

SBAC OpenDJ Installation Instructions

Prerequisites:

- Linux Operating System
 - Linux (tested with Ubuntu Linux 64-Ubuntu SMP Mon Mar 25 21:42:18 UTC 2013 x86_64 x86_64 x86_64 GNU/Linux)
 - 16GB RAM
 - 630GB Disk Space
 - 6 virtual CPUs
 - Virtual Servers (tested as Amazon EC2 instances or as Rackspace virtual servers)
 - SBAC Accounts Created (dropbox, opendj)
 - `dropbox:x:1004:1004:SBAC User file upload:/opt/dropbox:/bin/bash`

Note: this account is used to transfer files to this server for processing. This account should be configured as a chroot jail (i.e. once they SFTP to the server, they are not allowed to go anywhere but the `/opt/dropbox` folder).
 - `opendj:x:1005:1005:OpenDJ Service Account:/opt/opendj:/bin/bash`
 - Ports 1389, 4444, 4989, and 8989 available
 - Fully qualified hostname(s) of all OpenAM and OpenDJ servers listed in either a) DNS or b) the `/etc/hosts` file.
- Software
 - Required Software:
 - `make` (`apt-get install make`)
 - `Perl` (`apt-get install perl`)
 - `iNotify Perl module` (`apt-get install liblinux-inotify2-perl`)
 - `LWP Perl module` (`apt-get install libwww-perl`)
 - Required Perl Modules (`apt-get install cpanminus`)
 - `App::cpanminus`
 - `cpanm Net::LDAP`
 - `cpanm Net::SMTP`
 - `cpanm File::Copy`
 - `cpanm LWP::UserAgent`
 - `cpanm HTTP::Request`
 - Java Version
 - `java version "1.6.0_45"`
 - `Java(TM) SE Runtime Environment (build 1.6.0_45-b06)`
 - `Java HotSpot(TM) 64-Bit Server VM (build 20.45-b01, mixed mode)`
- Access to OpenDJ Installation File (`sbacOpenDJ-Installv3.tar.gz`)

Installation Steps:

1. Log in to your Linux server as the root user (or sudo to root).
2. Download a copy of the `sbacOpenDJ-Installv3.tar.gz` file from Bitbucket.

wget command?

3. Place the OpenDJ Installation file in the `/opt` folder.
4. Uncompress and extract the file as follows:

tar -zxvf sbacOpenDJ-Installv3.tar.gz

This creates the following installation files/folders:

- `/opt/artifacts`
- `/opt/artifacts/OpenDJ-2.6.0.zip`
- `/opt/artifacts/openDJcustomizations.zip`
- `/opt/artifacts/scripts`
- `/opt/artifacts/scripts/logs`
- `/opt/artifacts/scripts/sampleData`
- `/opt/artifacts/scripts/sampleData/districts`
- `/opt/artifacts/scripts/sampleData/first.names`
- `/opt/artifacts/scripts/sampleData/last.names`
- `/opt/artifacts/scripts/sampleData/roles`
- `/opt/artifacts/scripts/sampleData/sbacBulkDeleteUsers.sh`
- `/opt/artifacts/scripts/sampleData/sbacGenerateSampleData.pl`
- `/opt/artifacts/scripts/sampleData/schools`
- `/opt/artifacts/scripts/sampleData/states`
- `/opt/artifacts/scripts/sbacDirectoryWatch.pl`
- `/opt/artifacts/scripts/sbacProcessDataFile.pl`
- `/opt/artifacts/scripts/sbacXMLFiles`
- `/opt/configureReplication.sh`
- `/opt/installOpenDJ.sh`

5. Execute the installation script.

./installOpenDJ.sh

6. The script will guide you through the installation process. You will be prompted for input as necessary. A successful execution of this script creates the following production folders:
 - `/opt/scripts` (file processing script folder)
 - `/opt/opendj` (opendj installation directory)
7. Repeat steps 1 – 6 on all servers where you would like to install OpenDJ.

