

Reference :

Jeremy Davis : GitHub: <https://github.com/jermdavis/SolrCloud-Helpers>

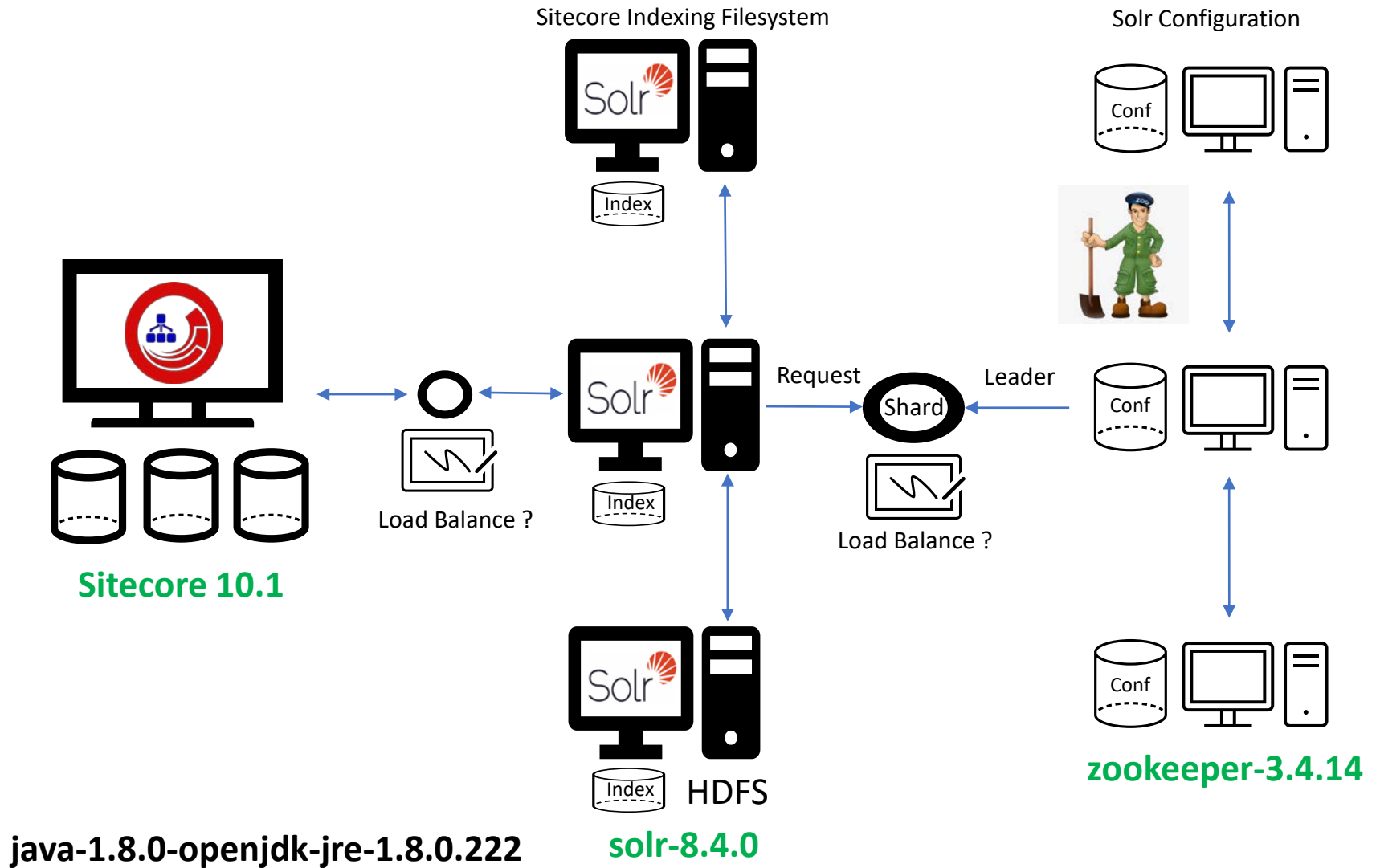
Sitecore Solr compatibility table : <https://kb.sitecore.net/articles/227897>

Solr Ref Guide 8.4 > SolrCloud : https://solr.apache.org/guide/8_4/solrcloud.html

Solr archives : <https://archive.apache.org/dist/lucene/solr/>

ZooKeeper releases : <https://archive.apache.org/dist/zookeeper/>

General Diagram





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Standalone Sitecore XM 10.1 Folder Structure

Solr 8.4.0 for Sitecore 10.1 XM on Prem

For Test

Sitecore SIA will upload Sitecore information to Solr

Name	Modified	Type	Size
configsets		File folder	
filestore		File folder	
Sitecore	10/19/2021 11:16 PM	File folder	
SitecoreCollection	10/20/2021 11:16 PM	File folder	
userfiles	8/28/2021 10:54 PM	File folder	
xm1_core_index	10/17/2021 10:14 ...	File folder	
xm1_fxm_master_index	8/29/2021 11:06 AM	File folder	
xm1_fxm_web_index	8/29/2021 11:06 AM	File folder	
xm1_marketing_asset_index_master	8/29/2021 11:06 AM	File folder	
xm1_marketing_asset_index_web	8/29/2021 11:06 AM	File folder	
xm1_marketingdefinitions_master	8/29/2021 11:06 AM	File folder	
xm1_marketingdefinitions_web	8/29/2021 11:06 AM	File folder	
xm1_master_index	8/29/2021 11:06 AM	File folder	
xm1_personalization_index	8/29/2021 11:06 AM	File folder	
xm1_suggested_test_index	8/29/2021 11:06 AM	File folder	
xm1_testing_index	8/29/2021 11:06 AM	File folder	
xm1_web_index	8/29/2021 11:06 AM	File folder	
README.txt	7/19/2021 10:54 AM	Text Document	4 KB
solr.xml	7/19/2021 10:54 AM	XML Document	3 KB
zoo.cfg	7/19/2021 10:54 AM	Configuration Sou...	2 KB

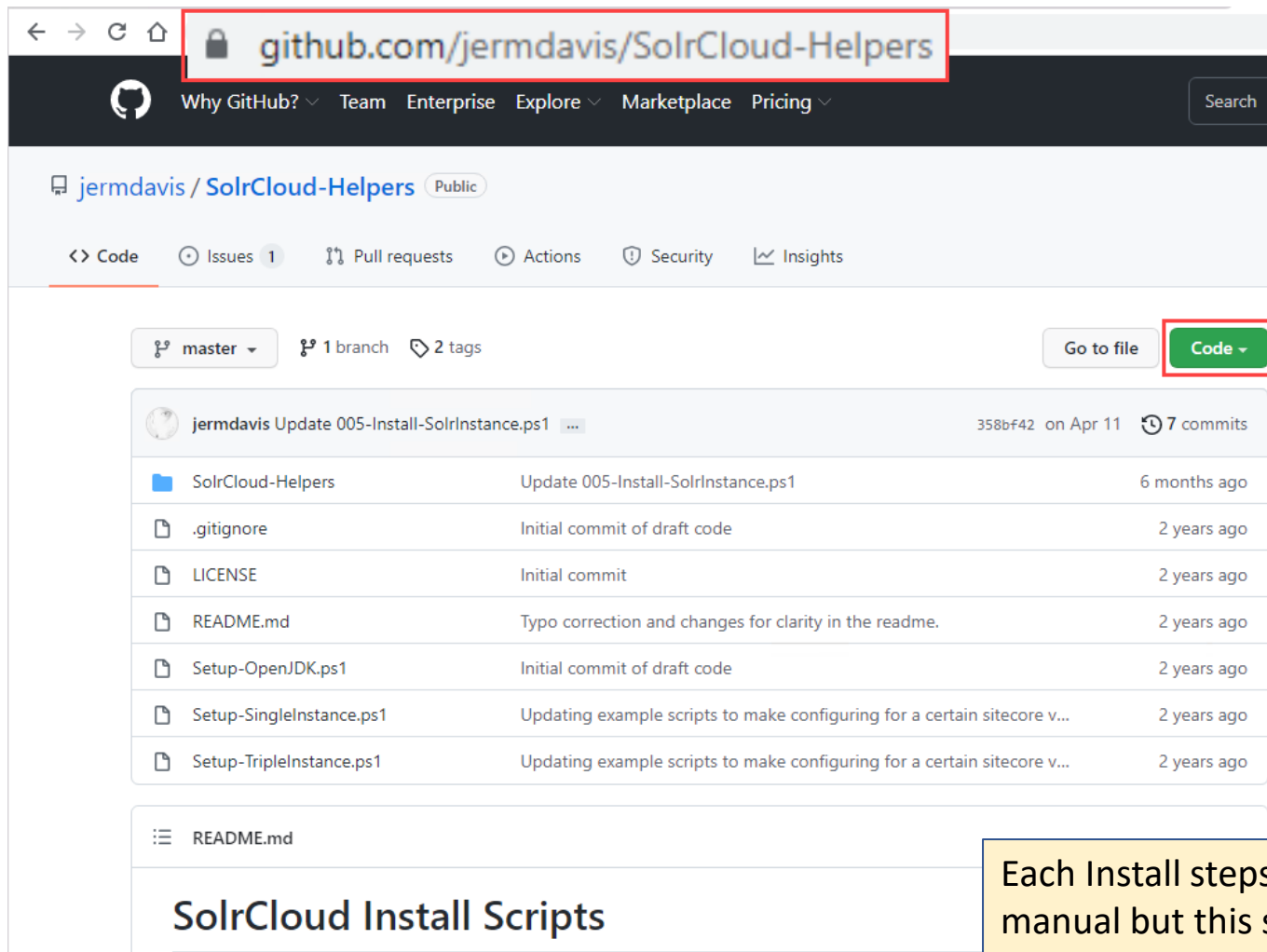
Sitecore Collection should be made to upload Sitecore information to **SolrCloud**

SolrCloud Installation Steps

1. Download all install scripts from “Jeremy Davis” Github
2. Set Server Environment Variables
 - JAVA_HOME
 - PATH
3. Download & Install Java Runtime Environment
4. Download & Install NSSM to Make Service
5. Download & Install ZooKeeper Instance
6. Creates Certification for Solr Service
7. Configure ZooKeeper
8. Configure Solr
9. Create SolrConfigSet(Sitecore Collections) from Sitecore Site
10. Upload Sitecore Collections to Solr

Download Install Scripts

Download and Unzip



github.com/jermdavis/SolrCloud-Helpers

jermdavis / SolrCloud-Helpers Public

Code Issues 1 Pull requests Actions Security Insights

master 1 branch 2 tags Go to file Code

File	Commit Message	Commit Hash	Commit Date	Commits
SolrCloud-Helpers	Update 005-Install-SolrInstance.ps1	358bf42	on Apr 11	7 commits
.gitignore	Initial commit of draft code			2 years ago
LICENSE	Initial commit			2 years ago
README.md	Typo correction and changes for clarity in the readme.			2 years ago
Setup-OpenJDK.ps1	Initial commit of draft code			2 years ago
Setup-SingleInstance.ps1	Updating example scripts to make configuring for a certain sitecore v...			2 years ago
Setup-TripleInstance.ps1	Updating example scripts to make configuring for a certain sitecore v...			2 years ago

README.md

SolrCloud Install Scripts

Each Install steps can be installed by manual but this script makes easier

Create “SolrCloud” Folder on Server

Prepare SolrCloud Folder Structure : You may download necessary software & Install

You can use any folder name but match to script

C:\SolrCloud

- “coreConfig”
 - ✓ Create this folder and Later, **You will need put Sitecore ConfigSet zip file to here**
 - ✓ I have changed the original script to understand easier and show how it works
- NSSM : Script will download & Install if file does not exist

Name	Modified	Type	Size
coreConfig	10/20/2021 1:21 PM	File folder	
NSSM	10/17/2021 7:58 PM	File folder	
SOLR1	10/20/2021 1:36 PM	File folder	
SOLR2	10/20/2021 1:37 PM	File folder	
SOLR3	10/20/2021 1:37 PM	File folder	
zk1	10/20/2021 1:35 PM	File folder	
zk2	10/20/2021 1:35 PM	File folder	
zk3	10/20/2021 1:36 PM	File folder	
nssm.zip	10/17/2021 7:58 PM	Compressed (zipp...	344 KB
solr.keystore.pfx	10/20/2021 1:44 PM	Personal Informati...	3 KB
solr.zip	12/19/2019 2:59 PM	Compressed (zipp...	183,622 KB
zk.tar.gz	4/1/2019 7:44 AM	GZ File	36,794 KB

Run script Using PowerShell

Run on VS Code

```
> Setup-TripleInstance.ps1 > ...

10 $targetFolder = "c:\SolrCloud"
11 $installService = $true
12 $collectionPrefix = "search"
13 #$collectionPrefix = "xm1"
14 #$solrPackage = "https://archive.apache.org/dist/lucene/solr/7.2.1/solr-7.2.1.zip" # For Sitecore v9.1
15 #$solrPackage = "https://archive.apache.org/dist/lucene/solr/7.5.0/solr-7.5.0.zip" # For Sitecore v9.2
16 #$solrPackage = "https://archive.apache.org/dist/lucene/solr/8.1.1/solr-8.1.1.zip" # For Sitecore V9.3
17 $solrPackage = "https://archive.apache.org/dist/lucene/solr/8.4.0/solr-8.4.0.zip" # For Sitecore v10.1
18 $zkPackage = "https://archive.apache.org/dist/zookeeper/zookeeper-3.4.14/zookeeper-3.4.14.tar.gz";
19
20
21 $zkData = @(
22     @{Host = "localhost"; Folder = "zk1"; InstanceID = 1; ClientPort = 2971; EnsemblePorts = "2981:2991" },
23     @{Host = "localhost"; Folder = "zk2"; InstanceID = 2; ClientPort = 2972; EnsemblePorts = "2982:2992" },
24     @{Host = "localhost"; Folder = "zk3"; InstanceID = 3; ClientPort = 2973; EnsemblePorts = "2983:2993" }
25 )
26
27 $solrData = @(
28     @{Host = "solr1"; Folder = "SOLR1"; ClientPort = 9991 },
29     @{Host = "solr2"; Folder = "SOLR2"; ClientPort = 9992 },
30     @{Host = "solr3"; Folder = "SOLR3"; ClientPort = 9993 }
31 )
32
```

