Paxata®

Adding Custom Cluster and Edit Functions

PAXATA RELEASE 2.19 | DOCUMENT REV. 1

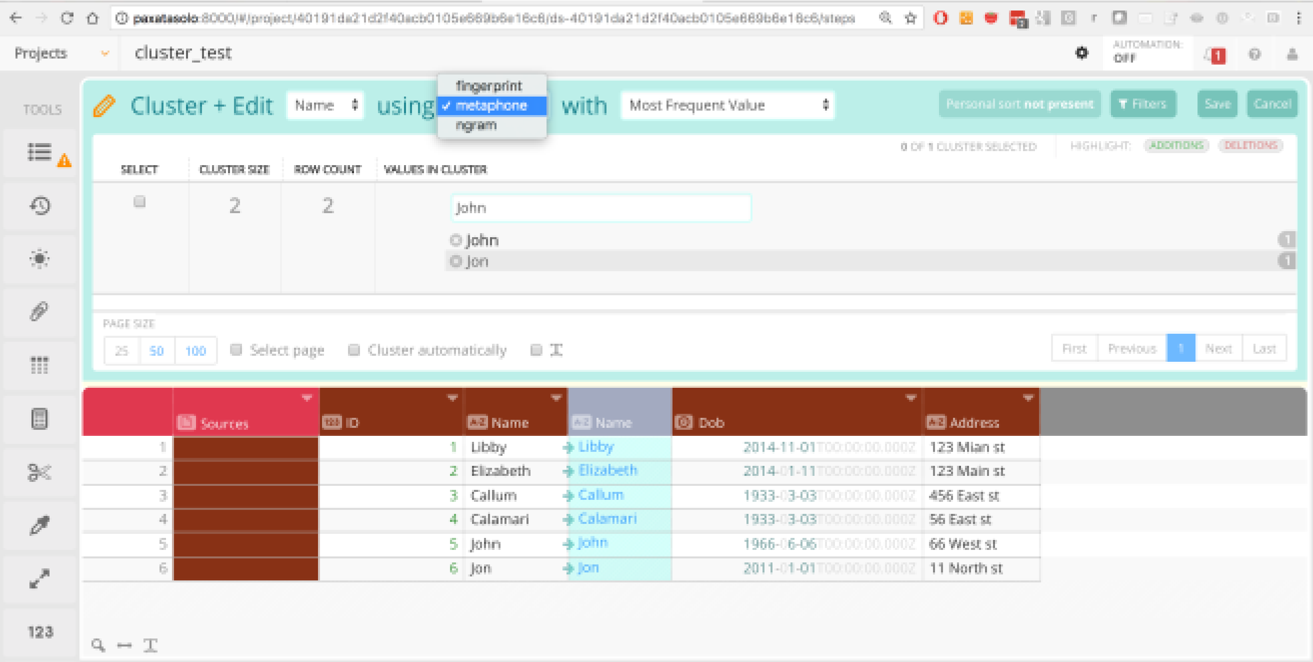
INTRODUCTION

Occasionally custom Cluster + Edit functions are required to achieve the desired clustering results (typically when there are very specific requirements). This document outlines the high-level steps to integrate a new function.

Screenshots below.

Questions – callum@paxata.com

When a *Project* is created, one of the functions I can perform is a **Cluster + Edit**, as the screenshot shows. Out of the box, I have 3 strategies I can use to perform this (**fingerprint, metaphone** and **ngram**):



