

Ch5 Linux Programming Tool



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Agenda

- Ch5-1 vi/vim
- Ch5-2 Linux Compiler
- Ch5-3 Meld
- Ch5-4 Linux Compiler
- Ch5-5 Version Control

vi / vim

- vi – text editor
- vim – inherit from vi (similar tool: emacs)
- # vim [file]
- ~/.vim/vimrc: vim config file
- vgod's vimrc: `wget -O https://raw.githubusercontent.com/vgod/vimrc/master/auto-install.sh | sh`

vim shortcut

- "i" - insert mode
- "Esc" - exit insert mode to normal mode
- "h" - left
- "j" - down
- "k" - up
- "l" - right
- "w" "W" – forward by one word
- "b" "B" – backward by one word
- "dd" – delete whole line
- "/" - search strings
- "n" – next search result
- "N" – back search result

vim shortcut

Command Line

- “: number” - to specific number line
- “:sp” or “vsp” : split window
- “!gcc % && ./a.out”
- “:w” – save file
- “:q” or “:q!” – exit

Buffer movement

- “Ctrl + w + w” - next buffer
- “Ctrl + w + p” – previous buffer
- “Ctrl+w+h” - left buffer
- “Ctrl+w+l” - right buffer
- “Ctrl+w+j” - down buffer
- “Ctrl+w+k” - up buffer

Vim's plugin - cscope

- cscope
 - # cosope -bR
 - # cscope -d

Cscope version 15.7a

Press the ? key for help

```
Find this C symbol:
Find this global definition:
Find functions called by this function:
Find functions calling this function:
Find this text string:
Change this text string:
Find this egrep pattern: █
Find this file:
Find files #including this file:
```

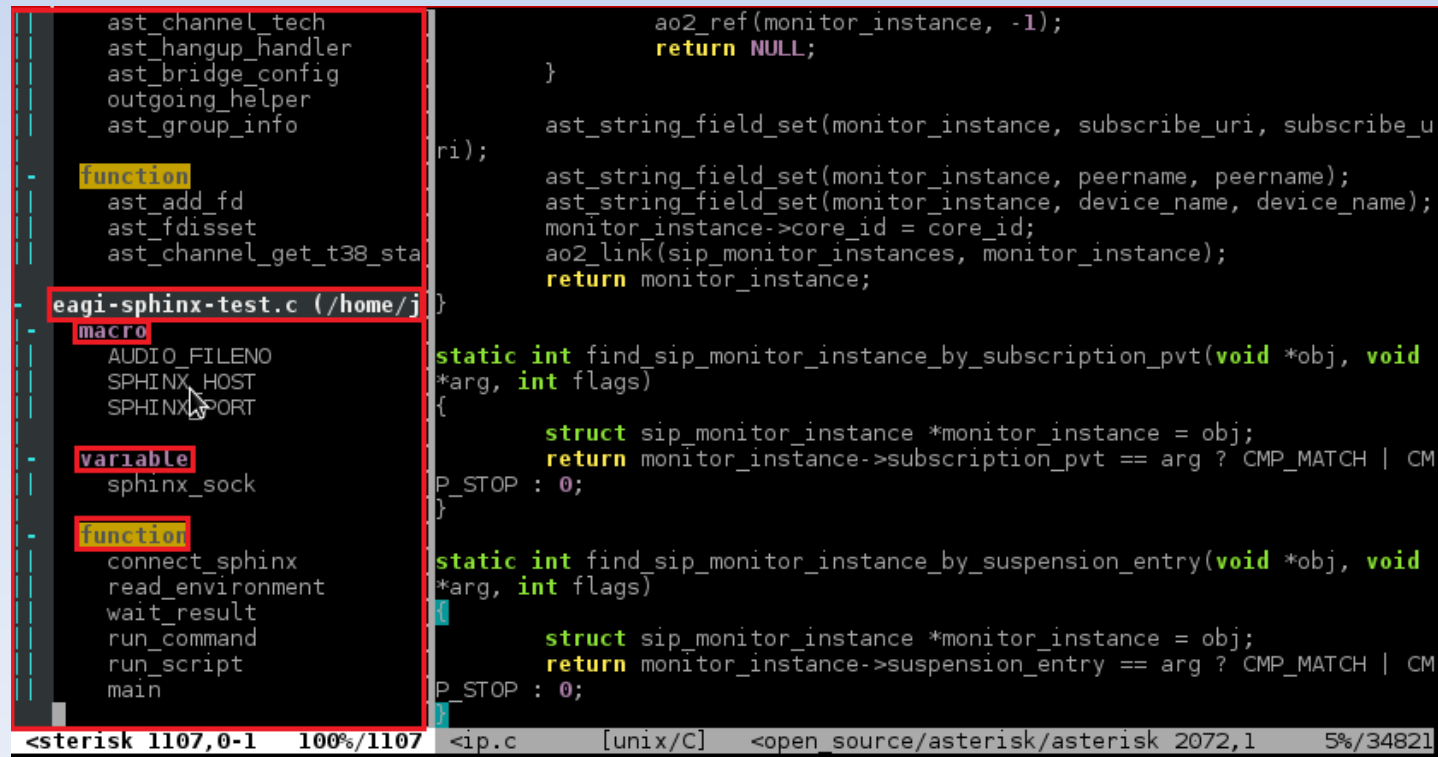
Vim's plugin ctags

- ctags
 - # ctags -R
- ctags in vim's normal mode
 - "Ctrl +]"
 - "Ctrl + T"
 - ":ta [tag]"

