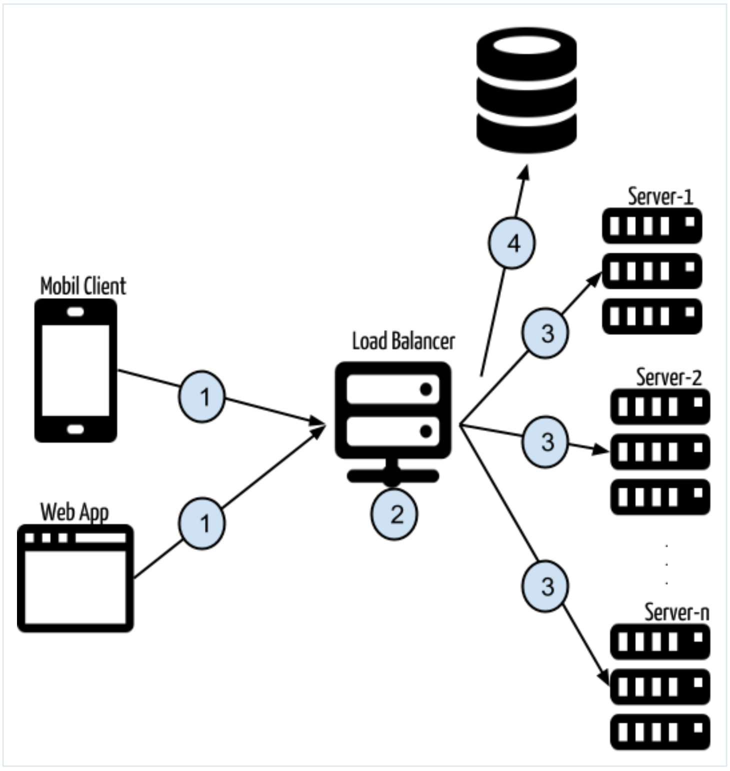
Token-Based Authentication With AngularJS & NodeJS

by Hüseyin Babal 11 Dec 2014

Difficulty: Intermediate Length: Long Languages: English

Angular Node.js Heroku MongoDB JavaScript Authentication Web Apps



What You'll Be Creating

Authentication is one of the most important parts of any web application. In this tutorial, we'll be discussing token-based authentication systems and how they differ from traditional login systems. At the end of this tutorial, you'll see a fully working demo written in AngularJS and NodeJS.

You can also find a wide selection of ready-made authentication scripts and apps on Envato Market, such as:

- EasyLogin Pro - User Membership System
- PHP Key Generation and Authentication Class
- Member Role Admin Tool
- Angry Frog PHP Login Script
- CakePHP Authentication & ACL Management Plugin

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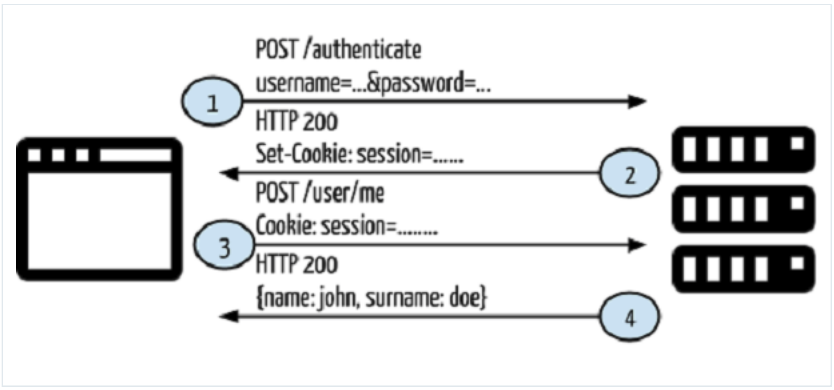
Traditional Authentication Systems

Before proceeding with a token-based authentication system, let's have a look at a traditional authentication system first.

1. The user provides a **username** and **password** in the login form and clicks **Log In**.
2. After the request is made, validate the user on the backend by querying in the database. If the request is valid, create a session by using the user information fetched from the database, and then return the session information in the response header in order to store the session ID in the browser.
3. Provide the session information for accessing restricted endpoints in the application.
4. If the session information is valid, let the user access specified end points, and respond with the rendered HTML content.



POST /authenticate
username=...&password=...
1
HTTP 200
Set-Cookie: session=......
2
POST /user/me
Cookie: session=........
3
HTTP 200
{name: john, surname: doe}
4

Everything is fine until this point. The web application works well, and it is able to authenticate users so that they may access restricted endpoints; however, what happens when you want to develop another client, say for Android, for your application? Will you be able to use the current application to authenticate mobile clients and to serve restricted content? As it currently stands, no. There are two main reasons for this:

1. Sessions and cookies do not make sense for mobile applications. You cannot share sessions or cookies created on the server-side with mobile clients.
2. In the current application, the rendered HTML is returned. In a mobile client, you need something like JSON or XML to be included as the response.

In this case, you need a client-independent application.

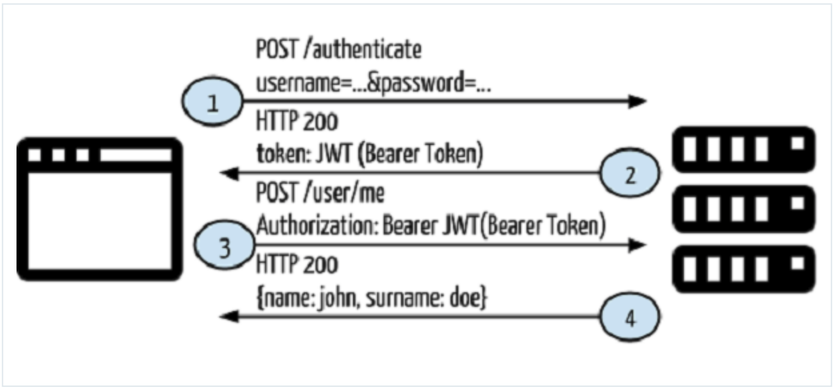
Token-Based Authentication

In token-based authentication, cookies and sessions will not be used. A token will be used for authenticating a user for each request to the server. Let's redesign the first scenario with token-based authentication.

