

al

# Anthony Fu

Vite Vue Nuxt 核心团队成员

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就职于 NuxtLabs / Vercel



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前瞻介绍





**void(0) x NuxtLabs**

April 3, 2025

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



Evan You



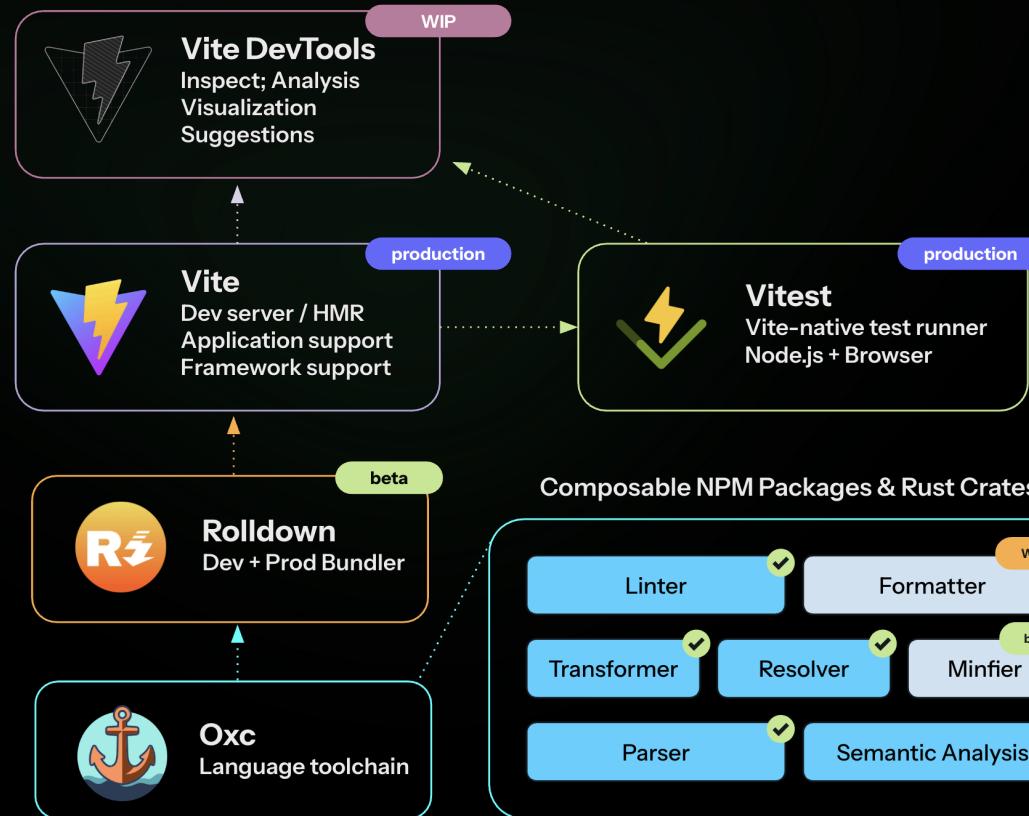
NuxtLabs is joining Vercel



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」

Chrome DevTools

Nuxt DevTools

Vue DevTools

Vite Plugin Inspect

UnoCSS Inspector

ESLint Config Inspector

Vitest UI

Node Modules Inspector

...

# 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...

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

Source Analyzer

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	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	
CSS ..../de css   css-pos	vite:vue					402	196ms	1.3min	
VUE ..../de vue   vue-tra	vite:esbuild					394	71ms	27.8s	
VUE ..../de vue   vue-tra	vite:client-inject					394	13ms	5.3s	
VUE ..../de vue   vue-tra	vite:optimized-deps					41	39ms	1.6s	
VUE ..../de vue   vue-tra	vite:css					394	2ms	774ms	
TS ..../de esbuild   nux	vite:import-analysis					394	2ms	643ms	
VUE ..../de vue   vue-tra	unplugin-vue-markdown	pre				394	<1ms	322ms	
VUE ..../de vue   vue-tra	nuxt:imports-transform	post				394	<1ms	320ms	
VUE ..../de vue   vue-tra	vite-plugin-vue-tracer	post				394	<1ms	178ms	
VUE ..../de vue   vue-tra	unctx:transform	post				394	<1ms	90ms	
VUE ..../de vue   vue-tra	unocss:global	pre				395	<1ms	83ms	
VUE ..../de vue   vue-tra	nuxt:pages-macros-transform	post				394	<1ms	83ms	
VUE ..../de vue   vue-tra	unocss:transformers:undefined					394	<1ms	75ms	
VUE ..../de vue   vue-tra	unocss:components-loader	post				394	<1ms	66ms	

# Vitest UI

Vitest

Report Module Graph Code Console (0)

