La Plateforme Asterisk – From Scratch

On installe une VM avec Debian V12 en mode console (cocher SSH et outils systèmes seulement)

pour afficher l'adresse IP de la machine avant le login :
echo "IPv4 \4" >> /etc/issue
echo "IPv6 \6" >> /etc/issue

On autorise ssh sur le compte root :
echo "PermitRootLogin Yes" > /etc/ssh/sshd_config.d/ssh.conf

On installe les paquets necessaires pour compiler Asterisk :
apt install git curl build-essential libedit-dev git curl wget libnewt-dev libssl-dev libncurses5-dev subversion libsqlite3-dev build-essential libjansson-dev libxml2-dev uuid-dev avahi-daemon

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La Plateforme **Asterisk – From Scratch**

On Télécharge la dernière version d'asterisk

```
cd /usr/src
apt install wget
wget http://downloads.asterisk.org/pub/telephony/asterisk/asterisk-20-current.tar.gz
tar xfv asterisk-20-current.tar.gz
rm asterisk-20-current.tar.gz
cd asterisk-20*

./configure
contrib/scripts/get_mp3_source.sh
```

On configure les options par : make menuselect

```
                                          Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Extended ---
Applications                       XXX chan_mobile
Bridging Modules                   [*] chan_ooh323
Call Detail Recording              [*] format_mp3
Channel Event Logging              XXX res_config_mysql
Channel Drivers
Codec Translators
Format Interpreters
Dialplan Functions
PBX Modules
Resource Modules
Test Modules
Compiler Flags
Utilities
```

La Plateforme Asterisk – From Scratch

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Core ---
Applications                        [*] app_agent_pool
Bridging Modules                    [*] app_authenticate
Call Detail Recording               [*] app_bridgeaddchan
Channel Event Logging               [*] app_bridgewait
Channel Drivers                     [*] app_cdr
Codec Translators                   [*] app_celgenuserevent
Format Interpreters                 [*] app_channelredirect
Dialplan Functions                  [*] app_chanspy
PBX Modules                         [*] app_confbridge
Resource Modules                    [*] app_controlplayback
Test Modules                        [*] app_db
Compiler Flags                      [*] app_dial
Utilities                           [*] app_directed_pickup
```

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Core ---
Applications                        [*] bridge_builtin_features
Bridging Modules                    [*] bridge_builtin_interval_features
Call Detail Recording               [*] bridge_holding
Channel Event Logging               [*] bridge_native_rtp
Channel Drivers                     [*] bridge_simple
Codec Translators                   [*] bridge_softmix
Format Interpreters                     --- Module Options ---
Dialplan Functions                  XXX binaural_rendering_in_bridge_softmix
PBX Modules
Resource Modules
Test Modules
Compiler Flags
Utilities
```

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Asterisk – From Scratch

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Core ---
Applications                        XXX cdr_adaptive_odbc
Bridging Modules                    [*] cdr_custom
Call Detail Recording               [*] cdr_manager
Channel Event Logging                   --- Extended ---
Channel Drivers                     XXX cdr_beanstalkd
Codec Translators                   [*] cdr_csv
Format Interpreters                 XXX cdr_odbc
Dialplan Functions                  XXX cdr_pgsql
PBX Modules                         XXX cdr_radius
Resource Modules                    [*] cdr_sqlite3_custom
Test Modules                        XXX cdr_tds
Compiler Flags
Utilities
```

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Core ---
Applications                        [*] cel_custom
Bridging Modules                    [*] cel_manager
Call Detail Recording               XXX cel_odbc
Channel Event Logging                   --- Extended ---
Channel Drivers                     XXX cel_beanstalkd
Codec Translators                   XXX cel_pgsql
Format Interpreters                 XXX cel_radius
Dialplan Functions                  [*] cel_sqlite3_custom
PBX Modules                         XXX cel_tds
Resource Modules
Test Modules
Compiler Flags
Utilities
```

