

MR. ROBOT

1. This challenge is a Vernam OTP cipher, downloading the png will show what to do next.

Challenge

1 Solves


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Symmetric Vernam

300

This is comfortable. Less stressful. In fact, I can see everything, know everything this way. Hmm. Do you know more than me? That wouldn't be fair, my imaginary friend knowing more than me. So what would you do here?

Syntax EVILCORP_CTF{PLAINTEXT}

 OTP.png

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2. So few things to note, the alphabet is going from 0 - 25 with there adjacent letter. The cipher text and keyword are giving for this challenge so lets break it down in steps.

One Time Pad

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |

Ciphertext: **KPJOWH**

Keyword: **KEYWORD**

Plaintext: **?????**

3. So first step is to change both the cipher text and keyword into their numbers using the number to letter method in the png.

WED 14 APR 2021

• Change letters into words

| | | | |
|---|----|---|----|
| K | 10 | K | 10 |
| P | 15 | E | 4 |
| J | 9 | Y | 24 |
| O | 14 | W | 22 |
| O | 14 | O | 14 |
| W | 22 | R | 17 |
| H | 07 | D | 3 |

4. Next is to subtract the numbers so for the first letter its $K - K$ so $10 - 10 = 0$, this is done for the rest of the numbers.

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• Change letters into words
• Subtract ciphertext to the corresponding keyword

| | | | | |
|---|----|---|----|-------|
| K | 10 | K | 10 | = 0 |
| P | 15 | E | 4 | = 11 |
| J | 9 | Y | 24 | = -15 |
| O | 14 | W | 22 | = -8 |
| O | 14 | O | 14 | = 0 |
| W | 22 | R | 17 | = 5 |
| H | 07 | D | 3 | = 4 |

5. Next step is to do with any minus numbers, notice the minus numbers are -15 and -8, with these values 26 must be added so the letter can be found.

WED 14 APR 2021

- Change letters into words
- Subtract ciphertext from the corresponding keyword
- If the value is a minus, add 26 to it

| | | | | | |
|---|----|---|----|------------|------|
| K | 10 | K | 10 | = 0 | = 0 |
| P | 15 | E | 4 | = 11 | = 11 |
| J | 9 | Y | 24 | = -15 + 26 | = 11 |
| O | 14 | W | 22 | = -8 + 26 | = 18 |
| O | 14 | O | 14 | = 0 | = 0 |
| W | 22 | R | 17 | = 5 | = 5 |
| H | 07 | D | 3 | = 4 | = 4 |

6. Now with the numbers change them to their corresponding letter to reveal the plaintext. The plaintext is ALLSAFE

WED 14 APR 2021

- Change letters into words
- Subtract ciphertext from the corresponding keyword
- If the value is a minus, add 26 to it
- Change final value back to letters to get plaintext.

| | | | | | |
|---|----|---|----|------------|----------|
| K | 10 | K | 10 | = 0 | = 0 = A |
| P | 15 | E | 4 | = 11 | = 11 = L |
| J | 9 | Y | 24 | = -15 + 26 | = 11 = L |
| O | 14 | W | 22 | = -8 + 26 | = 18 = S |
| O | 14 | O | 14 | = 0 | = 0 = A |
| W | 22 | R | 17 | = 5 | = 5 = F |
| H | 07 | D | 3 | = 4 | = 4 = E |

7. Put the plaintext in the flag and enter.

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EVILCORP_CTF{ALLSAFE}

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