

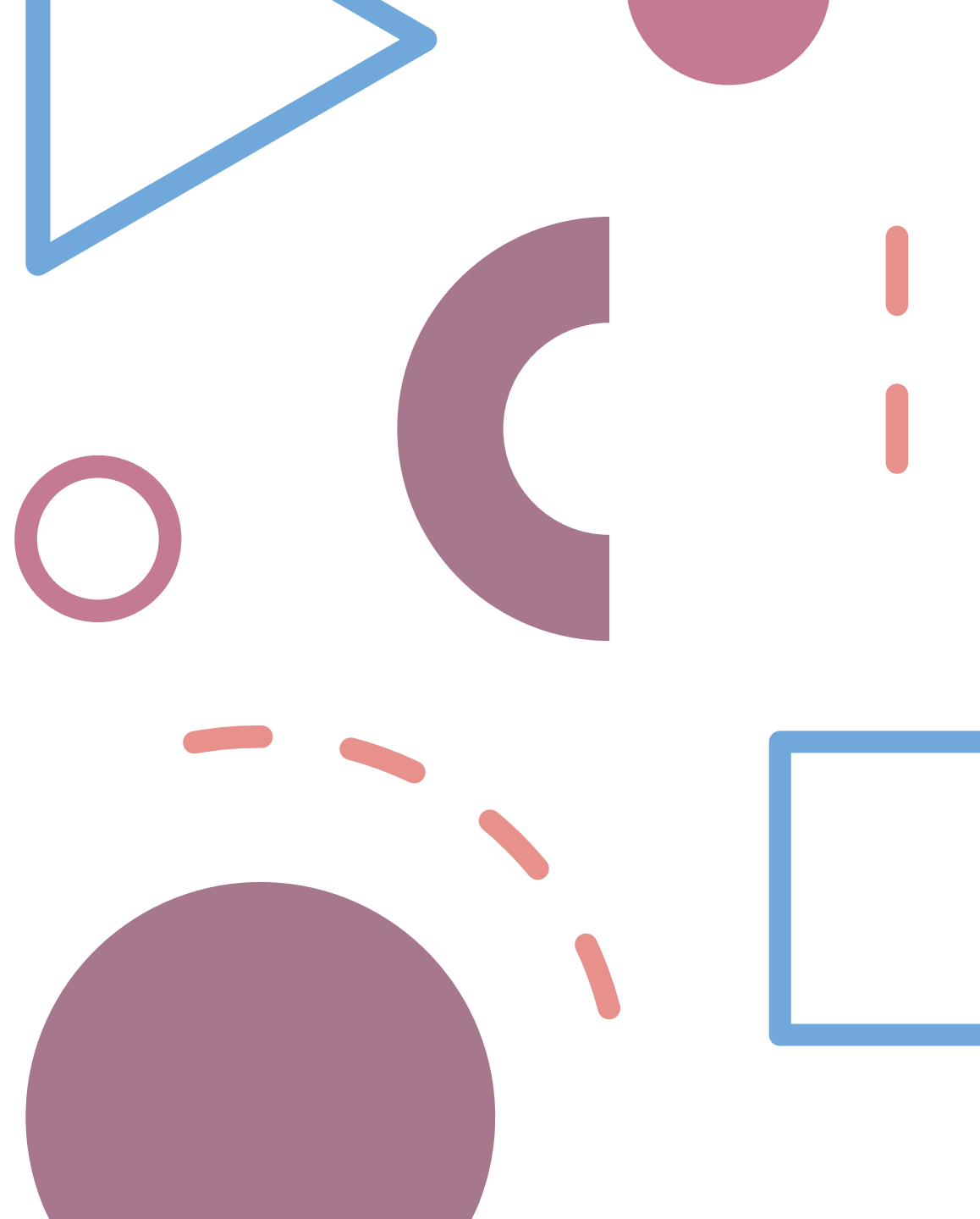
Node js

Av Anjani



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 - Why use Node js?
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What is Node js?

- JavaScript Runtime
- Built on V8 JavaScript Engine (Developed by Chrome)
- Written in C++
- Allows JavaScript on server
- Used for non-CPU intensive apps (APIs, CRUD apps)

Why use Node.js?

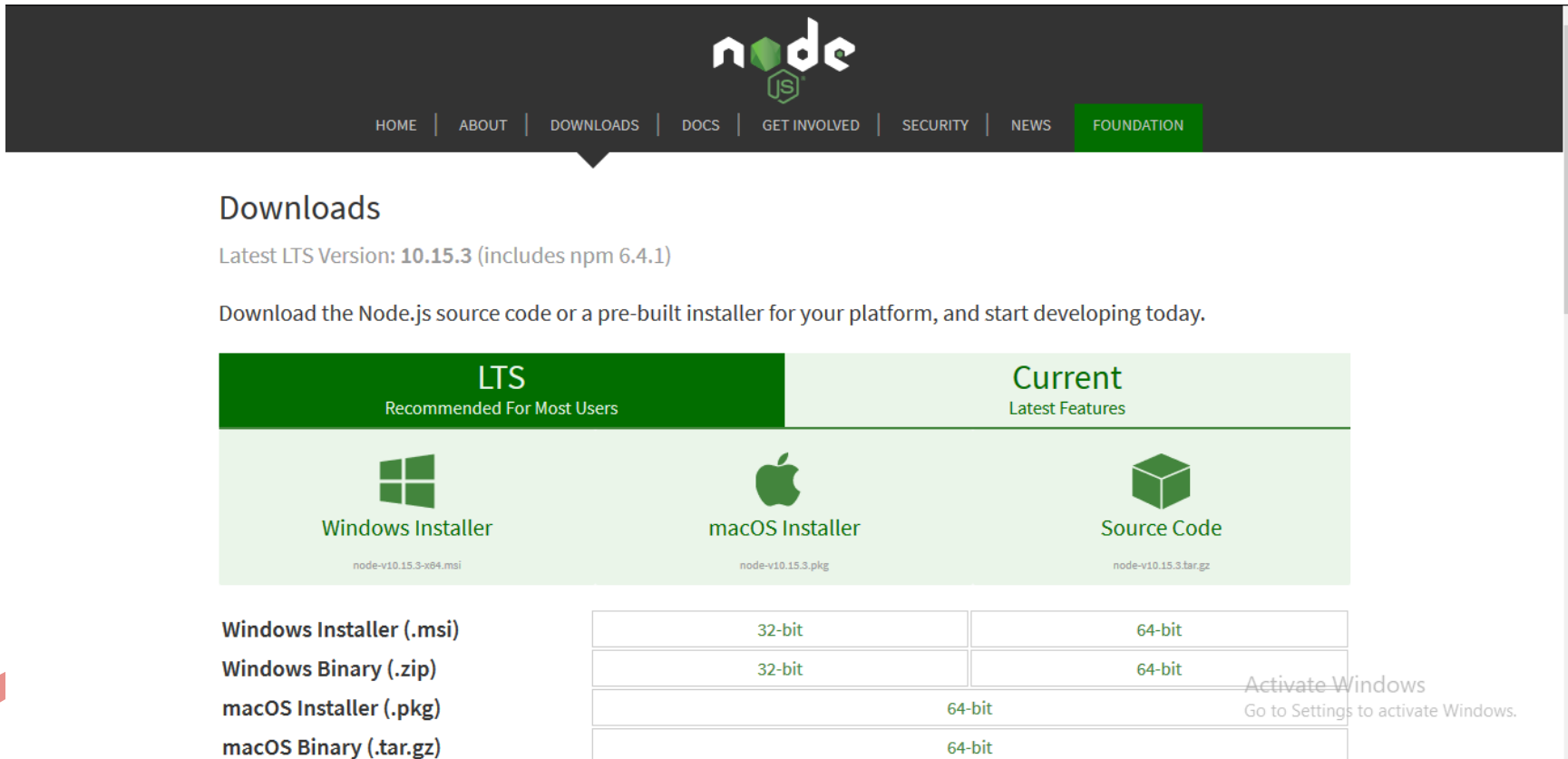
- Same language front and back
- Fast, efficient, and scalable
- Event driven
- Non-blocking I/O model
- Third-party packages

