DietPi CTF Teacher Edition — Full Documentation (English)

This document is the official Teacher Edition for the DietPi-based Capture The Flag (CTF) environment. It includes a complete directory structure, operational flow, flag-generation mechanism, automatic reset system, and all scripts used to run a fully isolated Linux CTF machine. This version is intended for teachers, lab admins, and CTF organizers.

1. Main Directory Structure

Location	Description
/usr/local/bin/	Contains all main CTF scripts.
/etc/profile.d/	Contains orchestrator that runs after login & DietPi banner.
/etc/systemd/system/	Contains the shutdown reset service.
/srv/ftp/	Flag directory (tmpfs).
/var/www/html/	Flag directory (tmpfs).
/srv/samba/share1/	Flag directory (tmpfs).
/srv/samba/share2/	Flag directory (tmpfs).
/etc/flags/	Flag directory (tmpfs).
/opt/app1/	Flag directory (tmpfs).
/opt/app2/	Flag directory (tmpfs).
/var/log/flags/	Flag directory (tmpfs).
/usr/local/share/flags/	Flag directory (tmpfs).
/home/ctf/	Flag directory (tmpfs).

2. Group Input Prompt Script

File location: /usr/local/bin/01-input-kelompok.sh

Script content:

```bash
#!/bin/bash
if [ -f /etc/ctf_flags_generated ]; then
exit 0
fi

echo ""
echo "===================================="
echo " ENTER TEAM NAME FOR CTF"
echo "===================================="
```

```bash
read -p "Team Name: " GROUP

echo "$GROUP" > /etc/ctf_groupname
touch /etc/ctf_flags_generated

echo "[✓] Team name saved: $GROUP"
```

3. Flag Generation Script

File location: /usr/local/bin/02-generate-flags.sh

Script content:

```bash
#!/bin/bash

if [ ! -f /etc/ctf_groupname ]; then
echo "[!] Team name not set!"
exit 1
fi

GROUP=$(cat /etc/ctf_groupname)

FLAG_DIRS=(
"/srv/ftp"
"/var/www/html"
"/srv/samba/share1"
"/srv/samba/share2"
"/etc/flags"
"/opt/app1"
"/opt/app2"
"/var/log/flags"
"/usr/local/share/flags"
"/home/ctf"
)

mkdir -p /home/ctf

for i in {1..10}; do
INDEX=$(printf "%02d" $i)
FLAG="smkctf{${GROUP}_flag_${INDEX}_"

case $i in
1) FLAG+="easy}" ;;
2) FLAG+="still_easy}" ;;
3) FLAG+="fun_level}" ;;
```

```bash
4) FLAG+="keep_going}" ;;
5) FLAG+="half_way}" ;;
6) FLAG+="base64_level1}" ;;
7) FLAG+="base64_level2}" ;;
8) FLAG+="base64_level3}" ;;
9) FLAG+="almost_done}" ;;
10) FLAG+="finished}" ;;
esac

if [ $i -ge 6 ]; then
OUT=$(echo -n "$FLAG" | base64)
else
OUT="$FLAG"
fi

DIR=${FLAG_DIRS[$((i-1))]}
mkdir -p "$DIR"
echo "$OUT" > "$DIR/flag.txt"
done

echo "[✓] All flags generated successfully."
```

4. Checker Script

File location: /usr/local/bin/03-checker.sh

Script content:

```bash
#!/bin/bash

GREEN="\033[0;32m"
RED="\033[0;31m"
NC="\033[0m"

FLAG_DIRS=(
"/srv/ftp"
"/var/www/html"
"/srv/samba/share1"
"/srv/samba/share2"
"/etc/flags"
"/opt/app1"
"/opt/app2"
"/var/log/flags"
```

```bash
"/usr/local/share/flags"

"/home/ctf"

)

echo "====== CTF FLAG CHECKER ======"

if [ -f /etc/ctf_groupname ]; then
echo -e "${GREEN}[PASS]${NC} Team name: $(cat /etc/ctf_groupname)"
else
echo -e "${RED}[FAIL]${NC} No team name found!"
fi

echo ""

for d in "${FLAG_DIRS[@]}"; do
if [ -d "$d" ]; then
echo -e "${GREEN}[DIR OK]${NC} $d"
else
echo -e "${RED}[DIR MISSING]${NC} $d"
continue
fi

if [ -f "$d/flag.txt" ]; then
echo -e " ${GREEN}[FLAG OK]${NC} $d/flag.txt"
else
echo -e " ${RED}[FLAG MISSING]${NC} $d/flag.txt"
fi
done

echo "====== CHECK COMPLETE ======"
```

5. Reset Script (Teacher Control)

File location: /usr/local/bin/04-reset.sh

Script content:

```bash
#!/bin/bash

FLAG_DIRS=(

"/srv/ftp"

"/var/www/html"

"/srv/samba/share1"

"/srv/samba/share2"
```

```
"/etc/flags"
"/opt/app1"
"/opt/app2"
"/var/log/flags"
"/usr/local/share/flags"
"/home/ctf"
)

rm -f /etc/ctf_groupname
rm -f /etc/ctf_flags_generated

for d in "${FLAG_DIRS[@]}"; do
rm -f "$d/flag.txt"
done

echo "[✓] All flags & team data have been reset."
```

6. Auto-Orchestrator Script

File location: /etc/profile.d/ctf_auto.sh

Script content:

```
#!/bin/bash

if [ -f /etc/ctf_flags_generated ]; then
return
fi

echo ""
echo "===================================="
echo " ENTER TEAM NAME FOR CTF"
echo "===================================="
read -p "Team Name: " GROUP

echo "$GROUP" > /etc/ctf_groupname
touch /etc/ctf_flags_generated

/usr/local/bin/02-generate-flags.sh
/usr/local/bin/03-checker.sh

echo "[✓] Setup Complete."
```

7. Systemd Shutdown Reset Service

File location: /etc/systemd/system/ctf-reset.service

Script content:

```
[Unit]
Description=Reset CTF Flags On Shutdown
DefaultDependencies=no
Before=shutdown.target reboot.target halt.target

[Service]
Type=oneshot
ExecStart=/usr/local/bin/04-reset.sh

[Install]
WantedBy=shutdown.target reboot.target halt.target
```