Cognizant

Integrated Quality Dashboard

# INSTALLATION GUIDE

# WINDOWS OS

## Version 3.1

## Contents

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# 1. About this Installation Guide

The Cognizant® Integrated Quality Dashboard (CIQDashboard) Installation Guide, provides help to install CIQDashboard Server in your system. It guides you through the steps to install and uninstall the CIQDashbaord software, and provides instructions for completing the minimal configuration required to start creating dashboards. In addition, it provides troubleshooting information during or post-installation of the software.

The installation guide consists of the following chapters:

| Chapter Name | Description |
|---|---|
| About Cognizant® Integrated Quality Dashboard | Provides information about CIQDashboard |
| Hardware Requirements | Provides an overview about required hardware configuration |
| Software Requirements | Provides an overview about prerequisites for installing CIQDashboard |
| Binaries/Setup Files | Provides information on the required binaries/setup files |
| Installation Procedure in Windows OS | Provides procedure to install CIQDashboard |
| Uninstallation Procedure | Provides procedure to uninstall CIQDashboard |
| FAQs | Provides answers to a list of commonly asked questions regarding CIQDashboard |

# 2. About Cognizant® Integrated Quality Dashboard

This chapter consists:



## 2.1. Product Overview

Cognizant Integrated Quality Dashboard (CIQDashboard) is a data visualization solution, designed to transform data reporting into interactive business intelligence dashboards.

# 3. Hardware Requirements

The following table lists the hardware requirements for CIQDashboard:

| Type | Description |
|---|---|
| Operating System | Windows XP and above |
| Processor | 64-bit multi-core |
| RAM | Minimum: 8 GB; Recommended: 16 GB |
| HDD | 100 GB of available space (can increase based on volume of data gathered from the client) |
| Monitor | Resolution of 1024x768 or greater |

# 4. Software Requirements

The following table lists the software prerequisites for CIQDashboard and in a Windows Operating System:

| Software | Download Link |
|---|---|
| Java JDK | https://www.oracle.com/java/technologies/javase-jdk11-downloads.html<br>Required version: 11 |
| NGINX | http://nginx.org/en/download.html (Stable)<br>Required version: 1.18 or above |
| MongoDB | https://www.mongodb.com/try/download/community<br>Required version: 4.0 or above |
| Robo 3T | https://robomongo.org/download<br>Required version: 1.4 or above |


Cognizant® strongly recommends that the MongoDB instance provided by the customer should be configured to enable encryption at rest. Please refer, https://docs.mongodb.com/manual/core/security-encryption-at-rest/ for more information.

Admin or Power Broker privileges are required to install MongoDB and run Nginx Server

# 5. Binaries/Setup Files

- Please build the binaries from the respective repositories.
- Create a new folder in a drive (**Example:** C:\ciqdashboard\ciqdashboard_deployment\binaries) or use any existing folder


The path and the folder names mentioned, are only an example and are not mandatory to be the same

# 6. Installation Procedure in Windows OS

This chapter provides procedural information for installing the CIQDashbaord application in Windows OS.

## 6.1. Mongo DB Configuration

This section describes the steps to install Mongo DB and set up the server.

### 6.1.1. Installing Mongo DB

Follow the steps below after downloading the software. Refer the section Software Prerequisites for downloading Mongo DB.

- In Windows Explorer, locate the downloaded **MongoDB .msi** file.
- Double-click the **.msi** file. A set of screens appear to guide you through the installation process

### 6.1.2. Authenticating Mongo DB

Follow the steps below to authenticate Mongo DB server.

#### 6.1.2.1. Start Mongo Server in Normal Mode:

- Create a folder with name: **mongoDB_Data**** in **C:\'**.
- Open the command prompt (run as administrator), type **C:\Program Files\MongoDB\Server\4.0\bin** and press **Enter**. The folder path opens in the Command Prompt windows.
- In the command prompt, type **mongod --dbpath c:\mongoDB_Data** and press **Enter**. The Mongo server starts in normal mode.

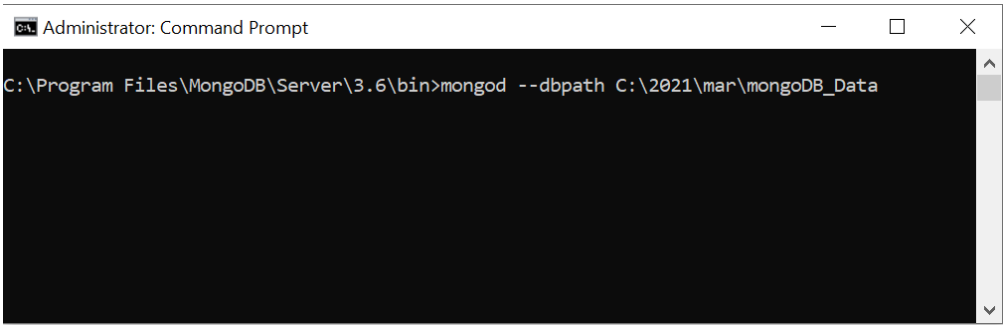



***Figure 1: Administrator Command Prompt***

| | |
|---|---|
| Note | The path and the folder names mentioned, are only an example and are not mandatory to be the same |

#### 6.1.2.2. Open Mongo Shell:

In the Command Prompt, navigate to the **bin** folder of the Mongo installation, type **mongo** and press **Enter**. The Mongo shell opens in the same command prompt.

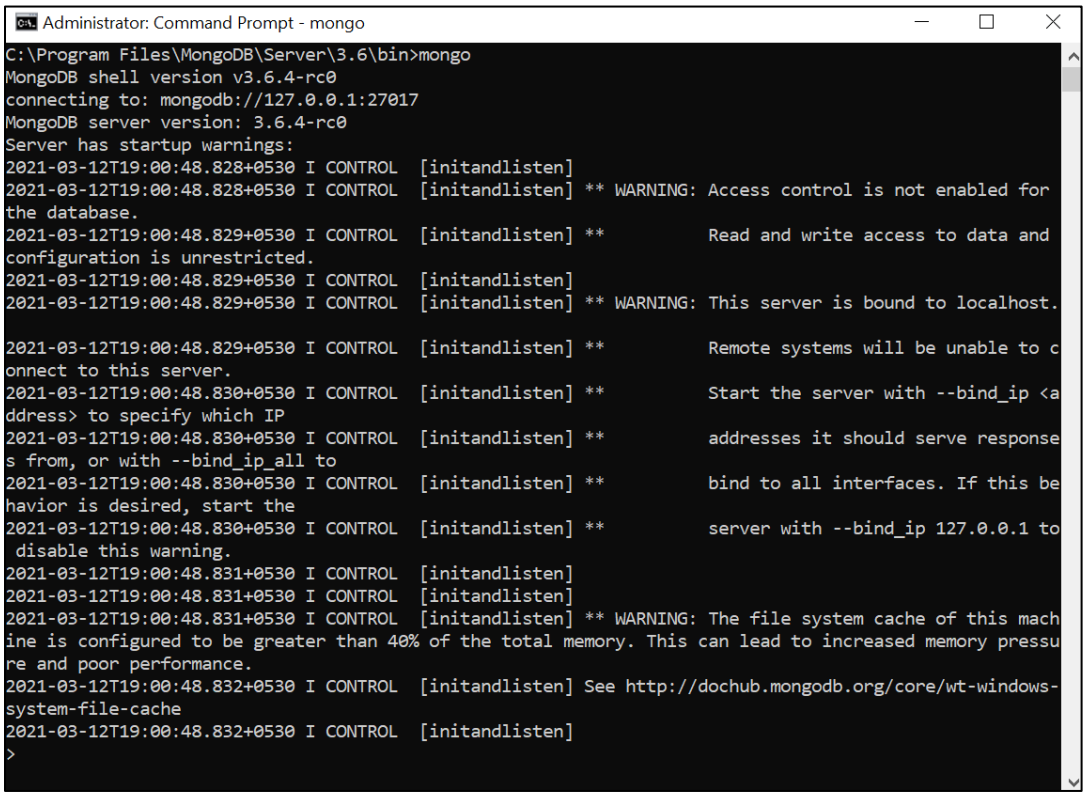



***Figure 2: Mongo***

#### 6.1.2.3. Creating Admin User and Password:

- In the mongo command prompt, type **use admin**. The DB switches to admin


***Figure 3: use admin***

- To create admin user credentials and add it to the DB, type the command as:

  **db.createUser({ user: "admin", pwd: "adminpassword", roles: [{ role: "root", db: "admin" }]})**


***Figure 4: Admin user***

- To check if the user credential is authenticated, in the mongo command prompt, type: **db.auth("admin","adminpassword")**. The command returns with value 1 for successful authentication.

#### 6.1.2.4. Create Custom DB and its Users:

Follow the steps below in mongo command prompt to create custom DB and its users.

