VS Code Journey

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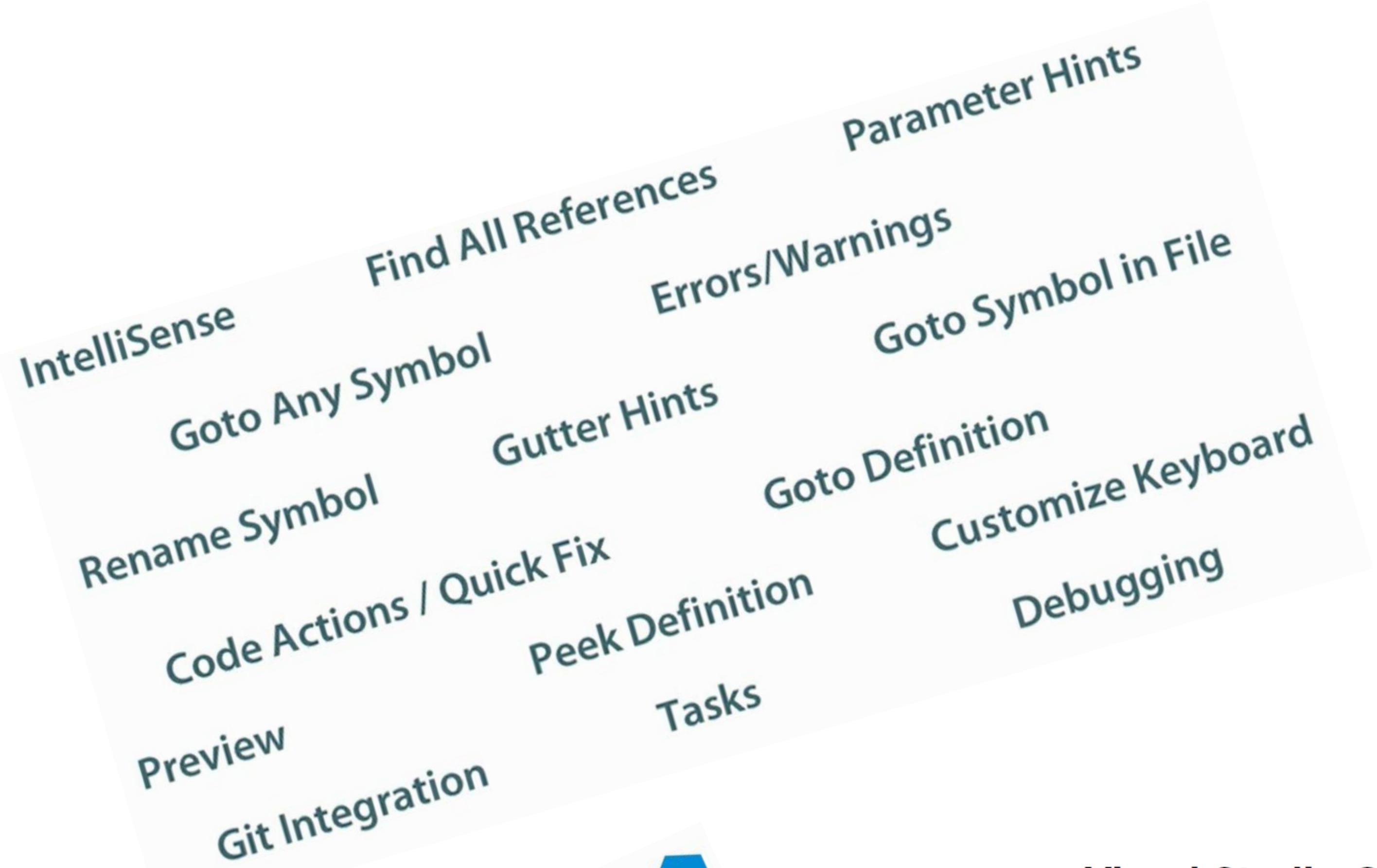
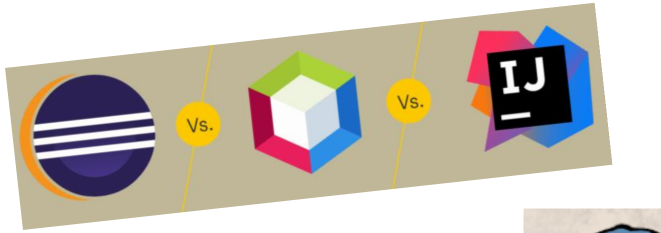
Agenda

- □ Why VSCode
- □ Getting Started
- □ Some Refactorings
- □ Debugging Experience
- □ Themes, Preferences
- □ Keyboard Shortcuts
- □ Font Ligatures
- □ Handy Extensions



IntelliSense
Find All References
Parameter Hints
Goto Any Symbol
Errors/Warnings
Goto Symbol in File
Rename Symbol
Gutter Hints
Goto Definition
Customize Keyboard
Code Actions / Quick Fix
Peek Definition
Debugging
Preview
Tasks
Git Integration



Visual Studio Code
Visual Studio
Eclipse
Sublime Text
Atom
Vim
Emacs
IntelliJ IDEA
AWS Cloud9
(etc.)

Why VSCode

❖ Fast, Lightweight and Powerful and Cross Platform (Mac and Win, ..)
❖ Coding Fast, multi-instance, customizable

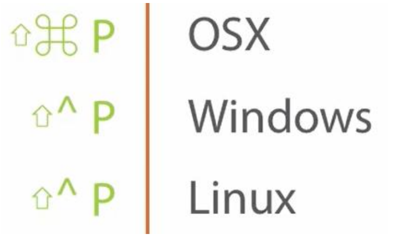
How VSCode designed - 3 main parts

✓ UI Framework (Electron[Atom Shell], e.g. Atom builds on it)
✓ Editor (Monaco) (also used in IE, OneDrive, ..)
✓ Intellisense, Tooling, Debugging [for lang. features] (Typescript server ..)

Comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).

> Visual studio Code a **new choice** of tool that **combines** the **simplicity** of a code editor with what **developers need for** their code-editor-debug cycle.
> **- Eric Gamma (GoF Author)**

Why VSCode



⇧⌘P	OSX
⇧^P	Windows
⇧^P	Linux

- Fast, Lightweight and Powerful and **Cross Platform** (Mac and Win, ..)
- Coding Fast, multi-instance (multiple WS)

- How VSCode designed - **3 main parts**

✓ UI Framework (Electron[Atom Shell], e.g. Atom builds on it)
✓ Editor (Monaco) (also used in IE, OneDrive, ..)
✓ Intellisense, Tooling, Debugging [for lang. features] (Typescript server ..)

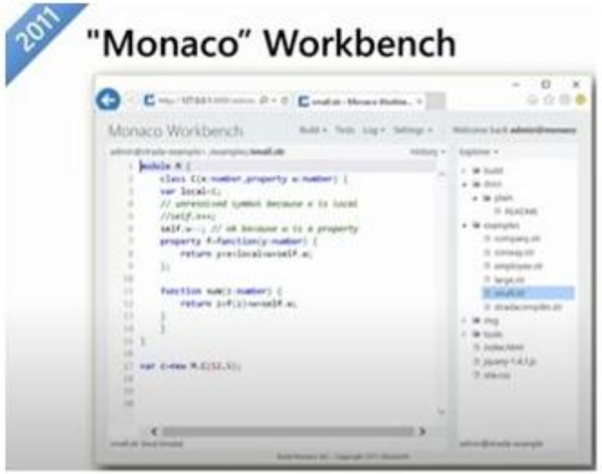
ELECTRON

TypeScript

OmniSharp
Roslyn

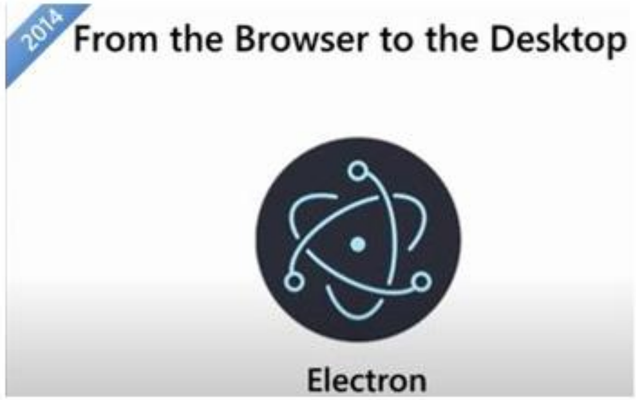
Comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).

Visual studio Code a **new choice** of tool that **combines** the **simplicity** of a code editor with what **developers need** for their code-editor-debug cycle.
- Eric Gamma (GoF Author)



2011 "Monaco” Workbench

2013 Visual Studio Online "Monaco"



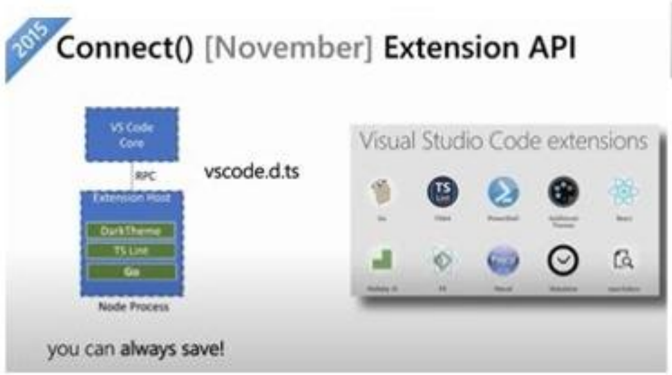
2014 From the Browser to the Desktop

Electron

2015 //build [May] VS Code Preview

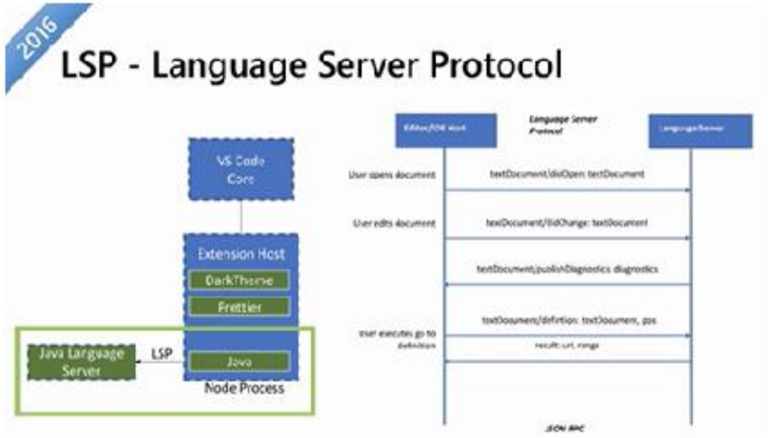
Announcing
Visual Studio Code

Code optimized editor
Intellisense, debugging, GIT
Windows + Mac + Linux



2015 Connect() [November] Extension API

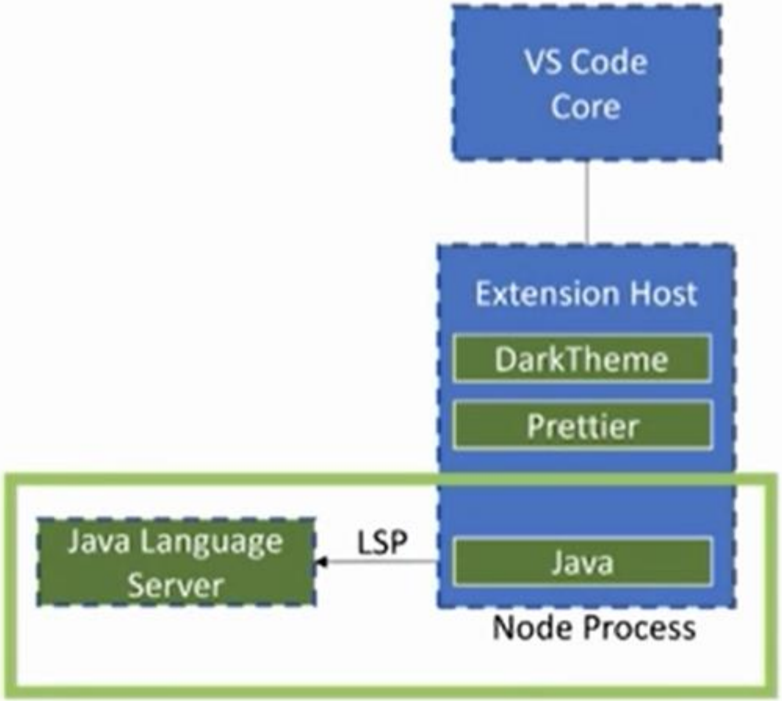
you can always save!