Filter

Fail  Pass

Skip  Only Tests

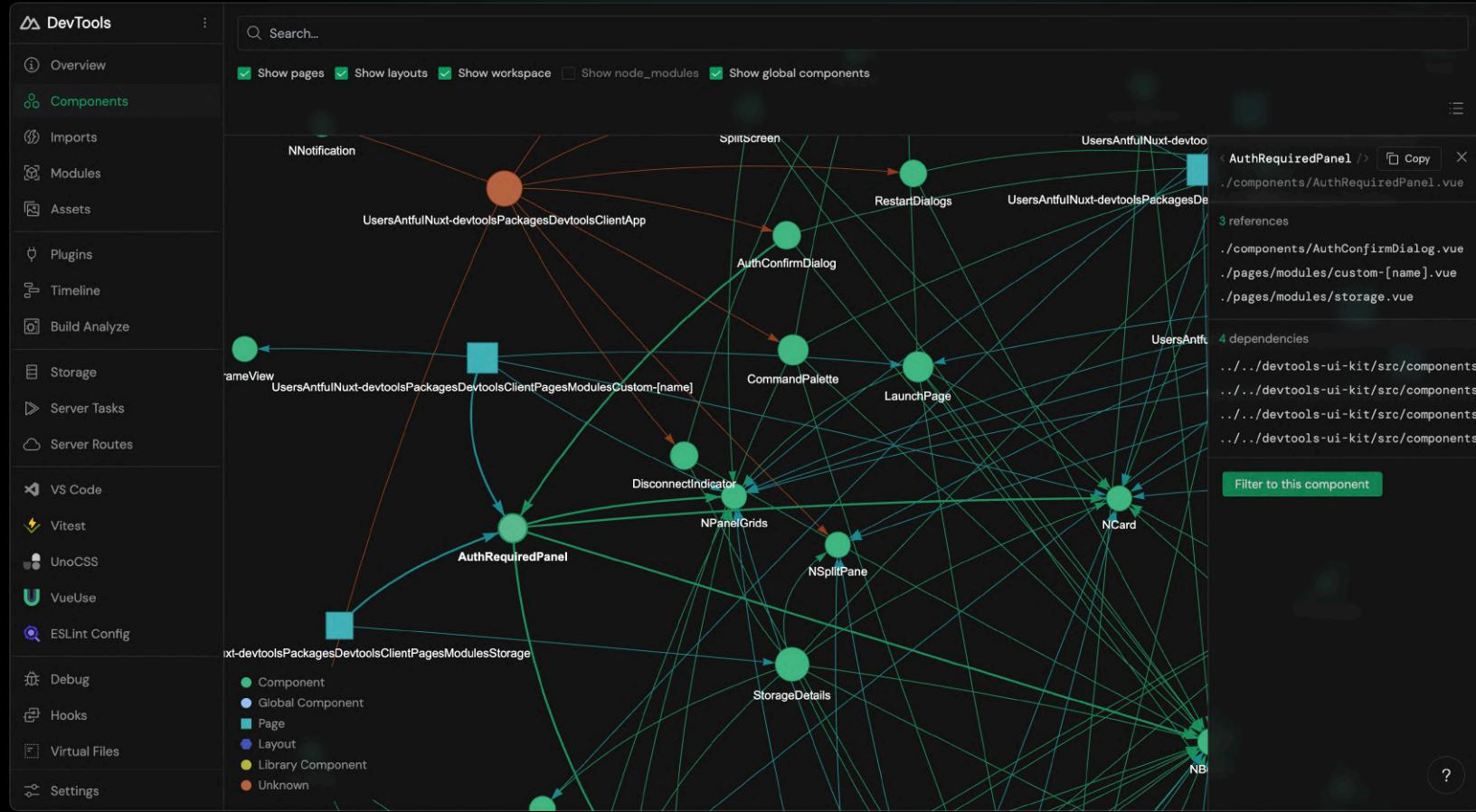
FAIL (0) / RUNNING (0)  
PASS (119) / SKIP (--)

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

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

The Vitest UI interface displays a module graph for the file packages/eslint-plugin/rules/array-bracket-spacing.test.ts. The graph shows various test files as nodes: general.ts, runner.ts, ast.ts, create-rule.ts, index.ts, array-bracket-spacing.ts, merge.ts, and parsers-flow.ts. Edges represent dependencies between these files. The graph is centered around array-bracket-spacing.ts, which has bidirectional edges to general.ts, runner.ts, ast.ts, and merge.ts. There are also edges from create-rule.ts to array-bracket-spacing.ts, and from parsers-flow.ts to array-bracket-spacing.ts.