- Type the command: **use ciqdasboard_prod**. The DB switches to c**iqdashboard_prod**.
- Type the command: **db.sample.save({username:"root"})**
- Type the command:

  **db.createUser({ user: "ciqdashboard", pwd: "ciqdashboard", roles: [{ role: "readWrite", db: "ciqdashboard_prod " }] })**


***Figure 5: ciqdashboard_prod***

| | |
|---|---|
| Note | Db, user, and password mentioned are only an example and are not mandatory to be the same. |

### 6.1.3. Validating Admin DB in RoboMongo

The authenticated admin DB can be validated using **RoboMongo** tool, which is Mongo shell UI. To validate:

- Open **Robo 3T – 1.4**. Click **File -> Manage Connections**. The **MongoDB Connections** pane appears

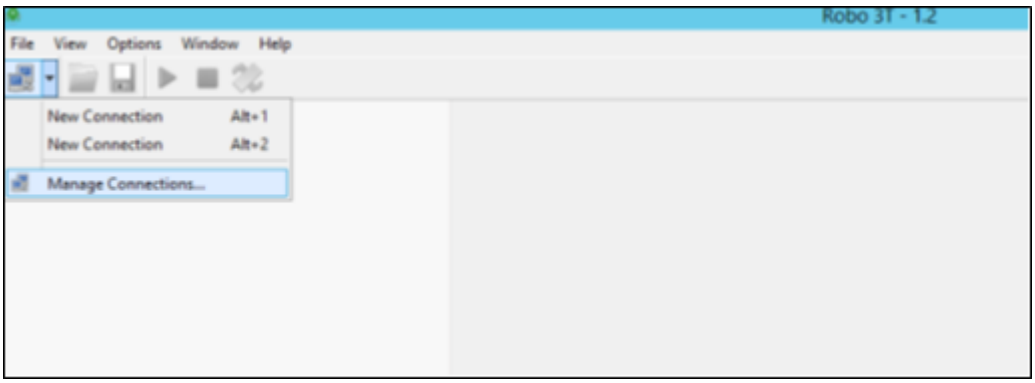



***Figure 6: Manage connections***

- In **MongoDB Connections** pane, click **Create**. The **Connection Settings** pane appears.

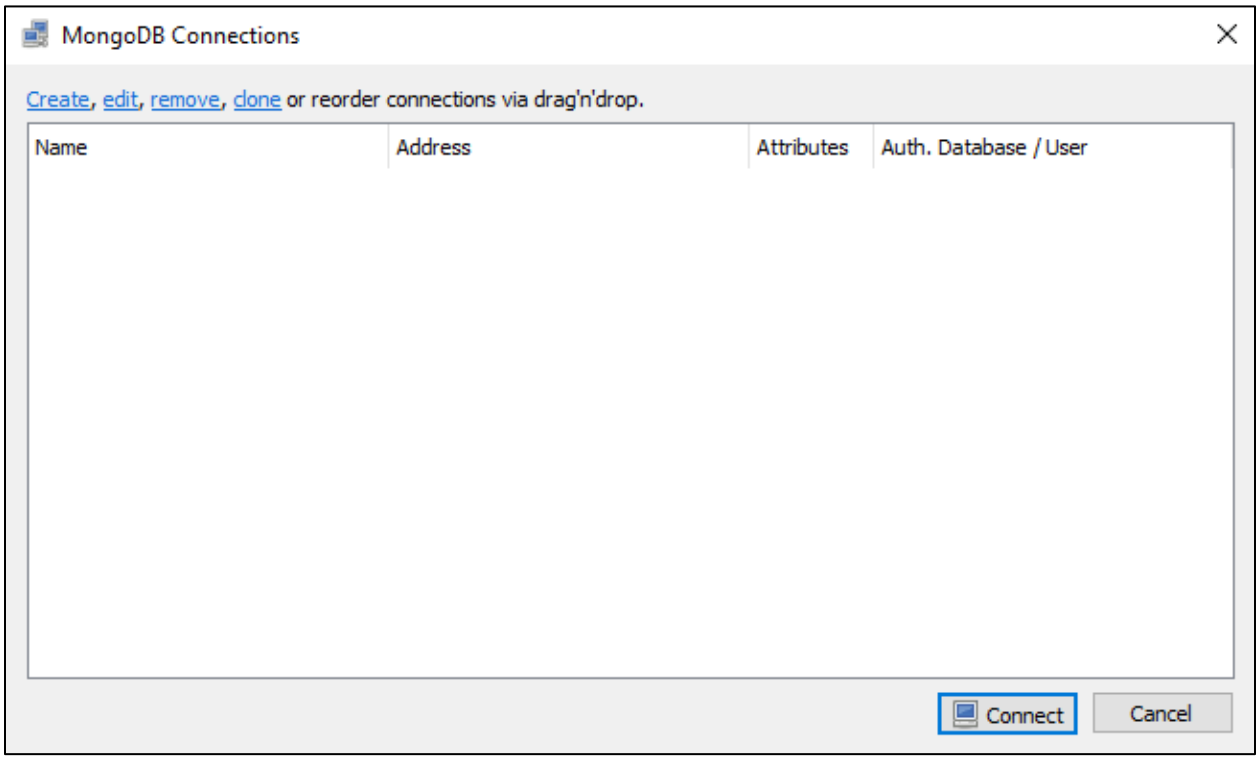



***Figure 7: Create***

- In the **Connection Settings** pane, click **Connection** tab.

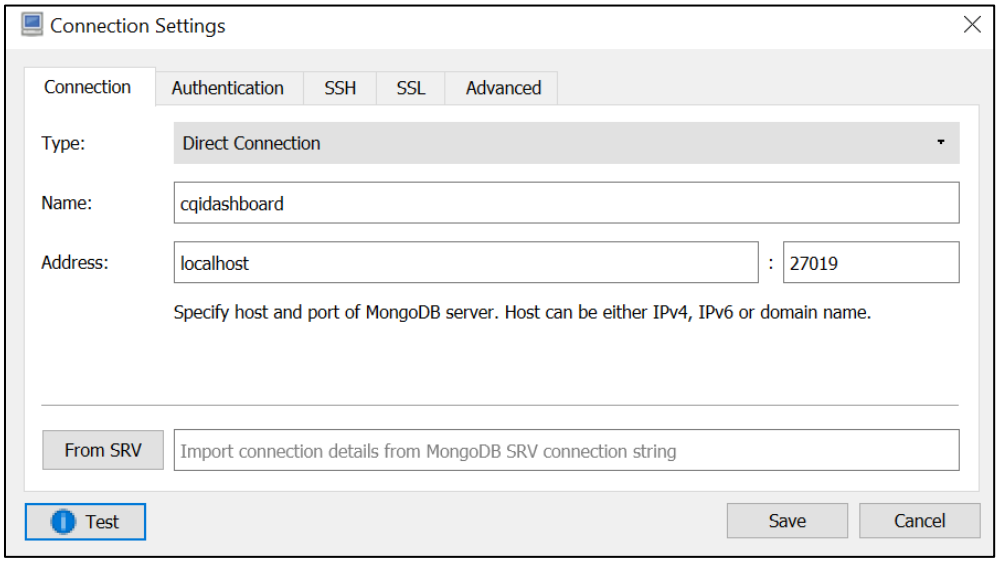



***Figure 8: Connection***

- In **Name**, type a name for the connection you are creating.
- In **Address**, type the host address and the port.
- Click **Authentication** tab. The **Authentication** pane appears.

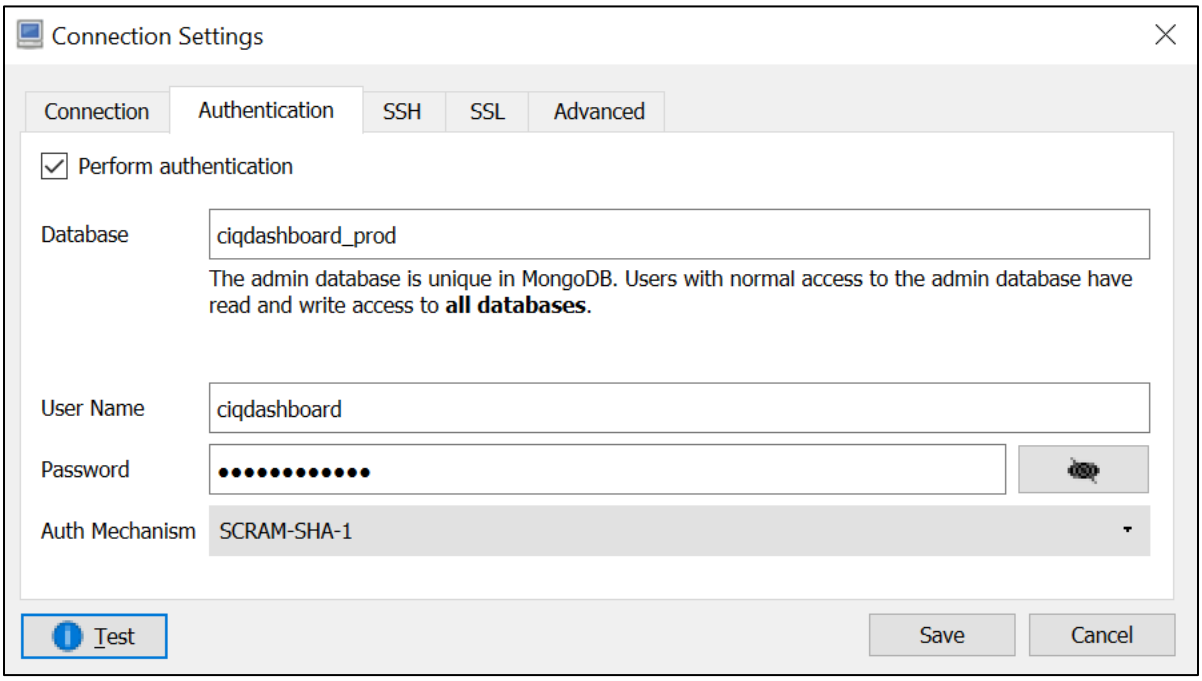



***Figure 9: Authentication***

- In **Database**, type c**iqdashboard_prod** (db created in Create Custom DB and its Users)
- In the **User Name** and **Password** fields, type the username and password created for admin database in Mongo shell.
- From the **Auth Mechanism** drop-down, select **SCRAM-SHA-1**. The **Diagnostic** pop-up appears, displaying the connection and authorization status.