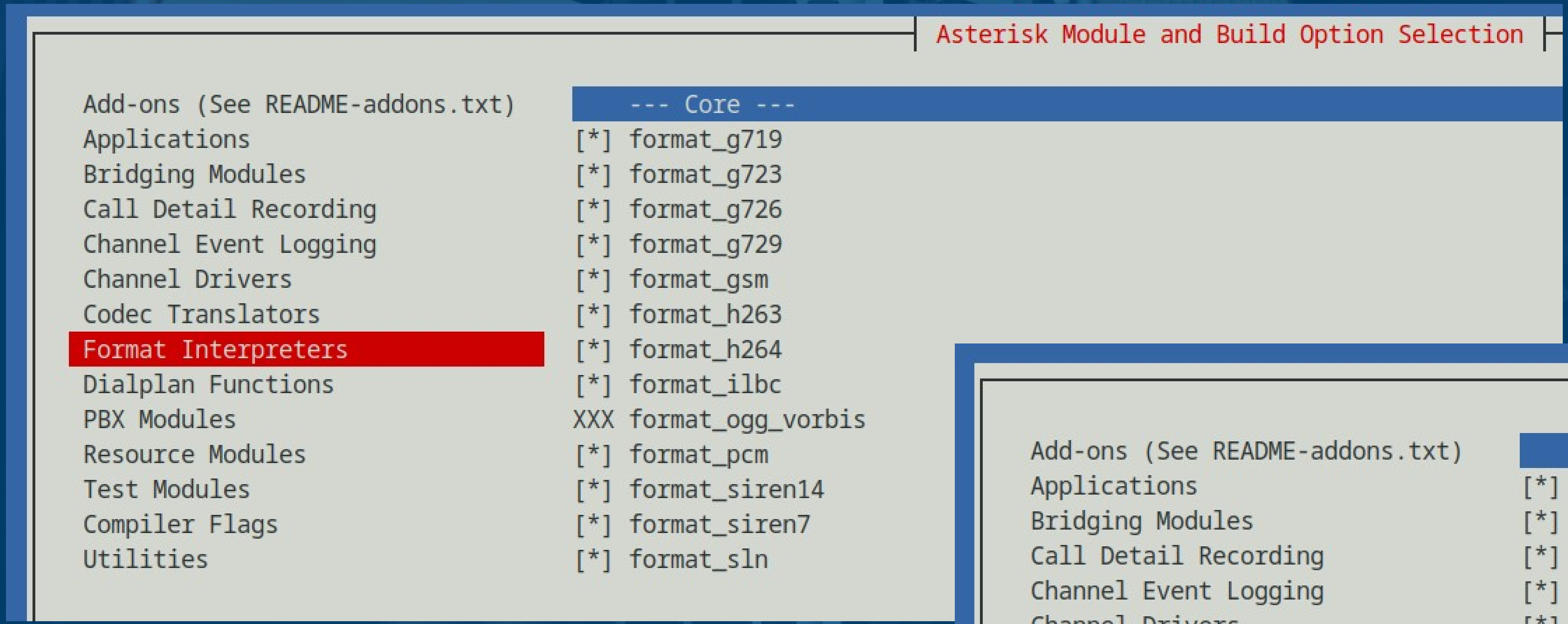
La Plateforme Asterisk – From Scratch

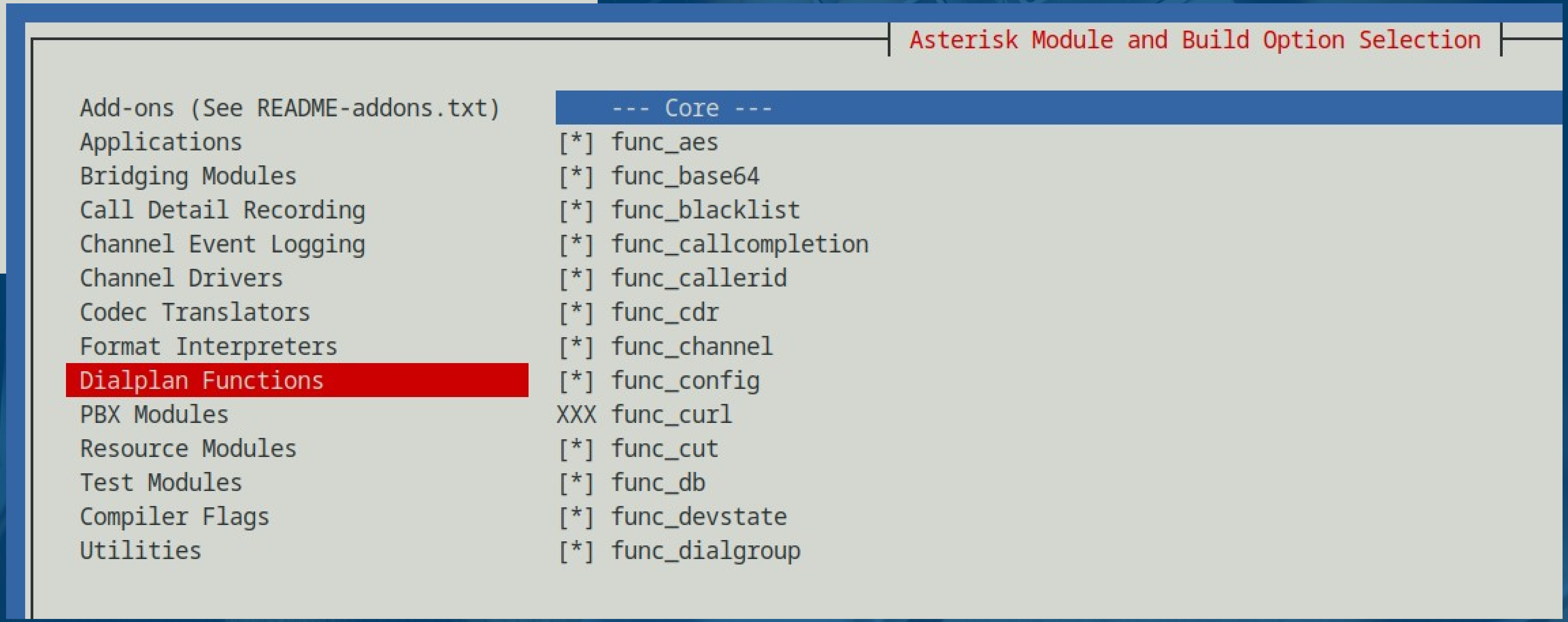
```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)      --- Core ---
Applications                         [*] chan_bridge_media
Bridging Modules                     XXX chan_dahdi
Call Detail Recording                [*] chan_iax2
Channel Event Logging                XXX chan_motif
Channel Drivers                      [*] chan_pjsip
Codec Translators                    [*] chan_rtp
Format Interpreters                      --- Extended ---
Dialplan Functions                   [*] chan_audiosocket
PBX Modules                          XXX chan_console
Resource Modules                     [*] chan_unistim
Test Modules                             --- Deprecated ---
Compiler Flags                       XXX chan_alsa
Utilities                            [ ] chan_mgcp
```

