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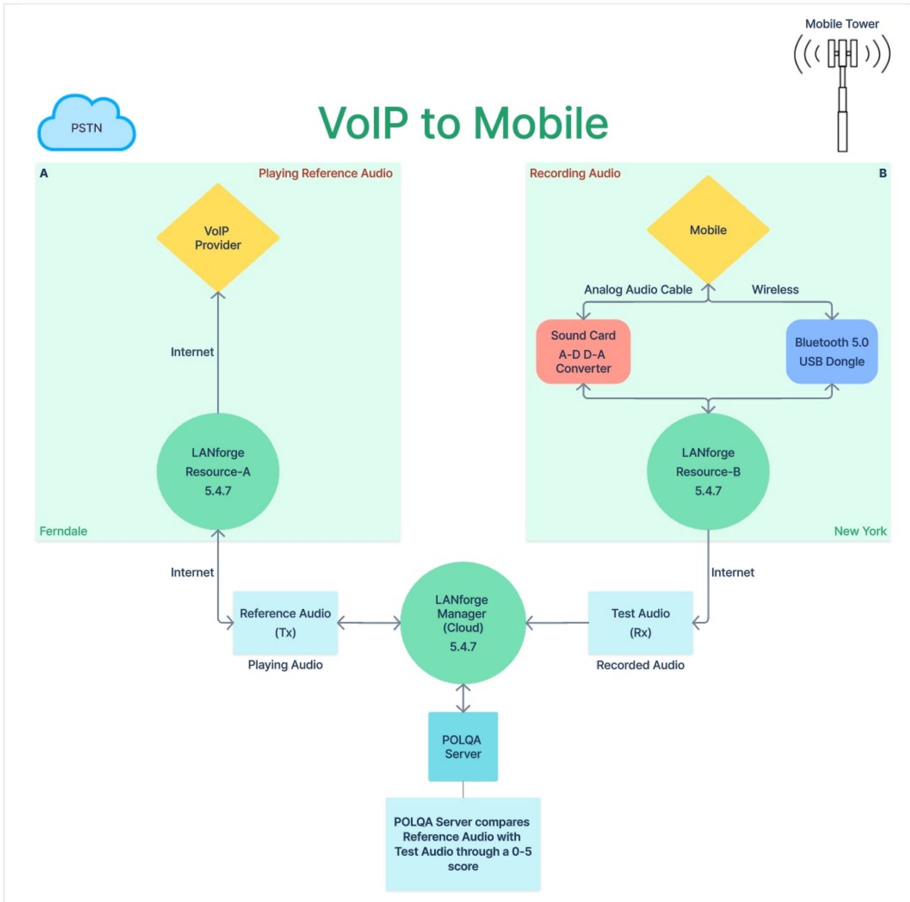
VoIP-Mobile Audio Quality Testing using POLQA/PESQ

Goal: Evaluate the voice call quality made between VoIP-SIP and Mobile call through POLQA scoring server. PESQ can also be used in place of POLQA here.

Consider an example: LANforge-A (resource) makes a VoIP-SIP phone call towards a Mobile device which is connected to LANforge-B (resource) via LANforge manager (cloud). LANforge-A plays a reference audio file over the VoIP-SIP call. The call is being recorded by LANforge-B. After the call completes, both the reference audio file and recorded audio file are evaluated by LANforge manager using the POLQA server. The POLQA server scores the recording based on audio quality loss during the call.



1. Requirements:
   A. LANforge systems (version 5.4.7). One manager and atleast one resource.
   B. LANforge licenses
   C. VoIP service provider
   D. POLQA license and server
   E. POLQA standard reference audio files
   F. Mobile Phone having Bluetooth connection and active SIM card.
   G. Bluetooth USB dongle
   H. Analog audio cable
   I. USB sound card
   J. Internet access
   K. Mobile network
2. Configuration:
   A. Connection between one or more LANforge resource systems towards one LANforge manager (Cloud)

