

Version 1.0.0

July14, 2022

CAHCO Codeshuttle  
Deploy Guide

# Summary of Changes

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| --- | --- | --- |
| Change | Version | Owner |
| Initial Version | 1.0 | Lavanya Gopal |
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# Purpose

The purpose of this document is to provide detailed description of the steps involved to move and CADIR ETL code to Code Shuttle process.

# Required Software

1. Pentaho Kettle 8.3
2. Java
3. Oracle Client

# Software Installation Steps

## 3.1 PENTAHO KETTLE

1. Download Java Version 8 Update 192(build 1.8.0\_192)
2. Download pdi-ce-8.3.0.0-371.zip from <https://sourceforge.net/projects/pentaho/>
3. Download ojdbc8 from  
   <https://www.oracle.com/technetwork/database/application-development/jdbc/downloads/jdbc-ucp-19c-5460552.html>
4. Create folder /u01/app/appadmin/product/pentaho\_8.3
5. Unzip pdi-ce-8.3.0.0-371.zip in the folder /u01/app/appadmin/product/pentaho\_8.3
6. Copy ojdbc8 to /u01/app/appadmin/product/pentaho\_8.3/data-integration/lib
7. Download the file svn://svn-staging.maximus.com/dev1d/maxdat/trunk/CAHCO/deploy/jtds-1.3.1.zip.
8. (For reference, this file was originally downloaded from <https://sourceforge.net/p/jtds/bugs/725/>.)
9. Extract the file jtds-1.3.1.jar from jtds-1.3.1.zip
10. Copy the file jtds-1.3.1.jar to /u01/app/appadmin/product/pentaho\_8.3/data-integration/lib (replace if it exists).
11. Remove the file /u01/app/appadmin/product/pentaho\_8.3/data-integration/lib/jtds-1.2.5.jar, if it exists
12. Update /u01/app/appadmin/product/pentaho\_8.3/data-integration/spoon.sh

  After the line below:

setPentahoEnv

Add the line below:

\_PENTAHO\_JAVA='/u01/app/appadmin/product/java/jdk1.8.0\_192/bin/java'

Change this at the bottom of the file:

if [ -z ""$PENTAHO\_DI\_JAVA\_OPTIONS"" ]; then

PENTAHO\_DI\_JAVA\_OPTIONS=""-Xms1024m -Xmx2048m -XX:MaxPermSize=256m""

TO:

if [ -z ""$PENTAHO\_DI\_JAVA\_OPTIONS"" ]; then

PENTAHO\_DI\_JAVA\_OPTIONS=""-Xms1024m -Xmx4096m -XX:MaxPermSize=256m""

1. Rename the following files and directories in /u01/app/appadmin/product/pentaho\_8.3/data-integration if exists using the following format:

<Name>.backup.yyyymmdd for example: kettle-lifecycle-listeners.xml.backup.20190129

/u01/app/appadmin/product/pentaho\_8.3/data-integration/classes/kettle-lifecycle-listeners.xml

/u01/app/appadmin/product/pentaho\_8.3/data-integration/classes/kettle-registry-extensions.xml

/u01/app/appadmin/product/pentaho\_8.3/data-integration/classes/log4j.xml

/u01/app/appadmin/product/pentaho\_8.3/data-integration/lib  
pdi-engine-api-8.3.0.0-371.jar  
pdi-osgi-bridge-core-8.3.0.0-371.jar  
pentaho-connections-8.3.0.0-371.jar  
pentaho-osgi-utils-api-8.3.0.0-371.jar  
pentaho-cwm-1.5.4.jar  
org.apache.karaf.jaas.boot-3.0.3.jar  
org.apache.karaf.main-3.0.3.jar  
org.apache.karaf.util-3.0.3.jar  
mondrian-8.3.0.0-371.jar

/u01/app/appadmin/product/pentaho\_8.3/data-integration/plugins/pentaho-big-data-plugin

