

*af*

# Anthony Fu

Vite Vue Nuxt 核心团队成员

Vitest Slidel UnoCSS Type Challenges Elk 作者

ESLint Stylistic Shiki Twoslash 维护者

就职于 NuxtLabs / Vercel

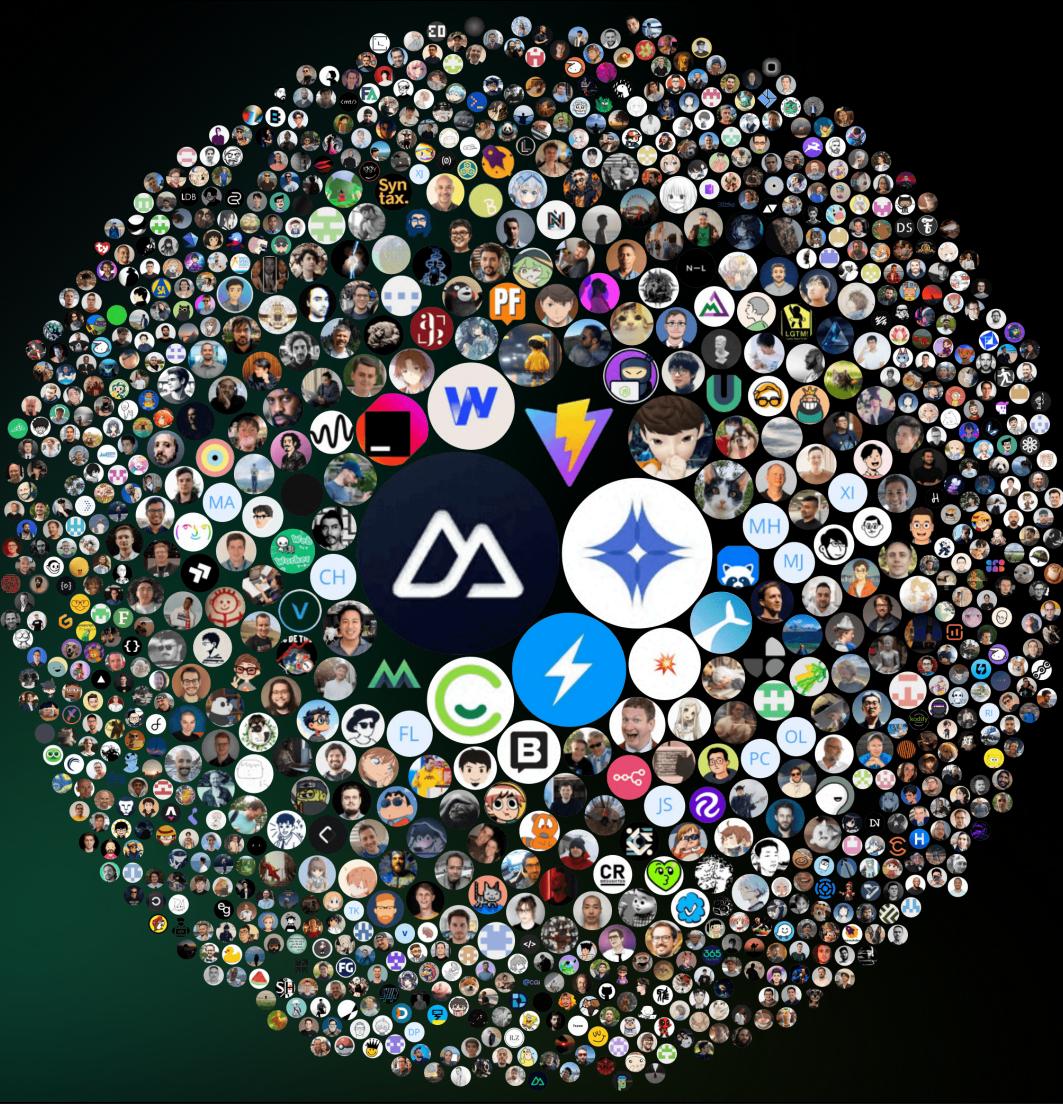


antfu.me antfu antfu.me antfu7 AnthonyFu 一个托尼



前瞻介绍







**void(0) x NuxtLabs**

April 3, 2025

## **VoidZero and NuxtLabs join forces on Vite Devtools**



Evan You



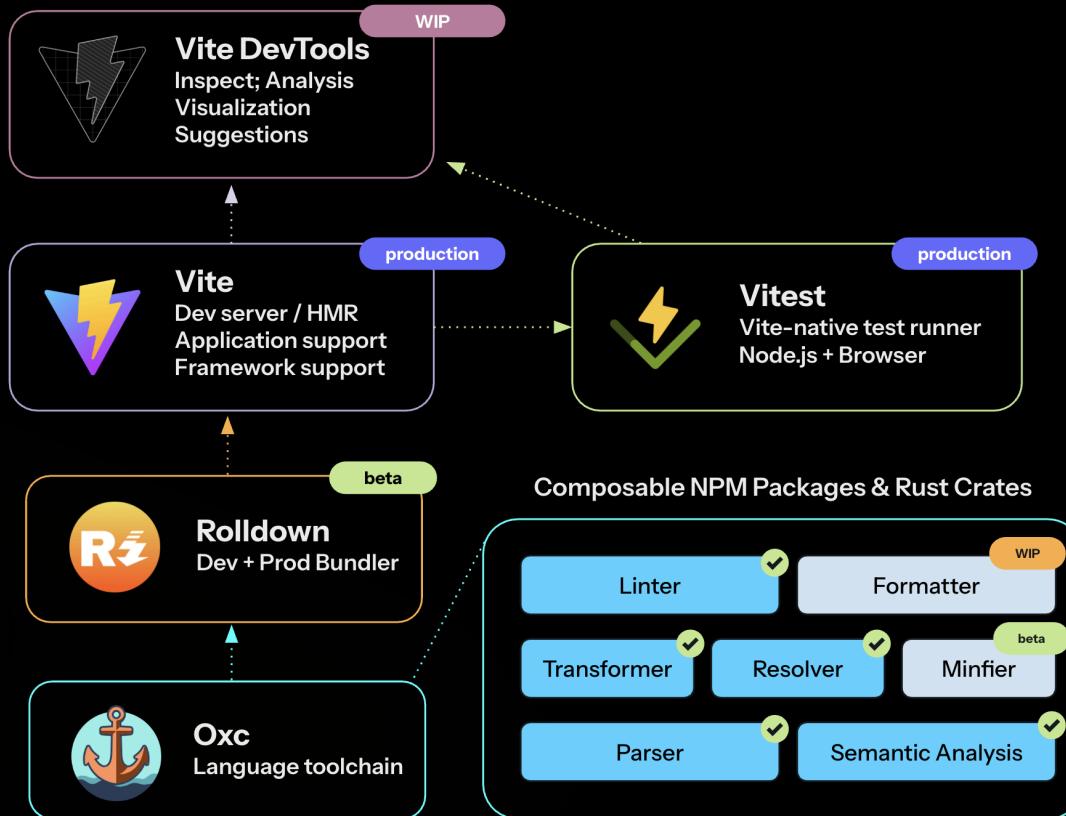
NuxtLabs is joining Vercel



void( $\emptyset$ )  $\times$  ▲Vercel

`void(0)`

Open Source



# 为什么需要 DevTools?

# 广义的 Developer Tools

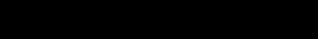
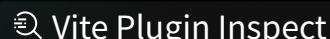
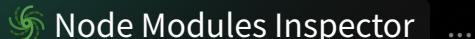
「给开发者使用的工具」



