Electric Cars and Chargers API

CS 493: Cloud Application Development

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Welcome Page URL ............................................................... <https://final-beachlym.appspot.com/>

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# Create a User

|  |
| --- |
| <https://final-beachlym.appspot.com/> |

## Description

User accounts are not created via requests to the API. To create a user account, you must visit the URL above in a browser which takes you to the Welcome page. From there click “Authorize!”, which directs you to where you can log in to a Google Gmail account. This allows the Electric Cars app to get your first name, last name, and user name from Google via OAuth 2.0. However, your user account is not created in the datastore until you are redirected back to the Welcome page and click the “See Your Info!” button.

Clicking the “See Your Info!” button causes the Electric Cars app to get your information and a JWT (JSON Web Token) from Google, and then display that information to you on a new page. You will need to copy your JWT token from this page in order to make POST, PUT, PATCH, and DELETE requests to the API (GET requests do NOT require a JWT token). The JWT token must be specified in requests as a “Bearer Token”. Please note that the JWT token expires after a few minutes and you will need to follow the same process to get a new one, otherwise the API will verify and reject your expired token. The API also uses the JWT token to extract the User ID from the “sub” attribute, as it is a unique identifier. User name attributes are not unique and thus are not used for ID. You can copy the User ID from the “See Your Info!” page in order to make GET requests to list the cars or chargers owned by that User ID.

Clicking the “See Your Info!” button also creates a User entity in the datastore for your account. The entity contains four attributes: id (obtained from the sub attribute in the JWT token), givenName, familyName, and displayName. The ID is used to show the ownership relationship between users and cars and users and chargers. Cars and chargers both have an owner attribute that contains the ID of the user they are owned by. These relationships are defined when cars or chargers are created via a POST request containing the user’s JWT token. At this point the ownership relationships are only created upon creation of cars and chargers and cannot be modified.

# List all Users

List all the users, up-to-five users per page.

|  |
| --- |
| GET /users |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| cursor | String | Token for which page of users to return. If not provided the first page will be returned. | No |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK | If client accepts JSON response |
| Failure | 406 Not Acceptable | If client does not accept JSON response |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "items": [          {              "givenName": "Matthew",              "familyName": "Beachly",              "displayName": "Matthew Beachly",              "id": "108199616256893398846",              "self": "https://final-beachlym.appspot.com/users/108199616256893398846"          },          {              "givenName": "mattbeachly",              "displayName": "mattbeachly",              "id": "107197049100131265837",              "self": "https://final-beachlym.appspot.com/users/107197049100131265837"          }      ],      "self": "https://final-beachlym.appspot.com/users",      "next": "None",      "total": 2  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json."  } |

# Get a User

Allows you to get an existing user

|  |
| --- |
| GET /users/:user\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| user\_id | String | ID of the user | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON or HTML

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK | If client accepts JSON response |
| Failure | 404 Not Found | If no user with this user\_id exists |
| Failure | 406 Not Acceptable | If client does not accept JSON response |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "id": "107197049100131265837",      "givenName": "mattbeachly",      "displayName": "mattbeachly",      "self": "https://final-beachlym.appspot.com/users/107197049100131265837"  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {      "Error": "No user with this user\_id exists."  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {      "Error": "Client must accept application/json."  } |

# Create a Car

Allows you to create a new car.

|  |
| --- |
| POST /cars |

## Description

Car entities have five required attributes: id, make, model, year, owner, and one optional attribute: charger. In POST requests you must only specify three attributes: make (the manufacturer of the car), model, and year (year the car was built). The ID attribute is a unique identifier that is automatically generated by the datastore. The owner attribute is your user ID and is automatically extracted from your JWT token sent with the request. The charger attribute indicates the ID of the charger the car is parked at and must be set later via a PUT or DELETE request.

