XRay

Upgrade Guide

XRay v1.2 to v1.3

Contents

DOCUMENT NUMBER: XRUP1.04.2
DOCUMENT RELEASE DATE: February 2023

Chapter 1: Prerequisites

The following are requirements before upgrading from version 1.2 to 1.3:

- SU31
- XRay version 1.2 (you cannot upgrade from version 1.1 to 1.3)
- JobScheduler 0.1.12
    - Requires PostgreSQL or MySQL database
    - Requirements deployment of Job Scheduler expert
- Create backups of the following tables:
    - AccessTokens
    - Organization
    - Teams
    - Repositories
    - Users
    - Volumes
    - Dictionaries

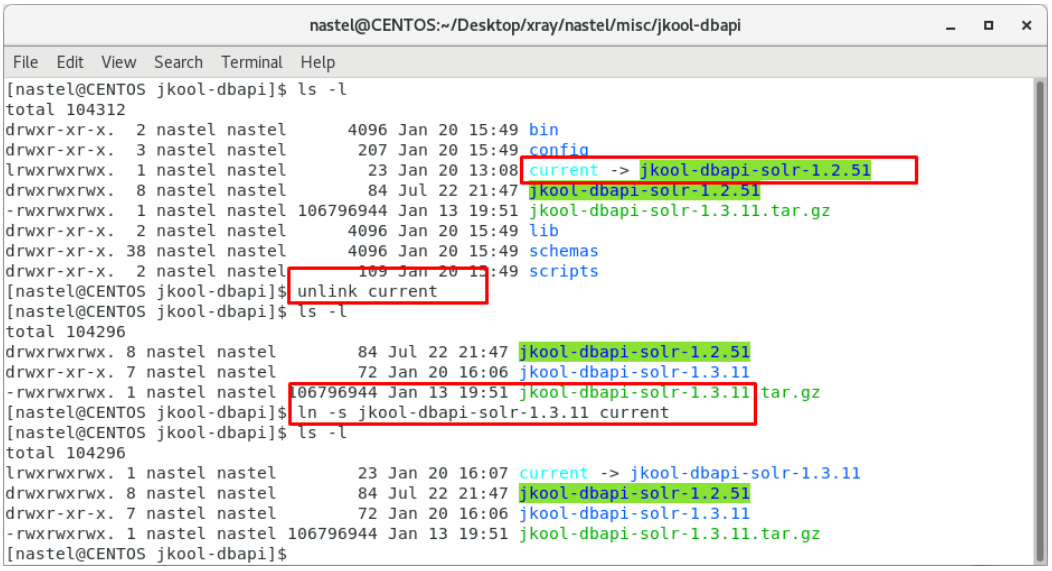
Chapter 2: Upgrade Steps

1. Log into Enterprise Manager and change the default Administrator user password.
2. Stop the Tomcat and XRay services.
3. Transfer **jkool-dbapi-solr-1.3.x.tar.gz** to **/opt/nastel/misc/jkool-dbapi**
4. Untar jkool-dbapi-solr-1.3.x.tar.gz:

```
>cd /opt/nastel/misc/jkool-dbapi

>tar -zxvf jkool-dbapi-solr-1.3.x.tar.gz
```

5. Modify the link **/opt/nastel/misc/jkool-dbapi/current**
   to
   /opt/nastel/misc/jkool-dbapi/jkool-dbapi-solr-1.3.x



6. Run the database upgrade as seen below:

> **NOTE** Both ZooKeeper and solr must be running. Confirm that your solr home location is pointing to the solr directory, for example, `/installation/nastel/solr`. If it is not set, by default the system will use `/opt/nastel/solr/solr`.

```
>cd /opt/nastel/misc/jkool-dbapi/current

>bin/jkool-db-upgrade.sh -version 1.2 -pwd <dbAdminPassword>
-sh <solrhost> -zh <zookeeperhost> -zr solr
```

The following new tables are created after the database upgrade completes:

jkool.scripts
jkoolref.extfunctions
jkoolref.extprovidertypes
jkool.views
jkoolref.extitemfields
jkoolref.extfields
jkoolref.extitems
jkoolref.extdatasrctypes

Upgrade AutoPilot and XRay Services by installing the below packages from Package Manager:

After installing a package, start the domain and CEP servers. Then log into AutoPilot Enterprise Manager to confirm that the service has been installed successfully. Once confirmed, log out. Repeat these steps for each package.

```
>cd /opt/nastel/AutoPilot_HOME/updates

>/opt/nastel/AutoPilot_HOME/bin/pkgman
/opt/nastel/AutoPilot_HOME/updates/AP60_SU31.pkg

>/opt/nastel/AutoPilot_HOME/bin/pkgman
/opt/nastel/AutoPilot_HOME/updates/JOB_SCHEDULER-0.1.12.pkg

>/opt/nastel/AutoPilot_HOME/bin/pkgman
/opt/nastel/AutoPilot_HOME/updates/JKOOL_SERVICE-1.3.X.pkg
```

