

# Update #3 - Hardening Security of the BookStack.

After migrating my BookStack documentation system to a public-facing VPS, my next priority was to harden the server. The goal was to lock down remote access, guard against brute-force attacks, and ensure the system was updated automatically, all while maintaining reliable access for legitimate admin use.

---

## The Setup

The VPS is running **Ubuntu 22.04 LTS**, hosting BookStack on a full **LAMP stack**. With the public site live, it was time to secure the perimeter.

---

## The Process

### 1. Hardened SSH Configuration

I edited `/etc/ssh/sshd_config` to improve SSH security:

- Disabled root login
- Disabled password-based authentication
- Enforced key-based authentication

```
GNU nano 6.2 /etc/ssh/sshd_config *
#ClientAliveCountMax 3
#UseDNS no
#PidFile /run/sshd.pid
#MaxStartups 10:30:100
#PermitTunnel no
#ChrootDirectory none
#VersionAddendum none

# no default banner path
#Banner none

# Allow client to pass locale environment variables
AcceptEnv LANG LC_*

# override default of no subsystems
Subsystem        sftp    /usr/lib/openssh/sftp-server

# Example of overriding settings on a per-user basis
#Match User anoncvs
#    X11Forwarding no
#    AllowTcpForwarding no
#    PermitTTY no
#    ForceCommand cvs_server
PermitRootLogin no
PasswordAuthentication no

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo     M-A Set Mark
^X Exit      ^R Read File  ^_ Replace    ^U Paste      ^J Justify    ^/_ Go To Line  M-E Redo     M-C Copy
```

Once updated, I restarted SSH:

```
sudo systemctl restart ssh
```

## 2. Enabled UFW Firewall

I verified UFW firewall settings to ensure only necessary traffic was allowed:

- **OpenSSH** for SSH access
- **Apache Full** for BookStack

## 3. Installed and Configured Fail2Ban

Fail2Ban helps block brute-force attacks. After installation, it was monitoring the SSH log ( `/var/log/auth.log` ).

```
sudo apt install fail2ban
```

```
● fail2ban.service - Fail2Ban Service
   Loaded: loaded (/lib/systemd/system/fail2ban.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2025-05-04 00:17:41 UTC; 19h ago
     Docs: man:fail2ban(1)
  Main PID: 3851 (fail2ban-server)
    Tasks: 5 (limit: 9477)
   Memory: 14.6M
      CPU: 18.585s
   CGroup: /system.slice/fail2ban.service
           └─3851 /usr/bin/python3 /usr/bin/fail2ban-server -xf start

May 04 00:17:41 srv814261 systemd[1]: Started Fail2Ban Service.
May 04 00:17:41 srv814261 fail2ban-server[3851]: Server ready
```

### Screenshot: Fail2Ban Jail Status

```
~$ sudo fail2ban-client status
Status
|- Number of jail:      1
`- Jail list:  sshd

~$ sudo fail2ban-client status sshd
Status for the jail: sshd
|- Filter
|  |- Currently failed: 1
|  |- Total failed:    25
|  `-- File list:      /var/log/auth.log
`- Actions
   |- Currently banned: 0
   |- Total banned:    0
   `-- Banned IP list:
```

## 4. Enabled Unattended Security Updates

To keep the VPS patched automatically, I installed and configured unattended upgrades:

```
sudo apt install unattended-upgrades
sudo dpkg-reconfigure unattended-upgrades
```

This ensures security updates are applied daily with minimal overhead.

## The Result

The VPS is now protected with hardened SSH access, firewall filtering, brute-force detection, and automatic security patching, while keeping full control over my public documentation setup.

## What I Learned

- A single open SSH port can attract attention fast
- Disabling root login and passwords makes a big difference
- Fail2Ban provides great peace of mind
- UFW simplifies firewall management
- Automated updates are essential for long-term hardening

---

Revision #3

Created 4 May 2025 20:23:14 by Nate Nash

Updated 7 June 2025 00:14:24 by Nate Nash