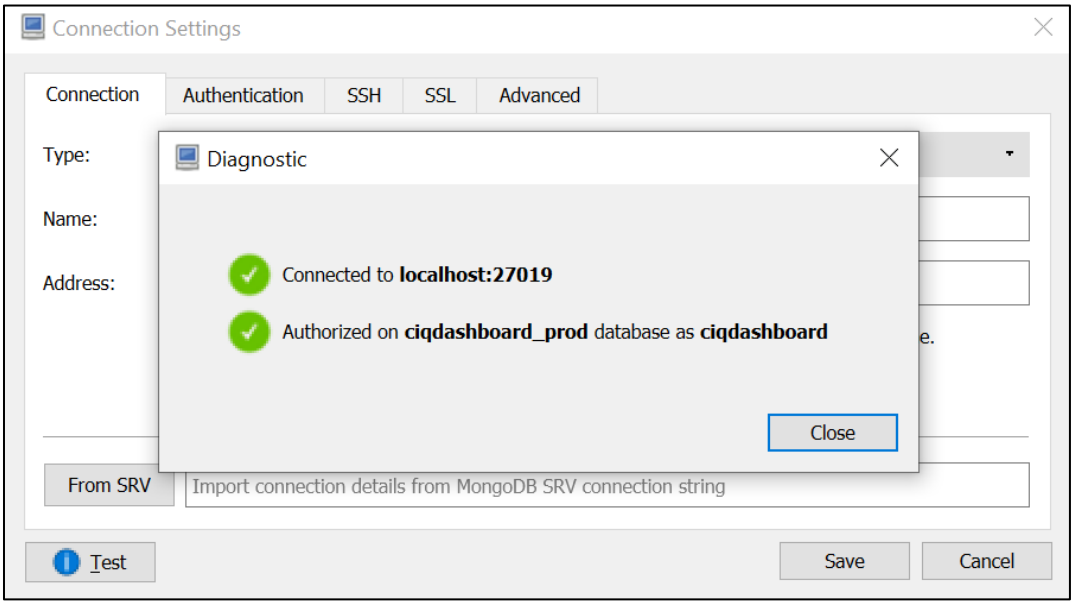



***Figure 10: Diagnostics***

### 6.1.4. Configuring MongoDB for CIQDashboard

- Create a new folder in a drive (**Example:** C:\ciqdashboard\ciqdashboard_deployment\binaries)
- In the created folder, place all the binaries ( Refer the section Binaries/Setup Files)
- Copy the content of c**iqdashboard-mongo-base-db.js** in **Robo 3T shell** in ciqdashboard database (db created in Create Custom DB and its Users)
- Click **Execute**

| | |
|---|---|
| Note | The path and the folder name mentioned, are only an example and are not mandatory to be the same |

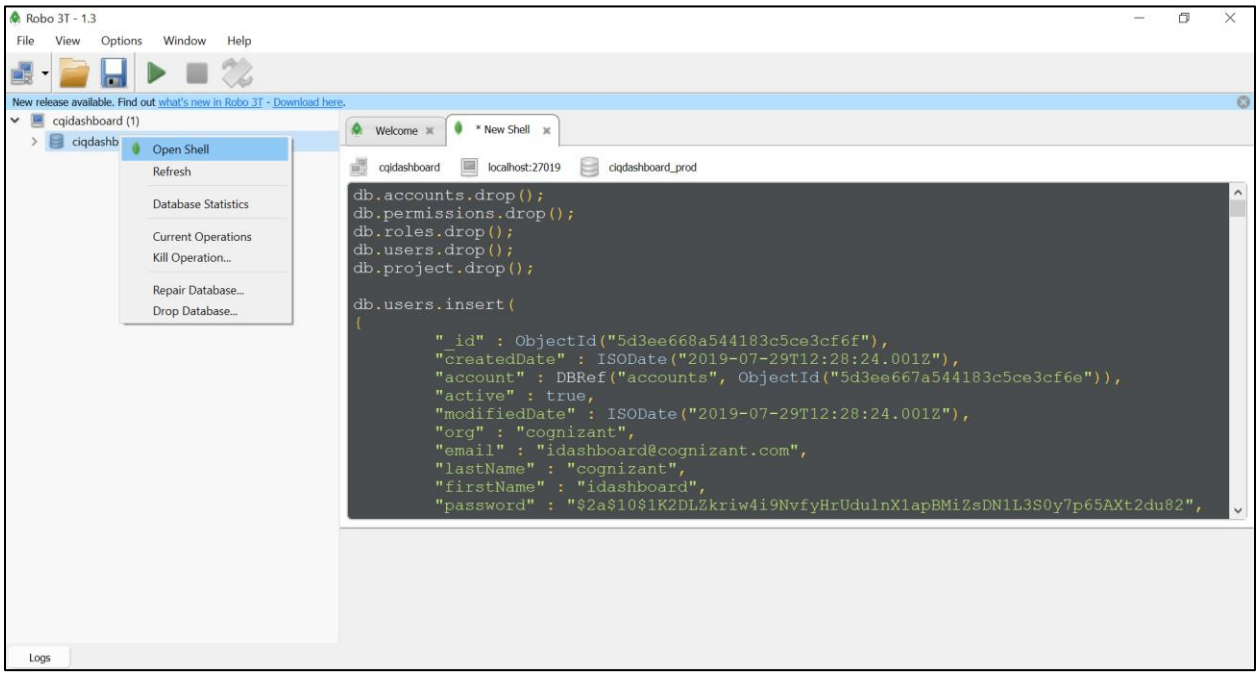



***Figure 11: Execute***

| | |
|---|---|
| Note | To start the Mongo in Authentication Mode, stop Mongo opened in Normal mode and run the command: **mongo –auth–dbpath c:\mongoDB_Data** |

## 6.2. Configuration of CIQDashboard

This section describes the steps to configure CIQDashboard.

### 6.2.1. Encrypt Password

- The **jasypt-1.9.3-dist.zip** utility bundled with CIQDashboard binaries (Refer the section Binaries/Setup Files), encrypts the passwords

- Unzip the **jasypt-1.9.3-dist.zip** file.
- In command prompt navigate to the folder **jasypt-1.9.3**
- Run the below command in command prompt (input =ciqdashboard, password=ciqdashboardSecurityKey):

  **java -cp lib/jasypt-1.9.3.jar org.jasypt.intf.cli.JasyptPBEStringEncryptionCLI password=ciqdashboardSecurityKey algorithm=PBEWITHHMACSHA512ANDAES_256 input=ciqdashboard ivGeneratorClassName=org.jasypt.iv.RandomIvGenerator**

| | |
|---|---|
| Note | Input is the password that requires encryption and password is the secret key. |

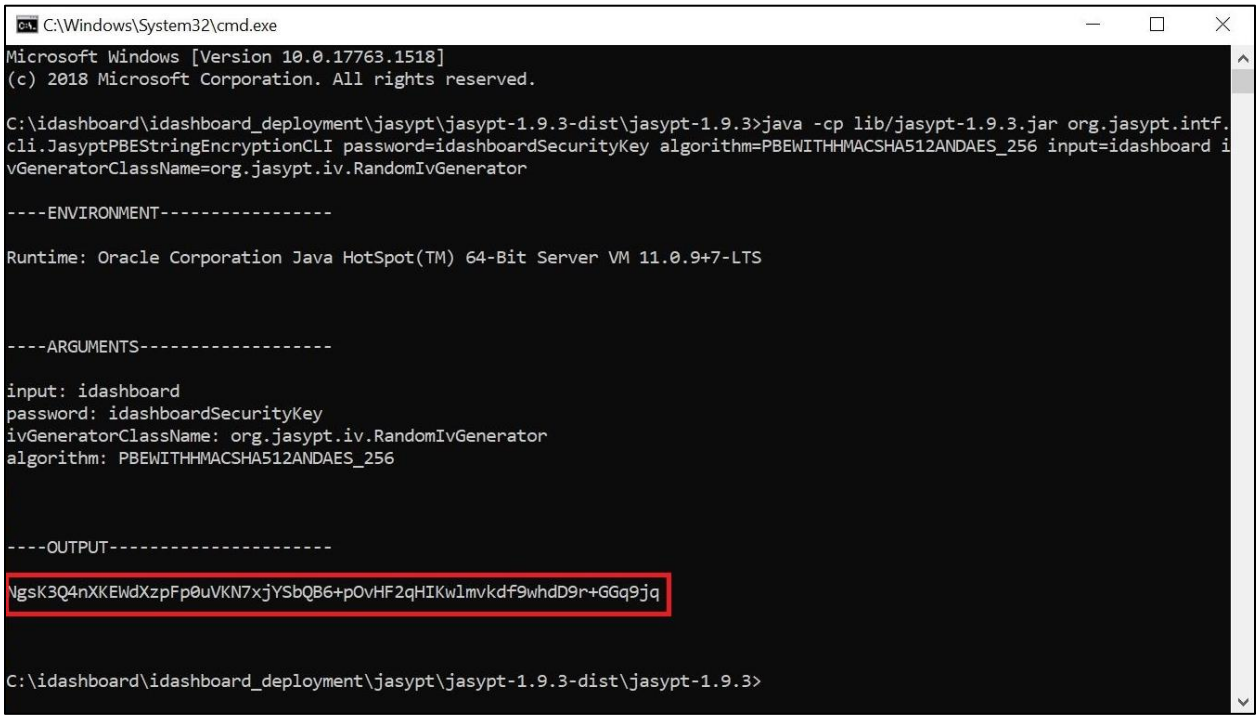



***Figure 12: Output***

- The output is the encrypted key, copy and save the key.
- Encode the security key (ciqdashboardSecurityKey - aWRhc2hib2FyZFNlY3VyaXR5S2V5) with **https://www.base64encode.org/** and pass it in the command line as **--jasypt.encryptor.password=<encoded_jasypt_pass>**