This completes the installation process for the SBAC OpenDJ servers. The next step is to configure data synchronization (aka replication) between each of these servers.

You can verify that the server is running with the following command:

/opt/opendj/bin/status -D "cn=SBAC Admin" -w cangetin

```
--- Server Status ---
Server Run Status:      Started
Open Connections:      1
```

```
--- Server Details ---
Host Name:              your host name
Administrative Users:   cn=SBAC Admin
Installation Path:      /opt/openssl
Version:               OpenDJ 2.6.0
Java Version:          1.6.0_45
Administration Connector: Port 4444 (LDAPS)
```

```
--- Connection Handlers ---
Address:Port : Protocol : State
-----:-----:-----
--          : LDIF           : Disabled
0.0.0.0:1389 : LDAP (allows StartTLS) : Enabled
0.0.0.0:1636 : LDAPS          : Enabled
0.0.0.0:1689 : JMX            : Disabled
0.0.0.0:8080 : HTTP           : Disabled
```

```
--- Data Sources ---
Base DN:      dc=smarterbalanced,dc=org
Backend ID:   userRoot
Entries:      4
Replication:
```

Replication Configuration Steps:

NOTE: Do not perform the following steps until you have successfully installed OpenDJ onto each of your other servers. These steps will be performed on one (and only one) server in your OpenDJ architecture.

1. Log in to one of the servers in your OpenDJ architecture.
2. Change to the `/opt` folder (if necessary).
3. Execute the replication configuration script.

```
# ./configureReplication.sh
```

This will configure replication between the first two servers in your topology.

4. While still logged in to the same server, repeat step 3 for any additional servers. When performing a subsequent execution of the script, use an existing host from your replication topology as the FQDN1 server and enter a new host as the FQDN2 server.

For instance, if your OpenDJ topology consists of three servers (host1.example.com, host2.example.com and host3.example.com) you can use host1.example.com as the FQDN1 server for both iterations of the script and vary the FQDN2 servers as follows:

Iteration	FQDN1	FQDN2
1	host1.example.com	host2.example.com
2	host1.example.com	host3.example.com

Note: you could have chosen host2.example.com as the FQDN1 server in the second iteration as this instance is also part of the existing replication topology at this point. You must, however, enter host3.example.com as FQDN2 in the second iteration as it is not yet joined to the topology.

This completes the replication configuration process for the SBAC OpenDJ servers. You can run the `bin/dsreplication` command to determine the status of the replication topology as follows (typed all on one line):

```
/opt/opensdj/bin/dsreplication status -h localhost -p 4444 --  
adminUID admin --adminPassword cangetin -X
```

Suffix DN M.C. (2) : A.O.M.C. (3)	: Server : Security (4)	: Entries	: Replication enabled	: DS ID	: RS ID	: RS Port (1)	:
dc=smarterbalanced,dc=org	: sbacssotest4,uat.openam.airast.org;4444	: 35	: true	: 29621	: 11062	: 4989	:
0	: false						:
dc=smarterbalanced,dc=org	: sbacssotest5,uat.openam.airast.org;4444	: 31064	: true	: 16235	: 20993	: 4989	:
1057131	: Tue Dec 31 14:35:37 UTC 2013	: false					:
dc=smarterbalanced,dc=org	: sbacssotest6,uat.openam.airast.org;4444	: 35	: true	: 26431	: 23771	: 4989	:
0	: false						:

[1] The port used to communicate between the servers whose contents are being replicated.
 [2] The number of changes that are still missing on this server (and that have been applied to at least one of the other servers).
 [3] Age of oldest missing change; the date on which the oldest change that has not arrived on this server was generated.
 [4] Whether the replication communication through the replication port is encrypted or not.

root@sbacssotest4:/opt/opensdj/config/schema#

Cleanup Steps:

1. Log in to each of the Linux servers where you installed OpenDJ.
2. Manually remove the following installation files/folders.

```
# rm -rf /opt/artifacts
# rm configureReplication.sh
# rm installOpenDJ.sh
# rm sbacOpenDJ-Installv3.tar.gz
```

This completes the installation and configuration process

Installation Details:

The following demonstrates the details contained in the `installOpenDJ.sh` script.

```
root@ip-10-242-225-105:/opt# ./installOpenDJ.sh
```

The following is the output from the `installOpenDJ.sh` script.

