

Node/Express js Introduction



Agenda

- **What is Node/Express Js?**
- **Node: key features**
- **Advantages**
- **Express- A Node Framework**
- **Other Node Frameworks**
- **Companies using Node**
- **Setting Express Dev Environment**
- **Running App**

What is Node Js?



- open-source, cross-platform, **run time environment** for server-side tools and applications in JavaScript.

Node Js: Key Features

- **Intended for use outside of a browser context(**directly on server**)**
- **support for more traditional OS APIs including HTTP and file system libraries.**

Advantages

- **Great Performance**

- Designed to optimize **throughput and scalability in web applications**(e.g. real-time web applications).

- **Client Side & Server Side**

- Code is written in "plain old JavaScript", which means that less time is spent in writing both browser and web server code.

Advantages

- **NPM(Node Package Manager)**
 - provides access to hundreds of thousands of reusable packages, best-in-class dependency resolution and can also be used to automate most of the build toolchain.
- **Portable**
 - with versions running on Microsoft Windows, OS X, Linux, Solaris, FreeBSD, OpenBSD, WebOS, and NonStop OS.
- **Support by most web hosting infra and active community.**

Web Development using Node

- **web-development tasks are not directly supported by Node itself.**
- Handling for different HTTP verbs (e.g. GET, POST, DELETE, etc.), separately handle requests at different URL paths ("routes"), serve static files, or use templates to dynamically create the response.
- **Express** is the most popular Node web framework.

Express- A Node Framework provides

- **Routes**

- Write handlers for requests with different HTTP verbs at different URL paths (routes).

- **View Integration**

- Integrate with "view" rendering engines in order to generate responses by inserting data into templates.

- **Middleware**

- Additional request processing at any point within the request handling pipeline.

Express is Unopinionated

- **Does not enforce right way to do something.**
- **We can insert almost any **compatible middleware** we like into the request handling chain, in almost any order.**
- **We can structure the app in one file or multiple files, and using any directory structure.**

Node.js frameworks are built on Express:

- **Feathers:**

- Build prototypes in minutes and production ready real-time apps in days.

- **ItemsAPI:**

- Search backend for web and mobile applications built on Express and Elasticsearch.

- **KeystoneJS:**

- Website and API Application Framework / CMS with an auto-generated React.js Admin UI.

- **Kraken:**

- Secure and scalable layer that extends Express by providing structure and convention.

- **LEAN-STACK:**

- The Pure JavaScript Stack.

Node.js frameworks are built on Express:

- **LoopBack:**

- Highly-extensible, open-source Node.js framework for quickly creating dynamic end-to-end REST APIs.

- **MEAN:**

- Opinionated fullstack JavaScript framework that simplifies and accelerates web application development.

- **Sails:**

- MVC framework for Node.js for building practical, production-ready apps.

- **Bottr:**

- Framework that simplifies building chatbot applications.

- **Hydra-Express:**

- Hydra-Express is a light-weight library which facilitates building Node.js Microservices using ExpressJS.

Node.js frameworks are built on Express:

- **Blueprint:**

- Highly-configurable MVC framework for composing production-ready services from reusable components

- **Locomotive:**

- Powerful MVC web framework for Node.js from the maker of Passport.js

- **graphql-yoga:**

- Fully-featured, yet simple and lightweight GraphQL server

- **Express Gateway:**

- Fully-featured and extensible API Gateway using Express as foundation

Companies using Express in production



Setting up Express Dev Environment

- **The Express development environment includes an installation of**
 - Nodejs,
 - NPM package manager,
 - Express Application Generator(Optional).

1. Installing Node and NPM

- **Node runtime**

- JavaScript runtime built on Chrome's V8 JavaScript engine. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient.

- **NPM**

- Node.js' package ecosystem, npm, is the largest ecosystem of open source libraries in the world.

In Windows and MacOS

- **Download the required installer:**
 - Go to <https://nodejs.org/en/>
 - Select the button to download the LTS(Long Term Support) build that is "Recommended for most users".
- **Install Node by double-clicking on the downloaded file and following the installation prompts.**
- **Verify installation**
 - `Node -v`
 - `Npm -v`

Installing NPM in CentOS 7

- **wget**
<https://nodejs.org/dist/v8.9.3/node-v8.9.3-linux-x64.tar.xz>
- **tar --strip-components 1 -xf node-v8.9.3-linux-x64.tar.xz**
- **Verify installation**
- **Node -v**
- **Npm -v**

Installing the Express Application Generator

- **The Express Application Generator tool generates an Express application "skeleton".**
- **-g flag installs the tool globally so that you can call it from anywhere.**
 - `npm install express-generator -g`
 - `express helloworld`

Installing Application Dependencies

- **package.json file root directory contains dependencies installed, including Express and the template library Jade.**
 - `cd helloworld`
 - `npm install`

Running App

- **# Run the helloworld on Windows**
 - SET DEBUG=helloworld:* & npm start
- **# Run helloworld on Linux/macOS**
 - DEBUG=helloworld:* npm star
- **Open a browser and navigate to <http://127.0.0.1:3000/> to see the default Express welcome page.**

Resources

- [**https://nodejs.org/en/**](https://nodejs.org/en/)
- [**https://docs.npmjs.com/all**](https://docs.npmjs.com/all)
- [**https://developer.mozilla.org**](https://developer.mozilla.org)

