoragePolicy with folder behavior is different after cluster restart.
- [HDFS-8224](#): Schedule a block for scanning if its metadata file is corrupt. .
- [HDFS-8229](#): LAZY_PERSIST file gets deleted after NameNode restart.
- [HDFS-8232](#): Missing datanode counters when using Metrics2 sink interface.
- [HDFS-8247](#): TestDiskSpaceQuotaUpdate#testAppendOverTypeQuota is failing. fixing BUG-71395 by backporting HDFS-8231 .
- [HDFS-8276](#): LazyPersistFileScrubber should be disabled if scrubber interval configured zero.

- [HDFS-8278](#): When computing max-size-to-move in Balancer, count only the storage with remaining \geq default block size. .
- [HDFS-8307](#): Spurious DNS Queries from hdfs shell.
- [HDFS-8309](#): Skip unit test using `DataNodeTestUtils#injectDataDirFailure()` on Windows.
- [HDFS-8310](#): Fix `TestCLI.testAll` "help: help for find" on Windows.
- [HDFS-8311](#): `DataStream.transfer()` should timeout the socket `InputStream`.
- [HDFS-8312](#): Added permission check for moving file to Trash.
- [HDFS-8337](#): Accessing `httpfs` via `webhdfs` doesn't work from a jar with kerberos.
- [HDFS-8345](#): Storage policy APIs must be exposed via the `FileSystem` interface.
- [HDFS-8384](#): Allow NN to startup if there are files having a lease but are not under construction.
- [HDFS-8429](#): Avoid stuck threads if there is an error in `DomainSocketWatcher` that stops the thread.
- [HDFS-8431](#): `hdfs crypto` class not found in Windows.
- [HDFS-8432](#): Introduce a minimum compatible layout version to allow downgrade in more rolling upgrade use cases.
- [HDFS-8435](#): Support `CreateFlag` in `WebHDFS`.
- [HDFS-8492](#): DN should notify NN when client requests a missing block (Contributed by Walter Su) .
- [HDFS-8539](#): `Hdfs` doesn't have class 'debug' in windows.
- [HDFS-8542](#): `WebHDFS` `getHomeDirectory` behavior does not match specification.
- [HDFS-8546](#): Use `try` with resources in `DataStorage` and `Storage`.
- [HDFS-8548](#):. `Minicluster` throws `NPE` on shutdown.
- [HDFS-8549](#): Abort the balancer if an upgrade is in progress.
- [HDFS-8554](#): `TestDatanodeLayoutUpgrade` fails on Windows.
- [HDFS-8573](#): Move creation of `restartMeta` file logic from `BlockReceiver` to `ReplicaInPipeline`. .
- [HDFS-8578](#):. On upgrade, `Datanode` should process all storage/data dirs in parallel. .
- [HDFS-8581](#):. `ContentSummary` on / skips further counts on yielding lock.
- [HDFS-8593](#): Calculation of effective layout version mishandles comparison to current layout version in storage.
- [HDFS-8615](#):. Correct HTTP method in `WebHDFS` document.

- [HDFS-8633](#):. Fix setting of dfs.datanode.readahead.bytes in hdfs-default.xml to match DFSConfigKeys.
- [HDFS-8642](#): Make TestFileTruncate more reliable.
- [HDFS-8647](#): Abstract BlockManager's rack policy into BlockPlacementPolicy.
- [HDFS-8656](#): Preserve compatibility of ClientProtocol#rollingUpgrade after finalization.
- [HDFS-8659](#): Block scanner INFO message is spamming logs.
- [HDFS-8674](#): Improve performance of postponed block scans. .
- [HDFS-8676](#): Delayed rolling upgrade finalization can cause heartbeat expiration.
- [HDFS-8696](#): Make the lower and higher watermark in the DN Netty server configurable.
- [HDFS-8709](#):. Clarify automatic sync in FSEditLog#logEdit.
- [HDFS-8711](#): setSpaceQuota command should print the available storage type when input storage type is wrong.
- [HDFS-8722](#): Optimize datanode writes for small writes and flushes.
- [HDFS-8729](#): Fix TestFileTruncate#testTruncateWithDataNodesRestartImmediately which occasionally failed.
- [HDFS-8767](#): RawLocalFileSystem.listStatus() returns null for UNIX pipefile.
- [HDFS-8772](#): Fix TestStandbyIsHot#testDatanodeRestarts which occasionally fails. (Walter Su via wang).
- [HDFS-8778](#): TestBlockReportRateLimiting#testLeaseExpiration can deadlock.
- [HDFS-8785](#): TestDistributedFileSystem is failing in trunk.
- [HDFS-8792](#): BlockManager#postponedMisreplicatedBlocks should use a LightWeightHashSet to save memory (Yi Liu via Colin P. McCabe) .
- [HDFS-8797](#): WebHdfsFileSystem creates too many connections for pread.
- [HDFS-8805](#): Archival Storage: getStoragePolicy should not need superuser privilege.
- [HDFS-8806](#): Inconsistent metrics: number of missing blocks with replication factor 1 not properly cleared.
- [HDFS-8809](#): HDFS fsck reports under construction blocks as CORRUPT.
- [HDFS-8815](#): DFS getStoragePolicy implementation using single RPC call.
- [HDFS-8816](#): Improve visualization for the Datanode tab in the NN UI.
- [HDFS-8818](#): Changes the global moveExecutor to per datanode executors and changes MAX_SIZE_TO_MOVE to be configurable. .
- [HDFS-8824](#): Do not use small blocks for balancing the cluster. .

- [HDFS-8826](#): In Balancer, add an option to specify the source node list so that balancer only selects blocks to move from those nodes. .
- [HDFS-8828](#):. Utilize Snapshot diff report to build diff copy list in distcp.
- [HDFS-8829](#): Make SO_RCVBUF and SO_SNDBUF size configurable for DataTransferProtocol sockets and allow configuring auto-tuning.
- [HDFS-8831](#):. Trash Support for deletion in HDFS encryption zone.
- [HDFS-8844](#): TestHDFSCLI does not cleanup the test directory.
- [HDFS-8845](#):. DiskChecker should not traverse the entire tree.
- [HDFS-8846](#): Add a unit test for INotify functionality across a layout version upgrade.
- [HDFS-8850](#): VolumeScanner thread exits with exception if there is no block pool to be scanned but there are suspicious blocks.
- [HDFS-8852](#):. HDFS architecture documentation of version 2.x is outdated about append write support.
- [HDFS-8855](#): Webhdfs client leaks active NameNode connections.
- [HDFS-8856](#): Make LeaseManager#countPath O(1).
- [HDFS-8859](#): Improve DataNode ReplicaMap memory footprint to save about 45%. .
- [HDFS-8860](#): Remove unused Replica copyOnWrite code (Lei (Eddy) Xu via Colin P. McCabe) .
- [HDFS-8863](#): The remaining space check in BlockPlacementPolicyDefault is flawed.
- [HDFS-8867](#): Enable optimized block reports.
- [HDFS-8879](#): Quota by storage type usage incorrectly initialized upon namenode restart.
- [HDFS-8880](#): NameNode metrics logging.
- [HDFS-8883](#): NameNode Metrics : Add FSNameSystem lock Queue Length.
- [HDFS-8884](#): Fail-fast check in BlockPlacementPolicyDefault#chooseTarget. .
- [HDFS-8885](#): ByteRangeInputStream used in webhdfs does not override available().
- [HDFS-8887](#): Expose storage type and storage ID in BlockLocation.
- [HDFS-8891](#): HDFS concat should keep srcs order.
- [HDFS-8896](#): DataNode object isn't GCed when shutdown, because it has GC root in ShutdownHookManager.
- [HDFS-8898](#): Create API and command-line argument to get quota and quota usage without detailed content summary.
- [HDFS-8911](#): NameNode Metric : Add Editlog counters as a JMX metric.

- [HDFS-8914](#):. Document HA support in the HDFS HdfsDesign.md.
- [HDFS-8923](#): Add -source flag to balancer usage message. .
- [HDFS-8930](#): Block report lease may leak if the 2nd full block report comes when NN is still in safemode.
- [HDFS-8932](#): NPE thrown in NameNode when try to get TotalSyncCount metric before editLogStream initialization.
- [HDFS-8939](#): Test(S)WebHdfsFileContextMainOperations failing on branch-2.
- [HDFS-8946](#): Improve choosing datanode storage for block placement. .
- [HDFS-8950](#): NameNode refresh doesn't remove DataNodes that are no longer in the allowed list.
- [HDFS-8964](#):. When validating the edit log, do not read at or beyond the file offset that is being written.
- [HDFS-8965](#): Harden edit log reading code against out of memory errors.
- [HDFS-8969](#): Clean up findbugs warnings for HDFS-8823 and HDFS-8932.
- [HDFS-8969](#): Clean up findbugs warnings for HDFS-8823 and HDFS-8932. (Contributed by Anu Engineer).
- [HDFS-8983](#): NameNode support for protected directories.
- [HDFS-8983](#): NameNode support for protected directories.
- [HDFS-8995](#): Flaw in registration bookkeeping can make DN die on reconnect.
- [HDFS-9008](#): Balancer#Parameters class could use a builder pattern.
- [HDFS-9008](#):was not backported correctly.
- [HDFS-9009](#): Send metrics logs to NullAppender by default.
- [HDFS-9019](#): Adding informative message to sticky bit permission denied exception.
- [HDFS-9033](#):. dfsadmin -metasave prints "NaN" for cache used%.
- [HDFS-9034](#): StorageTypeStats Metric should not count failed storage.'.
- [HDFS-9038](#): DFS reserved space is erroneously counted towards non-DFS used. (Brahma Reddy Battula) .
- [HDFS-9042](#):. Update document for the Storage policy name.
- [HDFS-9043](#):. Doc updation for commands in HDFS Federation.
- [HDFS-9047](#):. Retire libwebhdfs.
- [HDFS-9048](#):. DistCp documentation is out-of-dated.
- [HDFS-9063](#): Correctly handle snapshot path for getContentSummary.

- [HDFS-9072](#): Fix random failures in TestJMXGet.
- [HDFS-9082](#): Change the log level in WebHdfsFileSystem.initialize() from INFO to DEBUG.
- [HDFS-9083](#): Replication violates block placement policy.
- [HDFS-9106](#): Transfer failure during pipeline recovery causes permanent write failures.
- [HDFS-9107](#): Prevent NNs unrecoverable death spiral after full GC.
- [HDFS-9112](#): Improve error message for Haadmin when multiple name service IDs are configured.
- [HDFS-9128](#): TestWebHdfsFileContextMainOperations and TestSWebHdfsFileContextMainOperations fail due to invalid HDFS path on Windows.
- [HDFS-9130](#): Use GenericTestUtils#setLogLevel to the logging level. .
- [HDFS-9142](#): Separating Configuration object for namenode(s) in MiniDFSCluster.
- [HDFS-9145](#): Tracking methods that hold FSNamesystemLock for too long. .
- [HDFS-9148](#): Incorrect assert message in TestWriteToReplica#testWriteToTemporary (Tony Wu via Lei (Eddy) Xu) .
- [HDFS-9175](#): Change scope of 'AccessTokenProvider.getAccessToken()' and 'CredentialBasedAccessTokenProvider.getCredential()' abstract methods to public.
- [HDFS-9178](#): Slow datanode I/O can cause a wrong node to be marked bad.
- [HDFS-9184](#): Logging HDFS operation's caller context into audit logs.
- [HDFS-9188](#): Make block corruption related tests FsDataset-agnostic.
- [HDFS-9193](#): Fix incorrect references the usages of the DN in dfshealth.js.
- [HDFS-9198](#):. Coalesce IBR processing in the NN.
- [HDFS-9205](#): Do not schedule corrupt blocks for replication. .
- [HDFS-9210](#): Fix some misuse of %n in VolumeScanner#printStats.
- [HDFS-9220](#): Reading small file (< 512 bytes) that is open for append fails due to incorrect checksum.
- [HDFS-9221](#): HdfsServerConstants#ReplicaState#getState should avoid calling values() since it creates a temporary array.
- [HDFS-9226](#): Unit Tests failing due to mockito version issue.
- [HDFS-9239](#): DataNode Lifeline Protocol: an alternative protocol for reporting DataNode liveness.
- [HDFS-9251](#): Refactor TestWriteToReplica and TestFsDatasetImpl to avoid explicitly creating Files in the tests code. .

- [HDFS-9259](#):. Make SO_SNDBUF size configurable at DFSCClient side for hdfs write scenario.
- [HDFS-9264](#): Minor cleanup of operations on FsVolumeList#volumes. (Walter Su via lei) .
- [HDFS-9273](#): ACLs on root directory may be lost after NN restart.
- [HDFS-9276](#): Failed to Update HDFS Delegation Token for long running application in HA mode.
- [HDFS-9289](#): Make DataStreamer#block thread safe and verify genStamp in commitBlock.
- [HDFS-9290](#): DFSCClient#callAppend() is not backward compatible for slightly older NameNodes.
- [HDFS-9294](#): DFSCClient deadlock when close file and failed to renew lease.
- [HDFS-9305](#): Delayed heartbeat processing causes storm of subsequent heartbeats.
- [HDFS-9311](#): Support optional offload of NameNode HA service health checks to a separate RPC server.
- [HDFS-9313](#): Possible NullPointerException in BlockManager if no excess replica can be chosen.
- [HDFS-9314](#): Improve BlockPlacementPolicyDefault's picking of excess replicas.
- [HDFS-9317](#):. Document fsck -blockId and -storagepolicy options in branch-2: 7.
- [HDFS-9343](#): Empty caller context considered invalid.
- [HDFS-9347](#): Invariant assumption in TestQuorumJournalManager.shutdown() is wrong.
- [HDFS-9350](#): Avoid creating temporary strings in Block.toString() and getBlockName() (Staffan Friberg via cmccabe) .
- [HDFS-9354](#): Fix TestBalancer#testBalancerWithZeroThreadsForMove on Windows.
- [HDFS-9357](#): NN UI renders icons of decommissioned DN incorrectly.
- [HDFS-9358](#): TestNodeCount#testNodeCount timed out.
- [HDFS-9362](#): TestAuditLogger#testAuditLoggerWithCallContext assumes Unix line endings, fails on Windows.
- [HDFS-9364](#): Unnecessary DNS resolution attempts when creating NameNodeProxies.
- [HDFS-9383](#): TestByteArrayManager#testByteArrayManager fails.
- [HDFS-9384](#): TestWebHdfsContentLength intermittently hangs and fails due to TCP conversation mismatch between client and server.
- [HDFS-9395](#):. Make HDFS audit logging consistent.
- [HDFS-9397](#): Fix typo for readChecksum() LOG.warn in BlockSender.java.

- [HDFS-9402](#): Switch DataNode.LOG to use slf4j.
- [HDFS-9406](#): FSImage may get corrupted after deleting snapshot.
- [HDFS-9412](#): getBlocks occupies FSLock and takes too long to complete.
- [HDFS-9413](#): getContentSummary() on standby should throw StandbyException.
- [HDFS-9415](#):. Document dfs.cluster.administrators and dfs.permissions.superusergroup.
- [HDFS-9426](#): Rollingupgrade finalization is not backward compatible.
- [HDFS-9428](#): Fix intermittent failure of TestDNFencing.testQueueingWithAppend.
- [HDFS-9431](#): DistributedFileSystem#concat fails if the target path is relative.
- [HDFS-9434](#): Recommission a datanode with 500k blocks may pause NN for 30 seconds for printing info log messages.
- [HDFS-9445](#): Datanode may deadlock while handling a bad volume.
- [HDFS-9466](#): TestShortCircuitCache#testDataXceiverCleansUpSlotsOnFailure is flaky.
- [HDFS-9467](#): Fix data race accessing writeLockHeldTimeStamp in FSNamesystem. .
- [HDFS-9470](#):. Encryption zone on root not loaded from fsimage after NN restart. Xiao Chen via wang.
- [HDFS-9476](#): TestDFSUpgradeFromImage#testUpgradeFromRel1BBWImage occasionally fail.
- [HDFS-9478](#): Reason for failing ipc.FairCallQueue contruction should be thrown.
- [HDFS-9484](#): NNThroughputBenchmark\$BlockReportStats should not send empty block reports.
- [HDFS-9493](#): Test o.a.h.hdfs.server.namenode.TestMetaSave fails in trunk.
- [HDFS-9500](#): Fix software version counts for DataNodes during rolling upgrade. .
- [HDFS-9505](#):. HDFS Architecture documentation needs to be refreshed.
- [HDFS-9516](#):. Truncate file fails with data dirs on multiple disks.
- [HDFS-9517](#): Fix missing @Test annotation on TestDistCpUtils.testUnpackAttributes.
- [HDFS-9521](#): TransferFsImage.receiveFile should account and log separate times for image download and fsync to disk.
- [HDFS-9525](#): hadoop utilities need to support provided delegation tokens.
- [HDFS-9530](#):. ReservedSpace is not cleared for abandoned Blocks.
- [HDFS-9533](#):. seen_txid in the shared edits directory is modified during bootstrapping.
- [HDFS-9534](#): Add CLI command to clear storage policy from a path.

- [HDFS-9549](#): TestCacheDirectives#testExceedsCapacity is flaky.
- [HDFS-9555](#): LazyPersistFileScrubber should still sleep if there are errors in the clear progress.
- [HDFS-9557](#): Reduce object allocation in PB conversion. (Daryn Sharp via cnauroth).
- [HDFS-9566](#): Remove expensive 'BlocksMap#getStorages(Block b, final DatanodeStorage.State state)' method.
- [HDFS-9569](#): Log the name of the fsimage being loaded for better supportability.
- [HDFS-9569](#): 's message change.
- [HDFS-9572](#): Prevent DataNode log spam if a client connects on the data transfer port but sends no data.
- [HDFS-9574](#): Reduce client failures during datanode restart.
- [HDFS-9584](#): NPE in distcp when ssl configuration file does not exist in class path.
- [HDFS-9589](#): Block files which have been hardlinked should be duplicated before the DataNode appends to the them (cmccabe) .
- [HDFS-9600](#): Do not check replication if the block is under construction.
- [HDFS-9601](#): NNThroughputBenchmark.BlockReportStats should handle NotReplicatedYetException on adding block.
- [HDFS-9605](#): Add links to failed volumes to explorer.html in HDFS Web UI.
- [HDFS-9608](#): Disk IO imbalance in HDFS with heterogeneous storages.
- [HDFS-9612](#): DistCp worker threads are not terminated after jobs are done.
- [HDFS-9618](#): Fix mismatch between log level and guard in BlockManager#computeRecoveryWorkForBlocks.
- [HDFS-9619](#): SimulatedFSDataset sometimes can not find blockpool for the correct namenode.
- [HDFS-9623](#): Update example configuration of block state change log in log4j.properties.
- [HDFS-9624](#): DataNode start slowly due to the initial DU command operations.
- [HDFS-9625](#): set replication for empty file failed when set storage policy.
- [HDFS-9626](#): TestBlockReplacement#testBlockReplacement fails occasionally.
- [HDFS-9629](#): Update the footer of Web UI to show year 2016.
- [HDFS-9630](#): DistCp minor refactoring and clean up.
- [HDFS-9634](#): webhdfs client side exceptions don't provide enough details.
- [HDFS-9638](#): to branch-2.7.

- [HDFS-9644](#):. Update encryption documentation to reflect nested EZs.
- [HDFS-9655](#): NN should start JVM pause monitor before loading fsimage.
- [HDFS-9661](#): Deadlock in DN.FsDatasetImpl between moveBlockAcrossStorage moveBlockAcrossStorage and createRbw.
- [HDFS-9669](#):. TcpPeerServer should respect ipc.server.listen.queue.size.
- [HDFS-9670](#): DistCp throws NPE when source is root.
- [HDFS-9672](#): o.a.h.hdfs.TestLeaseRecovery2 fails intermittently.
- [HDFS-9688](#):. Test the effect of nested encryption zones in HDFS downgrade.
- [HDFS-9696](#): Garbage snapshot records linger forever.
- [HDFS-9700](#): BUG-60868. DFSClient and DFSOutputStream should set TCP_NODELAY on sockets for DataTransferProtocol.
- [HDFS-9701](#): DN may deadlock when hot-swapping under load. (Xiao Chen via lei) .
- [HDFS-9706](#): Log more details in debug logs in BlockReceiver's constructor.
- [HDFS-9710](#): DN can be configured to send block receipt IBRs in batches.
- [HDFS-9711](#):. Integrate CSRF prevention filter in WebHDFS.
- [HDFS-9713](#): DataXceiver#copyBlock should return if block is pinned.
- [HDFS-9715](#): Check storage ID uniqueness on datanode startup.
- [HDFS-9721](#): Allow Delimited PB OIV tool to run upon fsimage that contains INodeReference.
- [HDFS-9724](#): Degraded performance in WebHDFS listing as it does not reuse ObjectMapper.
- [HDFS-9726](#): Refactor IBR code to a new class. .
- [HDFS-9730](#):. Storage ID update does not happen when there is a layout change.
- [HDFS-9739](#): DatanodeStorage.isValidStorageId() is broken.
- [HDFS-9740](#): Use a reasonable limit in DFSTestUtil.waitForMetric().
- [HDFS-9743](#): Fix TestLazyPersistFiles#testFallbackToDiskFull in branch-2: 7.
- [HDFS-9748](#): Avoid duplication in pendingReplications when addExpectedReplicasToPending is called twice.
- [HDFS-9752](#): Permanent write failures may happen to slow writers during datanode rolling upgrades.
- [HDFS-9760](#): WebHDFS AuthFilter cannot be configured with custom AltKerberos auth handler.

- [HDFS-9764](#): DistCp doesn't print value for several arguments including - numListstatusThreads.
- [HDFS-9765](#):. TestBlockScanner#testVolumeIteratorWithCaching fails intermittently.
- [HDFS-9766](#):. TestDataNodeMetrics#testDataNodeTimeSpend fails intermittently.
- [HDFS-9768](#): Reuse ObjectMapper instance in HDFS to improve the performance.
- [HDFS-9772](#):. TestBlockReplacement#testThrottler doesn't work as expected.
- [HDFS-9777](#): Fix typos in DFSAdmin command line and documentation.(Wei-Chiu Chuang via umamahesh).
- [HDFS-9779](#): . TestReplicationPolicyWithNodeGroup NODE variable picks wrong rack value.
- [HDFS-9781](#): FsDatasetImpl#getBlockReports can occasionally throw NullPointerException. .
- [HDFS-9784](#):. Example usage is not correct in Transparent Encryption document.
- [HDFS-9790](#): HDFS Balancer should exit with a proper message if upgrade is not finalized.
- [HDFS-9797](#):. Log Standby exceptions thrown by RequestHedgingProxyProvider at DEBUG Level.
- [HDFS-9799](#):. Reimplement getCurrentTrashDir to remove incompatibility.
- [HDFS-9812](#):. Streamer threads leak if failure happens when closing DFSOutputStream.
- [HDFS-9839](#): Reduce verbosity of processReport logging.
- [HDFS-9842](#): dfs.datanode.balance.bandwidthPerSec should accept friendly size units.
- [HDFS-9844](#):. Correct path creation in getTrashRoot to handle root dir.
- [HDFS-9851](#): NameNode throws NPE when setPermission is called on a path that does not exist.
- [HDFS-9854](#):. Log cipher suite negotiation more verbosely.
- [HDFS-9864](#):. Correct reference for RENEWDELEGATIONTOKEN and CANCELDELEGATIONTOKEN in webhdfs doc.
- [HDFS-9865](#):. TestBlockReplacement fails intermittently in trunk.
- [HDFS-9871](#): "Bytes Being Moved" -ve(-1 B) when cluster was already balanced.
- [HDFS-9874](#):. Long living DataXceiver threads cause volume shutdown to block.
- [HDFS-9880](#):. TestDatanodeRegistration fails occasionally.
- [HDFS-9881](#):. DistributedFileSystem#getTrashRoot returns incorrect path for encryption zones.

- [HDFS-9882](#): Add heartbeatsTotal in Datanode metrics.
- [HDFS-9902](#): Support different values of dfs.datanode.du.reserved per storage type.
- [HDFS-9904](#):. testCheckpointCancellationDuringUpload occasionally fails.
- [HDFS-9905](#):. WebHdfsFileSystem#runWithRetry should display original stack trace on error.
- [HDFS-9906](#): Remove spammy log spew when a datanode is restarted.
- [HDFS-9917](#): IBR accumulate more objects when SNN was down for sometime.
- [HDFS-9926](#):. MiniDFSCluster leaks dependency Mockito via DataNodeTestUtils.
- [HDFS-9941](#): Do not log StandbyException on NN, other minor logging fixes.
- [HDFS-9947](#): Block#toString should not output information from derived classes (cmccabe) .
- [HDFS-9949](#): Add a test case to ensure that the DataNode does not regenerate its UUID when a storage directory is cleared.
- [HDFS-9958](#):. BlockManager#createLocatedBlocks can throw NPE for corruptBlocks on failed storages.
- [HDFS-9137](#):should be backported correctly. .
- [HDFS-10178](#):. Permanent write failures can happen if pipeline recoveries occur for the first packet.
- [HDFS-10182](#):. Hedged read might overwrite user's buf.
- [HDFS-10186](#):. DirectoryScanner: Improve logs by adding full path of both actual and expected block directories. .
- [HDFS-10189](#): PacketResponder#toString should include the downstreams for PacketResponderType.HAS_DOWNSTREAM_IN_PIPELINE.
- [HDFS-10199](#): Unit tests TestCopyFiles, TestDistCh, TestLogalyzer under org.apache.hadoop.tools are failing.
- [HDFS-10216](#):. Distcp -diff throws exception when handling relative path.
- [HDFS-10217](#): show 'blockScheduled' tooltip in datanodes table.
- [HDFS-10220](#): A large number of expired leases can make namenode unresponsive and cause failover.
- [HDFS-10223](#): peerFromSocketAndKey performs SASL exchange before setting connection timeouts.
- [HDFS-10225](#): DataNode hot swap drives should disallow storage type changes. .
- [HDFS-10228](#): TestHDFSCLI fails.

- [HDFS-10235](#): Last contact for Live Nodes should be relative time.
- [HDFS-10239](#): Fsshell mv fails if port usage doesn't match in src and destination paths.
- [HDFS-10242](#): Cannot create space quota of zero.
- [HDFS-10245](#): Fix the findbugs warnings in branch-2.7.
- [HDFS-10253](#): Fix TestRefreshCallQueue failure.
- [HDFS-10261](#): TestBookKeeperHACheckpoints doesn't handle ephemeral HTTP ports.
- [HDFS-10264](#): Logging improvements in FSImageFormatProtobuf.Saver.
- [HDFS-10270](#): TestJMXGet::testNameNode() fails.
- [HDFS-10271](#): Extra bytes are getting released from reservedSpace for append.
- [HDFS-10275](#): TestDataNodeMetrics failing intermittently due to TotalWriteTime counted incorrectly.
- [HDFS-10277](#): PositionedReadable test testReadFullyZeroByteFile failing in HDFS.
- [HDFS-10279](#): Improve validation of the configured number of tolerated failed volumes. .
- [HDFS-10281](#): TestPendingCorruptDnMessages fails intermittently.
- [HDFS-10287](#): MiniDFSCluster should implement AutoCloseable.
- [HDFS-10291](#): TestShortCircuitLocalRead failing.
- [HDFS-10301](#): BlockReport retransmissions may lead to storages falsely being declared zombie if storage report processing happens out of order .
- [HDFS-10301](#): Remove FBR tracking state to fix false zombie storage detection for interleaving block reports. .
- [HDFS-10309](#): Balancer doesn't honor dfs.blocksize value defined with suffix k(kilo), m(mega), g(giga).
- [HDFS-10312](#): Large block reports may fail to decode at NameNode due to 64 MB protobuf maximum length restriction.
- [HDFS-10313](#): Distcp need to enforce the order of snapshot names passed to -diff.
- [HDFS-10319](#): Balancer should not try to pair storages with different types.
- [HDFS-10320](#): Rack failures may result in NN terminate. (Xiao Chen via mingma) .
- [HDFS-10324](#): Trash directory in an encryption zone should be pre-created with correct permissions.
- [HDFS-10326](#): Disable setting tcp socket send/receive buffers for write pipelines.
- [HDFS-10329](#): Bad initialisation of StringBuffer in RequestHedgingProxyProvider.

- [HDFS-10330](#): Add Corrupt Blocks Information in Metasave output.
- [HDFS-10335](#): `Mover$Processor#chooseTarget()` always chooses the first matching target storage group. .
- [HDFS-10341](#): Add a metric to expose the timeout number of pending replication blocks.
- [HDFS-10342](#): `BlockManager#createLocatedBlocks` should not check corrupt replicas if none are corrupt.
- [HDFS-10343](#): `BlockManager#createLocatedBlocks` may return blocks on failed storages.
- [HDFS-10344](#): `DistributedFileSystem#getTrashRoots` should skip encryption zone that does not have `.Trash`.
- [HDFS-10347](#): `Namenode report bad block` method doesn't log the bad block or datanode.
- [HDFS-10360](#): `DataNode` may format directory and lose blocks if `current/VERSION` is missing.
- [HDFS-10367](#): `TestDFSShell.testMoveWithTargetPortEmpty` fails with `Address bind` exception.
- [HDFS-10372](#): Fix for failing `TestFsDatasetImpl#testCleanShutdownOfVolume`.
- [HDFS-10377](#): `CacheReplicationMonitor` shutdown log message should use `INFO` level.
- [HDFS-10390](#): Implement asynchronous `setAcl/getAclStatus` for `DistributedFileSystem`.
- [HDFS-10396](#): Using `-diff` option with `DistCp` may get "Comparison method violates its general contract" exception.
- [HDFS-10397](#): `Distcp` should ignore `-delete` option if `-diff` option is provided instead of exiting.
- [HDFS-10410](#): `RedundantEditLogInputStream.LOG` is set to wrong class.
- [HDFS-10415](#): `TestDistributedFileSystem#MyDistributedFileSystem` attempts to set up statistics before `initialize()` is called.
- [HDFS-10417](#): Improve error message from `checkBlockLocalPathAccess`.
- [HDFS-10423](#): Increase default value of `httpfs maxHttpHeaderSize`. .
- [HDFS-10424](#): `DatanodeLifelineProtocol` not able to use under security cluster.
- [HDFS-10431](#): Refactor and speedup `TestAsyncDFSRename`.
- [HDFS-10437](#): `ReconfigurationProtocol` not covered by `HDFSPolicyProvider`.
- [HDFS-10438](#): When `NameNode HA` is configured to use the lifeline RPC server, it should log the address of that server.
- [HDFS-10440](#): Improve `DataNode` web UI.

- [HDFS-10448](#): CacheManager#addInternal tracks bytesNeeded incorrectly when dealing with replication factors other than 1.
- [HDFS-10455](#): Logging the username when deny the setOwner operation.
- [HDFS-10457](#): DataNode should not auto-format block pool directory if VERSION is missing. (Wei-Chiu Chuang via lei) .
- [HDFS-10458](#):: getFileEncryptionInfo should return quickly for non-encrypted cluster.
- [HDFS-10468](#):: HDFS read ends up ignoring an interrupt.
- [HDFS-10469](#):: Add number of active xceivers to datanode metrics.
- [HDFS-10471](#): DFSAdmin#SetQuotaCommand's help msg is not correct.
- [HDFS-10474](#):: hftp copy fails when file name with Chinese+special char in branch-2.
- [HDFS-10481](#): HTTPFS server should correctly impersonate as end user to open file.
- [HDFS-10485](#): Fix findbugs warning in FSEditLog.java.
- [HDFS-10488](#):: Update WebHDFS documentation regarding CREATE and MKDIR default permissions.
- [HDFS-10493](#): Add links to datanode web UI in namenode datanodes page.
- [HDFS-10499](#): TestNameNodeMetadataConsistency#testGenerationStampInFuture Fails Intermittently.
- [HDFS-10508](#):: DFSInputStream should set thread's interrupt status after catching InterruptedException from sleep.
- [HDFS-10512](#): VolumeScanner may terminate due to NPE in DataNode.reportBadBlocks. .
- [HDFS-10525](#): Fix NPE in CacheReplicationMonitor#rescanCachedBlockMap.
- [HDFS-10544](#): Balancer doesn't work with IPFailoverProxyProvider. .
- [HDFS-10556](#): DistCpOptions should be validated automatically.
- [HDFS-10569](#): A bug causes OutOfIndex error in BlockListAsLongs.
- [HDFS-10579](#): HDFS web interfaces lack configs for X-FRAME-OPTIONS protection.
- [HDFS-10589](#): Javadoc for HState#HState and HState#setStateInternal contains non-existent params.
- [HDFS-10609](#): Uncaught InvalidEncryptionKeyException during pipeline recovery may abort downstream applications. .
- [HDFS-10617](#): PendingReconstructionBlocks.size() should be synchronized.
- [HDFS-10623](#): Remove unused import of httpClient.HttpConnection from TestWebHdfsTokens.

- [HDFS-10625](#): VolumeScanner to report why a block is found bad. .
- [HDFS-10627](#): Volume Scanner marks a block as "suspect" even if the exception is network-related. .
- [HDFS-10642](#): TestLazyPersistReplicaRecovery#testDnRestartWithSavedReplicas fails intermittently.
- [HDFS-10643](#): [Unit Test] Namenode should use loginUser(hdfs) to generateEncryptedKey.
- [HDFS-10643](#): HDFS namenode should always use service user (hdfs) to generateEncryptedKey.
- [HDFS-10653](#): Optimize conversion from path string to components. .
- [HDFS-10655](#): Fix path related byte array conversion bugs. .
- [HDFS-10660](#): Expose storage policy apis via HDFSAdmin interface.
- [HDFS-10684](#): WebHDFS DataNode calls fail without parameter createparent. .
- [HDFS-10688](#): BPSERVICEActor may run into a tight loop for sending block report when hitting IOException.
- [HDFS-10703](#): HA NameNode Web UI should show last checkpoint time. (John Zhuge via Yongjun Zhang) .
- [HDFS-10710](#): In BlockManager#rescanPostponedMisreplicatedBlocks(), postponed misreplicated block counts should be retrieved within the NN lock protection. Contributed by GAO Rui. .
- [HDFS-10713](#): Throttle FsNameSystem lock warnings. .
- [HDFS-10715](#): NPE when applying AvailableSpaceBlockPlacementPolicy. .
- [HDFS-10716](#): In Balancer, the target task should be removed when its size < 0. .
- [HDFS-10735](#): Distcp using webhdfs on secure HA clusters fails with StandbyException .
- [HDFS-10752](#): Several log refactoring/improvement suggestion in HDFS. .
- [HDFS-10757](#): KMSSClientProvider combined with KeyProviderCache can result in wrong UGI being used. .
- [HDFS-10763](#): Open files can leak permanently due to inconsistent lease update.
- [HDFS-10763](#): Open files can leak permanently due to inconsistent lease update .
- [HDFS-10764](#): Fix INodeFile#getBlocks to not return null. .
- [HDFS-10793](#): Fix HdfsAuditLogger binary incompatibility introduced by HDFS-9184.
- [HDFS-10798](#): Make the threshold of reporting FSNamesystem lock contention configurable. .

- [HDFS-10817](#): Add Logging for Long-held NN Read Locks. .
- [HDFS-10822](#): Log DataNodes in the write pipeline. John Zhuge via Lei Xu.
- [HDFS-10838](#): Last full block report received time for each DN should be easily discoverable.
- [HDFS-10892](#): Add unit tests for HDFS command 'dfs -tail' and 'dfs -stat'.
- [HDFS-10893](#): Refactor TestDFSShell by setting up MiniDFScluster once for all commands test.
- [HDFS-10906](#): Add unit tests for Trash with HDFS encryption zones.
- [HDFS-10913](#): Introduce fault injectors to simulate slow mirrors. .
- [HDFS-10917](#): Collect peer performance statistics on DataNode. .
- [HDFS-10922](#): Adding additional unit tests for Trash (II).
- [HDFS-10930](#): Refactor: Wrap Datanode IO related operations. .
- [HDFS-10934](#): TestDFSShell#testStat fails intermittently.
- [HDFS-10956](#): Remove rename/delete performance penalty when not using snapshots. .
- [HDFS-10959](#): Update DataNode to use DatasetVolumeChecker. .
- [HDFS-10962](#): TestRequestHedgingProxyProvider is flaky. .
- [HDFS-10963](#): Reduce log level when network topology cannot find enough datanodes.
- [HDFS-10965](#): Add unit test for HDFS command 'dfsadmin -printTopology'.
- [HDFS-10966](#): Enhance Dispatcher logic on deciding when to give up a source DataNode. .
- [HDFS-10972](#): Add unit test for HDFS command 'dfsadmin -getDatanodeInfo'.
- [HDFS-10984](#): Expose nntop output as metrics.
- [HDFS-10986](#): DFSAdmin should log detailed error message if any.
- [HDFS-10987](#): Make Decommission less expensive when lot of blocks present. .
- [HDFS-10998](#): Add unit tests for HDFS command 'dfsadmin -fetchImage' in HA.
- [HDFS-11003](#): Expose XmitsInProgress through DataNodeMXBean.
- [HDFS-11008](#): Change unit test for testing parsing "-source" parameter in Balancer CLI.
- [HDFS-11011](#): Add unit tests for HDFS command 'dfsadmin -set/cnrSpaceQuota'.
- [HDFS-11015](#): Enforce timeout in balancer. .
- [HDFS-11018](#): Incorrect check and message in FsDatasetImpl#invalidate. .
- [HDFS-11030](#): TestDataNodeVolumeFailure#testVolumeFailure is flaky (though passing).

- [HDFS-11031](#): Add additional unit test for DataNode startup behavior when volumes fail.
- [HDFS-11047](#): Remove deep copies of FinalizedReplica to alleviate heap consumption on DataNode.
- [HDFS-11054](#): Suppress verbose log message in BlockPlacementPolicyDefault.
- [HDFS-11056](#): Addendum fix for self-healing branch. .
- [HDFS-11056](#): Concurrent append and read operations lead to checksum error. .
- [HDFS-11065](#): Add space quota tests for heterogenous storages.
- [HDFS-11069](#): Tighten the authorization of datanode RPC.
- [HDFS-11076](#): Add unit test for extended Acls.
- [HDFS-11083](#): Add unit test for DFSAdmin -report command.
- [HDFS-11085](#): Add unit test for NameNode failing to start when name dir is unwritable.
- [HDFS-11087](#): NamenodeFsck should check if the output writer is still writable. .
- [HDFS-11112](#): Journal Nodes should refuse to format non-empty directories. .
- [HDFS-11114](#): Support for running async disk checks in DataNode. .
- [HDFS-11119](#): Support for parallel checking of StorageLocations on DataNode startup. .
- [HDFS-11122](#): TestDFSAdmin#testReportCommand fails due to timed out.
- [HDFS-11128](#): CreateEditsLog throws NullPointerException. .
- [HDFS-11131](#): TestThrottledAsyncChecker#testCancellation is flaky.
- [HDFS-11148](#): Update DataNode to use StorageLocationChecker at startup. .
- [HDFS-11149](#): Fix build break. .
- [HDFS-11149](#): Support for parallel checking of FsVolumes. .
- [HDFS-11156](#): Add new op GETFILEBLOCKLOCATIONS to WebHDFS REST API.
- [HDFS-11160](#): VolumeScanner reports write-in-progress replicas as corrupt incorrectly. .
- [HDFS-11180](#): Intermittent deadlock in NameNode when failover happens. .
- [HDFS-11182](#): Addendum fix for Fenton to fix a unit test. .
- [HDFS-11182](#): Update DataNode to use DatasetVolumeChecker. .
- [HDFS-11194](#): Maintain aggregated peer performance metrics on NameNode. .
- [HDFS-11195](#): Return error when appending files by webhdfs rest api fails. .
- [HDFS-11197](#): Listing encryption zones fails when deleting a EZ that is on a snapshotted directory. .

- [HDFS-11209](#): SNN can't checkpoint when rolling upgrade is not finalized.
- [HDFS-11224](#): Lifeline message should be ignored for dead nodes (Contributed by Vinayakumar B) .
- [HDFS-11229](#): HDFS-11056 failed to close meta file. .
- [HDFS-11240](#): Remove snapshot version of SDK dependency from Azure Data Lake Store File System.
- [HDFS-11251](#): ConcurrentModificationException during DataNode#refreshVolumes .
- [HDFS-11253](#): FileInputStream leak on failure path in BlockSender.
- [HDFS-11258](#): File mtime change could not save to editlog. .
- [HDFS-11263](#): ClassCastException when we use Bzipcodec for Fsimage compression. .
- [HDFS-11267](#): Avoid redefinition of storageDirs in NNStorage and cleanup its accessors in Storage. (Manoj Govindassamy via lei) .
- [HDFS-11274](#): Datanode should only check the failed volume upon IO errors. .
- [HDFS-11279](#): Cleanup unused DataNode#checkDiskErrorAsync(). .
- [HDFS-11280](#): Allow WebHDFS to reuse HTTP connections to NN. .
- [HDFS-11282](#): Document the missing metrics of DataNode Volume IO operations. .
- [HDFS-11292](#): log lastWrittenTxId etc info in logSyncAll. .
- [HDFS-11299](#): Support multiple Datanode File IO hooks. .
- [HDFS-11307](#): The rpc to portmap service for NFS has hardcoded timeout.
- [HDFS-11337](#): (HDFS-10958 backport). Add instrumentation hooks around Datanode disk IO. .
- [HDFS-11339](#): Support File IO sampling for Datanode IO profiling hooks. .
- [HDFS-11369](#): Change exception message in StorageLocationChecker. .
- [HDFS-11377](#): Balancer hung due to no available mover threads.
- [HDFS-11379](#): DFSInputStream may infinite loop requesting block locations. .
- [HDFS-11387](#): Socket reuse address option is not honored in PrivilegedNfsGatewayStarter. fixing BUG-66651 by backporting HDFS-4176 fixing BUG-66652 by backporting HDFS-5356 and HDFS-7553 .
- [HDFS-11391](#): Numeric usernames do no work with WebHDFS FS write access.
- [HDFS-11395](#): RequestHedgingProxyProvider#RequestHedgingInvocationHandler hides the Exception thrown from NameNode. .
- [HDFS-11403](#): Zookeeper ACLs on NN HA enabled clusters should be handled consistently. .

- [HDFS-11445](#): FSCK shows overall health status as corrupt even one replica is corrupt.
- [HDFS-11461](#): DataNode Disk Outlier Detection.
- [HDFS-11462](#): Fix occasional BindException in TestNameNodeMetricsLogger. .
- [HDFS-11476](#): Fix NPE in FsDatasetImpl#checkAndUpdate.
- [HDFS-11479](#): Socket re-use address option should be used in SimpleUdpServer. .
- [HDFS-11499](#): Decommissioning stuck because of failing recovery.
- [HDFS-11502](#): Datanode UI should display hostname based on JMX bean instead of window.location.hostname.
- [HDFS-11508](#): Fix bind failure in SimpleTCPServer & Portmap where bind fails because socket is in TIME_WAIT state. .
- [HDFS-11511](#): Support Timeout when checking single disk.
- [HDFS-11517](#): Expose slow disks via DataNode JMX.
- [HDFS-11533](#): reuseAddress option should be used for child channels in Portmap and SimpleTcpServer.
- [HDFS-11534](#): Add counters for number of blocks in pending IBR.
- [HDFS-11545](#): Propagate DataNode's slow disks info to the NameNode via Heartbeat.
- [HDFS-11547](#): Add logs for slow BlockReceiver while writing data to disk.
- [HDFS-11551](#): Handle SlowDiskReport from DataNode at the NameNode. .
- [HDFS-11560](#): Expose slow disks via NameNode JMX.
- [HDFS-11570](#): Unit test for NameNodeStatusMXBean. .
- [HDFS-11592](#): Closing a file has a wasteful precondition in NameNode.
- [HDFS-11603](#): Improve slow mirror/disk warnings in BlockReceiver.
- [HDFS-11608](#): HDFS write crashed with block size greater than 2 GB.
- [HDFS-11609](#): Some blocks can be permanently lost if nodes are decommissioned while dead.
- [HDFS-11630](#): TestThrottledAsyncCheckerTimeout fails intermittently in Jenkins builds.
- [HDFS-11634](#): Optimize BlockIterator when iterating starts in the middle.
- [HDFS-11641](#): Reduce cost of audit logging by using FileStatus instead of HdfsFileStatus.
- [HDFS-11674](#): reserveSpaceForReplicas is not released if append request failed due to mirror down and replica recovered.
- [HDFS-11722](#): Change Datanode file IO profiling sampling to percentage. .

- [HDFS-11842](#): TestDataNodeOutlierDetectionViaMetrics UT fails intermittently. Contributed by Hanisha Koneru. .
- [HDFS-11914](#): Add more diagnosis info for fsimage transfer failure.
- [HDFS-12043](#): Add counters for block re-replication.
- [HDFS-12130](#): Optimizing permission check for getContentSummary.
- [HDFS-12139](#): HTTPFS liststatus returns incorrect pathSuffix for path of file'.
- [HDFS-12158](#): Secondary Namenode's web interface lack configs for X-FRAME-OPTIONS protection.'.
- [HDFS-12293](#): DataNode should log file name on disk error.
- [HDFS-12325](#): SFTPFileSystem operations should restore cwd.
- [HDFS-12407](#): Journal nodes fails to shutdown cleanly if JournalNodeHttpServer or JournalNodeRpcServer fails to start.
- [HDFS-12683](#): DFSZKFailOverController re-order logic for logging Exception.
- [HDFS-14676](#): Wrong default value for fs.df.interval.'.
- [MAPREDUCE-5485](#): Allow repeating job commit by extending OutputCommitter API.
- [MAPREDUCE-5621](#): mr-jobhistory-daemon.sh doesn't have to execute mkdir and chown all the time.
- [MAPREDUCE-6165](#): [JDK8] TestCombineFileInputFormat failed on JDK8.
- [MAPREDUCE-6197](#): Cache MapOutputLocations in ShuffleHandler.
- [MAPREDUCE-6213](#): NullPointerException caused by job history server addr not resolvable.
- [MAPREDUCE-6213](#): NullPointerException caused by job history server addr not resolvable.
- [MAPREDUCE-6246](#): DBOutputFormat.java appending extra semicolon to query which is incompatible with DB2.
- [MAPREDUCE-6273](#): HistoryFileManager should check whether summaryFile exists to avoid FileNotFoundException causing HistoryFileInfo into MOVE_FAILED state.
- [MAPREDUCE-6279](#): AM should explicitly exit JVM after all services have stopped.
- [MAPREDUCE-6302](#): (BUG-47640) Backport preempt reducers after a configurable timeout irrespective of headroom.
- [MAPREDUCE-6304](#): Specifying node labels when submitting MR jobs.
- [MAPREDUCE-6338](#): MR AppMaster does not honor ephemeral port range.
- [MAPREDUCE-6350](#): JobHistory doesn't support fully-functional search.

- [MAPREDUCE-6404](#): Allow AM to specify a port range for starting its webapp.
- [MAPREDUCE-6436](#): JobHistory cache issue.
- [MAPREDUCE-6436](#): JobHistory cache issue.
- [MAPREDUCE-6460](#):
TestRMContainerAllocator.testAttemptNotFoundCausesRMCommunicatorException fails.
- [MAPREDUCE-6478](#): Add an option to skip cleanupJob stage or ignore cleanup failure during commitJob.
- [MAPREDUCE-6485](#): Create a new task attempt with failed map task priority if in-progress attempts are unassigned.
- [MAPREDUCE-6492](#): AsyncDispatcher exit with NPE on TaskAttemptImpl#sendJHStartEventForAssignedFailTask.
- [MAPREDUCE-6492](#): AsyncDispatcher exit with NPE on TaskAttemptImpl#sendJHStartEventForAssignedFailTask.
- [MAPREDUCE-6514](#): Job hangs as ask is not updated after ramping down of all reducers.
- [MAPREDUCE-6543](#): Migrate MR Client test cases part 2.
- [MAPREDUCE-6549](#): multibyte delimiters with LineRecordReader cause duplicate records.
- [MAPREDUCE-6565](#): Configuration to use host name in delegation token service is not read from job.xml during MapReduce job execution.
- [MAPREDUCE-6566](#): Add retry support to mapreduce CLI tool.
- [MAPREDUCE-6577](#): MR AM unable to load native library without MR_AM_ADMIN_USER_ENV set.
- [MAPREDUCE-6577](#): MR AM unable to load native library without MR_AM_ADMIN_USER_ENV set.
- [MAPREDUCE-6579](#): TestNetworkedJob.testNetworkedJob failed due to.
- [MAPREDUCE-6593](#): TestJobHistoryEventHandler.testTimelineEventHandling fails because of NPE.
- [MAPREDUCE-6616](#): Fail to create jobhistory file if there are some multibyte characters in the job name.
- [MAPREDUCE-6618](#): YarnClientProtocolProvider leaking the YarnClient thread.(xgong).
- [MAPREDUCE-6621](#): Memory Leak in JobClient#submitJobInternal().
- [MAPREDUCE-6625](#): TestCLI#testGetJob fails occasionally (haibochen via rkanter).
- [MAPREDUCE-6635](#): Unsafe long to int conversion in UncompressedSplitLineReader and IndexOutOfBoundsException.

- [MAPREDUCE-6635](#): Unsafe long to int conversion in UncompressedSplitLineReader and IndexOutOfBoundsException.
- [MAPREDUCE-6639](#): Process hangs in LocatedFileStatusFetcher if FileSystem.get throws.
- [MAPREDUCE-6672](#): TestTeraSort fails on Windows.
- [MAPREDUCE-6684](#): High contention on scanning of user directory under immediate_done in Job History Server.
- [MAPREDUCE-6689](#): MapReduce job can infinitely increase number of reducer resource requests.
- [MAPREDUCE-6693](#): ArrayIndexOutOfBoundsException occurs when the length of the job name is equal to mapreduce.jobhistory.jobname.limit.
- [MAPREDUCE-6701](#): application master log can not be available when clicking jobhistory's am logs link.
- [MAPREDUCE-6702](#): Fixed failures in TestMiniMRChildTask.testTaskEnv and TestMiniMRChildTask.testTaskOldEnv.
- [MAPREDUCE-6711](#): After enabling preemption on cluster, jobs failed without making any attempts made after being preempted.
- [MAPREDUCE-6724](#): Single shuffle to memory must not exceed Integer#MAX_VALUE.
- [MAPREDUCE-6733](#): MapReduce JerseyTest tests failing with java.net.BindException: Address already in use.
- [MAPREDUCE-6762](#): ControlledJob#toString failed with NPE when job status is not successfully updated.
- [MAPREDUCE-6789](#): Fix TestAMWebApp failure. .
- [MAPREDUCE-6792](#): Allow user's full principal name as owner of MapReduce staging directory in JobSubmissionFiles#JobStagingDir().
- [MAPREDUCE-6797](#): Job history server scans can become blocked on a single, slow entry.
- [MAPREDUCE-6852](#): Job#updateStatus() failed with NPE due to race condition.
- [MAPREDUCE-6897](#): Add Unit Test to ensure Job end notification gets sent even when appMaster stop gets YarnRuntimeException.
- [YARN-857](#): Localization failures should be available in container diagnostics.
- [YARN-998](#): Keep NM resource updated through dynamic resource config for RM/NM restart.
- [YARN-1376](#): NM need to notify the log aggregation status to RM through heartbeat.
- [YARN-1402](#): Update related Web UI and CLI with exposing client API to check log aggregation status.

- [YARN-1462](#): AHS API and other AHS changes to handle tags for completed MR jobs. .
- [YARN-1556](#): NPE getting application report with a null appld.
- [YARN-1880](#): Cleanup TestApplicationClientProtocolOnHA.
- [YARN-1993](#): Cross-site scripting vulnerability in TextView.java. Contributed byKenji Kikushima.
- [YARN-2019](#): Retrospect on decision of making RM crashed if any exception throw in ZKRMStateStore.
- [YARN-2046](#): Out of band heartbeats are sent only on container kill and possibly too early.
- [YARN-2046](#): Out of band heartbeats are sent only on container kill and possibly too early.
- [YARN-2194](#): Fix bug causing CGroups functionality to fail on RHEL7.
- [YARN-2392](#): Add more diags about app retry limits on AM failures.
- [YARN-2495](#): Allow admin specify labels from each NM (Distributed configuration for node label).
- [YARN-2498](#): Respect labels in preemption policy of capacity scheduler for inter-queue preemption.
- [YARN-2513](#):Host framework UIs in YARN for use with the ATS Note: Patch is in progress.
- [YARN-2513](#):Host framework UIs in YARN for use with the ATS Note: Patch is in progress.
- [YARN-2571](#): RM to support YARN registry.
- [YARN-2619](#): Added NodeManager support for disk io isolation through cgroups.
- [YARN-2666](#): TestFairScheduler.testContinuousScheduling fails Intermittently.
- [YARN-2696](#): Queue sorting in CapacityScheduler should consider node label.
- [YARN-2740](#): Fix NodeLabelsManager to properly handle node label modifications when distributed node label configuration enabled.
- [YARN-2821](#): Fixed a problem that DistributedShell AM may hang if restarted.
- [YARN-2821](#): Fixed a problem that DistributedShell AM may hang if restarted.
- [YARN-2868](#): FairScheduler: Metric for latency to allocate first container for an application.
- [YARN-2901](#): Add errors and warning metrics page to RM, NM web UI.
- [YARN-3021](#): YARN's delegation-token handling disallows certain trust setups to operate properly over DistCp.
- [YARN-3026](#): Move application-specific container allocation logic from LeafQueue to FiCaSchedulerApp.

- [YARN-3102](#): Decommissioned Nodes not listed in Web UI.
- [YARN-3102](#): Decommissioned Nodes not listed in Web UI.
- [YARN-3110](#): Few issues in ApplicationHistory web ui.
- [YARN-3136](#): Fixed a synchronization problem of AbstractYarnScheduler#getTransferredContainers.
- [YARN-3148](#): Allow CORS related headers to passthrough in WebAppProxyServlet.
- [YARN-3215](#): Respect labels in CapacityScheduler when computing headroom.
- [YARN-3216](#): Max-AM-Resource-Percentage should respect node labels.
- [YARN-3225](#): New parameter of CLI for decommissioning node gracefully in RMAdmin CLI.
- [YARN-3243](#): CapacityScheduler should pass headroom from parent to children to make sure ParentQueue obey its capacity limits.
- [YARN-3248](#): Display count of nodes blacklisted by apps in the web UI.
- [YARN-3254](#): HealthReport should include disk full information.
- [YARN-3266](#): RMContext#inactiveNodes should have NodeId as map key.
- [YARN-3269](#): Yarn.nodemanager.remote-app-log-dir could not be configured to fully qualified path.
- [YARN-3293](#): Track and display capacity scheduler health metrics in web UI.
- [YARN-3294](#): Allow dumping of Capacity Scheduler debug logs via web UI for a fixed time period.
- [YARN-3305](#): Normalize AM resource request on app submission.
- [YARN-3318](#): Create Initial OrderingPolicy Framework and FifoOrderingPolicy.
- [YARN-3319](#): Implement a FairOrderingPolicy.
- [YARN-3326](#): Support RESTful API for getLabelsToNodes.
- [YARN-3343](#): Increased TestCapacitySchedulerNodeLabelUpdate#testNodeUpdate timeout.
- [YARN-3345](#): Add non-exclusive node label API.
- [YARN-3347](#): Improve YARN log command to get AMContainer logs as well as running containers logs.
- [YARN-3348](#): Add a 'yarn top' tool to help understand cluster usage.
- [YARN-3354](#): Add node label expression in ContainerTokenIdentifier to support RM recovery.

- [YARN-3356](#): Capacity Scheduler FiCaSchedulerApp should use ResourceUsage to track used-resources-by-label.
- [YARN-3357](#): Move TestFifoScheduler to FIFO package.
- [YARN-3360](#): Add JMX metrics to TimelineDataManager.
- [YARN-3360](#): Commits to fix the dependency.
- [YARN-3361](#): CapacityScheduler side changes to support non-exclusive node labels.
- [YARN-3362](#): Add node label usage in RM CapacityScheduler web UI.
- [YARN-3365](#): Enhanced NodeManager to support using the 'tc' tool via container-executor for outbound network traffic control.
- [YARN-3366](#): Enhanced NodeManager to support classifying/shaping outgoing network bandwidth traffic originating from YARN containers.
- [YARN-3383](#): AdminService should use "warn" instead of "info" to log exception when operation fails.
- [YARN-3387](#): Previous AM's container completed status couldn't pass to current AM if AM and RM restarted during the same time.
- [YARN-3387](#): Previous AM's container completed status couldn't pass to current AM if AM and RM restarted during the same time.
- [YARN-3394](#): Enrich WebApplication proxy documentation.
- [YARN-3397](#): yarn radmin should skip -failover.
- [YARN-3404](#): Display queue name on application page.
- [YARN-3406](#): Display count of running containers in the RM's Web UI.
- [YARN-3410](#): YARN admin should be able to remove individual application records from RMStateStore.
- [YARN-3413](#): Changed Nodelabel attributes (like exclusivity) to be settable only via addToClusterNodeLabels but not changeable at runtime.
- [YARN-3425](#): NPE from RMNodeLabelsManager.serviceStop when NodeLabelsManager.serviceInit failed.
- [YARN-3433](#): Jersey tests failing with Port in Use -again.
- [YARN-3435](#): AM container to be allocated Appattempt AM container shown as null.
- [YARN-3443](#): Create a 'ResourceHandler' subsystem to ease addition of support for new resource types on the NM.
- [YARN-3448](#): Added a rolling time-to-live LevelDB timeline store implementation.
- [YARN-3451](#): Display attempt start time and elapsed time on the web UI.

- [YARN-3453](#): Ensure preemption logic in FairScheduler uses DominantResourceCalculator in DRF queues to prevent unnecessary thrashing.
- [YARN-3459](#): Fix failiure of TestLog4jWarningErrorMetricsAppender.
- [YARN-3463](#): Integrate OrderingPolicy Framework with CapacityScheduler.
- [YARN-3480](#): Remove attempts that are beyond max-attempt limit from state store.
- [YARN-3494](#): Expose AM resource limit and usage in CS QueueMetrics.
- [YARN-3503](#): Expose disk utilization percentage and bad local and log dir counts in NM metrics.
- [YARN-3505](#): Node's Log Aggregation Report with SUCCEED should not cached in RMApps.
- [YARN-3511](#): Add errors and warnings page to ATS.
- [YARN-3517](#): RM web ui for dumping scheduler logs should be for admins only.
- [YARN-3521](#): Support return structured NodeLabel objects in REST API.
- [YARN-3530](#): ATS throws exception on trying to filter results without otherinfo.
- [YARN-3541](#): Add version info on timeline service / generic history web UI and REST API.
- [YARN-3543](#): ApplicationReport should be able to tell whether the Application is AM managed or not.
- [YARN-3552](#): RM Web UI shows -1 running containers for completed apps.
- [YARN-3565](#): NodeHeartbeatRequest/RegisterNodeManagerRequest should use NodeLabel object instead of String.
- [YARN-3579](#): CommonNodeLabelsManager should support NodeLabel instead of string label name when getting node-to-label/label-to-label mappings.
- [YARN-3580](#): [JDK8] TestClientRMService.testGetLabelsToNodes fails.
- [YARN-3581](#): Deprecate -directlyAccessNodeLabelStore in RMAAdminCLI.
- [YARN-3583](#): Support of NodeLabel object instead of plain String in YarnClient side.
- [YARN-3589](#): RM and AH web UI display DOCTYPE wrongly.
- [YARN-3591](#): Resource localization on a bad disk causes subsequent containers failure.
- [YARN-3593](#): Add label-type and Improve "DEFAULT_PARTITION" in Node Labels Page.
- [YARN-3600](#): AM container link is broken - on a killed application, at least.
- [YARN-3604](#): removeApplication in ZKRMStateStore should also disable watch.
- [YARN-3623](#): Add a config to indicate the Timeline Service version.

- [YARN-3623](#): Addendum: Improve the description for Timeline Service Version configuration in yarn-default.xml.
- [YARN-3632](#): Ordering policy should be allowed to reorder an application when demand changes.
- [YARN-3635](#): Refactored current queue mapping implementation in CapacityScheduler to use a generic PlacementManager framework.
- [YARN-3654](#): ContainerLogsPage web UI should not have meta-refresh.
- [YARN-3684](#): Changed ContainerExecutor's primary lifecycle methods to use a more extensible mechanism of context objects.
- [YARN-3695](#): ServerProxy (NMProxy, etc.) shouldn't retry forever for non network exception.
- [YARN-3695](#): ServerProxy (NMProxy, etc.) shouldn't retry forever for non network exception.
- [YARN-3700](#): Made generic history service load a number of latest applications according to the parameter or the configuration.
- [YARN-3707](#): RM Web UI queue filter doesn't work.
- [YARN-3717](#): Expose app/am/queue's node-label-expression to RM web UI / CLI / REST-API. .
- [YARN-3722](#): Merge multiple TestWebAppUtils into o.a.h.yarn.webapp.util.TestWebAppUtils.
- [YARN-3727](#): For better error recovery, check if the directory exists before using it for localization.
- [YARN-3740](#): Fixed the typo in the configuration name: APPLICATION_HISTORY_PREFIX_MAX_APPS.
- [YARN-3749](#): We should make a copy of configuration when init MiniYARNCluster with multiple RMs.
- [YARN-3751](#): Fixed AppInfo to check if used resources are null.
- [YARN-3762](#): FairScheduler: CME on FSParentQueue#getQueueUserAcclInfo.
- [YARN-3766](#): Fixed the apps table column error of generic history web UI.
- [YARN-3768](#): ArrayIndexOutOfBoundsException with empty environment variables.
- [YARN-3769](#): Consider user limit when calculating total pending resource for preemption policy in Capacity Scheduler.
- [YARN-3785](#): Support for Resource as an argument during submitApp call in MockRM test class.
- [YARN-3844](#): Make hadoop-yarn-project Native code -Wall-clean.

- [YARN-3846](#): RM Web UI queue filter is not working for sub queue.
- [YARN-3849](#): (Too much of preemption activity causing continuous killing of containers across queues) to 2.3-maint.
- [YARN-3852](#): Add docker container support to container-executor.
- [YARN-3853](#): Add docker container runtime support to LinuxContainerExecutor.
- [YARN-3873](#): PendingApplications in LeafQueue should also use OrderingPolicy.
- [YARN-3885](#): ProportionalCapacityPreemptionPolicy doesn't preempt if queue is more than 2 level.
- [YARN-3894](#): RM startup should fail for wrong CS xml NodeLabel capacity configuration.
- [YARN-3896](#): RMNode transitioned from RUNNING to REBOOTED because its response id has not been reset synchronously.
- [YARN-3920](#): FairScheduler container reservation on a node should be configurable to limit it to large containers.
- [YARN-3932](#): SchedulerApplicationAttempt#getResourceUsageReport and UserInfo should be based on total-used-resources.
- [YARN-3940](#): Application moveToQueue should check NodeLabel permission.
- [YARN-3941](#): Proportional Preemption policy should try to avoid sending duplicate PREEMPT_CONTAINER event to scheduler.
- [YARN-3946](#): .
- [YARN-3946](#): Update exact reason as to why a submitted app is in ACCEPTED state to app's diagnostic message.
- [YARN-3948](#): Display Application Priority in RM Web UI. (Sunil G via rohithsharmaks).
- [YARN-3961](#): Expose pending, running and reserved containers of a queue in REST api and yarn top.
- [YARN-3963](#): AddNodeLabel on duplicate label addition shows success.
- [YARN-3966](#): Fix excessive loggings in CapacityScheduler.
- [YARN-3971](#): Skip RMNodeLabelsManager#checkRemoveFromClusterNodeLabelsOfQueue on nodelabel recovery.
- [YARN-3978](#): Configurably turn off the saving of container info in Generic AHS.
- [YARN-3982](#): container-executor parsing of container-executor.cfg broken in trunk and branch-2.
- [YARN-3983](#): Refactored CapacityScheduler#FiCaSchedulerApp to easier extend container allocation logic.

- [YARN-3986](#): getTransferredContainers in AbstractYarnScheduler should be present in YarnScheduler interface.
- [YARN-3987](#): am container complete msg ack to NM once RM receive it.
- [YARN-4000](#): RM crashes with NPE if leaf queue becomes parent queue during restart.
- [YARN-4004](#): container-executor should print output of docker logs if the docker container exits with non-0 exit status.
- [YARN-4007](#): Add support for different network setups when launching the docker container.
- [YARN-4017](#): container-executor overuses PATH_MAX.
- [YARN-4023](#): Publish Application Priority to TimelineServer.
- [YARN-4026](#): Refactored ContainerAllocator to accept a list of priorities rather than a single priority.
- [YARN-4082](#): Container shouldn't be killed when node's label updated.
- [YARN-4087](#): Followup fixes after YARN-2019 regarding RM behavior when state-store error occurs.
- [YARN-4092](#): Fixed UI redirection to print useful messages when both RMs are in standby mode.
- [YARN-4101](#): RM should print alert messages if ZooKeeper and ResourceManager gets connection issue.
- [YARN-4108](#): CapacityScheduler: Improve preemption to only kill containers that would satisfy the incoming request.
- [YARN-4109](#): Exception on RM scheduler page loading with labels.
- [YARN-4113](#): RM should respect retry-interval when uses RetryPolicies.RETRY_FOREVER.
- [YARN-4132](#): Separate configs for nodemanager to resourcemanager connection timeout and retries.
- [YARN-4140](#): RM container allocation delayed incase of app submitted to Nodelabel partition.
- [YARN-4149](#): yarn logs -am should provide an option to fetch all the log files.
- [YARN-4155](#): TestLogAggregationService.testLogAggregationServiceWithInterval failing.
- [YARN-4162](#): CapacityScheduler: Add resource usage by partition and queue capacity by partition to REST API.
- [YARN-4168](#): Fixed a failing test
TestLogAggregationService.testLocalFileDeletionOnDiskFull.
- [YARN-4204](#): ConcurrentModificationException in FairSchedulerQueueInfo.

- [YARN-4215](#): RMNodeLabels Manager Need to verify and replace node labels for the only modified Node Label Mappings in the request.
- [YARN-4225](#): Add preemption status to yarn queue -status for capacity scheduler.
- [YARN-4233](#): YARN Timeline Service plugin: ATS v1.5.
- [YARN-4243](#): Add retry on establishing ZooKeeper connection in EmbeddedElectorService#serviceInit.
- [YARN-4245](#): Generalize config file handling in container-executor.
- [YARN-4252](#): Log container-executor invocation details when exit code is non-zero.
- [YARN-4253](#): Standardize on using PrivilegedOperationExecutor for all invocations of container-executor in LinuxContainerExecutor.
- [YARN-4255](#): container-executor does not clean up docker operation command files.
- [YARN-4258](#): Add support for controlling capabilities for docker containers.
- [YARN-4262](#): Allow whitelisted users to run privileged docker containers.
- [YARN-4267](#): Add additional logging to container launch implementations in container-executor.
- [YARN-4270](#): Limit application resource reservation on nodes for non-node/rack specific requests.
- [YARN-4285](#): Display resource usage as percentage of queue and cluster in the RM UI.
- [YARN-4287](#): Capacity Scheduler: Rack Locality improvement.
- [YARN-4288](#): Fixed RMProxy to retry on IOException from local host.
- [YARN-4290](#): Add -showDetails option to YARN Nodes CLI to print all nodes reports information.
- [YARN-4304](#): AM max resource configuration per partition to be displayed/updated correctly in UI and in various partition related metrics.
- [YARN-4309](#): Add container launch related debug information to container logs when a container fails.
- [YARN-4313](#): Race condition in MiniMR yarn Cluster when getting history server address.
- [YARN-4315](#): NaN in Queue percentage for cluster apps page.
- [YARN-4325](#): Nodemanager log handlers fail to send finished/failed events in some cases.
- [YARN-4329](#): [YARN-5437] Allow fetching exact reason as to why a submitted app is in ACCEPTED state in Fair Scheduler.
- [YARN-4345](#): yarn rmdadmin -updateNodeResource doesn't work.
- [YARN-4347](#): Resource manager fails with Null pointer exception.

- [YARN-4349](#): YARN_APPLICATION call to ATS does not have YARN_APPLICATION_CALLER_CONTEXT.
- [YARN-4365](#): FileSystemNodeLabelStore should check for root dir existence on startup.
- [YARN-4384](#): updateNodeResource CLI should not accept negative values for resource.
- [YARN-4390](#): Do surgical preemption based on reserved container in CapacityScheduler.
- [YARN-4392](#): ApplicationCreatedEvent event time resets after RM restart/failover.
- [YARN-4393](#): TestResourceLocalizationService#testFailedDirsResourceRelease fails intermittently.
- [YARN-4403](#): (AM/NM/Container)LivelinessMonitor should use monotonic time when calculating period.
- [YARN-4405](#): Support node label store in non-appendable file system.
- [YARN-4411](#): RMAppAttemptImpl#createApplicationAttemptReport throws IllegalArgumentException.
- [YARN-4414](#): Nodemanager connection errors are retried at multiple levels.
- [YARN-4414](#): Nodemanager connection errors are retried at multiple levels.
- [YARN-4416](#): Deadlock due to synchronised get Methods in AbstractCSQueue.
- [YARN-4417](#): Make RM and Timeline-server REST APIs more consistent.
- [YARN-4418](#): AM Resource Limit per partition can be updated to ResourceUsage as well.
- [YARN-4422](#): Generic AHS sometimes doesn't show started, node, or logs on App page.
- [YARN-4422](#): Generic AHS sometimes doesn't show started, node, or logs on App page.
- [YARN-4428](#): Redirect RM page to AHS page when AHS turned on and RM page is not available.
- [YARN-4428](#): Redirect RM page to AHS page when AHS turned on and RM page is not available.
- [YARN-4439](#): Clarify NMContainerStatus#toString method.
- [YARN-4454](#): NM to nodelabel mapping going wrong after RM restart.
- [YARN-4465](#): SchedulerUtils#validateRequest for Label check should happen only when nodelabel enabled.
- [YARN-4477](#): FairScheduler: Handle condition which can result in an infinite loop in attemptScheduling.
- [YARN-4479](#): Change CS LeafQueue pendingOrderingPolicy to honor recovered apps.
- [YARN-4496](#): Improve HA ResourceManager Failover detection on the client.

- [YARN-4497](#): RM might fail to restart when recovering apps whose attempts are missing.
- [YARN-4502](#): Fix two AM containers get allocated when AM restart. .
- [YARN-4522](#): Queue acl can be checked at app submission.
- [YARN-4535](#): Fix checkstyle error in CapacityScheduler.java.
- [YARN-4546](#): YARN-4546. ResourceManager crash due to scheduling opportunity overflow.
- [YARN-4546](#): YARN-4546. ResourceManager crash due to scheduling opportunity overflow.
- [YARN-4553](#): Add cgroups support for docker containers.
- [YARN-4556](#): TestFifoScheduler.testResourceOverCommit fails.
- [YARN-4557](#): Fix improper Queues sorting in PartitionedQueueComparator when accessible-node-labels=*.
- [YARN-4565](#): (BUG-50408) Sometimes when sizeBasedWeight FairOrderingPolicy is enabled, under stress appears that cluster is virtually in deadlock.
- [YARN-4571](#): Make app id/name available to the yarn authorizer provider for better auditing.
- [YARN-4573](#): Fix test failure in TestRMAppTransitions#testAppRunningKill and testAppKilledKilled.
- [YARN-4577](#): Enable aux services to have their own custom classpath/jar file.
- [YARN-4578](#): Directories that are mounted in docker containers need to be more restrictive/container-specific.
- [YARN-4582](#): Label-related invalid resource request exception should be able to properly handled by application.
- [YARN-4584](#): RM startup failure when AM attempts greater than max-attempts.
- [YARN-4591](#): YARN Web UIs should provide a robots.txt. Junping Du.
- [YARN-4595](#): Add support for configurable read-only mounts when launching Docker containers.
- [YARN-4596](#): SystemMetricPublisher should not swallow error messages from TimelineClient#putEntities.
- [YARN-4598](#): Invalid event: RESOURCE_FAILED at CONTAINER_CLEANEDUP_AFTER_KILL.
- [YARN-4598](#): Invalid event: RESOURCE_FAILED at CONTAINER_CLEANEDUP_AFTER_KILL.
- [YARN-4607](#): Pagination support for AppAttempt page TotalOutstandingResource Requests table.
- [YARN-4610](#): Reservations continue looking for one app causes other apps to starve.

- [YARN-4617](#): LeafQueue#pendingOrderingPolicy should always use fixed ordering policy instead of using same as active applications ordering policy.
- [YARN-4623](#): TestSystemMetricsPublisher#testPublishAppAttemptMetricsForUnmanagedAM fails with NPE on branch-2.7.
- [YARN-4624](#): NPE in PartitionQueueCapacitiesInfo while accessing Scheduler UI.
- [YARN-4625](#): Make ApplicationSubmissionContext and ApplicationSubmissionContextInfo more consistent.
- [YARN-4633](#): TestRMRestart.testRMRestartAfterPreemption fails intermittently.
- [YARN-4634](#): Scheduler UI/Metrics need to consider cases like non-queue label mappings.
- [YARN-4643](#): Container recovery is broken with delegating container runtime.
- [YARN-4667](#): RM Admin CLI for refreshNodesResources throws NPE when nothing is configured.
- [YARN-4680](#): Fix TimerTasks leak in ATS V1.5 Writer.
- [YARN-4696](#): TimelineClient to add flush operation for deterministic writes (including testing) and Changes to EntityGroupFSTimelineStore for testability.
- [YARN-4697](#): NM aggregation thread pool is not bound by limits.
- [YARN-4699](#): Scheduler UI and REST o/p is not in sync when -replaceLabelsOnNode is used to change label of a node.
- [YARN-4709](#): NMWebServices produces incorrect JSON for containers.
- [YARN-4709](#): NMWebServices produces incorrect JSON for containers.
- [YARN-4723](#): NodesListManager\$UnknownNodeId ClassCastException.
- [YARN-4737](#): Add CSRF filter support in YARN.
- [YARN-4737](#): Add CSRF filter support in YARN.
- [YARN-4744](#): Too many signal to container failure in case of LCE.
- [YARN-4746](#): yarn web services should convert parse failures of appId, appAttemptId and containerId to 400.
- [YARN-4748](#): ApplicationHistoryManagerOnTimelineStore should not swallow exceptions on generateApplicationReport.
- [YARN-4759](#): Fix signal handling for docker containers.
- [YARN-4762](#): Fixed CgroupHandler's creation and usage to avoid NodeManagers crashing when LinuxContainerExecutor is enabled.
- [YARN-4764](#): Application submission fails when submitted queue is not available in scheduler.xml.

