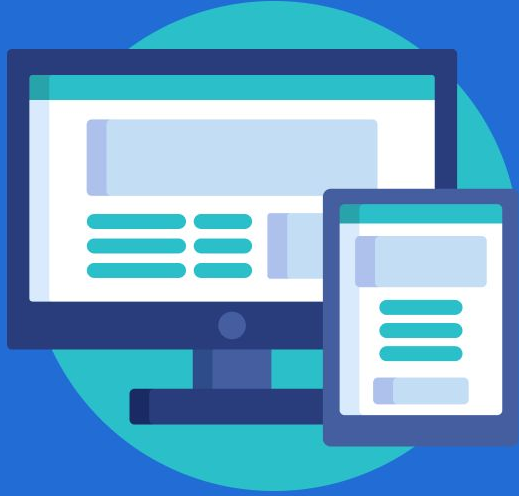


# Backend & Node

O que são?



**FRONT-END**



**BACK-END**

# Node JS

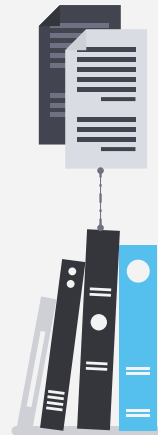
“Node.js é um software de código aberto, multiplataforma, baseado no interpretador V8 do Google e que permite a execução de códigos JavaScript fora de um navegador web.”

Node.js. Disponível em:  
<<https://pt.wikipedia.org/wiki/Node.js>>



# História

- Criado em 2009 pelo Ryan Dahl, utilizando a engine V8 do Google;
- A primeira versão estável do Node.js foi lançada em 2010. Ganhou rapidamente popularidade devido à sua eficiência em lidar com operações I/O intensivas e capacidade de suportar milhares de conexões simultâneas;
- Em 2014, houve um desacordo na comunidade principal do Node.js, levando à criação de um fork chamado io.js;
- Em 2015, as diferenças foram resolvidas, e os projetos foram reunificados sob a Fundação Node.js, que agora faz parte da Linux Foundation;
- Node.js é amplamente usado para desenvolvimento de backend, APIs, aplicativos em tempo real, e muito mais. Continua a ser mantido por uma grande comunidade de desenvolvedores e empresas, garantindo sua evolução contínua.