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)      --- Core ---
Applications                         [*] codec_a_mu
Bridging Modules                     [*] codec_adpcm
Call Detail Recording                [*] codec_alaw
Channel Event Logging                XXX codec_codec2
Channel Drivers                      XXX codec_dahdi
Codec Translators                    [*] codec_g722
Format Interpreters                  [*] codec_g726
Dialplan Functions                   [*] codec_gsm
PBX Modules                          [*] codec_ilbc
Resource Modules                     [*] codec_lpc10
Test Modules                         [*] codec_resample
Compiler Flags                       XXX codec_speex
Utilities                            [*] codec_ulaw
```


Asterisk Module and Build Option Selection
Add-ons (See README-addons.txt)
Applications
Bridging Modules
Call Detail Recording
Channel Event Logging
Channel Drivers
Codec Translators
Format Interpreters
Dialplan Functions
PBX Modules
Resource Modules
Test Modules
Compiler Flags
Utilities
--- Core ---
[*] format_g719
[*] format_g723
[*] format_g726
[*] format_g729
[*] format_gsm
[*] format_h263
[*] format_h264
[*] format_ilbc
XXX format_ogg_vorbis
[*] format_pcm
[*] format_siren14
[*] format_siren7
[*] format_sln


Asterisk Module and Build Option Selection
Add-ons (See README-addons.txt)
Applications
Bridging Modules
Call Detail Recording
Channel Event Logging
Channel Drivers
Codec Translators
Format Interpreters
Dialplan Functions
PBX Modules
Resource Modules
Test Modules
Compiler Flags
Utilities
--- Core ---
[*] func_aes
[*] func_base64
[*] func_blacklist
[*] func_callcompletion
[*] func_callerid
[*] func_cdr
[*] func_channel
[*] func_config
XXX func_curl
[*] func_cut
[*] func_db
[*] func_devstate
[*] func_dialgroup

La Plateforme

Asterisk – From Scratch

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Core ---
Applications                        [*] pbx_config
Bridging Modules                    [*] pbx_loopback
Call Detail Recording               [*] pbx_spool
Channel Event Logging                   --- Extended ---
Channel Drivers                     [*] pbx_ael
Codec Translators                   [*] pbx_dundi
Format Interpreters                 XXX pbx_lua
Dialplan Functions                  [*] pbx_realtime
PBX Modules
Resource Modules
Test Modules
Compiler Flags
Utilities
```

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Core ---
Applications                        [*] res_aeap
Bridging Modules                    [*] res_agi
Call Detail Recording               [*] res_ari
Channel Event Logging               [*] res_ari_applications
Channel Drivers                     [*] res_ari_asterisk
Codec Translators                   [*] res_ari_bridges
Format Interpreters                 [*] res_ari_channels
Dialplan Functions                  [*] res_ari_device_states
PBX Modules                         [*] res_ari_endpoints
Resource Modules                    [*] res_ari_events
Test Modules                        < > res_ari_mailboxes
Compiler Flags                      [*] res_ari_model
Utilities                           [*] res_ari_playbacks
```

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```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Core ---
Applications                        XXX test_abstract_jb
Bridging Modules                    XXX test_acl
Call Detail Recording               XXX test_aeap
Channel Event Logging               XXX test_aeap_speech
Channel Drivers                     XXX test_aeap_transaction
Codec Translators                   XXX test_aeap_transport
Format Interpreters                 XXX test_amihooks
Dialplan Functions                  XXX test_aoc
PBX Modules                         XXX test_app
Resource Modules                    XXX test_ari
Test Modules                        XXX test_ari_model
Compiler Flags                      XXX test_ast_format_str_redu
Utilities                           XXX test_astobj2
```