# 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...

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 getRequestMethodClass

getSocialPreviewCard isBuiltInNuxtCompatibilityVersion useSessionState

pluralizeByCount refreshDataName jsonStringifyCircular parseReadablePath

./composables/state-tabs.ts

getCategorizedTabs useAllRoutesName

./composables/client.ts

getColorMode showConnectionWarning useClient useClientHead useClientRoute useClientRouter useInjectionClient

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

getHslColorFromStringHash

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/defaultsignores	2
#3 > eslint/defaultsfies	2
#4 > eslint/defaultsfies-cjs	1
#5 > antfu/gitignore	37
Docs Copy name Filter by this rule	31
Set to error in this config Rule options Option defaults	2 108

# 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**

**List** **Grid**

<b>style/array-bracket-spacing</b>	Enforce consistent spacing inside array brackets
<b>style/arrow-parens</b>	Require parentheses around arrow function arguments
<b>style/arrow-spacing</b>	Enforce consistent spacing before and after the arrow in arrow functions
<b>style/block-spacing</b>	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

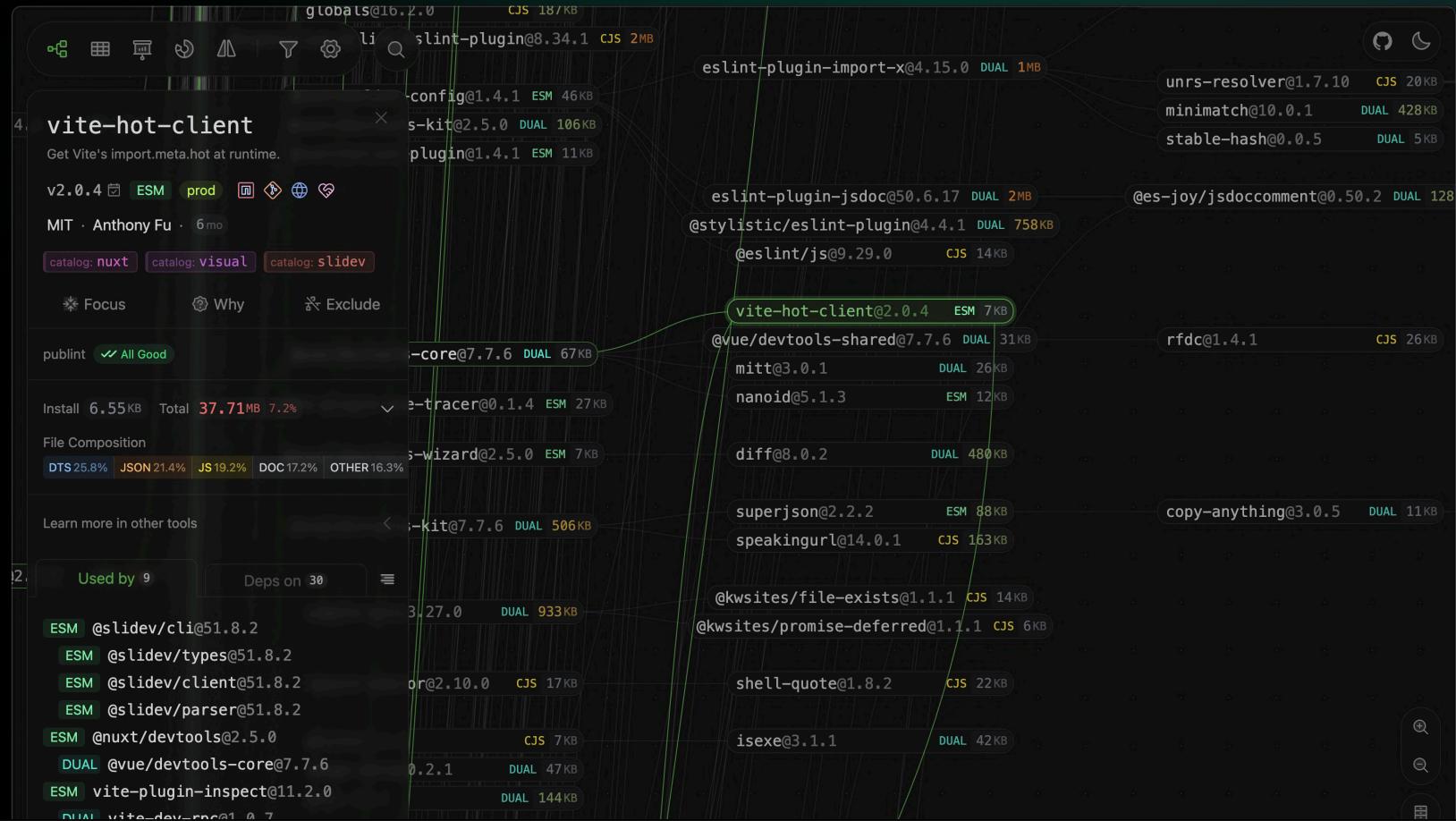
@antfu/utils@9.2.0 ESM ↗ 4 43KB 3mo	@unocss/reset@66.2.3 ESM ↗ 7 49KB 15d	birpc@2.4.0 DUAL ↗ 11 32KB 18d
case-police@2.0.0 DUAL 487KB 3mo	diff-match-patch-es@1.0.1 DUAL ↗ 3 143KB 6mo	fast-npm-meta@0.4.3 ESM ↗ 4 9KB 1mo
package-manager-detector@1.3.0 ESM ↗ 25 22KB 2mo	quansync@0.2.10 DUAL ↗ 43 23KB 4mo	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

