PROYECTO

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¿CÓMO ESCALAMOS UN MONOLITO?

Puntos a mejorar para escalar una aplicación monolítica:

- Mejora de capacidad de carga
- Optimización general de código
- Recursos adicionales
- Implementación de técnicas de escalabilidad
- Refactorización
- Migración a otra arquitectura

Escalar una arquitectura monolítica puede ser más complicado y caro que otras arquitecturas.

¿PUEDE ESCALAR VERTICALMENTE?

El escalado vertical es una forma directa de manejar un aumento en la carga; sin embargo, tiene límites físicos y financieros. Eventualmente, agregar más recursos se vuelve costoso o técnicamente inviable.

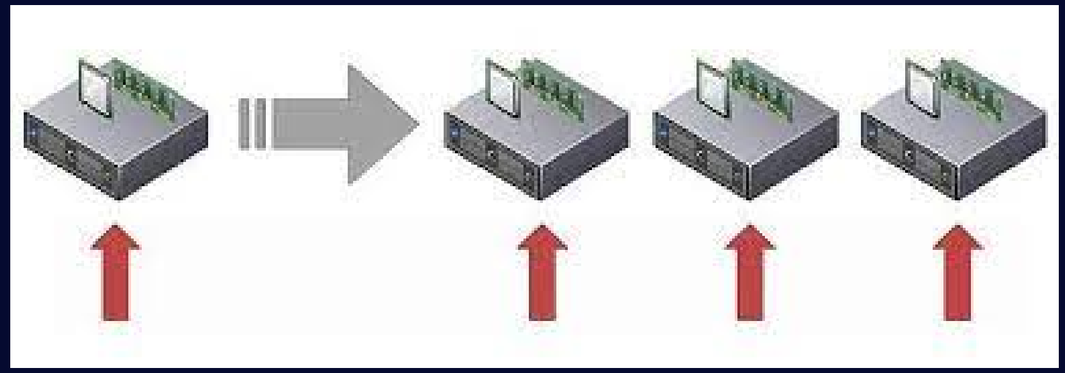
- Aumento de recursos de hardware
- Utilización de Caché

¿PUEDE ESCALAR HORIZONTALMENTE?

Aumento en la capacidad de una aplicación distribuyendo la carga de trabajo entre múltiples instancias de la misma.

Escalamiento en aplicación de log-in:

- Persistencia de datos
- Automatización de despliegues



¿ARQUITECTURA MONOLÍTICA CON ORLEANS?

Puede hacerse, sin embargo no se aprovecharía el potencial completo de Orleans, aunque si se hace con fines de escalabilidad futura puede ser conveniente.

