Standardized API Development

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FDS

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Loopback

LoopBack is a highly-extensible, open-source Node.js framework that enables you to create dynamic end-to-end REST APIs with little or no coding.

dive

Show/Hide | List Operations | Expand Operations

PATCH	/dives	Patch an existing model instance or insert a new one into the data source.
GET	/dives	Find all instances of the model matched by filter from the data source.
PUT	/dives	Replace an existing model instance or insert a new one into the data source.
POST	/dives	Create a new instance of the model and persist it into the data source.
PATCH	/dives/{id}	Patch attributes for a model instance and persist it into the data source.
GET	/dives/{id}	Find a model instance by {{id}} from the data source.
HEAD	/dives/{id}	Check whether a model instance exists in the data source.
PUT	/dives/{id}	Replace attributes for a model instance and persist it into the data source.
DELETE	/dives/{id}	Delete a model instance by {{id}} from the data source.
GET	/dives/{id}/exists	Check whether a model instance exists in the data source.

First setup

```
$ npm install -g loopback-cli
$ lb
```

Configure database

```
$ lb datasource
 ?  Enter the data-source name:  postgres-db
 ?  Select the connector for oracledb:  PostgreSQL
 Connector specific configuration:
 ?  Connection String url to override other settings:
 postgres://postgres:postgres@localhost/mantis
 ?  host:  localhost
 ?  port:  5432
 ?  user:  postgres
 ?  password:  ********
 ?  database:  mantis
 ?  install loopback-connector-postgresql@^2.4 Yes
```

Configure model

```
$ lb model
 ?  Enter the model name:  dive
 ?  Select the data-source to attach dive to:
postgres-db
 ?  Select model's base class PersistedModel
 ?  Expose dive via the REST API? Yes
 ?  Custom plural form (used to build REST URL):
dives
 ?  Common model or server only?  common
 Let's add some dive properties now.
```

Configure model properties

```
Enter an empty property name when done.
? Property name: id
invoke loopback:property
? Property type: number
? Required? Yes
? Default value [leave empty for none]:
```

Link models

```
$ lb relation
 ?  Name of the model to create the relationship
from:  dive
 ?  Relation type:  has many
 ?  Name of the model to create a relationship with:
participant
 ?  Name for the relation:  participants
 ?  Custom foreign key:  dive_id
 ?  Whether a "through" model is required?  No
```

Existing methods

Every model:

- create
- find
- findOne
- findById
- updateAll
- createUpdates
- destroyAll
- ...

Remote method

```
Dive.divesByCountry = function (country, cb) {
    var Location = app.models.location;

    Location.find({fields: ["id"], where: {location: country}}, function (err,
        locations) {

        var locationIds = [];
        for (var i = 0, length = locations.length; i < length; i++) {
            locationIds.push(locations[i].id);
        }
        Dive.find({where: {location_id: {"inq": locationIds}}}, cb);
    })
};

Dive.remoteMethod('divesByCountry', {
    accepts: {arg: 'country', type: 'string'},
    returns: {arg: 'dives', type: 'Dive[]'},
    http: {verb: 'get'}
});
```

Access control

- `$ lb acl`
- Built-in, using authentication tokens
- Security per method or end-point
- `*`, `READ`, `WRITE`, `EXECUTE`
- `DENY`, `ALLOW`
- `$everyone`, `$authenticated`, `$unauthenticated`, `$owner`

Start API server

```
$ node .
```

In debugging mode:

```
$ DEBUG=loopback:connector:postgresql node .
```

Query data

Use the built-in explorer: `http://localhost:3000/explorer`

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Filter

- fields
- where
- include
- order
- offset
- limit

Query data - Request

GET /dives

Find all instances of the model matched by filter from the data source.

Response Class (Status 200)

Request was successful

Model | Example Value

```
[
  {
    "id": 0,
    "name": "string",
    "date": "2017-03-10T10:23:02.134Z",
    "location_id": 0
  }
]
```

Response Content Type application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
filter		Filter defining fields, where, include, order, offset, and limit	query	string

Try it out!

