

## A RESTful API

### 1- Datastore data model:

#### a- The relationship:

- Each boat has an owner (user).
- There is no relationship between users and loads.
- A boat can have loads on it.
- A load can be loaded into a boat.

#### b- Stored Info:

Model the relationship by storing all the needed data from the related entity. When a load is added to a boat, we store both the id and the name of the boat with this load entity, and we store the id of the load with this boat entity.

##### - Boat

Property	Type	Required	Value
id	String	Yes	Automatically created by Datastore
name	String	Yes	Name of boat
type	String	Yes	Type of boat
length	Integer	Yes	Length of boat
loads	String	No	ids of loads that was assigned to the boat in format {'id' : 1234}
owner	String	Yes	Automatically assigned after post request using provided user unique ID.

##### - Load

Property	Type	Required	Value
id	String	Yes	Automatically created by Datastore
volume	Integer	Yes	Volume of load
content	String	Yes	Content of load
creation_date	String	Yes	Automatically assigned current date when created
carrier	String	No	id and name of boat that the load was assigned to in format {"id": 1234, "name": "Sea Witch"}

##### - User

Property	Type	Required	Value
userID	String	Yes	Unique ID from “sub” in JWT
firstName	String	Yes	First name of the user
lastName	String	Yes	Last name of the user

. unique identifier: “sub” in JWT

. Supply the first user identifier by:

- + create account or log in
- + copying the JWT to jwt1 variable in the Postman environment
- + copying the Unique ID to user\_id1 variable in the Postman environment
- + repeat the previous 3 steps for user 2.

. My application then will use google cloud library (google.oauth2) to extract the unique ID (“sub”) from JWT if provided.

- Every request must have in its header either:

- . Accept: \*/\*
- . Accept: application/json

# A RESTful API

Last Update: June 6, 2021. 11:00 am Pacific

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## Change log

Version	Change	Date
1.0	Initial version.	June 62021

## Create a Boat

Allows you to create a new boat. Protected, must provide JWT as bearer token in the request.

POST /boats

Request

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
name	String	The name of the boat.	Yes
type	String	The type of the boat. E.g., Sailboat, Catamaran, etc.	Yes
length	Integer	Length of the boat in feet.	Yes

Request Body Example

```
{
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json
Unauthorized	401 Unauthorized	If the request contains no or invalid JWT.

## Response Examples

### *Success*

Status: 201 Created

```
{  "id": 1234,
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28,
  "owner": "110427723945719360330",
  "loads": null,
  "self": "https://appspot.com/boats/1234"
}
```

### *Failure-*

Status: 401 Unauthorized

```
{
  "Error": "Missing or invalid JWTs"
}
```

Status: 406 Not Acceptable

```
{
  "Error": " Please change your request Accept header to application/json "
}
```

## Get a Boat

Allows you to get an existing boat. Protected, must provide JWT as bearer token in the request.

GET /boats/:boat\_id

Request

Path Parameters

Name	Type	Description
boat_id	String	ID of the boat

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Not Found	404 Not Found	JWT is valid but no boat with this boat_id exists
Forbidden	403 Forbidden	JWT is valid but boat_id is owned by someone else
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json
Unauthorized	401 Unauthorized	If the request contains no or invalid JWT.

Response Examples

*Success*

Status: 200 OK

```
{
  "name": "Odyssey-put-edited",
  "type": "Yatch-patch-edited",
  "length": 6,
  "owner": "110427723945719360330",
  "loads": [{
    "id": 5043293456957440,
    "self": "https://final-long-mach.wl.r.appspot.com/loads/5043293456957440"
  }, {
    "id": 5597972276445184,
    "self": "https://final-long-mach.wl.r.appspot.com/loads/5597972276445184"
  }],
  "id": 5035022323023872,
  "self": "https://final-long-mach.wl.r.appspot.com/boats/5035022323023872"
}
```

*Failure*

Status: 404 Not Found

<pre>{   "Error": " JWT is valid but no boat with this boat_id exists " }</pre>
Status: 403 Forbidden
<pre>{   "Error": " JWT is valid but boat_id is owned by someone else " }</pre>
Status: 401 Unauthorized
<pre>{   "Error": "Missing or invalid JWTs" }</pre>
Status: 406 Not Acceptable
<pre>{   "Error": " Please change your request Accept header to application/json " }</pre>

## List all Boats

List all the boats for a specific user. Protected, must provide JWT as bearer token in the request.

GET /boats

Request

Path Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json
Unauthorized	401 Unauthorized	If the request contains no or invalid JWT.

Response Examples

*Success*

Status: 200 OK