PowerShell Integrated Console v2021.10.1

```
PS D:\SolrCloud Install> .\Setup-TripleInstance.ps1

Folder c:\SolrCloud exists
No need to download NSSM - already present...
No need to extract nssm - it already exists
Folder c:\SolrCloud exists
No need to download ZooKeeper - already present...
No need to extract ZooKeeper - it already exists
Instance id file exists.
ZooKeeper config file exists
ZooKeeper service ZooKeeper-1 already exists.
Folder c:\SolrCloud exists
No need to download ZooKeeper - already present...
No need to extract ZooKeeper - it already exists
Instance id file exists.
```

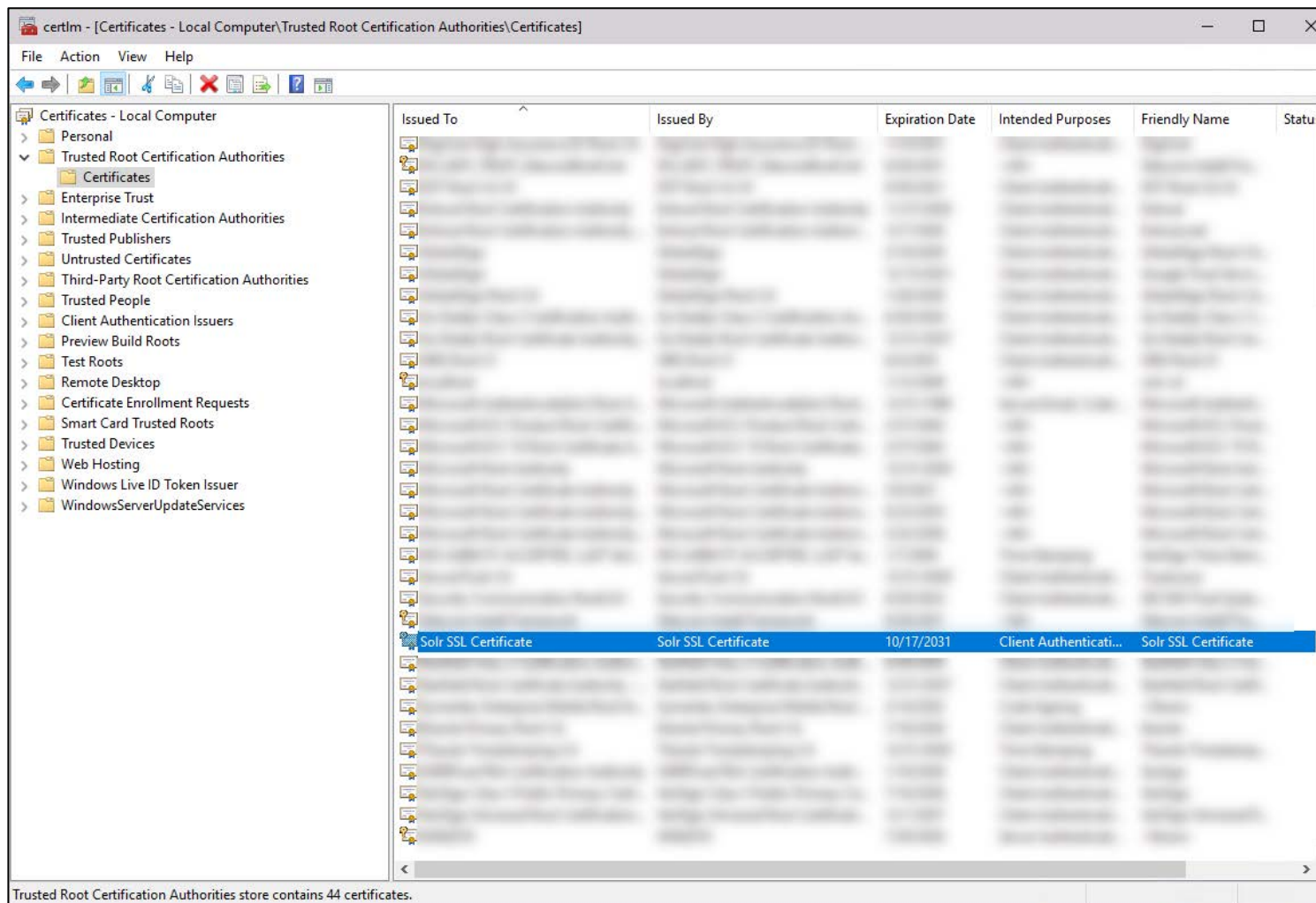
You can change port number or others

Hosts

```
28 127.0.0.1 localhost
29 127.0.0.1
30
31 127.0.0.1 xmlidentityserver.dev.local
32 127.0.0.1 xmlcm.dev.local
33 127.0.0.1 xmlcd.dev.local
34
35 127.0.0.1 solr1 solr2 solr3
```

Install Certification

Install Solr SSL Certificate using MMC



Run script Using PowerShell

1. Comment out "SolrCollection" Proccess
 - Go to Install Folder (D:\SolrCloud Install)
 - **Run ".\Setup-TripleInstance.ps1"**

SolrCloud-Helpers > Install > 007-Configure-SolrCollections.ps1 > ...

```
254
255     foreach($core in $sitecoreCores)
256     {
257         Create-SolrCollection $solrHostname $solrClientPort $core "Sitecore" -shards $shards -replicas $replicas -shardsP
258     }
259
260     $xDBCores = @(
261         "$($collectionPrefix)_xdb",
262         "$($collectionPrefix)_xdb_rebuild"
263     )
264
265     foreach($core in $xDBCores)
266     {
267         Create-SolrCollection $solrHostname $solrClientPort "$($core)_internal" "xDB" -shards $shards -replicas $replicas
268         Create-SolrCollectionAlias $solrHostname $solrClientPort "$($core)_internal" $core
269     }
270 }
271 <#
272 Export-ModuleMember -Function Configure-SolrCollection
273 #>
274
275
```

2. When installation is stopped, Check all software, folder creation and Server is running

Run script Using PowerShell

3. Manual Upload **configSets** to SolrCloud

The screenshot shows a REST client interface with a GET request to `https://solr3:9992/solr/admin/configs?action=LIST`. The response status is 200 OK, size is 31 Bytes, and time is 92 ms. The response body is a JSON array containing one object with a `"_default"` configSet.

```
GET https://solr3:9992/solr/admin/configs?action=LIST
```

Status: 200 OK Size: 31 Bytes Time: 92 ms

Response

```
{
  "configSets": [
    "_default"
  ]
}
```

GET https://solr2:9992/solr/admin/configs?action=LIST&omitHeader=true

4. Manual Upload ConfigSet "Sitecore.zip" to SolrCloud (when Authentication is Trusted)

The screenshot shows a REST client interface with a POST request to `https://solr2:9992/solr/admin/configs?action=UPLOAD&name=Sitecore`. The response status is 200 OK, size is 58 Bytes, and time is 1.14 s. The response body is a JSON object containing a `"responseHeader"` with `"status": 0` and `"QTime": 1001`.

```
POST https://solr2:9992/solr/admin/configs?action=UPLOAD&name=Sitecore
```

Status: 200 OK Size: 58 Bytes Time: 1.14 s

Response

```
{
  "responseHeader": {
    "status": 0,
    "QTime": 1001
  }
}
```

POST https://solr2:9992/solr/admin/configs?action=UPLOAD&name=Sitecore
Content-Type: application/octet-stream
Attached File : Sitecore.zip

Run script Using PowerShell

4. Manual Upload ConfigSet "Sitecore.zip" to SolrCloud (when Authentication is Trusted)

The screenshot displays a web browser interface for a REST client. The top bar shows a POST request to `https://solr2:9992/solr/admin/configs?action=UPLOAD&name=Sitecore` with a 'Send' button. Below the address bar, tabs for 'Query', 'Headers', 'Auth', 'Body', and 'Tests' are visible, with 'Body' selected. The 'Body' tab shows a 'Binary' file upload section with a 'Choose File' button and the filename 'Sitecore.zip'. To the right, the 'Response' tab is active, showing a status bar with 'Status:', 'Size:', and 'Time:' fields, and a response body area with a '{ }' icon.

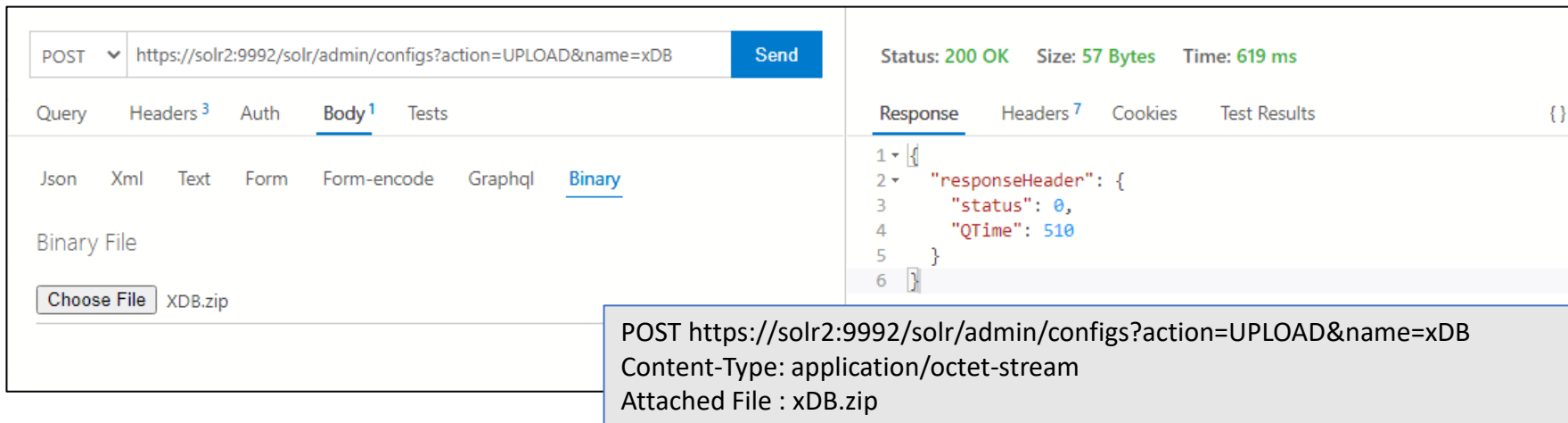
Below the browser window, a Windows File Explorer window titled 'Open' is shown. The address bar indicates the path: `This PC > Local Disk (C:) > SolrCloud > coreConfig > Sitecore.zip`. The left sidebar shows a tree view with 'Solr' expanded, containing 'SolrCloud', which in turn contains 'coreConfig'. Under 'coreConfig', 'Sitecore.zip' is selected. The main pane displays a table of files in the 'coreConfig' directory:

Name	Type	Compressed size	Password ...
managed-schema	File	11 KB	No
protwords.txt	Text Document	1 KB	No
solrconfig.xml	XML Source File	15 KB	No
stopwords.txt	Text Document	1 KB	No
synonyms.txt	Text Document	1 KB	No

POST `https://solr2:9992/solr/admin/configs?action=UPLOAD&name=Sitecore`
Content-Type: application/octet-stream
Attached File : Sitecore.zip

Run script Using PowerShell

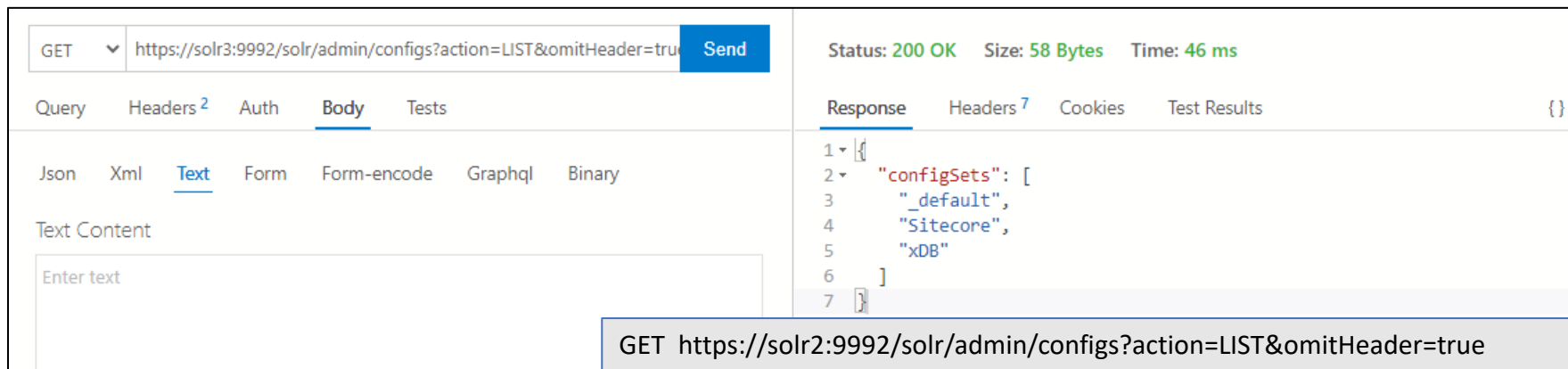
5. Manual Upload ConfigSet “xDB.zip” to SolrCloud (when Authentication is Trusted)



The screenshot shows a REST client interface with a POST request to `https://solr2:9992/solr/admin/configs?action=UPLOAD&name=xDB`. The request body is a binary file named `xDB.zip`. The response status is `200 OK` with a size of `57 Bytes` and a time of `619 ms`. The response body is a JSON object: `{ "responseHeader": { "status": 0, "QTime": 510 } }`.

POST `https://solr2:9992/solr/admin/configs?action=UPLOAD&name=xDB`
Content-Type: application/octet-stream
Attached File : xDB.zip

6. Verify configSets Content



The screenshot shows a REST client interface with a GET request to `https://solr3:9992/solr/admin/configs?action=LIST&omitHeader=true`. The response status is `200 OK` with a size of `58 Bytes` and a time of `46 ms`. The response body is a JSON array: `{ "configSets": ["_default", "Sitecore", "xDB"] }`.