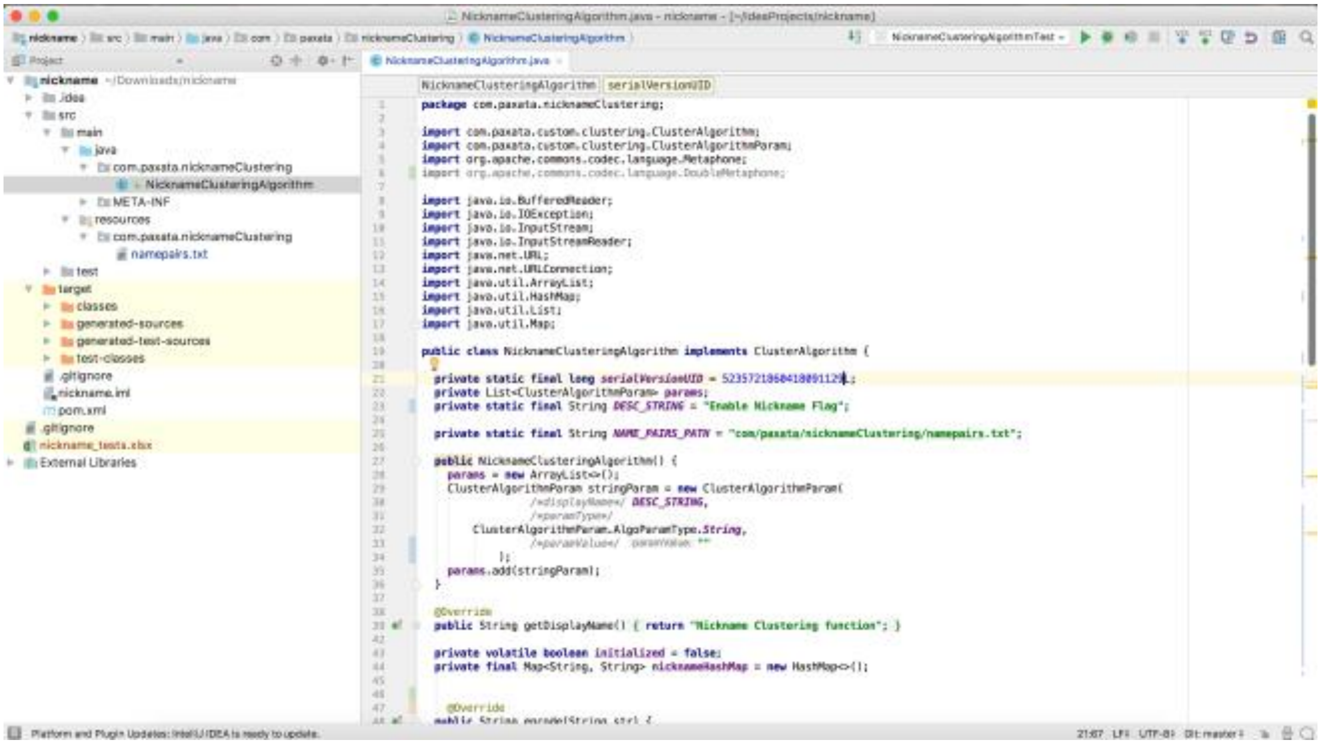
Cluster + Edit Name using metaphone with Most Frequent Value

SELECT	CLUSTER SIZE	ROW COUNT	VALUES IN CLUSTER
□	2	2	John ○ John 1 ○ Jon 1

□ Select page □ Cluster automatically □

	Sources	ID	Name	Name	Dob	Address
1		1	Libby	Libby	2014-11-01T00:00:00.000Z	123 Mian st
2		2	Elizabeth	Elizabeth	2014-01-11T00:00:00.000Z	123 Main st
3		3	Callum	Callum	1933-03-03T00:00:00.000Z	456 East st
4		4	Calamari	Calamari	1933-03-03T00:00:00.000Z	56 East st
5		5	John	John	1966-06-06T00:00:00.000Z	66 West st
6		6	Jon	Jon	2011-01-01T00:00:00.000Z	11 North st

