

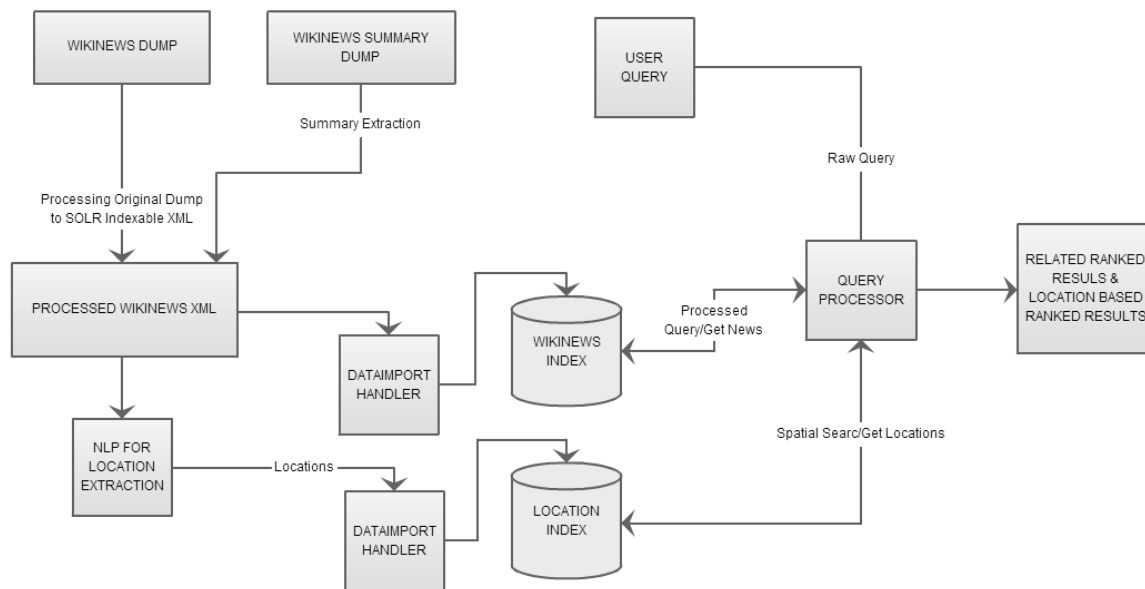


Location Based News Search PROJECT REPORT

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System Block Diagram and Description



WikiNews Dump Processing

The WikiNews Dump from Wikipeda is processed so as to get a SOLR Indexable XML file. The Dump is first scanned for articles with good titles and only these articles are selected and stored in a new processed XML. This processed file is then parsed using a WikiNews Parser to remove the wiki markup and tags. The WikiNews Summary Dump is used to add summary to the new XML files to display in the results page.

NLP for Location Extraction

Title from each article from the processed XML is scanned for Locations by the Apache OpenNLP NameFinder API and the locations are thus extracted and stored in a text file. Now this text file is scanned for duplicate entries and if there are any they are removed. Hence we have all the locations present in the Processed WikiNews dump.

Query Processing

The query from the UI text box is retrieved and passed on to the QueryProcessor Class. The Query Processor class splits the query into location, distance and the remaining part. The location is queried in the Location Index Core of SOLR, this returns the Latitude and Longitude of the respective location. Now using Spatial Search feature of SOLR and the retrieved distance from the query, a set of nearby locations and their respective latitudes and longitudes is retrieved from the Location Index. These locations are added to the remaining part of the query

and this newly generated query is then queried in the WikiNews Index Core of SOLR. Query Parser used eDismax which helped in boosting the query and sorting the results.

Results

The results returned by the Query Processing Class are ranked by their scores. Now these results are displayed in the browser in 2 sets. The first set is the results that are related to the query and the original location provided in the query. The second set are other results from nearby locations. Also a map displaying the query location all the nearby locations is shown in order to get an idea as to how many such results are present in the given distance near the given location.

Data Import Handler

This module is used to parse and index the XML file created by the WikiNews Dump Processing Module.

Features/USPs:

- Implemented auto-suggest feature using solr Suggester class. Displayed the suggestions in the browser using jquery primarily.
- Displayed locations entered by the user and its nearby locations on google map, thus enabling the user to judge the intensity of events near his desired location.
- We've divided the results into two categories for the convenience of the user. First contains results related to the query and second has results that show news from nearby locations.

