

NODE.JS

Introduction

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OFFICIAL DEFINITION @ [HTTPS://NODEJS.ORG/EN/](https://nodejs.org/en/)

Node.js® is a 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.

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

It is a JavaScript runtime environment.

Not a programming language.

It can be thought of as infrastructure to build
and run software apps in JS.

Today, it is primarily used for building server side (back-end) applications using JS.

Though it has many other uses.

Node.js has become one of the foundational elements of the JavaScript Everywhere paradigm, allowing web application development to unify around a single programming language for client side and server side.

Free & Open Source

CROSS PLATFORM

Node.js runs on various platforms: Windows, Linux, Unix, Mac OS X, etc.

Apps can be written with CoffeeScript, Dart or Microsoft TypeScript (strongly typed forms of JS) which can compile to JavaScript.

Single Threaded

NON-BLOCKING

Node.js operates on a single thread, using non-blocking I/O calls.

Non-blocking commands execute in parallel, and use callbacks to signal completion or failure. In other words, Node.js uses **asynchronous programming** techniques.

This is the biggest difference between Node.js and other server side programming languages like PHP, JSP, & ASP.net.

Node.js is built on Chrome's JS virtual machine, V8.

V8 is the JS execution engine built for Google Chrome and open-sourced by Google in 2008.

It compiles JS code into “machine code”—a language readable by whatever hardware or operating system it's being run on. It **does not interpret JS** line by line.

It is incredibly fast.

NPM: NODE PACKAGE MANAGER

NPM is the Node.js **Package Manager**.

Node.js community has built thousands of open-source libraries hosted on NPM website.

Node.js community has developed server frameworks (to accelerate development) like **Express.js**, Socket.IO, Koa.js, Hapi.js, Sails.js, Meteor, Derby, and many others.

Source Code files have .js extension.

Node.js was originally written by Ryan Dahl in 2009.

Though pretty young, Node.js is incredibly popular today.

Node.js and Express are the two primary ingredients of the popular MEAN stack.

PRACTICAL USES

- Web Applications
- API
- Chat / Messaging (Real time apps)
- Command Line Programs
- Scheduled Jobs

END OF CHAPTER

APPENDIX