It will use the following flow of control:

1. The user provides a **username** and **password** in the login form and clicks **Log In**.
2. After a request is made, validate the user on the backend by querying in the database. If the request is valid, create a token by using the user information fetched from the database, and then return that information in the response header so that we can store the token browser in local storage.
3. Provide token information in every request header for accessing restricted endpoints in the application.
4. If the token fetched from the request header information is valid, let the user access the specified end point, and respond with JSON or XML.

In this case, we have no returned session or cookie, and we have not returned any HTML content. That means that we can use this architecture for any client for a specific application. You can see the architecture schema below:


POST /authenticate
username=...&password=...
1
HTTP 200
token: JWT (Bearer Token)
2
POST /user/me
Authorization: Bearer JWT(Bearer Token)
3
HTTP 200
{name: john, surname: doe}
4

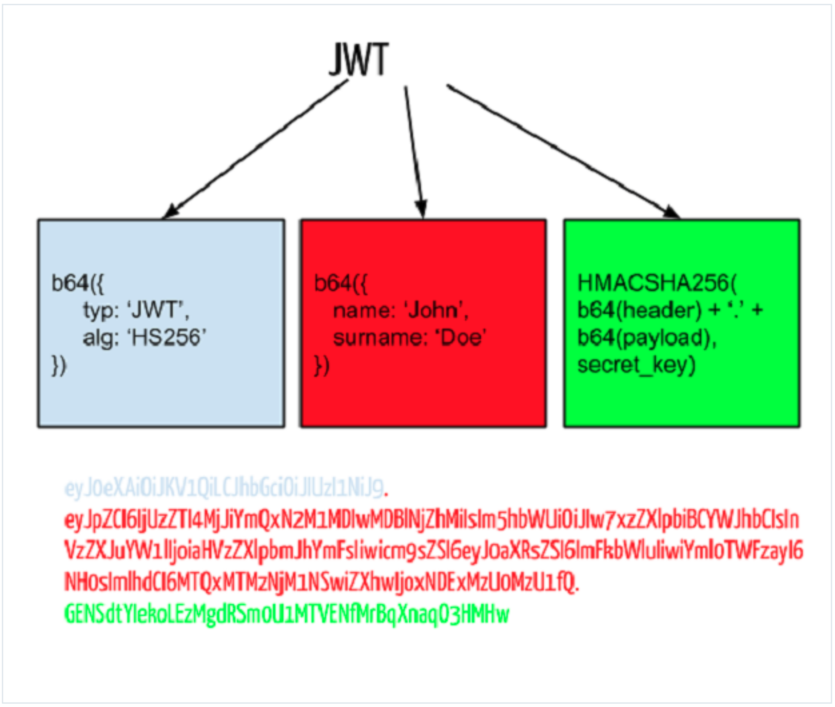
So, what is this JWT?

JWT

JWT stands for **JSON Web Token** and is a token format used in authorization headers. This token helps you to design communication between two systems in a secure way. Let's rephrase JWT as the "bearer token" for the purposes of this tutorial. A bearer token consists of three parts: header, payload, and signature.

- The header is the part of the token that keeps the token type and encryption method, which is also encrypted with base-64.
- The payload includes the information. You can put any kind of data like user info, product info and so on, all of which is stored with base-64 encryption.
- The signature consists of combinations of the header, payload, and secret key. The secret key must be kept securely on the server-side.

You can see the JWT schema and an example token below;

