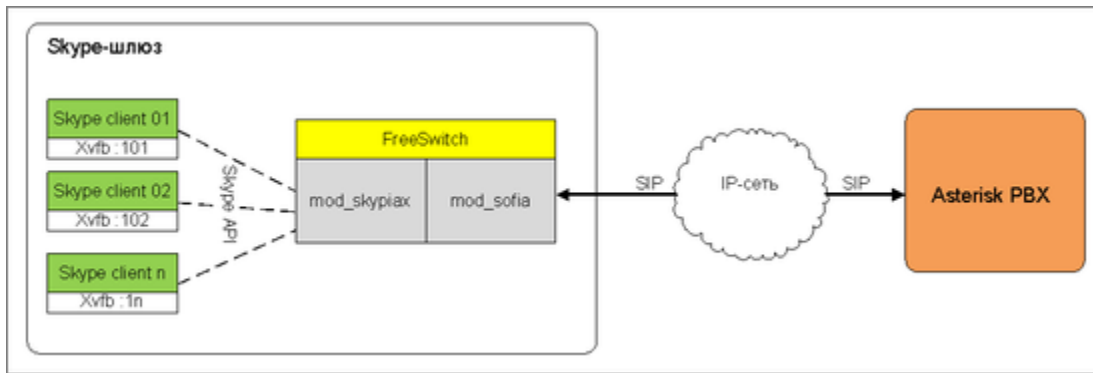




??
 ?????

- Virtual machine on VMware ESX
- CentOS 5.5
- PIAF 1.7.5.5
- Asterisk 1.6.2.17
- FreeSWITCH Version 1.0.head (git-7768808 2011-06-18 11-52-37 -0500)
- ????? Skype ??

??????



??/?? FreeSwitch

vorbis ??

```
yum install libvorbis libvorbis-devel vorbis-tools libogg libogg-devel
```

curl ??

```
yum install curl curl-devel libidn-devel
```

?? FreeSwitch ?????

```
yum install gcc ncurses ncurses-devel make gcc-c++ libtermcap libtermcap-devel zlib zlib-devel libtool
bison bison-devel openssl-devel bzip2 bzip2-devel wget newt newt-devel subversion flex gdbm-devel
db4-devel
```

MySQL ??

?????? PIAF ????

```
yum install mysql mysql-server mysql-devel
```

ODBC ??

```
yum install unixODBC unixODBC-devel mysql-connector-odbc libtool-ltdl
```

FreeSwitch FAX ??

?????? PIAF ????

```
yum install libtiff libtiff-devel libxml2 libxml2-devel libjpeg libjpeg-devel
```

XMPP ???(?? Google Talk)

```
yum install gnutls gnutls-devel gnutls-utils
```

OpenLDAP ??

```
yum install compat-openldap openldap-clients openldap-devel openldap-servers openldap
```

SNMP ???

```
yum install net-snmp-devel net-snmp-libs net-snmp-utils net-snmp
```

Mail Server ??

```
yum install sendmail sendmail-devel sendmail-cf
```

X11 ? Alsa ???

```
yum install libX11-devel Xvfb alsa-utils libXv libXScrnSaver xorg-x11-fonts* alsa-lib-devel libXScrnSaver  
kernel-devel alsa-lib libXScrnSaver libXv
```

TCL ??

```
yum install tcl tcl-devel
```

?? git

???????????? FreeSwitch ???

```
yum install git
```

????????????

```
cd /usr/src
```

```
wget http://www.kernel.org/pub/software/scm/git/git-1.7.3.tar.gz
```

```
tar -xf git-1.7.3.tar.gz
```

```
cd git-1.7.3
```

```
./configure --prefix=/usr
```

```
make
```

```
make install
```

?? FreeSwitch

```
cd /usr/src
git clone git://git.freeswitch.org/freeswitch.git
cd freeswitch/
./bootstrap.sh
./configure
make && make install && make hd-sounds-install && make hd-moh-install && make samples
```

???? mod_skypopen

```
?? /usr/src/freeswitch/modules.conf
????????????
```

```
...
endpoints/mod_skypopen
```

...

??

make install

?? OSS driver for Skype

```
cd /usr/src/freeswitch/src/mod/endpoints/mod_skypopen/oss
make clean
make
insmod ./skypopen.ko
mknod /dev/dsp c 14 3
```

????? Skype Client

- ?????? Skype Channel ?????? Skype username/password?
- ??????????????????????
- ?? Skype channels ?????? Skype ???one ??multi ??

```
cd /usr/src/freeswitch/src/mod/endpoints/mod_skypopen/install
./install.pl
```

? skype channel x4 ??

```
Enter your name
[Giovanni]: <whatever name you wanted>
```

```
Enter the full path of the Skype download directory
[/tmp/skype_download]:
```

