

 무료 전자 책

배우기

solr

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#solr

.....	1
1: solr	2
.....	2
Examples.....	2
.....	2
SOLR	3
.....	3
.....	3
SOLR	5
.....	6
.....	7
Solr	13
2: Apache Solr	15
Examples.....	15
.....	15
Solr ().....	15
3: Lucene	16
Examples.....	16
.....	16
.....	16
.....	16
.....	16
.....	16
.....	16
.....	16
.....	17
4: SOLR DIH SOLR 2	18
.....	18
.....	18
Examples.....	18
.....	18

5: Solr	19
.....	19
Examples.....	19
?.....	19
6: fieldType	20
.....	20
Examples.....	20
Java Solr	20
.....	21
.....	22

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1: solr

solr .

solr . solr .

Examples

Solr REST API . HTTP JSON, XML, CSV (""). HTTP GET JSON, XML, CSV . Solr Lucene .

solr .

-

Lucene™ Solr , , ,

-

Solr .

- - XML, JSON HTTP

Solr .

-

Solr Solr .

-

? Solr JMX .

-

Apache Zookeeper Solr . Solr , , .

-

Solr .

-

? Solr Lucene Near Real-Time Indexing .

-

Solr . !

:

-

,
Solr .

- Solr (: PDF, Word) , , .

- .
- Solr .

- ,
- Solr (), .
-

Solr Apache Tika Adobe PDF, Microsoft Word .

SOLR

AWS Redhat Solr 6.1.0 . .

1. RedHat (Fedora) OS .

```
cat /etc/redhat-release
```

```
[ec2-user@ip-172-31-28-149 ~]$ cat /etc/redhat-release  
OS . Red Hat Enterprise Linux Server release 7.2 (Maipo)
```

2. Java 1.6 .

```
which java
```

```
[ec2-user@ip-172-31-28-149 ~]$ which Java  
/usr/bin/which: no Java in (/usr/local/bin:/usr/bin:/usr/lo  
cal/sbin:/usr/sbin:/home/ec2-user/.local/bin:/home/ec2-user  
/bin)
```

3. Java

```
sudo yum list available java*
```

```
[ec2-user@ip-172-31-28-149 ~]$ sudo yum list available java*
Loaded plugins: amazon-id, rhui-lb, search-disabled-repos
Available Packages
java-1.6.0-openjdk.x86_64                1:1.6.0.40-1.13.12.5.el7_
java-1.6.0-openjdk-devel.x86_64        1:1.6.0.40-1.13.12.5.el7_
java-1.7.0-openjdk.x86_64                1:1.7.0.111-2.6.7.2.el7_
java-1.7.0-openjdk-devel.x86_64        1:1.7.0.111-2.6.7.2.el7_
java-1.7.0-openjdk-headless.x86_64     1:1.7.0.111-2.6.7.2.el7_
java-1.8.0-openjdk.x86_64                1:1.8.0.111-1.b15.el7_2
```

```
sudo yum install java-1.8.0-openjdk.x86_64
```

4. .

```
which java      which java
java -version   Java .
```

```
[ec2-user@ip-172-31-28-149 ~]$ which java
/usr/bin/java
[ec2-user@ip-172-31-28-149 ~]$ java -version
openjdk version "1.8.0_111"
OpenJDK Runtime Environment (build 1.8.0_111-b15)
OpenJDK 64-Bit Server VM (build 25.111-b15, mixed mode)
```

5. SOLR .

```
sudo adduser solr
```

6. .

```
sudo passwd solr
```

```
[ec2-user@ip-172-31-28-149 ~]$ sudo adduser solr
[ec2-user@ip-172-31-28-149 ~]$ sudo passwd solr
Changing password for user solr.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
```

7. SOLR sudo visudo .

```
sudo visudo
```

8. .

```
## Allows people in group wheel to run all commands
# %wheel ALL=(ALL) ALL
```

9. %wheel # .

```
%wheel ALL=(ALL) ALL
```

```
## Allows people in group wheel to run all commands
%wheel ALL=(ALL) ALL
```

10. :wq :q .

