

Introdução
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Minicurso Vim

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UFSC

2024

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Material de apoio

```
$ git clone --recursive  
https://github.com/AndreKuru/Minicurso-Vim.git
```

pratical-vim-examples

Vim



Principais modos

Normal: navegar e editar

Insert: inserção de texto

Visual: editar através de seleção

Command-line: retentor de usuários de primeira viagem

Digitação ideal



Imagen não adaptada.
Disponível em: Wikimedia

Movimentação básica

j : ↓

k : ↑

l : →

h : ←

Jogo para praticar:
vim-adventures.com

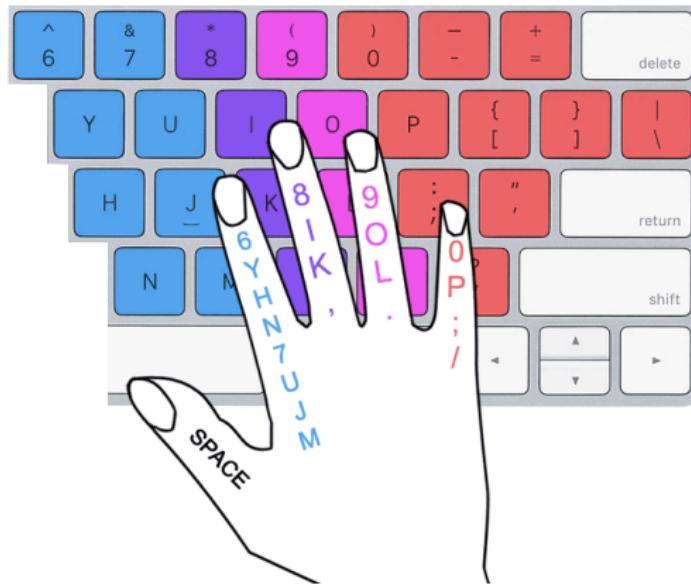


Imagen adaptada.
Disponible em: Wikimedia

Quando não se precisa manter a mão no mouse

u: undo change

dd: delete line

yy: yank line

p: put text



Mas se quiser
pode

:set mouse=a

Imagen não adaptada.
Disponível em:
Unsplash

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Experimentando cada modo

i: switch to **I**nsert mode

v: switch to **V**isual mode

:: switch to Command-Line mode

Como sair do vim?

:q : quit

:q! : quit without writing

:w : write

:wq : write and quit

:x : write (if needed) and quit

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Comando ponto

•: "Repeat last change [...]"

Mudanças comuns

x: delete [count] char(s)

d{motion} : delete

s: substitute [count] char(s)

c{motion} : change

[]: "[...]" are optional."

{}: "[...]" must appear, but which can take a number of different values."

[count] : "An optional number that may precede the command to multiply or iterate the command."

{motion} : "A command that moves the cursor."

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Movimentação na linha

0: start of the line

\$: end of the line

^: start non-blank of the line

g_: end non-blank of the line

Movimentação através de palavras

w: word foward

word: "[...]

e: word end foward

letters, digits and underscores,
or a sequence of other non-blank
characters [...]"

b: word backward

blank characters: "space and tab"

ge: word end backward

Movimentação através de PALAVRAS

W: WORD foward

E: WORD end foward

B: WORD backward

gE: WORD end
backward

WORD: "[...]

sequence of non-blank characters
[...]"

blank characters: "space and tab"

Buscas dentro da linha

f: find char
to the right

t: till before char
to the right

;: "Repeat latest f, t, F or T [...]"

F: find char
to the left

,: "Repeat latest f, t, F or T
in opposite direction [...]"

T: till after char
to the left

Buscas no arquivo

/: search forward for
the pattern

?: search backward for
the pattern

*****: search forward for
the nearest word

#: search backward for
the nearest word

n: "Repeat latest "/" or "?" [...]"

N: "Repeat latest "/" or "?"
in opposite direction [...]"

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Operadores

c: change

=: autoindent

d: delete

g~: swap case

y: yank

gu: make lowercase

>: shift right

gU: make uppercase

<: shift left

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Teclas especiais

<Enter> : Enter

<CR> : Carriage Return

<Esc> : Escape

<Up> : Up arrow key

<S-...> : Shift + ...

