

Final Project: API Spec
CS 493: Cloud Application Development
Fall 2020
Oregon State University

Base URL: <https://proceli-final-project.uc.r.appspot.com>

Login URL: Base or “Base/welcome”

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Cloud Datastore Data Model

Boat

Property Name	Notes
id	String. The id of the boat, automatically generated when it is created.
name	String. Name of the boat.
type	String. Type of the boat. E.g., Sailboat, Catamaran, etc.
length	Integer. The length of the boat in feet
loads	String array. A list of the ids of the loads that the boat is carrying

Load

Property Name	Notes
id	String. The id of the boat, automatically generated when it is created.
content	String. What the load is. E.g. Coal, Bananas, iPads
delivery_date	String. The date by which the load needs to be delivered
weight	Integer. The weight of the load
carrier_name	String. If the load is being carried, the name of its carrier
carrier_id	String. The id of the load's carrier

A Boat can carry 0, 1, or more Loads. A Load can be carried by 0 or 1 Boats.

Authorization and Authentication

To perform CRUD operations on boats, a user must be authorized. There is no authorization requirement to perform CRUD operations on loads, or to add loads to or remove loads from boats.

Authorization takes the form of a bearer token. To acquire a token, use a browser to navigate to <https://proceli-final-project.uc.r.appspot.com>, and follow the prompt to create an account or sign in to an existing account.

After sign-in, a JSON Web Token will be displayed. Use the JWT as the bearer token when performing CRUD operations on boats. The presence or absence of the JWT has no effect on load CRUD operations, adding loads to boats, or removing loads from boats.

Get Users

Returns the usernames and user id's of all users. All users are returned, there will be no pagination.

GET /users

Request

Headers

key	value
Accept	application/json

Path Parameters

None

Query Parameters

Non

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

Status: 200 OK

```
[
  {
    "user_id": "auth0|5fc8007738518f006f2ab573",
    "user_name": "emscheig@example.com"
  },
  {
    "user_id": "auth0|5fc94d94bb10520075826629",
    "user_name": "ijprocel@example.com"
  }
]
```

Create a Boat

Allows an authenticated user to create a new boat.

POST /boats

Request

Headers

key	value
Authorization	Bearer \${user_jwt}
Accept	application/json

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	Yes
length	Integer	The length of the boat in feet	Yes

Request Body Example

```
{
  "name": "Constitution",
  "type": "Frigate",
  "length": 300
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	Triggered if any of the three required attributes are missing.
Failure	401 Unauthorized	Triggered if the Bearer token is invalid or missing
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

- The self attribute will contain the live link to the REST resource corresponding to this boat. In other words, this is the URL to get this newly created boat.

Status: 201 Created

```
{
  "id": "5650266825162752",
  "name": "Constitution",
  "type": "Frigate",
  "length": 300,
  "self": "https://proceli-final-project.uc.r.appspot.com/boats/5650266825162752"
}
```

Status: 400 Bad Request

```
{
  "Error": "The request object is missing at least one of the required attributes"
}
```

Get a Boat

Allows an authenticated user to get information about a single boat that they own

GET /boats/:boat_id

Request

Headers

key	value
Authorization	Bearer \${user_jwt}
Accept	application/json

Path Parameters

Name	Type	Description	Required?
boat_id	String	The id of the boat	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	Triggered if the Bearer token is invalid or missing
Failure	403 Forbidden	Triggered if the requested boat is owned by a different user
Failure	404 Not Found	Triggered if no boat with the provided boat_id exists
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON

Response Examples

- In addition to the boat information, the response will also contain a list representing the loads that it is currently carrying.

Status: 200 OK, JSON

```
{
  "id": "5650266825162752",
  "name": "Constitution",
  "type": "Frigate",
  "length": 300,
  "loads": [
    {
      "id": "5087316871741440",
      "self": "https://proceli-final-project.uc.r.appspot.com/loads/5087316871741440"
    }
  ],
  "self": "https://proceli-final-project.uc.r.appspot.com/boats/5650266825162752"
}
```

Status: 404 Not Found

```
{ "Error": "No boat with this boat_id exists" }
```

Get all Boats

Returns information about up to 5 boats owned by the authenticated user. If applicable, provides a link to the next 5 boats

