

# Visualise Your Delivery Pipeline in Real-Time with Hygieia

By **Kousik Maiti** - July 15, 2019



*Hygieia is an open source project that enables the user to visualise the entire delivery pipeline, adds support for multiple teams and a corresponding consolidated view into a program dashboard. Hygieia integrates widgets from story tracking, the repository, build, quality, which enables easy access to important DevOps metrics.*

Hygieia is an open source project (released under the Apache 2 licence), which provides configurable, easy-to-use dashboard for visualising the status of the entire delivery pipeline near real-time. It provides two other self-contained dashboards — one for the DevOps engineer to track the current status of Continuous Integration Continuous Delivery(CICD) and the other for executives, to monitor the health of code commits, the deployment process and final production.

Hygieia can give complex insights into the following areas.

**DevOps maturity:** It offers fully automated CICD tracking of high quality and with good pipeline speed.

**Risk management and investing:** It connects operational metrics to developmental metrics offering a full understanding of where to invest in order to improve processes that reduce unnecessary risks, considering the future.

Offline

**Ongoing enhancements for Agile environments:** It quantifies DevOps metrics to track and improve DevOps maturity.

**Establishes and raises standards:** It sets and achieves a profile for maturity metrics and products. When products dip below the bar, it triggers an alert notification. In addition, this goes up incrementally to ensure that all products undergo simultaneous improvements.

Table 1 presents an overview of Hygieia's architecture.

Table 1

Layer	Description
UI layer	The UI layer (user interface) is Hygieia's front-end and contains all the graphical user interface (GUI) elements for users to view. It is here that users are also able to configure the dashboard.
API layer	The Hygieia API layer contains Hygieia APIs and audit APIs. Hygieia APIs contain all the typical REST API services that work with the source system data (collected by service tasks) and the Internet. Hygieia audit APIs are a collection of API endpoints that serve to audit CI/CD data gathered by Hygieia collectors. This layer is an abstraction of the local data layer and the source system data layer.
DevOps tools	This layer entails the multitude of DevOps tools in a CI/CD pipeline. In Figure 1, Jira, Git, Sonar, and XLDeploy are listed as examples.
Collectors' layer	The collectors' layer fetches data from your DevOps tools. In turn, this data appears on your Hygieia dashboard. You can choose to install the collectors applicable to your DevOps tool set from the Hygieia Collectors Inventory.
Database layer	Hygieia uses MongoDB as the database for the storage and retrieval of data.

## Setting it up

Let us look at how to install and use Hygieia. I am using Ubuntu 18.04 64-bit.

The prerequisites are given below.

1. Git, required for getting the latest copy of Hygieia. To install it, run the following command:

```
$sudo apt-get install git
```

2. Java, the backend of the Hygieia application (1.8 recommended). Download Java from Oracle. Extract it in `/opt`. Add `$JAVA_HOME` and `$JRE_HOME` to `/etc/profile`.

Add newly downloaded java and javac in System

```
$sudo update-alternatives --install /usr/bin/java java /opt/jdk1.8.0_211/bin/java 1
$sudo update-alternatives --install /usr/bin/javac javac /opt/jdk1.8.0_211/bin/javac 1
```

Select oracle-java as default one

```
$sudo update-alternatives --config java
```

```
$sudo update-alternatives --config javac
```

Check java versions

```
$ java -version
```

```
java version "1.8.0_211"
```

```
Java(TM) SE Runtime Environment (build 1.8.0_211-b12)
```

```
Java HotSpot(TM) 64-Bit Server VM (build 25.211-b12, mixed mode)
```

```
$ javac -version
```