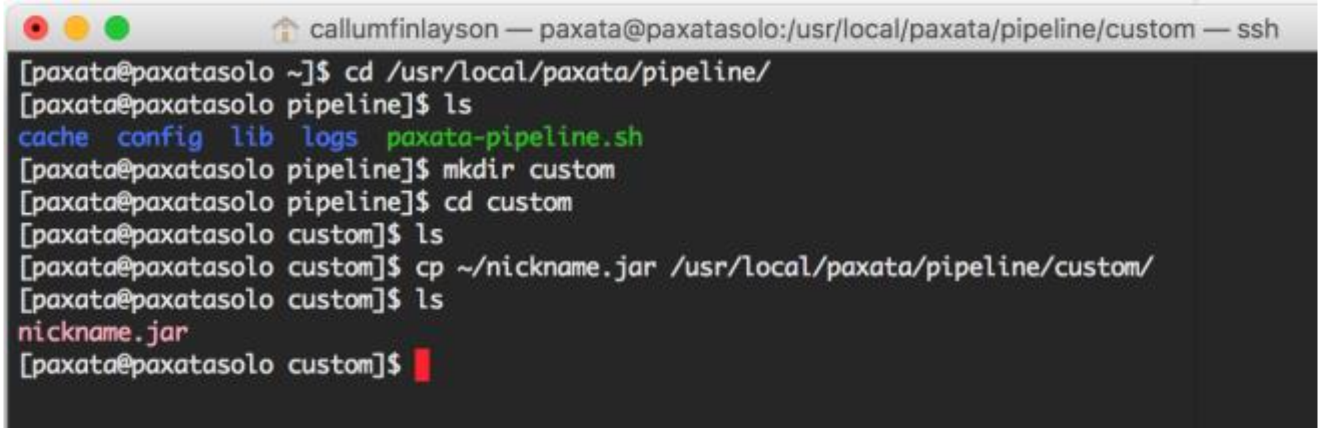
You can use a different strategy, by including a custom **Cluster + Edit** function. This is done by writing java code to create a custom JAR (Java ARchive) file. (Paxata provides the sample code on how to do this). Below is an example of some custom code:


NicknameClusteringAlgorithm.java - nickname - [~/IdeaProjects/nickname]
nickname
src
main
java
com
paxata
nicknameClustering
NicknameClusteringAlgorithm
NicknameClusteringAlgorithmTest
Project
nickname ~/Downloads/nickname
.idea
src
main
java
com.paxata.nicknameClustering
NicknameClusteringAlgorithm
META-INF
resources
com.paxata.nicknameClustering
namepairs.txt
test
target
classes
generated-sources
generated-test-sources
test-classes
.gitignore
nickname.iml
pom.xml
.gitignore
nickname_tests.xlsx
External Libraries
NicknameClusteringAlgorithm.java
NicknameClusteringAlgorithm
serialVersionUID
Platform and Plugin Updates: IntelliJ IDEA is ready to update.
21:67 LF UTF-8 Git: master

```java
package com.paxata.nicknameClustering;

import com.paxata.custom.clustering.ClusterAlgorithm;
import com.paxata.custom.clustering.ClusterAlgorithmParam;
import org.apache.commons.codec.language.Metaphone;
import org.apache.commons.codec.language.DoubleMetaphone;

import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import java.net.URL;
import java.net.URLConnection;
import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;
import java.util.Map;

public class NicknameClusteringAlgorithm implements ClusterAlgorithm {

  private static final long serialVersionUID = 5235721868418091129L;
  private List<ClusterAlgorithmParam> params;
  private static final String DESC_STRING = "Enable Nickname Flag";

  private static final String NAME_PAIRS_PATH = "com/paxata/nicknameClustering/namepairs.txt";

  public NicknameClusteringAlgorithm() {
    params = new ArrayList<>();
    ClusterAlgorithmParam stringParam = new ClusterAlgorithmParam(
            /*displayName*/ DESC_STRING,
            /*paramType*/
        ClusterAlgorithmParam.AlgoParamType.String,
            /*paramValue*/ paramValue: ""
          );
    params.add(stringParam);
  }

  @Override
  public String getDisplayName() { return "Nickname Clustering function"; }

  private volatile boolean initialized = false;
  private final Map<String, String> nicknameHashMap = new HashMap<>();


    @Override
  public String encode(String str) {
```