11. solr .

```
sudo usermod -aG wheel solr
```

12. root solr .

```
su solr -
sudo whoami
```

```
[ec2-user@ip-172-31-28-149 ~]$ sudo usermod -aG wheel solr
[ec2-user@ip-172-31-28-149 ~]$ su solr
Password:
[solr@ip-172-31-28-149 ec2-user]$ groups
solr wheel
[solr@ip-172-31-28-149 ec2-user]$ sudo whoami

We trust you have received the usual lecture from the local
Administrator. It usually boils down to these three things:

    #1) Respect the privacy of others.
    #2) Think before you type.
    #3) With great power comes great responsibility.

[sudo] password for solr:
root
```

SOLR

13. <http://www.apache.org/dyn/closer.lua/lucene/solr/>
<http://www.apache.org/dyn/closer.lua/lucene/solr/>

14. opt .

```
cd /opt/
```

15. .

```
sudo curl -O http://www.trieuvan.com/apache/lucene/solr/6.1.0/solr-6.1.0.tgz
```

```
[solr@ip-172-31-28-149 opt]$ sudo curl -O http://www.trieuvan.com/apache/lucene/solr/6.2.0/solr-6.2.0.tgz
```

% Total Time	% Received Current	% Xferd	Average Speed	Time	Time
Left	Speed		Dload	Upload	Total Spent
0	0	0	0	0	0
3	142M	3	5343k	0	0
9	142M	9	13.5M	0	0
13	142M	13	19.3M	0	0
16	142M	16	23.4M	0	0
19	142M	19	27.4M	0	0

16.:

```
sudo tar zxvf solr-6.1.0.tgz
```

17..

```
sudo cp /opt/solr-6.1.0/bin/install_solr_service.sh .
```

18..

```
sudo rm -rf solr-6.1.0
```

1..

```
sudo ./install_solr_service.sh solr-6.1.0.tgz
```

```
Started Solr server on port 8983 (pid=9607). Happy searching!
```

```
Found 1 Solr nodes:
```

```
Solr process 9607 running on port 8983
```

```
{
```

```
  "solr_home":"/var/solr/data",
```

```
  "version":"6.2.0 764d0f19151dbff6f5fcd9fc4b2682cf934590c5 - mi  
ke - 2016-08-20 05:41:37",
```

```
  "startTime":"2016-10-20T04:02:37.028Z",
```

```
  "uptime":"0 days, 0 hours, 0 minutes, 15 seconds",
```

```
  "memory":"85.4 MB (%17.4) of 490.7 MB"}
```

```
Service solr installed.
```

2. SOLR .

```
sudo chkconfig --add solr
```

```
chkconfig | grep solr
```

```
[solr@ip-172-31-28-149 ec2-user]$ sudo chkconfig --add solr
[sudo] password for solr:
[solr@ip-172-31-28-149 ec2-user]$ chkconfig |grep solr
```

Note: This output shows SysV services only and does not include native

systemd services. SysV configuration data might be overridden by native systemd configuration.

If you want to list systemd services use 'systemctl list-unit-files'.

To see services enabled on particular target use 'systemctl list-dependencies [target]'.

```
solr          0:off  1:off  2:on   3:on   4:on   5:off
n            6:off
```

3. `sudo chown -R solr:solr /var/solr/`

1.:

```
sudo su - solr -c "/opt/solr/bin/solr create -c NewCore1 -n data_driven_schema_configs"
```

```
[solr@ip-172-31-28-149 ec2-user]$ sudo su - solr -c "/opt/solr/bin/solr create -c NewCore1 -n data_driven_schema_configs"
```

```
Copying configuration to new core instance directory:
/var/solr/data/NewCore1
```

```
Creating new core 'NewCore1' using command:
```

```
http://localhost:8983/solr/admin/cores?action=CREATE&name=NewCore1&instanceDir=NewCore1
```

```
{
  "responseHeader":{
    "status":0,
    "QTime":2856},
  "core":"NewCore1"}
```