```
{
  "total": 6,
  "boats": [{
    "type": "Yatch",
    "loads": null,
    "name": "Odyssey",
    "owner": "110427723945719360330",
    "length": 5,
    "id": 4613621439004672,
    "self": "https://final-long-mach.wl.r.appspot.com/boats/4613621439004672"
  }, {
    "owner": "110427723945719360330",
    "loads": null,
    "length": 6,
    "type": "Yatch",
    "name": "Odyssey",
    "id": 5035022323023872,
    "self": "https://final-long-mach.wl.r.appspot.com/boats/5035022323023872"
  }, {
    "loads": null,
```



```

    "type": "Yatch",
    "owner": "110427723945719360330",
    "name": "Odyssey",
    "length": 2,
    "id": 5316497299734528,
    "self": "https://final-long-mach.wl.r.appspot.com/boats/5316497299734528"
  }, {
    "type": "Yatch",
    "loads": null,
    "length": 4,
    "name": "Odyssey",
    "owner": "110427723945719360330",
    "id": 6165882480885760,
    "self": "https://final-long-mach.wl.r.appspot.com/boats/6165882480885760"
  }, {
    "owner": "110427723945719360330",
    "loads": null,
    "name": "Odyssey",
    "type": "Yatch",
    "length": 1,
    "id": 6308913213341696,
    "self": "https://final-long-mach.wl.r.appspot.com/boats/6308913213341696"
  }],
  "next": "https://final-long-mach.wl.r.appspot.com/boats?limit=5&offset=5"
}

```

Failure:

Status: 401 Unauthorized

```

{
  "Error": "Missing or invalid JWTs"
}

```

Status: 406 Not Acceptable

```

{
  "Error": " Please change your request Accept header to application/json "
}

```

## Delete a Boat

Allows you to delete a boat. Note that if the boat is currently having loads, deleting the boat makes the carrier attribute in the loads empty. Protected, must provide JWT as bearer token in the request.

DELETE /boats/:boat\_id

Request

Path Parameters

Name	Type	Description
boat_id	String	ID of the boat

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Not Found	404 Not Found	JWT is valid but no boat with this boat_id exists
Forbidden	403 Forbidden	JWT is valid but boat_id is owned by someone else
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json
Unauthorized	401 Unauthorized	If the request contains no or invalid JWT.

Response Examples

*Success*

Status: 204 No Content

*Failure*

Status: 404 Not Found

```
{
  "Error": "JWT is valid but no boat with this boat_id exists "
}
```

Status: 403 Forbidden

```
{
  "Error": "JWT is valid but boat_id is owned by someone else "
}
```

Status: 401 Unauthorized

```
{  
  "Error": "Missing or invalid JWTs"  
}
```

Status: 406 Not Acceptable

```
{  
  "Error": "Please change your request Accept header to application/json "  
}
```

## Edit a Boat (Full)

Allows you to edit an existing boat. Protected, must provide JWT as bearer token in the request.

PUT /boats/:boat\_id

Request

Path Parameters

Name	Type	Description
boat_id	String	ID of the boat

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
name	String	The name of the boat.	Yes
type	String	The type of the boat. E.g., Sailboat, Catamaran, etc.	Yes
length	Integer	Length of the boat in feet.	Yes

Request Body Example

```
{
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Not Found	404 Not Found	JWT is valid but no boat with this boat_id exists
Forbidden	403 Forbidden	JWT is valid but boat_id is owned by someone else
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json
Unauthorized	401 Unauthorized	If the request contains no or invalid JWT.

## Response Examples

### *Success*

Status: 204 No content
------------------------

### *Failure-*

Status: 404 Not Found
-----------------------

<pre>{   "Error": " JWT is valid but no boat with this boat_id exists " }</pre>
---

Status: 403 Forbidden
-----------------------

<pre>{   "Error": " JWT is valid but boat_id is owned by someone else " }</pre>
---

Status: 401 Unauthorized
--------------------------

<pre>{   "Error": "Missing or invalid JWTs" }</pre>
---

Status: 406 Not Acceptable
----------------------------

<pre>{   "Error": " Please change your request Accept header to application/json " }</pre>
--

## Edit a Boat (Partial)

Allows you to edit an existing boat. Protected, must provide JWT as bearer token in the request.

PATCH /boats/:boat\_id

Request

Path Parameters

Name	Type	Description
boat_id	String	ID of the boat

Request Body

Required

Request Body Format

JSON

Request JSON Attributes- There must be at least 1 attribute in request body.