GET `https://solr2:9992/solr/admin/configs?action=LIST&omitHeader=true`

Run script Using PowerShell

7. Remove Comment and Run script again

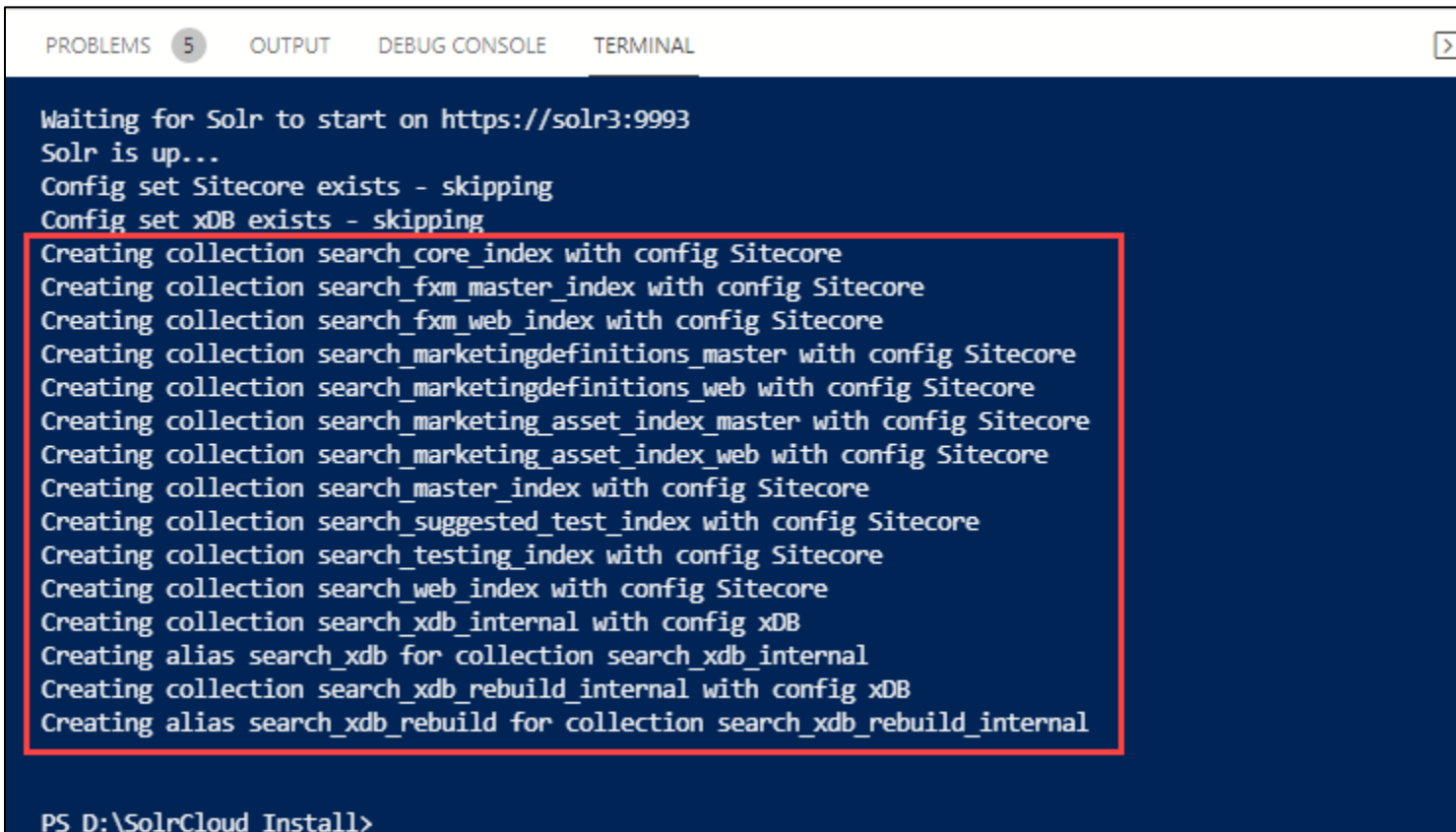
```
SolrCloud-Helpers > Install > 007-Configure-SolrCollections.ps1 > ...  
264  
265     foreach($core in $xDbCores)  
266     {  
267         Create-SolrCollection $solrHostname $solrClientPort "$($core)_internal" "xDB" -shards $shards -replica  
268         Create-SolrCollectionAlias $solrHostname $solrClientPort "$($core)_internal" $core  
269     }  
270 }  
271  
272 Export-ModuleMember -Function Configure-SolrCollection  
273
```

Configure-SolrCollection :

- Create Collection using predefined Collection Names
- Load it to one of SolrCloud node

Run script Using PowerShell

8. Sitecore Collections are Uploaded

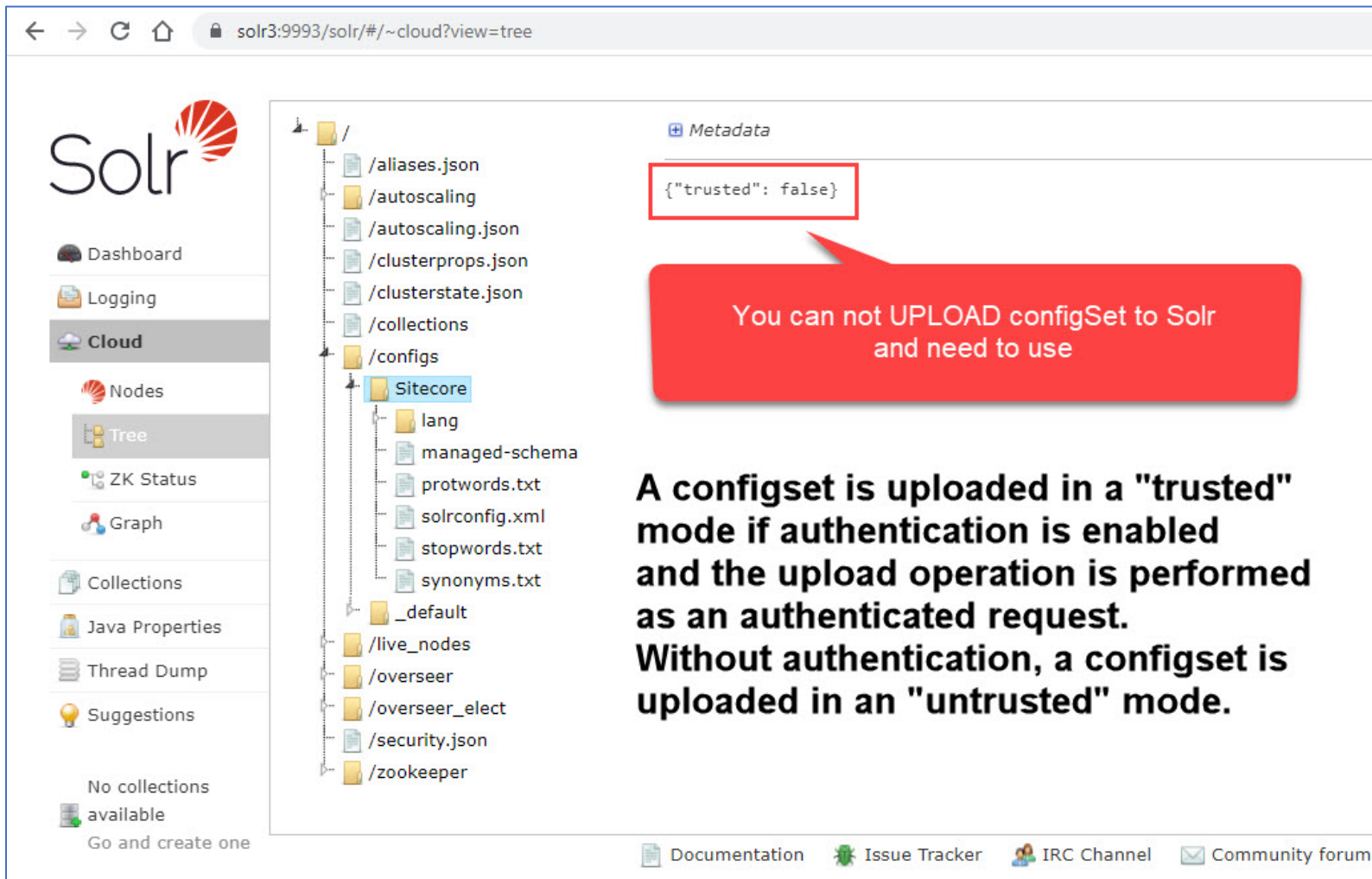


```
PROBLEMS 5 OUTPUT DEBUG CONSOLE TERMINAL
Waiting for Solr to start on https://solr3:9993
Solr is up...
Config set Sitecore exists - skipping
Config set xDB exists - skipping
Creating collection search_core_index with config Sitecore
Creating collection search_fxm_master_index with config Sitecore
Creating collection search_fxm_web_index with config Sitecore
Creating collection search_marketingdefinitions_master with config Sitecore
Creating collection search_marketingdefinitions_web with config Sitecore
Creating collection search_marketing_asset_index_master with config Sitecore
Creating collection search_marketing_asset_index_web with config Sitecore
Creating collection search_master_index with config Sitecore
Creating collection search_suggested_test_index with config Sitecore
Creating collection search_testing_index with config Sitecore
Creating collection search_web_index with config Sitecore
Creating collection search_xdb_internal with config xDB
Creating alias search_xdb for collection search_xdb_internal
Creating collection search_xdb_rebuild_internal with config xDB
Creating alias search_xdb_rebuild for collection search_xdb_rebuild_internal

PS D:\SolrCloud Install>
```


Solution 1: Run **zkCli.bat** to upload 'conf' to SolrCloud

On "Untrusted mode", You will use zkCli.bat (when 'security.json' is not used)



The screenshot shows the Solr Cloud web interface. On the left is a sidebar with navigation links: Dashboard, Logging, Cloud (selected), Nodes, Tree, ZK Status, Graph, Collections, Java Properties, Thread Dump, and Suggestions. The main area displays a file tree for the SolrCloud instance. The tree structure is as follows:

- / (Root)
 - /aliases.json
 - /autoscaling
 - /autoscaling.json
 - /clusterprops.json
 - /clusterstate.json
 - /collections
 - /configs
 - Sitecore (selected)
 - lang
 - managed-schema
 - protwords.txt
 - solrconfig.xml
 - stopwords.txt
 - synonyms.txt
 - _default
 - /live_nodes
 - /overseer
 - /overseer_elect
 - /security.json
 - /zookeeper

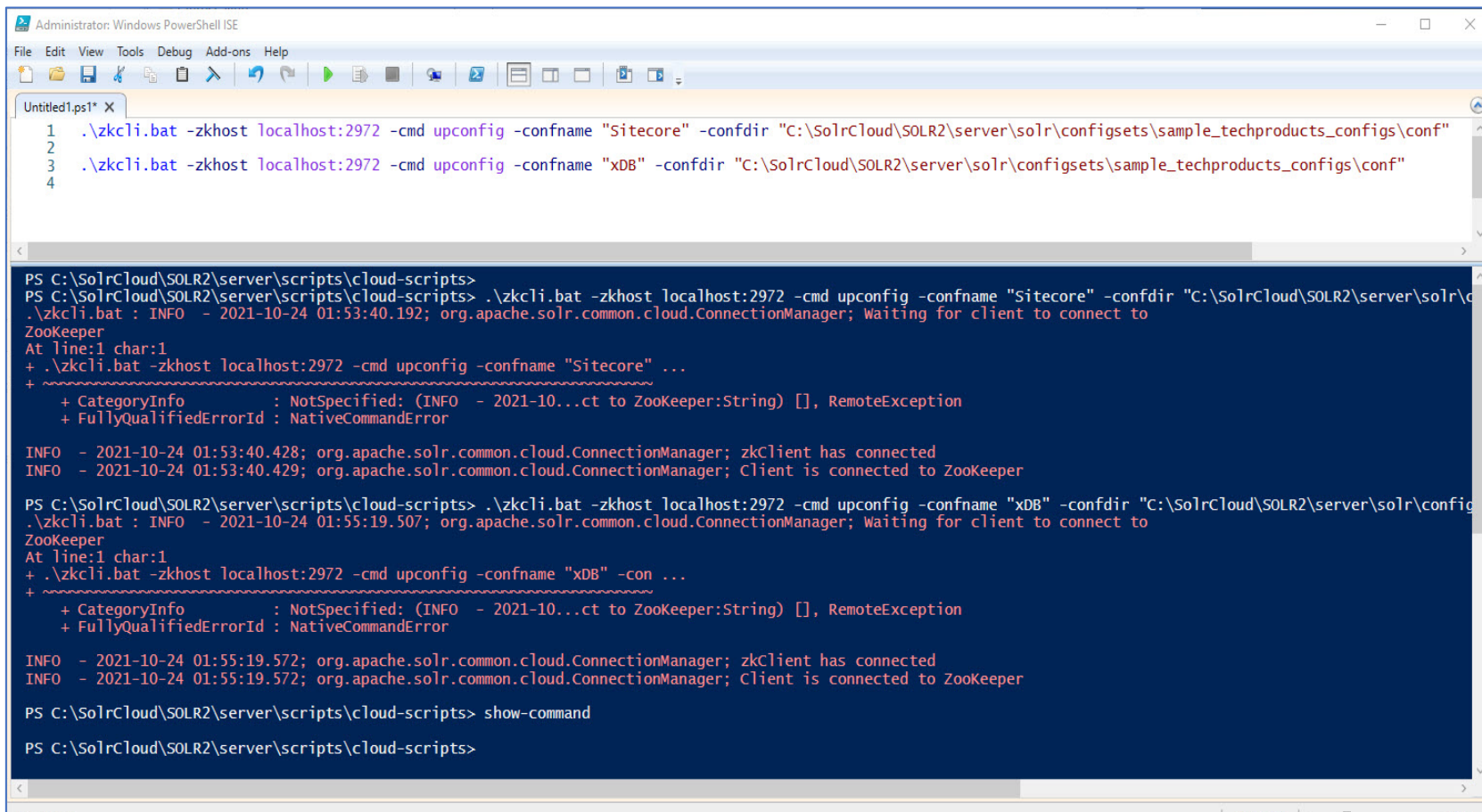
On the right, the 'Metadata' section shows a JSON snippet: `{"trusted": false}`, which is highlighted with a red box. A red callout bubble points to this snippet with the text: "You can not UPLOAD configSet to Solr and need to use".