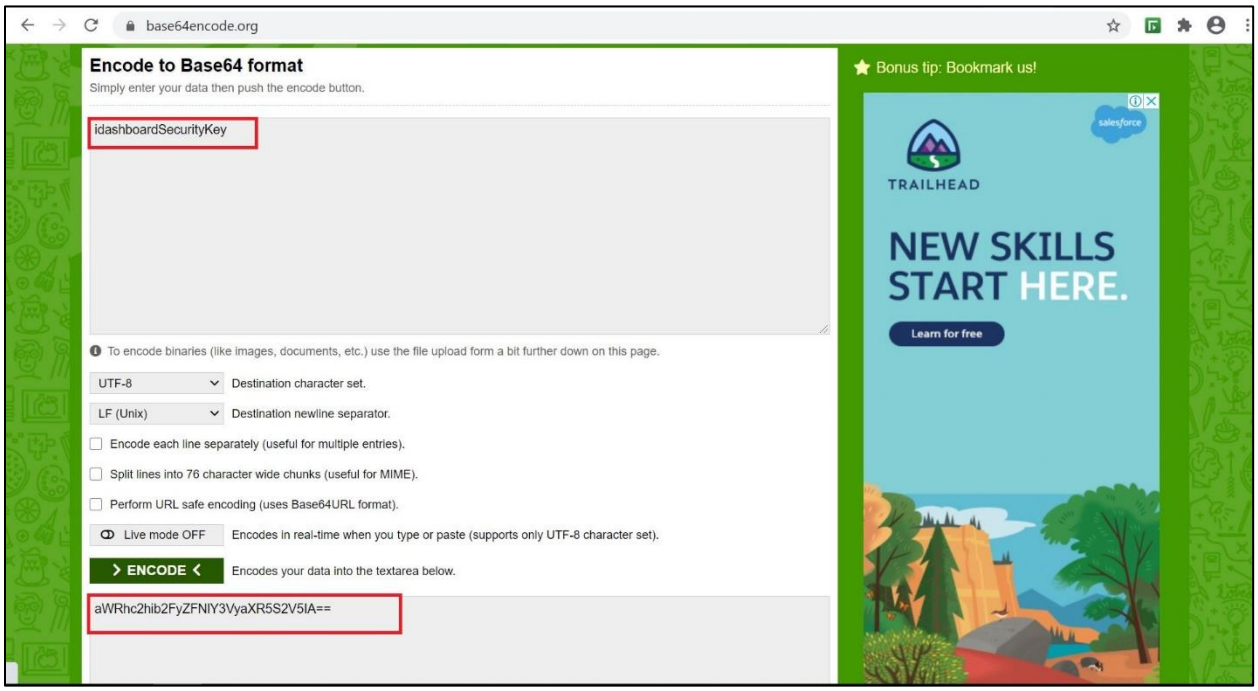



***Figure 13: Encode***

- Pass generated encrypted key (application keys - mongodb, collector applications) in the command line. **Example:** ``--spring.data.mongodb.credents=ENC(<ecrypted_key>)`` as encypted value.

### 6.2.2. Execute ciqdashboard-api-0.0.1.jar

- Open the command prompt and navigate to **bin** folder (Refer the section Binaries/Setup Files)

  java -jar ciqdashboard-api-0.0.1.jar --spring.data.mongodb.credents=**ENC(<ecrypted_key>)** --jasypt.encryptor.password=**<encoded_jasypt_pass>**

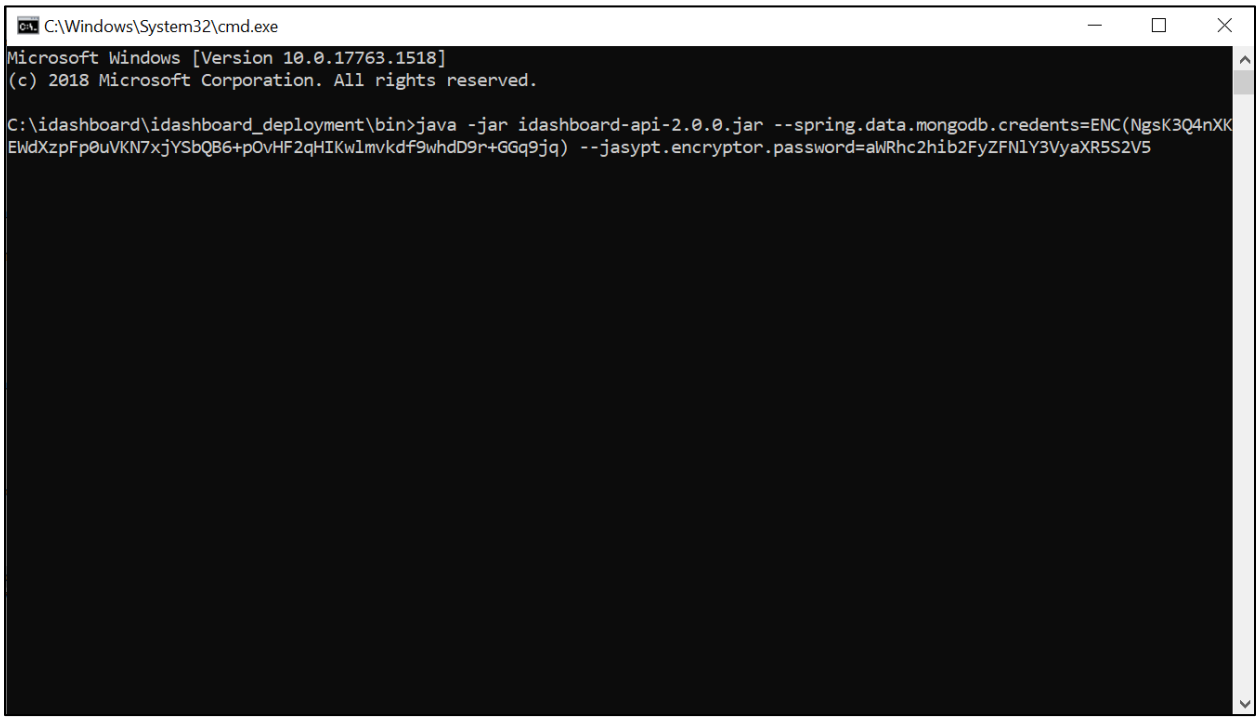



***Figure 14: ciqdashboard api jar***

- Validate the port that c**iqdashboard-api** is listening (Refer the section NGINX Configuration,to validate the port in **nginx.conf** file)

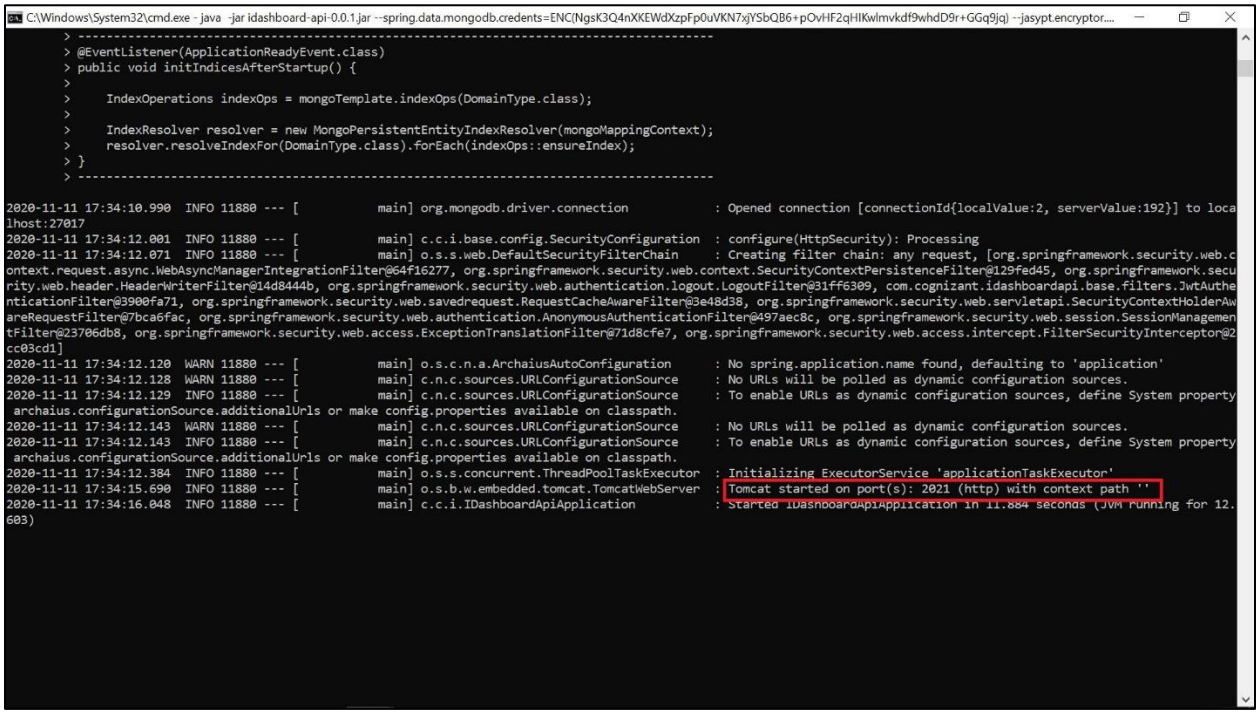



***Figure 15: Validate***

### 6.2.3. Execute auth-api-3.0.0.jar

- Open the command prompt and navigate to **bin** folder (Refer the section Binaries/Setup Files)

  java -jar auth-api-3.0.0.jar --spring.data.mongodb.credents=**ENC(ecrypted_key)** --jasypt.encryptor.password=**<encoded_jasypt_pass>**

