

# ReleaseNote40

MMM??? 2012, Apache Solr™ 4.0 available The Lucene PMC is pleased to announce the release of Apache Solr 4.0.

Solr is the popular, blazing fast, open source NoSQL search platform from the Apache Lucene project. Its major features include powerful full-text search, hit highlighting, faceted search, dynamic clustering, database integration, rich document (e.g., Word, PDF) handling, and geospatial search. Solr is highly scalable, providing fault tolerant distributed search and indexing, and powers the search and navigation features of many of the world's largest internet sites.

Solr 4.0 is available for immediate download at:  
<http://lucene.apache.org/solr/mirrors-solr-latest-redir.html>

See the CHANGES.txt file included with the release for a full list of details.

Solr 4.0 Release Highlights:

The largest set of features goes by the development code-name "Solr Cloud" and involves bringing easy scalability to Solr. See <http://wiki.apache.org/solr/SolrCloud> for more details.

- \* Distributed indexing designed from the ground up for near real-time (NRT) and NoSQL features such as realtime-get, optimistic locking, and durable updates.
- \* High availability with no single points of failure.
- \* Apache Zookeeper integration for distributed coordination and cluster metadata and configuration storage.
- \* Immunity to split-brain issues due to Zookeeper's Paxos distributed consensus protocols.
- \* Updates sent to any node in the cluster and are automatically forwarded to the correct shard and replicated to multiple nodes for redundancy.
- \* Queries sent to any node automatically perform a full distributed search across the cluster with load balancing and fail-over.
- \* A collection management API.
- \* Smart SolrJ client (CloudSolrServer) that knows to send documents only to the shard leaders

Solr 4.0 includes more NoSQL features for those using Solr as a primary data store:

- \* Update durability - A transaction log ensures that even uncommitted documents are never lost.
- \* Real-time Get - The ability to quickly retrieve the latest version of a document, without the need to commit or open a new searcher
- \* Versioning and Optimistic Locking - combined with real-time get, this allows read-update-write functionality that ensures no conflicting changes were made concurrently by other clients.
- \* Atomic updates - the ability to add, remove, change, and increment fields of an existing document without having to send in the complete document again.

Many additional improvements include:

- \* New spatial field types with polygon support.
- \* Pivot Faceting - Multi-level or hierarchical faceting where the top constraints for one field are found for each top constraint of a different field.
- \* Pseudo-fields - The ability to alias fields, or to add metadata along with returned documents, such as function query values and results of spatial distance calculations.
- \* A spell checker implementation that can work directly from the main index instead of creating a sidecar index.
- \* Pseudo-Join functionality - The ability to select a set of documents based on their relationship to a second set of documents.
- \* Function query enhancements including conditional function queries and relevancy functions.

- \* New update processors to facilitate modifying documents prior to indexing.
- \* A brand new web admin interface, including support for SolrCloud and improved error reporting
- \* Numerous bug fixes and optimizations.

Noteworthy changes since 4.0-BETA:

- \* New spatial field types with polygon support.
- \* Various Admin UI improvements.
- \* SolrCloud related performance optimizations in writing the the transaction log, PeerSync recovery, Leader election, and ClusterState caching.
- \* Numerous bug fixes and optimizations.

Please report any feedback to the mailing lists  
(<http://lucene.apache.org/solr/discussion.html>)

Note: The Apache Software Foundation uses an extensive mirroring network for distributing releases. It is possible that the mirror you are using may not have replicated the release yet. If that is the case, please try another mirror. This also goes for Maven access.