MAYAH Communications
Application Note 7
For version 1.1.0.13 and higher

J.52 Connections

Prerequisites

- MAYAH codec with system software 1.1.0.13 or later

Note:
You can download the current MAYAH codec system software and the latest remote software from the download section of the Mayah homepage at www.mayah.com.

General

J.52 : Digital transmission of high-quality sound-programme signals using one, two or three 64 kbit/s channels per mono signal (and up to six per stereo signal)

H.221 : Protocol, used by J.52, to exchange information between different devices about supported coding-algorithms and how to share data streams between several ISDN channels. It is an ITU (International Telecommunication Union) standard for guaranteeing compatibility between different manufacturers.

Before H.221 the problem with high-quality digital sound transmission was the different setting of the transmitting and the receiving interfaces concerning the Encoder/Decoder algorithm, sample rate and supported maximum bit rate. When the receiving interface worked e. g. with G.722, it refused all incoming data which hadn't been encoded with this particular algorithm. *J.*52 has been developed to solve this problem by providing a way to synchronize the different interfaces.

Synchronizing with J.52

While establishing a connection the interfaces exchange information about the algorithms, sample rates and maximum bit rates provided by each. Depending on this information they choose an encoder which is able to be decoded by the receiver.

The MAYAH codec executes this process depending on the following parameters, adjustable either via the MAYAH codec Frontpanel Display (Setup / Audio Encoder) or the MAYAH codec Remote Control Software:

Frontpanel Display	Remote Control Command	Parameters
Type	Enc_algo	G.722, G.711, Layer 2, Layer 3, MPEG2-AAC, MPEG4-AAC *
Dependency	Enc_slave	Local, remote

*) for detailed description see *MAYAH codec Audio Gateway, Communication Reference Manual, chapter 4.3.2,*
  Encoder Algorithm

- Dependency, enc_slave = local
  The locally adjusted encoder will be chosen if it is supported by the receiver. If it is not, no encoder will be used. With MPEG algorithms, no bit rate higher than the adjusted one will be used.
- Dependency, enc_slave = remote

The algorithms will be compared and the first that is suitable for both interfaces will be chosen. The order of searching depends on the algorithm.

Local algorithm	Search order
G.722	G.722, MPEG2-AAC, MPEG4-AAC, Layer3, Layer2,G.711*
Layer 2	Layer2, Layer3, MPEG2-AAC, MPEG4-AAC, G.722*, G.711*
MPEG2-AAC	MPEG2-AAC, MPEG4-AAC, Layer3, Layer2, G.722*, G.711*
MPEG4-AAC	MPEG4-AAC, MPEG2-AAC, Layer3, Layer2, G.722*, G.711*
others	Layer3, MPEG2-AAC, MPEG4-AAC, Layer2, G.722*, G.711*

*) The algorithms G.711 and G.722 are used if the hardware sample rate allows it (for example it is impossible to use 44,1 kHz and 16 kHz, since a whole-numbered sample rate proportion between hardware and encoder/decoder is required).

The information which will be transmitted to the receiver depends on the settings of the decoder.
- Dependency, dec_slave = local
  Just the current algorithm and the adjusted sample rate will be transmitted.
- Dependency, dec_slave = remote
  All available algorithms and samplerates will be transmitted.