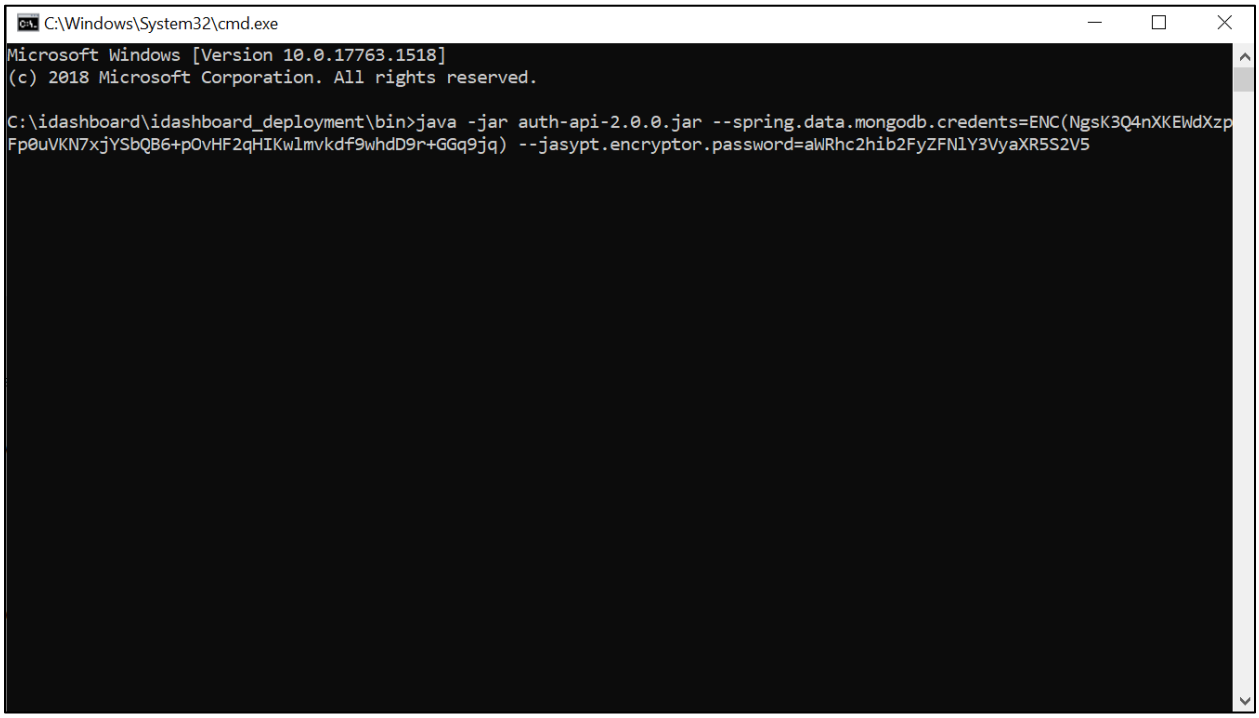



***Figure 16: auth api jar***

- Validate the port that **auth-api** is listening (Refer the section NGINX Configuration, to validate the port in **nginx.conf** file)

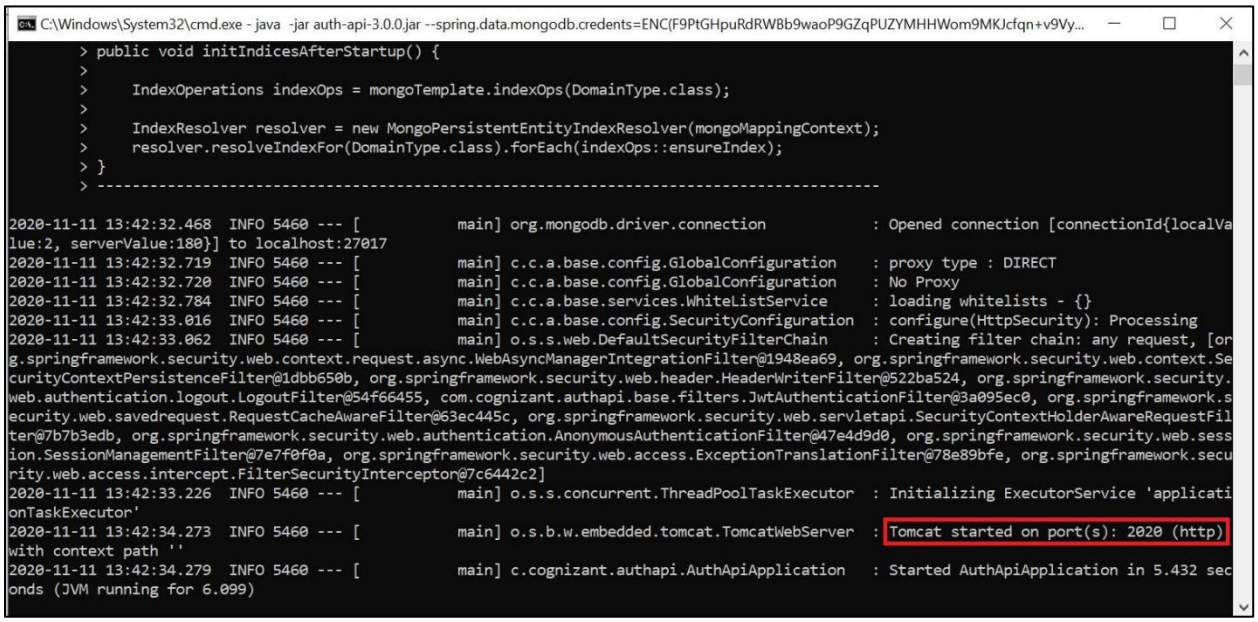



***Figure 17: Validate***

| | |
|---|---|
| Note | • To change the port, use **–server.port=<port-number>**<br>• To change the db name, use **--spring.data.mongodb.uri=mongodb://<username>:${spring.data.mongodb.credents}@localhost/<database-name>** |

### 6.2.4. Execute Collectors to extract data for data sources

- Encrypt the password/tokens using **jasypt** library. Refer the section Encrypt Password and use the below commands to run the respective collectors
- Open the command and navigate to respective collector jar files (Refer the section Binaries/Setup Files)

**Jenkins**

- java -jar ciqdashboard-data-collector-jenkins-0.0.1.jar --spring.data.mongodb.credents=ENC(NgsK3Q4nXKEWdXzpFp0uVKN7xjYSbQB6+pOvHF2qHIKwlmvkdf9whdD9r+GGq9jq) --jasypt.encryptor.password=aWRhc2hib2FyZFNlY3VyaXR5S2V5 --jenkins.url=<Jenkins-url> --jenkins.username=<username> --jenkins.token= ENC (<encrypt-token>)

**GITHUB**

- java -jar ciqdashboard-data-collector-github-0.0.1.jar --spring.data.mongodb.credents=ENC(NgsK3Q4nXKEWdXzpFp0uVKN7xjYSbQB6+pOvHF2qHIKwlmvkdf9whdD9r+GGq9jq) --jasypt.encryptor.password=aWRhc2hib2FyZFNlY3VyaXR5S2V5 --github.url=https://api.github.com --github.token= ENC(<encrypt-token>)

**GITLAB**

- java -jar ciqdashboard-data-collector-gitlab-0.0.1.jar --spring.data.mongodb.credents=ENC(NgsK3Q4nXKEWdXzpFp0uVKN7xjYSbQB6+pOvHF2qHIKwlmvkdf9whdD9r+GGq9jq) --jasypt.encryptor.password=aWRhc2hib2FyZFNlY3VyaXR5S2V5 --gitlab.url=<gitlab-url> --gitlab.token= ENC(<encrypt-token>)

**Artifactory**

- java -jar ciqdashboard-data-collector-artifactory-0.0.1.jar --spring.data.mongodb.credents=ENC(NgsK3Q4nXKEWdXzpFp0uVKN7xjYSbQB6+pOvHF2qHIKwlmvkdf9whdD9r+GGq9jq) --jasypt.encryptor.password=aWRhc2hib2FyZFNlY3VyaXR5S2V5 --artifactory.url=<atifactory-url> --artifactory.token== ENC(<encrypt-token>) --artifactory.username=<username>

**JIRA**

- java -jar ciqdashboard-data-collector-jira-0.0.1.jar --spring.data.mongodb.credents=ENC(NgsK3Q4nXKEWdXzpFp0uVKN7xjYSbQB6+pOvHF2qHIKwlmvkdf9whdD9r+GGq9jq) --jasypt.encryptor.password=aWRhc2hib2FyZFNlY3VyaXR5S2V5 --jiraServer.url=http://<jiraServer-url>/rest/api/latest --jiraServer.username=<username> --jiraServer.password=ENC(<encrypt-password>)