2016 LSP - Language Server Protocol

2016

LSP - Language Server Protocol



VS Code Core

Extension Host

DarkTheme

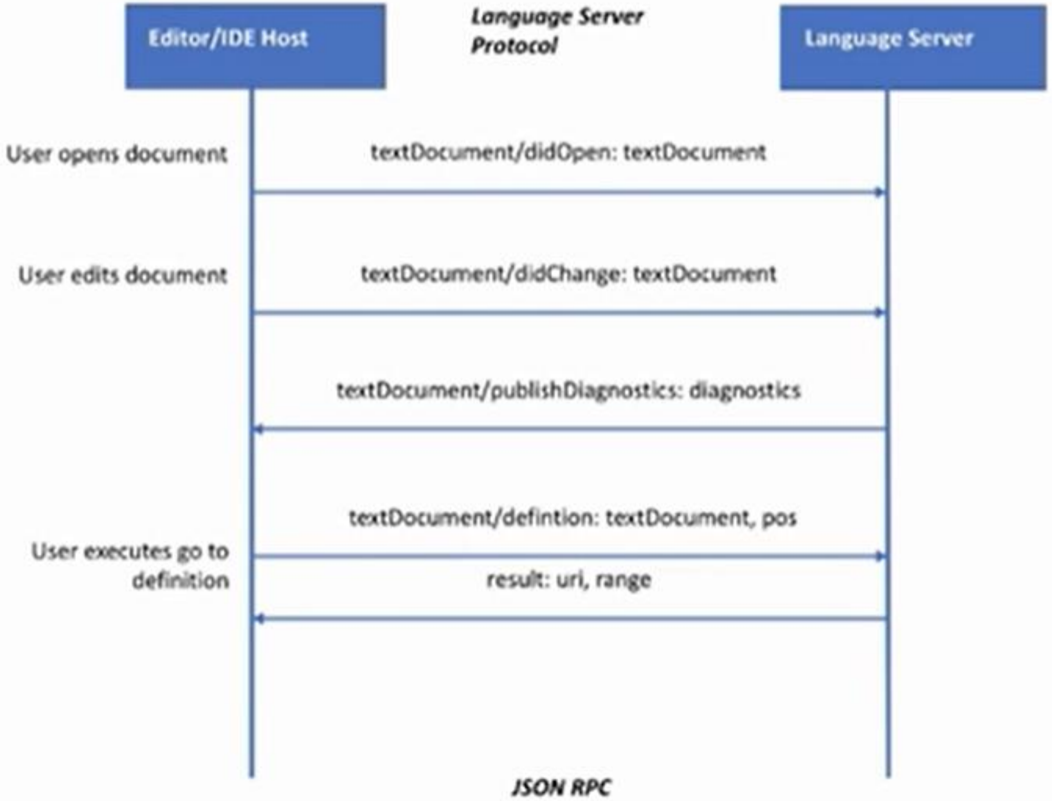
Prettier

Java

LSP

Java Language Server

Node Process



Editor/IDE Host

Language Server Protocol

Language Server

User opens document

textDocument/didOpen: textDocument

User edits document

textDocument/didChange: textDocument

textDocument/publishDiagnostics: diagnostics

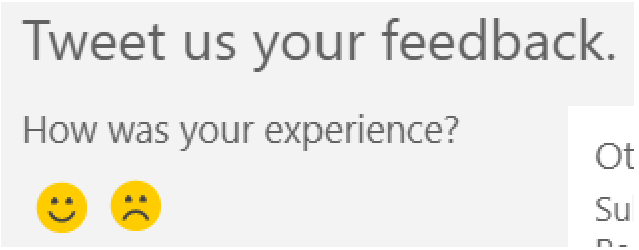
textDocument/defintion: textDocument, pos

User executes go to definition

result: uri, range

JSON RPC

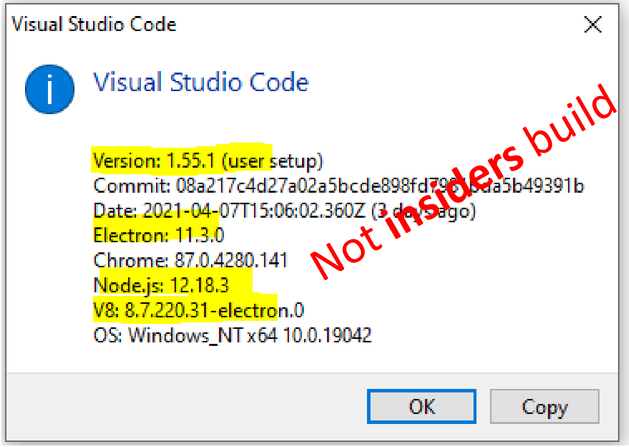
Getting Started



Tweet us your feedback.

How was your experience?

>code .
>code-insiders .



Visual Studio Code

Visual Studio Code

```
Version: 1.55.1 (user setup)
Commit: 08a217c4d27a02a5bcde898fd7981bda5b49391b
Date: 2021-04-07T15:06:02.360Z (3 days ago)
Electron: 11.3.0
Chrome: 87.0.4280.141
Node.js: 12.18.3
V8: 8.7.220.31-electron.0
OS: Windows_NT x64 10.0.19042
```

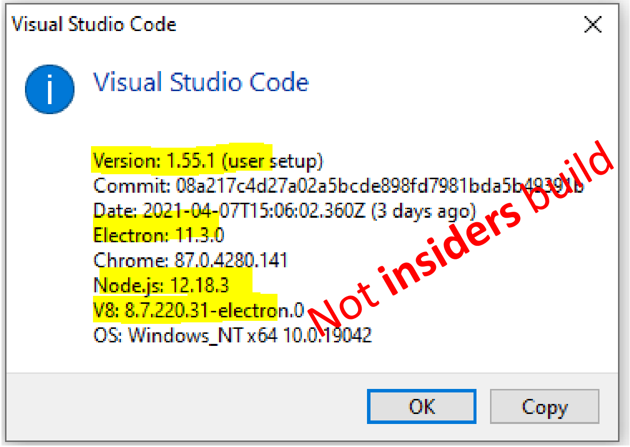
Not **insiders** build

Single and Multi Instances

- code .
- code about.txt **–r**
- code **-g** caw.cbl:163:23
- code -n --goto C:\workspace\che-che4z-lsp-for-cobol\clients\cobol-lsp-vscode-extension\Readme.md:112:70
- code index.html style.css doc\readme.md //like in Linux
- code --telemetry, code --help (lang, disable extension, diff, …)
- code C:\workspace-JavaNew\ilki -n

Getting Started with VSCode

>code .
>code-insiders .



Visual Studio Code

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Node.js: 12.18.3
V8: 8.7.220.31-electron.0
OS: Windows_NT x64 10.0.19042
```

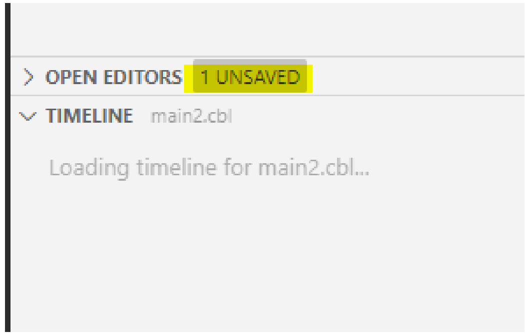
Not insiders build

Single and Multi Instances

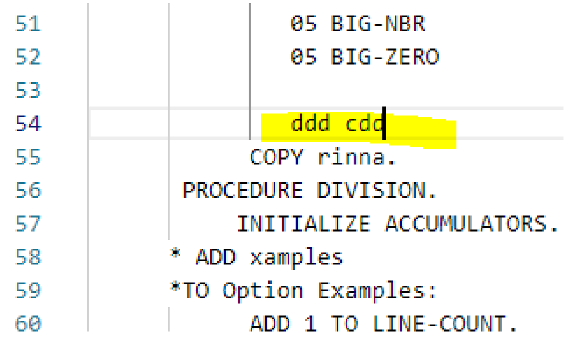
- code .
- code about.txt **-r** //opens any file in last active instance
- code index.html style.css doc\readme.md //all created automatically
- code **-g** package.json:20:18 //opens a file at a <line>:<column?>
- code c:\workspace\java-and-ts-tests\fe-tests\jest-tests **-n** //opens path in **new instance**

- Language Features (Intellisense, coloring, linting, outline, Emmets - docs.emmet.io)
- Layout, Explorer, Editing, Saving, Searching, File Nav., Command P.

Auto Save (later we make toggle)



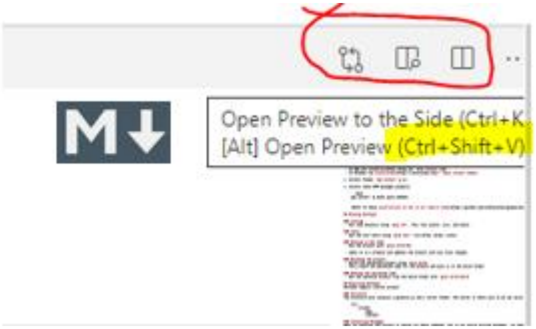
Loading timeline for main2.cbl...