Note: A clear screen operation is performed here. The following appears on a new screen:

```
*****

SBAC Environment OpenDJ Installation Script

Phase 1 of 4: System Verification

In this phase, the script will verify the existing Linux environment.

*****
Hit the <ENTER> key to continue
Step 1. Verifying identity of current user...
CONFIRMED: You are executing this script as: root

Step 2. Verifying the current working directory...
CONFIRMED: You are executing this script from the /opt folder

Step 3. Searching for the current version of Java...
/usr/bin/java
CONFIRMED: The java executable was found in the PATH variable
CONFIRMED: You are running java version 1.6.0_45

Step 4. Checking for the existence of the dropbox user...
CONFIRMED: The dropbox user exists.

Step 5. Checking to see if /opt/scripts already exists...
/opt/scripts does not exist

Step 6. Checking to see if /opt/opendj already exists...
/opt/opendj does not exist

CONFIRMED: This is a new installation.

Hit the <ENTER> key to continue
```

Note: A clear screen operation is performed here. The following appears on a new screen:

```
*****

SBAC Environment OpenDJ Installation Script

Phase 2 of 4: Extraction of SBAC-Specific Files

In this phase, the script will extract SBAC-specific files into their destination folders

*****
Hit the <ENTER> key to continue
Step 7. Extracting the OpenDJ binaries...
```

Archive: artifacts/OpenDJ-2.6.0.zip
creating: opendj/
creating: opendj/QuickSetup.app/
creating: opendj/QuickSetup.app/Contents/
creating: opendj/QuickSetup.app/Contents/MacOS/
creating: opendj/QuickSetup.app/Contents/Resources/
creating: opendj/QuickSetup.app/Contents/Resources/Java/
creating: opendj/Uninstall.app/
creating: opendj/Uninstall.app/Contents/
creating: opendj/Uninstall.app/Contents/MacOS/
creating: opendj/Uninstall.app/Contents/Resources/
creating: opendj/Uninstall.app/Contents/Resources/Java/
creating: opendj/bat/
creating: opendj/bin/
creating: opendj/bin/ControlPanel.app/
creating: opendj/bin/ControlPanel.app/Contents/
creating: opendj/bin/ControlPanel.app/Contents/MacOS/
creating: opendj/bin/ControlPanel.app/Contents/Resources/
creating: opendj/bin/ControlPanel.app/Contents/Resources/Java/
creating: opendj/legal-notice/
creating: opendj/lib/
creating: opendj/lib/extensions/
creating: opendj/template/
inflating: opendj/QuickSetup.app/Contents/Info.plist
inflating: opendj/QuickSetup.app/Contents/PkgInfo
inflating: opendj/QuickSetup.app/Contents/Resources/OpenDJ_Inst.icns
inflating: opendj/README
inflating: opendj/Uninstall.app/Contents/Info.plist
inflating: opendj/Uninstall.app/Contents/PkgInfo
inflating: opendj/Uninstall.app/Contents/Resources/OpenDJ_Uninst.icns
inflating: opendj/bat/backup.bat
inflating: opendj/bat/base64.bat
inflating: opendj/bat/control-panel.bat
inflating: opendj/bat/dbtest.bat
inflating: opendj/bat/dsconfig.bat
inflating: opendj/bat/dsframework.bat
inflating: opendj/bat/dsjavaproperties.bat
inflating: opendj/bat/dsreplication.bat
inflating: opendj/bat/encode-password.bat
inflating: opendj/bat/export-ldif.bat
inflating: opendj/bat/import-ldif.bat
inflating: opendj/bat/ldapcompare.bat
inflating: opendj/bat/ldapdelete.bat
inflating: opendj/bat/ldapmodify.bat
inflating: opendj/bat/ldappasswordmodify.bat
inflating: opendj/bat/ldapsearch.bat
inflating: opendj/bat/ldif-diff.bat
inflating: opendj/bat/ldifmodify.bat
inflating: opendj/bat/ldifsearch.bat
inflating: opendj/bat/list-backends.bat
inflating: opendj/bat/make-ldif.bat
inflating: opendj/bat/manage-account.bat
inflating: opendj/bat/manage-tasks.bat
inflating: opendj/bat/rebuild-index.bat
inflating: opendj/bat/restore.bat
inflating: opendj/bat/start-ds.bat
inflating: opendj/bat/status.bat
inflating: opendj/bat/stop-ds.bat
inflating: opendj/bat/verify-index.bat
inflating: opendj/bat/windows-service.bat
inflating: opendj/bin/ControlPanel.app/Contents/Info.plist
inflating: opendj/bin/ControlPanel.app/Contents/PkgInfo