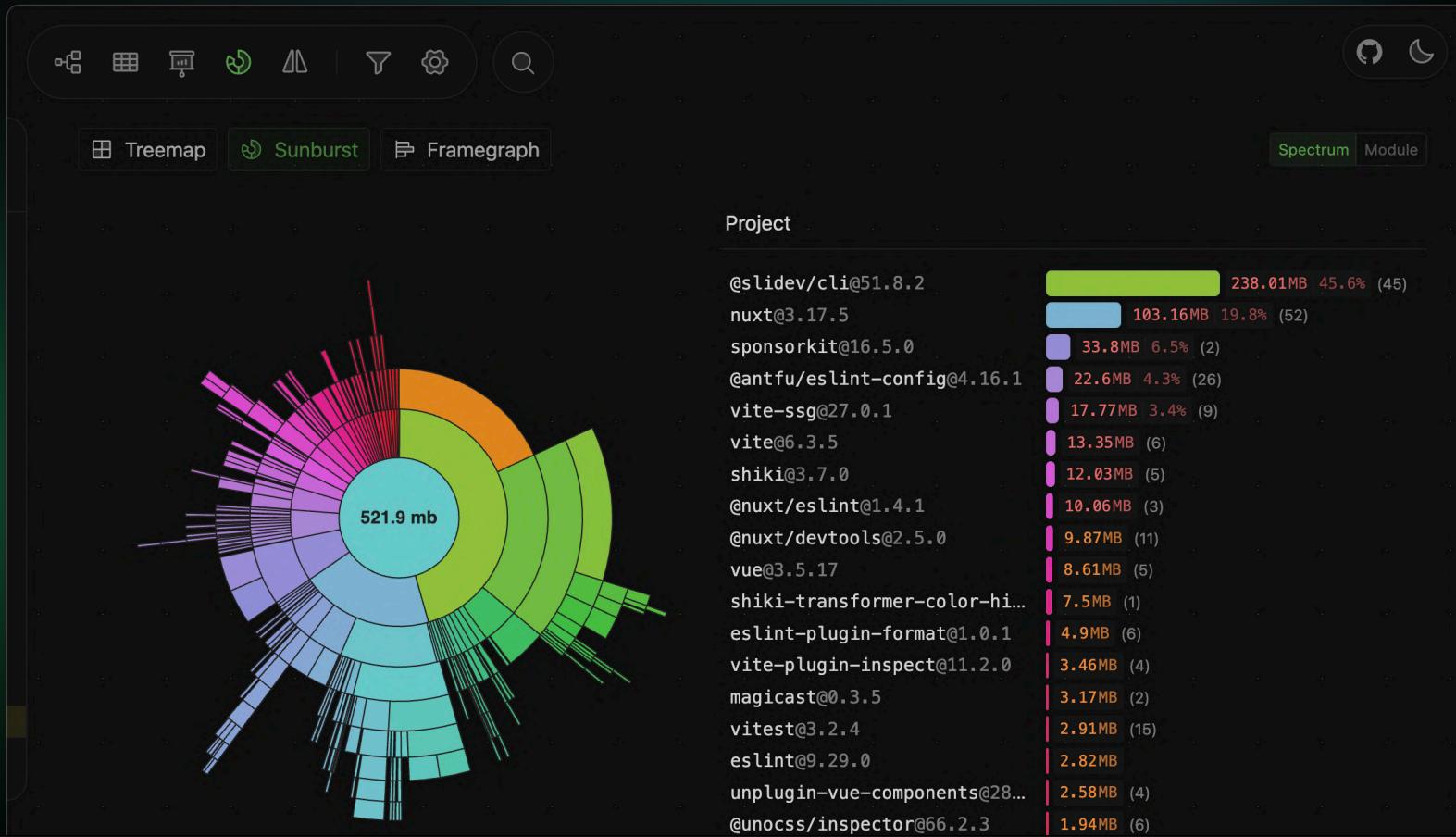


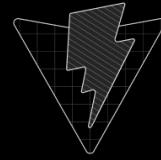
# Node Modules Inspector





# Node Modules Inspector





DEVTOOLS

# 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



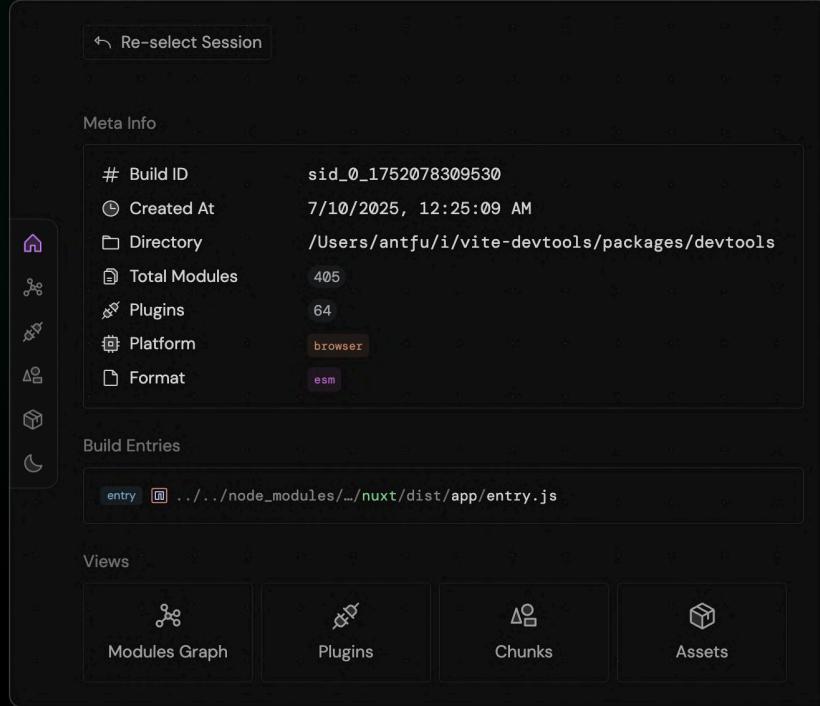
### 开发模式

展示开发模式下的模块分析和依赖关系



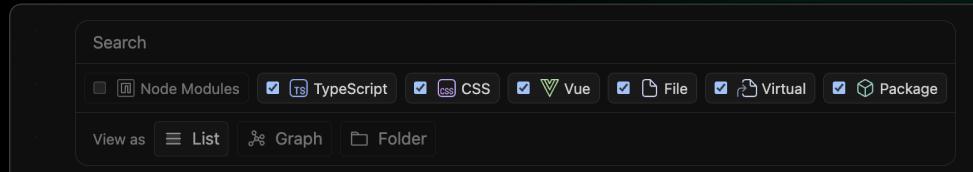
### DevTools Kit

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



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

