Installation & User guide for ARX

ARX not only does masking unmasking but also data anonymization & many more things. Please refer <http://arx.deidentifier.org/anonymization-tool/> for more detail.

1. System configuration -

8GB RAM , 100GB HardDisk , Dual core Processor .

2) Pre requisite software installation before deployment of ARX on ubuntu 14.04

A) JAVA (OpenJDK 8 )

B) Tomcat 8

C)Node Js (For effective user)

D) OpenAM (For Token)

E) Couch Base (Data input for masking/unmasking)

3) Configuration openAM - create user in openAM(to get the token from)

e.g.

A)username:- demo2 , Password: password

4)Generate OpenAM Token for the same user & save it in variable with executing this command -

export token=`curl -X POST -H "X-OpenAM-Username: demo2" -H "X-OpenAM-Password: password" http://openam01.gxicloud.com:8080/openam/json/authenticate |grep tokenId|sed 's/^.\*tokenId"://'|sed 's/,.\*$//'|xargs echo`

To verify the same please do - echo $token

Output may looks like below -

AQIC5wM2LY4Sfcy\_JyWmr62kwHeAB2ZI7UxNqy4\_cAYnLz0.\*AAJTSQACMDIAAlNLABMtMTQ2MzYyOTQ4NTUzNTE5NTA4AAJTMQACMDE.\*

1. Configuring ARX -

A) Copy ARXAPI.war from server (Ask Murali/Vishvesh) to /home/ubuntu/apache-tomcat-8.0.33/webapps/ folder

B) Edit the ARX.properties file (inside ARXAPI.war) to configure openAM properties and restart server .Ignore couchbase properties inside as we are passing them as parameter from command line .

1. Configuring Couchbase for data masking/unmasking input ,

A) create default bucket (without password) and a document in it too.

B) verify the same by executing the same command -

Curl [http://<IPAddr>:8091/pools/default/buckets/<Bucket](http://52.60.214.153:8091/pools/default/buckets/<Bucketn)Name>/docs/<docID>

E.g.

Curl http://52.60.214.153:8091/pools/default/buckets/MaskingBucket/docs/9

Output -

{"meta":{"id":"9","rev":"2-14dbff066c4500000000000000000000","expiration":0,"flags":0},"json":{"Name":"Mukesh Kumar","Company":"Adara Networks","Age":"30","PAN":"ASDFGH4567G","PASSPORT":"QWERT345TYUIOP1234DFG"}}

C) Now Bucket with password is also supported for masking and unmasking.later on the same is passed as parameter.

1. Setting up users in Node js for delegation (only if you want delegator flow)
2. copy myapp.js file and run it against nodejs server -

e.g nodejs myapp.js

B) Modify users as below in myapp.js ( Get this file from binary server) based upon requirement and restart NodeJs after modification

"name": "<main\_user>",

"data": ["delegate1", "delegate1"]

8) Commands for Masking -

*curl -X POST -H "X-OpenAM-Token: $token" -H "X-Effective-User:<Name for effective user>" -d "dburl=<couchbase IP>:8091/pools/default/buckets/<BucketName>/docs/9&filterAttributes=Name,State&maskinglevel=1,3,-4,5,7" [http://FQDNARX:8080/ARXAPI/user/](http://localhost:8080/ARXAPI/user/MaskingAPI)****[MaskingAPI](http://localhost:8080/ARXAPI/user/MaskingAPI)***

Or with bucket Info (with /without password)

*curl -X POST -H "X-OpenAM-Token: $token" -H "X-Effective-User:<Name for effective user>" -d “bucketName=MaskingBucket1&bucketPassword=test123&docID=9&filterAttributes=Name,State&maskinglevel=1,3,-4,5,7" [http://FQDNARX:8080/ARXAPI/user/](http://localhost:8080/ARXAPI/user/MaskingAPI)****[MaskingAPI](http://localhost:8080/ARXAPI/user/MaskingAPI)***

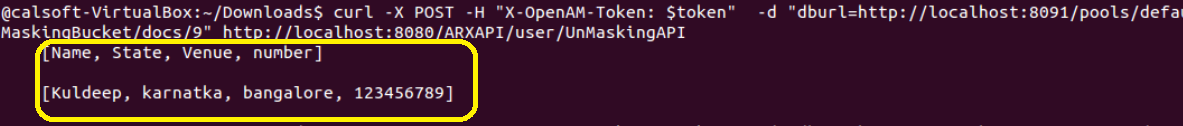
Explanation for 2 Headers (Token , Effective user ) and 3 parameters (couchbaseDB url and masking level , filterAttributes) /5 parameters (bucketName, bucketPassword, docID,filterAttributes, maskinglevel )

* Red colored are parameters , green ones are placeholder & Blue one is ARX URL
* $token is set in step 4 , A variable which holds the open AM token , passed as HEADER .
* dburl is placeholder for for couchbase url .It is passed as parameter .instead of dburl , we can pass *bucketName , bucketPassword , docID .*
* *filterAttributes is optional to filter the attribute while masking , else full document will be masked .*
* couchbase IP - IP address for couchbse .
* BucketName - Bucket name (without password )
* FQDNARX - if running on local user localhost or use FQDN.
* Port is always 8080 by default until you don't change in serverl.xml for tomcat.
* -H X-Effective-User:<Name for effective user> is optional if there is no delegation request .
* maskinglevel=1,3,-4,5,7 , i.e maskinglevel is passed parameter for document retrieved from couchbase .