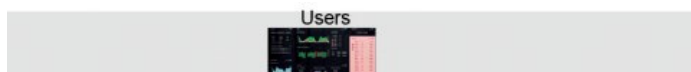
```
javac 1.8.0_211
```

3. Maven (3.3.6 or above recommended). To install it, run the following command:

```
$sudo apt-get install mvn
```

4. Install the npm JavaScript package manager, as follows:

```
$apt-get install npm
```



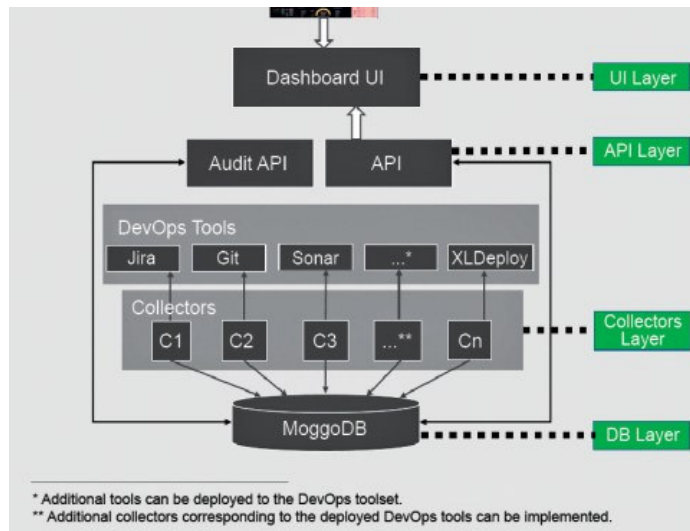


Figure 1: Architecture of Hygieia

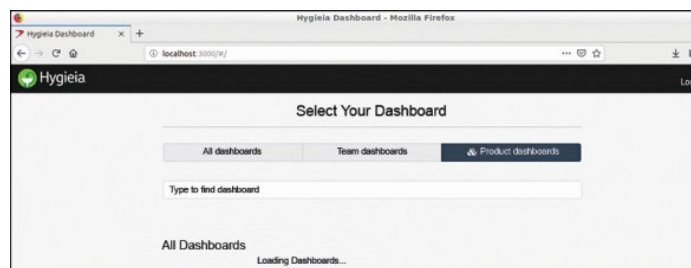


Figure 2: The Hygieia

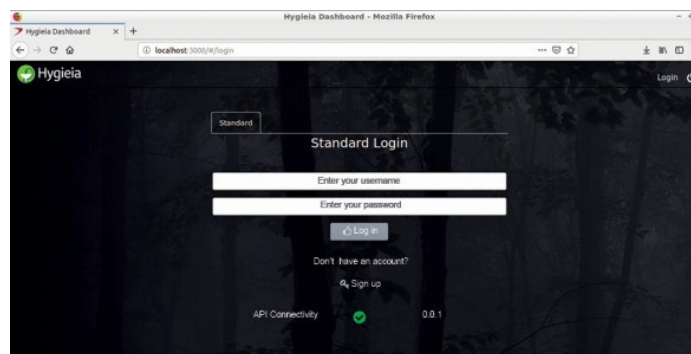


Figure 3: Login screen

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## Installing Hygieia

Hygieia has two components — Hygieia-core and Hygieia. First, you have to create a Hygieia user.

Then download the latest Hygieia-core and Hygieia. (Git clone: <https://github.com/Hygieia/hygieia-core.git>; Git clone: <https://github.com/Hygieia/hygieia.git>)

Then move to Hygieia-core and run the following command:

```
mvn clean install package
```

This takes a few minutes to complete.

After that, move to the Hygieia directory and run the following command:

```
mvn clean install package
```

This takes 20-30 minutes to complete.

The Web application server of the UI will need *Gulp* and *Bower*. *Gulp* is a tool that helps you with several tasks when it comes to Web development. It's often used to do frontend tasks I

- Spinning up a Web server
- Reloading the browser automatically whenever a file is saved
- Using preprocessors like Sass or LESS
- Optimising assets like CSS, JavaScript, and images

*Bower* can manage components that contain HTML, CSS, JavaScript, fonts or even image file doesn't concatenate or minify code or do anything else — it just installs the right versions of packages you need along with their dependencies.

```
$sudo npm install -g bower
$sudo npm install -g gulp
```

Go to the Hygieia/UI directory and run the following command:

```
$ gulp serve
```

Press *Ctrl+C* to stop the server.

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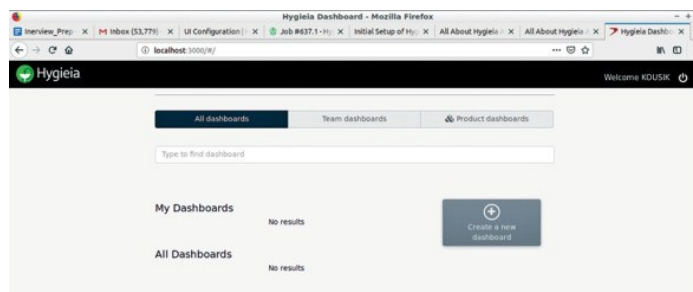
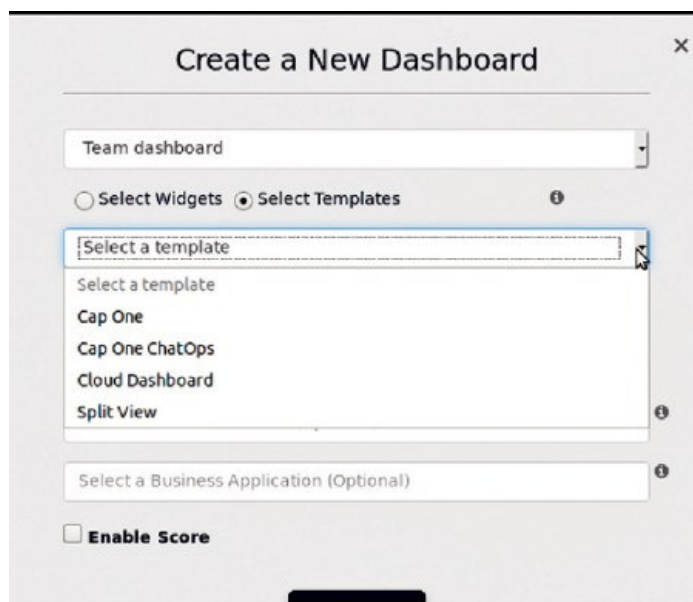