# 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

The screenshot shows a dark-themed file explorer interface with a sidebar containing icons for Home, Recent, Favorites, and Settings.

**Search:** Node Modules, TypeScript, CSS, Vue, File, Virtual, Package

**View as:** List, Graph, Folder

**Project Root:**

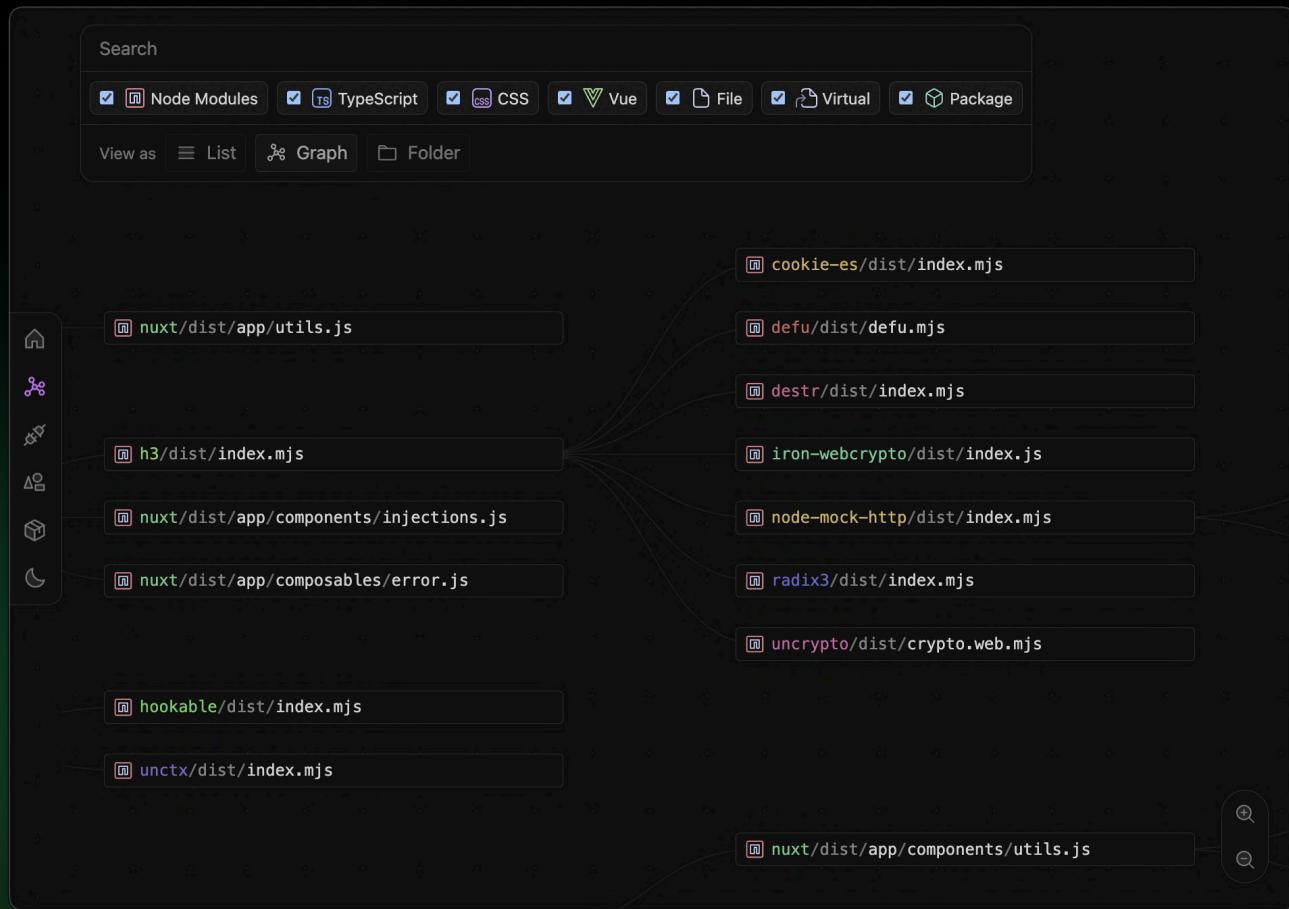
- ..../devtools-rpc/src
  - presets
    - ws
      - client.ts
      - index.ts
      - client.ts
      - index.ts
      - server.ts
  - src/app
  - \_uno.css