2.:

```
http://<solr_server>:8983/solr/#/
```



Dashboard

Logging

Core Admin

Java Properties

Thread Dump

Core Selector

Instance

Start 7 minutes ago

Versions

solr-spec	6.2.0
solr-impl	6.2.0 764d0f19151dbff6f5fcd9fc4b2682cf934590c5 - mike - 2016-
lucene-spec	6.2.0
lucene-impl	6.2.0 764d0f19151dbff6f5fcd9fc4b2682cf934590c5 - mike - 2016-

JVM

Runtime	Oracle Corporation OpenJDK 64-Bit Server VM 1.8.0_111 25.111-b1
Processors	1
Args	-DSTOP.KEY=solrrocks -DSTOP.PORT=7983 -Djetty.home=/opt/solr/server -Djetty.port=8983 -Dlog4j.configuration=file:/var/solr/log4j.properties

3. NewCore1

Statistics

Last Modified: -
 Num Docs: 0
 Max Doc: 0
 Heap Memory 0
 Usage:
 Deleted Docs: 0
 Version: 2
 Segment Count: 0

Optimized: ✓
 Current: ✓

Replication (Master)

	Version	Gen	Size
Master (Searching)	0	1	71 bytes
Master (Replicable)	-	-	-

+ Admin Extra

4. `sudo service solr restart`
5. `http://<solr_server>:8983/solr/#/ http://<solr_server>:8983/solr/#/ .`
6. `sudo service solr status`
7. **Web Admin** `cd var/solr/data/`

```

[solr@ip-172-31-28-149 bin]$ pwd
/opt/solr/bin
[solr@ip-172-31-28-149 bin]$ cd ../../..
[solr@ip-172-31-28-149 /]$ pwd
/
[solr@ip-172-31-28-149 /]$ cd var/solr/data/
[solr@ip-172-31-28-149 data]$ ll
total 4
drwxrwxr-x. 4 solr solr  50 Oct 20 22:54 NewCore1
-rw-r-----. 1 solr solr 2117 Oct 20 00:02 solr.xml
[solr@ip-172-31-28-149 data]$ ll NewCore1/
total 8
drwxrwxr-x. 3 solr solr 4096 Oct 20 00:02 conf
-rw-rw-r--. 1 solr solr  78 Oct 20 22:54 core.properties
drwxrwxr-x. 5 solr solr  53 Oct 20 22:54 data

```

8. :
ll
9. conf .
ll NewCore1/
10. Web Admin .
mkdir CoreFromWebAdmin
11. conf .
sudo cp -R NewCore1/conf/ CoreFromWebAdmin
12. Web Admin .
13. .
14. CoreFromWebAdmin .

Solr Admin interface showing the 'New Core' dialog box. The dialog contains the following fields:

- name: CoreFromWebAdmin
- instanceDir: CoreFromWebAdmin
- dataDir: data
- config: solrconfig.xml
- schema: schema.xml

A message below the fields states: "instanceDir and dataDir need to exist before you can create the core".

Buttons: Add Core (green), Unload (red), Rename, Swap, Reload.

Terminal window (solr@ip-172-31-...):

```

[solr@ip-172-31-...
[solr@ip-172-31-...
total 4
drwxrwxr-x. 4 so
-rw-r-----. 1 so
[solr@ip-172-31-...
total 8
drwxrwxr-x. 3 so
-rw-rw-r--. 1 so
drwxrwxr-x. 5 so
[solr@ip-172-31-...
[solr@ip-172-31-...
eFromWebAdmin/
[sudo] password
[solr@ip-172-31-...
total 4
drwxr-xr-x. 3 ro
[solr@ip-172-31-...
[solr@ip-172-31-...
[solr@ip-172-31-...

```

Core Admin status table:

deletedDocs:	0
optimized:	✓
current:	✓
directory:	org...