```
                05 BIG-NBR
                05 BIG-ZERO

                ddd cdd
             COPY rinna.
        PROCEDURE DIVISION.
            INITIALIZE ACCUMULATORS.
       * ADD xamples
       *TO Option Examples:
             ADD 1 TO LINE-COUNT.
```

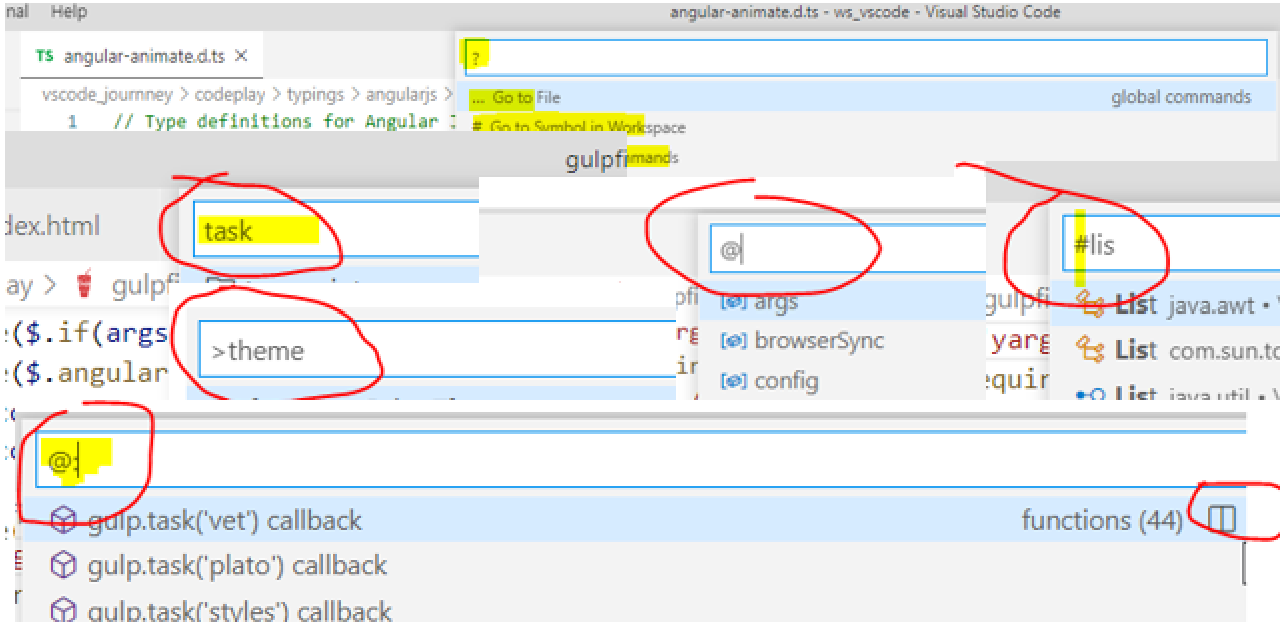
Context Sensitive buttons



Open Preview to the Side (Ctrl+K
[Alt] Open Preview (Ctrl+Shift+V)

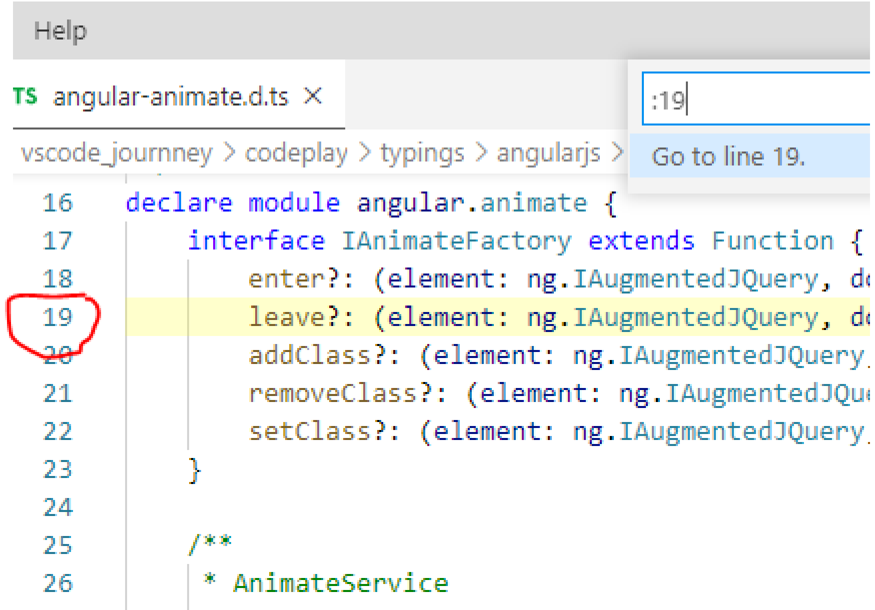
Getting Started

- ❑ **Keystrokes** - Just remember File Navigation (CMD + P), (CMD+PP), type ?, :, #, @, @:, !, >, >xzy, or (CMD + SHIFT + P) @ or @:<editor>. CMD and ,+. <num>



angular-animate.d.ts - ws_vscode - Visual Studio Code

```
// Type definitions for Angular
```



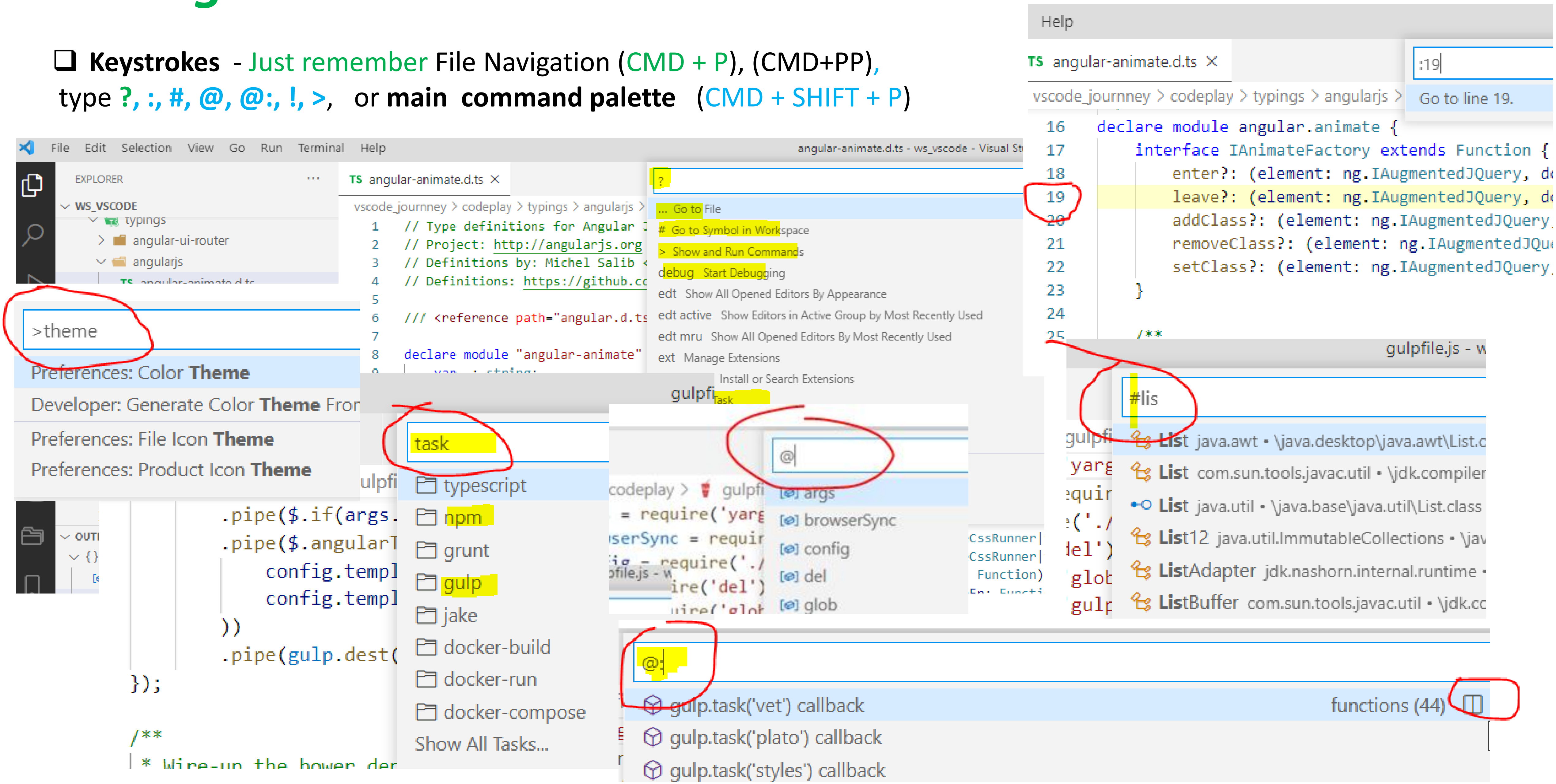
```
declare module angular.animate {
    interface IAnimateFactory extends Function {
        enter?: (element: ng.IAugmentedJQuery, d
        leave?: (element: ng.IAugmentedJQuery, d
        addClass?: (element: ng.IAugmentedJQuery,
        removeClass?: (element: ng.IAugmentedJQu
        setClass?: (element: ng.IAugmentedJQuery,
    }

    /**
     * AnimateService
```

Getting Started

[CMD + P] then :<line> or :<line:column>

- ❑ **Keystrokes** - Just remember File Navigation (CMD + P), (CMD+PP), type **?, :, #, @, @:, !, >**, or **main command palette** (CMD + SHIFT + P)



Help
TS angular-animate.d.ts ×
vscode_journney > codeplay > typings > angularjs >

:19

Go to line 19.

```
declare module angular.animate {
    interface IAnimateFactory extends Function {
        enter?: (element: ng.IAugmentedJQuery, d
        leave?: (element: ng.IAugmentedJQuery, d
        addClass?: (element: ng.IAugmentedJQuery
        removeClass?: (element: ng.IAugmentedJQu
        setClass?: (element: ng.IAugmentedJQuery
    }

    /**
```

File Edit Selection View Go Run Terminal Help
angular-animate.d.ts - ws_vscode - Visual St
EXPLORER ...
WS_VSCODE
typings
angular-ui-router
angularjs
TS angular-animate.d.ts ×
vscode_journney > codeplay > typings > angularjs >
OUTL

```
// Type definitions for Angular J
// Project: http://angularjs.org
// Definitions by: Michel Salib <
// Definitions: https://github.co

/// <reference path="angular.d.ts

declare module "angular-animate"
    var _: string;
```

?

- ... Go to File
- # Go to Symbol in Workspace
- > Show and Run Commands
- debug Start Debugging
- edt Show All Opened Editors By Appearance
- edt active Show Editors in Active Group by Most Recently Used
- edt mru Show All Opened Editors By Most Recently Used
- ext Manage Extensions
- Install or Search Extensions
- task

>theme

- Preferences: Color Theme
- Developer: Generate Color Theme Fro
- Preferences: File Icon Theme
- Preferences: Product Icon Theme

task

- typescript
- npm
- grunt
- gulp
- jake
- docker-build
- docker-run
- docker-compose
- Show All Tasks...

