INSTALASI SOFTWARE SEISCOMP5

Oleh :
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BIDANG SEISMOLOGI TEKNIK
PUSAT SEISMOLOGI TEKNIK, GEOFISIKA POTENSIAL DAN TANDA WAKTU
BADAN METEOROLOGI KLIMATOLOGI DAN GEOFISIKA

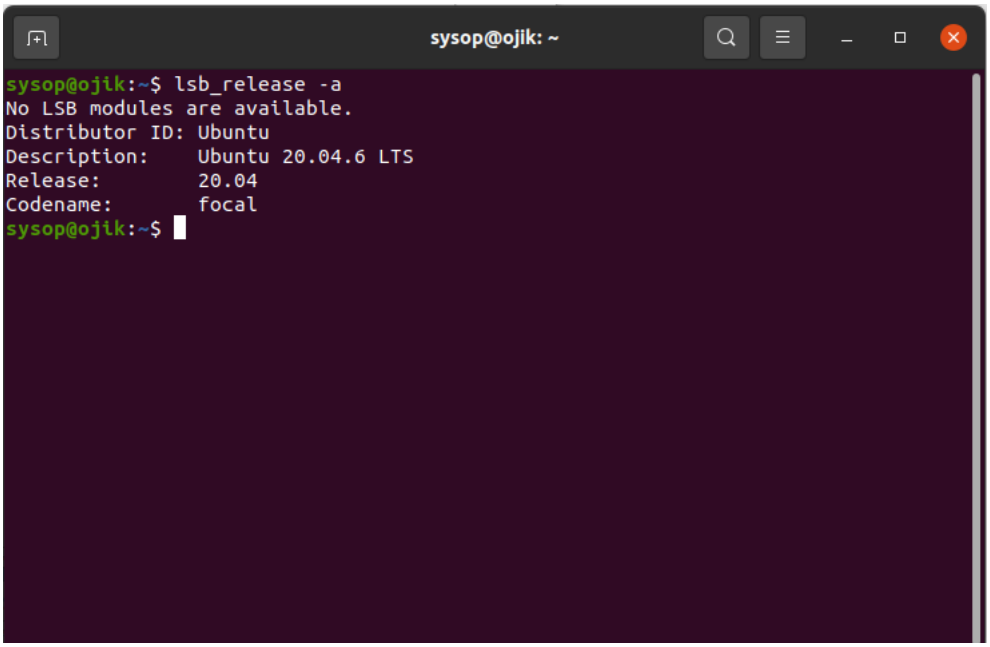
A. Persyaratan Hardware

Spesifikasi Minimum :

CPU : 2 core
RAM : 4 GB
HDD : 20 GB
OS : Ubuntu 18.04 LTS atau Ubuntu 20.04 LTS

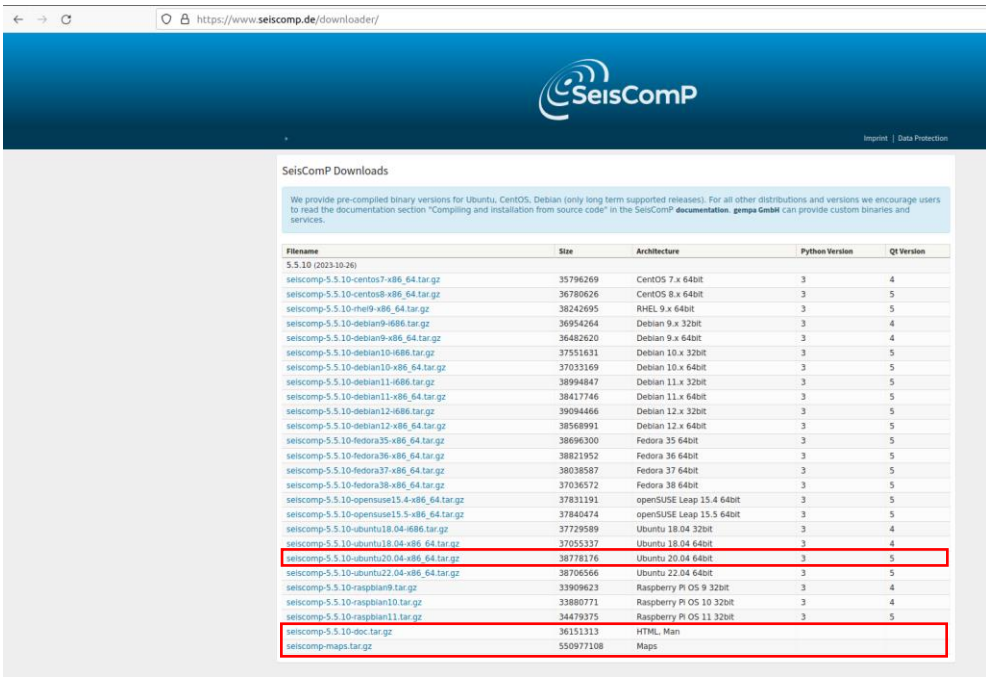
B. Instalasi Software SeisComP5

1. Pastikan Ubuntu yang terinstall adalah Ubuntu 18.04 LTS atau Ubuntu 20.04 LTS, dengan mengetikkan **`lsb_release -a`** pada terminal. Sistem operasi yang digunakan pada instalasi ini adalah Ubuntu 20.04 LTS.



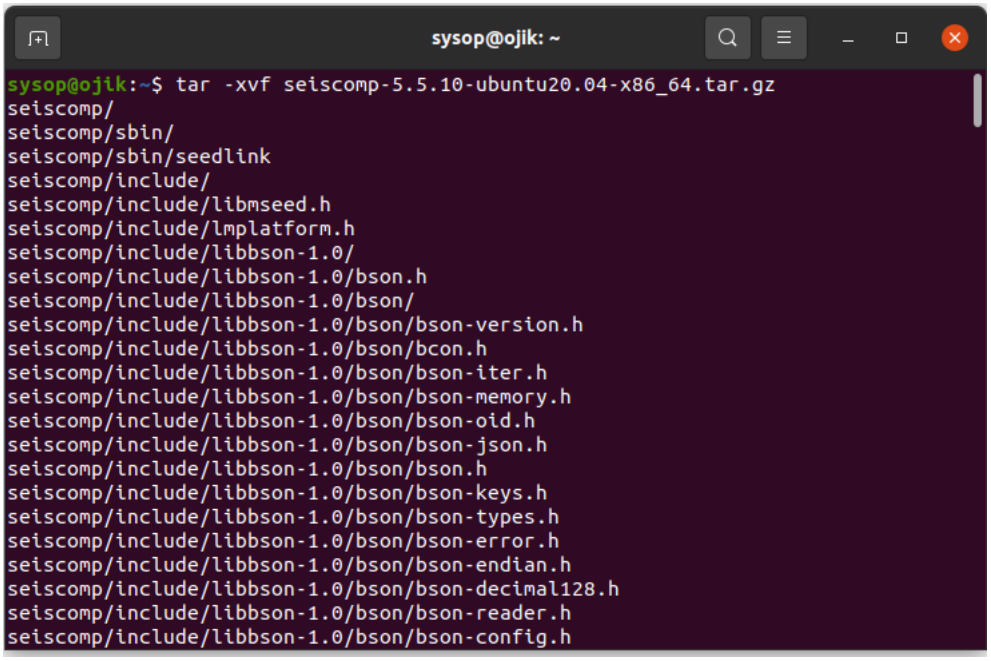
2. Download SeisComP5 packages sesuai dengan system operasi di laman SeisComP5 https://www.seiscomp.de/downloader/ . File yang perlu didownload :

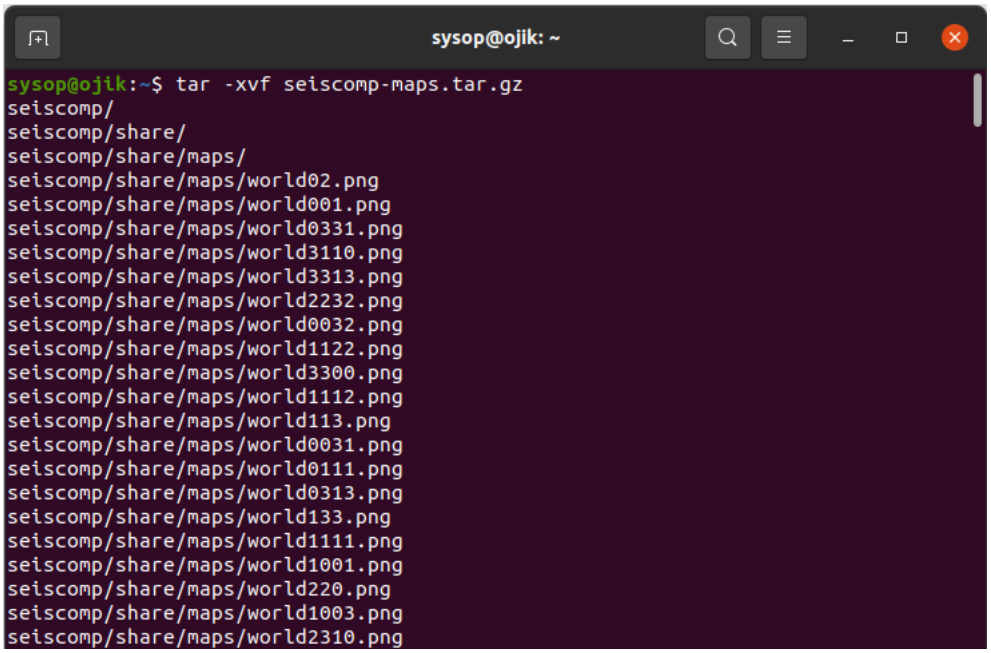
   - Main package SeisComP5 : seiscomp-5.5.10-ubuntu[versi]-x86_64.tar.gz
   - Map package SeisComp5 : seiscomp-maps.tar.gz
   - SeisComP5 Documentation : seiscomp-5.5.10-doc.tar.gz