Figure 4: Dashboard page



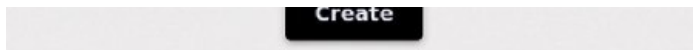


Figure 5: Creating a new dashboard

## MongoDB installation

MongoDB is used here as a backend of Hygieia.

```
$sudo apt-get install mongodb
```

Details of the MongoDB configurations are written in *hygieia/db/db-setup.js*. Go to that directory i.e., *hygieia/db* and run the following command:

```
$mongo < db-setup.js
```

## Running the Hygieia API

Go to the *hygieia/api* directory and run the following command:

```
$mvn install
```

Create an *api.properties* file in the *hygieia/api* directory. You can get the file from <https://hygieia.github.io/Hygieia/api.html#api-properties-file>.

A sample of a minimal working *api.properties* file is given below:

```
dbname=dashboarddb
dbusername=dashboarduser
dbpassword=dbpassword
dbhost=localhost
dbport=27017
server.port=8080
logRequest=false
logSplunkRequest=false
corsEnabled=false
version.number=0.0.1
pageSize=10
key=[api token]
##End of file
```

You can add LDAP as a user backend. Here I have used a standard login.

After that, to run the API service, execute the following command (assuming you are in the *hygieia/api* directory):

```
$java -jar target/api.jar --spring.config.location=/home/hygieia/hygieia/api/api.properties -Djasypt.encrypt
```

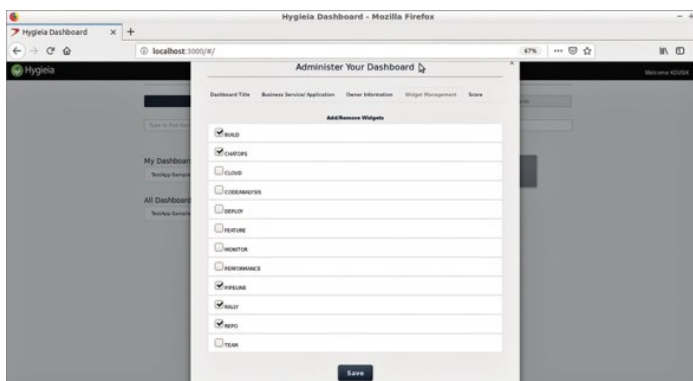


Figure 6: Add widget to dashboard

## The Hygieia dashboard

There are two separate dashboards in Hygieia — the team dashboard, and the product dashboard. You can log in to the dashboard by going to the following URL in the browser: `localhost:3000/#/login` or `<IP_ADDRESS>:3000/#/login`

If you log in for the first time, you have to create a user account by clicking *Sign up* and enter your user name and password.

Now you can create either the team or the product dashboard. If you want to create the team dashboard, you can use widgets or some predefined templates.

Once you create a dashboard, you can configure it from the home screen. You can add what it is about your product that you want to track, as shown in Figure 6.

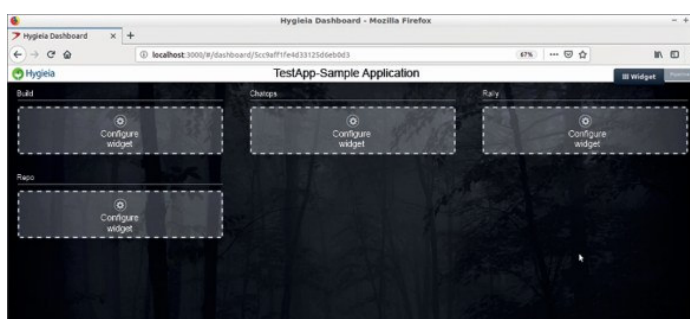


Figure 7: Configuring the widget of an application

Next, you have to select your specific application and configure the widgets, as shown in Figure 7.

Hygieia's dashboards enable users to view CI/CD pipelines in near real-time. You can add source code repository, chat server, build server, deployment server, cloud monitoring and a lot more.

The dashboards also provide crucial information about the overall vitality and performance metrics of your software operations.

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### Kousik Maiti

The author is a senior technical officer at ICT & Services, CDAC, Kolkata. He has over ten years of industry experience, and his areas of interest include Linux system administration, mobile forensics and Big Data. He can be reached at [kousikster@gmail.com](mailto:kousikster@gmail.com).

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