inflating: opendj/bin/ControlPanel.app/Contents/Resources/OpenDJ.icns
inflating: opendj/example-plugin.zip
inflating: opendj/instance.loc
inflating: opendj/legal-notices/CDDLv1_0.txt
inflating: opendj/legal-notices/OpenDS.LICENSE
inflating: opendj/legal-notices/THIRDPARTYREADME.txt
inflating: opendj/lib/OpenDJ.jar
inflating: opendj/lib/OpenDJ_ca_ES.jar
inflating: opendj/lib/OpenDJ_de.jar
inflating: opendj/lib/OpenDJ_es.jar
inflating: opendj/lib/OpenDJ_fr.jar
inflating: opendj/lib/OpenDJ_ja.jar
inflating: opendj/lib/OpenDJ_ko.jar
inflating: opendj/lib/OpenDJ_pl.jar
inflating: opendj/lib/OpenDJ_zh_CN.jar
inflating: opendj/lib/OpenDJ_zh_TW.jar
inflating: opendj/lib/_client-script.bat
inflating: opendj/lib/_mixed-script.bat
inflating: opendj/lib/_script-util.bat
inflating: opendj/lib/_server-script.bat
inflating: opendj/lib/bootstrap.jar
inflating: opendj/lib/grizzly-framework.jar
inflating: opendj/lib/grizzly-http-server.jar
inflating: opendj/lib/grizzly-http-servlet.jar
inflating: opendj/lib/grizzly-http.jar
inflating: opendj/lib/grizzly-rcm.jar
inflating: opendj/lib/il8n-core.jar
inflating: opendj/lib/jackson-core-asl.jar
inflating: opendj/lib/jackson-mapper-asl.jar
inflating: opendj/lib/javax.servlet-api.jar
inflating: opendj/lib/je.jar
inflating: opendj/lib/json-fluent.jar
inflating: opendj/lib/json-resource-servlet.jar
inflating: opendj/lib/json-resource.jar
inflating: opendj/lib/launcher_administrator.exe
inflating: opendj/lib/mail.jar
inflating: opendj/lib/opendj-ldap-sdk.jar
inflating: opendj/lib/opendj-rest2ldap-servlet.jar
inflating: opendj/lib/opendj-rest2ldap.jar
inflating: opendj/lib/opendj-server2x-adapter.jar
inflating: opendj/lib/opendj_service.exe
inflating: opendj/lib/org.forgerock.util.jar
inflating: opendj/lib/quicksetup.jar
inflating: opendj/lib/setcp.bat
inflating: opendj/lib/winlauncher.exe
inflating: opendj/opendj_logo.png
inflating: opendj/setup.bat
inflating: opendj/uninstall.bat
inflating: opendj/upgrade.bat
inflating: opendj/lib/_client-script.sh
inflating: opendj/lib/_mixed-script.sh
inflating: opendj/lib/_script-util.sh
inflating: opendj/lib/_server-script.sh
inflating: opendj/bin/backup
inflating: opendj/bin/base64
inflating: opendj/bin/control-panel
inflating: opendj/bin/create-rc-script
inflating: opendj/bin/dbtest
inflating: opendj/bin/dsconfig
inflating: opendj/bin/dsframework
inflating: opendj/bin/dsjavaproperties
inflating: opendj/bin/dsreplication