- [YARN-4767](#): Network issues can cause persistent RM UI outage.
- [YARN-4769](#): Add support for CSRF header in the dump capacity scheduler logs and kill app buttons in RM web UI.
- [YARN-4785](#): Inconsistent value type of the "type" field for LeafQueueInfo in response of RM REST API.
- [YARN-4785](#): Inconsistent value type of the "type" field for LeafQueueInfo in response of RM REST API.
- [YARN-4811](#): Generate histograms in ContainerMetrics for actual container resource usage.
- [YARN-4814](#): ATS 1.5 timelineclient impl call flush after every event write.
- [YARN-4815](#): ATS 1.5 timelineclient impl try to create attempt directory for every event call.
- [YARN-4817](#): TimelineClient ATsv1.5 logging is very noisy.
- [YARN-4820](#): ResourceManager web redirects in HA mode drops query parameters.
- [YARN-4822](#): Refactor existing Preemption Policy of CS for easier adding new approach to select preemption candidates.
- [YARN-4832](#): NM side resource value should get updated if change applied in RM side.
- [YARN-4833](#): For Queue AccessControlException client retries multiple times on both RM.
- [YARN-4842](#): Fixed "yarn logs" command to guess (and thus not require) the appOwner argument when viewing another user's logs.
- [YARN-4844](#): Add getMemorySize/getVirtualCoresSize to o.a.h.y.api.records.Resource.
- [YARN-4846](#): Fix random failures for TestCapacitySchedulerPreemption #testPreemptionPolicyShouldRespectAlreadyMarkedKillableContainers.
- [YARN-4851](#): Metric improvements for ATS v1.5 storage components.
- [YARN-4863](#): AHS Security login should be in serviceInit() instead of serviceStart().
- [YARN-4865](#): Track Reserved resources in ResourceUsage and QueueCapacities.
- [YARN-4890](#): Unit test intermittent failure: TestNodeLabelContainerAllocation#testQueueUsedCapacitiesUpdate.
- [YARN-4893](#): Fix intermittent failures in TestRMAdminService.
- [YARN-4905](#): Improved "yarn logs" command-line to optionally show log metadata also.
- [YARN-4906](#): Capture container start/finish time in container metrics.
- [YARN-4909](#): Fix intermittent failures of TestRMWebServices And TestRMWithCSRFFilter.
- [YARN-4913](#): Yarn logs should take a -out option to write to a directory.

- [YARN-4916](#): TestNMProxy.testNMProxyRPCRetry fails.
- [YARN-4920](#): ATS/NM should support a link to download/get the logs in text format.
- [YARN-4928](#): Some yarn.server.timeline.* tests fail on Windows attempting to use a test root path containing a colon.
- [YARN-4934](#): Reserved Resource for QueueMetrics needs to be handled correctly in few cases.
- [YARN-4955](#): Add retry for SocketTimeoutException in TimelineClient.
- [YARN-4956](#): findbug issue on LevelDBCacheTimelineStore.
- [YARN-4966](#): Improve yarn logs to fetch container logs without specifying nodeld.
- [YARN-4983](#): JVM and UGI metrics disappear after RM transitioned to standby mode.
- [YARN-4984](#): LogAggregationService shouldn't swallow exception in handling createAppDir() which cause thread leak.
- [YARN-4987](#): Read cache concurrency issue between read and evict in EntityGroupFS timeline store.
- [YARN-4990](#): Re-direction of a particular log file within in a container in NM UI does not redirect properly.
- [YARN-5002](#): getApplicationReport call may raise NPE for removed queues.
- [YARN-5023](#): TestAMRestart#testShouldNotCountFailureToMaxAttemptRetry random failure.
- [YARN-5029](#): RM needs to send update event with YarnApplicationState as Running to ATS/AHS.
- [YARN-5048](#): DelegationTokenRenewer#skipTokenRenewal may throw NPE.
- [YARN-5069](#): TestFifoScheduler.testResourceOverCommit race condition.
- [YARN-5076](#): YARN web interfaces lack XFS (Cross-Frame Script) protection.
- [YARN-5080](#): Cannot obtain logs using YARN CLI -am for either KILLED or RUNNING AM.
- [YARN-5083](#): YARN CLI for AM logs does not give any error message if entered invalid am value.
- [YARN-5088](#): Improve "yarn log" command-line to read the last K bytes for the log files.
- [YARN-5089](#): Improve "yarn log" command-line "logFiles" option to support regex.
- [YARN-5098](#): Fixed ResourceManager's DelegationTokenRenewer to replace expiring system-tokens if RM stops and only restarts after a long time.
- [YARN-5100](#): The YarnApplicationState is always running in ATS even application is finished.

- [YARN-5103](#): With NM recovery enabled, restarting NM multiple times results in AM restart.
- [YARN-5112](#): Excessive log warnings for directory permission issue on NM recovery.
- [YARN-5115](#): Avoid setting CONTENT-DISPOSITION header in the container-logs web-service.
- [YARN-5121](#): fix some container-executor portability issues.
- [YARN-5122](#): "yarn logs" for running containers should print an explicit footer saying that the log may be incomplete.
- [YARN-5131](#): Distributed shell AM fails when extra container arrives during finishing. Wangda Tan via junping_du.
- [YARN-5141](#): Get Container logs for the Running application from Yarn Logs CommandLine.
- [YARN-5190](#): Registering/unregistering container metrics triggered by ContainerEvent and ContainersMonitorEvent are conflict which cause uncaught exception in ContainerMonitorImpl.
- [YARN-5191](#): Renamed the newly added "download=true" option for getting logs via NMWebServices and AHSWebServices to be a better "format" option.
- [YARN-5199](#): Close LogReader in in AHSWebServices#getStreamingOutput and FileInputStream in NMWebServices#getLogs.
- [YARN-5200](#): Enhanced "yarn logs" to be able to get a list of containers whose logs are aggregated via a "show_container_log_info" option.
- [YARN-5206](#): RegistrySecurity includes id:pass in exception text if considered invalid.
- [YARN-5208](#): Run TestAMRMClient TestNMClient TestYarnClient TestClientRMTokens TestAMAuthorization tests with hadoop.security.token.service.use_ip enabled.
- [YARN-5213](#): Fix a bug in LogCLIHelpers which cause TestLogsCLI#testFetchApplictionLogs fails intermittently.
- [YARN-5214](#): Fixed locking in DirectoryCollection to avoid hanging NMs when various code-paths hit slow disks.
- [YARN-5223](#): Container line in yarn logs output for a live application should include the hostname for the container.
- [YARN-5224](#): Added new web-services /containers/{containerid}/logs & /containers/{containerid}/logs/{filename} and using them in "yarn logs" CLI to get logs of finished containers of a running application.
- [YARN-5226](#): Remove AHS enable check from LogsCLI#fetchAMContainerLogs.
- [YARN-5227](#): Yarn logs command: no need to specify applicationId when specifying containerId.

- [YARN-5233](#): Support for specifying a path for ATS plugin jars.
- [YARN-5237](#): Fix missing log files issue in rolling log aggregation.
- [YARN-5246](#): NMWebAppFilter web redirects drop query parameters.
- [YARN-5251](#): Yarn CLI to obtain App logs for last 'n' bytes fails.
- [YARN-5266](#): Wrong exit code while trying to get app logs using regex via CLI.
- [YARN-5270](#): Solve miscellaneous issues caused by YARN-4844.
- [YARN-5294](#): Pass remote ip address down to YarnAuthorizationProvider.
- [YARN-5296](#): NMs going OutOfMemory because ContainerMetrics leak in ContainerMonitorImpl.
- [YARN-5297](#): Avoid printing a stack trace when recovering an app after the RM restarts.
- [YARN-5298](#): Mount usercache and NM filecache directories into Docker container.
- [YARN-5299](#): Log Docker run command when container fails.
- [YARN-5314](#): Fixed a ConcurrentModificationException in ATS v1.5 EntityGroupFSTimelineStore.
- [YARN-5337](#): Fix Dshell OOM issues.
- [YARN-5339](#): Passing file to -out for YARN log CLI doesnt give warning or error code.
- [YARN-5340](#): Fixed a race condition in RollingLevelDBTimelineStore that caused loss of Timeline events.
- [YARN-5342](#): Improve non-exclusive node partition resource allocation in Capacity Scheduler.
- [YARN-5353](#): ResourceManager can leak delegation tokens when they are shared across apps. (Jason Lowe via Varun Saxena).
- [YARN-5363](#): For AM containers, or for containers of running-apps, "yarn logs" incorrectly only (tries to) shows syslog file-type by default.
- [YARN-5368](#): Fixed a memory leak in Timeline server.
- [YARN-5432](#): Lock already held by another process while LevelDB cache store creation for dag.
- [YARN-5440](#): Use AHSClient in YarnClient when TimelineServer is running.
- [YARN-5456](#): container-executor support for FreeBSD, NetBSD, and others if conf path is absolute. .
- [YARN-5470](#): Differentiate exactly match with regex in yarn log CLI.
- [YARN-5476](#): Not existed application reported as ACCEPTED state by YarnClientImpl.

- [YARN-5523](#): Yarn running container log fetching causes OutOfMemoryError.
- [YARN-5524](#): Yarn live log aggregation does not throw if command line arg is wrong.
- [YARN-5539](#): TimelineClient failed to retry on java.net.SocketTimeoutException: Read timed out.
- [YARN-5549](#): AMLauncher#createAMContainerLaunchContext() should not log the command to be launched indiscriminately.
- [YARN-5551](#):: Ignore file backed pages from memory computation when smaps is enabled.
- [YARN-5659](#): getPathFromYarnURL should use standard methods.
- [YARN-5677](#): RM should transition to standby when connection is lost for an extended period.
- [YARN-5704](#): Provide config knobs to control enabling/disabling new/work in progress features in container-executor.
- [YARN-5711](#): Propagate exceptions back to client when using hedging RM failover provider.
- [YARN-5718](#): TimelineClient (and other places in YARN) shouldn't over-write HDFS client retry settings which could cause unexpected behavior.
- [YARN-5731](#): Preemption calculation is not accurate when reserved containers are present in queue.
- [YARN-5773](#): RM recovery too slow due to LeafQueue#activateApplications.
- [YARN-5864](#): Capacity Scheduler queue priority.
- [YARN-5873](#): RM crashes with NPE if generic application history is enabled.
- [YARN-5910](#): Support for multi-cluster delegation tokens.
- [YARN-5915](#): ATS 1.5 FileSystemTimelineWriter causes flush() to be called after every event write.
- [YARN-5923](#): Unable to access logs for a running application if YARN_ACL_ENABLE is enabled.
- [YARN-5923](#): Unable to access logs for a running application if YARN_ACL_ENABLE is enabled.
- [YARN-5999](#): AMRMClientAsync will stop if any exceptions thrown on allocate call.
- [YARN-6011](#): Add a new web service to list the files on a container in AHSWebService.
- [YARN-6029](#): CapacityScheduler deadlock when ParentQueue#getQueueUserAcclInfo is called by one thread and LeafQueue#assignContainers is releasing excessive reserved container by another thread.

- [YARN-6031](#): Application recovery has failed when node label feature is turned off during RM recovery.
- [YARN-6068](#): Log aggregation get failed when NM restart even with recovery. .
- [YARN-6081](#): LeafQueue#getTotalPendingResourcesConsideringUserLimit should deduct reserved from pending to avoid unnecessary preemption of reserved container.
- [YARN-6082](#): Invalid REST api response for getApps since queueUsagePercentage is coming as INF.
- [YARN-6099](#): Improve webservice to list aggregated log files.
- [YARN-6100](#): Improve YARN webservice to output aggregated container logs.
- [YARN-6104](#): RegistrySecurity overrides zookeeper sasl system properties.
- [YARN-6108](#): Improve AHS webservice to accept NM address as a parameter to get container logs.
- [YARN-6113](#): Re-direct NM Web Service to get container logs for finished applications.
- [YARN-6123](#): Add a test to make sure queues of orderingPolicy will be updated when childQueues is added or removed.
- [YARN-6126](#): Obtaining app logs for Running application fails with json parse error.
- [YARN-6137](#): Yarn client implicitly invoke ATS client which accesses HDFS. .
- [YARN-6145](#): Improve log message on fail over.
- [YARN-6174](#): Log files pattern should be same for both running and finished container.
- [YARN-6189](#): ApplicationNotFoundException due to RM failed over should throw more user friendly exception.
- [YARN-6228](#): EntityGroupFSTimelineStore should allow configurable cache stores.
- [YARN-6270](#): WebUtils.getRMWebAppURLWithScheme() needs to honor RM HA setting.
- [YARN-6271](#): yarn rmdin -getGroups returns information from standby RM.
- [YARN-6294](#): ATS client should better handle Socket closed case.
- [YARN-6313](#): yarn logs cli should provide logs for a completed container even when application is still running.
- [YARN-6314](#): Potential infinite redirection on YARN log redirection web service.
- [YARN-6332](#): Make RegistrySecurity use short user names for ZK ACLs.
- [YARN-6339](#): Improve performance for createAndGetApplicationReport.
- [YARN-6367](#): YARN logs CLI needs always check containerLogsInfo/containerLogInfo before parse the JSON object from NMWebService.

- [YARN-6509](#): Maybe add a size threshold beyond which yarn logs will require a force option.
- [YARN-6550](#): Capture launch_container.sh logs to a separate log file.
- [YARN-6625](#): yarn application -list returns a tracking URL for AM that doesn't work in secured and HA environment.
- [YARN-6811](#): [ATS1.5] All history logs should be kept under its own User Directory.
- [YARN-6876](#): Create an abstract log writer for extendability.
- [YARN-6877](#): Create an abstract log reader for extendability.
- [YARN-6890](#): Not display killApp button on UI if UI is unsecured but cluster is secured.
- [YARN-6991](#): "Kill application" button does not show error if other user tries to kill the application for secure cluster.
- [YARN-6992](#): Kill application button is visible even if the application is FINISHED in RM UI.
- [YARN-7072](#): Add a new log aggregation file format controller.
- [YARN-7090](#): testRMRestartAfterNodeLabelDisabled[1] UT Fails.
- [YARN-7116](#): CapacityScheduler Web UI: Queue's AM usage is always show on per-user's AM usage.
- [YARN-7118](#): AHS REST API can return NullPointerException.
- [YARN-7144](#): Log Aggregation controller should not swallow the exceptions when it calls closeWriter and closeReader.
- [YARN-7148](#): TestLogsCLI fails in trunk and branch-2 and javadoc error.
- [YARN-7157](#): Add admin configuration to filter per-user's apps in secure cluster.
- [YARN-7163](#): RMContext need not to be injected to webapp and other Always Running services. .
- [YARN-7174](#): Add retry logic in LogsCLI when fetch running application logs.
- [YARN-7194](#): Log aggregation status is always Failed with the newly added log aggregation IndexedFileFormat.
- [YARN-7249](#): Fix CapacityScheduler NPE issue when a container preempted while the node is being removed.
- [YARN-7257](#): AggregatedLogsBlock reports a bad 'end' value as a bad 'start' value.
- [YARN-7259](#): Add size-based rolling policy to LogAggregationIndexedFileController.
- [YARN-7269](#): Tracking URL in the app state does not get redirected to ApplicationMaster for Running applications.

HDP 2.6.2 provided Hadoop Common 2.7.3 and the following Apache patches:

- [HADOOP-1540](#): breaks backward compatibility.
- [HADOOP-1540](#): Support file exclusion list in distcp.
- [HADOOP-3733](#): "s3x:" URLs break when Secret Key contains a slash, even if encoded.
- [HADOOP-5323](#): Trash documentation should describe its directory structure and configurations.
- [HADOOP-5470](#): RunJar.unJar() should write the last modified time found in the jar entry to the uncompressed file.
- [HADOOP-5732](#): Add SFTPFileSystem.
- [HADOOP-7139](#): Allow appending to existing SequenceFiles.
- [HADOOP-7256](#): Resource leak during failure scenario of closing of resources.
- [HADOOP-7713](#): dfs -count -q should label output column.
- [HADOOP-7713](#): dfs -count -q should label output column.
- [HADOOP-7817](#): RawLocalFileSystem.append() should give FSDataOutputStream with accurate .getPos() .
- [HADOOP-7930](#): Kerberos relogin interval in UserGroupInformation should be configurable.
- [HADOOP-8151](#): Error handling in snappy decompressor throws invalid exceptions.
- [HADOOP-8436](#): NPE In getLocalPathForWrite (path, conf) when the required context item is not configured. .
- [HADOOP-8437](#): getLocalPathForWrite should throw IOException for invalid paths.
- [HADOOP-8751](#): NPE in Token.toString() when Token is constructed using null identifier.
- [HADOOP-8818](#): Use equals instead == in MD5MD5CRC32FileChecksum and TFileDumper.
- [HADOOP-8934](#): Shell command ls should include sort options.
- [HADOOP-9121](#): InodeTree.java has redundant check for vName while throwing exception.
- [HADOOP-9242](#): Duplicate surefire plugin config in hadoop-common.
- [HADOOP-9477](#): Add posixGroups support for LDAP groups mapping service.
- [HADOOP-10035](#): Cleanup TestFilterFileSystem.
- [HADOOP-10048](#): LocalDirAllocator should avoid holding locks while accessing the filesystem.
- [HADOOP-1023](#): Add more logging in WASB page blob read function.
- [HADOOP-1026](#): Logging bug in WASB causing out of index exception.

- [HADOOP-10300](#): Allowed deferred sending of call responses.
- [HADOOP-10365](#): BufferedOutputStream in FileUtil#unpackEntries() should be closed in finally block.
- [HADOOP-10406](#): TestIPC.testIpcWithReaderQueuing may fail.
- [HADOOP-10597](#): RPC Server signals backoff to clients when all request queues are full.
- [HADOOP-10597](#): RPC Server signals backoff to clients when all request queues are full.
- [HADOOP-1062](#): added hadoop-azure-datalake and azure-data-lake-store-sdk to all the wasb locations.
- [HADOOP-1062](#): added hadoop-azure-datalake and azure-data-lake-store-sdk to all the wasb locations.
- [HADOOP-10774](#): Update KerberosTestUtils for hadoop-auth tests when using IBM Java.
- [HADOOP-10775](#): Shell operations to fail with meaningful errors on windows if winutils.exe not found.
- [HADOOP-10823](#): TestReloadingX509TrustManager is flaky.
- [HADOOP-10829](#): Iteration on CredentialProviderFactory.serviceLoader is thread-unsafe.
- [HADOOP-10965](#): Print fully qualified path in CommandWithDestination error messages.
- [HADOOP-10971](#): Add -C flag to make `hadoop fs -ls` print filenames only.
- [HADOOP-11031](#): Design Document for Credential Provider API.
- [HADOOP-11098](#): [JDK8] Max Non Heap Memory default changed between JDK7 and 8.
- [HADOOP-11180](#): Change log message "token.Token: Cannot find class for token kind kms-dt" to debug.
- [HADOOP-11212](#): NetUtils.wrapException to handle SocketException explicitly.
- [HADOOP-11218](#): Add TLSv1.1,TLSv1.2 to KMS, HttpFS, SSLFactory.
- [HADOOP-11252](#): RPC client does not time out by default.
- [HADOOP-11262](#): Enable YARN to use S3A.
- [HADOOP-11361](#): Fix a race condition in MetricsSourceAdapter.updateJmxCache.
- [HADOOP-11404](#): Clarify the "expected client Kerberos principal is null" authorization message.
- [HADOOP-11418](#): Property "io.compression.codec.lzo.class" does not work with other value besides default.
- [HADOOP-11491](#): HarFs incorrectly declared as requiring an authority.
- [HADOOP-11581](#): Multithreaded correctness Warnings #org.apache.hadoop.fs.shell.Ls.

- [HADOOP-11613](#): Remove commons-httpclient dependency from hadoop-azure.
- [HADOOP-11628](#): SPNEGO auth does not work with CNAMES in JDK8. (Daryn Sharp via stevel).
- [HADOOP-11677](#): Add cookie flags for logs and static contexts.
- [HADOOP-11685](#): StorageException complaining "no lease ID" during HBase distributed log splitting.
- [HADOOP-11687](#): Ignore x-* and response headers when copying an Amazon S3 object.
- [HADOOP-11692](#): Improve authentication failure WARN message to avoid user confusion.
- [HADOOP-11713](#): ViewFileSystem should support snapshot methods.
- [HADOOP-11717](#): Add Redirecting WebSSO behavior with JWT Token in Hadoop Auth.
- [HADOOP-11772](#): RPC Invoker relies on static ClientCache which has synchronized(this) blocks.
- [HADOOP-11780](#): Prevent IPC reader thread death.
- [HADOOP-11785](#): Reduce the number of listStatus operation in distcp buildListing.
- [HADOOP-11802](#): DomainSocketWatcher thread terminates sometimes after there is an I/O error during requestShortCircuitShm.
- [HADOOP-11812](#): Implement listLocatedStatus for ViewFileSystem to speed up split calculation.
- [HADOOP-11819](#): HttpServerFunctionalTest#prepareTestWebapp should create web app directory if it does not exist.
- [HADOOP-11827](#): Speed-up distcp buildListing() using threadpool.
- [HADOOP-11859](#): PseudoAuthenticationHandler fails with httpcomponents v4.4.
- [HADOOP-11864](#): JWTRedirectAuthenticationHandler breaks java8 javadocs.
- [HADOOP-11876](#): Refactor code to make it more readable, minor maybePrintStats bug.
- [HADOOP-11901](#): BytesWritable fails to support 2G chunks due to integer overflow.
- [HADOOP-11918](#): Listing an empty s3a root directory throws FileNotFoundException.
- [HADOOP-11924](#): Tolerate JDK-8047340-related exceptions in Shell#isSetSidAvailable preventing class init.
- [HADOOP-11932](#): MetricsSinkAdapter may hang when being stopped.
- [HADOOP-11960](#): Enable Azure-Storage Client Side logging.
- [HADOOP-12001](#): Fixed LdapGroupsMapping to include configurable Posix UID and GID attributes during the search.

- [HADOOP-12006](#): Remove unimplemented option for from document in branch-2.7.
- [HADOOP-12009](#): Clarify FileSystem.listStatus() sorting order & fix FileSystemContractBaseTest:testListStatus. backport to 2.8.
- [HADOOP-12017](#): Hadoop archives command should use configurable replication factor when closing.
- [HADOOP-12043](#): Display warning if defaultFs is not set when running fs commands.
- [HADOOP-12045](#): Enable LocalFileSystem#setTimes to change atime.
- [HADOOP-12049](#): Control http authentication cookie persistence via configuration.
- [HADOOP-12052](#): IPC client downgrades all exception types to IOE, breaks callers trying to use them.
- [HADOOP-12054](#): RPC client should not retry for InvalidToken exceptions.
- [HADOOP-12056](#): Use DirectoryStream in DiskChecker#checkDirs to detect errors when listing a directory.
- [HADOOP-12058](#): Fix dead links to DistCp and Hadoop Archives pages.
- [HADOOP-12059](#): S3Credentials should support use of CredentialProvider.
- [HADOOP-12061](#): Incorrect command in single cluster setup document.
- [HADOOP-12073](#): Azure FileSystem PageBlobInputStream does not return -1 on EOF.
- [HADOOP-12074](#): in Shell.java#runCommand() rethrow InterruptedException as InterruptedIOException.
- [HADOOP-12076](#): Incomplete Cache Mechanism in CredentialProvider API.
- [HADOOP-12087](#): [JDK8] Fix javadoc errors caused by incorrect or illegal tags. (Akira AJISAKA via stevel).'
- [HADOOP-12089](#): StorageException complaining " no lease ID" when updating FolderLastModifiedTime in WASB.
- [HADOOP-12095](#): org.apache.hadoop.fs.shell.TestCount fails.
- [HADOOP-12097](#): Allow port range to be specified while starting webapp.
- [HADOOP-12100](#): ImmutableFsPermission should not override applyUmask since that method doesn't modify the FsPermission.
- [HADOOP-12103](#): Small refactoring of DelegationTokenAuthenticationFilter to allow code sharing.
- [HADOOP-12107](#): long running apps may have a huge number of StatisticsData instances under FileSystem.
- [HADOOP-12119](#): hadoop fs -expunge does not work for federated namespace.

- [HADOOP-12158](#): Improve error message in `TestCryptoStreamsWithOpensslAesCtrCryptoCodec` when OpenSSL is not installed.
- [HADOOP-12159](#): Move `DistCpUtils#compareFs()` to `org.apache.hadoop.fs.FileUtil` and fix for HA namespaces.
- [HADOOP-12161](#): Add `getStoragePolicy` API to the `FileSystem` interface.
- [HADOOP-12169](#): `ListStatus` on empty dir in S3A lists itself instead of returning an empty list. author: Pieter Reuse.
- [HADOOP-12173](#): `NetworkTopology::add` calls `toString` always.
- [HADOOP-12185](#): `NetworkTopology` is not efficient adding/getting/removing nodes.
- [HADOOP-12186](#): `ActiveStandbyElector` shouldn't call `monitorLockNodeAsync` multiple times.
- [HADOOP-12189](#): Improve `CallQueueManager#swapQueue` to make queue elements drop nearly impossible.
- [HADOOP-12191](#): `Bzip2Factory` is not thread safe.
- [HADOOP-12213](#): Interrupted exception can occur when `Client#stop` is called.
- [HADOOP-12229](#): Fix inconsistent subsection titles in `filesystem.md`.
- [HADOOP-12230](#): `hadoop-project` declares duplicate, conflicting curator dependencies.
- [HADOOP-12232](#): Upgrade Tomcat dependency to 6.0.44.
- [HADOOP-12239](#): `StorageException` complaining "no lease ID" when updating `FolderLastModifiedTime` in WASB.
- [HADOOP-12242](#): Add in-page TOC to filesystem specification pages.
- [HADOOP-12252](#): `LocalDirAllocator` should not throw NPE with empty string configuration.
- [HADOOP-12258](#): Need translate `java.nio.file.NoSuchFileException` to `FileNotFoundException` to avoid regression.
- [HADOOP-12259](#): Utility to Dynamic port allocation.
- [HADOOP-12269](#): Update `aws-sdk` dependency to 1.10.6.
- [HADOOP-12280](#): Skip unit tests based on maven profile rather than `NativeCodeLoader.isNativeCodeLoaded`.
- [HADOOP-12284](#): `UserGroupInformation` doAs can throw misleading exception.
- [HADOOP-12291](#): Add support for nested groups in `LdapGroupsMapping`.
- [HADOOP-12292](#): Make use of `DeleteObjects` optional.

- [HADOOP-12296](#): when setnetgrent returns 0 in linux, exception should be thrown.
- [HADOOP-12304](#): Applications using FileContext fail with the default file system configured to be wasb/s3/etc.
- [HADOOP-12317](#): Applications fail on NM restart on some linux distro because NM container recovery declares AM container as LOST.
- [HADOOP-12324](#): Better exception reporting in SaslPlainServer. (Mike Yoder via stevel).
- [HADOOP-12325](#): RPC Metrics : Add the ability track and log slow RPCs.
- [HADOOP-12334](#): Change Mode Of Copy Operation of HBase WAL Archiving to bypass Azure Storage Throttling after retries.
- [HADOOP-12345](#): Pad hostname correctly in CredentialsSys.java.
- [HADOOP-12346](#): Increase some default timeouts / retries for S3a connector.
- [HADOOP-12348](#): MetricsSystemImpl creates MetricsSourceAdapter with wrong time unit parameter.
- [HADOOP-12350](#): WASB Logging: Improve WASB Logging around deletes, reads and writes.
- [HADOOP-12358](#): Add -safely flag to rm to prompt when deleting many files.
- [HADOOP-12359](#): hadoop fs -getmerge doc is wrong.
- [HADOOP-12366](#): expose calculated paths.
- [HADOOP-12374](#): Description of hdfs expunge command is confusing.
- [HADOOP-12386](#): RetryPolicies.RETRY_FOREVER should be able to specify a retry interval.
- [HADOOP-12404](#): Disable caching for JarURLConnection to avoid sharing JarFile with other users when loading resource from URL in Configuration class.
- [HADOOP-12406](#): Fixed AbstractMapWritable.readFields to use the thread's ClassLoader to load class instead of System ClassLoader.
- [HADOOP-12407](#): Test failing: hadoop.ipc.TestSaslRPC.
- [HADOOP-12413](#): AccessControlList should avoid calling getGroupNames in isUserInList with empty groups.
- [HADOOP-12415](#): Add io.netty dependency to hadoop-nfs and to hadoop-hdfs, needed to build Bigtop successfully, see BIGTOP-2049.
- [HADOOP-12416](#): Trash messages should be handled by Logger instead of being delivered on System.out.
- [HADOOP-12416](#): Trash messages should be handled by Logger instead of being delivered on System.out.".

- [HADOOP-12418](#): TestRPC.testRPCInterruptedSimple fails intermittently.
- [HADOOP-12423](#): Handle failure of registering shutdownhook by ShutdownHookManager in static block.
- [HADOOP-12426](#): Add Entry point for Kerberos health check.
- [HADOOP-12437](#): Allow SecurityUtil to lookup alternate hostnames.
- [HADOOP-12438](#): TestLocalFileSystem tests can fail on Windows after HDFS-8767 fix for handling pipe.
- [HADOOP-12440](#): TestRPC#testRPCServerShutdown did not produce the desired thread states before shutting down.
- [HADOOP-12441](#): Fixed kill-command behavior to work correctly across OSes by using bash shell built-in.
- [HADOOP-12442](#): Display help if the command option to 'hdfs dfs' is not valid.
- [HADOOP-12444](#): Support lazy seek in S3AInputStream. Rajesh Balamohan via stevel.
- [HADOOP-12449](#): TestDNS and TestNetUtils failing if no network.
- [HADOOP-12453](#): Support decoding KMS Delegation Token with its own Identifier.
- [HADOOP-12457](#): [JDK8] Fix a failure of compiling common by javadoc.
- [HADOOP-12463](#): Fix TestShell.testGetSignalKillCommand failure on windows.
- [HADOOP-12464](#): Interrupted client may try to fail-over and retry.
- [HADOOP-12465](#): Incorrect javadoc in WritableUtils.java.
- [HADOOP-12469](#): distcp should not ignore the ignoreFailures option.
- [HADOOP-12472](#): Make GenericTestUtils.assertExceptionContains robust.
- [HADOOP-12478](#): Shell.getWinUtilsPath() has been renamed Shell.getWinutilsPath().
- [HADOOP-12481](#): JWTRedirectAuthenticationHandler doesn't Retain Original Query String.
- [HADOOP-12482](#): Race condition in JMX cache update.
- [HADOOP-12483](#): Maintain wrapped SASL ordering for postponed IPC responses.
- [HADOOP-12484](#): Single File Rename Throws Incorrectly In Potential Race Condition Scenarios.
- [HADOOP-12508](#): delete fails with exception when lease is held on blob.
- [HADOOP-12520](#): Use XInclude in hadoop-azure test configuration to isolate Azure Storage account keys for service integration tests.
- [HADOOP-12526](#): there are duplicate dependency definitions in pom's.

- [HADOOP-12533](#): Introduce FileNotFoundException in WASB for read and seek API.
- [HADOOP-12535](#): Run FileSystem contract tests with hadoop-azure.
- [HADOOP-12537](#): S3A to support Amazon STS temporary credentials.
- [HADOOP-12540](#): TestAzureFileSystemInstrumentation#testClientErrorMetrics fails intermittently due to assumption that a lease error will be thrown.
- [HADOOP-12542](#): TestDNS fails on Windows after HADOOP-12437.
- [HADOOP-12545](#): Hadoop javadoc has broken links for AccessControlList, ImpersonationProvider, DefaultImpersonationProvider, and DistCp.
- [HADOOP-12548](#): Read s3a creds from a Credential Provider.
- [HADOOP-12551](#): Introduce FileNotFoundException for WASB FileSystem API.
- [HADOOP-12555](#): WASB to read credentials from a credential provider.
- [HADOOP-12559](#): KMS connection failures should trigger TGT renewal.
- [HADOOP-12564](#): Upgrade JUnit3 TestCase to JUnit 4 in org.apache.hadoop.io package.
- [HADOOP-12565](#): Replace DSA with RSA for SSH key type in SingleCluster.md.
- [HADOOP-12568](#): Update core-default.xml to describe posixGroups support.
- [HADOOP-12570](#): HDFS Secure Mode Documentation updates.
- [HADOOP-12573](#): TestRPC.testClientBackOff failing.
- [HADOOP-12577](#): Bump up commons-collections version to 3.2.2 to address a security flaw.
- [HADOOP-12588](#): Fix intermittent test failure of TestGangliaMetrics.
- [HADOOP-12589](#): Fix intermittent test failure of TestCopyPreserveFlag.
- [HADOOP-12590](#): TestCompressorDecompressor failing without stack traces.
- [HADOOP-12602](#): TestMetricsSystemImpl#testQSize occasionally fails.
- [HADOOP-12603](#): TestSymlinkLocalFSFileContext#testSetTimesSymlinkToDir occasionally fail.
- [HADOOP-12604](#): Exception may be swallowed in KMSClientProvider.
- [HADOOP-12605](#): Fix intermittent failure of TestIPC.testIpcWithReaderQueueing.
- [HADOOP-12608](#): Fix exception message in WASB when connecting with anonymous credential.
- [HADOOP-12609](#): Fix intermittent failure of TestDecayRpcScheduler.
- [HADOOP-12613](#): TestFind.processArguments occasionally fails.

- [HADOOP-12617](#): SPNEGO authentication request to non-default realm gets default realm name inserted in target server principal.
- [HADOOP-12622](#): Improve the loggings in RetryPolicies and RetryInvocationHandler.
- [HADOOP-12634](#): Change Lazy Rename Pending Operation Completion of WASB to address case of potential data loss due to partial copy.
- [HADOOP-12635](#): Adding Append API support for WASB.
- [HADOOP-12636](#): Prevent ServiceLoader failure init for unused FileSystems.
- [HADOOP-12653](#): Use SO_REUSEADDR to avoid getting "Address already in use" when using kerberos and attempting to bind to any port on the local IP address.
- [HADOOP-12659](#): Incorrect usage of config parameters in token manager of KMS.
- [HADOOP-12663](#): Remove Hard-Coded Values From FileSystem.java.
- [HADOOP-12666](#): Support Microsoft Azure Data Lake - as a file system in Hadoop.
- [HADOOP-12667](#): s3a to support createNonRecursive API.
- [HADOOP-12668](#): Support excluding weak Ciphers in HttpServer2 through ssl- server.conf.
- [HADOOP-12672](#): RPC timeout should not override IPC ping interval.
- [HADOOP-12675](#): Fix description about retention period in usage of expunge command.
- [HADOOP-12678](#): Handle empty rename pending metadata file during atomic rename in redo path.
- [HADOOP-12682](#): Fix TestKMS#testKMSRestart* failure.
- [HADOOP-12688](#): Fix deadlinks in Compatibility.md.
- [HADOOP-12689](#): S3 filesystem operations stopped working correctly.
- [HADOOP-12691](#): Add CSRF Filter for REST APIs to Hadoop Common.
- [HADOOP-12691](#): Move files to correct location.
- [HADOOP-12696](#): Add tests for S3Filesystem Contract.
- [HADOOP-12699](#): TestKMS#testKMSProvider intermittently fails during 'test rollover draining'.
- [HADOOP-12700](#): Remove unused import in TestCompressorDecompressor.java.
- [HADOOP-12706](#): TestLocalFsFCStatistics#testStatisticsThreadLocalDataCleanUp times out occasionally.
- [HADOOP-12711](#): Remove dependency on commons-httpclient for ServletUtil.
- [HADOOP-12715](#): TestValueQueue#testgetAtMostPolicyALL fails intermittently.

- [HADOOP-12716](#): KerberosAuthenticator#doSpnegoSequence use incorrect class to determine isKeyTab in JDK8.
- [HADOOP-12717](#): NPE when trying to rename a directory in Windows Azure Storage FileSystem.
- [HADOOP-12723](#): S3A: Add ability to plug in any AWSCredentialsProvider.
- [HADOOP-12731](#): Remove useless boxing/unboxing code.
- [HADOOP-12736](#): TestTimedOutTestsListener#testThreadDumpAndDeadlocks sometimes times out.
- [HADOOP-12738](#): Create unit test to automatically compare Common related classes and core-default.xml.
- [HADOOP-12751](#): While using kerberos Hadoop incorrectly assumes names with '@' to be non-simple. (Bolke de Bruin via stevel).
- [HADOOP-12752](#): Improve diagnostics/use of envvar/sysprop credential propagation.
- [HADOOP-12758](#): Extend CSRF Filter with UserAgent Checks.
- [HADOOP-12761](#): incremental maven build is not really incremental.
- [HADOOP-12765](#): HttpServer2 should switch to using the non-blocking SslSelectChannelConnector to prevent performance degradation when handling SSL connections.
- [HADOOP-12767](#): Update apache httpclient version to 4.5.2; httpcore to 4.4.4.
- [HADOOP-12772](#): NetworkTopologyWithNodeGroup.getNodeGroup() can loop infinitely for invalid 'loc' values.
- [HADOOP-12773](#): HBase classes fail to load with client/job classloader enabled.
- [HADOOP-12774](#): s3a should use UGI.getCurrentUser.getShortname() for username.
- [HADOOP-12776](#): Remove getaclstatus call for non-acl commands in getfacl.
- [HADOOP-12780](#): During WASB atomic rename handle crash when one directory has been renamed but not file under it.
- [HADOOP-12782](#): Faster LDAP group name resolution with ActiveDirectory.
- [HADOOP-12786](#): "hadoop key" command usage is not documented.
- [HADOOP-12787](#): KMS SPNEGO sequence does not work with WEBHDFS.
- [HADOOP-12788](#): OpensslAesCtrCryptoCodec should log which random number generator is used.
- [HADOOP-12789](#): log classpath of ApplicationClassLoader at INFO level.
- [HADOOP-12792](#): TestUserGroupInformation#testGetServerSideGroups fails in chroot.

- [HADOOP-12793](#): Write a new group mapping service guide.
- [HADOOP-12794](#): Support additional compression levels for GzipCodec.
- [HADOOP-12795](#): KMS does not log detailed stack trace for unexpected errors.
- [HADOOP-12800](#): Copy docker directory from 2.8 to 2.7/2.6 repos to enable pre-commit Jenkins runs.
- [HADOOP-12801](#): Suppress obsolete S3FileSystem tests.
- [HADOOP-12804](#): Read Proxy Password from Credential Providers in S3 FileSystem.
- [HADOOP-12805](#): Annotate CanUnbuffer with @InterfaceAudience.Public.
- [HADOOP-12807](#): S3AFileSystem should read AWS credentials from environment variables.
- [HADOOP-12810](#): FileSystem#listLocatedStatus causes unnecessary RPC calls.
- [HADOOP-12817](#): Enable TLS v1.1 and 1.2.
- [HADOOP-12825](#): Log slow name resolutions.
- [HADOOP-12828](#): Print user when services are started.
- [HADOOP-12829](#): StatisticsDataReferenceCleaner swallows interrupt exceptions.
- [HADOOP-12831](#): LocalFS/FsOutputSummer NPEs in constructor if bytes per checksum set to 0.
- [HADOOP-12844](#): Recover when S3A fails on IOException in read().
- [HADOOP-12846](#): Credential Provider Recursive Dependencies.
- [HADOOP-12847](#): hadoop daemonlog should support https and SPNEGO for Kerberized cluster.
- [HADOOP-12849](#): TestSymlinkLocalFSFileSystem fails intermittently.
- [HADOOP-12851](#): S3AFileSystem Uptake of ProviderUtils.excludeIncompatibleCredentialProviders.
- [HADOOP-12853](#): Change WASB documentation regarding page blob support.
- [HADOOP-12870](#): Fix typo admininistration in CommandsManual.md.
- [HADOOP-12871](#): Fix dead link to NativeLibraries.html in CommandsManual.md.
- [HADOOP-12872](#): Fix formatting in ServiceLevelAuth.md.
- [HADOOP-12875](#): [Azure Data Lake] Support for contract test and unit test cases.
- [HADOOP-12878](#): KMS SPNEGO sequence does not work with WEBHDFS.
- [HADOOP-12886](#): Exclude weak ciphers in SSLFactory through ssl-server.xml.

- [HADOOP-12891](#): S3FileSystem should configure Multipart Copy threshold and chunk size.
- [HADOOP-12893](#): Update LICENSE.txt and NOTICE.txt.
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- [HADOOP-12895](#): SSLFactory#createSSLSocketFactory exception message is wrong.
- [HADOOP-12901](#): Add warning log when KMSSClientProvider cannot create a connection to the KMS server.
- [HADOOP-12902](#): JavaDocs for SignerSecretProvider are out-of-date in AuthenticationFilter.
- [HADOOP-12903](#): IPC Server should allow suppressing exception logging by type,.
- [HADOOP-12903](#): IPC Server should allow suppressing exception logging by type, not log 'server too busy' messages.
- [HADOOP-12906](#): AuthenticatedURL should convert a 404/Not Found into an FileNotFoundException.
- [HADOOP-12909](#): Change ipc.Client to support asynchronous calls.
- [HADOOP-12916](#): Allow RPC scheduler/callqueue backoff using response times.
- [HADOOP-12926](#): lz4.c does not detect 64-bit mode properly.
- [HADOOP-12929](#): JWTRedirectAuthenticationHandler must accommodate null expiration time.
- [HADOOP-12943](#): Add -w -r options in dfs -test command.
- [HADOOP-12947](#): Update documentation Hadoop Groups Mapping to add static group mapping, negative cache.
- [HADOOP-12950](#): ShutdownHookManager should have a timeout for each of the Registered shutdown hook.
- [HADOOP-12954](#): Add a way to change hadoop.security.token.service.use_ip.
- [HADOOP-12957](#): Limit the number of outstanding async calls.
- [HADOOP-12958](#): PhantomReference for filesystem statistics can trigger OOM.
- [HADOOP-12962](#): KMS key names are incorrectly encoded when creating key.
- [HADOOP-12963](#): Allow using path style addressing for accessing the s3 endpoint.
- [HADOOP-12964](#): Http server vulnerable to clickjacking.
- [HADOOP-12973](#): Make DU pluggable.

- [HADOOP-12975](#): Add jitter to CachingGetSpaceUsed's thread.
- [HADOOP-12977](#): s3a to handle delete("/", true) robustly.
- [HADOOP-12982](#): Document missing S3A and S3 properties.
- [HADOOP-12984](#): Add GenericTestUtils.getTestDir method and use it for temporary directory in tests.
- [HADOOP-12985](#): Support MetricsSource interface for DecayRpcScheduler Metrics.
- [HADOOP-12989](#): Some tests in org.apache.hadoop.fs.shell.find occasionally time out.
- [HADOOP-12993](#): Change ShutdownHookManger complete shutdown log from INFO to DEBUG.
- [HADOOP-12994](#): Specify PositionedReadable, add contract tests, fix problems.
- [HADOOP-13008](#): Add XFS Filter for UIs to Hadoop Common.
- [HADOOP-13011](#): Clearly Document the Password Details for Keystore-based Credential Providers.
- [HADOOP-13018](#): Make Kdiag check whether hadoop.token.files points to existent and valid files.
- [HADOOP-13024](#): Distcp with -delete feature on raw data not implemented.
- [HADOOP-13026](#): Should not wrap IOExceptions into a AuthenticationException in KerberosAuthenticator.
- [HADOOP-13028](#): add low level counter metrics for S3A; use in read performance tests.
- [HADOOP-13030](#): Handle special characters in passwords in KMS startup script.
- [HADOOP-13034](#): Log message about input options in distcp lacks some items.
- [HADOOP-13037](#): Refactor Azure Data Lake Store as an independent FileSystem.
- [HADOOP-13039](#): Add documentation for configuration property ipc.maximum.data.length.
- [HADOOP-13042](#): Restore lost leveledbjni LICENSE and NOTICE changes.
- [HADOOP-13047](#): S3a Forward seek in stream length to be configurable.
- [HADOOP-13052](#): ChecksumFileSystem mishandles crc file permissions.
- [HADOOP-13058](#): S3A FS fails during init against a read-only FS if multipart purge.
- [HADOOP-13065](#): Add a new interface for retrieving FS and FC Statistics.
- [HADOOP-13072](#): WindowsGetSpaceUsed constructor should be public.
- [HADOOP-13079](#): Add -q option to Ls to print ? instead of non-printable characters.

- [HADOOP-13084](#): Fix ASF License warnings in branch-2.7.
- [HADOOP-13098](#): Dynamic LogLevel setting page should accept case-insensitive log level string.
- [HADOOP-13103](#): Group resolution from LDAP may fail on javax.naming.ServiceUnavailableException.
- [HADOOP-13105](#): Support timeouts in LDAP queries in LdapGroupsMapping.
- [HADOOP-13113](#): Enable parallel test execution for hadoop-aws. Chris Nauroth via stevel.
- [HADOOP-13116](#): Jets3tNativeS3FileSystemContractTest does not run.
- [HADOOP-13122](#): Customize User-Agent header sent in HTTP requests by S3A. Chris Nauroth via stevel.
- [HADOOP-13130](#): s3a failures can surface as RTEs, not IOEs.
- [HADOOP-13131](#): Add tests to verify that S3A supports SSE-S3 encryption.
- [HADOOP-13138](#): Unable to append to a SequenceFile with Compression.NONE.
- [HADOOP-13139](#):: S3a to use thread pool that blocks clients.
- [HADOOP-13140](#): FileSystem#initialize must not attempt to create StorageStatistics objects with null or empty schemes.
- [HADOOP-13145](#): In DistCp, prevent unnecessary getFileStatus call when not preserving metadata.
- [HADOOP-13146](#): Refactor RetryInvocationHandler.
- [HADOOP-13155](#): Implement TokenRenewer to renew and cancel delegation tokens in KMS.
- [HADOOP-13158](#): S3AFileSystem#toString might throw NullPointerException due to null cannedACL.
- [HADOOP-13159](#): Fix potential NPE in Metrics2 source for DecayRpcScheduler.
- [HADOOP-13162](#): Consider reducing number of getFileStatus calls in S3AFileSystem.mkdirs.
- [HADOOP-13163](#): Reuse pre-computed filestatus in Distcp-CopyMapper.
- [HADOOP-13164](#): Optimize S3AFileSystem::deleteUnnecessaryFakeDirectories.
- [HADOOP-13168](#): Support Future.get with timeout in ipc async calls.
- [HADOOP-13169](#): Randomize file list in SimpleCopyListing.
- [HADOOP-13171](#): Add StorageStatistics to S3A; instrument some more operations.
- [HADOOP-13179](#): GenericOptionsParser is not thread-safe because commons-cli OptionBuilder is not thread-safe.

- [HADOOP-13183](#): S3A proxy tests fail after httpclient/httpcore upgrade.
- [HADOOP-13188](#): S3A file-create should throw error rather than overwrite directories.
- [HADOOP-13192](#): org.apache.hadoop.util.LineReader cannot handle multibyte delimiters correctly.
- [HADOOP-13197](#): Add non-decayed call metrics for DecayRpcScheduler.
- [HADOOP-13202](#): Avoid possible overflow in org.apache.hadoop.util.bloom.BloomFilter#getNBytes.
- [HADOOP-13203](#): S3a: Consider reducing the number of connection aborts by setting correct length in s3 request.
- [HADOOP-13204](#): Add support for SSE-KMS and SSE-C in s3a filesystem.
- [HADOOP-13207](#): Specify FileSystem listStatus, listFiles and RemoteIterator.
- [HADOOP-13208](#): S3A listFiles(recursive=true) to do a bulk listObjects instead of walking the pseudo-tree of directories.
- [HADOOP-13212](#): Provide an option to set the socket buffers in S3AFileSystem.
- [HADOOP-13213](#): Small Documentation bug with AuthenticatedURL in hadoop-auth.
- [HADOOP-13237](#): : s3a initialization against public bucket fails if caller lacks any credentials.
- [HADOOP-13239](#): Deprecate s3:// in branch-2.
- [HADOOP-13241](#): document s3a better.
- [HADOOP-13242](#): Authenticate to Azure Data Lake using client ID and keys.
- [HADOOP-13244](#): o.a.h.ipc.Server#Server should honor handlerCount when queueSizePerHandler is specified in constructor.
- [HADOOP-13249](#): RetryInvocationHandler need wrap InterruptedException in IOException when call Thread.sleep.
- [HADOOP-13251](#): Authenticate with Kerberos credentials when renewing KMS delegation token.
- [HADOOP-13252](#): Tune S3A provider plugin mechanism.
- [HADOOP-13254](#): Create framework for configurable disk checkers.
- [HADOOP-13255](#): KMSClientProvider should check and renew tgt when doing delegation token operations.
- [HADOOP-13257](#): Improve Azure Data Lake contract tests.
- [HADOOP-13263](#): Reload cached groups in background after expiry.

- [HADOOP-13270](#): BZip2CompressionInputStream finds the same compression marker twice in corner case, causing duplicate data blocks.
- [HADOOP-13280](#): FileSystemStorageStatistics#getLong("readOps") should return readOps + largeReadOps.
- [HADOOP-13283](#): Support reset operation for new global storage statistics and per FS storage stats.
- [HADOOP-13285](#): DecayRpcScheduler MXBean should only report decayed CallVolumeSummary.
- [HADOOP-13287](#): TestS3ACredentials#testInstantiateFromURL fails if AWS secret key contains +.
- [HADOOP-13288](#): Guard null stats key in FileSystemStorageStatistics.
- [HADOOP-13290](#): Appropriate use of generics in FairCallQueue.
- [HADOOP-13291](#): Probing stats in DFSOpsCountStatistics/S3AStorageStatistics should be correctly implemented.
- [HADOOP-13299](#): JMXJsonServlet is vulnerable to TRACE.
- [HADOOP-13305](#): Define common statistics names across schemes.
- [HADOOP-13309](#): Document S3A known limitations in file ownership and permission model.
- [HADOOP-13315](#): FileContext#umask is not initialized properly.
- [HADOOP-13316](#): Enforce Kerberos authentication for required ops in DelegationTokenAuthenticator.
- [HADOOP-13320](#): Fix arguments check in documentation for WordCount v2.0.
- [HADOOP-13323](#): Downgrade stack trace on FS load from Warn to debug.
- [HADOOP-13324](#): s3a tests don't authenticate with S3 frankfurt (or other V4 auth only endpoints).
- [HADOOP-13336](#): S3A to support per-bucket configuration.
- [HADOOP-13350](#): Additional fix to LICENSE and NOTICE.
- [HADOOP-13351](#): TestDFSClientSocketSize buffer size tests are flaky.
- [HADOOP-13352](#): Make X-FRAME-OPTIONS configurable in HttpServer2.
- [HADOOP-13353](#): LdapGroupsMapping getPassword shouldn't return null when IOException throws.
- [HADOOP-13354](#): Update WASB driver to use the latest version (4.2.0) of SDK for Microsoft Azure Storage Clients.

- [HADOOP-13368](#): DFSOpsCountStatistics\$OpType#fromSymbol and s3a.Statistic#fromSymbol should be O(1) operation.
- [HADOOP-13381](#): KMS clients should use KMS Delegation Tokens from current UGI.
- [HADOOP-13382](#): Remove unneeded commons-httpclient dependencies from POM files in Hadoop and sub-projects, while adding it in to the only place it is still needed, hadoop-openstack. Ported to Hortonworks HDP-2.5 by Matt Foley.
- [HADOOP-13387](#): users always get told off for using S3 —even when not using it.
- [HADOOP-13389](#): TestS3ATemporaryCredentials.testSTS error when using IAM credentials.
- [HADOOP-13392](#): [Azure Data Lake] OAuth2 configuration should be default set to true when AdlFileSystem is configured.
- [HADOOP-13393](#): Omit unsupported fs.defaultFS setting in ADLS documentation.
- [HADOOP-13403](#): AzureNativeFileSystem rename/delete performance improvements.
- [HADOOP-13405](#): doc for fs.s3a.acl.default indicates incorrect values.
- [HADOOP-13406](#): S3AFileSystem: Consider reusing filestatus in delete() and mkdirs().
- [HADOOP-13422](#): ZKDelegationTokenSecretManager JaasConfig does not work well with other ZK users in process.
- [HADOOP-13433](#): Race in UGI.reloginFromKeytab.
- [HADOOP-13434](#): Add quoting to Shell class.
- [HADOOP-13443](#): KMS should check the type of underlying keyprovider of KeyProviderExtension before falling back to default.
- [HADOOP-13446](#): Support running isolated unit tests separate from AWS integration tests.
- [HADOOP-13447](#): Refactor S3AFileSystem to support introduction of separate metadata repository and tests.
- [HADOOP-13458](#): LoadBalancingKMSClientProvider#doOp should log IOException stacktrace.
- [HADOOP-13459](#): hadoop-azure runs several test cases repeatedly, causing unnecessarily long running time.
- [HADOOP-13461](#): NPE in KeyProvider.rollNewVersion.
- [HADOOP-13466](#): Add an AutoCloseableLock class.
- [HADOOP-13467](#): Shell#getSignalKillCommand should use the bash builtin on Linux.
- [HADOOP-13470](#): GenericTestUtils\$LogCapturer is flaky.
- [HADOOP-13494](#): ReconfigurableBase can log sensitive information.

- [HADOOP-13502](#): Split fs.contract.is-blobstore flag into more descriptive flags for use by contract tests.
- [HADOOP-13512](#): ReloadingX509TrustManager should keep reloading in case of exception.
- [HADOOP-13513](#): Java 1.7 support for org.apache.hadoop.fs.azure testcases.
- [HADOOP-13535](#): Add jetty6 acceptor startup issue workaround to branch-2.
- [HADOOP-13540](#): improve section on troubleshooting s3a auth problems.
- [HADOOP-13541](#): explicitly declare the Joda time version S3A depends on.
- [HADOOP-13546](#): Override equals and hashCode to avoid connection leakage.
- [HADOOP-13552](#): RetryInvocationHandler logs all remote exceptions.
- [HADOOP-13552](#): RetryInvocationHandler logs all remote exceptions.
- [HADOOP-13558](#): UserGroupInformation created from a Subject incorrectly tries to renew the Kerberos ticket.
- [HADOOP-13560](#): S3ABlockOutputStream to support huge (many GB) file writes.
- [HADOOP-13565](#): KerberosAuthenticationHandler#authenticate should not rebuild SPN based on client request.
- [HADOOP-13590](#): Retry until TGT expires even if the UGI renewal thread encountered exception.
- [HADOOP-13599](#): s3a close() to be non-synchronized, so avoid risk of deadlock on shutdown.
- [HADOOP-13614](#): Purge some superfluous/obsolete S3 FS tests that are slowing test runs down.
- [HADOOP-13638](#): KMS should set UGI's Configuration object properly.
- [HADOOP-13674](#): S3A can provide a more detailed error message when accessing a bucket through an incorrect S3 endpoint.
- [HADOOP-13675](#): Bug in return value for delete() calls in WASB.
- [HADOOP-13680](#): fs.s3a.readahead.range to use getLongBytes.
- [HADOOP-13686](#): Adding additional unit test for Trash (I).
- [HADOOP-13692](#): hadoop-aws should declare explicit dependency on Jackson 2 jars to prevent classpath conflicts.
- [HADOOP-13707](#): If kerberos is enabled while HTTP SPNEGO is not configured, some links cannot be accessed.
- [HADOOP-13710](#): Suppress CachingGetSpaceUsed from logging interrupted exception stacktrace.

- [HADOOP-13716](#): Add LambdaTestUtils class for tests; fix eventual consistency problem in contract test setup.
- [HADOOP-13727](#): S3A: Reduce high number of connections to EC2 Instance Metadata Service caused by InstanceProfileCredentialsProvider.
- [HADOOP-13735](#): ITestS3AFileContextStatistics.testStatistics() failing.
- [HADOOP-13737](#): Cleanup DiskChecker interface.
- [HADOOP-13738](#): DiskChecker should perform some disk IO.
- [HADOOP-13742](#): Expose NumOpenConnectionsPerUser as a metric. Brahma Reddy Battula.
- [HADOOP-13749](#): KMSClientProvider combined with KeyProviderCache can result in wrong UGI being used.
- [HADOOP-13782](#): Make MutableRates metrics thread-local write, aggregate-on- read.
- [HADOOP-13792](#): Stackoverflow for schemeless defaultFS with trailing slash.
- [HADOOP-13801](#): regression: ITestS3AMiniYarnCluster failing.
- [HADOOP-13804](#): MutableStat mean loses accuracy if add(long, long) is used.
- [HADOOP-13822](#): Use GlobalStorageStatistics.INSTANCE.reset() at FileSystem#clearStatistics(). Contribute by Brahma Reddy Battula.
- [HADOOP-13823](#): s3a rename: fail if dest file exists.
- [HADOOP-13824](#): FsShell can suppress the real error if no error message is present.
- [HADOOP-13826](#): S3A Deadlock in multipart copy due to thread pool limits.
- [HADOOP-13830](#): Intermittent failure of ITestS3NContractRootDir.testRecursiveRootListing "Can not create a Path from an empty string". .
- [HADOOP-13831](#): Correct check for error code to detect Azure Storage Throttling and provide retries.
- [HADOOP-13838](#): KMSTokenRenewer should close providers.
- [HADOOP-13847](#): KMSWebApp should close KeyProviderCryptoExtension.
- [HADOOP-13855](#): Fix a couple of the s3a statistic names to be consistent with the rest.
- [HADOOP-13857](#): S3AUtils.translateException to map (wrapped) InterruptedExceptions to InterruptedIOEs.
- [HADOOP-13863](#): Azure: Add a new SAS key mode for WASB.
- [HADOOP-13871](#): ITestS3AInputStreamPerformance.testTimeToOpenAndReadWholeFileBlocks performance awful.

- [HADOOP-13890](#): Maintain HTTP/host as SPNEGO SPN support and fix KerberosName parsing.
- [HADOOP-13928](#): TestAdlFileContextMainOperationsLive.testGetFileContext1 runtime error.
- [HADOOP-13929](#): ADLS connector should not check in contract-test- options.xml.
- [HADOOP-13930](#): Azure: Add Authorization support to WASB.
- [HADOOP-13945](#): Azure: Add Kerberos and Delegation token support to WASB client.
- [HADOOP-13956](#): Read ADLS credentials from Credential Provider.
- [HADOOP-13962](#): Update ADLS SDK to 2.1.4.
- [HADOOP-13988](#): KMSSClientProvider does not work with WebHDFS and Apache Knox w/ ProxyUser.
- [HADOOP-14017](#): User friendly name for ADLS user and group.
- [HADOOP-14019](#): Fix some typos in the s3a docs.
- [HADOOP-14028](#): S3A BlockOutputStreams doesn't delete temporary files in multipart uploads or handle part upload failures.
- [HADOOP-14029](#): Fix KMSSClientProvider for non-secure proxyuser use case.
- [HADOOP-14038](#): Rename ADLS credential properties.
- [HADOOP-14048](#): REDO operation of WASB#AtomicRename should create placeholder blob for destination folder.
- [HADOOP-14049](#): Honour AclBit flag associated to file/folder permission for Azure datalake account.
- [HADOOP-14055](#): SwiftRestClient includes pass length in exception if auth fails.
- [HADOOP-14081](#): S3A: Consider avoiding array copy in S3ABlockOutputStream (ByteArrayBlock).
- [HADOOP-14091](#): AbstractFileSystem implementaion for 'wasbs' scheme.
- [HADOOP-14100](#): Upgrade Jsch jar to latest version to fix vulnerability in old versions.
- [HADOOP-14102](#): Relax error message assertion in S3A test ITestS3AEncryptionSSEC.
- [HADOOP-14113](#): Review ADL Docs.
- [HADOOP-14123](#): Remove misplaced ADL service provider config file for FileSystem.
- [HADOOP-14138](#): Remove S3A ref from META-INF service discovery, rely on existing core-default entry.
- [HADOOP-14150](#): Implement getHomeDirectory() method in NativeAzureFileSystem.

- [HADOOP-14153](#): ADL module has messed doc structure.
- [HADOOP-14170](#): FileSystemContractBaseTest is not cleaning up test directory clearly.
- [HADOOP-14173](#): Remove unused AdlConfKeys#ADL_EVENTS_TRACKING_SOURCE.
- [HADOOP-14174](#): Set default ADLS access token provider type to ClientCredential.
- [HADOOP-14195](#): CredentialProviderFactory\$getProviders is not thread-safe.
- [HADOOP-14196](#): Azure Data Lake doc is missing required config entry.
- [HADOOP-14197](#): Fix ADLS doc for credential provider.
- [HADOOP-14205](#): No FileSystem for scheme: adl.
- [HADOOP-14214](#): DomainSocketWatcher::add()/delete() should not self interrupt while looping await().
- [HADOOP-14230](#): TestAdlFileSystemContractLive fails to clean up.
- [HADOOP-14241](#): Add ADLS sensitive config keys to default list.
- [HADOOP-14274](#): Azure: Simplify Ranger-WASB policy model.
- [HADOOP-14321](#): explicitly exclude s3a root dir ITests from parallel runs.
- [HADOOP-14349](#): Rename ADLS CONTRACT_ENABLE_KEY.
- [HADOOP-14351](#): Azure: RemoteWasbAuthorizerImpl and RemoteSASKeyGeneratorImpl should not use Kerberos interactive user cache.
- [HADOOP-14361](#): Azure: NativeAzureFileSystem.getDelegationToken() call fails sometimes when invoked concurrently.
- [HADOOP-14416](#): Path starting with 'wasb///' not resolved correctly while authorizing with WASB-Ranger.
- [HADOOP-14442](#): Owner support for ranger-wasb integration.
- [HADOOP-14443](#): Azure: Support retry and client side failover for authorization, SASKey and delegation token generation.3.
- [HADOOP-14465](#): LdapGroupsMapping - support user and group search base.
- [HADOOP-14472](#): Azure: TestReadAndSeekPageBlobAfterWrite fails intermittently.
- [HADOOP-14478](#): Optimize NativeAzureFsInputStream for positional reads.
- [HADOOP-14500](#): Azure: TestFileSystemOperationExceptionHandling{,MultiThreaded} fails.
- [HADOOP-14512](#): WASB atomic rename should not throw exception if the file is neither in src nor in dst when doing the rename.

- [HADOOP-14535](#): wasb: implement high-performance random access and seek of block blobs.
- [HADOOP-14536](#): Update azure-storage sdk to version 5.3.0.
- [HADOOP-14546](#): Azure: Concurrent I/O does not work when secure.mode is enabled.
- [HADOOP-14547](#): [WASB] the configured retry policy is not used for all storage operations.'
- [HADOOP-14581](#): Restrict setOwner to list of user when security is enabled in wasb.
- [HADOOP-14640](#): Azure: Support affinity for service running on localhost and reuse SPNEGO hadoop.auth cookie for authorization, SASKey and delegation token generation.
- [HADOOP-14642](#): wasb: add support for caching Authorization and SASKeys.
- [HADOOP-14658](#): branch-2 compilation is broken in hadoop-azure.
- [HADOOP-14680](#): Azure: IndexOutOfBoundsException in BlockBlobInputStream.'
- [HADOOP-14722](#): Azure: BlockBlobInputStream position incorrect after seek.
- [HDFS-1477](#): Support reconfiguring dfs.heartbeat.interval and dfs.namenode.heartbeat.recheck-interval without NN restart.
- [HDFS-2043](#): TestHFlush failing intermittently.
- [HDFS-2580](#): NameNode#main(...) can make use of GenericOptionsParser.
- [HDFS-27](#): HDFS CLI with --config set to default config complains log file not found error.
- [HDFS-3677](#): dfs.namenode.edits.dir.required is missing from hdfs- default.xml.
- [HDFS-3918](#): EditLogTailer shouldn't log WARN when other node is in standby mode.
- [HDFS-4015](#): Safemode should count and report orphaned blocks.
- [HDFS-4176](#): EditLogTailer should call rollEdits with a timeout.
- [HDFS-4185](#): Add a metric for number of active leases.
- [HDFS-4366](#): Block Replication Policy Implementation May Skip Higher-Priority Blocks for Lower-Priority Blocks.
- [HDFS-4396](#): Add START_MSG/SHUTDOWN_MSG for ZKFC.
- [HDFS-4681](#): TestBlocksWithNotEnoughRacks#testCorruptBlockRereplicatedAcrossRacks fails using IBM java.
- [HDFS-4937](#): ReplicationMonitor can infinite-loop in BlockPlacementPolicyDefault#chooseRandom.
- [HDFS-4946](#): Allow preferLocalNode in BlockPlacementPolicyDefault to be configurable.

- [HDFS-5640](#): Add snapshot methods to FileContext.
- [HDFS-6054](#): MiniQJMHACluster should not use static port to avoid binding failure in unit test.
- [HDFS-6101](#): TestReplaceDatanodeOnFailure fails occasionally.
- [HDFS-6184](#): Capture NN's thread dump when it fails over.
- [HDFS-6407](#): Add sorting and pagination in the datanode tab of the NN Web UI.
- [HDFS-6481](#): DatanodeManager#getDatanodeStorageInfos() should check the length of storageIDs.
- [HDFS-6533](#): TestBPOfferService#testBasicFunctionalitytest fails intermittently.
- [HDFS-6581](#): Support for writing to single replica in RAM. Applied HDFS-6581.merge.15.patch to Champlain. This is a consolidated patch containing all feature changes and was applied to trunk.
- [HDFS-6666](#): Abort NameNode and DataNode startup if security is enabled but block access token is not enabled.
- [HDFS-6763](#): Initialize file system-wide quota once on transitioning to active.
- [HDFS-6832](#): Fix the usage of 'hdfs namenode' command.
- [HDFS-6860](#): BlockStateChange logs are too noisy.
- [HDFS-6874](#): Add GETFILEBLOCKLOCATIONS operation to HttpFS.
- [HDFS-6945](#): BlockManager should remove a block from excessReplicateMap and decrement ExcessBlocks metric when the block is removed.
- [HDFS-7163](#): WebHdfsFileSystem should retry reads according to the configured retry policy.
- [HDFS-7166](#): SbNN Web UI shows #Under replicated blocks and #pending deletion blocks.
- [HDFS-7284](#): Add more debug info to BlockInfoUnderConstruction#setGenerationStampAndVerifyReplicas.
- [HDFS-7314](#): When the DFSClient lease cannot be renewed, abort open-for- write files rather than the entire DFSClient.
- [HDFS-7390](#): Provide JMX metrics per storage type.
- [HDFS-7452](#): skip StandbyException log for getCorruptFiles() .
- [HDFS-7483](#): Display information per tier on the Namenode UI.
- [HDFS-7597](#): DelegationTokenIdentifier should cache the TokenIdentifier to UGI mapping.
- [HDFS-7608](#): hdfs dfsclient newConnectedPeer has no write timeout.
- [HDFS-7609](#): Avoid retry cache collision when Standby NameNode loading edits.

- [HDFS-7645](#): Fix CHANGES.txt.
- [HDFS-7645](#): Rolling upgrade is restoring blocks from trash multiple times.
- [HDFS-7701](#): Support reporting per storage type quota and usage with hadoop/hdfs shell.
- [HDFS-7725](#): Incorrect "nodes in service" metrics caused all writes to fail.
- [HDFS-7758](#): Retire FsDatasetSpi#getVolumes() and use FsDatasetSpi#getVolumeRefs() instead.
- [HDFS-7833](#): DataNode reconfiguration does not recalculate valid volumes required, based on configured failed volumes tolerated.
- [HDFS-7858](#): Improve HA Namenode Failover detection on the client.
- [HDFS-7890](#): Improve information on Top users for metrics in RollingWindowsManager and lower log level.
- [HDFS-7923](#): The DataNodes should rate-limit their full block reports by asking the NN on heartbeat messages.
- [HDFS-7928](#): Scanning blocks from disk during rolling upgrade startup takes a lot of time if disks are busy.
- [HDFS-7933](#): fsck should also report decommissioning replicas.
- [HDFS-7964](#): Add support for async edit logging.
- [HDFS-7978](#): Add LOG.isDebugEnabled() guard for some LOG.debug(..).
- [HDFS-7990](#): IBR delete ack should not be delayed.
- [HDFS-8008](#): Support client-side back off when the datanodes are congested.
- [HDFS-8008](#): Support client-side back off when the datanodes are congested.
- [HDFS-8009](#): Signal congestion on the DataNode.
- [HDFS-8009](#): Signal congestion on the DataNode.
- [HDFS-8046](#): Allow better control of getContentSummary.
- [HDFS-8055](#): NullPointerException when topology script is missing.
- [HDFS-8071](#)..
- [HDFS-8099](#): Change "DFSInputStream has been closed already" message to debug log level.
- [HDFS-8101](#): DFSClient use of non-constant DFSConfigKeys pulls in WebHDFS classes at runtime.
- [HDFS-8113](#): Add check for null BlockCollection pointers in BlockInfoContiguous structures.

- [HDFS-8131](#): Implement a space balanced block placement policy.
- [HDFS-8144](#): Split TestLazyPersistFiles into multiple tests.
- [HDFS-8152](#): Refactoring of lazy persist storage cases.
- [HDFS-8155](#): Support OAuth2 in WebHDFS.
- [HDFS-8180](#): AbstractFileSystem Implementation for WebHdfs.
- [HDFS-8205](#): CommandFormat#parse() should not parse option as value of option.
- [HDFS-8209](#): Support different number of datanode directories in MiniDFSCluster.
- [HDFS-8211](#): DataNode UUID is always null in the JMX counter.
- [HDFS-8219](#): setStoragePolicy with folder behavior is different after cluster restart.
- [HDFS-8224](#): Schedule a block for scanning if its metadata file is corrupt.
- [HDFS-8229](#): LAZY_PERSIST file gets deleted after NameNode restart.
- [HDFS-8232](#): Missing datanode counters when using Metrics2 sink interface.
- [HDFS-8247](#): TestDiskSpaceQuotaUpdate#testAppendOverTypeQuota is failing.
- [HDFS-8276](#): LazyPersistFileScrubber should be disabled if scrubber interval configured zero.
- [HDFS-8278](#): When computing max-size-to-move in Balancer, count only the storage with remaining \geq default block size. (szetszwo).
- [HDFS-8307](#): Spurious DNS Queries from hdfs shell.
- [HDFS-8309](#): Skip unit test using DataNodeTestUtils#injectDataDirFailure() on Windows.
- [HDFS-8310](#): Fix TestCLI.testAll "help: help for find" on Windows.
- [HDFS-8311](#): DataStreamer.transfer() should timeout the socket InputStream.
- [HDFS-8312](#): Added permission check for moving file to Trash.
- [HDFS-8337](#): Accessing httpfs via webhdfs doesn't work from a jar with kerberos.
- [HDFS-8345](#): Storage policy APIs must be exposed via the FileSystem interface.
- [HDFS-8384](#): Allow NN to startup if there are files having a lease but are not under construction.
- [HDFS-8431](#): hdfs crypto class not found in Windows.
- [HDFS-8432](#): Introduce a minimum compatible layout version to allow downgrade in more rolling upgrade use cases.
- [HDFS-8435](#): Support CreateFlag in WebHDFS.

- [HDFS-8492](#): DN should notify NN when client requests a missing block.
- [HDFS-8539](#): Hdfs doesnt have class 'debug' in windows.
- [HDFS-8542](#): WebHDFS getHomeDirectory behavior does not match specification.
- [HDFS-8546](#): Use try with resources in DataStorage and Storage.
- [HDFS-8548](#): Minicluster throws NPE on shutdown.
- [HDFS-8549](#): Abort the balancer if an upgrade is in progress.
- [HDFS-8554](#): TestDatanodeLayoutUpgrade fails on Windows.
- [HDFS-8573](#): Move creation of restartMeta file logic from BlockReceiver to ReplicaInPipeline.
- [HDFS-8578](#): On upgrade, Datanode should process all storage/data dirs in parallel. .
- [HDFS-8581](#): ContentSummary on / skips further counts on yielding lock.
- [HDFS-8582](#): Support getting a list of reconfigurable config properties and do not generate spurious reconfig warnings.
- [HDFS-8593](#): Calculation of effective layout version mishandles comparison to current layout version in storage.
- [HDFS-8615](#): Correct HTTP method in WebHDFS document.
- [HDFS-8633](#): Fix setting of dfs.datanode.readahead.bytes in hdfs-default.xml to match DFSConfigKeys.
- [HDFS-8642](#): Make TestFileTruncate more reliable.
- [HDFS-8647](#): Abstract BlockManager's rack policy into BlockPlacementPolicy.
- [HDFS-8656](#): Preserve compatibility of ClientProtocol#rollingUpgrade after finalization.
- [HDFS-8659](#): Block scanner INFO message is spamming logs.
- [HDFS-8674](#): Improve performance of postponed block scans.
- [HDFS-8676](#): Delayed rolling upgrade finalization can cause heartbeat expiration.
- [HDFS-8696](#): Make the lower and higher watermark in the DN Netty server configurable.
- [HDFS-8709](#): Clarify automatic sync in FSEditLog#logEdit.
- [HDFS-8711](#): setSpaceQuota command should print the available storage type when input storage type is wrong.
- [HDFS-8722](#): Optimize datanode writes for small writes and flushes.
- [HDFS-8729](#): Fix TestFileTruncate#testTruncateWithDataNodesRestartImmediately which occasionally failed.