Non-blocking I/O model

- Input/Output calls
- Single thread
- Asynchronous
- Support for many connections
- Optimizes scalability

Installation: Windows

- Install .msi file from <https://nodejs.org/en/download/>

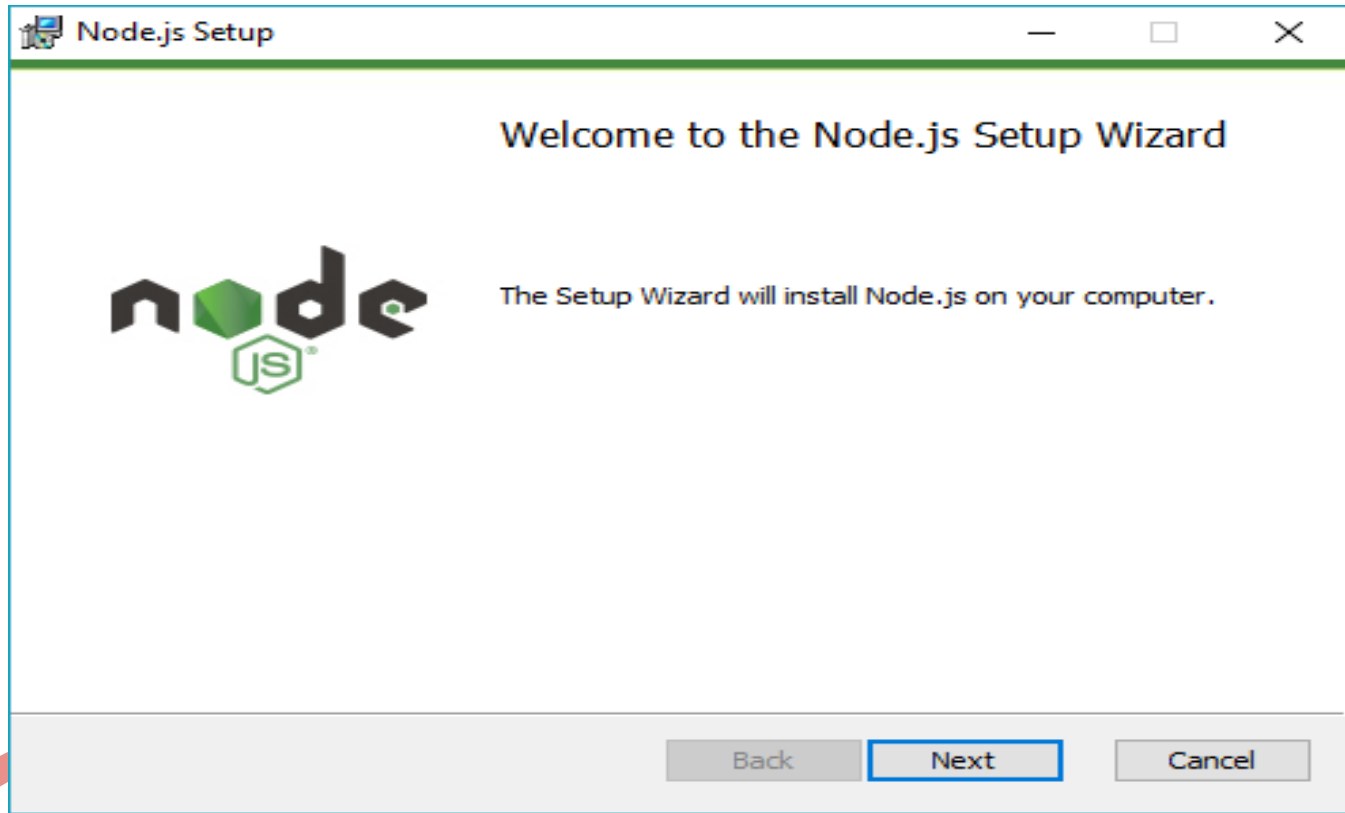


The screenshot shows the Node.js website's download section. At the top is a dark navigation bar with the Node.js logo and links for HOME, ABOUT, DOWNLOADS, DOCS, GET INVOLVED, SECURITY, NEWS, and FOUNDATION. The main heading is 'Downloads', followed by 'Latest LTS Version: 10.15.3 (includes npm 6.4.1)'. A subtext says 'Download the Node.js source code or a pre-built installer for your platform, and start developing today.' Below this are two tabs: 'LTS Recommended For Most Users' (active) and 'Current Latest Features'. Under the 'LTS' tab, there are three options: 'Windows Installer' (with a Windows logo and file 'node-v10.15.3-x64.msi'), 'macOS Installer' (with an Apple logo and file 'node-v10.15.3.pkg'), and 'Source Code' (with a cube icon and file 'node-v10.15.3.tar.gz'). At the bottom, there's a table for Windows binaries and a Windows activation watermark.

