# Contributing to Microsoft Python Language Server

## Contributing a pull request

### Prerequisites

1. .NET Core 3.1 SDK

- [Windows](https://www.microsoft.com/net/learn/get-started/windows)

- [Mac OS](https://www.microsoft.com/net/learn/get-started/macos)

- [Linux](https://www.microsoft.com/net/learn/get-started/linux/rhel)

2. C# Extension to [VS Code](https://code.visualstudio.com) (all platforms)

3. Python 2.7

4. Python 3.6+

\*Alternative:\* [Visual Studio 2019](https://www.visualstudio.com/downloads/) (Windows only) with .NET Core and C# Workloads. Community Edition is free and is fully functional.

### Setup

```shell

git clone https://github.com/Microsoft/python-language-server.git

cd src/LanguageServer/Impl

dotnet build

```

Visual Studio:

1. Open the `PLS.sln` solution in `src`.

2. Build Microsoft.Python.LanguageServer project.

3. Binaries arrive in `output/bin`.

4. Clone Python Extension to VS Code source: https://github.com/Microsoft/vscode-python

5. Open Python extension sources folder in [VS Code](https://code.visualstudio.com)

6. Create `languageServer` folder in the extension \*sources\* folder.

7. Copy everything from `output/bin/Debug` to `languageServer`.

8. In VS Code set setting `python.downloadLanguageServer` to `false`.

9. In VS Code set setting `python.jediEnabled` to `false`.

### Debugging code in Python Extension to VS Code

Follow regular TypeScript debugging steps

### Debugging C# code in Microsoft Python Language Server

1. Launch another instance of VS Code

2. Open `src` folder

4. In primary VS Code instance launch Python extension (F5)

5. In the instance with Microsoft Python Language Server C# code select \*Dotnet Attach\* launch task.

6. Attach to `dotnet` process running `Microsoft.Python.languageServer.dll`

On Windows you can also attach from Visual Studio (Debug | Attach To Process).

### Validate your changes

1. Build C# code

2. Copy binaries to `languageServer` folder

3. Use the \*Launch Extension\* launch option.

### Unit Tests

To run unit tests, do one of the following:

- Run the Unit Tests in the [VS Code Python Extension](https://github.com/Microsoft/vscode-python) project via \*Launch Language Server Tests\*.

- On Windows: open the `PLS.sln` solution in Visual Studio 2019 and run tests from the Test Explorer.

- Run `dotnet test` from Terminal in the `src` directory, or in a specific directory like `src/Analysis/Ast/Test` to test a specific suite.

- Install C# extension and .NET Core Test Explorer for VS Code, open src folder in VS Code and run tests.

NOTE: Language Server does not automatically discover Python installations on various operating systems.

At run time path to the Python interpreter is provided by the client application. Test environment does

make an attempt to discover Python installation, but in case it is unable to find Python you will not

be able to run tests.

### Coding Standards

Import `Formatting.vssettings` into Visual Studio or use `.editorconfig`.