Letakkan ke-3 file yang sudah di download pada direktori **`/home/sysop`**

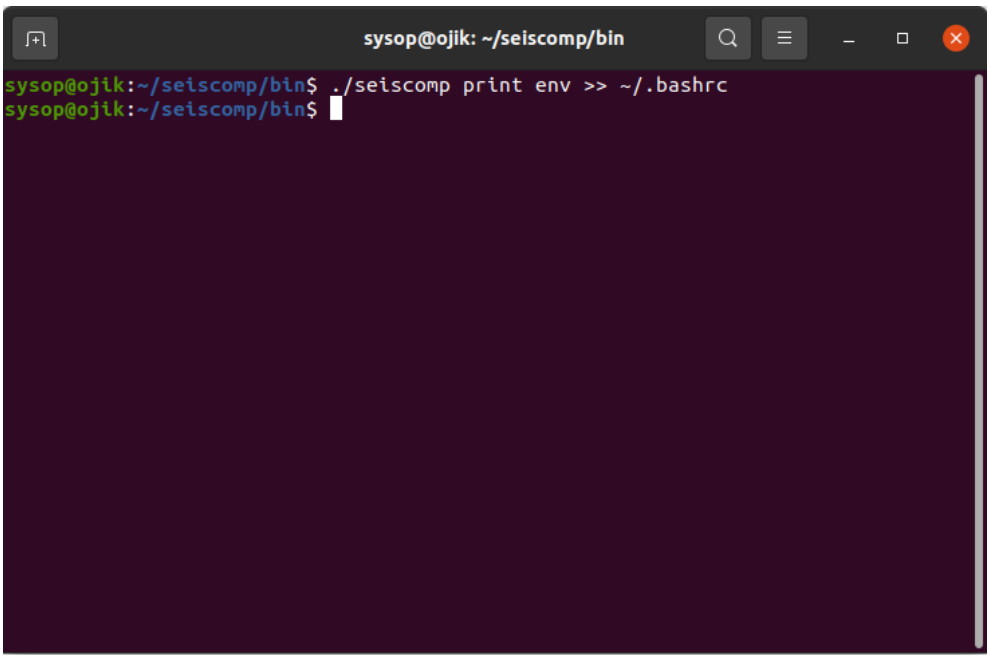
3. Buka terminal lalu lakukan uncompress file tar.gz dengan perintah :
   tar -xvf seiscomp-5.5.10-ubuntu[versi]-x86_64.tar.gz
   tar -xvf seiscomp-maps.tar.gz
   tar -xvf seiscomp-5.5.10-doc.tar.gz





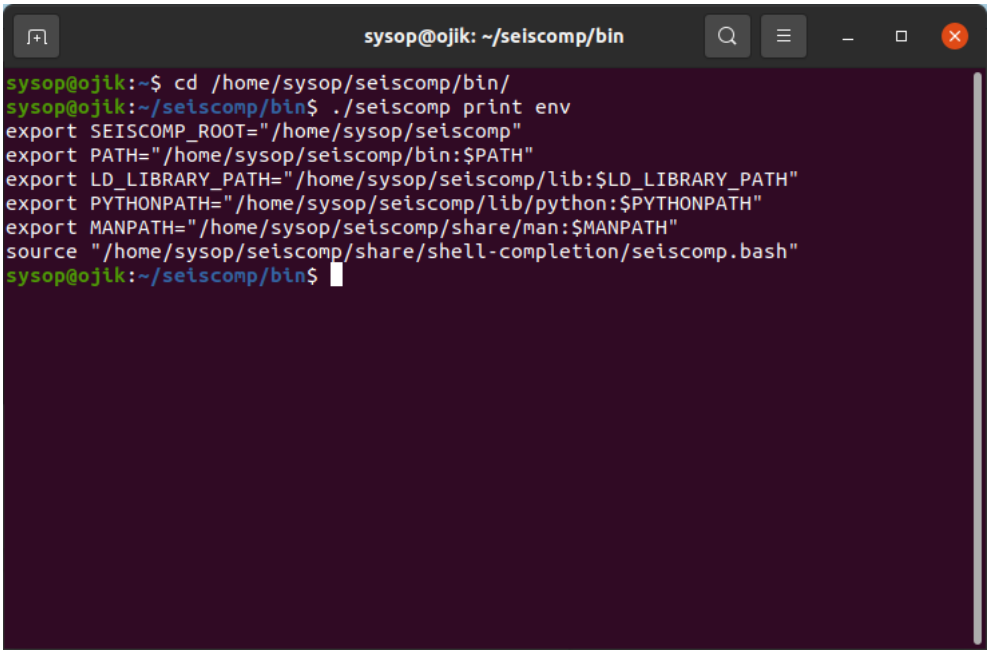
4. Memasukkan environment SeisComP5 ke dalam environment sistem di ~/.bashrc, sehingga modul SeisComP5 bisa dijalankan di direktori manapun di dalam sistem. Masuk ke direktori /home/sysop/seiscomp/bin kemudian ketikkan perintah :

   cd /home/sysop/seiscomp/bin
   ./seiscomp print env >> ~/.bashrc



Jika cara tersebut tidak berhasil, lakukan dengan cara manual. Ketikkan perintah

./seiscomp print env



lalu copy hasilnya :

==========

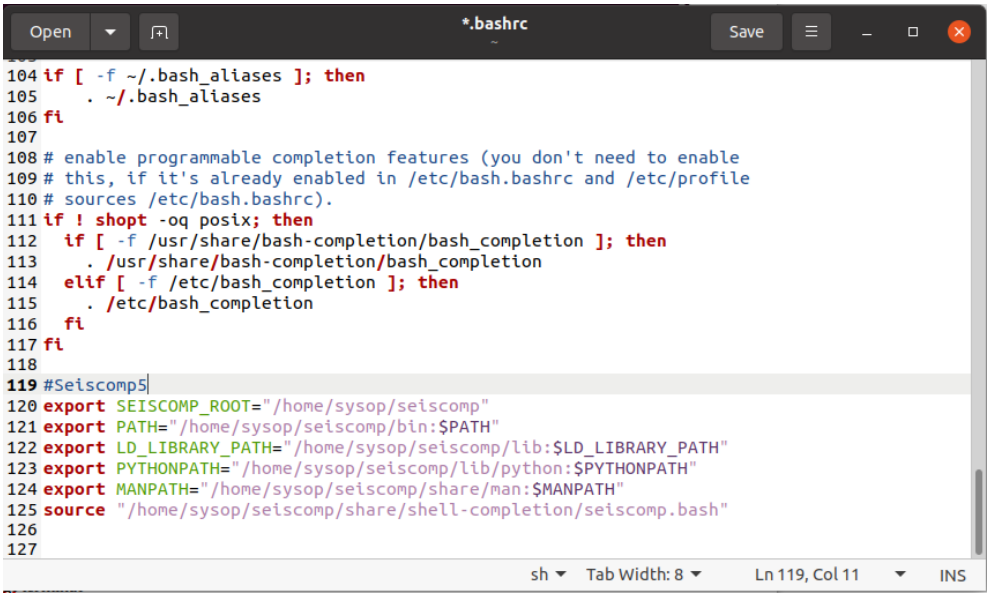
```
export SEISCOMP_ROOT="/home/sysop/seiscomp"
export PATH="/home/sysop/seiscomp/bin:$PATH"
export LD_LIBRARY_PATH="/home/sysop/seiscomp/lib:$LD_LIBRARY_PATH"
export PYTHONPATH="/home/sysop/seiscomp/lib/python:$PYTHONPATH"
export MANPATH="/home/sysop/seiscomp/share/man:$MANPATH"
source "/home/sysop/seiscomp/share/shell-completion/seiscomp.bash"
```

==========

ketikkan perintah

```
cd
gedit .bashrc
```

akan muncul seperti gambar dibawah, kemudian paste di baris paling bawah dan simpan.



5. Tutup dan buka Kembali terminal, kemudian lakukan update :

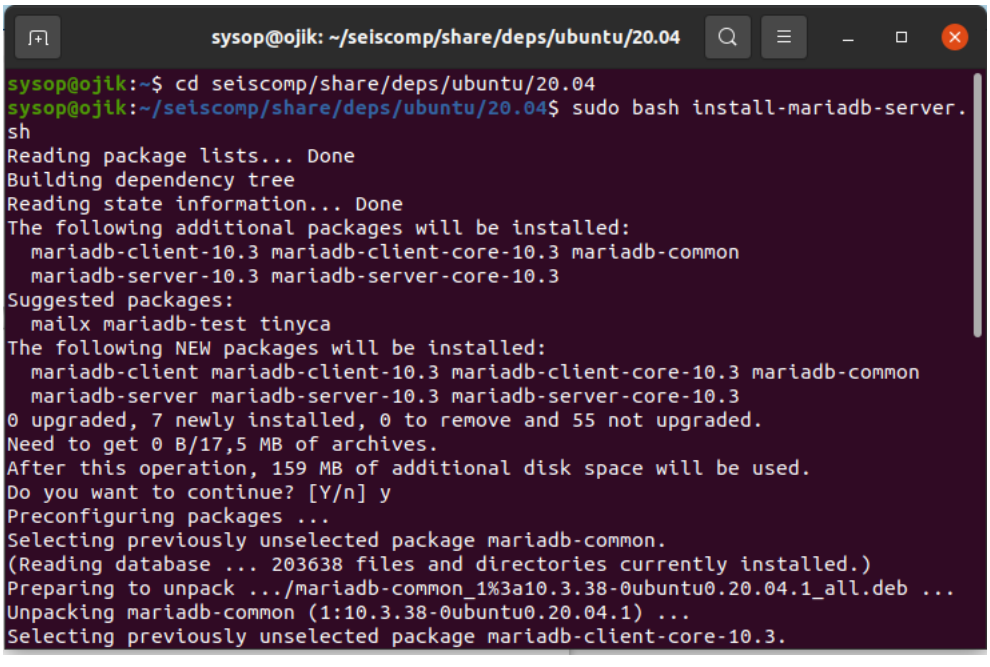
   ```
   sudo apt-get update
   ```

6. Lakukan instalasi *dependency package*. Untuk Ubuntu 18.04 LTS masuk pada direktori `seiscomp/share/deps/ubuntu/18.04`, sedangkan Ubuntu 20.04 LTS masuk pada direktori `seiscomp/share/deps/ubuntu/20.04`. Masukke direktori, ketikkan pada terminal :

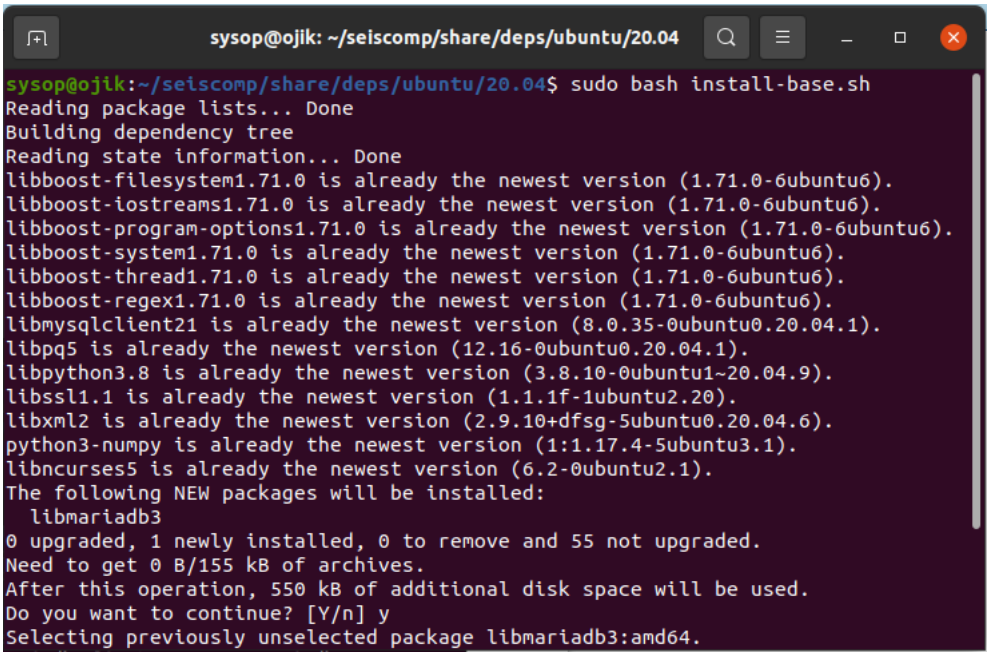
   ```
   cd seiscomp/share/deps/ubuntu/20.04
   ```

   Install MariaDB. **Penting!** Sebelum mengkonfirmasi instalasi, perhatikan versi MariaDB, pastikan versi yang akan diinstal adalah versi 10.2 keatas. Jika versi yang akan diinstall adalah versi 10.1 atau dibawahnya, batalkan instalasi dengan cara ketik N atau tekan Ctrl+c, Hal ini biasa terjadi pada Ubuntu 18.04 LTS, untuk mengatasinya lakukan instalasi MariaDB secara manual pada langkah 7.