**Microfocus ALM**

- java -jar ciqdashboard-data-collector-alm-0.0.1.jar --spring.data.mongodb.credents=ENC(NgsK3Q4nXKEWdXzpFp0uVKN7xjYSbQB6+pOvHF2qHIKwlmvkdf9whdD9r+GGq9jq) --jasypt.encryptor.password=aWRhc2hib2FyZFNlY3VyaXR5S2V5 --almServer.url=http://<alm-url>/qcbin --almServer.username=<username> --almServer.password= ENC(<encrypt-password>)

**SONARQUBE**

- java -jar ciqdashboard-data-collector-sonarqube-0.0.1.jar --spring.data.mongodb.credents=ENC(NgsK3Q4nXKEWdXzpFp0uVKN7xjYSbQB6+pOvHF2qHIKwlmvkdf9whdD9r+GGq9jq) --jasypt.encryptor.password=aWRhc2hib2FyZFNlY3VyaXR5S2V5 --

sonarqube.url=<sonarcube-url> --sonarqube.username=<username> --sonarqube.token=ENC(<encrypt-token>)

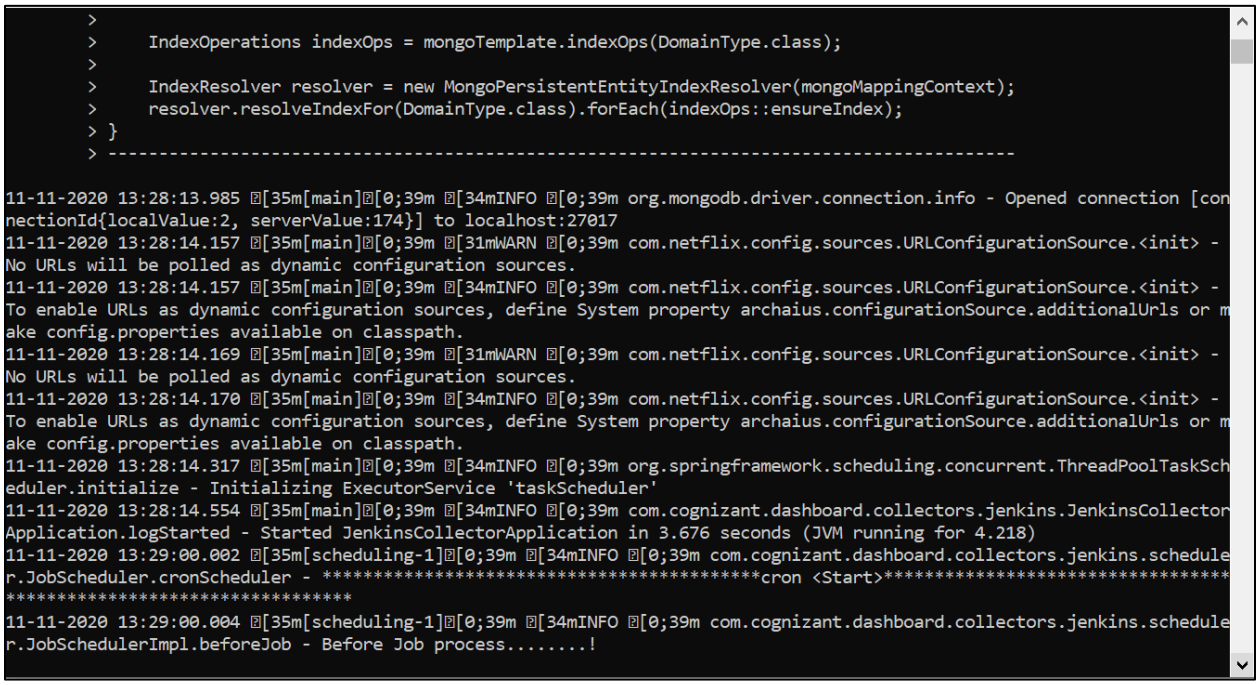



***Figure 18: Collectors***

- Run all the collectors and wait for the scheduler to complete the job.
- After running the collectors, refresh the database and verify the collectors.

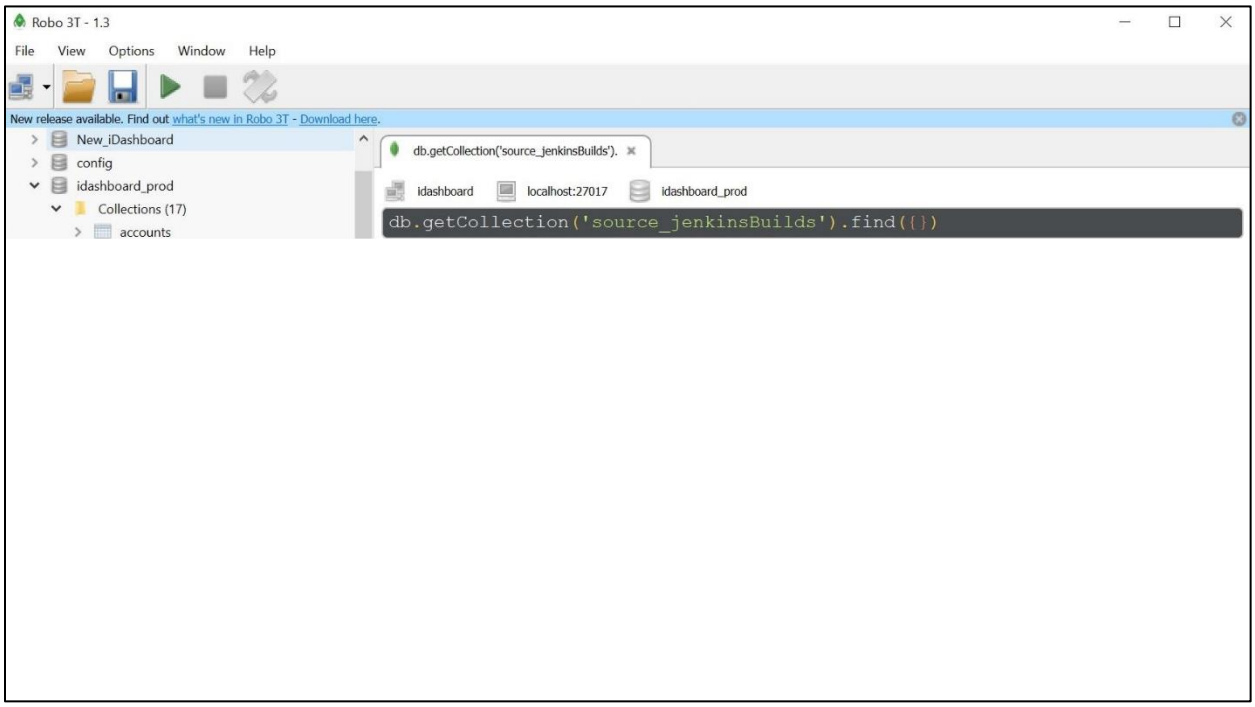



***Figure 19: Refresh and verify***

Note

Jasypt.encryptor.password as in **step no: 6** of the section Encrypt Password

### 6.2.5. NGINX Configuration

Follow the steps below after downloading the software. Refer the section Software Requirements for downloading NGINX.

- Extract to any folder (**Example: C:\ Drive**)
- From **binaries**(Refer the section Binaries/Setup Files)**->nginx**, open c**iqdashboard.conf** file, copy the entire available content and paste it in **nginx_folder->conf->nginx.conf**

