

Research & Development Challenge



CROWN



Background

Warehouses and manufacturing plants are increasingly using technology to run their operations in ways that are safer, more productive, and more efficient. Forklifts are no exception. They are becoming smarter, more energy efficient, connected, and autonomous.

Challenge

Create concept to display data in either a mobile application (e.g. on a forklift or mobile device) or a web application that provides enhanced safety, increased productivity, and/or improves autonomous operations. A prepopulated data set will be available via REST APIs hosted in a cloud environment, however, a custom data set may be used. Potential users can be forklift operators, warehouse supervisors, or pedestrians working around autonomous forklifts.

What will we provide?

- Access to sample database and microservices through REST APIs to build a cloud-based web application or mobile application.
- Swagger documentation for APIs.

How will the project be judged?



1. Customer value and creativity

How well does it solve a customer problem in a unique and original way?

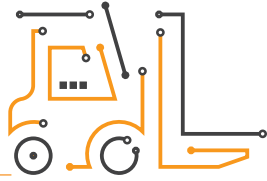
2. User experience

How easy is it to use?

3. Technical thinking

Did the team use appropriate software design patterns for a concept and does the team have credible thinking about how it could be built into a product for scalability and reliability?

Getting Started



Accessing Data

Crown has provided a demo environment for the Hack Ohio event that includes a predefined set of data. Feel free to log into my.hackohio.zone1.development.crown.com with the username hackohio@example.com and a password of `Hackohio1!`.

Once you have logged in you will have read only access to seven different widgets. Through these widgets you will be able to see data associated to a single customer. As this is demo data you may need to set date filters to see meaningful data. For an example, try browsing to the Impact Meter widget and update one of the filters to 3 months instead of the default 30 days.

If you would like to utilize the pre-built dataset in this demo environment for your own solution, each of the seven widgets have API rest endpoints available to you. In order to access these endpoints you will need to make a POST request to the API path <http://my.hackohio.zone1.development.crown.com/authentication/v1/login> with the username and password provided above. This will give you a JSON Web Token (JWT) that will be valid for 1 hour. You would then send this token with a GET request as an `Authorization `Bearer: {$token}`` to retrieve data.

Getting Started



Accessing Examples

Accessing Examples

Crown has created three examples to get you started. The first could be referenced if you are working on a web-based solution. The next two can be referenced if you are working on a mobile solution, Android or iOS. You can simply download these zip files and follow the few steps laid out in the readme documents.

https://s3.amazonaws.com/hackohio.swagger.zone1.development.crown.com/Hackohio+starter+app/web_app_example.zip

https://s3.amazonaws.com/hackohio.swagger.zone1.development.crown.com/Hackohio+starter+app/android_example.zip

https://s3.amazonaws.com/hackohio.swagger.zone1.development.crown.com/Hackohio+starter+app/ios_example.zip

As you read further we have listed out some key API endpoints you may find useful as you create your solution. The full list and details of all available APIs is also available at this URL: <http://hackohio.swagger.zone1.development.crown.com/>

Getting Started



CROWN

About Crown

<https://www.youtube.com/watch?v=N8WZiAkgIJE>

<https://www.youtube.com/watch?v=fPgQ1UORi4I&t=9s>

<https://www.youtube.com/watch?v=yITu00XhLj0>



Contact Info

Crown Slack Channel: <https://app.slack.com/client/TP92P0MD0/CPS02BPA8>

Mentors: Eric Schnipke, Aaron Williams, Shawn Stachler, Jess McGreevy, Robert Kelley

Getting Started



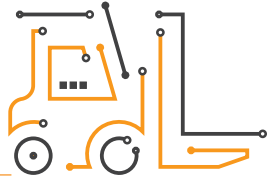
Access Security: Manage the forklifts inspection checklists, which are completed prior to operating equipment.

- Assets Operations
 - getAssets
 - getLockedEquipment
 - findAssetById
- Checklist Operations
 - getChecklists
 - findChecklistById
- Inspection Operations
 - getInspections
 - getFailedEquipment
 - getInspectionDetails

Assets: Manage equipment (forklifts) and operator behavior.

- Equipment Operations
 - findEquipment
 - getEligibleOperators
 - findEquipmentById
 - findEquipmentByUserId
- Operator Behaviors Operations
 - getOperatorBehaviors
 - findOperatorBehaviorById

Getting Started



Authentication: Post call to get the JWT authentication token to be able to retrieve data.

- Login Operations
 - postToGetJWTToken

Impact-Meter: Track impacts of the equipment.

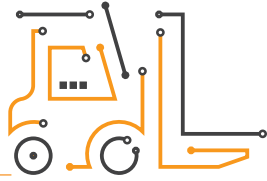
- Impact Meter Operations
 - getImpacts
 - getHighImpactsOverTime
 - getHighImpactsOverTimeWithLocation
 - getHighOperatorImpacts

Productivity Tracker: Track activity and operation efficiency of the operator.

Data available for the RMD truck type only

- Reports Operations
 - getActivitySummary
 - getActivityTrend
 - getOperatorActivity
 - getOperatorActivityDetailAverage
 - getOperatorActivityDetail

Getting Started



Places: Locations of customers with forklifts.

- Location Operation
 - getLocations
 - findLocation
 - findLocationUsers

People: Manage web access and forklift drivers accounts and privileges.

- People Operations
 - getWebRoles
 - findWebRoleById
 - getEquipmentRoles
 - getUsers
 - findUserById

- Customers Controller
 - findCustomers
 - findLocations
 - findRetailers

Utilization: Monitor the usage of equipment.

- Equipment Operations
 - getCurrentAvailableDetail
 - getCurrentAvailableSummary
 - getAllEquipmentUsers

Good Luck!!