```
GET /boats?next={}
```

Request

Headers

key	value
Authorization	Bearer \${user_jwt}
Accept	application/json

Path Parameters

None

Query Parameters

Name	Type	Description	Required?
next	String	Represents a Cloud Datastore query cursor object. If this parameter is not provided, the query will return the first five boats. If a valid query cursor is provided, the query will return the boat pointed to by the cursor, and up to four additional boats	No

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	Triggered if the Bearer token is invalid or missing

Response Examples

- Only boats owned by the authenticated user will be returned
- The response will be an array containing up to 6 JSON objects. If there are still additional boats to be retrieved, the final object will have a single key “next” whose value is the URL pointing to the next group of boats.
- If there are no more boats to list, there will be no "next" URL.

Status: 200 OK

```
[
  {
    "id": "5188608642252800",
    "name": "Gerald Ford",
    "type": "Aircraft Carrier",
    "length": 1100,
    "loads": [],
    "self": "https://proceli-final-project.uc.r.appspot.com/boats/5188608642252800"
  },
  {
    "id": "5632139873746944",
    "name": "Tarawa",
    "type": "Amphibious Assault Ship",
    "length": 820,
    "loads": [],
    "self": "https://proceli-final-project.uc.r.appspot.com/boats/5632139873746944"
  },
  {
    "id": "5650266825162752",
    "name": "Constitution",
    "type": "Frigate",
    "length": 300,
    "loads": [
      {
        "id": "5654140684337152",
        "self": "https://proceli-final-project.uc.r.appspot.com/loads/5654140684337152"
      }
    ],
    "self": "https://proceli-final-project.uc.r.appspot.com/boats/5667525748588544"
  },
  {
    "id": "5188608642252800",
    "name": "Monitor",
    "type": "Ironclad",
    "length": 200,
    "loads": [],
    "self": "https://proceli-final-project.uc.r.appspot.com/boats/5188608642252800"
  },
  {
    "id": "5188608642252800",
    "name": "Ohio",
    "type": "SSBN",
    "length": 300,
    "loads": [],
    "self": "https://proceli-final-project.uc.r.appspot.com/boats/5188608642252800"
  },
  {
    "next": "https://proceli-final-project.uc.r.appspot.com/boats/?next=CjQSLmoZc35wcm9jZWxpLTQ5My1hc3NpZ25tZW50NHIRCxIEQm9hdBiAgIDY2tKICgwYACAA"
  }
]
```

Update a Boat

Allows an authenticated user to change the name, type, and length of a boat that they own. User must provide values for all three properties. Note: this operation does NOT allow a user to put a load on a boat.

PUT /boats/:boat_id

Request

Headers

key	value
Authorization	Bearer \${user_jwt}
Accept	application/json

Path Parameters

Name	Type	Description	Required?
boat_id	String	The id of the boat that will be updated	Yes

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	Yes
length	Integer	Length of the boat in feet	Yes

Request Body Example

```
{
  "name": "Constitution",
  "type": "Frigate",
  "length": 300
}
```

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	Triggered if any of the three required attributes are missing.
Failure	401 Unauthorized	Triggered if the Bearer token is invalid or missing
Failure	403 Forbidden	Triggered if the boat is owned by a different user
Failure	404 Not Found	Triggered if no boat with the provided boat_id exists
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

- The self attribute will contain the live link to the REST resource corresponding to this boat. In other words, this is the URL to get this newly created boat.

Status: 200 OK

```
{
  "id": "5650266825162752",
  "name": "Constitution",
  "type": "Frigate",
  "length": 300,
  "self": "https://proceli-final-project.uc.r.appspot.com/boats/5650266825162752"
}
```

Status: 400 Bad Request

```
{
  "Error": "The request object is missing at least one of the required attributes"
}
```

Edit a Boat

Allows an authenticated user to change the values of some or all of their boat's properties (name, type, length). Partial updates are allowed.

PATCH /boats/:boat_id

Request

Headers

key	value
Authorization	Bearer \${user_jwt}
Accept	application/json

Path Parameters

Name	Type	Description	Required?
boat_id	String	The id of the boat that will be updated	Yes

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
name	String	The name of the boat	No
type	String	The type of the boat	No
length	Integer	Length of the boat in feet	No

Request Body Example

```
{
  "name": "Old Ironsides",
}
```

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	401 Unauthorized	Triggered if the Bearer token is invalid or missing
Failure	403 Forbidden	Triggered if the boat is owned by a different user
Failure	404 Not Found	Triggered if no boat with the provided boat_id exists
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

- The self attribute will contain the live link to the REST resource corresponding to this boat. In other words, this is the URL to get this newly created boat.

Status: 200 OK

```
{
  "id": "5650266825162752",
  "name": "Old Ironsides",
  "type": "Frigate",
  "length": 300,
  "self": "https://proceli-final-project.uc.r.appspot.com/boats/5650266825162752"
}
```

Delete a Boat

Allows the authenticated user to delete a boat that they own. Any loads that the boat is currently carrying will be unloaded.

