AAI Developer Environment Setup - Dublin

This guide will illustrate setting up an A&AI development environment for R4 Dublin in Ubuntu 16.04.

DRAFT - this guide is in process of being updated - thanks for your patience 🙂

NOTE - If you are updating an older version with a new schema object, it will need to be in the latest oxm. In the Dublin Release, the latest oxm and db edgerules version is v16.

(For alternative setup, see also ~~AAI-2049~~ - Add simplified local setup CLOSED and https://gerrit.onap.org/r/gitweb?p=aai%2Ftest-config.git;hb=e64f08ac8242a7db6eb3238ee0ad1a30c8aecf0d;f=local-setup)

For this exercise, I set up a new instance of Ubuntu in Virtualbox and gave it 16G RAM, 200GB dynamically allocated storage, and 3 processors.

1. install openjdk 8
    a. sudo apt install openjdk-8-jdk

2. Install single node hadoop/janusgraph
    a. $ wget http://github.com/JanusGraph/janusgraph/releases/download/v0.2.0/janusgraph-0.2.0-hadoop2.zip
    b. $ unzip janusgraph-0.2.0-hadoop2.zip
    c. $ cd janusgraph-0.2.0-hadoop2/
    d. $ ./bin/janusgraph.sh start, # make sure you are not a root user as elasticsearch cannot be run as root. Response looks like:

```
Forking Cassandra...

Running `nodetool statusthrift`... OK (returned exit status 0 and printed string "running").

Forking Elasticsearch...

Connecting to Elasticsearch (127.0.0.1:9200)..... OK (connected to 127.0.0.1:9200).

Forking Gremlin-Server...

Connecting to Gremlin-Server (127.0.0.1:8182).... OK (connected to 127.0.0.1:8182).

Run gremlin.sh to connect.
```

    e. you can verify whether everything is running by executing
    ./bin/janusgraph.sh status

```
Gremlin-Server (org.apache.tinkerpop.gremlin.server.GremlinServer) is running with pid 9835
Elasticsearch (org.elasticsearch.bootstrap.Elasticsearch) is running with pid 9567
Cassandra (org.apache.cassandra.service.CassandraDaemon) is running with pid 9207
```

3. Install haproxy (For MAC OS X users Setting up HAProxy for MAC OS X user)
    a. $ sudo apt-get -y install haproxy
    b. $ <path-to-haproxy>/haproxy -v
    HA-Proxy version 1.6.3 2015/12/25
    Copyright 2000-2015 Willy Tarreau <willy@haproxy.org>
    c. Install the attached haproxy.cfg file in /etc/haproxy
        i. $ wget https://wiki.onap.org/download/attachments/45306687/haproxy.cfg
        ii. $ sudo cp haproxy.cfg /etc/haproxy
        iii. $ sudo mkdir /usr/local/etc/haproxy
    d. Install the attached aai.pem file in /etc/ssl/private
        i. $ wget https://wiki.onap.org/download/attachments/58230096/aai.pem?version=2&modificationDate=1556133000000&api=v2&download=true
        ii. $ sudo cp aai.pem /etc/ssl/private/aai.pem
        iii. $ sudo chmod 640 /etc/ssl/private/aai.pem
        iv. $ sudo chown root:ssl-cert /etc/ssl/private/aai.pem
    e. Add these hostnames to the loopback interface in /etc/hosts:
        i. 127.0.0.1 localhost aai-traversal.api.simpledemo.openecomp.org aai-resources.api.simpledemo.openecomp.org
    f. $ sudo service haproxy restart

4. follow the initial setup instructions in Setting Up Your Development Environment e.g.
    a. $ sudo apt-get install git
    b. $ sudo apt-get install npm
    c. $ sudo apt-get install maven
    d. $ sudo apt-get install docker.io
    e. $ wget https://git.onap.org/oparent/plain/settings.xml
    f. $ mkdir ~/.m2
    g. cp settings.xml ~/.m2
    h. If you get an error on some of the repos saying that oparent is unresolvable, using the example settings.xml file should solve this problem: Setting Up Your Development Environment#MavenExamplesettings.xml
5. Set up repos:

a. $ mkdir -p ~/src/aai
b. $ cd ~/src/aai ; for f in aai-common schema-service resources traversal graphadmin logging-service ; do git clone ssh://<username>@gerrit.onap.org:29418/aai/$f; done