Configuration Details & Tweaks

solrconfig.xml

- Initialized DataImport Handler in solrconfig.xml. DataImport Handler was used to index the processed wikinews and locations xml files
- Initialized Suggester in solrconfig.xml. Suggester is used to provide suggestions based on index to the autosuggest feature in the UI query box.

data-config.xml

- This file is used by DataImportHandler to parse the XML for indexing.

Analyzers used for wikinews core:

	text_title	Text_category	text_content	text_summary	tdates
WhiteSpaceTokenizerFactory	✓	✓	✓	✗	✗
TrimFilterFactory	✓	✓	✓	✗	✗
StopFilterFactory	✓	✓	✓	✗	✗
PorterStemFilterFactory	✓	✓	✗	✗	✗
LowerCaseFilterFactory	✓	✓	✓	✗	✗
RemoveDuplicatesTokenFilterFactory	✓	✓	✓	✗	✗
ShingleFilterFactory	✓	✓	✓	✗	✗
WordDelimiterFilterFactory	✗	✗	✓	✗	✗
PatternReplaceCharFilterFactory	✗	✗	✓	✗	✗

- No analyzers were applied to text_summary and tdates fields.
- Stemming was not performed on text_content because the words from the content were used by the Suggester to provide suggestions.

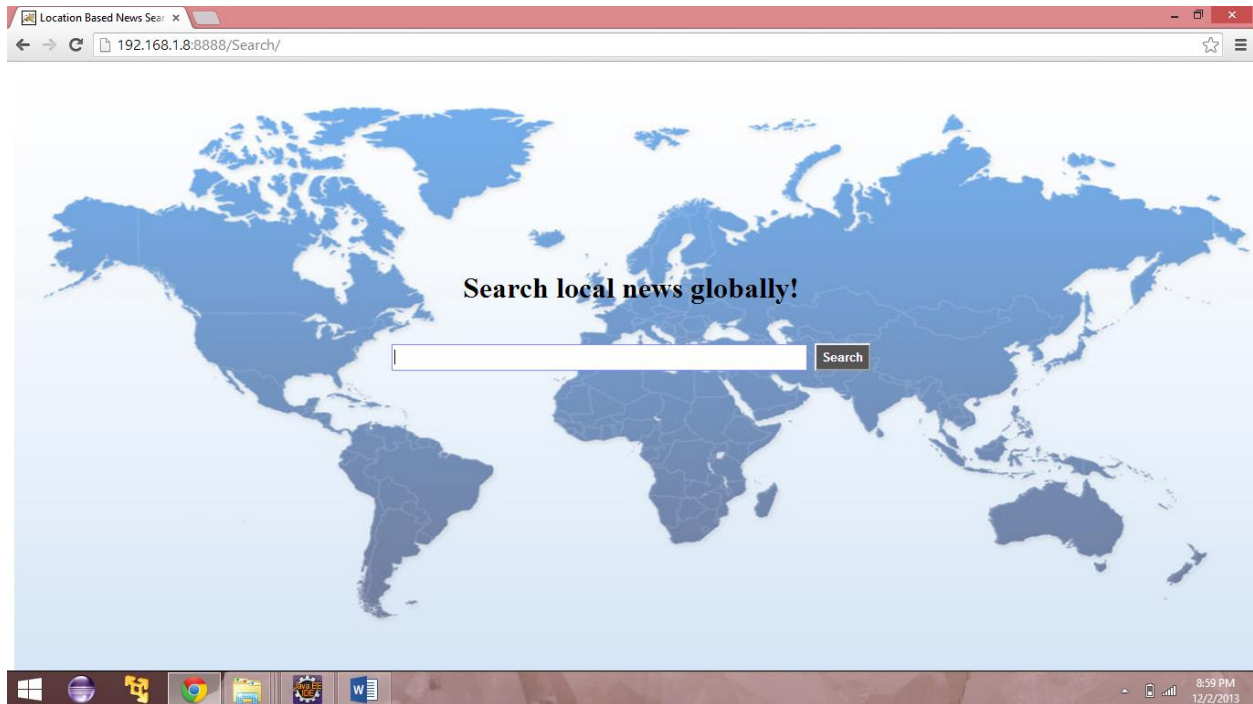
Analyzers used for location core:

	location_name	location(lat-lng)	Country
StandardTokenizerFactory	✓	✗	✗
SynonymFilterFactory	✓	✗	✗

