

## Challenge Types

**i. Cryptography** : Cryptography involves encrypting or decrypting a piece of data.

Tools :- CyberChef, FeatherDuster, Hash Extender, padding-oracle-attacker, PkCrack, RSACTFTool, RSATool, XORTool, Cryptii, Keyboard Shift, and many more.

**ii. Steganography** : Steganography is tasked with finding information hidden in files or images.

Tools :- StegCracker, Steghide, Openstego, Stegsolve, Online stego tool, and many more.

**iii. Binary Exploitation/pwn** : It is basically exploiting a binary file and exploiting a server to find the flag.

Tools :- readelf, formatStringExploiter, DLLInjector, libformatstr, and many more.

**iv. Reverse engineering** : Reverse Engineering in a CTF is typically the process of taking a compiled (machine code, bytecode) program and converting it back into a more human readable format.

Tools :- ltrace, Hopper, Binary Ninja, gdb, IDA, radare2, Ghidra, apktool, Androguard, and many more.

**v. Web Tools** :- BurpSuite, Commix, Hackbar, Raccoon, SQLMap, DirBuster, gobuster, nikto, wpscan, CloudFlare Bypass, Edit This Cookie, File or Directory(robots.txt, /.git/, /admin/), and many more.

**vi. Forensics** : Forensics challenges can include file format analysis, steganography, memory dump analysis, or network packet capture analysis. Any challenge to examine and process a hidden piece of information out of static data files (as opposed to executable programs or remote servers) could be considered a Forensics challenge.

Tools :- split, pdftinfo, pdftimages, pdfcrack, pdfdetach, Keepass, Magic Numbers, hexed.it, foremost, binwalk, Repair image online tool, photorec, TestDisk, pngcheck, pngcsum, Registry Dumper, Dnscat2, pefile, Wireshark, Network Miner, PCAPNG, tcpflow, PcapXray, qpdf, Audacity, sonic visualiser, ffmpeg strings, file, grep, scalpel, bgrep, hexdump, xxd, base64, xplico framework, zsteg, gimp, Memory dump - volatility, ethscan, and many more.

**vii. Miscellaneous(Misc)** : Many challenges in CTFs will be completely random and unprecedented, requiring simply logic, knowledge, and patience to be solved. There is no sure-fire way to prepare for these, but as you complete more CTFs you will be able to recognize and hopefully have more clues on how to solve them.