

# Parking Spot REST API

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Login at Base URL: <https://parking-spot-api.uw.r.appspot.com>

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## Change log

Version	Change	Date
1.0	Initial version.	Nov 25, 2021

## Data Model

The API stores three entities in the database – drivers, cars, and spots. A driver is able to add their own car(s) that can be parked in spaces. Each space can hold one car, and only the driver of the parked car can remove the car from a parking space.

A driver is identified by the JWT sub that is received after logging in. The JWT sub needs to be attached to the Authorization header for any requests that involve their cars and parking spaces.

### Driver

Property	Data Type	Notes	Required?
id	Integer	The id of the user. Datastore automatically generates it.	yes
name	String	Name of the driver, all alphabet characters permitted.	yes
email	String	Email address of the driver, must be formatted hello@example.com	yes
jwt_sub	String	jwt sub of the driver obtained after successful user login	yes

### Car

Property	Data Type	Notes	Required?
id	Integer	The id of the car. Datastore automatically generates it.	yes
make	String	Manufacturer of the car. E.g. Honda, BMW, etc.	yes
model	String	Model of the car. E.g. Corolla, Civic, etc.	yes
license plate	String	License plate of the car, cannot be longer than 8 alphanumeric characters.	yes
owner	String	The car's owner, value of sub property in the JWT	yes

### Space

Property	Data Type	Notes	Required?
id	Integer	The id of the parking spot. Datastore automatically generates it.	yes
spot id	Integer	Identifies the parking spot in the garage, can be an integer from 1-200	yes
floor	Integer	The floor of the parking garage the spot is located on, can be an integer from 1-5	yes
handicap	Boolean	Indicates whether the parking space is reserved as a handicap space, must be a Boolean value.	yes
car	Integer	ID of car parked in the spot, null if it is empty. Value is defaulted to null when the parking space is created.	no

All valid values for properties in the request body must adhere to the guidelines in the data model.

## Get all users

Allows you to get all existing users, or the user associated with the JWT if one is included in the request header

GET /users

Request

Headers

Accept:

- application/json

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	405 Method not recognized	Request method header was not recognized
Failure	406 Not Acceptable	You must specify MIME type application/json for the response in the accept header of your request.

Response Examples

*Success*

Status: 200 OK

```
{
  "email": "eric.chiu21@gmail.com",
  "id": 5069549128908800,
  "name": "Eric Chiu",
  "self": "https://parking-spot-api.uw.r.appspot.com/users/5069549128908800",
  "sub": "113359867555391566029"
}
```

*Failure*

Status: 405 Method not recognized

```
{
  "Error": "Method not recognized"
}
```

Status: 406 Not Acceptable

```
{
  "Error": "Not Acceptable"
}
```

## Create a Car

Allows you to create a new car.

POST /cars

Request

Headers

Accept:

- application/json

Authorization:

- JWT (required)

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Description	Required?
make	The manufacturer of the car e.g. Toyota, Ford	Yes
model	The model of the car e.g. Civic, Corolla, etc.	Yes
plate	License plate of the car	Yes

Request Body Example

```
{
  "make": "Koenigsegg",
  "model": "Jesko",
  "plate": "ABC1234"
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	The request object is missing at least one of the required attributes.
Failure	401 Unauthorized	Check the JWT is included, and that it is valid
Failure	406 Not Acceptable	You must specify MIME type application/json for the response in the accept header of your request.

## Response Examples

### Success

Status: 201 Created

```
{
  "id": 5702893864747008,
  "make": "Koenigsegg",
  "model": "Jesko",
  "owner": "114040593206923696401",
  "plate": "ABC1234",
  "self": "https://parking-spot-api.uw.r.appspot.com/cars/5702893864747008"
}
```

### Failure

Status: 400 Bad Request

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

Status: 401 Unauthorized

```
{
  "Error": " Either no JWT was provided, or the JWT could not be verified"
}
```

Status: 406 Not Acceptable

