Enabling HTTPS for phpIPAM (Apache Backend via Nginx Reverse Proxy with Tailscale Certs)

This document explains how phpIPAM was configured to securely serve over HTTPS using Nginx as a reverse proxy, Apache2 as the backend, and Tailscale-issued SSL certificates.

1. Environment Summary

- phpIPAM backend: Apache2 (localhost:8081)
- Reverse proxy: Nginx (port 443)
- SSL source: Tailscale certs
- phpIPAM path: /var/www/html/phpipam
- Access URL: https://ubuntuserver.tail60802a.ts.net/phpipam

2. Apache2 Configuration

File: /etc/apache2/sites-available/phpipam.conf

```
<VirtualHost *:8081>
    ServerName ubuntuserver.tail60802a.ts.net
    DocumentRoot /var/www/html/phpipam

    <Directory /var/www/html/phpipam>
        AllowOverride All
        Require all granted
    </Directory>

    # Make Apache/phpIPAM aware it's behind HTTPS (443)
    SetEnvIf X-Forwarded-Proto https HTTPS=on
    SetEnvIf X-Forwarded-Port 443 SERVER_PORT=443
    SetEnv SERVER_PORT 443

    ErrorLog ${APACHE_LOG_DIR}/phpipam_error.log
    CustomLog ${APACHE_LOG_DIR}/phpipam_access.log combined
</VirtualHost>

sudo a2ensite phpipam.conf
sudo systemctl reload apache2
```

3. Nginx Reverse Proxy Configuration

File: /etc/nginx/sites-available/default (or custom site file)

```
map $http_upgrade $connection_upgrade {
    default upgrade;
    '' close;
}

server {
    listen 443 ssl http2;
    server_name ubuntuserver.tail60802a.ts.net;

    ssl_certificate
/var/lib/tailscale/certs/ubuntuserver.tail60802a.ts.net.crt;
    ssl_certificate_key
/var/lib/tailscale/certs/ubuntuserver.tail60802a.ts.net.key;

    client_max_body_size 256M;

    location /phpipam/ {
        rewrite ^/phpipam(/.*)$ $1 break;
        proxy_pass http://127.0.0.1:8081/;
        proxy_http_version 1.1;
        proxy_redirect off;

        proxy_set_header X-Forwarded-Host $host;
        proxy_set_header Host $host;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header X-Forwarded-Proto https;
        proxy_set_header X-Forwarded-Port 443;
    }
}

sudo nginx -t
sudo systemctl reload nginx
```

4. phpIPAM Configuration

File: /var/www/html/phpipam/config.php

```
$db['host'] = '127.0.0.1';
$db['user'] = 'php_ipam_rw';
$db['pass'] = 'YourPasswordHere';
$db['name'] = 'php_ipam';
$db['port'] = 3306;
define('BASE', '/phpipam/');
```

Enable reverse proxy awareness:

```
$trust_x_forwarded_headers = true;
```

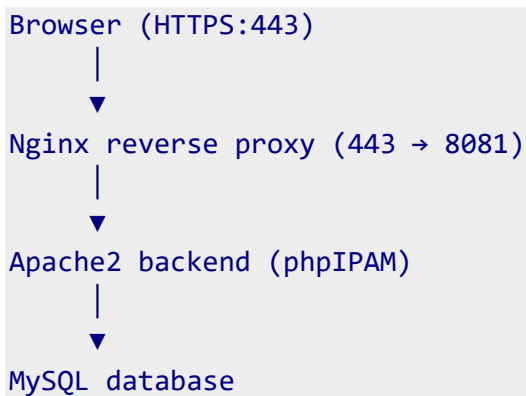## 5. Verifying the Setup

```
sudo ss -tlnp | grep -E '443|8081'

LISTEN 0 128 0.0.0.0:443   ... nginx
LISTEN 0 128 0.0.0.0:8081  ... apache2
```

Visit: https://ubuntuserver.tail60802a.ts.net/phpipam to confirm everything loads properly.

6. Troubleshooting Notes

Issue	Cause	Fix
UI loads without CSS	phpIPAM generating HTTP asset links	Set $trust_x_forwarded_headers = true
Mixed Content warning	Apache unaware of HTTPS	Add SetEnvIf X-Forwarded-Proto https HTTPS=on
Not Secure certificate	Incorrect SSL paths or domain	Verify .crt and .key paths from Tailscale
Port 443 blocked	Nginx not reloaded or misconfigured	Run sudo nginx -t and reload
Login form reloads	Missing BASE definition	Ensure define('BASE', '/phpipam/'); is set

7. Final Architecture

```
Browser (HTTPS:443)
     |
     ▼
Nginx reverse proxy (443 → 8081)
     |
     ▼
Apache2 backend (phpIPAM)
     |
     ▼
MySQL database
```

☑ Final Result

- phpIPAM accessible securely via https://ubuntuserver.tail60802a.ts.net/phpipam
- SSL certificate valid via Tailscale
- Reverse proxy headers trusted and respected
- Fully styled and functioning UI over HTTPS