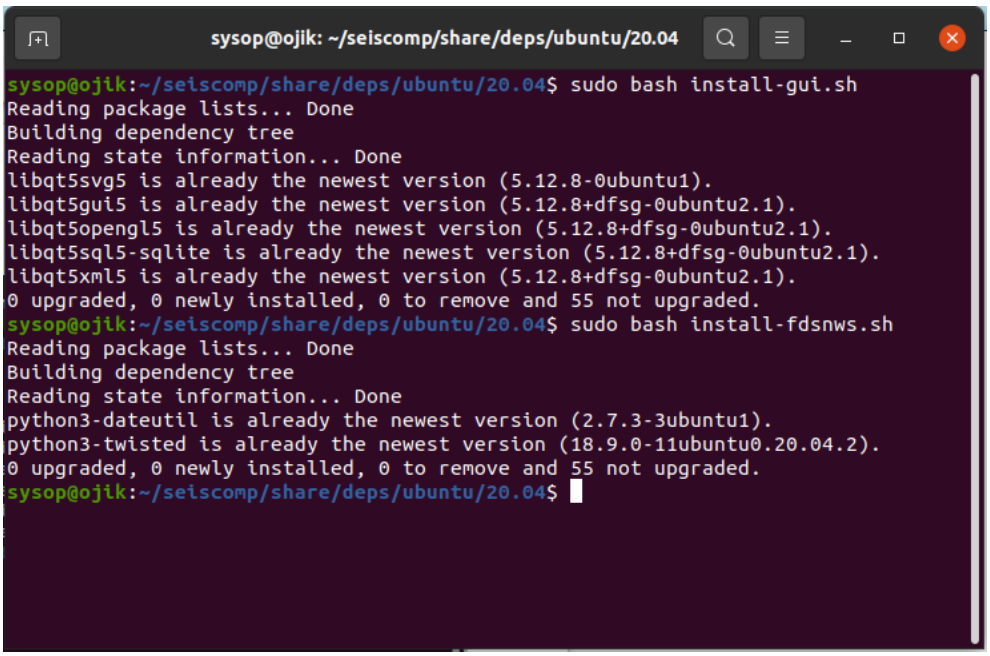
   ```
   sudo bash install-mariadb-server.sh
   ```



```
sudo bash install-base.sh
```



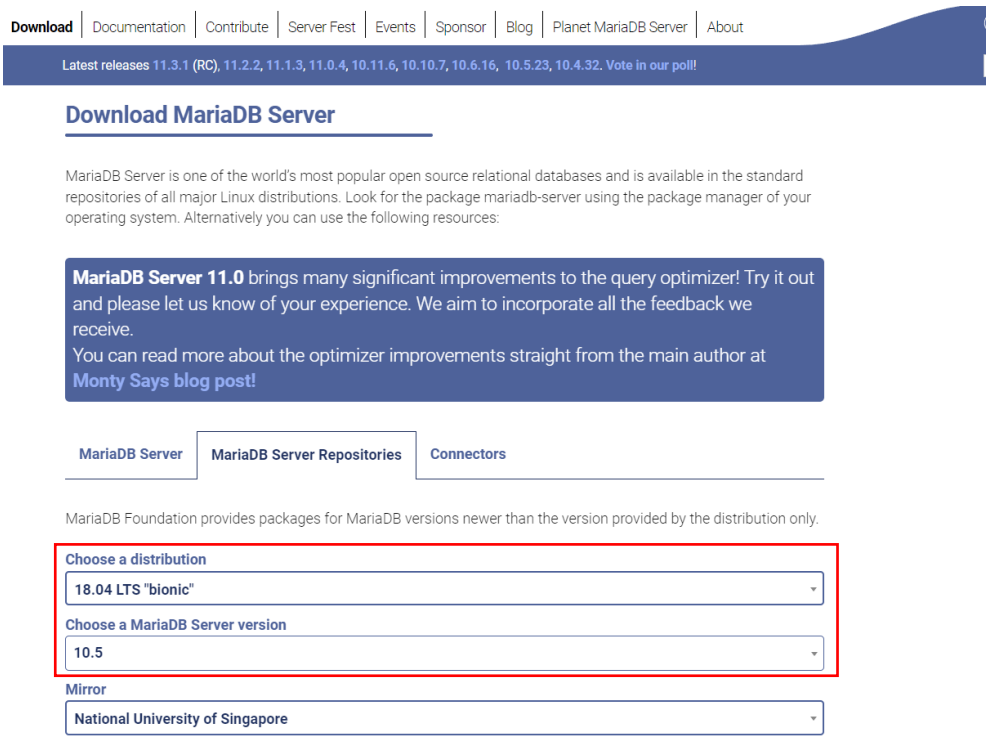

```
sudo bash install-gui.sh
sudo bash install-fdsnws.sh
```



7. **[Opsional]** Instalasi manual MariaDB versi 10.2 keatas secara manual. Pada langkah ini akan menginstall MariaDB versi 10.5. Jika MariaDB versi lain sdh diinstall, lakukan uninstall MariaDB terlebih dahulu dengan mengetikkan :

   ```
   sudo apt-get remove mariadb-*
   sudo apt-get autoremove
   ```

   Buka web https://mariadb.org/download/?t=repo-config kemudian pilih versi MariaDB yang akan diinstall dan ikuti langkah instalasi pada website, contoh pada Ubuntu 18.04 LTS.



Import MariaDB *repository key* ke dalam sistem Ubuntu :

```
sudo apt-get install apt-transport-https curl

sudo mkdir -p /etc/apt/keyrings

sudo curl -o /etc/apt/keyrings/mariadb-keyring.pgp
'https://mariadb.org/mariadb_release_signing_key.pgp'
```

kemudian buat file **/etc/apt/sources.list.d/mariadb.sources**, masukkan text dibawah ini kedalamnya dan simpan.

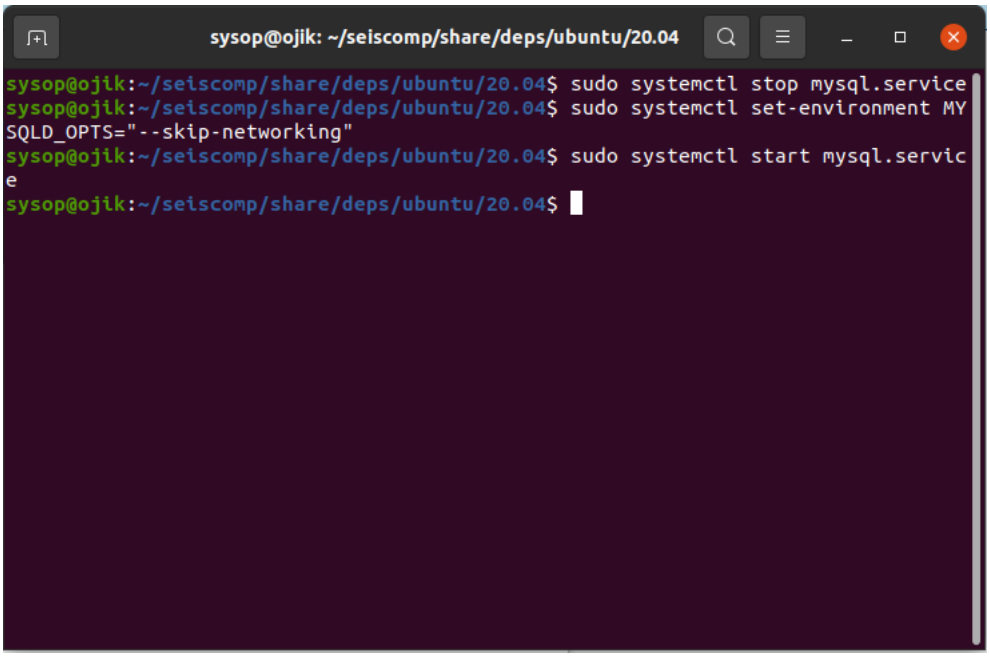
```
==========================================
# MariaDB 10.5 repository list - created 2023-11-28 07:59 UTC
# https://mariadb.org/download/
X-Repolib-Name: MariaDB
Types: deb
# deb.mariadb.org is a dynamic mirror if your preferred mirror goes offline. See
https://mariadb.org/mirrorbits/ for details.
# URIs: https://deb.mariadb.org/10.5/ubuntu
URIs: https://download.nus.edu.sg/mirror/mariadb/repo/10.5/ubuntu
Suites: bionic
Components: main main/debug
Signed-By: /etc/apt/keyrings/mariadb-keyring.pgp
==========================================
```

Lakukan instalasi MariaDB dari repository MariaDB

```
sudo apt-get update
sudo apt-get install mariadb-server
```

