

# ExpressJS

<https://expressjs.com/>

<http://expressjs.com/tr/api.html>

<https://expressjs.com/en/guide/database-integration.html>

## Nodemon

<https://github.com/remy/nodemon>

<https://www.npmjs.com/package/nodemon>

Nodemon is development utility that watches/monitor npm project files for changes. If they change it will restart the script. We will use **nodemon** instead of **node** to start our script while development.

### Install Nodemon as global dependency

Installing nodemon will install an **nodemon** command line utility

```
$ npm install nodemon -g
```

### Use nodemon to run ES5 code

```
$ nodemon app.js
```

### Use nodemon to run ES6 code

```
$ nodemon app.js --exec babel-node --presets es2015
```

### Use nodemon from npm script

Add nodemon startup commands in **package.json** file

```
{  
  "name": "My Express JS App",  
  "version": "1.0.0",  
  "main": "app.js",  
  "scripts": {  
    "start-es5": "nodemon app_01_es5.js",  
    "start-es6": "nodemon app_02_es6.js --exec babel-node --presets es2015"  
  },  
  "author": "",  
  "license": "ISC",  
  "keywords": [],  
  "description": ""  
}
```

```
"dependencies": {},
"devDependencies": {
  "babel-preset-es2015": "^6.24.1"
}
}
```

Then scripts can be started using

```
$ npm run start-es5
```

```
$ npm run start-es6
```

## Install and running a simple app

### Install

```
$ npm install express
```

### Application

```
import express from "express";
```

```
// Create application object
```

```
let app = express();
```

```
// Define a route and send response back
```

```
app.get("/", (request, response) => {
```

```
  response.send("Hello World");
```

```
});
```

```
// Start the express app by listening on a port
```

```
// Optionally write a callback that will run on startup
```

```
app.listen(8080, () => {
```

```
  console.log("Server started on port 8080");
```

```
});
```



Hello World

## Sending back Static file

```
import express from "express";

let app = express();

app.get("/", (request, response) => {
  response.sendFile("./app02.html");
});

app.listen(8080);
```

## Sending back JSON response and Path params

<http://expressjs.com/tr/api.html#res.json>

The example below can accessed from below URLs.

<http://localhost:8080/user-profile>

<http://localhost:8080/user-profile/muhammad>

JSON response can be returned by sending JS Object to `response.json()`

Multiple resource URLs can be given in an array as first argument.

URL path params can be given using `colon`.

```
import express from "express";

let app = express();

app.get(["/user-profile", "/user-profile/:userName"], (request, response) => {
  let myUser = {name: "Sheraz", salary: 100};
  if (request.params.userName) {
    myUser.name = request.params.userName;
    myUser.message = "Hello " + request.params.userName;
  }
  // http://expressjs.com/tr/api.html#res.json
  response.json(myUser);
});

app.listen(8080);
```

# Redirecting Request

Below example GET request on

<http://localhost:8080>

And then redirects to

<http://localhost:8080/user-profile>

```
import express from "express";

let app = express();

// Redirects to /user-profile
app.get("/", (request, response) => {
  // All http status codes
  // https://www.w3.org/Protocols/rfc2616/rfc2616-sec10.html
  // http://expressjs.com/tr/api.html#res.redirect
  response.redirect(301, "/user-profile");
});

app.listen(8080);
```

## GET Submit Form - Read GET Parameter

<http://expressjs.com/tr/api.html#req.query>

```
import express from "express";
import bodyParser from "body-parser";
let app = express();

app.get("/", (request, response) => {
  response.sendFile(__dirname + "/user_register.html");
});

app.get("/users", (request, response) => {
  console.log(request.query);
  console.log("Email =", request.query.email);
  console.log("Password =", request.query.password);
  response.sendFile(__dirname + "/user_register_confirm.html");
});

app.listen(8080, () => console.log("Server Started on port 8080"));
```

# POST Submit Form - Read POST Parameter - Body Parser

<http://expressjs.com/tr/api.html#req.body>

When a form is submitted using POST then we need a middleware to parse request body.

We can use body-parser library to parse **application/x-www-form-urlencoded**

<https://www.npmjs.com/package/body-parser>

If Body Parser is not configured then **request.body** is undefined.

