Comparison of Node.js Package Managers

1. npm (Node Package Manager) – The Original one

- **Official package manager** bundled with Node.js.
- Massive **registry** with the widest support.
- Common commands:
    - npm install
    - npm update
    - npm uninstall
    - npm ci

Pros: - Stable and widely supported - Great community - Improved performance in v7+

Cons: - Slower than newer managers - Used to suffer from dependency bloat

2. Yarn – The Speedster from Facebook

- Developed by Facebook to address npm issues.
- Uses yarn.lock and caches packages.
- Supports **Plug'n'Play (PnP)**.

Pros: - Faster installs with caching - Deterministic builds - Cleaner CLI output

Cons: - Slight complexity for advanced use - Not fully in sync with npm updates

Common Commands: - yarn add - yarn install - yarn remove - yarn upgrade

3. pnpm – The Space Saver

- Performance-optimized & disk-space efficient
- Uses hard links/symlinks
- Ideal for monorepos

Pros: - Significant disk space savings - Very fast - Strict dependency rules

Cons: - Learning curve if new to symlink structure

Common Commands: - pnpm install - pnpm add - pnpm remove

4. Bun – The New Cool Kid

- JavaScript runtime + package manager
- Built in Zig – very fast
- Includes bundler, transpiler, test runner

Pros: - Ultra-fast performance - Built-in tools - Easy setup

Cons: - Still young and evolving - Some compatibility issues

Common Commands: - bun install - bun add - bun remove - bun run, bun test

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Quick Comparison Table

Feature	npm	Yarn	pnpm	Bun
Speed	Slow-ish	Fast	Faster	Fastest
Disk Efficiency	Duplication	Cache	Hard links	Optimized
Work spaces	Yes	Yes	Best for it	Limited
Zero Install	No	Optional	Supported	Built-in
Compatibility	Best	Good	Good	Mixed
Extra Features	Basic	PnP	Strict deps	Bundled

When to Use What

- **Beginner**: Go with **npm**.
- **Fast and deterministic installs**: Use **Yarn**.
- **Mono repo or low disk space**: Use **pnpm**.
- **All-in-one modern stack**: Try **Bun**.

Official Links

- npm
- Yarn
- pnpm
- Bun