



# Tecnológico de Monterrey

**Campus Santa Fe**

**Configuración Nginx**

Assessment

Alumna

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# Configuración de Nginx (Load balancer)

```
#####
#####
# /etc/nginx/sites-available/app.conf
#
# Routes:
#   • /trigger-kalman-analysis → FastAPI backend
#   • /run-kalman              → Kalman service
#   • /sessions/{id}/results & /sessions/{id}/plot → Kalman
service
#   • /sessions (all others) → FastAPI backend
#   • /users, /loginApi, /upload/csv, /create-session-for-patient,
/patients
#                               → FastAPI backend
#   • /health                  → 200 OK (no proxy)
#   • everything else          → Next.js frontend
#####
#####

#
-----
# 1) Upstream definitions
#
-----

upstream api_backend {
    least_conn;
    server 172.28.69.19:8000 max_fails=3 fail_timeout=600s;
    server 172.28.69.102:8000 max_fails=3 fail_timeout=600s;
}

upstream kalman_backend {
    least_conn;
    server 172.28.69.2:8001 max_fails=3 fail_timeout=600s;
}

upstream frontend {
    server 172.28.69.54:3000 max_fails=3 fail_timeout=30s;
}

#####
#####
# 2) Server block
#####
#####
```

```

server {
    listen 80;
    server_name _; # Catch-all

    #
}

# A) Trigger Kalman via FastAPI (writes CSV & forwards to
run-kalman)
#

location = /trigger-kalman-analysis {
    proxy_pass
http://api_backend/trigger-kalman-analysis;
    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 $scheme;

    # CORS headers
    add_header 'Access-Control-Allow-Origin' '*' always;
    add_header 'Access-Control-Allow-Methods' 'GET, POST,
OPTIONS' always;
    add_header 'Access-Control-Allow-Headers'
        'Accept, Authorization, Content-Type, X-Requested-With'
always;
}

#

# B) Direct Kalman run endpoint
#

location ^~ /run-kalman {
    proxy_pass          http://kalman_backend/run-kalman;
    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 $scheme;

    add_header 'Access-Control-Allow-Origin' '*' always;
    add_header 'Access-Control-Allow-Methods' 'GET, POST,
OPTIONS' always;

```

```
        add_header 'Access-Control-Allow-Headers'
            'Accept,Authorization,Content-Type,X-Requested-With'
always;
    }

    #
```

---

```
    # C) Kalman "results" JSON and plot images under
    /sessions/{id}/results & /plot
    #
```

---

```
    location ~ ^/sessions/\d+/(results|plot)/ {
        proxy_pass          http://kalman_backend;
        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 $scheme;

        add_header 'Access-Control-Allow-Origin' '*' always;
        add_header 'Access-Control-Allow-Methods' 'GET, OPTIONS'
always;
        add_header 'Access-Control-Allow-Headers'
            'Accept,Authorization,Content-Type,X-Requested-With'
always;
    }

    #
```

---

```
    # D) All other /sessions traffic → FastAPI backend
    #
```

---

```
    location /sessions {
        proxy_pass          http://api_backend;
        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 $scheme;

        add_header 'Access-Control-Allow-Origin' '*' always;
        add_header 'Access-Control-Allow-Methods' 'GET, POST, PUT,
DELETE, OPTIONS' always;
        add_header 'Access-Control-Allow-Headers'
```

```

        'Accept,Authorization,Content-Type,X-Requested-With'
always;
    }

    #

```

---

```

    # E) FastAPI user-management, login, CSV upload, etc.
    #

```

---

```

    location ^~ /users {
        proxy_pass            http://api_backend;
        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 $scheme;

        add_header 'Access-Control-Allow-Origin' '*' always;
        add_header 'Access-Control-Allow-Methods' 'GET, POST, PUT,
DELETE, OPTIONS' always;
        add_header 'Access-Control-Allow-Headers'
            'Accept,Authorization,Content-Type,X-Requested-With'
always;
    }

    location ^~ /loginApi {
        proxy_pass            http://api_backend;
        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 $scheme;

        add_header 'Access-Control-Allow-Origin' '*' always;
        add_header 'Access-Control-Allow-Methods' 'GET, POST,
OPTIONS' always;
        add_header 'Access-Control-Allow-Headers'
            'Accept,Authorization,Content-Type,X-Requested-With'
always;
    }

    location ^~ /upload/csv {
        proxy_pass            http://api_backend;
        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 $scheme;

        add_header 'Access-Control-Allow-Origin'    '*' always;
        add_header 'Access-Control-Allow-Methods' 'GET, POST,
OPTIONS' always;
        add_header 'Access-Control-Allow-Headers'
                'Accept,Authorization,Content-Type,X-Requested-With'
always;
    }

    location ^~ /create-session-for-patient {
        proxy_pass            http://api_backend;
        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 $scheme;

        add_header 'Access-Control-Allow-Origin'    '*' always;
        add_header 'Access-Control-Allow-Methods' 'GET, POST,
OPTIONS' always;
        add_header 'Access-Control-Allow-Headers'
                'Accept,Authorization,Content-Type,X-Requested-With'
always;
    }

    location ^~ /patients {
        proxy_pass            http://api_backend;
        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 $scheme;

        add_header 'Access-Control-Allow-Origin'    '*' always;
        add_header 'Access-Control-Allow-Methods' 'GET, POST, PUT,
DELETE, OPTIONS' always;
        add_header 'Access-Control-Allow-Headers'
                'Accept,Authorization,Content-Type,X-Requested-With'
always;
    }

#

```

---

```

# F) Health check (no proxy)

```

```
#
```

---

```
location /health {  
    access_log off;  
    return 200 "Load Balancer OK\n";  
    add_header Content-Type text/plain;  
}
```

```
#
```

---

```
# G) Catch-all → Next.js frontend
```

```
#
```

---

```
location / {  
    proxy_pass          http://frontend/;  
    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 $scheme;  
  
    # WebSocket / hot-reload  
    proxy_http_version 1.1;  
    proxy_set_header    Upgrade       $http_upgrade;  
    proxy_set_header    Connection   "upgrade";  
}  
}
```