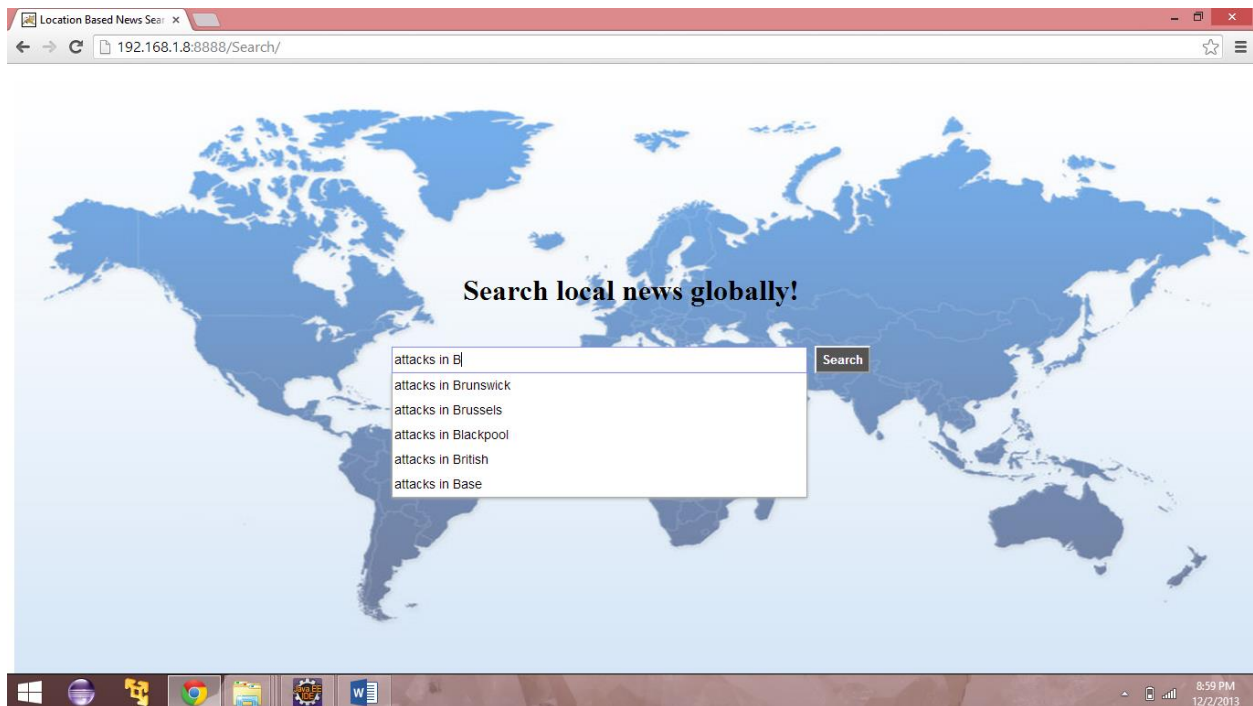
SynonymFilterFactory was used to find the locations if abbreviations of the location name was used to search. Example: if NY was used to search for New York.

User Interface Snap Shots

Main Page



Autosuggest Feature



Query: attacks in Iraq

Related Search Results

False Positive Results x

192.168.1.8:8888/Search/Location?query=attacks+in+Kashmir

Home Search

Related Search Results for attacks in Kashmir

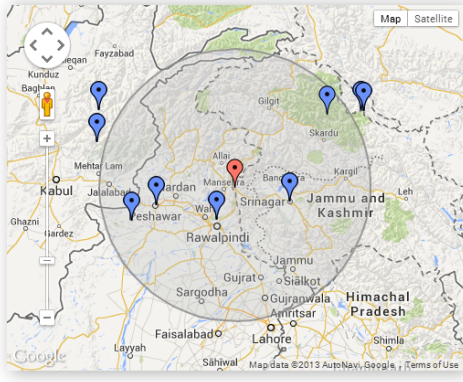
[Rail network in Kashmir comes under attack](#)
Apr 20, 2010
Nearly two feet of the rail route in Kashmir, India was blown up by militants near the Pulwama district, affecting train services from north to south Kashmir. The blast came a few days after militants fought with the Indian army in the area, thereby killing fourteen people. "There were no casualties..."

