



## Sound file naming scheme

### Version 0.1

Based on the PhonoNet GmbH Deutschland document sound file naming scheme Version 1.1

#### ***Description of structure***

Sound files are available in several formats which differ in size, quality and compatibility. Each track is stored as single sound file. The name of a sound file consists of two parts. The first 8 characters encode the barcode. The file name extension contains information related to format, set number and track number.

The first character of the file extension describes the sound format:

c: Microsoft Media Audio, 128 kBit, stereo, 44 kHz Samplingrate

d: Microsoft Media Audio, 64 kBit, stereo, 44 kHz Samplingrate

e: Microsoft Media Audio, 32 kBit, mono, 44 kHz Samplingrate

f: Microsoft Media Audio, 16 kBit, mono, 22 kHz Samplingrate

k: MP3, 128 kBit, stereo, 44 kHz Samplingrate

m: MP3, 56 kBit, stereo, 22 kHz Samplingrate

n: MP3, 24 kBit, mono, 11 kHz Samplingrate

p: MP3, 16 kBit, mono, 11 kHz Samplingrate

r: real G2 s: real layer 5, 16 kBit, mono

t: real layer 5, 40 kBit, mono

u: real layer 5, 32 kBit, mono

v: real layer 5, 32 kBit, mono, volle Länge

w: wave

The second character describes the set number of the CD. This number is encoded in a 33 format (see below).

The third character describes the track number. It is encoded in a 33 format (see below).

Encoding of barcodes into the PhonoNet naming scheme takes four steps. In the first step 13-character barcodes are shortened to 12 digits. This is achieved by dropping a leading zero if the

first digit is zero. Otherwise the check digit (last digit) is dropped. In the second step the 12 digit code is divided into four 3 digit parts. The third step transforms these parts into the 33-system individually. In the last step the four converted parts of the barcode are put together again. The 33 character system uses all digits and all english characters except I, l and o. Case does not matter. The transformation works as follows (left: decimal, right: 33 character system):

|        |         |         |         |
|--------|---------|---------|---------|
| 0 -> 0 | 10 -> a | 20 -> m | 30 -> x |
| 1 -> 1 | 11 -> b | 21 -> n | 31 -> y |
| 2 -> 2 | 12 -> c | 22 -> p | 32 -> z |
| 3 -> 3 | 13 -> d | 23 -> q |         |
| 4 -> 4 | 14 -> e | 24 -> r |         |
| 5 -> 5 | 15 -> f | 25 -> s |         |
| 6 -> 6 | 16 -> g | 26 -> t |         |
| 7 -> 7 | 17 -> h | 27 -> u |         |
| 8 -> 8 | 18 -> j | 28 -> v |         |
| 9 -> 9 | 19 -> k | 29 -> w |         |

Conversion of three digit decimal numbers works by analogue calculation. The number is divided by 33. The whole-numbered result is the first character. The rest is the second character. These two results are then represented by their 33 character system value as outlined in the table above.

|           |           |           |
|-----------|-----------|-----------|
| 000 -> 00 | 012 -> 0c | 038 -> 15 |
| 001 -> 01 | ...       | ...       |
| 002 -> 02 | 032 -> 0z | 998 -> x8 |
| 003 -> 03 | 033 -> 10 | 999 -> x9 |
| 004 -> 04 | 034 -> 11 |           |
| ...       | 035 -> 12 |           |
| 010 -> 0a | 036 -> 13 |           |
| 011 -> 0b | 037 -> 14 |           |

The four converted blocks are then concatenated.

### **Example**

A sound file in MP3 format, 56 kBit, stereo, 22 kHz sampling rate grabbed from an article with barcode 5099706321323, second CD in set, track 15 is encoded as follows:

The 13 digit barcode is shortened to 12 digits by removal of the check digit:  
5099706321323 -> 509970632132

The resulting barcode is decomposed into four three digit groups:

|           |   |
|-----------|---|
| 509 -> fe | (509 division by 33 = 15 rest 14, gives fe) |
| 970 -> wd | (970 division by 33 = 29 rest 13, gives wd) |
| 632 -> k5 | (632 division by 33 = 19 rest 5, gives k5)  |
| 132 -> 40 | (132 division by 33 = 4 rest 0, gives 40)   |

The resulting code is fewdk540. The file extension consists of the character ,m' for MP3 format, 56 kHz, stereo, 22 kHz sampling rate, a ,2' for the second CD in the set and a ,f' for track fifteen.

An example for reverse decoding of the sound file above (fewdk540) into a 12 digit barcode:

fe -> 509 (f multiplied by 33 plus e, gives 15 multiplied by 33 plus 14 = 509)  
wd -> 970 (w multiplied by 33 plus d, gives 29 multiplied by 33 plus 13 = 970)  
k5 -> 632 (k multiplied by 33 plus 5, gives 19 multiplied by 33 plus 5 = 632)  
40 -> 132 (4 multiplied by 33 plus 0, gives 4 multiplied by 33 plus 0 = 132)

The result is the 12 digit barcode 509970632132. Please note that a 13 digit barcode cannot be fully reconstructed. As the 12 digit barcode is unique (13 digit barcodes with a leading zero do not exist) a list assigning 12 to 13 digit barcodes can be used to find the original barcode.