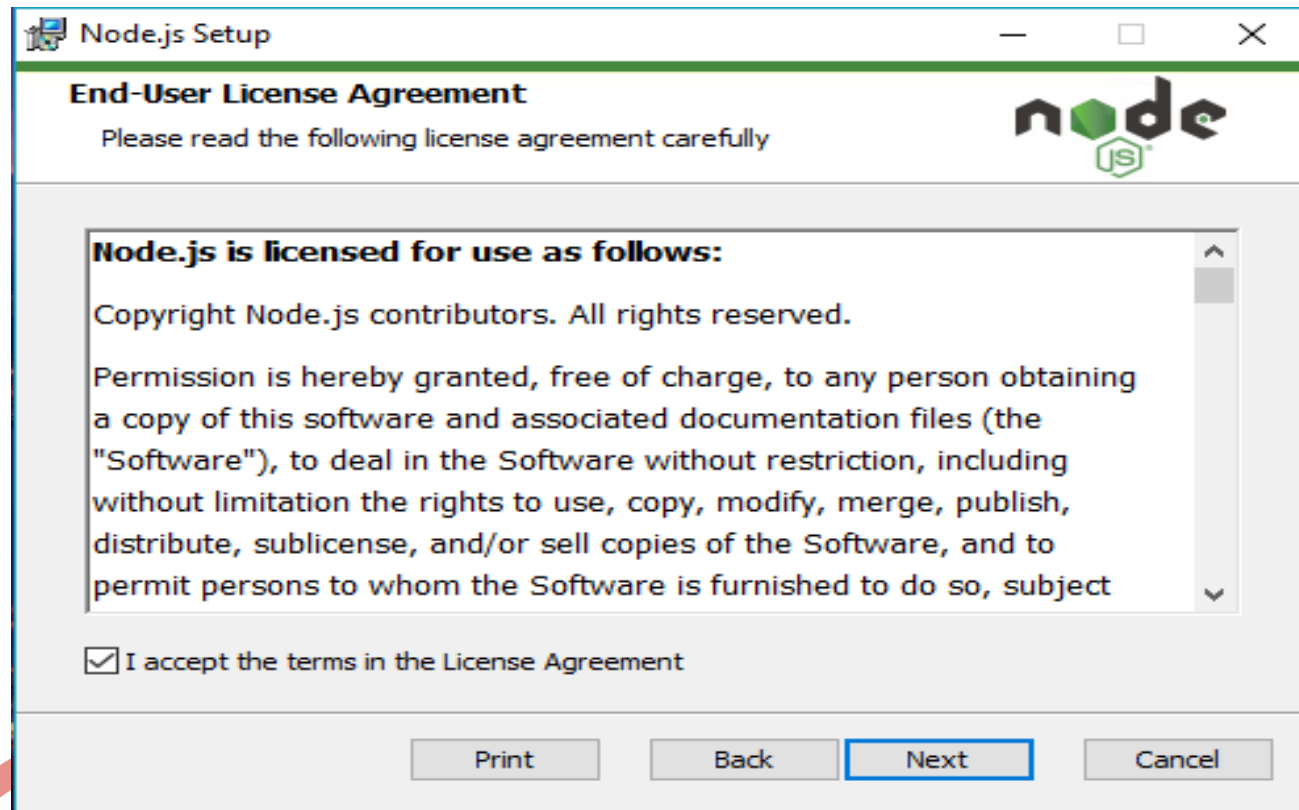
| | 32-bit | 64-bit |
|--------------------------|--------|--------|
| Windows Installer (.msi) | | |
| Windows Binary (.zip) | 32-bit | 64-bit |
| macOS Installer (.pkg) | 64-bit | |
| macOS Binary (.tar.gz) | 64-bit | |

Activate Windows
Go to Settings to activate Windows.

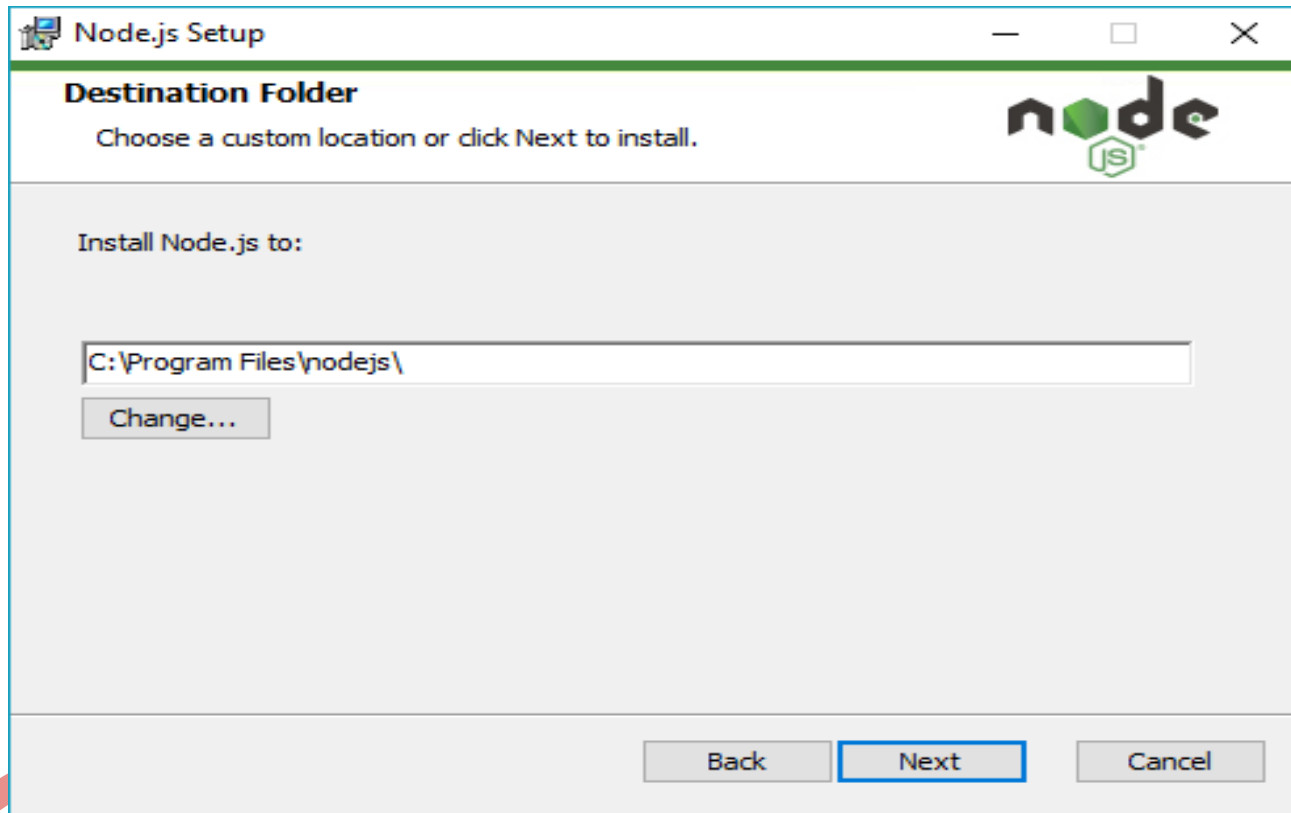
- Running the Node.js installer.