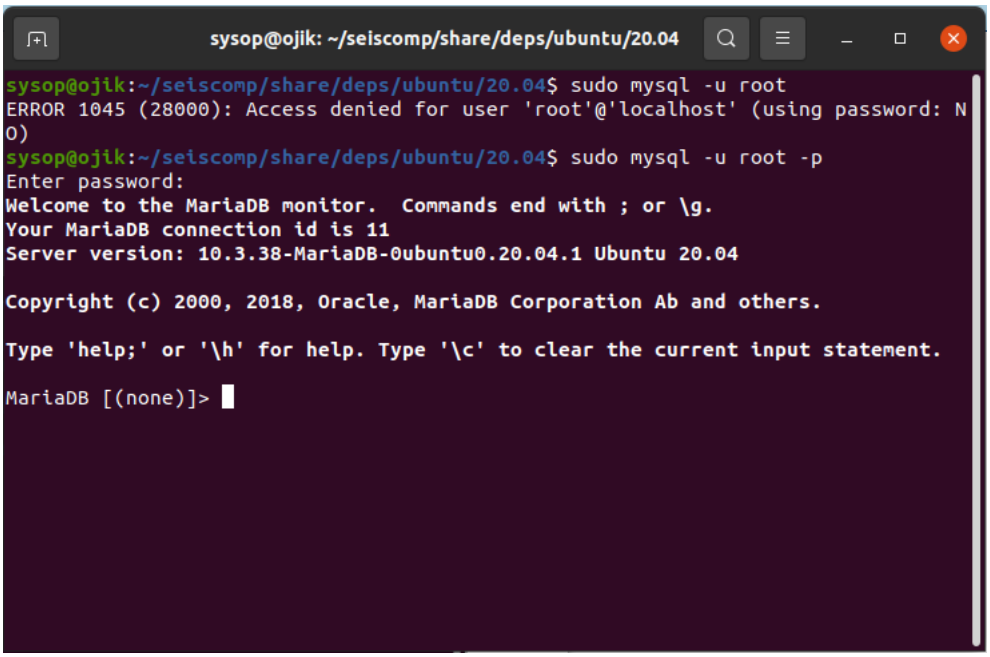
Pastikan tidak ada error.

8. Tambahkan setting environment dengan mengetikkan perintah :
   sudo systemctl stop mysql.service
   sudo systemctl set-environment MYSQLD_OPTS="--skip-networking"
   sudo systemctl start mysql.service



9. Masuk ke dalam MariaDB monitor kemudian setting password untuk user root.

   sudo mysql -u root atau sudo mysql -u root -p

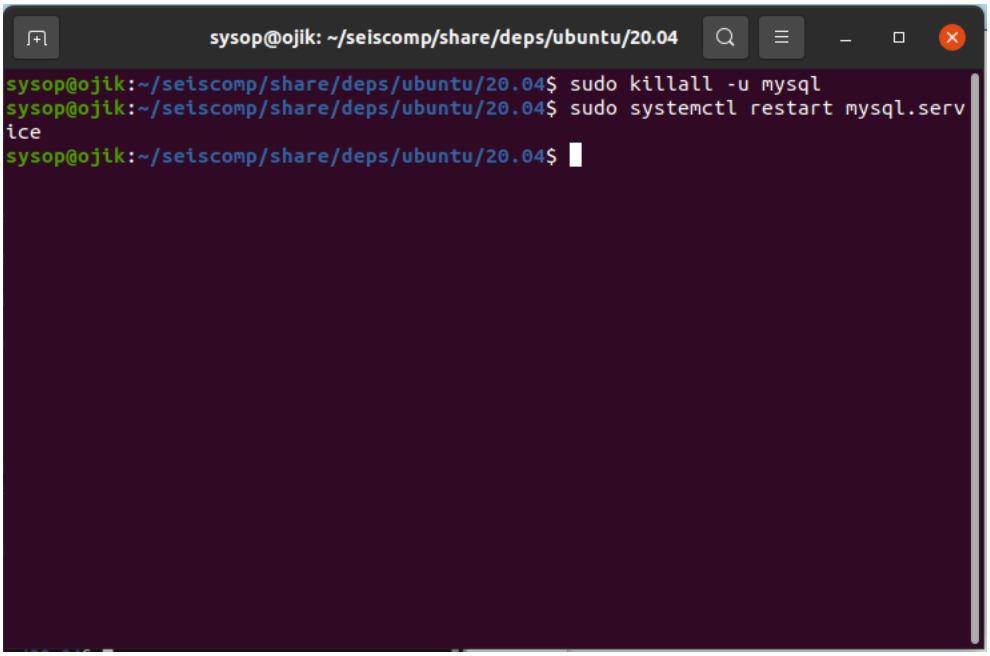


   Ketikkan command dibawah ini, definisikan password setelah kata BY didalam tanda petik, dalam instalasi ini menggunakan password **mysqlroot** :

   flush privileges;
   USE mysql;
   ALTER USER 'root'@'localhost' IDENTIFIED BY 'your-password-here';
   exit

Lakukan restart mysql.service :

```
sudo killall -u mysql
sudo systemctl restart mysql.service
```

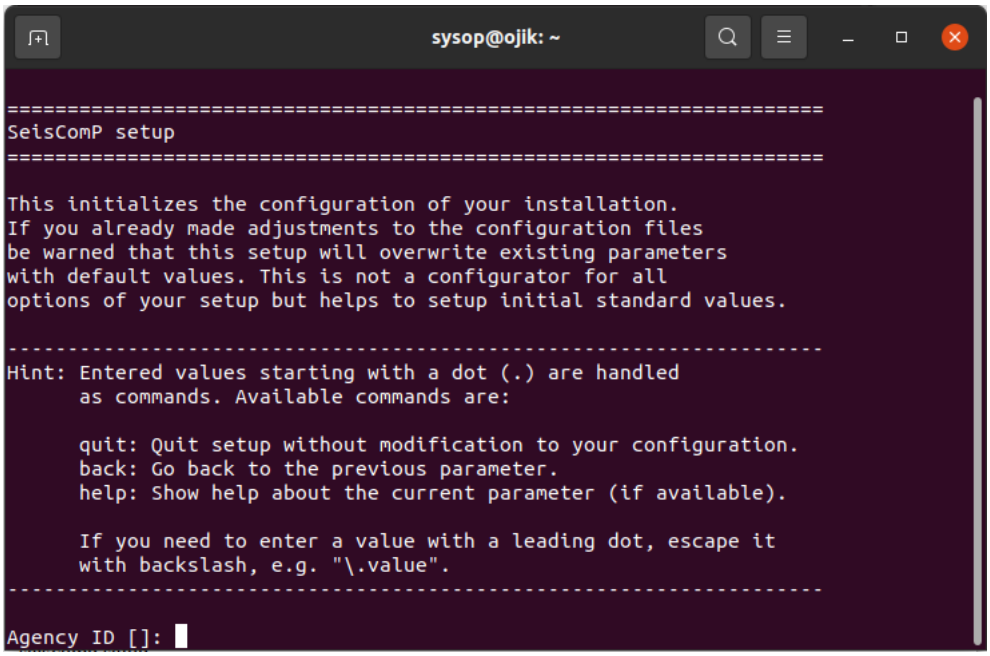


Lakukan restart Ubuntu.

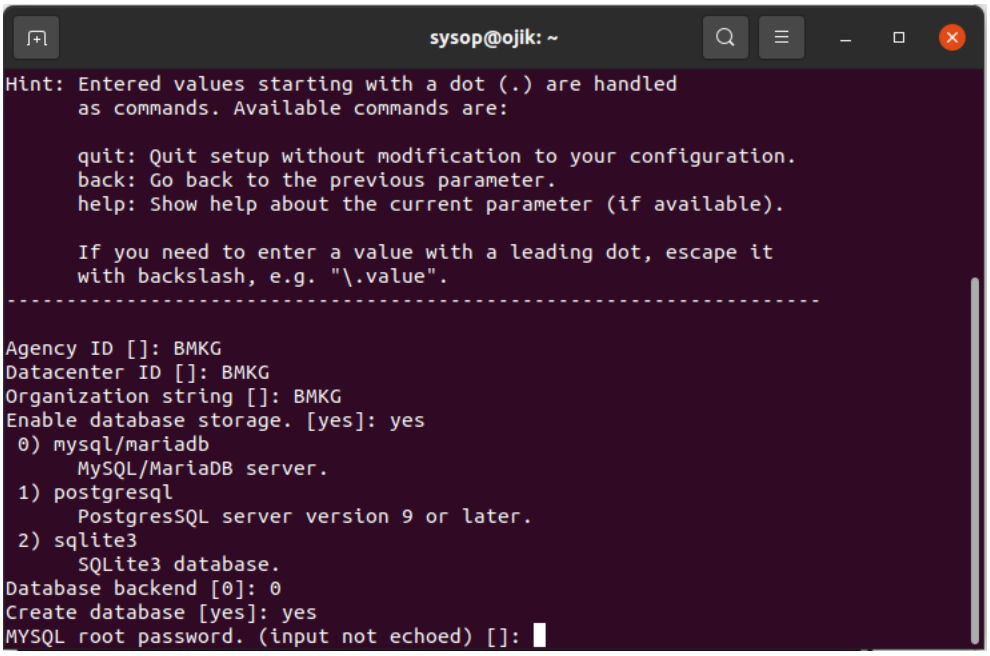
```
sudo reboot
```

10. Lakukan setup SeisComP5 dengan cara buka terminal dan ketikkan

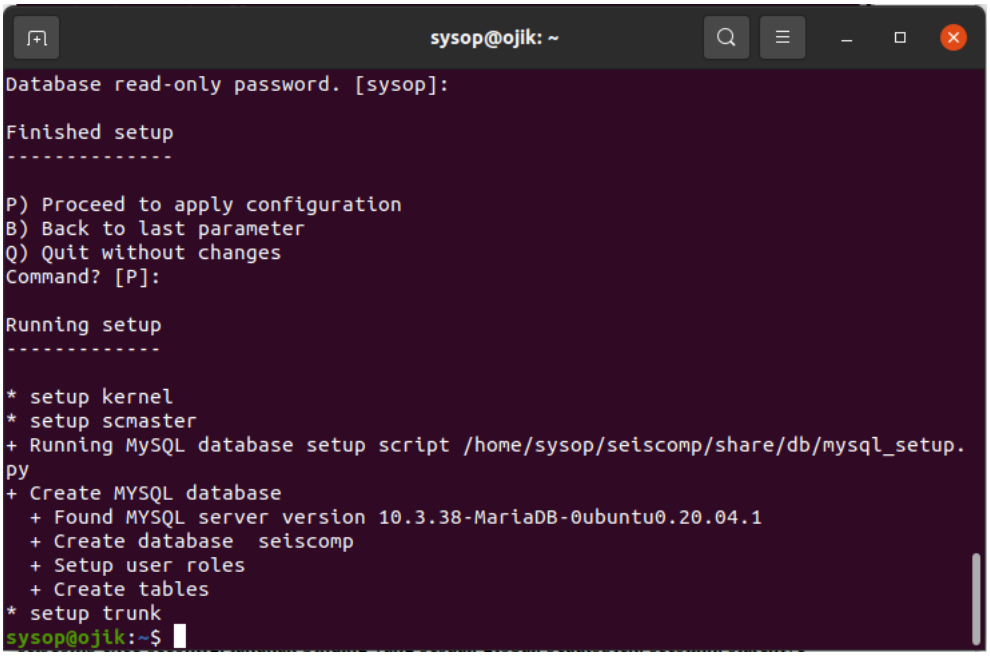
```
seiscomp setup
```



Isikan sesuai dengan default (didalam tanda kurung kotak). Untuk MYSQL root password, masukkan password yang tadi sudah didefinisikan (mysqlroot).