inflating: opendj/bin/encode-password
inflating: opendj/bin/export-ldif
inflating: opendj/bin/import-ldif
inflating: opendj/bin/ldapcompare
inflating: opendj/bin/ldapdelete
inflating: opendj/bin/ldapmodify
inflating: opendj/bin/ldappasswordmodify
inflating: opendj/bin/ldapsearch
inflating: opendj/bin/ldif-diff
inflating: opendj/bin/ldifmodify
inflating: opendj/bin/ldifsearch
inflating: opendj/bin/list-backends
inflating: opendj/bin/make-ldif
inflating: opendj/bin/manage-account
inflating: opendj/bin/manage-tasks
inflating: opendj/bin/rebuild-index
inflating: opendj/bin/restore
inflating: opendj/bin/start-ds
inflating: opendj/bin/status
inflating: opendj/bin/stop-ds
inflating: opendj/bin/verify-index
inflating: opendj/bin/README_WINDOWS.txt
inflating: opendj/QuickSetup.app/Contents/MacOS/JavaApplicationStub
inflating: opendj/Uninstall.app/Contents/MacOS/JavaApplicationStub
inflating: opendj/bin/ControlPanel.app/Contents/MacOS/JavaApplicationStub
inflating: opendj/setup
inflating: opendj/uninstall
inflating: opendj/upgrade
creating: opendj/template/bak/
creating: opendj/template/changelogDb/
creating: opendj/template/classes/
creating: opendj/template/config/
creating: opendj/template/config/MakeLDIF/
creating: opendj/template/config/messages/
creating: opendj/template/config/schema/
creating: opendj/template/config/upgrade/
creating: opendj/template/db/
creating: opendj/template/import-tmp/
creating: opendj/template/ldif/
creating: opendj/template/locks/
creating: opendj/template/logs/
inflating: opendj/template/config/MakeLDIF/cities
inflating: opendj/template/config/MakeLDIF/example.template
inflating: opendj/template/config/MakeLDIF/first.names
inflating: opendj/template/config/MakeLDIF/last.names
inflating: opendj/template/config/MakeLDIF/states
inflating: opendj/template/config/MakeLDIF/streets
inflating: opendj/template/config/admin-backend.ldif
inflating: opendj/template/config/buildinfo
inflating: opendj/template/config/config.ldif
inflating: opendj/template/config/http-config.json
inflating: opendj/template/config/java.properties
inflating: opendj/template/config/messages/account-disabled.template
inflating: opendj/template/config/messages/account-enabled.template
inflating: opendj/template/config/messages/account-expired.template
inflating: opendj/template/config/messages/account-idle-locked.template
inflating: opendj/template/config/messages/account-permanently-locked.template
inflating: opendj/template/config/messages/account-reset-locked.template
inflating: opendj/template/config/messages/account-temporarily-locked.template
inflating: opendj/template/config/messages/account-unlocked.template
inflating: opendj/template/config/messages/password-changed.template
inflating: opendj/template/config/messages/password-expired.template

```
inflating: opendj/template/config/messages/password-expiring.template
inflating: opendj/template/config/messages/password-reset.template
inflating: opendj/template/config/schema/00-core.ldif
inflating: opendj/template/config/schema/01-pwpolicy.ldif
inflating: opendj/template/config/schema/02-config.ldif
inflating: opendj/template/config/schema/03-changelog.ldif
inflating: opendj/template/config/schema/03-rfc2713.ldif
inflating: opendj/template/config/schema/03-rfc2714.ldif
inflating: opendj/template/config/schema/03-rfc2739.ldif
inflating: opendj/template/config/schema/03-rfc2926.ldif
inflating: opendj/template/config/schema/03-rfc3112.ldif
inflating: opendj/template/config/schema/03-rfc3712.ldif
inflating: opendj/template/config/schema/03-uddiv3.ldif
inflating: opendj/template/config/schema/04-rfc2307bis.ldif
inflating: opendj/template/config/schema/05-rfc4876.ldif
inflating: opendj/template/config/schema/05-samba.ldif
inflating: opendj/template/config/schema/05-solaris.ldif
inflating: opendj/template/config/schema/06-compat.ldif
inflating: opendj/template/config/tools.properties
inflating: opendj/template/config/upgrade/schema.ldif.9086
inflating: opendj/template/config/wordlist.txt
CONFIRMED: The binaries have been extracted to the following folder: /opt/opendj.
```