- [HDFS-8767](#): RawLocalFileSystem.listStatus() returns null for UNIX pipefile.
- [HDFS-8772](#): Fix TestStandbyIsHot#testDatanodeRestarts which occasionally fails. (Walter Su via wang).
- [HDFS-8778](#): TestBlockReportRateLimiting#testLeaseExpiration can deadlock.
- [HDFS-8785](#): TestDistributedFileSystem is failing in trunk.
- [HDFS-8792](#): BlockManager#postponedMisreplicatedBlocks should use a LightWeightHashSet to save memory.
- [HDFS-8797](#): WebHdfsFileSystem creates too many connections for pread.
- [HDFS-8806](#): Inconsistent metrics: number of missing blocks with replication factor 1 not properly cleared.
- [HDFS-8809](#): HDFS fsck reports under construction blocks as CORRUPT.
- [HDFS-8815](#): DFS getStoragePolicy implementation using single RPC call.
- [HDFS-8816](#): Improve visualization for the Datanode tab in the NN UI.
- [HDFS-8818](#): Changes the global moveExecutor to per datanode executors and changes MAX_SIZE_TO_MOVE to be configurable. (szetszwo).
- [HDFS-8824](#): Do not use small blocks for balancing the cluster. (szetszwo).
- [HDFS-8826](#): In Balancer, add an option to specify the source node list so that balancer only selects blocks to move from those nodes. (szetszwo).
- [HDFS-8828](#): Utilize Snapshot diff report to build diff copy list in distcp.
- [HDFS-8829](#): Make SO_RCVBUF and SO_SNDBUF size configurable for DataTransferProtocol sockets and allow configuring auto-tuning.
- [HDFS-8831](#): Trash Support for deletion in HDFS encryption zone.
- [HDFS-8844](#): TestHDFSCLI does not cleanup the test directory.
- [HDFS-8845](#): DiskChecker should not traverse the entire tree.
- [HDFS-8846](#): Add a unit test for INotify functionality across a layout version upgrade.
- [HDFS-8850](#): VolumeScanner thread exits with exception if there is no block pool to be scanned but there are suspicious blocks.
- [HDFS-8852](#): HDFS architecture documentation of version 2.x is outdated about append write support.
- [HDFS-8855](#): Webhdfs client leaks active NameNode connections.
- [HDFS-8856](#): Make LeaseManager#countPath O(1).
- [HDFS-8859](#): Improve DataNode ReplicaMap memory footprint to save about 45%.

- [HDFS-8860](#): Remove unused Replica copyOnWrite code.
- [HDFS-8863](#): The remaining space check in BlockPlacementPolicyDefault is flawed.
- [HDFS-8867](#): Enable optimized block reports.
- [HDFS-8879](#): Quota by storage type usage incorrectly initialized upon namenode restart.
- [HDFS-8880](#): NameNode metrics logging.
- [HDFS-8883](#): NameNode Metrics : Add FSNameSystem lock Queue Length.
- [HDFS-8884](#): Fail-fast check in BlockPlacementPolicyDefault#chooseTarget.
- [HDFS-8885](#): ByteRangeInputStream used in webhdfs does not override available().
- [HDFS-8887](#): Expose storage type and storage ID in BlockLocation.
- [HDFS-8891](#): HDFS concat should keep srcs order.
- [HDFS-8896](#): DataNode object isn't GCed when shutdown, because it has GC root in ShutdownHookManager.
- [HDFS-8898](#): Create API and command-line argument to get quota and quota usage without detailed content summary.
- [HDFS-8911](#): NameNode Metric : Add Editlog counters as a JMX metric.
- [HDFS-8914](#): Document HA support in the HDFS HdfsDesign.md.
- [HDFS-8923](#): Add -source flag to balancer usage message. .
- [HDFS-8930](#): Block report lease may leak if the 2nd full block report comes when NN is still in safemode.
- [HDFS-8932](#): NPE thrown in NameNode when try to get TotalSyncCount metric before editLogStream initialization.
- [HDFS-8939](#): Test(S)WebHdfsFileContextMainOperations failing on branch-2.
- [HDFS-8946](#): Improve choosing datanode storage for block placement.
- [HDFS-8950](#): NameNode refresh doesn't remove DataNodes that are no longer in the allowed list.
- [HDFS-8964](#): When validating the edit log, do not read at or beyond the file offset that is being written.
- [HDFS-8965](#): Harden edit log reading code against out of memory errors.
- [HDFS-8969](#): Clean up findbugs warnings for HDFS-8823 and HDFS-8932.
- [HDFS-8969](#): Clean up findbugs warnings for HDFS-8823 and HDFS-8932.
- [HDFS-8983](#): NameNode support for protected directories.

- [HDFS-8983](#): NameNode support for protected directories.
- [HDFS-8995](#): Flaw in registration bookkeeping can make DN die on reconnect.
- [HDFS-9008](#): Balancer#Parameters class could use a builder pattern.
- [HDFS-9008](#): was not backported correctly.
- [HDFS-9009](#): Send metrics logs to NullAppender by default.
- [HDFS-9019](#): Adding informative message to sticky bit permission denied exception.
- [HDFS-9033](#): dfsadmin -metasave prints "NaN" for cache used%.
- [HDFS-9034](#): StorageTypeStats Metric should not count failed storage.'.
- [HDFS-9038](#): DFS reserved space is erroneously counted towards non-DFS used.
- [HDFS-9042](#): Update document for the Storage policy name.
- [HDFS-9043](#): Doc updation for commands in HDFS Federation.
- [HDFS-9047](#): Retire libwebhdfs.
- [HDFS-9048](#): DistCp documentation is out-of-dated.
- [HDFS-9063](#): Correctly handle snapshot path for getContentSummary.
- [HDFS-9072](#): Fix random failures in TestJMXGet.
- [HDFS-9082](#): Change the log level in WebHdfsFileSystem.initialize() from INFO to DEBUG.
- [HDFS-9083](#): Replication violates block placement policy.
- [HDFS-9094](#): Add command line option to ask NameNode reload configuration.
- [HDFS-9106](#): Transfer failure during pipeline recovery causes permanent write failures.
- [HDFS-9107](#): Prevent NNs unrecoverable death spiral after full GC.
- [HDFS-9112](#): Improve error message for Haadmin when multiple name service IDs are configured.
- [HDFS-9128](#): TestWebHdfsFileContextMainOperations and TestSWebHdfsFileContextMainOperations fail due to invalid HDFS path on Windows.
- [HDFS-9130](#): Use GenericTestUtils#setLogLevel to the logging level.
- [HDFS-9142](#): Separating Configuration object for namenode(s) in MiniDFSCluster.
- [HDFS-9145](#): Tracking methods that hold FSNamesystemLock for too long.
- [HDFS-9148](#): Incorrect assert message in TestWriteToReplica#testWriteToTemporary.
- [HDFS-9175](#): Change scope of 'AccessTokenProvider.getAccessToken()' and 'CredentialBasedAccessTokenProvider.getCredential()' abstract methods to public.

- [HDFS-9178](#): Slow datanode I/O can cause a wrong node to be marked bad.
- [HDFS-9184](#): Logging HDFS operation's caller context into audit logs.
- [HDFS-9188](#): Make block corruption related tests FsDataset- agnostic.
- [HDFS-9193](#): Fix incorrect references the usages of the DN in dfshealth.js.
- [HDFS-9198](#): Coalesce IBR processing in the NN.
- [HDFS-9205](#): Do not schedule corrupt blocks for replication. (szetszwo).
- [HDFS-9210](#): Fix some misuse of %n in VolumeScanner#printStats.
- [HDFS-9214](#): Support reconfiguring dfs.datanode.balance.max.concurrent.moves without DN restart.
- [HDFS-9220](#): Reading small file (< 512 bytes) that is open for append fails due to incorrect checksum.
- [HDFS-9221](#): HdfsServerConstants#ReplicaState#getState should avoid calling values() since it creates a temporary array.
- [HDFS-9226](#): Unit Tests failing due to mockito version issue.
- [HDFS-9239](#): DataNode Lifeline Protocol: an alternative protocol for reporting DataNode liveness.
- [HDFS-9251](#): Refactor TestWriteToReplica and TestFsDatasetImpl to avoid explicitly creating Files in the tests code.
- [HDFS-9259](#): Make SO_SNDBUF size configurable at DFSClient side for hdfs write scenario.
- [HDFS-9264](#): Minor cleanup of operations on FsVolumeList#volumes. (Walter Su via lei).
- [HDFS-9273](#): ACLs on root directory may be lost after NN restart.
- [HDFS-9276](#): Failed to Update HDFS Delegation Token for long running application in HA mode.
- [HDFS-9289](#): Make DataStreamer#block thread safe and verify genStamp in commitBlock.
- [HDFS-9290](#): DFSClient#callAppend() is not backward compatible for slightly older NameNodes.
- [HDFS-9294](#): DFSClient deadlock when close file and failed to renew lease.
- [HDFS-9305](#): Delayed heartbeat processing causes storm of subsequent heartbeats.
- [HDFS-9311](#): Support optional offload of NameNode HA service health checks to a separate RPC server.
- [HDFS-9313](#): Possible NullPointerException in BlockManager if no excess replica can be chosen.

- [HDFS-9314](#): Improve BlockPlacementPolicyDefault's picking of excess replicas.
- [HDFS-9317](#): Document fsck -blockId and -storagepolicy options in branch-2.7.
- [HDFS-9343](#): Empty caller context considered invalid.
- [HDFS-9347](#): Invariant assumption in TestQuorumJournalManager.shutdown() is wrong.
- [HDFS-9349](#): Support reconfiguring fs.protected.directories without NN restart.
- [HDFS-9350](#): Avoid creating temporary strings in Block.toString() and getBlockName() (Staffan Friberg via cmccabe).
- [HDFS-9354](#): Fix TestBalancer#testBalancerWithZeroThreadsForMove on Windows.
- [HDFS-9357](#): NN UI renders icons of decommissioned DN incorrectly.
- [HDFS-9358](#): TestNodeCount#testNodeCount timed out.
- [HDFS-9362](#): TestAuditLogger#testAuditLoggerWithCallContext assumes Unix line endings, fails on Windows.
- [HDFS-9364](#): Unnecessary DNS resolution attempts when creating NameNodeProxies.
- [HDFS-9383](#): TestByteArrayManager#testByteArrayManager fails.
- [HDFS-9384](#): TestWebHdfsContentLength intermittently hangs and fails due to TCP conversation mismatch between client and server.
- [HDFS-9395](#): Make HDFS audit logging consistent.
- [HDFS-9397](#): Fix typo for readChecksum() LOG.warn in BlockSender.java.
- [HDFS-9402](#): Switch DataNode.LOG to use slf4j.
- [HDFS-9406](#): FSImage may get corrupted after deleting snapshot.
- [HDFS-9412](#): getBlocks occupies FSLock and takes too long to complete.
- [HDFS-9413](#): getContentSummary() on standby should throw StandbyException.
- [HDFS-9414](#): Refactor reconfiguration of ClientDatanodeProtocol for reusability.
- [HDFS-9415](#): Document dfs.cluster.administrators and dfs.permissions.superusergroup.
- [HDFS-9426](#): Rollingupgrade finalization is not backward compatible.
- [HDFS-9428](#): Fix intermittent failure of TestDNFencing.testQueueingWithAppend.
- [HDFS-9431](#): DistributedFileSystem#concat fails if the target path is relative.
- [HDFS-9434](#): Recommission a datanode with 500k blocks may pause NN for 30 seconds for printing info log messages.
- [HDFS-9445](#): Datanode may deadlock while handling a bad volume.

- [HDFS-9466](#): TestShortCircuitCache#testDataXceiverCleansUpSlotsOnFailure is flaky.
- [HDFS-9467](#): Fix data race accessing writeLockHeldTimeStamp in FSNamesystem.
- [HDFS-9470](#): Encryption zone on root not loaded from fsimage after NN restart. Xiao Chen via wang.
- [HDFS-9476](#): TestDFSUpgradeFromImage#testUpgradeFromRel1BBWImage occasionally fail.
- [HDFS-9478](#): Reason for failing ipc.FairCallQueue construction should be thrown.
- [HDFS-9484](#): NNThroughputBenchmark\$BlockReportStats should not send empty block reports.
- [HDFS-9493](#): Test o.a.h.hdfs.server.namenode.TestMetaSave fails in trunk.
- [HDFS-9500](#): Fix software version counts for DataNodes during rolling upgrade.
- [HDFS-9505](#): HDFS Architecture documentation needs to be refreshed.
- [HDFS-9516](#): Truncate file fails with data dirs on multiple disks.
- [HDFS-9517](#): Fix missing @Test annotation on TestDistCpUtils.testUnpackAttributes.
- [HDFS-9521](#): TransferFsImage.receiveFile should account and log separate times for image download and fsync to disk.
- [HDFS-9525](#): hadoop utilities need to support provided delegation tokens.
- [HDFS-9530](#): ReservedSpace is not cleared for abandoned Blocks.
- [HDFS-9533](#): seen_txid in the shared edits directory is modified during bootstrapping.
- [HDFS-9534](#): Add CLI command to clear storage policy from a path.
- [HDFS-9549](#): TestCacheDirectives#testExceedsCapacity is flaky.
- [HDFS-9555](#): LazyPersistFileScrubber should still sleep if there are errors in the clear progress.
- [HDFS-9557](#): Reduce object allocation in PB conversion. (Daryn Sharp via cnauroth).
- [HDFS-9566](#): Remove expensive 'BlocksMap#getStorages(Block b, final DatanodeStorage.State state)' method.
- [HDFS-9569](#): 's message change.
- [HDFS-9569](#): Log the name of the fsimage being loaded for better supportability.
- [HDFS-9572](#): Prevent DataNode log spam if a client connects on the data transfer port but sends no data.
- [HDFS-9574](#): Reduce client failures during datanode restart.
- [HDFS-9584](#): NPE in distcp when ssl configuration file does not exist in class path.

- [HDFS-9589](#): Block files which have been hardlinked should be duplicated before the DataNode appends to the them.
- [HDFS-9600](#): Do not check replication if the block is under construction.
- [HDFS-9601](#): NNThroughputBenchmark.BlockReportStats should handle NotReplicatedYetException on adding block.
- [HDFS-9605](#): Add links to failed volumes to explorer.html in HDFS Web UI.
- [HDFS-9608](#): Disk IO imbalance in HDFS with heterogeneous storages.
- [HDFS-9612](#): DistCp worker threads are not terminated after jobs are done.
- [HDFS-9618](#): Fix mismatch between log level and guard in BlockManager#computeRecoveryWorkForBlocks.
- [HDFS-9619](#): SimulatedFSDataset sometimes can not find blockpool for the correct namenode.
- [HDFS-9623](#): Update example configuration of block state change log in log4j.properties.
- [HDFS-9624](#): DataNode start slowly due to the initial DU command operations.
- [HDFS-9625](#): set replication for empty file failed when set storage policy.
- [HDFS-9626](#): TestBlockReplacement#testBlockReplacement fails occasionally.
- [HDFS-9629](#): Update the footer of Web UI to show year 2016.
- [HDFS-9630](#): DistCp minor refactoring and clean up.
- [HDFS-9634](#): webhdfs client side exceptions don't provide enough details.
- [HDFS-9638](#): to branch-2.7.
- [HDFS-9644](#): Update encryption documentation to reflect nested EZs.
- [HDFS-9655](#): NN should start JVM pause monitor before loading fsimage.
- [HDFS-9661](#): Deadlock in DN.FsDatasetImpl between moveBlockAcrossStorage moveBlockAcrossStorage and createRbw.
- [HDFS-9669](#): TcpPeerServer should respect ipc.server.listen.queue.size.
- [HDFS-9670](#): DistCp throws NPE when source is root.
- [HDFS-9672](#): o.a.h.hdfs.TestLeaseRecovery2 fails intermittently.
- [HDFS-9688](#): Test the effect of nested encryption zones in HDFS downgrade.
- [HDFS-9696](#): Garbage snapshot records linger forever.
- [HDFS-9700](#): BUG-60868. DFSClient and DFSOutputStream should set TCP_NODELAY on sockets for DataTransferProtocol.

- [HDFS-9701](#): DN may deadlock when hot-swapping under load.
- [HDFS-9706](#): Log more details in debug logs in BlockReceiver's constructor.
- [HDFS-9710](#): DN can be configured to send block receipt IBRs in batches.
- [HDFS-9711](#): Integrate CSRF prevention filter in WebHDFS.
- [HDFS-9713](#): DataXceiver#copyBlock should return if block is pinned.
- [HDFS-9715](#): Check storage ID uniqueness on datanode startup.
- [HDFS-9721](#): Allow Delimited PB OIV tool to run upon fsimage that contains INodeReference.
- [HDFS-9724](#): Degraded performance in WebHDFS listing as it does not reuse ObjectMapper.
- [HDFS-9726](#): Refactor IBR code to a new class. (szetszwo).
- [HDFS-9730](#): Storage ID update does not happen when there is a layout change.
- [HDFS-9739](#): DatanodeStorage.isValidStorageId() is broken.
- [HDFS-9740](#): Use a reasonable limit in DFSTestUtil.waitForMetric().
- [HDFS-9743](#): Fix TestLazyPersistFiles#testFallbackToDiskFull in branch-2.7.
- [HDFS-9748](#): Avoid duplication in pendingReplications when addExpectedReplicasToPending is called twice.
- [HDFS-9752](#): Permanent write failures may happen to slow writers during datanode rolling upgrades.
- [HDFS-9760](#): WebHDFS AuthFilter cannot be configured with custom AltKerberos auth handler.
- [HDFS-9764](#): DistCp doesn't print value for several arguments including - numListstatusThreads.
- [HDFS-9765](#): TestBlockScanner#testVolumeIteratorWithCaching fails intermittently.
- [HDFS-9766](#): TestDataNodeMetrics#testDataNodeTimeSpend fails intermittently.
- [HDFS-9768](#): Reuse ObjectMapper instance in HDFS to improve the performance.
- [HDFS-9772](#): TestBlockReplacement#testThrottler doesn't work as expected.
- [HDFS-9777](#): Fix typos in DFSAdmin command line and documentation.(Wei-Chiu Chuang via umamahesh).
- [HDFS-9779](#): . TestReplicationPolicyWithNodeGroup NODE variable picks wrong rack value.
- [HDFS-9781](#): FsDatasetImpl#getBlockReports can occasionally throw NullPointerException.

- [HDFS-9784](#): Example usage is not correct in Transparent Encryption document.
- [HDFS-9790](#): HDFS Balancer should exit with a proper message if upgrade is not finalized.
- [HDFS-9797](#): Log Standby exceptions thrown by RequestHedgingProxyProvider at DEBUG Level.
- [HDFS-9799](#): Reimplement getCurrentTrashDir to remove incompatibility.
- [HDFS-9801](#): ReconfigurableBase should update the cached configuration.
- [HDFS-9812](#): Streamer threads leak if failure happens when closing DFSOutputStream.
- [HDFS-9839](#): Reduce verbosity of processReport logging.
- [HDFS-9842](#): dfs.datanode.balance.bandwidthPerSec should accept friendly size units.
- [HDFS-9844](#): Correct path creation in getTrashRoot to handle root dir.
- [HDFS-9851](#): NameNode throws NPE when setPermission is called on a path that does not exist.
- [HDFS-9854](#): Log cipher suite negotiation more verbosely.
- [HDFS-9864](#): Correct reference for RENEWDELEGATIONTOKEN and CANCELDELEGATIONTOKEN in webhdfs doc.
- [HDFS-9865](#): TestBlockReplacement fails intermittently in trunk.
- [HDFS-9871](#): "Bytes Being Moved" -ve(-1 B) when cluster was already balanced.
- [HDFS-9874](#): Long living DataXceiver threads cause volume shutdown to block.
- [HDFS-9880](#): TestDatanodeRegistration fails occasionally.
- [HDFS-9881](#): DistributedFileSystem#getTrashRoot returns incorrect path for encryption zones.
- [HDFS-9882](#): Add heartbeatsTotal in Datanode metrics.
- [HDFS-9902](#): Support different values of dfs.datanode.du.reserved per storage type.
- [HDFS-9904](#): testCheckpointCancellationDuringUpload occasionally fails.
- [HDFS-9905](#): WebHdfsFileSystem#runWithRetry should display original stack trace on error.
- [HDFS-9906](#): Remove spammy log spew when a datanode is restarted.
- [HDFS-9917](#): IBR accumulate more objects when SNN was down for sometime.
- [HDFS-9926](#): MiniDFScluster leaks dependency Mockito via DataNodeTestUtils.
- [HDFS-9941](#): Do not log StandbyException on NN, other minor logging fixes.
- [HDFS-9947](#): Block#toString should not output information from derived classes.

- [HDFS-9949](#): Add a test case to ensure that the DataNode does not regenerate its UUID when a storage directory is cleared.
- [HDFS-9958](#): BlockManager#createLocatedBlocks can throw NPE for corruptBlocks on failed storages.
- [HDFS-10178](#): Permanent write failures can happen if pipeline recoveries occur for the first packet.
- [HDFS-10182](#): Hedged read might overwrite user's buf.
- [HDFS-10186](#): DirectoryScanner: Improve logs by adding full path of both actual and expected block directories. .
- [HDFS-10189](#): PacketResponder#toString should include the downstreams for PacketResponderType.HAS_DOWNSTREAM_IN_PIPELINE.
- [HDFS-10199](#): Unit tests TestCopyFiles, TestDistCh, TestLogalyzer under org.apache.hadoop.tools are failing.
- [HDFS-10207](#): Support enable Hadoop IPC backoff without namenode restart.
- [HDFS-10209](#): Support enable caller context in HDFS namenode audit log without restart namenode.
- [HDFS-10216](#): Distcp -diff throws exception when handling relative path.
- [HDFS-10217](#): show 'blockScheduled' tooltip in datanodes table.
- [HDFS-10223](#): peerFromSocketAndKey performs SASL exchange before setting connection timeouts.
- [HDFS-10224](#): Implement asynchronous rename for DistributedFileSystem.
- [HDFS-10225](#): DataNode hot swap drives should disallow storage type changes.
- [HDFS-10228](#): TestHDFSCLI fails.
- [HDFS-10235](#): Last contact for Live Nodes should be relative time.
- [HDFS-10239](#): Fsshell mv fails if port usage doesn't match in src and destination paths.
- [HDFS-10242](#): Cannot create space quota of zero.
- [HDFS-10245](#): Fix the findbugs warnings in branch-2.7.
- [HDFS-10253](#): Fix TestRefreshCallQueue failure.
- [HDFS-10261](#): TestBookKeeperHACheckpoints doesn't handle ephemeral HTTP ports.
- [HDFS-10264](#): Logging improvements in FSImageFormatProtobuf.Saver.
- [HDFS-10270](#): TestJMXGet:testNameNode() fails.
- [HDFS-10271](#): Extra bytes are getting released from reservedSpace for append.

- [HDFS-10275](#): TestDataNodeMetrics failing intermittently due to TotalWriteTime counted incorrectly.
- [HDFS-10277](#): PositionedReadable test testReadFullyZeroByteFile failing in HDFS.
- [HDFS-10279](#): Improve validation of the configured number of tolerated failed volumes.
- [HDFS-10281](#): TestPendingCorruptDnMessages fails intermittently.
- [HDFS-10287](#): MiniDFSCluster should implement AutoCloseable.
- [HDFS-10291](#): TestShortCircuitLocalRead failing.
- [HDFS-10301](#): BlockReport retransmissions may lead to storages falsely being declared zombie if storage report processing happens out of order.
- [HDFS-10301](#): Remove FBR tracking state to fix false zombie storage detection for interleaving block reports.
- [HDFS-10309](#): Balancer doesn't honor dfs.blocksize value defined with suffix k(kilo), m(mega), g(giga) (Amit Anand).
- [HDFS-10312](#): Large block reports may fail to decode at NameNode due to 64 MB protobuf maximum length restriction.
- [HDFS-10313](#): Distcp need to enforce the order of snapshot names passed to -diff.
- [HDFS-10319](#): Balancer should not try to pair storages with different types.
- [HDFS-10320](#): Rack failures may result in NN terminate.
- [HDFS-10324](#): Trash directory in an encryption zone should be pre-created with correct permissions.
- [HDFS-10329](#): Bad initialisation of StringBuffer in RequestHedgingProxyProvider.
- [HDFS-10330](#): Add Corrupt Blocks Information in Metasave output.
- [HDFS-10335](#): Mover\$Processor#chooseTarget() always chooses the first matching target storage group. .
- [HDFS-10341](#): Add a metric to expose the timeout number of pending replication blocks.
- [HDFS-10342](#): BlockManager#createLocatedBlocks should not check corrupt replicas if none are corrupt.
- [HDFS-10343](#): BlockManager#createLocatedBlocks may return blocks on failed storages.
- [HDFS-10344](#): DistributedFileSystem#getTrashRoots should skip encryption zone that does not have .Trash.
- [HDFS-10346](#): Implement asynchronous setPermission/setOwner for DistributedFileSystem.
- [HDFS-10347](#): Namenode report bad block method doesn't log the bad block or datanode.

- [HDFS-10360](#): DataNode may format directory and lose blocks if current/VERSION is missing.
- [HDFS-10367](#): TestDFSShell.testMoveWithTargetPortEmpty fails with Address bind exception.
- [HDFS-10372](#): Fix for failing TestFsDatasetImpl#testCleanShutdownOfVolume.
- [HDFS-10377](#): CacheReplicationMonitor shutdown log message should use INFO level.
- [HDFS-10390](#): Implement asynchronous setAcl/getAclStatus for DistributedFileSystem.
- [HDFS-10396](#): Using -diff option with DistCp may get "Comparison method violates its general contract" exception.
- [HDFS-10397](#): Distcp should ignore -delete option if -diff option is provided instead of exiting.
- [HDFS-10410](#): RedundantEditLogInputStream.LOG is set to wrong class.
- [HDFS-10415](#): TestDistributedFileSystem#MyDistributedFileSystem attempts to set up statistics before initialize() is called.
- [HDFS-10417](#): Improve error message from checkBlockLocalPathAccess.
- [HDFS-10423](#): Increase default value of httpfs maxHTTPHeaderSize.
- [HDFS-10424](#): DatanodeLifelineProtocol not able to use under security cluster.
- [HDFS-10431](#): Refactor and speedup TestAsyncDFSRename.
- [HDFS-10437](#): ReconfigurationProtocol not covered by HDFSPolicyProvider.
- [HDFS-10438](#): When NameNode HA is configured to use the lifeline RPC server, it should log the address of that server.
- [HDFS-10440](#): Improve DataNode web UI.
- [HDFS-10448](#): CacheManager#addInternal tracks bytesNeeded incorrectly when dealing with replication factors other than 1.
- [HDFS-10455](#): Logging the username when deny the setOwner operation.
- [HDFS-10457](#): DataNode should not auto-format block pool directory if VERSION is missing.
- [HDFS-10458](#): getFileEncryptionInfo should return quickly for non-encrypted cluster.
- [HDFS-10468](#): HDFS read ends up ignoring an interrupt.
- [HDFS-10469](#): Add number of active xceivers to datanode metrics.
- [HDFS-10471](#): DFSAdmin#SetQuotaCommand's help msg is not correct.
- [HDFS-10474](#): hftp copy fails when file name with Chinese+special char in branch-2.

- [HDFS-10481](#): HTTPFS server should correctly impersonate as end user to open file.
- [HDFS-10485](#): Fix findbugs warning in FSEditLog.java.
- [HDFS-10488](#): Update WebHDFS documentation regarding CREATE and MKDIR default permissions.
- [HDFS-10493](#): Add links to datanode web UI in namenode datanodes page.
- [HDFS-10499](#): TestNameNodeMetadataConsistency#testGenerationStampInFuture Fails Intermittently.
- [HDFS-10508](#): DFSInputStream should set thread's interrupt status after catching InterruptedException from sleep.
- [HDFS-10512](#): VolumeScanner may terminate due to NPE in DataNode.reportBadBlocks.
- [HDFS-10525](#): Fix NPE in CacheReplicationMonitor#rescanCachedBlockMap.
- [HDFS-10544](#): Balancer doesn't work with IPFailoverProxyProvider.
- [HDFS-10556](#): DistCpOptions should be validated automatically.
- [HDFS-10569](#): A bug causes OutOfIndex error in BlockListAsLongs.
- [HDFS-10579](#): HDFS web interfaces lack configs for X-FRAME-OPTIONS protection.
- [HDFS-10589](#): Javadoc for HState#HState and HState#setStateInternal contains non-existent params.
- [HDFS-10609](#): Uncaught InvalidEncryptionKeyException during pipeline recovery may abort downstream applications.
- [HDFS-10617](#): PendingReconstructionBlocks.size() should be synchronized.
- [HDFS-10623](#): Remove unused import of httpClient.HttpConnection from TestWebHdfsTokens.
- [HDFS-10625](#): VolumeScanner to report why a block is found bad.
- [HDFS-10627](#): Volume Scanner marks a block as "suspect" even if the exception is network-related.
- [HDFS-10642](#): TestLazyPersistReplicaRecovery#testDnRestartWithSavedReplicas fails intermittently.
- [HDFS-10643](#): [Unit Test] Namenode should use loginUser(hdfs) to generateEncryptedKey.
- [HDFS-10643](#): HDFS namenode should always use service user (hdfs) to generateEncryptedKey.
- [HDFS-10653](#): Optimize conversion from path string to components.
- [HDFS-10655](#): Fix path related byte array conversion bugs.

- [HDFS-10660](#): Expose storage policy apis via HDFSAdmin interface.
- [HDFS-10684](#): WebHDFS DataNode calls fail without parameter createparent.
- [HDFS-10688](#): BPSERVICEActor may run into a tight loop for sending block report when hitting IOException.
- [HDFS-10703](#): HA NameNode Web UI should show last checkpoint time.
- [HDFS-10710](#): In BlockManager#rescanPostponedMisreplicatedBlocks(), postponed misreplicated block counts should be retrieved within the NN lock protection.
- [HDFS-10713](#): Throttle FsNameSystem lock warnings.
- [HDFS-10715](#): NPE when applying AvailableSpaceBlockPlacementPolicy.
- [HDFS-10716](#): In Balancer, the target task should be removed when its size < 0. .
- [HDFS-10735](#): Distcp using webhdfs on secure HA clusters fails with StandbyException.
- [HDFS-10752](#): Several log refactoring/improvement suggestion in HDFS.
- [HDFS-10757](#): KMSClientProvider combined with KeyProviderCache can result in wrong UGI being used.
- [HDFS-10763](#): Open files can leak permanently due to inconsistent lease update.
- [HDFS-10763](#): Open files can leak permanently due to inconsistent lease update.
- [HDFS-10764](#): Fix INodeFile#getBlocks to not return null.
- [HDFS-10793](#): Fix HdfsAuditLogger binary incompatibility introduced by HDFS-9184.
- [HDFS-10798](#): Make the threshold of reporting FSNamesystem lock contention configurable.
- [HDFS-10817](#): Add Logging for Long-held NN Read Locks.
- [HDFS-10822](#): Log DataNodes in the write pipeline. John Zhuge via Lei Xu.
- [HDFS-10892](#): Add unit tests for HDFS command 'dfs -tail' and 'dfs -stat'.
- [HDFS-10893](#): Refactor TestDFSShell by setting up MiniDFScluster once for all commands test.
- [HDFS-10906](#): Add unit tests for Trash with HDFS encryption zones.
- [HDFS-10913](#): Introduce fault injectors to simulate slow mirrors.
- [HDFS-10917](#): Collect peer performance statistics on DataNode.
- [HDFS-10922](#): Adding additional unit tests for Trash (II).
- [HDFS-10930](#): Refactor: Wrap Datanode IO related operations.
- [HDFS-10934](#): TestDFSShell#testStat fails intermittently.

- [HDFS-10956](#): Remove rename/delete performance penalty when not using snapshots.
- [HDFS-10959](#): Update DataNode to use DatasetVolumeChecker.
- [HDFS-10962](#): TestRequestHedgingProxyProvider is flaky.
- [HDFS-10963](#): Reduce log level when network topology cannot find enough datanodes.
- [HDFS-10965](#): Add unit test for HDFS command 'dfsadmin -printTopology'.
- [HDFS-10966](#): Enhance Dispatcher logic on deciding when to give up a source DataNode.
- [HDFS-10972](#): Add unit test for HDFS command 'dfsadmin -getDatanodeInfo'.
- [HDFS-10984](#): Expose nntop output as metrics.
- [HDFS-10986](#): DFSAdmin should log detailed error message if any.
- [HDFS-10987](#): Make Decommission less expensive when lot of blocks present.
- [HDFS-10998](#): Add unit tests for HDFS command 'dfsadmin -fetchImage' in HA.
- [HDFS-11003](#): Expose XmitsInProgress through DataNodeMXBean.
- [HDFS-11008](#): Change unit test for testing parsing "-source" parameter in Balancer CLI.
- [HDFS-11011](#): Add unit tests for HDFS command 'dfsadmin -set/cnrSpaceQuota'.
- [HDFS-11015](#): Enforce timeout in balancer.
- [HDFS-11018](#): Incorrect check and message in FsDatasetImpl#invalidate.
- [HDFS-11030](#): TestDataNodeVolumeFailure#testVolumeFailure is flaky (though passing).
- [HDFS-11031](#): Add additional unit test for DataNode startup behavior when volumes fail.
- [HDFS-11047](#): Remove deep copies of FinalizedReplica to alleviate heap consumption on DataNode.
- [HDFS-11054](#): Suppress verbose log message in BlockPlacementPolicyDefault.
- [HDFS-11056](#): Addendum fix for self-healing branch.
- [HDFS-11056](#): Concurrent append and read operations lead to checksum error.
- [HDFS-11065](#): Add space quota tests for heterogenous storages.
- [HDFS-11069](#): Tighten the authorization of datanode RPC.
- [HDFS-11076](#): Add unit test for extended Acls.
- [HDFS-11083](#): Add unit test for DFSAdmin -report command.
- [HDFS-11085](#): Add unit test for NameNode failing to start when name dir is unwritable.
- [HDFS-11087](#): NamenodeFsck should check if the output writer is still writable.

- [HDFS-11112](#): Journal Nodes should refuse to format non-empty directories.
- [HDFS-11114](#): Support for running async disk checks in DataNode.
- [HDFS-11119](#): Support for parallel checking of StorageLocations on DataNode startup.
- [HDFS-11122](#): TestDFSAdmin#testReportCommand fails due to timed out.
- [HDFS-11128](#): CreateEditsLog throws NullPointerException.
- [HDFS-11148](#): Update DataNode to use StorageLocationChecker at startup.
- [HDFS-11149](#): Fix build break.
- [HDFS-11149](#): Support for parallel checking of FsVolumes.
- [HDFS-11156](#): Add new op GETFILEBLOCKLOCATIONS to WebHDFS REST API.
- [HDFS-11160](#): VolumeScanner reports write-in-progress replicas as corrupt incorrectly.
- [HDFS-11180](#): Intermittent deadlock in NameNode when failover happens.
- [HDFS-11182](#): Addendum fix for Fenton to fix a unit test.
- [HDFS-11182](#): Update DataNode to use DatasetVolumeChecker.
- [HDFS-11194](#): Maintain aggregated peer performance metrics on NameNode.
- [HDFS-11195](#): Return error when appending files by webhdfs rest api fails.
- [HDFS-11197](#): Listing encryption zones fails when deleting a EZ that is on a snapshotted directory.
- [HDFS-11209](#): SNN can't checkpoint when rolling upgrade is not finalized.
- [HDFS-11224](#): Lifeline message should be ignored for dead nodes.
- [HDFS-11229](#): HDFS-11056 failed to close meta file.
- [HDFS-11240](#): Remove snapshot version of SDK dependency from Azure Data Lake Store File System.
- [HDFS-11251](#): ConcurrentModificationException during DataNode#refreshVolumes.
- [HDFS-11253](#): FileInputStream leak on failure path in BlockSender.
- [HDFS-11258](#): File mtime change could not save to editlog.
- [HDFS-11263](#): ClassCastException when we use Bzipcodec for Fsimage compression.
- [HDFS-11267](#): Avoid redefinition of storageDirs in NNStorage and cleanup its accessors in Storage.
- [HDFS-11274](#): Datanode should only check the failed volume upon IO errors.
- [HDFS-11279](#): Cleanup unused DataNode#checkDiskErrorAsync().

- [HDFS-11280](#): Allow WebHDFS to reuse HTTP connections to NN.
- [HDFS-11282](#): Document the missing metrics of DataNode Volume IO operations.
- [HDFS-11292](#): log lastWrittenTxId etc info in logSyncAll.
- [HDFS-11299](#): Support multiple Datanode File IO hooks.
- [HDFS-11307](#): The rpc to portmap service for NFS has hardcoded timeout.
- [HDFS-11337](#): (HDFS-10958 backport). Add instrumentation hooks around Datanode disk IO.
- [HDFS-11339](#): Support File IO sampling for Datanode IO profiling hooks.
- [HDFS-11369](#): Change exception message in StorageLocationChecker.
- [HDFS-11379](#): DFSInputStream may infinite loop requesting block locations.
- [HDFS-11387](#): Socket reuse address option is not honored in PrivilegedNfsGatewayStarter.
- [HDFS-11391](#): Numeric usernames do no work with WebHDFS FS write access.
- [HDFS-11395](#): RequestHedgingProxyProvider#RequestHedgingInvocationHandler hides the Exception thrown from NameNode.
- [HDFS-11403](#): Zookeeper ACLs on NN HA enabled clusters should be handled consistently.
- [HDFS-11445](#): FSCK shows overall health status as corrupt even one replica is corrupt.
- [HDFS-11461](#): DataNode Disk Outlier Detection.
- [HDFS-11462](#): Fix occasional BindException in TestNameNodeMetricsLogger.
- [HDFS-11476](#): Fix NPE in FsDatasetImpl#checkAndUpdate.
- [HDFS-11479](#): Socket re-use address option should be used in SimpleUdpServer.
- [HDFS-11499](#): Decommissioning stuck because of failing recovery.
- [HDFS-11502](#): Datanode UI should display hostname based on JMX bean instead of window.location.hostname.
- [HDFS-11508](#): Fix bind failure in SimpleTCPServer & Portmap where bind fails because socket is in TIME_WAIT state.
- [HDFS-11517](#): Expose slow disks via DataNode JMX.
- [HDFS-11533](#): reuseAddress option should be used for child channels in Portmap and SimpleTcpServer.
- [HDFS-11534](#): Add counters for number of blocks in pending IBR.
- [HDFS-11545](#): Propagate DataNode's slow disks info to the NameNode via Heartbeat.
- [HDFS-11547](#): Add logs for slow BlockReceiver while writing data to disk.

- [HDFS-11551](#): Handle SlowDiskReport from DataNode at the NameNode.
- [HDFS-11560](#): Expose slow disks via NameNode JMX.
- [HDFS-11570](#): Unit test for NameNodeStatusMXBean.
- [HDFS-11603](#): Improve slow mirror/disk warnings in BlockReceiver.
- [HDFS-11608](#): HDFS write crashed with block size greater than 2 GB.
- [HDFS-11634](#): Optimize BlockIterator when iterating starts in the middle.
- [HDFS-11722](#): Change Datanode file IO profiling sampling to percentage.
- [HDFS-11842](#): TestDataNodeOutlierDetectionViaMetrics UT fails intermittently. Contributed by Hanisha Koneru.
- [HDFS-12139](#): HTTPFS liststatus returns incorrect pathSuffix for path of file'.
- [HDFS-12158](#): Secondary Namenode's web interface lack configs for X-FRAME- OPTIONS protection.'.
- [HDFS-14676](#): Wrong default value for fs.df.interval.'.
- [MAPREDUCE-5485](#): Allow repeating job commit by extending OutputCommitter API.
- [MAPREDUCE-5621](#): mr-jobhistory-daemon.sh doesn't have to execute mkdir and chown all the time.
- [MAPREDUCE-6121](#): JobResourceUpdater#compareFs() doesn't handle HA namespaces.
- [MAPREDUCE-6165](#): [JDK8] TestCombineFileInputFormat failed on JDK8.
- [MAPREDUCE-6197](#): Cache MapOutputLocations in ShuffleHandler.
- [MAPREDUCE-6213](#): NullPointerException caused by job history server addr not resolvable.
- [MAPREDUCE-6213](#): NullPointerException caused by job history server addr not resolvable.
- [MAPREDUCE-6246](#): DBOutputFormat.java appending extra semicolon to query which is incompatible with DB2.
- [MAPREDUCE-6273](#): HistoryFileManager should check whether summaryFile exists to avoid FileNotFoundException causing HistoryFileInfo into MOVE_FAILED state.
- [MAPREDUCE-6279](#): AM should explicitly exit JVM after all services have stopped.
- [MAPREDUCE-6302](#):
- [MAPREDUCE-6304](#): Specifying node labels when submitting MR jobs.
- [MAPREDUCE-6338](#): MR AppMaster does not honor ephemeral port range.
- [MAPREDUCE-6350](#): JobHistory doesn't support fully-functional search.

- [MAPREDUCE-6404](#): Allow AM to specify a port range for starting its webapp.
- [MAPREDUCE-6436](#): JobHistory cache issue.
- [MAPREDUCE-6436](#): JobHistory cache issue.
- [MAPREDUCE-6460](#):
TestRMContainerAllocator.testAttemptNotFoundCausesRMCommunicatorException fails.
- [MAPREDUCE-6478](#): Add an option to skip cleanupJob stage or ignore cleanup failure during commitJob.
- [MAPREDUCE-6492](#): AsyncDispatcher exit with NPE on TaskAttemptImpl#sendJHStartEventForAssignedFailTask.
- [MAPREDUCE-6492](#): AsyncDispatcher exit with NPE on TaskAttemptImpl#sendJHStartEventForAssignedFailTask.
- [MAPREDUCE-6514](#): Job hangs as ask is not updated after ramping down of all reducers.
- [MAPREDUCE-6543](#): Migrate MR Client test cases part 2.
- [MAPREDUCE-6549](#): multibyte delimiters with LineRecordReader cause duplicate records.
- [MAPREDUCE-6565](#): Configuration to use host name in delegation token service is not read from job.xml during MapReduce job execution.
- [MAPREDUCE-6566](#): Add retry support to mapreduce CLI tool.
- [MAPREDUCE-6577](#): MR AM unable to load native library without MR_AM_ADMIN_USER_ENV set.
- [MAPREDUCE-6577](#): MR AM unable to load native library without MR_AM_ADMIN_USER_ENV set.
- [MAPREDUCE-6579](#): TestNetworkedJob.testNetworkedJob failed due to YARN-3946.
- [MAPREDUCE-6593](#): TestJobHistoryEventHandler.testTimelineEventHandling fails because of NPE.
- [MAPREDUCE-6616](#): Fail to create jobhistory file if there are some multibyte characters in the job name.
- [MAPREDUCE-6618](#): YarnClientProtocolProvider leaking the YarnClient thread.(xgong).
- [MAPREDUCE-6621](#): Memory Leak in JobClient#submitJobInternal().
- [MAPREDUCE-6625](#): TestCLI#testGetJob fails occasionally (haibochen via rkanter).
- [MAPREDUCE-6635](#): Unsafe long to int conversion in UncompressedSplitLineReader and IndexOutOfBoundsException.
- [MAPREDUCE-6635](#): Unsafe long to int conversion in UncompressedSplitLineReader and IndexOutOfBoundsException.

- [MAPREDUCE-6639](#): Process hangs in LocatedFileStatusFetcher if FileSystem.get throws.
- [MAPREDUCE-6672](#): TestTeraSort fails on Windows.
- [MAPREDUCE-6684](#): High contention on scanning of user directory under immediate_done in Job History Server.
- [MAPREDUCE-6689](#): MapReduce job can infinitely increase number of reducer resource requests.
- [MAPREDUCE-6693](#): ArrayIndexOutOfBoundsException occurs when the length of the job name is equal to mapreduce.jobhistory.jobname.limit.
- [MAPREDUCE-6701](#): application master log can not be available when clicking jobhistory's am logs link.
- [MAPREDUCE-6702](#): Fixed failures in TestMiniMRChildTask.testTaskEnv and TestMiniMRChildTask.testTaskOldEnv.
- [MAPREDUCE-6711](#): After enabling preemption on cluster, jobs failed without making any attempts made after being preempted.
- [MAPREDUCE-6724](#): Single shuffle to memory must not exceed Integer#MAX_VALUE.
- [MAPREDUCE-6733](#): MapReduce JerseyTest tests failing with java.net.BindException: Address already in use.
- [MAPREDUCE-6762](#): ControlledJob#toString failed with NPE when job status is not successfully updated.
- [MAPREDUCE-6789](#): Fix TestAMWebApp failure. .
- [MAPREDUCE-6792](#): Allow user's full principal name as owner of MapReduce staging directory in JobSubmissionFiles#JobStagingDir().
- [MAPREDUCE-6797](#): Job history server scans can become blocked on a single, slow entry.
- [MAPREDUCE-6852](#): Job#updateStatus() failed with NPE due to race condition.txt.
- [MAPREDUCE-6895](#): Job end notification not send due to YarnRuntimeException.
- [MAPREDUCE-6897](#): Add Unit Test to ensure Job end notification gets sent even when appMaster stop gets YarnRuntimeException.
- [YARN-857](#): Localization failures should be available in container diagnostics.
- [YARN-998](#): Keep NM resource updated through dynamic resource config for RM/NM restart.
- [YARN-1376](#): NM need to notify the log aggregation status to RM through heartbeat.
- [YARN-1402](#): Update related Web UI and CLI with exposing client API to check log aggregation status.
- [YARN-1462](#): AHS API and other AHS changes to handle tags for completed MR jobs. .

- [YARN-1556](#): NPE getting application report with a null appld.
- [YARN-1728](#): Workaround guice3x-decoded pathInfo in YARN WebApp.
- [YARN-1880](#): Cleanup TestApplicationClientProtocolOnHA.
- [YARN-1993](#): Cross-site scripting vulnerability in TextView.java.
- [YARN-2019](#): Retrospect on decision of making RM crashed if any exception throw in ZKRMStateStore.
- [YARN-2046](#): Out of band heartbeats are sent only on container kill and possibly too early.
- [YARN-2046](#): Out of band heartbeats are sent only on container kill and possibly too early.
- [YARN-2194](#): Fix bug causing CGroups functionality to fail on RHEL7.
- [YARN-2392](#): Add more diags about app retry limits on AM failures.
- [YARN-2495](#): Allow admin specify labels from each NM (Distributed configuration for node label).
- [YARN-2498](#): Respect labels in preemption policy of capacity scheduler for inter-queue preemption.
- [YARN-2513](#): Host framework UIs in YARN for use with the ATS.
- [YARN-2513](#): Host framework UIs in YARN for use with the ATS Note: Patch is in progress.
- [YARN-2571](#): RM to support YARN registry.
- [YARN-2619](#): Added NodeManager support for disk io isolation through cgroups.
- [YARN-2666](#): TestFairScheduler.testContinuousScheduling fails Intermittently.
- [YARN-2696](#): Queue sorting in CapacityScheduler should consider node label.
- [YARN-2740](#): Fix NodeLabelsManager to properly handle node label modifications when distributed node label configuration enabled.
- [YARN-2821](#): Fixed a problem that DistributedShell AM may hang if restarted.
- [YARN-2821](#): Fixed a problem that DistributedShell AM may hang if restarted.
- [YARN-2868](#): FairScheduler: Metric for latency to allocate first container for an application.
- [YARN-2901](#): Add errors and warning metrics page to RM, NM web UI.
- [YARN-3021](#): YARN's delegation-token handling disallows certain trust setups to operate properly over DistCp.
- [YARN-3026](#): Move application-specific container allocation logic from LeafQueue to FiCaSchedulerApp.
- [YARN-3102](#): Decommissioned Nodes not listed in Web UI.

- [YARN-3110](#): Few issues in ApplicationHistory web ui.
- [YARN-3136](#): Fixed a synchronization problem of AbstractYarnScheduler#getTransferredContainers.
- [YARN-3148](#): Allow CORS related headers to passthrough in WebAppProxyServlet.
- [YARN-3215](#): Respect labels in CapacityScheduler when computing headroom.
- [YARN-3216](#): Max-AM-Resource-Percentage should respect node labels.
- [YARN-3225](#): New parameter of CLI for decommissioning node gracefully in RMAdmin CLI.
- [YARN-3243](#): CapacityScheduler should pass headroom from parent to children to make sure ParentQueue obey its capacity limits.
- [YARN-3248](#): Display count of nodes blacklisted by apps in the web UI.
- [YARN-3266](#): RMContext#inactiveNodes should have NodeId as map key.
- [YARN-3269](#): Yarn.nodemanager.remote-app-log-dir could not be configured to fully qualified path.
- [YARN-3293](#): Track and display capacity scheduler health metrics in web UI.
- [YARN-3294](#): Allow dumping of Capacity Scheduler debug logs via web UI for a fixed time period.
- [YARN-3305](#): Normalize AM resource request on app submission.
- [YARN-3318](#): Create Initial OrderingPolicy Framework and FifoOrderingPolicy.
- [YARN-3319](#): Implement a FairOrderingPolicy.
- [YARN-3326](#): Support RESTful API for getLabelsToNodes.
- [YARN-3343](#): Increased TestCapacitySchedulerNodeLabelUpdate#testNodeUpdate timeout.
- [YARN-3345](#): Add non-exclusive node label API.
- [YARN-3347](#): Improve YARN log command to get AMContainer logs as well as running containers logs.
- [YARN-3348](#): Add a 'yarn top' tool to help understand cluster usage.
- [YARN-3354](#): Add node label expression in ContainerTokenIdentifier to support RM recovery.
- [YARN-3356](#): Capacity Scheduler FiCaSchedulerApp should use ResourceUsage to track used-resources-by-label.
- [YARN-3357](#): Move TestFifoScheduler to FIFO package.
- [YARN-3360](#): Add JMX metrics to TimelineDataManager.

- [YARN-3361](#): CapacityScheduler side changes to support non-exclusive node labels.
- [YARN-3362](#): Add node label usage in RM CapacityScheduler web UI.
- [YARN-3365](#): Enhanced NodeManager to support using the 'tc' tool via container-executor for outbound network traffic control.
- [YARN-3366](#): Enhanced NodeManager to support classifying/shaping outgoing network bandwidth traffic originating from YARN containers.
- [YARN-3383](#): AdminService should use "warn" instead of "info" to log exception when operation fails.
- [YARN-3387](#): Previous AM's container completed status couldn't pass to current AM if AM and RM restarted during the same time.
- [YARN-3387](#): Previous AM's container completed status couldn't pass to current AM if AM and RM restarted during the same time.
- [YARN-3394](#): Enrich WebApplication proxy documentation.
- [YARN-3397](#): yarn radmin should skip -failover.
- [YARN-3404](#): Display queue name on application page.
- [YARN-3406](#): Display count of running containers in the RM's Web UI.
- [YARN-3410](#): YARN admin should be able to remove individual application records from RMStateStore.
- [YARN-3413](#): Changed Nodelabel attributes (like exclusivity) to be settable only via addToClusterNodeLabels but not changeable at runtime.
- [YARN-3425](#): NPE from RMNodeLabelsManager.serviceStop when NodeLabelsManager.serviceInit failed.
- [YARN-3433](#): Jersey tests failing with Port in Use -again.
- [YARN-3435](#): AM container to be allocated Appattempt AM container shown as null.
- [YARN-3443](#): Create a 'ResourceHandler' subsystem to ease addition of support for new resource types on the NM.
- [YARN-3448](#): Added a rolling time-to-live LevelDB timeline store implementation.
- [YARN-3451](#): Display attempt start time and elapsed time on the web UI.
- [YARN-3453](#): Ensure preemption logic in FairScheduler uses DominantResourceCalculator in DRF queues to prevent unnecessary thrashing.
- [YARN-3459](#): Fix failure of TestLog4jWarningErrorMetricsAppender.
- [YARN-3463](#): Integrate OrderingPolicy Framework with CapacityScheduler.
- [YARN-3467](#): Expose allocatedMB, allocatedVCores, and runningContainers metrics on running Applications in RM Web UI.

- [YARN-3480](#): Remove attempts that are beyond max-attempt limit from state store.
- [YARN-3494](#): Expose AM resource limit and usage in CS QueueMetrics.
- [YARN-3503](#): Expose disk utilization percentage and bad local and log dir counts in NM metrics.
- [YARN-3505](#): Node's Log Aggregation Report with SUCCEED should not be cached in RMApps.
- [YARN-3511](#): Add errors and warnings page to ATS.
- [YARN-3517](#): RM web ui for dumping scheduler logs should be for admins only.
- [YARN-3521](#): Support return structured NodeLabel objects in REST API.
- [YARN-3530](#): ATS throws exception on trying to filter results without otherinfo.
- [YARN-3541](#): Add version info on timeline service / generic history web UI and REST API.
- [YARN-3543](#): ApplicationReport should be able to tell whether the Application is AM managed or not.
- [YARN-3552](#): RM Web UI shows -1 running containers for completed apps.
- [YARN-3565](#): NodeHeartbeatRequest/RegisterNodeManagerRequest should use NodeLabel object instead of String.
- [YARN-3579](#): CommonNodeLabelsManager should support NodeLabel instead of string label name when getting node-to-label/label-to-label mappings.
- [YARN-3580](#): [JDK8] TestClientRMService.testGetLabelsToNodes fails.
- [YARN-3581](#): Deprecate -directlyAccessNodeLabelStore in RMAdminCLI.
- [YARN-3583](#): Support of NodeLabel object instead of plain String in YarnClient side.
- [YARN-3589](#): RM and AH web UI display DOCTYPE wrongly.
- [YARN-3591](#): Resource localization on a bad disk causes subsequent containers failure.
- [YARN-3593](#): Add label-type and Improve "DEFAULT_PARTITION" in Node Labels Page.
- [YARN-3600](#): AM container link is broken – on a killed application, at least.
- [YARN-3604](#): removeApplication in ZKRMStateStore should also disable watch.
- [YARN-3623](#): Add a config to indicate the Timeline Service version.
- [YARN-3623](#): Addendum: Improve the description for Timeline Service Version configuration in yarn-default.xml.
- [YARN-3632](#): Ordering policy should be allowed to reorder an application when demand changes.

- [YARN-3635](#): Refactored current queue mapping implementation in CapacityScheduler to use a generic PlacementManager framework.
- [YARN-3654](#): ContainerLogsPage web UI should not have meta-refresh.
- [YARN-3684](#): Changed ContainerExecutor's primary lifecycle methods to use a more extensible mechanism of context objects.
- [YARN-3695](#): ServerProxy (NMProxy, etc.) shouldn't retry forever for non network exception.
- [YARN-3695](#): ServerProxy (NMProxy, etc.) shouldn't retry forever for non network exception.
- [YARN-3700](#): Made generic history service load a number of latest applications according to the parameter or the configuration.
- [YARN-3707](#): RM Web UI queue filter doesn't work.
- [YARN-3717](#): Expose app/am/queue's node-label-expression to RM web UI / CLI / REST-API. (Naganarasimha G R via wangda).
- [YARN-3722](#): Merge multiple TestWebAppUtils into o.a.h.yarn.webapp.util.TestWebAppUtils.
- [YARN-3727](#): For better error recovery, check if the directory exists before using it for localization.
- [YARN-3740](#): Fixed the typo in the configuration name: APPLICATION_HISTORY_PREFIX_MAX_APPS.
- [YARN-3749](#): We should make a copy of configuration when init MiniYARNCluster with multiple RMs.
- [YARN-3751](#): Fixed AppInfo to check if used resources are null.
- [YARN-3762](#): FairScheduler: CME on FSParentQueue#getQueueUserAcInfo.
- [YARN-3766](#): Fixed the apps table column error of generic history web UI.
- [YARN-3768](#): ArrayIndexOutOfBoundsException with empty environment variables.
- [YARN-3769](#): Consider user limit when calculating total pending resource for preemption policy in Capacity Scheduler.
- [YARN-3785](#): Support for Resource as an argument during submitApp call in MockRM test class.
- [YARN-3844](#): Make hadoop-yarn-project Native code -Wall-clean.
- [YARN-3846](#): RM Web UI queue filter is not working for sub queue.
- [YARN-3849](#): (Too much of preemption activity causing continuos killing of containers across queues) to 2.3-maint.

- [YARN-3852](#): Add docker container support to container-executor.
- [YARN-3853](#): Add docker container runtime support to LinuxContainerExecutor.
- [YARN-3873](#): PendingApplications in LeafQueue should also use OrderingPolicy.
- [YARN-3877](#): YarnClientImpl.submitApplication swallows exceptions.
- [YARN-3885](#): ProportionalCapacityPreemptionPolicy doesn't preempt if queue is more than 2 level.
- [YARN-3894](#): RM startup should fail for wrong CS xml NodeLabel capacity configuration.
- [YARN-3896](#): RMNode transitioned from RUNNING to REBOOTED because its response id has not been reset synchronously.
- [YARN-3920](#): FairScheduler container reservation on a node should be configurable to limit it to large containers.
- [YARN-3932](#): SchedulerApplicationAttempt#getResourceUsageReport and UserInfo should based on total-used-resources.
- [YARN-3940](#): Application moveToQueue should check NodeLabel permission.
- [YARN-3941](#): Proportional Preemption policy should try to avoid sending duplicate PREEMPT_CONTAINER event to scheduler.
- [YARN-3946](#): Update exact reason as to why a submitted app is in ACCEPTED state to app's diagnostic message.
- [YARN-3948](#): Display Application Priority in RM Web UI.(Sunil G via rohithsharmaks).
- [YARN-3961](#): Expose pending, running and reserved containers of a queue in REST api and yarn top.
- [YARN-3963](#): AddNodeLabel on duplicate label addition shows success.
- [YARN-3966](#): Fix excessive loggings in CapacityScheduler.
- [YARN-3971](#): Skip RMNodeLabelsManager#checkRemoveFromClusterNodeLabelsOfQueue on nodelabel recovery.
- [YARN-3978](#): Configurably turn off the saving of container info in Generic AHS.
- [YARN-3982](#): container-executor parsing of container-executor.cfg broken in trunk and branch-2.
- [YARN-3983](#): Refactored CapacityScheduler#FiCaSchedulerApp to easier extend container allocation logic.
- [YARN-3986](#): getTransferredContainers in AbstractYarnScheduler should be present in YarnScheduler interface.
- [YARN-3987](#): am container complete msg ack to NM once RM receive it.

- [YARN-4000](#): RM crashes with NPE if leaf queue becomes parent queue during restart.
- [YARN-4004](#): container-executor should print output of docker logs if the docker container exits with non-0 exit status.
- [YARN-4007](#): Add support for different network setups when launching the docker container.
- [YARN-4017](#): container-executor overuses PATH_MAX.
- [YARN-4023](#): Publish Application Priority to TimelineServer.
- [YARN-4026](#): Refactored ContainerAllocator to accept a list of priorities rather than a single priority.
- [YARN-4082](#): Container shouldn't be killed when node's label updated.
- [YARN-4087](#): Followup fixes after YARN-2019 regarding RM behavior when state-store error occurs.
- [YARN-4092](#): Fixed UI redirection to print useful messages when both RMs are in standby mode.
- [YARN-4101](#): RM should print alert messages if ZooKeeper and ResourceManager gets connection issue.
- [YARN-4108](#): CapacityScheduler: Improve preemption to only kill containers that would satisfy the incoming request.
- [YARN-4109](#): Exception on RM scheduler page loading with labels.
- [YARN-4113](#): RM should respect retry-interval when uses RetryPolicies.RETRY_FOREVER.
- [YARN-4132](#): Separate configs for nodemanager to resourcemanager connection timeout and retries.
- [YARN-4140](#): RM container allocation delayed incase of app submitted to Nodelabel partition.
- [YARN-4149](#): yarn logs -am should provide an option to fetch all the log files.
- [YARN-4155](#): TestLogAggregationService.testLogAggregationServiceWithInterval failing.
- [YARN-4162](#): CapacityScheduler: Add resource usage by partition and queue capacity by partition to REST API.
- [YARN-4168](#): Fixed a failing test
TestLogAggregationService.testLocalFileDeletionOnDiskFull.
- [YARN-4204](#): ConcurrentModificationException in FairSchedulerQueueInfo.
- [YARN-4215](#): RMNodeLabels Manager Need to verify and replace node labels for the only modified Node Label Mappings in the request.
- [YARN-4225](#): Add preemption status to yarn queue -status for capacity scheduler.

- [YARN-4233](#): YARN Timeline Service plugin: ATS v1.5.
- [YARN-4243](#): Add retry on establishing ZooKeeper connection in EmbeddedElectorService#serviceInit.
- [YARN-4245](#): Generalize config file handling in container-executor.
- [YARN-4252](#): Log container-executor invocation details when exit code is non-zero.
- [YARN-4253](#): Standardize on using PrivilegedOperationExecutor for all invocations of container-executor in LinuxContainerExecutor.
- [YARN-4255](#): container-executor does not clean up docker operation command files.
- [YARN-4258](#): Add support for controlling capabilities for docker containers.
- [YARN-4262](#): Allow whitelisted users to run privileged docker containers.
- [YARN-4267](#): Add additional logging to container launch implementations in container-executor.
- [YARN-4270](#): Limit application resource reservation on nodes for non-node/rack specific requests.
- [YARN-4285](#): Display resource usage as percentage of queue and cluster in the RM UI.
- [YARN-4287](#): Capacity Scheduler: Rack Locality improvement.
- [YARN-4288](#): Fixed RMProxy to retry on IOException from local host.
- [YARN-4290](#): Add -showDetails option to YARN Nodes CLI to print all nodes reports information.
- [YARN-4304](#): AM max resource configuration per partition to be displayed/updated correctly in UI and in various partition related metrics.
- [YARN-4309](#): Add container launch related debug information to container logs when a container fails.
- [YARN-4313](#): Race condition in MiniMR yarn cluster when getting history server address.
- [YARN-4315](#): NaN in Queue percentage for cluster apps page.
- [YARN-4325](#): Nodemanager log handlers fail to send finished/failed events in some cases.
- [YARN-4329](#): [YARN-5437] Allow fetching exact reason as to why a submitted app is in ACCEPTED state in Fair Scheduler.
- [YARN-4345](#): yarn radmin -updateNodeResource doesn't work.
- [YARN-4347](#): Resource manager fails with Null pointer exception.
- [YARN-4349](#): YARN_APPLICATION call to ATS does not have YARN_APPLICATION_CALLER_CONTEXT.

- [YARN-4365](#): FileSystemNodeLabelStore should check for root dir existence on startup.
- [YARN-4384](#): updateNodeResource CLI should not accept negative values for resource.
- [YARN-4390](#): Do surgical preemption based on reserved container in CapacityScheduler.
- [YARN-4392](#): ApplicationCreatedEvent event time resets after RM restart/failover.
- [YARN-4393](#): TestResourceLocalizationService#testFailedDirsResourceRelease fails intermittently.
- [YARN-4403](#): (AM/NM/Container)LivelinessMonitor should use monotonic time when calculating period.
- [YARN-4405](#): Support node label store in non-appendable file system.
- [YARN-4411](#): RMAppAttemptImpl#createApplicationAttemptReport throws IllegalArgumentException.
- [YARN-4414](#): Nodemanager connection errors are retried at multiple levels.
- [YARN-4414](#): Nodemanager connection errors are retried at multiple levels.
- [YARN-4416](#): Deadlock due to synchronised get Methods in AbstractCSQueue.
- [YARN-4417](#): Make RM and Timeline-server REST APIs more consistent.
- [YARN-4418](#): AM Resource Limit per partition can be updated to ResourceUsage as well.
- [YARN-4422](#): Generic AHS sometimes doesn't show started, node, or logs on App page.
- [YARN-4422](#): Generic AHS sometimes doesn't show started, node, or logs on App page.
- [YARN-4428](#): Redirect RM page to AHS page when AHS turned on and RM page is not available.
- [YARN-4428](#): Redirect RM page to AHS page when AHS turned on and RM page is not available.
- [YARN-4439](#): Clarify NMContainerStatus#toString method.
- [YARN-4454](#): NM to nodelabel mapping going wrong after RM restart.
- [YARN-4465](#): SchedulerUtils#validateRequest for Label check should happen only when nodelabel enabled.
- [YARN-4477](#): FairScheduler: Handle condition which can result in an infinite loop in attemptScheduling.
- [YARN-4479](#): Change CS LeafQueue pendingOrderingPolicy to honor recovered apps.
- [YARN-4484](#): Available Resource calculation for a queue is not correct when used with labels.
- [YARN-4496](#): Improve HA ResourceManager Failover detection on the client.

- [YARN-4497](#): RM might fail to restart when recovering apps whose attempts are missing.
- [YARN-4502](#): Fix two AM containers get allocated when AM restart. (Vinod Kumar Vavilapalli via wangda).
- [YARN-4522](#): Queue acl can be checked at app submission.
- [YARN-4535](#): Fix checkstyle error in CapacityScheduler.java.
- [YARN-4546](#): YARN-4546. ResourceManager crash due to scheduling opportunity overflow.
- [YARN-4546](#): YARN-4546. ResourceManager crash due to scheduling opportunity overflow.
- [YARN-4553](#): Add cgroups support for docker containers.
- [YARN-4556](#): TestFifoScheduler.testResourceOverCommit fails.
- [YARN-4557](#): Fix improper Queues sorting in PartitionedQueueComparator when accessible-node-labels=*
- [YARN-4565](#):
- [YARN-4571](#): Make app id/name available to the yarn authorizer provider for better auditing.
- [YARN-4573](#): Fix test failure in TestRMAppTransitions#testAppRunningKill and testAppKilledKilled.
- [YARN-4577](#): Enable aux services to have their own custom classpath/jar file.
- [YARN-4578](#): Directories that are mounted in docker containers need to be more restrictive/container-specific.
- [YARN-4582](#): Label-related invalid resource request exception should be able to properly handled by application.
- [YARN-4584](#): RM startup failure when AM attempts greater than max-attempts.
- [YARN-4591](#): YARN Web UIs should provide a robots.txt. Junping Du.
- [YARN-4595](#): Add support for configurable read-only mounts when launching Docker containers.
- [YARN-4596](#): SystemMetricPublisher should not swallow error messages from TimelineClient#putEntities.
- [YARN-4598](#): Invalid event: RESOURCE_FAILED at CONTAINER_CLEANEDUP_AFTER_KILL.
- [YARN-4598](#): Invalid event: RESOURCE_FAILED at CONTAINER_CLEANEDUP_AFTER_KILL.
- [YARN-4607](#): Pagination support for AppAttempt page TotalOutstandingResource Requests table.

- [YARN-4610](#): Reservations continue looking for one app causes other apps to starve.
- [YARN-4617](#): LeafQueue#pendingOrderingPolicy should always use fixed ordering policy instead of using same as active applications ordering policy.
- [YARN-4623](#): TestSystemMetricsPublisher#testPublishAppAttemptMetricsForUnmanagedAM fails with NPE on branch-2.7.
- [YARN-4624](#): NPE in PartitionQueueCapacitiesInfo while accessing Scheduler UI.
- [YARN-4625](#): Make ApplicationSubmissionContext and ApplicationSubmissionContextInfo more consistent.
- [YARN-4633](#): TestRMRestart.testRMRestartAfterPreemption fails intermittently.
- [YARN-4634](#): Scheduler UI/Metrics need to consider cases like non-queue label mappings.
- [YARN-4643](#): Container recovery is broken with delegating container runtime.
- [YARN-4667](#): RM Admin CLI for refreshNodesResources throws NPE when nothing is configured.
- [YARN-4680](#): Fix TimerTasks leak in ATS V1.5 Writer.
- [YARN-4696](#): TimelineClient to add flush operation for deterministic writes (including testing) and Changes to EntityGroupFSTimelineStore for testability.
- [YARN-4697](#): NM aggregation thread pool is not bound by limits.
- [YARN-4699](#): Scheduler UI and REST o/p is not in sync when -replaceLabelsOnNode is used to change label of a node.
- [YARN-4709](#): NMWebServices produces incorrect JSON for containers.
- [YARN-4709](#): NMWebServices produces incorrect JSON for containers.
- [YARN-4723](#): NodesListManager\$UnknownNodeId ClassCastException.
- [YARN-4737](#): Add CSRF filter support in YARN.
- [YARN-4737](#): Add CSRF filter support in YARN.
- [YARN-4744](#): Too many signal to container failure in case of LCE.
- [YARN-4746](#): yarn web services should convert parse failures of appId, appAttemptId and containerId to 400.
- [YARN-4748](#): ApplicationHistoryManagerOnTimelineStore should not swallow exceptions on generateApplicationReport.
- [YARN-4759](#): Fix signal handling for docker containers.
- [YARN-4762](#): Fixed CgroupHandler's creation and usage to avoid NodeManagers crashing when LinuxContainerExecutor is enabled.

- [YARN-4764](#): Application submission fails when submitted queue is not available in scheduler.xml.
- [YARN-4767](#): Network issues can cause persistent RM UI outage.
- [YARN-4769](#): Add support for CSRF header in the dump capacity scheduler logs and kill app buttons in RM web UI.
- [YARN-4785](#): Inconsistent value type of the "type" field for LeafQueueInfo in response of RM REST API.
- [YARN-4785](#): Inconsistent value type of the "type" field for LeafQueueInfo in response of RM REST API.
- [YARN-4811](#): Generate histograms in ContainerMetrics for actual container resource usage.
- [YARN-4814](#): ATS 1.5 timelineclient impl call flush after every event write.
- [YARN-4815](#): ATS 1.5 timelineclient impl try to create attempt directory for every event call.
- [YARN-4817](#): TimelineClient ATSV1.5 logging is very noisy.
- [YARN-4820](#): ResourceManager web redirects in HA mode drops query parameters.
- [YARN-4822](#): Refactor existing Preemption Policy of CS for easier adding new approach to select preemption candidates.
- [YARN-4832](#): NM side resource value should get updated if change applied in RM side.
- [YARN-4833](#): For Queue AccessControlException client retries multiple times on both RM.
- [YARN-4842](#): Fixed "yarn logs" command to guess (and thus not require) the appOwner argument when viewing another user's logs.
- [YARN-4844](#): Add getMemorySize/getVirtualCoresSize to o.a.h.y.api.records.Resource.
- [YARN-4846](#): Fix random failures for TestCapacitySchedulerPreemption #testPreemptionPolicyShouldRespectAlreadyMarkedKillableContainers.
- [YARN-4851](#): Metric improvements for ATS v1.5 storage components. Li Lu via junping_du.
- [YARN-4863](#): AHS Security login should be in serviceInit() instead of serviceStart().
- [YARN-4865](#): Track Reserved resources in ResourceUsage and QueueCapacities.
- [YARN-4890](#): Unit test intermittent failure: TestNodeLabelContainerAllocation#testQueueUsedCapacitiesUpdate.
- [YARN-4893](#): Fix intermittent failures in TestRMAdminService.
- [YARN-4905](#): Improved "yarn logs" command-line to optionally show log metadata also.
- [YARN-4906](#): Capture container start/finish time in container metrics.

- [YARN-4909](#): Fix intermittent failures of TestRMWebServices And TestRMWithCSRFFilter.
- [YARN-4913](#): Yarn logs should take a -out option to write to a directory.
- [YARN-4916](#): TestNMProxy.testNMProxyRPCRetry fails.
- [YARN-4920](#): ATS/NM should support a link to download/get the logs in text format.
- [YARN-4927](#): TestRMHA#testTransitionedToActiveRefreshFail fails with FairScheduler.
- [YARN-4928](#): Some yarn.server.timeline.* tests fail on Windows attempting to use a test root path containing a colon.
- [YARN-4934](#): Reserved Resource for QueueMetrics needs to be handled correctly in few cases.
- [YARN-4955](#): Add retry for SocketTimeoutException in TimelineClient.
- [YARN-4956](#): findbug issue on LevelDBCacheTimelineStore.
- [YARN-4966](#): Improve yarn logs to fetch container logs without specifying nodeId.
- [YARN-4983](#): JVM and UGI metrics disappear after RM transitioned to standby mode.
- [YARN-4984](#): LogAggregationService shouldn't swallow exception in handling createAppDir() which cause thread leak.
- [YARN-4987](#): Read cache concurrency issue between read and evict in EntityGroupFS timeline store.
- [YARN-4990](#): Re-direction of a particular log file within in a container in NM UI does not redirect properly.
- [YARN-5002](#): getApplicationReport call may raise NPE for removed queues.
- [YARN-5023](#): TestAMRestart#testShouldNotCountFailureToMaxAttemptRetry random failure.
- [YARN-5029](#): RM needs to send update event with YarnApplicationState as Running to ATS/AHS.
- [YARN-5048](#): DelegationTokenRenewer#skipTokenRenewal may throw NPE.
- [YARN-5069](#): TestFifoScheduler.testResourceOverCommit race condition.
- [YARN-5076](#): YARN web interfaces lack XFS (Cross-Frame Script) protection.
- [YARN-5080](#): Cannot obtain logs using YARN CLI -am for either KILLED or RUNNING AM.
- [YARN-5083](#): YARN CLI for AM logs does not give any error message if entered invalid am value.
- [YARN-5088](#): Improve "yarn log" command-line to read the last K bytes for the log files.
- [YARN-5089](#): Improve "yarn log" command-line "logFiles" option to support regex.

- [YARN-5098](#): Fixed ResourceManager's DelegationTokenRenewer to replace expiring system-tokens if RM stops and only restarts after a long time.
- [YARN-5100](#): The YarnApplicationState is always running in ATS even application is finished.
- [YARN-5103](#): With NM recovery enabled, restarting NM multiple times results in AM restart.
- [YARN-5112](#): Excessive log warnings for directory permission issue on NM recovery.
- [YARN-5115](#): Avoid setting CONTENT-DISPOSITION header in the container-logs web-service.
- [YARN-5121](#): fix some container-executor portability issues.
- [YARN-5122](#): "yarn logs" for running containers should print an explicit footer saying that the log may be incomplete.
- [YARN-5131](#): Distributed shell AM fails when extra container arrives during finishing. Wangda Tan via junping_du.
- [YARN-5141](#): Get Container logs for the Running application from Yarn Logs CommandLine.
- [YARN-5190](#): Registering/unregistering container metrics triggered by ContainerEvent and ContainersMonitorEvent are conflict which cause uncaught exception in ContainerMonitorImpl.
- [YARN-5191](#): Renamed the newly added "download=true" option for getting logs via NMWebServices and AHSWebServices to be a better "format" option.
- [YARN-5199](#): Close LogReader in in AHSWebServices#getStreamingOutput and FileInputStream in NMWebServices#getLogs.
- [YARN-5200](#): Enhanced "yarn logs" to be able to get a list of containers whose logs are aggregated via a "show_container_log_info" option.
- [YARN-5206](#): RegistrySecurity includes id:pass in exception text if considered invalid.
- [YARN-5208](#): Run TestAMRMClient TestNMClient TestYarnClient TestClientRMTokens TestAMAuthorization tests with hadoop.security.token.service.use_ip enabled.
- [YARN-5213](#): Fix a bug in LogCLIHelpers which cause TestLogsCLI#testFetchApplictionLogs fails intermittently.
- [YARN-5214](#): Fixed locking in DirectoryCollection to avoid hanging NMs when various code-paths hit slow disks.
- [YARN-5223](#): Container line in yarn logs output for a live application should include the hostname for the container.
- [YARN-5224](#): Added new web-services /containers/{containerid}/logs & /containers/{containerid}/logs/{filename} and using them in "yarn logs" CLI to get logs of finished containers of a running application.