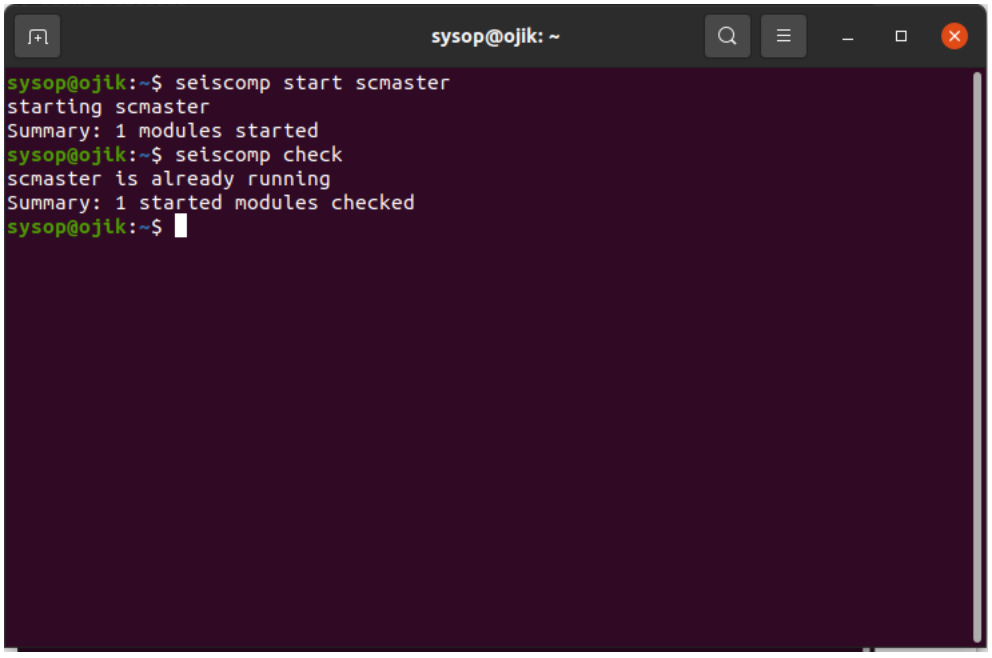


Jika instalasi berhasil maka tampilan akan seperti dibawah ini.



11. Check dan pastikan modul scmaster pada SeisComP5 sudah berjalan tanpa error, dengan cara mengetikkan perintah dibawah ini pada terminal.

    seiscomp start scmaster
    seiscomp check



12. Aktifkan dan jalankan modul SeisComP5 sesuai dengan kebutuhan.
    Untuk kebutuhan Regionalisasi Shakemap, aktifkan modul :

    seiscomp enable fdsnws scevent seedlink slarchive

    Untuk kebutuhan monitoring gempa bumi, aktifkan modul :

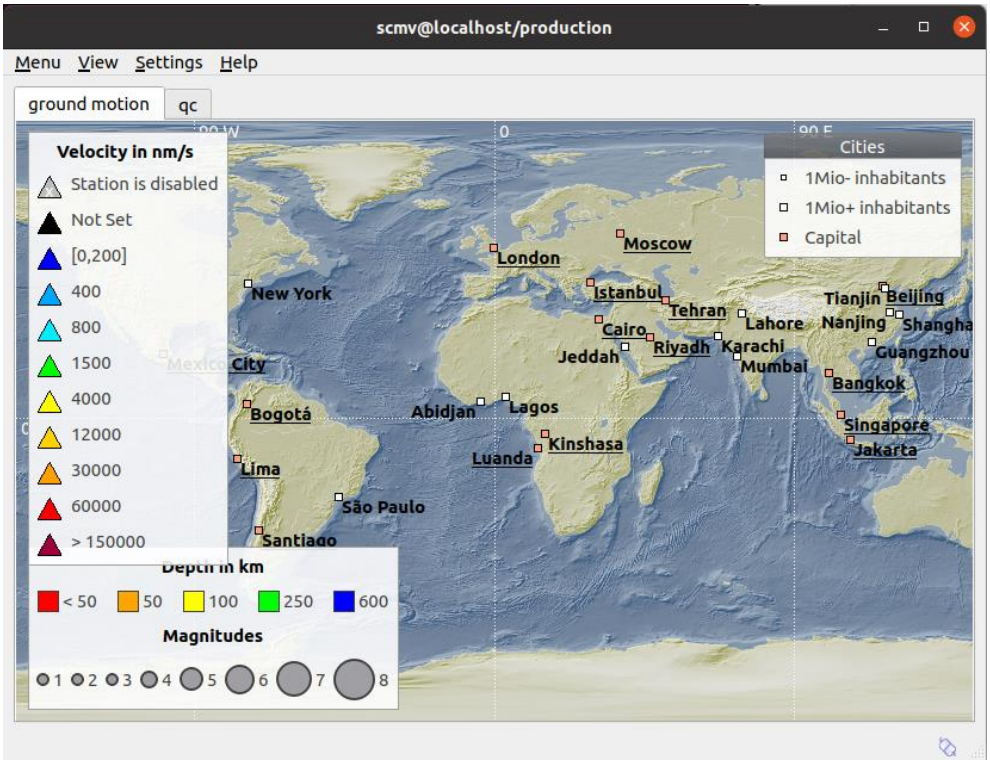
    seiscomp enable scwfas fdsnws slarchive seedlink scqc scmag
    seiscomp enable scevtlog scevent scautopick scamp scautoloc

Lakukan restart SeisComP5.

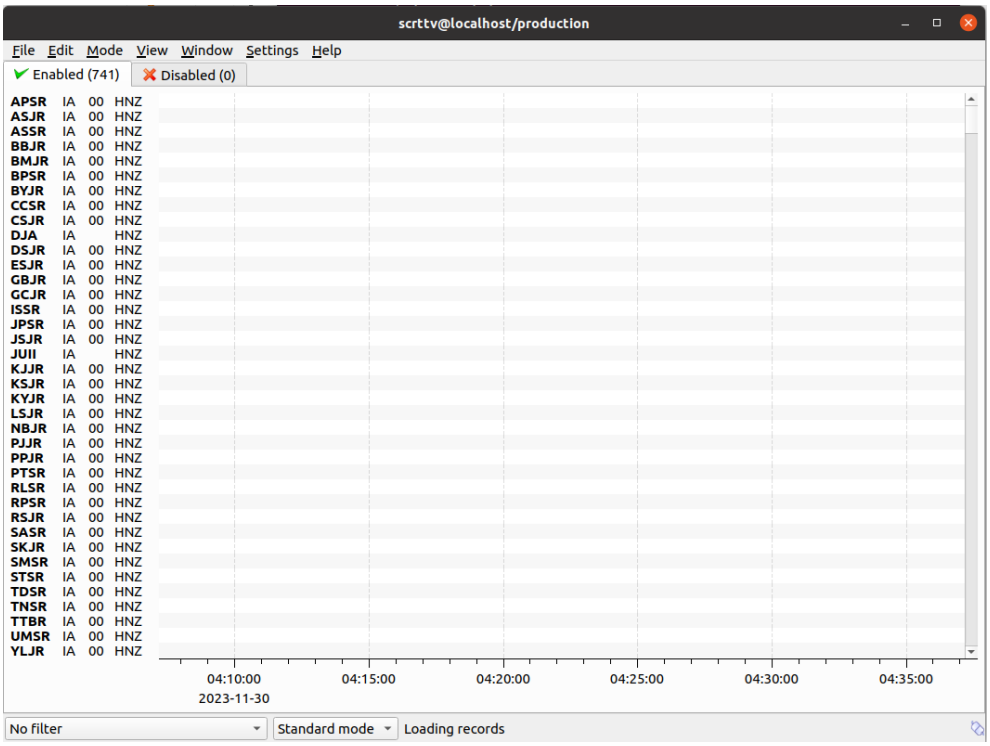
```
seiscomp restart
```

Coba beberapa GUI modul SeisComP5, seperti scrttv, scmv, scesv, scolv, dll.

scmv



scrttv



13. **[Opsional]** Setting menggunakan crontab agar SeisComP5 dapat berjalan secara otomatis ketika computer menyala.

```
seiscomp print crontab  > cronfile
```

Isi file cronfile :

```
======================
*/3 * * * * /home/sysop/seiscomp/bin/seiscomp start >/dev/null 2>&1
55 23 * * * /home/sysop/seiscomp/var/lib/seedlink/backup_seqfiles >/dev/null 2>&1
20 3 * * * /home/sysop/seiscomp/var/lib/slarchive/purge_datafiles >/dev/null 2>&1
======================
```

Kemudian ketikkan perintah :

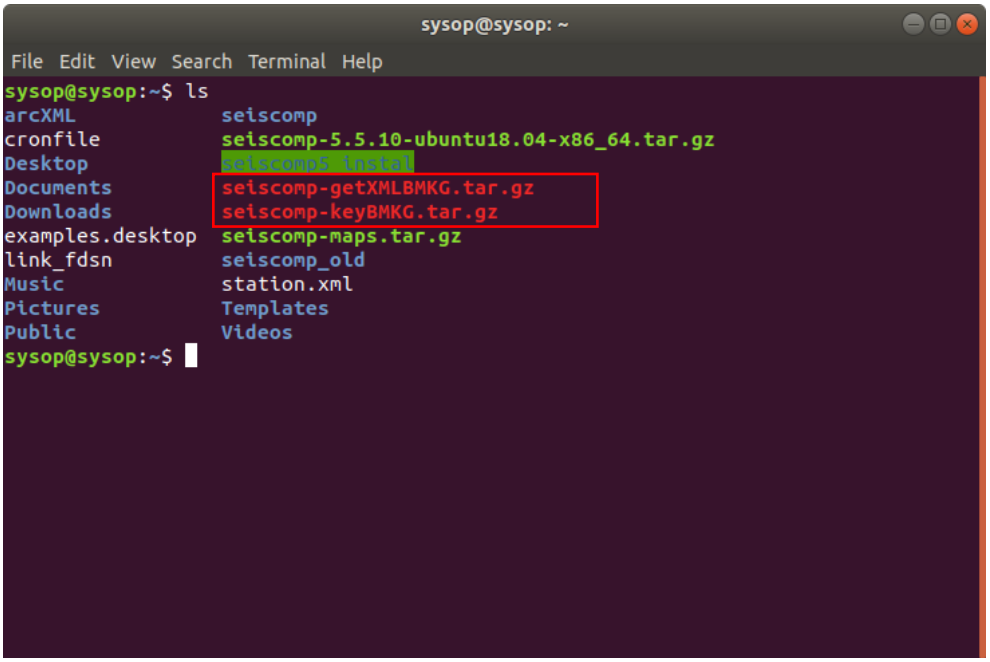
```
crontab cronfile
```

Langkah instalasi SeisComP5 telah selesai, selanjutnya lakukan konfigurasi modul.