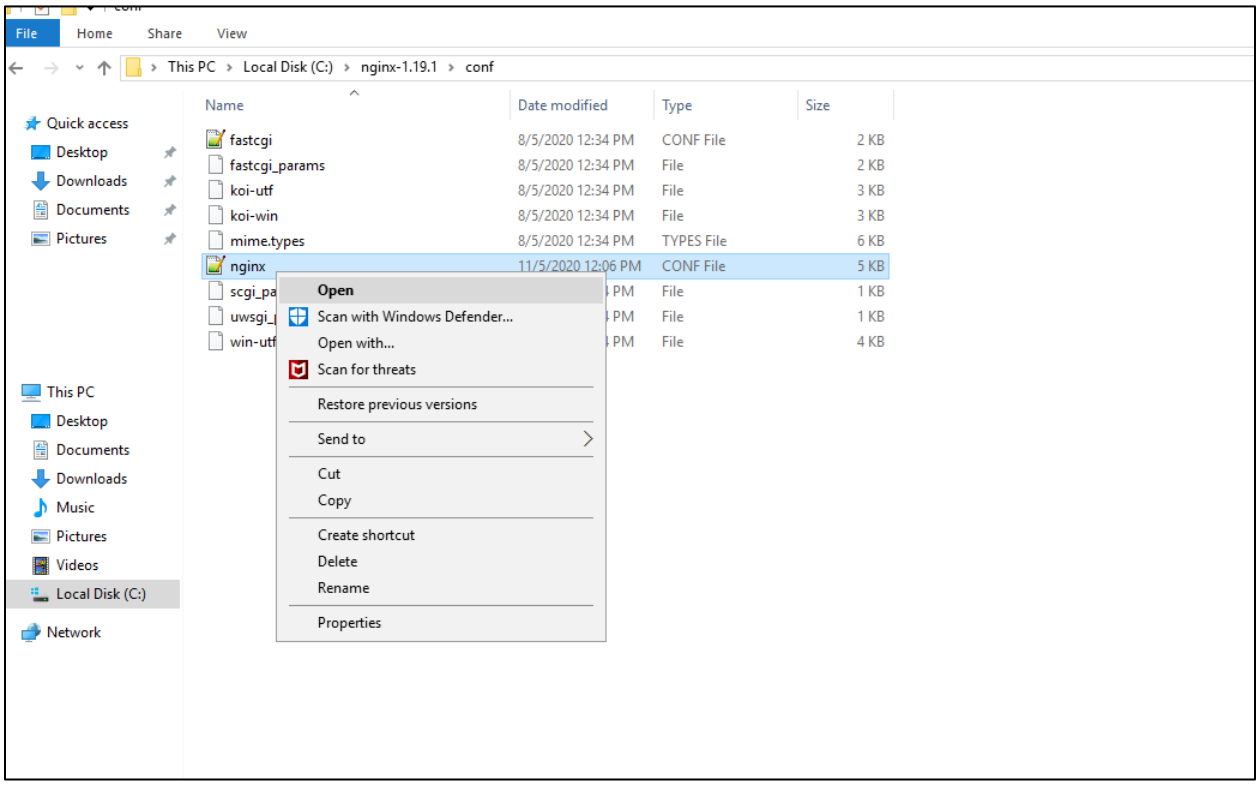
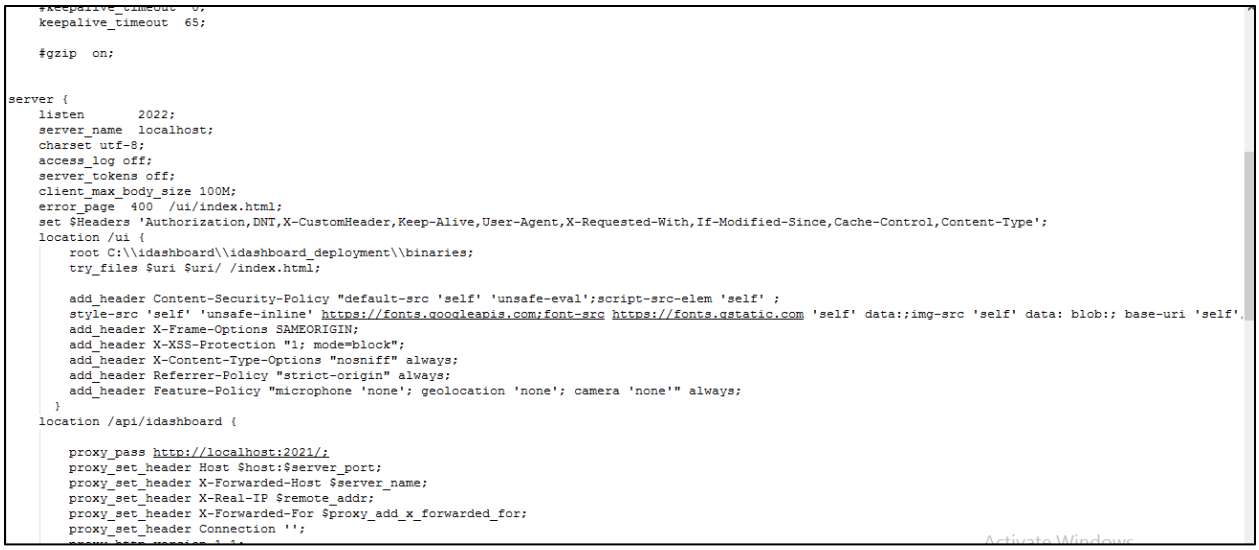



***Figure 20: ngnix.conf***

Edit the UI binaries path in **nginx.conf** file and change the **listen** port to **2022**



```
    keepalive_timeout  65;

    #gzip  on;


server {
    listen       2022;
    server_name  localhost;
    charset utf-8;
    access_log off;
    server_tokens off;
    client_max_body_size 100M;
    error_page  400  /ui/index.html;
    set $Headers 'Authorization,DNT,X-CustomHeader,Keep-Alive,User-Agent,X-Requested-With,If-Modified-Since,Cache-Control,Content-Type';
    location /ui {
        root C:\\idashboard\\idashboard_deployment\\binaries;
        try_files $uri $uri/ /index.html;

        add_header Content-Security-Policy "default-src 'self' 'unsafe-eval';script-src-elem 'self' ;
        style-src 'self' 'unsafe-inline' https://fonts.googleapis.com;font-src https://fonts.gstatic.com 'self' data:;img-src 'self' data: blob:; base-uri 'self';
        add_header X-Frame-Options SAMEORIGIN;
        add_header X-XSS-Protection "1; mode=block";
        add_header X-Content-Type-Options "nosniff" always;
        add_header Referrer-Policy "strict-origin" always;
        add_header Feature-Policy "microphone 'none'; geolocation 'none'; camera 'none'" always;
      }
    location /api/idashboard {

        proxy_pass http://localhost:2021/;
        proxy_set_header Host $host:$server_port;
        proxy_set_header X-Forwarded-Host $server_name;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header Connection '';
```

***Figure 21: listen port***

Open the command prompt as Administrator. Navigate to **nginx folder** path extracted in **C: drive** and use command: **start nginx** to start the UI.

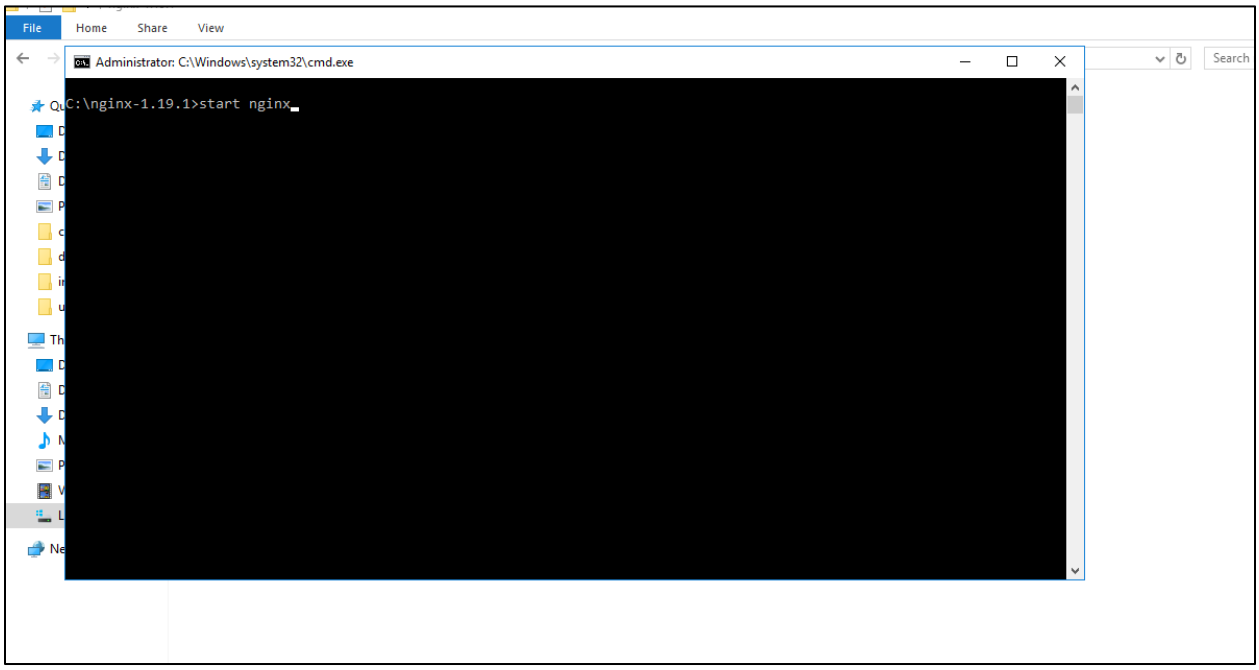



***Figure 22: start nginx***

Open http://localhost:2022/ui to access CIQDashboard. Replace localhost with IP, to access from different machine/network

### 6.2.6. Apache server Configuration

Follow the steps below after downloading the software. Refer the section Software Requirements for downloading Apache Server

- Extract to any folder (**Example: C:\ Drive**)
- From **binaries**(Refer the section Binaries/Setup Files)**->apache**, open c**iqdashboard.conf** file, copy the entire available content and paste it in **apache_folder->conf->httpd.conf**

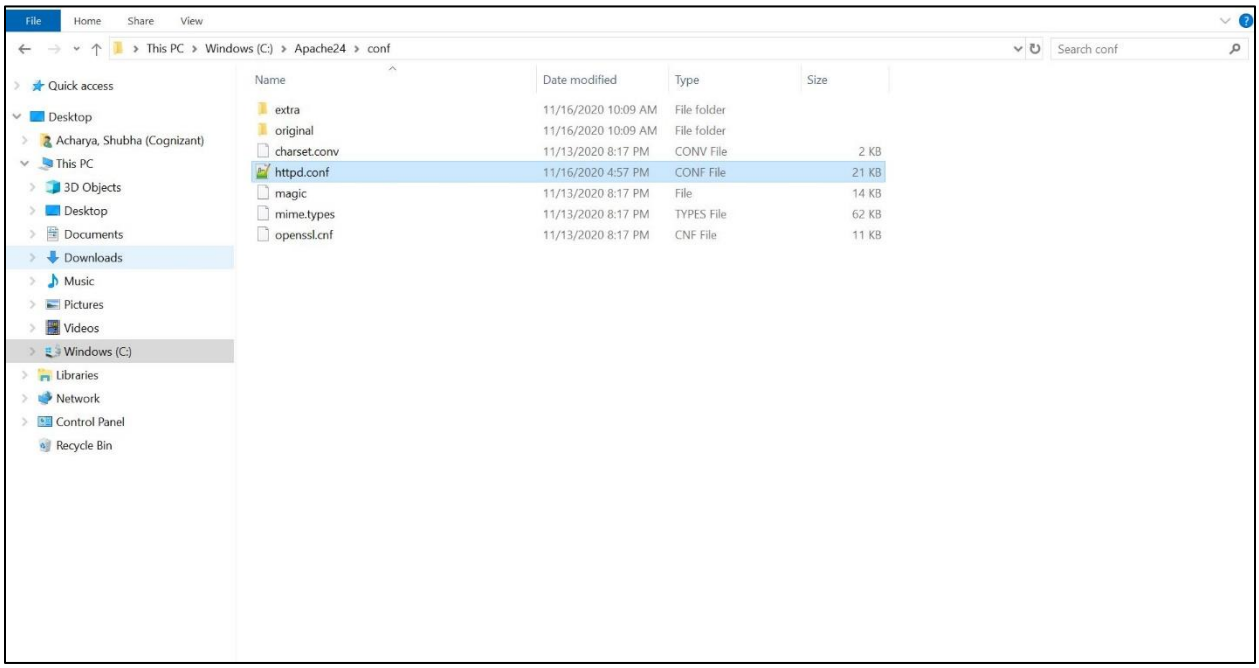



***Figure 23: httpd.conf***

- Open a command prompt window and cd to the c:\Apache24\bin folder.
- To Start Apache in the command prompt type:

  ```
  >httpd.exe
  ```