- [YARN-5226](#): Remove AHS enable check from LogsCLI#fetchAMContainerLogs.
- [YARN-5227](#): Yarn logs command: no need to specify applicationId when specifying containerId.
- [YARN-5233](#): Support for specifying a path for ATS plugin jars.
- [YARN-5237](#): Fix missing log files issue in rolling log aggregation.
- [YARN-5246](#): NMWebAppFilter web redirects drop query parameters.
- [YARN-5251](#): Yarn CLI to obtain App logs for last 'n' bytes fails.
- [YARN-5266](#): Wrong exit code while trying to get app logs using regex via CLI.
- [YARN-5270](#): Solve miscellaneous issues caused by YARN-4844.
- [YARN-5294](#): Pass remote ip address down to YarnAuthorizationProvider.
- [YARN-5296](#): NMs going OutOfMemory because ContainerMetrics leak in ContainerMonitorImpl.
- [YARN-5297](#): Avoid printing a stack trace when recovering an app after the RM restarts.
- [YARN-5298](#): Mount usercache and NM filecache directories into Docker container.
- [YARN-5299](#): Log Docker run command when container fails.
- [YARN-5314](#): Fixed a ConcurrentModificationException in ATS v1.5 EntityGroupFSTimelineStore.
- [YARN-5333](#): Some recovered apps are put into default queue when RM HA.
- [YARN-5337](#): Fix Dshell OOM issues.
- [YARN-5339](#): Passing file to -out for YARN log CLI doesnt give warning or error code.
- [YARN-5340](#): Fixed a race condition in RollingLevelDBTimelineStore that caused loss of Timeline events.
- [YARN-5342](#): Improve non-exclusive node partition resource allocation in Capacity Scheduler.
- [YARN-5353](#): ResourceManager can leak delegation tokens when they are shared across apps. (Jason Lowe via Varun Saxena).
- [YARN-5363](#): For AM containers, or for containers of running-apps, "yarn logs" incorrectly only (tries to) shows syslog file-type by default.
- [YARN-5368](#): Fixed a memory leak in Timeline server.
- [YARN-5432](#): Lock already held by another process while LevelDB cache store creation for dag.
- [YARN-5440](#): Use AHSClient in YarnClient when TimelineServer is running.

- [YARN-5456](#): container-executor support for FreeBSD, NetBSD, and others if conf path is absolute. .
- [YARN-5470](#): Differentiate exactly match with regex in yarn log CLI.
- [YARN-5476](#): Not existed application reported as ACCEPTED state by YarnClientImpl.
- [YARN-5523](#): Yarn running container log fetching causes OutOfMemoryError.
- [YARN-5524](#): Yarn live log aggregation does not throw if command line arg is wrong.
- [YARN-5539](#): TimelineClient failed to retry on java.net.SocketTimeoutException: Read timed out.
- [YARN-5549](#): AMLauncher#createAMContainerLaunchContext() should not log the command to be launched indiscriminately.
- [YARN-5551](#): : Ignore file backed pages from memory computation when smaps is enabled.
- [YARN-5659](#): getPathFromYarnURL should use standard methods.
- [YARN-5677](#): RM should transition to standby when connection is lost for an extended period.
- [YARN-5704](#): Provide config knobs to control enabling/disabling new/work in progress features in container-executor.
- [YARN-5711](#): Propagate exceptions back to client when using hedging RM failover provider. Create a new task attempt with failed map task.
- [YARN-5718](#): TimelineClient (and other places in YARN) shouldn't over-write HDFS client retry settings which could cause unexpected behavior.
- [YARN-5731](#): Preemption calculation is not accurate when reserved containers are present in queue.
- [YARN-5773](#): RM recovery too slow due to LeafQueue#activateApplications.
- [YARN-5864](#): Capacity Scheduler queue priority.
- [YARN-5873](#): RM crashes with NPE if generic application history is enabled.
- [YARN-5910](#): Support for multi-cluster delegation tokens.
- [YARN-5915](#): ATS 1.5 FileSystemTimelineWriter causes flush() to be called after every event write.
- [YARN-5923](#): Unable to access logs for a running application if YARN_ACL_ENABLE is enabled.
- [YARN-5923](#): Unable to access logs for a running application if YARN_ACL_ENABLE is enabled.
- [YARN-5988](#): RM unable to start in secure setup.

- [YARN-5999](#): AMRMClientAsync will stop if any exceptions thrown on allocate call.
- [YARN-6011](#): Add a new web service to list the files on a container in AHSWebService.
- [YARN-6029](#): CapacityScheduler deadlock when ParentQueue#getQueueUserAcInfo is called by one thread and LeafQueue#assignContainers is releasing excessive reserved container by another thread.
- [YARN-6031](#): Application recovery has failed when node label feature is turned off during RM recovery.
- [YARN-6054](#): TimelineServer fails to start when some LevelDb state files are missing.
- [YARN-6068](#): Log aggregation get failed when NM restart even with recovery. .
- [YARN-6081](#): LeafQueue#getTotalPendingResourcesConsideringUserLimit should deduct reserved from pending to avoid unnecessary preemption of reserved container.
- [YARN-6082](#): Invalid REST api response for getApps since queueUsagePercentage is coming as INF.
- [YARN-6099](#): Improve webservice to list aggregated log files.
- [YARN-6100](#): Improve YARN webservice to output aggregated container logs.
- [YARN-6104](#): RegistrySecurity overrides zookeeper sasl system properties.
- [YARN-6108](#): Improve AHS webservice to accept NM address as a parameter to get container logs.
- [YARN-6113](#): Re-direct NM Web Service to get container logs for finished applications.
- [YARN-6123](#): Add a test to make sure queues of orderingPolicy will be updated when childQueues is added or removed.
- [YARN-6126](#): Obtaining app logs for Running application fails with json parse error.
- [YARN-6137](#): Yarn client implicitly invoke ATS client which accesses HDFS.
- [YARN-6145](#): Improve log message on fail over.
- [YARN-6174](#): Log files pattern should be same for both running and finished container.
- [YARN-6177](#): Yarn client should exit with an informative error message if an incompatible Jersey library is used at client.
- [YARN-6189](#): ApplicationNotFoundException due to RM failed over should throw more user friendly exception.
- [YARN-6228](#): EntityGroupFSTimelineStore should allow configurable cache stores.
- [YARN-6270](#): WebUtils.getRMWebAppURLWithScheme() needs to honor RM HA setting.
- [YARN-6271](#): yarn rmdin -getGroups returns information from standby RM.

- [YARN-6294](#): ATS client should better handle Socket closed case.
- [YARN-6304](#): Skip rm.transitionToActive call to RM if RM is already active.
- [YARN-6313](#): yarn logs cli should provide logs for a completed container even when application is still running.
- [YARN-6314](#): Potential infinite redirection on YARN log redirection web service.
- [YARN-6332](#): Make RegistrySecurity use short user names for ZK ACLs.
- [YARN-6339](#): Improve performance for createAndGetApplicationReport.
- [YARN-6367](#): YARN logs CLI needs always check containerLogsInfo/containerLogInfo before parse the JSON object from NMWebService.
- [YARN-6726](#): Fix issues with docker commands executed by container-executor.
- [YARN-6890](#): Not display killApp button on UI if UI is unsecured but cluster is secured.
- [YARN-7090](#): testRMRestartAfterNodeLabelDisabled[1] UT Fails.

HDP 2.6.1 provided Hadoop Common 2.7.3 and the following Apache patches:

- [HADOOP-12173](#): NetworkTopology::add calls toString always.
- [HDFS-11499](#): Decommissioning stuck because of failing recovery.
- [HDFS-11545](#): Propagate DataNode's slow disks info to the NameNode via Heartbeat.
- [HDFS-11547](#): Add logs for slow BlockReceiver while writing data to disk.
- [HDFS-11551](#): Handle SlowDiskReport from DataNode at the NameNode. .
- [HDFS-11560](#): Expose slow disks via NameNode JMX.
- [HDFS-11570](#): Unit test for NameNodeStatusMXBean.
- [HDFS-11603](#): Improve slow mirror/disk warnings in BlockReceiver.
- [HDFS-11722](#): Change Datanode file IO profiling sampling to percentage.
- [HDFS-11842](#): TestDataNodeOutlierDetectionViaMetrics UT fails intermittently.
- [MAPREDUCE-6702](#): Fixed failures in TestMiniMRChildTask.testTaskEnv and TestMiniMRChildTask.testTaskOldEnv.
- [YARN-5368](#): Fixed a memory leak in Timeline server.

HDP 2.6.0 provided Hadoop Common 2.7.3 the following Apache patches:

- [HADOOP-1023](#): Add more logging in WASB page blob read function.
- [HADOOP-1026](#): Logging bug in WASB causing out of index exception.
- [HADOOP-1540](#): breaks backward compatibility.

- [HADOOP-1540](#): Support file exclusion list in distcp.
- [HADOOP-3733](#): "s3x:" URLs break when Secret Key contains a slash, even if encoded.
- [HADOOP-5323](#): Trash documentation should describe its directory structure and configurations.
- [HADOOP-5470](#): RunJar.unJar() should write the last modified time found in the jar entry to the uncompressed file.
- [HADOOP-7139](#): Allow appending to existing SequenceFiles
- [HADOOP-7256](#): Resource leak during failure scenario of closing of resources.
- [HADOOP-7713](#): dfs -count -q should label output column
- [HADOOP-7713](#): dfs -count -q should label output column .
- [HADOOP-7817](#): RawLocalFileSystem.append() should give FSDataOutputStream with accurate .getPos()
- [HADOOP-7930](#): Kerberos relogin interval in UserGroupInformation should be configurable
- [HADOOP-8151](#): Error handling in snappy decompressor throws invalid exceptions.
- [HADOOP-8436](#): NPE In getLocalPathForWrite
- [HADOOP-8437](#): getLocalPathForWrite should throw IOException for invalid paths.
- [HADOOP-8751](#): NPE in Token.toString() when Token is constructed using null identifier.
- [HADOOP-8818](#): Use equals instead == in MD5MD5CRC32FileChecksum and TFileDumper.
- [HADOOP-8934](#): Shell command ls should include sort options
- [HADOOP-9121](#): InodeTree.java has redundant check for vName while throwing exception.
- [HADOOP-9242](#): Duplicate surefire plugin config in hadoop-common.
- [HADOOP-9477](#): Add posixGroups support for LDAP groups mapping service.
- [HADOOP-10035](#): Cleanup TestFilterFileSystem.
- [HADOOP-10048](#): LocalDirAllocator should avoid holding locks while accessing the filesystem.
- [HADOOP-10300](#): Allowed deferred sending of call responses.
- [HADOOP-10365](#): BufferedOutputStream in FileUtil#unpackEntries() should be closed in finally block.
- [HADOOP-10406](#): TestIPC.testIpcWithReaderQueuing may fail.

- [HADOOP-10597](#): RPC Server signals backoff to clients when all request queues are full.
- [HADOOP-10597](#): RPC Server signals backoff to clients when all request queues are full.
- [HADOOP-1062](#): added hadoop-azure-datalake and azure-data-lake-store-sdk to all the wasb locations.
- [HADOOP-10775](#): Shell operations to fail with meaningful errors on windows if winutils.exe not found.
- [HADOOP-10823](#): TestReloadingX509TrustManager is flaky.
- [HADOOP-10965](#): Print fully qualified path in CommandWithDestination error messages.
- [HADOOP-10971](#): Add -C flag to make `hadoop fs -ls` print filenames only.
- [HADOOP-11031](#): Design Document for Credential Provider API.
- [HADOOP-11098](#): [JDK8] Max Non Heap Memory default changed between JDK7 and 8.
- [HADOOP-11212](#): NetUtils.wrapException to handle SocketException explicitly.
- [HADOOP-11218](#): Add TLSv1.1, TLSv1.2 to KMS, HttpFS, SSLFactory.
- [HADOOP-11252](#): RPC client does not time out by default
- [HADOOP-11262](#): Enable YARN to use S3A.
- [HADOOP-11361](#): Fix a race condition in MetricsSourceAdapter.updateJmxCache.
- [HADOOP-11404](#): Clarify the "expected client Kerberos principal is null" authorization message.
- [HADOOP-11491](#): HarFs incorrectly declared as requiring an authority.
- [HADOOP-11581](#): Multithreaded correctness Warnings #org.apache.hadoop.fs.shell.Ls
- [HADOOP-11613](#): Remove commons-httpclient dependency from hadoop-azure.
- [HADOOP-11628](#): SPNEGO auth does not work with CNAMEs in JDK8.
- [HADOOP-11685](#): StorageException complaining "no lease ID" during HBase distributed log splitting.
- [HADOOP-11687](#): Ignore x-* and response headers when copying an Amazon S3 object.
- [HADOOP-11692](#): Improve authentication failure WARN message to avoid user confusion.
- [HADOOP-11713](#): ViewFileSystem should support snapshot methods.
- [HADOOP-11717](#): Add Redirecting WebSSO behavior with JWT Token in Hadoop Auth
- [HADOOP-11772](#): RPC Invoker relies on static ClientCache which has synchronized(this) blocks.
- [HADOOP-11780](#): Prevent IPC reader thread death.

- [HADOOP-11785](#): Reduce the number of listStatus operation in distcp buildListing
- [HADOOP-11802](#): DomainSocketWatcher thread terminates sometimes after there is an I/O error during requestShortCircuitShm
- [HADOOP-11812](#): Implement listLocatedStatus for ViewFileSystem to speed up split calculation
- [HADOOP-11827](#): Speed-up distcp buildListing() using threadpool
- [HADOOP-11859](#): PseudoAuthenticationHandler fails with httpcomponents v4.4.
- [HADOOP-11864](#): JWTRedirectAuthenticationHandler breaks java8 javadocs.
- [HADOOP-11876](#): Refactor code to make it more readable, minor maybePrintStats bug
- [HADOOP-11901](#): BytesWritable fails to support 2G chunks due to integer overflow.
- [HADOOP-11918](#): Listing an empty s3a root directory throws FileNotFoundException.
- [HADOOP-11924](#): Tolerate JDK-8047340-related exceptions in Shell#isSetSidAvailable preventing class init.
- [HADOOP-11932](#): MetricsSinkAdapter may hang when being stopped.
- [HADOOP-11960](#): Enable Azure-Storage Client Side logging.
- [HADOOP-12001](#): Fixed LdapGroupsMapping to include configurable Posix UID and GID attributes during the search.
- [HADOOP-12006](#): Remove unimplemented option for from document in branch-2.7.
- [HADOOP-12009](#): Clarify FileSystem.listStatus() sorting order & fix FileSystemContractBaseTest:testListStatus. backport to 2.8.
- [HADOOP-12017](#): Hadoop archives command should use configurable replication factor when closing
- [HADOOP-12043](#): Display warning if defaultFs is not set when running fs commands.
- [HADOOP-12045](#): Enable LocalFileSystem#setTimes to change atime.
- [HADOOP-12049](#): Control http authentication cookie persistence via configuration.
- [HADOOP-12052](#): IPC client downgrades all exception types to IOE, breaks callers trying to use them.
- [HADOOP-12054](#): RPC client should not retry for InvalidToken exceptions.
- [HADOOP-12056](#): Use DirectoryStream in DiskChecker#checkDirs to detect errors when listing a directory.
- [HADOOP-12058](#): Fix dead links to DistCp and Hadoop Archives pages.
- [HADOOP-12059](#): S3Credentials should support use of CredentialProvider.

- [HADOOP-12061](#): Incorrect command in single cluster setup document.
- [HADOOP-12073](#): Azure FileSystem PageBlobInputStream does not return -1 on EOF.
- [HADOOP-12074](#): in Shell.java#runCommand() rethrow InterruptedException as InterruptedIOException
- [HADOOP-12076](#): Incomplete Cache Mechanism in CredentialProvider API.
- [HADOOP-12089](#): StorageException complaining " no lease ID" when updating FolderLastModifiedTime in WASB.
- [HADOOP-12095](#): org.apache.hadoop.fs.shell.TestCount fails.
- [HADOOP-12097](#): Allow port range to be specified while starting webapp.
- [HADOOP-12100](#): ImmutableFsPermission should not override applyUmask since that method doesn't modify the FsPermission.
- [HADOOP-12103](#): Small refactoring of DelegationTokenAuthenticationFilter to allow code sharing.
- [HADOOP-12107](#): long running apps may have a huge number of StatisticsData instances under FileSystem
- [HADOOP-12119](#): hadoop fs -expunge does not work for federated namespace
- [HADOOP-12158](#): Improve error message in TestCryptoStreamsWithOpensslAesCtrCryptoCodec when OpenSSL is not installed.
- [HADOOP-12159](#): Move DistCpUtils#compareFs() to org.apache.hadoop.fs.FileUtil and fix for HA namespaces
- [HADOOP-12161](#): Add getStoragePolicy API to the FileSystem interface
- [HADOOP-12169](#): ListStatus on empty dir in S3A lists itself instead of returning an empty list. author: Pieter Reuse.
- [HADOOP-12185](#): NetworkTopology is not efficient adding/getting/removing nodes.
- [HADOOP-12186](#): ActiveStandbyElector shouldn't call monitorLockNodeAsync multiple times
- [HADOOP-12189](#): Improve CallQueueManager#swapQueue to make queue elements drop nearly impossible.
- [HADOOP-12191](#): Bzip2Factory is not thread safe.
- [HADOOP-12213](#): Interrupted exception can occur when Client#stop is called.
- [HADOOP-12229](#): Fix inconsistent subsection titles in filesystem.md.
- [HADOOP-12230](#): hadoop-project declares duplicate, conflicting curator dependencies.
- [HADOOP-12232](#): Upgrade Tomcat dependency to 6.0.44.

- [HADOOP-12239](#): StorageException complaining " no lease ID" when updating FolderLastModifiedTime in WASB.
- [HADOOP-12242](#): Add in-page TOC to filesystem specification pages.
- [HADOOP-12252](#): LocalDirAllocator should not throw NPE with empty string configuration.
- [HADOOP-12258](#): Need translate java.nio.file.NoSuchFileException to FileNotFoundException to avoid regression.
- [HADOOP-12259](#): Utility to Dynamic port allocation
- [HADOOP-12269](#): Update aws-sdk dependency to 1.10.6
- [HADOOP-12280](#): Skip unit tests based on maven profile rather than NativeCodeLoader.isNativeCodeLoaded
- [HADOOP-12284](#): UserGroupInformation doAs can throw misleading exception
- [HADOOP-12291](#): Add support for nested groups in LdapGroupsMapping.
- [HADOOP-12292](#): Make use of DeleteObjects optional.
- [HADOOP-12296](#): when setnetgrent returns 0 in linux, exception should be thrown.
- [HADOOP-12304](#): Applications using FileContext fail with the default file system configured to be wasb/s3/etc.
- [HADOOP-12317](#): Applications fail on NM restart on some linux distro because NM container recovery declares AM container as LOST
- [HADOOP-12324](#): Better exception reporting in SaslPlainServer.
- [HADOOP-12325](#): RPC Metrics : Add the ability track and log slow RPCs.
- [HADOOP-12334](#): Change Mode Of Copy Operation of HBase WAL Archiving to bypass Azure Storage Throttling after retries.
- [HADOOP-12345](#): Pad hostname correctly in CredentialsSys.java.
- [HADOOP-12346](#): Increase some default timeouts / retries for S3a connector.
- [HADOOP-12348](#): MetricsSystemImpl creates MetricsSourceAdapter with wrong time unit parameter.
- [HADOOP-12350](#): WASB Logging: Improve WASB Logging around deletes, reads and writes.
- [HADOOP-12358](#): Add -safely flag to rm to prompt when deleting many files.
- [HADOOP-12359](#): hadoop fs -getmerge doc is wrong.
- [HADOOP-12366](#): expose calculated paths.
- [HADOOP-12374](#): Description of hdfs expunge command is confusing.

- [HADOOP-12386](#): RetryPolicies.RETRY_FOREVER should be able to specify a retry interval.
- [HADOOP-12404](#): Disable caching for JarURLConnection to avoid sharing JarFile with other users when loading resource from URL in Configuration class.
- [HADOOP-12406](#): Fixed AbstractMapWritable.readFields to use the thread's ClassLoader to load class instead of System ClassLoader.
- [HADOOP-12407](#): Test failing: hadoop.ipc.TestSaslRPC.
- [HADOOP-12413](#): AccessControlList should avoid calling getGroupNames in isUserInList with empty groups.
- [HADOOP-12415](#): Add io.netty dependency to hadoop-nfs and to hadoop-hdfs, needed to build Bigtop successfully, see BIGTOP-2049.
- [HADOOP-12416](#): Trash messages should be handled by Logger instead of being delivered on System.out.
- [HADOOP-12416](#): Trash messages should be handled by Logger instead of being delivered on System.out.
- [HADOOP-12423](#): Handle failure of registering shutdownhook by ShutdownHookManager in static block
- [HADOOP-12426](#): Add Entry point for Kerberos health check.
- [HADOOP-12437](#): Allow SecurityUtil to lookup alternate hostnames.
- [HADOOP-12438](#): TestLocalFileSystem tests can fail on Windows after HDFS-8767 fix for handling pipe.
- [HADOOP-12440](#): TestRPC#testRPCServerShutdown did not produce the desired thread states before shutting down.
- [HADOOP-12441](#): Fixed kill-command behavior to work correctly across OSes by using bash shell built-in.
- [HADOOP-12442](#): Display help if the command option to 'hdfs dfs' is not valid
- [HADOOP-12444](#): Support lazy seek in S3AInputStream. Rajesh Balamohan via stevel.
- [HADOOP-12449](#): TestDNS and TestNetUtils failing if no network.
- [HADOOP-12453](#): Support decoding KMS Delegation Token with its own Identifier.
- [HADOOP-12457](#): [JDK8] Fix a failure of compiling common by javadoc.
- [HADOOP-12463](#): Fix TestShell.testGetSignalKillCommand failure on windows.
- [HADOOP-12464](#): Interrupted client may try to fail-over and retry.
- [HADOOP-12465](#): Incorrect javadoc in WritableUtils.java.
- [HADOOP-12469](#): distcp should not ignore the ignoreFailures option.

- [HADOOP-12472](#): Make GenericTestUtils.assertExceptionContains robust.
- [HADOOP-12478](#): Shell.getWinUtilsPath() has been renamed Shell.getWinutilsPath().
- [HADOOP-12481](#): JWTRedirectAuthenticationHandler doesn't Retain Original Query String.
- [HADOOP-12482](#): Race condition in JMX cache update.
- [HADOOP-12483](#): Maintain wrapped SASL ordering for postponed IPC responses.
- [HADOOP-12484](#): Single File Rename Throws Incorrectly In Potential Race Condition Scenarios.
- [HADOOP-12508](#): delete fails with exception when lease is held on blob.
- [HADOOP-12520](#): Use XInclude in hadoop-azure test configuration to isolate Azure Storage account keys for service integration tests.
- [HADOOP-12526](#): there are duplicate dependency definitions in pom's
- [HADOOP-12533](#): Introduce FileNotFoundException in WASB for read and seek API.
- [HADOOP-12535](#): Run FileSystem contract tests with hadoop-azure.
- [HADOOP-12537](#): S3A to support Amazon STS temporary credentials.
- [HADOOP-12540](#): TestAzureFileSystemInstrumentation#testClientErrorMetrics fails intermittently due to assumption that a lease error will be thrown.
- [HADOOP-12542](#): TestDNS fails on Windows after HADOOP-12437.
- [HADOOP-12545](#): Hadoop javadoc has broken links for AccessControlList, ImpersonationProvider, DefaultImpersonationProvider, and DistCp.
- [HADOOP-12548](#): Read s3a creds from a Credential Provider.
- [HADOOP-12551](#): Introduce FileNotFoundException for WASB FileSystem API
- [HADOOP-12555](#): WASB to read credentials from a credential provider.
- [HADOOP-12559](#): KMS connection failures should trigger TGT renewal.
- [HADOOP-12564](#): Upgrade JUnit3 TestCase to JUnit 4 in org.apache.hadoop.io package.
- [HADOOP-12565](#): Replace DSA with RSA for SSH key type in SingleCluster.md.
- [HADOOP-12568](#): Update core-default.xml to describe posixGroups support.
- [HADOOP-12570](#): HDFS Secure Mode Documentation updates.
- [HADOOP-12573](#): TestRPC.testClientBackOff failing.
- [HADOOP-12577](#): Bump up commons-collections version to 3.2.2 to address a security flaw.

- [HADOOP-12588](#): Fix intermittent test failure of TestGangliaMetrics.
- [HADOOP-12589](#): Fix intermittent test failure of TestCopyPreserveFlag
- [HADOOP-12590](#): TestCompressorDecompressor failing without stack traces
- [HADOOP-12602](#): TestMetricsSystemImpl#testQSize occasionally fails.
- [HADOOP-12603](#): TestSymlinkLocalFSFileContext#testSetTimesSymlinkToDir occasionally fail.
- [HADOOP-12604](#): Exception may be swallowed in KMSClientProvider.
- [HADOOP-12605](#): Fix intermittent failure of TestIPC.testIpcWithReaderQueuingi.
- [HADOOP-12608](#): Fix exception message in WASB when connecting with anonymous credential.
- [HADOOP-12609](#): Fix intermittent failure of TestDecayRpcScheduler.
- [HADOOP-12613](#): TestFind.processArguments occasionally fails.
- [HADOOP-12622](#): Improve the loggings in RetryPolicies and RetryInvocationHandler.
- [HADOOP-12634](#): Change Lazy Rename Pending Operation Completion of WASB to address case of potential data loss due to partial copy.
- [HADOOP-12635](#): Adding Append API support for WASB.
- [HADOOP-12636](#): Prevent ServiceLoader failure init for unused FileSystems.
- [HADOOP-12653](#): Use SO_REUSEADDR to avoid getting "Address already in use" when using kerberos and attempting to bind to any port on the local IP address.
- [HADOOP-12659](#): Incorrect usage of config parameters in token manager of KMS.
- [HADOOP-12663](#): Remove Hard-Coded Values From FileSystem.java.
- [HADOOP-12666](#): Support Microsoft Azure Data Lake - as a file system in Hadoop.
- [HADOOP-12667](#):s3a to support createNonRecursive API.
- [HADOOP-12668](#): Support excluding weak Ciphers in HttpServer2 through ssl- server.conf.
- [HADOOP-12672](#): RPC timeout should not override IPC ping interval
- [HADOOP-12675](#): Fix description about retention period in usage of expunge command.
- [HADOOP-12678](#): Handle empty rename pending metadata file during atomic rename in redo path.
- [HADOOP-12682](#): Fix TestKMS#testKMSRestart* failure.
- [HADOOP-12688](#): Fix deadlinks in Compatibility.md.
- [HADOOP-12689](#): S3 filesystem operations stopped working correctly

- [HADOOP-12691](#): Add CSRF Filter for REST APIs to Hadoop Common.
- [HADOOP-12691](#): Move files to correct location.
- [HADOOP-12696](#): Add tests for S3Filesystem Contract
- [HADOOP-12699](#): TestKMS#testKMSPProvider intermittently fails during 'test rollover draining'.
- [HADOOP-12700](#): Remove unused import in TestCompressorDecompressor.java.
- [HADOOP-12706](#): TestLocalFsFCStatistics#testStatisticsThreadLocalDataCleanUp times out occasionally.
- [HADOOP-12711](#): Remove dependency on commons-httpclient for ServletUtil
- [HADOOP-12715](#): TestValueQueue#testgetAtMostPolicyALL fails intermittently.
- [HADOOP-12716](#): KerberosAuthenticator#doSpnegoSequence use incorrect class to determine isKeyTab in JDK8.
- [HADOOP-12717](#): NPE when trying to rename a directory in Windows Azure Storage FileSystem.
- [HADOOP-12723](#):S3A: Add ability to plug in any AWSCredentialsProvider.
- [HADOOP-12731](#): Remove useless boxing/unboxing code.
- [HADOOP-12736](#): TestTimedOutTestsListener#testThreadDumpAndDeadlocks sometimes times out.
- [HADOOP-12738](#): Create unit test to automatically compare Common related classes and core-default.xml.
- [HADOOP-12751](#): While using kerberos Hadoop incorrectly assumes names with '@' to be non-simple.
- [HADOOP-12752](#): Improve diagnostics/use of envvar/sysprop credential propagation.
- [HADOOP-12758](#): Extend CSRF Filter with UserAgent Checks.
- [HADOOP-12761](#): incremental maven build is not really incremental
- [HADOOP-12765](#): HttpServer2 should switch to using the non-blocking SslSelectChannelConnector to prevent performance degradation when handling SSL connections.
- [HADOOP-12767](#): Update apache httpclient version to 4.5.2; httpcore to 4.4.4.
- [HADOOP-12772](#): NetworkTopologyWithNodeGroup.getNodeGroup() can loop infinitely for invalid 'loc' values.
- [HADOOP-12773](#): HBase classes fail to load with client/job classloader enabled
- [HADOOP-12774](#): s3a should use UGI.getCurrentUser.getShortname() for username.

- [HADOOP-12776](#): Remove getaclstatus call for non-acl commands in getfacl.
- [HADOOP-12780](#): During WASB atomic rename handle crash when one directory has been renamed but not file under it.
- [HADOOP-12782](#): Faster LDAP group name resolution with ActiveDirectory.
- [HADOOP-12786](#): "hadoop key" command usage is not documented.
- [HADOOP-12787](#): KMS SPNEGO sequence does not work with WEBHDFS.
- [HADOOP-12788](#): OpensslAesCtrCryptoCodec should log which random number generator is used.
- [HADOOP-12789](#): log classpath of ApplicationClassLoader at INFO level.
- [HADOOP-12792](#): TestUserGroupInformation#testGetServerSideGroups fails in chroot.
- [HADOOP-12793](#): Write a new group mapping service guide
- [HADOOP-12794](#): Support additional compression levels for GzipCodec.
- [HADOOP-12795](#): KMS does not log detailed stack trace for unexpected errors.
- [HADOOP-12800](#): Copy docker directory from 2.8 to 2.7/2.6 repos to enable pre-commit Jenkins runs.
- [HADOOP-12801](#): Suppress obsolete S3FileSystem tests.
- [HADOOP-12804](#): Read Proxy Password from Credential Providers in S3 FileSystem.
- [HADOOP-12805](#): Annotate CanUnbuffer with @InterfaceAudience.Public
- [HADOOP-12807](#): S3AFileSystem should read AWS credentials from environment variables.
- [HADOOP-12810](#): FileSystem#listLocatedStatus causes unnecessary RPC calls
- [HADOOP-12817](#): Enable TLS v1.1 and 1.2
- [HADOOP-12825](#): Log slow name resolutions.
- [HADOOP-12828](#): Print user when services are started.
- [HADOOP-12829](#): StatisticsDataReferenceCleaner swallows interrupt exceptions
- [HADOOP-12831](#): LocalFS/FSOutputSummer NPEs in constructor if bytes per checksum set to 0
- [HADOOP-12844](#): Recover when S3A fails on IOException in read().
- [HADOOP-12846](#): Credential Provider Recursive Dependencies.
- [HADOOP-12847](#): hadoop daemonlog should support https and SPNEGO for Kerberized cluster.

- [HADOOP-12849](#): TestSymlinkLocalFileSystem fails intermittently.
- [HADOOP-12851](#): S3AFileSystem Uptake of ProviderUtils.excludeIncompatibleCredentialProviders.
- [HADOOP-12853](#): Change WASB documentation regarding page blob support.
- [HADOOP-12870](#): Fix typo administration in CommandsManual.md.
- [HADOOP-12871](#): Fix dead link to NativeLibraries.html in CommandsManual.md.
- [HADOOP-12872](#): Fix formatting in ServiceLevelAuth.md.
- [HADOOP-12875](#): [Azure Data Lake] Support for contract test and unit test cases.
- [HADOOP-12878](#): KMS SPNEGO sequence does not work with WEBHDFS.
- [HADOOP-12886](#): Exclude weak ciphers in SSLFactory through ssl-server.xml.
- [HADOOP-12891](#): S3AFileSystem should configure Multipart Copy threshold and chunk size.
- [HADOOP-12893](#): Update LICENSE.txt and NOTICE.txt.
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- [HADOOP-12895](#): SSLFactory#createSSLSocketFactory exception message is wrong.
- [HADOOP-12901](#): Add warning log when KMSSClientProvider cannot create a connection to the KMS server.
- [HADOOP-12902](#): JavaDocs for SignerSecretProvider are out-of-date in AuthenticationFilter.
- [HADOOP-12903](#): IPC Server should allow suppressing exception logging by type,.
- [HADOOP-12903](#): IPC Server should allow suppressing exception logging by type, not log 'server too busy' messages.
- [HADOOP-12906](#): AuthenticatedURL should convert a 404/Not Found into an FileNotFoundException.
- [HADOOP-12916](#): Allow RPC scheduler/callqueue backoff using response times.
- [HADOOP-12926](#): lz4.c does not detect 64-bit mode properly.
- [HADOOP-12929](#): JWTRedirectAuthenticationHandler must accommodate null expiration time.
- [HADOOP-12943](#): Add -w -r options in dfs -test command.
- [HADOOP-12947](#): Update documentation Hadoop Groups Mapping to add static group mapping, negative cache.

- [HADOOP-12950](#): ShutdownHookManager should have a timeout for each of the Registered shutdown hook.
- [HADOOP-12954](#): Add a way to change `hadoop.security.token.service.use_ip`
- [HADOOP-12958](#): PhantomReference for filesystem statistics can trigger OOM.
- [HADOOP-12962](#): KMS key names are incorrectly encoded when creating key.
- [HADOOP-12963](#): Allow using path style addressing for accessing the s3 endpoint.
- [HADOOP-12964](#): Http server vulnerable to clickjacking.
- [HADOOP-12973](#): Make DU pluggable.
- [HADOOP-12975](#): Add jitter to CachingGetSpaceUsed's thread
- [HADOOP-12977](#): s3a to handle `delete("/", true)` robustly.
- [HADOOP-12982](#): Document missing S3A and S3 properties.
- [HADOOP-12984](#): Add `GenericTestUtils.getTestDir` method and use it for temporary directory in tests.
- [HADOOP-12985](#): Support MetricsSource interface for DecayRpcScheduler Metrics.
- [HADOOP-12989](#): Some tests in `org.apache.hadoop.fs.shell.find` occasionally time out.
- [HADOOP-12993](#): Change ShutdownHookManager complete shutdown log from INFO to DEBUG.
- [HADOOP-12994](#): Specify PositionedReadable, add contract tests, fix problems.
- [HADOOP-13008](#): Add XFS Filter for UIs to Hadoop Common.
- [HADOOP-13011](#): Clearly Document the Password Details for Keystore-based Credential Providers
- [HADOOP-13018](#): Make Kdiag check whether `hadoop.token.files` points to existent and valid files.
- [HADOOP-13024](#): Distcp with `-delete` feature on raw data not implemented.
- [HADOOP-13026](#): Should not wrap `IOExceptions` into a `AuthenticationException` in `KerberosAuthenticator`.
- [HADOOP-13028](#): add low level counter metrics for S3A; use in read performance tests.
- [HADOOP-13030](#): Handle special characters in passwords in KMS startup script.
- [HADOOP-13037](#): Refactor Azure Data Lake Store as an independent FileSystem.
- [HADOOP-13039](#): Add documentation for configuration property `ipc.maximum.data.length`
- [HADOOP-13042](#): Restore lost leveldbjni LICENSE and NOTICE changes.

- [HADOOP-13047](#):S3a Forward seek in stream length to be configurable.
- [HADOOP-13052](#): ChecksumFileSystem mishandles crc file permissions.
- [HADOOP-13058](#):S3A FS fails during init against a read-only FS if multipart purge.
- [HADOOP-13065](#): Add a new interface for retrieving FS and FC Statistics
- [HADOOP-13072](#): WindowsGetSpaceUsed constructor should be public
- [HADOOP-13079](#): Add -q option to Ls to print ? instead of non-printable characters.
- [HADOOP-13084](#): Fix ASF License warnings in branch-2.7.
- [HADOOP-13098](#): Dynamic LogLevel setting page should accept case-insensitive log level string.
- [HADOOP-13103](#): Group resolution from LDAP may fail on javax.naming.ServiceUnavailableException.
- [HADOOP-13105](#): Support timeouts in LDAP queries in LdapGroupsMapping.
- [HADOOP-13113](#):Enable parallel test execution for hadoop-aws. Chris Nauroth via stevel.
- [HADOOP-13116](#):Jets3tNativeS3FileSystemContractTest does not run.
- [HADOOP-13122](#):Customize User-Agent header sent in HTTP requests by S3A. Chris Nauroth via stevel.
- [HADOOP-13130](#): s3a failures can surface as RTEs, not IOEs.
- [HADOOP-13131](#): Add tests to verify that S3A supports SSE-S3 encryption.
- [HADOOP-13138](#): Unable to append to a SequenceFile with Compression.NONE.
- [HADOOP-13139](#):[Branch-2](#): S3a to use thread pool that blocks clients.
- [HADOOP-13140](#): FileSystem#initialize must not attempt to create StorageStatistics objects with null or empty schemes.
- [HADOOP-13145](#):In DistCp, prevent unnecessary getFileStatus call when not preserving metadata.
- [HADOOP-13146](#): Refactor RetryInvocationHandler.
- [HADOOP-13155](#): Implement TokenRenewer to renew and cancel delegation tokens in KMS.
- [HADOOP-13158](#):S3AFileSystem#toString might throw NullPointerException due to null cannedACL.
- [HADOOP-13159](#): Fix potential NPE in Metrics2 source for DecayRpcScheduler.
- [HADOOP-13162](#): Consider reducing number of getFileStatus calls in S3AFileSystem.mkdirs.

- [HADOOP-13163](#): Reuse pre-computed filestatus in Distcp-CopyMapper
- [HADOOP-13164](#): Optimize S3AFileSystem::deleteUnnecessaryFakeDirectories.
- [HADOOP-13168](#): Support Future.get with timeout in ipc async calls
- [HADOOP-13169](#): Randomize file list in SimpleCopyListing.
- [HADOOP-13171](#): Add StorageStatistics to S3A; instrument some more operations.
- [HADOOP-13179](#): GenericOptionsParser is not thread-safe because commons-cli OptionBuilder is not thread-safe.
- [HADOOP-13183](#): S3A proxy tests fail after httpclient/httpcore upgrade.
- [HADOOP-13188](#): S3A file-create should throw error rather than overwrite directories.
- [HADOOP-13192](#): org.apache.hadoop.util.LineReader cannot handle multibyte delimiters correctly.
- [HADOOP-13197](#): Add non-decayed call metrics for DecayRpcScheduler.
- [HADOOP-13202](#): Avoid possible overflow in org.apache.hadoop.util.bloom.BloomFilter#getNBytes.
- [HADOOP-13203](#): S3a: Consider reducing the number of connection aborts by setting correct length in s3 request.
- [HADOOP-13207](#): Specify FileSystem listStatus, listFiles and RemoteIterator.
- [HADOOP-13208](#): S3A listFiles(recursive=true) to do a bulk listObjects instead of walking the pseudo-tree of directories.
- [HADOOP-13212](#): Provide an option to set the socket buffers in S3AFileSystem
- [HADOOP-13213](#): Small Documentation bug with AuthenticatedURL in hadoop-auth.
- [HADOOP-13237](#): s3a initialization against public bucket fails if caller lacks any credentials.
- [HADOOP-13239](#): Deprecate s3:// in branch-2.
- [HADOOP-13241](#): document s3a better.
- [HADOOP-13242](#): Authenticate to Azure Data Lake using client ID and keys.
- [HADOOP-13244](#): o.a.h.ipc.Server#Server should honor handlerCount when queueSizePerHandler is specified in constructor.
- [HADOOP-13249](#): RetryInvocationHandler need wrap InterruptedException in IOException when call Thread.sleep.
- [HADOOP-13251](#): Authenticate with Kerberos credentials when renewing KMS delegation token.
- [HADOOP-13252](#): Tune S3A provider plugin mechanism.

- [HADOOP-13254](#): Create framework for configurable disk checkers
- [HADOOP-13255](#): KMSSClientProvider should check and renew tgt when doing delegation token operations.
- [HADOOP-13257](#): Improve Azure Data Lake contract tests.
- [HADOOP-13263](#): Reload cached groups in background after expiry.
- [HADOOP-13270](#): BZip2CompressionInputStream finds the same compression marker twice in corner case, causing duplicate data blocks.
- [HADOOP-13280](#): FileSystemStorageStatistics#getLong("readOps") should return readOps + largeReadOps
- [HADOOP-13283](#): Support reset operation for new global storage statistics and per FS storage stats.
- [HADOOP-13285](#): DecayRpcScheduler MXBean should only report decayed CallVolumeSummary.
- [HADOOP-13287](#): TestS3ACredentials#testInstantiateFromURL fails if AWS secret key contains +.
- [HADOOP-13288](#): Guard null stats key in FileSystemStorageStatistics
- [HADOOP-13290](#): Appropriate use of generics in FairCallQueue.
- [HADOOP-13291](#): Probing stats in DFSOpsCountStatistics/S3AStorageStatistics should be correctly implemented.
- [HADOOP-13299](#): JMXJsonServlet is vulnerable to TRACE.
- [HADOOP-13305](#): Define common statistics names across schemes.
- [HADOOP-13309](#): Document S3A known limitations in file ownership and permission model.
- [HADOOP-13315](#): FileContext#umask is not initialized properly.
- [HADOOP-13316](#): Enforce Kerberos authentication for required ops in DelegationTokenAuthenticator.
- [HADOOP-13320](#): Fix arguments check in documentation for WordCount v2.0.
- [HADOOP-13323](#): Downgrade stack trace on FS load from Warn to debug.
- [HADOOP-13324](#): s3a tests don't authenticate with S3 frankfurt
- [HADOOP-13336](#):S3A to support per-bucket configuration.
- [HADOOP-13350](#): Additional fix to LICENSE and NOTICE.
- [HADOOP-13351](#): TestDFSClientSocketSize buffer size tests are flaky

- [HADOOP-13352](#): Make X-FRAME-OPTIONS configurable in HttpServer2.
- [HADOOP-13353](#): LdapGroupsMapping getPassword shouldn't return null when IOException throws.
- [HADOOP-13354](#): Update WASB driver to use the latest version
- [HADOOP-13368](#): DFSOpsCountStatistics\$OpType#fromSymbol and s3a.Statistic#fromSymbol should be O(1) operation.
- [HADOOP-13381](#): KMS clients should use KMS Delegation Tokens from current UGI.
- [HADOOP-13382](#): Remove unneeded commons-httpclient dependencies from POM files in Hadoop and sub-projects, while adding it in to the only place it is still needed, HADOOP-openstack.
- [HADOOP-13387](#): users always get told off for using S3 —even when not using it.
- [HADOOP-13389](#): TestS3ATemporaryCredentials.testSTS error when using IAM credentials.
- [HADOOP-13392](#): [Azure Data Lake] OAuth2 configuration should be default set to true when AdlFileSystem is configured.
- [HADOOP-13393](#): Omit unsupported fs.defaultFS setting in ADLS documentation.
- [HADOOP-13403](#): AzureNativeFileSystem rename/delete performance improvements.
- [HADOOP-13405](#): doc for fs.s3a.acl.default indicates incorrect values.
- [HADOOP-13406](#): S3AFileSystem: Consider reusing filestatus in delete() and mkdirs().
- [HADOOP-13422](#): ZKDelegationTokenSecretManager JaasConfig does not work well with other ZK users in process.
- [HADOOP-13433](#): Race in UGI.reloginFromKeytab.
- [HADOOP-13434](#): Add quoting to Shell class.
- [HADOOP-13443](#): KMS should check the type of underlying keyprovider of KeyProviderExtension before falling back to default.
- [HADOOP-13446](#): Support running isolated unit tests separate from AWS integration tests.
- [HADOOP-13447](#): Refactor S3AFileSystem to support introduction of separate metadata repository and tests.
- [HADOOP-13458](#): LoadBalancingKMSClientProvider#doOp should log IOException stacktrace.
- [HADOOP-13459](#): hadoop-azure runs several test cases repeatedly, causing unnecessarily long running time.
- [HADOOP-13461](#): NPE in KeyProvider.rollNewVersion.

- [HADOOP-13466](#): Add an AutoCloseableLock class.
- [HADOOP-13467](#): Shell#getSignalKillCommand should use the bash builtin on Linux.
- [HADOOP-13470](#): GenericTestUtils\$LogCapturer is flaky.
- [HADOOP-13494](#): ReconfigurableBase can log sensitive information.
- [HADOOP-13502](#): Split fs.contract.is-blobstore flag into more descriptive flags for use by contract tests.
- [HADOOP-13512](#): ReloadingX509TrustManager should keep reloading in case of exception.
- [HADOOP-13513](#): Java 1.7 support for org.apache.hadoop.fs.azure testcases.
- [HADOOP-13535](#): Add jetty6 acceptor startup issue workaround to branch-2.
- [HADOOP-13540](#):improve section on troubleshooting s3a auth problems.
- [HADOOP-13541](#):explicitly declare the Joda time version S3A depends on.
- [HADOOP-13546](#): Override equals and hashCode to avoid connection leakage
- [HADOOP-13552](#): RetryInvocationHandler logs all remote exceptions.
- [HADOOP-13552](#): RetryInvocationHandler logs all remote exceptions.
- [HADOOP-13558](#): UserGroupInformation created from a Subject incorrectly tries to renew the Kerberos ticket.
- [HADOOP-13560](#): S3ABlockOutputStream to support huge
- [HADOOP-13565](#): KerberosAuthenticationHandler#authenticate should not rebuild SPN based on client request.
- [HADOOP-13590](#): Retry until TGT expires even if the UGI renewal thread encountered exception.
- [HADOOP-13599](#): s3a close() to be non-synchronized, so avoid risk of deadlock on shutdown.
- [HADOOP-13614](#): Purge some superfluous/obsolete S3 FS tests that are slowing test runs down.
- [HADOOP-13638](#): KMS should set UGI's Configuration object properly.
- [HADOOP-13674](#): S3A can provide a more detailed error message when accessing a bucket through an incorrect S3 endpoint.
- [HADOOP-13675](#): Bug in return value for delete() calls in WASB.
- [HADOOP-13680](#): fs.s3a.readahead.range to use getLongBytes.
- [HADOOP-13686](#): Adding additional unit test for Trash

- [HADOOP-13692](#): hadoop-aws should declare explicit dependency on Jackson 2 jars to prevent classpath conflicts.
- [HADOOP-13707](#): If kerberos is enabled while HTTP SPNEGO is not configured, some links cannot be accessed.
- [HADOOP-13710](#): Suppress CachingGetSpaceUsed from logging interrupted exception stacktrace.
- [HADOOP-13716](#): Add LambdaTestUtils class for tests; fix eventual consistency problem in contract test setup.
- [HADOOP-13727](#): S3A: Reduce high number of connections to EC2 Instance Metadata Service caused by InstanceProfileCredentialsProvider.
- [HADOOP-13735](#): ITestS3AFileContextStatistics.testStatistics() failing.
- [HADOOP-13737](#): Cleanup DiskChecker interface.
- [HADOOP-13738](#): DiskChecker should perform some disk IO.
- [HADOOP-13742](#): Expose NumOpenConnectionsPerUser as a metric. Brahma Reddy Battula.
- [HADOOP-13749](#): KMSClientProvider combined with KeyProviderCache can result in wrong UGI being used.
- [HADOOP-13782](#): Make MutableRates metrics thread-local write, aggregate-on-read.
- [HADOOP-13792](#): Stackoverflow for schemeless defaultFS with trailing slash.
- [HADOOP-13801](#): regression: ITestS3AMiniYarnCluster failing.
- [HADOOP-13804](#): MutableStat mean loses accuracy if add(long, long) is used.
- [HADOOP-13822](#): Use GlobalStorageStatistics.INSTANCE.reset() at FileSystem#clearStatistics(). Contribute by Brahma Reddy Battula .
- [HADOOP-13823](#): s3a rename: fail if dest file exists.
- [HADOOP-13824](#): FsShell can suppress the real error if no error message is present.
- [HADOOP-13826](#): S3A Deadlock in multipart copy due to thread pool limits.
- [HADOOP-13830](#): Intermittent failure of ITestS3NContractRootDir.testRecursiveRootListing "Can not create a Path from an empty string".
- [HADOOP-13831](#): Correct check for error code to detect Azure Storage Throttling and provide retries.
- [HADOOP-13838](#): KMSTokenRenewer should close providers
- [HADOOP-13847](#): KMSWebApp should close KeyProviderCryptoExtension.
- [HADOOP-13855](#): Fix a couple of the s3a statistic names to be consistent with the rest.

- [HADOOP-13857](#): S3AUtils.translateException to map
- [HADOOP-13863](#): Azure: Add a new SAS key mode for WASB.
- [HADOOP-13871](#):
ITestS3AInputStreamPerformance.testTimeToOpenAndReadWholeFileBlocks
performance awful.
- [HADOOP-13890](#): Maintain HTTP/host as SPNEGO SPN support and fix KerberosName
parsing.
- [HADOOP-13930](#): Azure: Add Authorization support to WASB.
- [HADOOP-13945](#): Azure: Add Kerberos and Delegation token support to WASB client.
- [HADOOP-13956](#): Read ADLS credentials from Credential Provider.
- [HADOOP-13962](#): Update ADLS SDK to 2.1.4.
- [HADOOP-13988](#): KMSSClientProvider does not work with WebHDFS and Apache Knox w/
ProxyUser.
- [HADOOP-14017](#): User friendly name for ADLS user and group.
- [HADOOP-14019](#): Fix some typos in the s3a docs.
- [HADOOP-14028](#): S3A BlockOutputStreams doesn't delete temporary files in multipart
uploads or handle part upload failures.
- [HADOOP-14029](#): Fix KMSSClientProvider for non-secure proxyuser use case.
- [HADOOP-14048](#): REDO operation of WASB#AtomicRename should create placeholder
blob for destination folder.
- [HADOOP-14049](#): Honour AclBit flag associated to file/folder permission for Azure
datalake account.
- [HADOOP-14055](#): SwiftRestClient includes pass length in exception if auth fails.
- [HADOOP-14081](#):S3A: Consider avoiding array copy in S3ABlockOutputStream
- [HADOOP-14091](#): AbstractFileSystem implementaion for 'wasbs' scheme. Contributed
Varada Hemeswari.
- [HADOOP-14100](#): Upgrade Jsch jar to latest version to fix vulnerability in old versions.
- [HADOOP-14138](#):Remove S3A ref from META-INF service discovery, rely on existing core-
default entry.
- [HADOOP-14150](#): Implement getHomeDirectory() method in NativeAzureFileSystem.
- [HADOOP-14214](#): DomainSocketWatcher::add()/delete() should not self interrupt while
looping await().
- [HDFS-2043](#): TestHFlush failing intermittently.

- [HDFS-2580](#): NameNode#main(...) can make use of GenericOptionsParser.
- [HDFS-27](#): HDFS CLI with `-config` set to default config complains log file not found error.
- [HDFS-3677](#): `dfs.namenode.edits.dir.required` is missing from `hdfs-default.xml`.
- [HDFS-3918](#): EditLogTailer shouldn't log WARN when other node is in standby mode.
- [HDFS-4015](#): Safemode should count and report orphaned blocks.
- [HDFS-4176](#): EditLogTailer should call `rollEdits` with a timeout.
- [HDFS-4185](#): Add a metric for number of active leases
- [HDFS-4366](#): Block Replication Policy Implementation May Skip Higher-Priority Blocks for Lower-Priority Blocks.
- [HDFS-4396](#): Add `START_MSG`/`SHUTDOWN_MSG` for ZKFC
- [HDFS-4937](#): ReplicationMonitor can infinite-loop in `BlockPlacementPolicyDefault#chooseRandom`.
- [HDFS-4946](#): Allow `preferLocalNode` in `BlockPlacementPolicyDefault` to be configurable.
- [HDFS-5640](#): Add snapshot methods to `FileContext`.
- [HDFS-6054](#): `MiniQJMHACluster` should not use static port to avoid binding failure in unit test.
- [HDFS-6101](#): `TestReplaceDatanodeOnFailure` fails occasionally.
- [HDFS-6184](#): Capture NN's thread dump when it fails over.
- [HDFS-6407](#): Add sorting and pagination in the datanode tab of the NN Web UI.
- [HDFS-6481](#): `DatanodeManager#getDatanodeStorageInfos()` should check the length of `storageIds`.
- [HDFS-6533](#): `TestBPOfferService#testBasicFunctionalitytest` fails intermittently.
- [HDFS-6581](#): Support for writing to single replica in RAM. Applied `HDFS-6581.merge.15.patch` to Champlain. This is a consolidated patch containing all feature changes and was applied to trunk.
- [HDFS-6666](#): Abort NameNode and DataNode startup if security is enabled but block access token is not enabled.
- [HDFS-6763](#): Initialize file system-wide quota once on transitioning to active
- [HDFS-6832](#): Fix the usage of 'hdfs namenode' command.
- [HDFS-6860](#): `BlockStateChange` logs are too noisy.
- [HDFS-6945](#): `BlockManager` should remove a block from `excessReplicateMap` and decrement `ExcessBlocks` metric when the block is removed.

- [HDFS-7163](#): WebHdfsFileSystem should retry reads according to the configured retry policy.
- [HDFS-7166](#): SbNN Web UI shows #Under replicated blocks and #pending deletion blocks.
- [HDFS-7284](#): Add more debug info to BlockInfoUnderConstruction#setGenerationStampAndVerifyReplicas.
- [HDFS-7314](#): When the DFSClient lease cannot be renewed, abort open-for- write files rather than the entire DFSClient.
- [HDFS-7390](#): Provide JMX metrics per storage type.
- [HDFS-7452](#): skip StandbyException log for getCorruptFiles()
- [HDFS-7483](#): Display information per tier on the Namenode UI.
- [HDFS-7597](#): DelegationTokenIdentifier should cache the TokenIdentifier to UGI mapping.
- [HDFS-7608](#): hdfs dfsclient newConnectedPeer has no write timeout
- [HDFS-7609](#): Avoid retry cache collision when Standby NameNode loading edits.
- [HDFS-7645](#): Rolling upgrade is restoring blocks from trash multiple times
- [HDFS-7701](#): Support reporting per storage type quota and usage with hadoop/hdfs shell.
- [HDFS-7725](#): Incorrect "nodes in service" metrics caused all writes to fail.
- [HDFS-7758](#): Retire FsDatasetSpi#getVolumes() and use FsDatasetSpi#getVolumeRefs() instead
- [HDFS-7890](#): Improve information on Top users for metrics in RollingWindowsManager and lower log level.
- [HDFS-7923](#): The DataNodes should rate-limit their full block reports by asking the NN on heartbeat messages
- [HDFS-7928](#): Scanning blocks from disk during rolling upgrade startup takes a lot of time if disks are busy.
- [HDFS-7933](#): fsck should also report decommissioning replicas.
- [HDFS-7964](#): Add support for async edit logging.
- [HDFS-7978](#): Add LOG.isDebugEnabled() guard for some LOG.debug(..).
- [HDFS-7990](#): IBR delete ack should not be delayed.
- [HDFS-8008](#): Support client-side back off when the datanodes are congested.
- [HDFS-8008](#): Support client-side back off when the datanodes are congested.
- [HDFS-8009](#): Signal congestion on the DataNode.
- [HDFS-8009](#): Signal congestion on the DataNode.

- [HDFS-8046](#): Allow better control of getContentSummary
- [HDFS-8055](#): NullPointerException when topology script is missing.
- [HDFS-8071](#): (Contributed by Tsz Wo Nicholas Sze).
- [HDFS-8099](#): Change "DFSInputStream has been closed already" message to debug log level.
- [HDFS-8101](#): DFSClient use of non-constant DFSConfigKeys pulls in WebHDFS classes at runtime.
- [HDFS-8113](#): Add check for null BlockCollection pointers in BlockInfoContiguous structures.
- [HDFS-8131](#): Implement a space balanced block placement policy.
- [HDFS-8144](#): Split TestLazyPersistFiles into multiple tests.
- [HDFS-8152](#): Refactoring of lazy persist storage cases.
- [HDFS-8155](#): Support OAuth2 in WebHDFS.
- [HDFS-8180](#): AbstractFileSystem Implementation for WebHdfs.
- [HDFS-8205](#): CommandFormat#parse() should not parse option as value of option.
- [HDFS-8209](#): Support different number of datanode directories in MiniDFSCluster.
- [HDFS-8211](#): DataNode UUID is always null in the JMX counter.
- [HDFS-8219](#): setStoragePolicy with folder behavior is different after cluster restart.
- [HDFS-8224](#): Schedule a block for scanning if its metadata file is corrupt.
- [HDFS-8229](#): LAZY_PERSIST file gets deleted after NameNode restart.
- [HDFS-8232](#): Missing datanode counters when using Metrics2 sink interface.
- [HDFS-8247](#): TestDiskSpaceQuotaUpdate#testAppendOverTypeQuota is failing.
- [HDFS-8276](#): LazyPersistFileScrubber should be disabled if scrubber interval configured zero.
- [HDFS-8278](#): When computing max-size-to-move in Balancer, count only the storage with remaining \geq default block size.
- [HDFS-8309](#): Skip unit test using DataNodeTestUtils#injectDataDirFailure() on Windows.
- [HDFS-8310](#): Fix TestCLI.testAll "help: help for find" on Windows.
- [HDFS-8311](#): DataStreamer.transfer() should timeout the socket InputStream.
- [HDFS-8337](#): Accessing https via webhdfs doesn't work from a jar with kerberos.
- [HDFS-8345](#): Storage policy APIs must be exposed via the FileSystem interface.

- [HDFS-8384](#): Allow NN to startup if there are files having a lease but are not under construction.
- [HDFS-8431](#): hdfs crypto class not found in Windows.
- [HDFS-8432](#): Introduce a minimum compatible layout version to allow downgrade in more rolling upgrade use cases.
- [HDFS-8435](#): Support CreateFlag in WebHDFS.
- [HDFS-8492](#): DN should notify NN when client requests a missing block
- [HDFS-8539](#): Hdfs doesnt have class 'debug' in windows.
- [HDFS-8542](#): WebHDFS getHomeDirectory behavior does not match specification.
- [HDFS-8546](#): Use try with resources in DataStorage and Storage.
- [HDFS-8548](#): Minicluster throws NPE on shutdown.
- [HDFS-8549](#): Abort the balancer if an upgrade is in progress.
- [HDFS-8554](#): TestDatanodeLayoutUpgrade fails on Windows.
- [HDFS-8573](#): Move creation of restartMeta file logic from BlockReceiver to ReplicaInPipeline.
- [HDFS-8578](#): On upgrade, Datanode should process all storage/data dirs in parallel.
- [HDFS-8581](#): ContentSummary on / skips further counts on yielding lock
- [HDFS-8593](#): Calculation of effective layout version mishandles comparison to current layout version in storage.
- [HDFS-8615](#): Correct HTTP method in WebHDFS document.
- [HDFS-8633](#): Fix setting of dfs.datanode.readahead.bytes in hdfs-default.xml to match DFSConfigKeys.
- [HDFS-8642](#): Make TestFileTruncate more reliable.
- [HDFS-8647](#): Abstract BlockManager's rack policy into BlockPlacementPolicy.
- [HDFS-8656](#): Preserve compatibility of ClientProtocol#rollingUpgrade after finalization.
- [HDFS-8659](#): Block scanner INFO message is spamming logs.
- [HDFS-8674](#): Improve performance of postponed block scans.
- [HDFS-8676](#): Delayed rolling upgrade finalization can cause heartbeat expiration.
- [HDFS-8696](#): Make the lower and higher watermark in the DN Netty server configurable.
- [HDFS-8709](#): Clarify automatic sync in FSEditLog#logEdit.
- [HDFS-8722](#): Optimize datanode writes for small writes and flushes.

- [HDFS-8729](#): Fix TestFileTruncate#testTruncateWithDataNodesRestartImmediately which occasionally failed.
- [HDFS-8767](#): RawLocalFileSystem.listStatus() returns null for UNIX pipefile.
- [HDFS-8772](#): Fix TestStandbyIsHot#testDatanodeRestarts which occasionally fails.
- [HDFS-8778](#): TestBlockReportRateLimiting#testLeaseExpiration can deadlock.
- [HDFS-8785](#): TestDistributedFileSystem is failing in trunk.
- [HDFS-8792](#): BlockManager#postponedMisreplicatedBlocks should use a LightweightHashSet to save memory.
- [HDFS-8797](#): WebHdfsFileSystem creates too many connections for pread.
- [HDFS-8806](#): Inconsistent metrics: number of missing blocks with replication factor 1 not properly cleared
- [HDFS-8809](#): HDFS fsck reports under construction blocks as CORRUPT.
- [HDFS-8815](#): DFS getStoragePolicy implementation using single RPC call
- [HDFS-8816](#): Improve visualization for the Datanode tab in the NN UI.
- [HDFS-8818](#): Changes the global moveExecutor to per datanode executors and changes MAX_SIZE_TO_MOVE to be configurable.
- [HDFS-8824](#): Do not use small blocks for balancing the cluster.
- [HDFS-8826](#): In Balancer, add an option to specify the source node list so that balancer only selects blocks to move from those nodes.
- [HDFS-8828](#): Utilize Snapshot diff report to build diff copy list in distcp.
- [HDFS-8829](#): Make SO_RCVBUF and SO_SNDBUF size configurable for DataTransferProtocol sockets and allow configuring auto-tuning.
- [HDFS-8831](#): Trash Support for deletion in HDFS encryption zone.
- [HDFS-8844](#): TestHDFSCLI does not cleanup the test directory
- [HDFS-8845](#): DiskChecker should not traverse the entire tree
- [HDFS-8846](#): Add a unit test for INotify functionality across a layout version upgrade
- [HDFS-8850](#): VolumeScanner thread exits with exception if there is no block pool to be scanned but there are suspicious blocks.
- [HDFS-8852](#): HDFS architecture documentation of version 2.x is outdated about append write support.
- [HDFS-8855](#): Webhdfs client leaks active NameNode connections.
- [HDFS-8856](#): Make LeaseManager#countPath O(1).

- [HDFS-8859](#): Improve DataNode ReplicaMap memory footprint to save about 45%.
- [HDFS-8860](#): Remove unused Replica copyOnWrite code
- [HDFS-8863](#): The remaining space check in BlockPlacementPolicyDefault is flawed.
- [HDFS-8867](#): Enable optimized block reports.
- [HDFS-8879](#): Quota by storage type usage incorrectly initialized upon namenode restart.
- [HDFS-8880](#): NameNode metrics logging.
- [HDFS-8883](#): NameNode Metrics : Add FSNameSystem lock Queue Length.
- [HDFS-8884](#): Fail-fast check in BlockPlacementPolicyDefault#chooseTarget.
- [HDFS-8885](#): ByteRangeInputStream used in webhdfs does not override available().
- [HDFS-8887](#): Expose storage type and storage ID in BlockLocation.
- [HDFS-8891](#): HDFS concat should keep srcs order.
- [HDFS-8896](#): DataNode object isn't GCed when shutdown, because it has GC root in ShutdownHookManager.
- [HDFS-8898](#): Create API and command-line argument to get quota and quota usage without detailed content summary.
- [HDFS-8911](#): NameNode Metric : Add Editlog counters as a JMX metric.
- [HDFS-8914](#): Document HA support in the HDFS HdfsDesign.md.
- [HDFS-8923](#): Add -source flag to balancer usage message.
- [HDFS-8930](#): Block report lease may leak if the 2nd full block report comes when NN is still in safemode
- [HDFS-8932](#): NPE thrown in NameNode when try to get TotalSyncCount metric before editLogStream initialization.
- [HDFS-8939](#): Test(S)WebHdfsFileContextMainOperations failing on branch-2.
- [HDFS-8946](#): Improve choosing datanode storage for block placement.
- [HDFS-8950](#): NameNode refresh doesn't remove DataNodes that are no longer in the allowed list.
- [HDFS-8964](#): When validating the edit log, do not read at or beyond the file offset that is being written
- [HDFS-8965](#): Harden edit log reading code against out of memory errors
- [HDFS-8969](#): Clean up findbugs warnings for HDFS-8823 and HDFS-8932.
- [HDFS-8969](#): Clean up findbugs warnings for HDFS-8823 and HDFS-8932.

- [HDFS-8983](#): NameNode support for protected directories.
- [HDFS-8983](#): NameNode support for protected directories.
- [HDFS-8995](#): Flaw in registration bookkeeping can make DN die on reconnect.
- [HDFS-9008](#): Balancer#Parameters class could use a builder pattern.
- [HDFS-9008](#): was not backported correctly.
- [HDFS-9009](#): Send metrics logs to NullAppender by default.
- [HDFS-9019](#): Adding informative message to sticky bit permission denied exception.
- [HDFS-9033](#): dfsadmin -metasave prints "NaN" for cache used%.
- [HDFS-9038](#): DFS reserved space is erroneously counted towards non-DFS used.
- [HDFS-9042](#): Update document for the Storage policy name
- [HDFS-9043](#): Doc updation for commands in HDFS Federation
- [HDFS-9047](#): Retire libwebhdfs.
- [HDFS-9048](#): DistCp documentation is out-of-dated
- [HDFS-9063](#): Correctly handle snapshot path for getContentSummary.
- [HDFS-9072](#): Fix random failures in TestJMXGet.
- [HDFS-9082](#): Change the log level in WebHdfsFileSystem.initialize() from INFO to DEBUG.
- [HDFS-9083](#): Replication violates block placement policy.
- [HDFS-9106](#): Transfer failure during pipeline recovery causes permanent write failures.
- [HDFS-9107](#): Prevent NNs unrecoverable death spiral after full GC
- [HDFS-9112](#): Improve error message for Haadmin when multiple name service IDs are configured.
- [HDFS-9128](#): TestWebHdfsFileContextMainOperations and TestSWebHdfsFileContextMainOperations fail due to invalid HDFS path on Windows.
- [HDFS-9130](#): Use GenericTestUtils#setLogLevel to the logging level.
- [HDFS-9137](#): should be backported correctly.
- [HDFS-9142](#): Separating Configuration object for namenode(s) in MiniDFSCluster.
- [HDFS-9145](#): Tracking methods that hold FSNamesystemLock for too long.
- [HDFS-9148](#): Incorrect assert message in TestWriteToReplica#testWriteToTemporary
- [HDFS-9175](#): Change scope of 'AccessTokenProvider.getAccessToken()' and 'CredentialBasedAccessTokenProvider.getCredential()' abstract methods to public.

- [HDFS-9178](#): Slow datanode I/O can cause a wrong node to be marked bad.
- [HDFS-9184](#): Logging HDFS operation's caller context into audit logs.
- [HDFS-9198](#): Coalesce IBR processing in the NN.
- [HDFS-9205](#): Do not schedule corrupt blocks for replication.
- [HDFS-9210](#): Fix some misuse of %n in VolumeScanner#printStats.
- [HDFS-9220](#): Reading small file
- [HDFS-9221](#): HdfsServerConstants#ReplicaState#getState should avoid calling values() since it creates a temporary array.
- [HDFS-9226](#): Unit Tests failing due to mockito version issue.
- [HDFS-9239](#): DataNode Lifeline Protocol: an alternative protocol for reporting DataNode liveness.
- [HDFS-9251](#): Refactor TestWriteToReplica and TestFsDatasetImpl to avoid explicitly creating Files in the tests code.
- [HDFS-9259](#): Make SO_SNDBUF size configurable at DFSCClient side for hdfs write scenario.
- [HDFS-9264](#): Minor cleanup of operations on FsVolumeList#volumes.
- [HDFS-9273](#): ACLs on root directory may be lost after NN restart.
- [HDFS-9276](#): Failed to Update HDFS Delegation Token for long running application in HA mode.
- [HDFS-9289](#): Make DataStreamer#block thread safe and verify genStamp in commitBlock.
- [HDFS-9290](#): DFSCClient#callAppend() is not backward compatible for slightly older NameNodes.
- [HDFS-9294](#): DFSCClient deadlock when close file and failed to renew lease.
- [HDFS-9305](#): Delayed heartbeat processing causes storm of subsequent heartbeats.
- [HDFS-9311](#): Support optional offload of NameNode HA service health checks to a separate RPC server.
- [HDFS-9313](#): Possible NullPointerException in BlockManager if no excess replica can be chosen.
- [HDFS-9314](#): Improve BlockPlacementPolicyDefault's picking of excess replicas.
- [HDFS-9317](#): Document fsck -blockId and -storagepolicy options in branch-2.7.
- [HDFS-9343](#): Empty caller context considered invalid.
- [HDFS-9347](#): Invariant assumption in TestQuorumJournalManager.shutdown() is wrong
- [HDFS-9350](#): Avoid creating temporary strings in Block.toString() and getBlockName()

- [HDFS-9354](#): Fix TestBalancer#testBalancerWithZeroThreadsForMove on Windows.
- [HDFS-9358](#): TestNodeCount#testNodeCount timed out.
- [HDFS-9362](#): TestAuditLogger#testAuditLoggerWithCallContext assumes Unix line endings, fails on Windows.
- [HDFS-9364](#): Unnecessary DNS resolution attempts when creating NameNodeProxies.
- [HDFS-9383](#): TestByteArrayManager#testByteArrayManager fails.
- [HDFS-9384](#): TestWebHdfsContentLength intermittently hangs and fails due to TCP conversation mismatch between client and server.
- [HDFS-9395](#): Make HDFS audit logging consistant.
- [HDFS-9397](#): Fix typo for readChecksum() LOG.warn in BlockSender.java.
- [HDFS-9402](#): Switch DataNode.LOG to use slf4j.
- [HDFS-9406](#): FSImage may get corrupted after deleting snapshot.
- [HDFS-9412](#): getBlocks occupies FSLock and takes too long to complete.
- [HDFS-9413](#): getContentSummary() on standby should throw StandbyException.
- [HDFS-9415](#): Document dfs.cluster.administrators and dfs.permissions.superusergroup.
- [HDFS-9426](#): Rollingupgrade finalization is not backward compatible.
- [HDFS-9428](#): Fix intermittent failure of TestDNFencing.testQueueingWithAppend.
- [HDFS-9431](#): DistributedFileSystem#concat fails if the target path is relative.
- [HDFS-9434](#): Recommission a datanode with 500k blocks may pause NN for 30 seconds for printing info log messages.
- [HDFS-9445](#): Datanode may deadlock while handling a bad volume.
- [HDFS-9466](#): TestShortCircuitCache#testDataXceiverCleansUpSlotsOnFailure is flaky
- [HDFS-9467](#): Fix data race accessing writeLockHeldTimeStamp in FSNamesystem.
- [HDFS-9470](#): Encryption zone on root not loaded from fsimage after NN restart. Xiao Chen via wang.
- [HDFS-9476](#): TestDFSUpgradeFromImage#testUpgradeFromRel1BBWImage occasionally fail
- [HDFS-9478](#): Reason for failing ipc.FairCallQueue contruction should be thrown.
- [HDFS-9484](#): NNThroughputBenchmark\$BlockReportStats should not send empty block reports.
- [HDFS-9493](#): Test o.a.h.hdfs.server.namenode.TestMetaSave fails in trunk.

- [HDFS-9500](#): Fix software version counts for DataNodes during rolling upgrade.
- [HDFS-9505](#): HDFS Architecture documentation needs to be refreshed.
- [HDFS-9516](#): Truncate file fails with data dirs on multiple disks.
- [HDFS-9517](#): Fix missing @Test annotation on TestDistCpUtils.testUnpackAttributes
- [HDFS-9521](#): TransferFsImage.receiveFile should account and log separate times for image download and fsync to disk.
- [HDFS-9525](#): hadoop utilities need to support provided delegation tokens.
- [HDFS-9530](#): ReservedSpace is not cleared for abandoned Blocks
- [HDFS-9533](#): seen_txid in the shared edits directory is modified during bootstrapping.
- [HDFS-9534](#): Add CLI command to clear storage policy from a path.
- [HDFS-9549](#): TestCacheDirectives#testExceedsCapacity is flaky
- [HDFS-9555](#): LazyPersistFileScrubber should still sleep if there are errors in the clear progress.
- [HDFS-9557](#): Reduce object allocation in PB conversion.
- [HDFS-9566](#): Remove expensive 'BlocksMap#getStorages(Block b, final DatanodeStorage.State state)' method
- [HDFS-9569](#): Log the name of the fsimage being loaded for better supportability.
- [HDFS-9572](#): Prevent DataNode log spam if a client connects on the data transfer port but sends no data.
- [HDFS-9574](#): Reduce client failures during datanode restart.
- [HDFS-9584](#): NPE in distcp when ssl configuration file does not exist in class path.
- [HDFS-9589](#): Block files which have been hardlinked should be duplicated before the DataNode appends to the them
- [HDFS-9600](#): Do not check replication if the block is under construction.
- [HDFS-9605](#): Add links to failed volumes to explorer.html in HDFS Web UI.
- [HDFS-9608](#): Disk IO imbalance in HDFS with heterogeneous storages.
- [HDFS-9612](#): DistCp worker threads are not terminated after jobs are done.
- [HDFS-9618](#): Fix mismatch between log level and guard in BlockManager#computeRecoveryWorkForBlocks
- [HDFS-9619](#): SimulatedFSDataset sometimes can not find blockpool for the correct namenode
- [HDFS-9623](#): Update example configuration of block state change log in log4j.properties.