Vite 本身就是一种开发者工具

# 狭义的 DevTools

「为更好的使用工具而提供的工具」



# 好工具原则

入门门槛 → 容易上手，简单配置，一句话讲明白在做什么

直觉设计 → 符合用户期待和直觉，优秀的用户体验

信息透明 → 信息透明，可以看到内部的状态和过程，便于调试和优化

可组合性 → 模块互相解耦，易于组合和扩展

可扩展性 → 灵活的插件和配置系统

Transparency  
信息透明

# UnoCSS Inspector

Inspector *beta*

Overview

REPL

Project Root

- src
  - components
    - panel
      - PanelOutputCss.vue
      - PanelCustomCss.vue
      - PanelConfig.vue
      - PanelHtml.vue
    - Playground.vue
    - Editor.vue
    - Preview.vue
    - HeaderBar.vue
    - SelectVersion.vue
    - SelectLayers.vue
  - App.vue
  - index.html
  - \_\_play.html
  - \_\_play.html?html-proxy&index=0.js
- Disk Root
- Users/antfu/i/unocss/packages-inte...
  - TitleBar.vue
  - CodeMirror.vue

Presets  
@unocss/preset-icons  
@unocss/preset-uno  
@unocss/preset-web-fonts  
@unocss/preset-attributify

Rules  
245 dynamic  
849 static

Variants  
62

Shortcuts  
6

Version  
66.1.2

Included Files  
16

CSS Size  
4.98 kB gzipped

Matched Rules  
234

Layers  
icons  
shortcuts  
default

Merge Alias

TOP 10 UTILITIES

```
w-full60 w-454 inline-flex53 top-035 py-134 justify-center32 ?30 overflow-auto19 transition-transform16 text-sm16
```

COLOR PALETTE<sup>13</sup>

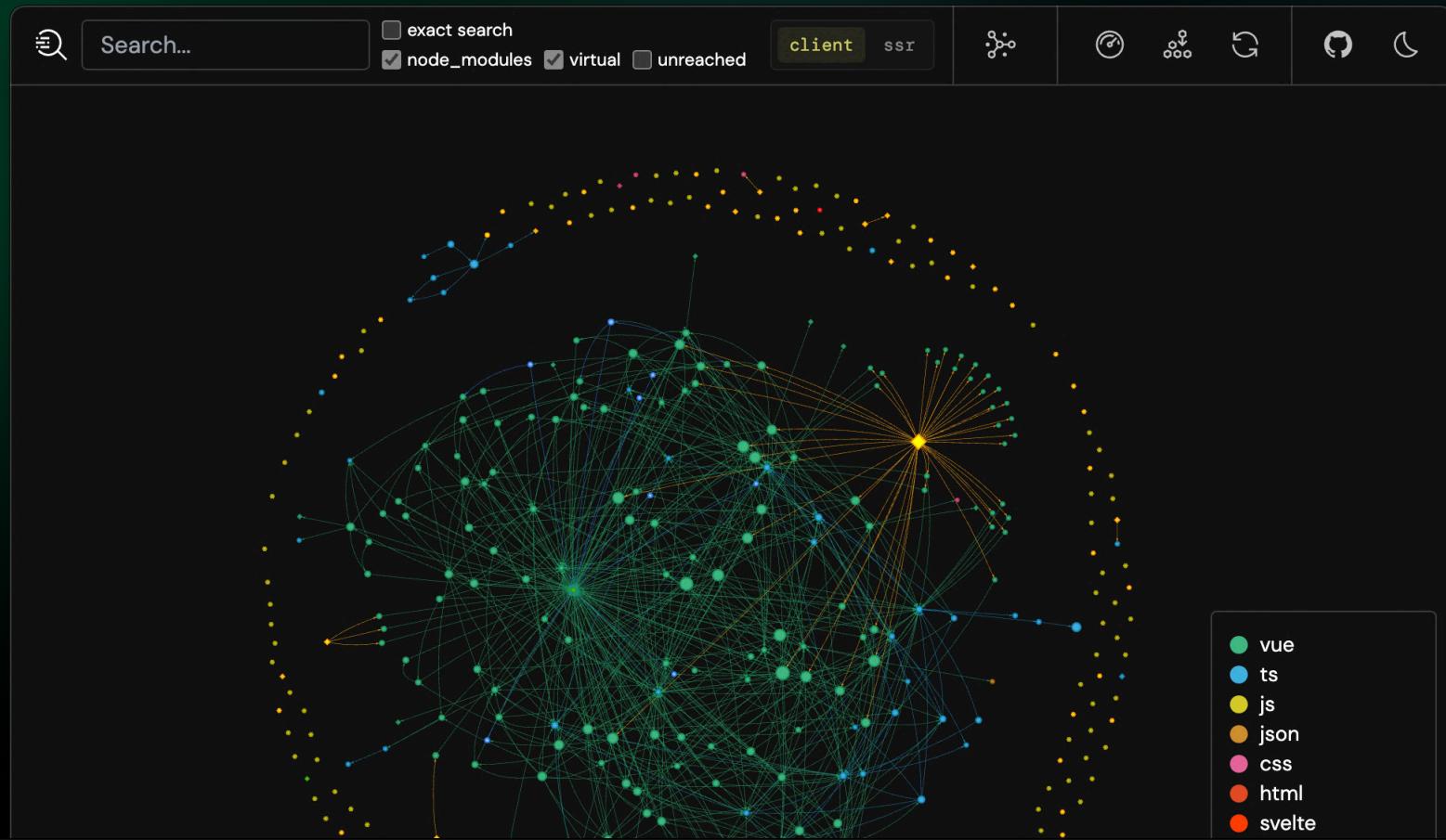
gray <sup>15</sup> #9ca3af	gray-400 <sup>4</sup> #9ca3af	\$cm <sup>4</sup> var(--cm...)	light-900 <sup>2</sup> #dde1e3	dark-900 <sup>2</sup> #0f0f0f	gray-600 <sup>2</sup> #4b5563	white <sup>2</sup> fff	yellow-400 <sup>2</sup> #facc15	red-400 <sup>2</sup> #f87171	green <sup>2</sup> #4ade80	light-700 <sup>1</sup> #e9ecf
-------------------------------	----------------------------------	-----------------------------------	-----------------------------------	----------------------------------	----------------------------------	---------------------------	------------------------------------	---------------------------------	-------------------------------	----------------------------------

dark-800 <sup>1</sup> #181818	yellow-4 <sup>1</sup> #facc15
----------------------------------	----------------------------------

# ⚡ Vite Plugin Inspect

File	Size Before	Size After	Time
./devtools-kit/src/runtime/iframe-client.ts	1.42KB	1.16KB	15ms
./devtools-ui-kit/src/assets/styles.css	1.37KB	5.66KB	401ms
./devtools-ui-kit/src/components/NBadge.vue	71B	1.94KB	1ms
./devtools-ui-kit/src/components/NBadgeHashed.vue	517B	3.61KB	176ms
./devtools-ui-kit/src/components/NButton.ts	1.48KB	1.65KB	213ms
./devtools-ui-kit/src/components/NCard.vue	80B	1.95KB	-
./devtools-ui-kit/src/components/NCheckbox.vue	1.05KB	4.64KB	10ms
./devtools-ui-kit/src/components/NCodeBlock.vue	1.79KB	5.51KB	146ms
./devtools-ui-kit/src/components/NDarkToggle.vue	1.71KB	4.99KB	38ms
./devtools-ui-kit/src/components/NDialog.vue	1.70KB	5.71KB	174ms

# ⚡ Vite Plugin Inspect



# 🔍 Vite Plugin Inspect

Search	← Metrics	transform	resolveId	server.middleware	client	ssr	↻	⟳	⟳
TS ..../de esbuild   imp	Name (66)				Type	Passes	Average Time	Total Time	
TS .....	vite:vue					402	196ms	1.3min	
CSS .....	vite:esbuild					394	71ms	27.8s	
VW .....	vite:client-inject					394	13ms	5.3s	
VW .....	vite:optimized-deps					41	39ms	1.6s	
VW .....	vite:css					394	2ms	774ms	
TS .....	vite:import-analysis					394	2ms	643ms	
VW .....	unplugin-vue-markdown	pre				394	<1ms	322ms	
VW .....	nuxt:imports-transform	post				394	<1ms	320ms	
VW .....	vite-plugin-vue-tracer	post				394	<1ms	178ms	
VW .....	unctx:transform	post				394	<1ms	90ms	
VW .....	unocss:global	pre				395	<1ms	83ms	
VW .....	nuxt:pages-macros-transform	post				394	<1ms	83ms	
VW .....	unocss:transformers:undefined					394	<1ms	75ms	
VW .....	unocss:components-loader	post				394	<1ms	66ms	

