

RSO File Format

RSO stands for Robot Sound. This file format is used by the NXT to store sound data containing waveform information. The file consists of two parts: The header and the body. By default information are stored in Little Endian.

Header

The header contains informations like sample rate and how large the body is.

<i>Offset</i>	<i>Size</i>	<i>Description</i>	<i>Default value</i>
0x00	Word (2)	Format	1
0x02	Word (2)	Body length (Big Endian)	
0x04	Word (2)	Sample rate (Big Endian)	8000
0x06	Word (2)	Play mode	0

Notice that 'body length' and 'sample rate' are Big Endian. I couldn't discover which values are valid for 'play mode', but 0 does the job.

The sample rate must be in the range of 2000-16000. Default and what is used by LEGO is 8000.

Body

The body contains the raw audio data. The body follows directly after the header. It is a large array of unsigned 8bit numbers defining the waveform, where 0x00-0x7E are negative, 0x7F is zero and 0x80-0xFF are positive.

```
struct rso_data {
    uint16_t format;
    uint16_t bodylength;
    uint16_t samplerate;
    uint16_t playmode;
    uint8_t data[X];
}
```