<S-Down> : Shift + Down arrow key

<A-...> : Alt + ...

Ctrl-A : Ctrl + a

<C-...> : Ctrl + ...

<C-x> : Ctrl + x

Aritmética simples

<C-a> : add [count] to the number at or after the cursor

<C-x> : subtract [count] to the number at or after the cursor

Nem tudo se transforma

i: insert text

a: append text

I: insert text at the start of the line

A: append text at the end of the line

o: obtain new line
below

O: obtain new line
above

Correções rápidas

<C-h> : delete back one character (**<BS>**)

<C-w> : delete back one word

<C-u> : delete back to the start of line

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Transições

<Esc> : switch to Normal mode

<C-[> : switch to Normal mode

<C-o> : switch to Insert Normal mode

Acessar registradores

<C-r>{register} : "Insert the contents of a register."

{register} :

+ : the clipboard contents

***** : the clipboard contents (X11: primary selection)

0 : contains the text from the most recent yank command

1-9 : contains the text deleted in ascending order by
the most recent delete or change command

= : the expression register

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Inserir caracteres por código

<C-v>191 : £

<C-k>{char1}{char2}

<C-v>u00bf : £

<C-k>?I : £

<C-v>u00b0 : ũ

<C-k>12 : ¡

<C-v>{nondigit} : e.g.

<Home>

ga : print the ascii value

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Mais um modo

R: Replace mode

gR: Virtual Replace mode

r: replace single character

gr: virtual replace single character

Cada modo uma orientação

<Esc>: switch to Normal mode

v: switch character-wise
Visual mode

<C-[>: switch to Normal mode

V: switch line-wise
Visual Line mode

gv: re-select last visual selection

<C-v>: switch block-wise
Visual Block mode

o: go to other end of selected text

Seleção entre delimitadores

a) or **ab**: a pair of (parentheses)

a]: a pair of [brackets]

a} or **aB**: a pair of {braces}

a>: a pair of <>

a': a pair of 'single quotes'

a`: a pair of ‘backticks’

a": a pair of ""double quotes"

at: a pair of tags

Seleção entre delimitadores

i) or **ib**: inside of (parentheses)

i]: inside of [brackets]

i} or **iB**: inside of {braces}

i>: inside of <>

i': inside of 'single quotes'

i“: inside of ‘backticks’

i": inside of "double quotes"

it: inside of tags

Seleção de objeto

aw : around of word

iw : inside of word

aW : around of WORD

iW : inside of WORD

as : around of sentence

is : inside of sentence

ap : around of paragraph

ip : inside of paragraph

Falando do ex

:print : print current line

:3print : print line 3

:2,4print : print lines 2 to 4

:<,>print : print lines selected from visual mode

Comandos básicos

:[range]print

[range] : {address}{,{address}}

:[range]join

{address} :

number : absolute line number

. : current line

\$: last line in the file

% : current file

/{pattern}[/] : next line [...]

?{pattern}[?] : previous line [...]

:[range]copy {address}

:[range]move {address}

Comandos básicos

:[range]delete [x]

[x] : "[into register x]"

a, b, c, d, e, f, g, h,

i, j, k, l, m, n, o, p,

q, r, s, t, u, v, w, x,

y, z

:[range]yank [x]

:[range]put [x]

Os mais populares

:[range]normal {address}

:[range]substitute/{pattern}/{string}/[flags]

:[range]global/{pattern}/[cmd]

[cmd] : command from command line

Repetição é a chave

@: : execute the last ex command

@@ : execute the last **@**

@{register} : execute the contents of register

q : record/stop macro

Comandos externos

:shell : start shell

:!{cmd} : execute **{cmd}** in the shell

Comandos externos integrados com o arquivo atual

:read !{cmd} : execute **{cmd}** in the shell
and put the output as text below cursor

:[range]write !{cmd} : execute **{cmd}** in the shell
with **[range]** lines as input

:[range] !{filter} : execute **{cmd}** in the shell
and put the output as text below cursor
with **[range]** lines as input

Rolar texto

<C-E> : scroll window
(Extra lines)

<C-Y> : scroll window
(Yrineu)

<C-D> : scroll window
Donwards

<C-U> : scroll window
Upwards

<C-F> : scroll window
Forwards

<C-B> : scroll window
Backwards

Saltando pelo texto

[count]G : go to line number

% : jump to matching parenthesis

m{letter} : set **{mark}** **{letter}** at cursor position

`{mark} : jump to a **{mark}**

Navegando pelos saltos

<C-]> : "Jump to the definition of the keyword under the cursor."

