Install Asterisk asterisk-certified-16.8-current.tar.gz

1. Follow instructions to set up Asterisk

- https://wiki.asterisk.org/wiki/display/AST/Installing+Asterisk

- or YouTube Tutorial

https://www.youtube.com/watch?v=jMQfSsO1da4&list=PLnzEbgyK52Gu9fdVDHburrsG3KBIntXFK&index=1

This was recorded in 2015 and most examples are based in chan\_sip has been deprecated, but still a good tutorial to get the sense of setting up Asterisk.

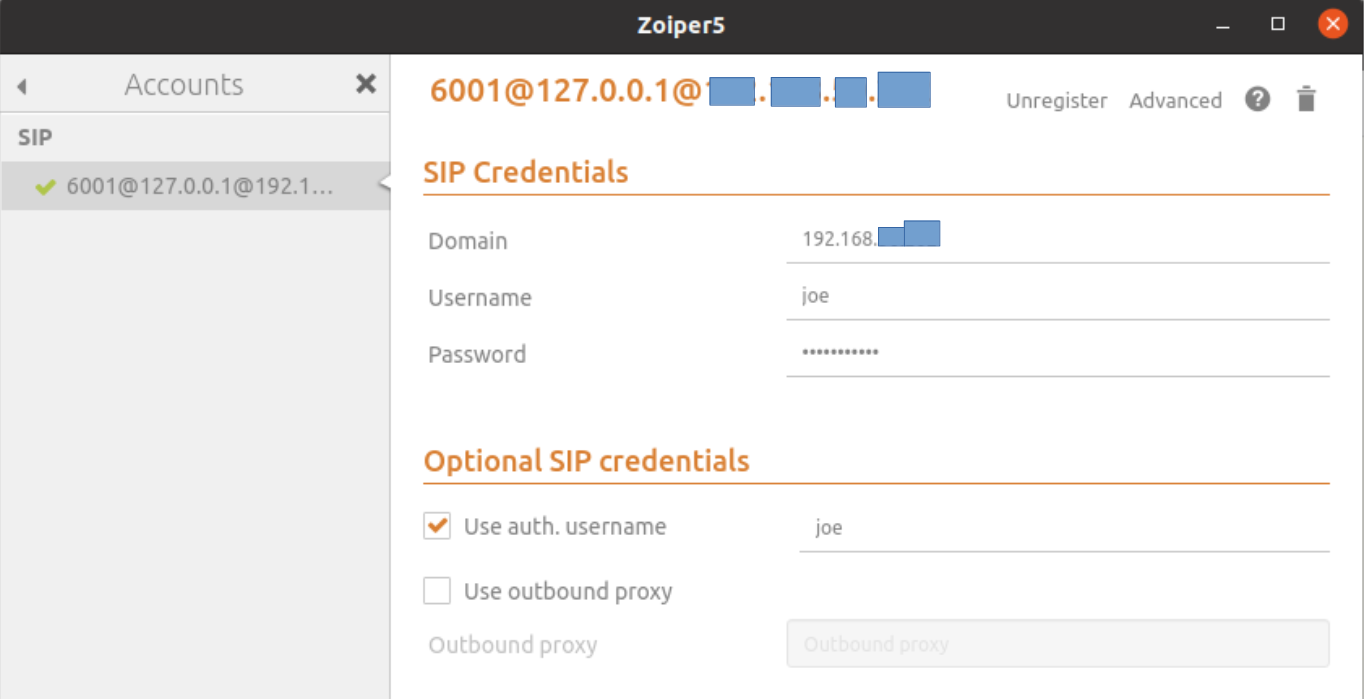
Examples in this file are using chan\_pjsip.

2. Zoiper 5 is used for this project

Download Zoiper5\_5.5.5\_x86\_64.tar.xz from

<https://www.zoiper.com/en/voip-softphone/download/current>

Setup zopier with user name and login



3. Setup Twilio SIP trunk in Twilio account following instructions:

https://www.twilio.com/docs/documents/61/TwilioElasticSIPTrunking-AsteriskPBX-Configuration-Guide-Version2-1-FINAL-09012018.pdf

Noted that using SIP registration simplified the setup without firewall setting as the Asterisk setup above.