# Vitest UI

Vitest

packages/eslint-plugin/rules/array-bracket-spacing/array-bracket-spacing.test.ts

Search... Report Module Graph Code Console (0)

Filter Hide node\_modules Inline Modules

FAIL (0) / RUNNING (0)  
PASS (119) / SKIP (--)

general.ts  
runner.ts  
ast.ts  
create-rule.ts  
index.ts  
array-bracket-spacing.ts  
merge.ts  
parsers-flow.ts

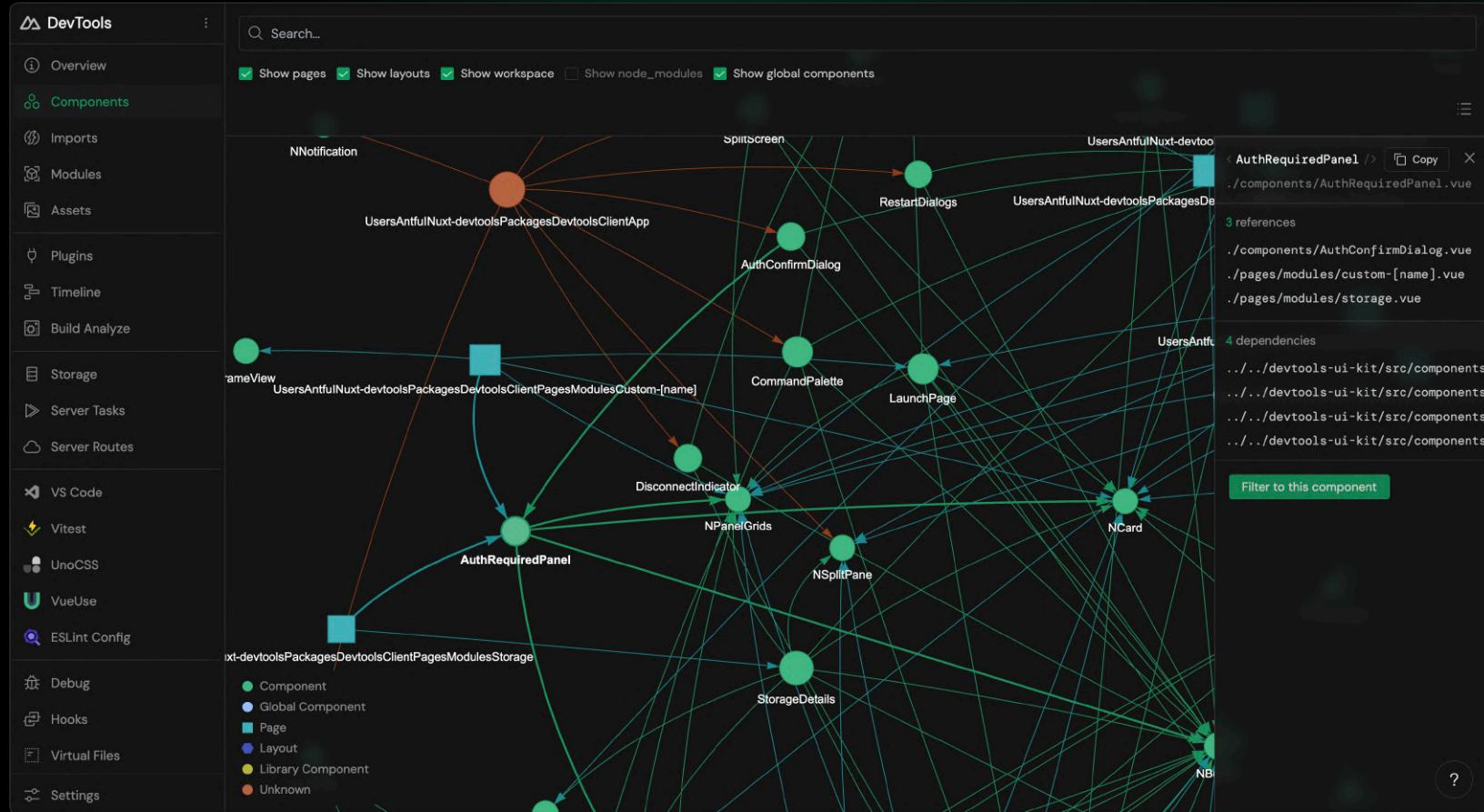
The Vitest UI displays a module graph for the file `array-bracket-spacing.test.ts`. The graph shows the following dependencies:

- `general.ts` depends on `runner.ts`.
- `runner.ts` depends on `ast.ts`.
- `ast.ts` depends on `array-bracket-spacing.ts`.
- `array-bracket-spacing.ts` depends on `create-rule.ts`.
- `create-rule.ts` depends on `merge.ts`.
- `index.ts` depends on `array-bracket-spacing.ts`.
- `parsers-flow.ts` depends on `array-bracket-spacing.ts`.

The graph also shows a list of test cases on the left, each with a duration:

- `packages/eslint-plugin/rules/array-bracket-spacing/array-bracket-spacing.test.ts`: 1027ms
- `packages/eslint-plugin/rules/array-bracket-spacing/array-bracket-spacing.test.ts`: 605ms
- `packages/eslint-plugin/rules/array-element-spacing/test.ts`: 774ms
- `packages/eslint-plugin/rules/arrow-parameter-spacing/test.ts`: 546ms
- `packages/eslint-plugin/rules/arrow-spacing/test.ts`: 154ms
- `packages/eslint-plugin/rules/block-spacing/test.ts`: 419ms
- `packages/eslint-plugin/rules/brace-style/test.ts`: 623ms
- `packages/eslint-plugin/rules/brace-style/allow-mixed/test.ts`: 281ms
- `packages/eslint-plugin/rules/comma-dangle/test.ts`: 1644ms
- `packages/eslint-plugin/rules/comma-dangle/test.ts`: 299ms
- `packages/eslint-plugin/rules/comma-spacing/test.ts`: 597ms
- `packages/eslint-plugin/rules/comma-spacing/test.ts`: 214ms
- `packages/eslint-plugin/rules/comma-style/test.ts`: 816ms
- `packages/eslint-plugin/rules/computed-property-spacing/test.ts`: 664ms
- `packages/eslint-plugin/rules/curlly-newline/test.ts`: 798ms
- `packages/eslint-plugin/rules/dot-location/test.ts`: 308ms

# Nuxt DevTools



# Nuxt DevTools

### DevTools

- Overview
- Components
- Imports
- Modules
- Assets
- Plugins
- Timeline
- Build Analyze
- Storage
- Server Tasks
- Server Routes
- VS Code
- Vitest
- UnoCSS
- VueUse
- ESLint Config

Search... Filter

All Using Not used All Composables Directives

./composables/rpc.ts

- clientFunctions extendedRpcMap rpc wsConnecting wsConnectingDebounced wsError

./composables/state-commands.ts

- CommandItem getNuxtDocsCommands registerCommands useCommands

./composables/constants.ts

- ComposablesDocs DETAILS\_MAX\_ITEMS ServerRouteTabIcons

./composables/dev-auth.ts

- devAuthToken ensureDevAuthToken isDevAuthed requestForAuth updateDevAuthToken userAgentInfo

../../../../devtools-ui-kit/src/composables/notification.ts

- devtoolsUiProvideNotificationFn devtoolsUiShowNotification x15 DevtoolsUiShowNotificationPosition

./composables/utils.ts

- formatDuration getComponentNameFromPath isBuildable isNuxtCompatibilityVersion meFromPath getRequestMethodClass Name jsonStringifyCircular parseReadablePath useSessionState

pluralizeByCount refreshData

./composables/state-tabs.ts

- getCategorizedTabs useAllRoutes

./composables/client.ts

- getColorMode showConnectionWarning useClient useClientHead useClientRoute useClientRouter useInjectionClient

../../../../devtools-ui-kit/src/composables/color.ts

- getHslColorFromStringHash

Copy </> Source

It has been referenced 15 times by:

- ./composables/dev-auth.ts
- ./composables/editor.ts
- ./components/AssetDropZone.vue
- ./components/AssetDetails.vue
- ./pages/modules/timeline.vue

# ESLint Config Inspector

ESLint Config Inspector v1.1.0

Composed with **68** config items, updated yesterday

Configs Rules Files ⚡ ⚡ | ⚠ Using 1 deprecated rules

This tab shows the preview for files match from the workspace. This feature is **experimental** and may not be 100% accurate.