## Request

### Request Parameters

None

### Request Authorization

|  |  |  |
| --- | --- | --- |
| **Type** | **Description** | **Required?** |
| Bearer Token | JWT token copied from “Show Your Info!” page | Yes |

### Request Body

Required

### Request Body Format

JSON

### Request JSON Attributes

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| make | String | The make of the car. E.g., Tesla, Kia, etc. Must be string 2 characters or longer. | Yes |
| model | String | The model of the car. E.g., Cybertruck, Leaf, etc. Must be string 2 characters or longer. | Yes |
| year | Number | Year the car was made, must be > 1800. | Yes |

### Request Body Example

|  |
| --- |
| {  "make": "Anderson",  "model": "Detroit Electric",  "year": 1911  } |

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 201 Created |  |
| Failure | 400 Bad Request | If the request is missing any of the 3 required attributes |
| Failure | 400 Bad Request | If make attribute is not a string |
| Failure | 400 Bad Request | If make attribute has less than 2 characters |
| Failure | 400 Bad Request | If model attribute is not a string |
| Failure | 400 Bad Request | If model attribute has less than 2 characters |
| Failure | 400 Bad Request | If length attribute is not a number |
| Failure | 400 Bad Request | If length attribute is not > 1800 |
| Failure | 401 Unauthorized | If no JWT token or a bad JWT token is provided. |
| Failure | 403 Forbidden | If ID, owner, or charger are in the request body. |
| Failure | 405 Method Not Allowed | If a car\_id is specified in URL |
| Failure | 406 Not Acceptable | If client does not accept application/json data |
| Failure | 415 Unsupported Media Type | If client does not provide application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 201 Created  {      "make": "Tesla",      "model": "Cybertruck",      "year": 2021,      "owner": "108199616256893398846",      "id": "5679790782676992",      "self": "https://final-beachlym.appspot.com/cars/5679790782676992"  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "The request object is missing at least one of the required attributes"  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "Make must be >= 2 characters."  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "Model must be in string format."  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "Year must be > 1800."  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json data."  } |

#### Failure

|  |
| --- |
| Status: 415 Unsupported Media Type  {  "Error": " Server only accepts application/json data."  } |

# Get a Car

Allows you to get an existing car

|  |
| --- |
| GET /cars/:car\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| car\_id | String | ID of the car | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK | If client accepts JSON response |
| Failure | 404 Not Found | If no car with this car\_id exists |
| Failure | 406 Not Acceptable | If client does not accept application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "owner": "108199616256893398846",      "year": 1911,      "make": "Anderson",      "model": "Detroit Electric",      "id": "5679790782676992",      "self": "https://final-beachlym.appspot.com/cars/5679790782676992"  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No car with this car\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json."  } |

# List all Cars

List all the cars, up-to-five cars per page.

|  |
| --- |
| GET /cars |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| cursor | String | Token for which page of cars to return. If not provided the first page will be returned. | No |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK |  |
| Failure | 406 Not Acceptable | If client does not accept application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "items": [          {              "make": "Tesla",              "model": "Cybertruck",              "owner": "108199616256893398846",              "year": 2021,              "id": "5701330244993024",              "self": "https://final-beachlym.appspot.com/cars/5701330244993024"          },  …      ],      "self": "https://final-beachlym.appspot.com/cars",      "next": "https://final-beachlym.appspot.com/cars?cursor=CkcKGwoFbW9kZWwSEhoQRGV0cm9pdCBFbGVjdHJpYxIkahBtfmZpbmFsLWJlYWNobHltchALEgNDYXIYgICAwNW3iwoMGAAgAA%3D%3D",      "total": 7  } |

# List all Cars by Owner

List all the cars owned by a user

|  |
| --- |
| GET /users/:user\_id/cars |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| user\_id | String | ID of the user | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK |  |
| Failure | 404 Not Found | If no user with this user\_id exists |
| Failure | 406 Not Acceptable | If client does not accept application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "items": [          {              "owner": "107197049100131265837",              "year": 2021,              "make": "Tesla",              "model": "Cybertruck",              "id": "5634263223369728",              "self": "https://final-beachlym.appspot.com/cars/5634263223369728"          },  …      ],      "self": "https://final-beachlym.appspot.com/users/107197049100131265837/cars",      "total": 5  } |

# Patch a Car

Allows you to edit a car.

|  |
| --- |
| PATCH /cars/:car\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| car\_id | String | ID of the car | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

Required

### Request Body Format

JSON

### Request JSON Attributes

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| make | String | The make of the car. E.g., Tesla, Kia, etc. Must be string 2 characters or longer. | No |
| model | String | The model of the car. E.g., Cybertruck, Leaf, etc. Must be string 2 characters or longer. | No |
| year | Number | Year the car was made, must be > 1800. | No |