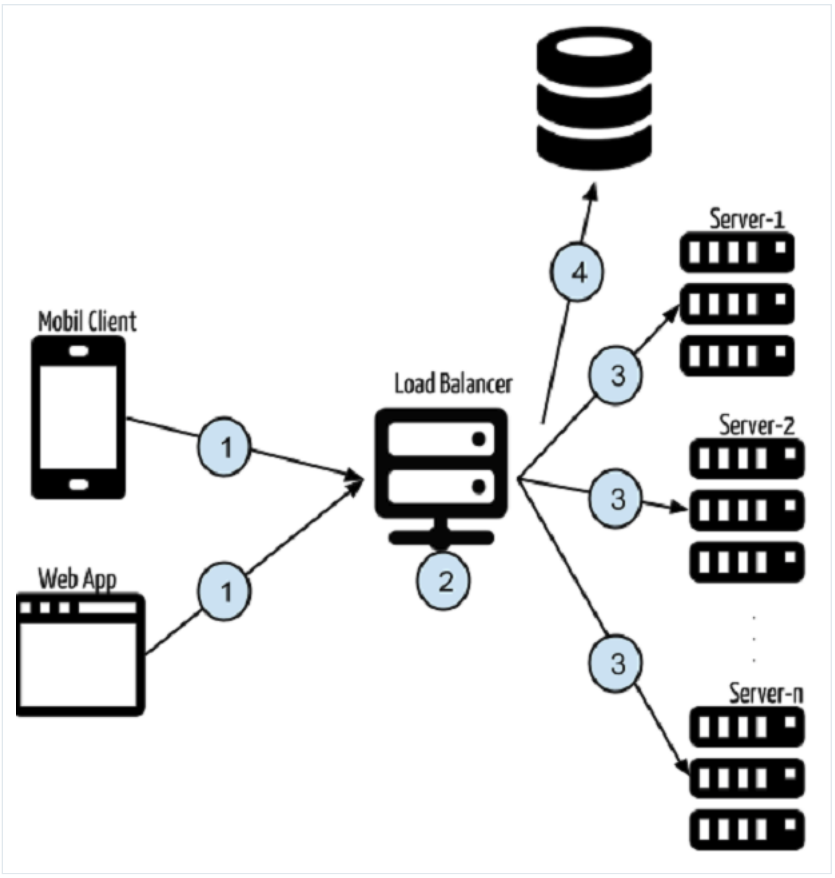

JWT
b64({
typ: 'JWT',
alg: 'HS256'
})
b64({
name: 'John',
surname: 'Doe'
})
HMACSHA256(
b64(header) + '.' +
b64(payload),
secret_key)
eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.
eyJpZCI6IjUzZTI4MjJiYmQxN2M1MDIwMDBlNjZhMiIsIm5hbWUiOiJIw7xzZXlpbiBCYWJhbCIsIn
VzZXJuYW1lIjoiaHVzZXlpbmJhYmFsIiwicm9sZSI6eyJ0aXRsZSI6ImFkbWluIiwiYmloTWFzayI6
NH0sImlhdCI6MTQxMTMzNjM1NSwiZXhwIjoxNDExMzU0MzU1fQ.
GENSdtYlekoLEzMgdRSm0U1MTVENfMrBqXnaq03HMHw

You do not need to implement the bearer token generator as you can find versions that already exist in several languages. You can see some of them below:

Language	**Library URL**
NodeJS	http://github.com/auth0/node-jsonwebtoken
PHP	http://github.com/firebase/php-jwt
Java	http://github.com/auth0/java-jwt
Ruby	http://github.com/progrium/ruby-jwt
.NET	http://github.com/AzureAD/azure-activedirectory-identitymodel-extensions-for-dotnet
Python	http://github.com/progrium/pyjwt/

A Practical Example

After covering some basic information about token-based authentication, we can now proceed with a practical example. Take a look at the following schema, after which we'll analyze it in more detail:



1. The requests are made by several clients such as a web application, a mobile client, etc., to the API for a specific purpose.
2. The requests are made to a service like `https://api.yourexampleapp.com`. If lots of people use the application, multiple servers may be required to serve the requested operation.
3. Here, the load balancer is used for balancing requests to best suit the application servers at the back-end. When you make a request to `https://api.yourexampleapp.com`, first the load balancer will handle a request, and then it will redirect the client to a specific server.
4. There is one application, and this application is deployed to several servers (server-1, server-2, ..., server-n). Whenever a request is made to `https://api.yourexampleapp.com`, the back-end application will intercept the request header and extract token information from the authorization header. A database query will be made by using this token. If this token is valid and has the required permission to access the requested endpoint, it will continue. If not, it will return a 403 response code (which indicates a forbidden status).

Advantages

Token-based authentication comes with several advantages that solve serious problems. Some of them are as follows:

- **Client Independent Services.** In token-based authentication, a token is transferred via request headers, instead of keeping the authentication information in sessions or cookies. This means there is no state. You can send a request to the server from any type of client that can make HTTP requests.
- **CDN.** In most current web applications, views are rendered on the back-end and HTML content is returned to the browser. Front-end logic depends on back-end code. There is no need to make such a dependency. This comes with several problems. For example, if you are working with a design agency that implements your front-end HTML, CSS, and JavaScript, you need to take that front-end code and migrate it into your back-end code in order to do some rendering or populating operations. After some time, your rendered HTML content will differ greatly from what the code agency implemented. In token-based authentication, you can develop a front-end project separately from the back-end code. Your back-end code will return a JSON response instead of rendered HTML, and you can put the minified, gzipped version of the front-end code into the CDN. When you go to your web page, HTML content will be served from the CDN, and page content will be populated by API services using the token in the authorization headers
- **No Cookie-Session (or No CSRF).** CSRF is a major problem in modern web security because it doesn't check whether a request source is trusted or not. To solve this problem, a token pool is used for sending that token on every form post. In token-based

authentication, a token is used in authorization headers, and CSRF does not include that information.

- **Persistent Token Store.** When a session read, write, or delete operation is made in the application, it will make a file operation in the operating system's `temp` folder, at least for the first time. Let's say that you have multiple servers and a session is created on the first server. When you make another request and your request drops in another server, session information will not exist and will get an "unauthorized" response. I know, you can solve that with a sticky session. However, in token-based authentication, this case is solved naturally. There is no sticky session problem, because the request token is intercepted on every request on any server.

Those are the most common advantages of token-based authentication and communication. That's the end of the theoretical and architectural talk about token-based authentication. Time for a practical example.

An Example Application

You will see two applications to demonstrate token-based authentication:

1. token-based-auth-backend
2. token-based-auth-frontend

In the back-end project, there will be service implementations, and service results will be in JSON format. There is no view returned in services. In the front-end project, there will be an AngularJS project for front-end HTML and then the front-end app will be populated by AngularJS services to make requests to the back-end services.

token-based-auth-backend

In the back-end project, there are three main files:

- `package.json` is for dependency management.
- `models\User.js` contains a User model that will be used for making database operations about users.
- `server.js` is for project bootstrapping and request handling.

That's it! This project is very simple, so that you can understand the main concept easily without doing a deep dive.

```
{
    "name": "angular-restful-auth",
    "version": "0.0.1",
    "dependencies": {
        "express": "4.x",
        "body-parser": "~1.0.0",
        "morgan": "latest",
        "mongoose": "3.8.8",
        "jsonwebtoken": "0.4.0"
    },
    "engines": {
        "node": ">=0.10.0"
    }
}
```

`package.json` contains dependencies for the project: `express` for MVC, `body-parser` for simulating post request handling in NodeJS, `morgan` for request logging, `mongoose` for our ORM framework to connect to MongoDB, and `jsonwebtoken` for creating JWT tokens by using our User model. There is also an attribute called `engines` that says that this project is made by using NodeJS version >= 0.10.0. This is useful for PaaS services like Heroku. We will also cover that topic in another section.

```
var mongoose     = require('mongoose');
var Schema       = mongoose.Scema;

var UserSchema   = new Schema({
    email: String,
    password: String,
    token: String
});

module.exports = mongoose.model('User', UserSchema);
```

We said that we would generate a token by using the user model payload. This model helps us to make user operations on MongoDB. In `User.js`, the user-schema is defined and the User model is created by using a mongoose model. This model is ready for database operations.