- 15. .
- 16. .
- 17. XML .

```

<add><doc>
  <field name="id">F9V7464-APL-KIT</field>
  <field name="name">Belkin Mobile Power Cord for iPod w/ Dock</field>
  <field name="manu">Belkin</field>
  <!-- Join -->
  <field name="manu_id_s">belkin</field>
  <field name="cat">electronics</field>
  <field name="cat">connector</field>
  <field name="features">car power adapter, white</field>
  <field name="weight">4.0</field>
  <field name="price">19.95</field>
  <field name="popularity">1</field>
  <field name="inStock">>false</field>
  <!-- Buffalo store -->
  <field name="store">45.18014,-93.87741</field>
  <field name="manufacturedate_dt">2005-08-01T16:30:25Z</field>

```

```

</doc>

<doc>
  <field name="id">IW-032</field>
  <field name="name">iPod & iPod Mini USB 2.0 Cable</field>
  <field name="manu">Belkin</field>
  <!-- Join -->
  <field name="manu_id_s">belkin</field>
  <field name="cat">electronics</field>
  <field name="cat">connector</field>
  <field name="features">car power adapter for iPod, white</field>
  <field name="weight">2.0</field>
  <field name="price">11.50</field>
  <field name="popularity">1</field>
  <field name="inStock">>false</field>
  <!-- San Francisco store -->
  <field name="store">37.7752,-122.4232</field>
  <field name="manufacturedate_dt">2006-02-14T23:55:59Z</field>
</doc>

<doc>
  <field name="id">F887464-APL-KIT</field>
  <field name="name">Belkin Mobile Power Cord for iPod w/ Dock</field>
  <field name="manu">Belkin</field>
  <!-- Join -->
  <field name="manu_id_s">belkin</field>
  <field name="cat">electronics</field>
  <field name="cat">connector</field>
  <field name="features">car power adapter, black</field>
  <field name="weight">4.0</field>
  <field name="price">19.95</field>
  <field name="popularity">1</field>
  <field name="inStock">>true</field>
  <!-- Buffalo store -->
  <field name="store">45.18014,-93.87741</field>
</doc>

<doc>
  <field name="id">FAV7464-APL-KIT</field>
  <field name="name">Belkin Mobile Power Cord for iPod w/ Dock</field>
  <field name="manu">Belkin</field>
  <!-- Join -->
  <field name="manu_id_s">belkin</field>
  <field name="cat">electronics</field>
  <field name="cat">connector</field>
  <field name="features">car power adapter, blue</field>
  <field name="weight">4.0</field>
  <field name="price">15.95</field>
  <field name="popularity">2</field>
  <field name="inStock">>true</field>
  <!-- Buffalo store -->
  <field name="store">45.18014,-93.87741</field>
  <field name="manufacturedate_dt">2015-09-21T16:30:25Z</field>
</doc></add>

```

SOLR .



- Dashboard
- Logging
- Core Admin
- Java Properties
- Thread Dump
- NewCore1
 - Overview
 - Analysis
 - Dataimport
 - Documents
 - Files
 - Ping
 - Plugins / Stats
 - Query
 - Replication
 - Schema
 - Segments info

Request-Handler (qt)

/update

Document Type

XML

Document(s)

```
<add>
<doc>
  <field name="id">F9V7464-APL-KIT</field>
  <field name="name">Belkin Mobile Power Cord for iPod w/ Dock</field>
  <field name="manu">Belkin</field>
  <!-- Join -->
  <field name="manu_id_s">belkin</field>
  <field name="cat">electronics</field>
  <field name="cat">connector</field>
  <field name="features">car power adapter, white</field>
</doc>
</add>
```

Commit Within

1000

Overwrite

true

Submit Document

Status: success
Response:
{
 "response":
 "status":
 "queryString":
 }
}

Solr



- Dashboard
- Logging
- Core Admin
- Java Properties
- Thread Dump
- demo
- Overview
- Analysis
- Dataimport
- Documents
- Files
- Ping
- Plugins / Stats
- Query
- Replication
- Schema
- Segments info

Request-Handler (qt)