Bold text is subject to setup changes.

**pjsip.conf**

[transport-udp]

type=transport

protocol=udp

bind=0.0.0.0

**pjsip\_wizard.conf**

user\_defaults](!)

type = wizard

accepts\_registrations = yes

sends\_registrations = no

accepts\_auth = yes

sends\_auth = no

has\_hint = yes

hint\_context = employee

hint\_application = Gosub(stdexten,${EXTEN},1(${HINT}))

endpoint/context = employee

endpoint/allow\_subscribe = yes

endpoint/allow = !all,ulaw,gsm,g722

endpoint/direct\_media = yes

endpoint/force\_rport = yes

endpoint/disable\_direct\_media\_on\_nat = yes

endpoint/direct\_media\_method = invite

endpoint/ice\_support = yes

endpoint/moh\_suggest = default

endpoint/send\_rpid = yes

endpoint/rewrite\_contact = yes

endpoint/send\_pai = yes

endpoint/allow\_transfer = yes

endpoint/trust\_id\_inbound = yesendpoint/device\_state\_busy\_at = 1

endpoint/trust\_id\_outbound = yes

endpoint/send\_diversion = yes

aor/qualify\_frequency = 30

aor/authenticate\_qualify = no

aor/max\_contacts = 1

aor/remove\_existing = yes

aor/minimum\_expiration = 30

aor/support\_path = yes

phoneprov/PROFILE = profile1

[joe](user\_defaults)

hint\_exten = 6001

inbound\_auth/username = **joe**

inbound\_auth/password = **joepassword**

[jane](user\_defaults)

hint\_exten = 6002

inbound\_auth/username = **jane**

inbound\_auth/password = **janepassword**

[trunk\_defaults](!)

type = wizard

endpoint/allow = !all,ulaw,gsm

endpoint/t38\_udptl=no

endpoint/t38\_udptl\_ec=none

endpoint/fax\_detect=no

endpoint/trust\_id\_inbound=no

endpoint/t38\_udptl\_nat=no

endpoint/direct\_media=no

endpoint/rewrite\_contact=yes

endpoint/rtp\_symmetric=yes

endpoint/dtmf\_mode=rfc4733

endpoint/allow\_subscribe = no

aor/qualify\_frequency = 60

[twiliotrunk](trunk\_defaults)

sends\_auth = yes

sends\_registrations = yes

remote\_hosts = **asterisk-twillio.pstn.twilio.com**

outbound\_auth/username = **asteriskPBX**

outbound\_auth/password = **Twilio1asterisk**

endpoint/context = siptrunk

aor/qualify\_frequency = 60

**extensions.conf**

[siptrunk]

; Assume the acquired Twilio number is **+14101234567**

; DID of Joe's extension when setting Twilio SIP trunk number to Joe's extension

;exten => +**14101234567**,1,Dial(PJSIP/joe)

; Set the Twilio SIP trunk number to the main switching board 100 for extension dialing

exten => +1**4101234567**,1,Goto(employee,100,1)

; Out-bound Dialing

; Matching of any PSTN US number

; Twilio SIP trunking will authenticate terminating to Twilio calls based on

; setting of CALLERID to Twilio SIP trunking number

exten => \_NXXNXXXXXX,1,Set(CALLERID(all)="Eevee" <+1**4101234567**>)

same = n,Dial(PJSIP/+1${EXTEN}@twiliotrunk)

same = n,(end), Hangup()

[employee]

include => siptrunk

; Inbound extension dialing

exten => 100,1,Answer()

same => wait(2)

same => n,Background(dir-pls-enter&extension&dir-pls-enter&extension)

same => n,WaitExten(10)

same => n,dial(PJSIP/${Exten})

exten => i,1,Playback(invalid)

same => n,Goto(employee,100,1)

exten => t,1,Playback(vm-goodbye)

same => n,Hangup()

exten = 6001,1,dial(PJSIP/joe)

exten = 6002,1,dial(PJSIP/jane)