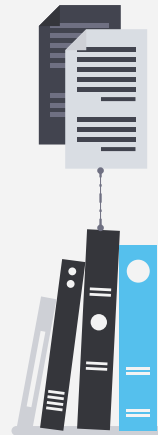




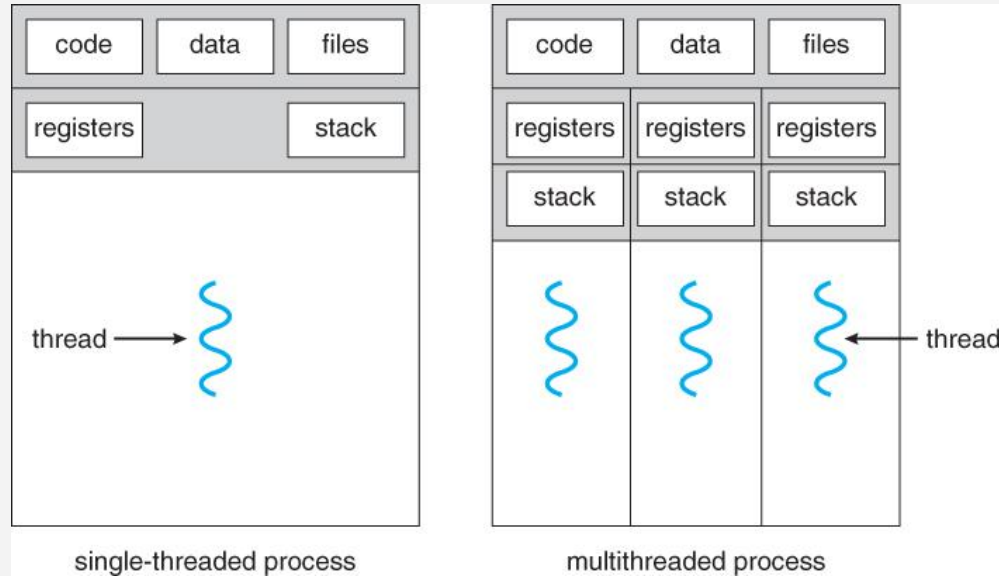
# **Principais características**

# Single thread

- O Node.js é essencialmente *single thread*, o que quer dizer que cada aplicação terá apenas uma thread por processo;
- A intenção é tornar o gerenciamento de tarefas assíncronas mais simples, com tudo centralizado na thread principal;
- Existem bibliotecas que permitem a criação de múltiplas threads com o node como:
  - Cluster < <https://nodejs.org/docs/v20.14.0/api/cluster.html#cluster> >
  - Worker threads < [https://nodejs.org/docs/v20.14.0/api/worker\\_threads.html#worker-threads](https://nodejs.org/docs/v20.14.0/api/worker_threads.html#worker-threads) >



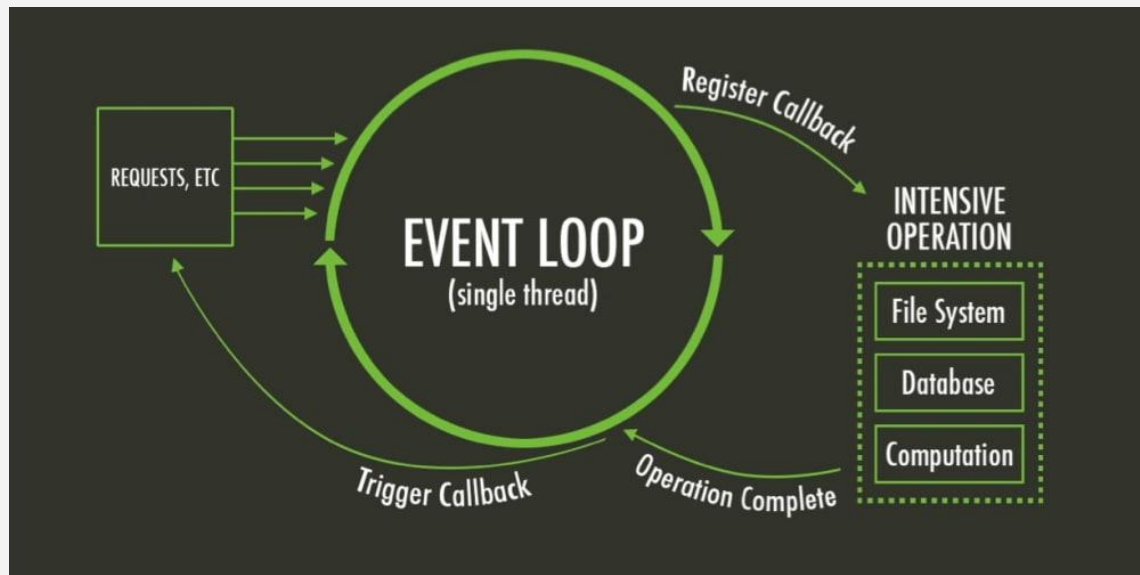
# Mas o que é multi-threading?



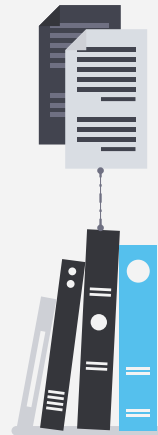
[https://www.cs.uic.edu/~jbell/CourseNotes/OperatingSystems/images/Chapter4/4\\_01\\_ThreadDiagram.jpg](https://www.cs.uic.edu/~jbell/CourseNotes/OperatingSystems/images/Chapter4/4_01_ThreadDiagram.jpg)

# Event Loop

É um mecanismo do Node que fica em loop infinito escutando e disparando eventos.