/select

— common —

q

,

fq

publisher_s="Bantam"

sort

pubyear_i desc

start, rows

0 3

fl

title_t, pubyear_i

df

Raw Query Parameters

key1=val1&key2=val2

wt

json

indent

debugQuery

dismax

```
http://localhost:8983/solr/demo/select?fl=title_t, puby
{
  "responseHeader":{
    "status":0,
    "QTime":1,
    "params":{
      "q":"*:*",
      "indent":"on",
      "fl":"title_t, pubyear_i",
      "fq":"publisher_s=\\"Bantam\\"",
      "sort":"pubyear_i desc",
      "rows":"3",
      "wt":"json",
      "_":"1498631813496"}},
  "response":{"numFound":5,"start":0,"docs":[
    {
      "pubyear_i":1999,
      "title_t":["A Clash of Kings"]},
    {
      "pubyear_i":1996,
      "title_t":["A Game of Thrones"]},
    {
      "pubyear_i":1992,
      "title_t":["Snow Crash"]}]}
}}
```

[solr](https://riptutorial.com/ko/solr/topic/1015/solr-) : <https://riptutorial.com/ko/solr/topic/1015/solr->

2: Apache Solr

Examples

JRE (Java Runtime Environment) Solr . Linux, OS X Microsoft Windows . Java Runtime Environment (JRE) 1.8 . Java .

```
$ java -version
```

Solr Solr (<http://lucene.apache.org/solr/>) . Solr .

Solr ()

Solr bin / solr Solr . Solr 8983 .

```
$ bin / solr start
```

```
Solr -p .
```

```
$ bin / solr start -p 8984
```

Solr , Unix / Linux . Solr .

```
$ bin / solr start -f
```

```
(-f) Solr Ctrl-c Solr . stop .
```

```
$ bin / solr stop -p 8983
```

```
stop Solr . -all Solr .
```

```
Solr status .
```

```
$ bin / solr
```

Apache Solr : <https://riptutorial.com/ko/solr/topic/9635/apache-solr>

3: Lucene

Examples

name:"john doe"~1

(~ 1) . , . **doe**

name:john

() (joe) .

+firstname:john +surname:doe

firstname john doe . + prefix (AND).

+firstname:john -surname:doe

firstname john doe . - prefix (NOT).

+firstname:john surname:(doe bloggs)

firstname john doe bloggs . (OR)

name:"john doe"

.

name:(john doe^5)

^ *doe john* .

name:john*

* *john* 0 john, johnson, john 's, johnny .

name:do?

? , doe, dog, dot .

age:[50 TO 60]

50 ~ 60 50 ~ 60 .

age:{50 TO 60}

50 ~ 60 50 ~ 60 .

age:[* TO 60]

60 .

age:[50 TO *]

50 .

age:{50 to 60]

. 50 60 .

```
{!join from=personid to=id fromIndex=AddressCore}address:Address1
```

:

PersonCore - id, name

AddressCore - id, address, personid

PersonCore .

Lucene : <https://riptutorial.com/ko/solr/topic/2242/lucene-->

4: SOLR DIH SOLR 2

SOLR SOLR . . .

8 CPU .

Examples

hive2 java . . .

1. hadoop-common-2.7.0-mapr-1703.jar
2. hive-common-2.1.1-mapr-1703-r1.jar
3. hive-jdbc-2.1.1-mapr-1703-r1-standalone.jar

SOLR SOLR VM solrconfig.xml .

solrconfig.xml

```
<lib dir = "/ users / path_to_folder_with_jar"regex = ". *. jar"/>
```

. :

```
<dataConfig> <dataSource name = "ABC"driver = "org.apache.hive.jdbc.HiveDriver"url = "jdbc :  
hive2 : //....connectionString"user = "username"password = "password"/>
```

```
<document name = "collection_name">
```

```
<entity name = "collection_lookup"query = "select unique_key from table_name">
```

```
</ entity>
```

```
</ document>
```

```
</ dataConfig>
```

```
/ / / zkcli.sh -zkhost host1 : 2181, host2 : 2181 -cmd upconfig -confname configName -confdir  
server / solr / configsets /
```

```
http : // host : 8983 / solr / # / collection_name / dataimport // dataimport 10 20 .
```

. CHEERS !! . . .

SOLR DIH SOLR 2 : <https://riptutorial.com/ko/solr/topic/10697/solr-dih--solr---2->

5: Solr

copyField

copyField

Examples

?