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)     --- Core ---
Applications                        [ ] DONT_OPTIMIZE
Bridging Modules                    < > COMPILE_DOUBLE
Call Detail Recording               [ ] DEBUG_THREADS
Channel Event Logging               [ ] DEBUG_FD_LEAKS
Channel Drivers                     XXX BETTER_BACKTRACES
Codec Translators                   [ ] LOTS_OF_SPANS
Format Interpreters                 [ ] MALLOC_DEBUG
Dialplan Functions                  [ ] DEBUG_CHAOS
PBX Modules                         [*] BUILD_NATIVE
Resource Modules                        --- Extended ---
Test Modules                        [ ] REF_DEBUG
Compiler Flags                      [ ] AO2_DEBUG
Utilities                           XXX REBUILD_PARSERS
```

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```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)      --- Core ---
Applications                         [*] astcanary
Bridging Modules                     [*] astdb2sqlite3
Call Detail Recording                [*] astdb2bdb
Channel Event Logging                    --- Extended ---
Channel Drivers                      [ ] check_expr
Codec Translators                    [ ] check_expr2
Format Interpreters                  XXX smsq
Dialplan Functions                   [ ] stereorize
PBX Modules                          [ ] streamplayer
Resource Modules                     XXX conf_bridge_binaural_hri
Test Modules                             --- Deprecated ---
Compiler Flags                       [ ] aelparse
Utilities                            [ ] astman
```

```
Asterisk Module and Build Option Selection

Bridging Modules                     --- Extended ---
Call Detail Recording                [ ] agi-test.agi
Channel Event Logging                [ ] eagi-test
Channel Drivers                      [ ] eagi-sphinx-test
Codec Translators                    [ ] jukebox.agi
Format Interpreters
Dialplan Functions
PBX Modules
Resource Modules
Test Modules
Compiler Flags
Utilities
AGI Samples
Core Sound Packages
```

La Plateforme Asterisk – From Scratch

```
Asterisk Module and Build Option Selection

Bridging Modules              [ ] CORE-SOUNDS-ES-GSM
Call Detail Recording         [ ] CORE-SOUNDS-ES-G729
Channel Event Logging         [ ] CORE-SOUNDS-ES-G722
Channel Drivers               [ ] CORE-SOUNDS-ES-SLN16
Codec Translators             [ ] CORE-SOUNDS-ES-SIREN7
Format Interpreters           [ ] CORE-SOUNDS-ES-SIREN14
Dialplan Functions            [ ] CORE-SOUNDS-FR-WAV
PBX Modules                   [*] CORE-SOUNDS-FR-ULAW
Resource Modules              [*] CORE-SOUNDS-FR-ALAW
Test Modules                  [*] CORE-SOUNDS-FR-GSM
Compiler Flags                [*] CORE-SOUNDS-FR-G729
Utilities                     [*] CORE-SOUNDS-FR-G722
AGI Samples                   [ ] CORE-SOUNDS-FR-SLN16
Core Sound Packages           [ ] CORE-SOUNDS-FR-SIREN7
```

```
Asterisk Module and Build Option Selection

Call Detail Recording           --- Core ---
Channel Event Logging         [*] MOH-OPSOUND-WAV
Channel Drivers               [ ] MOH-OPSOUND-ULAW
Codec Translators             [ ] MOH-OPSOUND-ALAW
Format Interpreters           [*] MOH-OPSOUND-GSM
Dialplan Functions            [*] MOH-OPSOUND-G729
PBX Modules                   [*] MOH-OPSOUND-G722
Resource Modules              [ ] MOH-OPSOUND-SLN16
Test Modules                  [ ] MOH-OPSOUND-SIREN7
Compiler Flags                [ ] MOH-OPSOUND-SIREN14
Utilities
AGI Samples
Core Sound Packages
Music On Hold File Packages
```

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```
Asterisk Module and Build Option Selection

Channel Event Logging              [ ] EXTRA-SOUNDS-EN_GB-G729
Channel Drivers                    [ ] EXTRA-SOUNDS-EN_GB-G722
Codec Translators                  [ ] EXTRA-SOUNDS-EN_GB-SLN16
Format Interpreters                [ ] EXTRA-SOUNDS-EN_GB-SIREN7
Dialplan Functions                 [ ] EXTRA-SOUNDS-EN_GB-SIREN14
PBX Modules                        [ ] EXTRA-SOUNDS-FR-WAV
Resource Modules                   [ ] EXTRA-SOUNDS-FR-ULAW
Test Modules                       [ ] EXTRA-SOUNDS-FR-ALAW
Compiler Flags                     [*] EXTRA-SOUNDS-FR-GSM
Utilities                          [*] EXTRA-SOUNDS-FR-G729
AGI Samples                        [*] EXTRA-SOUNDS-FR-G722
Core Sound Packages                [ ] EXTRA-SOUNDS-FR-SLN16
Music On Hold File Packages        [ ] EXTRA-SOUNDS-FR-SIREN7
Extras Sound Packages              [ ] EXTRA-SOUNDS-FR-SIREN14