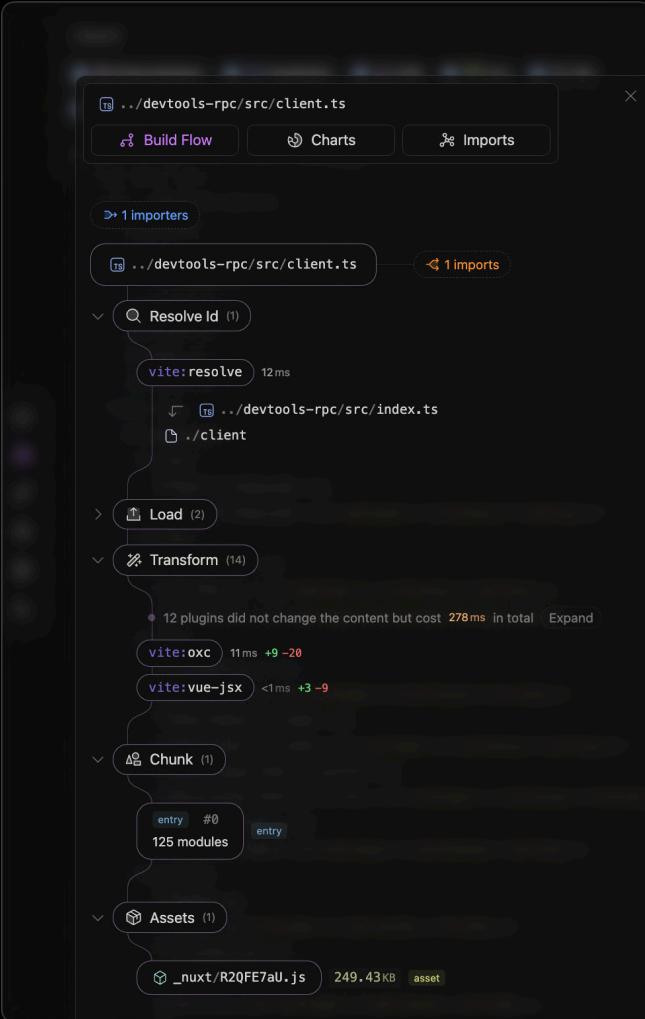
**Node Modules:**

**Virtual Modules:**

  - virtual:nuxt:/Users/antfu/i/vite-devtools/packages/devtools/src/.nuxt
    - app-component.mjs
    - app.config.mjs
    - components.plugin.mjs
    - css.mjs

# 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 a detailed build flow analysis for a file named `client.ts`. The interface includes tabs for `Build Flow`, `Charts`, and `Imports`.