Our dependencies are defined, and our user model is defined, so now let's combine all those to construct a service for handling specific requests.

```
// Required Modules
var express    = require("express");
var morgan     = require("morgan");
var bodyParser = require("body-parser");
var jwt        = require("jsonwebtoken");
var mongoose   = require("mongoose");
var app        = express();
```

In NodeJS, you can include a module in your project by using `require`. First, we need to import the necessary modules into the project:

```
var port = process.env.PORT || 3001;
var User     = require('./models/User');

// Connect to DB
mongoose.connect(process.env.MONGO_URL);
```

Our service will serve through a specific port. If any port variable is defined in the system environment variables, you can use that, or we have defined port `3001`. After that, the User model is included, and the database connection is established in order to do some user operations. Do not forget to define an environment variable—`MONGO_URL`—for the database connection URL.

```
app.use(bodyParser.urlencoded({ extended: true }));
app.use(bodyParser.json());
app.use(morgan("dev"));
app.use(function(req, res, next) {
    res.setHeader('Access-Control-Allow-Origin', '*');
    res.setHeader('Access-Control-Allow-Methods', 'GET, POST');
    res.setHeader('Access-Control-Allow-Headers', 'X-Requested-With,content-type, Authorization');
    next();
});
```

In the above section, we've made some configurations for simulating an HTTP request handling in NodeJS by using Express. We are allowing requests to come from different domains in order to develop a client-independent system. If you do not allow this, you will trigger a CORS (Cross Origin Request Sharing) error in the web browser.

- `Access-Control-Allow-Origin` allowed for all domains.
- You can send `POST` and `GET` requests to this service.
- `X-Requested-With` and `content-type` headers are allowed.

```
app.post('/authenticate', function(req, res) {
    User.findOne({email: req.body.email, password: req.body.password}, function(err, user) {
        if (err) {
            res.json({
                type: false,
                data: "Error occured: " + err
            });
        } else {
            if (user) {
               res.json({
                    type: true,
                    data: user,
                    token: user.token
                });
            } else {
                res.json({
                    type: false,
                    data: "Incorrect email/password"
                });
            }
        }
    });
});
```

We have imported all of the required modules and defined our configuration, so now it's time to define request handlers. In the above code, whenever you make a `POST` request to `/authenticate` with username and password, you will get a `JWT` token. First, the database query is processed by using a username and password. If a user exists, the user data will be returned with its token. But, what if there is no such user matching the username and/or password?

```
app.post('/signin', function(req, res) {
    User.findOne({email: req.body.email, password: req.body.password}, function(err, user) {
        if (err) {
            res.json({
```

```
05                  type: false,
06                  data: "Error occured: " + err
07              });
08          } else {
09              if (user) {
10                  res.json({
11                      type: false,
12                      data: "User already exists!"
13                  });
14              } else {
15                  var userModel = new User();
16                  userModel.email = req.body.email;
17                  userModel.password = req.body.password;
18                  userModel.save(function(err, user) {
19                      user.token = jwt.sign(user, process.env.JWT_SECRET);
20                      user.save(function(err, user1) {
21                          res.json({
22                              type: true,
23                              data: user1,
24                              token: user1.token
25                          });
26                      });
27                  })
28              }
29          }
30      });
31  });
```

When you make a `POST` request to `/signin` with username and password, a new user will be created by using posted user information. On the `19th` line, you can see that a new JSON token is generated by using the `jsonwebtoken` module, which has been assigned to the `jwt` variable. The authentication part is OK. What if we try to access a restricted endpoint? How can we manage to access that endpoint?

```
app.get('/me', ensureAuthorized, function(req, res) {
    User.findOne({token: req.token}, function(err, user) {
        if (err) {
            res.json({
                type: false,
                data: "Error occured: " + err
            });
        } else {
            res.json({
                type: true,
                data: user
            });
        }
    });
});
```

When you make a `GET` request to `/me`, you will get the current user info, but in order to continue with the requested endpoint, the `ensureAuthorized` function will be executed.

```
function ensureAuthorized(req, res, next) {
    var bearerToken;
    var bearerHeader = req.headers["authorization"];
    if (typeof bearerHeader !== 'undefined') {
        var bearer = bearerHeader.split(" ");
        bearerToken = bearer[1];
        req.token = bearerToken;
        next();
    } else {
        res.send(403);
    }
}
```

In this function, request headers are intercepted and the `authorization` header is extracted. If a bearer token exists in this header, that token is assigned to `req.token` in order to be used throughout the request, and the request can be continued by using `next()`. If a token does not exist, you will get a 403 (Forbidden) response. Let's go back to the handler `/me`, and use `req.token` to fetch user data with this token. Whenever you create a new user, a token is generated and saved in the user model in DB. Those tokens are unique.

We have only three handlers for this simple project. After that, you will see;

```
process.on('uncaughtException', function(err) {
    console.log(err);
});
```

The NodeJS app may crash if an error occurs. With the above code, that crash is prevented and an error log is printed in the console. And finally, we can start the server by using the following code snippet.

```
// Start Server
app.listen(port, function () {
    console.log( "Express server listening on port " + port);
});
```

To sum up:

- Modules are imported.
- Configurations are made.
- Request handlers are defined.
- A middleware is defined in order to intercept restricted endpoints.
- The server is started.

We are done with the back-end service. So that it can be used by multiple clients, you can deploy this simple server application to your servers, or maybe you can deploy in Heroku. There is a file called `Procfile` in the project's root folder. Let's deploy our service in Heroku.

Heroku Deployment

You can clone the back-end project from this GitHub repository.