C. Konfigurasi Software SeisComP5

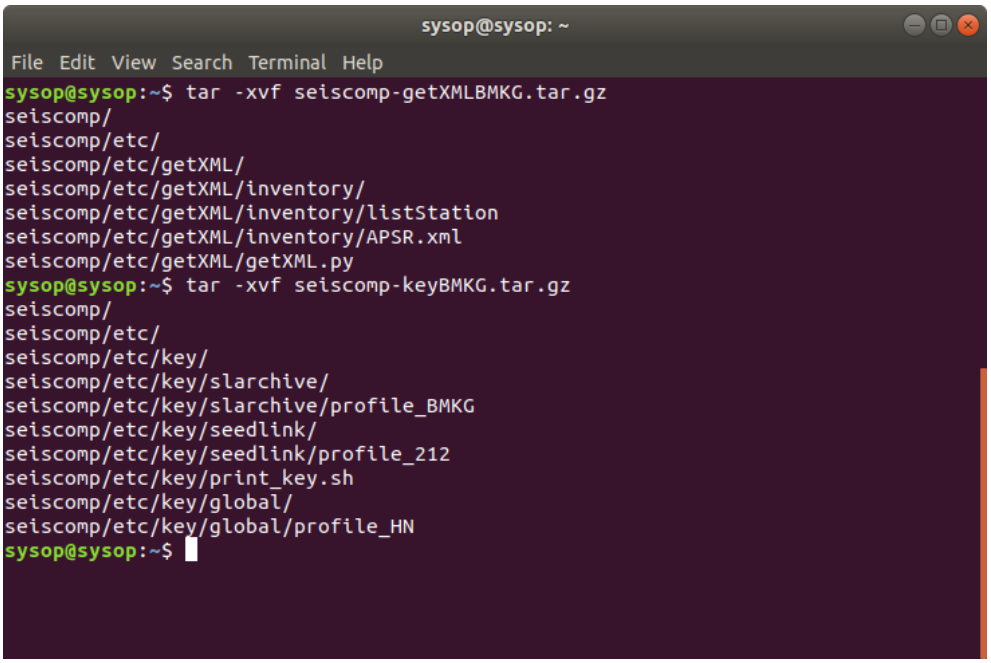
1. Download file **seiscomp-getXMLBMKG.tar.gz** dan **seiscomp-keyBMKG.tar.gz** pada link dibawah, kemudian pindahkan ke folder **/home/sysop/**.

   https://github.com/FauziThok/seiscomp5_U18.04.git



   Lakukan uncompress kedua file tar.gz dengan perintah :

   ```
   tar -xvf seiscomp-getXMLBMKG.tar.gz
   tar -xvf seiscomp-keyBMKG.tar.gz
   ```



2. Langkah selanjutnya adalah mendownload data XML per stasiun melalui FDSNWS. Masuk ke direktori **/home/sysop/seiscomp/etc/getXML**, kemudian ketikkan perintah :

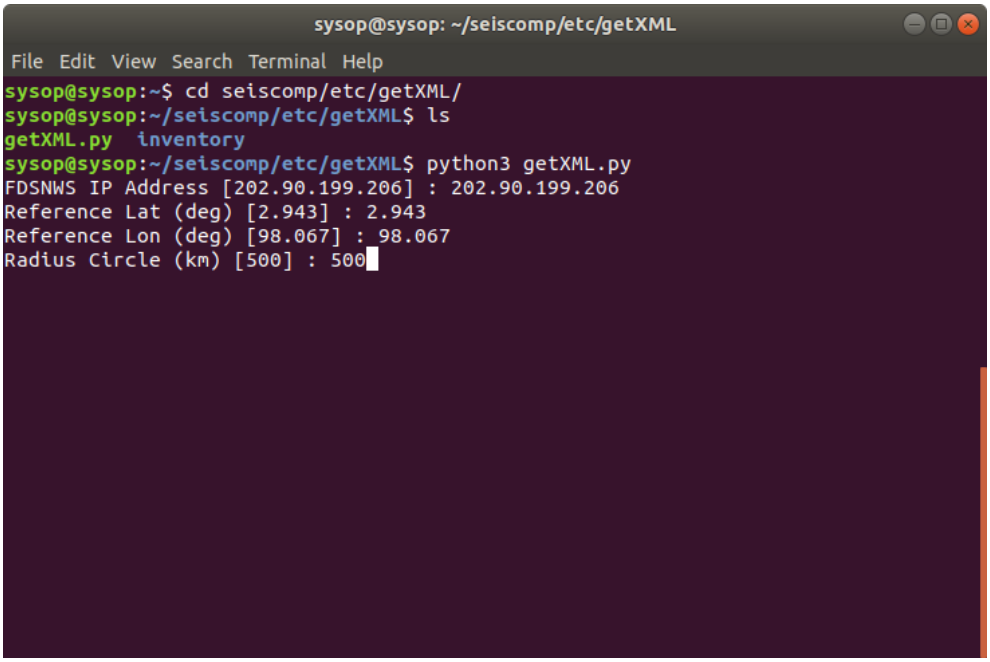
   ```
   python3 getXML.py
   ```

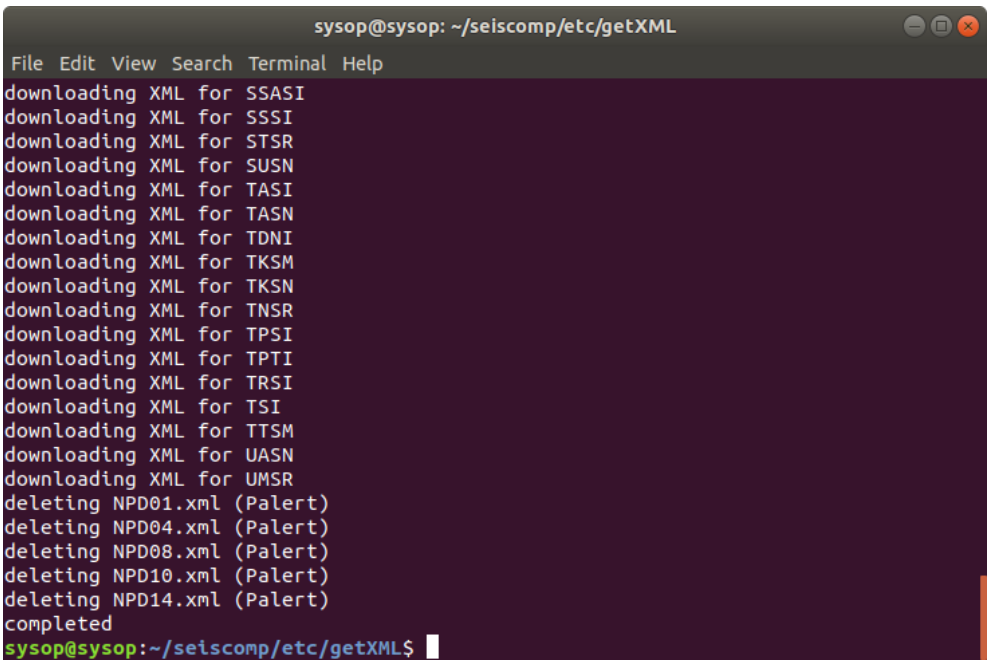
Masukkan IP Address FDSNWS

Simora : 202.90.199.206

Seismotek : 172.19.3.212

Masukkan koordinat Stasiun Regionalisasi di Reference Lat dan Lon, serta radius dari Stasiun Regionalisasi (default 500km).