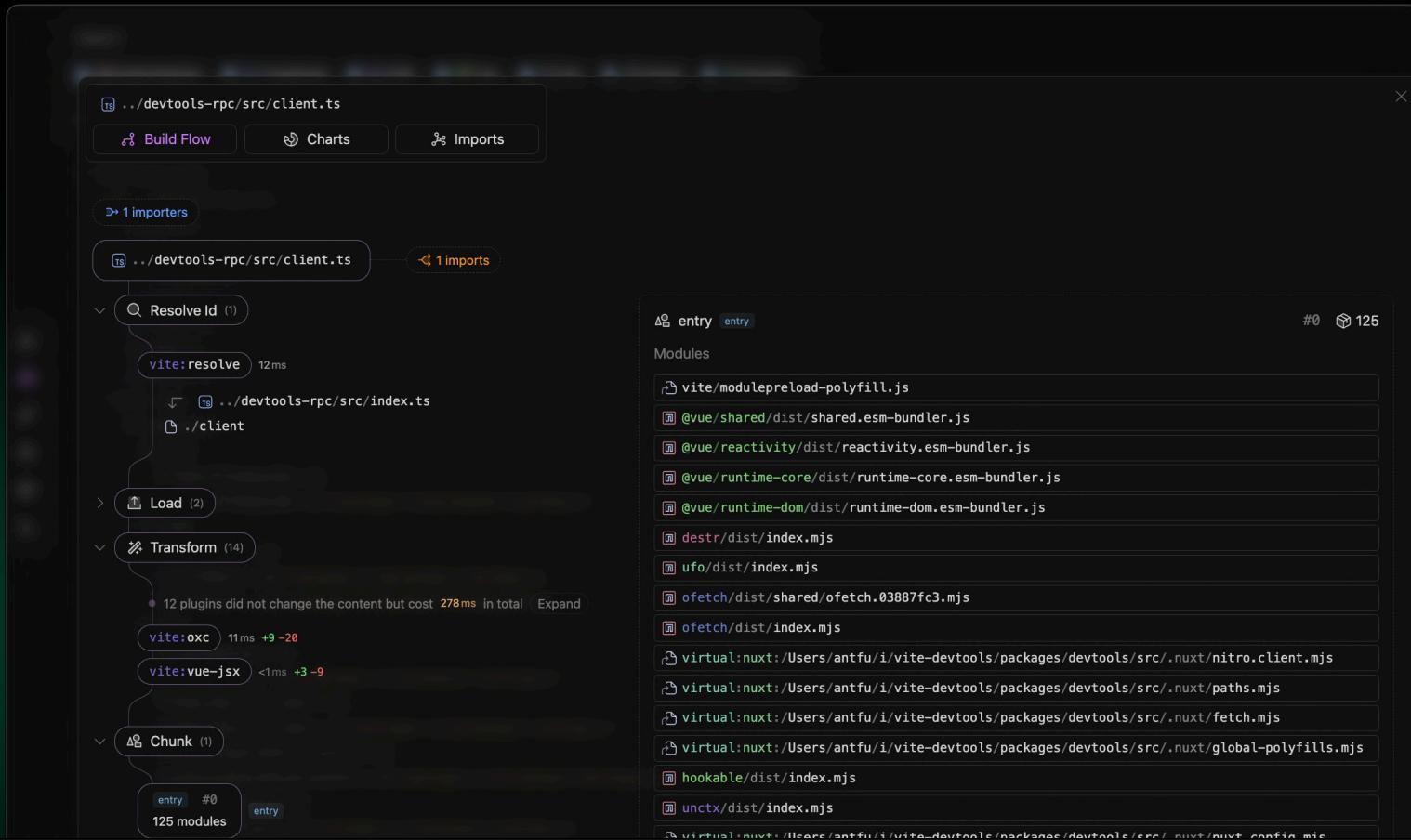
**Build Flow:**

- 1 importers:** `client.ts` has 1 importer.
- Resolve Id (1):** `vite:resolve` took 12ms. It resolved `index.ts` under `client`.
- Load (2):** `vite:oxc` took 11ms (+9 -20) and `vite:vue-jsx` took <1ms (+3 -9).
- Transform (14):** 12 plugins did not change the content but cost 278ms in total. This step is highlighted in red.
- Chunk (1):** An entry chunk was generated.

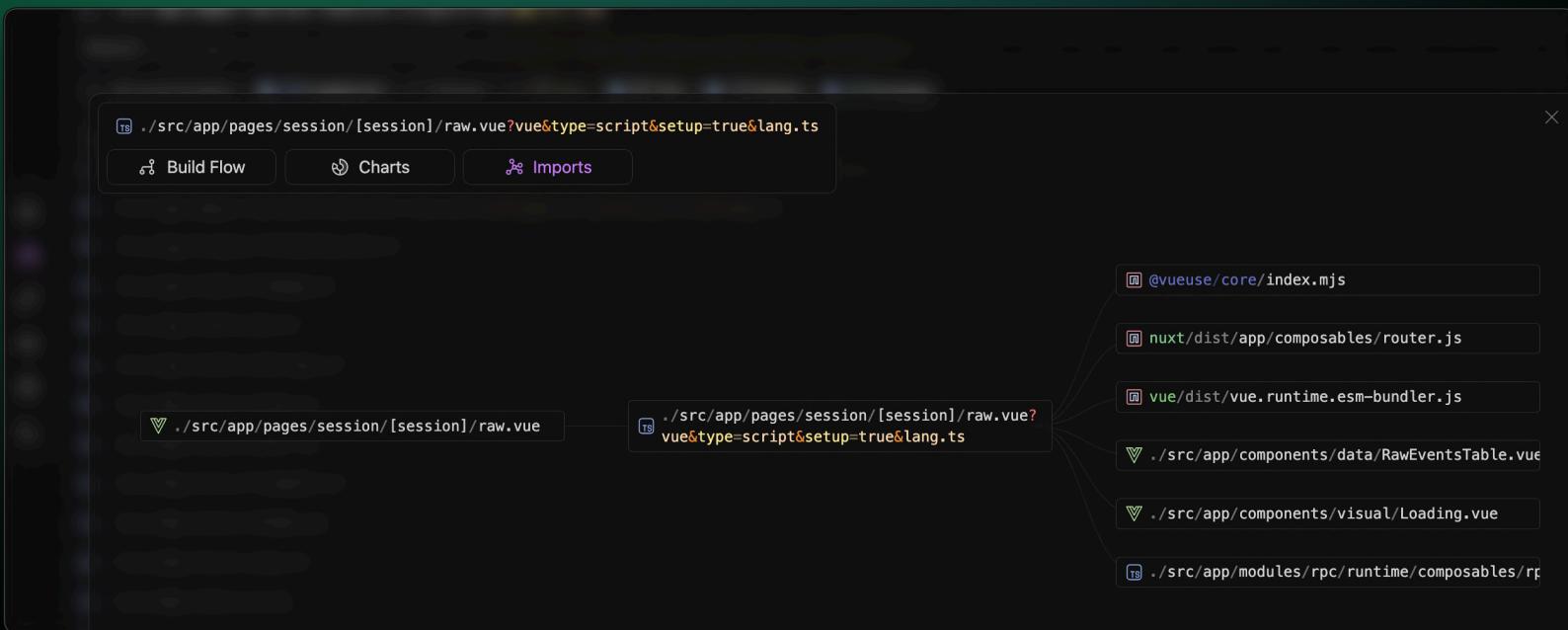
**vite:oxc Transform:**

```
1 import type { BirpcOptions } from 'birpc'
2 import { createBirpc } from 'birpc'
3
4 export function createRpcClient<ServerFunctions = Record<string, never>, ClientFunctions extends object = Record<string, never>>(
5   preset: BirpcOptions<ServerFunctions>,
6   options: {
7     rpcOptions?: Partial<BirpcOptions<ServerFunctions>,
8     functions: ClientFunctions,
9   }
10 ) {
11   const { preset, rpcOptions = {} } = options
12   return createBirpc<ServerFunctions, ClientFunctions>(
13     ...preset,
14     ...options,
15     ...timeout: -1,
16     ...rpcOptions,
17   )
18 }
19
20 }
```