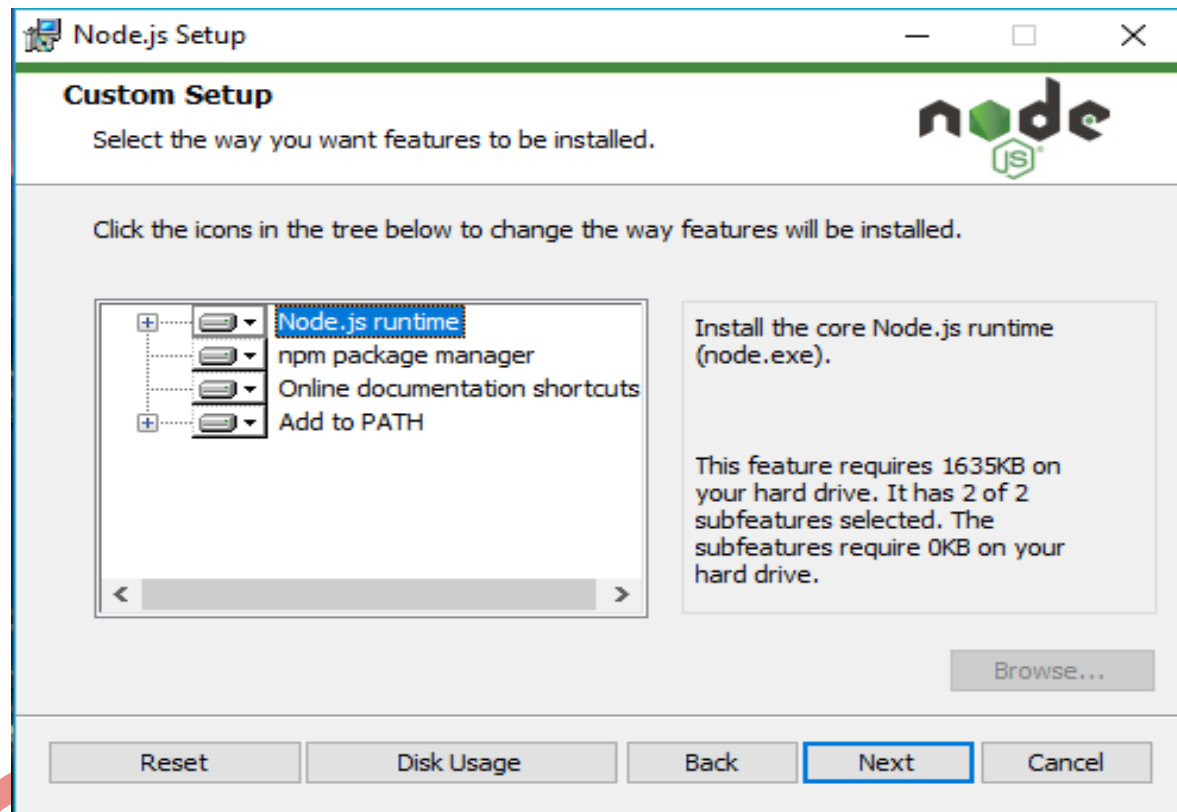
- Access License Agreement



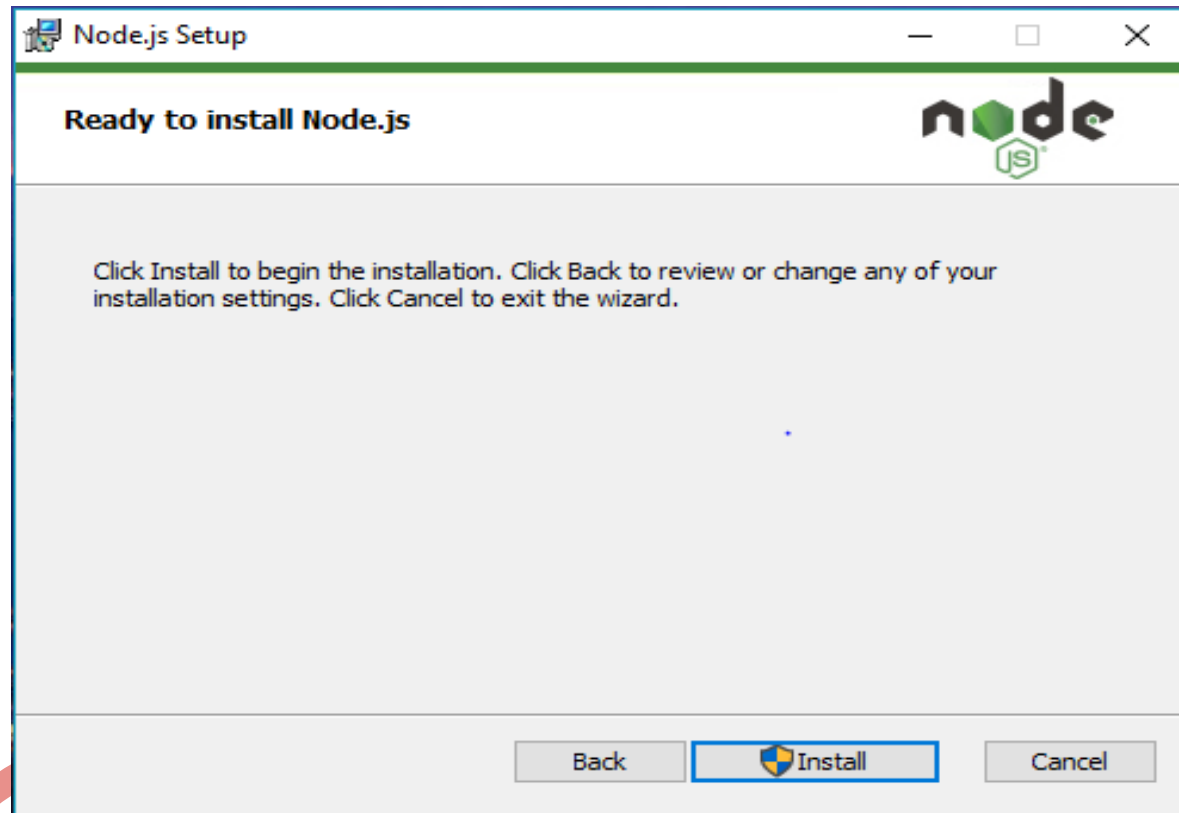
- Set the Destination Folder



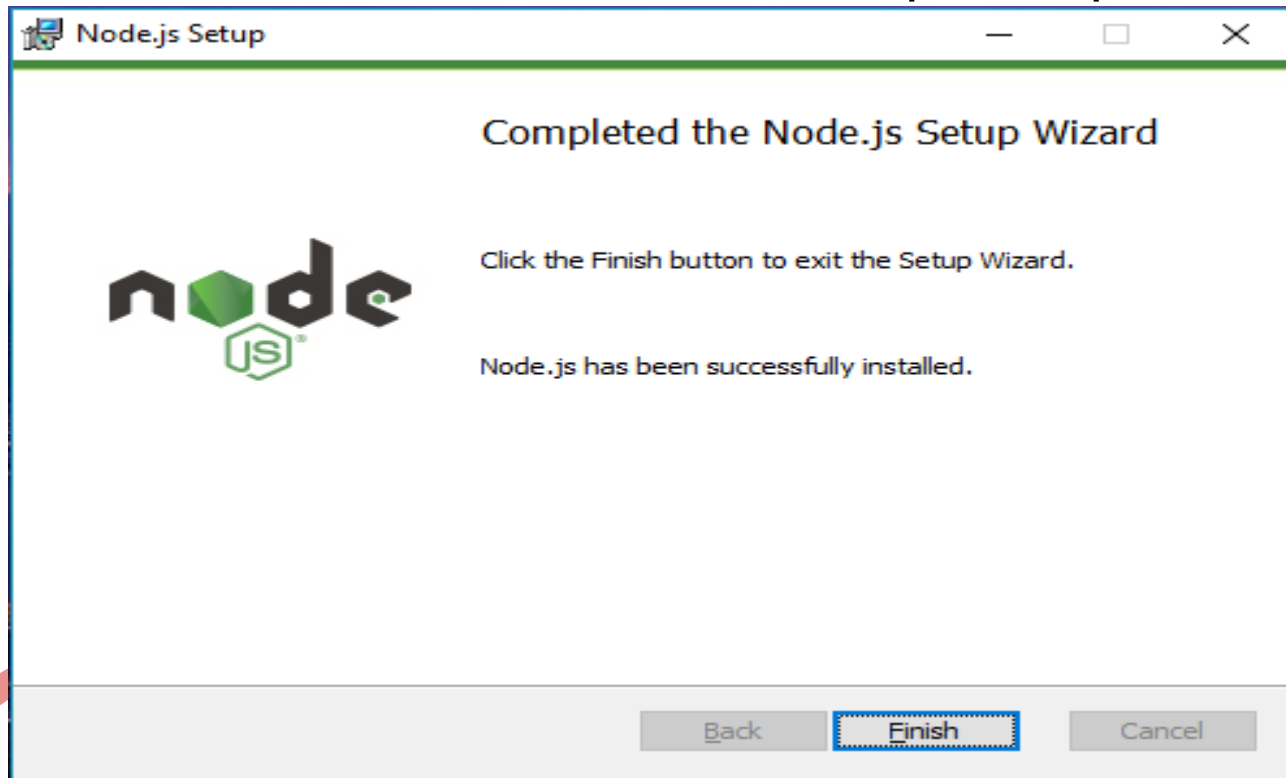