### Request Body Example

|  |
| --- |
| {  "year": 1910  } |

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK |  |
| Failure | 400 Bad Request | If make attribute is not a string |
| Failure | 400 Bad Request | If make attribute has less than 2 characters |
| Failure | 400 Bad Request | If model attribute is not a string |
| Failure | 400 Bad Request | If model attribute has less than 2 characters |
| Failure | 400 Bad Request | If length attribute is not a number |
| Failure | 400 Bad Request | If length attribute is not > 1800 |
| Failure | 401 Unauthorized | If no JWT token or a bad JWT token is provided. |
| Failure | 403 Forbidden | If request redefines the id, owner, or charger attribute |
| Failure | 403 Forbidden | If ID in JWT does not match owner |
| Failure | 404 Not Found | If no car with this car\_id exists |
| Failure | 405 Method Not Allowed | If no car\_id provided in URL |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "year": 1910,      "make": "Anderson",      "model": "Detroit Electric",      "owner": "107197049100131265837",      "id": 5711673465765888,      "self": "https://final-beachlym.appspot.com/cars/5711673465765888"  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "Make must be in string format."  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "The ID cannot be updated"  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No car with this car\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 405 Method Not Allowed  {  "Error": "Must specify car\_id to be put.”  } |

# Put a Car

Allows you to edit a car.

|  |
| --- |
| PUT /cars/:car\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| car\_id | String | ID of the car | Yes |

### Request Body

Required

### Request Body Format

JSON

### Request JSON Attributes

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| make | String | The make of the car. Must be string 2 characters or longer. | Yes |
| model | String | The model of the car. Must be string 2 characters or longer. | Yes |
| year | Number | Year the car was made, must be > 1800. | Yes |

### Request Body Example

|  |
| --- |
| {  "make": "Anderson",  "model": "Detroit Electric",  "year": 1911  } |

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 303 See Other | URL to newly created car is returned |
| Failure | 400 Bad Request | If any of the three required attributes are missing |
| Failure | 400 Bad Request | If make attribute is not a string |
| Failure | 400 Bad Request | If make attribute has less than 2 characters |
| Failure | 400 Bad Request | If model attribute is not a string |
| Failure | 400 Bad Request | If model attribute has less than 2 characters |
| Failure | 400 Bad Request | If length attribute is not a number |
| Failure | 400 Bad Request | If length attribute is not > 1800 |
| Failure | 401 Unauthorized | If no JWT token or a bad JWT token is provided. |
| Failure | 403 Forbidden | If request redefines the id, owner, or charger attribute |
| Failure | 404 Not Found | If no car with this car\_id exists |
| Failure | 405 Method Not Allowed | If no car\_id provided in URL |

### Response Examples

#### Success

|  |
| --- |
| Status: 303 See Other  {  See Other.  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "Model must be in string format."  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "The ID cannot be updated"  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "User sub ID in JWT token does not match car owner."  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No car with this car\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 405 Method Not Allowed  {  "Error": "Must specify car\_id to be patched.”  } |

# Delete a Car

Allows you to delete a car.

|  |
| --- |
| DELETE /cars/:car\_id |

## Request

### Request Parameters

None

### 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 | If no JWT token or a bad JWT token is provided. |
| Failure | 403 Forbidden | User sub ID in JWT token does not match car owner |
| Failure | 404 Not Found | No car with this car\_id exists |
| Failure | 405 Method Not Acceptable | If car\_id not provided in URL |

### Response Examples

#### Success

|  |
| --- |
| Status: 204 No Content |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "User sub ID in JWT token does not match car owner."  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No car with this car\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 405 Method Not Allowed  {  "Error": "Must specify car\_id to be deleted."  } |

# Create a Charger

Allows you to create a new charger.

|  |
| --- |
| POST /chargers |

## Description

Charger entities have five required attributes: id, address, connector, output, owner, and one optional attribute: car. In POST requests you must only specify three attributes: address (where the charger is located), connector, and output (power in kW). The ID attribute is a unique identifier that is automatically generated by the datastore. The owner attribute is your user ID and is automatically extracted from your JWT token sent with the request. The car attribute indicates the ID of the car parked at the charger and must be set later via a PUT or DELETE request.