Git: https://github.com/Edd1enator/SimpleLog_In.git

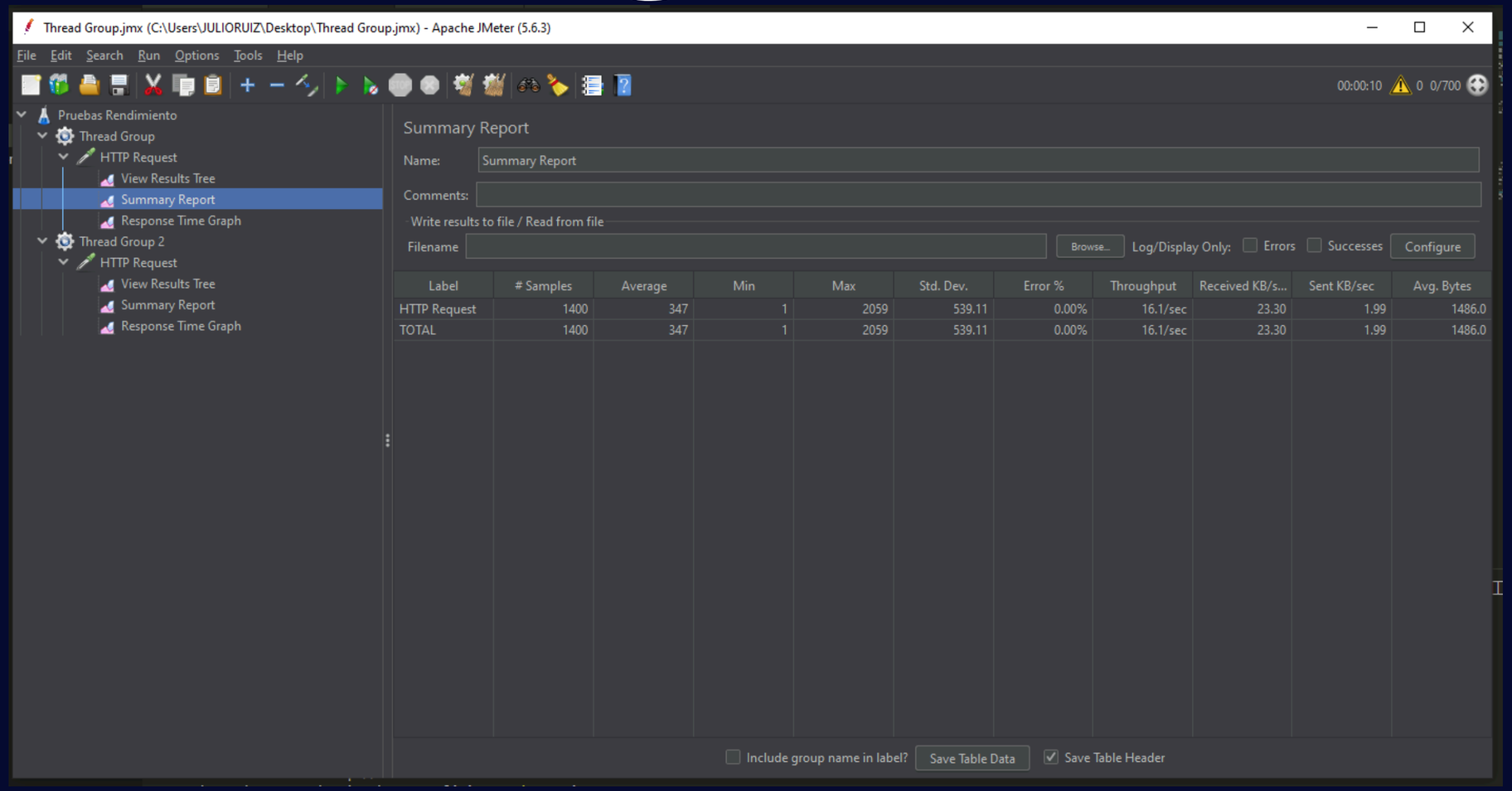
HIPOTESIS

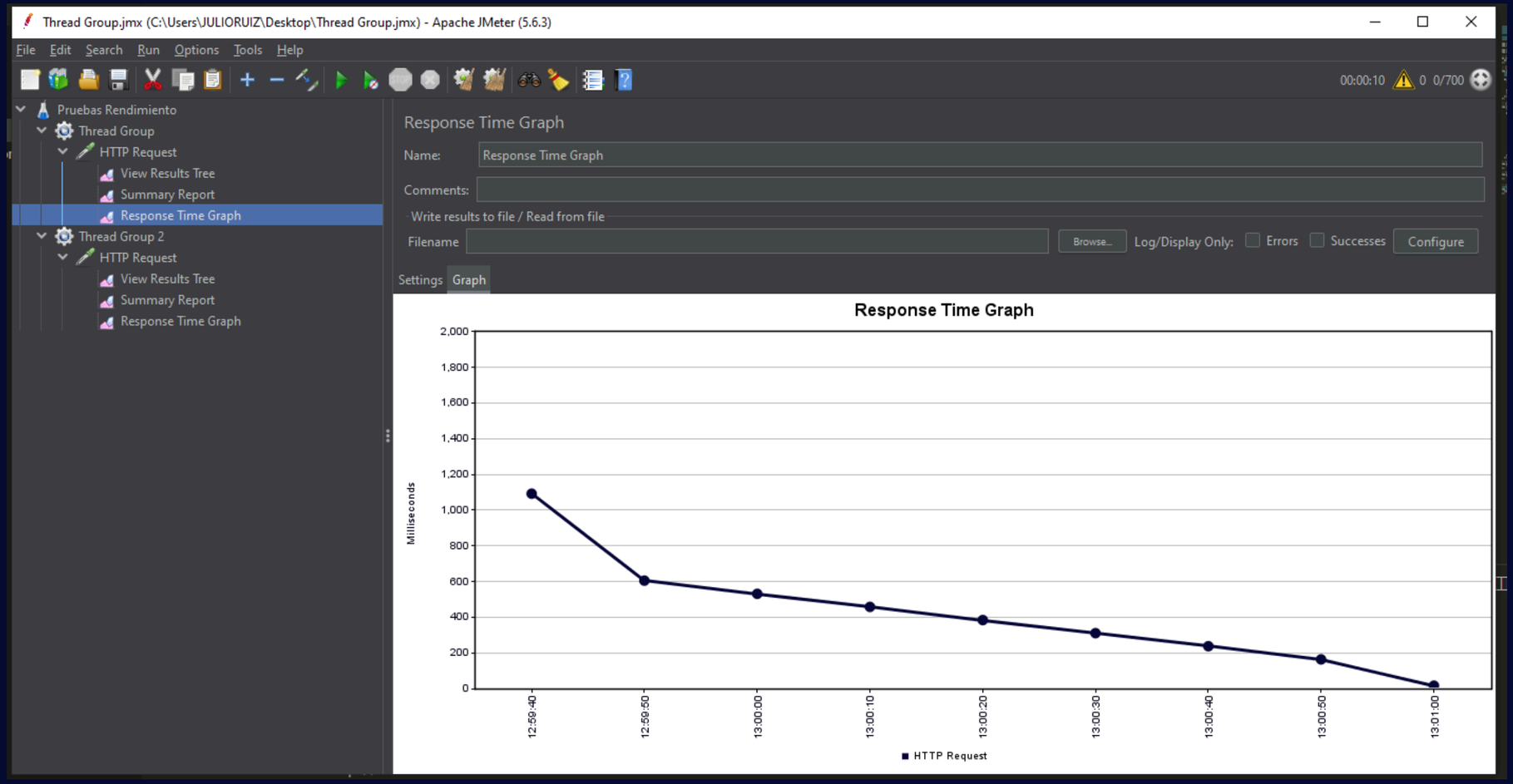
Hipótesis de Rendimiento: La aplicación manejara un número específico de usuarios concurrentes (por ejemplo, 1400 usuarios simultáneos) sin degradar significativamente el rendimiento (por ejemplo, el tiempo de respuesta promedio permanecerá por debajo de 2 segundos).

RECURSOS

- 2 CPU
- 4 RAM

/register


Thread Group.jmx (C:\Users\JULIORUIZ\Desktop\Thread Group.jmx) - Apache JMeter (5.6.3)
File Edit Search Run Options Tools Help
00:00:10 0 0/700
Pruebas Rendimiento
Thread Group
HTTP Request
View Results Tree
Summary Report
Response Time Graph
Thread Group 2
HTTP Request
View Results Tree
Summary Report
Response Time Graph
Summary Report
Name: Summary Report
Comments:
Write results to file / Read from file
Filename
Browse...
Log/Display Only: Errors Successes
Configure
Label # Samples Average Min Max Std. Dev. Error % Throughput Received KB/s... Sent KB/sec Avg. Bytes