#1 Config antfu/yaml/rules ⌚ 2 ⚡ 1

- Configs Specific to the Files (1)
  - antfu/yaml/rules
- Matched Globals
  - \*\*/\*.{y?(a)ml}
- Matched Local Files (2)
  - .github/workflows/ci.yml
  - .github/workflows/release.yml

#2 Config antfu/jsonc/rules ⌚ 1 ⚡ 1

- Configs Specific to the Files (1)
  - antfu/jsonc/rules

# ⬢ ESLint Config Inspector

## ESLint Config Inspector v1.1.0

Composed with **68** config items, updated yesterday

Configs Rules Files ⚡ ⚡ | ⚠ Using 1 deprecated rules

🔍 Test matching with filepath...

Expand All Collapse All

#1 > eslint/defaultslanguages	2
#2 > eslint/defaultsiignores	2
#3 > eslint/defaultsfies	2
#4 > eslint/defaultsfies-cjs	1
#5 > antfu/gitignore	37

Docs Copy name Filter by this rule

① Set to error in this config

Rule options Option defaults

# ESLint Config Inspector

## ESLint Config Inspector v1.1.0

Composed with **68** config items, updated yesterday

Configs Rules Files ⚡ ⚡ | **⚠ Using 1 deprecated rules**

Search rules...

Plugins: All, eslint, antfu, unused-imports, eslint-comments, node, jsdoc, import, command, perfectionist, unicorn, ts, style, regexp, test, vue, vue-a11y, react, react-dom, react-hooks, react-hooks-extra, react-naming-convention, react-refresh, react-web-api, solid, svelte, astro, jsonc, pnpm, yaml, toml, markdown, format

Usage: All, Using, Unused, ⓘ Error, ⚡ Warn, ⚡ Off, ⓘ ⚡ Overloaded, ⚡ Off Only

State: All, Active,  Recommended, ⚡ Fixable, ⚡ Deprecated

66 rules filtered out of 1591 rules | **Clear Filter**

**style/array-bracket-spacing** ⓘ ⚡ Enforce consistent spacing inside array brackets

**style/arrow-parens** ⓘ ⚡ Require parentheses around arrow function arguments

**style/arrow-spacing** ⓘ ⚡ Enforce consistent spacing before and after the arrow in arrow functions

**style/block-spacing** ⓘ ⚡ Disallow or enforce spaces inside of blocks after opening block and before c...

Docs Copy name

Set to **error** in **antfu/stylistic/rules** the 21st config item



# Node Modules Inspector

Group by Depth Module Type Clusters Authors License GitHub Slug

Depth 1 78

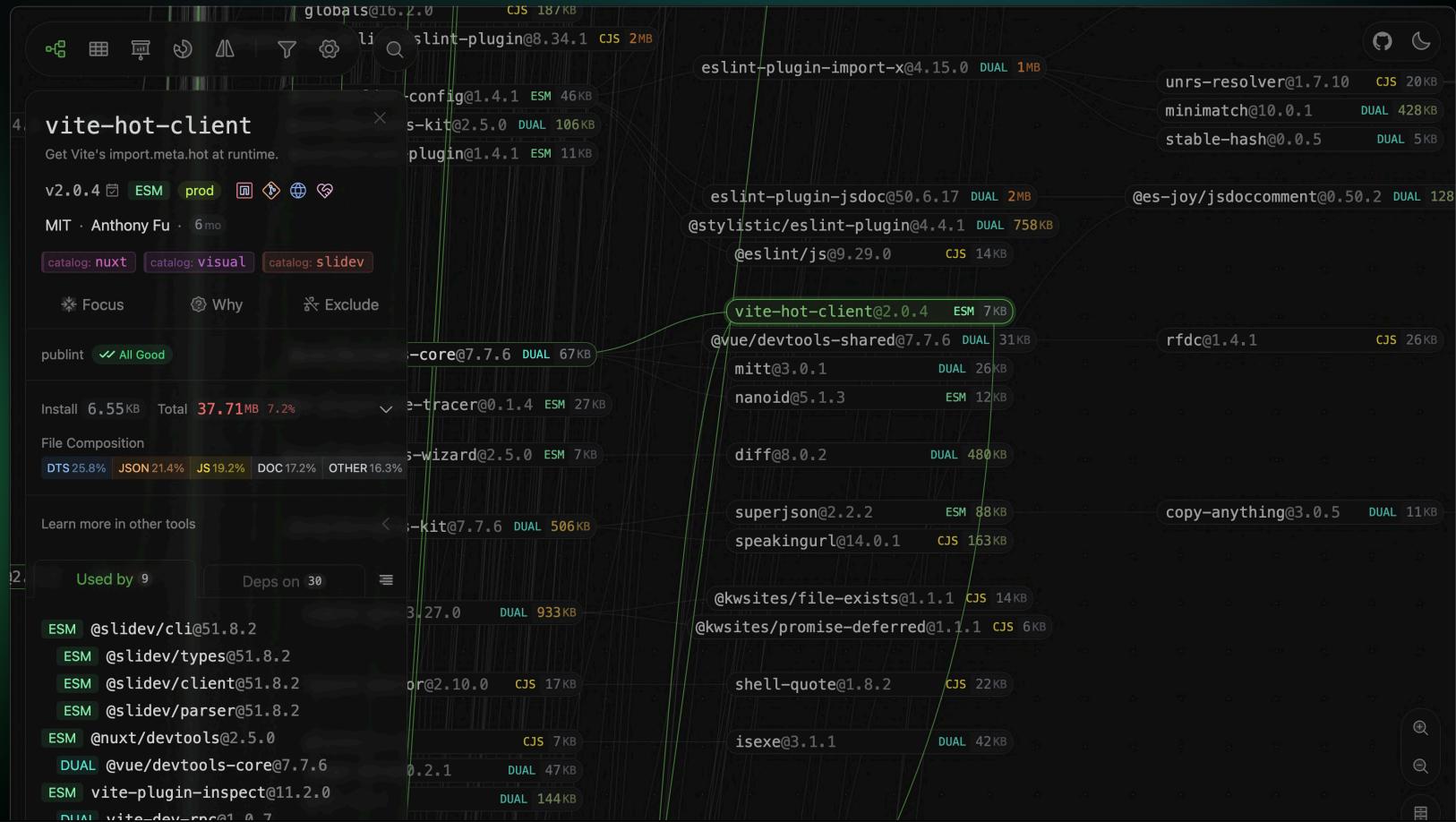
@antfu/utils@9.2.0 ESM ↳ 4 43KB 3mo	@unocss/reset@66.2.3 ESM ↳ 7 49KB 15d	birpc@2.4.0 DUAL ↳ 11 32KB 18d
case-police@2.0.0 DUAL 487KB 3mo	diff-match-patch-es@1.0.1 DUAL ↳ 3 143KB 6mo	fast-npm-meta@0.4.3 ESM ↳ 4 9KB 1mo
package-manager-detector@1.3.0 ESM ↳ 25 22KB 2mo	quansync@0.2.10 DUAL ↳ 43 23KB 4mo	structured-clone-es@1.0.0 ESM ↳ 3 12KB 5mo
twoslash-protocol@0.3.1 DUAL ↳ 6 25KB 4mo	uqr@0.1.2 DUAL ↳ 5 70KB 1.9yr	@antfu/install-pkg@1.1.0 DUAL ↳ 14 ⚡ 2 13KB 2mo
@antfu/ni@25.0.0 ESM ⚡ 4 145KB 1mo	drauu@0.4.3 DUAL ↳ 2 ⚡ 1 36KB 4mo	eslint-flat-config-utils@2.1.0 ESM ↳ 3 ⚡ 1 49KB 1mo
magic-string@0.30.17 DUAL ↳ 76 ⚡ 1 457KB 7mo	pnpm-catalogs-utils@0.1.0 ESM ↳ 1 ⚡ 1 6KB 4mo	strip-literal@3.0.0 DUAL ↳ 27 ⚡ 1 11KB 6mo
unplugin@2.3.5 DUAL ↳ 29 ⚡ 3 181KB 1mo	vscode-ext-gen@1.0.2 ESM ⚡ 1 24KB 4mo	unconfig@7.3.2 ESM ↳ 15 ⚡ 4 23KB 2mo
importx@0.5.2 ESM ⚡ 11 35KB 5mo	local-pkg@1.1.1 DUAL ↳ 31 ⚡ 10 20KB 4mo	magicast@0.3.5 DUAL ↳ 24 ⚡ 5 634KB 10mo