- [HDFS-9624](#): DataNode start slowly due to the initial DU command operations.
- [HDFS-9625](#): set replication for empty file failed when set storage policy
- [HDFS-9626](#): TestBlockReplacement#testBlockReplacement fails occasionally.
- [HDFS-9629](#): Update the footer of Web UI to show year 2016
- [HDFS-9630](#): DistCp minor refactoring and clean up.
- [HDFS-9634](#): webhdfs client side exceptions don't provide enough details.
- [HDFS-9638](#): to branch-2.7.
- [HDFS-9644](#): Update encryption documentation to reflect nested EZs.
- [HDFS-9655](#): NN should start JVM pause monitor before loading fsimage.
- [HDFS-9661](#): Deadlock in DN.FsDatasetImpl between moveBlockAcrossStorage moveBlockAcrossStorage and createRbw.
- [HDFS-9669](#): TcpPeerServer should respect ipc.server.listen.queue.size
- [HDFS-9670](#): DistCp throws NPE when source is root.
- [HDFS-9672](#): o.a.h.hdfs.TestLeaseRecovery2 fails intermittently
- [HDFS-9688](#): Test the effect of nested encryption zones in HDFS downgrade.
- [HDFS-9696](#): Garbage snapshot records linger forever.
- [HDFS-9701](#): DN may deadlock when hot-swapping under load.
- [HDFS-9706](#): Log more details in debug logs in BlockReceiver's constructor.
- [HDFS-9710](#): DN can be configured to send block receipt IBRs in batches.
- [HDFS-9711](#): Integrate CSRF prevention filter in WebHDFS.
- [HDFS-9713](#): DataXceiver#copyBlock should return if block is pinned.
- [HDFS-9715](#): Check storage ID uniqueness on datanode startup
- [HDFS-9721](#): Allow Delimited PB OIV tool to run upon fsimage that contains INodeReference
- [HDFS-9724](#): Degraded performance in WebHDFS listing as it does not reuse ObjectMapper.
- [HDFS-9726](#): Refactor IBR code to a new class.
- [HDFS-9730](#): Storage ID update does not happen when there is a layout change.
- [HDFS-9739](#): DatanodeStorage.isValidStorageId() is broken.
- [HDFS-9740](#): Use a reasonable limit in DFSTestUtil.waitForMetric().

- [HDFS-9743](#): Fix TestLazyPersistFiles#testFallbackToDiskFull in branch-2.7.
- [HDFS-9748](#): Avoid duplication in pendingReplications when addExpectedReplicasToPending is called twice.
- [HDFS-9752](#): Permanent write failures may happen to slow writers during datanode rolling upgrades
- [HDFS-9760](#): WebHDFS AuthFilter cannot be configured with custom AltKerberos auth handler
- [HDFS-9764](#): DistCp doesn't print value for several arguments including - numListstatusThreads.
- [HDFS-9765](#): TestBlockScanner#testVolumeliteratorWithCaching fails intermittently.
- [HDFS-9766](#): TestDataNodeMetrics#testDataNodeTimeSpend fails intermittently.
- [HDFS-9768](#): Reuse ObjectMapper instance in HDFS to improve the performance.
- [HDFS-9772](#): TestBlockReplacement#testThrottler doesn't work as expected.
- [HDFS-9777](#): Fix typos in DFSAdmin command line and documentation.(Wei-Chiu Chuang via umamahesh).
- [HDFS-9779](#): . TestReplicationPolicyWithNodeGroup NODE variable picks wrong rack value.
- [HDFS-9781](#): FsDatasetImpl#getBlockReports can occasionally throw NullPointerException.
- [HDFS-9784](#): Example usage is not correct in Transparent Encryption document.
- [HDFS-9790](#): HDFS Balancer should exit with a proper message if upgrade is not finalized
- [HDFS-9797](#): Log Standby exceptions thrown by RequestHedgingProxyProvider at DEBUG Level
- [HDFS-9799](#): Reimplement getCurrentTrashDir to remove incompatibility.
- [HDFS-9812](#): Streamer threads leak if failure happens when closing DFSOutputStream.
- [HDFS-9839](#): Reduce verbosity of processReport logging.
- [HDFS-9842](#): dfs.datanode.balance.bandwidthPerSec should accept friendly size units.
- [HDFS-9844](#): Correct path creation in getTrashRoot to handle root dir.
- [HDFS-9851](#): NameNode throws NPE when setPermission is called on a path that does not exist.
- [HDFS-9854](#): Log cipher suite negotiation more verbosely.
- [HDFS-9864](#): Correct reference for RENEWDELEGATIONTOKEN and CANCELDELEGATIONTOKEN in webhdfs doc.
- [HDFS-9865](#): TestBlockReplacement fails intermittently in trunk

- [HDFS-9871](#): "Bytes Being Moved" -ve(-1 B) when cluster was already balanced.
- [HDFS-9874](#): Long living DataXceiver threads cause volume shutdown to block.
- [HDFS-9880](#): TestDatanodeRegistration fails occasionally.
- [HDFS-9881](#): DistributedFileSystem#getTrashRoot returns incorrect path for encryption zones.
- [HDFS-9882](#): Add heartbeatsTotal in Datanode metrics.
- [HDFS-9902](#): Support different values of dfs.datanode.du.reserved per storage type.
- [HDFS-9904](#): testCheckpointCancellationDuringUpload occasionally fails.
- [HDFS-9905](#): WebHdfsFileSystem#runWithRetry should display original stack trace on error.
- [HDFS-9906](#): Remove spammy log spew when a datanode is restarted.
- [HDFS-9917](#): IBR accumulate more objects when SNN was down for sometime.
- [HDFS-9926](#): MiniDFSCluster leaks dependency Mockito via DataNodeTestUtils.
- [HDFS-9941](#): Do not log StandbyException on NN, other minor logging fixes.
- [HDFS-9947](#): Block#toString should not output information from derived classes
- [HDFS-9949](#): Add a test case to ensure that the DataNode does not regenerate its UUID when a storage directory is cleared
- [HDFS-9958](#): BlockManager#createLocatedBlocks can throw NPE for corruptBlocks on failed storages.
- [HDFS-10178](#): Permanent write failures can happen if pipeline recoveries occur for the first packet.
- [HDFS-10182](#): Hedged read might overwrite user's buf.
- [HDFS-10186](#): DirectoryScanner: Improve logs by adding full path of both actual and expected block directories.
- [HDFS-10189](#): PacketResponder#toString should include the downstreams for PacketResponderType.HAS_DOWNSTREAM_IN_PIPELINE
- [HDFS-10199](#): Unit tests TestCopyFiles, TestDistCh, TestLogalyzer under org.apache.hadoop.tools are failing.
- [HDFS-10216](#): Distcp -diff throws exception when handling relative path.
- [HDFS-10217](#): show 'blockScheduled' tooltip in datanodes table.
- [HDFS-10223](#): peerFromSocketAndKey performs SASL exchange before setting connection timeouts.
- [HDFS-10225](#): DataNode hot swap drives should disallow storage type changes.

- [HDFS-10228](#): TestHDFSCLI fails.
- [HDFS-10235](#): Last contact for Live Nodes should be relative time.
- [HDFS-10239](#): Fsshell mv fails if port usage doesn't match in src and destination paths.
- [HDFS-10245](#): Fix the findbugs warnings in branch-2.7.
- [HDFS-10253](#): Fix TestRefreshCallQueue failure
- [HDFS-10261](#): TestBookKeeperHACheckpoints doesn't handle ephemeral HTTP ports.
- [HDFS-10264](#): Logging improvements in FSImageFormatProtobuf.Saver.
- [HDFS-10270](#): TestJMXGet:testNameNode() fails.
- [HDFS-10271](#): Extra bytes are getting released from reservedSpace for append
- [HDFS-10275](#): TestDataNodeMetrics failing intermittently due to TotalWriteTime counted incorrectly.
- [HDFS-10277](#): PositionedReadable test testReadFullyZeroByteFile failing in HDFS.
- [HDFS-10279](#): Improve validation of the configured number of tolerated failed volumes.
- [HDFS-10281](#): TestPendingCorruptDnMessages fails intermittently.
- [HDFS-10291](#): TestShortCircuitLocalRead failing
- [HDFS-10301](#): BlockReport retransmissions may lead to storages falsely being declared zombie if storage report processing happens out of order .
- [HDFS-10301](#): Remove FBR tracking state to fix false zombie storage detection for interleaving block reports.
- [HDFS-10309](#): Balancer doesn't honor dfs.blocksize value defined with suffix k(kilo), m(mega), g(giga).
- [HDFS-10312](#): Large block reports may fail to decode at NameNode due to 64 MB protobuf maximum length restriction.
- [HDFS-10313](#): Distcp need to enforce the order of snapshot names passed to -diff.
- [HDFS-10319](#): Balancer should not try to pair storages with different types.
- [HDFS-10320](#): Rack failures may result in NN terminate.
- [HDFS-10324](#): Trash directory in an encryption zone should be pre-created with correct permissions.
- [HDFS-10329](#): Bad initialisation of StringBuffer in RequestHedgingProxyProvider.
- [HDFS-10330](#): Add Corrupt Blocks Information in Metasave output.
- [HDFS-10335](#): Mover\$Processor#chooseTarget() always chooses the first matching target storage group.

- [HDFS-10341](#): Add a metric to expose the timeout number of pending replication blocks
- [HDFS-10342](#): BlockManager#createLocatedBlocks should not check corrupt replicas if none are corrupt.
- [HDFS-10343](#): BlockManager#createLocatedBlocks may return blocks on failed storages.
- [HDFS-10344](#): DistributedFileSystem#getTrashRoots should skip encryption zone that does not have .Trash.
- [HDFS-10347](#): Namenode report bad block method doesn't log the bad block or datanode.
- [HDFS-10360](#): DataNode may format directory and lose blocks if current/VERSION is missing.
- [HDFS-10367](#): TestDFSShell.testMoveWithTargetPortEmpty fails with Address bind exception.
- [HDFS-10372](#): Fix for failing TestFsDatasetImpl#testCleanShutdownOfVolume.
- [HDFS-10377](#): CacheReplicationMonitor shutdown log message should use INFO level
- [HDFS-10390](#): Implement asynchronous setAcl/getAclStatus for DistributedFileSystem
- [HDFS-10396](#): Using -diff option with DistCp may get "Comparison method violates its general contract" exception.
- [HDFS-10397](#): Distcp should ignore -delete option if -diff option is provided instead of exiting.
- [HDFS-10410](#): RedundantEditLogInputStream.LOG is set to wrong class.
- [HDFS-10415](#): TestDistributedFileSystem#MyDistributedFileSystem attempts to set up statistics before initialize() is called
- [HDFS-10417](#): Improve error message from checkBlockLocalPathAccess.
- [HDFS-10423](#): Increase default value of httpfs maxHttpHeaderSize.
- [HDFS-10424](#): DatanodeLifelineProtocol not able to use under security cluster
- [HDFS-10431](#): Refactor and speedup TestAsyncDFSRename
- [HDFS-10437](#): ReconfigurationProtocol not covered by HDFSPolicyProvider.
- [HDFS-10438](#): When NameNode HA is configured to use the lifeline RPC server, it should log the address of that server.
- [HDFS-10440](#): Improve DataNode web UI
- [HDFS-10448](#): CacheManager#addInternal tracks bytesNeeded incorrectly when dealing with replication factors other than 1
- [HDFS-10455](#): Logging the username when deny the setOwner operation.

- [HDFS-10457](#): DataNode should not auto-format block pool directory if VERSION is missing.
- [HDFS-10458](#): getFileEncryptionInfo should return quickly for non-encrypted cluster.
- [HDFS-10468](#): HDFS read ends up ignoring an interrupt.
- [HDFS-10469](#): Add number of active xceivers to datanode metrics.
- [HDFS-10471](#): DFSAdmin#SetQuotaCommand's help msg is not correct.
- [HDFS-10474](#): hftp copy fails when file name with Chinese+special char in branch-2
- [HDFS-10481](#): HTTPFS server should correctly impersonate as end user to open file.
- [HDFS-10485](#): Fix findbugs warning in FSEditLog.java
- [HDFS-10488](#): Update WebHDFS documentation regarding CREATE and MKDIR default permissions.
- [HDFS-10493](#): Add links to datanode web UI in namenode datanodes page.
- [HDFS-10499](#): TestNameNodeMetadataConsistency#testGenerationStampInFuture Fails Intermittently.
- [HDFS-10508](#): DFSInputStream should set thread's interrupt status after catching InterruptedException from sleep.
- [HDFS-10512](#): VolumeScanner may terminate due to NPE in DataNode.reportBadBlocks.
- [HDFS-10525](#): Fix NPE in CacheReplicationMonitor#rescanCachedBlockMap
- [HDFS-10544](#): Balancer doesn't work with IPFailoverProxyProvider.
- [HDFS-10556](#): DistCpOptions should be validated automatically.
- [HDFS-10569](#): A bug causes OutOfIndex error in BlockListAsLongs.
- [HDFS-10579](#): HDFS web interfaces lack configs for X-FRAME-OPTIONS protection.
- [HDFS-10589](#): Javadoc for HState#HState and HState#setStateInternal contains non-existent params.
- [HDFS-10609](#): Uncaught InvalidEncryptionKeyException during pipeline recovery may abort downstream applications.
- [HDFS-10617](#): PendingReconstructionBlocks.size() should be synchronized.
- [HDFS-10623](#): Remove unused import of httpClient.HttpConnection from TestWebHdfsTokens.
- [HDFS-10625](#): VolumeScanner to report why a block is found bad.
- [HDFS-10627](#): Volume Scanner marks a block as "suspect" even if the exception is network-related.

- [HDFS-10642](#): TestLazyPersistReplicaRecovery#testDnRestartWithSavedReplicas fails intermittently.
- [HDFS-10643](#): [Unit Test] Namenode should use loginUser(hdfs) to generateEncryptedKey.
- [HDFS-10643](#): HDFS namenode should always use service user
- [HDFS-10653](#): Optimize conversion from path string to components.
- [HDFS-10655](#): Fix path related byte array conversion bugs.
- [HDFS-10660](#): Expose storage policy apis via HDFSAdmin interface.
- [HDFS-10684](#): WebHDFS DataNode calls fail without parameter createparent.
- [HDFS-10688](#): BPSERVICEActor may run into a tight loop for sending block report when hitting IOException.
- [HDFS-10703](#): HA NameNode Web UI should show last checkpoint time.
- [HDFS-10710](#): In BlockManager#rescanPostponedMisreplicatedBlocks(), postponed misreplicated block counts should be retrieved within the NN lock protection. Contributed by GAO Rui.
- [HDFS-10713](#): Throttle FsNameSystem lock warnings.
- [HDFS-10715](#): NPE when applying AvailableSpaceBlockPlacementPolicy.
- [HDFS-10716](#): In Balancer, the target task should be removed when its size < 0.
- [HDFS-10735](#): Distcp using webhdfs on secure HA clusters fails with StandbyException .
- [HDFS-10752](#): Several log refactoring/improvement suggestion in HDFS.
- [HDFS-10757](#): KMSSClientProvider combined with KeyProviderCache can result in wrong UGI being used.
- [HDFS-10763](#): Open files can leak permanently due to inconsistent lease update.
- [HDFS-10763](#): Open files can leak permanently due to inconsistent lease update TestTrashWithSecureEncryptionZones diverged from HDFS-10906.
- [HDFS-10764](#): Fix INodeFile#getBlocks to not return null.
- [HDFS-10793](#): Fix HdfsAuditLogger binary incompatibility introduced by HDFS-9184. HDFS-9700. DFSClient and DFSOutputStream should set TCP_NODELAY on sockets for DataTransferProtocol.
- [HDFS-10798](#): Make the threshold of reporting FSNamesystem lock contention configurable.
- [HDFS-10817](#): Add Logging for Long-held NN Read Locks.
- [HDFS-10822](#): Log DataNodes in the write pipeline. John Zhuge via Lei Xu.

- [HDFS-10913](#): Introduce fault injectors to simulate slow mirrors.
- [HDFS-10917](#): Collect peer performance statistics on DataNode.
- [HDFS-10922](#): Adding additional unit tests for Trash
- [HDFS-10930](#): Refactor: Wrap Datanode IO related operations.
- [HDFS-10934](#): TestDFSShell#testStat fails intermittently.
- [HDFS-10956](#): Remove rename/delete performance penalty when not using snapshots.
- [HDFS-10959](#): Update DataNode to use DatasetVolumeChecker.
- [HDFS-10962](#): TestRequestHedgingProxyProvider is flaky.
- [HDFS-10963](#): Reduce log level when network topology cannot find enough datanodes.
- [HDFS-10965](#): Add unit test for HDFS command 'dfsadmin -printTopology'.
- [HDFS-10966](#): Enhance Dispatcher logic on deciding when to give up a source DataNode.
- [HDFS-10984](#): Expose nntop output as metrics.
- [HDFS-10987](#): Make Decommission less expensive when lot of blocks present.
- [HDFS-11003](#): Expose XmitsInProgress through DataNodeMXBean.
- [HDFS-11008](#): Change unit test for testing parsing "-source" parameter in Balancer CLI.
- [HDFS-11011](#): Add unit tests for HDFS command 'dfsadmin -set/cnrSpaceQuota'.
- [HDFS-11015](#): Enforce timeout in balancer.
- [HDFS-11018](#): Incorrect check and message in FsDatasetImpl#invalidate.
- [HDFS-11031](#): Add additional unit test for DataNode startup behavior when volumes fail.
- [HDFS-11047](#): Remove deep copies of FinalizedReplica to alleviate heap consumption on DataNode.
- [HDFS-11054](#): Suppress verbose log message in BlockPlacementPolicyDefault.
- [HDFS-11056](#): Addendum fix for self-healing branch.
- [HDFS-11056](#): Concurrent append and read operations lead to checksum error.
- [HDFS-11069](#): Tighten the authorization of datanode RPC.
- [HDFS-11076](#): Add unit test for extended Acls.
- [HDFS-11083](#): Add unit test for DFSAdmin -report command.
- [HDFS-11087](#): NamenodeFsck should check if the output writer is still writable.
- [HDFS-11112](#): Journal Nodes should refuse to format non-empty directories.

- [HDFS-11114](#): Support for running async disk checks in DataNode.
- [HDFS-11119](#): Support for parallel checking of StorageLocations on DataNode startup.
- [HDFS-11122](#): TestDFSAdmin#testReportCommand fails due to timed out.
- [HDFS-11128](#): CreateEditsLog throws NullPointerException.
- [HDFS-11148](#): Update DataNode to use StorageLocationChecker at startup.
- [HDFS-11149](#): Fix build break.
- [HDFS-11149](#): Support for parallel checking of FsVolumes.
- [HDFS-11160](#): VolumeScanner reports write-in-progress replicas as corrupt incorrectly.
- [HDFS-11180](#): Intermittent deadlock in NameNode when failover happens.
- [HDFS-11182](#): Addendum fix for Fenton to fix a unit test.
- [HDFS-11182](#): Update DataNode to use DatasetVolumeChecker.
- [HDFS-11194](#): Maintain aggregated peer performance metrics on NameNode.
- [HDFS-11195](#): Return error when appending files by webhdfs rest api fails.
- [HDFS-11197](#): Listing encryption zones fails when deleting a EZ that is on a snapshotted directory.
- [HDFS-11209](#): SNN can't checkpoint when rolling upgrade is not finalized.
- [HDFS-11224](#): Lifeline message should be ignored for dead nodes
- [HDFS-11229](#): HDFS-11056 failed to close meta file.
- [HDFS-11240](#): Remove snapshot version of SDK dependency from Azure Data Lake Store File System.
- [HDFS-11251](#): ConcurrentModificationException during DataNode#refreshVolumes .
- [HDFS-11253](#): FileInputStream leak on failure path in BlockSender.
- [HDFS-11258](#): File mtime change could not save to editlog.
- [HDFS-11263](#): ClassCastException when we use Bzipcodec for Fsimage compression.
- [HDFS-11267](#): Avoid redefinition of storageDirs in NNStorage and cleanup its accessors in Storage.
- [HDFS-11274](#): Datanode should only check the failed volume upon IO errors.
- [HDFS-11279](#): Cleanup unused DataNode#checkDiskErrorAsync().
- [HDFS-11280](#): Allow WebHDFS to reuse HTTP connections to NN.
- [HDFS-11282](#): Document the missing metrics of DataNode Volume IO operations.

- [HDFS-11292](#): log lastWrittenTxId etc info in logSyncAll.
- [HDFS-11299](#): Support multiple Datanode File IO hooks.
- [HDFS-11307](#): The rpc to portmap service for NFS has hardcoded timeout.
- [HDFS-11337](#):
- [HDFS-11339](#): Support File IO sampling for Datanode IO profiling hooks.
- [HDFS-11369](#): Change exception message in StorageLocationChecker.
- [HDFS-11379](#): DFSInputStream may infinite loop requesting block locations.
- [HDFS-11387](#): Socket reuse address option is not honored in PrivilegedNfsGatewayStarter.
- [HDFS-11391](#): Numeric usernames do no work with WebHDFS FS write access.
- [HDFS-11395](#): RequestHedgingProxyProvider#RequestHedgingInvocationHandler hides the Exception thrown from NameNode.
- [HDFS-11403](#): Zookeeper ACLs on NN HA enabled clusters should be handled consistently.
- [HDFS-11461](#): DataNode Disk Outlier Detection.
- [HDFS-11462](#): Fix occasional BindException in TestNameNodeMetricsLogger.
- [HDFS-11476](#): Fix NPE in FsDatasetImpl#checkAndUpdate
- [HDFS-11477](#): Simplify file IO profiling configuration.
- [HDFS-11479](#): Socket re-use address option should be used in SimpleUdpServer.
- [HDFS-11508](#): Fix bind failure in SimpleTCPServer & Portmap where bind fails because socket is in TIME_WAIT state.
- [HDFS-11517](#): Expose slow disks via DataNode JMX.
- [HDFS-11533](#): reuseAddress option should be used for child channels in Portmap and SimpleTcpServer.
- [MAPREDUCE-5485](#): Allow repeating job commit by extending OutputCommitter API
- [MAPREDUCE-6197](#): Cache MapOutputLocations in ShuffleHandler.
- [MAPREDUCE-6213](#): NullPointerException caused by job history server addr not resolvable.
- [MAPREDUCE-6213](#): NullPointerException caused by job history server addr not resolvable.
- [MAPREDUCE-6273](#): HistoryFileManager should check whether summaryFile exists to avoid FileNotFoundException causing HistoryFileInfo into MOVE_FAILED state.
- [MAPREDUCE-6302](#):

- [MAPREDUCE-6338](#): MR AppMaster does not honor ephemeral port range.
- [MAPREDUCE-6350](#): JobHistory doesn't support fully-functional search.
- [MAPREDUCE-6404](#): Allow AM to specify a port range for starting its webapp.
- [MAPREDUCE-6436](#): JobHistory cache issue.
- [MAPREDUCE-6436](#): JobHistory cache issue.
- [MAPREDUCE-6460](#):
TestRMContainerAllocator.testAttemptNotFoundCausesRMCommunicatorException fails.
- [MAPREDUCE-6485](#): Create a new task attempt with failed map task priority if in-progress attempts are unassigned.
- [MAPREDUCE-6492](#): AsyncDispatcher exit with NPE on TaskAttemptImpl#sendJHStartEventForAssignedFailTask.
- [MAPREDUCE-6492](#): AsyncDispatcher exit with NPE on TaskAttemptImpl#sendJHStartEventForAssignedFailTask.
- [MAPREDUCE-6514](#): Job hangs as ask is not updated after ramping down of all reducers.
- [MAPREDUCE-6543](#): Migrate MR Client test cases part 2.
- [MAPREDUCE-6549](#): multibyte delimiters with LineRecordReader cause duplicate records
- [MAPREDUCE-6566](#): Add retry support to mapreduce CLI tool.
- [MAPREDUCE-6577](#): MR AM unable to load native library without MR_AM_ADMIN_USER_ENV set.
- [MAPREDUCE-6577](#): MR AM unable to load native library without MR_AM_ADMIN_USER_ENV set.
- [MAPREDUCE-6579](#): TestNetworkedJob.testNetworkedJob failed due to YARN-3946.
- [MAPREDUCE-6593](#): TestJobHistoryEventHandler.testTimelineEventHandling fails because of NPE.
- [MAPREDUCE-6616](#): Fail to create jobhistory file if there are some multibyte characters in the job name.
- [MAPREDUCE-6618](#): YarnClientProtocolProvider leaking the YarnClient thread.(xgong).
- [MAPREDUCE-6621](#): Memory Leak in JobClient#submitJobInternal().
- [MAPREDUCE-6625](#): TestCLI#testGetJob fails occasionally
- [MAPREDUCE-6635](#): Unsafe long to int conversion in UncompressedSplitLineReader and IndexOutOfBoundsException.
- [MAPREDUCE-6635](#): Unsafe long to int conversion in UncompressedSplitLineReader and IndexOutOfBoundsException.

- [MAPREDUCE-6639](#): Process hangs in LocatedFileStatusFetcher if FileSystem.get throws.
- [MAPREDUCE-6672](#): TestTeraSort fails on Windows.
- [MAPREDUCE-6684](#): High contention on scanning of user directory under immediate_done in Job History Server.
- [MAPREDUCE-6689](#): MapReduce job can infinitely increase number of reducer resource requests.
- [MAPREDUCE-6693](#): ArrayIndexOutOfBoundsException occurs when the length of the job name is equal to mapreduce.jobhistory.jobname.limit.
- [MAPREDUCE-6701](#): application master log can not be available when clicking jobhistory's am logs link.
- [MAPREDUCE-6711](#): After enabling preemption on cluster, jobs failed without making any attempts made after being preempted.
- [MAPREDUCE-6724](#): Single shuffle to memory must not exceed Integer#MAX_VALUE.
- [MAPREDUCE-6762](#): ControlledJob#toString failed with NPE when job status is not successfully updated.
- [MAPREDUCE-6789](#): Fix TestAMWebApp failure.
- [MAPREDUCE-6792](#): Allow user's full principal name as owner of MapReduce staging directory in JobSubmissionFiles#JobStagingDir().
- [MAPREDUCE-6797](#): Job history server scans can become blocked on a single, slow entry.
- [MAPREDUCE-6852](#): Job#updateStatus() failed with NPE due to race condition.
- [YARN-857](#): Localization failures should be available in container diagnostics.
- [YARN-998](#): Keep NM resource updated through dynamic resource config for RM/NM restart.
- [YARN-1376](#): NM need to notify the log aggregation status to RM through heartbeat.
- [YARN-1402](#): Update related Web UI and CLI with exposing client API to check log aggregation status.
- [YARN-1462](#): AHS API and other AHS changes to handle tags for completed MR jobs.
- [YARN-1556](#): NPE getting application report with a null appld.
- [YARN-1880](#): Cleanup TestApplicationClientProtocolOnHA
- [YARN-1993](#): Cross-site scripting vulnerability in TextView.java.
- [YARN-2019](#): Retrospect on decision of making RM crashed if any exception throw in ZKRMStateStore.
- [YARN-2046](#): Out of band heartbeats are sent only on container kill and possibly too early.

- [YARN-2046](#): Out of band heartbeats are sent only on container kill and possibly too early.
- [YARN-2194](#): Fix bug causing CGroups functionality to fail on RHEL7.
- [YARN-2392](#): Add more diags about app retry limits on AM failures.
- [YARN-2495](#): Allow admin specify labels from each NM
- [YARN-2498](#): Respect labels in preemption policy of capacity scheduler for inter-queue preemption.
- [YARN-2571](#): RM to support YARN registry.
- [YARN-2619](#): Added NodeManager support for disk io isolation through cgroups.
- [YARN-2666](#): TestFairScheduler.testContinuousScheduling fails Intermittently.
- [YARN-2696](#): Queue sorting in CapacityScheduler should consider node label.
- [YARN-2740](#): Fix NodeLabelsManager to properly handle node label modifications when distributed node label configuration enabled.
- [YARN-2821](#): Fixed a problem that DistributedShell AM may hang if restarted.
- [YARN-2821](#): Fixed a problem that DistributedShell AM may hang if restarted.
- [YARN-2868](#): FairScheduler: Metric for latency to allocate first container for an application.
- [YARN-2901](#): Add errors and warning metrics page to RM, NM web UI.
- [YARN-3021](#): YARN's delegation-token handling disallows certain trust setups to operate properly over DistCp.
- [YARN-3026](#): Move application-specific container allocation logic from LeafQueue to FiCaSchedulerApp.
- [YARN-3102](#): Decommissioned Nodes not listed in Web UI.
- [YARN-3102](#): Decommissioned Nodes not listed in Web UI.
- [YARN-3110](#): Few issues in ApplicationHistory web ui.
- [YARN-3136](#): Fixed a synchronization problem of AbstractYarnScheduler#getTransferredContainers.
- [YARN-3148](#): Allow CORS related headers to passthrough in WebAppProxyServlet.
- [YARN-3215](#): Respect labels in CapacityScheduler when computing headroom.
- [YARN-3216](#): Max-AM-Resource-Percentage should respect node labels.
- [YARN-3225](#): New parameter of CLI for decommissioning node gracefully in RMAdmin CLI.

- [YARN-3243](#): CapacityScheduler should pass headroom from parent to children to make sure ParentQueue obey its capacity limits.
- [YARN-3248](#): Display count of nodes blacklisted by apps in the web UI.
- [YARN-3266](#): RMContext#inactiveNodes should have NodeId as map key.
- [YARN-3269](#): Yarn.nodemanager.remote-app-log-dir could not be configured to fully qualified path.
- [YARN-3293](#): Track and display capacity scheduler health metrics in web UI.
- [YARN-3294](#): Allow dumping of Capacity Scheduler debug logs via web UI for a fixed time period.
- [YARN-3305](#): Normalize AM resource request on app submission.
- [YARN-3318](#): Create Initial OrderingPolicy Framework and FifoOrderingPolicy.
- [YARN-3319](#): Implement a FairOrderingPolicy.
- [YARN-3326](#): Support RESTful API for getLabelsToNodes.
- [YARN-3343](#): Increased TestCapacitySchedulerNodeLabelUpdate#testNodeUpdate timeout.
- [YARN-3345](#): Add non-exclusive node label API.
- [YARN-3347](#): Improve YARN log command to get AMContainer logs as well as running containers logs.
- [YARN-3348](#): Add a 'yarn top' tool to help understand cluster usage.
- [YARN-3354](#): Add node label expression in ContainerTokenIdentifier to support RM recovery.
- [YARN-3356](#): Capacity Scheduler FiCaSchedulerApp should use ResourceUsage to track used-resources-by-label.
- [YARN-3357](#): Move TestFifoScheduler to FIFO package.
- [YARN-3360](#): Add JMX metrics to TimelineDataManager .
- [YARN-3361](#): CapacityScheduler side changes to support non-exclusive node labels.
- [YARN-3362](#): Add node label usage in RM CapacityScheduler web UI.
- [YARN-3365](#): Enhanced NodeManager to support using the 'tc' tool via container-executor for outbound network traffic control.
- [YARN-3366](#): Enhanced NodeManager to support classifying/shaping outgoing network bandwidth traffic originating from YARN containers.
- [YARN-3383](#): AdminService should use "warn" instead of "info" to log exception when operation fails.

- [YARN-3387](#): Previous AM's container completed status couldn't pass to current AM if AM and RM restarted during the same time.
- [YARN-3387](#): Previous AM's container completed status couldn't pass to current AM if AM and RM restarted during the same time.
- [YARN-3394](#): Enrich WebApplication proxy documentation.
- [YARN-3397](#): yarn radmin should skip -failover.
- [YARN-3404](#): Display queue name on application page.
- [YARN-3406](#): Display count of running containers in the RM's Web UI.
- [YARN-3410](#): YARN admin should be able to remove individual application records from RMStateStore.
- [YARN-3413](#): Changed Nodelabel attributes
- [YARN-3425](#): NPE from RMNodeLabelsManager.serviceStop when NodeLabelsManager.serviceInit failed.
- [YARN-3433](#): Jersey tests failing with Port in Use -again.
- [YARN-3435](#): AM container to be allocated Appattempt AM container shown as null.
- [YARN-3443](#): Create a 'ResourceHandler' subsystem to ease addition of support for new resource types on the NM.
- [YARN-3448](#): Added a rolling time-to-live LevelDB timeline store implementation.
- [YARN-3451](#): Display attempt start time and elapsed time on the web UI.
- [YARN-3453](#): Ensure preemption logic in FairScheduler uses DominantResourceCalculator in DRF queues to prevent unnecessary thrashing.
- [YARN-3459](#): Fix failiure of TestLog4jWarningErrorMetricsAppender.
- [YARN-3463](#): Integrate OrderingPolicy Framework with CapacityScheduler.
- [YARN-3467](#): Expose allocatedMB, allocatedVCores, and runningContainers metrics on running Applications in RM Web UI.
- [YARN-3480](#): Remove attempts that are beyond max-attempt limit from state store.
- [YARN-3494](#): Expose AM resource limit and usage in CS QueueMetrics.
- [YARN-3503](#): Expose disk utilization percentage and bad local and log dir counts in NM metrics.
- [YARN-3505](#): Node's Log Aggregation Report with SUCCEED should not cached in RMApps.
- [YARN-3511](#): Add errors and warnings page to ATS.
- [YARN-3517](#): RM web ui for dumping scheduler logs should be for admins only

- [YARN-3521](#): Support return structured NodeLabel objects in REST API.
- [YARN-3530](#): ATS throws exception on trying to filter results without otherinfo.
- [YARN-3541](#): Add version info on timeline service / generic history web UI and REST API.
- [YARN-3543](#): ApplicationReport should be able to tell whether the Application is AM managed or not.
- [YARN-3552](#): RM Web UI shows -1 running containers for completed apps
- [YARN-3565](#): NodeHeartbeatRequest/RegisterNodeManagerRequest should use NodeLabel object instead of String.
- [YARN-3579](#): CommonNodeLabelsManager should support NodeLabel instead of string label name when getting node-to-label/label-to-label mappings.
- [YARN-3580](#): [JDK8] TestClientRMService.testGetLabelsToNodes fails.
- [YARN-3581](#): Deprecate -directlyAccessNodeLabelStore in RMAdminCLI.
- [YARN-3583](#): Support of NodeLabel object instead of plain String in YarnClient side.
- [YARN-3589](#): RM and AH web UI display DOCTYPE wrongly.
- [YARN-3591](#): Resource localization on a bad disk causes subsequent containers failure.
- [YARN-3593](#): Add label-type and Improve "DEFAULT_PARTITION" in Node Labels Page.
- [YARN-3600](#): AM container link is broken
- [YARN-3604](#): removeApplication in ZKRMStateStore should also disable watch.
- [YARN-3632](#): Ordering policy should be allowed to reorder an application when demand changes.
- [YARN-3635](#): Refactored current queue mapping implementation in CapacityScheduler to use a generic PlacementManager framework.
- [YARN-3654](#): ContainerLogsPage web UI should not have meta-refresh.
- [YARN-3695](#): ServerProxy
- [YARN-3695](#): ServerProxy
- [YARN-3700](#): Made generic history service load a number of latest applications according to the parameter or the configuration.
- [YARN-3707](#): RM Web UI queue filter doesn't work.
- [YARN-3717](#): Expose app/am/queue's node-label-expression to RM web UI / CLI / REST-API.
- [YARN-3727](#): For better error recovery, check if the directory exists before using it for localization.

- [YARN-3740](#): Fixed the typo in the configuration name: APPLICATION_HISTORY_PREFIX_MAX_APPS.
- [YARN-3751](#): Fixed AppInfo to check if used resources are null.
- [YARN-3766](#): Fixed the apps table column error of generic history web UI.
- [YARN-3769](#): Consider user limit when calculating total pending resource for preemption policy in Capacity Scheduler.
- [YARN-3785](#): Support for Resource as an argument during submitApp call in MockRM test class.
- [YARN-3846](#): RM Web UI queue filter is not working for sub queue.
- [YARN-3849](#): (Too much of preemption activity causing continuous killing of containers across queues) to 2.3-maint.
- [YARN-3873](#): PendingApplications in LeafQueue should also use OrderingPolicy.
- [YARN-3885](#): ProportionalCapacityPreemptionPolicy doesn't preempt if queue is more than 2 level.
- [YARN-3894](#): RM startup should fail for wrong CS xml NodeLabel capacity configuration.
- [YARN-3896](#): RMNode transitioned from RUNNING to REBOOTED because its response id has not been reset synchronously.
- [YARN-3920](#): FairScheduler container reservation on a node should be configurable to limit it to large containers
- [YARN-3932](#): SchedulerApplicationAttempt#getResourceUsageReport and UserInfo should be based on total-used-resources.
- [YARN-3941](#): Proportional Preemption policy should try to avoid sending duplicate PREEMPT_CONTAINER event to scheduler.
- [YARN-3946](#): Update exact reason as to why a submitted app is in ACCEPTED state to app's diagnostic message.
- [YARN-3948](#): Display Application Priority in RM Web UI.(Sunil G via rohithsharmaks).
- [YARN-3961](#): Expose pending, running and reserved containers of a queue in REST api and yarn top
- [YARN-3966](#): Fix excessive loggings in CapacityScheduler.
- [YARN-3971](#): Skip RMNodeLabelsManager#checkRemoveFromClusterNodeLabelsOfQueue on nodelabel recovery.
- [YARN-3978](#): Configurably turn off the saving of container info in Generic AHS
- [YARN-3982](#): container-executor parsing of container-executor.cfg broken in trunk and branch-2.

- [YARN-3983](#): Refactored CapacityScheduler#FiCaSchedulerApp to easier extend container allocation logic.
- [YARN-3986](#): getTransferredContainers in AbstractYarnScheduler should be present in YarnScheduler interface.
- [YARN-3987](#): am container complete msg ack to NM once RM receive it.
- [YARN-4000](#): RM crashes with NPE if leaf queue becomes parent queue during restart.
- [YARN-4023](#): Publish Application Priority to TimelineServer.
- [YARN-4026](#): Refactored ContainerAllocator to accept a list of priorities rather than a single priority.
- [YARN-4082](#): Container shouldn't be killed when node's label updated.
- [YARN-4087](#): Followup fixes after YARN-2019 regarding RM behavior when state-store error occurs.
- [YARN-4092](#): Fixed UI redirection to print useful messages when both RMs are in standby mode.
- [YARN-4101](#): RM should print alert messages if ZooKeeper and ResourceManager gets connection issue.
- [YARN-4108](#): CapacityScheduler: Improve preemption to only kill containers that would satisfy the incoming request.
- [YARN-4113](#): RM should respect retry-interval when uses RetryPolicies.RETRY_FOREVER.
- [YARN-4140](#): RM container allocation delayed incase of app submitted to NodeLabel partition.
- [YARN-4149](#): yarn logs -am should provide an option to fetch all the log files.
- [YARN-4155](#): TestLogAggregationService.testLogAggregationServiceWithInterval failing.
- [YARN-4162](#): CapacityScheduler: Add resource usage by partition and queue capacity by partition to REST API.
- [YARN-4215](#): RMNodeLabels Manager Need to verify and replace node labels for the only modified Node Label Mappings in the request.
- [YARN-4225](#): Add preemption status to yarn queue -status for capacity scheduler.
- [YARN-4233](#): YARN Timeline Service plugin: ATS v1.5.
- [YARN-4245](#): Generalize config file handling in container-executor.
- [YARN-4270](#): Limit application resource reservation on nodes for non-node/rack specific requests
- [YARN-4285](#): Display resource usage as percentage of queue and cluster in the RM UI

- [YARN-4287](#): Capacity Scheduler: Rack Locality improvement
- [YARN-4288](#): Fixed RMProxy to retry on IOException from local host.
- [YARN-4290](#): Add -showDetails option to YARN Nodes CLI to print all nodes reports information.
- [YARN-4304](#): AM max resource configuration per partition to be displayed/updated correctly in UI and in various partition related metrics.
- [YARN-4309](#): Add container launch related debug information to container logs when a container fails.
- [YARN-4313](#): Race condition in MiniMRYarnCluster when getting history server address.
- [YARN-4315](#): NaN in Queue percentage for cluster apps page.
- [YARN-4329](#): [YARN-5437] Allow fetching exact reason as to why a submitted app is in ACCEPTED state in Fair Scheduler
- [YARN-4345](#): yarn radmin -updateNodeResource doesn't work
- [YARN-4347](#): Resource manager fails with Null pointer exception.
- [YARN-4349](#): YARN_APPLICATION call to ATS does not have YARN_APPLICATION_CALLER_CONTEXT.
- [YARN-4365](#): FileSystemNodeLabelStore should check for root dir existence on startup.
- [YARN-4384](#): updateNodeResource CLI should not accept negative values for resource.
- [YARN-4390](#): Do surgical preemption based on reserved container in CapacityScheduler.
- [YARN-4392](#): ApplicationCreatedEvent event time resets after RM restart/failover.
- [YARN-4393](#): TestResourceLocalizationService#testFailedDirsResourceRelease fails intermittently.
- [YARN-4403](#):
- [YARN-4405](#): Support node label store in non-appendable file system.
- [YARN-4414](#): Nodemanager connection errors are retried at multiple levels.
- [YARN-4414](#): Nodemanager connection errors are retried at multiple levels.
- [YARN-4416](#): Deadlock due to synchronised get Methods in AbstractCSQueue.
- [YARN-4417](#): Make RM and Timeline-server REST APIs more consistent.
- [YARN-4418](#): AM Resource Limit per partition can be updated to ResourceUsage as well.
- [YARN-4422](#): Generic AHS sometimes doesn't show started, node, or logs on App page.
- [YARN-4422](#): Generic AHS sometimes doesn't show started, node, or logs on App page.

- [YARN-4428](#): Redirect RM page to AHS page when AHS turned on and RM page is not available.
- [YARN-4428](#): Redirect RM page to AHS page when AHS turned on and RM page is not available.
- [YARN-4439](#): Clarify NMContainerStatus#toString method.
- [YARN-4454](#): NM to nodelabel mapping going wrong after RM restart.
- [YARN-4477](#): FairScheduler: Handle condition which can result in an infinite loop in attemptScheduling.
- [YARN-4479](#): Change CS LeafQueue pendingOrderingPolicy to honor recovered apps.
- [YARN-4497](#): RM might fail to restart when recovering apps whose attempts are missing.
- [YARN-4502](#): Fix two AM containers get allocated when AM restart.
- [YARN-4522](#): Queue acl can be checked at app submission.
- [YARN-4535](#): Fix checkstyle error in CapacityScheduler.java
- [YARN-4546](#): YARN-4546. ResourceManager crash due to scheduling opportunity overflow.
- [YARN-4546](#): YARN-4546. ResourceManager crash due to scheduling opportunity overflow.
- [YARN-4556](#): TestFifoScheduler.testResourceOverCommit fails.
- [YARN-4557](#): Fix improper Queues sorting in PartitionedQueueComparator when accessible-node-labels=*
- [YARN-4565](#):
- [YARN-4573](#): Fix test failure in TestRMAppTransitions#testAppRunningKill and testAppKilledKilled.
- [YARN-4584](#): RM startup failure when AM attempts greater than max-attempts.
- [YARN-4591](#): YARN Web UIs should provide a robots.txt. Junping Du.
- [YARN-4598](#): Invalid event: RESOURCE_FAILED at CONTAINER_CLEANEDUP_AFTER_KILL.
- [YARN-4598](#): Invalid event: RESOURCE_FAILED at CONTAINER_CLEANEDUP_AFTER_KILL.
- [YARN-4607](#): Pagination support for AppAttempt page TotalOutstandingResource Requests table.
- [YARN-4610](#): Reservations continue looking for one app causes other apps to starve.
- [YARN-4617](#): LeafQueue#pendingOrderingPolicy should always use fixed ordering policy instead of using same as active applications ordering policy.

- [YARN-4623](#): TestSystemMetricsPublisher#testPublishAppAttemptMetricsForUnmanagedAM fails with NPE on branch-2.7.
- [YARN-4625](#): Make ApplicationSubmissionContext and ApplicationSubmissionContextInfo more consistent.
- [YARN-4633](#): TestRMRestart.testRMRestartAfterPreemption fails intermittently.
- [YARN-4634](#): Scheduler UI/Metrics need to consider cases like non-queue label mappings.
- [YARN-4667](#): RM Admin CLI for refreshNodesResources throws NPE when nothing is configured.
- [YARN-4680](#): Fix TimerTasks leak in ATS V1.5 Writer.
- [YARN-4696](#): TimelineClient to add flush operation for deterministic writes
- [YARN-4697](#): NM aggregation thread pool is not bound by limits
- [YARN-4699](#): Scheduler UI and REST o/p is not in sync when -replaceLabelsOnNode is used to change label of a node.
- [YARN-4709](#): NMWebServices produces incorrect JSON for containers.
- [YARN-4709](#): NMWebServices produces incorrect JSON for containers.
- [YARN-4723](#): NodesListManager\$UnknownNodeId ClassCastException.
- [YARN-4737](#): Add CSRF filter support in YARN
- [YARN-4737](#): Add CSRF filter support in YARN
- [YARN-4746](#): yarn web services should convert parse failures of appId, appAttemptId and containerId to 400.
- [YARN-4767](#): Network issues can cause persistent RM UI outage.
- [YARN-4769](#): Add support for CSRF header in the dump capacity scheduler logs and kill app buttons in RM web UI.
- [YARN-4785](#): Inconsistent value type of the "type" field for LeafQueueInfo in response of RM REST API.
- [YARN-4785](#): Inconsistent value type of the "type" field for LeafQueueInfo in response of RM REST API.
- [YARN-4811](#): Generate histograms in ContainerMetrics for actual container resource usage.
- [YARN-4814](#): ATS 1.5 timelineclient impl call flush after every event write.
- [YARN-4815](#): ATS 1.5 timelineclient impl try to create attempt directory for every event call.

- [YARN-4817](#): TimelineClient ATsv1.5 logging is very noisy.
- [YARN-4822](#): Refactor existing Preemption Policy of CS for easier adding new approach to select preemption candidates.
- [YARN-4832](#): NM side resource value should get updated if change applied in RM side.
- [YARN-4842](#): Fixed "yarn logs" command to guess
- [YARN-4844](#): Add getMemorySize/getVirtualCoresSize to o.a.h.y.api.records.Resource.
- [YARN-4846](#): Fix random failures for TestCapacitySchedulerPreemption #testPreemptionPolicyShouldRespectAlreadyMarkedKillableContainers.
- [YARN-4865](#): Track Reserved resources in ResourceUsage and QueueCapacities.
- [YARN-4890](#): Unit test intermittent failure: TestNodeLabelContainerAllocation#testQueueUsedCapacitiesUpdate.
- [YARN-4893](#): Fix intermittent failures in TestRMAdminService.
- [YARN-4905](#): Improved "yarn logs" command-line to optionally show log metadata also.
- [YARN-4913](#): Yarn logs should take a -out option to write to a directory.
- [YARN-4916](#): TestNMProxy.testNMProxyRPCRetry fails.
- [YARN-4920](#): ATS/NM should support a link to download/get the logs in text format.
- [YARN-4934](#): Reserved Resource for QueueMetrics needs to be handled correctly in few cases.
- [YARN-4955](#): Add retry for SocketTimeoutException in TimelineClient.
- [YARN-4966](#): Improve yarn logs to fetch container logs without specifying nodeId.
- [YARN-4984](#): LogAggregationService shouldn't swallow exception in handling createAppDir() which cause thread leak.
- [YARN-4990](#): Re-direction of a particular log file within in a container in NM UI does not redirect properly.
- [YARN-5023](#): TestAMRestart#testShouldNotCountFailureToMaxAttemptRetry random failure.
- [YARN-5048](#): DelegationTokenRenewer#skipTokenRenewal may throw NPE.
- [YARN-5069](#): TestFifoScheduler.testResourceOverCommit race condition.
- [YARN-5076](#): YARN web interfaces lack XFS
- [YARN-5080](#): Cannot obtain logs using YARN CLI -am for either KILLED or RUNNING AM.
- [YARN-5083](#): YARN CLI for AM logs does not give any error message if entered invalid am value.

- [YARN-5088](#): Improve "yarn log" command-line to read the last K bytes for the log files.
- [YARN-5089](#): Improve "yarn log" command-line "logFiles" option to support regex.
- [YARN-5112](#): Excessive log warnings for directory permission issue on NM recovery.
- [YARN-5115](#): Avoid setting CONTENT-DISPOSITION header in the container-logs web-service.
- [YARN-5121](#): fix some container-executor portability issues.
- [YARN-5122](#): "yarn logs" for running containers should print an explicit footer saying that the log may be incomplete.
- [YARN-5131](#): Distributed shell AM fails when extra container arrives during finishing. Wangda Tan via junping_du.
- [YARN-5141](#): Get Container logs for the Running application from Yarn Logs CommandLine.
- [YARN-5190](#): Registering/unregistering container metrics triggered by ContainerEvent and ContainersMonitorEvent are conflict which cause uncaught exception in ContainerMonitorImpl.
- [YARN-5191](#): Renamed the newly added "download=true" option for getting logs via NMWebServices and AHSWebServices to be a better "format" option.
- [YARN-5199](#): Close LogReader in in AHSWebServices#getStreamingOutput and FileInputStream in NMWebServices#getLogs.
- [YARN-5200](#): Enhanced "yarn logs" to be able to get a list of containers whose logs are aggregated via a "show_container_log_info" option.
- [YARN-5206](#): RegistrySecurity includes id:pass in exception text if considered invalid.
- [YARN-5208](#): Run TestAMRMClient TestNMClient TestYarnClient TestClientRMTokens TestAMAuthorization tests with hadoop.security.token.service.use_ip enabled.
- [YARN-5213](#): Fix a bug in LogCLIHelpers which cause TestLogsCLI#testFetchApplicationLogs fails intermittently.
- [YARN-5214](#): Fixed locking in DirectoryCollection to avoid hanging NMs when various code-paths hit slow disks.
- [YARN-5223](#): Container line in yarn logs output for a live application should include the hostname for the container.
- [YARN-5224](#): Added new web-services /containers/{containerid}/logs & /containers/{containerid}/logs/{filename} and using them in "yarn logs" CLI to get logs of finished containers of a running application.
- [YARN-5226](#): Remove AHS enable check from LogsCLI#fetchAMContainerLogs.
- [YARN-5227](#): Yarn logs command: no need to specify applicationId when specifying containerId.

- [YARN-5251](#): Yarn CLI to obtain App logs for last 'n' bytes fails.
- [YARN-5266](#): Wrong exit code while trying to get app logs using regex via CLI.
- [YARN-5270](#): Solve miscellaneous issues caused by YARN-4844.
- [YARN-5294](#): Pass remote ip address down to YarnAuthorizationProvider.
- [YARN-5296](#): NMs going OutOfMemory because ContainerMetrics leak in ContainerMonitorImpl.
- [YARN-5297](#): Avoid printing a stack trace when recovering an app after the RM restarts.
- [YARN-5337](#): Fix Dshell OOM issues.
- [YARN-5339](#): Passing file to -out for YARN log CLI doesnt give warning or error code.
- [YARN-5353](#): ResourceManager can leak delegation tokens when they are shared across apps.
- [YARN-5363](#): For AM containers, or for containers of running-apps, "yarn logs" incorrectly only
- [YARN-5456](#): container-executor support for FreeBSD, NetBSD, and others if conf path is absolute.
- [YARN-5470](#): Differentiate exactly match with regex in yarn log CLI.
- [YARN-5476](#): Not existed application reported as ACCEPTED state by YarnClientImpl.
- [YARN-5523](#): Yarn running container log fetching causes OutOfMemoryError
- [YARN-5524](#): Yarn live log aggregation does not throw if command line arg is wrong.
- [YARN-5539](#): TimelineClient failed to retry on java.net.SocketTimeoutException: Read timed out.
- [YARN-5549](#): AMLauncher#createAMContainerLaunchContext() should not log the command to be launched indiscriminately.
- [YARN-5551](#): Ignore file backed pages from memory computation when smaps is enabled.
- [YARN-5659](#): getPathFromYarnURL should use standard methods.
- [YARN-5677](#): RM should transition to standby when connection is lost for an extended period.
- [YARN-5704](#): Provide config knobs to control enabling/disabling new/work in progress features in container-executor.
- [YARN-5711](#): Propagate exceptions back to client when using hedging RM failover provider.
- [YARN-5718](#): TimelineClient

- [YARN-5773](#): RM recovery too slow due to LeafQueue#activateApplications.
- [YARN-5864](#): Capacity Scheduler queue priority.
- [YARN-5873](#): RM crashes with NPE if generic application history is enabled.
- [YARN-5915](#): ATS 1.5 FileSystemTimelineWriter causes flush() to be called after every event write.
- [YARN-5923](#): Unable to access logs for a running application if YARN_ACL_ENABLE is enabled.
- [YARN-5999](#): AMRMClientAsync will stop if any exceptions thrown on allocate call.
- [YARN-6011](#): Add a new web service to list the files on a container in AHSWebService.
- [YARN-6029](#): CapacityScheduler deadlock when ParentQueue#getQueueUserAcInfo is called by one thread and LeafQueue#assignContainers is releasing excessive reserved container by another thread.
- [YARN-6068](#): Log aggregation get failed when NM restart even with recovery.
- [YARN-6081](#): LeafQueue#getTotalPendingResourcesConsideringUserLimit should deduct reserved from pending to avoid unnecessary preemption of reserved container.
- [YARN-6099](#): Improve webservice to list aggregated log files.
- [YARN-6100](#): Improve YARN webservice to output aggregated container logs.
- [YARN-6108](#): Improve AHS webservice to accept NM address as a parameter to get container logs.
- [YARN-6113](#): Re-direct NM Web Service to get container logs for finished applications.
- [YARN-6123](#): Add a test to make sure queues of orderingPolicy will be updated when childQueues is added or removed.
- [YARN-6126](#): Obtaining app logs for Running application fails with json parse error.
- [YARN-6137](#): Yarn client implicitly invoke ATS client which accesses HDFS.
- [YARN-6145](#): Improve log message on fail over.
- [YARN-6174](#): Log files pattern should be same for both running and finished container.
- [YARN-6189](#): ApplicationNotFoundException due to RM failed over should throw more user friendly exception.
- [YARN-6228](#): EntityGroupFSTimelineStore should allow configurable cache stores.
- [YARN-6270](#): WebUtils.getRMWebAppURLWithScheme() needs to honor RM HA setting.
- [YARN-6313](#): yarn logs cli should provide logs for a completed container even when application is still running.
- [YARN-6314](#): Potential infinite redirection on YARN log redirection web service.

- [YARN-6332](#): Make RegistrySecurity use short user names for ZK ACLs.
- [YARN-6367](#): YARN logs CLI needs always check containerLogsInfo/containerLogInfo before parse the JSON object from NMWebService.

1.8.2. Accumulo

This release provides Accumulo 1.7.0 with no additional Apache patches.

HDP 2.6.3 provided Accumulo 1.7.0 and the following Apache patches.

- [ACCUMULO-4687](#): Clean up some static-analysis warnings.

HDP 2.6.2 provided Accumulo 1.7.0 and the following Apache patches.

- [ACCUMULO-4660](#): sanitize incoming values from HTTP parameters.
- [ACCUMULO-4665](#): Must use the "real" User for RPCs when Kerberos is enabled.

HDP 2.6.1 provided Accumulo 1.7.0 with no additional Apache patches.

HDP 2.6.0 provided Accumulo 1.7.0 with no additional Apache patches.

1.8.3. Atlas

This release provides Atlas 0.8.0 and the following Apache patches:

- [ATLAS-1954](#): Integration tests for Basic search.
- [ATLAS-2208](#): Include historical entities in Schema tab checked by default for DELETED tables.
- [ATLAS-2214](#): fix for NPE during notNull condition.
- [ATLAS-2218](#): TestMetadata fix after ATLAS-1218, ATLAS-2087 changes.
- [ATLAS-2222](#): UI, Search using entity and trait attributes - , in string attribute filter throws 400 Bad request.
- [ATLAS-2236](#): UI - Basic Search Post request send attribute filters even after removing Type.
- [ATLAS-2240](#): Fix duplicate type name error in QuickStartV2IT.
- [ATLAS-2244](#): UI - Basic Search Table not using referredEntities to render entity details.
- [ATLAS-2250](#): Upgrade JQuery version to 3.*.
- [ATLAS-2267](#): Update basic search to support classification attributes.
- [ATLAS-2274](#): search for classification '*' with a typeName filter results in error.
- [ATLAS-2275](#): fix for incorrect serialization of date type trait attributes in entity notification.

- [ATLAS-2277](#): search for classification '*' doesn't honor excludeDeletedEntities=true.
- [ATLAS-2284](#): added jersey-multipart jar to Hive hook packaging .

HDP 2.6.3 provided Atlas 0.8.0 and the following Apache patches:

- [ATLAS-1218](#): Atlas says it is started but does not accept REST requests.
- [ATLAS-1867](#): ATLASClientV2 correct delete typedefs expected http code.
- [ATLAS-1905](#): Search UI is confusing to user.
- [ATLAS-1944](#): HookConsumer updated to address case where consumer is stopped before starting. Updated unit tests..
- [ATLAS-1988](#): Implement REST API to search for related entities - Add excludeDeletedEntities flag.
- [ATLAS-1993](#): UI updates to show list of Tables in detail page hive_db entity.
- [ATLAS-1996](#): Updated Log4J configuration to limit size of log files..
- [ATLAS-2003](#): Add Javadoc format to class summaries.
- [ATLAS-2004](#): Move Apache license header to the beginning of file. (Richard Ding via nixonrodrigues).
- [ATLAS-2015](#): Fix Maven warnings.
- [ATLAS-2017](#): updated import API to make request parameter optional.
- [ATLAS-2017](#): updated import API to make request parameter optional (#2 - fix for unit test failure).
- [ATLAS-2024](#): Updated Atlas TWiki for basic search functionality (ATLAS-1880).
- [ATLAS-2025](#): Validation of classification/type in basic search query.
- [ATLAS-2027](#): UI : Add type-name with attribute name in query-builder.
- [ATLAS-2028](#): invalid attributes in basic-search request should fail with status code 400.
- [ATLAS-2033](#): Modified to produce ugly JSON for Kafka topic messages..
- [ATLAS-2038](#): Integration Tests for AtlasAuthentication and Authorization Filter.
- [ATLAS-2038](#): Minor refactoring to use org.apache.commons.codec.binary.Base64..
- [ATLAS-2039](#): Unable to edit date value from UI when entity definition is POSTed without value for date attribute..
- [ATLAS-2041](#): UI: Show tag names with dot, when taxonomy is disabled.
- [ATLAS-2047](#): Exception Thrown by Kafka Consumer Ends up Filling Logs Due to Incorrect Handling.

- [ATLAS-2047](#): Update to fix IT failure in build environment..
- [ATLAS-2048](#): Fix for Unit test failure on 0.8-incubating branch.
- [ATLAS-2054](#): Add flag to exclude attribute mapping in FullTextMapper.
- [ATLAS-2060](#): Fix logger class name typos.
- [ATLAS-2062](#): Add flag to disable v1 gremlin search API using atlas-application property.
- [ATLAS-2071](#): UI : Minification of atlas code (js,css).
- [ATLAS-2074](#): AtlasType.resolveReferences() method made package-private.
- [ATLAS-2075](#): notification enhancement to handle large messages, using compression and multi-part messages.
- [ATLAS-2078](#): ATLAS-2114: Type update using v1 API doesn't route to createUpdateTypesDef in v2 API.
- [ATLAS-2079](#): Fix coverity scan issue and IT failures introduced by ATLAS-2062: missing changes.
- [ATLAS-2079](#): Fix coverity scan issue and IT failures introduced by ATLAS-2062.
- [ATLAS-2083](#): Refactor Atlas<Type>DefStore classes to reduce code duplication.
- [ATLAS-2089](#): Upgrade Jetty to newer version.
- [ATLAS-2090](#): UI - Cache busting for static content (css, js).
- [ATLAS-2091](#): basic search update to avoid index query for attribute values containing Tokenizer characters.
- [ATLAS-2092](#): Create edgeLabel while updating the index.
- [ATLAS-2097](#): Update docs site.xml about 0.8.1 documentation and release information.
- [ATLAS-2100](#): UserProfile & SavedSearch API implementation. Fixed accidentally deleted type..
- [ATLAS-2100](#): UserProfile & SavedSearch API implementation ATLAS-2141: edit/disassociate tag results in NPE.
- [ATLAS-2101](#): Update Implementation to Eliminate Use of Stopwatch.
- [ATLAS-2102](#): Atlas UI Improvements: Search results page. patch has (ATLAS-2103:2104,2105,2107,2108).
- [ATLAS-2111](#): UI: Select query is not able to render the search table in Advance search.
- [ATLAS-2115](#): Basic search updates to fix performance regression.
- [ATLAS-2117](#): basic search updates to handle issue caused by tokenization in indexer.
- [ATLAS-2118](#): basic search fix - incorrect results for contains operator.

- [ATLAS-2120](#): Import API updated to detect attribute-type change.
- [ATLAS-2121](#): basic-search update to use case-sensitive filter for type-name / tag-name.
- [ATLAS-2128](#): UI Regression : DSL Results pagination doesn't spawn more than 2 pages.
- [ATLAS-2129](#): Addressed Case Where Abrupt Shutdown of Atlas During Import Retains Entities Imported Before Shutdown.
- [ATLAS-2129](#): import fix to handle shutdown while in the middle of import.
- [ATLAS-2129](#): import fix to handle shutdown while in the middle of import (unit test fix).
- [ATLAS-2130](#): Call made to fetch tables of a database doesn't have excludeDeletedEntities parameter.
- [ATLAS-2132](#): incorrect error for invalid file path/unreadable file provided during import.
- [ATLAS-2134](#): Code Improvements..
- [ATLAS-2140](#): Throwing overly generic exceptions, or unnecessarily exceptions.
- [ATLAS-2144](#): add Knox x-forwarded path to Atlas base URL when Atlas is access via Knox proxy.
- [ATLAS-2145](#): Build failure in atlas-dashboardv2 due to js-beautify issue.
- [ATLAS-2146](#): Remove Powermock Usage.
- [ATLAS-2148](#): saved-search API enhancement to support searchType.
- [ATLAS-2150](#): UI to support search-history and favorites.
- [ATLAS-2151](#): fix incorrect handling of OR condition in index query.
- [ATLAS-2153](#): UI : Adding more columns to the search table masks the Remove tag button.
- [ATLAS-2156](#): save-search UI to allow user to edit name.
- [ATLAS-2157](#): HiveHook fix to handle getTable() error for temporary tables.
- [ATLAS-2158](#): good coding practices.
- [ATLAS-2159](#): Incorrect createTime retrieved for entity attributes in related entities search.
- [ATLAS-2160](#): added REST APIs to execute a saved-search.
- [ATLAS-2162](#): Add hyperlink for URI formatted attribute value on property table.
- [ATLAS-2163](#): UI updates to handle Saved search query having deleted types.
- [ATLAS-2166](#): Block Knox proxy service user for Kerberos authentication.
- [ATLAS-2167](#): UI - Redirection of Pagination gives issue if user enter Page No. which does not exist.

- [ATLAS-2168](#): When a second search is fired in between the pages of the first search results , offset is not reset to 0.
- [ATLAS-2171](#): Atlas UI fix when accessed via Knox proxy without / at the end.
- [ATLAS-2172](#): Atlas AD search filter is not get honored when logging into Atlas UI.
- [ATLAS-2174](#): code improvements and validations.
- [ATLAS-2174](#): Query length validations and path normalization.
- [ATLAS-2179](#): Split Atlas client library to avoid unnecessary dependencies.
- [ATLAS-2182](#): UI : Web elements are hidden when zoomed in.
- [ATLAS-2184](#): fixed isNull/notNull in-memory predicates to handle empty value.
- [ATLAS-2184](#): IS_NULL, NOT_NULL operator support (#2).
- [ATLAS-2184](#): IS_NULL and NOT_NULL operator support.
- [ATLAS-2185](#): UI to handle is_null, not_null operators for attribute search.
- [ATLAS-2186](#): Jetty downgrade to v8..
- [ATLAS-2187](#): fix for build break in powerpc.
- [ATLAS-2187](#): UI improved debugging in minification.
- [ATLAS-2188](#): UI can trim whitespaces at the beginning or end of search query.
- [ATLAS-2189](#): IE-9 Alignment Issues.
- [ATLAS-2192](#): notification consumer updates to handle stale split messages.
- [ATLAS-2194](#): In Basic Search for Tag if any columns are removed then UI throws exception.
- [ATLAS-2195](#): fix to close a graph transaction left open during Atlas startup.
- [ATLAS-2195](#): fix to close trasaction left open while queries index keys (#2).
- [ATLAS-2198](#): fix for Hive Hook OOM for large notification messages.
- [ATLAS-2211](#): Dangling transaction issue within GraphBackedMetadataRepository.
- [ATLAS-2212](#): UI fix to allow negative number input for tag attributes.
- [ATLAS-2213](#): Remove unused attributes from Hive hook.

HDP 2.6.2 provides Atlas 0.8.0 and the following Apache patches:

- [ATLAS-1198](#): Spring Framework (v4 with Spring security) over GuiceATLAS-1872 Spring fix for Kerberos and bean ordering/default.
- [ATLAS-1733](#): updated atlas_stop.py script to work in Windows environment.

- [ATLAS-1734](#): Import API update to make type import optional.
- [ATLAS-1753](#): Sandbox test data to avoid interference.
- [ATLAS-1766](#): updated NotificationConsumer implementation to use new Kafka Consumer API, to enable support for SASL_SSL protocol.
- [ATLAS-1804](#): Allow PAM for authentication..
- [ATLAS-1808](#): UI : All selected entities are assigned to tag when Assign Tag corresponding to 1 entity is clicked..
- [ATLAS-1809](#): UI : Update button in Edit tag attributes window should be enabled only when any update is done.
- [ATLAS-1810](#): UI : Audit details of any tag event (Added,Updated) has only tag name and event..
- [ATLAS-1811](#): UI : Audit Events are not shown in sorted order based on time sometimes..
- [ATLAS-1817](#): (.1) UI :Fix for TagLayout page when tag is not associated with any entity..
- [ATLAS-1817](#): UI : n+1 pages are created, even though only n*25 instances are retrieved.
- [ATLAS-1819](#): V2 API to get entity with classification returns 500.
- [ATLAS-1823](#): UI - Change in base path URL for few api/images to make it relative from path it is accessed..
- [ATLAS-1825](#): updated import to support optional transformation of attribute values.
- [ATLAS-1826](#): UI Create Entity : Type doesn't list the inverseRef constrained attribute options when name length is less than 3 (qinglin,xia via kbhatt)..
- [ATLAS-1832](#): If no attribute is present in tag then showing edit-button for a tag in tags tab on entity page..
- [ATLAS-1834](#): TestNG asserts over JUnit for consistency.
- [ATLAS-1848](#): update UI to remove json2.js dependency.
- [ATLAS-1851](#): update import API to support resume from a specific entity/position.
- [ATLAS-1866](#): DSL 'like' operator fails for associated entity attributes.
- [ATLAS-1876](#): fix to handle large float/double values during ser-de, export/import.
- [ATLAS-1878](#): Fix for NPE when a request without any query path lands on atlas.
- [ATLAS-1879](#): fixed - classification update removes some properties.
- [ATLAS-1880](#): search API with support for entity/tag attribute filters.
- [ATLAS-1889](#): fix to handle concurrent calls to update tags for an entity.
- [ATLAS-1894](#): Search using entity/tag attribute filters.

- [ATLAS-1896](#): Fix for adding Cross Origin [CORS] headers for Atlas.
- [ATLAS-1897](#): UI - Render HTML element based on attribute data-type while assigning Tag to entity..
- [ATLAS-1902](#): updated search UI to allow user to select columns in search result.
- [ATLAS-1906](#): Atlas client should support setting hadoop-jwt token in header..
- [ATLAS-1908](#): updated to use existing Kafka consumer properties when equivalent new Kafka consumer properties are not present.
- [ATLAS-1914](#): clear button in search UI to clear filter attributes.
- [ATLAS-1919](#): Refactored ZipSink to record committed guides.
- [ATLAS-1920](#): UI : Search using entity and trait attributes - Operators for enum and boolean data type filters..
- [ATLAS-1925](#): basic search fixes for ATLAS-1917, ATLAS-1922, ATLAS-1926.
- [ATLAS-1927](#): UI updates in rendering of tag attributes.
- [ATLAS-1938](#): updated search UI to avoid unnecessary calls on Refresh button click.
- [ATLAS-1939](#): added parameter validation to prevent NPE during import.
- [ATLAS-1940](#): fix to remove duplicate type which causes Atlas server to fail during startup.
- [ATLAS-1944](#): Implemented ShutdownableThread for HookConsumer.
- [ATLAS-1944](#): updated handling of shutdown in KafkaConsumer.
- [ATLAS-1945](#): updated UI to use fixed version of plugins.
- [ATLAS-1947](#): AtlasSearchResult to include referredEntity headers.
- [ATLAS-1948](#): export fix to correct the import order.
- [ATLAS-1951](#): Fix for error code for unauthenticated REST API call..
- [ATLAS-1952](#): UI optimization to use searchResult.referredEntity to render object type attributes.
- [ATLAS-1956](#): AtlasSearchResult should include attributes present in filter criteria.
- [ATLAS-1960](#): fixed handling of import/export APIs in HA configuration.
- [ATLAS-1961](#): Basic search improvement in use of Solr index for attribute filtering.
- [ATLAS-1961](#): Basic search improvement in use of Solr index for attribute filtering (# 2).
- [ATLAS-1961](#): Basic search improvement in use of Solr index for attribute filtering (# 3).
- [ATLAS-1961](#): Basic search improvement in use of Solr index for attribute filtering (#4, #5).

- [ATLAS-1967](#): search UI - render attribute filter based on browser URL.
- [ATLAS-1968](#): updated import documentation for fileName option usage.
- [ATLAS-1981](#): Cache escaped type-query string to avoid repeated computation.
- [ATLAS-1981](#): fix for unit test failures.
- [ATLAS-1981](#): fix for unit test failures (#2).
- [ATLAS-1982](#): doc, website updated - to remove references to 'incubator', and with current PMC info.
- [ATLAS-1985](#): fix incorrect URL-encoding while redirecting to active instance in HA.
- [ATLAS-1988](#): added REST API to search for related entities.
- [ATLAS-1989](#): Hooks to include atlas-intg library.
- [ATLAS-1994](#): fix - basic-search ignores tag attribute filters when free-text query is present ATLAS-2008 basic-search gremlin query updated to use bind variables, to avoid ClassCastException.
- [ATLAS-1995](#): updated entity-lookup-by-unique-attributes to use indexQuery.
- [ATLAS-1997](#): fix to avoid NPE while getting vertex_indices.
- [ATLAS-1998](#): Default error page for 404, 500 and Throwable from Jetty.
- [ATLAS-2009](#): Fix in AuthorizationFilter, added return for unauthorized request..
- [ATLAS-2014](#): populate createdBy, updatedBy fields on type create and update.
- [ATLAS-2018](#): UI: Attribute filter does not preserve state.
- [ATLAS-2020](#): Result Table Column Filter : Filtering using Columns in Result table always sets excludeDeletedEntities to True.
- [ATLAS-2021](#): UI Regression : Tags Tab in Entity details page not loaded..
- [ATLAS-2022](#): Validate limit and offset for basic search query.
- [ATLAS-2044](#): In-memory filtering for correctness after index query.
- [ATLAS-2046](#): UI Regression - Columns Filter not listing all attributes of a datatype.
- [ATLAS-2052](#): updated packaing to exclude junit jar.
- [ATLAS-2056](#): removed unused library references.
- [ATLAS-2061](#): fixed basic-search handling of enum attributes in filter.
- [ATLAS-2073](#): UI - removing tag or type from drop-down will not exclude respective filters.

HDP 2.6.1 provided Atlas 0.8.0 and the following Apache patches:

- [ATLAS-855](#): Atlas logs contain stale transaction eviction message.
- [ATLAS-1433](#): Atlas allows creation of tag with attributes' name same as that of its parent tags.
- [ATLAS-1611](#): Regression: Incorrect error code for the negative tests, returned: 500 server error, expected: 400 bad request.
- [ATLAS-1644](#): Taxonomy API /api/atlas/v1/taxonomies is broken.(sumasai).
- [ATLAS-1660](#): Error code mismatch in while GETing a type that doesn't exist.
- [ATLAS-1663](#): Fix defects reported by Coverity Scan.
- [ATLAS-1672](#): fix for issues flagged by Coverity scan.
- [ATLAS-1673](#): Type deletion should check for reference & instances.
- [ATLAS-1680](#): Support for browser login using kerberos keytab.
- [ATLAS-1681](#): Added type validations for compatibility with legacy typesystem.
- [ATLAS-1684](#): export should include super-type definitions, import should preserve system attribute values.
- [ATLAS-1685](#): fix for issues flagged by coverity scan.
- [ATLAS-1686](#): fixed import to use the given guid, instead of looking into store with unique attribute.
- [ATLAS-1688](#): fix lineage UI resize issues.
- [ATLAS-1697](#): fix log4j configuration for import-hive.sh.
- [ATLAS-1707](#): fix to remove external css reference for font file.
- [ATLAS-1709](#): Unit tests for import and export APIs.
- [ATLAS-1710](#): added entity-lookup API for entity create/update UI.
- [ATLAS-1710](#): added entity-lookup API for entity create/update UI (#2).
- [ATLAS-1714](#): UI : Properties tab doesn't load when an entity has attribute of type array of integers.
- [ATLAS-1717](#): IX-Documentation.
- [ATLAS-1718](#): UI update to support enum-type attributes for tags.
- [ATLAS-1719](#): updated tag association UI to support enum-type attribute values from a drop-down.
- [ATLAS-1721](#): updated action-string in the audit logs generated during import.
- [ATLAS-1724](#): [ATLAS-1722](#): fix export to report error while exporting a non-existing entity.