I will not be discussing how to create an app in Heroku; you can refer to this article for creating a Heroku app if you have not done this before. After you create your Heroku app, you can add a destination to your current project by using the following command:

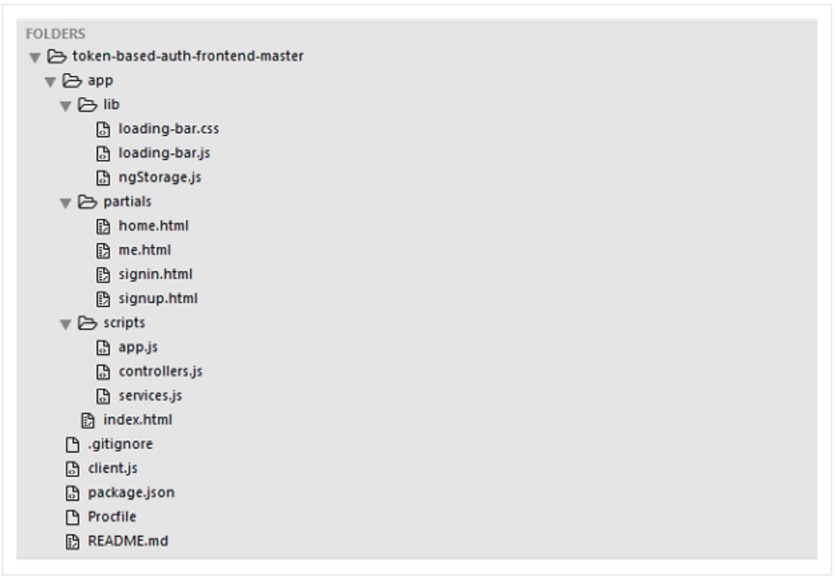
```
git remote add heroku <your_heroku_git_url>
```

Now you have cloned a project and added a destination. After `git add` and `git commit`, you can push your code to Heroku by performing `git push heroku master`. When you successfully push a project, Heroku will perform the `npm install` command to download dependencies into the `temp` folder on Heroku. After that, it will start your application and you can access your service by using the HTTP protocol.

token-based-auth-frontend

In the front-end project, you will see an AngularJS project. Here, I'll only mention the main sections in the front-end project, because AngularJS is not something that can be covered within a single tutorial.

You can clone the project from this GitHub repository. In this project, you will see the following folder structure:



```
FOLDERS
▼ token-based-auth-frontend-master
  ▼ app
    ▼ lib
        loading-bar.css
        loading-bar.js
        ngStorage.js
    ▼ partials
        home.html
        me.html
        signin.html
        signup.html
    ▼ scripts
        app.js
        controllers.js
        services.js
      index.html
    .gitignore
    client.js
    package.json
    Procfile
    README.md
```

`ngStorage.js` is a library for AngularJS to manipulate local storage operations. Also, there is a main layout `index.html` and partials that extend the main layout under the `partials` folder. `controllers.js` is for defining our controller actions in the front-end. `services.js` is for making service requests to our service that I mentioned in the previous project. We have a bootstrap-like file called `app.js` and in this file, configurations and module imports are applied. Finally, `client.js` is for serving static HTML files (or just `index.html`, in this case); this helps us to serve static HTML files when you deploy to a server without using Apache or any other web servers.

```html
...
<script src="//cdnjs.cloudflare.com/ajax/libs/jquery/2.1.1/jquery.min.js"></script>
<script src="//maxcdn.bootstrapcdn.com/bootstrap/3.2.0/js/bootstrap.min.js"></script>
<script src="//cdnjs.cloudflare.com/ajax/libs/angular.js/1.2.20/angular.min.js"></script>
<script src="//cdnjs.cloudflare.com/ajax/libs/angular.js/1.2.20/angular-route.min.js"></script>
<script src="/lib/ngStorage.js"></script>
<script src="/lib/loading-bar.js"></script>
<script src="/scripts/app.js"></script>
<script src="/scripts/controllers.js"></script>
<script src="/scripts/services.js"></script>
</body>
```

In the main layout HTML file, all of the required JavaScript files are included for AngularJS-related libraries, as well as our custom controller, service, and app file.

```javascript
'use strict';

/* Controllers */

angular.module('angularRestfulAuth')
    .controller('HomeCtrl', ['$rootScope', '$scope', '$location', '$localStorage', 'Main', function($rootScope, $scope,

        $scope.signin = function() {
            var formData = {
                email: $scope.email,
                password: $scope.password
            }

            Main.signin(formData, function(res) {
                if (res.type == false) {
                    alert(res.data)
                } else {
                    $localStorage.token = res.data.token;
                    window.location = "/";
                }
            }, function() {
                $rootScope.error = 'Failed to signin';
            })
        };

        $scope.signup = function() {
            var formData = {
                email: $scope.email,
                password: $scope.password
            }

            Main.save(formData, function(res) {
                if (res.type == false) {
                    alert(res.data)
                } else {
                    $localStorage.token = res.data.token;
                    window.location = "/"
                }
            }, function() {
                $rootScope.error = 'Failed to signup';
            })
        };

        $scope.me = function() {
            Main.me(function(res) {
                $scope.myDetails = res;
            }, function() {
                $rootScope.error = 'Failed to fetch details';
            })
        };

        $scope.logout = function() {
            Main.logout(function() {
                window.location = "/"
            }, function() {
                alert("Failed to logout!");
            });
        };
        $scope.token = $localStorage.token;
    }])
```

In the above code, the `HomeCtrl` controller is defined and some required modules are injected like `$rootScope` and `$scope`. Dependency injection is one of the strongest properties of AngularJS. `$scope` is the bridge variable between controllers and views in AngularJS that means you can use `test` in view if you defined it in a specified controller like `$scope.test=....`

In this controller, some utility functions are defined, such as:

- `signin` to set up a sign-in button on the sign-in form
- `signup` for sign-up form handling
- `me` for assigning the Me button in the layout

In the main layout, in the main menu list, you can see the `data-ng-controller` attribute with a value `HomeCtrl`. That means that this menu `dom` element can share scope with `HomeCtrl`. When you click the sign-up button in the form, the sign-up function in the controller file will be executed, and in this function, the sign-up service is used from the `Main` service that is already injected in this controller.