```
        .pipe($.if(args.
        .pipe($.angularT
            config.templ
            config.templ
        ))
        .pipe(gulp.dest(
});

/**
 * Wire-up the bower dep
```

```
= require('yarg
serSync = requir
ig = require('./
ire('del')
uire('glob
```

@

- [e] args
- [e] browserSync
- [e] config
- [e] del
- [e] glob

```
CssRunner|
CssRunner|
Function)
Fn: Functi
```

#lis

- List java.awt • \java.desktop\java.awt\List.c
- List com.sun.tools.javac.util • \jdk.compiler
- List java.util • \java.base\java.util\List.class
- List12 java.util.ImmutableCollections • \jav
- ListAdapter jdk.nashorn.internal.runtime •
- ListBuffer com.sun.tools.javac.util • \jdk.cc

```
yarg
equir
('./
lel')
glob
gulp
```

@:

- gulp.task('vet') callback functions (44)
- gulp.task('plato') callback
- gulp.task('styles') callback

Some Refactorings

- ➢ Language Features (Intellisense, coloring, linting, outline, Emmets)
- ➢ Layout, Explorer, Editing, Saving, Searching, File Nav., Command P.

Bracket matching

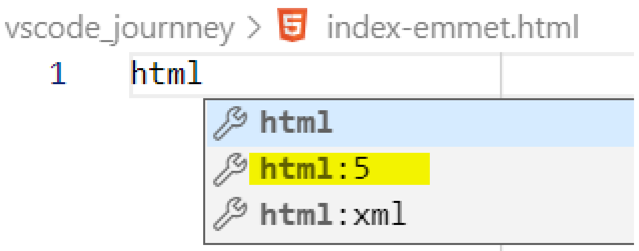
Selection

Cursors

Multi cursors（ctrl+F2, alt+click, progressive selection: ctlr+D, skip: ctrl+K） [shift+alt] vert

Intellisense

Parameter hints


vscode_journney > index-emmet.html

```
1    html
```

Emmet

Emmet（e.g. html,css） html:5, div>ul>li*5, | div.color, | div#idm, （JSish, React）, image-tricks, custom emmets emmets not for Angular, COBOL, .. then use Snippets. Also share it: ~\User\snippets | local）

Snippets

Go to definition or symbol

Gutter indicators

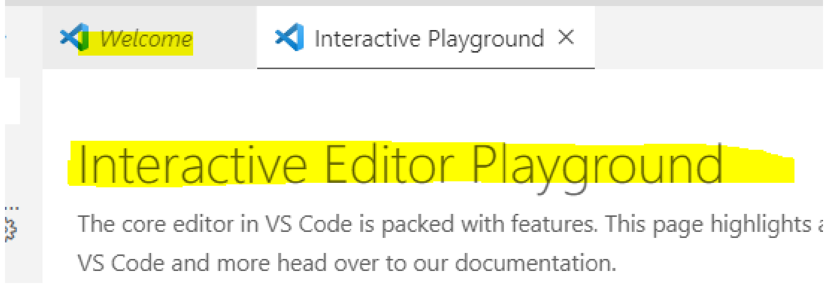
Peek

Hover

Renaming

Code actions

Errors / Warnings

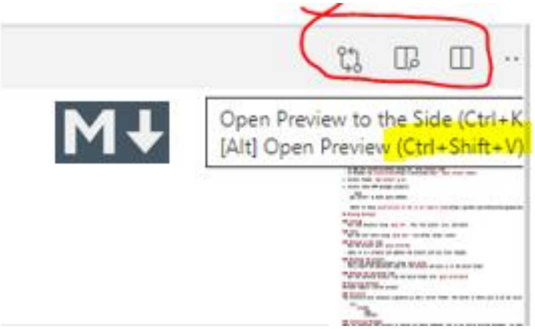


Interactive Editor Playground

The core editor in VS Code is packed with features. This page highlights a

VS Code and more head over to our documentation.

Context Sensitive buttons


Open Preview to the Side (Ctrl+K

[Alt] Open Preview (Ctrl+Shift+V)

Some Refactorings

Bracket matching

Selection

Cursors

Multi cursors（ctrl+F2, alt+click, progressive selection: ctlr+D, skip: ctrl+K） [shift+alt] vert

Intellisense

Intellisence is context aware ls-support

Parameter hints

Emmet

Emmet （e.g. html, ..）, e.g. div>ul>li*5, | div.color, | div#idm, （JSish, React）, image-tricks, custom emmets

Snippets

emmets not for Angular, COBOL ;) – then use Snippets. Also share it: ~\User\snippets | local）

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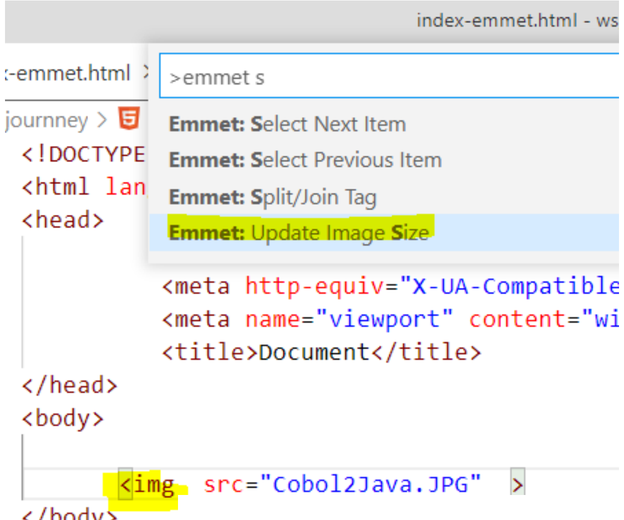
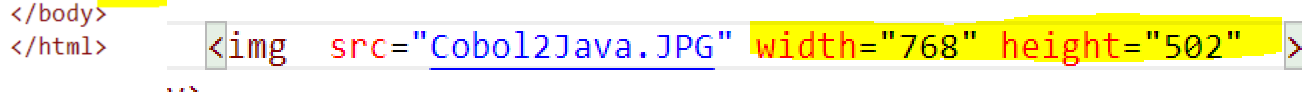
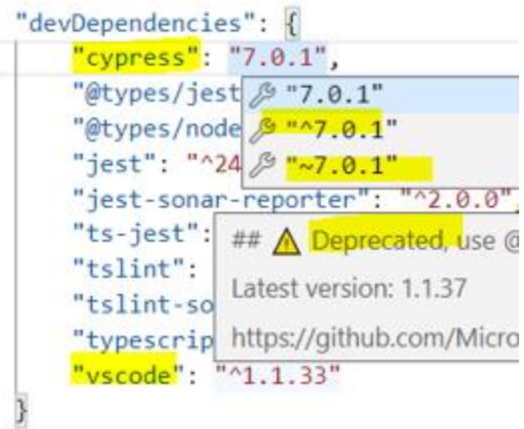


```
<!DOCTYPE
<html lan
<head>
      <meta http-equiv="X-UA-Compatible
      <meta name="viewport" content="wi
      <title>Document</title>
</head>
<body>

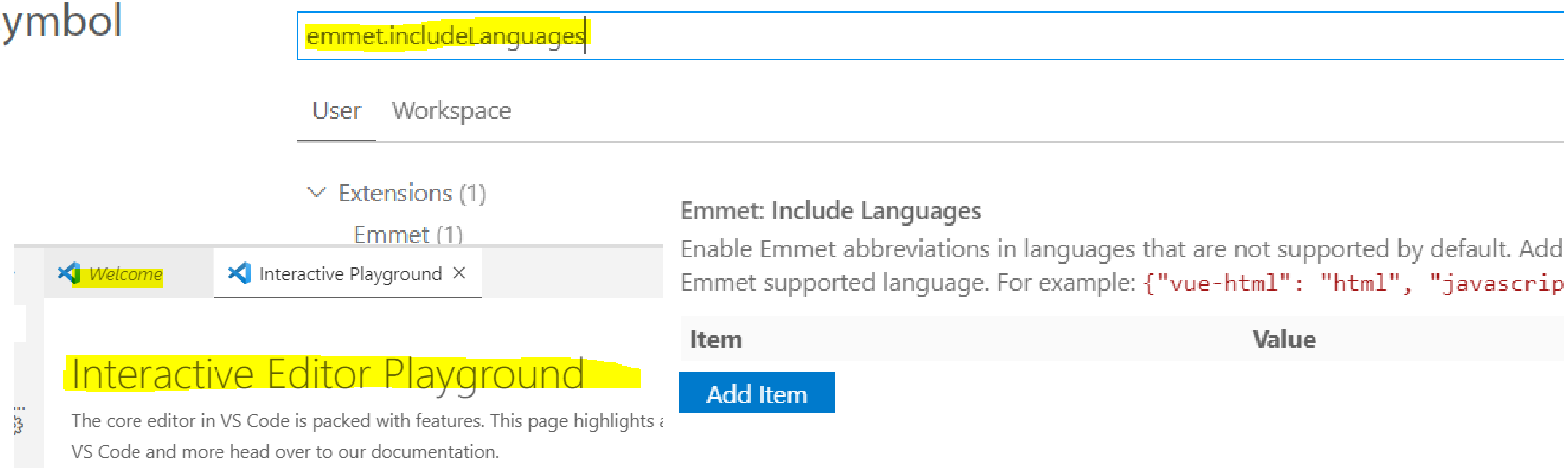
      <img  src="Cobol2Java.JPG" >
```



```
</body>
</html>
<img  src="Cobol2Java.JPG" width="768" height="502" >
```



```
"devDependencies": {
    "cypress": "7.0.1",
    "@types/jest   "7.0.1"
    "@types/node   "^7.0.1"
    "jest": "^24   "~7.0.1"
    "jest-sonar-reporter": "^2.0.0",
    "ts-jest":   ## ⚠ Deprecated, use @
    "tslint":    Latest version: 1.1.37
    "tslint-so
    "typescrip   https://github.com/Micro
    "vscode": "^1.1.33"
}
```



Emmet: Include Languages

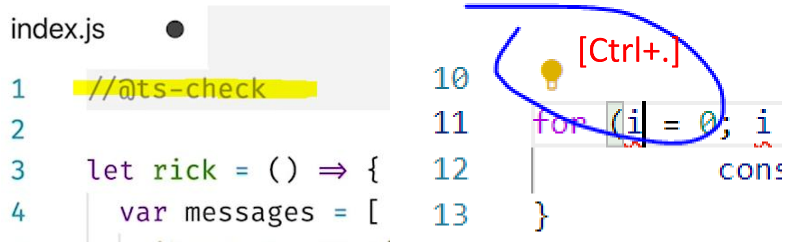
Enable Emmet abbreviations in languages that are not supported by default. Add Emmet supported language. For example: {"vue-html": "html", "javascrip

Item	Value

Interactive Editor Playground

The core editor in VS Code is packed with features. This page highlights a VS Code and more head over to our documentation.

Debugging Experience



index.js ●

```
//@ts-check

let rick = () => {
  var messages = [
```

[Ctrl+.]