Once Body Parser is configured then we can read POST request parameters from **request.body** Object

Tip: search "body-parser" on npmjs.com to find more examples.

```
import express from "express";
import bodyParser from "body-parser";
let app = express();

app.use(bodyParser.json()); // for parsing application/json
app.use(bodyParser.urlencoded({ extended: true })); // for parsing
application/x-www-form-urlencoded

app.get("/", (request, response) => {
  response.sendFile(__dirname + "/user_register.html");
});

app.post("/", (request, response) => {
  console.log(request.body);
  console.log("Email =", request.body.email);
  console.log("Password =", request.body.password);
  response.sendFile(__dirname + "/user_register_confirm.html");
});

app.listen(8080, () => console.log("Server Started on port 8080"));
```

## Templating - view engine

<https://expressjs.com/en/guide/using-template-engines.html>

Templating is used to modify view HTML on the server before sending it to client.

List of all template engine:

<https://github.com/expressjs/express/wiki#template-engines>

## Steps to use templates

In the example below we will configure EJS template view engine.

<https://www.npmjs.com/package/ejs>

### 1. Set view engine

```
let app = express();  
app.set("view engine", "ejs");
```

### 2. Page data and render view

We can optionally pass data to the view.

Call response.render() to render view.

```
let pageData = {  
  pageTitle: "Create User"  
};  
response.render("./pages/user_register", pageData);
```

### 3. Use Page data in the view

```
<title>User Register - <%= pageTitle %></title>
```

## Serving static files

```
app.use(express.static('images'));
```

## Session

<https://www.npmjs.com/package/express-session>

## Express Generator

<https://www.npmjs.com/package/express-generator>

Express Generator is a utility to quickly generate express application.

## Install global express-generator command

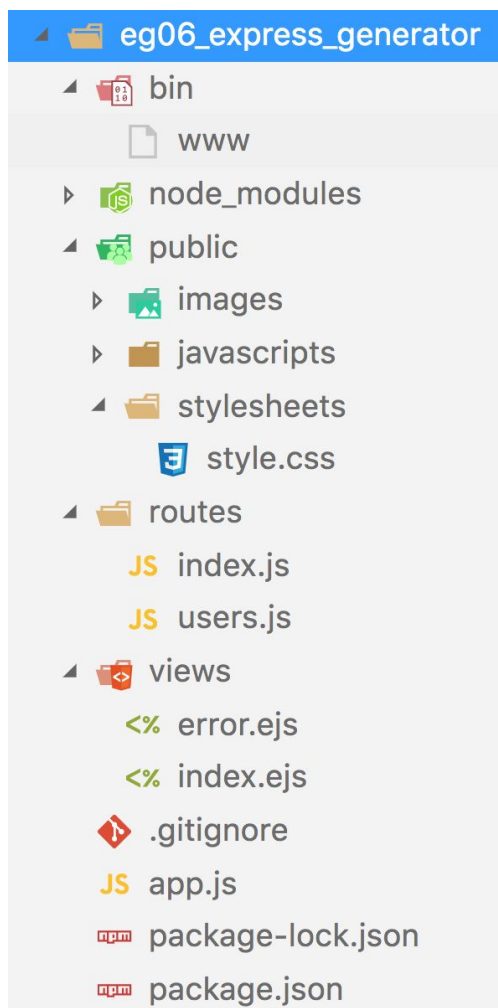
```
$ npm install express-generator -g
```

## Create application

```
$ express --view=ejs
```

```
$ npm install
```

## Project file structure



### **bin/www**

- application startup script.
- Sets up http server and its port

### **public**

- Contains all static assets like images, client side javascript, and stylesheets
- If our client side application is created in frameworks like ReactJS, Angular JS or Angular then this folder will contain all of those files.

#### **routes**

- This is where all of our route code will reside.
- Or in other words our MVC application controller

#### **views**

- Contains all our MVC application views
- These views are created in our choice of view engine/template

#### **app.js**

- Sets up express app engine
- Sets up middlewares like body-parser, cookie-parser, logging
- Initialize routes
- Sets up view folder
- Sets up static assets folder
- Sets up error pages like 404 and 500

**NOTE: most of our coding work will be in **routes** and **views**.**

## Run Application

To run the application we can use any of these methods

npm script

\$ npm start

node

\$ node bin/www

IDE

Execute bin/www script using IntelliJ or VS Code

## Testing Application

By default express generator create 2 example pages. Visit them to verify if application has started successfully

<http://localhost:3000/>

<http://localhost:3000/users>