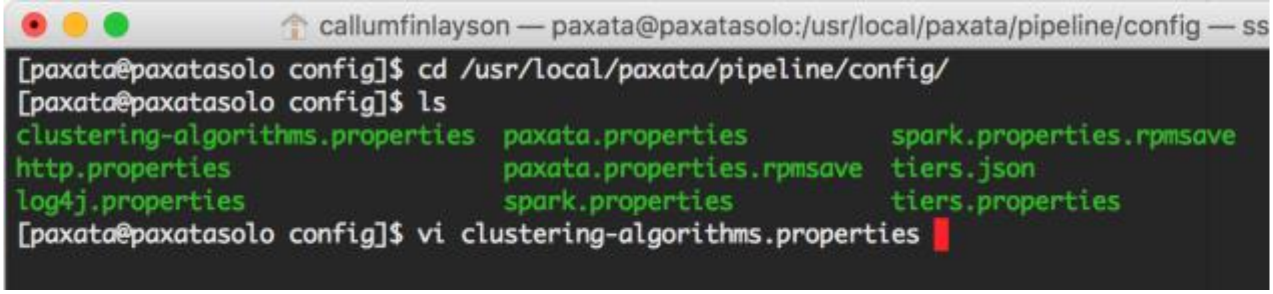
Once this is compiled and a JAR file has been created we need to perform 3 things to make this active:

1) Copy the JAR file (in this case “nickname.jar” to the correct location on the pipeline server). It is recommended that we create a new directory called “custom” for our custom cluster + edit JAR files:


callumfinlayson — paxata@paxatasolo:/usr/local/paxata/pipeline/custom — ssh

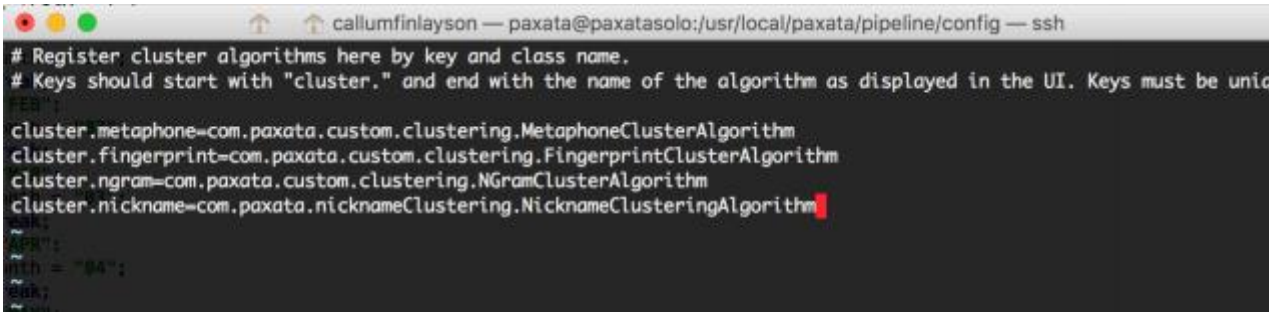
```
[paxata@paxatasolo ~]$ cd /usr/local/paxata/pipeline/
[paxata@paxatasolo pipeline]$ ls
cache  config  lib  logs  paxata-pipeline.sh
[paxata@paxatasolo pipeline]$ mkdir custom
[paxata@paxatasolo pipeline]$ cd custom
[paxata@paxatasolo custom]$ ls
[paxata@paxatasolo custom]$ cp ~/nickname.jar /usr/local/paxata/pipeline/custom/
[paxata@paxatasolo custom]$ ls
nickname.jar
[paxata@paxatasolo custom]$ 
```