[Islamabad on red alert for possible terrorist attack](#)
Aug 13, 2013
The City of Islamabad Pakistani officials placed the capital, Islamabad, on red alert after they received information of possible terrorist attacks on headquarters. Action was taken quickly, with Air Force and Navy helicopters seen above Islamabad shortly after the officials were notified. "Current..."

[Several injured in suicide bomb blast near police lane, Islamabad](#)
Aug 12, 2009
A suicide car bomber partly demolished an Anti-Terrorist Squad (ATS) building in the Pakistani capital Islamabad. The bomb blast rocked I-11 and its neighboring sectors, injuring seventeen people. The number of dead is not certain, with numbers ranging from none to eight. "Everybody started running..."

[Marriott Hotel in Islamabad bombed](#)
Aug 12, 2009
The Marriott Hotel in Islamabad, Pakistan was bombed today killing at least 60 people and injuring 120. The explosion, believed to be a car or truck bomb and heard 30 .km (18 miles) away in Rawalpindi, occurred at 8 P.M. PDT (14:00 UTC), just hours after newly elected President Asif Ali Zardari...

[Tourist bus attacked by militants in Kashmir](#)
Apr 27, 2013
Terrorists in Kashmir threw a grenade at a tourist bus in the heart of Srinagar, killing one person and injuring 21 others. *Tourism news say that the vehicle, in which were travelling tourists from West Bengal was attacked near the*



Windows taskbar: 9:51 PM 12/2/2013

Other results from nearby Locations

False Positive Results x

192.168.1.8:8888/Search/Location?query=attacks+in+Kashmir

Other results from near by Locations

[Stones thrown by protesters in Kashmir kill civilian](#)
May 08, 2010
A middle-aged civilian has been killed in Indian-administered Kashmir after anti-India separatists threw stones at a bus in Srinagar. The victim, Shafiq Ahmad Sheikh, died in hospital after the stone struck his head, police officials stated. The stone-pelting incident occurred in the Batmaloo area b...

[One killed and nine injured in militant attack in Jammu and Kashmir](#)
Jun 03, 2013
The location of Rajouri district in Jammu and Kashmir where the attack took place. Militants attacked three Indian vehicles this morning in the of Jammu and Kashmir. A passenger bus was fired in this attack and a woman was killed and nine others were injured. R. K. Jalia, (SSP), , said that militan...

[Jammu and Kashmir](#)
Oct 21, 2010
REDIRECT Category:Jammu and Kashmir...

[Deadly flooding in Pakistan kills hundreds](#)
Aug 07, 2010
The worst flooding in 80 years in Pakistan has left at least 800 people dead, and affected over a million more. The floods were caused by heavy monsoon rains and have destroyed homes in the country, especially in the northern province of Khyber Pakhtunkhwa. The Pakistan Meteorological Department sai...

['Black box' found near crash site of Airblue flight](#)
Aug 09, 2010
Despite the nickname, black boxes are usually painted orange to aid in their recovery after a crash. The aircraft involved, photographed a month before the crash Investigators have found the black box of an Airblue flight that crashed into the Margalla Hills of Pakistan's capital city on Wednesday...

[Strong earthquake hits northern Pakistan](#)
Oct 22, 2010
Location of fault lines in the Middle East. An earthquake measuring 6.0 on the Richter scale hit Pakistan on Thursday at 23.44 local time (+18.44 UTC). The epicentre was in the Hindukush mountain range. The earthquake was mainly felt in Islamabad, Rawalpindi, Muzaffarabad, Lahore, and Faisalabad. T...

Windows taskbar: 9:52 PM 12/2/2013

Solr Stats

Stats of Location Core:

The screenshot shows the Apache Solr Admin interface for the 'locations' core. The left sidebar contains navigation links: Dashboard, Logging, Core Admin (selected), Java Properties, Thread Dump, and a Core Selector dropdown. The main content area displays the core's configuration and index status.