7. This step enables the AutoPilot external data source. Please note, this step should only be done **after** the database is upgraded (step #6 above). Run the following commands from the jkool-dbapi-solr package:

```
>cd /opt/nastel/misc/jkool-dbapi/current

>bin/jkool-load-ext-data-src.sh -f config/ext-data-src/config-
autopilot.xml -pwd <jkql-admin-pwd> [-solr <solr-home>] [-sh
<solr-host>] [-sp <solr-port>] [-zh <zookeeper-host>] [-zp
<zookeeper-port>] [-zr <zookeeper-root>]
```

Where **-pwd** is the same value used for the upgrade script. Please note, this script will only need to be run if/when there are changes to this configuration.

The AutoPilot external data source requires external authorization. The only users who can log in are users that are defined in AutoPilot. To enable external authorization, add the following to **global.properties**:

```
Property jkool.auth.service.class=com.nastel.jkool.auth.DomainAuthService
```

8. Modify the ATPNODE.lax file:

   a. Locate the ATPNODE.lax file under localhost directory of the AutoPilot Installation.
   b. Locate the following lines:

```
#    LAX.NL.JAVA.OPTION.JAVA.HEAP.SIZE.MAX
#    ------------------------------------
#    Maximum JVM memory heap size
```

   c. Locate the line that begins with `lax.nl.java.option.additional=-server` and append the code below:

```
-Djava.net.preferIPv4Stack=true
```

For example:

```
#    LAX.NL.JAVA.OPTION.JAVA.HEAP.SIZE.MAX
#    ------------------------------------
#    Maximum JVM memory heap size

# lax.nl.java.option.java.heap.size.max=4096000000
lax.nl.java.option.additional=-server -Xms1G -Xmx3G -
XX:MaxDirectMemorySize=1G -XX:+UseG1GC -
XX:MaxGCPauseMillis=200 -
```

```
Djdk.security.defaultKeySize=DSA:1024 -
Djava.awt.headless=true -Djava.net.preferIPv4Stack=true -
server
```

9. Modify the script, **catalina.sh**:

```
JAVA_OPTS="$JAVA_OPTS -
Dtnt4j.default.event.factory=com.jkoolcloud.tnt4j.sink.impl.slf4j
.SLF4JEventSinkFactory"

JAVA_OPTS="$JAVA_OPTS -DjKoolUserId=Administrator"

JAVA_OPTS="$JAVA_OPTS -Dfatpipes.infinispan.config=fatpipes-
infinispan-local.xml"
```

10. Add the following to **global.properties** before the definition of `job.sched.kafka.server`:

```
property jkool.kafka.server=<kafka-host>:9092
```

11. Place the **xray.war** and **jkool-service.war** to **/opt/nastel/AutoPilot_HOME/apache-tomcat/webapps**.

12. Delete the **xray** and **jkool-service** folders located in **/opt/nastel/AutoPilot_HOME/apache-tomcat/webapps**.

13. In the Tomcat **server.xml** file there are two contexts, xray.war and jkool-service, which send requests to Active MQ. Within these two contexts there are four resource name stanzas that will need to be updated:

    a. For the following four stanzas of xray.war:

```
<Context path="/xray"
            reloadable="true"
            docBase="xray.war">
      <Resource name="jms/queue/ClientRequests"
      <Resource name="jms/queue/AdminRequests"
      <Resource name="jms/queue/UpdateRequests"
      <Resource name="jms/topic/StatusRequests"
</Context>
```

    Update them to the following:

```
<Context path="/xray"
            reloadable="true"
            docBase="xray.war">
      <Resource name="jms/queue/client-requests"
      <Resource name="jms/queue/admin-requests"
      <Resource name="jms/queue/update-requests"
      <Resource name="jms/topic/status-requests"
 </Context>
```

    b. For the following four stanzas of jkool-service:

```
<Context path="/jkool-service"
            reloadable="true"
            docBase="jkool-service.war">
      <Resource name="jms/queue/ClientRequests "
      <Resource name="jms/queue/AdminRequests "
      <Resource name="jms/queue/UpdateRequests "
      <Resource name="jms/topic/ StatusRequests "
</Context>
```

Update them to the following:

```
<Context path="/jkool-service"
            reloadable="true"
            docBase="jkool-service.war">
      <Resource name="jms/queue/client-requests"
      <Resource name="jms/queue/admin-requests"
      <Resource name="jms/queue/update-requests"
      <Resource name="jms/topic/status-requests"
</Context>
```

14. Create new Kafka topics introduced in this version (will also update configurations for existing topics if required). This procedure uses scripts provided by Kafka installation, so must be done on (one of) the server(s) containing Kafka (can use Gold Image, even if Kafka is not actually running on the server, just need the scripts):

    a) Transfer **/opt/nastel/AutoPilot_HOME/jkool/scripts/create-kafka-*.sh** to a server containing Kafka installation if server on which `JKOOL_SERVICE-1.3.X.pkg` was installed does not contain Kafka installation.