Below the callout, a text box states: **A configset is uploaded in a "trusted" mode if authentication is enabled and the upload operation is performed as an authenticated request. Without authentication, a configset is uploaded in an "untrusted" mode.**

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

Solution 1: Run zkCli.bat to upload 'conf' to SolrCloud

On "Untrusted mode", You will use zkCli.bat



The screenshot shows a Windows PowerShell ISE window with the following content:

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
Untitled1.ps1* X
1 .\zkcli.bat -zkhost localhost:2972 -cmd upconfig -confname "Sitecore" -confdir "C:\SolrCloud\SOLR2\server\solr\configsets\sample_techproducts_configs\conf"
2
3 .\zkcli.bat -zkhost localhost:2972 -cmd upconfig -confname "xDB" -confdir "C:\SolrCloud\SOLR2\server\solr\configsets\sample_techproducts_configs\conf"
4

PS C:\SolrCloud\SOLR2\server\scripts\cloud-scripts> .\zkcli.bat -zkhost localhost:2972 -cmd upconfig -confname "Sitecore" -confdir "C:\SolrCloud\SOLR2\server\solr\configsets\sample_techproducts_configs\conf"
.\zkcli.bat : INFO - 2021-10-24 01:53:40.192; org.apache.solr.common.cloud.ConnectionManager; Waiting for client to connect to ZooKeeper
At line:1 char:1
+ .\zkcli.bat -zkhost localhost:2972 -cmd upconfig -confname "Sitecore" ...
+ ~~~~~
+ CategoryInfo          : NotSpecified: (INFO - 2021-10-24 01:53:40.192; org.apache.solr.common.cloud.ConnectionManager; Waiting for client to connect to ZooKeeper:String) [], RemoteException
+ FullyQualifiedErrorId : NativeCommandError

INFO - 2021-10-24 01:53:40.428; org.apache.solr.common.cloud.ConnectionManager; zkClient has connected
INFO - 2021-10-24 01:53:40.429; org.apache.solr.common.cloud.ConnectionManager; Client is connected to ZooKeeper

PS C:\SolrCloud\SOLR2\server\scripts\cloud-scripts> .\zkcli.bat -zkhost localhost:2972 -cmd upconfig -confname "xDB" -confdir "C:\SolrCloud\SOLR2\server\solr\configsets\sample_techproducts_configs\conf"
.\zkcli.bat : INFO - 2021-10-24 01:55:19.507; org.apache.solr.common.cloud.ConnectionManager; Waiting for client to connect to ZooKeeper
At line:1 char:1
+ .\zkcli.bat -zkhost localhost:2972 -cmd upconfig -confname "xDB" -con ...
+ ~~~~~
+ CategoryInfo          : NotSpecified: (INFO - 2021-10-24 01:55:19.507; org.apache.solr.common.cloud.ConnectionManager; Waiting for client to connect to ZooKeeper:String) [], RemoteException
+ FullyQualifiedErrorId : NativeCommandError

INFO - 2021-10-24 01:55:19.572; org.apache.solr.common.cloud.ConnectionManager; zkClient has connected
INFO - 2021-10-24 01:55:19.572; org.apache.solr.common.cloud.ConnectionManager; Client is connected to ZooKeeper

PS C:\SolrCloud\SOLR2\server\scripts\cloud-scripts> show-command

PS C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>
```

```
C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>
.\zkcli.bat -zkhost localhost:2972 -cmd upconfig -confname "Sitecore" -confdir "C:\SolrCloud\coreConfig\conf"
.\zkcli.bat -zkhost localhost:2972 -cmd upconfig -confname "xDB" -confdir "C:\SolrCloud\coreConfig\conf"
```

Solution 2: Use **Authentication** and “security.json”

1. Prepare security.json

https://solr.apache.org/guide/6_6/basic-authentication-plugin.html#basic-authentication-plugin

Security.json

```
{
  "authentication":{
    "class":"solr.BasicAuthPlugin",
    "credentials":{
      "solr":"IV0EHq10nNrj6gvRCwvFwTrZ1+z1oBbnQdiVC3otuq0= Ndd7LKvVBAAZIF0QAVi1ekCfAJXr1GGfLtRUXhgrF8c="
    }
  },
  "authorization":{
    "class":"solr.RuleBasedAuthorizationPlugin",
    "permissions":[{"name":"security-edit", "role":"admin"}],
    "user-role":{"solr":"admin"}
  }
}
```


2. Convert password to Base64

Source --> solr:SolrRocks

Result --> **c29scjpbTb2xyUm9ja3M=**

Solution 2: Use Authentication and “security.json”

Generates security.json Credentials - <https://clemente-biondo.github.io/>



← → ↻ 🏠 clemente-biondo.github.io

Online Solr password encryption tool

An utility that allows to hash and salt a solr password to be used in the security.json file for Basic Authentication. The salt is a random generated String of 16 alphanumeric characters. See [Solr Basic Authentication Plugin](#) for reference.

Solr password:

an example security.json file with the encrypted password

```
{
  "authentication":{
    "blockUnknown": true,
    "class":"solr.BasicAuthPlugin",
    "credentials":{"solr":"C5c1Ve2HGtmRMQLMKcQLZG8DbWl83bLcwh5ngdAgAiw= YTBsYzdzZXJodGRmcjFvYg=="},
    "realm":"My Solr users",
    "forwardCredentials": false
  }
}
```

[Github source repository](#)

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Solution 2: Use Authentication and “security.json”

2. Upload ‘security.json’ to SolrCloud

The screenshot displays the SolrCloud web interface in a browser window. The address bar shows the URL `solr2:9992/solr/#/~cloud?view=tree`. On the left, a sidebar contains navigation links: Dashboard, Logging, Cloud (selected), Nodes, Tree, ZK Status, Graph, Collections, Java Properties, Thread Dump, and Suggestions. The main content area shows a file tree with folders like `/aliases.json`, `/autoscaling`, `/clusterprops.json`, `/clusterstate.json`, `/collections`, `/configs`, `/live_nodes`, `/overseer`, `/overseer_elect`, `/security.json` (highlighted), and `/zookeeper`. To the right, a 'Metadata' panel displays the JSON configuration for `solr:SolrRock`, including authentication and authorization settings. Below the web interface, a Windows Command Prompt window is open, showing the execution of the `zkcli.bat` command to upload `security.json` to the ZooKeeper cluster. The command is: `C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>zkcli.bat -zkhost localhost:2972 -cmd putfile /security.json C:\SolrCloud\coreConfig\security.json`. The output shows the client successfully connecting to ZooKeeper.

```
Administrator: Command Prompt

C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>
C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>zkcli.bat -zkhost localhost:2972 -cmd putfile /security.json C:\SolrCloud\coreConfig\security.json
INFO - 2021-10-24 10:31:08.967; org.apache.solr.common.cloud.ConnectionManager; Waiting for client to connect to ZooKeeper
INFO - 2021-10-24 10:31:09.047; org.apache.solr.common.cloud.ConnectionManager; zkClient has connected
INFO - 2021-10-24 10:31:09.048; org.apache.solr.common.cloud.ConnectionManager; Client is connected to ZooKeeper

C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>
```

Solution 2: Use Authentication and “security.json”

3. Upload ‘Sitecore.zip’ with HTTP POST

The screenshot shows a Thunder Client interface for an HTTP POST request. The URL is `https://solr2:9992/solr/admin/configs?action=UPLOAD&name=Sitecore`. The request headers are: `Accept: */*`, `User-Agent: Thunder Client (https://www.thunderclient.io)`, `ContentType: application/octet-stream`, and `Authorization: Basic c29scjpbTb2xyUm9ja3M=`. The `solr:SolrRocks` text is highlighted in bold. The response status is 200 OK, with a size of 58 Bytes and a time of 2.06 s. The response body is a JSON object: `{ "responseHeader": { "status": 0, "QTime": 2038 } }`.

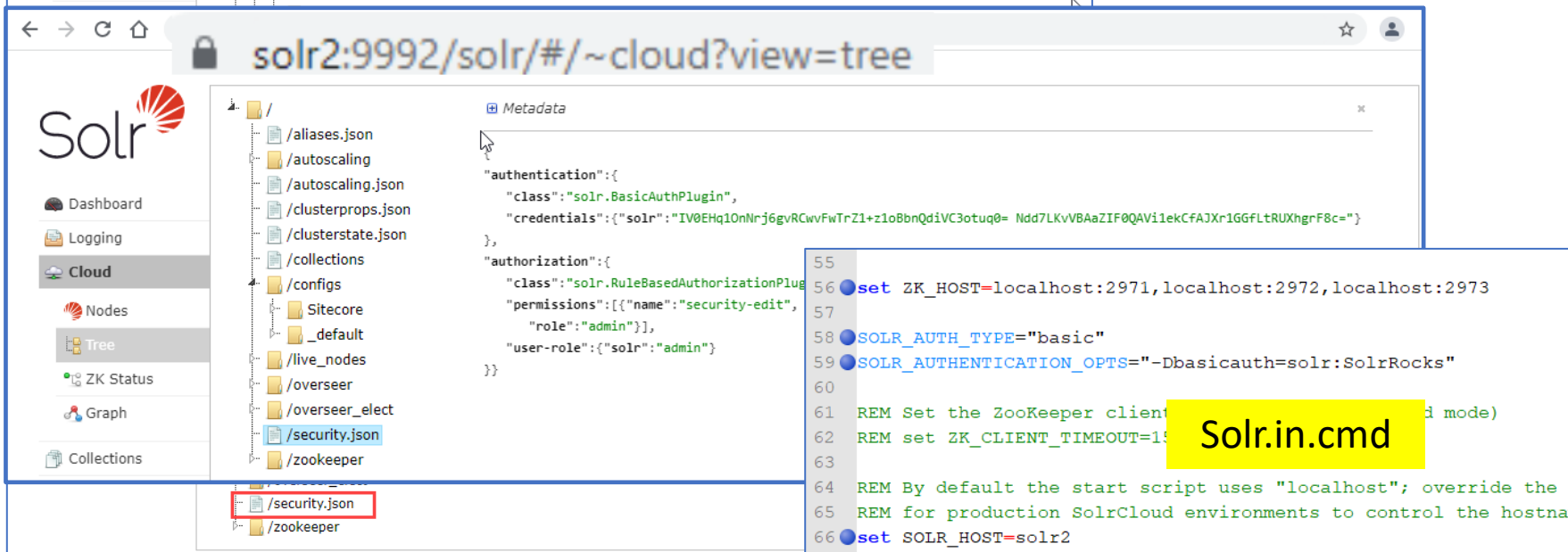
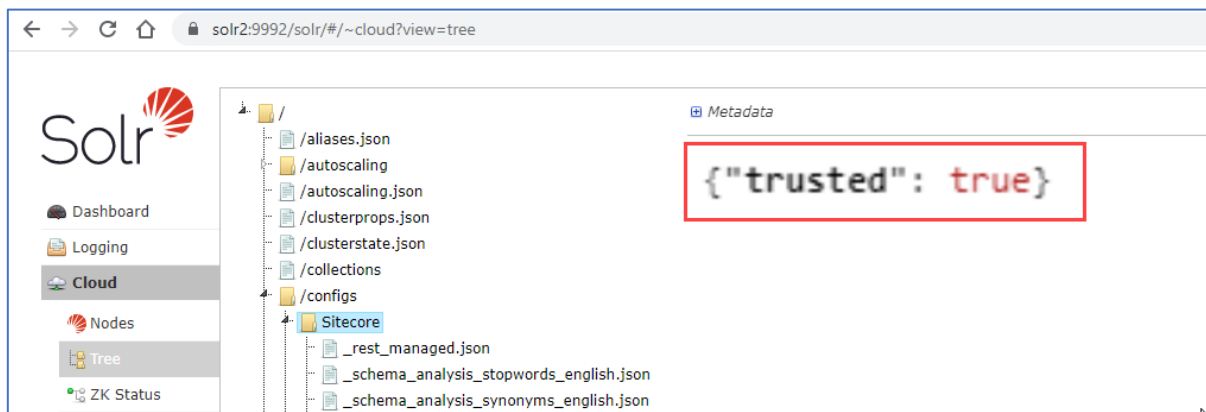
Query	Headers ⁴	Auth	Body ¹	Tests
Http Headers Accept: */* User-Agent: Thunder Client (https://www.thunderclient.io) ContentType: application/octet-stream Authorization: Basic <u>c29scjpbTb2xyUm9ja3M=</u> solr:SolrRocks				

Status: 200 OK	Size: 58 Bytes	Time: 2.06 s
Response 1 { 2 "responseHeader": { 3 "status": 0, 4 "QTime": 2038 5 } 6 }		

Convert ‘solr:SolrRocks’ to BASE64 ‘c29scjpbTb2xyUm9ja3M=’

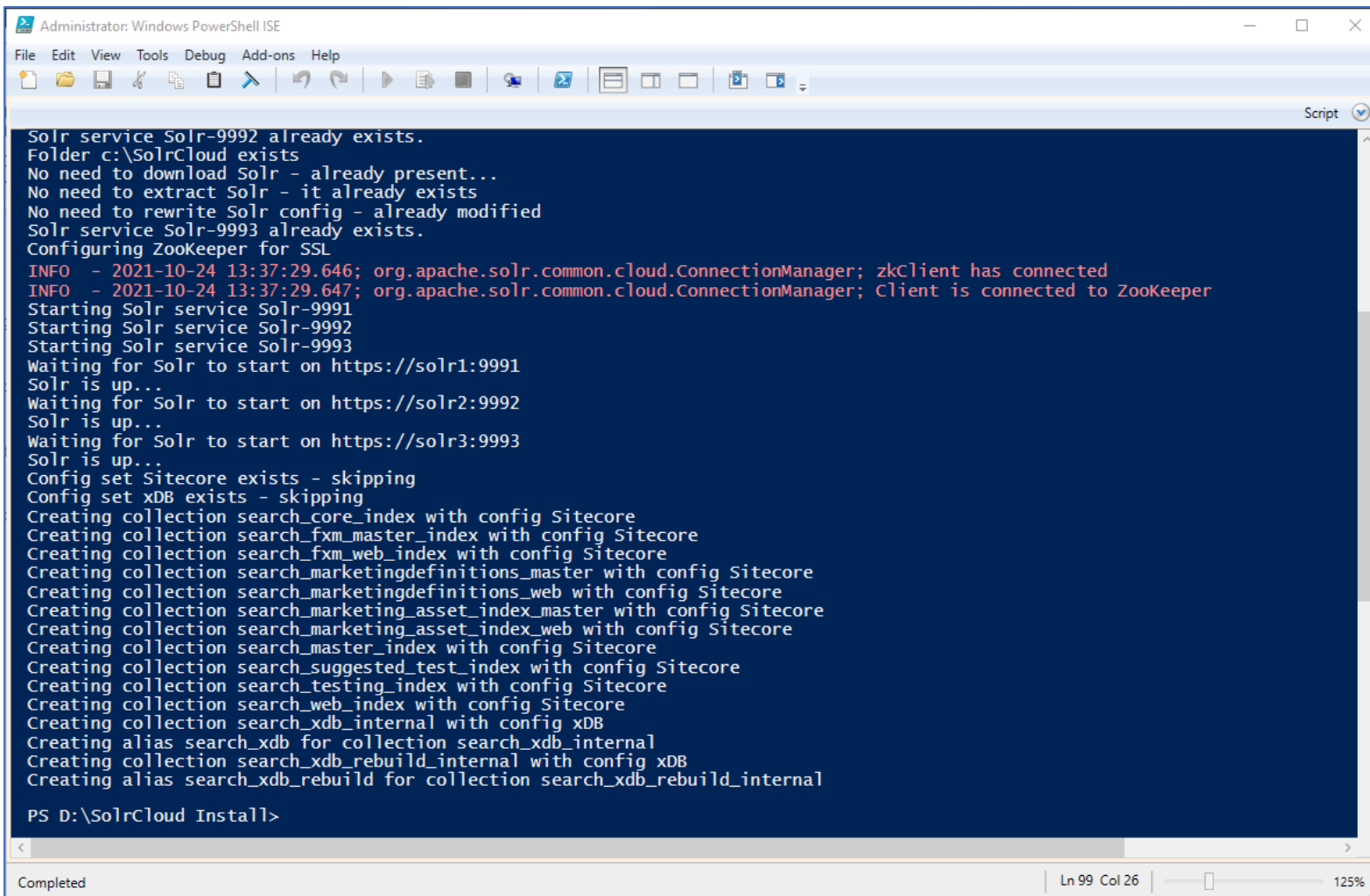
Solution 2: Use Authentication and “security.json”

3-1. Upload ‘Sitecore.zip’ with HTTP POST



Solution 2: Use Authentication and “security.json”

4. Run script to Upload Collections (**Upload with Trusted**)



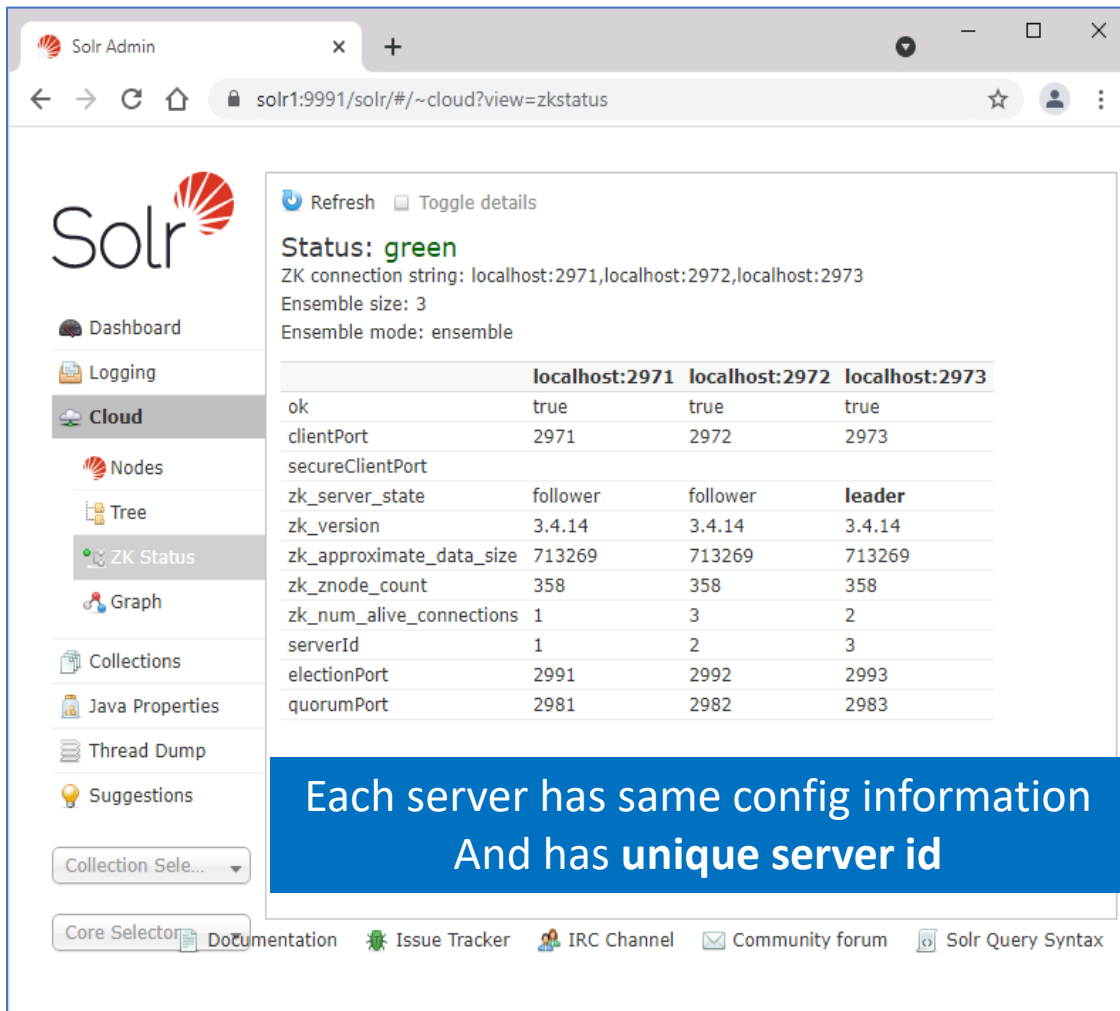
The screenshot shows a Windows PowerShell ISE window titled "Administrator: Windows PowerShell ISE". The window has a menu bar (File, Edit, View, Tools, Debug, Add-ons, Help) and a toolbar. The script output is as follows:

```
Solr service Solr-9992 already exists.  
Folder c:\SolrCloud exists  
No need to download Solr - already present...  
No need to extract Solr - it already exists  
No need to rewrite Solr config - already modified  
Solr service Solr-9993 already exists.  
Configuring ZooKeeper for SSL  
INFO - 2021-10-24 13:37:29.646; org.apache.solr.common.cloud.ConnectionManager; zkClient has connected  
INFO - 2021-10-24 13:37:29.647; org.apache.solr.common.cloud.ConnectionManager; Client is connected to ZooKeeper  
Starting Solr service Solr-9991  
Starting Solr service Solr-9992  
Starting Solr service Solr-9993  
Waiting for Solr to start on https://solr1:9991  
Solr is up...  
Waiting for Solr to start on https://solr2:9992  
Solr is up...  
Waiting for Solr to start on https://solr3:9993  
Solr is up...  
Config set Sitecore exists - skipping  
Config set xDB exists - skipping  
Creating collection search_core_index with config Sitecore  
Creating collection search_fxm_master_index with config Sitecore  
Creating collection search_fxm_web_index with config Sitecore  
Creating collection search_marketingdefinitions_master with config Sitecore  
Creating collection search_marketingdefinitions_web with config Sitecore  
Creating collection search_marketing_asset_index_master with config Sitecore  
Creating collection search_marketing_asset_index_web with config Sitecore  
Creating collection search_master_index with config Sitecore  
Creating collection search_suggested_test_index with config Sitecore  
Creating collection search_testing_index with config Sitecore  
Creating collection search_web_index with config Sitecore  
Creating collection search_xdb_internal with config xDB  
Creating alias search_xdb for collection search_xdb_internal  
Creating collection search_xdb_rebuild_internal with config xDB  
Creating alias search_xdb_rebuild for collection search_xdb_rebuild_internal  
  
PS D:\SolrCloud Install>
```

The status bar at the bottom indicates "Completed", "Ln 99 Col 26", and a zoom level of "125%".

SolrCloud Admin

ZooKeeper Status – Leader and Follower (one ensemble has one leader and multiple follower)



The screenshot shows the Solr Admin web interface. The left sidebar contains navigation links: Dashboard, Logging, Cloud (selected), Nodes, Tree, ZK Status, Graph, Collections, Java Properties, Thread Dump, and Suggestions. The main content area displays the ZooKeeper status for three servers: localhost:2971, localhost:2972, and localhost:2973. The status is green, indicating a healthy ensemble. The ZK connection string is localhost:2971,localhost:2972,localhost:2973. The ensemble size is 3, and the ensemble mode is ensemble. A table below shows the status of each server.

	localhost:2971	localhost:2972	localhost:2973
ok	true	true	true
clientPort	2971	2972	2973
secureClientPort			
zk_server_state	follower	follower	leader
zk_version	3.4.14	3.4.14	3.4.14
zk_approximate_data_size	713269	713269	713269
zk_znode_count	358	358	358
zk_num_alive_connections	1	3	2
serverId	1	2	3
electionPort	2991	2992	2993
quorumPort	2981	2982	2983

Each server has same config information
And has **unique server id**

C:\SolrCloud\zk3\conf

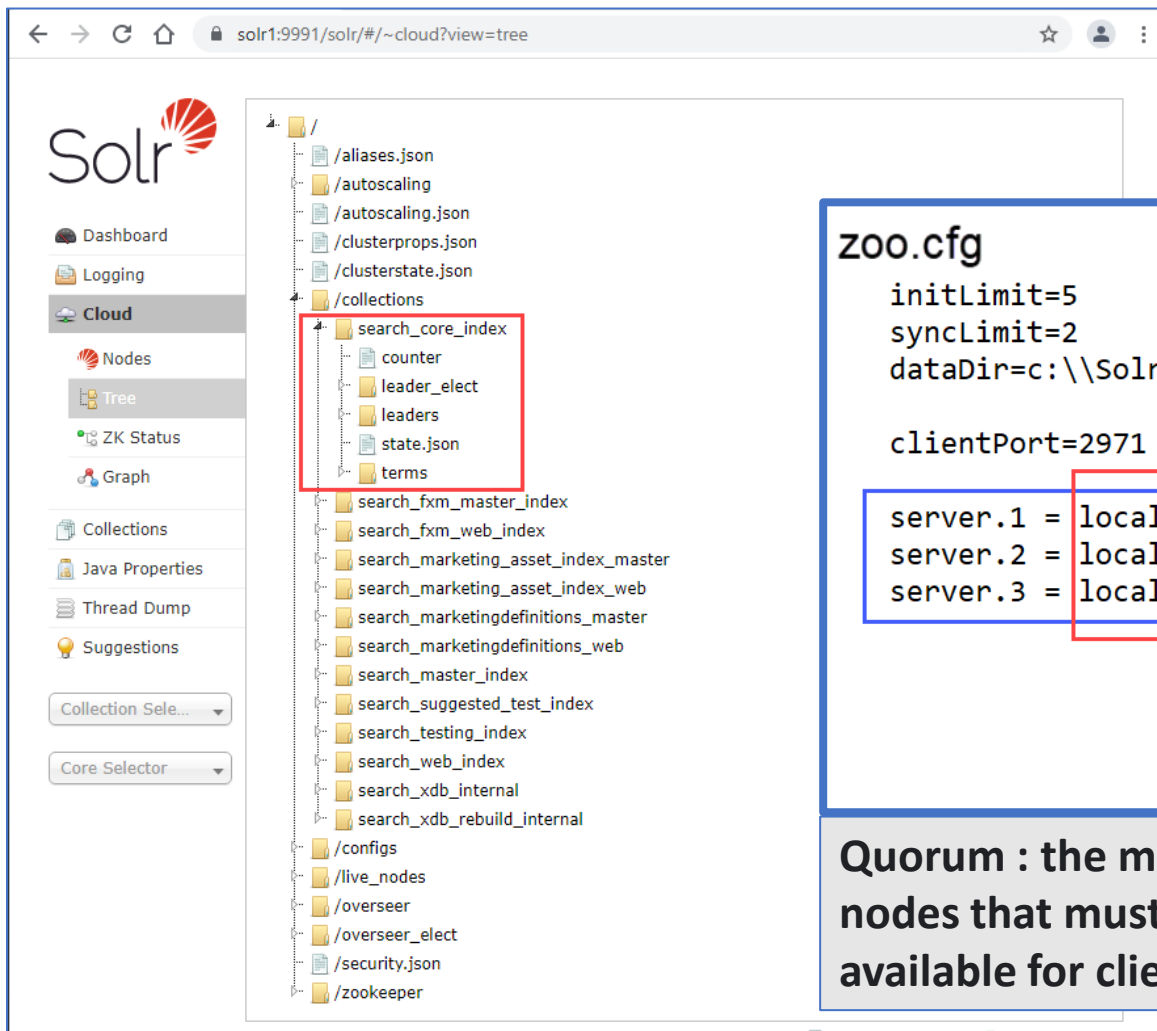
```
1 initLimit=5
2 syncLimit=2
3 dataDir=c:\\SolrCloud\\zk1\\data
4 clientPort=2971
5 server.1=localhost:2981:2991
6 server.2=localhost:2982:2992
7 server.3=localhost:2983:2993
```

```
1 initLimit=5
2 syncLimit=2
3 dataDir=c:\\SolrCloud\\zk2\\data
4 clientPort=2972
5 server.1=localhost:2981:2991
6 server.2=localhost:2982:2992
7 server.3=localhost:2983:2993
```

```
1 initLimit=5
2 syncLimit=2
3 dataDir=c:\\SolrCloud\\zk3\\data
4 clientPort=2973
5 server.1=localhost:2981:2991
6 server.2=localhost:2982:2992
7 server.3=localhost:2983:2993
```

SolrCloud Admin

Collections



zoo.cfg

```
initLimit=5  
syncLimit=2  
dataDir=c:\\SolrCloud\\zk1\\data
```

quorum
count