Step 8. Creating folder structure for XML processing scripts (/opt/scripts)...

CONFIRMED: The folder structure for the XML processing scripts has been created.

Step 9. Checking for the existence of the opendj user...

INFO: The opendj user already exists.

Step 10. Changing file ownership to the opendj user...

INFO: Files in the /opt/opendj and /opt/scripts are now owned by the opendj user.

Hit the <ENTER> key to continue

Note: A clear screen operation is performed here. The following appears on a new screen:

```
*****
```

SBAC Environment OpenDJ Installation Script

Phase 3 of 4: Installation of OpenDJ Server...

In this phase, the script will perform an installation of OpenDJ

```
*****
```

Hit the <ENTER> key to continue

Step 11. Checking if port 1389 is available...

CONFIRMED: Port 1389 is available.

Step 12. Checking if port 4444 is available...

CONFIRMED: Port 4444 is available.

Step 13. Installing OpenDJ server...

See /tmp/opendj-setup-4457733944743851611.log for a detailed log of this operation.

Configuring Directory Server Done.

Creating Base Entry dc=smarterbalanced,dc=org Done.

To see basic server configuration status and configuration you can launch /opt/opendj/bin/status

Hit the <ENTER> key to continue

Note: A clear screen operation is performed here. The following appears on a new screen:

SBAC Environment OpenDJ Installation Script

Phase 4 of 4: Customizing the OpenDJ Server...

In this phase, the script will add SBAC-specific customizations to the OpenDJ server

Hit the <ENTER> key to continue

Step 14. Copying the SBAC customizations into the OpenDJ server...

Archive: artifacts/OpenDJ-customizations.zip

inflating: opendj/ldif/sbac.ldif

inflating: opendj/config/java.properties

inflating: opendj/config/schema/99-user.ldif

inflating: opendj/config/config.ldif

Step 15. Importing SBAC directory information tree (DIT)...

[31/Dec/2013:22:15:19 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381717

msg=Installation Directory: /opt/opendj

[31/Dec/2013:22:15:19 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381719

msg=Instance Directory: /opt/opendj

[31/Dec/2013:22:15:19 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381713 msg=JVM
Information: 1.6.0_45-b06 by Sun Microsystems Inc., 64-bit architecture, 950796288 bytes heap
size

[31/Dec/2013:22:15:19 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381714 msg=JVM
Host: ip-10-242-225-105.ec2.internal, running Linux 3.2.0-40-virtual amd64, 3932639232 bytes
physical memory size, number of processors available 1

[31/Dec/2013:22:15:19 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381715 msg=JVM
Arguments: "-Dorg.opens.server.scriptName=import-ldif"