HTTP Request 1400 347 1 2059 539.11 0.00% 16.1/sec 23.30 1.99 1486.0
TOTAL 1400 347 1 2059 539.11 0.00% 16.1/sec 23.30 1.99 1486.0
Include group name in label?
Save Table Data
Save Table Header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Response Time Graph
Thread Group 2
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Summary Report
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Response Time Graph
Name: Response Time Graph
Comments:
Write results to file / Read from file
Filename
Browse...
Log/Display Only: Errors Successes
Configure
Settings Graph
Response Time Graph
Milliseconds
2,000
1,800
1,600
1,400
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800
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400
200
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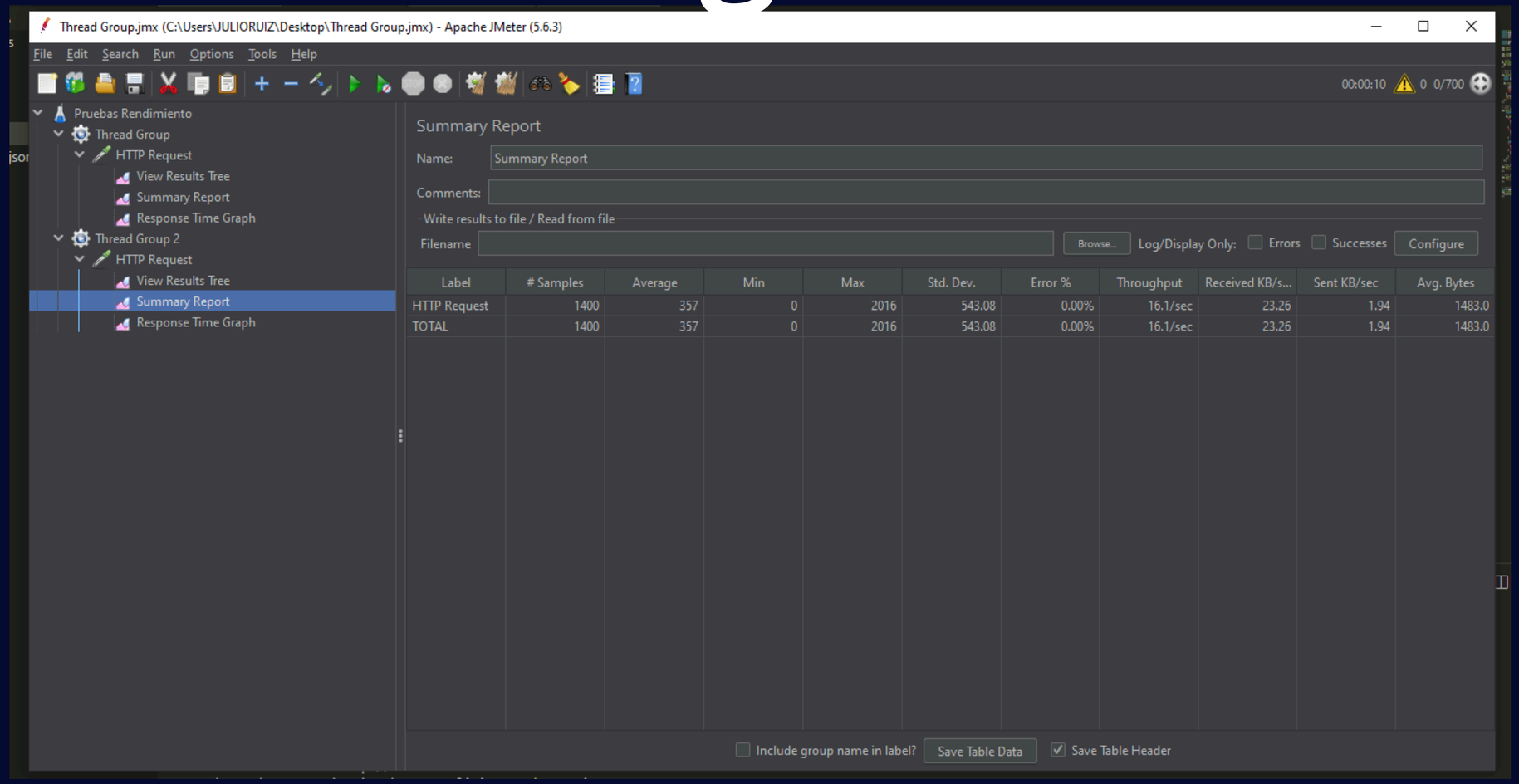
12:59:40
12:59:50
13:00:00
13:00:10
13:00:20
13:00:30
13:00:40
13:00:50
13:01:00
HTTP Request

