



WHAT IS NGINX  
UPSTREAM?

# WHAT IS UPSTREAM?




IN NGINX, UPSTREAM DEFINES A GROUP OF SERVERS.

IT'S MOSTLY USED FOR LOAD BALANCING OR REVERSE PROXYING.

```
upstream backend_servers {  
    server 127.0.0.1:3000;  
    server 127.0.0.1:3001;  
    server 127.0.0.1:3002;  
}  
  
server {  
    listen 80;  
    location / {  
        proxy_pass http://backend_servers;  
    }  
}
```

# LOAD BALANCING METHODS

NGINX SUPPORTS SEVERAL STRATEGIES:

-  round-robin (default)
-  least\_conn – fewest connections
-  ip\_hash – sticky sessions

## ROUND ROBIN (DEFAULT)

Distributes requests evenly.

```
upstream backend {  
    server 127.0.0.1:3000;  
    server 127.0.0.1:3001;  
}
```

## LEAST CONNECTIONS

Chooses the server with the fewest active connections.

```
upstream backend {  
    least_conn;  
    server 127.0.0.1:3000;  
    server 127.0.0.1:3001;  
}
```

## IP HASH

Sends each client (IP) consistently to the same server.

```
upstream backend {  
    ip_hash;  
    server 127.0.0.1:3000;  
    server 127.0.0.1:3001;  
}
```

# ADVANCED PARAMETERS

## ✓ WEIGHT

Distribute more traffic to powerful servers.

```
upstream backend {  
    server 127.0.0.1:3000 weight=3;  
    server 127.0.0.1:3001 weight=1;  
}
```

## ADVANCED PARAMETERS

### ✗ MAX\_FAILS & FAIL\_TIMEOUT

Control retries on failed servers.

```
upstream backend {  
    server 127.0.0.1:3000 max_fails=3 fail_timeout=30s;  
    server 127.0.0.1:3001;  
}
```