Query data - Response

Curl

```
curl -X GET --header 'Accept: application/json' 'http://localhost:3000/api/dives'
```

Request URL

```
http://localhost:3000/api/dives
```

Response Body


```
[
  {
    "id": 1,
    "name": "Kerstduik",
    "date": "2016-12-25T11:00:00.000Z",
    "location_id": 1
  },
  {
    "id": 2,
    "name": "Oudejaarsduik",
    "date": "2016-12-31T22:00:00.000Z",
    "location_id": 2
  },
  {
    "id": 3,
    "name": "Nieuwjaarsduik",
    "date": "2017-01-01T09:00:00.000Z",
    "location_id": 3
  },
  {
```


Response Code

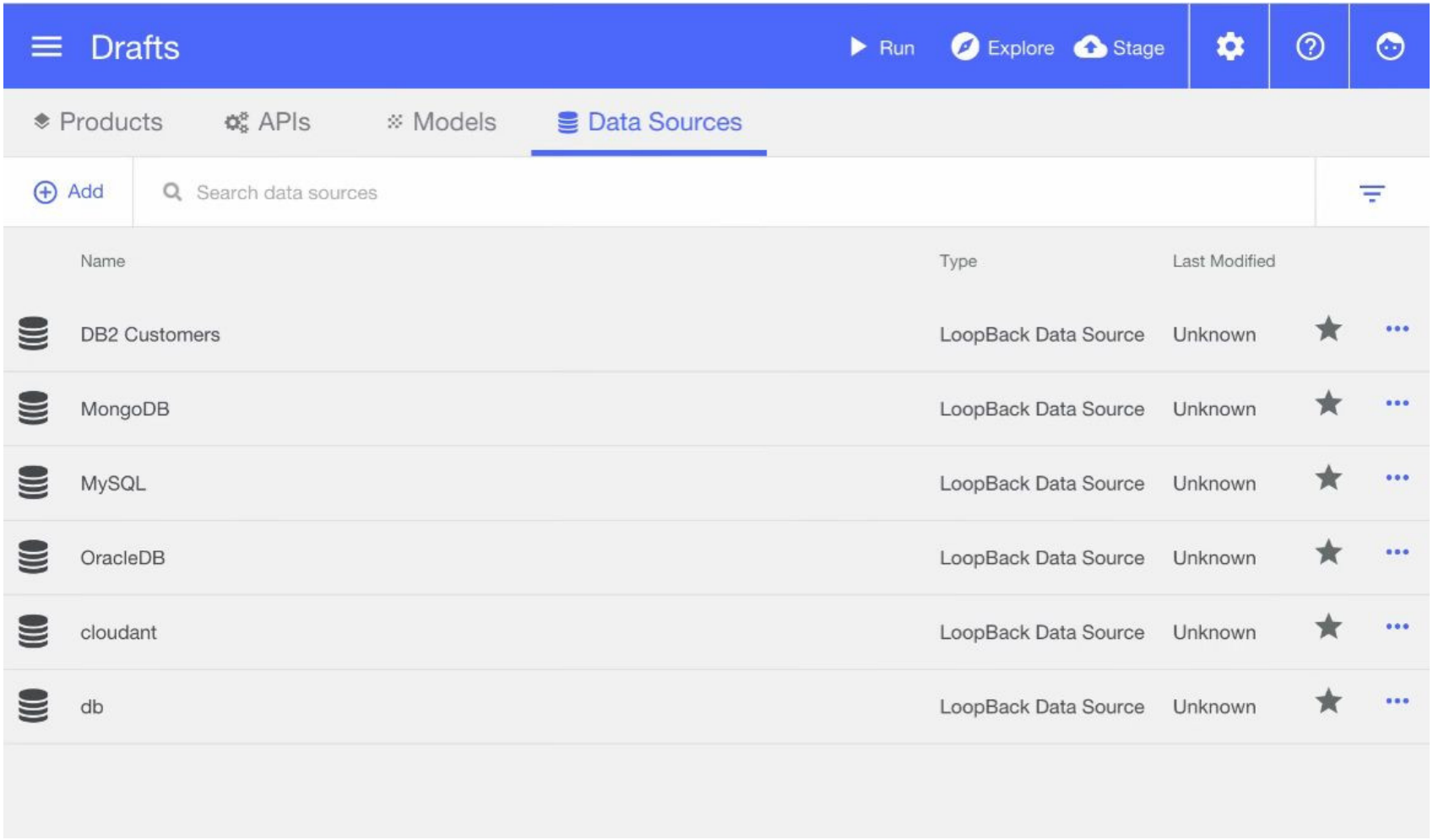
```
200
```

Further reading

- Boot scripts
- Input validation
- Changes to core code needed for geographic support

IBM API Connect

– Betalend



www-03.ibm.com/software/products/en/api-connect

Conclusion

+ Easy to configure and use
+ Different database types supported
+ Highly configurable
+ Good and useful documentation with examples
+ Input validation
– No native geographic support (code changes)

The End

Questions ?

All code and presentation:
`https://github.com/ndsmyter/loopback-brownbag`

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