- Custom Setup



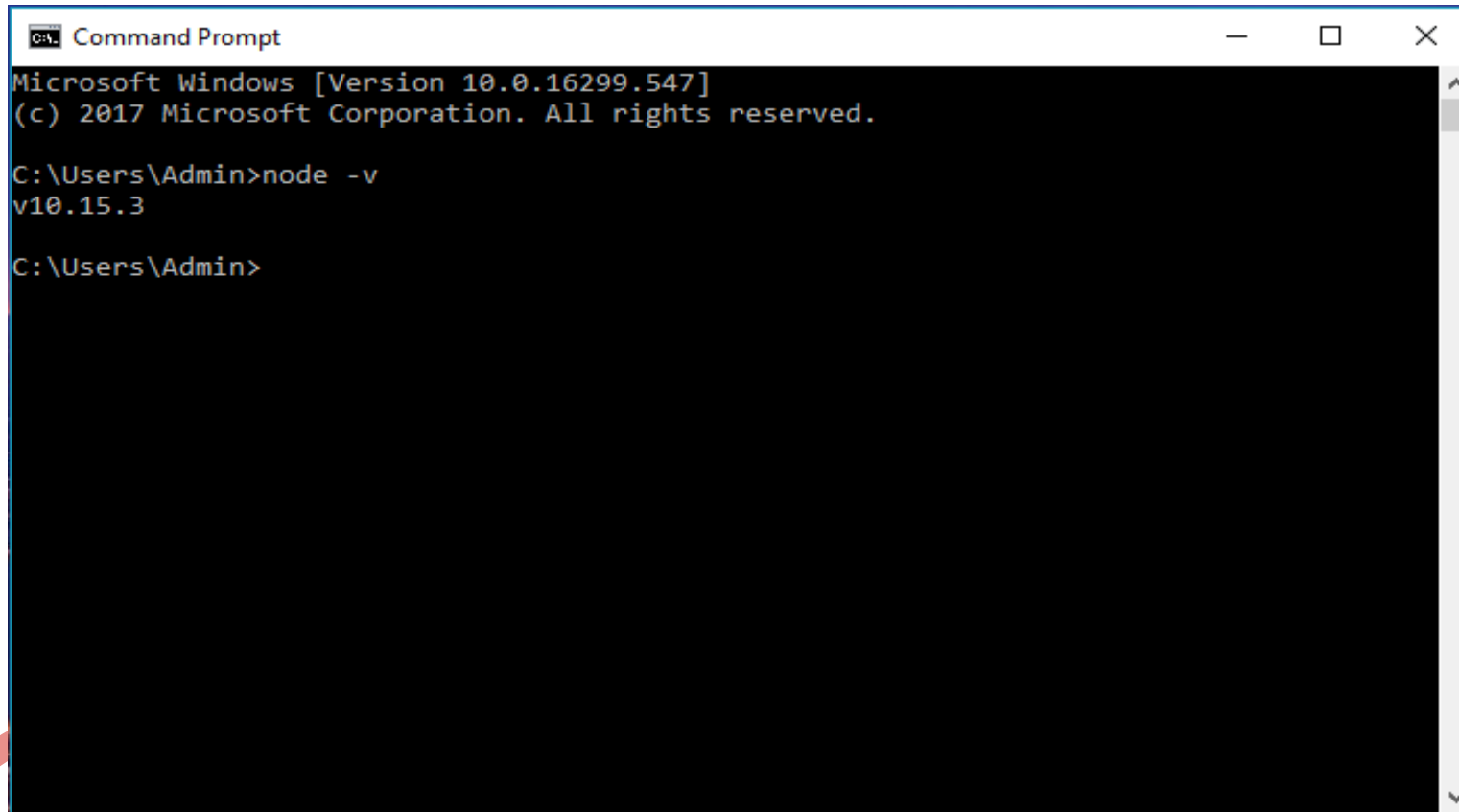
- You can now install Node.js



- Complete Node.js Setup
- NOTE: Authenticate the prompt as an "Administrator"