/login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Response Time Graph
Summary Report
Name: Summary Report
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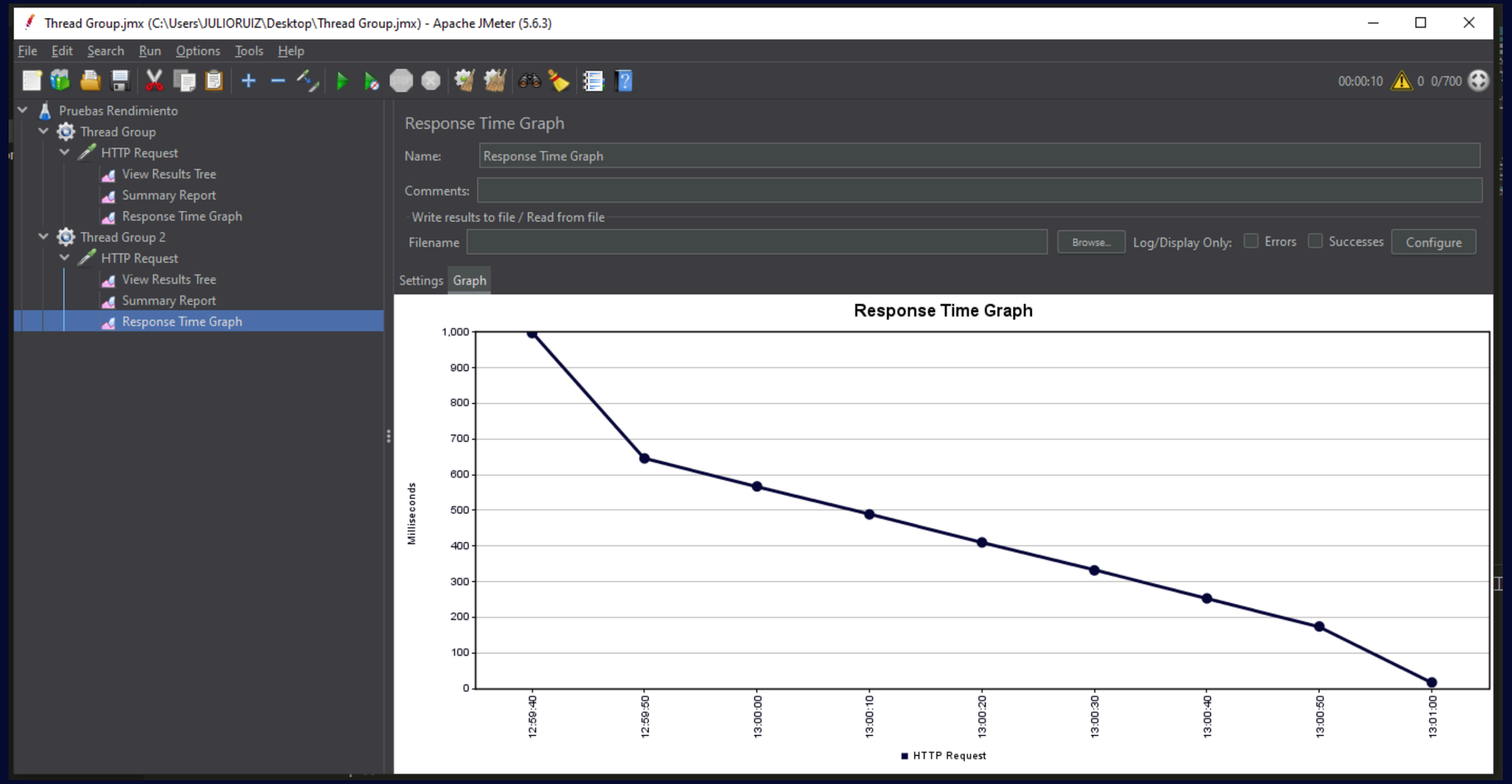
Filename
Browse...
Log/Display Only: Errors Successes
Configure
Label # Samples Average Min Max Std. Dev. Error % Throughput Received KB/s... Sent KB/sec Avg. Bytes
HTTP Request 1400 357 0 2016 543.08 0.00% 16.1/sec 23.26 1.94 1483.0
TOTAL 1400 357 0 2016 543.08 0.00% 16.1/sec 23.26 1.94 1483.0
Include group name in label?
Save Table Data
Save Table Header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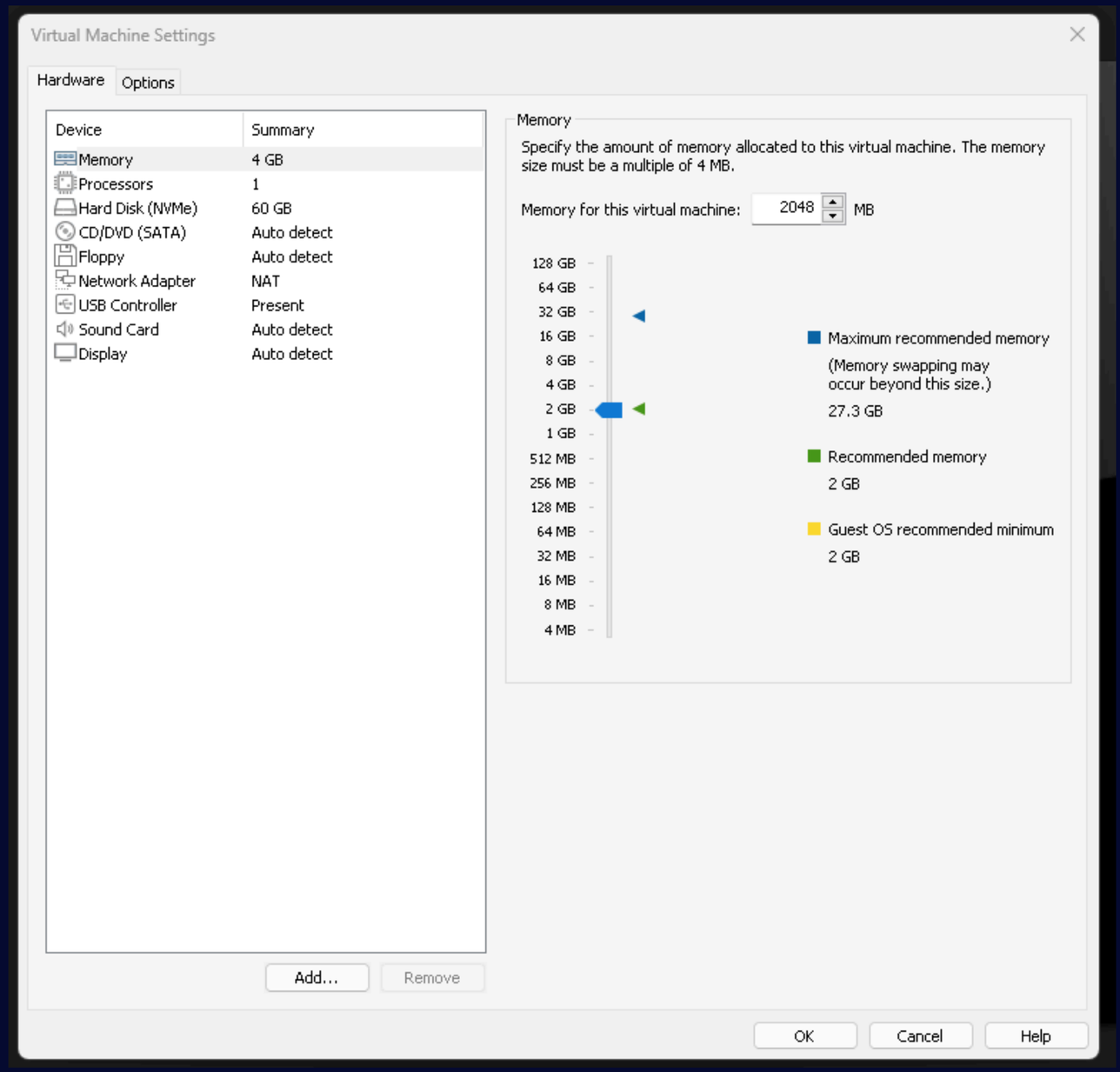
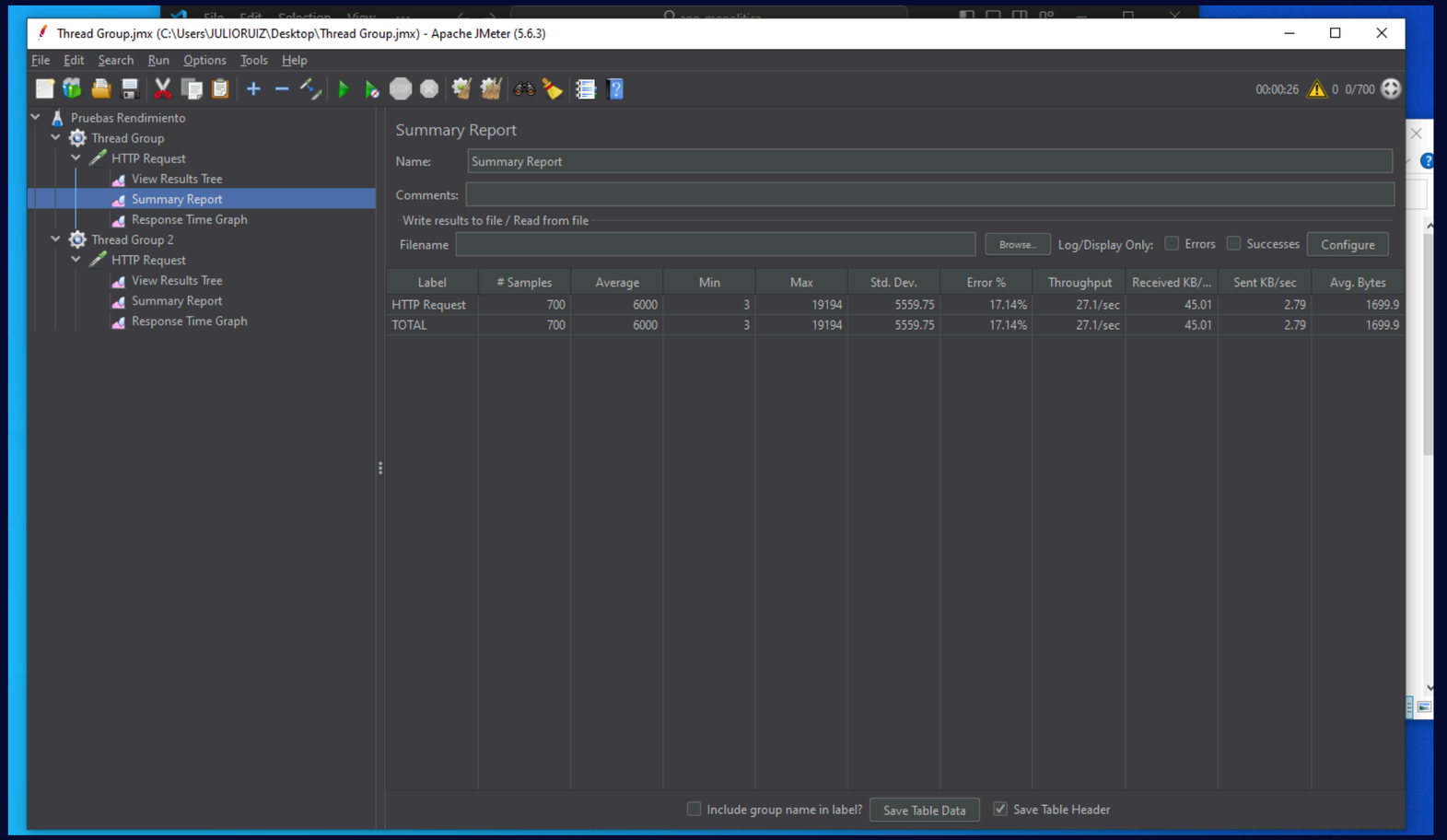
Filename
Browse...
Log/Display Only: Errors Successes
Configure
Settings Graph
Response Time Graph
Milliseconds
1,000
900
800
700
600
500
400
300
200
100
0
12:59:40
12:59:50
13:00:00
13:00:10
13:00:20
13:00:30
13:00:40
13:00:50
13:01:00
HTTP Request

