



Clarinet VoIP Applications

PESQ Measurement Using SIP

Introduction

PDS have provided an example profile to control two Clarinet LAN units for automatic generation of an RTP flow. After the profile has finished the user may run a protocol filter on the event file, which is designed to extract QOS parameters including perceptual evaluation of speech quality (PESQ) measurement.

- In order to run these profiles, you will need to connect the optional Clarinet PESQ security key to your PC parallel port. One Clarinet LAN unit should be set to an ID of 1 (one), and the other should be set to an ID of 2 (two). Connect both of these Clarinet units to the same Hub in order that one may call the other.
- Copy the 'Sip' folder into your directory C:\Clarinet\Cladata, run the loader and open the Clarinet Manager. Use your mouse pointer to select 'Directory' in the Clarinet Manager and select the working route directory as 'Sip'.
- Now click on the horse and run the profile: LAN_SIP_PESQ_TxRx.acp
- The profile will be launched using the filter 'Lan_auto_SIP.acf' which will provide a decode of all events captured by Clarinet 1. To verify that Clarinet 2 is present, you will notice that Clarinet 1 will launch an ARP request (the same as PING) that will be replied to by Clarinet 2, which has the IP address 192.168.2.232.
- After a 5-second timer expires, Clarinet 1 will launch a call to IP address 192.168.2.232 and you can search for the INVITE message to verify this. Clarinet 2 sends a first response of TRYING, followed by a second response of RINGING and then OK. Clarinet 1 acknowledges the OK with an ACK message. After a few moments you will notice that the RTP (real time protocol) bytes change from 'ff' to random byte sequences. This is an indication of the WAV file being generated by the Clarinet units in both directions, and after a few seconds the RTP content returns to 'ff' and the session closes. It is necessary to measure in both directions to be sure that you have tested the entire path.

TIP

If your PC has a sound card and you would like to hear the audio that has been exchanged by Clarinet 1 and Clarinet 2, then use Explorer to locate the file 'tx1_or137_8kx16.wav' and double click on this file to hear the content.

- After the profile has finished it will close automatically. You now need to use another Clarinet filter called 'Auto_RTP_PESQ.acf' to extract the QOS information, including PESQ, from your recorded RTP flow.





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- In order to do this, select 'Filter' on the Clarinet Manager and then 'Run Protocol...'. A window will open in which you can name the source file which is: 'LAN_SIP_PESQ_TxRx.ace', a filter file 'Auto_RTP_PESQ.acf', and choose any name you wish to use for a result file. Click on 'Apply' to run the process. Once complete, move the cursor to the 'Open protocol event file' icon to open the new protocol event file. Select your chosen event file, name and apply the filter 'Auto_RTP_PESQ.acf'.
- The event editor window will open to show your event file. The filter (Auto_RTP_PESQ) has been simplified to show only the first 10 bytes of data at each layer, but this may be changed by the user. Click on the binoculars and search for 'Jitter' to find the first jitter measurement. This will be shown in bright green on the trace, but can again be modified by the user. Now search down for 'PESQ' to find the PESQ measurement including jitter and loss.

TIP

**Please note that if you do not have the optional Clarinet PESQ security key fitted to your PC, you will see the message 'PESQ: A specific software key is required'. It is possible for you to view a pre-recorded event file without the key by using the Clarinet event editor (Open Protocol event file) to view 'SIP_PESQ_RESULT_SAMPLE.ace' using the filter 'Auto_RTP_PESQ.acf'. This will show a PESQ result of 4.44 in both directions together with loss and jitter measurements.*

- The first PESQ indication is from Clarinet 1 (192.168.2.231) to Clarinet 2 (192.168.2.232), and the second indication is from Clarinet 2 to Clarinet 1.
- Open the Clarinet profile 'LAN_SIP_PESQ_TxRx.acp' to see that the Call simulator used for Clarinet 1 is called 'PESQ_Gen.aip', and the call simulator used for Clarinet 2 is called 'PESQ_Res.aip'. Clarinet 1 generates a call with an RTP flow for PESQ measurement, and Clarinet 2 responds to this call generating another RTP flow back to Clarinet 1. (Tx1_or137_8kx16.wav).
- Open the Clarinet IP profiles and study the configuration to see how they have been created. It is suggested that you copy these profiles under a new name and then edit the new profiles if you would like to try different configurations. It is then easier to go back to a working profile if mistakes have occurred.
- In each of the IP profiles, you can change the MAC address and the IP address used by the Clarinet interface pods if you would like to try calling across your own LAN.
- For assistance with this configuration, please read the VoIP application note called 'sip simulation' included in the folder 'Application Notes – VoIP'. More information is also provided in the 'clarinet_voip_help' folder.

Thank you for your interest in this application.

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