You gave: '/tmp/skype_download'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter the directory full path for Skype client binary
[/usr/bin]:
You gave: '/usr/bin'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter the directory full path for FreeSWITCH modules' config files
[/usr/local/freeswitch/conf/autoload_configs]:
You gave: '/usr/local/freeswitch/conf/autoload_configs'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter the directory full path for fake sound driver
[/usr/local/freeswitch/skypopen/skypopen-sound-driver-dir]:
You gave: '/usr/local/freeswitch/skypopen/skypopen-sound-driver-dir'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter the directory full path for Skype clients config
[/usr/local/freeswitch/skypopen/skype-clients-configuration-dir]:
You gave: '/usr/local/freeswitch/skypopen/skype-clients-configuration-dir'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter the directory full path for Skype clients startup script
[/usr/local/freeswitch/skypopen/skype-clients-startup-dir]:
You gave: '/usr/local/freeswitch/skypopen/skype-clients-startup-dir'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter the directory full path for Skype clients symlinks
[/usr/local/freeswitch/skypopen/skype-clients-symlinks-dir]:
You gave: '/usr/local/freeswitch/skypopen/skype-clients-symlinks-dir'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter how many Skype clients will be launched
[5]: 4
You gave: '4'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter 'one' or 'multi'
[one]: one
You gave: 'one'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter the Skype clients username
[your_own_skype_username]: <your skype username>
You gave: '.....'
It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Enter the Skype clients password
[your_own_skype_password]: <your skype pass>

You gave: '....'

It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

Are you sure you like the values? Write 'sure' for yes
[nope]: sure

You gave: 'sure'

It's OK? Please answer 'Y' for yes or 'N' for not [N]: y

??????? Skype channels x4

```
sh /usr/local/freeswitch/skypopen/skype-clients-startup-dir/start_skype_clients.sh
```

?? FreeSwitch ???

```
cd /usr/src/freeswitch/build/
cp freeswitch.init.redhat /etc/init.d/freeswitch
vi /etc/init.d/freeswitch
```

?????

```
PID_FILE=${PID_FILE-/opt/freeswitch/run/freeswitch.pid}
FS_USER=${FS_USER-freeswitch}
FS_FILE=${FS_FILE-/opt/freeswitch/bin/freeswitch}
FS_HOME=${FS_HOME-/opt/freeswitch}
FREESWITCH_ARGS="-nc"
```

???

```
PID_FILE=${PID_FILE-/usr/local/freeswitch/run/freeswitch.pid}
FS_USER=${FS_USER-root}
FS_FILE=${FS_FILE-/usr/local/freeswitch/bin/freeswitch}
FS_HOME=${FS_HOME-/usr/local/freeswitch}
FREESWITCH_ARGS="-nc -nonat"
```

??

```
chmod +x /etc/init.d/freeswitch
chkconfig --add freeswitch
chkconfig freeswitch on
```

????? Asterisk ? FreeSwitch ???

```
?? /usr/local/freeswitch/conf/dialplan/public.xml
?????
```

<include>

```
<context name="public">
```

```
?????
```

```
<extension name="skype_uri">
  <condition field="destination_number" expression="^skype/(.*)$">
    <action application="set" data="skype_get_inband_dtmf=true"/>
    <action application="bridge" data="skypopen/RR/$1"/>
  </condition>
</extension>
```

```
?? mod_skypopen
```

```
?? /usr/local/freeswitch/conf/autoload_configs/skypopen.conf.xml
```

```
?????
```

```
<param name="context" value="default"/>
<param name="destination" value="5000"/>
```

```
??
```

```
<param name="context" value="skype"/>
<param name="destination" value="3200"/>
```

```
????? Skype ???? Ext#3200?
```

```
?? context skype
```

```
?? /usr/local/freeswitch/conf/dialplan/skype.xml
```

```
<?xml version="1.0" encoding="utf-8"?>
<include>
  <context name="skype">

    <extension name="skype-call">
      <condition field="destination_number" expression="^(3[1-5]00)$">
        <action application="set" data="skype_get_inband_dtmf=true"/>
        <action application="bridge" data="sofia/gateway/asterisk/$1"/>
      </condition>
    </extension>
  </context>
</include>
```

```
????? 3100-3500 ???? Gateway Asterisk?
```

```
?? Gateway Asterisk
```

```
?? /usr/local/freeswitch/conf/sip_profiles/external/asterisk.xml
```

```

<include>
  <gateway name="asterisk">
    <param name="username" value="freeswitch"/>
    <param name="realm" value="IPServidorAsterisk"/>
    <param name="from-domain" value="IPServidorAsterisk"/>
    <param name="password" value="password"/>
    <param name="extension" value="freeswitch"/>
    <param name="proxy" value="IPServidorAsterisk"/>-->
    <param name="expire-seconds" value="3600"/>
    <param name="register-transport" value="udp"/>
    <param name="retry-seconds" value="30"/>
    <param name="extension-in-contact" value="true"/>
    <param name="ping" value="25"/>
  </gateway>
</include>

```

???????? Asterisk ????