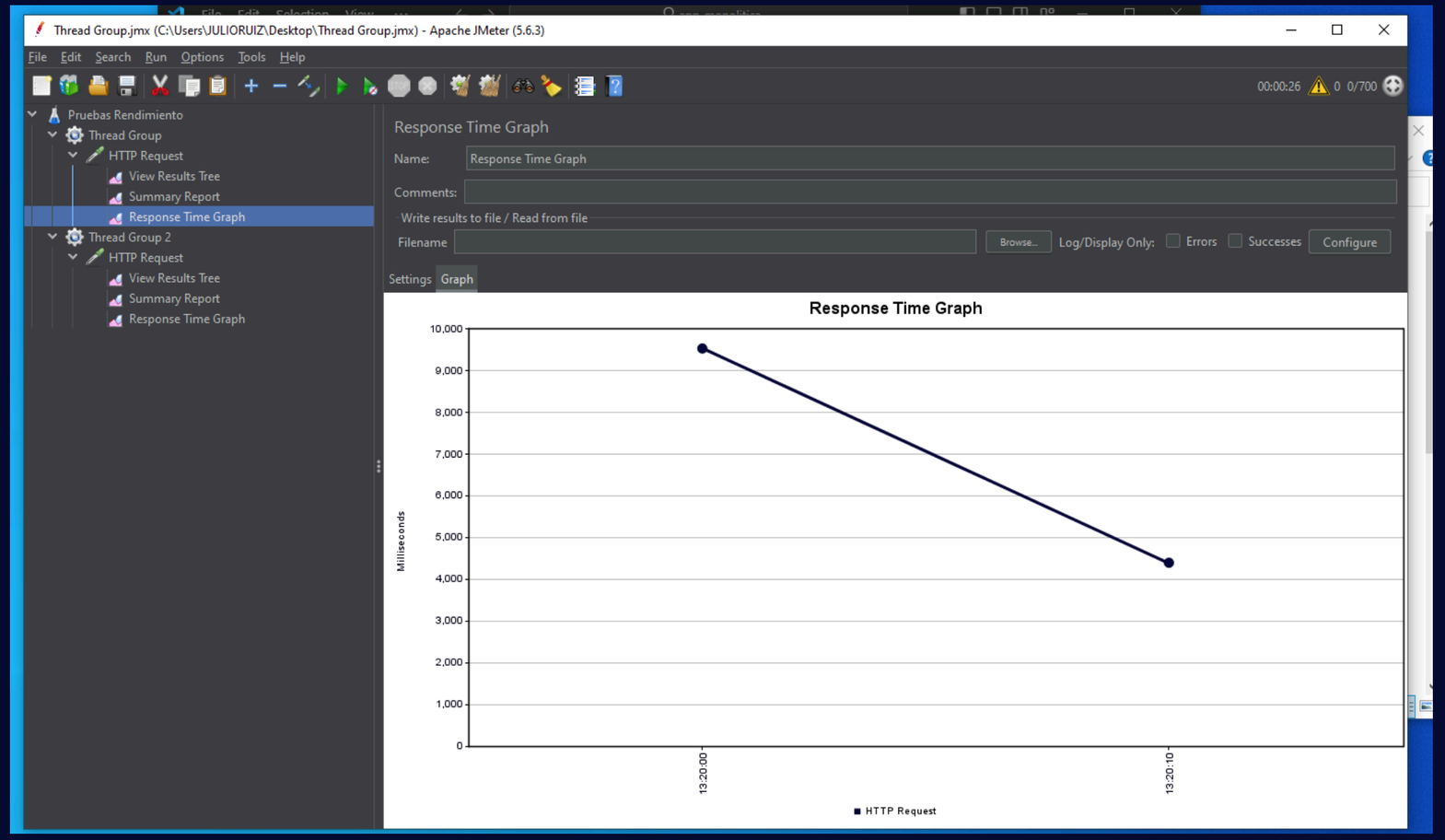
RECURSOS

- 1 CPU
- 2 RAM


Virtual Machine Settings
Hardware
Options
Device
Summary
Memory
4 GB
Processors
1
Hard Disk (NVMe)
60 GB
CD/DVD (SATA)
Auto detect
Floppy
Auto detect
Network Adapter
NAT
USB Controller
Present
Sound Card
Auto detect
Display
Auto detect
Add...
Remove
Memory
Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.
Memory for this virtual machine:
2048
MB
128 GB
64 GB
32 GB
16 GB
8 GB
4 GB
2 GB
1 GB
512 MB
256 MB
128 MB
64 MB
32 MB
16 MB
8 MB
4 MB
Maximum recommended memory
(Memory swapping may occur beyond this size.)
27.3 GB
Recommended memory
2 GB
Guest OS recommended minimum
2 GB
OK
Cancel
Help

/register primera prueba

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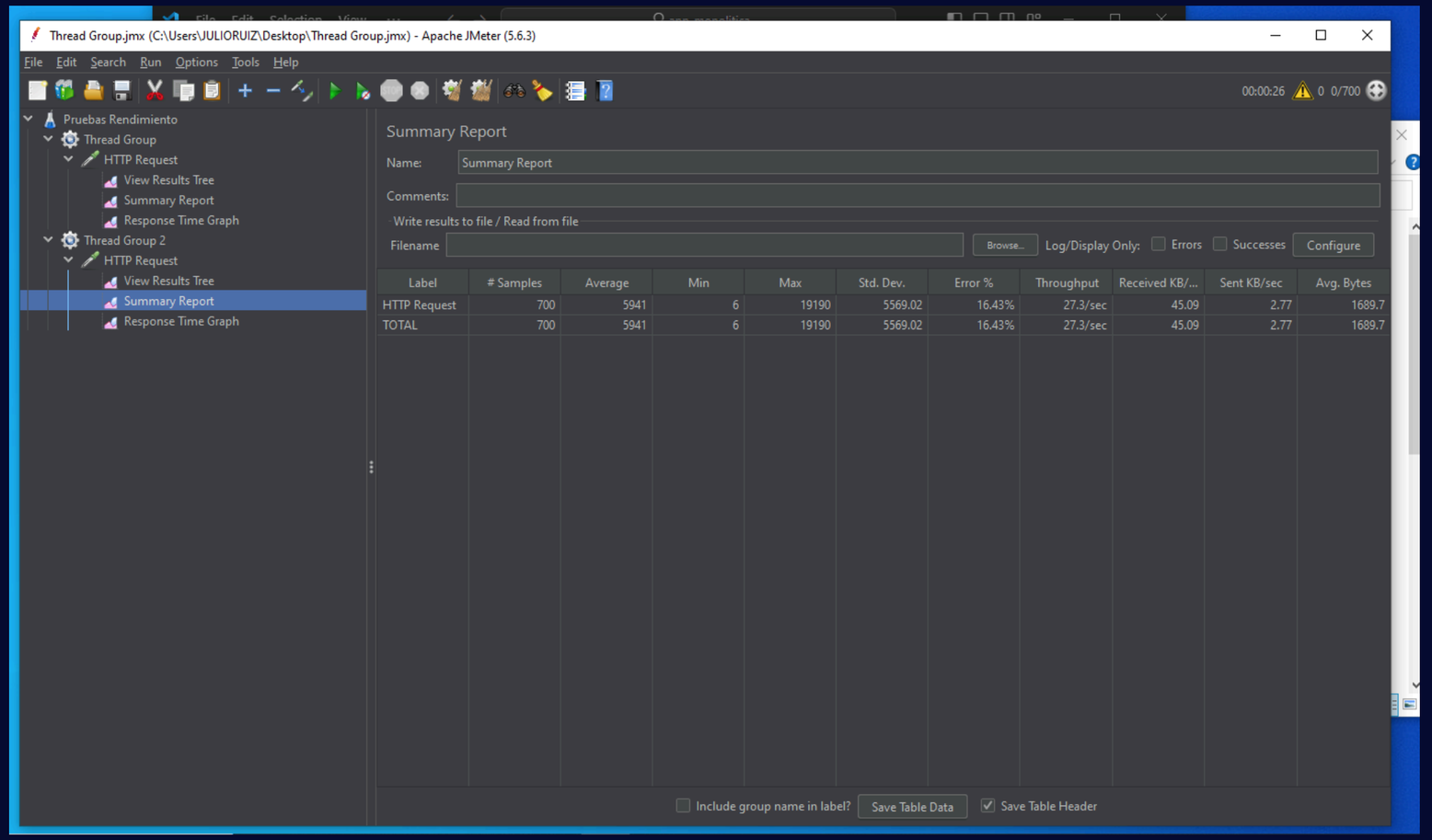
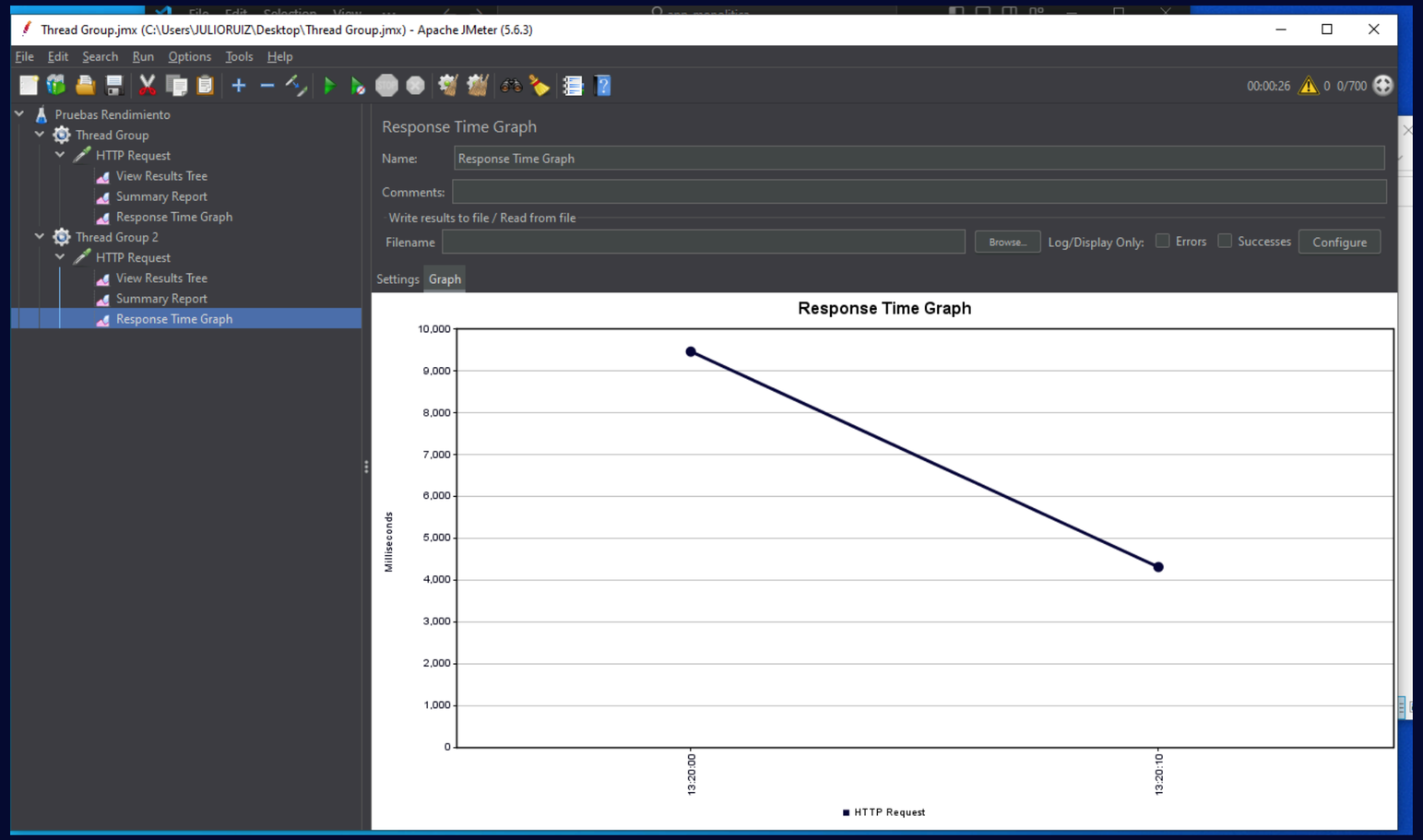
Summary Report
Response Time Graph
Response Time Graph
Name: Response Time Graph
Comments:
Write results to file / Read from file
Filename
Browse...
Log/Display Only: Errors Successes
Configure
Settings Graph
Response Time Graph
Milliseconds
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
13:20:00
13:20:10
HTTP Request