/u01/app/appadmin/product/pentaho\_8.3/data-integration/plugins/kettle5-log4j-plugin/log4j.xml

/u01/app/appadmin/product/pentaho\_8.3/data-integration/system/karaf

/u01/app/appadmin/product/pentaho\_8.3/data-integration/system/mondrian

/u01/app/appadmin/product/pentaho\_8.3/data-integration/system/osgi

1. Copy below file under /u01/app/appadmin/product/pentaho\_8.3/data-integration/plugins/kettle5-log4j-plugin/ dir and rename file to log4j.xml

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/Config/kettle5-log4j-plugin\_log4j.xml

1. Copy below file under /u01/app/appadmin/product/pentaho\_8.3/data-integration/classes/ directory and rename to log4j.xml

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/Config/classes\_log4j.xml

1. Copy below file under /u01/app/appadmin/product/pentaho\_8.3/data-integration/lib and rename to cachejdbc.jar

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/Config/cachejdbc.jar

1. Open the /u01/app/appadmin/product/java/jdk1.8.0\_192/jre/lib/security/java.security file in a text editor.

Change the line and save the file.

securerandom.source=[file:/dev/random](file:///\\dev\random)

to read:

securerandom.source=[file:/dev/urandom](file:///\\dev\urandom)

## 3.2 ETL JOB MANAGEMENT

1. SKIP this step if  "/u01/app/appadmin/product/oracle/instantclient/sqlplus" file exists

Install SQL\*Plus version v12\_2 (Oracle 12c Release 2) Instant Client to /u01/app/appadmin/product/oracle/instantclient/ folder.  
After the installation, make sure "/u01/app/appadmin/product/oracle/instantclient/sqlplus" file exists.

1. SKIP this step if "securerandom.source" is set to "file:/dev/urandom" in /u01/app/appadmin/product/java/jdk1.8.0\_192/jre/lib/security/java.security file.

Make below change in /u01/app/appadmin/product/java/jdk1.8.0\_192/jre/lib/security/java.security file as below:  
COMMENT THE LINE: securerandom.source=[file:/dev/random](file:///\\dev\random)   
ADD A NEW LINE: securerandom.source=[file:/dev/urandom](file:///\\dev\urandom)

# ETL Code Deployment

1. Create the following directories

/u01/maximus/maxdat/CAHCO8/config

/u01/maximus/maxdat/CAHCO8/config/.kettle

/u01/maximus/maxdat/CAHCO8/scripts

/u01/maximus/maxdat/CAHCO8/input/deploy

/u01/maximus/maxdat/CAHCO8/Processing

/u01/maximus/maxdat/CAHCO8/logs

/u01/maximus/maxdat/CAHCO8/ETLJobControl/

/u01/maximus/maxdat/CAHCO8/ETLJobControl/scripts/

/u01/maximus/maxdat/CAHCO8/ETLJobControl/data/

/u01/maximus/maxdat/CAHCO8/ETLJobControl/sql/

/u01/maximus/maxdat/CAHCO8/ETLJobControl/logs/

1. Set chmod u+rwx,g+rxs,o+rx permissions on the directories
2. Copy the Kettle.properties file

FROM: svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/CAHCO/config/kettle/kettle\_AWS\_PRD.properties

TO: /u01/maximus/maxdat/CAHCO8/config/.kettle

1. Update these lines in Kettle.properties to point to the Kettle 8 folders

JOB\_STATISTIC\_DIR /u01/maximus/maxdat/CAHCO8/scripts

ETL\_LOG\_DIRECTORY /u01/maximus/maxdat/CAHCO8/logs

1. Copy the following shared.xml file

FROM: svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/CAHCO/config/kettle/shared.xml

TO: /u01/maximus/maxdat/CAHCO8/config/.kettle/

1. Copy all the files svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/CAHCO/scripts to /u01/maximus/maxdat/CAHCO8/scripts directory
2. Set 755 permissions on ALL shell script files (\*.sh) in these directories:

/u01/maximus/maxdat/CAHCO8/scripts

/u01/maximus/maxdat/CAHCO8/scripts/cronfiles

1. Convert all shell script files to unix format (dos2unix \*.sh) in these directories:

/u01/maximus/maxdat/CAHCO8/scripts

/u01/maximus/maxdat/CAHCO8/scripts/cronfiles

1. Rename this file

FROM : svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/CAHCO/config/.set\_env\_prd\_8.3

TO : /u01/maximus/maxdat/CAHCO8/scripts/.set\_env

1. Execute the following script manually

nohup /u01/maximus/maxdat/CAHCO8/scripts/CAHCO\_run\_connect\_test\_all.sh

1. Take a backup of the following 5 files below:

/u01/maximus/maxdat/CAHCO8/scripts/etl\_job\_control.bash  
/u01/maximus/maxdat/CAHCO8/scripts/etl\_job\_exec.bash  
/u01/maximus/maxdat/CAHCO8/sql/get\_etl\_jobs.sql  
/u01/maximus/maxdat/CAHCO8/sql/get\_etl\_stuck\_jobs.sql  
/u01/maximus/maxdat/CAHCO8/sql/upd\_etl\_jobs.sql

1. Copy below svn files under "/u01/maximus/maxdat/CAHCO8/ETLJobControl/scripts/" folder, convert them to UNIX format and set chmod to "755"

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/scripts/etl\_job\_control.bash

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/scripts/etl\_job\_exec.bash

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/scripts/decr.sh

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/java/KettleDecryptPassword.class

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/CADIR/ETLJobMgmt/prd/etl\_job.properties

1. Copy below svn files (DO NOT RUN THEM) under "/u01/maximus/maxdat/CAHCO8/ETLJobControl/sql/" folder, convert them to UNIX format and set chmod to "755"

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/sql/add\_etl\_job.sql

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/sql/add\_etl\_log.sql

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/sql/get\_etl\_jobs.sql

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/sql/get\_etl\_stuck\_jobs.sql

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/sql/set\_etl\_jobs.sql

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/ETL\_Job\_Control/ETL/sql/complete\_etl\_job.sql

13. Backup existing files and copy below svn files under /u01/maximus/maxdat/CAHCO8/scripts/, convert to unix format and set chmod to "755"

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/CAHCO/Scripts/cadir\_run\_bpm.sh

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/CAHCO/Scripts/cadir\_run\_planning.sh

14. Backup existing file and replace /u01/maximus/maxdat/CAHCO8/scripts/.set\_env with below svn file, convert to unix format and set chmod to "755"

svn://svn-staging.maximus.com/dev1d/maxdat/trunk/Kettle8/CAHCO/Scripts/set\_env\_prd.txt

# Cron Jobs

Create below cron entries and attach updated cronlist to ticket as text file.

\*PLEASE ADD THE ESCAPE CHARACTER (BACKSLASH) BEFORE %Y, %m, %d, %H, %M, %S, %3N IN THE BELOW 3 STATEMENTS\*

0,5,10,15,20,25,30,35,40,45,50,55 \* \* \* \* bash /u01/maximus/maxdat/CAHCO8/ETLJobControl/scripts/etl\_job\_control.bash 2>&1 >> /u01/maximus/maxdat/CAHCO8/ETLJobControl/logs/etl\_job\_control\_$(date +%Y-%m-%d).log

00 02 \* \* \* find /u01/maximus/maxdat/CAHCO8/ETLJobControl/logs/ -mtime +30 -exec rm {} \; 2>&1 >> /u01/maximus/maxdat/CAHCO8/ETLJobControl/logs/removed\_$(date +'%Y%m%d\_%H%M%S\_%3N').log

00 02 \* \* \* find /u01/maximus/maxdat/CAHCO8/ETLJobControl/data/ -mtime +30 -exec rm {} \; 2>&1 >> /u01/maximus/maxdat/CAHCO8/ETLJobControl/logs/removed\_$(date +'%Y%m%d\_%H%M%S\_%3N').log

