

ASCII85 (BASE85) Encoding and Decoding For Text

- Ascii85 or Base85 is binary-to-text encoding that involves using five ASCII character to represent four binary bytes of binary. This makes encoding smaller in size.
- Efficient encoding method that makes encoded size ¼ larger than the original

Encoding to base85

Step 1: Encode each character in text as hexadecimal bytes

Step 2: Take Every Four hexadecimal bytes to form a array with 8 hexadecimal

Step 3: Check the last bytearray and padding it with 0s if is not up 4 Bytes

Step 4: Apply the base85 encoding to get ascii number each of the bytes array as described below

$$N0 = \left(\frac{x}{52200625} \bmod 85 \right) + 33$$

$$N1 = \left(\frac{x}{614125} \bmod 85 \right) + 33$$

$$N2 = \left(\frac{x}{7225} \bmod 85 \right) + 33$$

$$N3 = \left(\frac{x}{85} \bmod 85 \right) + 33$$

$$N4 = \left(\frac{x}{85} \right) + 33$$

Step 5: We find the character representation of each of the ascii number and combine it together

Decoding from base85

Step 1: we convert each of the character to Ascii representation and subtract 33 by the value

Step 2: we take every 5 values and convert it from base 85 to base 10

$$N0 \times 85^4 + N1 \times 85^3 + N2 \times 85^2 + N3 \times 85^1 + N4 \times 85^0$$

Step 3: Convert the base 10 to hexadecimal representation

Step 4: Decode the hexadecimal representation as string

Step 5: combine the strings