[https://res.cloudinary.com/practicaldev/image/fetch/s--rE3dxT7T--/c\\_imagga\\_scale,f\\_auto,fl\\_progressive,h\\_500,q\\_auto,w\\_1000/https://thepracticaldev.s3.amazonaws.com/i/yp5plea5yah40ggeb3el.jpg](https://res.cloudinary.com/practicaldev/image/fetch/s--rE3dxT7T--/c_imagga_scale,f_auto,fl_progressive,h_500,q_auto,w_1000/https://thepracticaldev.s3.amazonaws.com/i/yp5plea5yah40ggeb3el.jpg)





# Instalação

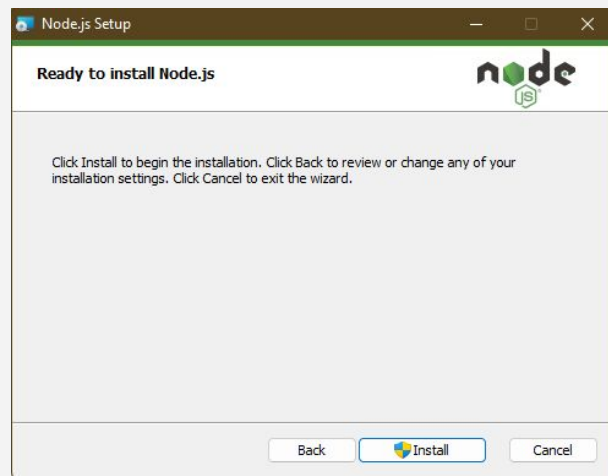
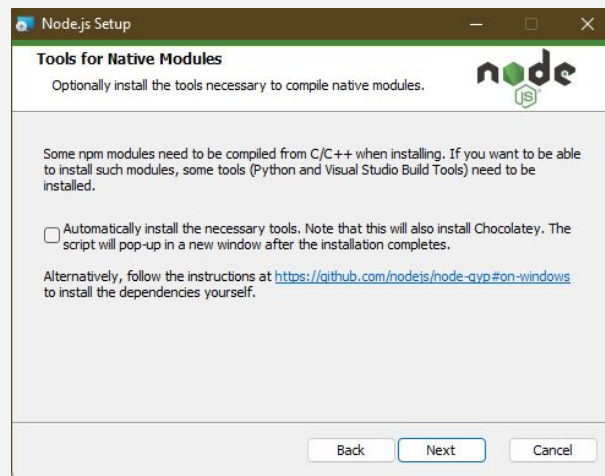
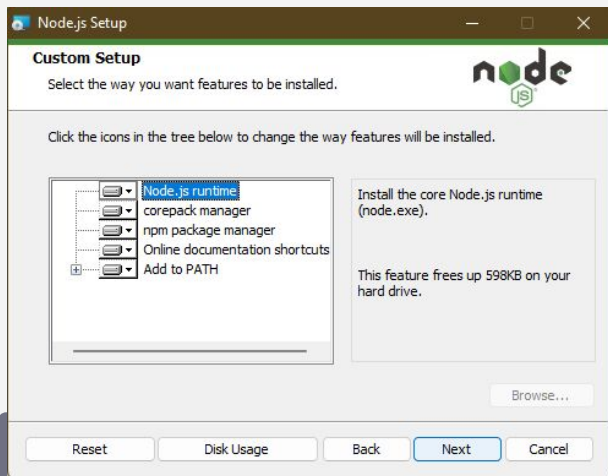
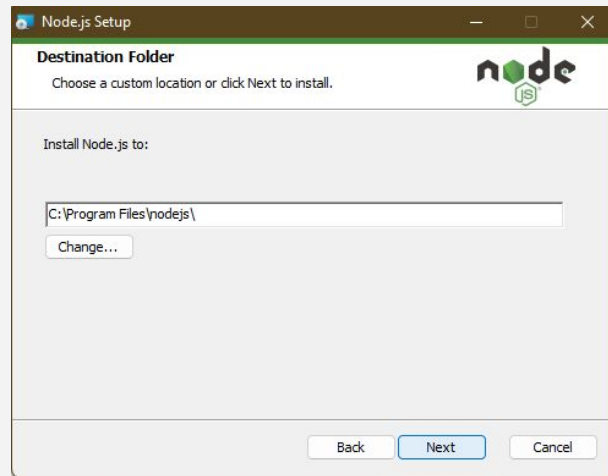
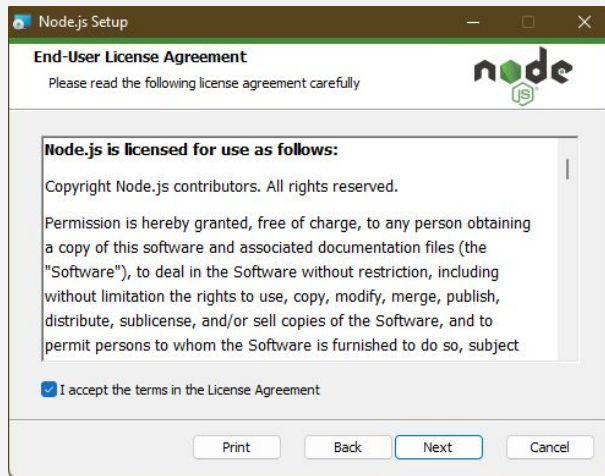
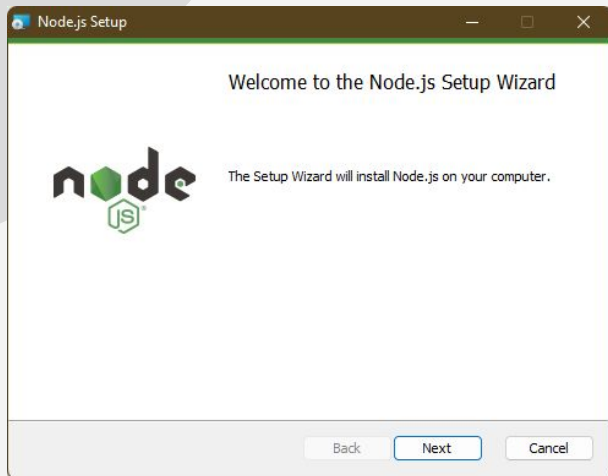