```
{
  "Error": "Not Acceptable"
}
```

## Get all cars

Allows you to get all cars, or all cars that belong to the owner if the JWT is included

GET /cars

Request

Headers

Accept:

- application/json

Authorization:

- JWT (not required)

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	Check that your JWT is valid and has been included in the request header and try again.
Failure	406 Not Acceptable	You must specify MIME type application/json for the response in the accept header of your request.

Response Examples

*Success*

Status: 200 OK

```
[
  {
    "id": 5702893864747008,
    "make": "Koenigsegg",
    "model": "Jesko",
    "owner": "114040593206923696401",
    "plate": "ABC1234",
    "self": "https://parking-spot-api.uw.r.appspot.com/cars/5702893864747008"
  },
  {
    "id": 5913974059040768,
    "make": "Alfa Romeo",
    "model": "Giulia",
    "owner": "113359867555391566029",
    "plate": "1234ABC",
    "self": "https://parking-spot-api.uw.r.appspot.com/cars/5913974059040768"
  }
]
```

### *Failure*

Status: 401 Unauthorized

```
{  
  "Error": " Either no JWT was provided, or the JWT could not be verified"  
}
```

Status: 406 Not Acceptable

```
{  
  "Error": "Not Acceptable"  
}
```

## Get a Car

Allows you to get an existing car

GET /cars/:car\_id

### Request

#### Path Parameters

Name	Description
car_id	ID of the car

#### Headers

Accept:

- application/json

Authorization:

- JWT (not required)

### Request Body

None

### Response

#### Response Body Format

JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	Check that your JWT is valid and has been included in the request header and try again.
Failure	403 Forbidden	You attempted an operation on a car that is owned by someone else.
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json for the response in the accept header of your request.

#### Response Examples

##### Success

Status: 200 OK

```
{
  "id": 5702893864747008,
  "make": "Koenigsegg",
  "model": "Jesko",
  "owner": "114040593206923696401",
  "plate": "ABC1234",
  "self": "https://parking-spot-api.uw.r.appspot.com/cars/5702893864747008/5702893864747008"
}
```

##### Failure

Status: 401 Unauthorized



<pre>{ "Error": "Either no JWT was provided, or the JWT could not be verified " }</pre>
<p>Status: 403 Forbidden</p> <pre>{ "Error": "You do not have access to this car." }</pre>
<p>Status: 404 Not Found</p> <pre>{ "Error": "No car with this car_id exists " }</pre>
<p>Status: 406 Not Acceptable</p> <pre>{ "Error": " Not Acceptable " }</pre>

## Edit a Car (PATCH)

Allows you to edit a car.

PATCH /cars/:car\_id

### Request

#### Path Parameters

Name	Description
car_id	ID of the car

#### Request Body

Required

#### Request Body Format

JSON

#### Request JSON Attributes

Name	Description	Required?
make	The manufacturer of the car e.g. Toyota, Ford	no
model	The model of the car e.g. Civic, Corolla, etc.	no
plate	License plate of the car	no

Note: At least one of these attributes must be included in the request body. No other attributes are allowed.

#### Request Body Example

```
{
  "make": "BMW"
}
```

### Response

#### Response Body Format

JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	You attempted to edit an invalid attribute.
Failure	401 Unauthorized	Check that your JWT is valid and has been included in the request header and try again.
Failure	403 Forbidden	You attempted an operation on a car that is owned by someone else.
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json for the response in the accept header of your request.

#### Response Examples

##### Success

Status: 200 OK

```
{
  "id": 5702893864747008,
  "make": "BMW",
  "model": "Jesko",
}
```

```
"owner": "114040593206923696401",  
"plate": "ABC1234",  
"self": "https://parking-spot-api.uw.r.appspot.com/cars/5702893864747008/5702893864747008"  
}
```

#### *Failure*

Status: 400 Bad Request

```
{  
"Error": " You can only edit valid attributes of the target entity"  
}
```

Status: 401 Unauthorized