```
clientPort=2971
```

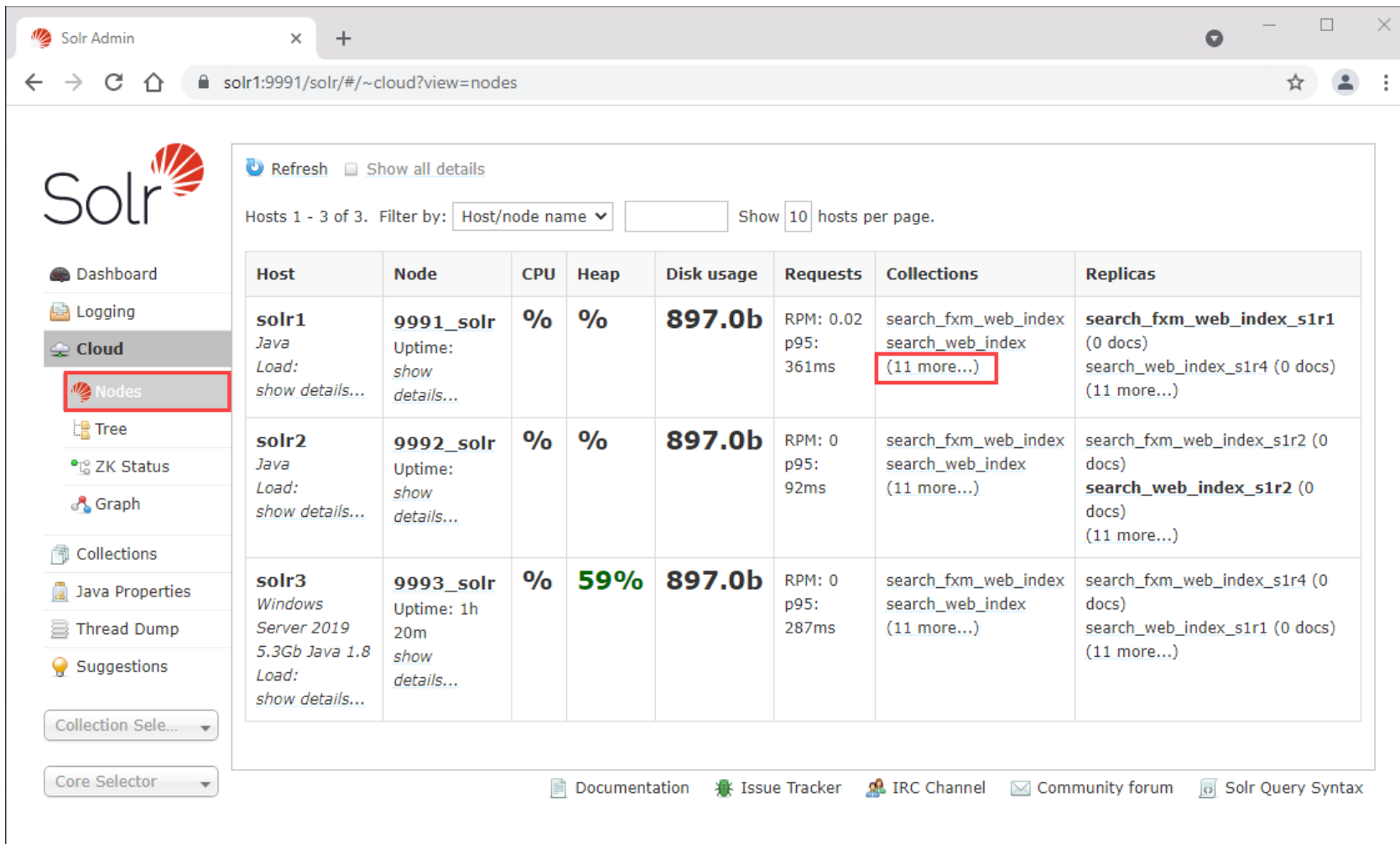
```
server.1 = localhost: 2981: 2991  
server.2 = localhost: 2982: 2992  
server.3 = localhost: 2983: 2993
```

Ensemble / Cluster
count

Quorum : the minimum number of server nodes that must be up and running and available for client requests (≥ 2)

SolrCloud Admin

SolrCloud Nodes



Solr Admin

solr1:9991/solr/#/~cloud?view=nodes

Refresh Show all details

Hosts 1 - 3 of 3. Filter by: Host/node name Show 10 hosts per page.

Host	Node	CPU	Heap	Disk usage	Requests	Collections	Replicas
solr1 Java Load: show details...	9991_solr Uptime: show details...	%	%	897.0b	RPM: 0.02 p95: 361ms	search_fxm_web_index search_web_index (11 more...)	search_fxm_web_index_s1r1 (0 docs) search_web_index_s1r4 (0 docs) (11 more...)
solr2 Java Load: show details...	9992_solr Uptime: show details...	%	%	897.0b	RPM: 0 p95: 92ms	search_fxm_web_index search_web_index (11 more...)	search_fxm_web_index_s1r2 (0 docs) search_web_index_s1r2 (0 docs) (11 more...)
solr3 Windows Server 2019 5.3Gb Java 1.8 Load: show details...	9993_solr Uptime: 1h 20m show details...	%	59%	897.0b	RPM: 0 p95: 287ms	search_fxm_web_index search_web_index (11 more...)	search_fxm_web_index_s1r4 (0 docs) search_web_index_s1r1 (0 docs) (11 more...)

Collection Sele... Core Selector

Documentation Issue Tracker IRC Channel Community forum Solr Query Syntax

SolrCloud Admin

SolrCloud and Collections Mapping Graph

Solr Admin

solr1:9991/solr/#/~cloud?view=graph

Solr

- Dashboard
- Logging
- Cloud
- Nodes
- Tree
- ZK Status
- Graph
- Collections
- Java Properties
- Thread Dump
- Suggestions

Collection Sele...
Core Selector

Graph:

- search_core_index - shard1
- search_fxm_master_index - shard1
- search_fxm_web_index - shard1
- search_marketing_asset_index - search_master

Metadata:

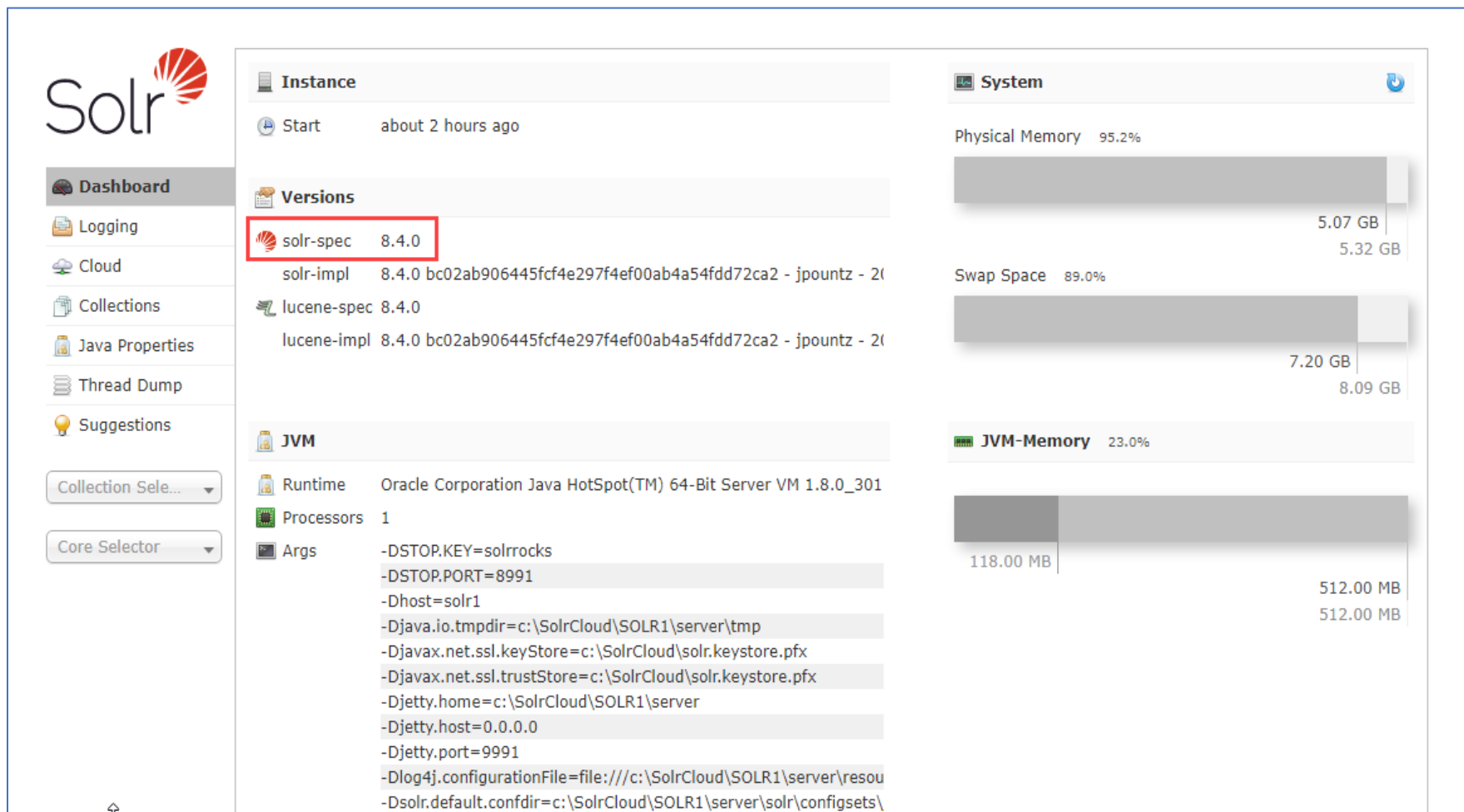
Property	Value
aversion	0
children_count	0
ctime	Thu Oct 21 03:04:06 UTC 2021 (1634785446125)
cversion	0
czxid	4294967298
dataLength	21
ephemeralOwner	0
mtime	Thu Oct 21 03:04:06 UTC 2021 (1634785446125)
mzxid	4294967298
pzxid	4294967298
version	0

File Tree:

- /
- /aliases.json
- /autoscaling
- /autoscaling.json
- /clusterprops.json
- /clusterstate.json
- /collections
 - search_core_index
 - counter
 - leader_elect
 - leaders
 - state.json
 - terms
 - search_fxm_master_index
 - search_fxm_web_index
 - search_marketing_asset_index

SolrCloud Admin

Dashboard



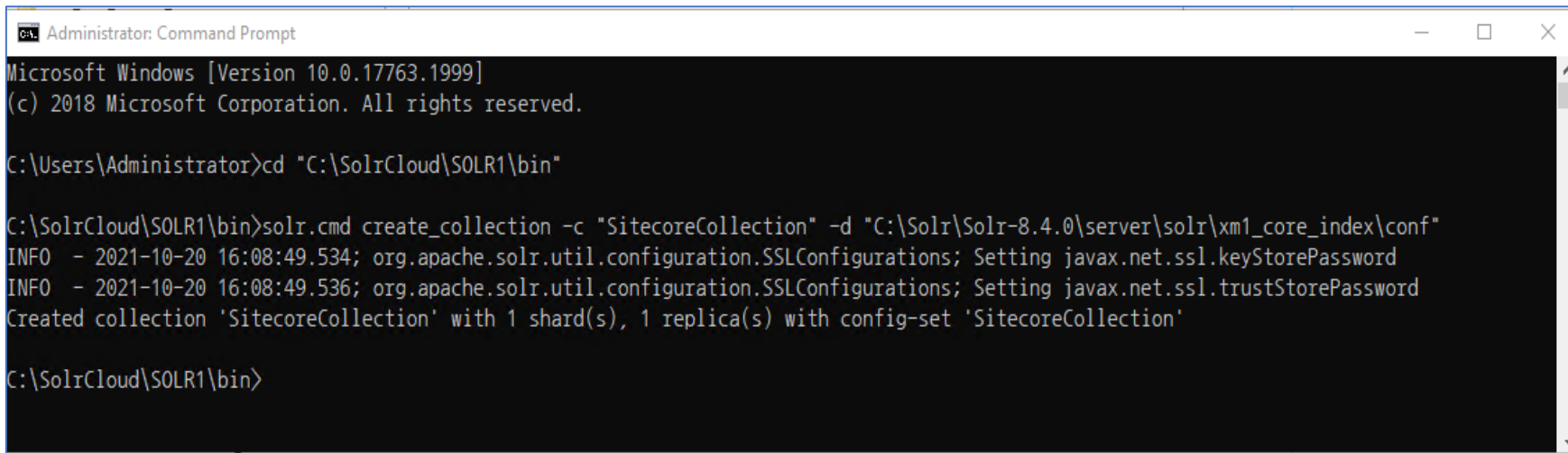
Create Sitecore Collection & Upload Automatically

SolrCloud require Sitecore Configuration file as Collection file and Upload it to ZooKeeper

http://www.mtitek.com/tutorials/solr/solr_cmd_create_collection.php#sec_id_4

```
cd "C:\SolrCloud\SOLR1\bin"
```

```
C:\SolrCloud\SOLR1\bin> solr.cmd create_collection -c "SitecoreCollection" -d "C:\Solr\Solr-8.4.0\server\solr\xm1_core_index\conf"
```

A screenshot of a Windows Command Prompt window titled "Administrator: Command Prompt". The window shows the following text:

```
Microsoft Windows [Version 10.0.17763.1999]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd "C:\SolrCloud\SOLR1\bin"

C:\SolrCloud\SOLR1\bin>solr.cmd create_collection -c "SitecoreCollection" -d "C:\Solr\Solr-8.4.0\server\solr\xm1_core_index\conf"
INFO - 2021-10-20 16:08:49.534; org.apache.solr.util.configuration.SSLConfigurations; Setting javax.net.ssl.keyStorePassword
INFO - 2021-10-20 16:08:49.536; org.apache.solr.util.configuration.SSLConfigurations; Setting javax.net.ssl.trustStorePassword
Created collection 'SitecoreCollection' with 1 shard(s), 1 replica(s) with config-set 'SitecoreCollection'

C:\SolrCloud\SOLR1\bin>
```

This will be used when you upload Collection to SolrCloud by manual

Once Collection uploaded then it will be distributes to the other servers and ZooKeeper

Create Sitecore Collection & Upload Automatically

Create a collection + uploading to ZooKeeper a custom Solr configuration (custom path)

solr1:9991/solr/#/~cloud?view=tree



Dashboard

Logging

Cloud

Nodes

Tree

ZK Status

Graph

Collections

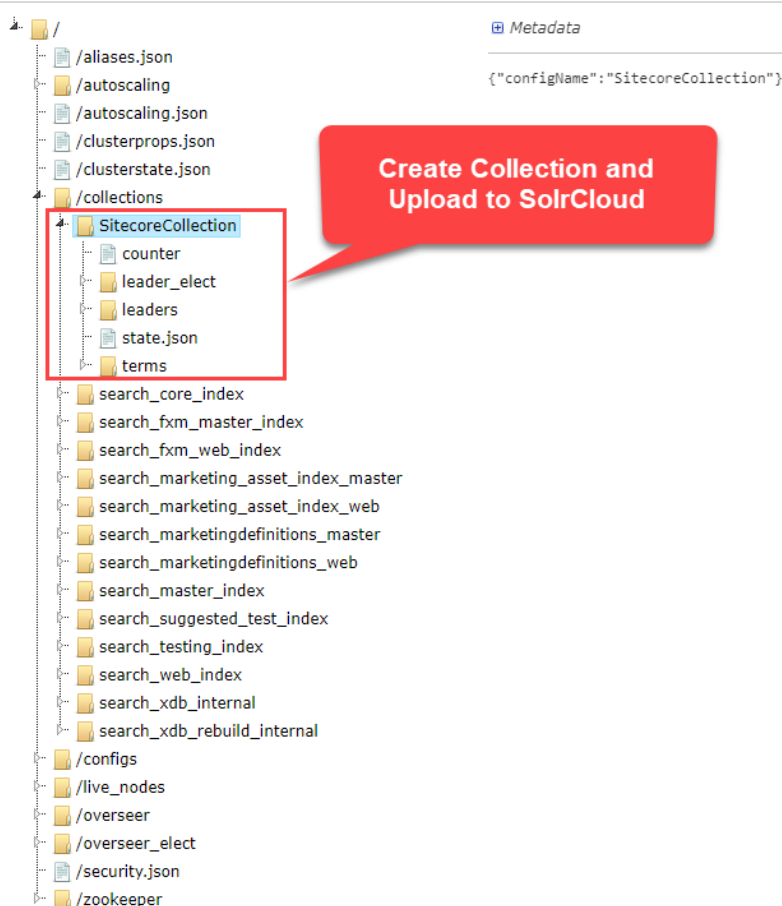
Java Properties

Thread Dump

Suggestions

Collection Sele...

Core Selector



Compare SolrCloud Admin and ZooKeeper Collections Info

Solr Admin has same information as ZooKeeper has ([Magnify to see the image contents below](#))

The screenshot shows the Solr Admin interface. In the left sidebar, the 'search_core_index' collection is selected. The main panel displays the 'Metadata' for this collection, which is highlighted with a red box. The metadata shows configuration details for the 'search_core_index' collection, including replication factor, shards, and node information.