6. Please note that this step will result in "error: pathspec 'dublin' did not match any file(s) known to git" until dublin branch is cut, for now the branch is master, which is checked out by default, so you can skip it for now.
   a. cd ~/src/aai ; for f in aai-common schema-service resources traversal graphadmin logging-service ; do (cd $f ; git checkout dublin) done | tee checkoutlog.txt
7. Janus Setup (part 1)
   Modify both janus-cached.properties and janus-realtime.properties to the following (for all MS's that will connect to the local Cassandra backend)
   storage.backend=cassandra
   storage.hostname=localhost
   # keyspace is onap or different keyspace name of your choosing
   storage.cassandra.keyspace=onap
   - ~/src/aai/resources/aai-resources/src/main/resources/etc/appprops/janusgraph-cached.properties
   - ~/src/aai/resources/aai-resources/src/main/resources/etc/appprops/janusgraph-realtime.properties
   - ~/src/aai/traversal/aai-traversal/src/main/resources/etc/appprops/janusgraph-cached.properties
   - ~/src/aai/traversal/aai-traversal/src/main/resources/etc/appprops/janusgraph-realtime.properties
   - ~/src/aai/graphadmin/src/main/resources/etc/appprops/janusgraph-cached.properties
   - ~/src/aai/graphadmin/src/main/resources/etc/appprops/janusgraph-realtime.properties
8. Build all the modules:
   a. $ cd ~/src/aai ; for f in aai-common schema-service resources traversal graphadmin logging-service ; do (cd $f ; mvn versions:set -DnewVersion=0.0.1-TEST-SNAPSHOT && mvn -DskipTests clean install -Daai.schema.version=0.0.1-TEST-SNAPSHOT) done | tee log.txt 2>&1
   b. $ grep -e "SUCCESS" -e "FAILURE" log.txt

```
[INFO] aai-aai-common ..................................... SUCCESS [ 11.543 s]
[INFO] BUILD SUCCESS
[INFO] aai-aai-common ..................................... SUCCESS [ 44.181 s]
[INFO] aai-rest ........................................... SUCCESS [ 26.592 s]
[INFO] aai-schema-ingest .................................. SUCCESS [ 28.671 s]
[INFO] aai-annotations .................................... SUCCESS [ 0.718 s]
[INFO] aai-core ........................................... SUCCESS [ 40.965 s]
[INFO] aai-auth ........................................... SUCCESS [ 1.228 s]
[INFO] aai-utils .......................................... SUCCESS [ 5.942 s]
[INFO] BUILD SUCCESS
[INFO] aai-schema-service ................................. SUCCESS [ 1.422 s]
[INFO] BUILD SUCCESS
[INFO] aai-schema-service ................................. SUCCESS [ 3.070 s]
[INFO] aai-annotations .................................... SUCCESS [ 5.130 s]
[INFO] aai-schema-gen ..................................... SUCCESS [01:46 min]
[INFO] aai-schema ......................................... SUCCESS [ 32.504 s]
[INFO] aai-queries ........................................ SUCCESS [ 6.461 s]
[INFO] aai-schema-service ................................. SUCCESS [02:17 min]
[INFO] BUILD SUCCESS
[INFO] aai-resources ...................................... SUCCESS [ 1.190 s]
[INFO] BUILD SUCCESS
[INFO] aai-resources ...................................... SUCCESS [ 3.210 s]
[INFO] aai-resources ...................................... SUCCESS [ 41.213 s]
[INFO] BUILD SUCCESS
[INFO] aai-traversal ...................................... SUCCESS [ 1.090 s]
[INFO] BUILD SUCCESS
[INFO] aai-traversal ...................................... SUCCESS [ 3.181 s]
[INFO] aai-traversal ...................................... SUCCESS [ 58.001 s]
[INFO] BUILD SUCCESS
[INFO] BUILD SUCCESS
[INFO] BUILD SUCCESS
[INFO] aai-logging-service ................................ SUCCESS [ 1.101 s]
[INFO] BUILD SUCCESS
[INFO] aai-logging-service ................................ SUCCESS [ 5.230 s]
[INFO] Common Logging API ................................. SUCCESS [ 1.995 s]
[INFO] EELF Logging Implementation ........................ SUCCESS [ 4.235 s]
[INFO] Common Logging Distribution ........................ SUCCESS [ 0.530 s]
[INFO] BUILD SUCCESS
```