/login primera prueba

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Errors
Successes
Configure
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Milliseconds
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4,000
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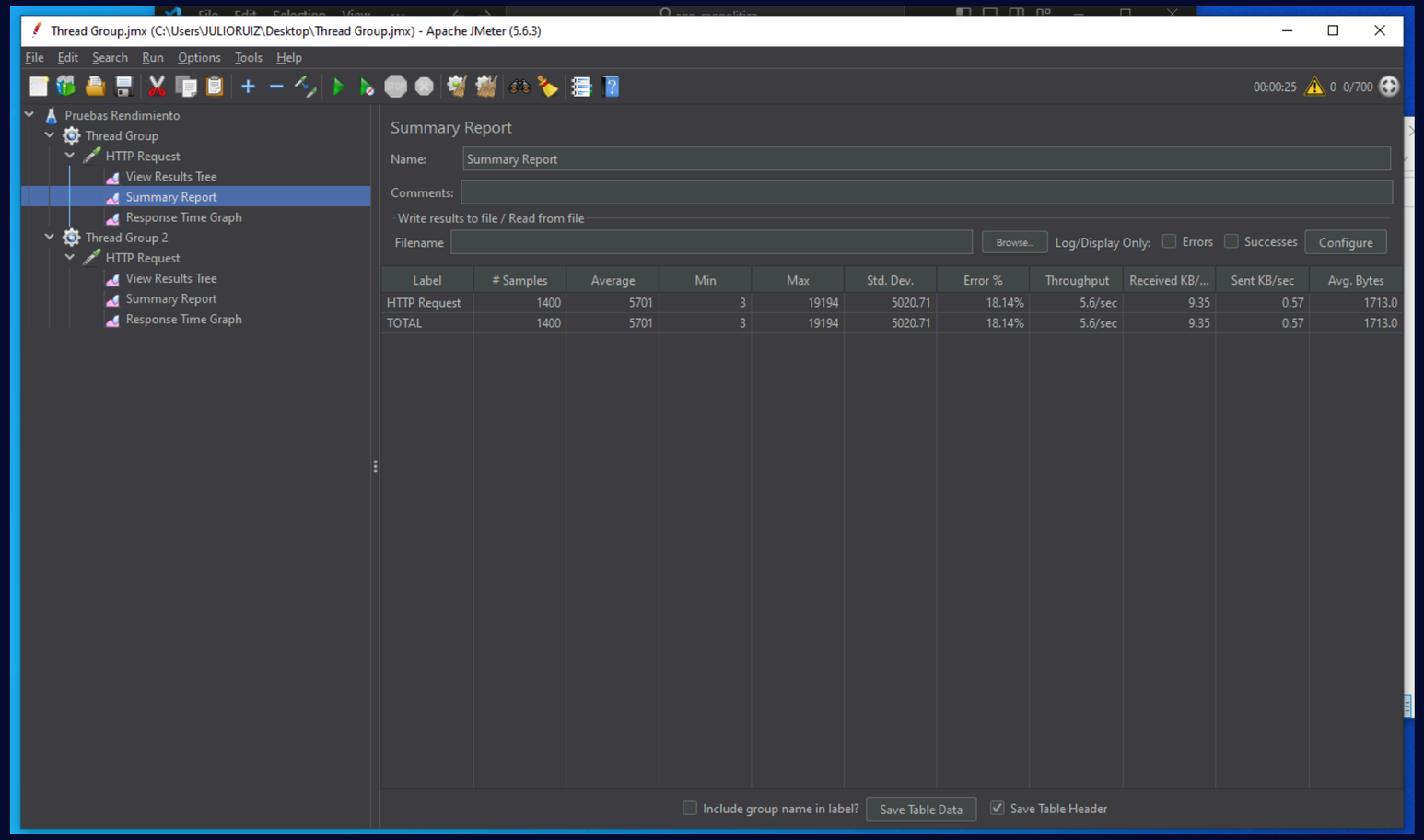
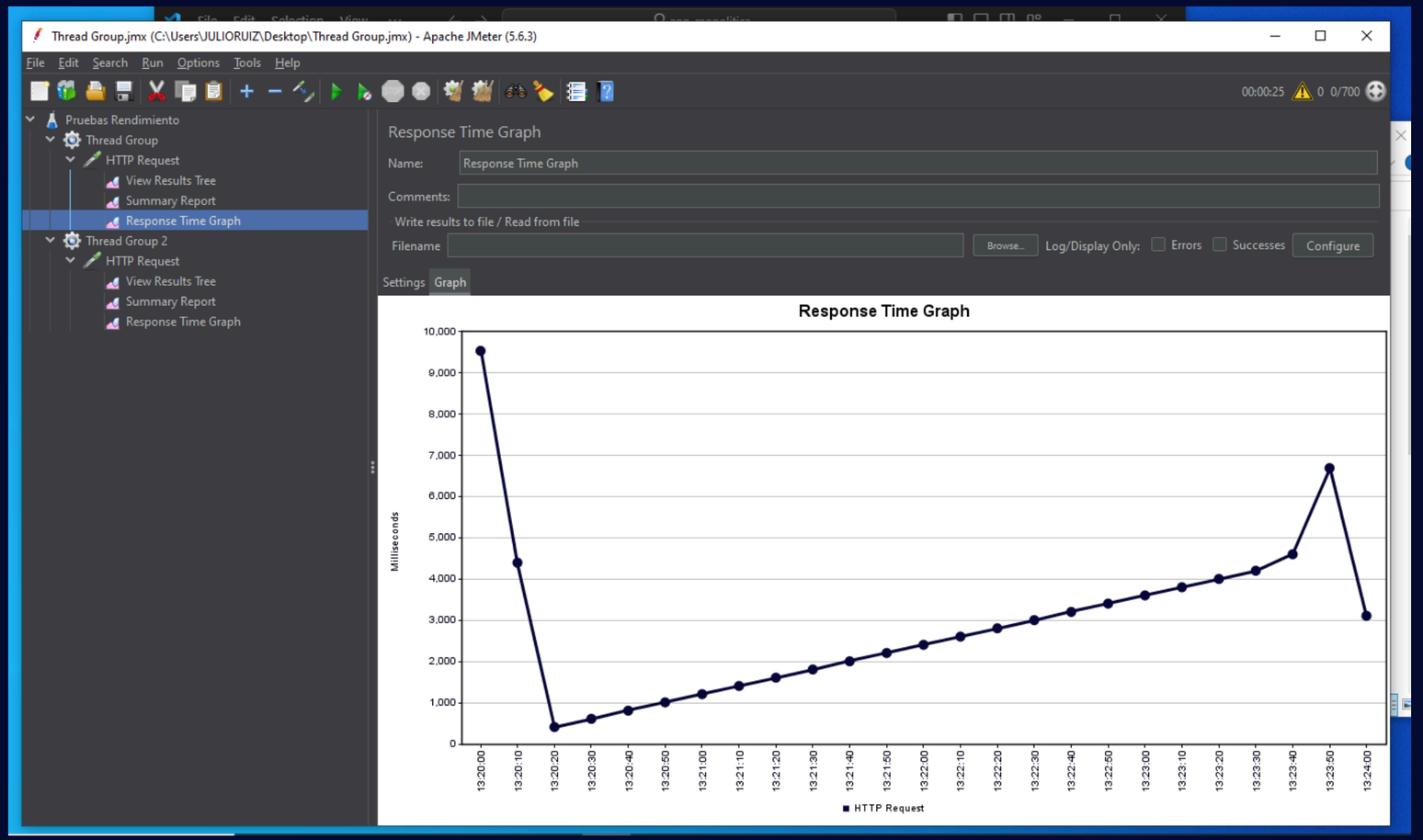
13:20:00
13:20:10
HTTP Request