Core Configuration:

- startTime: about 16 hours ago
- instanceDir: C:\Users\Pratik\workspace\IRProject-2\solr_home\locations\
- dataDir: C:\Users\Pratik\workspace\IRProject-2\solr_home\locations\data\

Index Status:

- lastModified: about 16 hours ago
- version: 4
- numDocs: 987
- maxDoc: 1032
- deletedDocs: 45
- optimized: ✓
- current: ✓
- directory: org.apache.lucene.store.NRTCachingDirectory:NRTCachingDirectory(org.apache.lucene.store.MMapDirectory@C:\Users\Pratik\workspace\IRProject-2\solr_home\locations\data\index lockFactory=org.apache.lucene.store.NativeFSLockFactory@9948d69; maxCacheMB=48.0 maxMergeSizeMB=4.0)

At the top of the main area, there are buttons: Add Core, Unload, Rename, Swap, Reload, and Optimize. At the bottom, there are links to Documentation, Issue Tracker, IRC Channel, Community forum, and Solr Query Syntax.

The screenshot shows the Apache Solr Admin interface for the 'wikinews' core. The left sidebar contains navigation links: Dashboard, Logging, Core Admin (selected), Java Properties, Thread Dump, and a Core Selector dropdown set to 'wikinews'. The main content area displays the core's statistics, instance information, replication status, and admin extra files.

Statistics:

- Last Modified: about 3 hours ago
- Num Docs: 30465
- Max Doc: 30465
- Deleted Docs: 0
- Version: 41
- Segment Count: 1
- Optimized: ✓
- Current: ✓

Instance:

- CWD: C:\Users\Pratik\workspace\IRProject-2\tomcat\bin
- Instance: C:\Users\Pratik\workspace\IRProject-2\solr_home\wikinews
- Data: C:\Users\Pratik\workspace\IRProject-2\solr_home\wikinews\data
- Index: C:\Users\Pratik\workspace\IRProject-2\solr_home\wikinews\data\index
- Impl: org.apache.solr.core.NRTCachingDirectoryFactory

Replication (Master):

	Version	Gen	Size
Master (Searching)	1386011465650	8	260 MB
Master (Replicable)	1386011465650	8	-

Admin Extra:

We found no "admin-extra.html" file.

Healthcheck:

Ping request handler is not configured with a healthcheck file.

At the bottom, there are links to Documentation, Issue Tracker, IRC Channel, Community forum, and Solr Query Syntax.

Stats of wikinews core:

The screenshot shows the Solr Admin web interface in a browser. The address bar displays `localhost:8080/solr/#/~cores/wikinews`. The left sidebar contains navigation links: Dashboard, Logging, Core Admin (selected), Java Properties, Thread Dump, and a Core Selector dropdown. The main content area displays the configuration for the 'wikinews' core. At the top, there are buttons for 'Add Core', 'Unload', 'Rename', 'Swap', 'Reload', and 'Optimize'. Below these, the 'wikinews' core is selected. The configuration details are as follows:

Core	
startTime:	about 16 hours ago
instanceDir:	C:\Users\Pratik\workspace\IRProject-2\solr_home\wikinews\
dataDir:	C:\Users\Pratik\workspace\IRProject-2\solr_home\wikinews\data\

Index	
lastModified:	about 16 hours ago
version:	41
numDocs:	30465
maxDoc:	30465
deletedDocs:	-
optimized:	✓
current:	✓
directory:	org.apache.lucene.store.NRTCachingDirectory:NRTCachingDirectory(org.apache.lucene.store.MMapDirectory@C:\Users\Pratik\workspace\IRProject-2\solr_home\wikinews\data\index lockFactory=org.apache.lucene.store.NativeFSLockFactory@4f734944; maxCacheMB=48.0 maxMergeSizeMB=4.0)

At the bottom of the interface, there are links for Documentation, Issue Tracker, IRC Channel, Community forum, and Solr Query Syntax.