## Request

### Request Parameters

None

### Request Authorization

|  |  |  |
| --- | --- | --- |
| **Type** | **Description** | **Required?** |
| Bearer Token | JWT token copied from “Show Your Info!” page | Yes |

### Request Body

Required

### Request Body Format

JSON

### Request JSON Attributes

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| address | String | The address of the charger. E.g. 2350 Electric Ave. Must be string 2 characters or longer. | Yes |
| model | String | The connector type. E.g. Type 2, CCS, CHAdeMO, etc. Must be string 2 characters or longer. | Yes |
| output | Number | The power output of the charger in kW. Must be > 0. | Yes |

### Request Body Example

|  |
| --- |
| {  "address": "123 Fake St.",  "connector": "Type 2",  "output": 43  } |

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 201 Created |  |
| Failure | 400 Bad Request | If the request is missing any of the 3 required attributes |
| Failure | 400 Bad Request | If address attribute is not a string |
| Failure | 400 Bad Request | If address attribute has less than 2 characters |
| Failure | 400 Bad Request | If connector attribute is not a string |
| Failure | 400 Bad Request | If connector attribute has less than 2 characters |
| Failure | 400 Bad Request | If output attribute is not a number |
| Failure | 400 Bad Request | If output attribute is not > 0 |
| Failure | 401 Unauthorized | If no JWT token or a bad JWT token is provided. |
| Failure | 403 Forbidden | If ID, owner, or car are in the request body. |
| Failure | 405 Method Not Allowed | If a car\_id is specified in URL |
| Failure | 406 Not Acceptable | If client does not accept application/json data |
| Failure | 415 Unsupported Media Type | If client does not provide application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 201 Created  {      "address": "123 Fake St.",      "connector": "Type 2",      "output": 43,      "owner": "107197049100131265837",      "id": "5715999101812736",      "self": "https://final-beachlym.appspot.com/chargers/5715999101812736"  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "The request object is missing at least one of the required attributes"  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {      "Error": "Can't send car, must be set via /chargers/:charger\_id/car/:car\_id."  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json data."  } |

#### Failure

|  |
| --- |
| Status: 415 Unsupported Media Type  {  "Error": " Server only accepts application/json data."  } |

# Get a Charger

Allows you to get an existing charger

|  |
| --- |
| GET /chargers/:charger\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| charger\_id | String | ID of the charger | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK | If client accepts JSON response |
| Failure | 404 Not Found | If no charger with this charger\_id exists |
| Failure | 406 Not Acceptable | If client does not accept application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "connector": "CHAdeMO",      "owner": "107197049100131265837",      "output": 62.5,      "address": "456 Lame Ln.",      "id": "5715999101812736",      "self": "https://final-beachlym.appspot.com/chargers/5715999101812736",      "car": "None"  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No charger with this charger\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json."  } |

# List all Chargers

List all the chargers, up-to-five chargers per page.

|  |
| --- |
| GET /chargers |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| cursor | String | Token for which page of chargers to return. If not provided the first page will be returned. | No |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK |  |
| Failure | 406 Not Acceptable | If client does not accept application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "items": [          {              "connector": "Type 2",              "owner": "107197049100131265837",              "output": 43,              "address": "123 Fake St.",              "id": "5665833682468864",              "self": "https://final-beachlym.appspot.com/chargers/5665833682468864"          },          {              "address": "456 Lame Ln.",              "connector": "CHAdeMO",              "owner": "107197049100131265837",              "output": 62.5,              "id": "5667370274127872",              "self": "https://final-beachlym.appspot.com/chargers/5667370274127872"          }      ],      "self": "https://final-beachlym.appspot.com/chargers",      "next": "None",      "total": 2  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json."  } |

# List all Chargers by Owner

List all the chargers owned by a user

|  |
| --- |
| GET /users/:user\_id/chargers |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| user\_id | String | ID of the user | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK |  |
| Failure | 404 Not Found | If no user with this user\_id exists |
| Failure | 406 Not Acceptable | If client does not accept application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "items": [          {              "output": 43,              "address": "123 Fake St.",              "connector": "Type 2",              "owner": "107197049100131265837",              "id": "5665833682468864",              "self": "https://final-beachlym.appspot.com/chargers/5665833682468864"          },          {              "connector": "CHAdeMO",              "owner": "107197049100131265837",              "output": 62.5,              "address": "456 Lame Ln.",              "id": "5667370274127872",              "self": "https://final-beachlym.appspot.com/chargers/5667370274127872"          }      ],      "self": "https://final-beachlym.appspot.com/users/107197049100131265837/chargers",      "total": 2  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": " No user with this user\_id exists."  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json."  } |

# Patch a Charger

Allows you to edit a charger.

|  |
| --- |
| PATCH /chargers/:charger\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| charger\_id | String | ID of the charger | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

