

Portfolio: API Spec

CS 493: Cloud Application Development

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Change log

Version	Change	Date
1.0	Initial version.	Dec 03, 2022

Data Model

The app stores three kinds of entities in Datastore, Boats, Loads and Users.

Boats

Property	Data Type	Valid values	Required?	Notes
id	Integer	Integer	Yes	The id of the boat. Datastore automatically generates it. Don't add it yourself as a property of the entity.
name	String	A-Z, a-z	Yes	Name of the boat.
type	String	A-Z, a-z	Yes	Type of the boat. E.g., Sailboat, Catamaran, etc.
length	Integer	0-9, positive integer	Yes	The length of the boat in feet.
loads	Array	Load objects	Yes	List of loads the boat is carrying.
owner	String	String	Yes	Owner of the boat, sub value of the owner's JWT token, used as an unique identifier for the user in the application.
self	String	String	Yes	Self link url to this Boat resource.

Loads

Property	Data Type	Valid values	Required?	Notes
id	Integer	Integer	Yes	The id of the slip. Datastore automatically generates it. Don't add it yourself as a property of the entity.
volume	Integer	0-9, positive integer	Yes	Volume of the load
carrier	Object	Boat object	Yes	If this load is on a boat, then id, name and self link of that boat. Otherwise null.
item	String	A-Z, a-z	Yes	Description of the load.
create_date	String	dd-mm-yyyy	Yes	Date the load was created.
self	String	String	Yes	Self link url to this Load resource.

Users

Property	Data Type	Valid values	Required?	Notes
id	Integer	Integer	Yes	The id of the user. Datastore automatically generates it. Don't add it yourself as a property of the entity.
sub	String	String	Yes	Custom id created by Auth0's JWT token, being used to identify user in the application.
name	String	String	Yes	Name of the user

Create a Boat

Allows you to create a new boat.

POST /boats

Request

Endpoint Protected?

Yes

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Description	Required?
name	The name of the boat.	Yes
type	The type of the boat. E.g., Sailboat, Catamaran, etc.	Yes
length	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	
Failure	400 Bad Request	<p>If the request is missing any of the 3 required attributes, the boat must not be created, and 400 status code must be returned.</p> <p>You don't need to validate the values of the attributes and can assume that if the request contains any of the listed attributes, then that attribute's value is valid.</p> <p>You can also assume that the request will not contain any extraneous attribute (i.e., the request JSON will never contain any attribute that is not listed above).</p>

Failure	401 Unauthorized	Authorization token is missing or invalid for this protected endpoint.
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.

Response Examples

- Datastore will automatically generate an ID and store it with the entity being created. Your app must send back this value in the response body as shown in the example.

Success

Status: 201 Created

```
{
  "id": 123,
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28,
  "loads": [],
  "owner": "auth0|123456",
  "self": "https://appspot.com/boats/123"
}
```

Failure

Status: 400 Bad Request

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

Status: 401 Unauthorized

```
{
  "Error": "Not authenticated"
}
```

Status: 406 Not acceptable

```
{
  "Error": "Not acceptable"
}
```

Get a Boat

Allows you to get an existing boat

GET /boats/:boat_id

Request

Endpoint Protected?

Yes

Path Parameters

Name	Description
boat_id	ID of the boat

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	Authorization token is missing or invalid for this protected endpoint.
Failure	403 Forbidden	Not authorized to access this entity because the user does not own it.
Failure	404 Not Found	No boat with this boat_id exists
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.

Response Examples

Success

Status: 200 OK <pre>{ "id": 123, "name": "Sea Witch", "type": "Catamaran", "length": 28, "loads": [], "owner": "auth0 123456", "self": "https://appspot.com/boats/123" }</pre>

Failure

Status: 401 Unauthorized <pre>{</pre>
--

```
"Error": "Not authenticated"
}
```

Status: 403 Forbidden

```
{
  "Error": "You do not own this boat"
}
```

Status: 404 Not Found

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

Status: 406 Not Acceptable

```
{
  "Error": "Not acceptable"
}
```

List all Boats

List all the boats with pagination and a limit of 5 per page.

GET /boats

Request

Endpoint Protected?

Yes

Path Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	Authorization token is missing or invalid for this protected endpoint.
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.