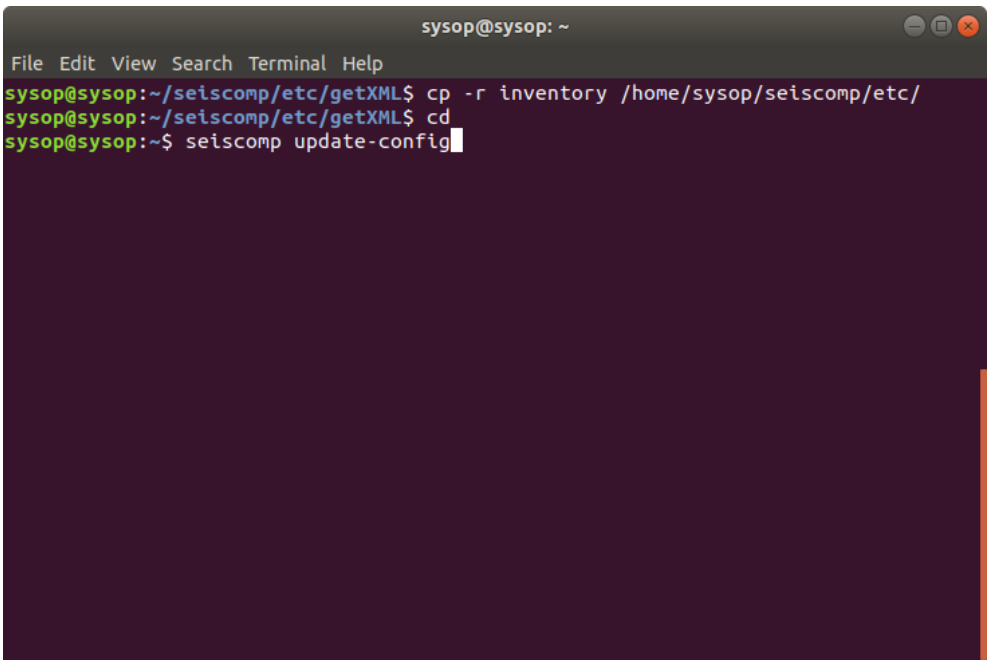


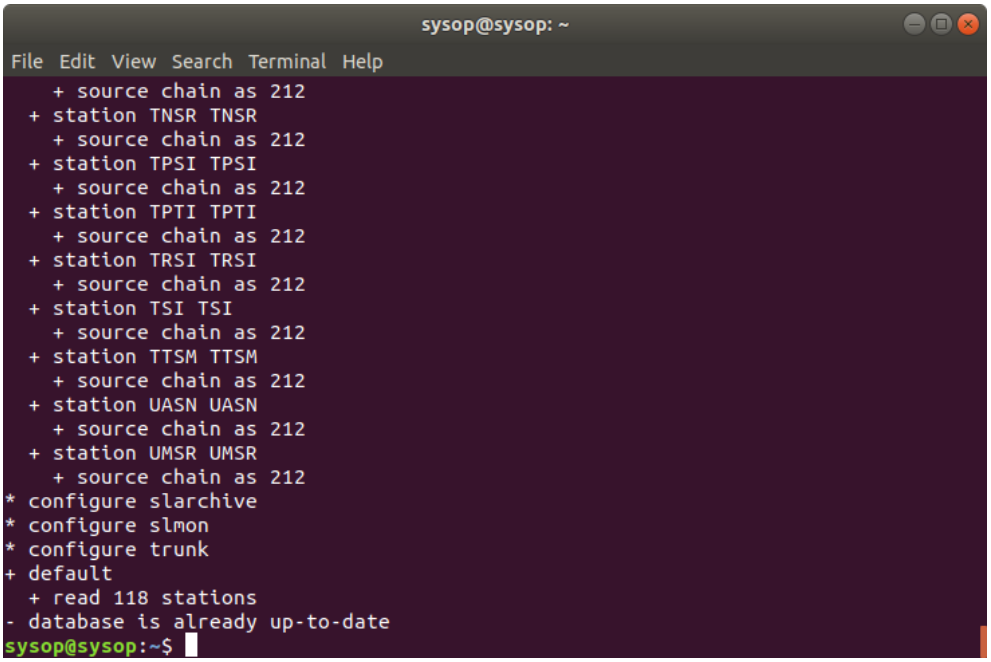
File output berada pada direktori **/home/sysop/seiscomp/etc/getXML/inventory/**. Copy folder inventory (output) ke folder inventory (SeisComP5).

```
cp -r inventory /home/sysop/seiscomp/etc/
```

Lakukan update konfigurasi SeisComP5

```
cd
seiscomp update-config
```

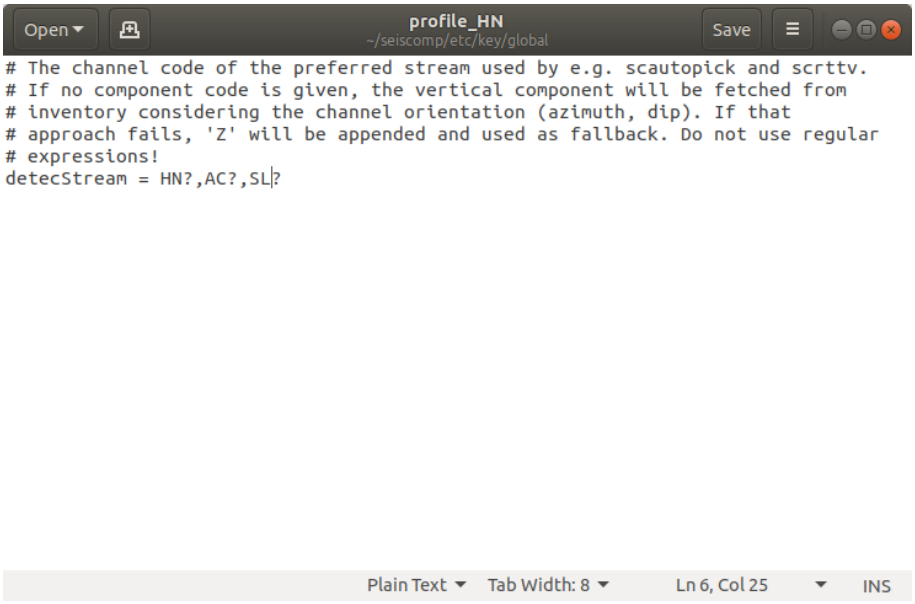


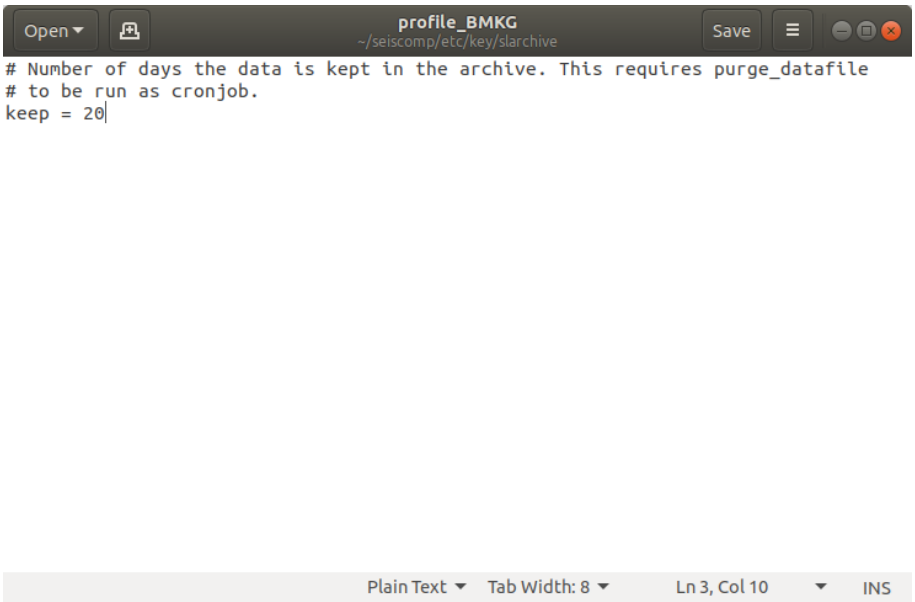


Setelah melakukan update konfigurasi akan terbentuk folder key pada direktori **/home/sysop/seiscomp/etc/** dan file **station_IA_????** untuk setiap stasiun sesuai data inventory (xml).

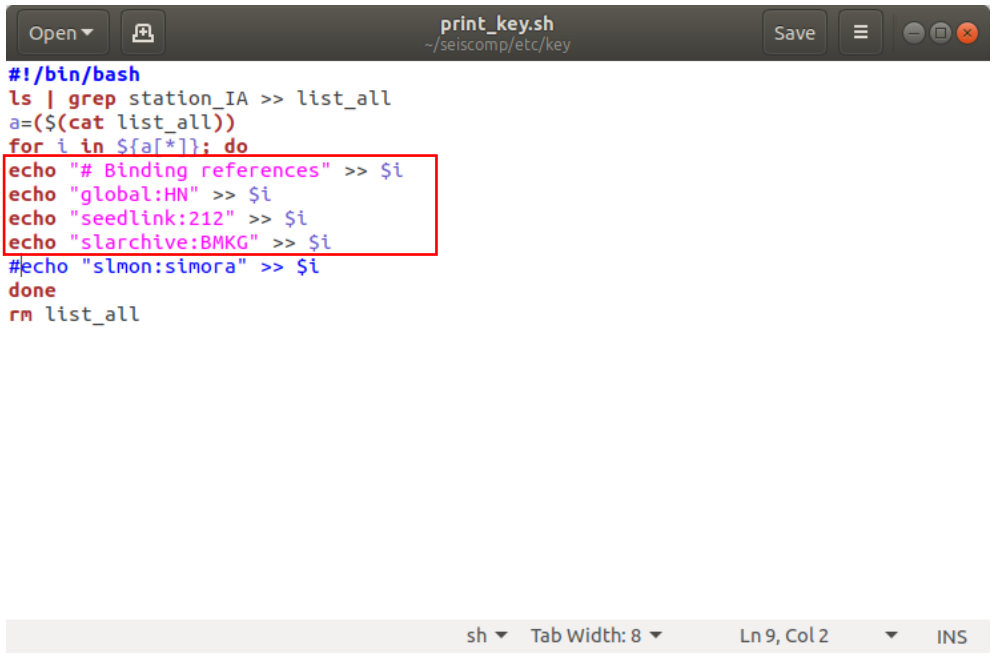
3. Setting file key (binding) untuk setiap stasiun, dapat dilakukan melalui **scconfig** atau akses langsung ke file di direktori **key**.
   Setting profil global pada **/home/sysop/seiscomp/etc/key/global/profile_HN**, mengatur kode channel untuk streaming modul **scrttv**.
   Setting profil seedlink pada **/home/sysop/seiscomp/etc/key/seedlink/profile_212**, mengatur IP Address untuk pengambilan data waveform.
   Setting profil slarchive pada **/home/sysop/seiscomp/etc/key/slarchive/profile_BMKG**, untuk mengatur berapa hari data yang disimpan dalam folder archive.
   Secara default, profil sudah disetting untuk kepentingan regionalisasi shakemap, shg tdk perlu dilakukan perubahan. Namun, untuk menambahkan profil baru, duplikat profil yang sudah ada kemudian ganti nama profil setelah tanda _ (underscore). Lakukan perubahan masing-

masing profile sesuai kebutuhan, kemudian simpan. Berikut detail profile global, seedlink, dan slarchive :



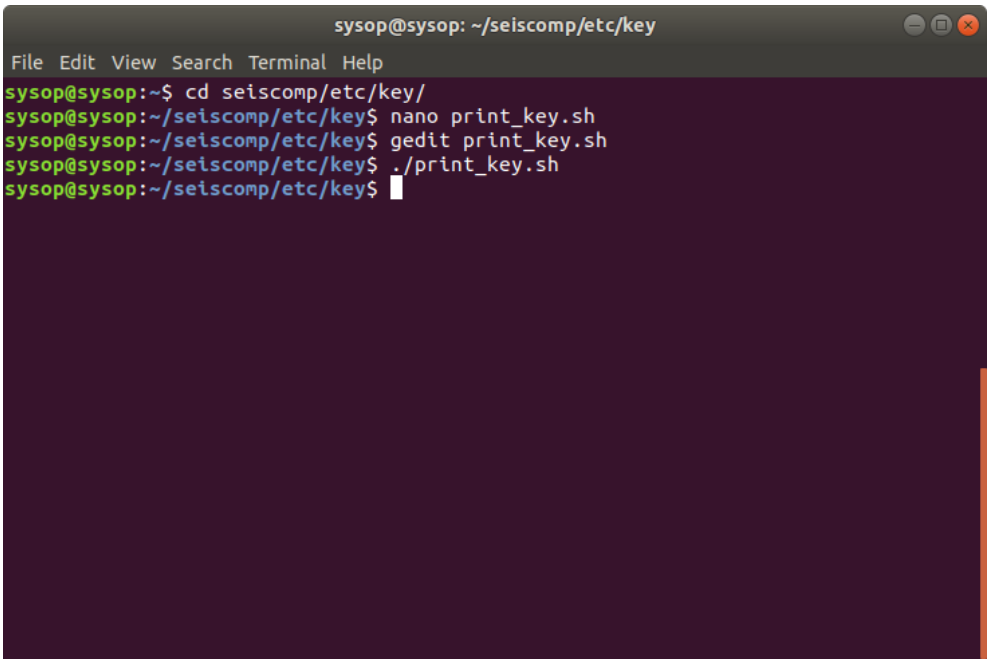


4. Melakukan binding untuk setiap stasiun. Edit file **print_key.sh**, kemudian sesuaikan binding reference dengan nama profile yang sudah dibuat pada langkah sebelumnya lalu simpan.