```
for (i = 0; i
    cons
}
```

VSCode default TS Compiler: [**@ts-check**]: or per-prj implicitProjectConfig.**checkJS**: true

Debugger Extensions

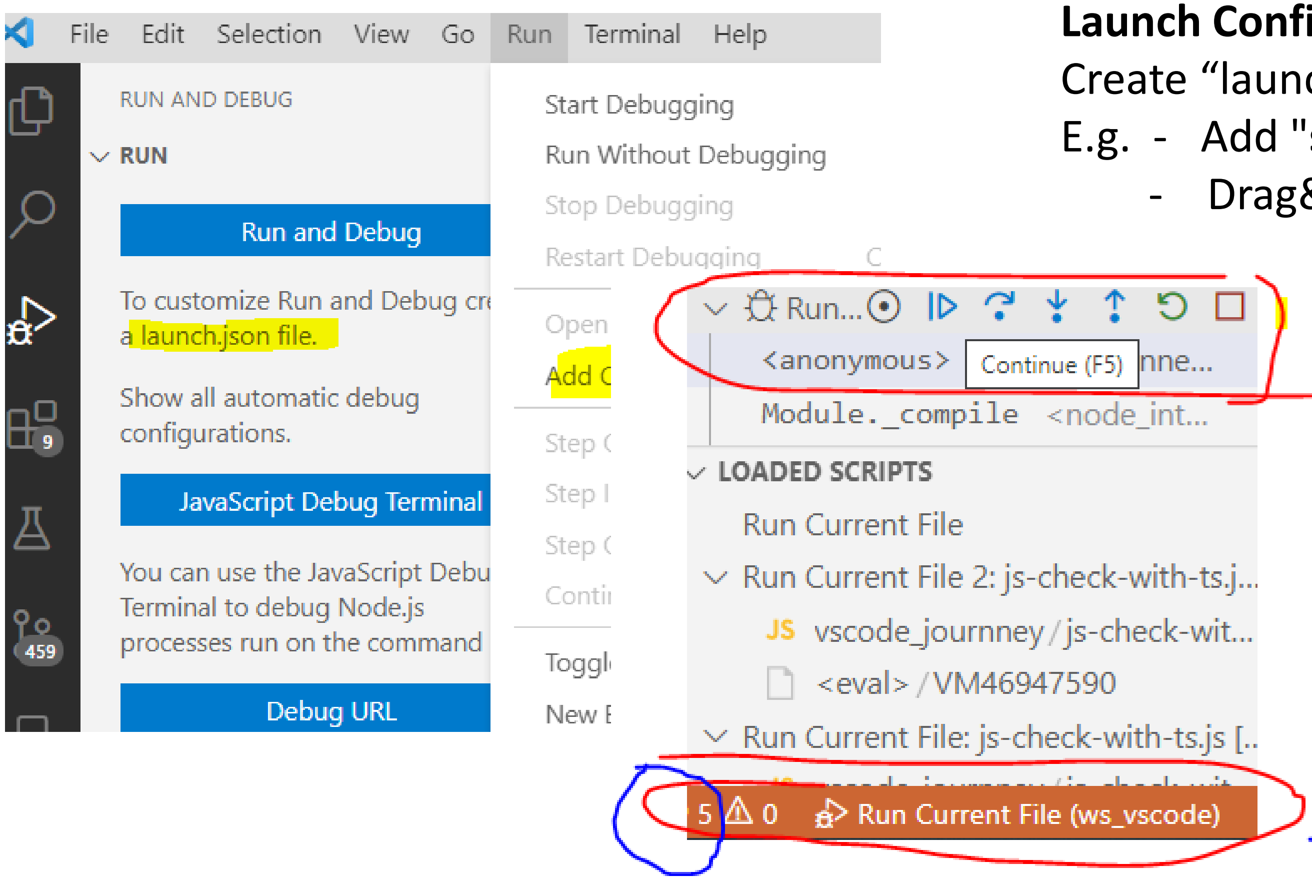
- Built-in debugging support for the Node.js runtime and can debug JS, TS, or any other that gets transpiled to JS
- To debug other languages and runtimes either search extensions or from menu **Run -> Install Additional Debuggers**

Launch Configuration (compound, .. DevTool-F12, ..)

Create “launch.json” either by ‘gear-icon’ or Run->Add Conf.

E.g. - Add "**stopOnEntry**": true

- Drag&drop for Execution point



To customize Run and Debug cr a launch.json file.

Show all automatic debug configurations.

You can use the JavaScript Debu Terminal to debug Node.js processes run on the command

<anonymous> nne...

Module._compile <node_int...

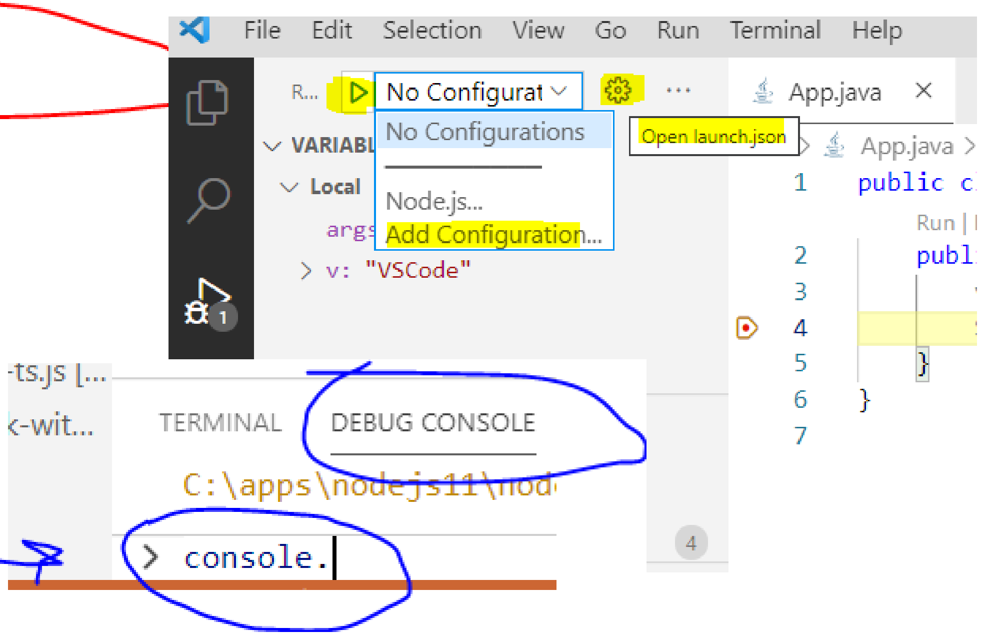
Run Current File

Run Current File 2: js-check-with-ts.j...

JS vscode_journney / js-check-wit...

<eval> / VM46947590

Run Current File: js-check-with-ts.js [..



v: "VSCode"

```
public c
publ
}
}
```

-ts.js [...

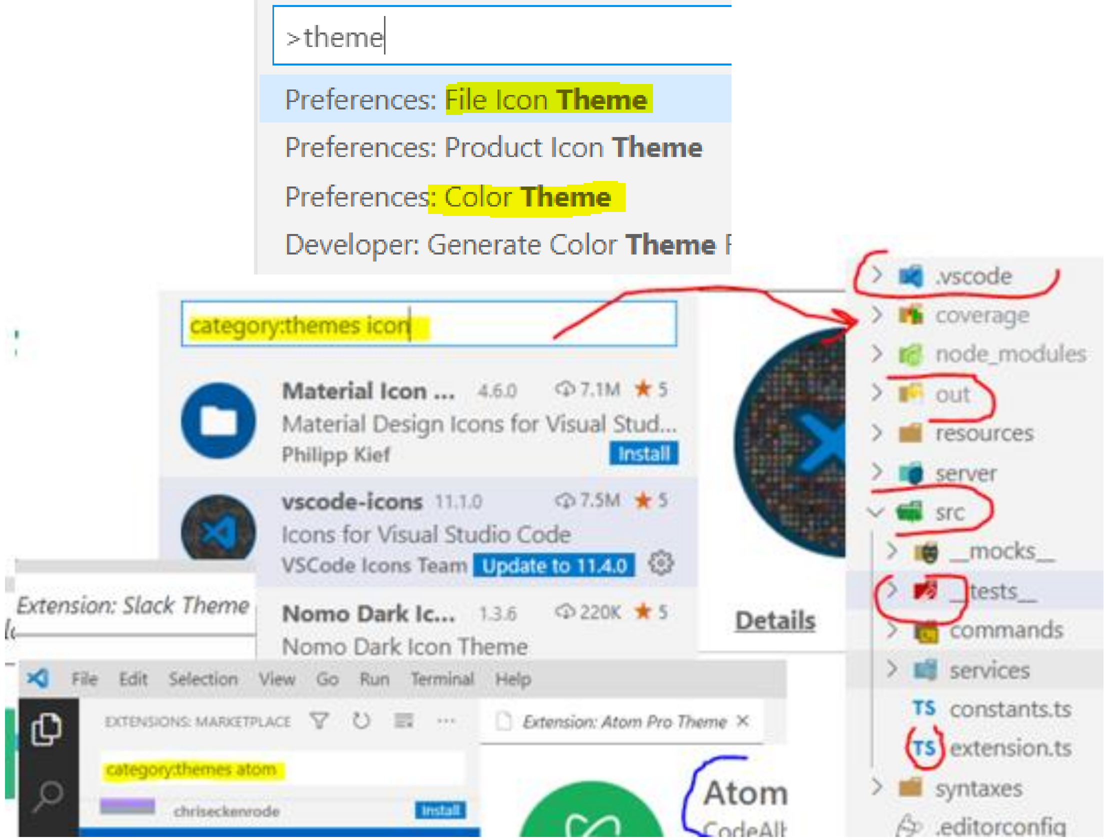
-wit...

```
C:\apps\nodejs11\nod
> console.
```

Themes, Preferences

Themes

(CMD + SHIFT + P) – Themes, icon themes
or just install from themes (on installed theme)



Customize Preferences (Settings)

When overriding, find default values by GUI

Settings precedence: Note that user-settings overrides default, and workspace-settings override user-setting.

Default	User	Workspace
Come with Code	All instances of Code	Per workspace
	~\settings.json	**.vscode\settings.json**

Note: VS Code extensions can also add their own custom settings and they will be visible under an **Extensions** section. E.g. **LSP ;)**

Keyboard shortcuts

File -> Preferences -> Keyboard Shortcuts, or search

Keybindings: Default, and Custom

Note: Check conflicts and use those extra (not binded) ones

ctrl+shift+u

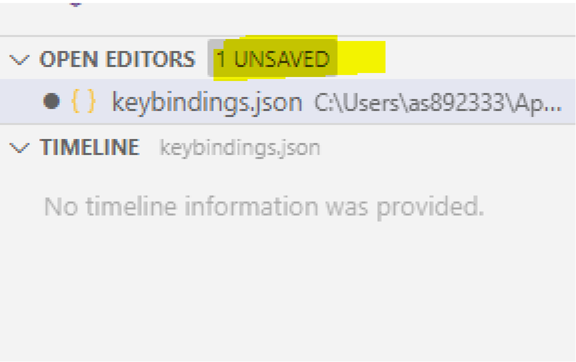
ctrl+shift+l

Rules: (key, when(debug, in Development, …), command)

```
{ "key": “F5",
“when“: “inDebugMode“,
"command":    "workbench.action.debug.play"}
```

```
{ "key": "ctrl+shift+alt+a",
  "command": "workbench.action.toggleAutoSave" }
```

C:\Users\as892333\AppData\Roaming\Code\User\keybindings.json

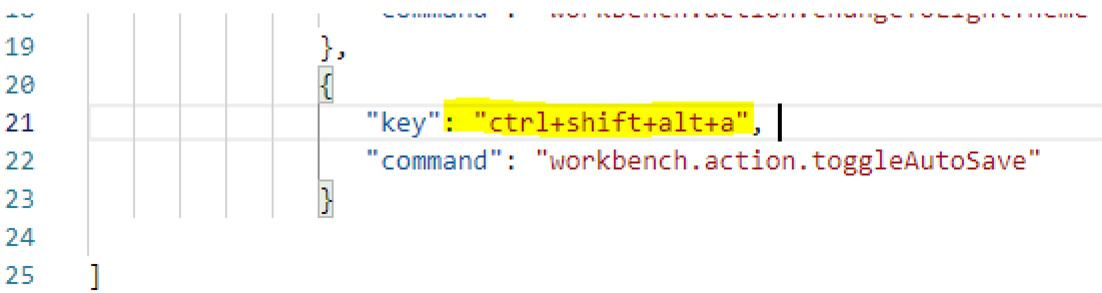


OPEN EDITORS 1 UNSAVED

● { } keybindings.json C:\Users\as892333\Ap...

TIMELINE keybindings.json

No timeline information was provided.