The main structure is `view -> controller -> service`. This service makes simple Ajax requests to the back-end in order to get specific data.

```
'use strict';

angular.module('angularRestfulAuth')
    .factory('Main', ['$http', '$localStorage', function($http, $localStorage){
        var baseUrl = "your_service_url";
        function changeUser(user) {
            angular.extend(currentUser, user);
        }

        function urlBase64Decode(str) {
            var output = str.replace('-', '+').replace('_', '/');
            switch (output.length % 4) {
                case 0:
                    break;
                case 2:
                    output += '==';
                    break;
                case 3:
                    output += '=';
                    break;
                default:
                    throw 'Illegal base64url string!';
            }
            return window.atob(output);
        }

        function getUserFromToken() {
            var token = $localStorage.token;
            var user = {};
            if (typeof token !== 'undefined') {
                var encoded = token.split('.')[1];
                user = JSON.parse(urlBase64Decode(encoded));
            }
            return user;
        }

        var currentUser = getUserFromToken();

        return {
            save: function(data, success, error) {
                $http.post(baseUrl + '/signin', data).success(success).error(error)
            },
            signin: function(data, success, error) {
                $http.post(baseUrl + '/authenticate', data).success(success).error(error)
            },
            me: function(success, error) {
                $http.get(baseUrl + '/me').success(success).error(error)
            },
            logout: function(success) {
                changeUser({});
                delete $localStorage.token;
                success();
            }
        };
    }
]);
```

In the above code, you can see service functions like making requests for authenticating. In controller.js, you may have already realised that there are functions like `Main.me`. This `Main` service has been injected in the controller, and in the controller, the services belonging to this service are called directly.

These functions are simply Ajax requests to our service which we deployed together. Do not forget to put the service URL in `baseUrl` in the above code. When you deploy your service to Heroku, you will get a service URL like `appname.herokuapp.com`. In the above code, you will set `var baseUrl = "appname.herokuapp.com"`.

In the sign-up or sign-in part of the application, the bearer token responds to the request and this token is saved to local storage. Whenever you make a request to a service in the back-end, you need to put this token in the headers. You can do this by using AngularJS interceptors.

```
$httpProvider.interceptors.push(['$q', '$location', '$localStorage', function($q, $location, $localStorage) {
            return {
                'request': function (config) {
                    config.headers = config.headers || {};
                    if ($localStorage.token) {
                        config.headers.Authorization = 'Bearer ' + $localStorage.token;
                    }
                    return config;
                },
                'responseError': function(response) {
                    if(response.status === 401 || response.status === 403) {
                        $location.path('/signin');
                    }
                    return $q.reject(response);
                }
            };
        }]);
```

In the above code, every request is intercepted and an authorization header and value are put in the headers.

In the front-end project, we have some partial pages like `signin`, `signup`, `profile details`, and `vb`. These partial pages are related with specific controllers. You can see that relation in `app.js`:

```
angular.module('angularRestfulAuth', [
    'ngStorage',
    'ngRoute'
])
.config(['$routeProvider', '$httpProvider', function ($routeProvider, $httpProvider) {

    $routeProvider.
        when('/', {
            templateUrl: 'partials/home.html',
            controller: 'HomeCtrl'
        }).
        when('/signin', {
            templateUrl: 'partials/signin.html',
            controller: 'HomeCtrl'
        }).
        when('/signup', {
            templateUrl: 'partials/signup.html',
            controller: 'HomeCtrl'
        }).
        when('/me', {
            templateUrl: 'partials/me.html',
            controller: 'HomeCtrl'
        }).
        otherwise({
            redirectTo: '/'
        });
```

As you can easily understand in the above code, when you go to `/`, the `home.html` page will be rendered. Another example: if you go to `/signup`, `signup.html` will be rendered. This rendering operation will be done in the browser, not on the server-side.

Conclusion

You can see how everything we discussed in this tutorial works into practice by checking out this working demo.

Token-based authentication systems help you to construct an authentication/authorization system while you are developing client-independent services. By using this technology, you will just focus on your services (or APIs).

The authentication/authorization part will be handled by the token-based authentication system as a layer in front of your services. You can access and use services from any client like web browsers, Android, iOS, or a desktop client.

And if you're looking for ready-made solutions, check out the authentication scripts and apps on Envato Market.

Hüseyin Babal
Full Stack Developer / Türkiye

PHP, JAVA, NodeJS developer. Building highly scalable, realtime systems. Web Development mentor. Entrepreneur. NodeJS trainer. GDG conference speaker. Specialties: NodeJS, PHP, Java, Elasticsearch, WordPress Plugin/Widget Development, MySQL, MongoDB, SEO, Agile Software Development, Cloud Integration, SCRUM.CSM(Certification #: 115515)

huseyinbabal

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Nick Serebrennikov • 2 years ago

Base64 does not encrypt anything! It ENCODES binary data using printable characters.

14 • Reply • Share ›

Tracker1 Nick Serebrennikov • 2 years ago

The point is to have the signature part match your backend authentication... if your token includes the user-id and some dates to expire said token, you can actually check if the token is expired before doing a hash check... you can also cache the authorized tokens on your backend to take that part out...

JWT does allow for encrypted tokens though... this creates more overhead on the servers though.

• Reply • Share ›

Roy • 2 years ago

This example is just plain wrong. Where do you verify that the token provided in the /me is actually valid? The only thing done in the ensureAuthorized is to split the bearer token and grab the token and not validate the token!!! You should call jwt.verify(token, process.env.JWT_SECRET) and assert the result that the token is valid!