9. Janus setup (part 2)
   a. Run this on the local instance on your first time running AAI and whenever using new keyspace or after wiping the data.
   b. Install the schema
      i. $ (cd ~/src/aai/graphadmin/ && mvn -PrunAjsc -Dstart-class=org.onap.aai.schema.GenTester -Daai.schema.version=0.0.1-TEST-SNAPSHOT -Daai.schema.ingest.version=0.0.1-TEST-SNAPSHOT -DskipTests -Dcheckstyle.skip=true -DAJSC_HOME=$HOME/src/aai/graphadmin -DBUNDLECONFIG_DIR=src/main/resources)
      ii. You should see:
      ```
      ---- NOTE --- about to open graph (takes a little while)--------;
      -- Loading new schema elements into JanusGraph --
      -- graph commit
      -- graph shutdown
      ```
10. Start the "resources" microservice

a. Resources runs on port 8447. Go to the resources directory
   $ cd ~/src/aai/resources
b. Set the debug port to 9447
   $ export MAVEN_OPTS="-Xms1024m -Xmx5120m -XX:PermSize=2024m -Xdebug -Xnoagent -Djava.compiler=NONE -Xrunjdwp:transport=dt_socket,address=9447,server=y,suspend=n"
c. Start the microservice - adjust your build version accordingly
   $ mvn -pl aai-resources -PrunAjsc -Daai.schema.version=0.0.1-TEST-SNAPSHOT -Daai.schema.ingest.version=0.0.1-TEST-SNAPSHOT -DskipTests -Dcheckstyle.skip=true
   Should see something like this: Resources Microservice Started

11. Verify the resources microservice (this example uses curl from commandline)
    a. $ sudo apt-get install jq # for pretty output
    b. $ wget https://wiki.onap.org/download/attachments/45306687/test-complex
    c. $ wget https://wiki.onap.org/download/attachments/45306687/data-complex.json
    d. $ sh ./test-complex 2>&1 | tee log.txt
    e. Confirm log.txt contains:

```
> GET /aai/v16/cloud-infrastructure/complexes HTTP/1.1
{
  "requestError": {
    "serviceException": {
      "messageId": "SVC3001",
      "text": "Resource not found for %1 using id %2 (msg=%3) (ec=%4)",
      "variables": [
        "GET",
        "cloud-infrastructure/complexes",
        "Node Not Found:No Node of type complex found at: cloud-infrastructure/complexes",
        "ERR.5.4.6114"
      ]
    }
  }
}
```

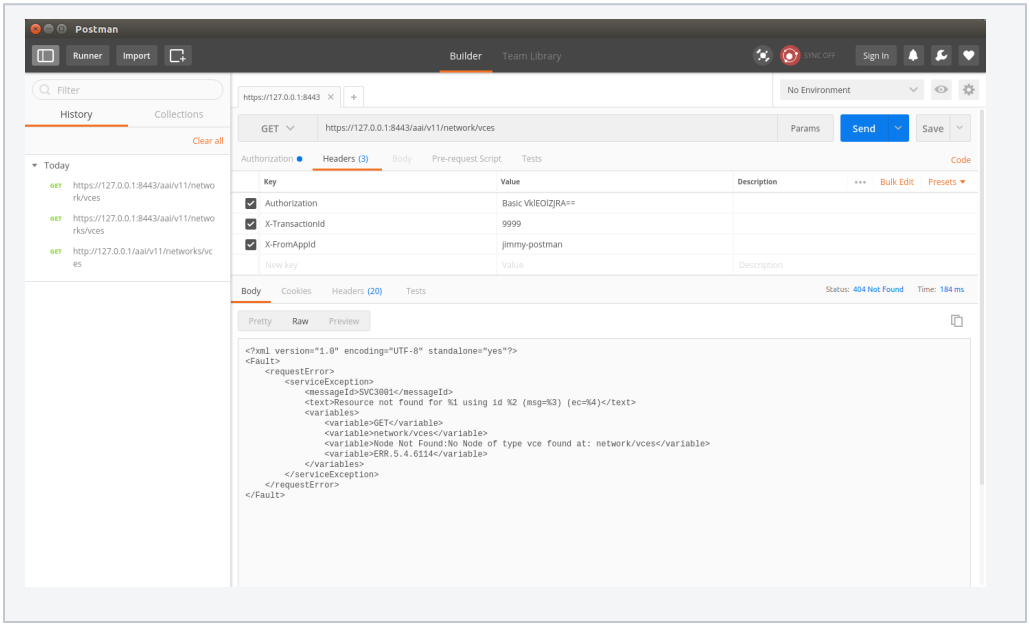
then followed by:

```
> PUT /aai/v16/cloud-infrastructure/complexes/complex/clli2 HTTP/1.1
> GET /aai/v16/cloud-infrastructure/complexes/complex/clli2 HTTP/1.1
{
  "physical-location-id": "clli2",
  "data-center-code": "example-data-center-code-val-6667",
  "complex-name": "clli2",
  "identity-url": "example-identity-url-val-28399",
  "resource-version": "1543408364646",
  "physical-location-type": "example-physical-location-type-val-28399",
  "street1": "example-street1-val-28399",
  "street2": "example-street2-val-28399",
  "city": "example-city-val-28399",
  "state": "example-state-val-28399",
  "postal-code": "example-postal-code-val-28399",
  "country": "example-country-val-28399",
  "region": "example-region-val-28399",
  "latitude": "1111",
  "longitude": "2222",
  "elevation": "example-elevation-val-28399",
  "lata": "example-lata-val-28399"
}
```