DUAL 23.9% ESM 30% FAUX 3.1% CJS 43%

Made with [Nuxt](#) and ❤️ by Anthony Fu

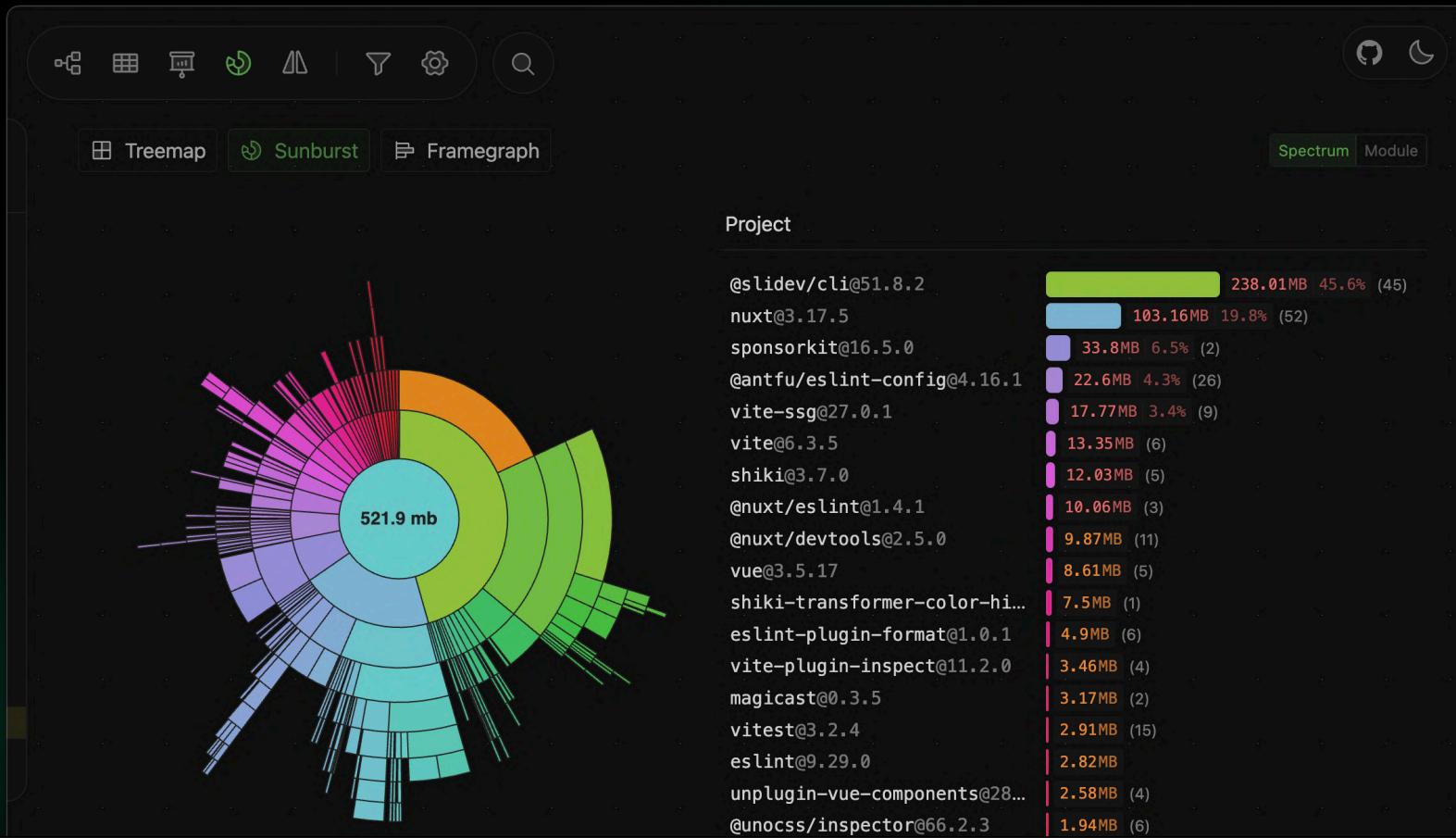


# Node Modules Inspector





# Node Modules Inspector





# 目标愿景



## 可视化

展示 Vite/Rollup 内部状态和过程



## 构建分析

提供建议和优化方案



## 插件分析

帮助插件作者遵循最佳实践



## 构建快照

记录构建过程，可分享和分析的重现



## Vite Plus

集成 Vitest UI、Oxlint 可视化等等



## DevTools Kit

统一的 DevTools 架构，让上层框架提供扩展



Working in progress



### 模块分析

展示每个插件对每个文件的 load 和 transform 结果



### 模块依赖和分包可视化

展示每个文件的依赖关系和分包的组成



### 打包分析

展示打包的结果，包括分包尺寸、优化建议等



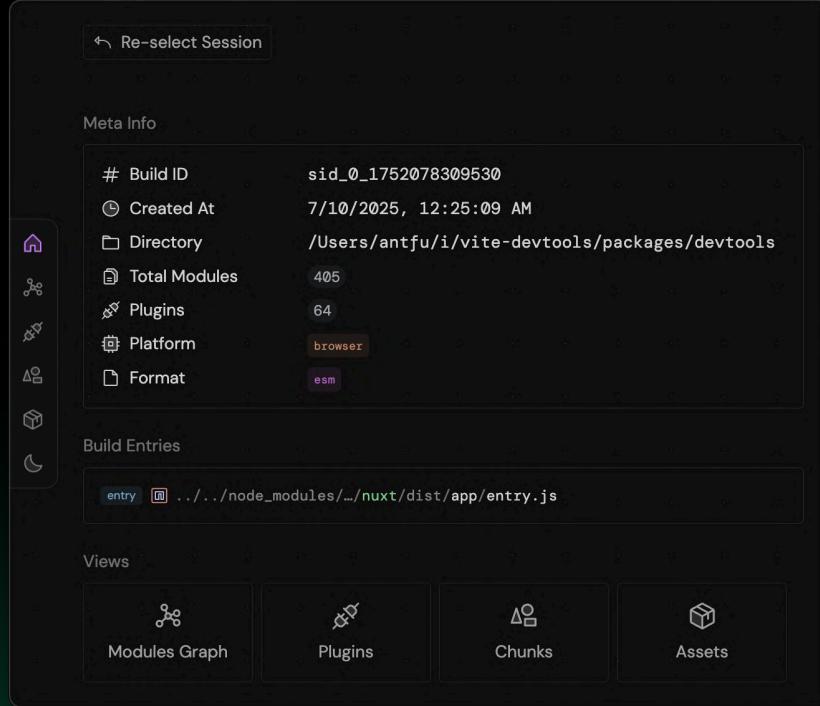
### 开发模式

展示开发模式下的模块分析和依赖关系



### DevTools Kit

可扩展的 DevTools 架构



# 构建总览

目前的 Vite DevTools 通过  
消费 Rolldown 的产物来可视化构建过程和信息

A screenshot of a code analysis or dependency viewer interface. At the top, there's a search bar and several filter checkboxes: Node Modules (unchecked), TypeScript (checked), CSS (checked), Vue (checked), File (checked), Virtual (unchecked), and Package (checked). Below the filters are three view modes: List (selected), Graph, and Folder. The main area displays a list of files with their paths:

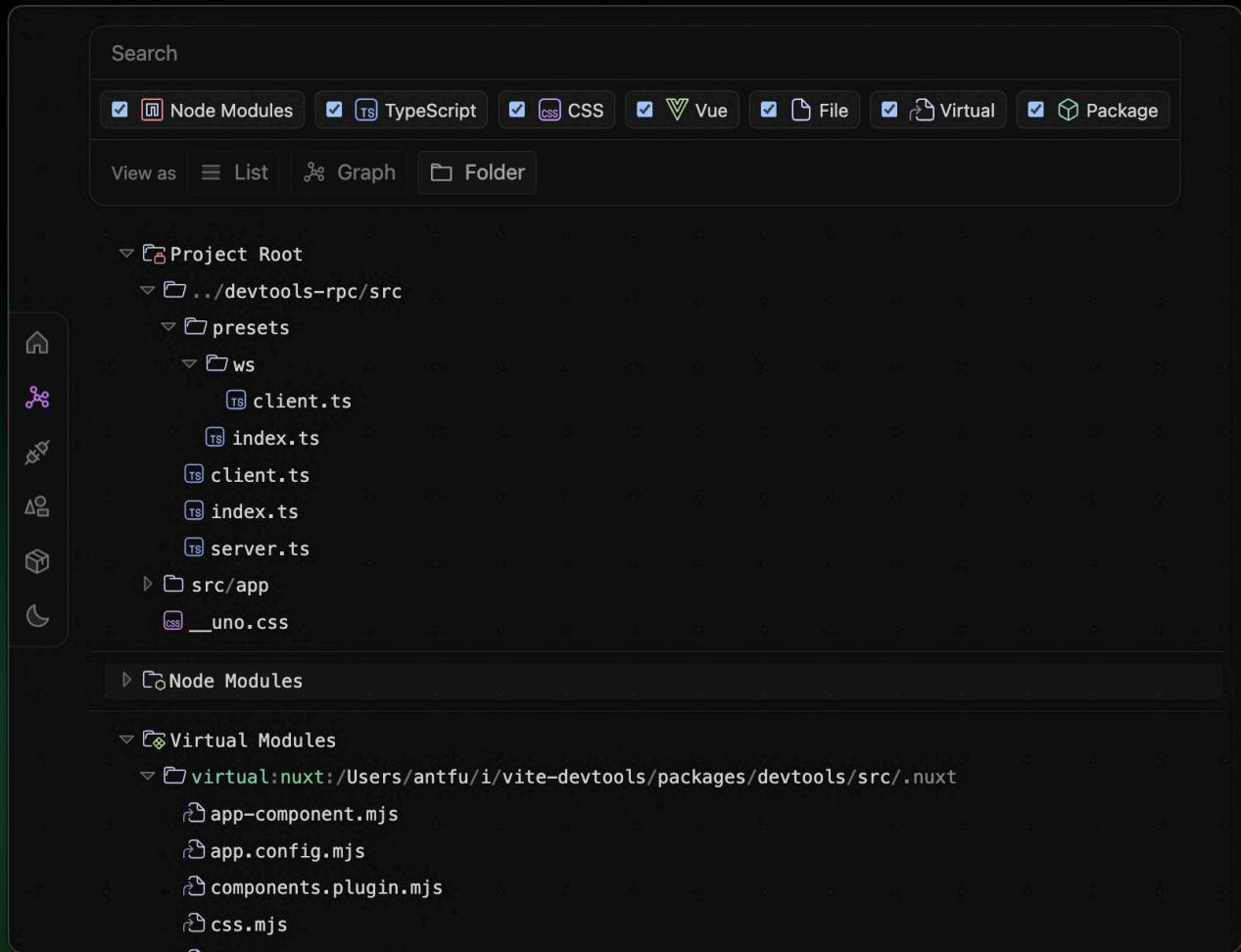
- ./devtools-rpc/src/client.ts
- ./devtools-rpc/src/index.ts
- ./devtools-rpc/src/presets/index.ts
- ./devtools-rpc/src/presets/ws/client.ts
- ./devtools-rpc/src/server.ts
- ./\_\_uno.css
- ./src/app/app.vue
- ./src/app/app.vue?vue&type=script&setup=true&lang.ts
- ./src/app/components/chart/ModuleFlamegraph.vue
- ./src/app/components/chart/ModuleFlamegraph.vue?vue&type=script&setup=true&lang.ts
- ./src/app/components/code/DiffEditor.vue
- ./src/app/components/code/DiffEditor.vue?vue&type=script&setup=true&lang.ts
- ./src/app/components/code/DiffEditor.vue?vue&type=style&index=0&lang.postcss
- ./src/app/components/data/ChunkDetails.vue
- ./src/app/components/data/ChunkDetails.vue?vue&type=script&setup=true&lang.ts
- ./src/app/components/data/ModuleDetailsLoader.vue
- ./src/app/components/data/ModuleDetailsLoader.vue?vue&type=script&setup=true&lang.ts
- ./src/app/components/data/ModuleImportRelationships.vue
- ./src/app/components/data/ModuleImportRelationships.vue?vue&type=script&setup=true&lang.ts
- ./src/app/components/data/RawEventsTable.vue
- ./src/app/components/data/RawEventsTable.vue?vue&type=script&setup=true&lang.ts
- ./src/app/components/display/Badge.vue

The sidebar on the left contains icons for Home, Help, Settings, and Logout.