Vim's plugin Taglist

1. unzip taglist.zip
 2. copy "doc" and "plugin" to "~/.vim"
- Taglist in vim

– ":Tlist"



```
ast_channel_tech
ast_hangup_handler
ast_bridge_config
outgoing_helper
ast_group_info

function
ast_add_fd
ast_fdisset
ast_channel_get_t38_sta

eagi-sphinx-test.c (/home/j
macro
AUDIO_FILENO
SPHINX_HOST
SPHINX_PORT

variable
sphinx_sock

function
connect_sphinx
read_environment
wait_result
run_command
run_script
main

ao2_ref(monitor_instance, -1);
return NULL;
}

ast_string_field_set(monitor_instance, subscribe_uri, subscribe_u
ri);
ast_string_field_set(monitor_instance, peername, peername);
ast_string_field_set(monitor_instance, device_name, device_name);
monitor_instance->core_id = core_id;
ao2_link(sip_monitor_instances, monitor_instance);
return monitor_instance;

static int find_sip_monitor_instance_by_subscription_pvt(void *obj, void
*arg, int flags)
{
    struct sip_monitor_instance *monitor_instance = obj;
    return monitor_instance->subscription_pvt == arg ? CMP_MATCH | CM
P_STOP : 0;
}

static int find_sip_monitor_instance_by_suspension_entry(void *obj, void
*arg, int flags)
{
    struct sip_monitor_instance *monitor_instance = obj;
    return monitor_instance->suspension_entry == arg ? CMP_MATCH | CM
P_STOP : 0;
}

<sterisk 1107,0-1 100%/1107 <ip.c [unix/C] <open_source/asterisk/asterisk 2072,1 5%/34821
```


screen

- # screen
- In screen mode
 - Ctrl-a c: create new buffer
 - Ctrl-a w: show how much buffer and in which buffer
 - Ctrl-a `: list all buffers
 - Ctrl-a n: move to next buffer
 - Ctrl-a p: move to previous buffer
 - Ctrl-a 7: open buffer 7

screen(con.)

- Ctrl-a S: split window horizontal
- Ctrl-a | : split window vertical
- Ctrl-a TAB: switch
- Ctrl-a x: close window
- Ctrl-a Q: close all window except the current one
- Ctrl-a d: detach from the current screen session

Linux Compiler

GNU Compiler Collection

Across multiplatform

- C language: gcc
 - # gcc [file.c] -o -Wall [execution file]
- C++ language: g++
 - # g++ [file.c] -o -Wall [execution file]

Compare tool

- diff
 - # diff -u file file
 - # diff -ur directory/ directory/
- Meld

Meld

```
if( output_content.substring( i , i+12 ).equals( "GPS Latitude" ) ) {
    put.add( Bytes.toBytes( "information" ), Bytes.toBytes( "Latitude" ),
        Bytes.toBytes( find_value( output_content.substring( i ) ) ) );
//
    table.put( put );
    flag = 1;
} else {
    i++;
}
flag = 0;
while( flag == 0 && i < output_content.length() ) {
    if( output_content.substring( i , i+13 ).equals( "GPS Longitude" ) ) {
        put.add( Bytes.toBytes( "information" ), Bytes.toBytes( "Longitude" ),
            Bytes.toBytes( find_value( output_content.substring( i ) ) ) );
//
        table.put( put );
        flag = 1;
    } else {
        i++;
    }
}
flag = 0;
table.put( put );
table.close();

// generate the img files which have been proceed.
// file path on HDFS \t time
Date now = new Date();
output.collect( key_img_path_on_hdfs, new Text( now.toString() ) );
}

// column_type 1:File Size/File Time 2:Document Name
private String find_value( String output_content_substring ) {
```

```
if( output_content.substring( i , i+12 ).equals( "GPS Latitude" ) ) {
    put.add( Bytes.toBytes( "information" ), Bytes.toBytes( "Latitude" ),
        Bytes.toBytes( degreeToNumber( find_value( output_content.substring( i ) ) ) );
//
    table.put( put );
    flag = 1;
} else {
    i++;
}
flag = 0;
while( flag == 0 && i < output_content.length() ) {
    if( output_content.substring( i , i+13 ).equals( "GPS Longitude" ) ) {
        put.add( Bytes.toBytes( "information" ), Bytes.toBytes( "Longitude" ),
            Bytes.toBytes( degreeToNumber( find_value( output_content.substring( i ) ) ) );
//
        table.put( put );
        flag = 1;
    } else {
        i++;
    }
}
flag = 0;
table.put( put );
table.close();

// generate the img files which have been proceed.
// file path on HDFS \t time
Date now = new Date();
output.collect( key_img_path_on_hdfs, new Text( now.toString() ) );
}

private String findJploadTime(Path path) throws IOException {
    Configuration conf = new Configuration();
    FileSystem fs = FileSystem.get(conf);
```

Version Control - svn

- Subversion

svn checkout [file]

svn commit .

svn diff

- GUI - TortoiseSVN

Version Control - git

- Git
- Founder: Linus Torvalds
- Github:
<https://github.com>



git clone

git pull

git add

git status

git commit

git push

git branch [name]

git checkout [branch
name]

Q&A

Thanks for you attentions!