

# **Automatic Sound Signals Quality Estimation. Integration.**

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## **Integration with other solutions**

- Our voice quality analysis software can be implemented as a DLL library that is easily integrated with any Windows based software
- If you are interested in integrating our voice quality software with Linux or MAC please contact us for further details.

## **Example of DLL integration for Windows systems**

In one of the simplest cases you may require to have just the following files:

VQDLL.h

VQDLL.lib

VQDLL.dll

VQDLLTest.cpp

This program will be able to compare a source audio file with 8KHz sampling against the same file compressed and then decompressed by some audio codec.

## Example of DLL integration for Windows systems VQDLL.h

```
#ifdef VQDLL_EXPORTS
#define VQ_DLL_API __declspec(dllexport)
#else
#define VQ_DLL_API __declspec(dllimport)
#endif

VQ_DLL_API bool VQDLL_GetFilesQuality(char *
    pSourceVoiceFileName, char * pCodedVoiceFileName, double &
    dQuality);
```

## Example of DLL integration for Windows systems VQDLLTest.cpp

```
#include "stdafx.h"
#include <stdio.h>
#include "VQDLL.h"

int main(int argc, char* argv[])
{
    double dQuality;
    if (argc < 3) {
        printf("usage\nVQDLLTest <srcfilename> <codedfilename>");
        return 0;
    }

    printf("srcfilename = %s\n", argv[1]);
    printf("codedfilename = %s\n", argv[2]);

    if (VQDLL_GetFilesQuality(argv[1], argv[2], dQuality)) printf("dQuality = %f\n", dQuality);
    else printf("VQDLL_GetFilesQuality() ---> failed!\n");

    return 0;
}
```

```
C:\UQDemo>VQDLLTest.exe short.pcm ShortWavGSM.pcm
srcfilename = short.pcm
codedfilename = ShortWavGSM.pcm
dQuality = 63.976767
C:\UQDemo>_
```

## Example 1: codec quality estimation

Let's take two codecs from Voiceage web page that are freely available for testing purposes:

<http://www.voiceage.com/freecodecs.php>

- Open G.729
- Open AMR (narrowband)

## **Example 1: codec quality estimation**

The following steps are applied when one likes to test audio codec quality using our software:

1. Create a voice model for codec testing (source voice file, for example in PCM format) using our software
2. Encode it with ANY codec
3. Decode the encoded voice back into raw PCM (using the same codec)
4. Compare original and uncompressed PCM files with our software

## **Example 1: codec quality estimation**

Voiceage G.729 test results:

Our software: MOS 4.17

Cisco MOS: 3.92\*

This corresponds to Cisco score by 94%!



## **Example 1: codec quality estimation**

Voiceage AMR narrowband test results:

Our software: MOS 3.93

PESQ MOS: 3.847\*

This corresponds to PESQ by 97%!

## **Example 2: we catch audio quality loss when PESQ fails!**

The following article describes situation when ITU P.862 standard fails to detect voice quality loss:

<http://www.microtronix.ca/pesq-disc.html>

The article presents a voice file that was equalized such that there is far less low frequency and high frequency energy when compared to the original file thus making it clearly audible that the speech file is degraded when you listen to it, but PESQ reports that the quality between degraded file and the original are the same!

## **Example 2: we catch audio quality loss when PESQ fails!**

Test results of our software applied to Microtronix files:

- dg001.wav -> 4.7 (4.96) MOS (94% similarity in our units)
- dg002.wav -> 1.29 (0.73) MOS (26% similarity in our units)

This example clearly shows that our software does catch that significant quality loss, which occurs when the file is equalized with far less low frequency and high frequency energy.

## **Software customization**

**In 2009 we offer offshore prices for voice  
quality software customization!**

**THANK YOU!**