The screenshot shows the Node.js website homepage in a web browser. The browser's address bar displays <https://nodejs.org/en>. The website features a navigation bar with links to Learn, About, Download, Blog, Docs, and Certification. A search bar is located on the right side of the navigation bar. The main content area has a large heading "Run JavaScript Everywhere" and a subheading "Node.js® is a free, open-source, cross-platform JavaScript runtime environment that lets developers create servers, web apps, command line tools and scripts." Below this is a green button labeled "Download Node.js (LTS)". To the right of the button, there is a code editor window showing a JavaScript code snippet for creating an HTTP server. The code is as follows:

```
1 // server.mjs
2 import { createServer } from 'node:http';
3
4 const server = createServer((req, res) => {
5   res.writeHead(200, { 'Content-Type': 'text/plain' });
6   res.end('Hello World!\n');
7 });
8
9 // starts a simple http server locally on port 3000
10 server.listen(3000, '127.0.0.1', () => {
11   console.log('Listening on 127.0.0.1:3000');
12 });
13
14 // run with 'node server.mjs'
```

Below the code editor, there is a link to "Learn more what Node.js is able to offer with our Learning materials." At the bottom of the page, there are links to "Trademark Policy", "Privacy Policy", "Code of Conduct", and "Security Policy". The footer also includes the "© OpenJS Foundation" and social media icons for GitHub, YouTube, Twitter, and LinkedIn.

<https://nodejs.org/en>



# Hands on



<https://nodejs.org/api/readline.html#readline>