```
        },
        {
            "key": "ctrl+shift+alt+a",
            "command": "workbench.action.toggleAutoSave"
        }

]
```

Keyboard shortcuts

Keybindings, Default, and Custom (**shareable**)

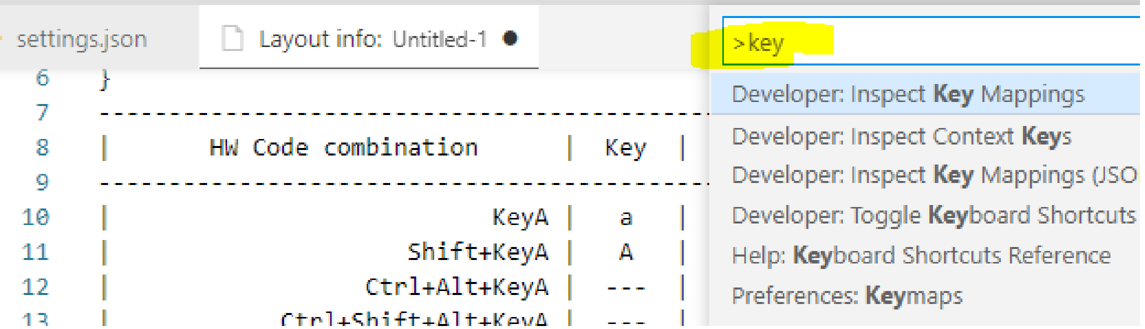
Note: Check conflicts and use those extra (not binded) ones

Rules:
(key, when(debug, idDevelopment, …), command)

{ "key": “F5",
“when“: “inDebugMode“,
"command": "workbench.action.debug.play"}

{ "key": "ctrl+shift+alt+a",
  "command": "workbench.action.toggleAutoSave" }

File -> Preferences -> Keyboard Shortcuts or search



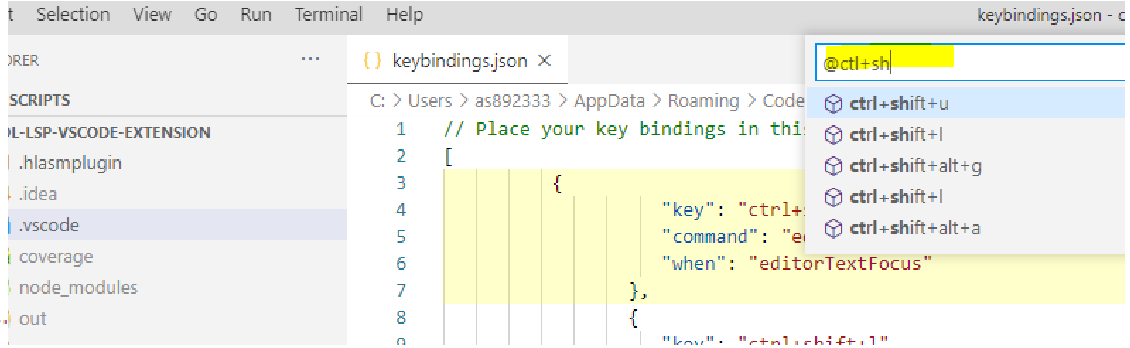
settings.json | Layout info: Untitled-1 ●

```
}
-----------------------------------------------
|         HW Code combination        |  Key  |
-----------------------------------------------
|                               KeyA |   a   |
|                         Shift+KeyA |   A   |
|                      Ctrl+Alt+KeyA |  ---  |
|                Ctrl+Shift+Alt+KeyA |  ---  |
```

>key

- Developer: Inspect Key Mappings
- Developer: Inspect Context Keys
- Developer: Inspect Key Mappings (JSO
- Developer: Toggle Keyboard Shortcuts
- Help: Keyboard Shortcuts Reference
- Preferences: Keymaps

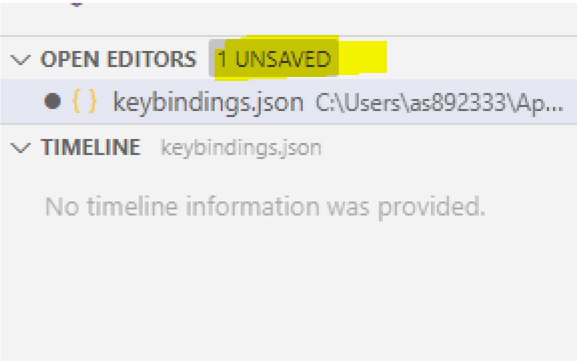
Double check if keybindings exists or use GUI



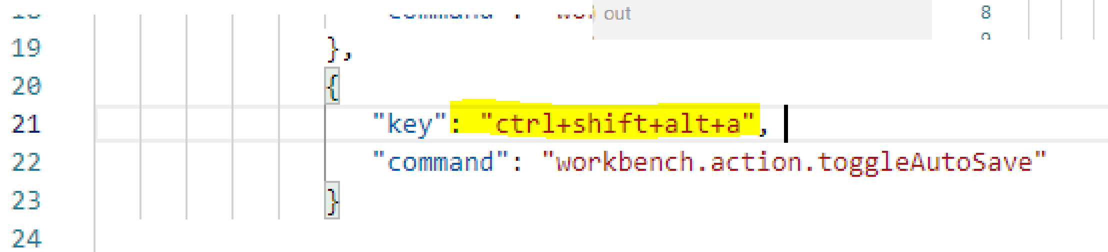
```
// Place your key bindings in thi
[
                {
                        "key": "ctrl+
                        "command": "e
                        "when": "editorTextFocus"
                },
                {
                        "key": "ctrl+shift+l"
```

@ctl+sh

- ctrl+shift+u
- ctrl+shift+l
- ctrl+shift+alt+g
- ctrl+shift+l
- ctrl+shift+alt+a

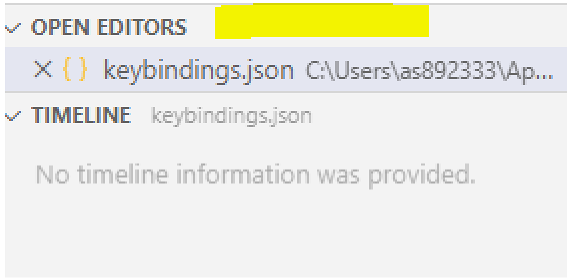


OPEN EDITORS 1 UNSAVED
● {} keybindings.json C:\Users\as892333\Ap...
TIMELINE keybindings.json
No timeline information was provided.

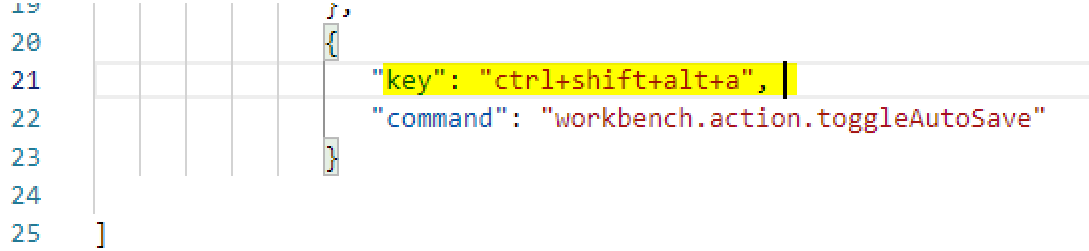


```
        },
        {
            "key": "ctrl+shift+alt+a",
            "command": "workbench.action.toggleAutoSave"
        }
]
```

Press [ctrl+shift+alt+a]



OPEN EDITORS
× {} keybindings.json C:\Users\as892333\Ap...
TIMELINE keybindings.json
No timeline information was provided.

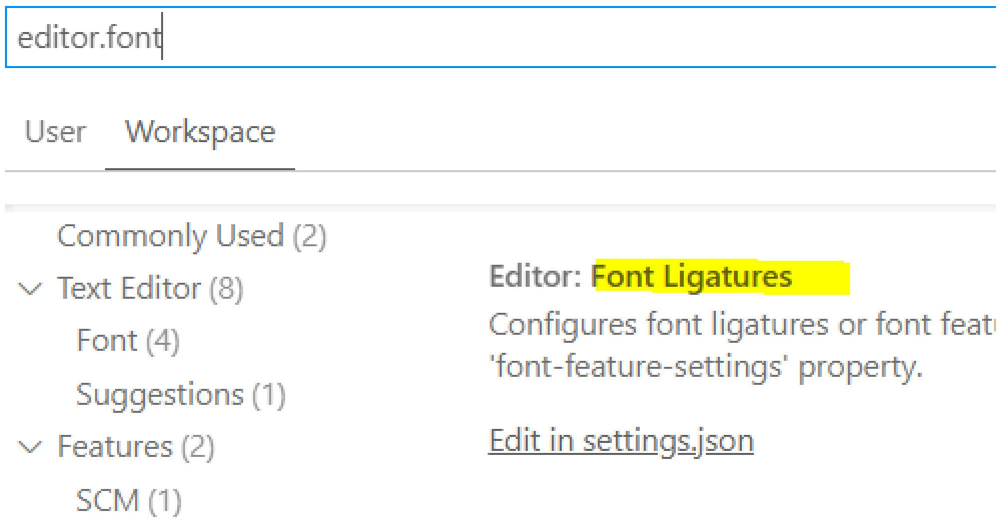


```
        },
        {
            "key": "ctrl+shift+alt+a",
            "command": "workbench.action.toggleAutoSave"
        }
]
```

Font Ligatures (custom fonts)

Search FiraCode: https://github.com/tonsky/FiraCode, https://fonts.google.com/specimen/Fira+Code

In writing and typography, a **ligature** occurs where two or more graphemes or letters are joined as a single glyph.

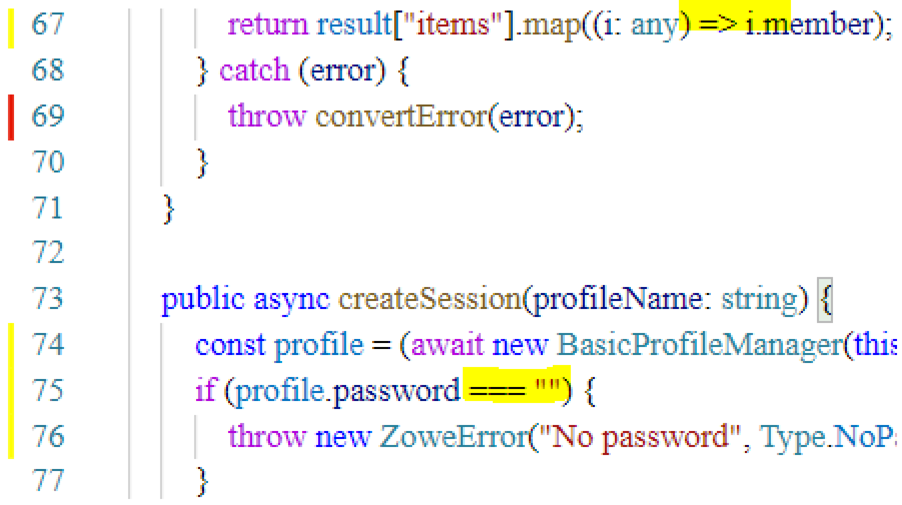


Editor: Font Ligatures

Configures font ligatures or font feat 'font-feature-settings' property.