```
{  
"Error": "Either no JWT was provided, or the JWT could not be verified "  
}
```

Status: 403 Forbidden

```
{  
"Error": "You do not have access to this car."  
}
```

Status: 404 Not Found

```
{  
"Error": "No car with this car_id exists "  
}
```

Status: 406 Not Acceptable

```
{  
"Error": " Not Acceptable "  
}
```

## Edit a Car (PUT)

Allows you to edit all attributes of a car.

PUT /cars/:car\_id

### Request

#### Path Parameters

Name	Description
car_id	ID of the car

#### Request Body

Required

#### Request Body Format

JSON

#### Request JSON Attributes

Name	Description	Required?
make	The manufacturer of the car e.g. Toyota, Ford	yes
model	The model of the car e.g. Civic, Corolla, etc.	yes
plate	License plate of the car	yes
space	Parking space the car is parked in, if it is parked	yes

#### Request Body Example

```
{
  "make": "Toyota",
  "model": "Corolla",
  "plate": "987CBA1",
  "space": null
}
```

### Response

#### Response Body Format

JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	400 Bad Request	You attempted to edit an invalid attribute, or your request body is missing one of the required attributes..
Failure	401 Unauthorized	Check that your JWT is valid and has been included in the request header and try again.
Failure	403 Forbidden	You attempted an operation on a car that is owned by someone else.
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json or text/html for the response in the accept header of your request.

#### Response Examples

##### Success

Status: 200 No Content

### Failure

Status: 400 Bad Request

```
{  
  "Error": " You can only edit valid attributes of the target entity"  
}
```

Or

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

Status: 401 Unauthorized

```
{  
  "Error": "Either no JWT was provided, or the JWT could not be verified "  
}
```

Status: 403 Forbidden

```
{  
  "Error": "You do not have access to this car."  
}
```

Status: 404 Not Found

```
{  
  "Error": "No car with this car_id exists "  
}
```

Status: 406 Not Acceptable

```
{  
  "Error": " Not Acceptable "  
}
```

## Delete a Car

Allows you to delete a car.

DELETE /cars/:car\_id

### Request

#### Path Parameters

Name	Description
car_id	ID of the car

#### Request Body

None

#### Request Body Format

No body

### Response

#### Response Body Format

Success: No body

Failure: JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	Check that your JWT is valid and has been included in the request header and try again.
Failure	403 Forbidden	You attempted an operation on a car that is owned by someone else.
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json or text/html for the response in the accept header of your request.

#### Response Examples

##### Success

Status: 200 OK

```
{
  "id": 5702893864747008,
  "make": "BMW",
  "model": "Jesko",
  "owner": "114040593206923696401",
  "plate": "ABC1234",
  "self": "https://parking-spot-api.uw.r.appspot.com/cars/5702893864747008/5702893864747008"
}
```

##### Failure

Status: 401 Unauthorized

```
{
  "Error": "Either no JWT was provided, or the JWT could not be verified "
}
```

Status: 403 Forbidden

```
{  
"Error": "You do not have access to this car."  
}
```

Status: 404 Not Found

```
{  
"Error": "No car with this car_id exists "  
}
```

Status: 406 Not Acceptable

```
{  
"Error": " Not Acceptable "  
}
```

## Create a Space

Allows you to create a new parking space.

POST /spaces

Request

Headers

Accept:

- application/json

Path Parameters

None

Request Body

Required

Request Body Format

JSON

Request JSON Attributes

Name	Description	Required?
space_id	The id of the parking space, integer from 1-200	Yes
floor	Level of the parking garage the space is located on, integer from 1-5	Yes
handicap	Indicates whether a parking space is handicap reserved	Yes

Request Body Example

```
{
  "space_id": 156,
  "floor": 3,
  "handicap": false
}
```

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	201 Created	
Failure	400 Bad Request	The request object is missing at least one of the required attributes.
Failure	401 Unauthorized	Check the JWT is included, and that it is valid
Failure	406 Not Acceptable	You must specify MIME type application/json for the response in the accept header of your request.

Response Examples

Success

Status: 201 Created