and finishes with:

```
> DELETE /aai/v16/cloud-infrastructure/complexes/complex/clli2?resource-version=1543408364646 HTTP
/1.1
> GET /aai/v16/cloud-infrastructure/complexes HTTP/1.1
{
  "requestError": {
    "serviceException": {
      "messageId": "SVC3001",
      "text": "Resource not found for %1 using id %2 (msg=%3) (ec=%4)",
      "variables": [
        "GET",
        "cloud-infrastructure/complexes",
        "Node Not Found:No Node of type complex found at: cloud-infrastructure/complexes",
        "ERR.5.4.6114"
      ]
    }
  }
}
```

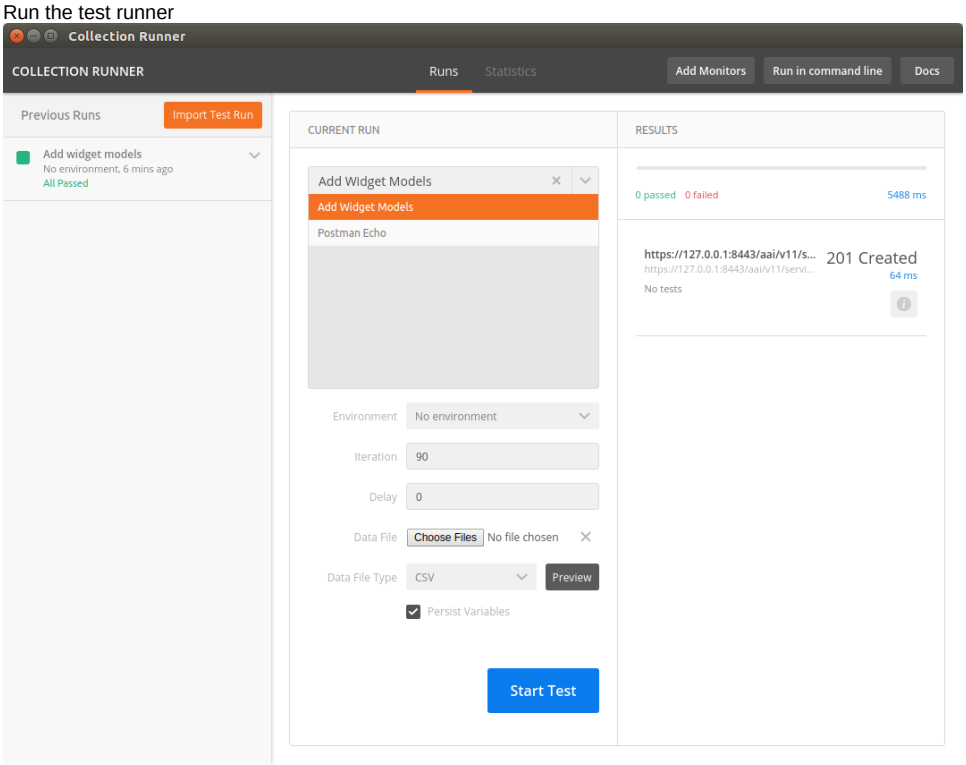
12. Alternately, verify the resources microservice (this example uses Postman utility for Google Chrome)
    a. Use basic auth, user = AAI, pw = AAI
    b. Set the X-TransactionId header (in the example below, the value is 9999)
    c. Set the X-FromAppId header (in the example below, the value is jimmy-postman)
    d. Perform a GET of https://127.0.0.1:8443/aai/v16/network/vces
    e. You should see an error as below, 404 Not Found, ERR.5.4.6114. This indicates that the service is functioning normally:



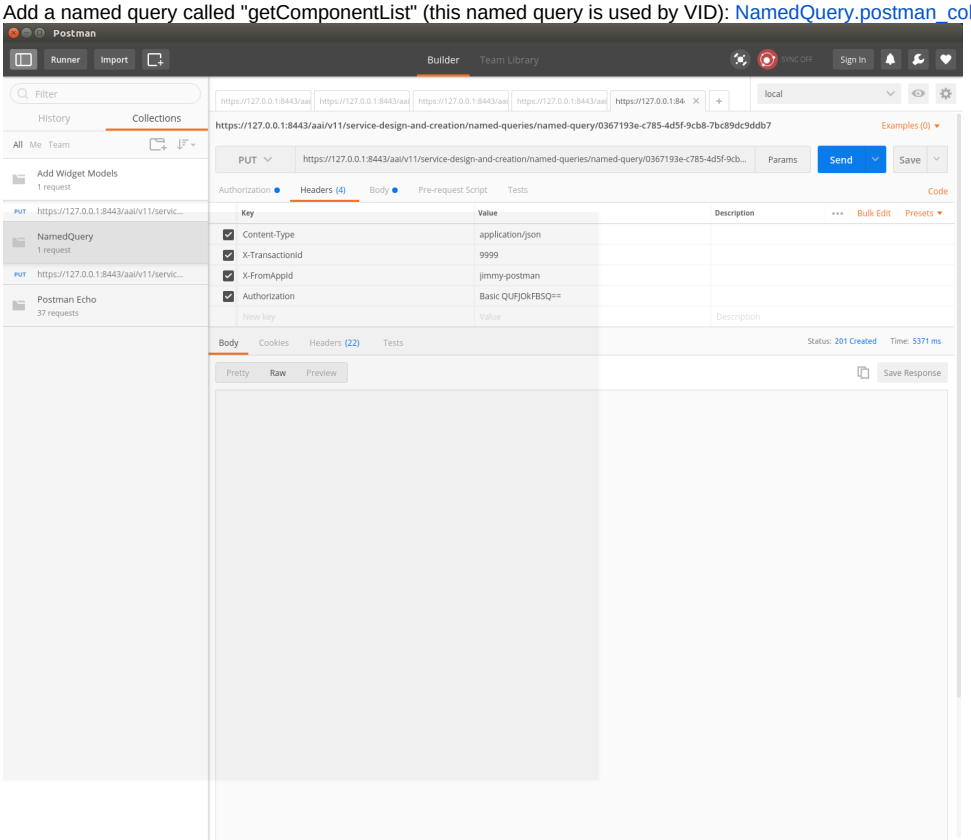
13. Start the "traversal" microservice
    a. Traversal runs on port 8446. Go to the traversal directory
       $ cd ~/src/aai/traversal
    b. Set the debug port to 9446
       $ export MAVEN_OPTS="-Xms1024m -Xmx5120m -XX:PermSize=2024m -Xdebug -Xnoagent -Djava.compiler=NONE -Xrunjdwp:
       transport=dt_socket,address=9446,server=y,suspend=n"
    c. Start the microservice - adjust your build version accordingly
       $ mvn -pl aai-traversal -PrunAjsc -Daai.schema.version=0.0.1-TEST-SNAPSHOT -Daai.schema.ingest.version=0.0.1-TEST-SNAPSHOT
       -DskipTests -Dcheckstyle.skip=true
       Should see something like this: Traversal Microservice Started