[31/Dec/2013:22:15:19 +0000] category=JEB severity=NOTICE msgID=8847546 msg=The amount of free
memory available to the import task is 332994538 bytes. The number of phase one buffers required
is 80 buffers

[31/Dec/2013:22:15:19 +0000] category=JEB severity=NOTICE msgID=8847568 msg=The amount memory
available to the temporary DN cache environment is 219668260 bytes

[31/Dec/2013:22:15:19 +0000] category=JEB severity=NOTICE msgID=8847545 msg=Setting DB cache size
to 8388608 bytes and phase one buffer size to 654836 bytes

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847533 msg=OpenDJ 2.6.0 starting
import (build 20130829003155Z, R9086)

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847449 msg=Import Thread Count:
2 threads

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847556 msg=The available memory
for phase two processing is 332994538 bytes. The read ahead cache size is 654836 bytes calculated
using 7 buffers

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index dn.dn phase two
started processing 2 buffers in 1 batches

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index
telephoneNumber.equality phase two started processing 1 buffers in 1 batches

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index
entryUUID.equality phase two started processing 2 buffers in 1 batches

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index
objectClass.equality phase two started processing 2 buffers in 1 batches

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index
entryUUID.equality phase two processing completed

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index mail.substring
phase two started processing 1 buffers in 1 batches

```

[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index
telephoneNumber.equality phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index uid.equality
phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847538 msg=DN phase two
processing completed. Processed 4 DNs
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index
givenName.substring phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index
givenName.substring phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index
telephoneNumber.substring phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index mail.substring
phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index
objectClass.equality phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index uid.equality
phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index sn.equality
phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index sn.equality
phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index
givenName.equality phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index mail.equality
phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index cn.equality
phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index
telephoneNumber.substring phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index
givenName.equality phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index mail.equality
phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index sn.substring
phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index cn.equality
phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index sn.substring
phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847571 msg=Index cn.substring
phase two started processing 1 buffers in 1 batches
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847539 msg=Index cn.substring
phase two processing completed
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847569 msg=Total import time was
0 seconds. Phase one processing completed in 0 seconds, phase two processing completed in 0
seconds
[31/Dec/2013:22:15:20 +0000] category=JEB severity=NOTICE msgID=8847454 msg=Processed 4 entries,
imported 4, skipped 0, rejected 0 and migrated 0 in 0 seconds (average rate 6.1/sec)
[31/Dec/2013:22:15:21 +0000] category=JEB severity=NOTICE msgID=8847536 msg=Import LDIF
environment close took 0 seconds

```

Step 16. Updating the OpenDJ Java properties...

The operation was successful. The server commands will use the java arguments and java home specified in the properties file located in /opt/openssl/config/java.properties

Step 17. Starting OpenDJ directory server...

```

[31/Dec/2013:22:15:27 +0000] category=CORE severity=NOTICE msgID=458886 msg=OpenDJ 2.6.0 (build
20130829003155Z, R9086) starting up