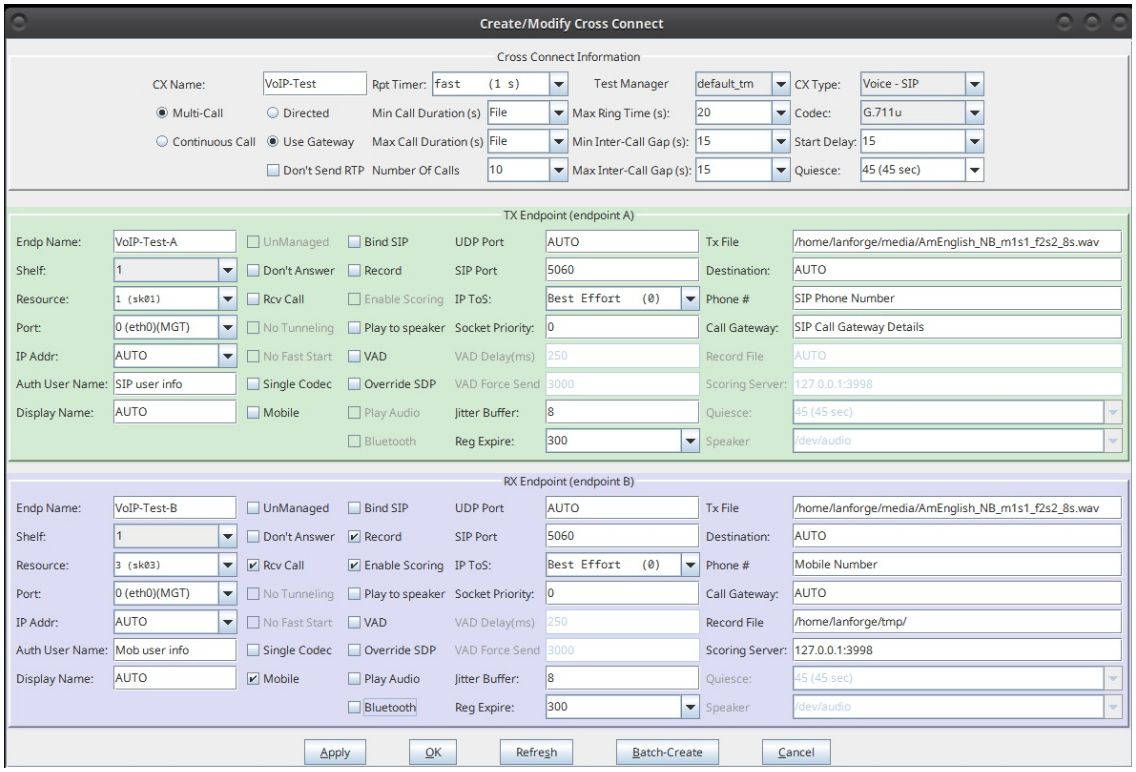
should be done till here.

B. LANforge and POLQA licenses are installed.

C. Installation steps: Follow /home/lanforge/audio-bluetooth/README.txt on all LANforge resources.

D. After installation, please `reboot` all the LANforge systems.

E. On the LANforge manager (cloud), open the `GUI`.
In the VoIP/RTP tab, select **Create**.



A. Cross Connect details to be filled are:

I. **TX Endpoint A:** The VoIP-SIP endpoint performs an outbound call over the Internet towards the Mobile phone mentioned in RX Endpoint B. During this call, SIP plays an audio Tx File over the call.

i. `Phone:` SIP Phone info

ii. `Call Gateway:` SIP Call Gateway info

iii. `Auth User Name:` SIP User info

iv. `Resource:` LANforge resource-A (hostname sk01 from Ferndale location in this example)

v. `Port:` Management Port with Internet access (eth0 in this example)

vi. `Display Name:` SIP Name or mac_address

vii. `Tx file:` reference audio file to be played on call

II. **RX Endpoint B:** The Mobile connected to LANforge resource-B receives an inbound call from VoIP-SIP over the Internet. LANforge resource-B starts recording the active incoming audio call via Bluetooth channel or analog audio cable option at the specified Record File location. The recorded file is then evaluated by POLQA server against the original Tx File.

i. `Phone:` Mob phone number

ii. `Call Gateway:` AUTO

iii. `Auth User Name:` AUTO

iv. `Resource:` LANforge resource-B (hostname sk03 from New York location in this example)

v. `Port:` Management Port with Internet access (eth0 in this example)

vi. `Display Name:` Mobile mac_address

vii. `Tx file:` same audio file as TX Endpoint-A Tx File

viii. Checkboxes:

i. `Mobile:` **True**

ii. `Rcv Call:` **True** (become a receiver)

iii. `Bluetooth:` **True** (Record call through Bluetooth channel optional)
`Bluetooth:` **False** (Record call through analog audio cable)