# 分包信息

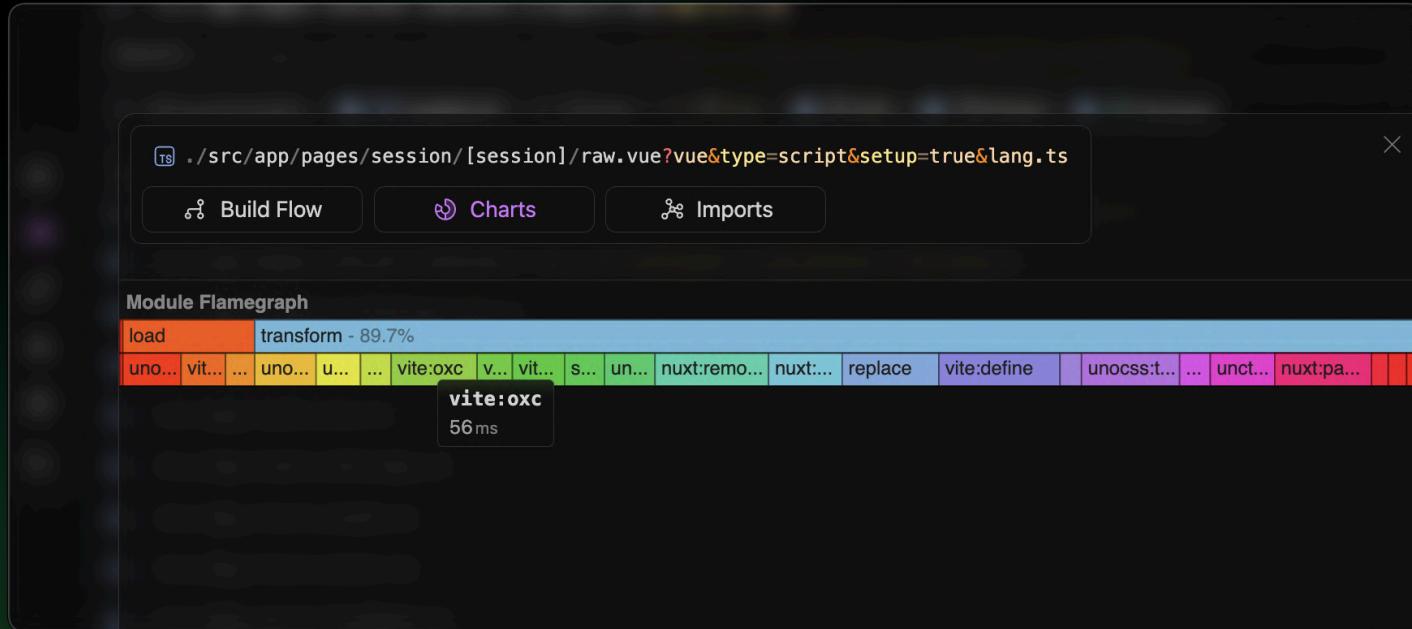


# 模块依赖关系图



# 性能消耗图表

WIP



Extensibility  
可扩展性

# 😊 Your DevTools?

模块化、可组合、互相协作



# ⚠ DevToolsKit



 DEVTOOLS



vitejs/devtools

# 感谢

幻灯片在 [antfu.me](http://antfu.me)