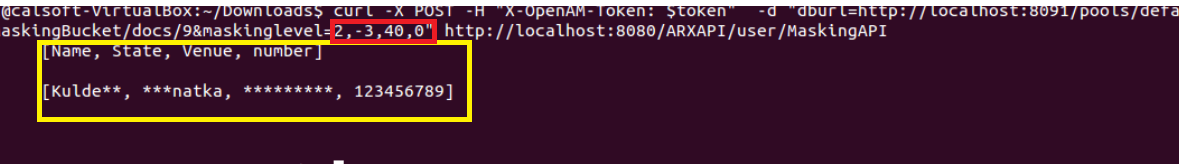
i.e In couchbase document may look like -



After Unmasking the same is visible like below (if the token is vaild) -



After Masking , with maskinglevel (2,-3,40,0) are defined as parameter and output are shown below .



Note -Maskinglevel works from right to left default

Case 1- ‘Name: Kuldeep’ , masking level =2 i.e. 2 letters from right are masked.

Case2 ‘State: karnatka’ maskinglevel=-3 i.e. 3 letters from left to right .(now left to right since negative changes the order)

Case3 - ‘Venue:bangalore’ maskinglevel=40 i.e. Oversize masking request , so mask all.

Case4 -’number=123456789’ maskinglevel =0 i.e. No masking .

**A) FOR MASKING API USE THE FOLLOWING COMMAND(WITHOUT EFFECTIVE USER)**

*curl -X POST -H "X-OpenAM-Token: $token" -d "dburl=http://52.60.214.153:8091/pools/default/buckets/MaskingBucket/docs/9&maskinglevel=1,3,-4,5,7" <http://localhost:8080/ARXAPI/user/MaskingAPI>*

**With filter -**

*curl -X POST -H "X-OpenAM-Token: $token" -d "dburl=http://localhost:8091/pools/default/buckets/MaskingBucket/docs/9&maskinglevel=2,1&filterAttributes=Name,State" <http://localhost:8080/ARXAPI/user/MaskingAPI>*

**With Bucket Details too -**

*curl -X POST -H "X-OpenAM-Token: $token" -d "bucketName=MaskingBucket1&bucketPassword=test123&docID=9&maskinglevel=-3&filterAttributes=Name" http://localhost:8080/ARXAPI/user/MaskingAPI*

**B) FOR MASKING API USE THE FOLLOWING COMMAND(WITH EFFECTIVE USER)**

*curl -X POST -H "X-OpenAM-Token: $token"* ***-H "X-Effective-User:amit****" -d "dburl=http://52.60.214.153:8091/pools/default/buckets/MaskingBucket/docs/9&maskinglevel=1,3,-4,5,7" <http://localhost:8080/ARXAPI/user/MaskingAPI>*

**With Filter -**

*curl -X POST -H "X-OpenAM-Token: $token" -H "X-Effective-User:amit" -d "dburl=http://52.60.214.153:8091/pools/default/buckets/MaskingBucket/docs/9&maskinglevel=1,3,-4,5,7&filterAttributes=Name,State" <http://localhost:8080/ARXAPI/user/MaskingAPI>*

**With Bucket Details too-**

*curl -X POST -H "X-OpenAM-Token: $token" -H "X-Effective-User:amit" -d "bucketName=MaskingBucket1&bucketPassword=test123&docID=9&maskinglevel=-3&filterAttributes=Name" http://localhost:8080/ARXAPI/user/MaskingAPI*

**C) FOR UNMASKING API USE THE FOLLOWING COMMAND(WITHOUT EFFECTIVE USER)**

*curl -X POST -H "X-OpenAM-Token: $token" -d "dburl=http://52.60.214.153:8091/pools/default/buckets/MaskingBucket/docs/9" [http://localhost:8080/ARXAPI/user/UnMaskingAPI](http://localhost:8080/ARXAPI/user/MaskingAPI)*

**With filter -**

*curl -X POST -H "X-OpenAM-Token: $token" -d "dburl=http://localhost:8091/pools/default/buckets/MaskingBucket/docs/9&filterAttributes=Name,State" [http://localhost:8080/ARXAPI/user/UnMaskingAPI](http://localhost:8080/ARXAPI/user/MaskingAPI)*

**With Bucket Details too -**

*curl -X POST -H "X-OpenAM-Token: $token" -d "bucketName=MaskingBucket1&bucketPassword=test123&docID=9&filterAttributes=Name" http://localhost:8080/ARXAPI/user/UnMaskingAPI*

**With Effective user - i.e On behalf of someone, doing masking/unmasking .This info is passed as header .**

D)FOR UNMASKING API USE THE FOLLOWING COMMAND(WITH EFFECTIVE USER)

*curl -X POST -H "X-OpenAM-Token: $token"* ***-H "X-Effective-User:amit****" -d "dburl=http://52.60.214.153:8091/pools/default/buckets/MaskingBucket/docs/9" [http://localhost:8080/ARXAPI/user/UnMaskingAPI](http://localhost:8080/ARXAPI/user/MaskingAPI)*

**With Filter -**

*curl -X POST -H "X-OpenAM-Token: $token" -H "X-Effective-User:amit" -d "dburl=http://52.60.214.153:8091/pools/default/buckets/MaskingBucket/docs/9&filterAttributes=Name,State" [http://localhost:8080/ARXAPI/user/UnMaskingAPI](http://localhost:8080/ARXAPI/user/MaskingAPI)*

**With Bucket Details too-**

*curl -X POST -H "X-OpenAM-Token: $token" -H "X-Effective-User:amit" -d "bucketName=MaskingBucket1&bucketPassword=test123&docID=9&filterAttributes=Name" http://localhost:8080/ARXAPI/user/UnMaskingAPI*

Note :- In all cases A vaild Token is mandatory .