- Verify Node js installation



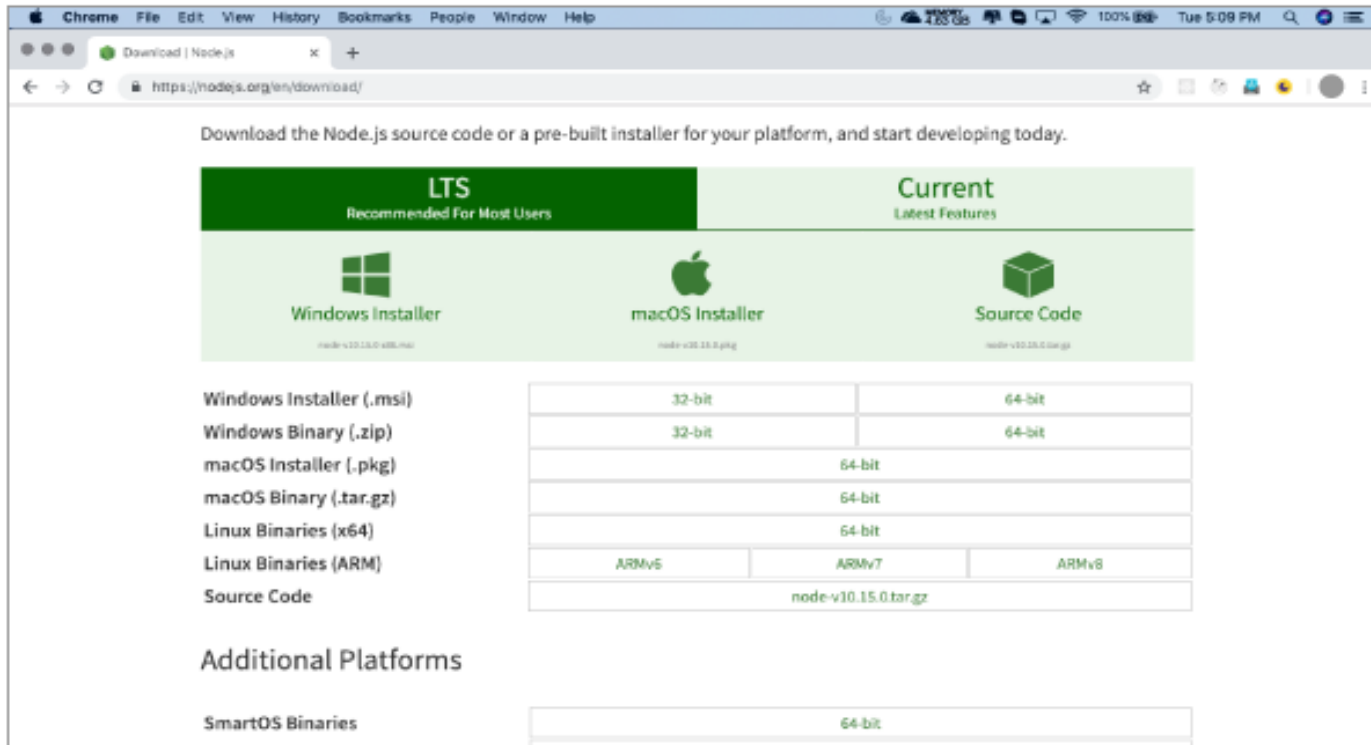
```
Command Prompt
Microsoft Windows [Version 10.0.16299.547]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\Admin>node -v
v10.15.3

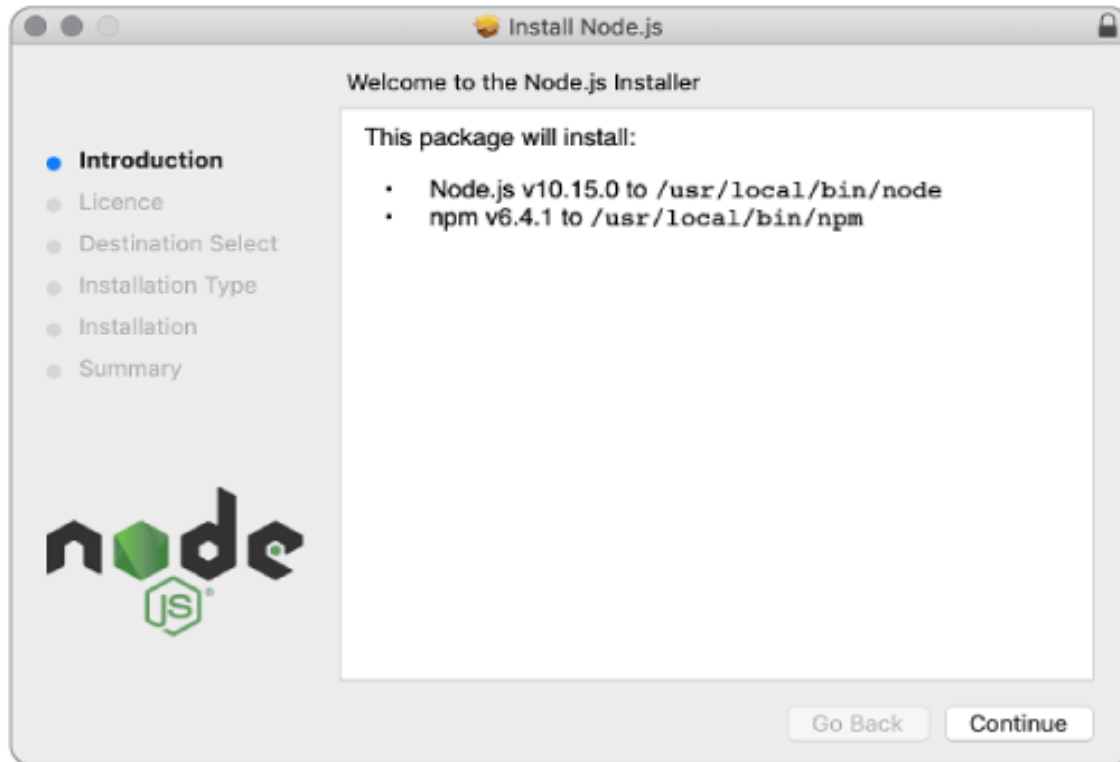
C:\Users\Admin>
```

Installation: Mac

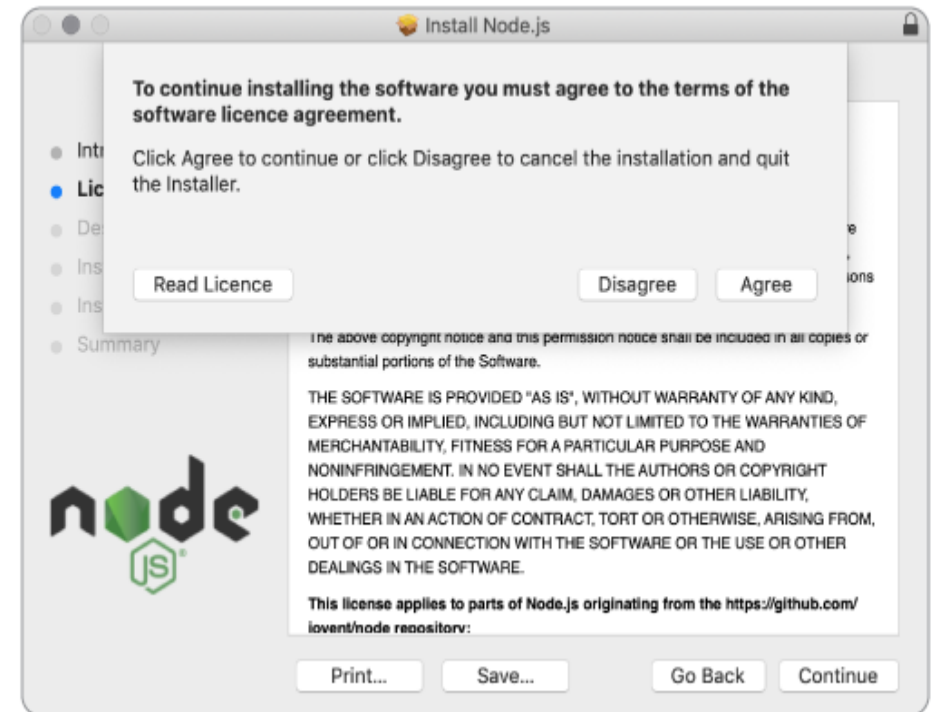
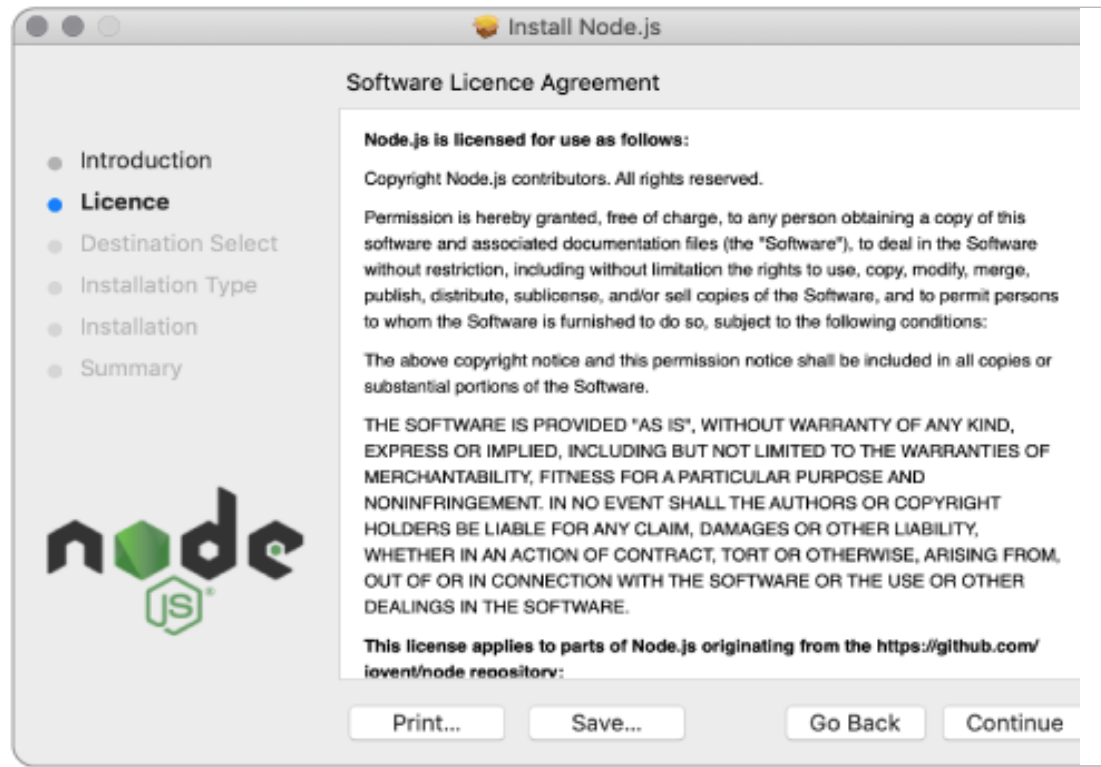
- Install .pkg file from <https://nodejs.org/en/download/>