# Verify Deploy

1. Check if ETL job management scripts are getting executed, after crons are enabled, by executing the query below:

SELECT \*

FROM MAXDAT.ETL\_JOB\_RUN

WHERE RUN\_START\_DT >= '2022-07-10 00:00:00';

-- The above date/time should be corresponding to when CRONs were enabled

1. If the ETL job management script is enabled in the CRON, but the jobs are still not running, check if any jobs in ETL Job management tables are stuck by running the below query. This query will return the JOB\_ID for any jobs stuck on that day. If this query returned no rows and jobs are still not running, this needs further research. If there are any stuck jobs, go to the next step

SELECT JOB\_ID

FROM MAXDAT.ETL\_JOB\_LOG

WHERE LOG\_DESC = 'JOB STUCK - RESET MAY BE REQUIRED'

AND LOG\_UPD\_DT >= '2022-07-10 00:00:00';

-- The above date/time should be corresponding to when CRONs were enabled after the patch

1. Reset each stuck job by executing the RESET\_ETL\_JOB procedure in MAXDAT schema for each JOB\_ID returned in the previous step. Replace “?” below with each JOB\_ID returned in the previous step.

BEGIN

ETL\_JOB.RESET\_ETL\_JOB (?);

END;

1. Verify if the jobs that were reset above are now working fine. ETL Job management shell script is usually scheduled to run every 5 or 10 minutes. So, wait for the next execution of the ETL job management scripts and check if the stuck jobs are started running. If not, this needs further investigation.
2. Run the following queue processor queries to check for stuck jobs

alter session set current\_schema = maxdat;

SELECT BPM\_SOURCE\_LKUP.BSL\_ID,NAME

,count(BPM\_UPDATE\_EVENT\_QUEUE.BSL\_ID) Total

,sum(CASE WHEN BPM\_UPDATE\_EVENT\_QUEUE.WROTE\_BPM\_SEMANTIC\_DATE IS NOT NULL THEN 1 ELSE 0 END) "Processed - Not Archived"

FROM BPM\_SOURCE\_LKUP

LEFT OUTER JOIN BPM\_UPDATE\_EVENT\_QUEUE ON BPM\_SOURCE\_LKUP.BSL\_ID = BPM\_UPDATE\_EVENT\_QUEUE.BSL\_ID

GROUP BY BPM\_SOURCE\_LKUP.BSL\_ID,NAME

ORDER BY BPM\_SOURCE\_LKUP.BSL\_ID;

Expected Result: Should have 0’s for total and "Processed - Not Archived" fields. COMPLAINTS\_INCIDENTS process do run slowly. Which is a known issue.

SELECT BSL\_ID,COUNT(\*) FROM BPM\_UPDATE\_EVENT\_QUEUE

GROUP BY BSL\_ID;

Expected result: No rows Ensure BPM layer is running by executing the following query which should return multiple rows:

1. If there are processes that seem to be running from long with no updates in the CORP\_ETL\_JOB\_STATISTICS then login to Unix and run the below

Ps -ef | grep appadmin  -------------à  This gives the list of processes running and if they are stuck from a day or so identify the pid’s and request to clean up the hung processes by working with the app admin.

1. If the queue jobs are stuck, execute the steps below –

  select \* from bpm\_source\_lkup – Identify the processes that need to be reset

execute MAXDAT\_ADMIN.SHUTDOWN\_JOBS; --Stop job processor

execute MAXDAT\_ADMIN.RESET\_BPM\_QUEUE\_ROWS\_BY\_BSL\_ID (bsl\_id from the above query);

-- All processes are reset one after the other

execute MAXDAT\_ADMIN.STARTUP\_JOBS; --Restart job processor

1. Verify if all jobs are running as expected after clearing the PIDs and resetting the queue process.

# Data Flow Diagram