Response Examples

Success

Status: 200 OK

```
{
  "boats": [
    {
      "id": 123,
      "name": "Sea Witch",
      "type": "Catamaran",
      "length": 28,
      "loads": [],
      "owner": "auth0|123456",
      "self": "https://appspot.com/boats/123"
    },
    {
      "id": 456,
      "name": "Adventure ",
      "type": "Sailboat",
      "length": 50,
      "loads": [],
      "owner": "auth0|123456",

```

```
    "self": "https://appspot.com/boats/456"
  },
  {
    "id": 789,
    "name": "Hocus Pocus",
    "type": "Sailboat",
    "length": 100,
    "loads": [],
    "owner": "auth0|123456",
    "self": "https://appspot.com/boats/789"
  },
  {
    "id": 987,
    "name": "Star Chase",
    "type": "Sailboat",
    "length": 50,
    "loads": [],
    "owner": "auth0|123456",
    "self": "https://appspot.com/boats/987"
  },
  {
    "id": 654,
    "name": "Dreamer",
    "type": "Cruise",
    "length": 200,
    "loads": [],
    "owner": "auth0|123456",
    "self": "https://appspot.com/boats/654"
  },
],
"count": 6,
"next": "https://appspot.com/boats?cursor=CicSIWoMc36odzQtd"
}
```

Failure

Status: 401 Unauthorized

```
{
  "Error": "Not authenticated"
}
```

Status: 406 Not Acceptable

```
{
  "Error": "Not acceptable"
}
```


Update a Boat

Allows you to update properties of a boat.

PUT /boats/:boat_id

Request

Endpoint Protected?

Yes

Path Parameters

Name	Description
boat_id	ID of the boat

Request Body

Required

Request JSON Attributes

Name	Description	Required?
name	Name of the boat.	Yes
type	Type of boat.	Yes
length	Length of boat.	Yes

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	Missing at least one of the required attributes.
Failure	401 Unauthorized	Authorization token is missing or invalid for this protected endpoint.
Failure	403 Forbidden	This may happen in three cases, the boat name updated in the request is taken, client's request is attempting to update the id, which is not allowed, or the user is not authorized to access the boat as the user is not the owner.
Failure	404 Not Found	No boat with this boat_id exists
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.
Failure	415 Unsupported Media Type	Server only accepts "application/json" data. Client request content-type should be "application/json".

Response Examples

Success

Status: 201 Created
{

```
{
  "id": 123,
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28,
  "loads": [],
  "owner": "auth0|123456",
  "self": "https://appspot.com/boats/123"
}
```

Failure

Status: 400 Bad Request

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

Status: 401 Unauthorized

```
{
  "Error": "Not authenticated"
}
```

Status: 403 Forbidden

```
{
  "Error": "You do not own this boat"
}

{
  "Error": "This boat name has been used"
}

{
  "Error": "Updating id is not allowed"
}
```

Status: 404 Not Found

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

Status: 406 Not Acceptable

```
{
  "Error": "Not acceptable"
}
```

Status: 415 Unsupported Media Type

```
{  
  "Error": "Server only accepts application/json data"  
}
```

Partially update a Boat

Allows you to partially update properties of a boat.

PATCH /boats/:boat_id

Request

Endpoint Protected?

Yes

Path Parameters

Name	Description
boat_id	ID of the boat

Request Body

Required

Request JSON Attributes

Name	Description	Required?
name	Name of the boat.	No
type	Type of boat.	No
length	Length of boat.	No

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	401 Unauthorized	Authorization token is missing or invalid for this protected endpoint.
Failure	403 Forbidden	This may happen in three cases, the boat name updated in the request is taken, client's request is attempting to update the id, which is not allowed, or the user is not authorized to access the boat as the user is not the owner.
Failure	404 Not Found	No boat with this boat_id exists
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.
Failure	415 Unsupported Media Type	Server only accepts "application/json" data. Client request content-type should be "application/json".

Response Examples

Success

Status: 201 Created
<pre>{ "id": 123,</pre>

```
{
  "name": "Sea Witch",
  "type": "Catamaran",
  "length": 28,
  "loads": [],
  "owner": "auth0|123456",
  "self": "https://appspot.com/boats/123"
}
```

Failure

Status: 401 Unauthorized

```
{
  "Error": "Not authenticated"
}
```

Status: 403 Forbidden

```
{
  "Error": "You do not own this boat"
}

{
  "Error": "This boat name has been used"
}

{
  "Error": "Updating id is not allowed"
}
```

Status: 404 Not Found

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

Status: 406 Not Acceptable

```
{
  "Error": "Not acceptable"
}
```

Status: 415 Unsupported Media Type

```
{
  "Error": "Server only accepts application/json data"
}
```

Delete a Boat

Allows you to delete a boat. Note that if the boat contains a load, deleting the boat will unload any loads.