14. Verify the traversal microservice by executing attached postman AAI API calls
    a. Set up the widget models
       This will set up the postman to add widget models: Add_Widget_Models.postman_collection.json
    b. Create a runner using this file: models.csv

c. Run the test runner

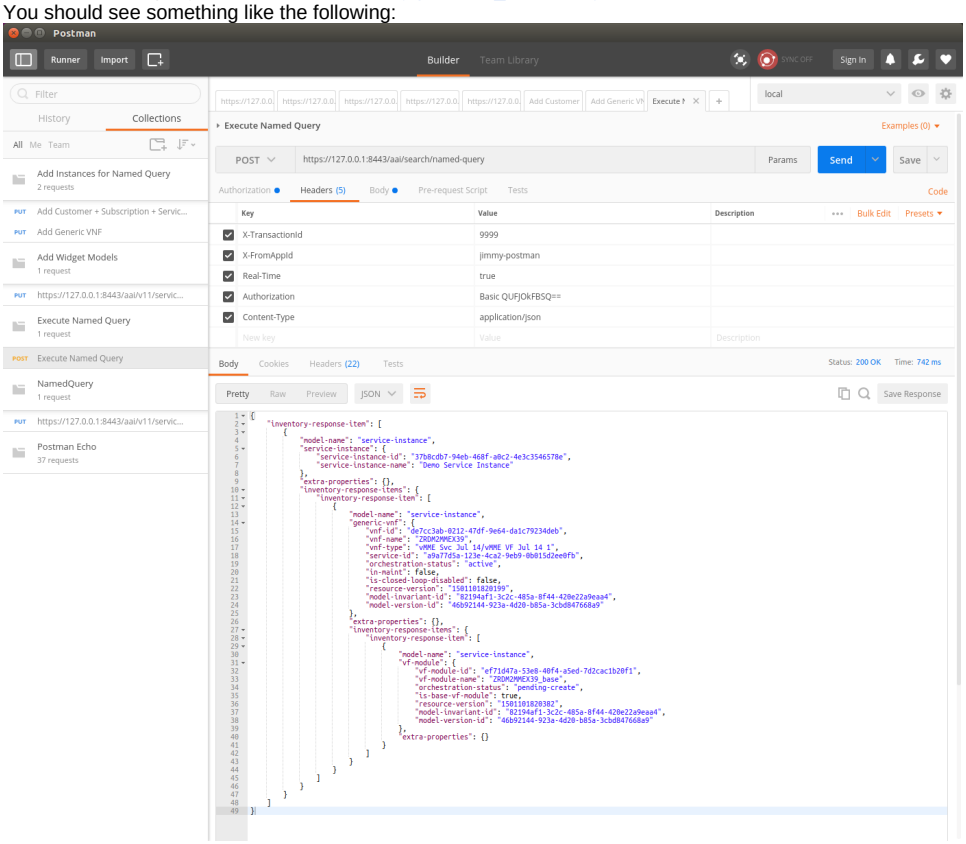


d. Add a named query called "getComponentList" (this named query is used by VID): NamedQuery.postman_collection.json



e. Add objects: Add_Instanes_for_Named_Query.postman_collection.json (replace the xmlns "http://org.openecomp.aai.inventory/v16" with "http://org.onap.aai.inventory/vXX" in the Body of the PUT request when using version above v11)

f. Execute named-query: Execute Named Query.postman_collection.json
You should see something like the following:



15. Your A&AI instance is now running, both the resources and traversal microservices are working properly with a local janus graph.
16. Next: AAI Tutorial-Making and Testing a Schema Change - Dublin

Attachments

File	Modified
File aai.pem	Apr 24, 2019 by James Forsyth
File Add_Instanes_for_Named_Query.postman_collection.json	Mar 17, 2019 by Venkata Harish Kajur
File Add_Widget_Models.postman_collection.json	Mar 17, 2019 by Venkata Harish Kajur
File Add Instances for Named Query.postman_collection.json	Feb 20, 2019 by Keong Lim
File Add Widget Models.postman_collection.json	Feb 20, 2019 by Keong Lim
File createDbSchemaLocal.sh	Feb 20, 2019 by Keong Lim
File data-complex.json	Feb 20, 2019 by Keong Lim
File Execute Named Query.postman_collection.json	Feb 20, 2019 by Keong Lim
File haproxy.cfg	Feb 20, 2019 by Keong Lim
PNG File image2017-7-26_11-6-11.png	Feb 20, 2019 by Keong Lim
PNG File image2017-7-26_16-17-19.png	Feb 20, 2019 by Keong Lim
PNG File image2017-7-26_16-23-12.png	Feb 20, 2019 by Keong Lim
PNG File image2017-7-26_16-58-5.png	Feb 20, 2019 by Keong Lim
File models.csv	Feb 20, 2019 by Keong Lim

File NamedQuery.postman_collection.json	Feb 20, 2019 by Keong Lim
File test-complex	Feb 20, 2019 by Keong Lim

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