Name	Type	Description	Required?
name	String	The name of the boat.	Maybe
type	String	The type of the boat. E.g., Sailboat, Catamaran, etc.	Maybe
length	Integer	Length of the boat in feet.	Maybe

Request Body Example

```
{
  "name": "Sea Witch",
  "type": "Catamaran",
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Not Found	404 Not Found	JWT is valid but no boat with this boat_id exists
Forbidden	403 Forbidden	JWT is valid but boat_id is owned by someone else
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json
Unauthorized	401 Unauthorized	If the request contains no or invalid JWT.

## Response Examples

### *Success*

Status: 204 No content

### *Failure-*

Status: 404 Not Found

```
{  
  "Error": " JWT is valid but no boat with this boat_id exists "  
}
```

Status: 403 Forbidden

```
{  
  "Error": " JWT is valid but boat_id is owned by someone else "  
}
```

Status: 401 Unauthorized

```
{  
  "Error": "Missing or invalid JWTs"  
}
```

Status: 406 Not Acceptable

```
{  
  " Please change your request Accept header to application/json"  
}
```

## Create a Load

Allows you to create a new load. Not protected.

POST /loads

Request

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
volume	Integer	volume of the load	Yes
content	String	Content of the load	Yes

Request Body Example

```
{
  "volume": 1,
  "content": "LEGO Blocks"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json

Response Examples

*Success*

Status: 201 Created

```
{
  "volume": 1,
  "content": "LEGO Blocks",
  "creation_date": "2021-06-06",
  "carrier": null,
  "id": 6160922229866496,
  "self": "https://final-long-mach.wl.r.appspot.com/loads/6160922229866496"
}
```



*Failure*

Status: 406 Not Acceptable

```
{  
  "Please change your request Accept header to application/json"  
}
```

## Get a Load

Allows you to get an existing load. Not protected.

GET /loads/:load\_id

Request

Path Parameters

Name	Type	Description
load_id	String	ID of the load

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	No load with this load_id exists
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json

Response Examples

*Success*

Status: 200 OK

```
{
  "volume": 1,
  "content": "LEGO Blocks",
  "creation_date": "2021-06-06",
  "carrier": null,
  "id": 6160922229866496,
  "self": "https://final-long-mach.wl.r.appspot.com/loads/6160922229866496"
}
```

*Failure*

Status: 404 Not Found

```
{
  "Error": "No load with this load_id exists"
}
```

Status: 406 Not Acceptable

```
{
  "Error": " Please change your request Accept header to application/json "
}
```

## List all Loads

List all the loads. Not protected.

GET /loads

Request

Path Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json

Response Examples

*Success*

Status: 200 OK

```
{
  "total": 6,
  "loads": [{
    "volume": 4,
    "creation_date": "2021-06-06",
    "content": "LEGO Blocks",
    "carrier": null,
    "id": 5043293456957440,
    "self": "https://final-long-mach.wl.r.appspot.com/loads/5043293456957440"
  }, {
    "content": "LEGO Blocks",
    "volume": 5,
    "creation_date": "2021-06-06",
    "carrier": null,
    "id": 5597972276445184,
    "self": "https://final-long-mach.wl.r.appspot.com/loads/5597972276445184"
  }, {
    "carrier": null,
    "content": "LEGO Blocks",
    "volume": 3,
    "creation_date": "2021-06-06",
```

```
    "id": 5602932527464448,  
    "self": "https://final-long-mach.wl.r.appspot.com/loads/5602932527464448"  
  }, {  
    "volume": 1,  
    "creation_date": "2021-06-06",  
    "content": "LEGO Blocks",  
    "carrier": null,  
    "id": 6160922229866496,  
    "self": "https://final-long-mach.wl.r.appspot.com/loads/6160922229866496"  
  }, {  
    "carrier": null,  
    "creation_date": "2021-06-06",  
    "volume": 2,  
    "content": "LEGO Blocks",  
    "id": 6450668340510720,  
    "self": "https://final-long-mach.wl.r.appspot.com/loads/6450668340510720"  
  }],  
  "next": "https://final-long-mach.wl.r.appspot.com/loads?limit=5&offset=5"  
}
```

Failure:

Status: 406 Not Acceptable

```
{  
  "Error": " Please change your request Accept header to application/json "  
}
```

## Delete a Load

Allows you to delete a load. Not protected.

DELETE /loads/:load\_id

Request

Path Parameters

Name	Type	Description
load_id	String	ID of the load

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	404 Not Found	No load with this load_id exists
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json

Response Examples

*Success*

Status: 204 No Content

*Failure*

Status: 404 Not Found

```
{
  "Error": "No load with this load_id exists"
}
```

Status: 406 Not Acceptable

```
{
  "Error": " Please change your request Accept header to application/json "
}
```

## Edit a Load (Fully)

Allows you to create a new load. Not protected.

