

# Troubleshooting Common 502 Bad Gateway Errors

## Introduction

A 502 bad gateway error indicates an invalid response from the upstream server - often your application server. This guide covers troubleshooting tips for fixing 502 errors.

## What Causes 502 Errors?

Some common causes of 502 bad gateway errors:

- Application server crashes or overloads.
- Upstream proxy/load balancer failures.
- Misconfigured Nginx or Apache proxies.
- PHP-FPM overloads or timeouts.
- Blocked upstream traffic due to firewalls.

## Diagnosing 502 Errors

- Check status of backend application servers.
- Review load balancer and proxy configs.
- Inspect for faults or saturation in request logs.
- Verify security groups or firewall rules not blocking traffic

## Fixing 502 Errors

- Restart application servers if crashed.
- Scale up overloaded app resources.
- Correct proxy/load balancer misconfigurations.
- Adjust PHP max children or FPM worker settings.
- Whitelist IP addresses if blocked by firewalls.

## **Preventing 502 Errors**

- Monitor upstream servers' health and resources.
- Enable auto-scaling of application servers.
- Configure circuit breakers in proxies.
- Optimizations like caching to reduce load.

## **Conclusion**

With proper troubleshooting and preventative measures, 502 errors can be minimized or avoided entirely.