11 • Reply • Share ›

s.shivasurya ➦ Roy • 2 years ago

yeah right sir!

2 • Reply • Share ›

Saptarshi Ghosh ➦ Roy • a year ago

I was wandering the same till i saw your comment.

• Reply • Share ›

Taiseer Joudeh • 2 years ago

Thanks for writing this up, I've some comments on this:

1 - Those tokens you generate never expires, I didn't see expiry claims in the JWT response, OAuth 2.0 bearer tokens are like cash if anyone have them, then they can access your protected resources, those tokens should have expiry time.

2 - You are currently implementing OAuth 2.0 resource owner credential flow, it will be great if you configured your end point "authenticate" to accept parameter of grant_type: "password" and send the request payload using content-type "x-www-form-urlencoded" so it adhere to OAuth 2.0 specifications.

3 - Usually non-confidential clients (JS applications running in browser) are not allowed to use grant type: "refresh_token". This grant enables resource owners to obtain new access tokens silently without providing username/password, but you can work around this by configuring CORS correctly on the server and allowing origin for your front end only. You can check my implementation on how to enable Oauth 2.0 refresh tokens here:

5 • Reply • Share ›

Ivo Pereira ➦ Taiseer Joudeh • 2 years ago

This looks like a good article that covers the points you mentioned: http://thejackalofjavascrip...

Thanks for your comment.

• Reply • Share ›

demisx ➦ Taiseer Joudeh • 2 years ago

Where is the link to your implementation?

• Reply • Share ›

oxydaemon ➦ demisx • 2 years ago

Try his github page: https://github.com/tjoudeh

• Reply • Share ›

Guilherme Tramontina • 2 years ago

Nice writeup. There's actually two things I'd like to add:

1. Your `ensureAuthorized` is doing nothing, basically. You should make sure that it is a valid token (including expire date) and hasn't been tampered with by decoding it with the same key you used to encode it.

2. You don't need to persist the token with the user model. Besides mixing user data with authentication data, it is unnecessary. If you enforce the uniqueness of the email (`email: { type: 'String', unique: true }`), after making sure you have a valid token, you'll be able to fetch the user by email address.

Cheers!

3 • Reply • Share ›

Hüseyin BABAL ➦ Guilherme Tramontina • 2 years ago

Hi **@Guilherme Tramontina**,
Thanks for your opinions. And Here is my answers;

1) Yes, you are right . Actually, There would be a db check to check token from database on every request. Actually, there was a comment line there for describing db operations. Sorry, to forget to put there. I will change it in codebase in github project.

2) Yes, also you can use only email, because that is unique. In bearer tokens, you are providing a payload, and I preferred to provide user basic information. I provide user name, surname for using that information on frontend to display username on logged in pages, like "Welcome, John Doe".

You are right on both topics, thanks for your opinions

1 • Reply • Share ›

demisx ➦ Guilherme Tramontina • 2 years ago

Will email need to be encoded into the token itself?

• Reply • Share ›

Francisc • 2 years ago

CORS stands for "Cross Origin Resource Sharing", not "Request Sharing".

4 • Reply • Share ›

jdoe@doe.net • 2 years ago

'mongoose Scema' should be 'mongoose Schema' 'mongoose.Scema' should be 'mongoose.Schema'

2 ^ | ˅ • Reply • Share ›

Daniela • 2 years ago

Sorry if this is a silly question, maybe I'm missing something, but in the POST /authenticate code, the line that finds the user:
User.findOne({email: req.body.email, password: req.body.password}

It looks like it's just taking the plain text password from request and passing that as-is to database for lookup. Does this mean the password is stored as plain text in the database? Or is it hashed somewhere and I just missed that part of the code?

2 ^ | ˅ • Reply • Share ›

> **noah** ➦ Daniela • 2 years ago
>
> Yes, it's plain text here. I used bcrypt in my user model to change that, using
>
> UserScheme.pre('save', function (callback) {
> // create salt and encrypt password
> }
>
> Then for my verify password method, I did
>
> UserSchema.methods.verifyPassword = function(password, callback) {
> bcrypt.compare(password, this.password, function(err, isMatch) {
> if (err)
> return callback(err)
>
> callback(null, isMatch)
> }) }
>
> ^ | ˅ • Reply • Share ›

ajaybeniwal • 2 years ago

You should update the code to verify the token with JWT secret

1 ^ | ˅ • Reply • Share ›

linuxchip • 2 years ago

I am not seeing "Me" link in main menu. Can you please check and confirm.
Thanks

1 ^ | ˅ • Reply • Share ›

windmaomao • 2 years ago

is Login (in this article) same as Register action ? on the server side, there're two functions, authenticate and login, but is login a typo ? because to me, the functionalities is like signup not signin .

1 ^ | ˅ • Reply • Share ›

Amine Kabab • 2 years ago

Hi, thank you for your tutorial it s really helpful, but in the signin post I think you should query just the email, not the password and the email ?

1 ^ | ˅ • Reply • Share ›

Nathan Gloyn • 2 years ago

One issue with storing tokens in local storage is that it is not secure since any JS can access it more info at OWASP and additionally here's a Stack Overflow question about it as well here