```
{
  "search_core_index": {
    "pullReplicas": "0",
    "replicationFactor": "3",
    "shards": {
      "shard1": {
        "range": "80000000-7fffffff",
        "state": "active",
        "replicas": {
          "core_node3": {
            "core": "search_core_index_shard1_replica_n1",
            "base_url": "https://solr2:9992/solr",
            "node_name": "solr2:9992_solr",
            "state": "active",
            "type": "NRT",
            "force_set_state": "false",
            "leader": "true"
          },
          "core_node5": {
            "core": "search_core_index_shard1_replica_n2",
            "base_url": "https://solr3:9993/solr",
            "node_name": "solr3:9993_solr",
            "state": "active",
            "type": "NRT",
            "force_set_state": "false"
          },
          "core_node6": {
            "core": "search_core_index_shard1_replica_n4",
            "base_url": "https://solr1:9991/solr",
            "node_name": "solr1:9991_solr",
            "state": "active",
            "type": "NRT",
            "force_set_state": "false"
          }
        }
      }
    },
    "router": {
      "name": "compositeId",
      "maxShardsPerNode": "1",
      "autoAddReplicas": "false",
      "rttReplicas": "3",
      "ttlReplicas": "0"
    }
  }
}
```

```
PS C:\SolrCloud\SOLR\server\scripts\cloud-scripts> .\zkCli.bat -zkhost "localhost:2971" -cmd ls /collections
INFO - 2021-10-21 15:22:46.754; org.apache.solr.common.cloud.ConnectionManager; zkClient has connected to
ZooKeeper
.\zkCli.bat -zkhost "localhost:2971" -cmd ls /collections/search_core_index
INFO - 2021-10-21 15:22:46.754; org.apache.solr.common.cloud.ConnectionManager; zkClient has connected to
/collections/search_core_index (5)
DATA:
{
  "configName": "Sitecore",
  "/collections/search_core_index/leaders/shard1 (1)
/collections/search_core_index/leaders/shard1/leader (0)
DATA:
{
  "core": "search_core_index_shard1_replica_n4",
  "core_node_name": "core_node6",
  "base_url": "https://solr1:9991/solr",
  "node_name": "solr1:9991_solr",
  "state": "active",
  "type": "NRT",
  "force_set_state": "false",
  "leader": "true"
}
/collections/search_core_index/counter (0)
DATA:
/collections/search_core_index/state.json (0)
DATA:
{
  "search_core_index": {
    "pullReplicas": "0",
    "replicationFactor": "3",
    "shards": {
      "shard1": {
        "range": "80000000-7fffffff",
        "state": "active",
        "replicas": {
          "core_node3": {
            "core": "search_core_index_shard1_replica_n1",
            "base_url": "https://solr2:9992/solr",
            "node_name": "solr2:9992_solr",
            "state": "active",
            "type": "NRT",
            "force_set_state": "false",
            "leader": "true"
          },
          "core_node5": {
            "core": "search_core_index_shard1_replica_n2",
            "base_url": "https://solr3:9993/solr",
            "node_name": "solr3:9993_solr",
            "state": "active",
            "type": "NRT",
            "force_set_state": "false",
            "leader": "true"
          },
          "core_node6": {
            "core": "search_core_index_shard1_replica_n4",
            "base_url": "https://solr1:9991/solr",
            "node_name": "solr1:9991_solr",
            "state": "active",
            "type": "NRT",
            "force_set_state": "false",
            "leader": "true"
          }
        }
      }
    },
    "router": {
      "name": "compositeId",
      "maxShardsPerNode": "1",
      "autoAddReplicas": "false",
      "rttReplicas": "3",
      "ttlReplicas": "0"
    }
  }
}
/collections/search_core_index/terms (1)
/collections/search_core_index/terms/shard1 (0)
DATA:
{
  "core_node6": 0,
  "core_node5": 0
}
/collections/search_core_index/leader_elect (1)
/collections/search_core_index/leader_elect/shard1 (1)
/collections/search_core_index/leader_elect/shard1/election/144115221433810944-core_node6-n_0000000000
/collections/search_core_index/leader_elect/shard1/election/144115221433810945-core_node3-n_0000000000
/collections/search_core_index/leader_elect/shard1/election/216172926300061696-core_node5-n_0000000000
```


Compare SolrCloud Admin and Standalone Solr Admin

SolrCloud Admin

The screenshot displays the SolrCloud Admin web interface. The browser address bar shows the URL: `solr1:9991/solr/#/search_master_index/collection-overview`. The interface is divided into a left sidebar, a main content area, and a footer.

Left Sidebar: Contains the Solr logo and a list of navigation links: Dashboard, Logging, Cloud, Collections, Java Properties, Thread Dump, Suggestions, and a dropdown menu for 'search_master...'. The dropdown menu is highlighted with a red box and contains the following options: Overview (selected), Analysis, DataImport, Documents, Files, Query, Stream, and Schema. At the bottom of the sidebar is a 'Core Selector' dropdown.

Main Content Area: The title is 'Collection: search_master_index'. It displays the following configuration details:

Config name:	Sitecore
Max shards per node:	1
Replication factor:	3
Auto-add replicas:	yes
Router name:	compositeId

To the right of these details is a 'Shards' section. It shows a single shard, 'shard1', with the following information:

- Range: 80000000-7fffffff
- Active: ✔
- Replicas:
 - search_master_index_shard1_replica_n1
 - search_master_index_shard1_replica_n2
 - search_master_index_shard1_replica_n4

Footer: Contains links to Documentation, Issue Tracker, IRC Channel, Community forum, and Solr Query Syntax.

Compare Solr Admin Cloud and Standalone Solr Admin

Stand alone Solr Admin

The screenshot shows the Solr Admin interface for a standalone instance. The browser address bar indicates the URL is `localhost:8983/solr/#/xm1_master_index/core-overview`. The interface includes a sidebar with navigation links, a main content area with various panels, and a footer with links to documentation and community resources.

Solr

Dashboard
Logging
Core Admin
Java Properties
Thread Dump

Statistics

Last Modified: about an hour ago
Num Docs: 1
Max Doc: 1
Heap Memory -1
Usage:
Deleted Docs: 0
Version: 12
Segment Count: 1
Current: ✓

Instance

CWD: C:\Solr\Solr-8.4.0\server
Instance: C:\Solr\Solr-8.4.0\server\solr\xm1_master_index
Data: C:\Solr\Solr-8.4.0\server\solr\xm1_master_index\data
Index: C:\Solr\Solr-8.4.0\server\solr\xm1_master_index\data\index
Impl: org.apache.solr.core.NRTCachingDirectoryFactory

Replication (Master)

	Version	Gen	Size
Master (Searching)	1634852736652	3	16.28 KB
Master (Replicable)	1634852736652	3	-

Healthcheck

Ping request handler is not configured with a healthcheck file.

Navigation Menu (Left):

- xm1_master_i...
- Overview
- Analysis
- Dataimport
- Documents
- Files
- Ping (161ms)
- Plugins / Stats
- Query
- Replication
- Schema
- Segments info

Navigation Menu (Bottom):

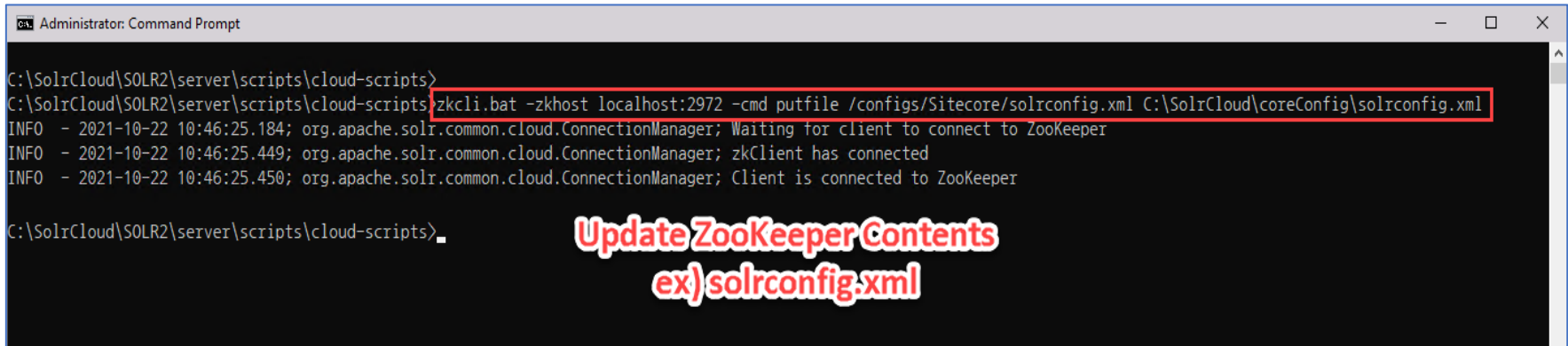
- search_master...
- Overview
- Analysis
- Dataimport
- Documents
- Files
- Query
- Stream
- Schema

SolrCloud

Documentation Issue Tracker IRC Channel Community forum Solr Query Syntax

Update ZooKeeper Content

Upload local file to ZooKeeper



```
Administrator: Command Prompt
C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>
C:\SolrCloud\SOLR2\server\scripts\cloud-scripts> zkcli.bat -zkhost localhost:2972 -cmd putfile /configs/Sitecore/solrconfig.xml C:\SolrCloud\coreConfig\solrconfig.xml
INFO - 2021-10-22 10:46:25.184; org.apache.solr.common.cloud.ConnectionManager; Waiting for client to connect to ZooKeeper
INFO - 2021-10-22 10:46:25.449; org.apache.solr.common.cloud.ConnectionManager; zkClient has connected
INFO - 2021-10-22 10:46:25.450; org.apache.solr.common.cloud.ConnectionManager; Client is connected to ZooKeeper

C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>_
```

**Update ZooKeeper Contents
ex) solrconfig.xml**

```
$zkData = @(
    @{Host = "localhost"; Folder = "zk1"; InstanceID = 1; ClientPort = 2971; EnsemblePorts = "2981:2991" },
    @{Host = "localhost"; Folder = "zk2"; InstanceID = 2; ClientPort = 2972; EnsemblePorts = "2982:2992" },
    @{Host = "localhost"; Folder = "zk3"; InstanceID = 3; ClientPort = 2973; EnsemblePorts = "2983:2993" }
)
```

```
$solrData = @(
    @{Host = "solr1"; Folder = "SOLR1"; ClientPort = 9991 },
    @{Host = "solr2"; Folder = "SOLR2"; ClientPort = 9992 },
    @{Host = "solr3"; Folder = "SOLR3"; ClientPort = 9993 }
)
```

