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## From Scratch: Set LSP on neovim 0.11

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In this guide, I walk through setting up a fresh Neovim configuration from scratch, using the latest features provided by Neovim 0.11.

### Step 0: Clean my old Neovim config

- `~/.config/nvim`
- `~/.local/share/nvim`
- `~/.local/state/nvim`

I created a new git branch for my brand new neovim config.

BASH

```
$ nvim --version  
NVIM v0.11.2
```

## Step 1: Install Package Manager (lazy.nvim)

In Neovim 0.11, the built-in plugin manager `vim.pack` is **still in early stage**. ([Development News](#)) I'm going with **lazy.nvim** by **folke**.

Following the **official guide**, I create `~/.config/nvim/lua/config/lazy.lua` and add `require("config.lazy")` to the brand new `~/.config/nvim/init.lua`

**lazy.nvim** fails to load when we have no plugins. So I add **johnfrankmorgan/whitespace** to my nvim. Create `~/.config/nvim/lua/plugins/whitespace.lua`

LUA

```
return {  
  'johnfrankmorgan/whitespace.nvim',  
  config = function ()  
    require('whitespace-nvim').setup({  
      highlight = 'DiffDelete',  
      ignored_filetypes = { 'TelescopePrompt', 'Trouble', 'help', 'dashboard' },  
      ignore_terminal = true,  
      return_cursor = true,  
    })  
    -- remove trailing whitespace with a keybinding  
    -- vim.keymap.set('n', '<Leader>t', require('whitespace-nvim').trim)
```

```
    end  
}
```

Restart nvim, this plugin is automatically installed. Executing `:checkhealth lazy` should say OK.

## Move vim key binding to a new config file

Personally I prefer to gather my vim keybind settings. I create a new file

`~/.config/nvim/lua/config/key_binding.lua`

LUA

```
vim.g.mapleader = " "  
vim.g.maplocalleader = "\\\""
```

I also remove them from `~/.config/nvim/lua/config/lazy.lua`

My `init.lua` now changes to

LUA

```
require("config.key_binding")  
require("config.lazy")
```

## Step 2: Install Mason

**Mason.nvim** is the most popular neovim plugin for LSP servers. I only use `lazy.nvim` as package manager, so I don't follow the best practice on readme. I create

```
~/.config/nvim/lua/plugins/mason.lua
```

LUA

```
return {  
    {"mason-org/mason.nvim"},  
    {"mason-org/mason-lspconfig.nvim"},  
}
```

I put my lsp config in a separate file `~/.config/nvim/lua/config/lsp_config.lua`

LUA

```
require("mason").setup()  
require("mason-lspconfig").setup()
```

I also add `require("config.lsp_config")` to `init.lua`

## Step 3: Install LSP Server via Mason

I use mason to manage my installed LSP servers, so my life could be easier when I'm migrating my neovim config between multiple computers. [mason-registry](#) shows all the plugins managed by mason.

For now, I install `clangd`. Modify `~/.config/nvim/lua/config/lsp_config.lua`

LUA

```
require("mason").setup()  
require("mason-lspconfig").setup({  
    ensure_installed = { "clangd" },
```

```
})  
vim.lsp.enable({  
  "clangd"  
})
```

[neovim/nvim-lspconfig](#) collects basic config files for most LSP servers. I prefer to only copy files needed instead of cloning the whole repo.

BASH

```
mkdir -p ~/.config/nvim/lsp && cd ~/.config/nvim/lsp  
wget https://raw.githubusercontent.com/neovim/nvim-lspconfig/refs/heads/master/lsp/clangd.lua
```

Restart neovim, mason automatically downloads clangd.

BASH

```
~/.local/share/nvim/mason/bin/clangd --version  
clangd version 20.1.8 (https://github.com/llvm/llvm-project 87f0227cb60147a26a1eeb4fb06e3b505e  
Features: linux+grpc  
Platform: x86_64-unknown-linux-gnu
```

## Try clangd in a real C/C++ project

I use [rizsotto/Bear](#) by [László Nagy](#) to generate `compile_commands.json`. Neovim 0.11 [provides a few default lsp key mappings](#).

## Step 4: Show inline error message

As [Heiker](#) says [in their blog](#) Virtual text is an option to show the error message inline. We add it to `~/.config/nvim/lua/config/lsp_config.lua`

```
LUA
```

```
vim.diagnostic.config({  
  virtual_text = true,  
})
```

## Epilogue

The step-by-step code is hosted at [https://github.com/Endle/my-neovim-config/commits/nvim\\_11\\_demo/](https://github.com/Endle/my-neovim-config/commits/nvim_11_demo/)

[Heiker](#) has written several articles about nvim, including [built-in treesitter](#), [LSP guide](#), [simple config](#)

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