- [ATLAS-1726](#): Creating type name with space causes exceptions while doing DSL search.
- [ATLAS-1727](#): Mask userdetails in quick Start utility.
- [ATLAS-1730](#): fixes in type validations and special character handling in attribute names.
- [ATLAS-1732](#): After Zoom_out from Lineage view scroll stopped working.
- [ATLAS-1735](#): Coverity Scan Fixes for 4/13.
- [ATLAS-1736](#): fixes in type validations and special character handling in attribute names.
- [ATLAS-1737](#): UI - Delete tag(classification) from UI.
- [ATLAS-1742](#): Provide option to exclude deleted entities in basic and fulltext search.
- [ATLAS-1744](#): Error when searching type with attribute name order , limit , offset (sumasai).
- [ATLAS-1745](#): Add google fonts license information to 3party-licenses.
- [ATLAS-1747](#): fixes in type validations and special character handling in attribute names.
- [ATLAS-1750](#): type ahead for entity input in create/update entity UI.
- [ATLAS-1751](#): Implement REST endpoint to support update of classification attribute.
- [ATLAS-1752](#): Fix for Atlas group for kerberos authentication.
- [ATLAS-1755](#): added checkbox to exclude deleted entities in basic and fulltext search.
- [ATLAS-1756](#): UI update to allow user to edit tag attribute values.
- [ATLAS-1759](#): UI - Add checkbox to exclude deleted entities in schema table.
- [ATLAS-1760](#): UI update to render property value per attribute type in entity definition.
- [ATLAS-1761](#): improve attribute search to enable search based on display text.
- [ATLAS-1762](#): updated error code returned by type create/updated APIs.
- [ATLAS-1767](#): Support KNOX SSO Token based authentication on Atlas REST API calls.
- [ATLAS-1771](#): confirmation dialog while deleting tag appears incorrectly in IE-9.
- [ATLAS-1776](#): UI fix to not hide 'Include historical entities' checkbox when searching a type with all DELETED entities.
- [ATLAS-1780](#): Type deletion should invalidate property keys in Titan to allow re-creation with different data type if needed.
- [ATLAS-1812](#): On browser refresh if, tag is doesn't exist, then URL should update with the first tag.
- [ATLAS-1815](#): Basic search API might return fewer entities when excludeDeletedEntities=true.

- [ATLAS-1816](#): button to navigate to next page in search-result is disabled incorrectly.
- [ATLAS-1818](#): basic-search enhancements to improve search performance.

HDP 2.6.0 provided Atlas 0.8.0 and the following Apache patches:

- [ATLAS-1333](#): fix for incorrect json4s library version in Atlas Storm hook.
- [ATLAS-1469](#): User provided values for tag attributes should be evaluated for its data type..
- [ATLAS-1470](#): Tag is not associated to an entity when incorrect value for byte type is provided.
- [ATLAS-1503](#): optimization of export implementation.
- [ATLAS-1611](#): incorrect error code for negative tests (#2).
- [ATLAS-1630](#): basic search performance improvement (#3).
- [ATLAS-1659](#): Update full-text search string when traits/tags are added/removed from entity.
- [ATLAS-1664](#): Able to add already added tag to an entity through REST API.
- [ATLAS-1665](#): export optimization to reduce file-size and export-time.
- [ATLAS-1666](#): fix for IT failures caused by earlier commit.
- [ATLAS-1666](#): Updated exception handling to avoid use of generic exceptions.
- [ATLAS-1667](#): Atlas UI cleanup for lineage.
- [ATLAS-1669](#): Removed Unused class.
- [ATLAS-1670](#): fix for IT failures introduced due to ATLAS-1664.
- [ATLAS-1671](#): fix for missing client IP in Ranger audit log for Atlas authorizations.
- [ATLAS-1675](#): type-registry re-initialization failure when instance goes from passive to active state.
- [ATLAS-1676](#): update Hive hook to set hdfs_path.clusterName attribute.
- [ATLAS-1682](#): UI update to add new overlay loader to tables; fix incorrect state while switching between basic and Advance search.
- [ATLAS-1687](#): hbase_column_family and hbase_column are not loaded after upgrade.

1.8.4. DataFu

This release provides DataFu 1.3.0 with no additional Apache patches.

HDP 2.6.0 provides DataFu 1.3.0 with no additional Apache patches.

1.8.5. Falcon

This release provides Falcon 0.10.0 with no additional Apache patches.

HDP 2.6.3 provided Falcon 0.10.0 with no additional Apache patches.

HDP 2.6.2 provided Falcon 0.10.0 with no additional Apache patches.

HDP 2.6.1 provided Falcon 0.10.0 with no additional Apache patches.

HDP 2.6.0 provided Falcon 0.10.0 and the following Apache patches:

- [FALCON-1944](#): Ability to provide additional DistCP options.
- [FALCON-2066](#): Extend support for Import and Export of various database types.
- [FALCON-2072](#): Hive2 URLs in Falcon should allow additional configuration elements in the URL.
- [FALCON-2082](#): Add CSRF filter for REST APIs.
- [FALCON-2083](#): Handle connector specific direct mode and verbose options for Database Import and Export.
- [FALCON-2093](#): Database import and export to support TD connector.
- [FALCON-2095](#): Hive Replication jobs are failing with UnknownHostException in NN HA.
- [FALCON-2117](#): Implement X-Frame-Options header for Falcon UI.
- [FALCON-2118](#): Proposal for new UI changes for FALCON.
- [FALCON-2273](#): Disallow external entity injection and clean up some log messages.
- [FALCON-2280](#): Unable to create mirror on WASB target.
- [FALCON-2281](#): HiveDRTest tests are getting permissions denied.

1.8.6. Flume

This release provides Flume 1.5.2 with no additional Apache patches.

HDP 2.6.3 provided Flume 1.5.2 with no additional Apache patches.

HDP 2.6.2 provided Flume 1.5.2 and the following Apache patches:

- [FLUME-2427](#): Be less verbose in isFileClosed() notification.
- [FLUME-2672](#): NPE in KafkaSourceCounter.
- [FLUME-2821](#): Flume-Kafka Source with new Consumer.
- [FLUME-2822](#): Flume-Kafka-Sink with new Producer.
- [FLUME-2852](#): Kafka Source/Sink should optionally read/write Flume records.

- [FLUME-2915](#): The kafka channel using new APIs will be stuck when the sink is avro sink.
- [FLUME-2920](#): Kafka Channel Should Not Commit Offsets When Stopping.
- [FLUME-2954](#): Make raw data appearing in log messages explicit.
- [FLUME-2972](#): Handle offset migration in the new Kafka Channel.
- [FLUME-2983](#): Handle offset migration in the new Kafka Source.
- [FLUME-3114](#): Upgrade commons-httpclient library dependency.

HDP 2.6.1 provided Flume 1.5.2 with no additional Apache patch.

HDP 2.6.0 provided Flume 1.5.2 and the following Apache patch:

- [FLUME-1334](#): Flume startup script for Windows.
- [FLUME-1734](#): Hive Sink based on the new Hive Streaming support.
- [FLUME-2058](#): TestFlumeEventQueue in FileChannel fails on Windows.
- [FLUME-2068](#): File Channel issue - recovering from BadCheckpoint exception on Windows.
- [FLUME-2095](#): JMS source with TIBCO (patch-1).
- [FLUME-2122](#): Minor cleanups of User guide.
- [FLUME-2123](#): Morphline Solr sink missing short type name.
- [FLUME-2136](#): Fix intermittent test failure in TestMonitoredCounterGroup on Windows.
- [FLUME-2137](#): Fix StagedInstall.java to invoke the correct startup script on Windows.
- [FLUME-2145](#): TestCheckpointRebuilder.testFastReplay fails on Windows.
- [FLUME-2146](#): Windows: Tmp file creation in TestBodyTextEventSerializer.java needs fixing.
- [FLUME-2150](#): Fix TestFileChannelEncryption failure on Windows.
- [FLUME-2151](#): Windows: Update TestExecSource to use native commands on Windows.
- [FLUME-2162](#): TestHDFSEventSinkOnMiniCluster.maxUnderReplicationTest fails on hadoop2.
- [FLUME-2175](#): Update Developer Guide with notes on how to upgrade Protocol Buffer version.
- [FLUME-2218](#): TestFileChannelIntegrityTool tests failing on Windows.
- [FLUME-2219](#): Windows: Flume tests need to know location of Hadoop native libraries (hadoop.dll).
- [FLUME-2224](#): Disable File channel dual checkpointing on Windows.

- [FLUME-2226](#): Refactor BlobHandler out of morphline sink and into HTTP source.
- [FLUME-2227](#): Move BlobDeserializer from Morphline Sink to flume-ng-core.
- [FLUME-2337](#): export JAVA_HOME in flume-env.sh.template and increase heap size.
- [FLUME-2358](#): File Channel needs to close BackingStore & EventQueue before deleting files in checkpoint directory.
- [FLUME-2359](#): TestFileChannelIntegrityTool throws exception on class teardown on Windows.
- [FLUME-2402](#): Warning seen when overflow is disabled for Spillable Channel.
- [FLUME-2407](#): Spillable Channel sometimes fails on reconfigure.
- [FLUME-2412](#): Improve Logging in Spillable Channel.
- [FLUME-2441](#): Unit test TestHTTSource.java failed with IBM JDK 1.7.
- [FLUME-2442](#): Need an alternative to providing clear text passwords in flume config.
- [FLUME-2450](#): Improve replay index insertion speed.
- [FLUME-2451](#): HDFS Sink Cannot Reconnect After NameNode Restart.
- [FLUME-2501](#): Updating HttpClient lib version to ensure compat with Solr.
- [FLUME-2508](#): LineDeserializer causes incorrect behavior in SpoolDir Source on Windows.
- [FLUME-2511](#): Allow configuration of enabled protocols in Avro source and Rpc client.
- [FLUME-2520](#): HTTP Source should be able to block a prefixed set of protocols..
- [FLUME-2530](#): Resource leaks found by Coverity tool.
- [FLUME-2532](#): Windows : TestReliableSpoolingFileEventReader - need to close filereader.
- [FLUME-2533](#): HTTPS tests fail on Java 6.
- [FLUME-2534](#): Windows : Windows : TestFlumeEventQueue has many failures.
- [FLUME-2541](#): Bug in TestBucketWriter.testSequenceFileCloseRetries.
- [FLUME-2586](#): HDFS Sink should have an option to try rename even if close fails.
- [FLUME-2595](#): Add option to checkpoint on file channel shutdown.
- [FLUME-2624](#): Streaming ingest performance improvement.
- [FLUME-2632](#): High CPU on KafkaSink.
- [FLUME-2655](#): Update documentation for hdfs.closeTries based on FLUME-2586.
- [FLUME-2662](#): Upgrade to Commons-IO 2.4.

- [FLUME-2663](#): Address Build warnings of duplicate dependencies listed.
- [FLUME-2722](#): Windows : TestKafkaSourceUtil Unit Tests fail on Windows.
- [FLUME-2729](#): Allow pollableSource backoff times to be configurable.
- [FLUME-2754](#): Hive Sink skipping first transaction in each Batch of Hive Transactions.
- [FLUME-2761](#): Move Hive sink out of preview mode.
- [FLUME-2804](#): Hive sink should try to clean up transactions when flume exits.
- [FLUME-2812](#): Fix semaphore leak causing java.lang.Error: Maximum permit count exceeded in MemoryChannel.
- [FLUME-2841](#): Upgrade commons-collections to 3.2.2.
- [FLUME-2854](#): parameterizing jetty version..
- [FLUME-2865](#): Upgrade thrift version (0.9.2).
- [FLUME-2947](#): Upgrade Hive and thrift dependencies.
- [FLUME-2991](#): ExecSource command execution starts before starting the sourceCounter.
- [FLUME-3031](#): Sequence source should reset its counter for event body on channel exception.
- [FULME-2544](#): Windows: Incorrect Path Separator used in HDFS path (HDFS Sink).

1.8.7. HBase

This release provides HBase 1.1.2 with no additional Apache patches.

HDP 2.6.3 provided HBase 1.1.2 and the following Apache patches:

- [HBASE-9393](#): Hbase does not closing a closed socket resulting in many CLOSE_WAIT.
- [HBASE-11013](#): Clone Snapshots on Secure Cluster Should provide option to apply Retained User Permissions.
- [HBASE-14469](#): Fix some comment, validation and logging around memstore lower limit configuration.
- [HBASE-14584](#): TestNamespacesInstanceModel fails on jdk8.
- [HBASE-14644](#): Region in transition metric is broken (Huaxiang Sun).
- [HBASE-14663](#): HStore::close does not honor config hbase.rs.evictblocksonclose.
- [HBASE-15160](#): Put back HFile's HDFS op latency sampling code and add metrics for monitoring (Yu Li and Enis Soztutar) [HBASE-18184](#) Add hbase-hadoop2-compat jar as MapReduce dependency.
- [HBASE-15198](#): RPC client not using Codec and CellBlock for puts by default.

- [HBASE-15203](#): Reduce garbage created by `path.toString()` during Checksum verification.
- [HBASE-15214](#): Valid mutate Ops fail with RPC Codec in use and region moves across.
- [HBASE-15433](#): `SnapshotManager#restoreSnapshot` not update table and region count quota correctly when encountering exception (Jianwei Cui).
- [HBASE-16700](#): Allow for coprocessor whitelisting.
- [HBASE-16886](#): `hbase-client`: scanner with `reversed=true` and `small=true` gets no result.
- [HBASE-17002](#): JMX metrics and some UI additions for space quotas.
- [HBASE-17003](#): Documentation updates for space quotas.
- [HBASE-17127](#): Locate region should fail fast if underlying Connection already closed.
- [HBASE-17215](#): Separate small/large file delete threads in `HFileCleaner` to accelerate archived hfile cleanup speed.
- [HBASE-17290](#): Potential loss of data for replication of bulk loaded hfiles.
- [HBASE-17557](#): `HRegionServer#reportRegionSizesForQuotas()` should respond to `UnsupportedOperationException`.
- [HBASE-17602](#): Reduce some quota chore periods/delays.
- [HBASE-17612](#): [C++] Set client version info in RPC header.
- [HBASE-17794](#): Swap "violation" for "snapshot" where appropriate.
- [HBASE-17854](#): Use `StealJobQueue` in `HFileCleaner`.
- [HBASE-17955](#): Various reviewboard improvements to space quota work.
- [HBASE-17977](#): Enable the `MasterSpaceQuotaObserver` by default.
- [HBASE-17978](#): Ensure superusers can circumvent actions restricted by space quota violations.
- [HBASE-17981](#): Consolidate the space quota shell commands.
- [HBASE-18024](#): `HRegion#initializeRegionInternals` should not re-create `.hregioninfo` file when the region directory no longer exists.
- [HBASE-18061](#): [C++] Fix retry logic in multi-get calls (Sudeep Sunthakar).
- [HBASE-18078](#): [C++] Harden RPC by handling various communication abnormalities.
- [HBASE-18086](#): Create native client which creates load on selected cluster.
- [HBASE-18093](#): Overloading the meaning of 'enabled' in Quota Manager to indicate either quota disabled or quota manager not ready is not good (Stephen Yuan Jiang).
- [HBASE-18150](#): Do not call `FSUtils.setVersion()` and `FSUtils.checkVersion()` when using `checkRootDir()` to check `hbase.wal.dir`.

- [HBASE-18168](#): NoSuchElementException when rolling the log (Allan Yang).
- [HBASE-18204](#): [C++] Rpc connection close and reconnecting.
- [HBASE-18338](#): [C++] Implement RpcTestServer (Xiaobing Zhou).
- [HBASE-18371](#): [C++] Update folly and wangle dependencies.
- [HBASE-18400](#): [C++] ConnectionId Equals/Hash should consider service_name (Xiaobing Zhou).
- [HBASE-18407](#): [C++] make Configuration::Set/GetBool work for both true/false and 1/0 (Xiaobing Zhou).
- [HBASE-18459](#): [C++] Fix Segfault in location-cache.
- [HBASE-18466](#): [C++] Support handling exception in RpcTestServer.
- [HBASE-18471](#): The DeleteFamily cell is skipped when StoreScanner seeks to next column.
- [HBASE-18507](#): [C++] Support for MultiPuts in AsyncBatchRpcRetryingCaller class (Sudeep Sunthakar).
- [HBASE-18536](#): [C++] Add fault injection infra.
- [HBASE-18537](#): [C++] Improvements to load-client.
- [HBASE-18564](#): [C++] Problems compiling with GCC.
- [HBASE-18565](#): [C++] Fix deadlock in AsyncScanRetryingCaller and other RPCs.
- [HBASE-18568](#): Correct metric of numRegions.
- [HBASE-18576](#): [C++] Add ping for RPC test.
- [HBASE-18578](#): [C++] Add pause for RPC test.
- [HBASE-18579](#): Enable core dump by default for docker.
- [HBASE-18603](#): buck complains about Build target path containing double slash.
- [HBASE-18614](#): Setting BUCKET_CACHE_COMBINED_KEY to false disables stats on RS UI.
- [HBASE-18629](#): Enhance ChaosMonkeyRunner with interruptibility.
- [HBASE-18631](#): Allow ChaosMonkey properties to be specified in hbase-site.
- [HBASE-18646](#): LogRollMasterProcedureManager: make procedure timeout, thread pool size configurable.
- [HBASE-18665](#): ReversedScannerCallable invokes getRegionLocations incorrectly.
- [HBASE-18679](#): Add a null check around the result of getCounters() in ITBLL.
- [HBASE-18720](#): [C++] Update wangle dependency to pick up the new release with Apache License v2.

- [HBASE-18725](#): [C++] Install header files as well as library.
- [HBASE-18727](#): [C++] Don't link JNI/JVM stuff into libHbaseClient.
- [HBASE-18728](#): [C++] The library should be named libHBaseClient, instead of libHbaseClient.
- [HBASE-18743](#): HFiles in use by a table which has the same name and namespace with a default table cloned from snapshot may be deleted when that snapshot and default table are deleted (wenbang).
- [HBASE-18757](#): Fix Improper bitwise & in BucketCache offset calculation.
- [HBASE-18777](#): Create one table for subtests in multi-retry-test.
- [HBASE-18802](#): [C++] Remove hbase-macros.h.
- [HBASE-18891](#): BUG-89216 Upgrade netty-all dependency.

HDP 2.6.2 provides HBase 1.1.2 and the following Apache patches:

- [HBASE-13706](#): CoprocessorClassLoader should not exempt Hive classes.
- [HBASE-14425](#): In Secure ZooKeeper cluster superuser will not have sufficient permission if multiple values are configured in hbase.superuser.
- [HBASE-14492](#): Increase REST server header buffer size from 8k to 64k.
- [HBASE-14734](#): Prevent BindException when setting up MiniKdc. Port for kdc service gets selected in the constructor, but we bind to it later in MiniKdc.start()→MiniKdc.initKDCServer() → KdcServer.start(). In meantime, some other service can capture the port which results in BindException. The solution here is to catch the exception and retry.
- [HBASE-15177](#): Reduce garbage created under high load.
- [HBASE-15645](#): hbase.rpc.timeout is not used in operations of HTable.
- [HBASE-16345](#): RpcRetryingCallerWithReadReplicas#call() should catch some RegionServer Exceptions.
- [HBASE-16420](#): Fix source incompatibility of Table interface.
- [HBASE-16488](#): Starting namespace and quota services in master startup asynchronously.
- [HBASE-16767](#): Mob compaction needs to clean up files - addendum removes createMobRefKeyValue().
- [HBASE-16767](#): Mob compaction needs to clean up files in /hbase/mobdir/.tmp.
- [HBASE-16812](#): Clean up the locks in MOB.
- [HBASE-16841](#): Data loss in MOB files after cloning a snapshot and deleting that snapshot.
- [HBASE-17005](#): Improve log message in MobFileCache.

- [HBASE-17095](#): The ClientSimpleScanner keeps retrying if the hfile is corrupt or cannot found.
- [HBASE-17151](#): New API to create HFile.Reader without instantiating block cache.
- [HBASE-17241](#): Avoid compacting already compacted mob files with _del files.
- [HBASE-17547](#): TableCatalog doesn't support multiple columns from Single Column family.
- [HBASE-17922](#): Clean TestRegionServerHostname for hadoop3..
- [HBASE-18312](#): Ineffective handling of FileNotFoundException in FileLink.tryOpen().
- [HBASE-18358](#): Backport HBASE-18099 'FlushSnapshotSubprocedure should wait for concurrent Region#flush() to finish'.

HDP 2.6.1 provided HBase 1.1.2 and the following Apache patches:

- [HBASE-17287](#): Master becomes a zombie if filesystem object closes.
- [HBASE-17501](#): guard against NPE while reading FileTrailer and HFileBlock.
- [HBASE-17779](#): disable_table_replication returns misleading message and does not turn off replication.
- [HBASE-17785](#): RSGroupBasedLoadBalancer fails to assign new table regions when cloning snapshot.
- [HBASE-17861](#): Regionserver down when checking the permission of staging dir if hbase.rootdir is on S3.
- [HBASE-18036](#): Data locality is not maintained after cluster restart or SSH.
- [HBASE-18067](#): Allow default FORMATTER for shell put/get commands.
- [HBASE-18075](#): Support non-latin table names and namespaces.

HDP 2.6.0 provided HBase 1.1.2 and the following Apache patches:

- [BUG-45027](#):/BUG-45361 Fix hostname used with Kerberos on Dual-Homed clusters..
- [HBASE-13318](#): RpcServer.getListenerAddress should handle when the accept channel is closed (Andrew Purtell).
- [HBASE-13829](#): Add more ThrottleType (Guanghao Zhang).
- [HBASE-14123](#): HBase Backup/Restore Phase 2.
- [HBASE-14140](#): HBase Backup Admin API.
- [HBASE-14148](#): Web UI Framable Page.
- [HBASE-14172](#): Upgrade existing thrift binding using thrift 0.9.3 compiler (Josh Elser).
- [HBASE-14258](#): Make region_mover.rb script case insensitive with regard to hostname.

- [HBASE-14269](#): FuzzyRowFilter omits certain rows when multiple fuzzy key exist.
- [HBASE-14283](#): Reverse scan doesn't work with HFile inline index/bloom blocks.
- [HBASE-14302](#): TableSnapshotInputFormat should not create back references when restoring snapshot.
- [HBASE-14307](#): Incorrect use of positional read api in HFileBlock (Chris Nauroth).
- [HBASE-14313](#): After a Connection sees ConnectionClosingException it never recovers (Elliott Clark).
- [HBASE-14407](#): NotServingRegion: hbase region closed forever (Shuaifeng Zhou).
- [HBASE-14449](#): Rewrite deadlock prevention for concurrent connection close.
- [HBASE-14535](#): Integration test for rpc connection concurrency / deadlock testing (Enis Soztutar).
- [HBASE-14536](#): Balancer & SSH interfering with each other leading to unavailability.
- [HBASE-14598](#): ByteBufferOutputStream grows its HeapByteBuffer beyond JVM limitations (Ian Friedman).
- [HBASE-14635](#): Fix flaky test TestSnapshotCloneIndependence.
- [HBASE-14655](#): Narrow the scope of doAs() calls to region observer notifications for compaction.
- [HBASE-14667](#): HBaseFsck constructors have diverged (Matteo).
- [HBASE-14680](#): Two configs for snapshot timeout and better defaults.
- [HBASE-14712](#): Increase MasterProcWALs clean up granularity (Matteo Bertozzi).
- [HBASE-14805](#): status should show the master in shell (Enis).
- [HBASE-14818](#): user_permission does not list namespace permissions (li xiang).
- [HBASE-14843](#): TestWALProcedureStore.testLoad is flakey (Matteo Bertozz).
- [HBASE-14850](#): C++ client implementation (TECH PREVIEW. DO NOT DEPLOY IN PROD).
- [HBASE-14906](#): Improvements on FlushLargeStoresPolicy (Yu Li).
- [HBASE-14947](#): WALProcedureStore improvements (Matteo Bertozzi).
- [HBASE-14963](#): Remove Guava dependency from HBase client code (ddas).
- [HBASE-15019](#): Replication stuck when HDFS is restarted (Matteo).
- [HBASE-15100](#): Master WALProcs still never clean up (Matteo Bertozzi).
- [HBASE-15125](#): HBaseFsck's adoptHdfsOrphan function creates region with wrong end key boundary (chenrongwei).

- [HBASE-15136](#): Explore different queuing behaviors while busy.
- [HBASE-15142](#): Procedure v2 - Basic WebUI listing the procedures (Matteo).
- [HBASE-15144](#): Procedure v2 - Web UI displaying Store state.
- [HBASE-15146](#): Don't block on Reader threads.
- [HBASE-15221](#): Reload the cache on re-tried puts in HTableMultiplexer and adds a close() method to HTableMultiplexer.
- [HBASE-15232](#): Handle region location cache mgmt in AsyncProcess for multi()'s.
- [HBASE-15292](#): Refined ZooKeeperWatcher to prevent ZooKeeper's callback while construction (Hiroshi Ikeda).
- [HBASE-15306](#): Make RPC call queue length dynamically configurable.
- [HBASE-15377](#): Per-RS Get metric is time based, per-region metric is size-based (Heng Chen).
- [HBASE-15378](#): Scanner cannot handle heartbeat message with no results (Phil Yang).
- [HBASE-15465](#): userPermission returned by getUserPermission() for the selected namespace does not have namespace set (li xiang).
- [HBASE-15518](#): Add per-table metrics.
- [HBASE-15519](#): Add per-user metrics.
- [HBASE-15636](#): hard coded wait time out value in HBaseTestingUtility#waitUntilAllRegionsAssigned might cause test failure (Stephen Yuan Jiang).
- [HBASE-15752](#): ClassNotFoundException is encountered when custom WAL codec is not found in WALPlayer job.
- [HBASE-15767](#): upgrade httpclient to 4.3.6.
- [HBASE-15808](#): Reduce potential bulk load intermediate space usage and waste (Jerry He).
- [HBASE-15817](#): Backup history should mention the type (full or incremental) of the backup.
- [HBASE-15842](#): SnapshotInfo should display ownership information.
- [HBASE-15850](#): Localize the configuration change in testCheckTableLocks to reduce flakiness of TestHBaseFck test suite (Stephen Yuan Jiang).
- [HBASE-15858](#): Some region server group shell commands don't work.
- [HBASE-15861](#): Add support for table sets in restore operation .
- [HBASE-15862](#): Backup - Delete- Restore does not restore deleted data.

- [HBASE-15873](#): ACL for snapshot restore / clone is not enforced.
- [HBASE-15880](#): RpcClientImpl#tracedWriteRequest incorrectly closes HTrace span (Mikhail).
- [HBASE-15884](#): NPE in StoreFileScanner#skipKVsNewerThanReadpoint during reverse scan (Sergey Soldatov).
- [HBASE-15899](#): HBase incremental restore should handle namespaces properly.
- [HBASE-15904](#): Use comma as separator for list of tables in BackupInfo.
- [HBASE-15925](#): compat-module maven variable not evaluated (Sean Busbey).
- [HBASE-15928](#): hbase backup delete command does not remove backup root dir from hdfs.
- [HBASE-15931](#): Add log for long-running tasks in AsyncProcess (Yu Li).
- [HBASE-15933](#): NullPointerException may be thrown from SimpleRegionNormalizer#getRegionSize().
- [HBASE-15953](#): HBase backup set list command does not list any existing sets.
- [HBASE-15971](#): Regression: Random Read/WorkloadC slower in 1.x than 0.98 (Stack).
- [HBASE-15972](#): hbase backup set command should not accept non-existing table.
- [HBASE-16006](#): FileSystem should be obtained from specified path in WALInputFormat#getSplits().
- [HBASE-16007](#): Job's Configuration should be passed to TableMapReduceUtil#addDependencyJars() in WALPlayer.
- [HBASE-16012](#): Major compaction can't work due to obsolete scanner read point in RegionServer (Guanghao Zhang).
- [HBASE-16016](#): Fix overflow deadline value in AssignmentManager#waitForAssignment (Stephen Yuan Jiang).
- [HBASE-16023](#): Fastpath for the FIFO rpcscheduler.
- [HBASE-16037](#): Backup/Restore: Make automatic mode default one (Vladimir Rodionov).
- [HBASE-16045](#): endtime argument for VerifyReplication was incorrectly specified in usage.
- [HBASE-16048](#): Tag InternalScanner with LimitedPrivate(HBaseInterfaceAudience.COPROC).
- [HBASE-16052](#): Improve HBaseFsck Scalability (Ben Lau).
- [HBASE-16056](#): Procedure v2 - fix master crash for FileNotFound (Matteo Bertozzi).
- [HBASE-16059](#): Region normalizer fails to trigger merge action where one of the regions is empty.

- [HBASE-16062](#): Improper error handling in WAL Reader/Writer creation (Vladimir Rodionov).
- [HBASE-16064](#): delete backup command shows HDFS permission error when deleting the intended backup.
- [HBASE-16065](#): hbase backup set describe command does not inform if the set does not exist (Vladimir Rodionov).
- [HBASE-16088](#): hbase restore gives a misleading message if the table doesn't exist.
- [HBASE-16132](#): Scan does not return all the result when regionserver is busy (binlijin).
- [HBASE-16237](#): Blocks for hbase:meta table are not cached in L1 cache.
- [HBASE-16267](#): Remove commons-httpclient dependency from hbase-rest module.
- [HBASE-16284](#): Unauthorized client can shutdown the cluster.
- [HBASE-16288](#): HFile intermediate block level indexes might recurse forever creating multi TB files.
- [HBASE-16314](#): Retry on table snapshot failure.
- [HBASE-16315](#): RegionSizeCalculator prints region names as binary without escapes.
- [HBASE-16319](#): Fix TestCacheOnWrite after HBASE-16288 (Andrew Purtell).
- [HBASE-16350](#): Undo server abort from HBASE-14968.
- [HBASE-16358](#): Backup create command: log success/failure with backup id.
- [HBASE-16359](#): NullPointerException in RSRpcServices.openRegion().
- [HBASE-16367](#): Race between master and region server initialization may lead to premature server abort.
- [HBASE-16377](#): ServerName check is ineffective in region_mover.rb.
- [HBASE-16429](#): FSHLog: deadlock if rollWriter called when ring buffer filled with appends.
- [HBASE-16604](#): Scanner retries on IOException can cause the scans to miss data.
- [HBASE-16675](#): Average region size may be incorrect.
- [HBASE-16678](#): MapReduce jobs do not update counters from ScanMetrics.
- [HBASE-16721](#): Concurrency issue in WAL unflushed seqId tracking.
- [HBASE-16750](#): Updating asciidoctor plugin version.
- [HBASE-16824](#): Writer.flush() can be called on already closed streams in WAL roll.
- [HBASE-16931](#): Setting cell's seqId to zero in compaction flow might cause RS down.
- [HBASE-16985](#): TestClusterId failed due to wrong hbase rootdir.

- [HBASE-17292](#): Add observer notification before bulk loaded hfile is moved to region directory.
- [HBASE-5291](#): Add Kerberos HTTP SPNEGO authentication support to HBase web consoles.

1.8.8. Hive

This release provides Hive 1.2.1 and Hive 2.1.0 in addition to the following patches:

Hive 1.2.1 Apache patches:

- [HIVE-11878](#): ClassNotFoundException can possibly occur if multiple jars are registered one at a time in Hive.
- [HIVE-14380](#): Queries on tables with remote HDFS paths fail in "encryption" checks.
- [HIVE-15090](#): Temporary DB failure can stop ExpiredTokenRemover thread.
- [HIVE-15700](#): BytesColumnVector can get stuck trying to resize byte buffer.
- [HIVE-16317](#): CASE .. NULL in JOIN condition can trigger SemanticException.
- [HIVE-16360](#): Improve 'No delta files or original files found to compact in' message.
- [HIVE-16385](#): StatsNoJobTask could exit early before all partitions have been processed.
- [HIVE-17115](#): MetaStoreUtils.getDeserializer doesn't catch the java.lang.ClassNotFoundException.
- [HIVE-17628](#): always use fully qualified path for tables/partitions/etc.
- [HIVE-17774](#): compaction may start with 0 splits and fail.
- [HIVE-17947](#): Concurrent inserts might fail for ACID table since HIVE-17526 on branch-1.
- [HIVE-17963](#): HIVE-17813: Fix for HIVE-17113 can be improved for non-blobstore filesystems.

Hive 2.1.0 Apache Patches:

- [HIVE-16360](#): Improve 'No delta files or original files found to compact in' message.
- [HIVE-17079](#): LLAP: Use FQDN by default for work submission.
- [HIVE-17628](#): always use fully qualified path for tables/partitions/etc.
- [HIVE-17774](#): compaction may start with 0 splits and fail.
- [HIVE-17813](#): hive.exec.move.files.from.source.dir does not work with partitioned tables.
- [HIVE-17908](#): LLAP External client not correctly handling killTask for pending requests.
- [HIVE-17918](#): NPE during semijoin reduction optimization when LLAP caching disabled.

- [HIVE-17936](#): Dynamic Semijoin Reduction : markSemiJoinForDPP marks unwanted semijoin branches.
- [HIVE-17939](#): Bucket map join not being selected when bucketed tables is missing bucket files.
- [HIVE-17947](#): Concurrent inserts might fail for ACID table since HIVE-17526 on branch-1.
- [HIVE-17963](#): Fix for HIVE-17113 can be improved for non-blobstore filesystems.

HDP 2.6.3 provided Hive 1.2.1 and Hive 2.1.0 with no additional patches.

HDP 2.6.2 provided Hive 1.2.1 and Hive 2.1.0 in addition to the following patches:

Hive 1.2.1 Apache patches:

- [HIVE-4577](#): hive CLI can't handle hadoop dfs command with space and quotes.
- [HIVE-6990](#): Direct SQL fails when the explicit schema setting is different from the default one.
- [HIVE-10319](#): Hive CLI startup takes a long time with a large number of databases.
- [HIVE-10495](#): Hive index creation code throws NPE if index table is null.
- [HIVE-10616](#): TypeInfoUtils doesn't handle DECIMAL with just precision specified.
- [HIVE-11481](#): hive incorrectly set extended ACLs for unnamed group for new databases/tables with inheritPerms enabled.
- [HIVE-11721](#): non-ascii characters shows improper with insert into.
- [HIVE-12207](#): Query fails when non-ascii characters are used in string literals.
- [HIVE-14389](#): Beeline should not output query and prompt to stdout.
- [HIVE-14864](#): Distcp is not called from MoveTask when src is a directory.
- [HIVE-15294](#): Capture additional metadata to replicate a simple insert at destination.
- [HIVE-15519](#): BitSet not computed properly for ColumnBuffer subset.
- [HIVE-15587](#): Using ChangeManager to copy files in ReplCopyTask.
- [HIVE-16164](#): Provide mechanism for passing HMS notification ID between transactional and non-transactional listeners..
- [HIVE-16272](#): support for drop function in incremental replication.
- [HIVE-16323](#): HS2 JDOPersistenceManagerFactory.pmCache leaks after HIVE-14204.
- [HIVE-16591](#): DR for function Binaries on HDFS.
- [HIVE-16642](#): New Events created as part of replv2 potentially break replv1.
- [HIVE-16644](#): Hook Change Manager to Insert Overwrite.

- [HIVE-16684](#): Bootstrap REPL DUMP shouldn't fail when table is dropped after fetching the table names.
- [HIVE-16686](#): repl invocations of distcp needs additional handling.
- [HIVE-16703](#): Hive may add the same file to the session and vertex in Tez.
- [HIVE-16706](#): Bootstrap REPL DUMP shouldn't fail when a partition is dropped/renamed when dump in progress.
- [HIVE-16727](#): REPL DUMP for insert event shouldn't fail if the table is already dropped..
- [HIVE-16750](#): Support change management for rename table/partition.
- [HIVE-16785](#): Ensure replication actions are idempotent if any series of events are applied again..
- [HIVE-16808](#): WebHCat statusdir parameter doesn't properly handle Unicode characters when using relative path.
- [HIVE-16813](#): Incremental REPL LOAD should load the events in the same sequence as it is dumped.
- [HIVE-16866](#): existing available UDF is used in TestReplicationScenariosAcrossInstances#testDropFunctionIncrementalReplication.
- [HIVE-16892](#): Move creation of _files from ReplCopyTask to analysis phase for bootstrap replication.
- [HIVE-16893](#): move replication dump related work in semantic analysis phase to execution phase using a task.
- [HIVE-16895](#): Multi-threaded execution of bootstrap dump of partitions.
- [HIVE-16896](#): move replication load related work in semantic analysis phase to execution phase using a task.
- [HIVE-16901](#): Distcp optimization - One distcp per ReplCopyTask.
- [HIVE-16918](#): Skip ReplCopyTask distcp for _metadata copying. Also enable -pb for distcp.
- [HIVE-16973](#): Fetching of Delegation tokens.
- [HIVE-17005](#): Ensure REPL DUMP and REPL LOAD are authorized properly.
- [HIVE-17021](#): Support replication of concatenate operation.
- [HIVE-17047](#): Allow table property to be populated to jobConf to make FixedLengthInputFormat work.
- [HIVE-17068](#): HCatalog: Add parquet support.
- [HIVE-17085](#): ORC file merge/concatenation should do full schema check.
- [HIVE-17113](#): Duplicate bucket files can get written to table by runaway task - ed to hive1.

- [HIVE-17144](#): export of temporary tables not working and it seems to be using distcp rather than filesystem copy.
- [HIVE-17144](#): export table query failing for temporary table.
- [HIVE-17208](#): Repl dump should pass in db/table information to authorization API.
- [HIVE-17212](#): Dynamic add partition by insert shouldn't generate INSERT event.
- [HIVE-17254](#): Skip updating AccessTime of recycled files in ReplChangeManager.
- [HIVE-17289](#): EXPORT and IMPORT shouldn't perform distcp with doAs privileged user.
- [HIVE-17301](#): Make JSONMessageFactory.getTObj method thread safe.

Hive 2.1.0 Apache Patches:

- [HIVE-4577](#): hive CLI can't handle hadoop dfs command with space and quotes.
- [HIVE-6990](#): Direct SQL fails when the explicit schema setting is different from the default one.
- [HIVE-10495](#): Hive index creation code throws NPE if index table is null.
- [HIVE-10616](#): TypeInfoUtils doesn't handle DECIMAL with just precision specified.
- [HIVE-11481](#): hive incorrectly set extended ACLs for unnamed group for new databases/tables with inheritPerms enabled.
- [HIVE-14389](#): Beeline should not output query and prompt to stdout.
- [HIVE-14864](#): Distcp is not called from MoveTask when src is a directory.
- [HIVE-15081](#): RetryingMetaStoreClient.getProxy(HiveConf, Boolean) doesn't match constructor of HiveMetaStoreClient.
- [HIVE-15294](#): Capture additional metadata to replicate a simple insert at destination.
- [HIVE-15471](#): LLAP fails to start with NPE in application log.
- [HIVE-15519](#): BitSet not computed properly for ColumnBuffer subset.
- [HIVE-15587](#): Using ChangeManager to copy files in ReplCopyTask.
- [HIVE-15724](#): getPrimaryKeys and getForeignKeys in metastore does not normalize db and table name.
- [HIVE-16164](#): Provide mechanism for passing HMS notification ID between transactional and non-transactional listeners..
- [HIVE-16272](#): support for drop function in incremental replication.
- [HIVE-16323](#): HS2 JDOPersistenceManagerFactory.pmCache leaks after HIVE-14204.
- [HIVE-16571](#): HiveServer2: Prefer LIFO over round-robin for Tez session reuse.
- [HIVE-16591](#): DR for function Binaries on HDFS.

- [HIVE-16642](#): New Events created as part of replv2 potentially break replv1.
- [HIVE-16644](#): Hook Change Manager to Insert Overwrite.
- [HIVE-16654](#): Optimize a combination of avg(), sum(), count(distinct) etc.
- [HIVE-16671](#): LLAP IO: BufferUnderflowException may happen in very rare(?) cases due to ORC end-of-CB estimation.
- [HIVE-16683](#): of ORC-125 to fix incorrect handling of future WriterVersions in ORC..
- [HIVE-16684](#): Bootstrap REPL DUMP shouldn't fail when table is dropped after fetching the table names.
- [HIVE-16686](#): repl invocations of distcp needs additional handling.
- [HIVE-16690](#): NPE during analyze column stats.
- [HIVE-16703](#): Hive may add the same file to the session and vertex in Tez.
- [HIVE-16706](#): Bootstrap REPL DUMP shouldn't fail when a partition is dropped/renamed when dump in progress.
- [HIVE-16727](#): REPL DUMP for insert event shouldn't fail if the table is already dropped..
- [HIVE-16750](#): Support change management for rename table/partition.
- [HIVE-16761](#): LLAP IO: SMB joins fail elevator .
- [HIVE-16775](#): Fix HiveFilterAggregateTransposeRule when filter is always false.
- [HIVE-16776](#): Strange cast behavior for table backed by druid.
- [HIVE-16785](#): Ensure replication actions are idempotent if any series of events are applied again..
- [HIVE-16788](#): ODBC call SQLForeignKeys leads to NPE if you use PK arguments rather than FK arguments.
- [HIVE-16797](#): Enhance HiveFilterSetOpTransposeRule to remove union branches.
- [HIVE-16804](#): Semijoin hint : Needs support for target table..
- [HIVE-16808](#): WebHCat statusdir parameter doesn't properly handle Unicode characters when using relative path.
- [HIVE-16809](#): Improve filter condition for correlated subqueries .
- [HIVE-16813](#): Incremental REPL LOAD should load the events in the same sequence as it is dumped.
- [HIVE-16837](#): MetadataOnly optimizer conflicts with count distinct rewrite.
- [HIVE-16838](#): Improve plans for subqueries with non-equi co-related predicates.
- [HIVE-16847](#): LLAP queue order issue.

- [HIVE-16848](#): NPE during CachedStore refresh.
- [HIVE-16864](#): add validation to stream position search in LLAP IO.
- [HIVE-16866](#): existing available UDF is used in TestReplicationScenariosAcrossInstances#testDropFunctionIncrementalReplication.
- [HIVE-16867](#): Extend shared scan optimizer to reuse computation from other operators.
- [HIVE-16871](#): CachedStore.get_aggr_stats_for has side affect.
- [HIVE-16892](#): Move creation of _files from ReplCopyTask to analysis phase for bootstrap replication.
- [HIVE-16893](#): move replication dump related work in semantic analysis phase to execution phase using a task.
- [HIVE-16895](#): Multi-threaded execution of bootstrap dump of partitions.
- [HIVE-16896](#): move replication load related work in semantic analysis phase to execution phase using a task.
- [HIVE-16901](#): Distcp optimization - One distcp per ReplCopyTask.
- [HIVE-16918](#): Skip ReplCopyTask distcp for _metadata copying. Also enable -pb for distcp.
- [HIVE-16926](#): LlapTaskUmbilicalExternalClient should not start new umbilical server for every fragment request.
- [HIVE-16947](#): Semijoin Reduction : Task cycle created due to multiple semijoins in conjunction with hashjoin.
- [HIVE-16965](#): SMB join may produce incorrect results.
- [HIVE-16973](#): Fetching of Delegation tokens.
- [HIVE-16985](#): LLAP IO: enable SMB join in elevator after the former is fixed.
- [HIVE-16996](#): Add HLL as an alternative to FM sketch to compute stats.
- [HIVE-17005](#): Ensure REPL DUMP and REPL LOAD are authorized properly.
- [HIVE-17007](#): NPE introduced by HIVE-16871.
- [HIVE-17021](#): Support replication of concatenate operation.
- [HIVE-17066](#): Query78 filter wrong estimation is generating bad plan causing query failures.
- [HIVE-17073](#): Incorrect result with vectorization and SharedWorkOptimizer.
- [HIVE-17083](#): Merge credentials in DagUtils instead of overwriting.
- [HIVE-17085](#): ORC file merge/concatenation should do full schema check.
- [HIVE-17091](#): "Timed out getting readerEvents" error from external LLAP client.

- [HIVE-17093](#): LLAP ssl configs need to be localized to talk to a wire encrypted hdfs..
- [HIVE-17095](#): Long chain repl loads do not complete in a timely fashion.
- [HIVE-17097](#): Fix SemiJoinHint parsing in SemanticAnalyzer.
- [HIVE-17113](#): Duplicate bucket files can get written to table by runaway task.
- [HIVE-17137](#): Fix javolution conflict.
- [HIVE-17144](#): export of temporary tables not working and it seems to be using distcp rather than filesystem copy.
- [HIVE-17144](#): export table query failing for temporary table.
- [HIVE-17172](#): add ordering checks to DiskRangeList.
- [HIVE-17208](#): Repl dump should pass in db/table information to authorization API.
- [HIVE-17209](#): ObjectCacheFactory should return null when tez shared object registry is not setup.
- [HIVE-17212](#): Dynamic add partition by insert shouldn't generate INSERT event.
- [HIVE-17254](#): Skip updating AccessTime of recycled files in ReplChangeManager.
- [HIVE-17281](#): LLAP external client not properly handling KILLED notification that occurs when a fragment is rejected.
- [HIVE-17283](#): Enable parallel edges of semijoin along with mapjoins.
- [HIVE-17289](#): EXPORT and IMPORT shouldn't perform distcp with doAs privileged user.
- [HIVE-17301](#): Make JSONMessageFactory.getTObj method thread safe.

HDP 2.6.1 provided Hive 1.2.1 and Hive 2.1.0 in addition to the following patches:

Hive 1.2.1 Apache patches:

- [HIVE-11976](#): Extend CBO rules to being able to apply rules only once on a given operator.
- [HIVE-12657](#): selectDistinctStar.q results differ with jdk 1.7 vs jdk 1.8.
- [HIVE-12958](#): Make embedded Jetty server more configurable.
- [HIVE-12958](#): Make embedded Jetty server more configurable.
- [HIVE-13652](#): Import table change order of dynamic partitions.
- [HIVE-14204](#): Optimize loading dynamic partitions.
- [HIVE-14210](#): ExecDriver should call jobclient.close() to trigger cleanup.
- [HIVE-14743](#): ArrayIndexOutOfBoundsException - HBASE-backed views' query with JOINS.
- [HIVE-15556](#): Replicate views.

- [HIVE-15642](#): Replicate Insert Overwrites, Dynamic Partition Inserts and Loads.
- [HIVE-15646](#): Column level lineage is not available for table Views.
- [HIVE-15754](#): exchange partition is not generating notifications.
- [HIVE-15766](#): DBNotificationlistener leaks JDOPersistenceManager.
- [HIVE-15792](#): Hive should raise SemanticException when LPAD/RPAD pad character's length is 0.
- [HIVE-15947](#): Enhance Templeton service job operations reliability.
- [HIVE-15947](#): Enhance Templeton service job operations reliability.
- [HIVE-15993](#): Hive REPL STATUS is not returning last event ID.
- [HIVE-16006](#): Incremental REPL LOAD Inserts doesn't operate on the target database if name differs from source database.
- [HIVE-16006](#): Incremental REPL LOAD Inserts doesn't operate on the target database if name differs from source database.
- [HIVE-16060](#): GenericUDTFJSONTuple's json cache could overgrow beyond its limit.
- [HIVE-16119](#): HiveMetaStoreChecker: remove singleThread logic duplication.
- [HIVE-16171](#): Support replication of truncate table.
- [HIVE-16186](#): REPL DUMP shows last event ID of the database even if we use LIMIT option.
- [HIVE-16193](#): Hive show compactions not reflecting the correct status of the application.
- [HIVE-16197](#): Incremental insert into a partitioned table doesn't get replicated.
- [HIVE-16225](#): Memory leak in webhcat service (FileSystem CACHE entries).
- [HIVE-16225](#): Memory leak in webhcat service (FileSystem CACHE entries).
- [HIVE-16254](#): metadata for values temporary tables for INSERTs are getting replicated during bootstrap.
- [HIVE-16266](#): Enable function metadata to be written during bootstrap.
- [HIVE-16267](#): Enable bootstrap function metadata to be loaded in repl load.
- [HIVE-16268](#): enable incremental repl dump to handle functions metadata.
- [HIVE-16269](#): enable incremental function dump to be loaded via repl load.
- [HIVE-16287](#): Alter table partition rename with location - moves partition back to hive warehouse.
- [HIVE-16290](#): Stats: StatsRulesProcFactory::evaluateComparator estimates are wrong when minValue == filterValue.

- [HIVE-16291](#): Hive fails when unions a parquet table with itself.
- [HIVE-16299](#): MSCK REPAIR TABLE should enforce partition key order when adding unknown partitions.
- [HIVE-16321](#): Possible deadlock in metastore with Acid enabled.
- [HIVE-16347](#): HiveMetastoreChecker should skip listing partitions which are not valid when hive.msck.path.validation is set to skip or ignore.
- [HIVE-16372](#): Enable DDL statement for non-native tables (add/remove table properties).
- [HIVE-16427](#): Fix multi-insert query and write qtests.
- [HIVE-16461](#): DagUtils checks local resource size on the remote fs.
- [HIVE-16461](#): DagUtils checks local resource size on the remote fs.
- [HIVE-16473](#): Hive-on-Tez may fail to write to an HBase table.
- [HIVE-16488](#): Support replicating into existing db if the db is empty.
- [HIVE-16497](#): FileUtils. isActionPermittedForFileHierarchy, isOwnerOfFileHierarchy file system operations should be impersonated.
- [HIVE-16530](#): Add HS2 operation logs and improve logs for REPL commands.
- [HIVE-16567](#): parquet: tolerate when metadata is not set.
- [HIVE-16673](#): Create table as select does not check ownership of the location.
- [HIVE-16678](#): Truncate on temporary table fails with table not found error.
- [HIVE-16710](#): Make MAX_MS_TYPENAME_LENGTH configurable.

Hive 2.1.0 Apache Patches:

- [HIVE-11133](#): Support hive.explain.user for Spar.
- [HIVE-13652](#): Import table change order of dynamic partition.
- [HIVE-13673](#): LLAP: handle case where no service instance is found on the host specified in the input spli.
- [HIVE-14052](#): Cleanup structures when external clients use LLAP.
- [HIVE-14731](#): Cross product running with 1 reducer even when it's fed by 4 mappers and 1 reduce.
- [HIVE-14743](#): ArrayIndexOutOfBoundsException - HBASE-backed views' query with JOIN.
- [HIVE-15231](#): query on view with CTE and alias fails with table not found erro.
- [HIVE-15556](#): Replicate view.
- [HIVE-15642](#): Replicate Insert Overwrites, Dynamic Partition Inserts and Load.

- [HIVE-15702](#): Test timeout : TestDerbyConnecto.
- [HIVE-15708](#): Upgrade calcite version to 1.1.
- [HIVE-15754](#): exchange partition is not generating notification.
- [HIVE-15766](#): DBNotificationlistener leaks JDOPersistenceManage.
- [HIVE-15792](#): Hive should raise SemanticException when LPAD/RPAD pad character's length is .
- [HIVE-15964](#): LLAP: Llap IO codepath not getting invoked due to file column id mismatc.
- [HIVE-15993](#): Hive REPL STATUS is not returning last event l.
- [HIVE-16006](#): Incremental REPL LOAD Inserts doesn't operate on the target database if name differs from source databas.
- [HIVE-16006](#): Incremental REPL LOAD Inserts doesn't operate on the target database if name differs from source databas.
- [HIVE-16044](#): LLAP: Shuffle Handler keep-alive connections are closed from the server sid.
- [HIVE-16053](#): Remove newRatio from llap JAVA_OPTS_BAS.
- [HIVE-16060](#): GenericUDTFJSONTuple's json cache could overgrow beyond its limi.
- [HIVE-16119](#): HiveMetaStoreChecker: remove singleThread logic duplicatio.
- [HIVE-16120](#): Use jvm temporary tmp dir by default.
- [HIVE-16123](#): Let user pick the granularity of bucketing and max in row memor.
- [HIVE-16124](#): Drop the segments data as soon it is pushed to HDF.
- [HIVE-16171](#): Support replication of truncate tabl.
- [HIVE-16186](#): REPL DUMP shows last event ID of the database even if we use LIMIT optio.
- [HIVE-16193](#): Hive show compactions not reflecting the correct status of the applicatio.
- [HIVE-16197](#): Incremental insert into a partitioned table doesn't get replicate.
- [HIVE-16219](#): metastore notification_log contains serialized message with non functional field.
- [HIVE-16249](#): With column stats, mergejoin.q throws NP.
- [HIVE-16254](#): metadata for values temporary tables for INSERTs are getting replicated during bootstra.
- [HIVE-16266](#): Enable function metadata to be written during bootstra.
- [HIVE-16266](#): Enable function metadata to be written during bootstra.
- [HIVE-16267](#): Enable bootstrap function metadata to be loaded in repl loa.

- [HIVE-16268](#): enable incremental repl dump to handle functions metadat.
- [HIVE-16269](#): enable incremental function dump to be loaded via repl loa.
- [HIVE-16276](#): Fix NoSuchMethodError:
`com.amazonaws.services.s3.transfer.TransferManagerConfiguration.setMultipartUploadThreshol`.
- [HIVE-16287](#): Alter table partition rename with location - moves partition back to hive warehouse.
- [HIVE-16290](#): Stats: StatsRulesProcFactory::evaluateComparator estimates are wrong when `minValue == filterValu`.
- [HIVE-16291](#): Hive fails when unions a parquet table with itsel.
- [HIVE-16296](#): use LLAP executor count to configure reducer auto-parallelis.
- [HIVE-16299](#): MSCK REPAIR TABLE should enforce partition key order when adding unknown partition.
- [HIVE-16321](#): Possible deadlock in metastore with Acid enable.
- [HIVE-16330](#): Improve plans for scalar subquer.
- [HIVE-16341](#): Tez Task Execution Summary has incorrect input record counts on some operator.
- [HIVE-16347](#): HiveMetastoreChecker should skip listing partitions which are not valid when `hive.msck.path.validation` is set to skip or ignor.
- [HIVE-16371](#): Add bitmap selection strategy for druid storage handle.
- [HIVE-16372](#): Enable DDL statement for non-native table.
- [HIVE-16380](#): removing global test dependency of jsonasser.
- [HIVE-16385](#): StatsNoJobTask could exit early before all partitions have been processe.
- [HIVE-16386](#): Add debug logging to describe why runtime filtering semijoins are remove.
- [HIVE-16390](#): LLAP IO should take job config into account; also LLAP config should load default.
- [HIVE-16403](#): LLAP UI shows the wrong number of executor.
- [HIVE-16413](#): Create table as select does not check ownership of the locatio.
- [HIVE-16421](#): Runtime filtering breaks user-level explai.
- [HIVE-16423](#): Add hints for semijoi.
- [HIVE-16427](#): Fix multi-insert query and write qtest.
- [HIVE-16436](#): Response times in 'Task Execution Summary' at the end of the job is not correc.

- [HIVE-16441](#): De-duplicate semijoin branches in n-way join.
- [HIVE-16444](#): ATSHook should log AppID/DagID for Te.
- [HIVE-16448](#): Vectorization: Vectorized order_null.q fails with deserialize EOF exception below TEZ ReduceRecordSource.processVectorGrou.
- [HIVE-16457](#): vector_order_null.q failing in hive.
- [HIVE-16461](#): DagUtils checks local resource size on the remote f.
- [HIVE-16462](#): Vectorization: Enabling hybrid grace disables specialization of all reduce side join.
- [HIVE-16473](#): Hive-on-Tez may fail to write to an HBase tabl.
- [HIVE-16482](#): Druid Ser/Des need to use dimension output nam.
- [HIVE-16485](#): Enable outputName for RS operator in explain formatte.
- [HIVE-16488](#): Support replicating into existing db if the db is empt.
- [HIVE-16497](#): FileUtils. isActionPermittedForFileHierarchy, isOwnerOfFileHierarchy file system operations should be impersonate.
- [HIVE-16503](#): LLAP: Oversubscribe memory for noconditional task siz.
- [HIVE-16503](#): LLAP: Oversubscribe memory for noconditional task siz.
- [HIVE-16518](#): Insert override for druid does not replace all existing segment.
- [HIVE-16519](#): Fix exception thrown by checkOutputSpec.
- [HIVE-16520](#): Cache hive metadata in metastor.
- [HIVE-16523](#): VectorHashKeyWrapper hash code for strings is not so goo.
- [HIVE-16530](#): Add HS2 operation logs and improve logs for REPL command.
- [HIVE-16533](#): Vectorization: Avoid evaluating empty groupby key.
- [HIVE-16545](#): LLAP: bug in arena size determination logi.
- [HIVE-16546](#): LLAP: Fail map join tasks if hash table memory exceeds threshol.
- [HIVE-16547](#): LLAP: may not unlock buffers in some case.
- [HIVE-16550](#): Semijoin Hints should be able to skip the optimization if neede.
- [HIVE-16550](#): Semijoin Hints should be able to skip the optimization if neede.
- [HIVE-16553](#): Change default value for hive.tez.bigtable.minsize.semijoin.reductio.
- [HIVE-16568](#): Support complex types in external LLAP InputForma.
- [HIVE-16576](#): Fix encoding of intervals when fetching select query candidates from drui.

- [HIVE-16578](#): Semijoin Hints should use column name, if provided for partition key chec.
- [HIVE-16579](#): CachedStore: improvements to partition col stats caching and cache column stats for unpartitioned tabl.
- [HIVE-16581](#): bug in HIVE-1652.
- [HIVE-16586](#): Fix Unit test failures when CachedStore is enable.
- [HIVE-16588](#): Ressource leak by druid http clien.
- [HIVE-16588](#): Ressource leak by druid http clien.
- [HIVE-16598](#): LlapServiceDriver - create directories and warn of error.
- [HIVE-16599](#): NPE in runtime filtering cost when handling SMB Join.
- [HIVE-16602](#): Implement shared scans with Te.
- [HIVE-16610](#): Semijoin Hint : Should be able to handle more than one hint per alia.
- [HIVE-16628](#): Fix query25 when it uses a mix of MergeJoin and MapJoi.
- [HIVE-16628](#): Fix query25 when it uses a mix of MergeJoin and MapJoi.
- [HIVE-16633](#): username for ATS data shall always be the uid who submit the jo.
- [HIVE-16634](#): LLAP Use a pool of connections to a single A.
- [HIVE-16635](#): Progressbar: Use different timeouts for running querie.
- [HIVE-16637](#): Improve end-of-data checking for LLAP input forma.
- [HIVE-16639](#): LLAP: Derive shuffle thread counts and keep-aliv.
- [HIVE-16651](#): LlapProtocolClientProxy stack trace when using llap input forma.
- [HIVE-16652](#): LlapInputFormat: Seeing "output error" WARN messag.
- [HIVE-16655](#): LLAP: Avoid preempting fragments before they enter th.
- [HIVE-16673](#): Test for HIVE-1641.
- [HIVE-16678](#): Truncate on temporary table fails with table not found erro.
- [HIVE-16690](#): Configure Tez cartesian product edge based on LLAP cluster siz.
- [HIVE-16691](#): Add test for more datatypes for LlapInputForma.
- [HIVE-16692](#): LLAP: Keep alive connection in shuffle handle.
- [HIVE-16702](#): Use LazyBinarySerDe for LLAP InputForma.
- [HIVE-16710](#): Make MAX_MS_TYPENAME_LENGTH configurabl.
- [HIVE-16717](#): Extend shared scan optimizer to handle partition.

- [HIVE-16724](#): increase session timeout for LLAP ZK token manage.
- [HIVE-16737](#): LLAP: Shuffle handler TCP listen queue overflow.
- [HIVE-16742](#): cap the number of reducers for LLAP at the configured valu.
- [HIVE-16751: Hive-Druid Storagehandler](#): Tests failed as there is output-diff for query on timestamp datatype.
- [HIVE-16776](#): Strange cast behavior for table backed by drui.
- [HIVE-16777](#): LLAP: Use separate tokens and UGI instances when an external client is use.
- [HIVE-16779](#): cachedStore leak PersistenceManager resource.

HDP 2.6.0 provided Hive 1.2.1 and Hive 2.1.0 in addition to the following patches:

Hive 1.2.1 Apache patches:

- [HIVE-10562](#): Add versioning/format mechanism to NOTIFICATION_LOG entries, expand MESSAGE siz.
- [HIVE-10924](#): add support for MERGE statemen.
- [HIVE-11030](#): Enhance storage layer to create one delta file per writ.
- [HIVE-11293](#): HiveConnection.setAutoCommit(true) throws exception .
- [HIVE-11594](#): Analyze Table for column names with embedded space.
- [HIVE-11616](#): DelegationTokenSecretManager reuses the same objectstore, which has concurrency issue.
- [HIVE-11935](#): Race condition in HiveMetaStoreClient: isCompatibleWith and clos.
- [HIVE-12077](#): MSCK Repair table should fix partitions in batche.
- [HIVE-12594](#): X lock on partition should not conflict with S lock on DB.
- [HIVE-12664](#): Bug in reduce deduplication optimization causing ArrayOutOfBoundsException.
- [HIVE-12968](#): genNotNullFilterForJoinSourcePlan: needs to merge predicates into the multi-AND.
- [HIVE-13014](#): RetryingMetaStoreClient is retrying too aggressiveley .
- [HIVE-13083](#): Writing HiveDecimal to ORC can wrongly suppress present strea.
- [HIVE-13185](#): orc.ReaderImp.ensureOrcFooter() method fails on small text files with IndexOutOfBoundsException.
- [HIVE-13423](#): Handle the overflow case for decimal datatype for sum().
- [HIVE-13527](#): Using deprecated APIs in HBase client causes zookeeper connection leaks.

- [HIVE-13539](#): HiveHFileOutputFormat searching the wrong directory for HFiles .
- [HIVE-13756](#): Map failure attempts to delete reducer _temporary dir on pig multi-quer.
- [HIVE-13836](#): DbNotifications giving an error = Invalid state. Transaction has already started.
- [HIVE-13872](#): Queries failing with java.lang.ClassCastException when vectorization is enable.
- [HIVE-13936](#): Add streaming support for row_numbe.
- [HIVE-13966](#): DbNotificationListener: can loose DDL operation notification.
- [HIVE-14037](#): java.lang.ClassNotFoundException for the jar in hive.reloadable.aux.jars.path in mapreduc.
- [HIVE-14170](#): Beeline IncrementalRows should buffer rows and incrementally re-calculate width if TableOutputFormat is used .
- [HIVE-14229](#): the jars in hive.aux.jar.paths are not added to session classpath.
- [HIVE-14229](#): the jars in hive.aux.jar.paths are not added to session classpath .
- [HIVE-14251](#): Union All of different types resolves to incorrect data.
- [HIVE-14278](#): Migrate TestHadoop20SAuthBridge.java from Unit3 to Unit.
- [HIVE-14279](#): fix mvn test TestHiveMetaStore.testTransactionalValidatio.
- [HIVE-14290](#): Refactor HIVE-14054 to use Collections#newSetFromMap.
- [HIVE-14375](#): hcatalog-pig-adaptor pom.xml uses joda-time 2.2 instead of \${joda.version} that uses 2.8.1.
- [HIVE-14399](#): Fix test flakiness of org.apache.hive.hcatalog.listener.TestDbNotificationListener.cleanupNotifs.
- [HIVE-14436](#): Hive 1.2.1/Hitting "ql.Driver: FAILED: IllegalArgumentException Error: , expected at the end of 'decimal(9'" after enabling hive.optimize.skewjoin and with MR engine .
- [HIVE-14445](#): upgrade maven surefire to 2.19.1.
- [HIVE-14457](#): Partitions in encryption zone are still trashed though an exception is returned.
- [HIVE-14519](#): Multi insert query bug .
- [HIVE-14520](#): We should set a timeout for the blocking calls in TestMsgBusConnection.
- [HIVE-14591](#): HS2 is shut down unexpectedly during the startup time .
- [HIVE-14607](#): ORC split generation failed with exception: java.lang.ArrayIndexOutOfBoundsException: 1.

- [HIVE-14659](#): OutputStream won't close if caught exception in funtion unparseExprForValuesClause in SemanticAnalyzer.java .
- [HIVE-14690](#): Query fail when hive.exec.parallel=true, with conflicting session di.
- [HIVE-14693](#): Some paritions will be left out when partition number is the multiple of the option hive.msck.repair.batch.size.
- [HIVE-14715](#): Hive throws NumberFormatException with query with Null value.
- [HIVE-14762](#): Add logging while removing scratch spac.
- [HIVE-14773](#): NPE aggregating column statistics for date column in partitioned table .
- [HIVE-14774](#): Canceling query using Ctrl-C in beeline might lead to stale locks.
- [HIVE-14805](#): Subquery inside a view will have the object in the subquery as the direct input.
- [HIVE-14837](#): JDBC: standalone jar is missing hadoop core dependencie.
- [HIVE-14865](#): Fix comments after HIVE-14350.
- [HIVE-14922](#): Add perf logging for post job completion step.
- [HIVE-14924](#): MSCK REPAIR table with single threaded is throwing null pointer exception.
- [HIVE-14928](#): Analyze table no scan mess up schema.
- [HIVE-14929](#): Adding JDBC test for query cancellation scenari.
- [HIVE-14935](#): Add tests for beeline force optio.
- [HIVE-14943](#): Base Implementation (merge statement.
- [HIVE-14948](#): properly handle special characters in identifier.
- [HIVE-14959](#): Fix DISTINCT with windowing when CBO is enabled/disable.
- [HIVE-14966](#): Backport: JDBC: HiveConnction never saves HTTP cookies.
- [HIVE-14992](#): Relocate several common libraries in hive jdbc uber ja.
- [HIVE-14993](#): make WriteEntity distinguish writeTyp.
- [HIVE-15002](#): HiveSessionImpl#executeStatementInternal may leave locks in an inconsistent state.
- [HIVE-15010](#): Make LockComponent aware if it's part of dynamic partition operatio.
- [HIVE-15060](#): Remove the autoCommit warning from beeline .
- [HIVE-15099](#): PTFOperator.PTFInvocation didn't properly reset the input partition.
- [HIVE-15124](#): Fix OrclInputFormat to use reader's schema for include boolean arra.

- [HIVE-15137](#): metastore add partitions background thread should use current username.
- [HIVE-15151](#): Bootstrap support for replv2.
- [HIVE-15178](#): ORC stripe merge may produce many MR jobs and no merge if split size is small .
- [HIVE-15180](#): Extend JSONMessageFactory to store additional information about metadata objects on different table events.
- [HIVE-15231](#): query on view with CTE and alias fails with table not found error .
- [HIVE-15232](#): Add notification events for functions and indexes.
- [HIVE-15284](#): Add junit test to test replication scenarios.
- [HIVE-15291](#): Comparison of timestamp fails if only date part is provided.
- [HIVE-15294](#): Capture additional metadata to replicate a simple insert at destination.
- [HIVE-15307](#): Hive MERGE: "when matched then update" allows invalid column names.
- [HIVE-15322](#): Skipping "hbase mapredcp" in hive script for certain service.
- [HIVE-15327](#): Outerjoin might produce wrong result depending on joinEmitInterval value .
- [HIVE-15332](#): REPL LOAD & DUMP support for incremental CREATE_TABLE/ADD_PTN.
- [HIVE-15333](#): Add a FetchTask to REPL DUMP plan for reading dump uri, last repl id as ResultSet.
- [HIVE-15355](#): Concurrency issues during parallel moveFile due to HDFSUtils.setFullFileStatu.
- [HIVE-15365](#): Add new methods to MessageFactory API (corresponding to the ones added in JSONMessageFactory).
- [HIVE-15366](#): REPL LOAD & DUMP support for incremental INSERT events.
- [HIVE-15426](#): Fix order guarantee of event executions for REPL LOAD.
- [HIVE-15437](#): avro tables join fails when - tbl join tbl_postfix .
- [HIVE-15448](#): ChangeManager.
- [HIVE-15466](#): REPL LOAD & DUMP support for incremental DROP_TABLE/DROP_PTN.
- [HIVE-15469](#): Fix REPL DUMP/LOAD DROP_PTN so it works on non-string-ptn-key tables.
- [HIVE-15472](#): JDBC: Standalone jar is missing ZK dependencie.
- [HIVE-15473](#): Progress Bar on Beeline clien.
- [HIVE-15478](#): Add file + checksum list for create table/partition during notification creation (whenever relevant).

- [HIVE-15522](#): REPL LOAD & DUMP support for incremental ALTER_TABLE/ALTER_PTIN including renames.
- [HIVE-15525](#): Hooking ChangeManager to "drop table", "drop partition.
- [HIVE-15534](#): Update db/table repl.last.id at the end of REPL LOAD of a batch of events.
- [HIVE-15542](#): NPE in StatsUtils::getColStatistics when all values in DATE column are NULL.
- [HIVE-15550](#): fix arglist logging in schematool .
- [HIVE-15551](#): memory leak in directsql for mysql+bonecp specific initialization.
- [HIVE-15551](#): memory leak in directsql for mysql+bonecp specific initialization .
- [HIVE-15569](#): failures in RetryingHMSHandler.
- [HIVE-15579](#): Support HADOOP_PROXY_USER for secure impersonation in hive metastore client.
- [HIVE-15588](#): Vectorization: Fix deallocation of scratch columns in VectorUDFCoalesce, etc to prevent wrong reus.
- [HIVE-15589](#): Flaky
org.apache.hadoop.hive.ql.lockmgr.TestDbTxnManager.testHeartbeater .
- [HIVE-15668](#): change REPL DUMP syntax to use "LIMIT" instead of "BATCH" keyword.
- [HIVE-15684](#): Wrong posBigTable used in VectorMapJoinOuterFilteredOperato.
- [HIVE-15714](#): backport HIVE-11985 (and HIVE-12601) to branch-1 .
- [HIVE-15717](#): JDBC: Implement rowDeleted, rowInserted and rowUpdated to return false.
- [HIVE-15752](#): MSCK should add output WriteEntity for table in semantic analysis .
- [HIVE-15755](#): NullPointerException on invalid table name in ON clause of Merge statemen.
- [HIVE-15774](#): Ensure DbLockManager backward compatibility for non-ACID resources .
- [HIVE-15803](#): msck can hang when nested partitions are present.
- [HIVE-15830](#): Allow additional ACLs for tez jobs.
- [HIVE-15839](#): Don't force cardinality check if only WHEN NOT MATCHED is specifie.
- [HIVE-15840](#): Webhcat test TestPig_5 failing with Pig on Tez at check for percent complete of jo.
- [HIVE-15846](#): CNF error without hadoop jars, Relocate more dependencies (e.g. org.apache.zookeeper) for JDBC uber ja.
- [HIVE-15846](#): Relocate more dependencies (e.g. org.apache.zookeeper) for JDBC uber ja.
- [HIVE-15847](#): In Progress update refreshes seem slo.

- [HIVE-15848](#): count or sum distinct incorrect when hive.optimize.reducededuplication set to true.
- [HIVE-15851](#): SHOW COMPACTIONS doesn't show JobI.
- [HIVE-15871](#): Add cross join check in SQL MERGE stm.
- [HIVE-15871](#): enable cardinality check by default.
- [HIVE-15872](#): The PERCENTILE_APPROX UDAF does not work with empty se.
- [HIVE-15879](#): Fix HiveMetaStoreChecker.checkPartitionDirs metho.
- [HIVE-15889](#): Some tasks still run after hive cli is shutdown.
- [HIVE-15891](#): Detect query rewrite scenario for UPDATE/DELETE/MERGE and fail fast.
- [HIVE-15917](#): incorrect error handling from BackgroundWork can cause beeline query to hang.
- [HIVE-15935](#): ACL is not set in ATS dat.
- [HIVE-15936](#): ConcurrentModificationException in ATSHoo.
- [HIVE-15941](#): Fix o.a.h.hive ql.exec.tez.TezTask compilation issue with tez maste.
- [HIVE-15950](#): Make DbTxnManager use Metastore client consistently with caller.
- [HIVE-15970](#): Merge statement implementation clashes with AST rewrite.
- [HIVE-15999](#): Fix flakiness in TestDbTxnManager2.
- [HIVE-16014](#): HiveMetastoreChecker should use hive.metastore.fshandler.threads instead of hive.mv.files.thread for pool siz.
- [HIVE-16028](#): Fail UPDATE/DELETE/MERGE queries when Ranger authorization manager is use.
- [HIVE-16045](#): Print progress bar along with operation lo.
- [HIVE-16050](#): Regression: Union of null with non-nul.
- [HIVE-16070](#): fix nonReserved list in IdentifiersParser..
- [HIVE-16086](#): Fix HiveMetaStoreChecker.checkPartitionDirsSingleThreaded metho.
- [HIVE-16090](#): Addendum to HIVE-1601.
- [HIVE-16102](#): Grouping sets do not conform to SQL standar.
- [HIVE-16114](#): NullPointerException in TezSessionPoolManager when getting the sessio.
- [HIVE-16160](#): OutOfMemoryError: GC overhead limit exceeded on Hs2 longevity test.
- [HIVE-16170](#): Exclude relocation of org.apache.hadoop.security.* in the JDBC standalone ja.

- [HIVE-16172](#): Switch to a fairness lock to synchronize HS2 thrift client.
- [HIVE-16175](#): Possible race condition in InstanceCache.
- [HIVE-16181](#): Make logic for hdfs directory location extraction more generic, in webhcat test drive.
- [HIVE-7224](#): Set incremental printing to true by default in Beeline.
- [HIVE-7239](#): Fix bug in HiveIndexedInputFormat implementation that causes incorrect query result when input backed by Sequence/RC files.
- [HIVE-9941](#): sql std authorization on partitioned table: truncate and insert.

Hive 2.1.0 Apache Patches:

- [HIVE-9941](#): sql std authorization on partitioned table: truncate and insert.
- [HIVE-12492](#): Inefficient join ordering in TPCDS query19 causing 50-70% slowdown.
- [HIVE-14278](#): Migrate TestHadoop23SAuthBridge.java from Unit3 to Unit4.
- [HIVE-14360](#): Starting BeeLine after using !save, there is an error logged: "Error setting configuration: conf".
- [HIVE-14362](#): Support explain analyze in Hive.
- [HIVE-14367](#): Estimated size for constant nulls is 0.
- [HIVE-14405](#): Have tests log to the console along with hive.log.
- [HIVE-14432](#): LLAP signing unit test may be timing-dependent.
- [HIVE-14445](#): upgrade maven surefire to 2.19.1.
- [HIVE-14612](#):
org.apache.hive.service.cli.operation.TestOperationLoggingLayout.testSwitchLogLayout failure .
- [HIVE-14655](#): LLAP input format should escape the query string being passed to getSplits().
- [HIVE-14929](#): Adding JDBC test for query cancellation scenario.
- [HIVE-14935](#): Add tests for beeline force option.
- [HIVE-14959](#): Fix DISTINCT with windowing when CBO is enabled/disabled.
- [HIVE-14959](#): Fix DISTINCT with windowing when CBO is enabled/disabled.
- [HIVE-15002](#): HiveSessionImpl#executeStatementInternal may leave locks in an inconsistent state.
- [HIVE-15069](#): Optimize MetaStoreDirectSql:: aggrColStatsForPartitions during query compilation.