French, G.722.1C (Siren14) format

    Depends on: N/A
       Can use: N/A
Conflicts with: N/A
 Support Level: core

                                         Save & Exit     Exit
```

Une fois la configuration terminée, on compile :

```
make
make install
make samples
make basic-pbx
make config
```

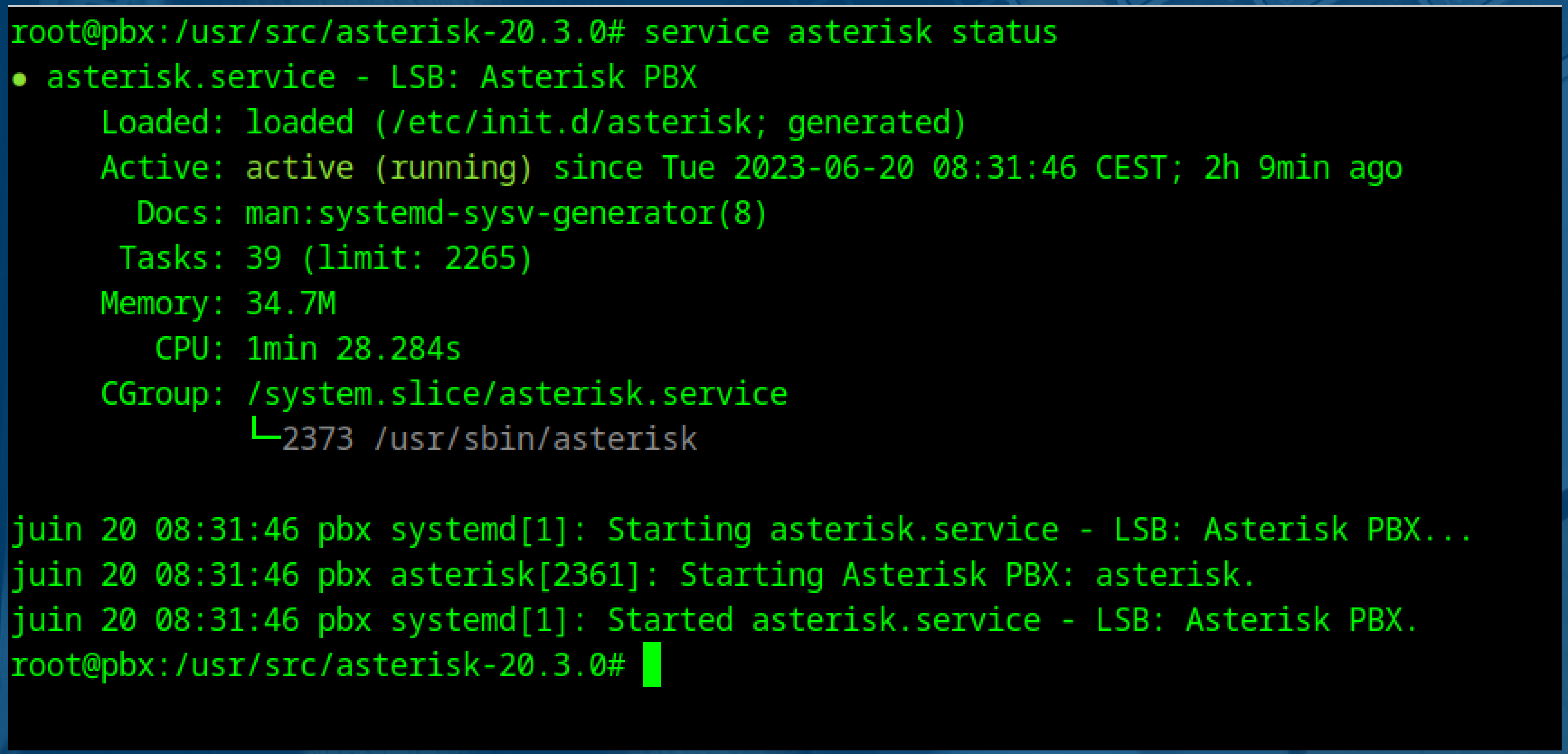
Selon la puissance de la machine, l’opération peut être longue.

La Plateforme Asterisk – From Scratch

Une fois terminé, on lance Asterisk et on verifie son statut :

service asterisk start

service asterisk status