```
"editor.fontLigatures": true,
"editor.inlineHints.fontFamily": "Fira Code“
```

e.g. fat arrows, 2equals, != (≠), === (≡) ...



```
            return result["items"].map((i: any) => i.member);
        } catch (error) {
            throw convertError(error);
        }
    }

    public async createSession(profileName: string) {
        const profile = (await new BasicProfileManager(this
        if (profile.password === "") {
            throw new ZoweError("No password", Type.NoP
        }
```

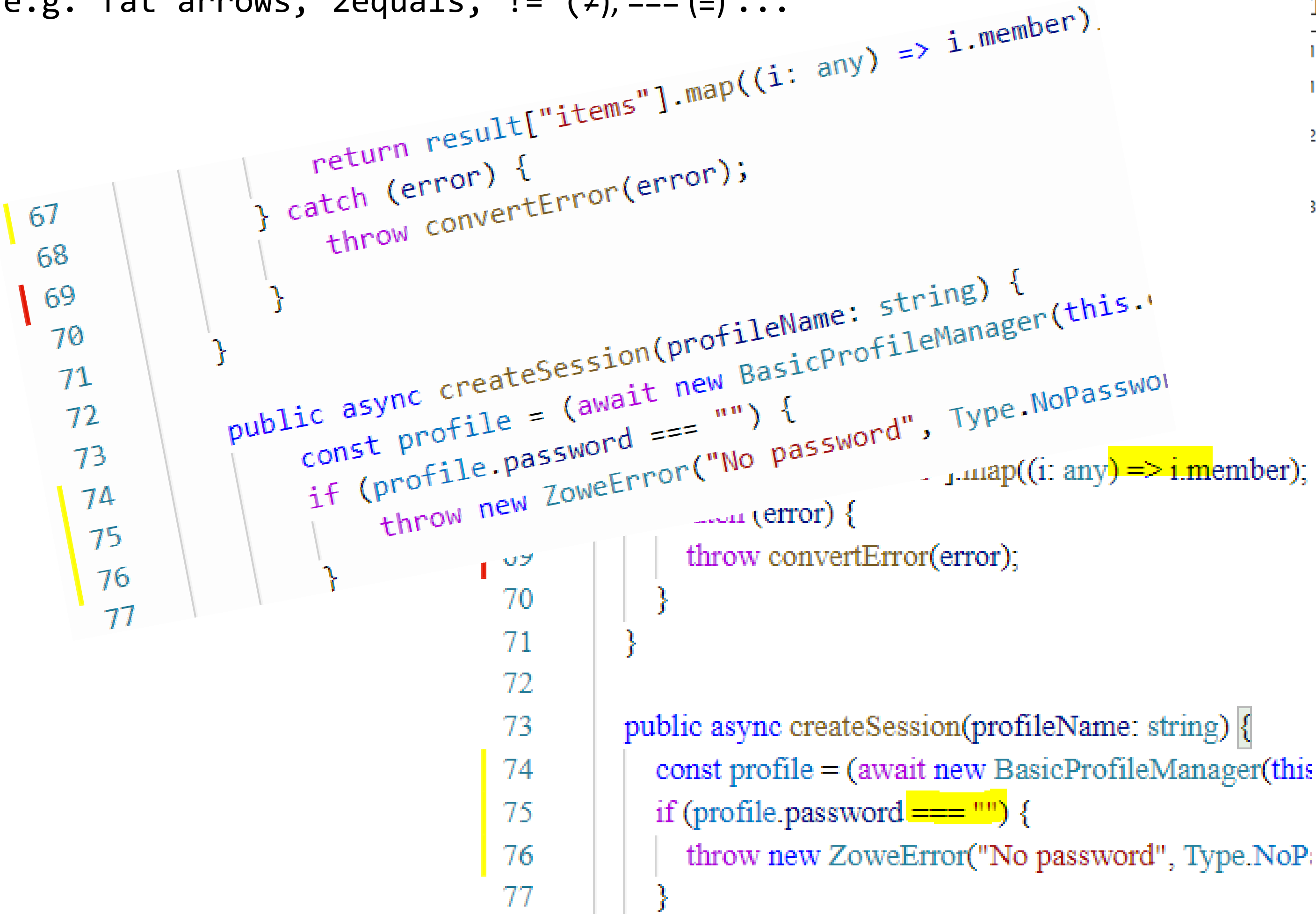
Even if you share your settings, code will be seen normally
Ligatures not impact

Font Ligatures (custom fonts)

Search FiraCode: https://github.com/tonsky/FiraCode also in Google: https://fonts.google.com/specimen/Fira+Code

```
"editor.fontLigatures": true,
"editor.inlineHints.fontFamily": "Fira Code“
```

e.g. fat arrows, 2equals, != (≠), === (≡) ...

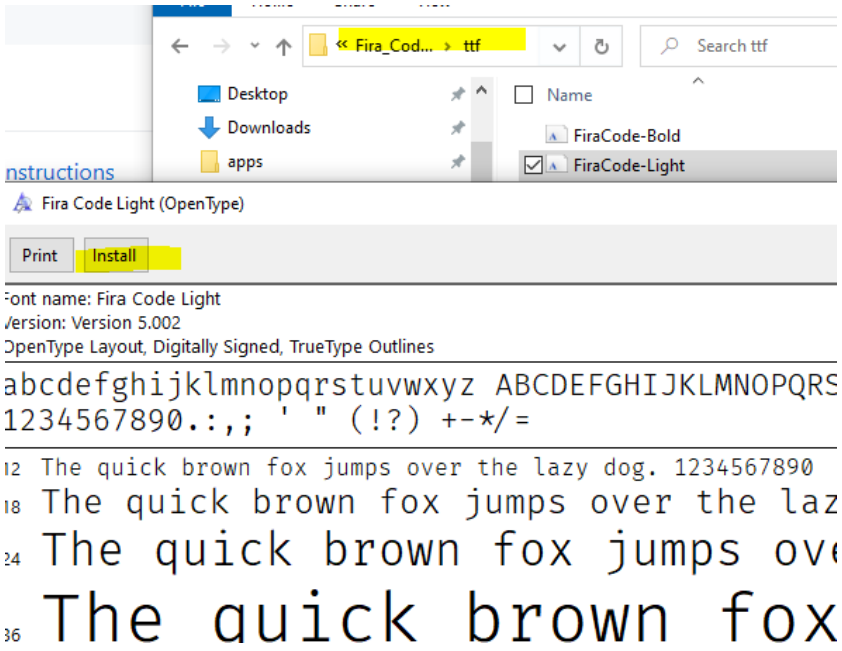


```
        return result["items"].map((i: any) => i.member);
    } catch (error) {
        throw convertError(error);
    }
}

public async createSession(profileName: string) {
    const profile = (await new BasicProfileManager(this.
    if (profile.password === "") {
        throw new ZoweError("No password", Type.NoPasswo
    }
```

```
].map((i: any) => i.member);
    (error) {
        throw convertError(error);
    }
}