Execute file print_key.sh denga cara ketikkan perintah :

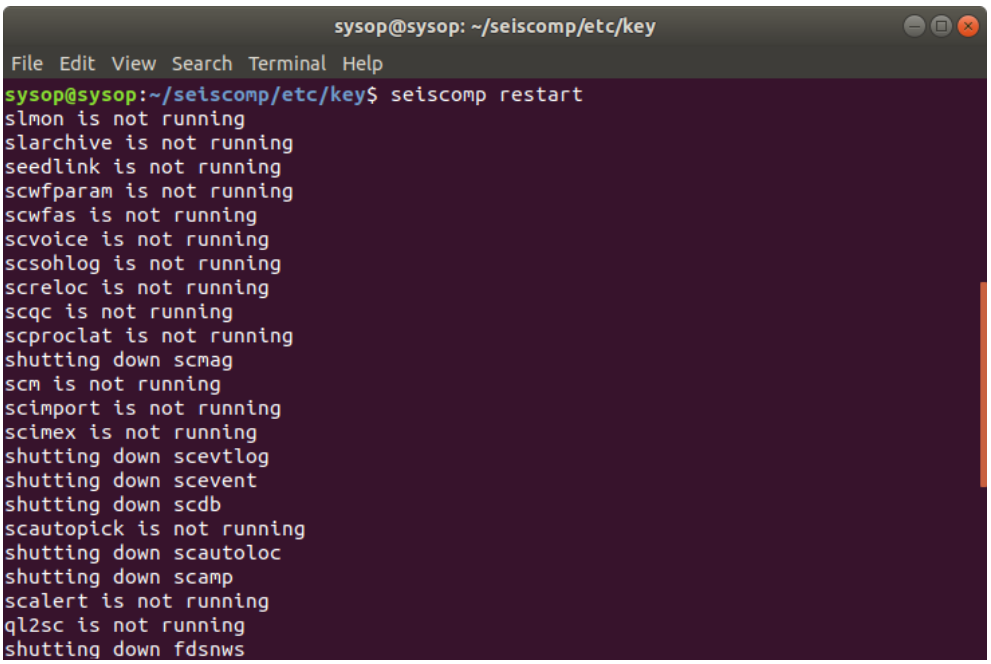
```
cd seiscomp/etc/key
./print_key.sh
```



Binding references sudah masuk kedalam semua file **station_IA_????**.

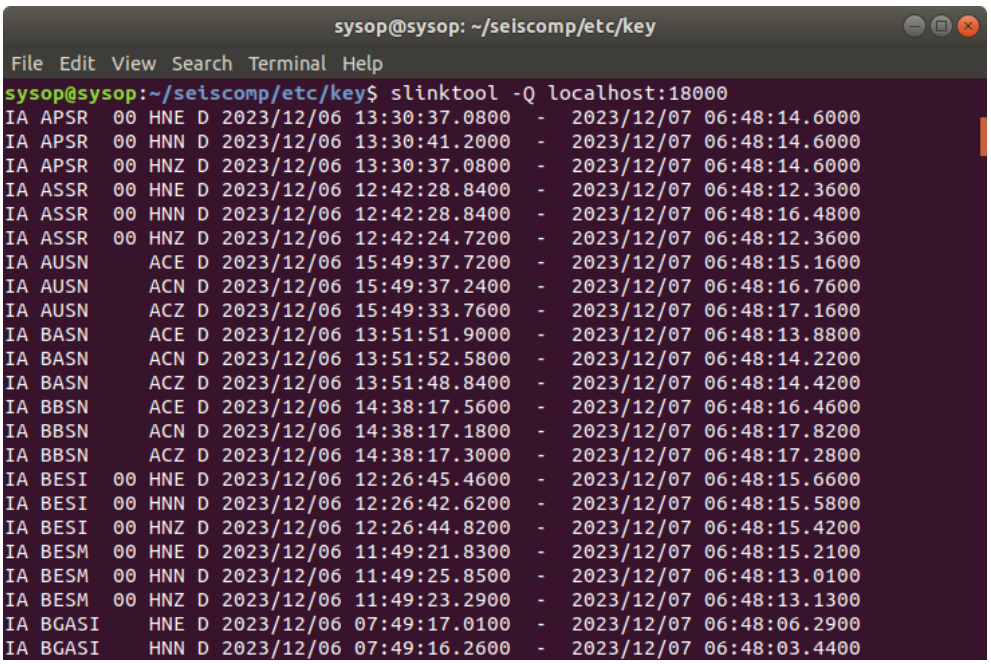
5. Lakukan update konfigurasi kembali, kemudian restart SeisComP5. Ketikkan perintah :

```
seiscomp update-config
seiscomp restart
```



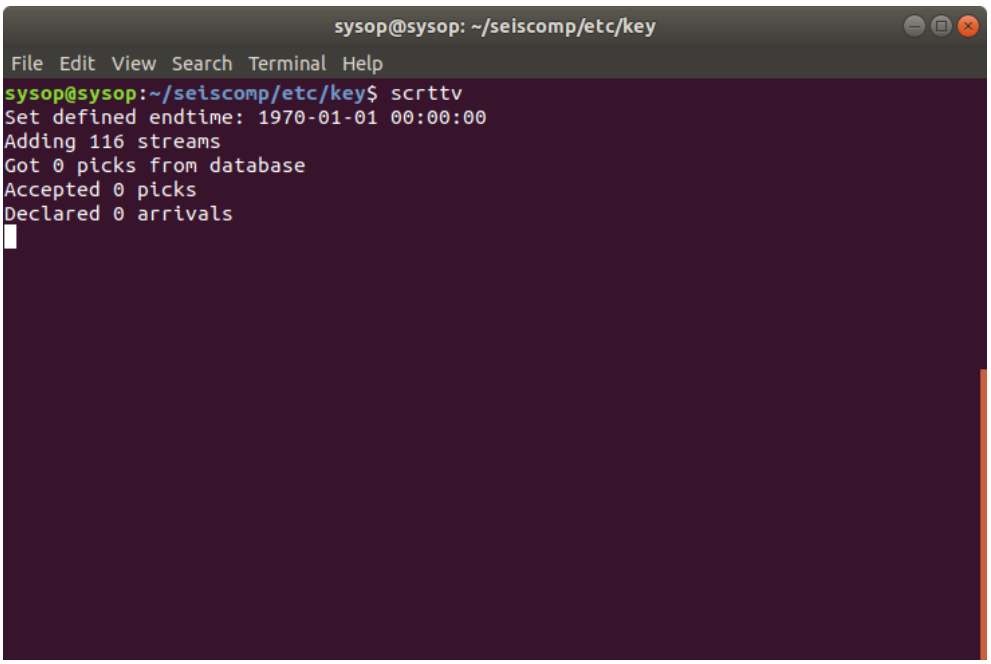
Check data waveform apakah sudah masuk dengan modul **slinktool** :

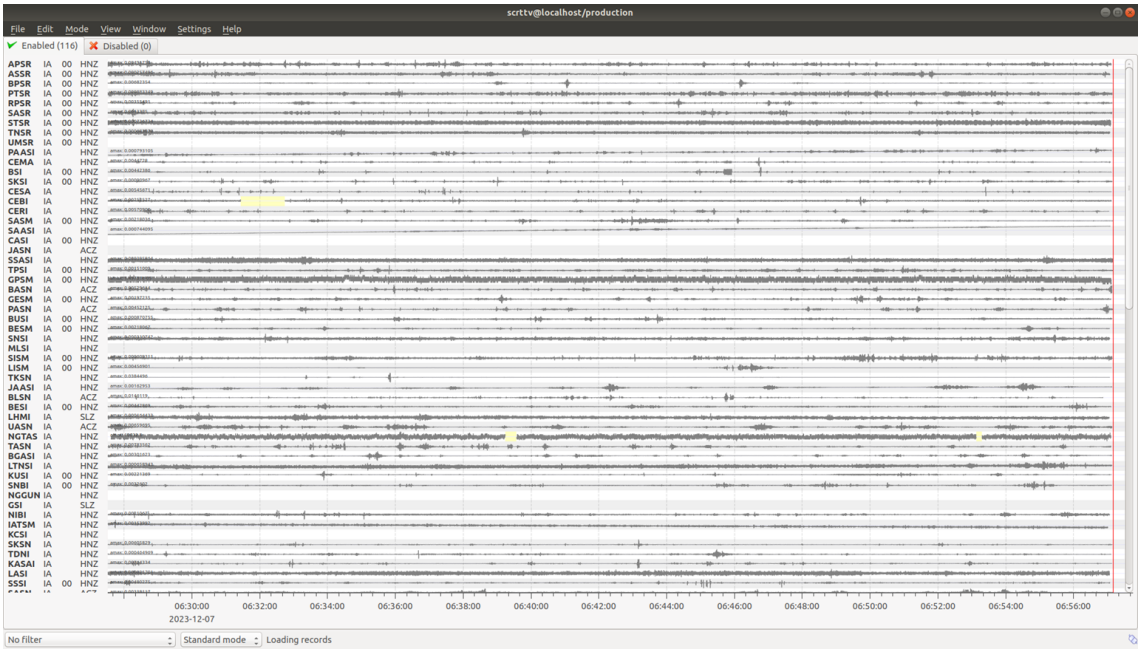
slinktool -Q localhost:18000



Check menggunakan modul gui **scrttv** , ketik pada terminal :

scrttv


sysop@sysop: ~/seiscomp/etc/key
File Edit View Search Terminal Help
sysop@sysop:~/seiscomp/etc/key$ scrttv
Set defined endtime: 1970-01-01 00:00:00
Adding 116 streams
Got 0 picks from database
Accepted 0 picks
Declared 0 arrivals


scrttv@localhost/production
File Edit Mode View Window Settings Help
Enabled (116)
Disabled (0)
06:30:00
06:32:00
06:34:00
06:36:00
06:38:00
06:40:00
06:42:00
06:44:00
06:46:00
06:48:00
06:50:00
06:52:00
06:54:00
06:56:00
2023-12-07
No filter
Standard mode
Loading records

setting scrttv
/home/sysop/seiscomp/etc/scrttv.cfg
tambahkan
==========
streams.codes = IA.*.*.HNZ, IA.*.*.ACZ, IA.*.*.SLZ
==========
seiscomp update-config
seiscomp restart