2) Navigate the ***clustering-algorithms.properties*** file to tell Paxata to add a new custom **cluster + edit** function:


callumfinlayson — paxata@paxatasolo:/usr/local/paxata/pipeline/config — ss

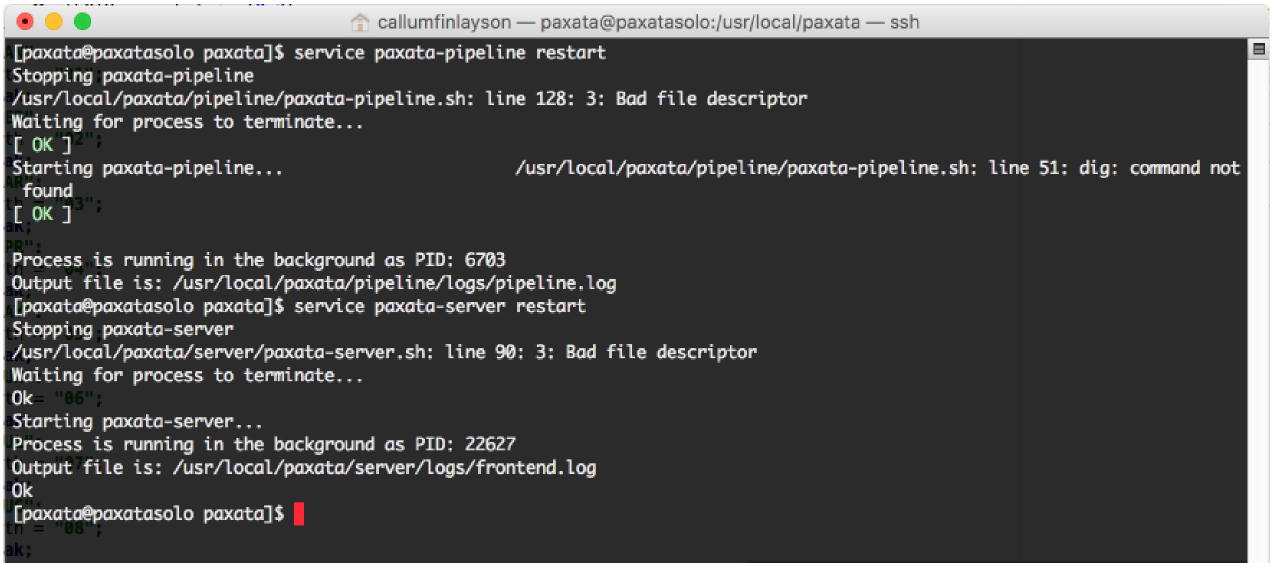
```
[paxata@paxatasolo config]$ cd /usr/local/paxata/pipeline/config/
[paxata@paxatasolo config]$ ls
clustering-algorithms.properties  paxata.properties          spark.properties.rpmsave
http.properties                   paxata.properties.rpmsave  tiers.json
log4j.properties                  spark.properties           tiers.properties
[paxata@paxatasolo config]$ vi clustering-algorithms.properties
```

Then add a single line in the ***clustering-algorithms.properties*** file (this will depend on how the JAR file has been packaged). The text I am using is *"cluster.nickname=com.paxata.nicknameClustering.NicknameClusteringAlgorithm"* (as displayed below):