/register segunda prueba

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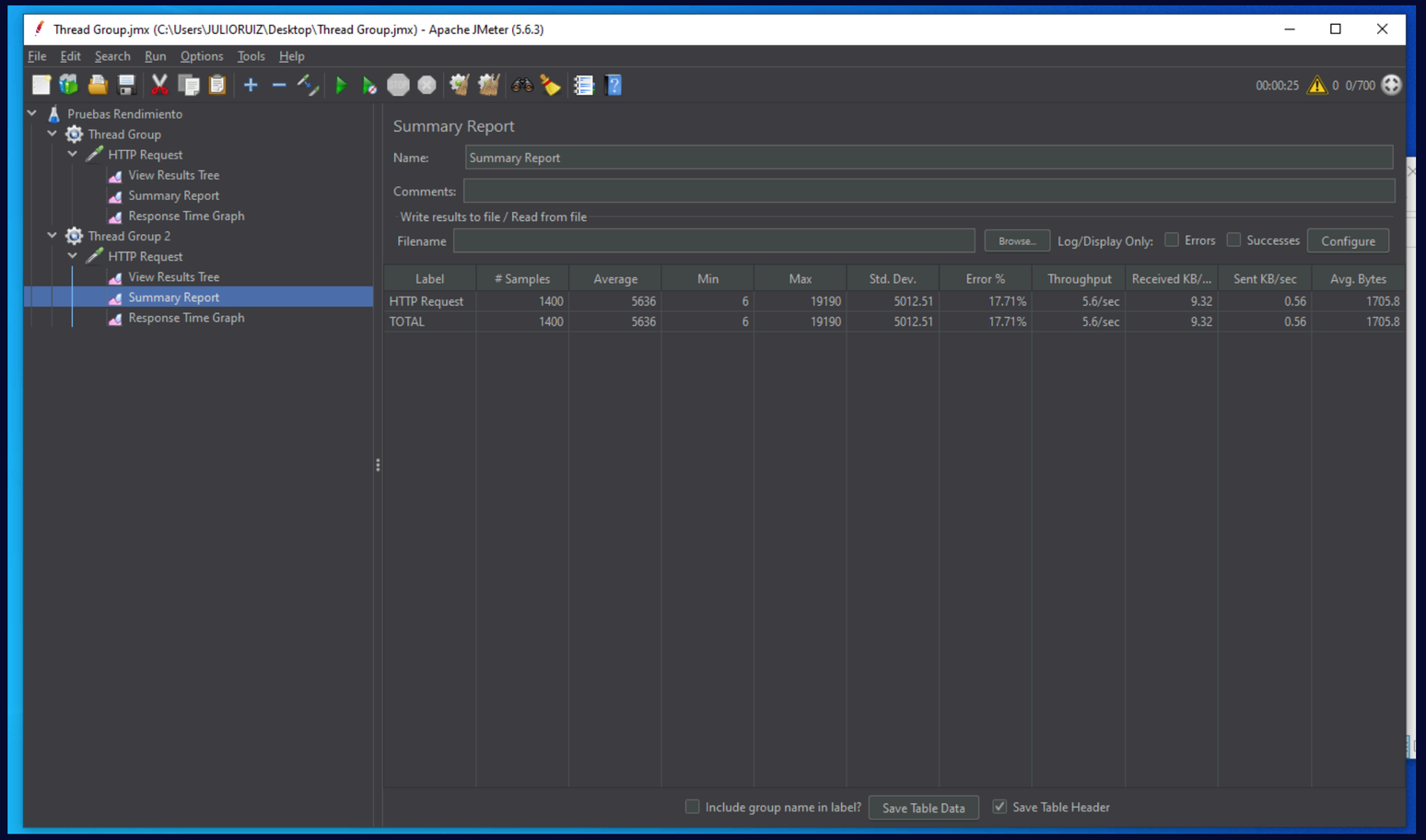
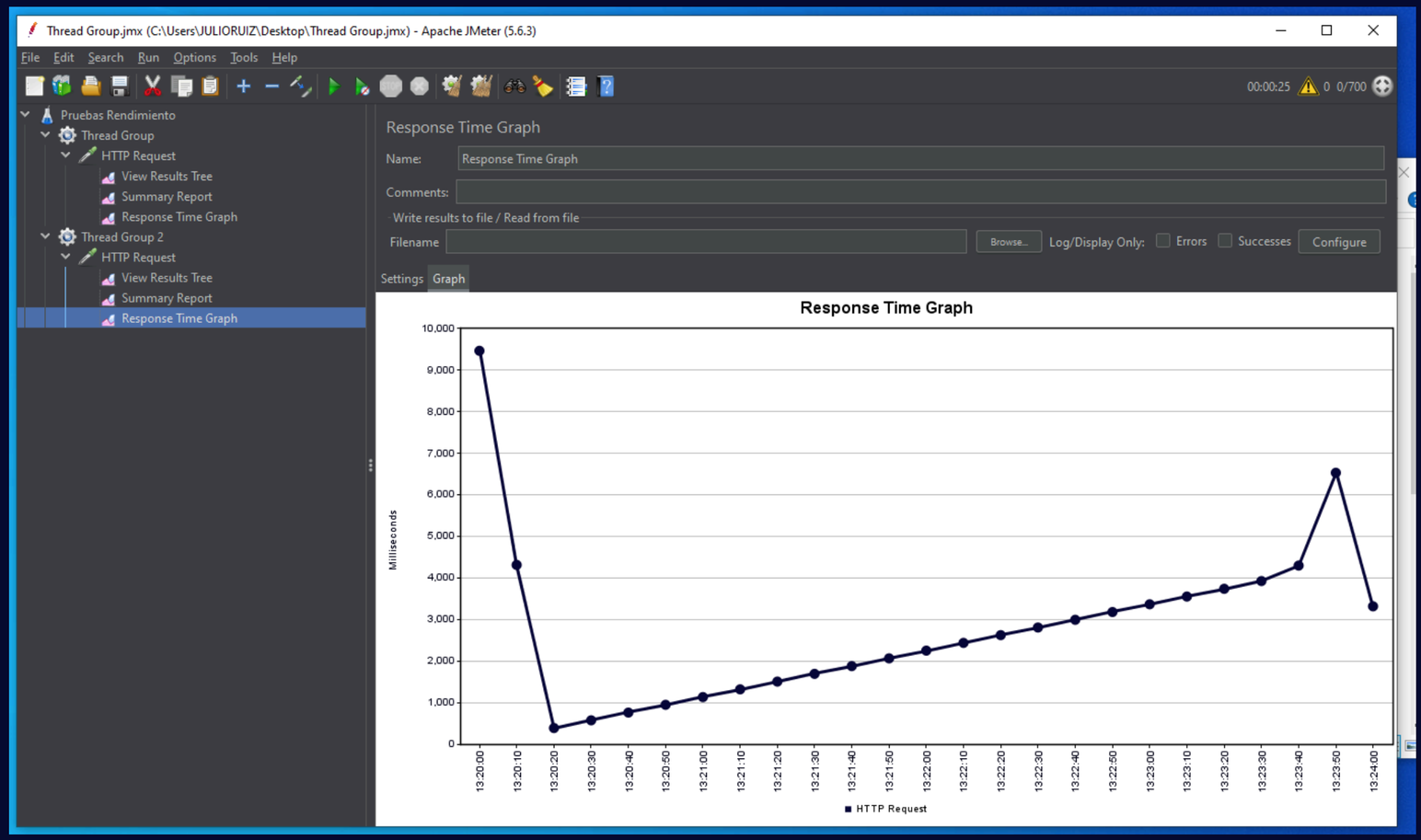
13:22:30
13:22:40
13:22:50
13:23:00
13:23:10
13:23:20
13:23:30
13:23:40
13:23:50
13:24:00
HTTP Request