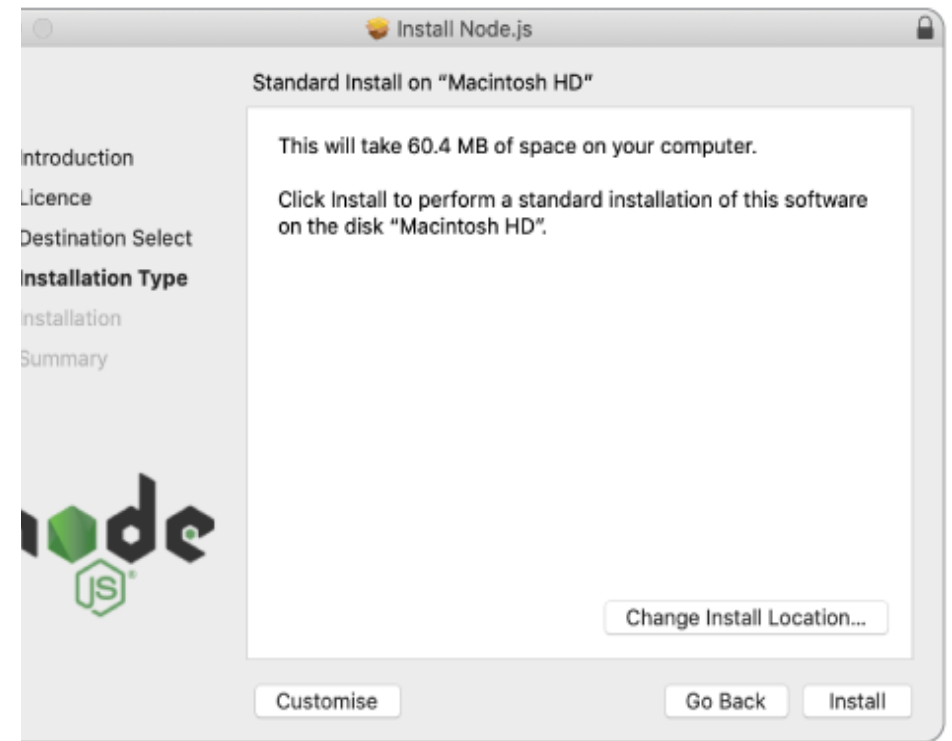
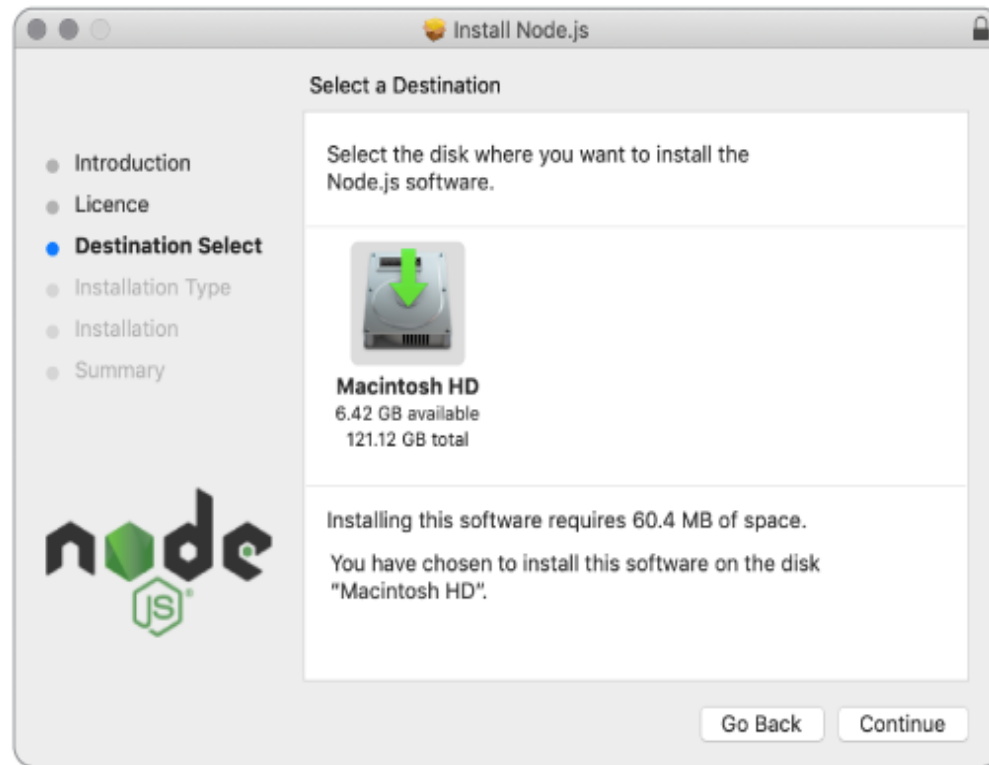
- Download node-vxx.xx.xx.pkg (for example node-v10.15.0.pkg)



- Accept License



- Set the Destination Folder



- Provide username and password



A screenshot of a Mac OS Security dialog box. On the left is a yellow padlock icon with a grey keyhole. To its right, the text reads: "Installer is trying to install new software." Below this, it says "Enter your password to allow this." There are two input fields: "Username:" followed by a field containing "xxxxxxx", and "Password:" followed by an empty field. At the bottom right are two buttons: "Cancel" and "Install Software".