callumfinlayson — paxata@paxatasolo:/usr/local/paxata/pipeline/config — ssh

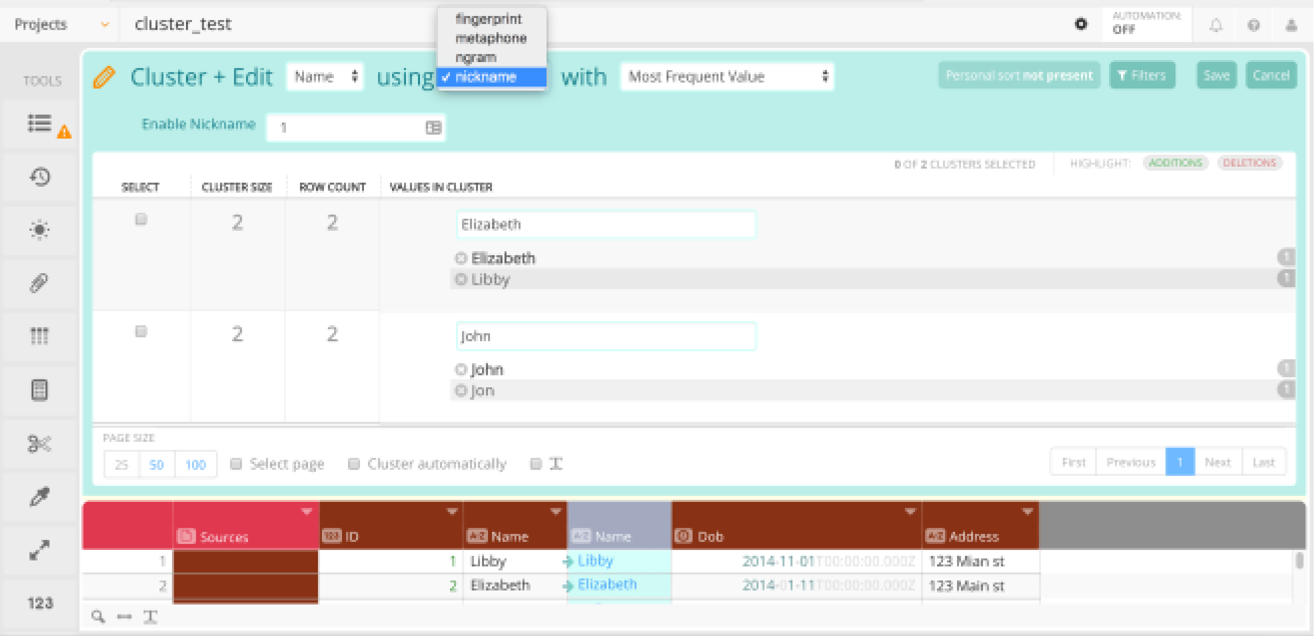
```
# Register cluster algorithms here by key and class name.
# Keys should start with "cluster." and end with the name of the algorithm as displayed in the UI. Keys must be uniq

cluster.metaphone=com.paxata.custom.clustering.MetaphoneClusterAlgorithm
cluster.fingerprint=com.paxata.custom.clustering.FingerprintClusterAlgorithm
cluster.ngram=com.paxata.custom.clustering.NGramClusterAlgorithm
cluster.nickname=com.paxata.nicknameClustering.NicknameClusteringAlgorithm
~
~
~
~
```

3) Finally, restart the pipeline and the core server by typing *"service paxata-pipeline restart",* followed by *"service paxata-server restart":*



```
[paxata@paxatasolo paxata]$ service paxata-pipeline restart
Stopping paxata-pipeline
/usr/local/paxata/pipeline/paxata-pipeline.sh: line 128: 3: Bad file descriptor
Waiting for process to terminate...
[ OK ]
Starting paxata-pipeline...                    /usr/local/paxata/pipeline/paxata-pipeline.sh: line 51: dig: command not
 found
[ OK ]

Process is running in the background as PID: 6703
Output file is: /usr/local/paxata/pipeline/logs/pipeline.log
[paxata@paxatasolo paxata]$ service paxata-server restart
Stopping paxata-server
/usr/local/paxata/server/paxata-server.sh: line 90: 3: Bad file descriptor
Waiting for process to terminate...
Ok
Starting paxata-server...
Process is running in the background as PID: 22627
Output file is: /usr/local/paxata/server/logs/frontend.log
Ok
[paxata@paxatasolo paxata]$
```

This will add a new **Cluster + Edit** algorithm to use in your Paxata installation (in this case called *“nickname”*):



Cluster + Edit Name using nickname with Most Frequent Value

Enable Nickname 1

0 OF 2 CLUSTERS SELECTED

SELECT	CLUSTER SIZE	ROW COUNT	VALUES IN CLUSTER
□	2	2	Elizabeth ○ Elizabeth 1 ○ Libby 1
□	2	2	John ○ John 1 ○ Jon 1

PAGE SIZE 25 50 100 □ Select page □ Cluster automatically □

	Sources	ID	Name	Name	Dob	Address
1		1	Libby	Libby	2014-11-01T00:00:00.000Z	123 Mian st
2		2	Elizabeth	Elizabeth	2014-01-11T00:00:00.000Z	123 Main st

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