<C-o> : go to older cursor position in jump list.

<C-i> : go to newer cursor position in jump list.

Autocomplete

<C-n> : find **n**ext match

<C-p> : find **p**revious match

O sucessor moderno

Neovim is exactly what it claims to be. It fixes every issue I have with Vim.

—Geoff Greer

Full-screen Neovim looks cool as hell!

—DHH

A nice looking website, that's one thing Neovim did right.

—Bram Moolenaar



Imagen não adaptada.
Disponível em: [Neovim](#)

O sucessor moderno

API versionada, documentada;

Completamente configurável em Lua;

Ecossistema extensivo de plugins desenvolvidos pela comunidade;

Analisador sintático *TreeSitter* permite highlighting e navegação de código a nível de objetos sintáticos;

Cliente de LSP embutido (mesmo protocolo do *VSCode!*) habilita funcionalidades de inteligência de código (refatoração automática, *code actions*, navegação por referência, etc...);

Language Server Protocol

O que é LSP?

“Adding features like auto complete, go to definition, or documentation on hover for a programming language takes significant effort. Traditionally this work had to be repeated for each development tool, as each tool provides different APIs for implementing the same feature. A Language Server is meant to provide the language-specific smarts and communicate with development tools over a protocol that enables inter-process communication[mic].”

Language Server Protocol

Protocolo

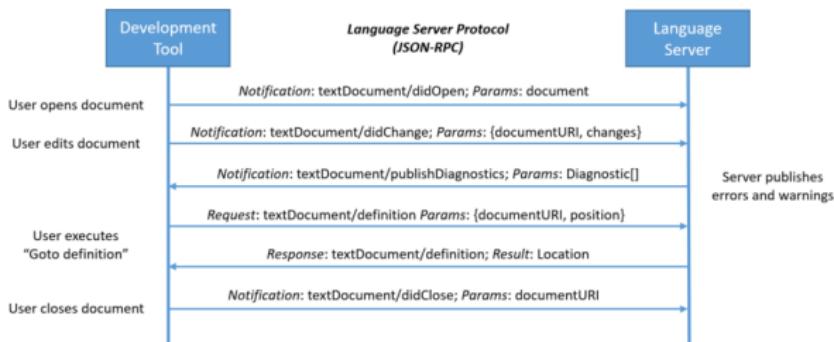


Imagen não adaptada.

Disponível em: Microsoft - Language Server Protocol

Language Server Protocol - Instalação e Configuração

Supporte nativo da API

```
2 lspconfig.rust_analyzer.setup =-
3 settings = {
4   ['pyright'] = {
5     python = {
6       analysis = {
7         | diagnosticMode = "workspace",
8         | typeCheckingMode = "off",
9         },
10      },
11    },
12   ['rust-analyzer'] = {},
13   ['gopls'] = {},
14   ['typescript-language-server'] = {},
15   ...
16 }
```

Além de oferecer *bindinds* nativas para a comunicação com LSPs, a configuração dos clientes pode ser feita de forma simples e direta através do pacote `nvim-lspconfig`

Language Server Protocol - Instalação e Configuração

`nvim-lspconfig + Mason.nvim = Configuração rápida, fácil, e portátil`



mason.nvim

Imagen não adaptada.
Disponível em: [Mason.nvim](#)

Portable package manager for Neovim that runs everywhere Neovim runs. Easily install and manage LSP servers, DAP servers, linters, and formatters.[mas]

Language Server Protocol - Instalação e Configuração

Um package-manager para servidores LSP

Instalação de LSPs via *Mason.nvim*

TreeSitter

O motor sintático



“Tree-sitter is a parser generator tool and an incremental parsing library. It can build a concrete syntax tree for a source file and efficiently update the syntax tree as the source file is edited.”