DELETE /boats/:boat_id

Request

Endpoint Protected?

Yes

Path Parameters

Name	Description
boat_id	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	
Failure	401 Unauthorized	Authorization token is missing or invalid for this protected endpoint.
Failure	403 Forbidden	Not authorized to access this entity because the user does not own it.
Failure	404 Not Found	No boat with this boat_id exists

Response Examples

Success

Status: 204 No Content

Failure

Status: 401 Unauthorized <pre>{ "Error": "Not authenticated" }</pre>

Status: 403 Forbidden <pre>{ "Error": "You do not own this boat" }</pre>

Status: 404 Not Found

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

Create a Load

Allows you to create a new load.

POST /loads

Request

Endpoint Protected?

No

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Description	Required?
volume	Volume of load.	Yes
item	Description of the load.	Yes
create_date	Date the load was created.	Yes

Request Body Example

```
{
  "volume": 5,
  "item": "LEGO Blocks",
  "create_date": "10/18/2020"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	<p>If the request is missing the number attribute, the load must not be created, and 400 status code must be returned.</p> <p>You don't need to validate the values of this attribute and can assume that if the number attribute is specified, then its value is valid.</p> <p>You can also assume that the request will not contain any extraneous attribute (i.e., the request JSON will never contain any attribute other than number).</p>

Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.
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Response Examples

- Datastore will automatically generate an ID and store it with the entity being created. This value needs to be sent in the response body as shown in the example.
- The value of the attribute `carrier` is the ID, name and self link url of the boat currently loaded with load. If there is no carrier, the value of `carrier` should be null.

Success

Status: 201 Created

```
{
  "id": 5678,
  "volume": 5,
  "carrier": null,
  "item": "LEGO Blocks",
  "create_date": "10/18/2020",
  "self": "https://appspot.com/loads/5678",
}
```

Failure

Status: 400 Bad Request

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

Status: 406 Not Acceptable

```
{
  "Error": "Not acceptable"
}
```

Get a Load

Allows you to get an existing load.

GET /loads/:load_id

Request

Endpoint Protected?

No

Path Parameters

Name	Description
load_id	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
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.

Response Examples

Success

Status: 200 OK
<pre>{ "id": 5678, "volume": 5, "carrier": null, "item": "LEGO Blocks", "create_date": "10/18/2020", "self": "https://appspot.com/loads/5678" }</pre>

Failure

Status: 404 Not Found
<pre>{ "Error": "No load with this load_id exists" }</pre>

Status: 406 Not Acceptable

```
{  
  "Error": "Not acceptable"  
}
```

List all Loads

List all the loads with pagination and a limit of 5 per page.

GET /loads

Request

Endpoint Protected?

No

Path Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.

Response Examples

Success

Status: 200 OK

```
{
  "loads": [
    {
      "id": 5678,
      "volume": 5,
      "carrier": null,
      "item": "LEGO Blocks",
      "create_date": "10/18/2020",
      "self": "https://appspot.com/loads/5678"
    },
    {
      "id": 8765,
      "volume": 10,
      "carrier": null,
      "item": "Coffee Beans",
      "create_date": "10/19/2020",
      "self": "https://appspot.com/loads/8765"
    },
    {
      "id": 4567,
```

```
{
  "volume": 50,
  "carrier": null,
  "item": "Toys",
  "create_date": "10/18/2021",
  "self": "https://appspot.com/loads/4567"
},
],
"count": 3,
"next": "https://appspot.com/loads?cursor=CicSIWoMc36odzQtd"
}
```

Failure

Status: 406 Not Acceptable

```
{
  "Error": "Not acceptable"
}
```

Update a Load

Allows you to update properties of a load.

PUT /loads/:load_id

Request

Endpoint Protected?

No

Path Parameters

Name	Description
load_id	ID of the load

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Description	Required?
volume	Volume of load.	Yes
item	Description of the load.	Yes
create_date	Date the load was created.	Yes

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	Missing at least one of the three required attributes.
Failure	403 Forbidden	Request to update id is not allowed.
Failure	404 Not Found	No load with this load_id exists
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.
Failure	415 Unsupported Media Type	Server only accepts "application/json" data. Client request content-type should be "application/json".

Response Examples

Success

Status: 201 Created
<pre>{ "id": 5678, "volume": 5, "carrier": null,</pre>