?? Asterisk

?? SIP Trunk

freePBX > Trunks > Add SIP Trunk

Trunk Name: freeswitch

PEER Details:

type=peer

context=from-trunk

host=dynamic

fromuser=freeswitch

defaultuser=freeswitch

secret=password

qualify=yes

port=5080

directmedia=no

dtmfmode=rfc2833

disallow=all

allow=ulaw&alaw

Incoming Setting: ??

Register String: ??

Tips:

? fromuser, defaultuser,password ??? FreeSwitch ? asterisk.xml ?????

?? Inbound Route

freePBX > Inbound Rotes > Add Inbound Route

DID Numbers: 3200

Set Destination: <whatever you wanted>

Tips:

3200 ??? skypopen.conf.xml , skype.xml ???

?? FreeSwitch ???

/usr/local/freeswitch/bin/freeswitch -nonat

?? mod_skypopen ??

freeswitch@pbx.local>load mod_skypopen

...

2011-06-19 13:41:02.222682 [CONSOLE] switch_loadable_module.c:946 Successfully Loaded [mod_skypopen]

2011-06-19 13:41:02.222682 [NOTICE] switch_loadable_module.c:145 Adding Endpoint 'skypopen'

2011-06-19 13:41:02.222682 [NOTICE] switch_loadable_module.c:274 Adding API Function 'sk'

freeswitch@pbx.local> 2011-06-19 13:41:02.222682 [NOTICE] switch_loadable_module.c:274 Adding API Function 'skypopen'

2011-06-19 13:41:02.222682 [NOTICE] switch_loadable_module.c:274 Adding API Function 'skypopen_chat'

2011-06-19 13:41:02.222682 [NOTICE] switch_loadable_module.c:379 Adding Chat interface 'skype'

????/?? freeswitch ??? shutdown?

??????? FreeSwitch ?? mod_skypopen ?????????????????? Skype ???????? FreeSwitch ? Skype??? Asterisk ???
??????

?? FreeSwitch ??????? mod_skypopen

?? /usr/local/freeswitch/conf/autoload_configs/modules.conf.xml

?????

<!-- Skype Gateway -->

<load module="mod_skypopen"/>

????????? FreeSwitch

// ??? Skype Client

sh /usr/local/freeswitch/skypopen/skype-clients-startup-dir/start_skype_clients.sh

ps -ef | grep skype

root 3389 1 6 18:07 pts/0 00:00:01 /usr/local/freeswitch/skypopen/skype-clients-symlinks-dir/

skype101 --dbpath=/usr/local/freeswitch/skypopen/skype-clients-configuration-dir/skype101 --pipeloin

root 3405 1 9 18:07 pts/0 00:00:01 /usr/local/freeswitch/skypopen/skype-clients-symlinks-dir/

skype102 --dbpath=/usr/local/freeswitch/skypopen/skype-clients-configuration-dir/skype102 --pipeloin

// ??? FreeSwitch

service freeswitch start


```
# /usr/local/freeswitch/bin/fs_cli
```

```
freeswitch@internal> sk list
```

```
sk console is NOT yet assigned
```

F ID	Name	IB (F/T)	OB (F/T)	State	CallFlw	UUID
1	[skype101]	0/0	0/0	IDLE	IDLE	
2	[skype102]	0/0	0/0	IDLE	IDLE	

```
Total Interfaces: 2 IB Calls(Failed/Total): 0/0 OB Calls(Failed/Total): 0/0
```

Tips:

? ???? 2 ? Skype channels, ????? skype101-102 ? process?

? ??? FS CLI, ?? /exit?

FAQ

Q: ?? start_skype_clients.sh ???????

ERROR: Module snd_pcm_oss does not exist in /proc/modules

ERROR: Module snd_mixer_oss does not exist in /proc/modules

ERROR: Module snd_seq_oss does not exist in /proc/modules

Ans: ?? ps -ef | grep skype?????? process??? skype client ??????????????????

Q: ?????2011-06-19 13:32:37.931790 [ERR] sofia_reg.c:1861 asterisk Registration Failed with status DNS Error [503]. failure #2

Ans:

- ?? Asterisk ??????
- ?? asterisk.xml ? Asterisk Trunk ??????????

Q: ???? Skype Channels

Ans: ???????

1. /usr/local/freeswitch/skypopen/skype-clients-startup-dir/start_skype_clients.sh
2. /usr/local/freeswitch/conf/autoload_configs/skypopen.conf.xml

Q: DTMF ?????

Ans:

- Inbound Call (Skype -> IVR on Asterisk): PASS
- Outbound Call (SIP -> Skype Out):

????

- <http://www.voztovoice.org/?q=node/455>
- [How to add Skype and FreeSwitch to existing PIAF](#)