UI (1)

(2)

(3)

(4)

/



- Dashboard
- Logging
- Core Admin
- Java Properties
- Thread Dump

techproducts

- Overview
- Analysis
- Dataimport
- Documents
- Files
- Ping
- Plugins / Stats
- Query
- Replication
- Schema**
- Segments info

Add Field Add Dynamic Field Add Copy Field

cat

2

Field

cat

Copied to

text

x

Type

string

delete field

Unique Key Field

id

3

Field: cat

Field-Type: org.apache.solr.schema.StrField

Docs: 20

Flags:	Indexed	Tokenized	Stored
Properties	✓		✓
Schema	✓		✓
Index	✓	✓	✓

Index Analyzer: org.apache.solr.schema.Fie

Query Analyzer: org.apache.solr.schema.Fie

Load Term Info

Autoload

10 / 16 Top-Terms

- 12 electronics
- 4 currency
- 3 memory
- 2 search
- connector
- software
- hard drive
- graphics card
- 1 electronics and s
- electronics and c

Solr : <https://riptutorial.com/ko/solr/topic/1969/solr-->

6: fieldType

Java :

Solr Solr .

Solr :

Apache -, .

Examples

Java Solr

:

solr . :

```
<!-- Source: solr/example/.../conf/schema.xml -->
<?xml version="1.0" encoding="UTF-8" ?>
<schema name="adam" version="1.3">
  <types>
    ...
    <fieldType name="rank_t" class="org.apache.solr.schema.ext.RankFieldType"/>
  </types>
  <fields>
    ...
    <field name="rank" type="rank_t" indexed="true" stored="true"/>
  </fields>
  ...
</schema>
```

Java :

```
// Source: src/java/org/apache/solr/schema/ext/RankFieldType.java
package org.apache.solr.schema.ext;

import java.io.IOException;

import org.apache.lucene.document.Fieldable;
import org.apache.lucene.search.SortField;
import org.apache.solr.response.TextResponseWriter;
import org.apache.solr.schema.FieldType;
import org.apache.solr.schema.SchemaField;
import org.apache.solr.search.ext.RankFieldComparatorSource;

public class RankFieldType extends FieldType {

    @Override
    public SortField getSortField(SchemaField field, boolean top) {
        return new SortField(field.getName(), new RankFieldComparatorSource(), top);
    }
}
```

```

@Override
// copied verbatim from GeoHashField method
public void write(TextResponseWriter writer, String name, Fieldable f) throws IOException
{
    writer.writeStr(name, f.stringValue(), false);
}
}

```

Analzers , Tokenizers Filters . . .

```

<fieldType name="alphaOnlySort" class="solr.TextField" sortMissingLast="true"
omitNorms="true">
  <analyzer>
    <tokenizer class="solr.KeywordTokenizerFactory"/>
    <filter class="solr.LowerCaseFilterFactory"/>
    <filter class="solr.TrimFilterFactory"/>
    <filter class="solr.PatternReplaceFilterFactory" replace="all" replacement=""
pattern="([a-z])"/>
  </analyzer>
</fieldType>

```

:

```

<fieldType name="lowercase_text" class="solr.TextField" positionIncrementGap="150">
  <analyzer>
    <tokenizer class="solr.KeywordTokenizerFactory" />
    <filter class="solr.LowerCaseFilterFactory" />
  </analyzer>
</fieldType>

```

:

```

<fieldType name="text_stem" class="solr.TextField">
  <analyzer>
    <tokenizer class="solr.StandardTokenizerFactory"/>
    <filter class="solr.StandardFilterFactory"/>
    <filter class="solr.LowerCaseFilterFactory"/>
    <filter class="solr.EnglishPorterFilterFactory"/>
  </analyzer>
</fieldType>

```

Solr . . . Solr . . . Porter . . . , "hugs", "hugging" "hugged" "hug" .
 " (hug)" , . "hug" "hugged" "huge" .

:

```

<field name="keywords" type="text_stem" indexed="true" stored="true" />

```

tokenizer : tokenizer

:

fieldType : <https://riptutorial.com/ko/solr/topic/7409/--fieldtype-->

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