Installer is trying to install new software.

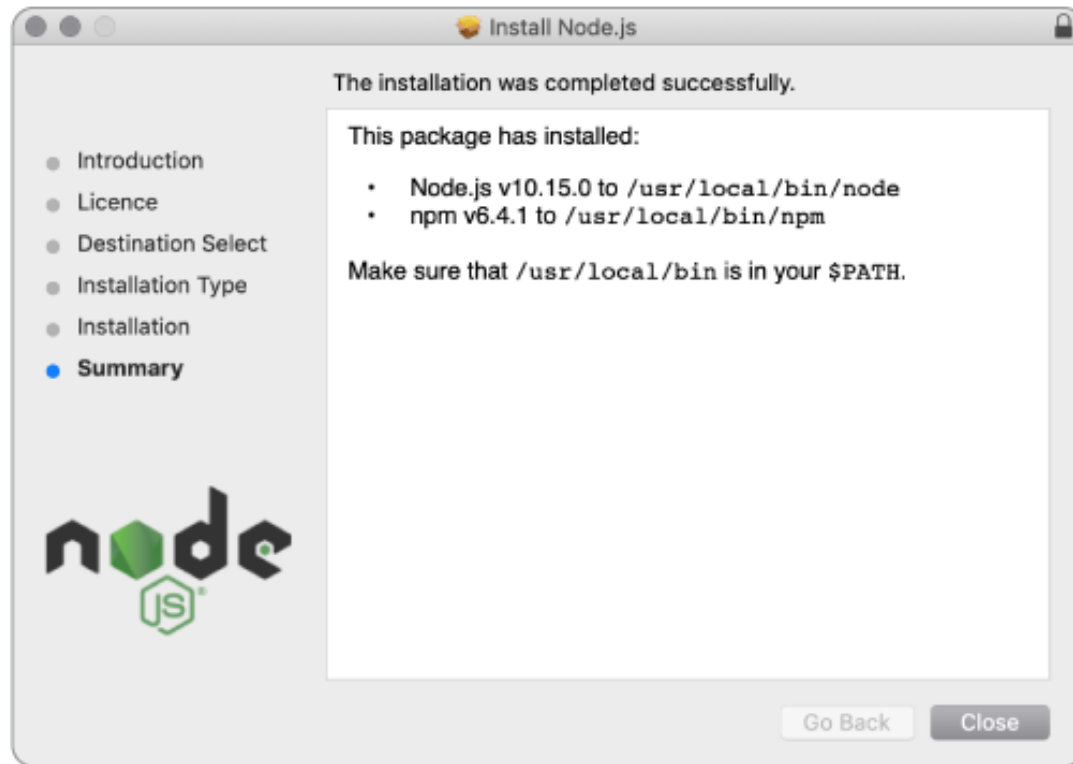
Enter your password to allow this.

Username: xxxxxxx

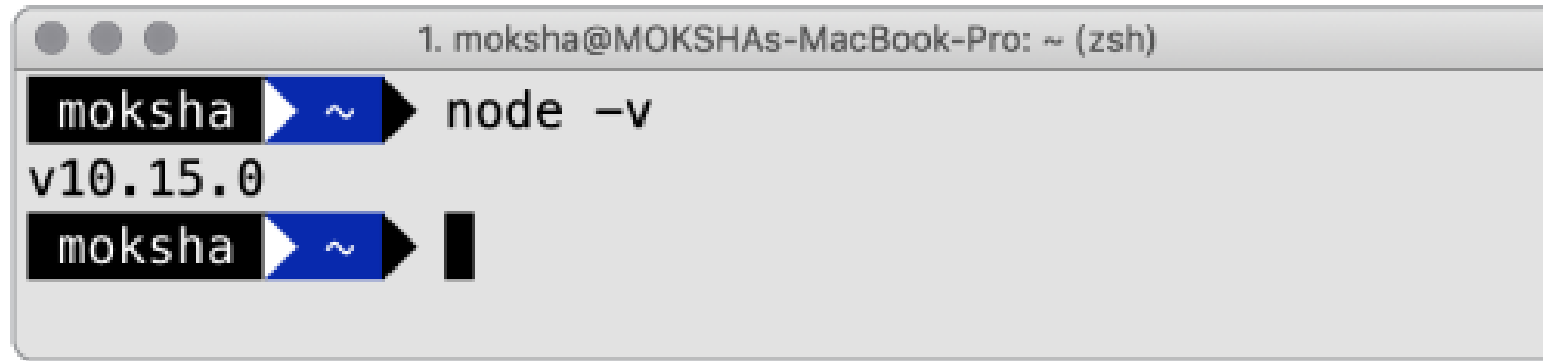
Password:

Cancel Install Software

- Summary of installation



- Verify installation



A terminal window titled "1. moksha@MOKSHAs-MacBook-Pro: ~ (zsh)". The prompt is "moksha" followed by a blue arrow icon and a tilde "~". The command "node -v" has been entered, and the output "v10.15.0" is displayed on the next line. The prompt "moksha" followed by the blue arrow icon and tilde "~" is shown again on the third line, followed by a black cursor bar.

```
1. moksha@MOKSHAs-MacBook-Pro: ~ (zsh)
moksha ~ node -v
v10.15.0
moksha ~
```

Installation: Linux

- Ubuntu, Debian, Mint:
 - `sudo apt install nodejs npm`
- CentOS(8 - latest), Fedora, Red Hat(latest):
 - `sudo dnf install nodejs`
- CentOS(6, 7, 8), Red Hat(old):
 - `sudo yum install epel-release`
 - `sudo yum install nodejs`
- Arch, Manjaro:
 - `sudo pacman -S nodejs`
- Run "node -v" in terminal to confirm installation success

REPL

- Read-Eval-Print-Loop
- Specifies environment to run code
- Run "node" in terminal to start REPL

NPM

- Node Package Manager
- Third-party packages
- Saved in "node_modules" folder
- Saved as dependencies in "package.json" file
- Scripts to run on server

Modules

- Core modules (path, fs, http...)
- Third-party packages
- Custom modules (files)
- CommonJS (require({package-name}))
 - Conventions outside web

Basic server

```
const http = require('http');

http.createServer((req, res) => {
  if(req.url === '/' && req.method === 'GET'){
    res.write('HOME');
  } else if(req.url === '/about' && req.method === 'GET'){
    res.write('ABOUT');
  } else if(req.method === 'GET'){
    res.write('404');
  }
  res.end();
}).listen(3000, 'localhost', () => console.log('Server running on port 3000'));
```

Frameworks

- Libraries/tools
- Extend properties/functionality
- Productive, scalable, fast
- Express, Koa, Nest, Adonis...

Template Engines

- HTML Templates
- Inject data
- Partials
- Layouts
- EJS, Jade, Handlebars...