- You can test your installation by opening up your Browser and typing in the address:

  ```
  http://localhost
  ```

- You can shut down Apache by pressing Ctrl+C (It may take a few seconds)
- To install as a service. Open command prompt as Administrator and type:

  ```
  >httpd.exe -k install
  ```

- You can start/stop the service with the command:

  ```
  >services.msc
  ```

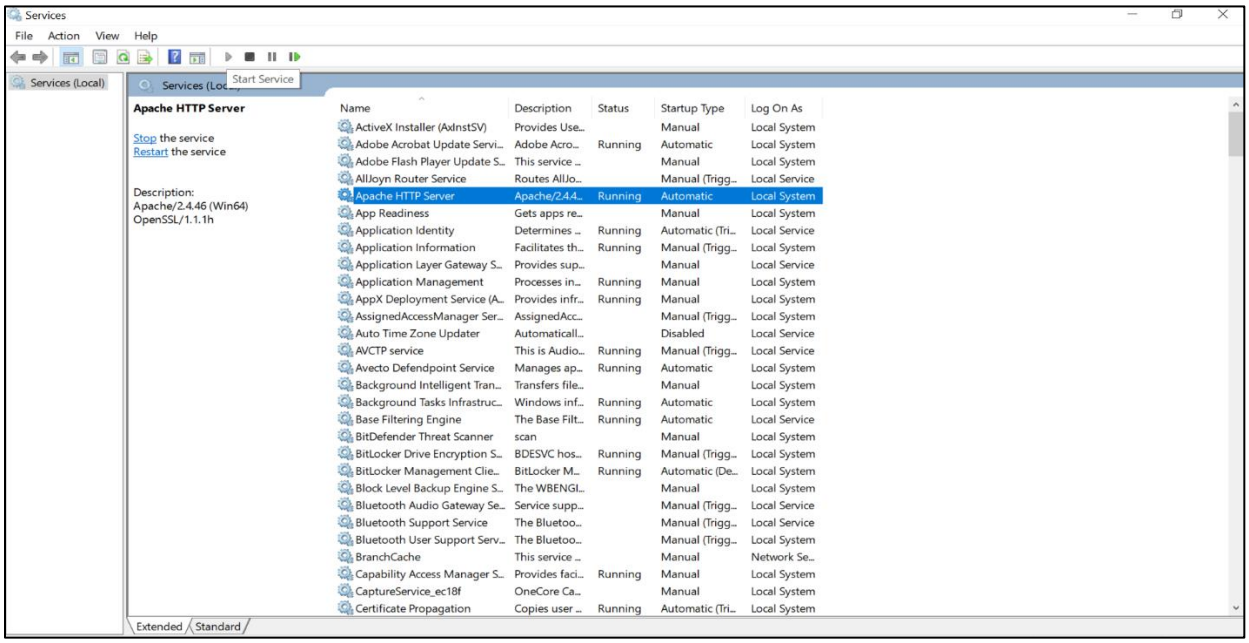



***Figure 24: services.msc***

- Place the UI binaries in to C:\Apache24\htdocs folder

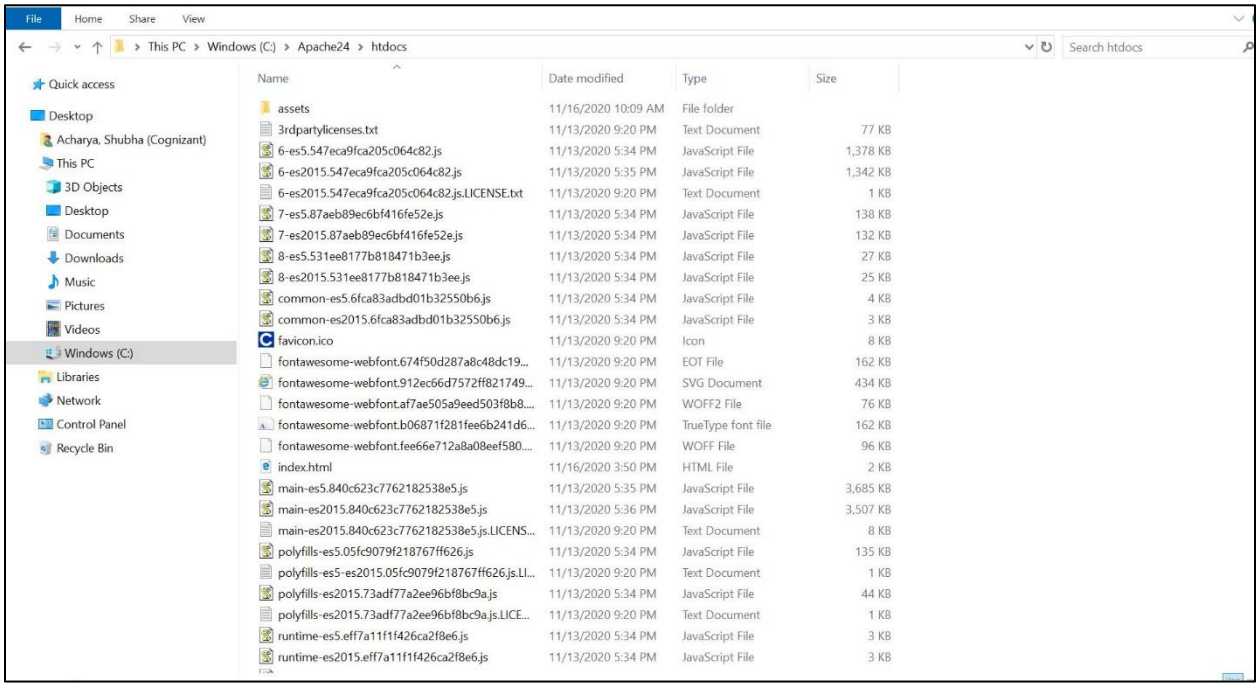



***Figure 25: htdocs***

- Change the port number in **httpd.conf** if there is any change in port number.

```
510
511 # Virtual hosts
512 #Include conf/extra/httpd-vhosts.conf
513
514 # Local access to the Apache HTTP Server Manual
515 #Include conf/extra/httpd-manual.conf
516
517 # Distributed authoring and versioning (WebDAV)
518 #Include conf/extra/httpd-dav.conf
519
520 # Various default settings
521 #Include conf/extra/httpd-default.conf
522 # Configure mod_proxy_html to understand HTML4/XHTML1
523 <IfModule proxy_html_module>
524 Include conf/extra/proxy-html.conf
525 </IfModule>
526
527 # Secure (SSL/TLS) connections
528 #Include conf/extra/httpd-ssl.conf
529 #
530 # Note: The following must must be present to support
531 #       starting without SSL on platforms with no /dev/random equivalent
532 #       but a statically compiled-in mod_ssl.
533 #
534 <IfModule ssl_module>
535 SSLRandomSeed startup builtin
536 SSLRandomSeed connect builtin
537 </IfModule>
538
539 <VirtualHost *:80>
540 # Enable Proxy
541 ProxyPreserveHost On
542 # Incoming. Example host and port, http://PAS_SERVER:8080/
543 # Only enable below what you like to be accessed from outside
544 ProxyPassMatch "/api/idashboard(.*)$" "http://localhost:2021/$1"
545 ProxyPassReverse "/api/idashboard(.*)$" "http://localhost:2021/$1"
546 ProxyPassMatch "/api(.*)$" "http://localhost:2020/$1"
547 ProxyPassReverse "/api(.*)$" "http://localhost:2020/$1"
548 </VirtualHost>
```

***Figure 26: httpd.config***

- Start the server. Open http://localhost to access CIQDashboard. Replace localhost with IP, to access from different machine/network

# 7. FAQs

- How to change the default port?

  To change the default port, use **--server.port=<port-number>**. (Refer section 6.2.2 and 6.2.3)

- How can I change the database name?

  To change the db name, use **-- spring.data.mongodb.uri**

  **mongodb://<username>:${spring.data.mongodb.credents}@localhost/<database-name>** **=**

  (Refer section 6.2.2 ,6.2.3 and 6.2.4)

- How to schedule the collectors?

  By default, the scheduler runs for every minute. To change the scheduler time, **use --scheduler.cron = <time in cron expression>**. To know more about cron expression, refer https://docs.oracle.com/cd/E12058_01/doc/doc.1014/e12030/cron_expressions.htm