```
"item": "LEGO Blocks",  
"create_date": "10/18/2020",  
"self": "https://appspot.com/loads/5678"  
}
```

Failure

Status: 400 Bad Request

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

Status: 403 Forbidden

```
{  
"Error": "Updating id is not allowed"  
}
```

Status: 404 Not Found

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

Status: 406 Not Acceptable

```
{  
"Error": "Not acceptable"  
}
```

Status: 415 Unsupported Media Type

```
{  
"Error": "Server only accepts application/json data"  
}
```

Partially update a Load

Allows you to partially update properties of a load.

PATCH /loads/:load_id

Request

Endpoint Protected?

No

Path Parameters

Name	Description
load_id	ID of the load

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Description	Required?
volume	Volume of load.	No
item	Description of the load.	No
create_date	Date the load was created.	No

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	403 Forbidden	Request to update id is not allowed.
Failure	404 Not Found	No load with this load_id exists
Failure	406 Not Acceptable	Client does not accept "application/json". The client must accept "application/json" to read response sent from the Server.
Failure	415 Unsupported Media Type	Server only accepts "application/json" data. Client request content-type should be "application/json".

Response Examples

Success

Status: 201 Created
<pre>{ "id": 5678, "volume": 5, "carrier": null, "item": "LEGO Blocks", "create_date": "10/18/2020",</pre>


```
"self": "https://appspot.com/loads/5678"
}
```

Failure

Status: 403 Forbidden

```
{
  "Error": "Updating id is not allowed"
}
```

Status: 404 Not Found

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

Status: 406 Not Acceptable

```
{
  "Error": "Not acceptable"
}
```

Status: 415 Unsupported Media Type

```
{
  "Error": "Server only accepts application/json data"
}
```

Delete a Load

Allows you to delete a load. If the load is loaded on a boat, the boat will unload the load deleted.

DELETE /loads/:load_id

Request

Endpoint Protected?

No

Path Parameters

Name	Description
load_id	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

Response Examples

Success

Status: 204 No Content

Failure

Status: 404 Not Found <pre>{ "Error": "No load with this load_id exists" }</pre>

Assign a load to a boat

Loading a load to a boat.

PUT /boats/:boat_id/loads/:load_id

Request

Endpoint Protected?

Yes

Path Parameters

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

Request Body

None

Note: Set Content-Length to 0 in your request when calling out to this endpoint.

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.
Failure	401 Unauthorized	Authorization token is missing or invalid for this protected endpoint.
Failure	403 Forbidden	The load is already loaded on another boat or the user does not own the boat
Failure	404 Not Found	The specified boat and/or load does not exist

Response Examples

Success

Status: 204 No Content

Failure

Status: 401 Unauthorized { "Error": "Not authenticated" }
--

Status: 403 Forbidden

```
{  
  "Error": "You do not own this boat"  
}
```

```
{  
  "Error": "The load is already loaded on another boat"  
}
```

Status: 404 Not Found

```
{  
  "Error": "The specified boat and/or load does not exist"  
}
```

Remove a load from a boat

Unloading a load from a boat.

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

Request

Endpoint Protected?

Yes

Path Parameters

Name	Description
load_id	ID of the load
boat_id	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 this load is at this boat.
Failure	401 Unauthorized	Authorization token is missing or invalid for this protected endpoint.
Failure	403 Forbidden	The user does not own the boat
Failure	404 Not Found	No load with this load_id is at the boat with this boat_id. This could be because no load with this load_id exists, or because no boat with boat_id exists, or even if both boat_id and load_id are valid, the load with this load_id is not at this boat with this boat_id

Response Examples

Success

```
Status: 204 No Content
```

Failure

```
Status: 401 Unauthorized
```

```
{
  "Error": "Not authenticated"
}
```

Status: 403 Forbidden

```
{  
  "Error": "You do not own this boat"  
}
```

Status: 404 Not Found

```
{  
  "Error": "No boat with this boat_id is loaded with the load with this load_id"  
}
```

List all Users

List all the users.

GET /users

Request

Endpoint Protected?

No

Path Parameters

None

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	

Response Examples

Success

Status: 200 OK
<pre>[{ "id": 123, "name": "user1@test.com", "sub": "auth0 123456", }, { "id": 456, "name": "user2@test.com", "sub": "auth0 678910", }]</pre>