The screenshot shows the Solr Admin web interface in a browser. The address bar displays `localhost:8080/solr/#/locations`. The left sidebar contains navigation links: Dashboard, Logging, Core Admin, Java Properties, Thread Dump, and a dropdown menu with 'locations' selected. Below the dropdown, there are links for Overview, Analysis, Config, Dataimport, Documents, Ping, Plugins / Stats, Query, Replication, Schema, and Schema Browser. The main content area displays the configuration for the 'locations' instance. At the top, there are buttons for 'Statistics' and 'Instance'. Below these, the 'Statistics' section shows the following data:

Statistics			
Last Modified:	about 16 hours ago		
Num Docs:	987		
Max Doc:	1032		
Deleted Docs:	45		
Version:	4		
Segment Count:	1		
Optimized:	✗		
Current:	✓		

Below the statistics, there is a button labeled 'optimize now'. The 'Replication (Master)' section shows the following data:

	Version	Gen	Size
Master (Searching)	1385963467675	2	156.31 KB
Master (Replicable)	1385963467675	2	-

The 'Instance' section shows the following data:

Instance	
CWD:	C:\Users\Pratik\workspace\IRProject-2\tomcat\bin
Instance:	C:\Users\Pratik\workspace\IRProject-2\solr_home\locations
Data:	C:\Users\Pratik\workspace\IRProject-2\solr_home\locations\data
Index:	C:\Users\Pratik\workspace\IRProject-2\solr_home\locations\data\index
Impl:	org.apache.solr.core.NRTCachingDirectoryFactory

The 'Healthcheck' section shows the message: 'Ping request handler is not configured with a healthcheck file.' The 'Admin Extra' section shows the message: 'We found no "admin-extra.html" file.' At the bottom of the interface, there are links for Documentation, Issue Tracker, IRC Channel, Community forum, and Solr Query Syntax.

Data Import handler:

The screenshot shows the Apache Solr Admin UI for the 'wikinews' core. The left sidebar contains navigation links: Dashboard, Logging, Core Admin, Java Properties, Thread Dump, Overview, Analysis, Config, Dataimport, Documents, Ping, Plugins / Stats, Query, Replication, Schema, and Schema Browser. The main area displays the '/dataimport' configuration. The 'Command' is set to 'full-import'. The 'Entity' is 'page'. The 'Start, Rows' are '0' and '10'. The 'Custom Parameters' are 'key1=val1&key2=val2'. The 'Execute' button is highlighted. The right panel shows the status: 'Indexing completed. Added/Updated: 32,093 documents. Deleted 0 documents. (Duration: 12m 59s)'. The status also includes 'Requests: 0 (0/s), Fetched: 32,093 (41/s), Skipped: 0, Processed: 32,093 (41/s)' and 'Started: 13 minutes ago'. The bottom of the page features links to Documentation, Issue Tracker, IRC Channel, Community forum, and Solr Query Syntax.

Wikinews core Cache Stats:

The screenshot shows the Apache Solr Admin UI for the 'wikinews' core, specifically the 'CACHE' section. The left sidebar is the same as in the previous screenshot. The main area displays the 'CACHE' configuration. The 'documentCache' is expanded, showing its configuration: 'class: org.apache.solr.search.LRUCache', 'version: 1.0', 'description: LRU Cache(maxSize=512, initialSize=512)', and 'src: \$URL: https://svn.apache.org/repos/asf/lucene/dev/branches/lucene_solr_4_5/solr/core/src/java/org/apache/solr/search/LRUCache.java \$'. The 'stats' section shows the following values: lookups: 1910, hits: 1696, hitratio: 0.89, inserts: 214, evictions: 0, size: 209, warmupTime: 0, cumulative_lookups: 1930, cumulative_hits: 1696, cumulative_hitratio: 0.88, cumulative_inserts: 234, and cumulative_evictions: 0. The bottom of the page features links to Documentation, Issue Tracker, IRC Channel, Community forum, and Solr Query Syntax.