```

```
[31/Dec/2013:22:15:34 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381717
msg=Installation Directory: /opt/openssl
[31/Dec/2013:22:15:34 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381719
msg=Instance Directory: /opt/openssl
[31/Dec/2013:22:15:34 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381713 msg=JVM
Information: 1.6.0_45-b06 by Sun Microsystems Inc., 64-bit architecture, 2134114304 bytes heap
size
[31/Dec/2013:22:15:34 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381714 msg=JVM
Host: ip-10-242-225-105.ec2.internal, running Linux 3.2.0-40-virtual amd64, 3932639232 bytes
physical memory size, number of processors available 1
[31/Dec/2013:22:15:34 +0000] category=RUNTIME_INFORMATION severity=NOTICE msgID=20381715 msg=JVM
Arguments: "-Xms2048M", "-Xmx2048M", "-Xmn128M", "-XX:+UseConcMarkSweepGC", "-
XX:MaxTenuringThreshold=1", "-XX:+PrintGCDetails", "-XX:+PrintGCTimeStamps", "-
Xloggc:/opt/openssl/logs/gc.log", "-Dorg.openssl.server.scriptName=start-ds"
[31/Dec/2013:22:15:37 +0000] category=JEB severity=NOTICE msgID=8847402 msg=The database backend
userRoot containing 4 entries has started
[31/Dec/2013:22:15:38 +0000] category=EXTENSIONS severity=NOTICE msgID=1507549 msg=DIGEST-MD5
SASL mechanism using a server fully qualified domain name of: sso-dev.opentestsyste.org
[31/Dec/2013:22:15:39 +0000] category=PROTOCOL severity=NOTICE msgID=2556180 msg=Started
listening for new connections on Administration Connector 0.0.0.0 port 4444
[31/Dec/2013:22:15:39 +0000] category=PROTOCOL severity=NOTICE msgID=2556180 msg=Started
listening for new connections on LDAP Connection Handler 0.0.0.0 port 1389
[31/Dec/2013:22:15:39 +0000] category=PROTOCOL severity=NOTICE msgID=2556180 msg=Started
listening for new connections on LDAPS Connection Handler 0.0.0.0 port 1636
[31/Dec/2013:22:15:39 +0000] category=CORE severity=NOTICE msgID=458887 msg=The Directory Server
has started successfully
[31/Dec/2013:22:15:39 +0000] category=CORE severity=NOTICE msgID=458891 msg=The Directory Server
has sent an alert notification generated by class org.openssl.server.core.DirectoryServer (alert
type org.openssl.server.DirectoryServerStarted, alert ID 458887): The Directory Server has
started successfully
```

Note: You can log in to the OpenDJ with the following credentials:

```
bindDN: cn=SBAC Admin
password: cangetin
```

You should change these credentials as soon as possible!

This completes the installation process.

Have a nice day!

Replication Configuration Details:

The following demonstrates the details contained in the `installOpenDJ.sh` script.

```
root@ip-10-242-225-105:/opt# ./configureReplication.sh
```

The following is the output from the `configureReplication.sh` script.

Note: A clear screen operation is performed here. The following appears on a new screen:

```
*****
```

```
SBAC Environment OpenDJ Replication Configuration Script
```

```
This script will create a replication environment between OpenDJ servers.
```

Hit the <ENTER> key to continue

Step 1. Verifying identity of current user...

CONFIRMED: You are executing this script as: root

Step 2. Verifying the current working directory...

CONFIRMED: You are executing this script from the /opt folder

Step 3. Searching for the current version of Java...

/usr/bin/java

CONFIRMED: The java executable was found in the PATH variable

CONFIRMED: You are running java version 1.6.0_45

CONFIRMED: You may continue with the configuration.

Hit the <ENTER> key to continue

Replication is configured between two hosts: Host 1 <--> Host 2

Enter the Fully Qualified Domain Name (FQDN) of the FIRST host (Ex. ldap1.example.com):

sbacssotest4.uat.openam.airast.org

Enter the Fully Qualified Domain Name (FQDN) of the SECOND host (Ex. ldap2.example.com):

sbacssotest5.uat.openam.airast.org

You are attempting to configure replication between the following two servers:

HOST1: sbacssotest4.uat.openam.airast.org

HOST2: sbacssotest5.uat.openam.airast.org

The sbacssotest4.uat.openam.airast.org database will be used to initialize the sbacssotest5.uat.openam.airast.org database.

Hit the <ENTER> key to continue

Enabling replication between sbacssotest4.uat.openam.airast.org and sbacssotest5.uat.openam.airast.org...

Initializing the database on sbacssotest5.uat.openam.airast.org from sbacssotest4.uat.openam.airast.org...

This completes replication configuration between sbacssotest4.uat.openam.airast.org and sbacssotest5.uat.openam.airast.org.

Execute this script again to configure replication between additional servers.

Have a nice day!