TreeSitter

O motor sintático

General enough to parse any programming language;

Fast enough to parse on every keystroke in a text editor;

Robust enough to provide useful results even in the presence of syntax errors;

Dependency-free so that the runtime library (which is written in pure C) can be embedded in any application;

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TreeSitter

O motor sintático

“The goal of nvim-treesitter is both to provide a simple and easy way to use the interface for tree-sitter in Neovim and to provide some basic functionality such as highlighting based on it.”

TreeSitter

O motor sintático

```
15 int ts_lua_add_language(lua_State *L)
16 {
17     if (!lua_gettop(L) < 2 || !lua_isstring(L, 1) || !lua_isstring(L, 2)) {
18         return luaL_error(L, "string expected");
19     }
20
21     const char *path = lua_tostring(L, 1);
22     const char *lang_name = lua_tostring(L, 2);
23
24     if (pmap_has(cstr_t)(langs, lang_name)) {
25         return 0;
26     }
27
28 #define BUFSIZE 128
29     char symbol_buf[BUFSIZE];
30     snprintf(symbol_buf, BUFSIZE, "tree_sitter_%s", lang_name);
31     luaL_Buffer buf;
32     luaL_newbuffer(&buf, symbol_buf, BUFSIZE, "tree_sitter_%s", lang_name);
33     luaL_setmetatable(&buf, lang_name);
34
35     uvLib_t lib;
36     if (uv_dlopen(path, &lib)) {
37         snprintf((char *)IObuff, IOSIZE, "Failed to load parser: uv_dlopen: %s",
38                  uv_dlerror(&lib));
39         uv_dclose(&lib);
40         lua_pushstring(L, (char *)IObuff);
41         return luaL_error(L);
42     }
43
44     TSLanguage *lang_parser = lang_parser();
45     if (uv_dlsym(&lib, symbol_buf, (void **)&lang_parser)) {
46         snprintf((char *)IObuff, IOSIZE, "Failed to load parser: uv_dlsym: %s",
47                  uv_dlerror(&lib));
48         uv_dclose(&lib);
49         lua_pushstring(L, (char *)IObuff);
50         return luaL_error(L);
51     }
52
53     TSLanguage *lang = lang_parser();
54     if (lang == NULL) {
55         return luaL_error(L, "Failed to load parser: internal error");
56     }
57
58     pmap_put(cstr_t)(langs, xstzdup(lang_name), lang);
59
60     lua_pushboolean(L, true);
61     return 1;
62 }
63
64 int ts_lua_add_language(lua_State *L)
65 {
66     if (!lua_gettop(L) < 2 || !lua_isstring(L, 1) || !lua_isstring(L, 2)) {
67         return luaL_error(L, "string expected");
68     }
69
70     const char *path = lua_tostring(L, 1);
71     const char *lang_name = lua_tostring(L, 2);
72
73     if (pmap_has(cstr_t)(langs, lang_name)) {
74         return 0;
75     }
76
77 #define BUFSIZE 128
78     char symbol_buf[BUFSIZE];
79     snprintf(symbol_buf, BUFSIZE, "tree_sitter_%s", lang_name);
80     luaL_Buffer buf;
81     luaL_newbuffer(&buf, symbol_buf, BUFSIZE, "tree_sitter_%s", lang_name);
82     luaL_setmetatable(&buf, lang_name);
83
84     uvLib_t lib;
85     if (uv_dlopen(path, &lib)) {
86         snprintf((char *)IObuff, IOSIZE, "Failed to load parser: uv_dlopen: %s",
87                  uv_dlerror(&lib));
88         uv_dclose(&lib);
89         lua_pushstring(L, (char *)IObuff);
90         return luaL_error(L);
91     }
92
93     TSLanguage *lang = lang_parser();
94     if (lang == NULL) {
95         return luaL_error(L, "Failed to load parser: internal error");
96     }
97
98     pmap_put(cstr_t)(langs, xstzdup(lang_name), lang);
99
100    lua_pushboolean(L, true);
101    return 1;
102 }
```