1 ^ | ˅ • Reply • Share ›

> **Hüseyin BABAL** ➦ Nathan Gloyn • 2 years ago
>
> If you have XSS like vulnerability, they can also get your cookie. You need to use ssl connection and do not put sensitive data inside localstorage. If someone can get your localstorage value, also can get cookie.
>
> ^ | ˅ • Reply • Share ›
>
> > **Nathan Gloyn** ➦ Hüseyin BABAL • 2 years ago
> >
> > I could be wrong, but I believed that if you used http only cookies that they could not be read. If this is correct then it would seem sensible to use http only cookie to store the token
> >
> > ^ | ˅ • Reply • Share ›
> >
> > > **Hüseyin BABAL** ➦ Nathan Gloyn • 2 years ago
> > >
> > > You are right on http only part. If you set cookie as http only, you cannot read it from javascript. However, if you have an XSS vulnerability, devil code can post some requests inside your page without your control. If you prevent XSS attack, your cookie and localstorage will be safe.
> > >
> > > ^ | ˅ • Reply • Share ›
>
> **Sina Sharafzadeh** ➦ Nathan Gloyn • 2 years ago
>
> for making the app full secure we should send all the html and js files over HTTPS and the part of our api that get the token from server should be over HTTPS too , with this we can send other api requests with HTTP and be sure of security with JWT (it just has performance overcome over HTTPS) , an attacker can read the payload but cannot changing it.
>
> but if we send all our requests through HTTPS , we even do not need JWT , that make a extra hmac hashing step that is not usable , HTTPS is enough, I prefer to use HTTPS and not using JWT at all

is enough. I prefer to use HTTPS and not usnig JWT at all.
Reply • Share ›

Nathan Gloyn Sina Sharafzadeh • 2 years ago
Using HTTPS does not remove the need for a JWT.

HTTPS is a transport layer security feature to stop 3rd parties from altering the payload of request/response en-route.

JWT is used to identify a user and ensure that only users that only *authenticated* users are interacting with a system and that they are **authorised** to see the data they are requesting or making changes to.

The 2 things are not mutually exclusive, you should have both in any secure system.
1 • Reply • Share ›

Sina Sharafzadeh Nathan Gloyn • 2 years ago
you are right , as I have seen JWT has AES encryption support too , I where wrong about it
Reply • Share ›

Elvin Prasad • 2 months ago
excelent work my friend. thank you
Reply • Share ›

kamal • 8 months ago
hi can i write role based user in the above code.

admin, doctor, user
Reply • Share ›

Kevin Ray • a year ago
Demo page is broken....and the github link is broken. Why is this tuturial still up if it is completely derelict.
Reply • Share ›

Marco • a year ago
Hi! thank you very much for this article, It is exactly what I was looking for.. I'm a beginner with nodejs world so this question may appear stupid: what's the difference between jsonwebtoken and passport-jwt? are them the same? if yes, which is the more appropriate in terms of usage easy-to-use code? Thanks a lot!
Reply • Share ›

DioNNiS • a year ago
Honestly, this article not very professional. Author is not very good at the topic.
Reply • Share ›

Saptarshi Ghosh • a year ago
Here : res.json({type: true,data: user,token: user.token});
By sending user as a part of the data , i believe the user password will also be sent to the client.
I hope this is just for example and hence is the case.

Also the token verification is missed out in server side validation.

Anyway.Its a great post to start learning token based authentication for any new developer.Thanks.
Reply • Share ›

thewebsurfer • a year ago
what about a logout resource?
Reply • Share ›

temuccio • a year ago
Hello. I have tried the demo in localhost and it's works for function signup.
But when I click on Logout, I have a refresh page but the navbar doesn't change (I have Home, Me and Logout link)
I access on mongodb and I delete all entry, but doesn't change.
Do you can help me?
Reply • Share ›

Progressio temuccio • 6 months ago
I had the same problem, as soon as i changed from $localStorage to the html5 $window.localStorage every thing worked great.
Reply • Share ›

VimalKumar Bohara • a year ago
Demo is not working...

After cloning the project still not working on localhost as well...
Reply • Share ›

Francis Kim • a year ago

Nice tutorial, thanks.

• Reply • Share ›

Alex Mills • 2 years ago

where is a secure place to store the token on the client??

• Reply • Share ›

Dave Dumaresq • 2 years ago

"Do not forget to define an environment variable—MONGO_URL—for the database connection URL."
Can you explain what you mean here? Have you defined MONGO_URL somewhere? How is it used or is it unnecessary?'

Thanks

• Reply • Share ›

Dave Dumaresq • 2 years ago

Thanks for this, Huseyin! It looks very useful and I'm looking forward to building it myself. Wanted to let you know the link to github above is mangled: https://github.com/tutsplus...

regards!

• Reply • Share ›

Matheus Felipe • 2 years ago

TypeError: Cannot read property 'token' of undefined at $scope.signin.Main.signin.$rootScope.error (controllers.js:19). Estou tendo esse problema ao salvar o token.

• Reply • Share ›

beji dhia • 2 years ago

Thanks for the article , I've some issues while turning the code locally .the server

showed me this

"Express server listening on port 3001
[Error: failed to connect to [undefined:27017]]
"

i can't call the index with localhost:3001
can you help me please

• Reply • Share ›

johaness vix • 2 years ago

I'm having a little bit problem about passing authorization headers. I have a valid token but can't pass, it got me 403.

• Reply • Share ›

Justin_lu • 2 years ago

Well, That's work for me.

• Reply • Share ›

chou • 2 years ago

I tried to follow the tutorial but i got lost because it is not mentioned which file exactly everytime,in the code that i have uploaded there is no User.js!

• Reply • Share ›

Yonathan Benitah • 2 years ago

Hi,

first of all thank you for the article.

Should the backend and the frontend have to be on same server to make it work?

I have the following issue:

Cross origin requests are only supported for protocol schemes: http, data, chrome, chrome-extension, https, chrome-extension-resource

• Reply • Share ›

wombat • 2 years ago

Thanks for the article - it is quite clear IMHO. Perhaps a brief explanation/reference of how replay attacks can be prevented would be helpful.

A little digging turned up a brief discussion of replay prevention: https://stormpath.com/blog/...

• Reply • Share ›

Taiseer Joudeh • 2 years ago

Here is the link too: http://bitoftech.net/2014/0...

• Reply • Share ›

Miklos Martin • 2 years ago

Just for the record, if you have an application using session data and it is running on multiple machines, the worst thing you can do is to use sticky

Just for the record, if you have an application using session data and it is running on multiple machines, the worst thing you can do is to use sticky load balancing. You should definitely store your session data in memcached, redis or some other storage shared between your instances.

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