iv. `Record:` **True**

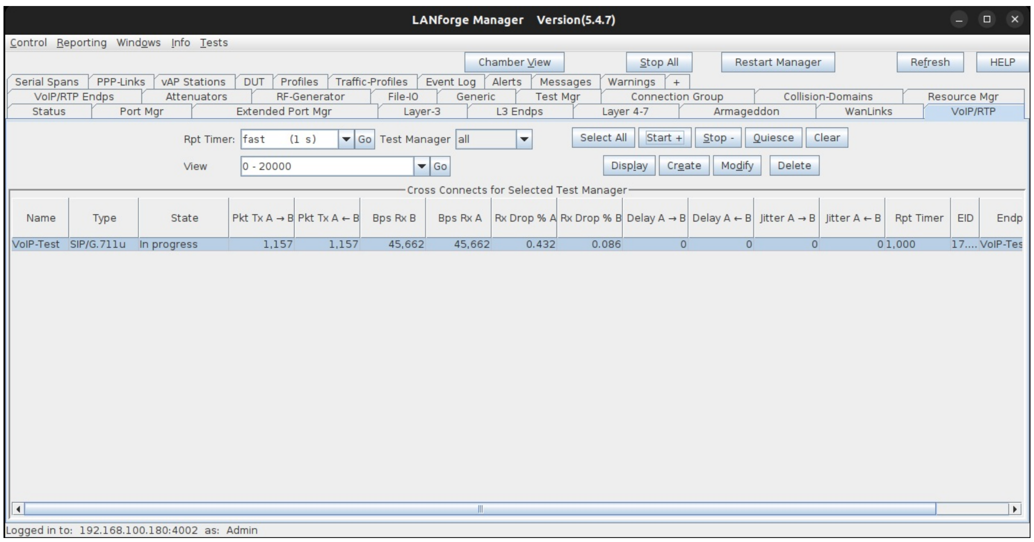
v. `Enable Scoring:` **True** (Enable POLQA scoring)

ix. `Record File:` Recording folder path

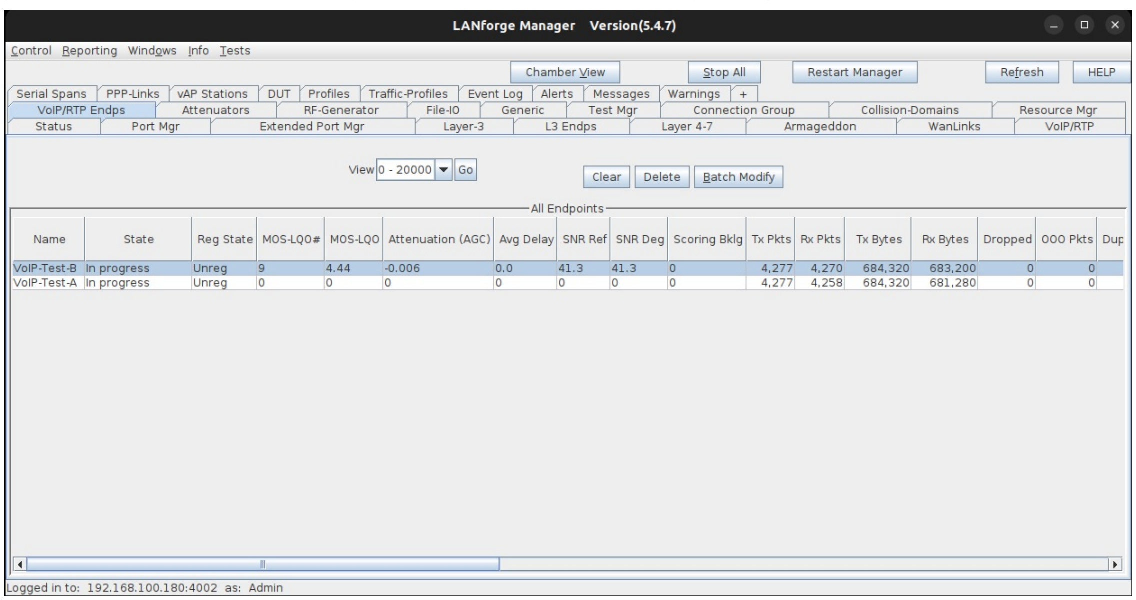
x. `Scoring Server:` POLQA Server Address

B. Select `Apply`, `OK`, and **START** the test.

C.



F. Go To `VoIP/RTP Endps` tab to get the **POLQA Scores.**
(MOS-LQO, Attenuation AGC, Avg. Delay, SNR Reference, SNR Degraded).



3. Sample POLQA Score Report from POLQA server.

4. If you need assistance, you can contact us at support@candelatech.com