```
{
```



```
"car": null,  
"floor": 3,  
"handicap": false,  
"id": 5151539786153984,  
"self": "https://parking-spot-api.uw.r.appspot.com/spaces/5151539786153984",  
"space_id": 156  
}
```

#### *Failure*

Status: 400 Bad Request

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

Status: 401 Unauthorized

```
{  
"Error": " Either no JWT was provided, or the JWT could not be verified"  
}
```

Status: 406 Not Acceptable

```
{  
"Error": "Not Acceptable"  
}
```

## Get all Spaces

Allows you to get all parking spaces.

GET /spaces

Request

Headers

Accept:

- application/json

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	401 Unauthorized	Check that your JWT is valid and has been included in the request header and try again.
Failure	406 Not Acceptable	You must specify MIME type application/json for the response in the accept header of your request.

Response Examples

*Success*

Status: 200 OK

```
{
  "spaces": [
    {
      "car": null,
      "floor": 3,
      "handicap": false,
      "id": 5151539786153984,
      "self": "https://parking-spot-api.uw.r.appspot.com/spaces/5151539786153984",
      "space_id": 156
    },
    {
      "car": null,
      "floor": 3,
      "handicap": false,
      "id": 5673082664517632,
      "self": "https://parking-spot-api.uw.r.appspot.com/spaces/5673082664517632",
      "space_id": 157
    }
  ]
}
```

### *Failure*

Status: 401 Unauthorized

```
{  
  "Error": " Either no JWT was provided, or the JWT could not be verified"  
}
```

Status: 406 Not Acceptable

```
{  
  "Error": "Not Acceptable"  
}
```

## Get a Spaces

Allows you to get an existing parking space

GET /spaces/:space\_id

Request

Path Parameters

Name	Description
space_id	ID of the parking space

Headers

Accept:

- application/json

Request Body

None

Response

Response Body Format

JSON

Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json for the response in the accept header of your request.

Response Examples

*Success*

Status: 200 OK

```
{
  "car": null,
  "floor": 3,
  "handicap": false,
  "id": 5673082664517632,
  "self": "https://parking-spot-
api.uw.r.appspot.com/spaces/5673082664517632/5673082664517632",
  "space_id": 157
}
```

*Failure*

Status: 404 Not Found

```
{
  "Error": "No car with this car_id exists "
}
```

Status: 406 Not Acceptable

```
{  
"Error": " Not Acceptable "  
}
```

## Edit a Space (PATCH)

Allows you to edit a parking space.

PATCH /spaces/:space\_id

### Request

#### Path Parameters

Name	Description
space_id	ID of the parking space

### Headers

Accept:

- application/json

### Request Body

Required

#### Request Body Format

JSON

#### Request JSON Attributes

Name	Description	Required?
space_id	The id of the parking space, integer from 1-200	no
floor	Level of the parking garage the space is located on, integer from 1-5	no
handicap	Indicates whether a parking space is handicap reserved	no
car	The car that is currently parked in the parking space, null if it is empty	no

Note: At least one of these attributes must be included in the request body. No other attributes are allowed.

#### Request Body Example

```
{
  "car": null
}
```

### Response

#### Response Body Format

JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	You attempted to edit an invalid attribute.
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json for the response in the accept header of your request.

#### Response Examples

##### Success

Status: 200 OK

```
{
  "car": 6232102555090944,
  "floor": 3,
```

```
"handicap": false,  
"id": 5673082664517632,  
"self": "https://parking-spot-  
api.uw.r.appspot.com/spaces/5673082664517632/5673082664517632",  
"space_id": 157  
}
```

#### *Failure*

Status: 400 Bad Request

```
{  
"Error": " You can only edit valid attributes of the target entity"  
}
```

Status: 404 Not Found

```
{  
"Error": "No space with this space_id exists "  
}
```

Status: 406 Not Acceptable