PUT /loads/:load\_id

Request

Path Parameters

Name	Type	Description
load_id	String	ID of the load

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
volume	Integer	volume of the load	Yes
content	String	Content of the load	Yes

Request Body Example

```
{
  "volume": 1,
  "content": "LEGO Blocks"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 Success	
Failure	404 Not Found	No load with this load_id exists
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json

Response Examples

*Success*

Status: 200 Success

```
{
  "volume": 1,
  "content": "LEGO Blocks",
  "creation_date": "2021-06-06",
  "carrier": null,
  "id": 6160922229866496,
  "self": "https://final-long-
mach.wl.r.appspot.com/loads/6160922229866496"
```

```
}
```

*Failure*

Status: 404 Not Found

```
{  
  "Error": "No load with this load_id exists"  
}
```

Status: 406 Not Acceptable

```
{  
  "Please change your request Accept header to application/json"  
}
```

## Edit a Load (Partially)

Allows you to create a new load. Not protected.

PUT /loads/:load\_id

Request

Path Parameters

Name	Type	Description
load_id	String	ID of the load

Request Body

Required

Request Body Format

JSON

Request JSON Attributes- There must be at least 1 attribute in the request body

Name	Type	Description	Required?
volume	Integer	volume of the load	Maybe
content	String	Content of the load	Maybe

Request Body Example

```
{
  "volume": 1,
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 Success	
Failure	404 Not Found	No load with this load_id exists
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json

Response Examples

*Success*

Status: 200 Success

```
{
  "volume": 1,
  "content": "LEGO Blocks",
  "creation_date": "2021-06-06",
  "carrier": null,
  "id": 6160922229866496,
  "self": "https://final-long-mach.wl.r.appspot.com/loads/6160922229866496"
}
```



*Failure*

Status: 404 Not Found

```
{  
  "Error": "No load with this load_id exists"  
}
```

Status: 406 Not Acceptable

```
{  
  "Please change your request Accept header to application/json"  
}
```

## Add a Load to a Boat

Add a Load to a Boat. Protected, must provide JWT as bearer token in the request.

PUT /boats/:boat\_id/loads/:load\_id

Request

Path Parameters

Name	Type	Description
load_id	String	ID of the load
boat_id	String	ID of the boat

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	Succeeds only if a boat exists with this boat_id, a load exists with this load_id and the load is not loaded.
Failure	403 Forbidden	The load is already assigned to this boat
Failure	403 Forbidden	The load is already assigned to another boat, please removed it first
Failure	403 Forbidden	JWT is valid but boat_id is owned by someone else
Not Found	404 Not Found	JWT is valid but the specified boat and/or load does not exist
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json
Unauthorized	401 Unauthorized	If the request contains no or invalid JWT.

Response Examples

*Success*

Status: 204 No Content

*Failure*

Status: 403 Forbidden

```
{
  "Error": " The load is already assigned to another boat, please removed it first"
}
```

Status: 403 Forbidden

```
{
```

<pre>"Error": " The load is already assigned to this boat" }</pre>
<pre>Status: 403 Forbidden  {   "Error": " JWT is valid but boat_id is owned by someone else " }</pre>

<pre>Status: 404 Not Found  {   "Error": " JWT is valid but the specified boat and/or load does not exist " }</pre>
<pre>Status: 401 Unauthorized  {   "Error": "Missing or invalid JWTs" }</pre>
<pre>Status: 406 Not Acceptable  {   "Error": " Please change your request Accept header to application/json " }</pre>

## Remove a Load from a Boat

Remove a Load from a Boat. Protected, must provide JWT as bearer token in the request.

DELETE /boats/:boat\_id/loads/:load\_id

Request

Path Parameters

Name	Type	Description
load_id	String	ID of the load
boat_id	String	ID of the boat

Request Body

None

Response

No body

Response Body Format

Success: No body

Failure: JSON

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	Succeeds only if a boat exists with this boat_id, a load exists with this load_id and the load is on this boat.
Failure	403 Forbidden	The load is not on this boat
Failure	403 Forbidden	JWT is valid but boat_id is owned by someone else
Not Found	404 Not Found	JWT is valid but the specified boat and/or load does not exist
Not Acceptable	406 Not Acceptable	If the request does not have in its header either: . Accept: */* . Accept: application/json
Unauthorized	401 Unauthorized	If the request contains no or invalid JWT.

Response Examples

*Success*

Status: 204 No Content

*Failure*

Status: 403 Forbidden

```
{
  "Error": " The load is not on this boat"
}
```

Status: 403 Forbidden

```
{
  "Error": " JWT is valid but boat_id is owned by someone else "
}
```

Status: 404 Not Found
<pre>{   "Error": " JWT is valid but the specified boat and/or load does not exist " }</pre>
Status: 401 Unauthorized
<pre>{   "Error": "Missing or invalid JWTs" }</pre>
Status: 406 Not Acceptable
<pre>{   "Error": " Please change your request Accept header to application/json " }</pre>