Solr 4.0: DirectSolrSpellCh... x Solr Admin x indexed based spellcheck... x to write a text file in java... x IR Project3 Wiki Parser - p... x

localhost:8080/solr/#/wikinews/plugins/cache?entry=documentCache

Dashboard

Logging

Core Admin

Java Properties

Thread Dump

wikinews

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CORE

HIGHLIGHTING

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QUERYHANDLER

QUERYPARSER

UPDATEHANDLER

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Refresh Values

documentCache

class: org.apache.solr.search.LRUCache

version: 1.0

description: LRU Cache(maxSize=512, initialSize=512)

src: \$URL: https://svn.apache.org/repos/asf/lucene/dev/branches/lucene_solr_4_5/solr/core/src/java/org/apache/solr/search/LRUCache.java \$

stats:	lookups:	23408
	hits:	22456
	hitratio:	0.96
	inserts:	952
	evictions:	415
	size:	512
	warmupTime:	0
	cumulative_lookups:	23408
	cumulative_hits:	22456
	cumulative_hitratio:	0.96
	cumulative_inserts:	952
	cumulative_evictions:	415

fieldCache

fieldValueCache

filterCache

queryResultCache

Documentation Issue Tracker IRC Channel Community forum Solr Query Syntax

localhost:8080/solr/#/wikinews/plugins/cache?entry=documentCache

Locations core Cache Stats:

Solr 4.0: DirectSolrSpellCh... x Solr Admin x indexed based spellcheck... x to write a text file in java... x IR Project3 Wiki Parser - p... x

localhost:8080/solr/#/locations/plugins/cache?entry=queryResultCache

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UPDATEHANDLER

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Refresh Values

documentCache

fieldCache

fieldValueCache

filterCache

queryResultCache

class: org.apache.solr.search.LRUCache

version: 1.0

description: LRU Cache(maxSize=512, initialSize=512)

src: \$URL: https://svn.apache.org/repos/asf/lucene/dev/branches/lucene_solr_4_5/solr/core/src/java/org/apache/solr/search/LRUCache.java \$

stats:	lookups:	293
	hits:	269
	hitratio:	0.92
	inserts:	24
	evictions:	0
	size:	24
	warmupTime:	0
	cumulative_lookups:	293
	cumulative_hits:	269
	cumulative_hitratio:	0.92
	cumulative_inserts:	24
	cumulative_evictions:	0

Documentation Issue Tracker IRC Channel Community forum Solr Query Syntax

localhost:8080/solr/#/locations/plugins/cache?entry=queryResultCache

The screenshot shows the Apache Solr Admin interface at `localhost:8080/solr/#/locations/plugins/cache?entry=queryResultCache.documentCache`. The left sidebar contains navigation links for Dashboard, Logging, Core Admin, Java Properties, Thread Dump, and a dropdown menu for 'locations' with options like Overview, Analysis, Config, Dataimport, Documents, Ping, and Plugins / Stats. The main content area displays the configuration for the 'documentCache' plugin.

documentCache Configuration:

- class: `org.apache.solr.search.LRUCache`
- version: 1.0
- description: LRU Cache(maxSize=512, initialSize=512)
- src: `$URL: https://svn.apache.org/repos/asf/lucene/dev/branches/lucene_solr_4_5/solr/core/src/java/org/apache/solr/search/LRUCache.java $`

documentCache Statistics:

lookups:	2100
hits:	2030
hitratio:	0.97
inserts:	70
evictions:	0
size:	70
warmupTime:	0
cumulative_lookups:	2100
cumulative_hits:	2030
cumulative_hitratio:	0.97
cumulative_inserts:	70
cumulative_evictions:	0

Below the documentCache section, other cache types are listed: fieldCache, fieldValueCache, filterCache, and queryResultCache.

Other stats:

The screenshot shows the Apache Solr Admin interface at `localhost:8080/solr/#/wikinews/plugins/queryhandler?entry=/select`. The left sidebar is similar to the previous screenshot, but the 'wikinews' dropdown is selected. The main content area displays the configuration and statistics for the '/select' query handler.

/select Configuration:

- class: `org.apache.solr.handler.component.SearchHandler`
- version: 4.5.1
- description: Search using components:
 - query
 - facet
 - mlt
 - highlight
 - stats
 - debug
- src: `$URL: https://svn.apache.org/repos/asf/lucene/dev/branches/lucene_solr_4_5/solr/core/src/java/org/apache/solr/handler/component/SearchHandler.java $`

/select Statistics:

handlerStart:	1386024407635
requests:	1930
errors:	0
timeouts:	0
totalTime:	41153.361251
avgRequestsPerSecond:	0.12695282463642732
5minRateReqsPerSecond:	0.0352076812139086
15minRateReqsPerSecond:	0.09828216085065361
avgTimePerRequest:	21.322985104145076
medianRequestTime:	1.083937
75thPcRequestTime:	1.28821075
95thPcRequestTime:	82.30221264999997
99thPcRequestTime:	840.976829870001
999thPcRequestTime:	1681.7479096530003

Below the /select section, the '/spell' handler is also listed.

