

## KEY

This specific key was created randomly using notes that fall in the range of a violin. \ A4 = 440Hz.

### Letter - Pitch

a -D#4  
b -D5  
c -B4  
d -F5  
e -A4  
f -E4  
g -A#5  
h -G#4  
i -C#4  
j -G5  
k -G3  
l -E5  
m -C5  
n -C4  
o -G4  
p -A5  
q -F4  
r -D#5  
s -A#4  
t -G#3  
u -G#5  
v -D4  
w -C#5  
x -B5  
y -F#4  
z -F#5

### **Original Message**

“Contemporary music was popularized as the Soviet Union came to rise, and they were very similar. Everyone knew about it, but nobody liked it. Will this message yield to a cool groove, or a modern art flop?”

### **Encrypted Version**

B4-G4-C4-G#3-A4-C5-A5-G4-D#5-D#4-D#5-F#4 C5-E#5-A#4-C#4-B4  
C#5-D#4-A#4 A5-G4-A5-E#5-D#5-D#4-D#5-C#4-F#5-A4-F5 D#4-A#4  
G#3-G#4-A4 A#4-G4-D4-C#4-A4-G#3 E#5-C4-C#4-G4-C4 B4-D#4-C5-A4  
G#3-G4 D#5-C#4-A#4-A4 D#4-C4-C5-A4 D5-G4-G#3-G#4 G#3-G#4-A4-F#4  
C#5-A4-D#5-A4 D4-A4-D#5-F#4 A#4-C#4-C5-C#4-E5-D#4-D#5

A4-D4-A4-D#5-F#4-C4-A4 G3-C4-A4-C#5 D#4-D5-G4-G#5-G#3 C4-G#3  
D5-G#5-G#3 C4-G4-D5-G4-F5-F#4 E5-C#4-G3-A4-F5 C#4

C#5-C#4-E5- E5 G#3-G#4-C#4-A#4 C5-A4-A#4-A#4-D#4-A#5-A4  
F#4-C#4-A4-E5-F5 G#3-G4 D#4 B4-G4-G4-E5 A#5-D#5-G4-G4-D4-A4  
G4-D#5 D#4 C5-G4-F5-A4-D#5-C4 D#4-D#5-G#3 E4-E5-G4-A5

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### **Musical Encryption**

Since the dawn of secrecy, protection of information has been vital for important tasks to be carried out. As in every field of study, the advancement of the cryptography sparks an “equal but opposite force” that causes the reason for advancement. It becomes more and more difficult to encrypt a message because people catch on, and they are almost up to date as you are. Creativity of a package also disguises its true purpose, and hence adding a new level of secrecy. Musical encryption creates a new world of encryption.

The process behind it is simple. Substituting each letter with a musical note creates clusters of melodies for each word. In the examples case, A4 represents 440 Hz, and this range was chosen to suite a violin. The distribution of letters to notes was conducted randomly. In actuality, any 26 note collection is sufficient to create a proper substitution. Choosing notes that are strictly in a certain key signature can make an encrypted message sound more “pretty” and pleasant to the ear, whereas a random selection results in random sounds, which usually create dissonance. This turn-off to the weird sounds of an encrypted message can create suspicion of the validity that the musical mask is actually a song. One could argue that it is a contemporary music piece, and get away with it like that.

A faster and probably more productive use of musical encryption can use midi capabilities to enhance the music as different sounds. The computer relationship opened

up by MIDI between music and computers is phenomenal. Much progress has been made with that advancement, and perhaps a new usage could be to hide a messages. MIDI can also play back at a much faster speed that a live musician, so that constitutes for more notes per minute. The shorter the time, the smaller the file, and the faster the process moved.

Depending on what the message being encrypted is, and extra emotional layer can be added. Though an artistic touch, a live performer recording or recite an encrypted “song” with extra flavor that may replicate that emotional content of the original message. This extra artistic touch softens up the fact that this “song” is experimental music is not crowd pleasing. The emotional side to any part of the music will humanize it and make it sound more like music rather someone carelessly playing a bunch of notes.

Though creative and unsuspecting, a frequency analysis of the notes frequencies will yield a similar decryption method for any mono-alphabetic encryption. Other encryption methods should be used to make the message more secure, and they can be used as long as 26 different notes replace the 26 letters of the alphabet.

Cryptography needs this type of creativity especially to benefit spies. Important files can be made into songs, and that burned onto CD. With this off the wall thinking, an information carrier can have sensitive documents in the sleeves of his CD case next to his favorite System of a Down album.