Required

### Request Body Format

JSON

### Request JSON Attributes

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| address | String | The address of the charger. E.g. 2350 Electric Ave. Must be string 2 characters or longer. | No |
| model | String | The connector type. E.g. Type 2, CCS, CHAdeMO, etc. Must be string 2 characters or longer. | No |
| output | Number | The power output of the charger in kW. Must be > 0. | No |

### Request Body Example

|  |
| --- |
| {  "output": 100  } |

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK |  |
| Failure | 400 Bad Request | If address attribute is not a string |
| Failure | 400 Bad Request | If address attribute has less than 2 characters |
| Failure | 400 Bad Request | If connector attribute is not a string |
| Failure | 400 Bad Request | If connector attribute has less than 2 characters |
| Failure | 400 Bad Request | If output attribute is not a number |
| Failure | 400 Bad Request | If output attribute is not > 0 |
| Failure | 401 Unauthorized | If no JWT token or a bad JWT token is provided. |
| Failure | 403 Forbidden | If request redefines the id, owner, or car attribute |
| Failure | 403 Forbidden | If ID in JWT does not match owner |
| Failure | 404 Not Found | If no charger with this charger\_id exists |
| Failure | 405 Method Not Allowed | If no charger\_id provided in URL |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "connector": "CCS",      "output": 80,      "address": "123 Fake St.",      "owner": "107197049100131265837",      "id": 5665833682468864,      "self": "https://final-beachlym.appspot.com/chargers/5665833682468864"  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "Address must be in string format."  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "The ID cannot be updated"  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No charger with this charger\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 405 Method Not Allowed  {  "Error": "Must specify charger\_id to be put.”  } |

# Put a Charger

Allows you to edit a charger.

|  |
| --- |
| PUT /chargers/:charger\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| charger\_id | String | ID of the charger | Yes |

### Request Body

Required

### Request Body Format

JSON

### Request JSON Attributes

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| address | String | The address of the charger. E.g. 2350 Electric Ave. Must be string 2 characters or longer. | Yes |
| model | String | The connector type. E.g. Type 2, CCS, CHAdeMO, etc. Must be string 2 characters or longer. | Yes |
| output | Number | The power output of the charger in kW. Must be > 0. | Yes |

### Request Body Example

|  |
| --- |
| {  "address": "456 Lame Ln.",  "connector": "CHAdeMO",  "output": 62.5  } |

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 303 See Other | URL to newly created car is returned |
| Failure | 400 Bad Request | If any of the three required attributes are missing |
| Failure | 400 Bad Request | If address attribute is not a string |
| Failure | 400 Bad Request | If address attribute has less than 2 characters |
| Failure | 400 Bad Request | If connector attribute is not a string |
| Failure | 400 Bad Request | If connector attribute has less than 2 characters |
| Failure | 400 Bad Request | If output attribute is not a number |
| Failure | 400 Bad Request | If output attribute is not > 0 |
| Failure | 401 Unauthorized | If no JWT token or a bad JWT token is provided. |
| Failure | 403 Forbidden | If request redefines the id, owner, or car attribute |
| Failure | 404 Not Found | If no charger with this charger\_id exists |
| Failure | 405 Method Not Allowed | If no charger\_id provided in URL |

### Response Examples

#### Success

|  |
| --- |
| Status: 303 See Other  {  See Other.  } |

#### Failure

|  |
| --- |
| Status: 400 Bad Request  {  "Error": "Model must be in string format."  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "The ID cannot be updated"  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "User sub ID in JWT token does not match charger owner."  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No charger with this charger\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 405 Method Not Allowed  {  "Error": "Must specify charger\_id to be patched.”  } |

# Delete a Charger

Allows you to delete a charger.

|  |
| --- |
| DELETE /chargers/:charger\_id |

## Request

### Request Parameters

None

### 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 | If no JWT token or a bad JWT token is provided. |
| Failure | 403 Forbidden | User sub ID in JWT token does not match charger owner |
| Failure | 404 Not Found | No charger with this charger\_id exists |
| Failure | 405 Method Not Acceptable | If charger\_id not provided in URL |

### Response Examples

#### Success

|  |
| --- |
| Status: 204 No Content |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "User sub ID in JWT token does not match charger owner."  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No car with this charger\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 405 Method Not Allowed  {  "Error": "Must specify charger\_id to be deleted."  } |

# Put a Car at a Charger

Allows you to park a car at a charger.