```
C:\SolrCloud\SOLR2\server\scripts\cloud-scripts>
zkcli.bat -zkhost localhost:2972 -cmd putfile /configs/Sitecore/solrconfig.xml C:\SolrCloud\coreConfig\solrconfig.xml
```

Update ZooKeeper Content

Verify Upload Results

The screenshot shows the SolrCloud web interface. On the left is a sidebar with navigation links: Dashboard, Logging, Cloud (selected), Nodes, Tree, ZK Status, Graph, Collections, Java Properties, Thread Dump, and Suggestions. Below these are 'Collection Sele...' and 'Core Selector' dropdowns. The main area displays a file tree for 'solr2:9992/solr/#/~cloud?view=tree'. The tree structure includes: /aliases.json, /autoscaling, /clusterprops.json, /clusterstate.json, /collections, /configs (highlighted with a red box), /live_nodes, /overseer, /overseer_elect, /security.json, and /zookeeper. Inside the /configs directory, there is a 'Sitecore' subdirectory containing: lang, managed-schema, protwords.txt, solrconfig.xml (highlighted with a blue box), stopwords.txt, synonyms.txt, _default, and xDB. To the right, the 'Metadata' tab shows the XML content of solrconfig.xml. A green callout bubble points to the XML with the text: 'To add this, upload new solrconfig.xml'. The XML includes a request handler for '/update/extract' and an initParams section for the update path. A black callout bubble points to the XML with the text: 'Page 12 : Creating configSet'. Below the XML, a black box contains the following text:

4. Manual Upload ConfigSet "Sitecore.zip" to SolrCloud

--

POST https://solr2:9992/solr/admin/configs?action=UPLOAD&name=Sitecore

Content-Type: application/octet-stream

Attached File : Sitecore.zip

--

Once configSet is created, you can create Collections to the configSet

SolrCloud Indexing & Query

Add Schema Field using Admin Panel – On “Sitecore” Collection

The screenshot shows the Solr Admin Panel interface. On the left, a sidebar contains navigation links: Dashboard, Logging, Cloud, Collections, Java Properties, Thread Dump, Suggestions, Sitecore (highlighted with a red box), Overview, Analysis, Dataimport, Documents, Files, Query, Stream, and Schema (highlighted with a red box). The main content area displays the 'Add Field' dialog box for the 'Sitecore' collection. The dialog box has a title bar with 'Add Field', 'Add Dynamic Field', and 'Add Copy Field' buttons. Below the title bar is a dropdown menu labeled 'Please select ...'. The main form area contains the following fields and options:

- name:** Name (text input field)
- field type:** text_general (dropdown menu)
- default:** enter a default value if needed (text input field)
- Options:**
 - ☒ stored
 - ☒ indexed
 - ☒ uninvertible
 - ☐ docValues
 - ☐ multiValued
 - ☐ required
- Show omit options:** ☒
- Show term vector options:** ☒
- Show sort options:** ☒
- Buttons:** Add Field (green), Cancel (red)

At the bottom right of the main content area, there is a link to 'Documentation'.

This Field value will be
- **Indexed**,
- **Stored**,
- **Uninvertible**
When data is loaded

SolrCloud Indexing & Query

Add Schema Field using Admin Panel – On “Sitecore” Collection

The screenshot displays the Solr Admin interface for the 'Sitecore' collection. The left sidebar contains navigation links: Dashboard, Logging, Cloud, Collections, Java Properties, Thread Dump, Suggestions, Sitecore (selected), Overview, Analysis, Dataimport, Documents, Files, Query, Stream, and Schema.

The main content area shows the configuration for the 'id' field. A red box highlights the 'Add Field' button and the 'Field: id' configuration details. A dropdown menu is open, showing a list of fields: 'ItemPath', 'Name' (highlighted in blue), 'Templatename', '_nest_path_', '_root_', '_text_', '_version_', and 'id' (highlighted in red). The 'Name' field is selected.

The 'Field: Name' configuration details are shown below the dropdown. It includes the field type 'org.apache.solr.schema.TextField', flags 'Indexed', 'Tokenized', 'Stored', 'UnInvertible', and 'Multivalued', and properties 'Index Analyzer: org.apache.solr.analysis.TokenizerChain' and 'Query Analyzer: org.apache.solr.analysis.TokenizerChain'. The 'Global Similarity' is set to 'BM25(k1=1.2,b=0.75)'. A 'Load Term Info' button is also visible.

SolrCloud Indexing & Query

SolrCloud update “**managed-schema**” (**<!-- Solr managed schema - automatically generated - DO NOT EDIT -->**)

The screenshot shows the Solr Cloud web interface. On the left is a sidebar with navigation links: Dashboard, Logging, Cloud (selected), Nodes, Tree, ZK Status, Graph, Collections, Java Properties, and Thread Dump. The main area displays a file tree for the cluster 'solr1:9991/solr/#/~cloud?view=tree'. The tree structure includes directories like /aliases.json, /autoscaling, /clusterprops.json, /clusterstate.json, /collections, /configs, /live_nodes, and /xDB. Under /configs, there is a sub-directory 'Sitecore' which contains 'lang', 'managed-schema' (highlighted with a red box), 'protwords.txt', 'solrconfig.xml', 'stopwords.txt', 'synonyms.txt', and '_default'. To the right of the tree, the content of the 'managed-schema' file is displayed in XML format. The XML starts with a version of 1.6 and contains various field definitions and analyzers. A blue box highlights a portion of the XML at the bottom of the page.

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Solr managed schema - automatically generated - DO NOT EDIT -->
<schema name="default-config" version="1.6">
  <uniqueKey>id</uniqueKey>
  <fieldType name="_nest_path_" class="solr.NestPathField" maxCharsForDocValues="-1" omi
  <fieldType name="ancestor_path" class="solr.TextField">
    <analyzer type="index">
      <tokenizer class="solr.KeywordTokenizerFactory"/>
    </analyzer>
    <analyzer type="query">
      <tokenizer class="solr.PathHierarchyTokenizerFactory" delimiter="/" />
    </analyzer>
  </fieldType>
  <fieldType name="binary" class="solr.BinaryField"/>
  <fieldType name="boolean" class="solr.BoolField" sortMissingLast="true"/>
  <fieldType name="booleans" class="solr.BoolField" sortMissingLast="true" multiValued="
  <fieldType name="delimited_payloads_float" class="solr.TextField" indexed="true" store
    <analyzer>
      <tokenizer class="solr.WhitespaceTokenizerFactory"/>
    </analyzer>
  </fieldType>
  <field name="ItemPath" type="text_general" uninvertible="true" indexed="true" stored="true"/>
  <field name="Language" type="text_general" uninvertible="true" indexed="true" stored="true"/>
  <field name="Name" type="text_general" uninvertible="true" indexed="true" stored="true"/>
  <field name="Templatename" type="text_general"/>
  <field name="id" type="string" multiValued="false" indexed="true" required="true" stored="true"/>
  <copyField source="Templatename" dest="Templatename_str" maxChars="256"/>
</schema>
```

SolrCloud Indexing & Query

Upload data to SolrCloud Collection & Let Solr Indexing

The screenshot shows the Solr Admin interface for a Sitecore collection. The left sidebar contains navigation links: Dashboard, Logging, Cloud, Collections, Java Properties, Thread Dump, Suggestions, Sitecore (selected), Overview, Analysis, Dataimport, Documents (highlighted), Files, Query, Stream, and Schema. The main content area is titled 'solr3:9993/solr/#/Sitecore/documents'. It features a 'Request-Handler (qt)' dropdown set to '/update', a 'Document Type' dropdown set to 'CSV', and a 'Document(s)' text area containing three lines of JSON data. Below these are 'Commit Within' (1000) and 'Overwrite' (true) fields, and a 'Submit Document' button. A response box on the right shows 'Status: success' and a JSON response. At the bottom right are links for 'Documentation' and 'Issue Tracker'.

← → ↻ 🏠 solr3:9993/solr/#/Sitecore/documents

Solr

- Dashboard
- Logging
- Cloud
- Collections
- Java Properties
- Thread Dump
- Suggestions
- Sitecore
- Overview
- Analysis
- Dataimport
- Documents
- Files
- Query
- Stream
- Schema

Request-Handler (qt)
/update

Document Type
CSV

Document(s)
"Name","id","Language","Templatename","ItemPath"
"Global Datasources","1","en","Folder","/sitecore/content/Global Datasources"
"Hero Image","2","en","Hero Image","/sitecore/content/Global Datasources/Hero Image"
"Home","3","en","Sample Item","/sitecore/content/Home"

Commit Within
1000

Overwrite
true

Submit Document

Status: success
Response:
{
 "responseHeader": {
 "rf": 2,
 "status": 0,
 "QTime": 6504
 }
}

Documentation Issue Tracker

SolrCloud Indexing & Query

All “Replica” has been **Replicated** (For test, Sitecore Collection creates only 2 replica)

The screenshot shows the SolrCloud Nodes page in a web browser. The URL is `solr3:9993/solr/#/~cloud?view=nodes`. The page displays a table of nodes and their replicas. A red callout bubble points to the '3 docs' count for the `Sitecore_s1r1` replica. A red box highlights the `replicationFactor: 2` in the Sitecore collection details.

Hosts 1 - 3 of 3. Filter by: **Show** **hosts per page.**

Host	Node	CPU	Heap	Disk usage	Requests	Collections	Replicas
solr1 <i>Java</i> Load: show details...	9991_solr Uptime: show details...	%	%	5.3Kb	RPM: 0 p95: 28ms	search_fxm_web_index search_xdb_internal (12 more...)	Sitecore_s1r1 (3 docs) search_fxm_web_index_s1r2 (0 docs) (12 more...)
solr2 <i>Java</i> Load: show details...	9992_solr Uptime: show details...	%	%	4.7Kb	RPM: 0 p95: 33ms	search_fxm_web_index search_xdb_internal (12 more...)	Sitecore_s1r2 (3 docs) search_web_index_s1r2 (0 docs) (12 more...)
solr3 <i>Windows Server</i> 2019 5.7Gb Java 1.8 Load: show details...	9993_solr Uptime: 9h 34m show details...	%	45%	1.5Kb	RPM: 0.04 p95: 299ms	search_fxm_web_index search_xdb_internal (11 more...)	search_xdb_internal_s1r1 (0 docs) search_xdb_internal_s1r2 (0 docs) (11 more...)

Collection: Sitecore

- Shard count: 1
- configName: Sitecore
- replicationFactor: 2**
- maxShardsPerNode: 1
- router: compositeId
- autoAddReplicas: false

SolrCloud Indexing & Query

solr3:9993/solr/#/Sitecore/query

Request-Handler (qt): /select

q: *

fq:

start, rows: 0, 10

wt: json

Execute Query

Response:

```
{
  "responseHeader": {
    "zkConnected": true,
    "status": 0,
    "QTime": 331,
    "params": {
      "q": "*",
      "_forwardedCount": "1",
      "_": "1634947323112"
    }
  },
  "response": {
    "numFound": 3, "start": 0, "docs": [
      {
        "Name": ["Global Datasources"],
        "id": "1",
        "Language": ["en"],
        "Templatename": ["Folder"],
        "ItemPath": ["/sitecore/content/Global Datasources"],
        "_version_": 1714366427106902016,
      },
      {
        "Name": ["Hero Image"],
        "id": "2",
        "Language": ["en"],
        "Templatename": ["Hero Image"],
        "ItemPath": ["/sitecore/content/Global Datasources/Hero Image"],
        "_version_": 1714366427310325760,
      },
      {
        "Name": ["Home"],
        "id": "3",
        "Language": ["en"],
        "Templatename": ["Sample Item"],
        "ItemPath": ["/sitecore/content/Home"],
        "_version_": 1714366427310325761
      }
    ]
  }
}
```

BSON : Binary Javascript Object Notation

SolrCloud Indexing & Query

The screenshot displays the Solr Admin interface for a Sitecore instance. The left sidebar contains navigation links: Dashboard, Logging, Cloud, Collections, Java Properties, Thread Dump, Suggestions, Sitecore (selected), Overview, Analysis, Dataimport, Documents, Files, Query (highlighted), Stream, and Schema. Below these is a Core Selector.

The main content area is titled "Request-Handler (qt)" and shows the "/select" handler. The "q" parameter is set to "Templatenam:Folder". The "wt" parameter is set to "json". The "Execute Query" button is at the bottom.

The right pane displays the JSON response for the query. A red arrow points from the "q" parameter field to the "q" field in the JSON response. The JSON response is as follows:

```
{
  "responseHeader": {
    "zkConnected": true,
    "status": 0,
    "QTime": 17,
    "params": {
      "q": "Templatenam:Folder",
      "_forwardedCount": "1",
      "wt": "json",
      "_": "1634947323112"
    }
  },
  "response": {
    "numFound": 1,
    "start": 0,
    "docs": [
      {
        "Name": ["Global Datasources"],
        "id": "1",
        "Language": ["en"],
        "Templatenam": ["Folder"],
        "ItemPath": ["/sitecore/content/Global Datasources"],
        "_version_": 1714366427106902016
      }
    ]
  }
}
```

A red box highlights the "q" parameter field, and a red arrow points from it to the "q" field in the JSON response. A red box also highlights the "Templatenam:Folder" text in the "q" field, with a red arrow pointing to the "Templatenam" field in the JSON response. A red box also highlights the "Templatenam" field in the JSON response, with a red arrow pointing to the "Templatenam" field in the JSON response.

SolrCloud Indexing & Query

HTTP GET : <https://solr2:9992/solr/admin/collections?action=LIST&omitHeader=true>

```
Administrator: Command Prompt
C:\Users\Administrator>
C:\Users\Administrator> curl "https://solr3:9993/solr/admin/collections?action=LIST"
{
  "responseHeader":{
    "status":0,
    "QTime":1},
  "collections":["search_fxm_web_index",
    "search_xdb_internal",
    "search_web_index",
    "search_marketing_asse
    "search_suggested_test
    "search_marketingdefin
    "search_marketing_asse
    "search_master_index",
    "search_core_index",
    "search_xdb_rebuild_in
    "search_marketingdefin
    "search_fxm_master_ind
    "Sitecore",
    "search_testing_index"
  ]
}

Administrator: Command Prompt
C:\Users\Administrator>
C:\Users\Administrator> curl "https://localhost:8983/solr/admin/collections?action=LIST"
{
  "responseHeader":{
    "status":400,
    "QTime":0},
  "error":{
    "metadata":[
      "error-class","org.apache.solr.common.SolrException",
      "root-error-class","org.apache.solr.common.SolrException"],
    "msg":"Solr instance is not running in SolrCloud mode.",
    "code":400}}
C:\Users\Administrator>
C:\Users\Administrator>
C:\Users\Administrator>
```

SolrCloud Indexing & Query

Schema-less Collections and Documents

The screenshot displays the Solr Admin UI interface. On the left is a sidebar with navigation links: Dashboard, Logging, Cloud, Collections, Java Properties, Thread Dump, Suggestions, search_master..., Overview, Analysis, Dataimport, Documents, Files, Query (selected), Stream, and Schema. Below these is a 'Core Selector' dropdown.

The main content area is titled 'Request-Handler (qt)' and shows the selected handler as '/select'. The query input field contains 'id:102 OR author:Glen Cook'. The 'fq' (filter query) field is empty. The 'sort' field is empty. The 'start, rows' section shows 'start' as 0 and 'rows' as 10000. The 'fl' (fields list) field is empty. The 'df' (distribution factor) field is empty. The 'Raw Query Parameters' section shows 'key1=val1&key2=val2'. The 'wt' (write method) is set to 'json'. There are checkboxes for 'indent off', 'debugQuery', 'dismax', 'edismax', and 'hl', all of which are currently unchecked.

The right side of the interface shows the JSON response from the query. The URL in the address bar is 'https://solr1:9991/solr/search_master_index/select?q=id%3A102%20OR%20author%3A%22Glen Cook%22'. The JSON response is as follows:

```
{
  "responseHeader": {
    "zkConnected": true,
    "status": 0,
    "QTime": 129,
    "params": {
      "q": "id:102 OR author:\\\"Glen Cook\\\"",
      "rows": "10000",
      "_": "1635110626948"
    }
  },
  "response": {
    "numFound": 2,
    "start": 0,
    "docs": [
      {
        "name": "Feature Phone",
        "id": "102",
        "Templatename": "Jpeg",
        "ItemPath": "/sitecore/media library/System/Simulator Backgrounds/Feature Phone",
        "_version_": "1714537704083947520"
      },
      {
        "id": "0812521390",
        "cat": ["book"],
        "name": "The Black Company",
        "price": 6.99,
        "price_c": "6.99,USD",
        "inStock": false,
        "author": "Glen Cook",
        "author_s": "Glen Cook",
        "series_t": "The Chronicles of The Black Company",
        "sequence_i": 1,
        "genre_s": "fantasy",
        "_version_": "1714536332841189376",
        "price_c___l_ns": 699
      }
    ]
  }
}
```

Two documents are highlighted with red and blue boxes and labeled 'Doc' in red and blue text respectively. The first document is a 'Feature Phone' with id '102'. The second document is 'The Black Company' with id '0812521390'.