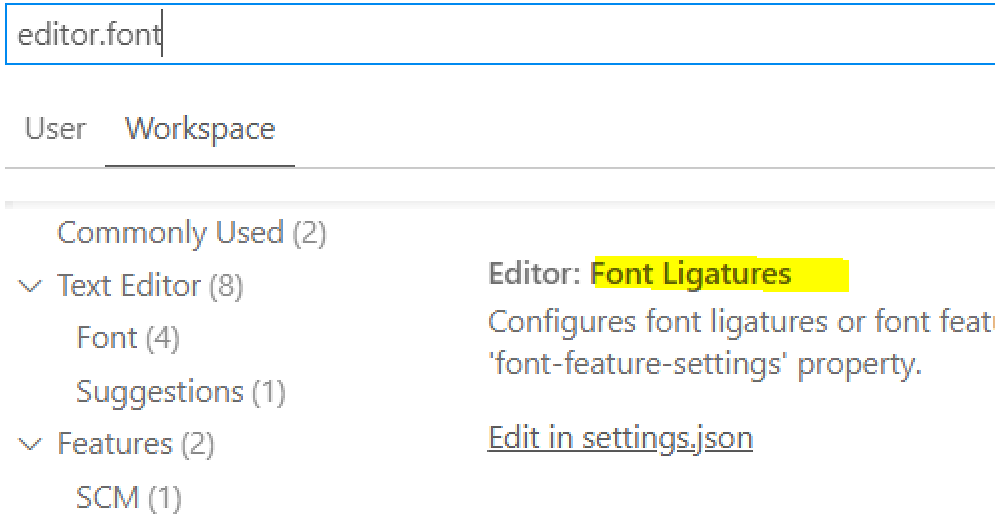
public async createSession(profileName: string) {
    const profile = (await new BasicProfileManager(this
    if (profile.password === "") {
        throw new ZoweError("No password", Type.NoP
    }
```



Font name: Fira Code Light
Version: Version 5.002
OpenType Layout, Digitally Signed, TrueType Outlines

abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRS
1234567890.:,; ' " (!?) +-*/=

12 The quick brown fox jumps over the lazy dog. 1234567890
18 The quick brown fox jumps over the laz
24 The quick brown fox jumps ove
36 The quick brown fox



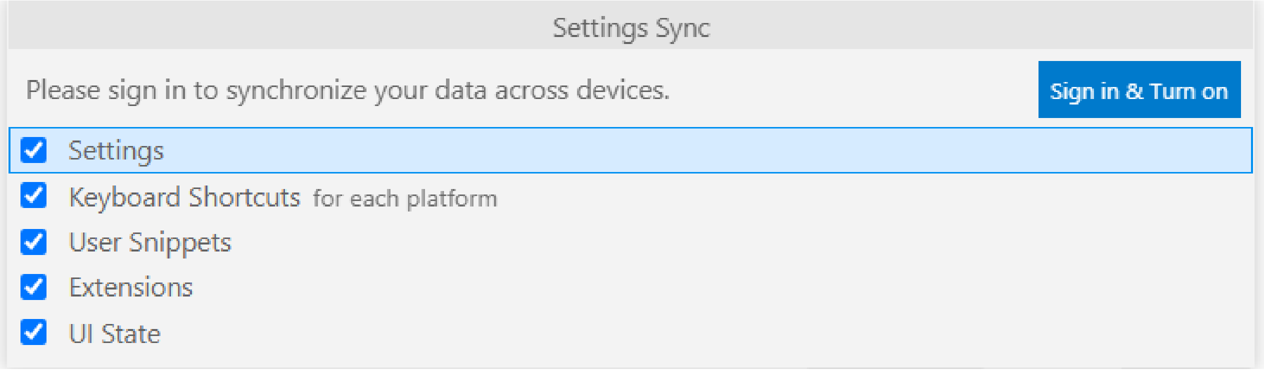
Editor: Font Ligatures

Configures font ligatures or font feat 'font-feature-settings' property.

Edit in settings.json

Shareables (snippets, themes, font-size, ..) - Ready Development Environment

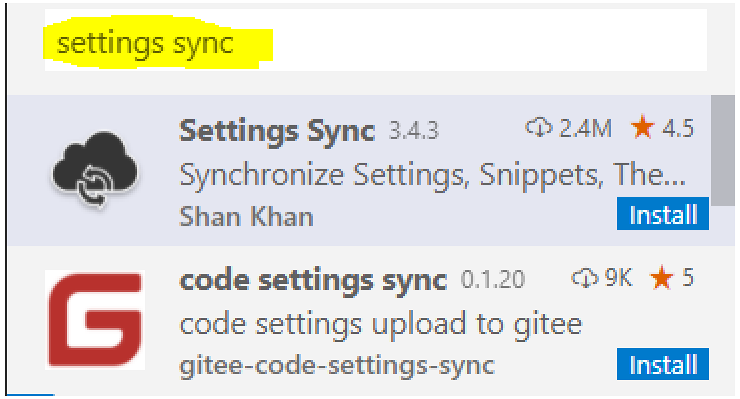
- Just share path, settings file, copy+paste, ..
- Turn on Settings Sync
- Settings Sync extension
- Special Extension pack dedicated for that



Settings Sync

Please sign in to synchronize your data across devices.

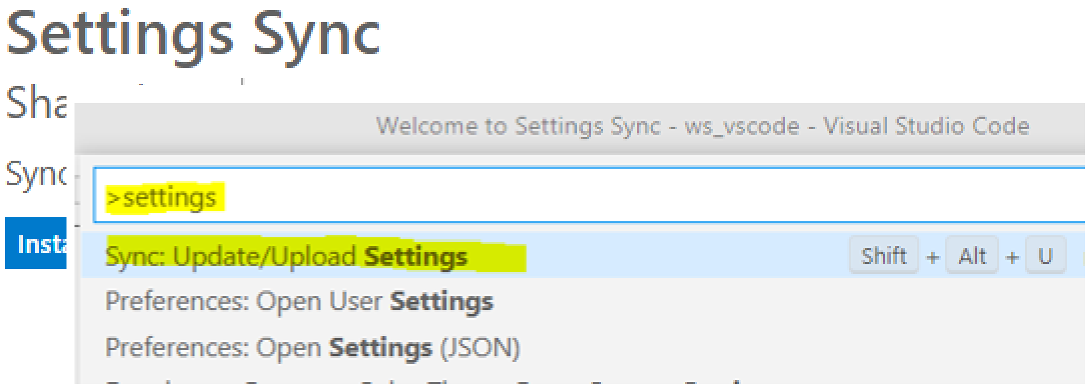
☑ Settings
☑ Keyboard Shortcuts for each platform
☑ User Snippets
☑ Extensions
☑ UI State



settings sync

Settings Sync 3.4.3 2.4M ★ 4.5
Synchronize Settings, Snippets, The...
Shan Khan

code settings sync 0.1.20 9K ★ 5
code settings upload to gitee
gitee-code-settings-sync



Settings Sync

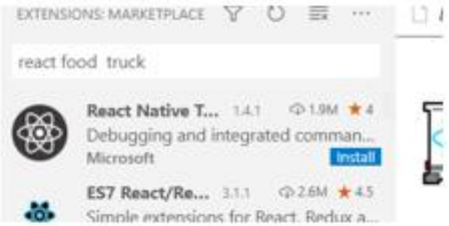
Sha

Sync

Welcome to Settings Sync - ws_vscode - Visual Studio Code

>settings

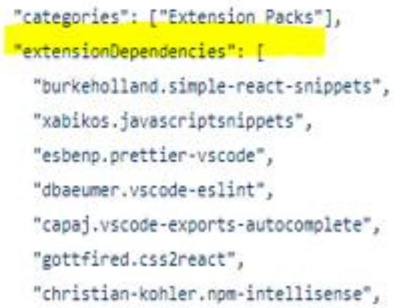
Sync: Update/Upload **Settings** Shift + Alt + U
Preferences: Open User **Settings**
Preferences: Open **Settings** (JSON)



react food truck

React Native T... 1.4.1 1.9M ★ 4
Debugging and integrated comman...
Microsoft

ES7 React/Re... 3.1.1 2.6M ★ 4.5
Simple extensions for React, Redux a...

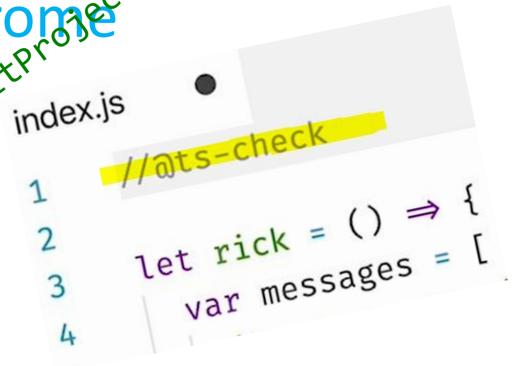


```
"categories": ["Extension Packs"],
"extensionDependencies": [
  "burkeholland.simple-react-snippets",
  "xabikos.javascriptsnippets",
  "esbenp.prettier-vscode",
  "dbaeumer.vscode-eslint",
  "capaj.vscode-exports-autocomplete",
  "gottfired.css2react",
  "christian-kohler.npm-intellisense",
```

Handy Extensions

- **awesome-vscode (e-pack)**
- Prettier, Debugger for Chrome
- ESLint, TSLint
- **Peacock**
- Docker
- Vscode-icons
- **Antlr**
- Angular v5 Snippets for VS Code
- Vue extension depends on Vetur
- Wallaby
- Chronicler
- SQLTools
- REST Client
- Settings Sync
- Live Share
- GOTO: extension-market place

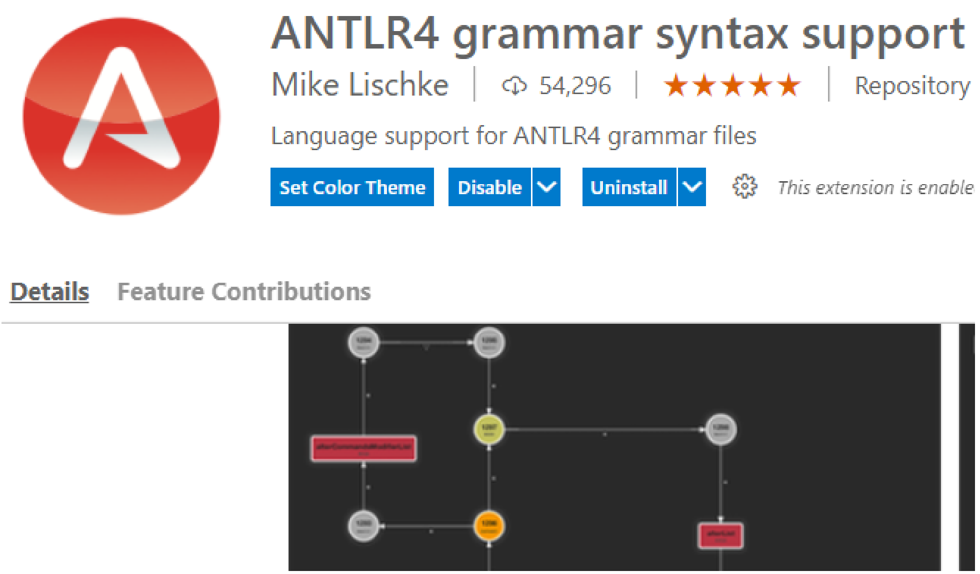
```
"javascript.implicitProjectConfig.checkJs":true
```



index.js

```
//@ts-check

let rick = () => {
  var messages = [
```

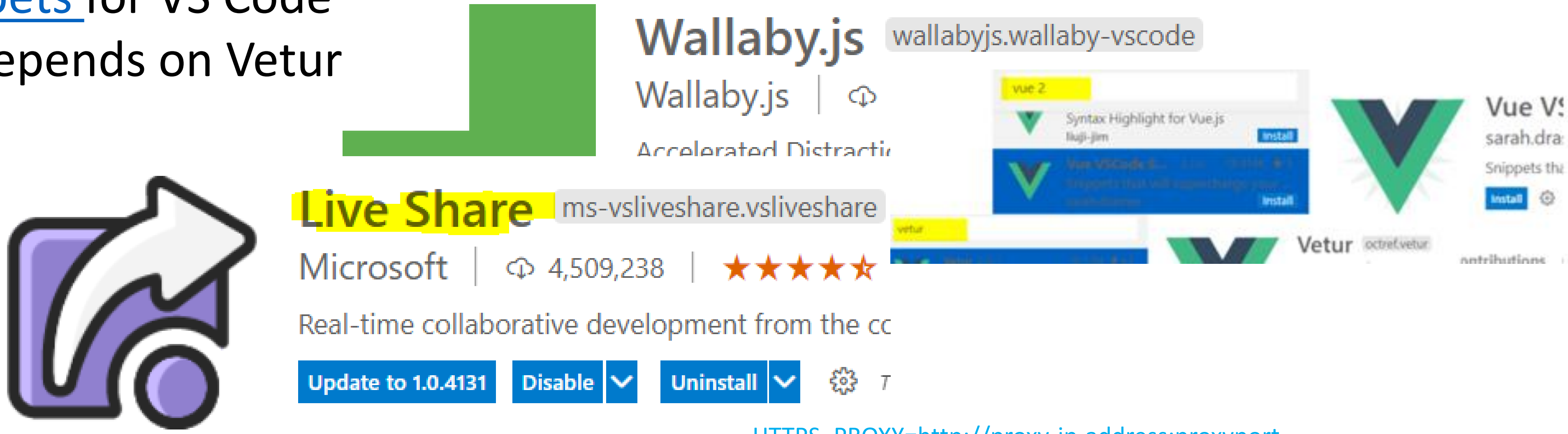


ANTLR4 grammar syntax support

Mike Lischke | 54,296 | ★★★★★ | Repository

Language support for ANTLR4 grammar files

```
>code --install-extension myextension.vsix  //to install via command line interface
```



Wallaby.js wallabyjs.wallaby-vscode

Wallaby.js

Accelerated Distractio

vue 2

Syntax Highlight for Vue.js

liuji-jim

Vue VS

sarah.dra

Snippets tha

vetur

Vetur octref.vetur

Live Share ms-vsliveshare.vsliveshare

Microsoft | 4,509,238 | ★★★★☆

Real-time collaborative development from the cc

HTTPS_PROXY=http://proxy-ip-address:proxyport

//If you have an authenticating proxy

HTTPS_PROXY=http://user:password@proxy-ip-address:proxyport

VS Code Extension Development

Building Your First Extension - fundamental concepts for building extensions

Extension ALI - Visual Studio Code is built with extensibility in mind. From the UI to the editing experience, almost every part of VS Code can be customized and enhanced through the Extension API.

Language Extensions Overview

Visual Studio Code provides smart editing features for different programming languages through Language Extensions. VS Code doesn't provide built-in language support in the core editor but offers a set of APIs that enable rich language features, e.g. See PL/I Language Support Extension

See: LSP Protocol, LSP Magic, DAP Magic, ANTLR Magic, Langium Lang-Engineering, and Chevrotain and repo

AI extensibility in VS Code

This article provides an overview of AI extensibility options in Visual Studio Code, helping you choose the right approach for your extension.

Testing Extensions

Visual Studio Code supports running and debugging tests for your extension. Read my blog - Test automation with Playwright for VS Code extensions

THANK YOU

References

https://code.visualstudio.com/docs/editor/codebasics
https://code.visualstudio.com/docs/getstarted/introvideos
https://github.com/johnpapa/pluralsight-vscode-samples
https://www.youtube.com/watch?v=hilznKQij7A
https://code.visualstudio.com/api/working-with-extensions/publishing-extension