## Description

Only one car can be parked at a charger at a time, and likewise, a car can only be parked at one charger at a time. A JWT token must be provided that matches the owner of the car, but it does not need to match the owner of the charger. This is because you can only move (drive) cars that you own, but you may use chargers owned by someone else if another car is not already using them. If an address of a charger can support charging more than one car then there should be multiple charger records for that address (address is not unique). At this point the API does not check if the charger’s connector type supports the electric car parked at it.

|  |
| --- |
| PUT /chargers/:charger\_id/car/:car\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| charger\_id | String | ID of the charger | Yes |
| car\_id | String | ID of the car | Yes |

### Request Body

None

## Response

### Response Body Format

Success: No body

Failure: JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 204 No Content | Car is assigned to charger |
| Failure | 401 Unauthorized | If no JWT token or a bad JWT token is provided |
| Failure | 403 Forbidden | If user ID in JWT token does not match car owner |
| Failure | 403 Forbidden | If this car is already parked at another charger |
| Failure | 403 Forbidden | If this charger already has a car parked at it |
| Failure | 404 Not Found | If no car with this car\_id exists |
| Failure | 404 Not Found | If no charger with this charger\_id exists |

### Response Examples

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {      "Error": "This car is already parked at a charger"  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "User sub ID in JWT token does not match car owner."  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "The specified car doesn’t exist."  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "The specified charger doesn’t exist."  } |

# Get Car at Charger

Allows you to get the car assigned to a charger

|  |
| --- |
| GET /chargers/:charger\_id/car/ |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| charger\_id | String | ID of the charger | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK | If client accepts JSON response |
| Failure | 404 Not Found | If no charger with this charger\_id exists |
| Failure | 406 Not Acceptable | If client does not accept application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  [      {          "id": "5711673465765888",          "year": 1911,          "make": "Anderson",          "owner": "107197049100131265837",          "charger": "5665833682468864",          "model": "Detroit Electric",          "self": "https://final-beachlym.appspot.com/cars/5711673465765888"      }  ] |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No charger with this charger\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json."  } |

# Get Charger for Car

Allows you to get the car assigned to a charger

|  |
| --- |
| GET /cars/:car\_id/charger/ |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| car\_id | String | ID of the car | Yes |

### Request Header

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| Accept | String | ‘application/json’ | Yes |

### Request Body

None

## Response

### Response Body Format

JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 200 OK | If client accepts JSON response |
| Failure | 404 Not Found | If no car with this car\_id exists |
| Failure | 406 Not Acceptable | If client does not accept application/json data |

### Response Examples

#### Success

|  |
| --- |
| Status: 200 OK  {      "address": "456 Lame Ln.",      "connector": "CHAdeMO",      "owner": "107197049100131265837",      "output": 62.5,      "id": "5665833682468864",      "self": "https://final-beachlym.appspot.com/chargers/5665833682468864"  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "No car with this car\_id exists"  } |

#### Failure

|  |
| --- |
| Status: 406 Not Acceptable  {  "Error": "Client must accept application/json."  } |

# Delete Car from Charger

Allows you remove a car from a charger

## Description

A JWT token must be provided that matches the owner of the car, but it does not need to match the owner of the charger. This is because you can only move (drive) cars that you own, but you may use chargers owned by someone else if another car is not already using them.

|  |
| --- |
| DELETE /chargers/:charger\_id/car/:car\_id |

## Request

### Request Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Description** | **Required?** |
| charger\_id | String | ID of the charger | Yes |
| car\_id | String | ID of the car | Yes |

### Request Body

None

## Response

### Response Body Format

Success: No body

Failure: JSON

### Response Statuses

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Status Code** | **Notes** |
| Success | 204 No Content | Car is unassigned from charger |
| Failure | 401 Unauthorized | If no JWT token or a bad JWT token is provided |
| Failure | 403 Forbidden | If user ID in JWT token does not match car owner |
| Failure | 403 Forbidden | If this car is not parked at this charger |
| Failure | 404 Not Found | If no car with this car\_id exists |
| Failure | 404 Not Found | If no charger with this charger\_id exists |

### Response Examples

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {      "Error": "This car is not parked at this charger"  } |

#### Failure

|  |
| --- |
| Status: 403 Forbidden  {  "Error": "User sub ID in JWT token does not match car owner."  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "The specified car doesn’t exist."  } |

#### Failure

|  |
| --- |
| Status: 404 Not Found  {  "Error": "The specified charger doesn’t exist."  } |