- [HIVE-15084](#): Flaky test: TestMiniTezCliDriver:explainanalyze_1, 2, 3, 4, 5.
- [HIVE-15099](#): PTFOperator.PTFInvocation didn't properly reset the input partition.
- [HIVE-15570](#): LLAP: Exception in HostAffinitySplitLocationProvider when running in container mode.
- [HIVE-15668](#): change REPL DUMP syntax to use "LIMIT" instead of "BATCH" keyword.
- [HIVE-15789](#): Vectorization: limit reduce vectorization to 32Mb chunks.
- [HIVE-15799](#): LLAP: rename VertorDeserializeOrcWriter.
- [HIVE-15809](#): Typo in the PostgreSQL database name for druid service.
- [HIVE-15830](#): Allow additional ACLs for tez jobs.
- [HIVE-15847](#): In Progress update refreshes seem slow.
- [HIVE-15848](#): count or sum distinct incorrect when hive.optimize.reducededuplication set to true.
- [HIVE-15851](#): SHOW COMPACTIONS doesn't show JobID.
- [HIVE-15872](#): The PERCENTILE_APPROX UDAF does not work with empty set.
- [HIVE-15874](#): Invalid position alias in Group By when CBO failed.
- [HIVE-15877](#): Upload dependency jars for druid storage handler.
- [HIVE-15879](#): Fix HiveMetaStoreChecker.checkPartitionDirs method.
- [HIVE-15884](#): Optimize not between for vectorization.
- [HIVE-15903](#): Compute table stats when user computes column stats.
- [HIVE-15928](#): Druid/Hive integration: Parallelization of Select queries in Druid handler.
- [HIVE-15935](#): ACL is not set in ATS data.
- [HIVE-15938](#): position alias in order by fails for union queries.
- [HIVE-15941](#): Fix o.a.h.hive ql.exec.tez.TezTask compilation issue with tez master.
- [HIVE-15948](#): Failing test: TestCliDriver, TestSparkCliDriver join31.
- [HIVE-15951](#): Make sure base persist directory is unique and deleted.
- [HIVE-15955](#): Provide additional explain plan info to facilitate display of runtime filtering and lateral joins.
- [HIVE-15958](#): LLAP: Need to check why 1000s of ipc threads are created.
- [HIVE-15959](#): LLAP: fix headroom calculation and move it to daemon.
- [HIVE-15969](#): Failures in TestRemoteHiveMetaStore, TestSetUGIONOnlyServer.

- [HIVE-15971](#): LLAP: logs urls should use daemon container id instead of fake container id.
- [HIVE-15991](#): Flaky Test: TestEncryptedHDFSCLiDriver encryption_join_with_different_encryption_keys.
- [HIVE-15994](#): Grouping function error when grouping sets are not specified.
- [HIVE-15999](#): Fix flakiness in TestDbTxnManager2 .
- [HIVE-16002](#): Correlated IN subquery with aggregate asserts in sq_count_check UDF.
- [HIVE-16005](#): miscellaneous small fixes to help with llap debuggability.
- [HIVE-16010](#): incorrect conf.set in TezSessionPoolManager.
- [HIVE-16012](#): BytesBytes hash table - better capacity exhaustion handling.
- [HIVE-16013](#): Fragments without locality can stack up on nodes.
- [HIVE-16014](#): HiveMetastoreChecker should use hive.metastore.fshandler.threads instead of hive.mv.files.thread for pool size.
- [HIVE-16015](#): LLAP: some Tez INFO logs are too noisy II.
- [HIVE-16015](#): Modify Hive log settings to integrate with tez reduced logging.
- [HIVE-16018](#): Add more information for DynamicPartitionPruningOptimization.
- [HIVE-16020](#): LLAP: Reduce IPC connection misses.
- [HIVE-16022](#): BloomFilter check not showing up in MERGE statement queries.
- [HIVE-16023](#): Bad stats estimation in TPCB Query 12.
- [HIVE-16028](#): Fail UPDATE/DELETE/MERGE queries when Ranger authorization manager is used.
- [HIVE-16033](#): LLAP: Use PrintGCDateStamps for gc logging.
- [HIVE-16034](#): Hive/Druid integration: Fix type inference for Decimal DruidOutputFormat.
- [HIVE-16040](#): union column expansion should take aliases from the leftmost branch.
- [HIVE-16045](#): Print progress bar along with operation log.
- [HIVE-16050](#): Regression: Union of null with non-null.
- [HIVE-16054](#): AMReporter should use application token instead of ugi.getCurrentUser.
- [HIVE-16065](#): Vectorization: Wrong Key/Value information used by Vectorizer.
- [HIVE-16067](#): LLAP: send out container complete messages after a fragment completes.
- [HIVE-16068](#): BloomFilter expectedEntries not always using NDV when it's available during runtime filtering.

- [HIVE-16070](#): fix nonReserved list in IdentifiersParser.g.
- [HIVE-16072](#): LLAP: Add some additional jvm metrics for hadoop-metrics2.
- [HIVE-16078](#): improve abort checking in Tez/LLAP.
- [HIVE-16082](#): Allow user to change number of listener thread in LlapTaskCommunicator.
- [HIVE-16086](#): Fix HiveMetaStoreChecker.checkPartitionDirsSingleThreaded method.
- [HIVE-16090](#): Addendum to HIVE-16014.
- [HIVE-16094](#): queued containers may timeout if they don't get to run for a long time.
- [HIVE-16097](#): minor fixes to metrics and logs in LlapTaskScheduler.
- [HIVE-16098](#): Describe table doesn't show stats for partitioned tables.
- [HIVE-16102](#): Grouping sets do not conform to SQL standard.
- [HIVE-16103](#): LLAP: Scheduler timeout monitor never stops with slot nodes.
- [HIVE-16104](#): LLAP: preemption may be too aggressive if the pre-empted task doesn't die immediately.
- [HIVE-16114](#): NullPointerException in TezSessionPoolManager when getting the session.
- [HIVE-16115](#): Stop printing progress info from operation logs with beeline progress bar.
- [HIVE-16122](#): NPE Hive Druid split introduced by HIVE-15928.
- [HIVE-16132](#): DataSize stats don't seem correct in semijoin opt branch.
- [HIVE-16133](#): Footer cache in Tez AM can take too much memory.
- [HIVE-16135](#): Vectorization: unhandled constant type for scalar argument.
- [HIVE-16137](#): Default value of hive config hive.auto.convert.join.hashtable.max.entries should be set to 40m instead of 4m.
- [HIVE-16140](#): Stabilize few randomly failing tests.
- [HIVE-16142](#): ATSHook NPE via LLAP.
- [HIVE-16150](#): LLAP: HiveInputFormat:getRecordReader: Fix log statements to reduce memory pressure.
- [HIVE-16154](#): Determine when dynamic runtime filtering should be disabled.
- [HIVE-16160](#): OutOfMemoryError: GC overhead limit exceeded on Hs2 longevity tests.
- [HIVE-16161](#): Standalone hive jdbc jar throws ClassNotFoundException.
- [HIVE-16167](#): Remove transitive dependency on mysql connector jar.
- [HIVE-16168](#): log links should use the NM nodeId port instead of web port.

- [HIVE-16170](#): Exclude relocation of org.apache.hadoop.security.* in the JDBC standalone jar.
- [HIVE-16172](#): Switch to a fairness lock to synchronize HS2 thrift client.
- [HIVE-16175](#): Possible race condition in InstanceCache.
- [HIVE-16180](#): LLAP: Native memory leak in EncodedReader.
- [HIVE-16190](#): Support expression in merge statement.
- [HIVE-16211](#): MERGE statement failing with ClassCastException.
- [HIVE-16215](#): counter recording for text cache may not fully work.
- [HIVE-16229](#): Wrong result for correlated scalar subquery with aggregate.
- [HIVE-16236](#): BuddyAllocator fragmentation - short-term fix.
- [HIVE-16238](#): LLAP: reset/end has to be invoked for o.a.h.hive.q.io.orc.encoded.EncodedReaderImpl.
- [HIVE-16245](#): Vectorization: Does not handle non-column key expressions in MERGEPARTIAL mode.
- [HIVE-16260](#): Remove parallel edges of semijoin with map joins.
- [HIVE-16274](#): Support tuning of NDV of columns using lower/upper bounds.
- [HIVE-16278](#): LLAP: metadata cache may incorrectly decrease memory usage in mem manager.
- [HIVE-16282](#): Semijoin: Disable slow-start for the bloom filter aggregate task.
- [HIVE-16298](#): Add config to specify multi-column joins have correlated columns.
- [HIVE-16305](#): Additional Datanucleus ClassLoaderResolverImpl leaks causing HS2 OOM.
- [HIVE-16310](#): Get the output operators of Reducesink when vectorization is on.
- [HIVE-16318](#): LLAP cache: address some issues in 2.2/2.3.
- [HIVE-16319](#): Fix NPE in ShortestJobFirstComparator.
- [HIVE-16323](#): HS2 JDOPersistenceManagerFactory.pmCache leaks after HIVE-14204.
- [HIVE-16325](#): Sessions are not restarted properly after the configured interval.

1.8.9. Kafka

This release provides Kafka 0.10.1 with no additional Apache patches.

HDP 2.6.3 provided Kafka 0.10.1 and the following Apache patches:

- [KAFKA-4360](#): Controller may deadLock when autoLeaderRebalance encounter zk expired.

HDP 2.6.2 provided Kafka 0.10.1 with no additional Apache patches.

HDP 2.6.1 provided Kafka 0.10.1 with no additional Apache patches.

HDP 2.6.0 provided Kafka 0.10.1 with no additional Apache patches.

1.8.10. Knox

This release provides Knox 0.12.0 with no additional Apache patches.

HDP 2.6.3 provided Knox 0.12.0 with no additional Apache patches.

HDP 2.6.2 provides Knox 0.12.0 and the following Apache patches:

- [KNOX-390](#): fix of backport merge issue.
- [KNOX-390](#): Include client IP and HTTP verb in audit log.
- [KNOX-626](#): NameNode UI through Knox has various tabs not working.
- [KNOX-751](#): Need rewrite function to capture href information from single page host to rewrite output of node hosts.
- [KNOX-776](#): Rewrite rule handling for Websockets.
- [KNOX-786](#): Spark Thriftserver UI support through Knox.
- [KNOX-841](#): Changed version number for Solr proxy support.
- [KNOX-890](#): Make IdleTimeout Configurable in Knox Gateway Server (make default 5 mins).
- [KNOX-897](#): X-Forwarded-Port incorrectly defaults to the one configured for Knox if standard ports (80 and 443) are used (Attila Kanto via Sandeep More).
- [KNOX-900](#): In the WebSocketMultipleConnectionTest before sending data check whether the socket is active.
- [KNOX-902](#): Fix the hardcoded knoxsso topology name.
- [KNOX-903](#): KnoxShell allows self signed certs to be used without any checks.
- [KNOX-904](#): Reverting back httpclient to 4.5.1 due to bug in 4.5.2.
- [KNOX-906](#): Log WARN of Removed Impersonation Params.
- [KNOX-909](#): Ambari rewrite update for SmartSense.
- [KNOX-911](#): Ability to scope cookies to a given Path.
- [KNOX-913](#): Invalid login.jsp redirect for Ranger Admin UI.
- [KNOX-917](#): Fix Pig view in Ambari.
- [KNOX-920](#): Make avatica service use default policies.

- [KNOX-923](#): Add ClientData to KnoxToken Service to Include in JSON Response.
- [KNOX-928](#): Topology Port Mapping Feature.
- [KNOX-932](#): Option to remove the server-name from HTTP-header response.
- [KNOX-936](#): On websocket error properly close all the sessions and containers..
- [KNOX-938](#): JWTProvider to accept Query Param as well as Bearer Token.
- [KNOX-944](#): Make PBE Hashing, Iteration Count and Salt Configurable and Manageable.
- [KNOX-947](#): SSOCookieProvider to be configurable for signature verification key/PEM.
- [KNOX-947](#): SSOCookieProvider to be configurable for signature verification key/PEM.
- [KNOX-948](#): Refactor AbstractJWTFilter implementations.
- [KNOX-948](#): Refactor AbstractJWTFilter implementations.
- [KNOX-949](#): WeBHDFS proxy replaces %20 encoded spaces in URL with + encoding.
- [KNOX-950](#): Fix a bug that prevents wss:// protocol from connection to websocket backend..
- [KNOX-952](#): Add common tests for the two JWT filters.
- [KNOX-954](#): Properly handle parsing errors for JWT tokens.
- [KNOX-973](#): Update Yarn UI services.
- [KNOX-974](#): Update HDFS UI services.
- [KNOX-975](#): Add NodeManager Service Definition.
- [KNOX-977](#): Exclude extraneous bundle.map in admin-ui file from release.
- [KNOX-981](#): Make Topology Instance Available in WebContext for Runtime Access.
- [KNOX-982](#): Datanode JMX REST Knox service.
- [KNOX-986](#): JMX Metric Reporter and OutOfMemory Issues.
- [KNOX-994](#): Introducing a new variable that enhances the function, needed for Zeppelin / fix.
- [KNOX-995](#): KnoxSSO Form IDP Issue with Firefox.

HDP 2.6.1 provided Knox 0.12.0 with no additional Apache patches.

HDP 2.6.0 provided Knox 0.12.0 with no additional Apache patches.

1.8.11. Mahout

In HDP-2.3.x and 2.4.x, instead of shipping a specific Apache release of Mahout, we synchronized to a particular revision point on Apache Mahout trunk. This revision point is

after the 0.9.0 release, but before the 0.10.0 release. This provides a large number of bug fixes and functional enhancements over the 0.9.0 release, but provides a stable release of the Mahout functionality before the complete conversion to new Spark-based Mahout in 0.10.0.

The revision point chosen for Mahout in HDP 2.3.x and 2.4.x is from the "mahout-0.10.x" branch of Apache Mahout, as of 19 December 2014, revision 0f037cb03e77c096 in GitHub.

In HDP-2.5.x and 2.6.x, we removed the "commons-httpclient" library from Mahout because we view it as an obsolete library with possible security issues., and upgraded the Hadoop-Client in Mahout to version 2.7.3, the same version used in HDP-2.5. As a result:

- Previously compiled Mahout jobs will need to be recompiled in the HDP-2.5 or 2.6 environment.
- There is a small possibility that some Mahout jobs may encounter "ClassNotFoundException" or "could not load class" errors related to "org.apache.commons.httpclient", "net.java.dev.jets3t", or related class name prefixes. If these errors happen, you may consider whether to manually install the needed jars in your classpath for the job, if the risk of security issues in the obsolete library is acceptable in your environment.
- There is an even smaller possibility that some Mahout jobs may encounter crashes in Mahout's hbase-client code calls to the hadoop-common libraries, due to binary compatibility problems. Regrettably, there is no way to resolve this issue except revert to the HDP-2.4.2 version of Mahout, which may have security issues. Again, this should be very unusual, and is unlikely to occur in any given Mahout job suite.

1.8.12. Oozie

This release provides Oozie 4.2.0 with no additional Apache patches.

HDP 2.6.3 provided Oozie 4.2.0 with no additional Apache patches.

HDP 2.6.2 provided Oozie 4.2.0 with no additional Apache patches.

HDP 2.6.1 provided Oozie 4.2.0 with no additional Apache patches.

HDP 2.6.0 provided Oozie 4.2.0 and the following Apache patches:

- [OOZIE-1402](#): Increase retry interval for non-progressing coordinator action with fix value.
- [OOZIE-1837](#): LauncherMainHadoopUtils sensitive to clock skew.
- [OOZIE-1922](#): MemoryLocksService fails if lock is acquired multiple times in same thread and released.
- [OOZIE-1976](#): Specifying coordinator input datasets in more logical ways.
- [OOZIE-2030](#): Configuration properties from global section is not getting set in Hadoop job conf when using sub-workflow action in Oozie workflow.xml.
- [OOZIE-2159](#): 'oozie validate' command should be moved server-side.

- [OOZIE-2165](#): Job log fetching can fail in Oozie HA mode when using doAs impersonation.
- [OOZIE-2168](#): Oozie flow and action names have 50 char limit.
- [OOZIE-2173](#): DISCLAIMER.txt still refers to Apache Incubator.
- [OOZIE-2178](#): fix javadoc to compile on JDK8.
- [OOZIE-2185](#): Make oozie cli source conf/oozie-client-env.sh.
- [OOZIE-2187](#): Add a way to specify a default JT/RM and NN.
- [OOZIE-2215](#): Support glob in FS EL function.
- [OOZIE-2222](#): Oozie UI parent job should be clickable.
- [OOZIE-2228](#): Statustransit service doesn't pick bundle with suspend status.
- [OOZIE-2245](#): Service to periodically check database schema.
- [OOZIE-2246](#): CoordinatorInputCheckCommand does not behave properly when har file is one of data dependency and doesn't exist.
- [OOZIE-2250](#): Show log for WAITING and TIMEDOUT coord actions.
- [OOZIE-2251](#): Expose instrumental matrices in Realtime Graphing tool.
- [OOZIE-2257](#): BundleStatusTransitXCommand doesn't update last modified time.
- [OOZIE-2260](#): Only set "java.io.tmpdir" to "./tmp" for the AM.
- [OOZIE-2262](#): Fix log streaming from other server with start/end filter.
- [OOZIE-2264](#): Fix coord:offset(n,"DAY") to resolve correct data set.
- [OOZIE-2266](#): Fix 'total' actions returned in coordinator job info.
- [OOZIE-2268](#): Update ActiveMQ version for security and other fixes.
- [OOZIE-2270](#): Audit log doesn't get loaded when "audit log" tab is clicked for coord job.
- [OOZIE-2271](#): Upgrade Tomcat to 6.0.44.
- [OOZIE-2272](#): Use Hadoop's CredentialProvider for passwords in oozie-site.
- [OOZIE-2277](#): Honor oozie.action.sharelib.for.spark in Spark jobs.
- [OOZIE-2283](#): Documentation should not say that System.exit is not allowed in Java Action.
- [OOZIE-2284](#): HBaseCredentials should only add hbase-default.xml and hbase-site.xml to actionConf.
- [OOZIE-2285](#): Change in concurrency should trigger coord action ready command.
- [OOZIE-2286](#): Update Log4j and Log4j-extras to latest 1.2.x release.

- [OOZIE-2287](#): Add support for deleting hcat partitions in fs action delete.
- [OOZIE-2289](#): hive-jdbc dependency in core/pom.xml should be compile.
- [OOZIE-2291](#): Hive2 workflow.xml.security should have "cred" in action tag instead of "hive2" tag.
- [OOZIE-2293](#): Oozie 4.0.1 build failed while building Catalog.
- [OOZIE-2300](#): TestAuthFilterAuthOozieClient.testClientAuthTokenCache fails with Hadoop 2.7.0 and later.
- [OOZIE-2303](#): Typo in documentation.
- [OOZIE-2305](#): Compile Oozie with Hive-1.2.0.
- [OOZIE-2308](#): Add support for bundle:conf() function.
- [OOZIE-2309](#): Enable the coord:dateOffset() function in /coordinator-app/datasets/dataset/@initial-instance.
- [OOZIE-2312](#): oozie doesn't purge audit and error log.
- [OOZIE-2314](#): Unable to kill old instance child job by workflow or coord rerun by Launcher.
- [OOZIE-2315](#): TestOozieCLI.testshareLibUpdate_withSecurity fails with Hadoop 2.
- [OOZIE-2318](#): Provide better solution for specifying SSL truststore to Oozie Client.
- [OOZIE-2320](#):
TestZKXLogStreamingService.testStreamingWithMultipleOozieServers_coordActionList is failing.
- [OOZIE-2322](#): Oozie Web UI doesn't work with Kerberos in Internet Explorer 10 or 11 and curl.
- [OOZIE-2324](#): A syntax error in the kill node causes the workflow to get stuck and other problems.
- [OOZIE-2325](#): Shell action fails if user overrides oozie.launcher.mapreduce.map.env.
- [OOZIE-2328](#): Coordinator endtime change should check if the last action is in database.
- [OOZIE-2329](#): Make handling yarn restarts configurable.
- [OOZIE-2330](#): Spark action should take the global jobTracker and nameNode configs by default and allow file and archive elements.
- [OOZIE-2332](#): Add ability to provide Hive and Hive 2 Action queries inline in workflows.
- [OOZIE-2343](#): Shell Action should take Oozie Action config and setup HADOOP_CONF_DIR.
- [OOZIE-2344](#): Enabling 'oozie.action.jobinfo.enable' doesn't inject the job information into the map/reduce job's configuration..

- [OOZIE-2345](#): Parallel job submission for forked actions.
- [OOZIE-2346](#): Add sub-workflow information like the super-parent id and workflow depth into the 'oozie.job.info' property.
- [OOZIE-2347](#): Remove unnecessary new Configuration()/new jobConf() calls from oozie.
- [OOZIE-2348](#): Recovery service keeps on recovering coord action of suspended jobs.
- [OOZIE-2350](#): Package changes for release.
- [OOZIE-2355](#): Hive2 Action doesn't pass along oozie configs to jobconf.
- [OOZIE-2356](#): Add a way to enable/disable credentials in a workflow.
- [OOZIE-2358](#): Coord rerun cleanup should reuse hcat connections.
- [OOZIE-2360](#): Spark Action fails due to missing mesos jar.
- [OOZIE-2362](#): SQL injection in BulkJPAExecutor.
- [OOZIE-2365](#): oozie fail to start when smtp password not set.
- [OOZIE-2367](#): fs delete should support skipTrash option.
- [OOZIE-2368](#): coord:dateOffset and coord:dateTzOffset can't be used for coord initial-instance.
- [OOZIE-2369](#): coord:offset doesn't resolve correctly.
- [OOZIE-2370](#): Docs for Coordinator Action Status Notification has wrong property name.
- [OOZIE-2376](#): Default action configs not honored if no <configuration> section in workflow.
- [OOZIE-2377](#): Hive2 Action should not propagate oozie.hive2.* properties to Beeline.
- [OOZIE-2378](#): org.apache.oozie.client.TestOozieCLI.testAdminInstrumentation is flakey.
- [OOZIE-2379](#):
org.apache.oozie.command.coord.TestCoordPushDependencyCheckXCommand.testRequeueOnException is flakey.
- [OOZIE-2380](#): Oozie Hive action failed with wrong tmp path.
- [OOZIE-2382](#): org.apache.oozie.action.hadoop.TestPigMain.testPig_withNullExternalID is flakey.
- [OOZIE-2385](#):
org.apache.oozie.TestCoordinatorEngineStreamLog.testCoordLogStreaming is flakey.
- [OOZIE-2386](#): org.apache.oozie.util.TestXConfiguration.testSubstituteVar is flakey.
- [OOZIE-2391](#): spark-opts value in workflow.xml is not parsed properly.
- [OOZIE-2394](#): Oozie can execute command without holding lock.

- [OOZIE-2397](#): LAST_ONLY and NONE don't properly handle READY actions.
- [OOZIE-2400](#): Workflow xml configuration parser cannot deal with namespace prefix.
- [OOZIE-2401](#): Typo in twiki docs with FilesAchives instead of FilesArchives.
- [OOZIE-2402](#): oozie-setup.sh sharelib create takes a long time on large clusters.
- [OOZIE-2407](#): AbandonedService should not send mail if there is no abandoned coord.
- [OOZIE-2411](#): Add BCC to oozie email action.
- [OOZIE-2413](#): Kerberos credentials can expire if the KDC is slow to respond.
- [OOZIE-2419](#): HBase credentials are not correctly proxied.
- [OOZIE-2428](#): TestSLAService, TestSLAEventGeneration flakey tests.
- [OOZIE-2429](#): TestEventGeneration test is flakey.
- [OOZIE-2430](#): Add root logger for hive,sqoop action.
- [OOZIE-2431](#): Support hive.metastore.uris as alias for hcat.metastore.uri.
- [OOZIE-2432](#): TestPurgeXCommand fails.
- [OOZIE-2434](#): inconsistent coord action status and workflow job status.
- [OOZIE-2435](#): TestCoordChangeXCommand is flakey.
- [OOZIE-2436](#): Fork/join workflow fails with "oozie.action.yarn.tag must not be null".
- [OOZIE-2437](#): Exclude additional Hadoop dependencies from Spark Sharelib.
- [OOZIE-2438](#): Oozie client "jobs -filter" diagnostic message clarification.
- [OOZIE-2439](#): FS Action no longer uses name-node from global section or default NN.
- [OOZIE-2441](#): SubWorkflow action with propagate-configuration but no global section throws NPE on submit.
- [OOZIE-2444](#): Need conditional logic in bundles.
- [OOZIE-2445](#): Doc for - Specifying coordinator input datasets in more logical ways.
- [OOZIE-2446](#): Job does not fail during submission if non existent credential is specified.
- [OOZIE-2447](#): Illegal character 0x0 oozie client.
- [OOZIE-2452](#): Coordinator Functional Specification - EL Constants Typo.
- [OOZIE-2466](#): Repeated failure of TestMetricsInstrumentation.testSamplers.
- [OOZIE-2467](#): Oozie can shutdown itself on long GC pause.
- [OOZIE-2470](#): Remove infinite socket timeouts in the Oozie email action.

- [OOZIE-2471](#): Show child job url tab for distcp.
- [OOZIE-2474](#): <job-xml> is not being applied to the launcher job.
- [OOZIE-2475](#): Oozie does not cleanup action dir of killed actions.
- [OOZIE-2476](#): When one of the action from fork fails with transient error, WF never joins.
- [OOZIE-2481](#): Add YARN_CONF_DIR in the Shell action.
- [OOZIE-2482](#): Pyspark job fails with Oozie.
- [OOZIE-2485](#): Oozie client keeps trying to use expired auth token.
- [OOZIE-2486](#): TestSLAEventsGetForFilterJPAExecutor is flakey.
- [OOZIE-2489](#): XML parsing is vulnerable.
- [OOZIE-2490](#): Oozie can't set hadoop.security.token.service.use_ip.
- [OOZIE-2492](#): JSON security issue in js code.
- [OOZIE-2503](#): show ChildJobURLs to spark action.
- [OOZIE-2504](#): Create a log4j.properties under HADOOP_CONF_DIR in Shell Action.
- [OOZIE-2509](#): SLA job status can stuck in running state.
- [OOZIE-2510](#): TestLogStreamer.testStreamLog() fails in other timezones.
- [OOZIE-2511](#): SubWorkflow missing variable set from option if config-default is present in parent workflow.
- [OOZIE-2512](#): ShareLibservice returns incorrect path for jar.
- [OOZIE-2522](#): There can be multiple coord submit from bundle in case of ZK glitch.
- [OOZIE-2529](#): Support adding secret keys to Credentials of Launcher.
- [OOZIE-2531](#): Prevent Spark trying for token which is already available.
- [OOZIE-2532](#): patch apply does not handle binary files.
- [OOZIE-2535](#): User can't disable uber mode.
- [OOZIE-2537](#): SqoopMain does not set up log4j properly.
- [OOZIE-2541](#): Possible resource leak in Hive2Credentials.
- [OOZIE-2542](#): Option to disable OpenJPA BrokerImpl finalization.
- [OOZIE-2546](#): Improperly closed resources in OozieDBCLI.
- [OOZIE-2547](#): Add mapreduce.job.cache.files to spark action.
- [OOZIE-2548](#): Flaky test TestZKLocksService.testLockReaper.

- [OOZIE-2550](#): Flaky tests in TestZKUUIDService.java.
- [OOZIE-2551](#): Feature request: epoch timestamp generation.
- [OOZIE-2553](#): Cred tag is required for all actions in the workflow even if an action does not require it.
- [OOZIE-2556](#): TestAbandonedCoordChecker.testCatchupJob is flaky.
- [OOZIE-2563](#): Pass spark-defaults.conf to spark action.
- [OOZIE-2567](#): HCat connection is not closed while getting hcat cred.
- [OOZIE-2570](#): remove -PtestPatchCompile from patch testing as there is no such profile.
- [OOZIE-2577](#): Flaky tests TestCoordActionInputCheckXCommand.testTimeout and testTimeoutWithException.
- [OOZIE-2578](#): Oozie example distcp job fails to run within an encrypted zone with checksum match error.

1.8.13. Phoenix

This release provides Phoenix 4.7.0 with no additional Apache patches.

HDP 2.6.3 provided Phoenix 4.7.0 and the following Apache patches:

- [PHOENIX-2236](#): Various phoenix-spark fixes .
- [PHOENIX-2290](#): Various phoenix-spark fixes.
- [PHOENIX-2547](#): Various phoenix-spark fixes.
- [PHOENIX-3101](#): Remove findbugs' annotations dependency as it is lgpl.
- [PHOENIX-3406](#): CSV BulkLoad MR job incorrectly handle ROW_TIMESTAMP.
- [PHOENIX-3427](#): phoenix-spark: Table undefined for tenant specific view.
- [PHOENIX-3525](#): Follow-on improvements to automatic index rebuilds- It contains PHOENIX-3525,PHOENIX-4099.
- [PHOENIX-3532](#): Pass tenantId parameter to PhoenixRDD when reading.
- [PHOENIX-3600](#): Core MapReduce classes don't provide location info.
- [PHOENIX-3601](#): PhoenixRDD doesn't expose the preferred node locations to Spark.
- [PHOENIX-3792](#): Provide way to skip normalization of column names in phoenix-spark integration.
- [PHOENIX-3797](#): Address issue with compacting local index stores.
- [PHOENIX-3832](#): Local Index - Empty resultset for multi-tenant tables.

- [PHOENIX-3858](#): Index maintenance not required for local indexes of table with immutable rows.
- [PHOENIX-3947](#): Increase scan time out for partial index rebuild and retry only once.
- [PHOENIX-3948](#): Enable shorter time outs for server-side index writes.
- [PHOENIX-3964](#): Index.preWALRestore should handle index write failure.
- [PHOENIX-3986](#): UngroupedAggregateRegionObserver.commitBatch() should set the index metadata as an attribute on every mutation.
- [PHOENIX-3997](#): UngroupedAggregateRegionObserver.commitBatchWithHTable() should not check the memstore size and wait for flush..
- [PHOENIX-4027](#): Mark index as disabled during partial rebuild after configurable amount of time Modification: we will never completely disable the index to avoid user to rebuild it from scratch..
- [PHOENIX-4039](#): Increase default number of RPC retries for our index rebuild task.
- [PHOENIX-4099](#): Follow-on improvements to automatic index rebuilds- It contains PHOENIX-3525,PHOENIX-4099.
- [PHOENIX-4188](#): Disable inline-DTDs in Pherf XML records.
- [PHOENIX-4189](#): Introduce a class that wraps the Map of primary key data.
- [PHOENIX-4191](#): Categorize uncategorized integration tests.
- [PHOENIX-4198](#): Remove need for users to have write permission to SYSTEM.CATALOG table.
- [PHOENIX-4224](#): Automatic resending cache for HashJoin doesn't work when cache has expired on server side.
- [PHOENIX-4225](#): Using Google cache may lead to lock up on RS side..
- [PHOENIX-4261](#): Remove unused netty-all dependency.

HDP 2.6.2 provided Phoenix 4.7.0 and the following Apache patches:

- [PHOENIX-3333](#): Support Spark 2.0.
- [PHOENIX-3342](#): ORDER BY and LIMIT+OFFSET doesnt work on second column from compound key.
- [PHOENIX-3481](#): Phoenix initialization fails for HBase 0.98.21 and beyond.
- [PHOENIX-3598](#): Implement HTTP parameter impersonation for PQS.
- [PHOENIX-3633](#): null pointer exception when subsquery for not exists returns empty result set.
- [PHOENIX-3797](#): Address issue with compacting local index stores.

- [PHOENIX-3895](#): Upgrade to Apache Avatica 1.10.0.
- [PHOENIX-3960](#): PhoenixStorageHandler for Hive doesn't work from Spark jobs.
- [PHOENIX-3994](#): Index RPC priority still depends on the controller factory property in hbase-site.xml.
- [PHOENIX-4010](#): Hash Join cache may not be send to all regionservers when we have stale HBase meta cache.
- [PHOENIX-4010](#): Hash Join cache may not be send to all regionservers when we have stale HBase meta cache(tests addendum).
- [PHOENIX-4018](#): HashJoin may produce nulls for LHS table columns.
- [PHOENIX-4042](#): Add hadoop metrics2-based Indexer coproc metrics.

HDP 2.6.1 provided Phoenix 4.7.0 and the following Apache patches:

- [PHOENIX-3710](#): Cannot use lowername data table name with indextool.
- [PHOENIX-3756](#): Handle users lacking ADMIN for the SYSTEM namespace.
- [PHOENIX-3759](#): Dropping all local index causes NPE during compaction.
- [PHOENIX-3800](#): NPE when doing UPSERT SELECT into salted tables.
- [PHOENIX-3833](#): Handle users lacking ADMIN from failing in system schema creation.
- [PHOENIX-3842](#): Turn off all BloomFilter for Phoenix tables (Lars Hofhansl).
- [PHOENIX-3843](#): Improve logging for UNION ALL errors.

HDP 2.6.0 provides Phoenix 4.7.0 and the following Apache patches:

- [PHOENIX-86](#): UDF testing in phoenix is failing with NoSuchMethodError.
- [PHOENIX-117](#): Phoenix is failing to establish connection on secure envs with NoClassDefFoundError.
- [PHOENIX-118](#): Remove very chatty logging and add notification around cache evictions.
- [PHOENIX-930](#): duplicated columns cause query exception and drop table exception (Junegunn Choi, Kalyan Hadoop).
- [PHOENIX-1523](#): Make it easy to provide a tab literal as separator for CSV imports.
- [PHOENIX-1754](#): Try to handle keytab paths on Windows filesystems.
- [PHOENIX-2276](#): Addednum2 to fix test failures.
- [PHOENIX-2276](#): addendum for fixing test failures.
- [PHOENIX-2276](#): Creating index on a global view on a multi-tenant table fails with NPE.
- [PHOENIX-2276](#): Fix test failure.

- [PHOENIX-2743](#): HivePhoenixHandler for big-big join with predicate push down.
- [PHOENIX-2748](#): Disable auto-commit during bulk load.
- [PHOENIX-2758](#): Ordered GROUP BY not occurring with leading PK equality expression.
- [PHOENIX-2784](#): phoenix-spark: Allow coercion of DATE fields to TIMESTAMP when loading DataFrames(Josh Mahonin).
- [PHOENIX-2803](#): Initializing ToCharFunction with the List <Expression> constructor fails.
- [PHOENIX-2817](#): Phoenix-Spark plugin doesn't work in secured env.
- [PHOENIX-2820](#): Investigate why SortMergeJoinIT has a sort in the explain plan.
- [PHOENIX-2828](#): Ordinality should be 1-based in UNNEST WITH ORDINALITY.
- [PHOENIX-2845](#): Timestamp ignores nanos in literal expressions.
- [PHOENIX-2856](#): HBaseManagedTimeTableReuseTest category isn't getting run.
- [PHOENIX-2871](#): Workaround sqlline issue.
- [PHOENIX-2878](#): CURRENT_TIME fails to provide correct time when projected table is using.
- [PHOENIX-2886](#): Union ALL with Char column not present in the table in Query 1 but in Query 2 throw exception (Alicia Ying Shu).
- [PHOENIX-2890](#): Extend IndexTool to allow incremental index rebuilds.
- [PHOENIX-2894](#): Sort-merge join works incorrectly with DESC columns.
- [PHOENIX-2898](#): HTable not closed in ConnectionQueryServicesImpl (Alex Araujo).
- [PHOENIX-2900](#): Unable to find hash cache once a salted table 's first region has split (chenglei).
- [PHOENIX-2905](#): hadoop-2.5.1 artifacts are in the dependency tree.
- [PHOENIX-2908](#): phoenix-core depends on both antlr 3.5 and antlr 2.7.7 (William Yang).
- [PHOENIX-2912](#): Broken IT tests after PHOENIX-2905.
- [PHOENIX-2919](#): PreparedStatement Returns Incorrect Number of Deleted Records.
- [PHOENIX-2920](#): Incorrect Queries on Multi-tenant tables with WHERE clause containing Row Value Constructor.
- [PHOENIX-2930](#): Cannot resolve columns aliased to its own name.
- [PHOENIX-2934](#): Checking a coerce expression at top level should not be necessary for Union All query (Alicia Ying Shu).
- [PHOENIX-2935](#): IndexMetaData cache can expire when a delete and or query running on server.

- [PHOENIX-2936](#): Missing antlr runtime on server side after PHOENIX-2908.
- [PHOENIX-2940](#): Query the stats table and cache stats in the client.
- [PHOENIX-2942](#): Order by incorrect for RVC.
- [PHOENIX-2952](#): Addendum to fix test case failure (Ram).
- [PHOENIX-2952](#): array_length return negative value (Joseph Sun).
- [PHOENIX-2961](#): select on a composite primary key fails when DESC is set in the table.
- [PHOENIX-2983](#): ClassCastException on auto coerce of BIGINT to DECIMAL.
- [PHOENIX-2994](#): Coalesce function may return null.
- [PHOENIX-3004](#): Allow configuration in hbase-site to define realms other than the server's.
- [PHOENIX-3006](#): Fix all ScalarFunctions to implement clone(List) or <init> (List). (James Taylor & Lars Hofhansl).
- [PHOENIX-3008](#): Prevent upgrade of existing multi-tenant table to map to namespace until we support it correctly.
- [PHOENIX-3011](#): Fix missing apache licenses.
- [PHOENIX-3013](#): TO_CHAR fails to handle indexed null value (Junegunn Choi).
- [PHOENIX-3014](#): SELECT DISTINCT pk ORDER BY pk DESC gives the wrong results with salted tables..
- [PHOENIX-3015](#): Any metadata changes may cause unpredictable result when local indexes are using.
- [PHOENIX-3021](#): Using local index during compaction is producing NPE.
- [PHOENIX-3057](#): Set incremental=false for sqlline-thin.
- [PHOENIX-3078](#):. Hive storage handler does not work if phoenix.table.name contains the schema name.
- [PHOENIX-3126](#): Tie a driver instance to a specific user (Prabhjyot Singh).
- [PHOENIX-3134](#): Ingestion of VARBINARY data should fail when data is not base64-encoded varbinary fields bulk load difference between MR/psql and upserts.
- [PHOENIX-3136](#): Do not relocate org.apache.calcite in queryserver/thin-client.
- [PHOENIX-3149](#): Local index got corrupted if intermediate compaction happen during the split..
- [PHOENIX-3152](#): Incorrect comparator in QueryOptimizer may cause IllegalArgumentException.
- [PHOENIX-3161](#): Improve performance of automatic index rebuilding.

- [PHOENIX-3164](#): Cache UGI instances for remote users in PQS.
- [PHOENIX-3189](#): Perform Kerberos login before ConnectionInfo is constructed.
- [PHOENIX-3199](#): ServerCacheClient sends cache to all regions unnecessarily (chenglei).
- [PHOENIX-3223](#): Add `hadoop classpath` to PQS classpath when available.
- [PHOENIX-3236](#): Problem with shading apache commons on Azure..
- [PHOENIX-3241](#): Support both DATE and TIMESTAMP in CONVERT_TZ().
- [PHOENIX-32451](#): Support both DATE and TIMESTAMP in CONVERT_TZ().
- [PHOENIX-3246](#): Treat U+2002 as whitespace in parser.
- [PHOENIX-3271](#): Distribute UPSERT SELECT across cluster.
- [PHOENIX-3280](#): Automatic attempt to rebuild all disabled index(James Taylor).
- [PHOENIX-3346](#): Hive PhoenixStorageHandler doesn't work well with column.
- [PHOENIX-3386](#): PhoenixStorageHandler throws NPE if local tasks executed via child.
- [PHOENIX-3387](#): Hive PhoenixStorageHandler fails with join on numeric fields.
- [PHOENIX-3408](#): arithmetic/mathematical operations with Decimal columns failed in Hive with PheonixStorageHandler..
- [PHOENIX-3416](#): Memory leak in PhoenixStorageHandler.
- [PHOENIX-3422](#): PhoenixQueryBuilder doesn't make value string correctly for char(/varchar) column type..
- [PHOENIX-3423](#): PhoenixObjectInspector doesn't have information on length of the column..
- [PHOENIX-3486](#): RoundRobinResultIterator doesn't work correctly because of setting Scan's cache size inappropriately in PhoenixInputForamt.
- [PHOENIX-3490](#): PhoenixStorageHandler doesn't handler hbase configuration properly and don't work in secured env.
- [PHOENIX-3499](#): Enable null value for quote character for CSVBulkLoad tool.
- [PHOENIX-3503](#): PhoenixStorageHandler doesn't work properly when execution engine of Hive is Tez..
- [PHOENIX-3504](#): Spark integration doesn't work with decimal columns that are using default precision.
- [PHOENIX-3505](#): Avoid NPE on close() in OrderedResultIterator.
- [PHOENIX-3512](#): PhoenixStorageHandler makes erroneous query string when handling between clauses with date constants..

- [PHOENIX-3521](#): Scan over local index may return incorrect result after flush & compaction.
- [PHOENIX-3540](#): BUG-70567 Fix Time data type in Phoenix Spark integration.
- [PHOENIX-3544](#): Fix UNSIGNED_DATE and UNSIGNED_TIME type in phoenix-spark.
- [PHOENIX-3565](#): Set failIfNoTests=false on surefire and failsafe.
- [PHOENIX-3608](#): KeyRange interset should return EMPTY_RANGE when one of it is NULL_RANGE(Rajeshbabu).
- [PHOENIX-3609](#): Detect and fix corrupted local index region during compaction.
- [PHOENIX-3610](#): Fix tableName used to get the index maintainers while creating HalfStoreFileReader for local index store.
- [PHOENIX-3652](#): User requires all Create privilege on 'default' namespace (Ankit Singhal).
- [PHOENIX-3662](#): PhoenixStorageHandler throws ClassCastException (by Jeongdae Kim).
- [PHOENIX-3684](#): Handle _HOST in principal specified in JDBC url.
- [PHOENIX-3686](#): Allow client-authentication to be disabled for PQS.
- [PHOENIX-3694](#): Drop schema does not invalidate schema from the server cache.
- [PHOENIX-3698](#): No-args constructor for IndexedWALEditCodec.
- [PHOENIX-3708](#): Tests introduced in PHOENIX-3346 doesn't work well with failsafe plugin.

1.8.14. Pig

This release provides Pig 0.16.0 with no additionalApache patches.

HDP 2.6.3 provided Pig 0.16.0 with no additionalApache patches.

HDP 2.6.2 provided Pig 0.16.0 with no additionalApache patches.

HDP 2.6.1 provides Pig 0.16.0 with no additionalApache patches.

HDP 2.6.0 provides Pig 0.16.0 and the following Apache patches:

- [PIG-5159](#): Fix Pig not saving grunt history.
- [PIG-5175](#): Upgrade jruby to 1.7.26.

1.8.15. Ranger

This release provides Ranger 0.7.0 and the following Apache patches:

- [RANGER-1880](#): TagSync update to process TRAIT_UPDATE notification from Atlas.
- [RANGER-1883](#): TagSync should reuse kerberos ticket in REST calls to Ranger Admin.

- [RANGER-1897](#): tagsync update to replace Atlas V1 API usage with Atlas V2 API for tag-download using REST.

HDP 2.6.3 provided Ranger 0.7.0 and the following Apache patches:

- [RANGER-1176](#): Ranger admin does not allow to create / update a policy with only delegate admin permission.
- [RANGER-1402](#): NPE if there is a problem with the HiveClient driverClassName.
- [RANGER-1403](#): There is a problem in buildks class when delete invalid keystore file.
- [RANGER-1408](#): When the error occurs, the system does not record the error message in RangerServiceService class.
- [RANGER-1415](#): The ranger can be opened when the user enters http://localhost:6080/ in the browser address bar...
- [RANGER-1427](#): Remove a lot of not used code - found because Boolean.getBoolean must be wrong.
- [RANGER-1505](#): Remove KeyProtector code in KMS.
- [RANGER-1632](#): Users are not sync'd when sAMAccountName is different than CN associated with groups.
- [RANGER-1674](#): IMPORT START audit is not appearing on audit page.
- [RANGER-1676](#): Policy Details popup from Access audit page not displaying details of masking policy.
- [RANGER-1682](#): Clicking on export service after session timeout gets stuck indefinitely.
- [RANGER-1697](#): Update NiFi service def + handle upgrade scenario for the same.
- [RANGER-1705](#): Good coding practice in Ranger recommended by static code analysis.
- [RANGER-1715](#): 'repl dump <database>.<table>' failed to authorize in Ranger.
- [RANGER-1715](#): Enhance Ranger Hive Plugin to support authorization on Hive replication Tasks.
- [RANGER-1717](#): User with KEYADMIN role is not able to see Audit => Admin logs.
- [RANGER-1724](#): On Report listing page for masking/row filter policies show only mask/row filter conditions.
- [RANGER-1726](#): User are not getting deleted when Knox proxy is Enabled.
- [RANGER-1727](#): Ranger allows user to change an external user's password with 'null' old password.
- [RANGER-1730](#): Utility script that will list the users with a given role.
- [RANGER-1735](#): Support representing nested group memberships in Ranger Admin.

- [RANGER-1736](#): Good coding practice in Ranger recommended by static code analysis.
- [RANGER-1747](#): LDAP paged results resets to 500 after fetching first page of results.
- [RANGER-1748](#): User is unable to update existing policy while importing policy from file.
- [RANGER-1754](#): correcting group deletion message.
- [RANGER-1756](#): Handle role related restrictions for users having User role.
- [RANGER-1765](#): Add unique key constraint in x_group and x_group_users table.
- [RANGER-1771](#): Improve performance of merging lists of policyEvaluators returned by Trie.
- [RANGER-1779](#): last resource gets duplicated during update policy if policy is created through public api rest call.
- [RANGER-1783](#): Update XUserREST for listing users.
- [RANGER-1786](#): Need warning on external user role change.
- [RANGER-1787](#): User has to fill up all the allow and deny conditions items to create a Knox policy.
- [RANGER-1788](#): Install Ranger admin failure.
- [RANGER-1795](#): Service should not be renamed if tagged service resources exist for it unless 'forceRename=true' option is specified.
- [RANGER-1797](#): Ranger - Upgrade Tomcat version.
- [RANGER-1800](#): Usersync fails to update users and groups during incremental sync with nested groups and group first search enabled.
- [RANGER-1801](#): group user mapping updates to ranger admin fail when the mapping is already existed in ranger DB.
- [RANGER-1806](#): Good coding practice in Ranger recommended by static code analysis.
- [RANGER-1817](#): Audit to Solr fails to log when the number of columns are in large number.
- [RANGER-1818](#): Good coding practice in Ranger recommended by static code analysis.
- [RANGER-1819](#): Not able to delete group that is having special character(ampersand) from ranger admin.
- [RANGER-1820](#): Address Ranger DB consolidated SQL script inconsistency.
- [RANGER-1820](#): Duplicate entries should be deleted before creation of unique index on x_group and x_group_users table.
- [RANGER-1825](#): Ranger Tagsync start is failing.
- [RANGER-1826](#): Import of bulk policies is causing OOM and Apparent Deadlock.

- [RANGER-1832](#): Export REST API should return exact matching results if polResource param is provided.
- [RANGER-1834](#): row filter policies are not being returned by policy search.
- [RANGER-1838](#): Refactor Jisql dependencies.
- [RANGER-1841](#): Audit log record for 'use dbName' hive command contains large number of tags.
- [RANGER-1843](#): Tag enricher performance improvement in identifying tags for resource being accessed.
- [RANGER-1851](#): Providing authorization for Hive query kill API (RMP-9474).
- [RANGER-1853](#): Masking functions based on custom masking of string types fails to unescape quotes properly.

HDP 2.6.2 provided Ranger 0.7.0 and the following Apache patches:

- [RANGER-1402](#): NPE if there is a problem with the HiveClient driverClassName.
- [RANGER-1403](#): There is a problem in buildks class when delete invalid keystore file.
- [RANGER-1408](#): When the error occurs, the system does not record the error message in RangerServiceService class.
- [RANGER-1446](#): Ranger Solr Plugin does not work when the collection list in the request is empty.
- [RANGER-1489](#): Solr plugin fails to get client address.
- [RANGER-1491](#): Add Ability in Usersync to automatically assign ADMIN/KEYADMIN role in Ranger for external users.
- [RANGER-1492](#): UI updates to support tag-based masking policies.
- [RANGER-1493](#): Policy engine updates to support tag-based datamasking and rowfiltering policies.
- [RANGER-1494](#): Policy engine updates to support tag-based masking policies.
- [RANGER-1494](#): Tag service-def updates to support masking and row-filter policies.
- [RANGER-1501](#): Audit Flush to HDFS does not actually cause the audit logs to be flushed to HDFS.
- [RANGER-1502](#): Solr shutdown does not cause the audit log file to be flushed and closed.
- [RANGER-1505](#): Remove KeyProtector code in KMS.
- [RANGER-1555](#): Ranger UI Audit Menu-> Admin tab diff view pop-up does not come up..
- [RANGER-1580](#): Update Kafka tests to work with 0.10.1.1.
- [RANGER-1582](#): Support KNOX SSO Token based authentication on Ranger REST API calls.

- [RANGER-1628](#): Good coding practice suggested by static code analysis.
- [RANGER-1638](#): Atlas metadata server start failure.
- [RANGER-1638](#): Improve the password validation from Ranger API.
- [RANGER-1639](#): Ranger KMS should validate key name before importing into DB.
- [RANGER-1642](#): Policies listed on 2nd page and onwards of Policy Landing page don't reflect any edits on them.
- [RANGER-1647](#): Allow Ranger policy conditions to use tag attributes and values in Ranger.
- [RANGER-1648](#): Ranger Kafka Plugin now should use the Short name from Kafka Session Object.
- [RANGER-1649](#): Ranger Solr Plugin fails to refresh policy due to failure in ticket renewal mechanism.
- [RANGER-1651](#): Improve Ranger and Ranger KMS REST API documentation.
- [RANGER-1653](#): Proxying Ranger UI does not work with Ranger-KnoxSSO.
- [RANGER-1658](#): Solr gives NPE while printing the AuthorizationContext in INFO and DEBUG log.
- [RANGER-1661](#): Default Ranger HDFS policy resource path is wrong.
- [RANGER-1665](#): provide a way to get list of policies associated with given resource.
- [RANGER-1666](#): Ranger UI should consider recursiveSupported attribute value at each resource level to Store the Policy.
- [RANGER-1670](#): Change in Atlas Kafka consumer interface for Atlas tag sync.
- [RANGER-1679](#): Export Policy not working when Knox proxy is Enabled..
- [RANGER-1689](#): Enabling recursive policy only for relativepath in WASB servicedef.
- [RANGER-1695](#): Optimize Ranger code for authorization of HDFS 'getContentSummary' and 'delete' commands.
- [RANGER-1696](#): Request to get all policies for hive or hbase service-type does not include policies that apply to specific child resource.
- [RANGER-1708](#): Remove tag services from service type and service name filters under Access Audit..
- [RANGER-1714](#): Disable dynamic sorting of policies when trie pre-filter is enabled.
- [RANGER-1715](#): Enhance Ranger Hive Plugin to support authorization on Hive replication Tasks.
- [RANGER-1737](#): Fixed RANGER-1181 by providing correct set of parameters to Hdfs Native Authorizer in case of fall-back.

HDP 2.6.1 provided Ranger 0.7.0 and the following Apache patches:

- [RANGER-1436](#): Disable, by default, deny policies with `ranger.servicedef.enableDenyAndExceptionsInPolicies` config parameter.
- [RANGER-1436](#): Turn Ranger Deny Policy & Except Conditions block to On by default .
- [RANGER-1475](#): reducing the highest time stamp value to pick all the users syncd during sync cycle.
- [RANGER-1490](#): Increase size of `sort_order` column of `x_policy_resource_map`.
- [RANGER-1531](#): Good coding practice while parsing XML documents in Ranger.
- [RANGER-1546](#): Code Improvement To Follow Best Practices.
- [RANGER-1548](#): Ranger needs better error messages when Ambari Infra is off.
- [RANGER-1550](#): HDFS test connection and resource lookup failing.
- [RANGER-1612](#): When `servicedef` is accessed, `def_options` property `"enableDenyAndExceptionsInPolicies"` is returned as `"false"` if there is no value set for it.

HDP 2.6.0 provided Ranger 0.7.0 and the following Apache patches:

- [RANGER-1378](#): Update MySQL Schema to fix issues related to `only_full_group_by` restriction of MySQL 5.7 version..
- [RANGER-1383](#): Use resource matchers for filtering service policies.
- [RANGER-1392](#): Hive test connection is failing even if `jdbc.url` configured is correct to 2.6-maint.
- [RANGER-1392](#): Revert "RANGER-1392: Hive test connection is failing even if `jdbc.url` configured is correct to 2.6-maint".
- [RANGER-1401](#): Add consolidated db schema script for SQLServer DB flavor.
- [RANGER-1405](#): groups are not shown if exact user name is passed in search filter.
- [RANGER-1406](#): Audit spoolfile not getting created when ranger service user didn't have permission to log into Solr.
- [RANGER-1407](#): Service update transaction log is not generated in some cases.
- [RANGER-1409](#): User role get deleted from table when he tries to update his role to a restricted role.
- [RANGER-1413](#): Fix issues uncovered by static code analysis.
- [RANGER-1413](#): Good coding practice in Ranger recommended by static code analysis.
- [RANGER-1417](#): Ranger Upgrade is failing for Oracle DB flavor.
- [RANGER-1422](#): Ranger Knox Plugin audit doesn't have the access type populated.

- [RANGER-1428](#): In certain scenario user data contains junk email-id.
- [RANGER-1434](#): Enable Group Search First causes issues when Enable Group Sync is disabled - 2.6-maint branch.
- [RANGER-1435](#): Allow different files to be specified for unix based usersync - 2.6-maint.
- [RANGER-1435](#): fixed minor issue of resource filenames from previous commit.
- [RANGER-1440](#): Improve install script to retry failing statements.
- [RANGER-1448](#): Change of import / export icons on Ranger UI.
- [RANGER-1453](#): Ranger KMS failed to start with Exception] : More than one Master Key exists.
- [RANGER-1459](#): Ranger update policy API is failing on Postgres / Oracle for case sensitive ACLs.
- [RANGER-1477](#): 'show databases' fails with access-denied when user doesn't have access to some of the databases.

1.8.16. Slider

This release provides Slider 0.92.0 with no additional Apache patches.

HDP 2.6.3 provided Slider 0.92.0 with no additional Apache patches.

HDP 2.6.2 provided Slider 0.92.0 and the following Apache patches:

- [SLIDER-1212](#): testAgentEcho UT fails intermittently - increase timeout for waitForRoleCount.
- [SLIDER-1234](#): JsonSerializer should use readFully instead of read.
- [SLIDER-1236](#): Unnecessary 10 second sleep before installation.
- [SLIDER-1237](#): Remove usages of printStackTrace.
- [SLIDER-1238](#): Remove unused private method in AMWebClient.
- [SLIDER-1242](#): Review uses of double-checked locking, part 2.
- [SLIDER-1242](#): Review uses of double-checked locking.
- [SLIDER-1243](#): Enable XML validation in ConfigHelper.
- [SLIDER-1244](#): Stop logging openssl commands on exception.
- [SLIDER-1245](#): Clean up AgentResource.
- [SLIDER-1246](#): Application health should not be affected by faulty nodes (health monitor based on percent threshold).
- [SLIDER-1247](#): Unreleased resource streams.

- [SLIDER-1248](#): Insecure random number generator.
- [SLIDER-1250](#): Tests for Health Threshold Monitoring Feature (SLIDER-1246).
- [SLIDER-1251](#): AASleepIT test fails to reach expected count.

HDP 2.6.0 provided Slider 0.92.0 and the following Apache patches:

- [SLIDER-1220](#): Fix funtest failures when sasl security is configured for registry

1.8.17. Spark

This release provides Spark 1.6.3 with the following Apache patches:

- [SPARK-14234](#): Executor crashes for TaskRunner thread interruption.

In addition, this release provides Spark 2.2.0 and the following Apache patches:

- [SPARK-17321](#): Avoid writing shuffle metadata to disk if NM recovery is disabled.
- [SPARK-17902](#): Revive stringsAsFactors option for collect() in SparkR.
- [SPARK-17920](#): Support writing to Hive table which uses Avro schema url 'avro.schema.url'.
- [SPARK-19580](#): Support for avro.schema.url while writing to hive table.
- [SPARK-19606](#): fix mesos break.
- [SPARK-19606](#): Support constraints in spark-dispatcher.
- [SPARK-19611](#): set dataSchema correctly in HiveMetastoreCatalog.convertToLogicalRelation.
- [SPARK-19644](#): Clean up Scala reflection garbage after creating Encoder (branch-2.2).
- [SPARK-19727](#): Fix for round function that modifies original column.
- [SPARK-19878](#): Add hive configuration when initialize hive serde in InsertIntoHiveTable.scala.
- [SPARK-21667](#): ConsoleSink should not fail streaming query with checkpointLocation option.
- [SPARK-21694](#): Reduce max iterations in Linear SVM test in R to speed up AppVeyor build.
- [SPARK-21720](#): Fix 64KB JVM bytecode limit problem with AND or OR.
- [SPARK-21807](#): Override ++ operation in ExpressionSet to reduce clone time.
- [SPARK-21936](#): backward compatibility test framework for HiveExternalCatalog.
- [SPARK-21991](#): Fix java lint.
- [SPARK-21991](#): Fix race condition in LauncherServer#acceptConnections.

- [SPARK-22211](#): Remove incorrect FOJ limit pushdown.
- [SPARK-22227](#): DiskBlockManager.getAllBlocks now tolerates temp files.
- [SPARK-22243](#): spark.yarn.jars should reload from config when checkpoint recovery.
- [SPARK-22249](#): isin with empty list throws exception on cached DataFrame.
- [SPARK-22281](#): Handle R method breaking signature changes.
- [SPARK-22284](#): Fix 64KB JVM bytecode limit problem in calculating hash for nested structs.
- [SPARK-22287](#): SPARK_DAEMON_MEMORY not honored by MesosClusterD....
- [SPARK-22291](#): Conversion error when transforming array types of uuid, inet and cidr to StringType in PostgreSQL.
- [SPARK-22294](#): Reset spark.driver.bindAddress when starting a Checkpoint.
- [SPARK-22306](#): alter table schema should not erase the bucketing metadata at hive side.
- [SPARK-22315](#): Warn if SparkR package version doesn't match SparkContext.
- [SPARK-22319](#): call loginUserFromKeytab before accessing hdfs.
- [SPARK-22327](#): check for version warning.
- [SPARK-22328](#): ClosureCleaner should not miss referenced superclass fields.
- [SPARK-22332](#): Fix NaiveBayes unit test occasionally fail (cause by test dataset not deterministic).
- [SPARK-22333](#): timeFunctionCall(CURRENT_DATE, CURRENT_TIMESTAMP) has conflicts with columnReference.
- [SPARK-22344](#): clean up install dir if running test as source package.
- [SPARK-22344](#): Set java.io.tmpdir for SparkR tests.
- [SPARK-22355](#): Dataset.collect is not threadsafe.
- [SPARK-22356](#): data source table should support overlapped columns between data and partition schema.
- [SPARK-22377](#): Use /usr/sbin/lsif if lsif does not exists in release-build.sh.
- [SPARK-22403](#): Add optional checkpointLocation argument to StructuredKafkaWordCount example.
- [SPARK-22417](#): Fix for createDataFrame from pandas.DataFrame with timestamp.
- [SPARK-22417](#): Fix for createDataFrame from pandas.DataFrame with timestamp.
- [SPARK-22429](#): Streaming checkpointing code does not retry after failure.
- [SPARK-22442](#): ScalaReflection should produce correct field names for special characters.

- [SPARK-22442](#): ScalaReflection should produce correct field names for special characters.
- [SPARK-22464](#): No pushdown for Hive metastore partition predicates containing null-safe equality.
- [SPARK-22469](#): Accuracy problem in comparison with string and numeric.
- [SPARK-22471](#): SQLListener consumes much memory causing OutOfMemoryError.
- [SPARK-22472](#): add null check for top-level primitive values.
- [SPARK-22479](#): Exclude credentials from SaveintoDataSourceCommand.simpleString.
- [SPARK-22488](#): Fix the view resolution issue in the SparkSession internal table() API.
- [SPARK-22490](#): Add PySpark doc for SparkSession.builder.
- [SPARK-22494](#): Fix 64KB limit exception with Coalesce and AtLeastNNonNulls.
- [SPARK-22498](#): Fix 64KB JVM bytecode limit problem with concat.
- [SPARK-22499](#): Fix 64KB JVM bytecode limit problem with least and greatest.
- [SPARK-22500](#): Fix 64KB JVM bytecode limit problem with cast.
- [SPARK-22501](#): Fix 64KB JVM bytecode limit problem with in.
- [SPARK-22508](#): Fix 64KB JVM bytecode limit problem with GenerateUnsafeRowJoiner.create().
- [SPARK-22511](#): Update maven central repo address.
- [SPARK-22535](#): Sleep before killing the python worker in PythRunner.MonitorThread (branch-2.2).
- [SPARK-22538](#): SQLTransformer should not unpersist possibly cached input dataset.
- [SPARK-22540](#): Ensure HighlyCompressedMapStatus calculates correct avgSize.
- [SPARK-22544](#): FileStreamSource should use its own hadoop conf to call globPathIfNecessary.
- [SPARK-22548](#): Incorrect nested AND expression pushed down to JDBC data source.
- [SPARK-22549](#): Fix 64KB JVM bytecode limit problem with concat_ws.
- [SPARK-22550](#): Fix 64KB JVM bytecode limit problem with elt.

HDP 2.6.3 provided Spark 1.6.3 with no additional Apache patches. In addition, this release provides Spark 2.2.0 and the following Apache patches:

- [SPARK-207](#): Remove hardcode FS scheme from Spark archive.
- [SPARK-12717](#): Adding thread-safe broadcast pickle registry.
- [SPARK-13656](#): Delete spark.sql.parquet.cacheMetadata from SQLConf and docs.

- [SPARK-14387](#): Enable Hive-1.x ORC compatibility with `spark.sql.hive.convertMetastoreOrc`.
- [SPARK-15648](#): Add `TeradataDialect`.
- [SPARK-16060](#): Vectorized Orc Reader.
- [SPARK-16628](#): `OrcConversions` should not convert an ORC table represented by `MetastoreRelation` to `HadoopFsRelation` if metastore schema does not match schema stored in ORC files.
- [SPARK-18061](#): Support spnego for ThriftServer thrift/http auth.
- [SPARK-18136](#): Fix `SPARK_JARS_DIR` for Python pip install on Windows.
- [SPARK-18355](#): Spark SQL fails to read data from a ORC hive table that has a new column added to it.
- [SPARK-18464](#): support old table which doesn't store schema in table properties.
- [SPARK-18608](#): Fix double caching.
- [SPARK-18608](#): Fix double caching for PySpark `OneVsRest`..
- [SPARK-19809](#): `NullPointerException` on empty ORC file.
- [SPARK-20079](#): Fix client AM not allocating executors after restart.
- [SPARK-20098](#): `dataType's typeName` fix.
- [SPARK-20256](#): `SessionState` should be created more lazily.
- [SPARK-20342](#): Update task accumulators before sending task end event..
- [SPARK-20466](#): `HadoopRDD#addLocalConfiguration` throws NPE.
- [SPARK-20682](#): Support a new faster ORC data source based on Apache ORC.
- [SPARK-20728](#): Make `ORCFileFormat` configurable between `sql/hive` and `sql/core`.
- [SPARK-20904](#): Don't report task failures to driver during shutdown..
- [SPARK-20981](#): Add new configuration `spark.jars.repositories` as equivalence of – repositories.
- [SPARK-21069](#): Add rate source to programming guide..
- [SPARK-21083](#): Store zero size and row count when analyzing empty table.
- [SPARK-21128](#): Remove both "spark-warehouse" and "metastore_db" before listing files in R tests.
- [SPARK-21170](#): `Utils.tryWithSafeFinallyAndFailureCallbacks` throws `IllegalArgumentException`: Self-suppression not permitted.
- [SPARK-21219](#): Task retry occurs on same executor due to race co....

- [SPARK-21228](#): InSet incorrect handling of structs.
- [SPARK-21243](#): Limit no. of map outputs in a shuffle fetch.
- [SPARK-21247](#): Type comparison should respect case-sensitive SQL conf.
- [SPARK-21254](#): History UI performance fixes.
- [SPARK-21267](#): Follow up to avoid referencing programming-guide redirector.
- [SPARK-21267](#): Update Structured Streaming Documentation.
- [SPARK-21272](#): SortMergeJoin LeftAnti does not update numOutputRows.
- [SPARK-21300](#): ExternalMapToCatalyst should null-check map key prior to converting to internal value..
- [SPARK-21306](#): OneVsRest should support setWeightCol.
- [SPARK-21312](#): correct offsetInBytes in UnsafeRow.writeToStream.
- [SPARK-21321](#): Spark very verbose on shutdown.
- [SPARK-21330](#): Bad partitioning does not allow to read a JDBC table with extreme values on the partition column Fix Java SimpleApp spark application.
- [SPARK-21332](#): Incorrect result type inferred for some decimal expressions.
- [SPARK-21333](#): Removed invalid joinTypes from javadoc of Dataset#joinWith.
- [SPARK-21339](#): spark-shell --packages option does not add jars to classpath on windows.
- [SPARK-21342](#): Fix DownloadCallback to work well with RetryingBlockFetcher..
- [SPARK-21343](#): Refine the document for spark.reducer.maxReqSizeShuffleToMem..
- [SPARK-21344](#): BinaryType comparison does signed byte array comparison.
- [SPARK-21345](#): SparkSessionBuilderSuite should clean up stopped sessions..
- [SPARK-21366](#): Add sql test for window functions.
- [SPARK-21369](#): Don't use Scala Tuple2 in common/network-.*.
- [SPARK-21374](#): Fix reading globbed paths from S3 into DF with disabled FS cache.
- [SPARK-21376](#): Fix yarn client token expire issue when cleaning the staging files in long running scenario.
- [SPARK-21376](#): Fix yarn client token expire issue when cleaning the staging files in long running scenario.
- [SPARK-21377](#): Make jars specify with --jars/--packages load-able in AM's credential renwer.
- [SPARK-21383](#): Fix the YarnAllocator allocates more Resource.

- [SPARK-21384](#): Spark + YARN fails with LocalFileSystem as default FS.
- [SPARK-21414](#): Refine SlidingWindowFunctionFrame to avoid OOM..
- [SPARK-21418](#): NoSuchElementException: None.get in DataSourceScanExec with sun.io.serialization.extendedDebugInfo=true.
- [SPARK-21422](#): Depend on Apache ORC 1.4.0.
- [SPARK-21434](#): Add pyspark pip documentation..
- [SPARK-21441](#): Incorrect Codegen in SortMergeJoinExec results failures in some cases.
- [SPARK-21445](#): Make IntWrapper and LongWrapper in UTF8String Serializable.
- [SPARK-21446](#): Fix setAutoCommit never executed.
- [SPARK-21447](#): Spark history server fails to render compressed.
- [SPARK-21457](#): ExternalCatalog.listPartitions should correctly handle partition values with dot.
- [SPARK-21464](#): Minimize deprecation warnings caused by ProcessingTime class.
- [SPARK-21475](#): Use NIO's Files API to replace FileInputStream/FileOutputStream in some critical paths.
- [SPARK-21477](#): Mark LocalTableScanExec's input data transient.
- [SPARK-21494](#): Use correct app id when authenticating to external service..
- [SPARK-21503](#): Spark UI shows incorrect task status for a killed Executor Process.
- [SPARK-21508](#): Fix example code provided in Spark Streaming Documentation.
- [SPARK-21522](#): Fix flakiness in LauncherServerSuite..
- [SPARK-21523](#): update breeze to 0.13.2 for an emergency bugfix in strong wolfe line search.
- [SPARK-21538](#): Attribute resolution inconsistency in the Dataset API.
- [SPARK-21546](#): dropDuplicates should ignore watermark when it's not a key.
- [SPARK-21549](#): Respect OutputFormats with no output directory provided.
- [SPARK-21549](#): Spark fails to complete job correctly in case of OutputFormat which do not write into hdfs.
- [SPARK-21551](#): Increase timeout for PythonRDD.serveIterator.
- [SPARK-21555](#): RuntimeReplaceable should be compared semantically by its canonicalized child.
- [SPARK-21563](#): Fix race condition when serializing TaskDescriptions and adding jars.

- [SPARK-21565](#): Propagate metadata in attribute replacement..
- [SPARK-21580](#): Integers in aggregation expressions are wrongly taken as group-by ordinal.
- [SPARK-21588](#): SQLContext.getConf(key, null) should return null.
- [SPARK-21593](#): Fix 2 rendering errors on configuration page.
- [SPARK-21595](#): Separate thresholds for buffering and spilling in ExternalAppendOnlyUnsafeRowArray.
- [SPARK-21596](#): Ensure places calling HDFSMetadataLog.get check the return value.
- [SPARK-21597](#): Fix a potential overflow issue in EventTimeStats.
- [SPARK-21617](#): Store correct table metadata when altering schema in Hive metastore..
- [SPARK-21621](#): Reset numRecordsWritten after DiskBlockObjectWriter.commitAndGet called.
- [SPARK-21647](#): Fix SortMergeJoin when using CROSS.
- [SPARK-21648](#): Fix confusing assert failure in JDBC source when parallel fetching parameters are not properly provided..
- [SPARK-21656](#): spark dynamic allocation should not idle timeout executors when tasks still to run.
- [SPARK-21663](#): test("remote fetch below max RPC message size") should call masterTracker.stop() in MapOutputTrackerSuite.
- [SPARK-21681](#): fix bug of MLOR do not work correctly when featureStd contains zero (backport PR for 2.2).
- [SPARK-21696](#): Fix a potential issue that may generate partial snapshot files.
- [SPARK-21699](#): Remove unused getTableOption in ExternalCatalog.
- [SPARK-21714](#): Avoiding re-uploading remote resources in yarn client mode.
- [SPARK-21721](#): Clear FileSystem deleteOnExit cache when paths are successfully removed.
- [SPARK-21721](#): Clear FileSystem deleteOnExit cache when paths are successfully removed.
- [SPARK-21723](#): Fix writing LibSVM (key not found: numFeatures).
- [SPARK-21738](#): Thriftserver doesn't cancel jobs when session is closed.
- [SPARK-21739](#): Cast expression should initialize timeZoneId when it is called statically to convert something into TimestampType.
- [SPARK-21787](#): Support for pushing down filters for date types in ORC.
- [SPARK-21791](#): ORC should support column names with dot.

- [SPARK-21798](#): No config to replace deprecated SPARK_CLASSPATH config for launching daemons like History Server.
- [SPARK-21805](#): Disable R vignettes code on Windows.
- [SPARK-21807](#): Override ++ operation in ExpressionSet to reduce clone time.
- [SPARK-21818](#): Fix bug of MultivariateOnlineSummarizer.variance generate negative result.
- [SPARK-21826](#): outer broadcast hash join should not throw NPE.
- [SPARK-21831](#): Remove `spark.sql.hive.convertMetastoreOrc` config in HiveCompatibilitySuite.
- [SPARK-21834](#): Incorrect executor request in case of dynamic allocation.
- [SPARK-21890](#): Credentials not being passed to add the tokens.
- [SPARK-21901](#): Define toString for StateOperatorProgress.
- [SPARK-21907](#): NullPointerException in UnsafeExternalSorter.spill().
- [SPARK-21912](#): ORC/Parquet table should not create invalid column names.
- [SPARK-21915](#): Model 1 and Model 2 ParamMaps Missing.
- [SPARK-21924](#): Update structured streaming programming guide doc.
- [SPARK-21925](#): Update trigger interval documentation in docs with behavior change in Spark 2.2.
- [SPARK-21928](#): Set classloader on SerializerManager's private kryo.
- [SPARK-21929](#): Support `ALTER TABLE table_name ADD COLUMNS(..)` for ORC data source.
- [SPARK-21936](#): backward compatibility test framework for HiveExternalCatalog.
- [SPARK-21946](#): fix flaky test: "alter table: rename cached table" in InMemoryCatalogedDDLSuite.
- [SPARK-21950](#): pyspark.sql.tests.SQLTests2 should stop SparkContext..
- [SPARK-21953](#): Show both memory and disk bytes spilled if either is present.
- [SPARK-21954](#): JacksonUtils should verify MapType's value type instead of key type.
- [SPARK-21976](#): Fix wrong documentation for Mean Absolute Error..
- [SPARK-21980](#): References in grouping functions should be indexed with semanticEquals.
- [SPARK-21985](#): PairDeserializer is broken for double-zipped RDDs.
- [SPARK-22043](#): Improves error message for show_profiles and dump_profiles.