```
DELETE /boats/:boat_id
```

Request

Headers

key	value
Authorization	Bearer \${user_jwt}

Path Parameters

Name	Type	Description	Required?
boat_id	String	The id of the boat	Yes

Request Body

None

Response

Response Body

None

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	401 Unauthorized	Triggered if the Bearer token is invalid or missing
Failure	403 Forbidden	Triggered if the boat is owned by a different user
Failure	404 Not Found	Triggered if no boat with the provided boat_id exists

Response Examples

Status: 204 No Content
Status: 404 Not Found
{ "Error": "No boat with this boat_id exists" }

Create a Load

Allows any user (authenticated or not) to create a load

POST /loads

Request

Headers

key	value
Accept	application/json

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
weight	integer	The weight of the load	Yes
content	String	What the load contains	Yes
delivery_date	String	Date that the load must be delivered by in MM/DD/YY format.	Yes

Request Body Example

```
{
  "weight": 1000,
  "content": "Diesel Fuel",
  "delivery_date": "10/25/20"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	Triggered if any of the three required attributes are missing.
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

- The self attribute will contain the live link to the REST resource corresponding to this load. In other words, this is the URL to get this newly created load.

Status: 201 Created

```
{
  "id": "5720592418340864",
  "weight": 1000,
  "carrier": {}, //Will contain information about the boat carrying the load once it is loaded
  "content": "Diesel Fuel",
  "delivery_date": "10/25/20",
  "self": "https://proceli-final-project.uc.r.appspot.com/loads/5720592418340864"
}
```

Status: 400 Bad Request

```
{
  "Error": "The request object is missing at least one of the required attributes"
}
```

Get a Load

Allows any user (authenticated or not) to get information about a load

GET /loads/:load_id

Request

Headers

key	value
Accept	application/json

Path Parameters

Name	Type	Description	Required?
load_id	String	The id of the load	Yes

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	Triggered if no boat with the provided boat_id exists
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

- If the load has been placed on a boat, the response will contain the name and id of the ship carrying the load.

Status: 200 OK

```
{
  "id": "5087316871741440",
  "weight": 1000,
  "carrier": {
    "id": "5650266825162752",
    "name": "Constitution",
    "self": "https://proceli-final-project.uc.r.appspot.com/boats/5650266825162752"
  },
  "content": "Diesel Fuel",
  "delivery_date": "10/25/2020",
  "self": "https://proceli-final-project.uc.r.appspot.com/loads/5087316871741440"
}
```

Status: 404 Not Found

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

Get all Loads

Returns information about up to 5 loads. If applicable, provides a link to the next 5 loads

```
GET /loads?next={}
```

Request

Headers

key	value
Accept	application/json

Path Parameters

None

Query Parameters

Name	Type	Description	Required?
next	String	Represents a Cloud Datastore query cursor object. If this parameter is not provided, the query will return the first five loads. If a valid query cursor is provided, the query will return the boat pointed to by the cursor, and up to four additional loads	No

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

- The response will be an array containing up to 6 JSON objects. If there are still additional boats to be retrieved, the final object will have a single key “next” whose value is the URL pointing to the next group of loads.
- If there are no more loads to list, there will be no "next" URL.

Status: 200 OK

```
[
  {...},
  {
    "id": "5071950955151360",
    "weight": 750,
    "carrier": {},
    "content": "Rum",
    "delivery_date": "10/13/2020",
    "self": "https://proceli-final-project.uc.r.appspot.com/loads/5071950955151360"
  },
  {
    "id": "5087316871741440",
    "weight": 1000,
    "carrier": {
      "id": "5650266825162752",
      "name": "Constitution",
      "self": "https://proceli-final-project.uc.r.appspot.com/boats/5650266825162752"
    },
    "content": "Diesel Fuel",
    "delivery_date": "10/25/2020",
    "self": "https://proceli-final-project.uc.r.appspot.com/loads/5087316871741440"
  },
  {
    "id": "5142982802014208",
    "weight": 1200,
    "carrier": {},
    "content": "Spices",
    "delivery_date": "10/30/2020",
    "self": "https://proceli-final-project.uc.r.appspot.com/loads/5142982802014208"
  },
  {
    "next": "https://proceli-final-project.uc.r.appspot.com/loads/?
next=CjQSLmoZc35wcm9jZWxpLTQ5My1hc3NpZ25tZW50NHIRCxIETG9hZBiAgID4v7CRCQwYACAA"
  }
]
```