```
{  
"Error": " Not Acceptable "  
}
```

## Edit a Space (PUT)

Allows you to edit all attributes of a parking space.

PUT /spaces/:space\_id

### Request

#### Path Parameters

Name	Description
space_id	ID of the parking space

#### Headers

Accept:

- application/json

#### Request Body

Required

#### Request Body Format

JSON

#### Request JSON Attributes

Name	Description	Required?
space_id	The id of the parking space, integer from 1-200	yes
floor	Level of the parking garage the space is located on, integer from 1-5	yes
handicap	Indicates whether a parking space is handicap reserved	yes
car	The car that is currently parked in the parking space, null if it is empty	yes

#### Request Body Example

```
{
  "car": 6267518586978304,
  "floor": 2,
  "space_id": 20,
  "handicap": true
}
```

### Response

#### Response Body Format

JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	You attempted to edit an invalid attribute, or your request body is missing one of the required attributes..
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json or text/html for the response in the accept header of your request.

#### Response Examples

##### Success

Status: 200 OK



```
{
  "car": 6232102555090944,
  "floor": 3,
  "handicap": false,
  "id": 5673082664517632,
  "self": "https://parking-spot-
api.uw.r.appspot.com/spaces/5673082664517632/5673082664517632",
  "space_id": 157
}
```

#### *Failure*

Status: 400 Bad Request

```
{
  "Error": " You can only edit valid attributes of the target entity"
}
```

Or

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

Status: 404 Not Found

```
{
  "Error": "No space with this space_id exists "
}
```

Status: 406 Not Acceptable

```
{
  "Error": " Not Acceptable "
}
```

## Delete a Space

Allows you to delete a parking space.

DELETE /cars/:car\_id

### Request

#### Path Parameters

Name	Description
space_id	ID of the parking space

#### Request Body

None

#### Request Body Format

No body

### Response

#### Response Body Format

Success: No body

Failure: JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	204 No Content	
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json or text/html for the response in the accept header of your request.

#### Response Examples

##### Success

Status: 204 No Content

##### Failure

Status: 404 Not Found

```
{
  "Error": "No space with this space_id exists "
}
```

Status: 406 Not Acceptable

```
{
  "Error": " Not Acceptable "
}
```

## Park a Car in a Space (PUT)

Allows you to edit all attributes of a parking space.

PUT /spaces/:space\_id/cars/:car\_id

### Request

#### Path Parameters

Name	Description
space_id	ID of the parking space
car_id	ID of the car

### Headers

Accept:

- application/json

Authorization:

- JWT

### Request Body

None

### Request Body Format

JSON

### Response

#### Response Body Format

JSON

#### Response Statuses

Outcome	Status Code	Notes
Success	200 OK	
Failure	400 Bad Request	Parking space is currently occupied.
Failure	401 Unauthorized	Check that your JWT is valid and has been included in the request header and try again.
Failure	403 Forbidden	You attempted an operation on a car that is owned by someone else.
Failure	404 Not Found	Car_id doesn't exist
Failure	406 Not Acceptable	You must specify either MIME type application/json or text/html for the response in the accept header of your request.

### Response Examples

#### Success

Status: 200 OK

```
{
  "car": 6232102555090944,
  "floor": 3,
  "handicap": false,
  "id": 5673082664517632,
```

```
"self": "https://parking-spot-  
api.uw.r.appspot.com/spaces/5673082664517632/5673082664517632",  
"space_id": 157  
}
```

#### *Failure*

Status: 400 Bad Request

```
{  
"Error": " The owner needs to remove the car from the space before proceeding."  
}
```

Status: 401 Unauthorized

```
{  
'Error': 'Either no JWT was provided, or the JWT could not be verified'  
}
```

Status: 403 Forbidden

```
{  
"Error": " You do not have access to this car."  
}
```

Status: 404 Not Found

```
{  
"Error": "No space with this space_id exists"  
}  
or  
{  
"Error": "No car with this car_id exists"  
}
```

Status: 406 Not Acceptable

```
{  
"Error": " Not Acceptable "  
}
```