



ISFCR CLUB X ZERO DAY CLUB



ZERO-DAY  
CYBERSEC

# STEGANOGRAPHY AND DIGITAL FORENSICS

Hacktober 2021

# CONTENTS



## WHAT IS...

- Steganography
- Forensics

## DIFFERENCE BETWEEN...

- Techniques in Steganography and Forensics

## WITH RESPECT TO CTF

- Tools for Steganography
- Tools for forensics
- Hands on

## THE APPLICATIONS

- Steganography
- Forensics

# WHAT IS DIGITAL STEGANOGRAPHY...?



- Hiding secret data within other files
- Mainly involves media files like png, jpg, wav, mp4, and so on
- Types of steganography
  - Text based
  - Image based
  - Video based
  - Audio based
  - Network based



# WHAT IS DIGITAL FORENSICS...?



- Branch of Forensics Science
- An important field for cyber-policing department
- INVOLVES:
  - DATA ACQUISITION
  - Data RECOVERY
  - data analysis
  - Data investigation
  - data PRESERVATION





**While  
Steganography  
deals with hiding  
some data in other  
files using various  
encryption  
techniques...**





...Digital Forensics  
deals with  
different  
techniques to  
uncover and  
understand hidden  
messages in files!





# NEED FOR DIGITAL STEGANOGRAPHY



## Undetected Messages

Often used by many military secrets, banking secrets, and so on can be delivered across

## Data storage

Store encrypted data secret to us at an easily accessible source without worrying about security

## Implement Watermarking

Watermark your content. Often done by artists, make songs with an image hidden in spectrogram

## Ensure Encrypted data

Cryptography is a main part, which is adopted to implement key based encrypted data, that only receiver can decrypt

# NEED FOR DIGITAL FORENSICS



## Court Cases

Be it Criminal or Civil Cases, Digital Forensics is used most commonly to resolve court cases

## Cyber Crime Investigations

Recover Evidence that law-offenders often try to cover up their tracks by destroying these digital evidences.

## Detecting Malware

Identify anyone or anything tracking your digital actions and implement means of removal

## Recovering Data

Forensics is also used often to recover data from storage devices that are otherwise inaccessible

1

2

3

4

With respect to CTFs...

**THERE IS A THIN LINE  
DIFFERENTIATING STEGO AND  
FORENSICS.**

MOST CHALLENGE FORMATS APPEAR IN  
BOTH CATEGORIES



# Some common tools

for challenges in steganography

- AUDACITY
- STEGHIDE
- BINWALK
- FOREMOST
- STEGSOLVE
- EXIFTOOL
- ZSTEG
- FCRACKZIP
- DECODE.FR
- STEGSNOW
- SONIC VISUALISER



# Some common tools

for challenges in  
Forensics

- FILE
- EXIFTOOL
- HEXEDIT
- HEXDUMP
- BINWALK
- STRINGS
- DD
- GREP
- AUTOPSY



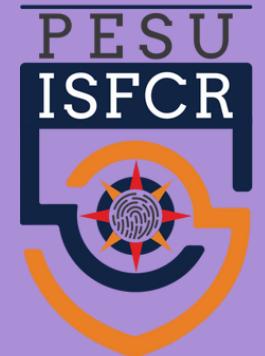


# HACKERMAN

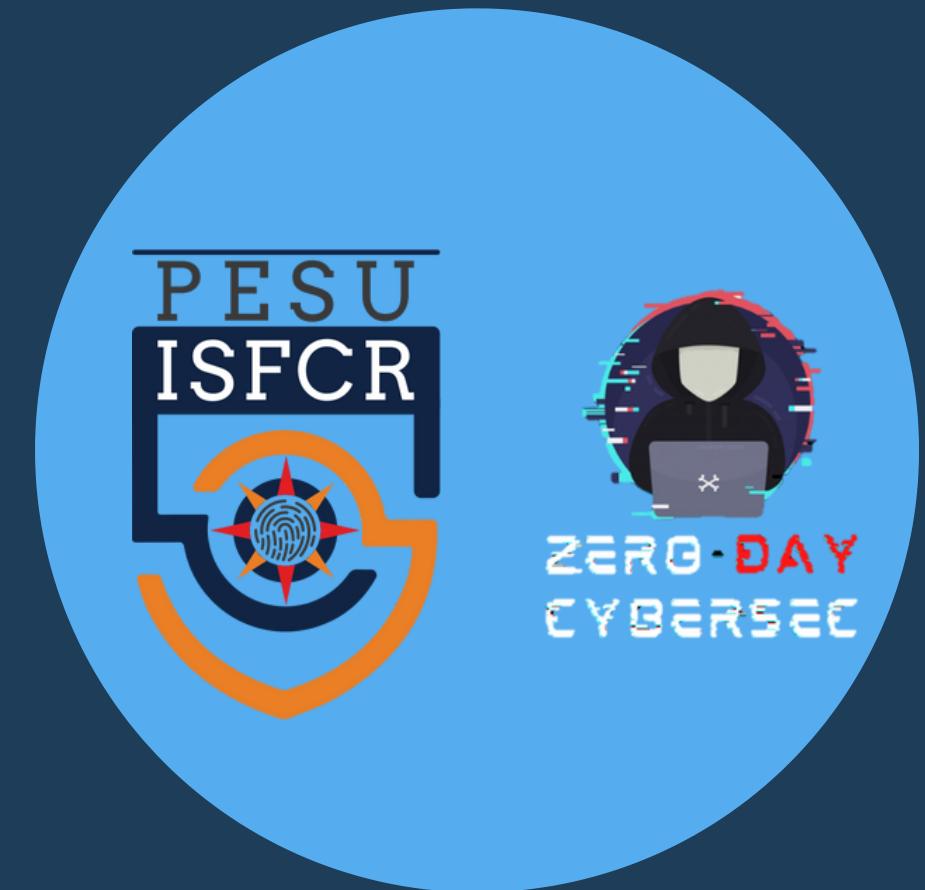
It's Demo Time!



LET'S GET OUR HANDS DIRTY A BIT...



ZERO-DAY  
CYBERSEC



# THANK YOU!



WE'LL BE SEEING YOU SOON.