Update a Load

Allows any user (authenticated or not) to change the content, weight, and delivery date of a load. User must provide values for all three properties. Note, this operation does NOT allow a user to put the load on a boat.

```
PUT /loads/:load_id
```

Request

Headers

key	value
Accept	application/json

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
weight	Integer	The weight of the load	Yes
content	String	What the load contains	Yes
delivery_date	String	Date that the load must be delivered by in MM/DD/YY format.	Yes

Request Body Example

```
{
  "weight": 1000,
  "content": "Diesel Fuel",
  "delivery_date": "10/25/20"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	Triggered if any of the three required attributes are missing.
Failure	404 Not Found	Triggered if no load with the provided load_id exists
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

- The self attribute will contain the live link to the REST resource corresponding to this load. In other words, this is the URL to get this newly created load.

Status: 201 Created

```
{
  "id": "5720592418340864",
  "weight": 1000,
  "carrier": {}, //Will contain information about the boat carrying the load once it is loaded
  "content": "Diesel Fuel",
  "delivery_date": "10/25/20",
  "self": "https://proceli-final-project.uc.r.appspot.com/loads/5720592418340864"
}
```

Status: 400 Bad Request

```
{
  "Error": "The request object is missing at least one of the required attributes"
}
```


Edit a Load

Allows a user (authenticated or not) to change the values of some or all of a load's properties (content, weight, delivery date). Partial updates are allowed.

```
PATCH /loads/:load_id
```

Request

Headers

key	value
Accept	application/json

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Type	Description	Required?
weight	Integer	The weight of the load	No
content	String	What the load contains	No
delivery_date	String	Date that the load must be delivered by in MM/DD/YY format.	No

Request Body Example

```
{
  "weight": 1050,
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	Triggered if any of the three required attributes are missing.
Failure	404 Not Found	Triggered if no load with the provided load_id exists
Failure	406 Not Acceptable	Triggered if the Accept header does not allow a JSON response

Response Examples

- The self attribute will contain the live link to the REST resource corresponding to this load. In other words, this is the URL to get this newly created load.

Status: 201 Created

```
{
  "id": "5720592418340864",
  "weight": 1050,
  "carrier": {},
  "content": "Diesel Fuel",
  "delivery_date": "10/25/20",
  "self": "https://proceli-final-project.uc.r.appspot.com/loads/5720592418340864"
}
```

Status: 400 Bad Request

```
{
  "Error": "The request object is missing at least one of the required attributes"
}
```

Delete a Load

Allows a user to delete a load. If the load is currently carried by a boat, it will be removed from the boat's inventory.

```
DELETE /loads/:load_id
```

Request

Headers

None

Path Parameters

Name	Type	Description	Required?
load_id	String	The id of the load	Yes

Request Body

None

Response

Response Body

None

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	404 Not Found	Triggered if no load with the provided load_id exists

Response Examples

```
Status: 204 No Content
```

```
Status: 404 Not Found
```

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

Put a Load on a Boat

Allows any user to add a load to a boat's inventory

PUT /boats/:boat_id/loads/:load_id

Request

Headers

None

Path Parameters

Name	Type	Description	Required?
load_id	String	The id of the load to be loaded	Yes
boat_id	String	The id of the boat that the load will be loaded onto	Yes

Request Body

None

Response

Response Body

None

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	403 Forbidden	Triggered the load is already on a boat
Failure	404 Not Found	Triggered if either the load_id or boat_id does not exist

Response Examples

Status: 204 No Content
Status: 403 Forbidden { "Error": "That load is already on a ship" }
Status: 404 Not Found { "Error": "The specified load and/or boat does not exist" }

Remove a Load from a Boat

Allows any user to remove a load from a boat's inventory. Does not delete the load or the boat.

```
DELETE /boats/:boat_id/loads/:load_id
```

Request

Headers

None

Path Parameters

Name	Type	Description	Required?
load_id	String	The id of the load to be loaded	Yes
boat_id	String	The id of the boat that the load will be loaded onto	Yes

Request Body

None

Response

Response Body

None

Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	403 Forbidden	Triggered the load is not on the boat
Failure	404 Not Found	Triggered if either the load_id or boat_id does not exist

Response Examples

Status: 204 No Content
Status: 403 Forbidden { "Error": "That load is already on a ship" }
Status: 404 Not Found { "Error": "The specified load and/or boat does not exist" }