- [SPARK-22047](#): HiveExternalCatalogVersionsSuite.
- [SPARK-22047](#): ignore HiveExternalCatalogVersionsSuite.
- [SPARK-22052](#): Incorrect Metric assigned in MetricsReporter.scala.
- [SPARK-22072](#): Improve release build scripts.
- [SPARK-22076](#): Expand.projections should not be a Stream.
- [SPARK-22083](#): Release locks in MemoryStore.evictBlocksToFreeSpace.
- [SPARK-22092](#): Reallocation in OffHeapColumnVector.reserveInternal corrupts struct and array data.
- [SPARK-22094](#): processAllAvailable should check the query state.
- [SPARK-22107](#): Change as to alias in python quickstart.
- [SPARK-22109](#): Resolves type conflicts between strings and timestamps in partition column.
- [SPARK-22120](#): TestHiveSparkSession.reset() should clean out Hive warehouse directory.
- [SPARK-22129](#): Release script improvements.
- [SPARK-22135](#): metrics in spark-dispatcher not being registered properly.
- [SPARK-22140](#): Add TPCDSQuerySuite.
- [SPARK-22141](#): Propagate empty relation before checking Cartesian products.
- [SPARK-22143](#): Fix memory leak in OffHeapColumnVector.
- [SPARK-22146](#): FileNotFoundException while reading ORC files containing special characters.
- [SPARK-22158](#): convertMetastore should not ignore table property.
- [SPARK-22161](#): Add Impala-modified TPC-DS queries.
- [SPARK-22167](#): sparkr packaging issue allow zinc.
- [SPARK-22178](#): Refresh Persistent Views by REFRESH TABLE Command.
- [SPARK-22188](#): Adding security headers for preventing XSS, MitM and MIME sniffing.
- [SPARK-22206](#): gapply in R can't work on empty grouping columns.
- [SPARK-22218](#): spark shuffle services fails to update secret on app re-attempts.
- [SPARK-22223](#): ObjectHashAggregate should not introduce unnecessary shuffle.
- [SPARK-22252](#): FileFormatWriter should respect the input query schema.
- [SPARK-22271](#): mean overflows and returns null for some decimal variables.

- [SPARK-22273](#): Fix key/value schema field names in HashMapGenerators..
- [SPARK-22300](#): Update ORC to 1.4.1.

HDP 2.6.2 provided Spark 1.6.3 and Spark 2.1.1 with no additional Apache patches.

HDP 2.6.1 provided Spark 1.6.3 with no additional Apache patches.

HDP 2.6.1 also provided Spark 2.1.1 and the following Apache patches:

- [SPARK-4105](#): retry the fetch or stage if shuffle block is corrupt.
- [SPARK-12717](#): Adding thread-safe broadcast pickle registry.
- [SPARK-13931](#): Resolve stage hanging up problem in a particular case.
- [SPARK-14658](#): when executor lost DagScheduler may submit one stage twice even if the first running taskset for this stage is not finished.
- [SPARK-16251](#): Flaky test: org.apache.spark.rdd.LocalCheckpointSuite.missing checkpoint block fails with informative message.
- [SPARK-16929](#): Speculation-related synchronization bottleneck in checkSpeculatableTasks.
- [SPARK-17424](#): Fix unsound substitution bug in ScalaReflection..
- [SPARK-17663](#): SchedulableBuilder should handle invalid data access via scheduler.allocation.file.
- [SPARK-17685](#): Make SortMergeJoinExec's currentVars is null when calling createJoinKey.
- [SPARK-18099](#): Spark distributed cache should throw exception if same file is specified to dropped in --files --archives.
- [SPARK-18113](#): Use ask to replace askWithRetry in canCommit and make receiver idempotent..
- [SPARK-18251](#): DataSet API | RuntimeException: Null value appeared in non-nullable field when holding Option Case Class.
- [SPARK-18406](#): Race between end-of-task and completion iterator read lock release.
- [SPARK-18535](#): Redact sensitive information.
- [SPARK-18579](#): Use ignoreLeadingWhiteSpace and ignoreTrailingWhiteSpace options in CSV writing.
- [SPARK-18629](#): Fix numPartition of JDBC Suite Testcase.
- [SPARK-18967](#): Locality preferences should be used when scheduling even when delay scheduling is turned off.
- [SPARK-18986](#): ExternalAppendOnlyMap shouldn't fail when forced to spill before calling its iterator.

- [SPARK-19059](#): Unable to retrieve data from parquet table whose name startswith underscore.
- [SPARK-19104](#): Lambda variables in ExternalMapToCatalyst should be global.
- [SPARK-19218](#): Fix SET command to show a result correctly and in a sorted order.
- [SPARK-19219](#): Fix Parquet log output defaults.
- [SPARK-19220](#): SSL redirect handler only redirects the server's root.
- [SPARK-19263](#): DAGScheduler should avoid sending conflicting task set..
- [SPARK-19263](#): Fix race in SchedulerIntegrationSuite..
- [SPARK-19276](#): FetchFailures can be hidden by user (or sql) exception handling.
- [SPARK-19539](#): Block duplicate temp table during creation.
- [SPARK-19556](#): Broadcast data is not encrypted when I/O encryption is on.
- [SPARK-19570](#): Allow to disable hive in pyspark shell.
- [SPARK-19631](#): OutputCommitCoordinator should not allow commits for already failed tasks.
- [SPARK-19688](#): Not to read `spark.yarn.credentials.file` from checkpoint..
- [SPARK-19727](#): Fix for round function that modifies original column.
- [SPARK-19775](#): Remove an obsolete `partitionBy().insertInto()` test case.
- [SPARK-19796](#): taskScheduler fails serializing long statements received by thrift server.
- [SPARK-19812](#): YARN shuffle service fails to relocate recovery DB across....
- [SPARK-19868](#): conflict TasksetManager lead to spark stopped.
- [SPARK-20211](#): Fix the Precision and Scale of Decimal Values when the Input is BigDecimal between -1.0 and 1.0.
- [SPARK-20217](#): Executor should not fail stage if killed task throws non-interrupted exception.
- [SPARK-20250](#): Improper OOM error when a task been killed while spilling data.
- [SPARK-20250](#): Improper OOM error when a task been killed while spilling data.
- [SPARK-20275](#): Do not display "Completed" column for in-progress applications.
- [SPARK-20341](#): Support BigInt's value that does not fit in long value range.
- [SPARK-20342](#): Update task accumulators before sending task end event..
- [SPARK-20358](#): Executors failing stage on interrupted exception thrown by cancelled tasks.

- [SPARK-20393](#): Strengthen Spark to prevent XSS vulnerabilities.
- [SPARK-20405](#): Dataset.withNewExecutionId should be private.
- [SPARK-20412](#): Throw ParseException from visitNonOptionalPartitionSpec instead of returning null values..
- [SPARK-20426](#): OneForOneStreamManager occupies too much memory..
- [SPARK-20439](#): Fix Catalog API listTables and getTable when failed to fetch table metadata.
- [SPARK-20459](#): JdbcUtils throws IllegalStateException: Cause already initialized after getting SQLException.
- [SPARK-20496](#): Bug in KafkaWriter Looks at Unanalyzed Plans.
- [SPARK-20517](#): Fix broken history UI download link.
- [SPARK-20540](#): Fix unstable executor requests..
- [SPARK-20546](#): spark-class gets syntax error in posix mode.
- [SPARK-20555](#): Fix mapping of Oracle DECIMAL types to Spark types in read path.
- [SPARK-20558](#): clear InheritableThreadLocal variables in SparkContext when stopping it.
- [SPARK-20566](#): ColumnVector should support `appendFloats` for array.
- [SPARK-20603](#): Set default number of topic partitions to 1 to reduce the load.
- [SPARK-20613](#): Remove excess quotes in Windows executable.
- [SPARK-20615](#): SparseVector.argmax throws IndexOutOfBoundsException.
- [SPARK-20616](#): RuleExecutor logDebug of batch results should show diff to start of batch.
- [SPARK-20627](#): Drop the hadoop distribution name from the Python version.
- [SPARK-20631](#): LogisticRegression._checkThresholdConsistency should use values not Params.
- [SPARK-20665](#): Brround" and "Round" function return NULL.
- [SPARK-20685](#): Fix BatchPythonEvaluation bug in case of single UDF w/ repeated arg..
- [SPARK-20686](#): PropagateEmptyRelation incorrectly handles aggregate without grouping.
- [SPARK-20687](#): mllib.Matrices.fromBreeze may crash when converting from Breeze sparse matrix.
- [SPARK-20688](#): correctly check analysis for scalar sub-queries.
- [SPARK-20705](#): The sort function can not be used in the master page when you use Firefox or Google Chrome..

- [SPARK-20735](#): Enable cross join in TPCDSQueryBenchmark.
- [SPARK-20756](#): yarn-shuffle jar references unshaded guava.
- [SPARK-20759](#): SCALA_VERSION in _config.yml should be consistent with pom.xml.
- [SPARK-20763](#): The function of `month` and `day` return the value which is not we expected..
- [SPARK-20769](#): Incorrect documentation for using Jupyter notebook.
- [SPARK-20781](#): the location of Dockerfile in docker.properties.templat is wrong.
- [SPARK-20796](#): the location of start-master.sh in spark-standalone.md is wrong.
- [SPARK-20798](#): GenerateUnsafeProjection should check if a value is null before calling the getter.
- [SPARK-20843](#): Add a config to set driver terminate timeout.
- [SPARK-20848](#): Shutdown the pool after reading parquet files.
- [SPARK-20848](#): Shutdown the pool after reading parquet files.
- [SPARK-20862](#): Avoid passing float to ndarray.reshape in LogisticRegressionModel.
- [SPARK-20868](#): UnsafeShuffleWriter should verify the position after FileChannel.transferTo.
- [SPARK-20874](#): Add Structured Streaming Kafka Source to examples project.
- [SPARK-20914](#): Javadoc contains code that is invalid.
- [SPARK-20920](#): ForkJoinPool pools are leaked when writing hive tables with many partitions.
- [SPARK-20922](#): Add whitelist of classes that can be deserialized by the launcher..
- [SPARK-20922](#): Don't use Java 8 lambdas in older branches..
- [SPARK-20940](#): Replace IllegalAccessException with IllegalStateException.
- [SPARK-20974](#): we should run REPL tests if SQL module has code changes.
- [SPARK-21041](#): SparkSession.range should be consistent with SparkContext.range.
- [SPARK-21064](#): Fix the default value bug in NettyBlockTransferServiceSuite.
- [SPARK-21072](#): TreeNode.mapChildren should only apply to the children node..
- [SPARK-21083](#): Store zero size and row count when analyzing empty table.
- [SPARK-21114](#): Fix test failure in Spark 2.1/2.0 due to name mismatch.
- [SPARK-21123](#): Options for file stream source are in a wrong table - version to fix 2.1.

- [SPARK-21138](#): Cannot delete staging dir when the clusters of "spark.yarn.stagingDir" and "spark.hadoop.fs.defaultFS" are different.
- [SPARK-21159](#): Don't try to connect to launcher in standalone cluster mode..
- [SPARK-21167](#): Decode the path generated by File sink to handle special characters.
- [SPARK-21176](#): Limit number of selector threads for admin ui proxy servlets to 8.
- [SPARK-21181](#): Release byteBuffers to suppress netty error messages.
- [SPARK-21203](#): Fix wrong results of insertion of Array of Struct.
- [SPARK-21306](#): For branch 2.1, OneVsRest should support setWeightCol.
- [SPARK-21312](#): correct offsetInBytes in UnsafeRow.writeToStream.
- [SPARK-21330](#): Bad partitioning does not allow to read a JDBC table with extreme values on the partition column.
- [SPARK-21332](#): Incorrect result type inferred for some decimal expressions.
- [SPARK-21345](#): SparkSessionBuilderSuite should clean up stopped sessions..
- [SPARK-21376](#): Token is not renewed in yarn client process in cluster mode.
- [SPARK-21441](#): Incorrect Codegen in SortMergeJoinExec results failures in some cases.
- [SPARK-21446](#): Fix setAutoCommit never executed.
- [SPARK-21522](#): Fix flakiness in LauncherServerSuite..
- [SPARK-21555](#): RuntimeReplaceable should be compared semantically by its canonicalized child.
- [SPARK-21588](#): SQLContext.getConf(key, null) should return null.

HDP 2.6.0 provided Spark 1.6.3 and the following Apache patches:

- [SPARK-6717](#): Clear shuffle files after checkpointing in ALS.
- [SPARK-6735](#): Add window based executor failure tracking mechanism for long running service.
- [SPARK-6847](#): Stack overflow on updateStateByKey which followed by a stream with checkpoint set.
- [SPARK-7481](#): Add spark-cloud module to pull in aws+azure object store FS accessors; test integration.
- [SPARK-7889](#): Jobs progress of apps on complete page of HistoryServer shows uncompleted.
- [SPARK-10582](#): using dynamic-executor-allocation, if AM failed, the new AM will be started. But the new AM does not allocate executors to driver.

- [SPARK-11137](#): Make StreamingContext.stop() exception-safe.
- [SPARK-11314](#): Add service API and test service for Yarn Cluster schedulers.
- [SPARK-11315](#): Add YARN extension service to publish Spark events to YARN timeline service (part of SPARK-1537).
- [SPARK-11323](#): Add History Service Provider to service application histories from YARN timeline server (part of SPARK-1537).
- [SPARK-11627](#): Spark Streaming backpressure mechanism has no initial rate limit, receivers receive data at the maximum speed , it might cause OOM exception.
- [SPARK-12001](#): StreamingContext cannot be completely stopped if the stop() is interrupted.
- [SPARK-12009](#): Avoid re-allocate yarn container while driver want to stop all executors.
- [SPARK-12142](#): Can't request executor when container allocator us bit ready.
- [SPARK-12241](#): Improve failure reporting in Yarn client obtainTokenForHBase().
- [SPARK-12353](#): wrong output for countByValue and countByValueAndWindow.
- [SPARK-12513](#): SocketReceiver hang in Netcat example.
- [SPARK-12523](#): Support long-running of the Spark on HBase and hive metastore.
- [SPARK-12920](#): Fix high CPU usage in Spark thrift server with concurrent users..
- [SPARK-12948](#): OrcRelation uses HadoopRDD which can broadcast conf objects frequently..
- [SPARK-12967](#): NettyRPC races with SparkContext.stop() and throws exception.
- [SPARK-12998](#): Enable OrcRelation even when connecting via spark thrift server..
- [SPARK-13021](#): Fail fast when custom RDD's violate RDD.partition's API contract.
- [SPARK-13117](#): WebUI should use the local ip not 0.0.0.0.
- [SPARK-13278](#): Launcher fails to start with JDK 9 EA.
- [SPARK-13308](#): ManagedBuffers passed to OneToOneStreamManager need to be freed in non error cases.
- [SPARK-13360](#): pyspark related enviroment variable is not propagated to driver in yarn-cluster mode.
- [SPARK-13468](#): Fix a corner case where the page UI should show DAG but it doesn't show.
- [SPARK-13478](#): Use real user when fetching delegation tokens.
- [SPARK-13885](#): Fix attempt id regression for Spark running on Yarn.
- [SPARK-13902](#): Make DAGScheduler not to create duplicate stage.

- [SPARK-14062](#): Fix log4j and upload metrics.properties automatically with distributed cache.
- [SPARK-14091](#): Consider improving performance of SparkContext.getCallSite()..
- [SPARK-15067](#): YARN executors are launched with fixed perm gen size.
- [SPARK-1537](#): Add integration with Yarn's Application Timeline Server.
- [SPARK-15705](#): Change the default value of spark.sql.hive.convertMetastoreOrc to false.
- [SPARK-15844](#): HistoryServer doesn't come up if spark.authenticate = true.
- [SPARK-15990](#): Add rolling log aggregation support for Spark on yarn.
- [SPARK-16110](#): Can't set Python via spark-submit for YARN cluster mode when PYSPARK_PYTHON & PYSPARK_DRIVER_PYTHON are set.
- [SPARK-19033](#): HistoryServer still uses old ACLs even if ACLs are updated.
- [SPARK-19306](#): Fix inconsistent state in DiskBlockObjectWriter when exception occurred.
- [SPARK-19970](#): Table owner should be USER instead of PRINCIPAL in kerberized clusters.

1.8.18. Sqoop

This release provides Sqoop 1.4.6 with no additional Apache patches.

HDP 2.6.3 provided Sqoop 1.4.6 with no additional Apache patches.

HDP 2.6.2 provided Sqoop 1.4.6 and the following Apache patches:

- [SQOOP-1094](#): Add Avro support to merge tool.
- [SQOOP-1281](#): Support of glob paths during export.
- [SQOOP-1369](#): Avro export ignores `--columns` option.
- [SQOOP-1493](#): Add ability to import/export true decimal in Avro instead of serializing it to String.
- [SQOOP-2103](#): Not able define Decimal(n,p) data type in map-column-hive option.
- [SQOOP-2264](#): Exclude and remove SqoopUserGuide.xml from git repository.
- [SQOOP-2283](#): Support usage of `--exec` and `--password-alias`.
- [SQOOP-2286](#): Ensure Sqoop generates valid avro column names.
- [SQOOP-2295](#): Hive import with Parquet should append automatically.
- [SQOOP-2296](#): Merge statement incorrectly includes table hints.
- [SQOOP-2297](#): Explicitly add zookeeper as a dependency in ivy.xml.

- [SQOOP-2298](#): TestAvroImport test case error.
- [SQOOP-2326](#): Fix Netezza trunc-string option handling and unnecessary log directory during imports.
- [SQOOP-2333](#): Sqoop to support Custom options for User Defined Plugins(Tool).
- [SQOOP-2334](#): Sqoop Volume Per Mapper.
- [SQOOP-2339](#): Move sub-directory might fail in append mode.
- [SQOOP-2343](#): AsyncSqlRecordWriter stucks if any exception is thrown out in its close method.
- [SQOOP-2362](#): Add oracle direct mode in list of supported databases.
- [SQOOP-2363](#): wrong option for escape character with mysqlimport.
- [SQOOP-2364](#): Fix Netezza trunc-string option handling and unnecessary log directory during imports.
- [SQOOP-2367](#): Tests from PostgresqlImportTest can fail on various versions of Hadoop.
- [SQOOP-2370](#): Netezza - need to support additional options for full control character handling.
- [SQOOP-2371](#): Tests from *LobAvroImportTest might fail.
- [SQOOP-2372](#): Imports all tables as parquet will meet a NPE.
- [SQOOP-2381](#): Add test for mysql export with `--escape-by` option.
- [SQOOP-2387](#): Sqoop should support importing from table with column names containing some special character.
- [SQOOP-2400](#): hive.metastore.sasl.enabled should be set to true for Oozie integration.
- [SQOOP-2406](#): Add support for secure mode when importing Parquet files into Hive.
- [SQOOP-2437](#): Use hive configuration to connect to secure metastore.
- [SQOOP-2454](#): Drop JDK6 support.
- [SQOOP-2470](#): Incremental Hive import with append not working after validation check for `--hive-import` and `--import`.
- [SQOOP-2531](#): readlink -f not supported on OS X.
- [SQOOP-2535](#): Add error handling to HiveConf.
- [SQOOP-2561](#): Special Character removal from Column name as avro data results in duplicate column and fails the import.
- [SQOOP-2582](#): Query import won't work for parquet.
- [SQOOP-2597](#): Missing method AvroSchemaGenerator.generate().

- [SQOOP-2607](#): Direct import from Netezza and encoding.
- [SQOOP-2609](#): Provide Apache Atlas integration for hive and hcatalog based imports.
- [SQOOP-2617](#): Log file that is being used for LOB files.
- [SQOOP-2642](#): Document ability to specify commas in `-map-column-hive` option.
- [SQOOP-2647](#): Add option for drop-if-exists when using sqoop hcat import.
- [SQOOP-2651](#): Do not dump data on error in TextExportMapper by default.
- [SQOOP-2707](#): Upgrade commons-collections to 3.2.2.
- [SQOOP-2712](#): Run only one map task attempt during export (second edition).
- [SQOOP-2723](#): Oracle connector not working with lowercase columns.
- [SQOOP-2737](#): Cannot import table from Oracle with column with spaces in name.
- [SQOOP-2745](#): Using datetime column as a splitter for Oracle no longer works.
- [SQOOP-2746](#): Add test case for Oracle incremental import using Timestamp.
- [SQOOP-2747](#): Allow customizing test username and password for Oracle tests.
- [SQOOP-2753](#): TestSqoopJsonUtil.testGetJsonStringFromMap is depending on Map ordering in JDK.
- [SQOOP-2767](#): Test is failing SystemImportTest.
- [SQOOP-2779](#): Sqoop metastore doesn't seem to recognize `-schema` option.
- [SQOOP-2780](#): Sqoop 1 unit tests fail with TestIncrementalImport test.
- [SQOOP-2783](#): Query import with parquet fails on incompatible schema.
- [SQOOP-2787](#): MySql import and export fails with 5.1 server and 5.1.17+ drivers.
- [SQOOP-2795](#): Clean up useless code in class TestSqoopJsonUtil.
- [SQOOP-2810](#): Upgrade to non-snapshot dependency on Avro 1.8.0 as soon as it gets released.
- [SQOOP-2839](#): Sqoop import failure due to data member conflict in ORM code for table.
- [SQOOP-2846](#): Sqoop Export with update-key failing for avro data file.
- [SQOOP-2847](#): Sqoop `-incremental` + missing parent `-target-dir` reports success with no data.
- [SQOOP-2863](#): Properly escape column names for generated INSERT statements.
- [SQOOP-2864](#): ClassWriter chokes on column names containing double quotes.
- [SQOOP-2880](#): Provide argument for overriding temporary directory.

- [SQOOP-2896](#): Sqoop exec job fails with SQLException Access denied for user.
- [SQOOP-2906](#): Optimization of AvroUtil.toAvroIdentifier.
- [SQOOP-2909](#): Oracle related ImportTest fails after SQOOP-2737.
- [SQOOP-2910](#): Add capability to Sqoop to require an explicit option to be specified with –split-by for a String column.
- [SQOOP-2911](#): Fix failing HCatalogExportTest caused by SQOOP-2863.
- [SQOOP-2915](#): Fixing Oracle related unit tests.
- [SQOOP-2920](#): Sqoop performance deteriorates significantly on wide datasets; sqoop 100% on cpu.
- [SQOOP-2939](#): Extend mainframe module to support GDG, sequential data sets, and data sets stored on tape.
- [SQOOP-2971](#): OraOop does not close connections properly.

HDP 2.6.1 provides Sqoop 1.4.6 with no additional Apache patches.

HDP 2.6.0 provided Sqoop 1.4.6 with no additional Apache patches.

1.8.19. Storm

This release provides Storm 1.1.1 and the following Apache patches:

- [STORM-2666](#): Fix storm-kafka-client spout sometimes emitting messages that were already committed.

HDP 2.6.3 provided Storm 1.1.1 and the following Apache patches:

- [STORM-2481](#): Upgrade Aether version to resolve Aether bug BUG-451566.
- [STORM-2489](#): Overlap and data loss on WindowedBolt based on Duration.
- [STORM-2516](#): WindowedBoltExecutorTest.testExecuteWithLateTupleStream is flaky.
- [STORM-2562](#): Use stronger key size for blow fish key generator and get rid of stack trace.
- [STORM-2563](#): Remove the workaround to handle missing UGI.loginUserFromSubject.
- [STORM-2598](#): Add proxy server option for dependency resolver.
- [STORM-2724](#): Shutdown ExecutorService in WaterMarkEventGenerator in shutdown phase.
- [STORM-2779](#): NPE on shutting down WindowedBoltExecutor.
- [STORM-2779](#): NPE on shutting down WindowedBoltExecutor.

HDP 2.6.2 provided Storm 1.1.1 and the following Apache patches:

- [STORM-1114](#): Handle race condition in Storm/Trident transactional state when ZK nodes have already been created/deleted.
- [STORM-2194](#): ReportErrorAndDie doesn't always die.
- [STORM-2343](#): Fix new Kafka spout stopping processing if more than maxUncommittedOffsets tuples fail at once.
- [STORM-2413](#): Make new Kafka spout respect tuple retry limit .
- [STORM-2429](#): non-string values in supervisor.scheduler.meta cause crash.
- [STORM-2431](#): the default blobstore.dir is storm.local.dir/blobs which is different from distcache-blobstore.md.
- [STORM-2432](#): Storm-Kafka-Client Trident Spout Seeks Incorrect Offset With UNCOMMITTED_LATEST Strategy.
- [STORM-2440](#): Kill process if executor catches `java.net.SocketTimeoutException` .
- [STORM-2450](#): Write resources into correct local directory.
- [STORM-2451](#): windows storm.cmd does not set log4j2 config file correctly by default.
- [STORM-2482](#): Refactor the Storm auto credential plugins to be more usable.
- [STORM-2482](#): Refactor the Storm auto credential plugins to be more usable.
- [STORM-2496](#): Dependency artifacts should be uploaded to blobstore with READ permission for all.
- [STORM-2498](#): Fix Download Full File link in 1.x branch.
- [STORM-2501](#): Auto populate Hive credentials using Hive MetaStore delegation tokens.
- [STORM-2505](#): Spout to support topic compaction .
- [STORM-2506](#): Print mapping between Task ID and Kafka Partitions.
- [STORM-2511](#): Submitting a topology with name containing unicode getting failed..
- [STORM-2512](#): Make constructor public and add one more builder constructor.
- [STORM-2518](#): NPE during uploading dependency artifacts with secured cluster.
- [STORM-2520](#): AutoHDFS should prefer cluster-wise hdfs kerberos principal to global hdfs kerberos principal.
- [STORM-2528](#): Bump log4j version to 2.8.2.
- [STORM-2541](#): Fix storm-kafka-client manual subscription not being able to start consuming.
- [STORM-2544](#): Fixing issue in acking of tuples that hit retry limit under manual commit mode.

- [STORM-2548](#): Simplify KafkaSpoutConfig to avoid duplicating KafkaConsumer configuration parameters.
- [STORM-2552](#): KafkaSpoutMessageId should be serializable.
- [STORM-2568](#): Fix getTopicsString .
- [STORM-2618](#): Add TridentKafkaStateUpdater for storm-kafka-client.
- [STORM-2639](#): Kafka Spout incorrectly computes numCommittedOffsets due to voids in the topic (topic compaction).
- [STORM-2640](#): Deprecate KafkaConsumer.subscribe API option, make KafkaConsumer.assign the default.
- [STORM-2642](#): Storm-kafka-client spout cannot be serialized when using manual partition assignment.

HDP 2.6.1 provided Storm 1.1.0 and the following Apache patches:

- [STORM-1114](#): Handle race condition in Storm/Trident transactional state when ZK nodes have already been created/deleted.
- [STORM-2194](#): ReportErrorAndDie doesn't always die.
- [STORM-2429](#): non-string values in supervisor.scheduler.meta cause crash.
- [STORM-2431](#): the default blobstore.dir is storm.local.dir/blobs which is different from distcache-blobstore.md.
- [STORM-2432](#): Storm-Kafka-Client Trident Spout Seeks Incorrect Offset With UNCOMMITTED_LATEST Strategy.
- [STORM-2440](#): Kill process if executor catches `java.net.SocketTimeoutException`.
- [STORM-2450](#): Write resources into correct local directory.
- [STORM-2451](#): windows storm.cmd does not set log4j2 config file correctly by default.
- [STORM-2482](#): Refactor the Storm auto credential plugins to be more usable.
- [STORM-2482](#): Refactor the Storm auto credential plugins to be more usable.
- [STORM-2496](#): Dependency artifacts should be uploaded to blobstore with READ permission for all.
- [STORM-2498](#): Fix Download Full File link in 1.x branch.
- [STORM-2501](#): Auto populate Hive credentials using Hive MetaStore delegation tokens.
- [STORM-2511](#): Submitting a topology with name containing unicode getting failed..
- [STORM-2518](#): NPE during uploading dependency artifacts with secured cluster.
- [STORM-2520](#): AutoHDFS should prefer cluster-wise hdfs kerberos principal to global hdfs kerberos principal.

- [STORM-2528](#): Bump log4j version to 2.8.2.

HDP 2.6.0 provided Storm 1.1.0 with no additional Apache patches.

1.8.20. Tez

This release provides Tez 0.7.0 with no additional Apache patches.

HDP 2.6.3 provided Tez 0.7.0 with no additional Apache patches.

HDP 2.6.2 provided Tez 0.7.0 and the following Apache patches:

- [TEZ-3656](#): Tez UI: Status correction is not working as expected.

HDP 2.6.0 provided Tez 0.7.0 and the following Apache patches:

- [TEZ-2712](#): Tez UI: Display the vertex description in the tooltip of vertex in DAG view UI.
- [TEZ-2852](#): TestVertexImpl fails due to race in AsyncDispatcher.
- [TEZ-3000](#): Fix TestContainerReuse.
- [TEZ-3115](#): Shuffle string handling adds significant memory overhead.
- [TEZ-3257](#): Add more unit test coverage for container reuse.
- [TEZ-3267](#): Publish queue name to ATS as part of dag summary.
- [TEZ-3404](#): Move blocking call for YARN Timeline domain creation from client side to AM.
- [TEZ-3419](#): Tez UI: Applications page shows error, for users with only DAG level ACL permission.
- [TEZ-3434](#): Add unit tests for flushing of recovery events.
- [TEZ-3470](#): Tez UI: Make the build work in IBM PPC.
- [TEZ-3484](#): Tez UI: Remove.travis.yml from webapp folder.
- [TEZ-3494](#): Support relative url for tez-ui.history-url.base config.
- [TEZ-3496](#): Tez UI: Optimize display of all tasks table.
- [TEZ-3502](#): Tez UI: Search in All DAGs page doesn't work with numeric values.
- [TEZ-3504](#): Tez UI: Duration is displaying invalid values when start or end time is invalid.
- [TEZ-3529](#): Tez UI: Add 'All Queries' table in the landing page along 'All DAGs' page.
- [TEZ-3530](#): Tez UI: Add query details page, and link the page from All Queries table.
- [TEZ-3531](#): Tez UI: All Queries table: Improve searchability.
- [TEZ-3546](#): Tez UI: On sorting asc - Not Available must be at the top.

- [TEZ-3554](#): Add a link to get to all logs from Tez UI while job is running.
- [TEZ-3554](#): Add a link to get to all logs from Tez UI while job is running.
- [TEZ-3555](#): Tez UI: Build is failing in RHEL6.
- [TEZ-3556](#): Tez UI: Display query configurations.
- [TEZ-3566](#): Avoid caching fs instances in TokenCache after a point.
- [TEZ-3568](#): Update SecurityUtils configuration to pick user provided configuration.
- [TEZ-3570](#): Tez UI: Wait for sometime before tooltips are displayed.
- [TEZ-3571](#): Tez UI: Display a Total Timeline View for Hive Queries.
- [TEZ-3574](#): Container reuse won't pickup extra dag level local resource.
- [TEZ-3575](#): RM have started forwarding origin. Use that in AMWebController for CORS support.
- [TEZ-3580](#): Tez UI: Pagination broken on queries page.
- [TEZ-3582](#): Exception swallowed in PipelinedSorter causing incorrect results.
- [TEZ-3583](#): Tez UI: UTs are flaky because of a dependency issue.
- [TEZ-3591](#): Tez UI: Logs url is broken if not open in a new tab.
- [TEZ-3592](#): Tez UI: Search issues.
- [TEZ-3593](#): Tez UI: Issues in timeline page.
- [TEZ-3594](#): Tez UI: Graphical view tooltip issues.
- [TEZ-3594](#): Tez UI: Graphical view tooltip issues.
- [TEZ-3598](#): Tez UI: Text formatting changes.
- [TEZ-3602](#): Tez UI: Query Name field is not required.
- [TEZ-3609](#): Improve ATsv15 performance for DAG entities read calls.
- [TEZ-3610](#): TEZ UI 0.7 0.9 compatibility for url query params and tez-app sub-routes.
- [TEZ-3615](#): Tez UI: Table changes.
- [TEZ-3615](#): Tez UI: Table changes.
- [TEZ-3619](#): Tez UI: Improve DAG Data download.
- [TEZ-3619](#): Tez UI: Improve DAG Data download.
- [TEZ-3626](#): Tez UI: First Task Start Time and Last Task Finish Time values are showing up incorrectly on Tez UI.

- [TEZ-3627](#): Use queue name available in RegisterApplicationMasterResponse for publishing to ATS.
- [TEZ-3629](#): Tez UI: Enable the UI to display log links from LLAP.
- [TEZ-3629](#): Tez UI: Enable the UI to display log links from LLAP.
- [TEZ-3630](#): Tez UI: Use DAG status for controlling auto-refresh polling.
- [TEZ-3639](#): Tez UI: Footer pagination is improper in landing page.
- [TEZ-3640](#): Tez UI: Add associated llap application id to queries page.
- [TEZ-3640](#): Tez UI: Add associated llap application id to queries page.
- [TEZ-3642](#): Tez UI: Auto-refresh is not stopping when DAG is the main entity.
- [TEZ-3653](#): Tez UI: Swimlane tooltip is not proper for running DAGs.

1.8.21. Zeppelin

This release provides Zeppelin 0.7.3 with no additional Apache patches.

HDP 2.6.3 provided Zeppelin 0.7.3 with no additional Apache patches.

HDP 2.6.2 provided Zeppelin 0.7.2 with no additional Apache patches.

HDP 2.6.1 provided Zeppelin 0.7.0 and the following Apache patches:

- [ZEPPELIN-1965](#): Livy SQL Interpreter: Should use df.show(1000, false) to display results.
- [ZEPPELIN-2530](#): Zeppelin user impersonation with domain name suffix is failing.
- [ZEPPELIN-2555](#): Run all paragraphs API does not run all paragraph as front-end user.

HDP 2.6.0 provided Zeppelin 0.7.0 and the following Apache patches:

- [ZEPPELIN-1588](#): bumping nvd3 to 1.8.5.
- [ZEPPELIN-1725](#): replace cleanDirectory with forceDelete.
- [ZEPPELIN-1964](#): Layout info is lost after refresh.
- [ZEPPELIN-2045](#): Pass interpreter properties with "spark." as prefix to SparkConf.
- [ZEPPELIN-2062](#): Hive proxy user doesn't work if interpreter name is not JDBC.
- [ZEPPELIN-2063](#): Hive Jdbc interpreter does not relogin if kerberos ticket expired when hive.server2.transport.mode is htt.
- [ZEPPELIN-2068](#): Change interpreter.json & credentials.json permission to 600.
- [ZEPPELIN-2075](#): Can't stop infinite `while` statement in pyspark Interpreter.
- [ZEPPELIN-2083](#): default interpreter list should honour order of zeppelin.interpreters property in zeppelin-site.xml.

- [ZEPPELIN-2084](#): z.show doesn't show dataframe.
- [ZEPPELIN-2094](#): Decrease npm install retry time (for branch-0.7).
- [ZEPPELIN-2105](#): yarn installed by frontend-maven-plugin causes build failure (BUG).
- [ZEPPELIN-2133](#): All interpreters sometimes throw random Connection refuse errors.
- [ZEPPELIN-2147](#): zeppelin should redirect to login page after browsersession expires.
- [ZEPPELIN-2148](#): On creation of Bar graph zeppelin UI shows it as minigraph .
- [ZEPPELIN-2149](#): Each interpreter should have a separate log file..
- [ZEPPELIN-2161](#): Nested Group Support in LdapRealm for AD.
- [ZEPPELIN-2164](#): Typo in Insufficient Privileges popup of Zeppelin.
- [ZEPPELIN-2166](#): HeliumBundleFactoty can't transfile imported es6+.
- [ZEPPELIN-2167](#): User with insufficient privileges can still restore files by renaming files in/ou....
- [ZEPPELIN-2172](#): Redirect to home if notebook authentication fails in realtime.
- [ZEPPELIN-2173](#): Duplicate user names populated in the Note permission box.
- [ZEPPELIN-2175](#): Jdbc interpreter sometime doesn't show detailed error message.
- [ZEPPELIN-2178](#): Prevent from cleaning output in "Personalized Mode".
- [ZEPPELIN-2199](#): Fix lapply issue in sparkR.
- [ZEPPELIN-2202](#): Disable personalized mode btn when note is running (branch-0.7).

1.8.22. ZooKeeper

This release provides ZooKeeper 3.4.6 and the following Apache patches:

HDP 2.6.3 provided ZooKeeper 3.4.6 and the following Apache patches:

- [ZOOKEEPER-2146](#): BinaryInputArchive readString should check length before allocating memory.

HDP 2.6.2 provided ZooKeeper 3.4.6 with no additional Apache patches.

HDP 2.6.1 provided ZooKeeper 3.4.6 and the following Apache patches:

- [ZOOKEEPER-2141](#): ACL cache in DataTree never removes entries.

HDP 2.6.0 provided ZooKeeper 3.4.6 and the following Apache patches:

- [ZOOKEEPER-2227](#): stmk four-letter word fails execution at server while reading trace mask argument.

1.9. Fixed Common Vulnerabilities and Exposures

This section covers all Common Vulnerabilities and Exposures (CVE) that are addressed in this release.

1.9.1. CVE-2017-3150

Summary: Use of insecure cookies

Severity: Normal

Vendor: The Apache Software Foundation

Versions Affected: 0.6.0 or 0.7.0 versions of Apache Atlas

Users affected: All users of Apache Atlas server

Impact: Atlas uses cookies that could be accessible to client-side scripts.

Fix detail: Atlas was updated to make the cookies unavailable to client-side scripts.

Recommended Action: Users should upgrade to Apache Atlas 0.7.1-incubating or later version.

1.9.2. CVE-2017-3151

Summary: Persistent XSS vulnerability

Severity: Normal

Vendor: The Apache Software Foundation

Versions Affected: 0.6.0 or 0.7.0 versions of Apache Atlas

Users affected: All users of Apache Atlas server

Impact: Atlas was found vulnerable to a Stored Cross-Site Scripting in the edit-tag functionality

Fix detail: Atlas was updated to sanitize the user input.

Recommended Action: Users should upgrade to Apache Atlas 0.7.1-incubating or later version.

1.9.3. CVE-2017-3152

Summary: DOM XSS threat

Severity: Normal

Vendor: The Apache Software Foundation

Versions Affected: 0.6.0 or 0.7.0 versions of Apache Atlas

Users affected: All users of Apache Atlas server

Impact: Atlas was found vulnerable to a DOM XSS in the edit-tag functionality.

Fix detail: Atlas was updated to sanitize the query parameters.

Recommended Action: Users should upgrade to Apache Atlas 0.7.1-incubating or later version.

1.9.4. CVE-2017-3153

Summary: Reflected XSS vulnerability

Severity: Normal

Vendor: The Apache Software Foundation

Versions Affected: 0.6.0 or 0.7.0 versions of Apache Atlas

Users affected: All users of Apache Atlas server

Impact: Atlas was found vulnerable to a Reflected XSS in the search functionality.

Fix detail: Atlas was updated to sanitize the query parameters.

Recommended Action: Users should upgrade to Apache Atlas 0.7.1-incubating or later version.

1.9.5. CVE-2017-3154

Summary: Stack trace in error response

Severity: Normal

Vendor: The Apache Software Foundation

Versions Affected: 0.6.0 or 0.7.0 versions of Apache Atlas

Users affected: All users of Apache Atlas server

Impact: Error response from Atlas server included stack trace, exposing excessive information.

Fix detail: Atlas was updated to not include stack trace in error responses.

Recommended Action: Users should upgrade to Apache Atlas 0.7.1-incubating or later version.

1.9.6. CVE-2017-3155

Summary: XFS - cross frame scripting vulnerability

Severity: Normal

Vendor: The Apache Software Foundation

Versions Affected: 0.6.0 or 0.7.0 versions of Apache Atlas

Users affected: All users of Apache Atlas server

Impact: Atlas was found vulnerable to a cross frame scripting.

Fix detail: Atlas was updated to use appropriate headers to prevent this vulnerability.

Recommended Action: Users should upgrade to Apache Atlas 0.7.1-incubating or later version.

1.9.7. CVE-2017-5646

Summary: Apache Knox Impersonation Issue for WebHDFS

Severity: Important

Vendor: The Apache Software Foundation

Versions Affected: All versions of Apache Knox prior to 0.12.0

Users affected: Users who use WebHDFS through Apache Knox.

Impact: An authenticated user may use a specially crafted URL to impersonate another user while accessing WebHDFS through Apache Knox. This may result in escalated privileges and unauthorized data access. While this activity is audit logged and can be easily associated with the authenticated user, this is still a serious security issue.

Recommended Action: Upgrade to 2.6.x

Mitigation: All users are recommended to upgrade to Apache Knox 0.12.0, where validation, scrubbing and logging of such attempts has been added. The Apache Knox 0.12.0 release can be downloaded from:

Source: <http://www.apache.org/dyn/closer.cgi/knox/0.12.0/knox-0.12.0-src.zip>

Binary: <http://www.apache.org/dyn/closer.cgi/knox/0.12.0/knox-0.12.0.zip>

1.9.8. CVE-2017-7676

Summary: Apache Ranger policy evaluation ignores characters after '*' wildcard character

Severity: Critical

Vendor: Hortonworks

Versions Affected: HDP 2.3/2.4/2.5/2.6 versions including Apache Ranger versions 0.5.x/0.6.x/0.7.0

Users affected: Environments that use Ranger policies with characters after '*' wildcard character – like my*test, test*.txt

Impact: Policy resource matcher ignores characters after '*' wildcard character, which can result in unintended behavior.

Fix detail: Ranger policy resource matcher was updated to correctly handle wildcard matches.

Recommended Action: Upgrade to HDP 2.6.1+ (with Apache Ranger 0.7.1+).

1.9.9. CVE-2017-7677

Summary: Apache Ranger Hive Authorizer should check for RWX permission when external location is specified

Severity: Critical

Vendor: Hortonworks

Versions Affected: HDP 2.3/2.4/2.5/2.6 versions including Apache Ranger versions 0.5.x/0.6.x/0.7.0

Users affected: Environments that use external location for hive tables

Impact: In environments that use external location for hive tables, Apache Ranger Hive Authorizer should check for RWX permission for the external location specified for create table.

Fix detail: Ranger Hive Authorizer was updated to correctly handle permission check with external location.

Recommended Action: Users should upgrade to HDP 2.6.1+ (with Apache Ranger 0.7.1+).

1.9.10. CVE-2017-9799

Summary: Potential execution of code as the wrong user in Apache Storm

Severity: Important

Vendor: Hortonworks

Versions Affected: HDP 2.4.0, HDP-2.5.0, HDP-2.6.0

Users affected: Users who use Storm in secure mode and are using blobstore to distribute topology based artifacts or using the blobstore to distribute any topology resources.

Impact: Under some situations and configurations of storm it is theoretically possible for the owner of a topology to trick the supervisor to launch a worker as a different, non-root, user. In the worst case, this could lead to secure credentials of the other user being compromised. This vulnerability only applies to Apache Storm installations with security enabled.

Mitigation: Upgrade to HDP-2.6.2.1 as there are currently no workarounds.

1.9.11. CVE-2016-4970

Summary: handler/ssl/OpenSslEngine.java in Netty 4.0.x before 4.0.37.Final and 4.1.x before 4.1.1.Final allows remote attackers to cause a denial of service (infinite loop)

Severity: Moderate

Vendor: Hortonworks

Versions Affected: HDP 2.x.x since 2.3.x

Users Affected: All users that use HDFS.

Impact: Impact is low as Hortonworks does not use OpenSSLEngine.java directly in Hadoop codebase.

Recommended Action: Upgrade to 2.6.3.

1.9.12. CVE-2016-8746

Summary: Apache Ranger path matching issue in policy evaluation

Severity: Normal

Vendor: Hortonworks

Versions Affected: All HDP 2.5 versions including Apache Ranger versions 0.6.0/0.6.1/0.6.2

Users affected: All users of the ranger policy admin tool.

Impact: Ranger policy engine incorrectly matches paths in certain conditions when a policy contains wildcards and recursive flags.

Fix detail: Fixed policy evaluation logic

Recommended Action: Users should upgrade to HDP 2.5.4+ (with Apache Ranger 0.6.3+) or HDP 2.6+ (with Apache Ranger 0.7.0+)

1.9.13. CVE-2016-8751

Summary: Apache Ranger stored cross site scripting issue

Severity: Normal

Vendor: Hortonworks

Versions Affected: All HDP 2.3/2.4/2.5 versions including Apache Ranger versions 0.5.x/0.6.0/0.6.1/0.6.2

Users affected: All users of the ranger policy admin tool.

Impact: Apache Ranger is vulnerable to a Stored Cross-Site Scripting when entering custom policy conditions. Admin users can store some arbitrary javascript code execute when normal users login and access policies.

Fix detail: Added logic to sanitize the user input.

Recommended Action: Users should upgrade to HDP 2.5.4+ (with Apache Ranger 0.6.3+) or HDP 2.6+ (with Apache Ranger 0.7.0+)

1.9.14. CVE-2016-8752

Summary: Atlas web server allows user to browse webapp directory

Severity: Normal

Vendor: The Apache Software Foundation

Versions Affected: 0.6.0 or 0.7.0 or 0.7.1 versions of Apache Atlas

Users affected: All users of Apache Atlas server

Impact: Atlas users can access the webapp directory contents by pointing to URLs like /js, /img

Fix detail: Atlas was updated to prevent browsing of webapp directory contents

Mitigation: Users should upgrade to Apache Atlas 0.8-incubating or later version

1.10. Fixed Issues

Fixed issues represents selected issues that were previously logged via Hortonworks Support, but are now addressed in the current release. These issues may have been

reported in previous versions within the Known Issues section; meaning they were reported by customers or identified by Hortonworks Quality Engineering team.

Incorrect Results

Hortonworks Bug ID	Apache JIRA	Summary
BUG-90013	ATLAS-2208	UI : Include historical entities in Schema tab checked by default for DELETED tables
BUG-91359	HIVE-17963	CLONE - Hive job creates buckets. Since there are duplicate bucket files, the subsequent validation query (select *) fails to return correct number of records.
BUG-91553	STORM-2666	Storm-kafka-client spout emitting already committed offsets
BUG-92176	ATLAS-2277	Search using entity and trait attributes - excludeDeletedEntities parameter doesn't take effect when classification is ""

Other

Hortonworks Bug ID	Apache JIRA	Summary
BUG-92367	YARN-7558	Secure Env: Cannot collect running application logs

Performance

Hortonworks Bug ID	Apache JIRA	Summary
BUG-90296	HIVE-17628	Fenton - always use fully qualified path for tables/partitions/etc.
BUG-90393	HIVE-11878	Backport - ClassNotFoundException can possibly occur if multiple jars are registered one at a time in Hive
BUG-90863	HIVE-16385	2.6-maint - StatsNoJobTask could exit early before all partitions have been processed
BUG-91359	HIVE-17963	CLONE - Hive job creates buckets. Since there are duplicate bucket files, the subsequent validation query (select *) fails to return correct number of records.
BUG-91992	SPARK-14234	Executor crashes for TaskRunner thread interruption
BUG-92000	RANGER-1897	TagSync should replace use of V1 Atlas APIs with V2 APIs for efficient tag-download from Atlas

Potential Data Loss

Hortonworks Bug ID	Apache JIRA	Summary
BUG-91359	HIVE-17963	CLONE - Hive job creates buckets. Since there are duplicate bucket files, the subsequent validation query (select

Hortonworks Bug ID	Apache JIRA	Summary
		*) fails to return correct number of records.

Query Failure

Hortonworks Bug ID	Apache JIRA	Summary
BUG-85777	HIVE-17393 , HIVE-17908	Spark/LLAP: Fragment submission failures causing query to fail
BUG-90698	HIVE-15700	BytesColumnVector can get stuck trying to resize byte buffer
BUG-90830	HIVE-16317	Backport HIVE-16317: CASE .. NULL in JOIN condition can trigger SemanticException
BUG-91027	N/A	spark-llap: Fix null handling of complex types
BUG-91811	HIVE-14380	Backport - Queries on tables with remote HDFS paths fail in "encryption" checks.

Security

Hortonworks Bug ID	Apache JIRA	Summary
BUG-91441	ZEPPELIN-3040	Fix for portRange issue in Zeppelin 0.7.3 for ATT
BUG-91795	https://github.com/druid-io/druid/pull/5096	Druid service kerberos ticket expiry after 24 hrs.

Stability

Hortonworks Bug ID	Apache JIRA	Summary
BUG-68635	HIVE-15090	Backport HIVE-15090: Temporary DB failure can stop ExpiredTokenRemover thread
BUG-72507	HADOOP-13823 , HADOOP-14059	s3a rename: fail if dest file exists
BUG-85777	HIVE-17393 , HIVE-17908	Spark/LLAP: Fragment submission failures causing query to fail
BUG-90296	HIVE-17628	Fenton - always use fully qualified path for tables/partitions/etc.
BUG-90314	ATLAS-2214	Search using trait attributes - "!=" and "is not null" together and in order in string,boolean tag attribute filter comparison
BUG-90393	HIVE-11878	Backport - ClassNotFoundException can possibly occur if multiple jars are registered one at a time in Hive
BUG-90691	ATLAS-2222	UI : Search using entity and trait attributes - "," in string attribute filter throws 400 Bad Request
BUG-90722	HIVE-17079	Backport HIVE-17079: LLAP: Use FQDN by default for work submission
BUG-90788	HADOOP-14542 , HDFS-11303	Hedged read might hang infinitely if read data from all DN failed
BUG-90830	HIVE-16317	Backport HIVE-16317: CASE .. NULL in JOIN condition can trigger SemanticException

Hortonworks Bug ID	Apache JIRA	Summary
BUG-90863	HIVE-16385	2.6-maint - StatsNoJobTask could exit early before all partitions have been processed
BUG-90883	HIVE-17918	NPE during semijoin reduction optimization when LLAP caching disabled
BUG-91423	HDFS-9396	Total files and directories on jmx and web UI on standby is uninitialized
BUG-91503	HIVE-17774	Backport - Compaction may start with 0 splits and fail
BUG-91506	HIVE-16360	Backport - Improve "No delta files or original files found to compact in" message
BUG-91683	HDFS-11575	Backport HDFS-11575: Supporting HDFS NFS gateway with Federated HDFS
BUG-91756	YARN-5042 , YARN-5596	[Daimler backport] Add support for read/write whitelisted mounts
BUG-91757	HADOOP-13700	Backport HADOOP-13700: Remove unthrown IOException from TrashPolicy#initialize and #getInstance signatures
BUG-91805	N/A	CLONE - Whenever Spark2 Thriftserver restart, a random node manager will go down cause by patch from BUG-78576
BUG-91811	HIVE-14380	Backport - Queries on tables with remote HDFS paths fail in "encryption" checks.
BUG-91876	HDFS-9887 , HDFS-9914	CLONE - WebHdfs socket timeouts should be configurable
BUG-91905	HADOOP-13709 , YARN-5641 , YARN-6004 , YARN-6078 , YARN-6805	CLONE - Nodemanagers hanging with too many open ContainerLocalizer processes
BUG-91992	SPARK-14234	Executor crashes for TaskRunner thread interruption
BUG-91998	RANGER-1883	TagSync should reuse kerberos ticket in REST calls to Ranger Admin
BUG-92105	HDFS-12813	RequestHedgingProxyProvider can hide Exception thrown from the Namenode for proxy size of 1
BUG-92179	OOZIE-3018	Backport OOZIE-3018: Use Hadoop's CredentialProvider for passwords in SchemaCheckerService
BUG-92313	ATLAS-2284	Import hive fails with "java.lang.NoClassDefFoundError: com/sun/jersey/multipart/BodyPart"
BUG-93405	HADOOP-15143 , HIVE-18331	llap daemon killed because container health goes below threshold

Supportability

Hortonworks Bug ID	Apache JIRA	Summary
BUG-91114	ATLAS-2244	UI - Basic Search Table not using referredEntities to render entity details

Hortonworks Bug ID	Apache JIRA	Summary
BUG-91252	HADOOP-13132	Backport HADOOP-13132: Handle ClassCastException on AuthenticationException in LoadBalancingKMSSClientProvider

Upgrade

Hortonworks Bug ID	Apache JIRA	Summary
BUG-91194	N/A	Shared Interpreter code should not crash when interpreter.json is missing shared interpreter config
BUG-91917	ZEPPELIN-3063	Dashboards lose formatting with 0.7 zeppelin

Usability

Hortonworks Bug ID	Apache JIRA	Summary
BUG-72507	HADOOP-13823 , HADOOP-14059	s3a rename: fail if dest file exists
BUG-90013	ATLAS-2208	UI : Include historical entities in Schema tab checked by default for DELETED tables
BUG-90314	ATLAS-2214	Search using trait attributes - "!=" and "is not null" together and in order in string,boolean tag attribute filter comparison
BUG-90691	ATLAS-2222	UI : Search using entity and trait attributes - "," in string attribute filter throws 400 Bad Request
BUG-90869	CALCITE-2017	(2.6) Automatic Kerberos logins fail on IBM Java for Phoenix Thin Client
BUG-90918	ATLAS-2236	UI - Basic Search Post request send attribute filters even after removing Type
BUG-91117	ZEPPELIN-1962	Disable SQL completer in JDBC interpreter
BUG-91506	HIVE-16360	Backport - Improve "No delta files or original files found to compact in" message
BUG-91811	HIVE-14380	Backport - Queries on tables with remote HDFS paths fail in "encryption" checks.
BUG-91876	HDFS-9887 , HDFS-9914	CLONE - WebHdfs socket timeouts should be configurable
BUG-91877	HIVE-17115	backport to hive1/fenton-m21 - MetaStoreUtils.getDeserializer doesn't catch the java.lang.ClassNotFoundException
BUG-91919	RANGER-1880	TagSync update to process TRAIT_UPDATE notification from Atlas
BUG-91999	ATLAS-2267	Update Atlas search API to optionally return classification attributes
BUG-92166	ATLAS-2274	Search using entity and trait attributes - typename and "*" in classificationName throws Invalid condition exception

Hortonworks Bug ID	Apache JIRA	Summary
BUG-92178	ATLAS-2275	Entity notification serialization results in incorrect format for date attributes in traits


1.11. Known Issues


Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
BUG-50023	PHOENIX-3916	Phoenix	<p>Description of Problem: The hbck repair tool sometimes generates local indexes that are inconsistent with table data when overlapping regions are encountered.</p> <p>Workaround: If you know the database schema, fix this issue by dropping and recreating all local indexes of the table after the hbck tool completes operation. Alternatively, rebuild the local indexes using the following ALTER query:</p> <pre>ALTER INDEX IF EXISTS index_name ON data_table_name REBUILD</pre>
BUG-60904	KNOX-823	Knox	<p>Description of Problem: When Apache Knox uses Ambari as a proxy, the QuickLinks are not rewritten to go back through the gateway.</p> <p>Workaround: If all access to Ambari is through Knox in the deployment the new Ambari quicklink profile may be used to hide and/or change URLs to go through Knox permanently. A future release will make these reflect the gateway appropriately.</p>
BUG-60904	KNOX-823	Knox	<p>Description of Problem: When Ambari is being proxied by Apache Knox the QuickLinks are not rewritten to go back through the gateway.</p> <p>Workaround: If all access to Ambari is through Knox, the new Ambari quicklink profile may be used to hide and/or change URLs to go through Knox permanently. Future release will make these reflect the gateway appropriately.</p>
BUG-65977	SPARK-14922	Spark	<p>Description of Problem: Since Spark 2.0.0, `DROP PARTITION BY RANGE` is not supported grammatically. In other words, only `=` is supported while `<`, `>`, `<=`, `>=` aren't.</p> <p>Associated Error Message:</p> <pre>scala> sql("alter table t drop partition (b<1) ").show org.apache.spark.sql.catalyst.parser.ParseException: mismatched input '<' expecting {'}', ',', '>'}(line 1, pos 31) == SQL == alter table t drop partition (b<1) -----^^^</pre> <p>Workaround: To drop partition, use the exact match with `=`. scala> sql("alter table t drop partition (b=0) ").show</p>
BUG-65977	SPARK-14922	Spark	<p>Description of Problem: Since Spark 2.0.0, `DROP PARTITION BY RANGE` does not support relative logical operators. In other words, only `=` is supported while `&lt;`, `&gt;`, `&lt;=`, `&gt;=` are not.</p> <p>Error Message:</p>

Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
			<pre>scala> sql().show org.apache.spark.sql.catalyst.parser. ParseException: mismatched input }(line 1, pos 31) == SQL == alter table t drop partition (b<:1) -----^^^</pre> <p>Workaround: To drop partition, use the exact match with '='.</p> <pre>scala> sql().show</pre>
BUG-70956	N/A	Zeppelin	<p>Description of Problem: A Hive query submitted to the %jdbc interpreter returns a proxy validation error.</p> <p>Associated error messages:</p> <ul style="list-style-type: none"> HiveSQLException: Failed to validate proxy privilege of zeppelin for <user> The hiveserver2.log file lists a permission denied exception: org.apache.hadoop.ipc.RemoteException(org.apache.hadoop.security.AccessControlException): Permission denied: user=<user>, access=WRITE, inode="/user/<user>":hdfs:hdfs:drwxr-xr-x at org.apache.hadoop.hdfs.server.namenode.FSPermissionChecker.check(FSPermissionChecker.java:100) ... org.apache.hadoop.security.UserGroupInformation.doAs(UserGroupInformation.java:1693) <p>Workaround:</p> <ol style="list-style-type: none"> Create the user account on all worker nodes. For example, if the account is user3, issue the following command: \$ adduser user3 Restart the %jdbc interpreter.
BUG-70956	N/A	Zeppelin	<p>Description of Problem: When used with Hive, the %jdbc interpreter might require Hadoop common jar files that need to be added manually.</p> <p>Workaround:</p> <ol style="list-style-type: none"> On the Interpreters page, add a new repository. Set the repository ID to "hortonworks". Set the URL to "http://nexus-private.hortonworks.com/nexus/content/groups/public/". Identify the version of HDP running on the cluster. You can find this in the Zeppelin UI by clicking on your user ID and choosing "About Zeppelin." The number after the Zeppelin version is the HDP version number. In the Dependencies section on the Interpreters page, remove existing jar files and add the following three jar files, with the correct HDP version for your cluster. The following example uses version 2.6.0.0-484: <ul style="list-style-type: none"> org.apache.hive:hive-jdbc::standalone:1.2.1000.2.6.0.0-484 Xerces:xerces:2.4.0 org.apache.hadoop:hadoop-common:2.7.3.2.6.0.0-484

Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
BUG-74152	PHOENIX-3688	Phoenix	<p>Description of Problem: Rebuild(ALTER INDEX IDX ON TABLE REBUILD) of indexes created on the table having row_timestamp column will result in no data visible to the User for that Index.</p> <p>Workaround: Drop the index and recreate the same index. There will not be any extra overhead of recreating index when compared with rebuild Index.</p>
BUG-75179	ZEPPELIN-2170	Zeppelin	<p>Description of Problem: Zeppelin does not show all WARN messages thrown by spark-shell. The log level that comes as output at the Zeppelin notebook level cannot be changed .</p> <p>Workaround: Currently, there is no known workaround.</p>
BUG-76996	N/A	Spark 2 (Livy)	<p>Description of Problem: When upgrading from HDP-2.5.x to HDP-2.6.0 and using Spark2, the Livy interpreter is configured with a scope of 'global', and should be changed to 'scoped'.</p> <p>Workaround: After upgrading from HDP 2.5 to HDP 2.6, set the interpreter mode for %livy (Spark 2) to "scoped" using the pulldown menu in the %livy section of the Interpreters page.</p>
BUG-78919	N/A	Zeppelin	<p>Description of problem: "ValueError: No JSON object could be decoded" when restarting Zeppelin, when the disk is 100% full.</p> <p>Associated error message: Get following in error logs</p> <pre>Traceback (most recent call last): File , line 312, in <module> Master().execute() File , line 280, in execute method(env) File , line 182, in start self.update_kerberos_properties() File , line 232, in update_kerberos_properties config_data = self.get_interpreter_settings() File , line 207, in get_interpreter_settings config_data = json.loads(config_content) File , line 339, in loads _default_decoder.decode(s)</pre> <p>Workaround: Free up some space in disk, then delete /etc/zeppelin/conf/*.json, then restart zeppelin server</p>
BUG-79238	N/A	Ranger	<p>Component Affected: Ranger, all</p> <p>Description of Problem: SSL is deprecated; its use in production is not recommended. Use TLS.</p> <p>Workaround: For Ambari: Use <code>ssl.enabled.protocols=TLSv1/TLSv1.1/TLSv1.2</code> and <code>security.server.disabled.protocols=SSL/SSLv2/SSLv3</code>. For help configuring TLS for other components, contact customer support. Documentation will be provided in a future release.</p>
BUG-80656		Zeppelin	<p>Description of Problem: Zeppelin fails to start during the upgrade process from HDP 2.5 to HDP 2.6. The error starts with</p> <p>Exception in thread "main" org.apache.shiro.config.ConfigurationException: Unable to instantiate class org.apache.zeppelin.server.ActiveDirectoryGroupRealm for object named 'activeDirectoryRealm'. Please ensure you've specified the fully qualified class name correctly.</p>

Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
			<p>Workaround: This error is due to a change in configuration class for Active Directory.</p> <p>In HDP 2.5:</p> <pre>org.apache.zeppelin.server.ActiveDirectoryGroupRealm</pre> <p>In HDP 2.6:</p> <pre>org.apache.zeppelin.realm.ActiveDirectoryGroupRealm</pre> <p>To resolve this issue, choose one of the following two alternatives:</p> <ul style="list-style-type: none"> • Proceed with the upgrade, and change the configuration in the <code>shiro.ini</code> file after the upgrade is complete (when Ambari allows configuration change). • At time of failure, change the class name in <code>/usr/hdp/current/zeppelin-server/conf/shiro.ini</code>, and then start Zeppelin manually.
BUG-80901	N/A	Zeppelin	<p>Component Affected: Zeppelin/Livy</p> <p>Description of Problem: This occurs when running applications through Zeppelin/Livy that requires 3rd-party libraries. These libraries are not installed on all nodes in the cluster but they are installed on their edge nodes. Running in yarn-client mode, this all works as the job is submitted and runs on the edge node where the libraries are installed. In yarn-cluster mode, this fails because the libraries are missing.</p> <p>Workaround: Set the location in <code>spark.defaults.conf</code>. For Livy, you will need to set <code>livy.spark.jars</code> (the HDFS location) in <code>livy interpreters conf</code>. Both are globally applicable. The jars need to be present on the livy machine in both cases. Updating livy conf is preferable since it affects only the Zeppelin users.</p>
BUG-81637	N/A	Spark	<p>Description of Problem: Executing concurrent queries over Spark via Spark1-llap package spawns multiple threads. This may cause multiple queries to fail. However, this will not break the spark thrift server. Spark 1.6 is built using Scala 2.10, which is where this issue manifests (i.e. "synchronize reflection code as scala 2.10 reflection is not threadsafe self"). This issue was subsequently fixed in Scala 2.11 based on this patch https://issues.scala-lang.org/browse/SI-6240.</p> <p>Associated error messages:</p> <ul style="list-style-type: none"> • <code>scala.reflect.internal.Symbols\$CyclicReference: illegal cyclic reference involving class LlapContext</code> • <code>SparkExecuteStatementOperation: Error running hive query: org.apache.hive.service.cli.HiveSQLException: scala.reflect.internal.Symbols\$CyclicReference: illegal cyclic reference involving class LlapContext</code> <p>Workaround: Isolate the broken queries and re-run them one by one. This will limit the query to one spawned thread.</p>
BUG-86418	N/A	Zeppelin	<p>Description of Problem: After upgrading from Ambari 2.4.2 to Ambari 2.5.2 and subsequent HDP stack upgrade from 2.5 to 2.6, jdbc(hive) interpreter fails to work correctly in Zeppelin.</p>

Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
			<p>Associated Error Message: You might see one of the following errors in the Zeppelin stacktrace after running jdbc(hive):</p> <ul style="list-style-type: none"> • Error in doAs • Failed to validate proxy privilege of zeppelin <p>Workaround:</p> <ol style="list-style-type: none"> 1. Make sure <code>hadoop.proxyuser.zeppelin.groups=*</code> and <code>hadoop.proxyuser.zeppelin.hosts=*</code> are set in <code>HDFS core-site.xml</code>. If not, then configure these properties and restart all stale services. (AMBARI-21772 is currently tracking this item). 2. Make user <code>hive.url</code> is configured correctly in Zeppelin's JDBC hive interpreter. <div>  <p>Note</p> <p>The URL configured might be wrong, especially on secured and/or wire-encrypted clusters, due to a known issue that we will address in a future release.</p> </div> <ol style="list-style-type: none"> 3. Restart HS2.
BUG-87128	N/A	Mahout	<p>Since Mahout is deprecated in favor of Spark ML, and every code change carries the risk of creating additional incompatibilities, we will document these difficulties rather than change these established behaviors in Mahout. These issues affect only Mahout.</p> <ul style="list-style-type: none"> • BUG-80945: Potential DoS vulnerability due to ReadLine usage in 9 files • BUG-80944: Potential JavaScript vulnerability in RecommenderServlet.java • BUG-80942: Potential Path Manipulation vulnerability due to path input usage in 8 files • BUG-80941: Potential DoS vulnerability due to StringBuilder usage in ConfusionMatrix.java • BUG-80940: Potential DoS vulnerability due to ReadLine usage in 8 additional files • BUG-80938: Potential invalid use of Object.equals in FastMap.java and FastByIDMap.java
BUG-88614	N/A	Hive	<p>Description of Problem: RDMBS schema for Hive metastore contains an index HL_TXNID_INDEX defined as</p> <pre>CREATE INDEX HL_TXNID_INDEX ON HIVE_LOCKS USING hash (HL_TXNID);</pre> <p>Hash indexes are not recommended by Posgres. Details can be found in https://www.postgresql.org/docs/9.4/static/indexes-types.html.</p> <p>Workaround: It's recommended that this index is changed to type BTREE.</p>
BUG-90316	N/A	Druid	<p>Description of Problem: Router is an optional component in Druid deployment. If the router component of Druid is deployed on a cluster with Kerberos security, Hive queries on Druid tables sometimes fail.</p>

Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
			Workaround: If you want to use the optional router component, then ensure that it is hosted on a broker node.
BUG-91304	HIVE-18099	Ambari, Hive, MapReduce, Tez	<p>Description of problem: Running Hive with Tez fails to load configured native library. For example, Snappy compression library.</p> <p>Associated error message:</p> <pre>java.lang.RuntimeException: java.io.IOException: Unable to get CompressorType for codec (org. apache.hadoop.io.compress.SnappyCodec). This is most likely due to missing native libraries for the codec.</pre> <p>Workaround: Add the configuration parameter <code>mapreduce.admin.user.env</code> to <code>tez-site.xml</code>, specifying the native library path. For example,</p> <pre><property> <name>mapreduce.admin.user.env</name> <value>LD_LIBRARY=../tezlib/lib/</value> </property></pre>
BUG-91364	AMBARI-22506	Zeppelin	<p>Description of problem: The pie chart does not display the correct distribution as per data. This occurs when there is a "," in data i.e. there is number formatting applied to data.</p> <p>Associated error message: No error message.</p> <p>Workaround: A manual config in Zeppelin's JDBC interpreter setting, i.e. to add "phoenix.phoenix.query.numberFormat" with value "#.#".</p>
BUG-91996	LIVY-299	Livy, Zeppelin	<p>Description of Problem: Livy Spark interpreter will only print out the last line of code in the output. For example, if you submit the following:</p> <pre>print(10) print(11)</pre> <p>Livy will only print "11" and ignore the first line.</p> <p>Workaround: If you want to see the output of a particular line, it must be the last line in the code block in a para.</p>
BUG-92483	HIVE-17900	Hive	<p>Description of Problem: Compaction of ACID table might fail if table is partitioned by more than one column.</p> <p>Associated Error message:</p> <pre>java.io.IOException: Could not update stats for table ...</pre> <p>Workaround: Currently, there is no known workaround for this issue.</p>
BUG-92957	HIVE-11266	Hive	<p>Description of Problem: Hive returns the wrong count result on an external table with table statistics if you change table data files.</p> <p>Workaround: Currently, there is no known workaround for this issue.</p> <div>  <p>Note</p> <p>HSI (Hive2) is not affected.</p> </div>
BUG-94081	HIVE-18384	Hive2	<p>Description of Problem: The log4j version used in this release can occasionally lead to a failed query or a failure of an LLAP daemon. This is caused by</p>

Hortonworks Bug ID	Apache JIRA	Apache Component	Summary
			<p>a race condition in the library and can result in a ConcurrentModificationException.</p> <p>LLAP daemons are restarted transparently by the system. However, the system will log queries that cannot recover as failed.</p> <p>Workaround: Re-run the query to resolve the problem.</p>
RMP-7861	HBASE-14138	HBase	Description of Problem: Only an hbase superuser can perform HBase backup-and-restore.

1.12. Documentation Errata

The following section contains late additions or corrections to the product documentation.

1.12.1. RangerUI: Escape of policy condition text entered in the policy form

Component Affected: Ranger

1.12.1.1. Description of Problem

If a user wants to create policy with custom policy conditions and the expression or text contains special characters, then policy enforcement will not work. Special characters are converted into ASCII before saving the policy into the database.

Special Characters: & < > " ' `

For example, the condition `tags.attributes['type']='abc'` would get converted to the following once the policy is saved: User can see the policy condition with these chars by opening policy in edit mode.

```
tags.attrds[&#x27;dsds&#x27;]=&#x27;cssdfs&#x27;
```

You can see the policy condition with these characters by opening the policy in edit mode.

1.12.1.2. Workaround

1.12.1.2.1. Option #1: Create/Update policy via Ranger Rest API

REST URL: `http://<host>:6080/service/plugins/policies`

Creating policy with policy condition:

The below example will create policy with tags as `tags-test` and assign it to `public` group with policy condition as `tags.attr['type']=='abc'` by selecting all hive component permission like `select,update,create,drop,alter,index,lock,all`.

Example:

```
curl -H "Content-Type: application/json" -X POST http://localhost:6080/service/plugins/policies -u admin:admin -d
```

```
{ "policyType": "0", "name": "P100", "isEnabled": true, "isAuditEnabled": true, "descr":
{ "tag": { "values": [ "tags-test" ], "isRecursive": "", "isExcludes": false } }, "policyItems":
[ { "groups": [ "public" ], "conditions": [ { "type": "accessed-after-
expiry", "values": [ ] }, { "type": "tag-expression", "values":
[ "tags.attr['type']=='abc' ] } ] }, "accesses":
[ { "type": "hive:select", "isAllowed": true },
{ "type": "hive:update", "isAllowed": true },
{ "type": "hive:create", "isAllowed": true },
{ "type": "hive:drop", "isAllowed": true },
{ "type": "hive:alter", "isAllowed": true },
{ "type": "hive:index", "isAllowed": true },
{ "type": "hive:lock", "isAllowed": true },
{ "type": "hive:all", "isAllowed": true } ] }, "denyPolicyItems":
[ ], "allowExceptions": [ ], "denyExceptions": [ ], "service": "tagdev" }
```

Update existing policy with policy condition:

The below example will update policy with tags as `tags-test` and assign it to `public` group with policy condition as `tags.attr['type']=='abc'` by selecting all hive component permission like select, update, create, drop, alter, index, lock, all.

REST URL: `http://<host-name>:6080/service/plugins/policies/<policy-id>`

Example:

```
curl -H "Content-Type: application/json" -X PUT
http://localhost:6080/service/plugins/policies/18 -u
admin:admin -d '{ "id": 18, "guid": "ea78a5ed-07a5-447a-978d-
e636b0490a54", "isEnabled": true, "createdBy": "Admin", "updatedBy": "Admin", "create
{ "tag": { "values":
[ "tags" ], "isExcludes": false, "isRecursive": false } }, "policyItems":
[ { "accesses": [ { "type": "hive:select", "isAllowed": true },
{ "type": "hive:update", "isAllowed": true },
{ "type": "hive:create", "isAllowed": true },
{ "type": "hive:drop", "isAllowed": true },
{ "type": "hive:alter", "isAllowed": true },
{ "type": "hive:index", "isAllowed": true },
{ "type": "hive:lock", "isAllowed": true },
{ "type": "hive:all", "isAllowed": true } ], "users": [ ], "groups":
[ "public" ], "conditions": [ { "type": "ip-range", "values":
[ "tags.attributes['type']=abc" ] } ], "delegateAdmin": false } ], "denyPolicyItems":
[ ], "allowExceptions": [ ], "denyExceptions": [ ], "dataMaskPolicyItems":
[ ], "rowFilterPolicyItems": [ ] } }
```

1.12.1.2.2. Option #2: Apply Javascript changes

Steps to update JS file :

1. Find out PermissionList.js file under `/usr/hdp/current/ranger-admin`
2. Find out definition of renderPolicyCondition function (line no:404).

3. 3. Remove below line from that function i.e under display function(line no:434)

```
val = _.escape(val);//Line No:460
```

After removing the above line, the Ranger UI will allow you to create policies with policy condition that can contain special characters and policy evaluation will be successful for the same policy.

1.12.2. Workaround for Ranger service check failure

([RANGER-1607](#): Workaround for Ranger service check failure while upgrading to HDP 2.6.2 from previous HDP versions.



Note

Only when Ranger is SSL enabled.

This issue arises when attempting to upgrade to HDP-2.6.1 from previous HDP versions through Ambari. Ambari uses a curl call to do a service check to Ranger service in Ambari. If the JDK version used by Ambari is JDK-1.7, the curl call will fail with the below error:

```
curl: (35) error:14077410:SSL routines:SSL23_GET_SERVER_HELLO:sslv3 alert handshake failure
```

The reason for this error is the tomcat version used in Ranger is Tomcat-7.0.7*. Using JDK-1.7 conflicts with default ciphers provided in Tomcat-7.0.7*.

You can resolve this issue in two ways:

- Update the JDK used in Ambari from JDK-1.7 to JDK-1.8 (see the section [Change the JDK Version](#) in the Ambari Reference Guide).
- If you want to continue supporting a JDK-1.7 environment:
 1. Add the property `ranger.tomcat.ciphers` in the `ranger-admin-site` section in your Ambari Ranger configuration with the below value:

```
SSL_RSA_WITH_RC4_128_MD5, SSL_RSA_WITH_RC4_128_SHA,  
TLS_RSA_WITH_AES_128_CBC_SHA, SSL_RSA_WITH_3DES_EDE_CBC_SHA
```

2. If your environment is configured for Ranger-KMS, add the property `ranger.tomcat.ciphers` in the `ranger-kms-site` section in your Ambari Ranger configuration with the below value:

```
SSL_RSA_WITH_RC4_128_MD5, SSL_RSA_WITH_RC4_128_SHA,  
TLS_RSA_WITH_AES_128_CBC_SHA, SSL_RSA_WITH_3DES_EDE_CBC_SHA
```



Note

The noted values are working examples and may not be indicative of your environment. Ensure that the way you set these properties matches how your environment is configured.