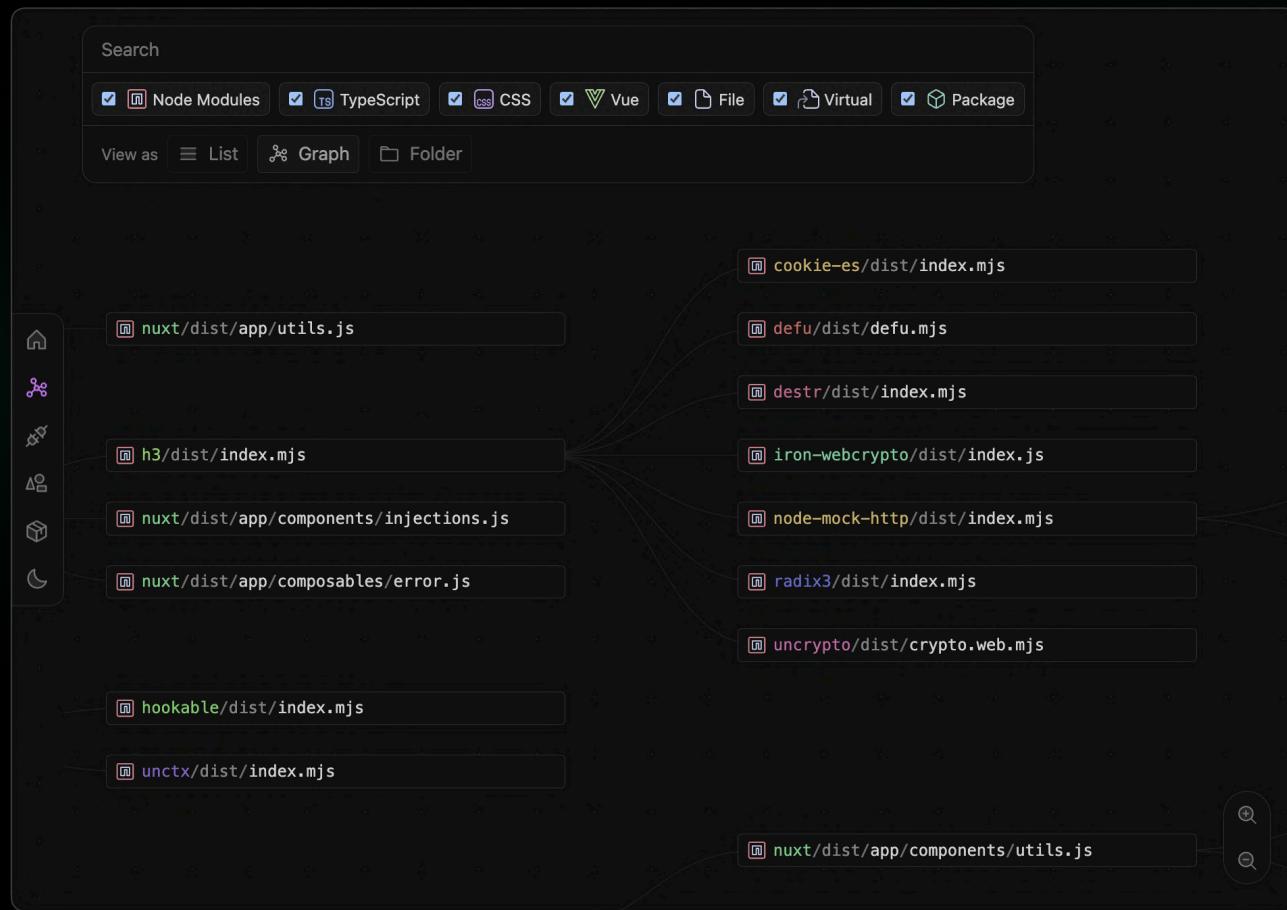
# 打包文件列表

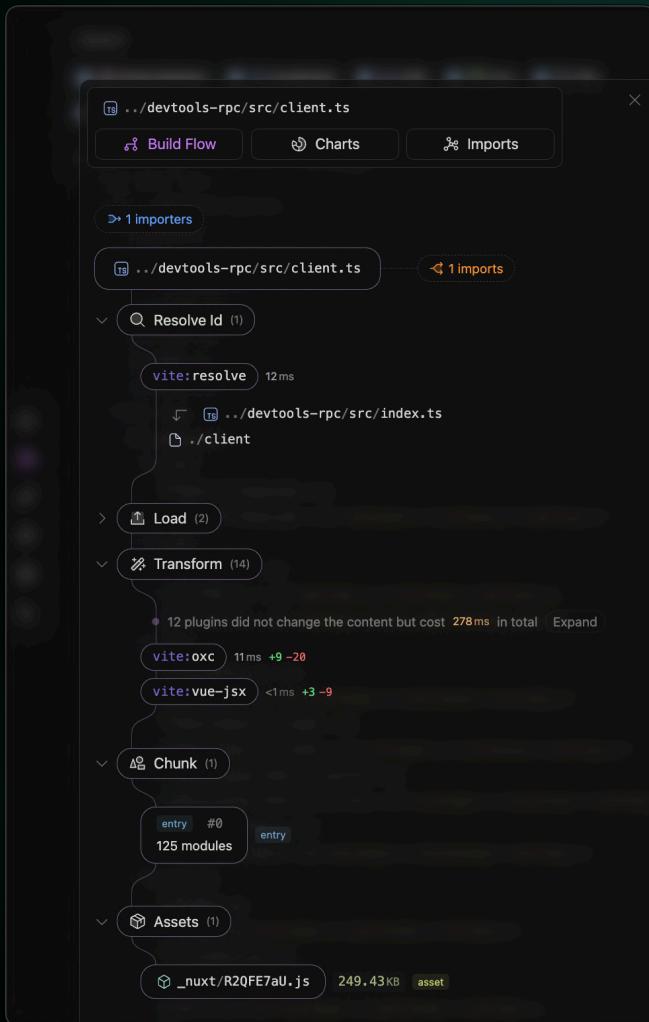
展示所有参与打包的文件，  
提供筛选搜索功能。

# 打包文件树



# 模块关系图





# 模块转换流程

从文件解析，模块加载，转换，打包，到最后的输出  
可以追踪整个流程，找到瓶颈和优化点

# 代码转换对比

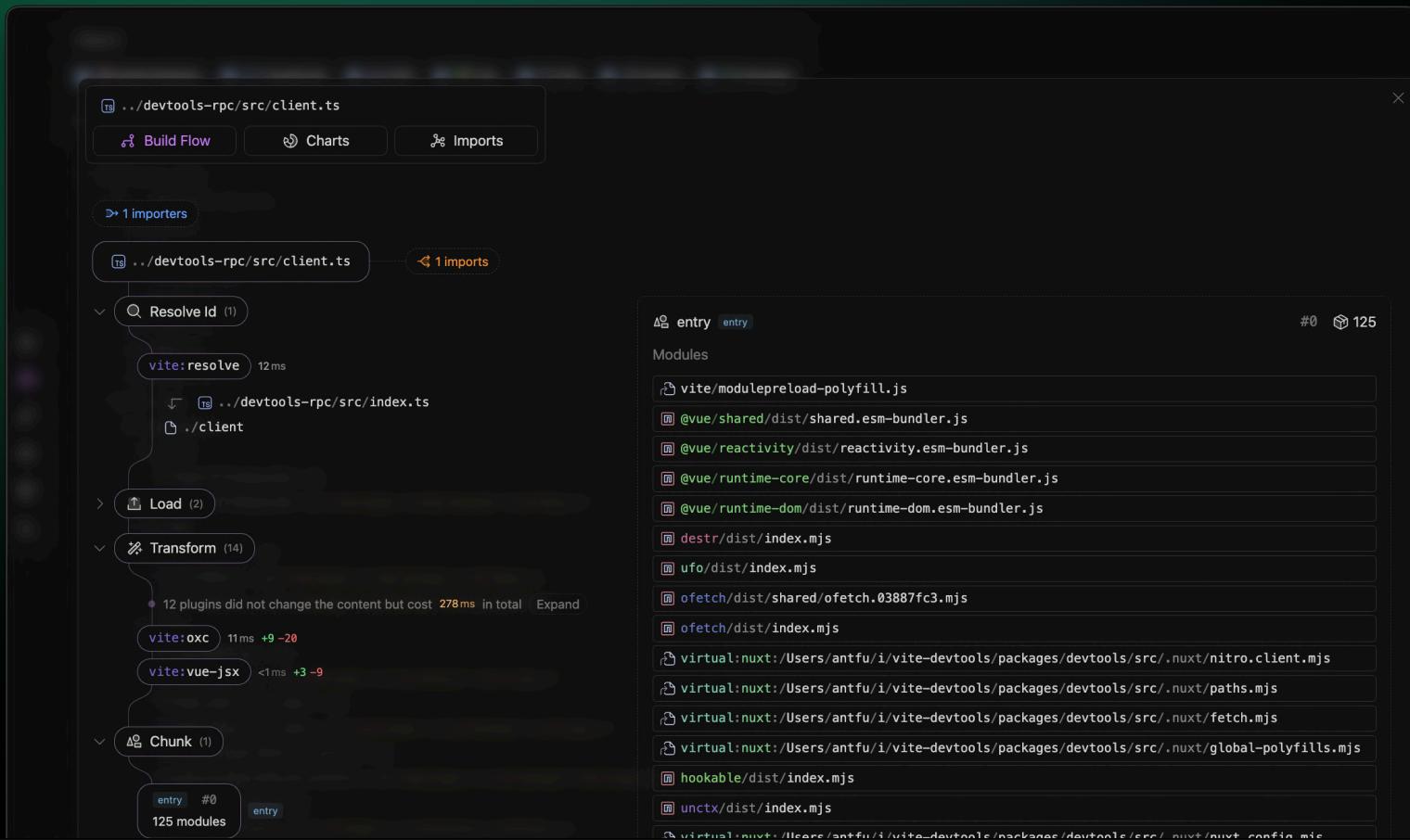
The screenshot shows the Vite DevTools interface with the following details:

- Build Flow:** Shows the dependency graph for `client.ts`.
  - 1 importers:** `client.ts` has 1 importer.
  - Resolve Id:** `client.ts` is resolved from `index.ts`.
  - Load:** `client.ts` is loaded from `index.ts`.
  - Transform:** `client.ts` undergoes 14 transformations, including:
    - vite:oxc:** 11ms, +9 -20 (highlighted)
    - vite:vue-jsx:** <1ms, +3 -9
  - Chunk:** `client.ts` is part of entry #0.
- vite:oxc Transform:** A code editor window showing the transformation logic.

