# Cloudflare Tunnel + K3s + Node.js Session Issues & Mitigations

Below is a complete breakdown of the issues encountered while deploying a Node.js backend on a K3s cluster behind a Cloudflare Tunnel, along with the correct mitigation steps.

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1. SESSION COOKIE NOT APPEARING
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Symptoms:
- Login did not persist.
- No flash messages appeared.
- Passport did not report incorrect password.
- Browser had no session cookie from explorage.pulami.co.uk.

Root Causes:
- Missing cookie domain.
- Browsers blocking SameSite=Lax cookies behind Cloudflare.
- Secure cookies not allowed without HTTPS.
- Cloudflare stripping Set-Cookie header.

Mitigation:
- Configure session cookie with:
secure: true
sameSite: "none"
domain: "explorage.pulami.co.uk"
httpOnly: true
- Enable:
app.set('trust proxy', 1)

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2. CLOUDFLARE TUNNEL STRIPPING COOKIES
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Symptoms:
- Session cookie still missing.
- Passport login silently failed.

Root Causes:
- Cloudflare Tunnel missing originRequest.noTLSVerify.
- Tunnel pointing to incorrect port.

Mitigation:
- Add to config.yml:
originRequest:
noTLSVerify: true

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3. 502 BAD GATEWAY FROM CLOUDFLARE
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Symptoms:
- Cloudflare error page showed "Host Error".
- Backend unreachable from public domain.

Root Causes:
- Tunnel incorrectly routed to:
192.168.2.14:8080
while backend NodePort was exposed on:
30080

Mitigation:
- Update Cloudflare Tunnel service target:
service: http://192.168.2.14:30080

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4. K3S SERVICE PORT MISMATCH
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Symptoms:
- curl to node:8080 failed
- curl to node:30080 succeeded

Root Causes:
- Service exposed NodePort 30080 externally
- Tunnel sent traffic to 8080 (internal pod port)

Mitigation:
- Always route Cloudflare Tunnel → NodePort
NOT the Pod port.

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5. FINAL WORKING CONFIG SUMMARY
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Cloudflare Tunnel (config.yml):
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tunnel:
credentials-file:

ingress:
- hostname: explorage.pulami.co.uk
service: http://192.168.2.14:30080
originRequest:
noTLSVerify: true
- service: http_status:404

Node.js Session Config:
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cookie: {
httpOnly: true,
secure: true,
sameSite: "none",
domain: "explorage.pulami.co.uk",

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    path: "/",
    maxAge: 7 days
}
```

Final Status:
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Session cookie appears.
Login works.
Flash works.
Passport authentication works.
Cloudflare Tunnel no longer strips cookies.
502 gateway error resolved.