Solr 4.0: DirectSolrSpellCh x Solr Admin x indexed based spellcheck x to write a text file in java x IR Project3 Wiki Parser - p x

localhost:8080/solr/#/wikinews/plugins/queryhandler?entry=/select/admin/file

- Dashboard
- Logging
- Core Admin
- Java Properties
- Thread Dump
- wikinews
 - Overview
 - Analysis
 - Config
 - Dataimport
 - Documents
 - Ping
 - Plugins / Stats
 - Query
 - Replication
 - Schema
 - Schema Browser

- CACHE
- CORE
- HIGHLIGHTING
- OTHER
- QUERYHANDLER**
 - QUERYPARSER
 - UPDATEHANDLER
 - Watch Changes
 - Refresh Values

/admin/

/admin/file

class: org.apache.solr.handler.admin.ShowFileRequestHandler

version: 4.5.1

description: Admin Get File -- view config files directly

src: \$URL: https://svn.apache.org/repos/asf/lucene/dev/branches/lucene_solr_4_5/solr/core/src/java/org/apache/solr/handler/admin/ShowFileRequestHandler.java \$

stats:

handlerStart:	1386024407765
requests:	5
errors:	0
timeouts:	0
totalTime:	4.128906
avgRequestsPerSecond:	0.0003288984908565516
5minRateReqsPerSecond:	0.006247399624691774
15minRateReqsPerSecond:	0.0021737979911792085
avgTimePerRequest:	0.8257812
medianRequestTime:	0.268419
75thPcRequestTime:	1.6807725
95thPcRequestTime:	1.734851
99thPcRequestTime:	1.734851
999thPcRequestTime:	1.734851

/admin/logging

/admin/luke

/admin/mbeans

/admin/ping

/admin/plugins

/admin/properties

Solr 4.0: DirectSolrSpellCh x Solr Admin x indexed based spellcheck x to write a text file in java x qp - pratik.kh@gmail.com x

localhost:8080/solr/#/locations/plugins/queryhandler?entry=/query/select

- Dashboard
- Logging
- Core Admin
- Java Properties
- Thread Dump
- locations
 - Overview
 - Analysis
 - Config
 - Dataimport
 - Documents
 - Ping
 - Plugins / Stats
 - Query
 - Replication
 - Schema
 - Schema Browser

- CACHE
- CORE
- HIGHLIGHTING
- OTHER
- QUERYHANDLER**
 - QUERYPARSER
 - UPDATEHANDLER
 - Watch Changes
 - Refresh Values

/select

class: org.apache.solr.handler.component.SearchHandler

version: 4.5.1

description: Search using components:

- query
- facet
- mlt
- highlight
- stats
- debug

src: \$URL: https://svn.apache.org/repos/asf/lucene/dev/branches/lucene_solr_4_5/solr/core/src/java/org/apache/solr/handler/component/SearchHandler.java \$

stats:

handlerStart:	1386024407555
requests:	301
errors:	8
timeouts:	0
totalTime:	2529.070302
avgRequestsPerSecond:	0.01928815835045444
5minRateReqsPerSecond:	0.0009360551494560859
15minRateReqsPerSecond:	0.006682078428385278
avgTimePerRequest:	8.402226916943523
medianRequestTime:	0.582231
75thPcRequestTime:	0.6819010000000001
95thPcRequestTime:	3.49650359999999836
99thPcRequestTime:	120.783899620000071
999thPcRequestTime:	1465.263312

/spell

/suggest

Future Work:

- Implement spell check.
- Expand to other online news providers like New York Times, using a web crawler.

Member Contributions

- Displaying result and building basic UI- Vivek Bhalla
- Enhancing UI by adding features like auto-suggest, maps and similar articles- Anuj Garg
- Location Extraction and Query Processing- Pratik Rajendra Kolhe
- Indexing and defining the Solr schema– Pratik Rajendra Kolhe , Taher Suterwala