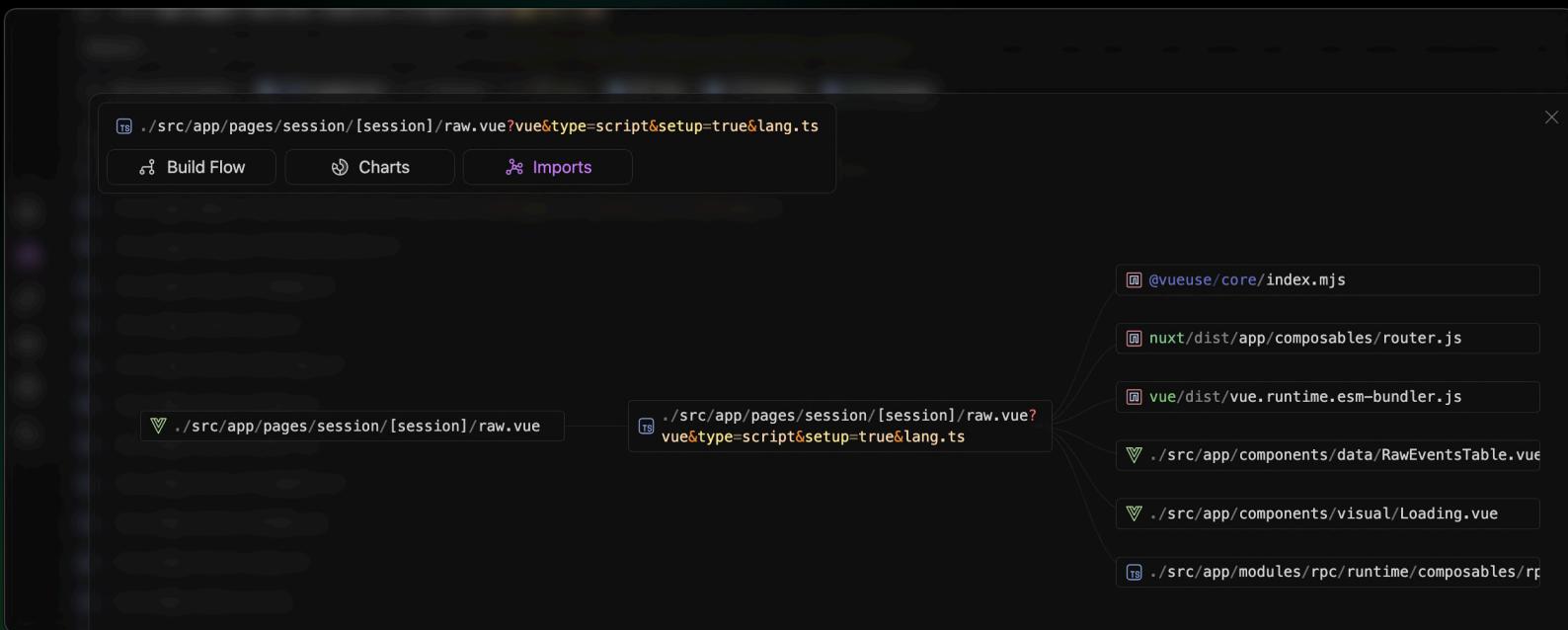
```
import type { BirpcOptions } from 'birpc'
import { createBirpc } from 'birpc'

export function createRpcClient<ServerFunctions = Record<string, never>, ClientFunctions extends object = Record<string, never>>(options: { preset: string; timeout?: number; rpcOptions?: Partial<BirpcOptions> }) {
  const { preset, rpcOptions = {} } = options
  return createBirpc({ ...preset, ...timeout, ...rpcOptions })
}
```

# 分包信息

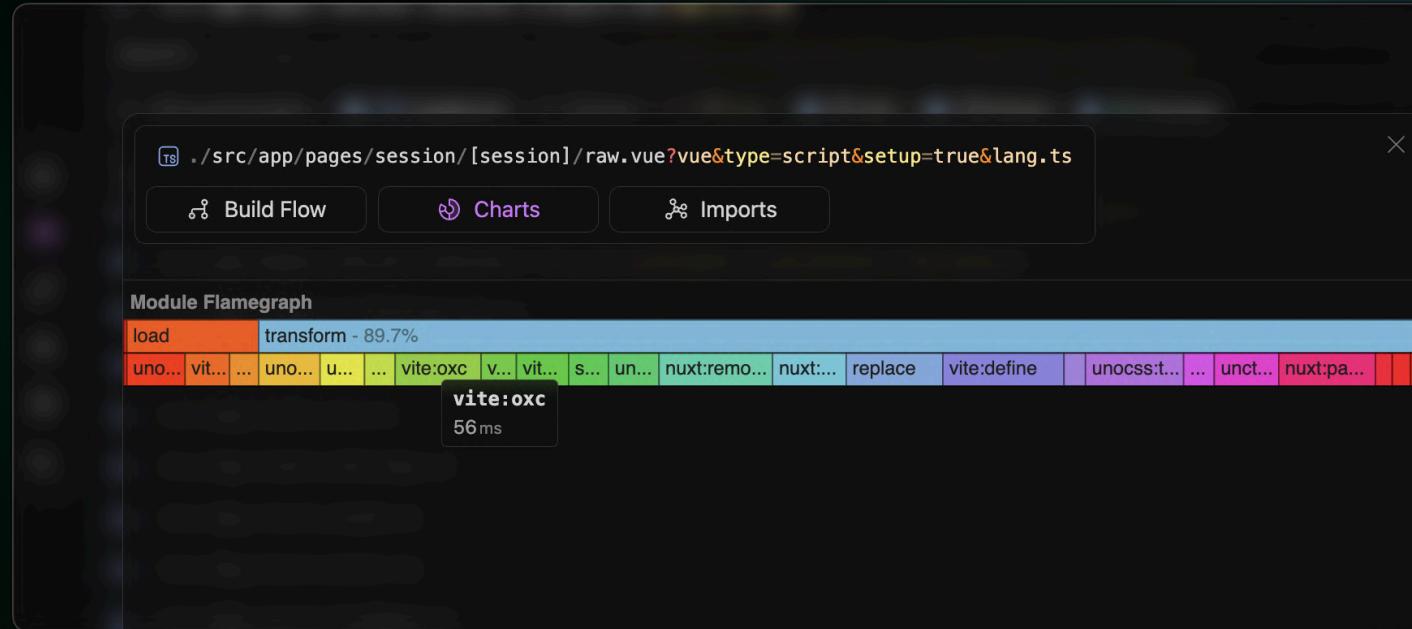


# 模块依赖关系图



# 性能消耗图表

WIP



Extensibility  
可扩展性

# 😊 Your DevTools?

模块化、可组合、互相协作

打包分析	插件分析	Vite 配置	Vitest	Oxlint	SEO 工具	无障碍	PWA
组件	响应式	路由	Pinia 可视化	Nuxt 模块	自动导入	文件路由	服务端 API
DevTools	状态管理	路由	文件路由	组件	响应式	分包	数据管理
UnoCSS	ESLint	Storybook	Histoire	...	更多...		

# ⚠ DevToolsKit



 DEVTOOLS



vitejs/devtools

# 致谢



Yunfei He

@hyf0



Arlo

@webfansplz



加入我们?

@you?

# 感谢

幻灯片在 [antfu.me](http://antfu.me)