```
root@pbx:/usr/src/asterisk-20.3.0# service asterisk status
● asterisk.service - LSB: Asterisk PBX
     Loaded: loaded (/etc/init.d/asterisk; generated)
     Active: active (running) since Tue 2023-06-20 08:31:46 CEST; 2h 9min ago
       Docs: man:systemd-sysv-generator(8)
      Tasks: 39 (limit: 2265)
     Memory: 34.7M
        CPU: 1min 28.284s
     CGroup: /system.slice/asterisk.service
             └─2373 /usr/sbin/asterisk

juin 20 08:31:46 pbx systemd[1]: Starting asterisk.service - LSB: Asterisk PBX...
juin 20 08:31:46 pbx asterisk[2361]: Starting Asterisk PBX: asterisk.
juin 20 08:31:46 pbx systemd[1]: Started asterisk.service - LSB: Asterisk PBX.
root@pbx:/usr/src/asterisk-20.3.0#
```

On va faire une sauvegarde des fichiers que l'on va modifier :
mv /etc/asterisk/pjsip.conf /etc/asterisk/pjsip.conf.origin
mv /etc/asterisk/voicemail.conf /etc/asterisk/voicemail.conf.origin
cp /etc/asterisk/asterisk.conf /etc/asterisk/asterisk.conf.origin

Pour le test, on va créer 3 utilisateurs :
alice, numéro : 6001, mot de passe : bonjour
bob, numéro : 6002, mot de passe : bonjour
martin, numéro : 6003, mot de passe : bonjour

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Les fichiers de config sont à récupérer sur : https://github.com/thierry-rami/Asterisk_config
Et a copier dans /etc/asterisk

Une fois les fichiers de config installés faire :
asterisk -rx "core restart now"

et on vérifie que Asterisk Toune :

```
root@pbx:~# ss -nlut | grep -E '5060|State'
Netid   State    Recv-Q   Send-Q     Local Address:Port      Peer Address:Port
udp     UNCONN   0        0            0.0.0.0:5060           0.0.0.0:*
```

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On lance la commande asterisk -rvvvvvvvvvv
On se trouve maintenant dans l'invite de commande d'asterisk :

pjsip list aors
pjsip list auths

Normalement, on devrait voir les 3 utilisateurs : Alice , Bob , Martin

La Plateforme Asterisk – From Scratch

Maintenant que le serveur Asterisk tourne, on va installer le client sur Windows, Linux, MacOs, Smartphone : Linphone

Dans ce cas, je me connecte en tant que « Alice »
et l’adresse IP du serveur asterisk est :10.10.18.150
Une fois connecté dans l’interface CLI d’Asterisk, on a :

```
  -- Added contact 'sip:alice@10.10.18.151:44678;transport=udp' to AOR 'alice' with expiration of 3600 sec
 == Endpoint alice is now Reachable
  -- Removed contact 'sip:alice@10.10.18.151:44678;transport=udp' from AOR 'alice' due to request
 == Contact alice/sip:alice@10.10.18.151:44678;transport=udp has been deleted
 == Endpoint alice is now Unreachable
pbx*CLI>
```