Highlighting de sintaxe através da árvore construída

TreeSitter

O motor sintático

```
8     :type installation_id: str~
9
10    :return: Github App installation access token~
11    :rtype: str~
12    """
13
14    url = f"https://api.github.com/app/installations/{~
15        installation_id}/access_tokens"~
16
17    headers = {~
18        "User-Agent": "You, 3 months ago - API authentication"~
19        "Accept": "application/vnd.github+json",~
20        "Authorization": f"Bearer {jwt}"~,~
21    }~
22
23    response = requests.post(~
24        url,~
25        headers=headers,~
26        timeout=10,~
27    )~
28
29
30    # pylint: disable=fixme~
31    # TODO: handle errors~
32
33    # pylint: disable=fixme~
34    # TODO: remover cast desnecessário aqui quando incluir
35    # de dados da API~
36    return str(json.loads(response.content)["token"])~
```

spaces: 4 utf-8 ♦ python linux 29:1

A ferramenta permite inspecionar a estrutura da árvore sintática em tempo real.

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Plugins

Plugin managers

pathogen

vundle

vim-plug

packer.nvim

lazy.nvim

Plugins

Plugin managers

The screenshot shows the user interface of the `lazy.nvim` plugin manager. At the top, there's a navigation bar with links: Install (I), Update (U), Sync (S), Clean (X), Check (C), Log (L), Restore (R), Profile (P), Debug (D), and Help (?). Below the bar, it says "Total: 33 plugins".

The main area is divided into two sections: "Log (6)" and "Loaded (30)".

- Log (6):**
 - mason.nvim ■ updates available
alaf301 chore: update generated code (#767) (4 hours ago)
 - neogit ■ updates available
0d6002c feat: commit --fixup and --squash (4 days ago)
ee6f6ea refactor: rebase and commit selection (4 days ago)
2444769 fixup! fix: use parse_log for rebase commit view (4 days ago)
d12acd0 chore: ignore redefined-local (4 days ago)
 - noice.nvim ■ 0.7ms lualine.nvim ■ updates available
7dac8ce chore(build): auto-generate vimdoc (2 hours ago)
 - nvim-treesitter-context ■ updates available
d28654b ci: bump action versions (34 minutes ago)
 - nvim-treesitter-textobjects ■ 3.76ms nvim-treesitter ■ updates available
e2ee8fd ci: bump stylua version (58 minutes ago)
 - playground ■ 0.36ms nvim-treesitter ■ updates available
3421bbb ci: bump action versions (52 minutes ago)
- Loaded (30):**
 - animation.nvim ■ 0.08ms windows.nvim
 - dressing.nvim ■ 0.39ms > VeryLazy
 - drop.nvim ■ 0.48ms > VimEnter
 - firenvim ■ 0.16ms > start
 - flit.nvim ■ 0.02ms > leap.nvim
 - github-notifications.nvim ■ 0.04ms > lualine.nvim
 - gruvbox.nvim ■ 0.05ms > start
 - lazy.nvim ■ 4.7ms > init.lua
 - lean-ast.nvim ■ 0.02ms > lean.nvim

Instalação interativa de plugins com `lazy.nvim`

Lua

Brasil mentioned!?!?!



Imagen não adaptada.
Disponível em: www.lua.org

designed and developed at

PUC
RIO

Lua

API

The "Vim API" inherited from Vim: Ex-commands and builtin-functions as well as user-functions in Vimscript. These are accessed through `vim.cmd()` and `vim.fn` respectively.

The "Nvim API" written in C for use in remote plugins and GUIs; see `api`. These functions are accessed through `vim.api`.

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Recomendações

vim-adventures.com

```
$ vimtutor
```

```
:help
```

Referência

-  *Mason.nvim - portable package manager for neovim that runs everywhere neovim runs,*
<https://github.com/williamboman/mason.nvim>,
Accessed: 2024-09-1.
-  *Microsoft - language server protocol*, <https://microsoft.github.io/language-server-protocol/>,
Accessed: 2024-09-1.
-  Drew Neil, *Practical vim: Edit text at the speed of thought*,
Practical Vim (2015), 1–356.