    b) Execute the create script in the directory containing the Xray Kafka scripts:

        i. `>cd /opt/nastel/AutoPilot_HOME/jkool/scripts`

        ii. `>./create-kafka-topics.sh -zh <zookeeperhost>`

Chapter 3: After Upgrade

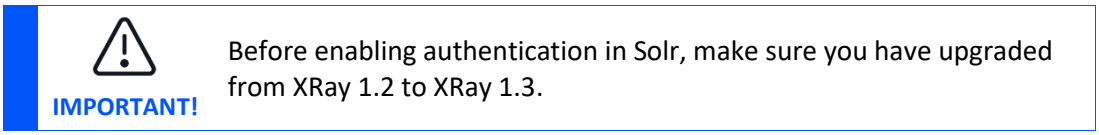
Perform the below steps once 1.3 is installed.

1. Deploy new Job Scheduler expert if not already deployed. XRay uses the Job Scheduler Expert in the background for scheduling.
    a. Go to **Deploy Expert** > **Job Scheduler** > **Job Scheduler Service**

See the article, *How do I use the Job Scheduler Expert with XRay?*, for instructions on how to install the Job Scheduler Expert.

2. Deploy the new jKool experts, Query and Scheduler services. In the CEP Enterprise Manager:
    a. Go to **Deploy Expert** > **jKool** > **Query Service**. Previously this was part of Client Service, but it has been moved to its own expert.
    b. Go to **Deploy Expert** > **jKool** > **Scheduler Service**. This is needed for using Views.
3. The upgrade will define a new property, **fatpipes.infinispan.tag**, in the **global.properties** file. It is used to identify which Infinispan cluster to join. Each independent installation needs a unique value for this, otherwise distributed caches will conflict. The recommended value is **jKool-<host>**, where <*host*> represents the name of the host that is running the domain server.

Chapter 4: Enabling authentication in Solr (If Applicable)



The current implementation requires that all Solr clusters user the same user and password. In a future release, the clusters will be able to use different credentials.

Follow these steps to enable Solr authentication with the default user name and password.

1. Leave Zookeeper running.
2. Stop all Solr nodes.
3. Verify that your current directory is jkool-dbapi-solr-1.3.30 and zkchroot of "/".
4. To enable authentication and define the default user "solr" with password "SolrRocks", upload the security.json file into the appropriate zkchroot within Zookeeper, using the following:

   ```
   <solr-home>/bin/solr zk cp file:config/security.json zk:/security.json
   -z <zookeeper-ip>:<zookeeper port>
   ```

5. Uncomment the following lines in <solr-home>/bin/solr.in.sh:

   ```
   SOLR_AUTH_TYPE="basic"
   SOLR_AUTHENTICATION_OPTS="-Dbasicauth=solr:SolrRocks"
   ```

6. Restart Solr nodes.

   Solr should now be running with authentication required, with user "solr" and password "SolrRocks". ALL connections to Solr will now require that credentials be specified.

4.1 Password Changes

4.1.1 Changing the default password

To change the default password, you can use the following command.

```
curl --user
solr:SolrRocks http://localhost:8983/solr/admin/authentication -H
'Content-type:application/json' -d '{"set-user": {"solr" : "the-new-
password"}}'
```

See the "Securing Solr" section of the Solr Reference Guide (https://solr.apache.org/guide/) for additional commands and information.

4.1.2 After changing the password

If you have changed the password, then you must follow the steps in the “Enabling authentication in Solr” section above again, changing the references from "SolrRocks" to the new password. (In the Solr files, this is plain text.)

You must also run apnet encrypt to get the encrypted value for the new password to use in global.properties.

Before starting Xray (CEP), add the following to global.properties (to add the encrypted form of the new password value from apnet):

```
property jkool.db.server.user=solr
property_encrypted jkool.db.server.pwd=[encrypted new password]
```

4.1.3 Effects of reloading security.json

If you reload security.json, the password will be reset back to the default of "SolrRocks". Follow the steps below to address this change.

Before starting Xray (CEP), add the following to global.properties (to add the "SolrRocks" password value in encrypted form from apnet):

```
property jkool.db.server.user=solr
property_encrypted jkool.db.server.pwd=+DSP8b8Q6TafTstcll+IVw==
```

4.2 Command-Line Utilities Require Credentials for Solr Connection

The following command-line utilities require Solr connection information:

- create-cores.sh
- delete-cores.sh
- jkool-cmd.sh
- jkool-db-maint.sh
- jkool-db-upgrade.sh
- jkool-load-ext-data-src.sh
- reload-cores.sh

When running the command line script provided with Xray, you must include the Solr credentials on the command line as arguments. Run the command with "-help" to get the syntax for specifying credentials.

For example:

```
-UD:<solr_user> -PD:<solr_pwd>
```