/login segunda prueaba

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8,000
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6,000
5,000
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13:20:00
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13:23:00
13:23:10
13:23:20
13:23:30
13:23:40
13:23:50
13:24:00
HTTP Request

CONCLUSIONES

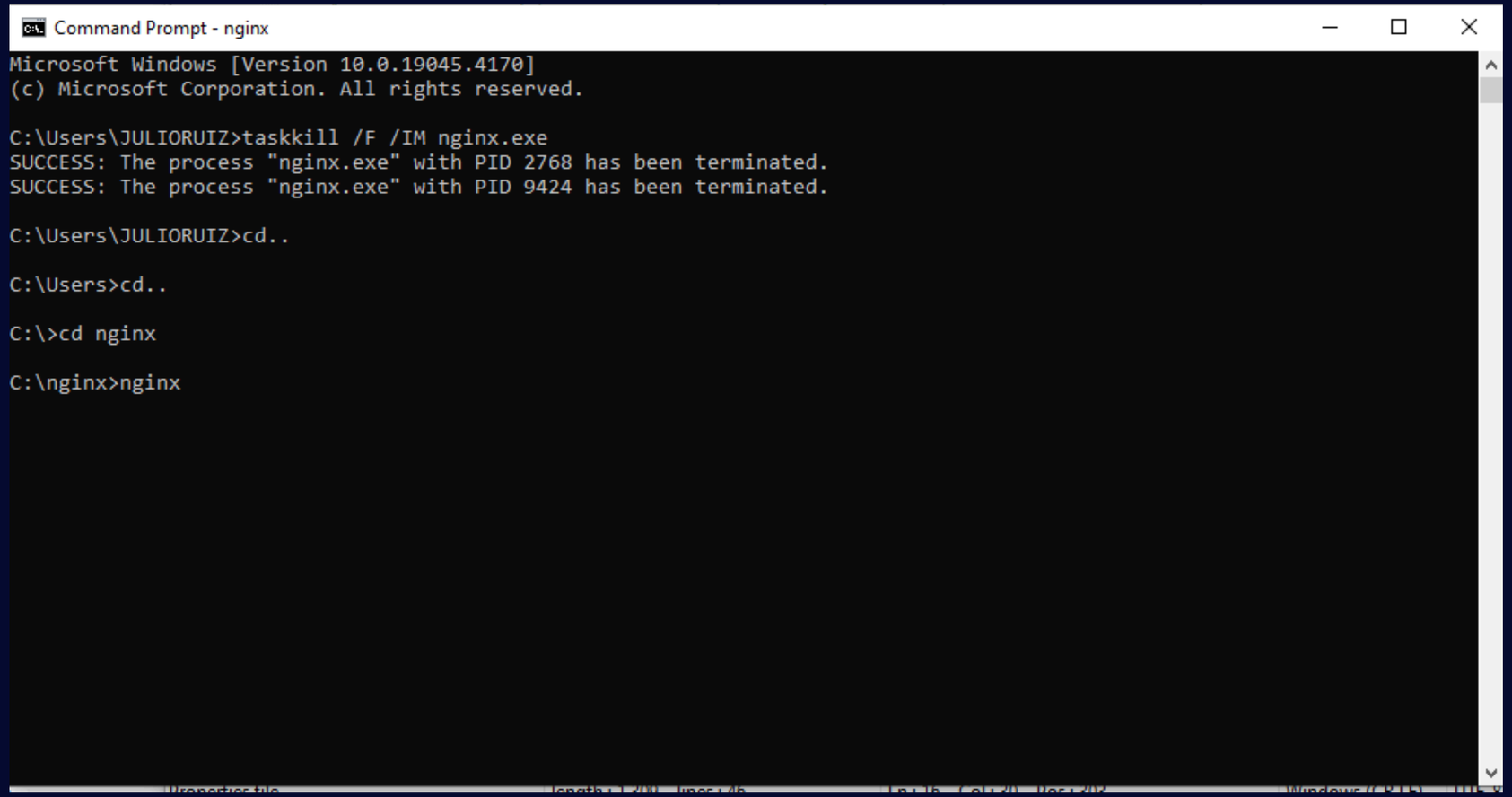
Con un servidor más robusto (2 CPUs, 4 GB de RAM), la aplicación tomó un promedio de 16.1 segundos para completar operaciones tanto de registro como de login con 1400 usuarios concurrentes. Este tiempo de respuesta es bastante alto, lo que sugiere que la experiencia del usuario podría verse afectada negativamente bajo esta carga. En un entorno de producción, querrías apuntar a tiempos de respuesta inferiores a varios segundos.

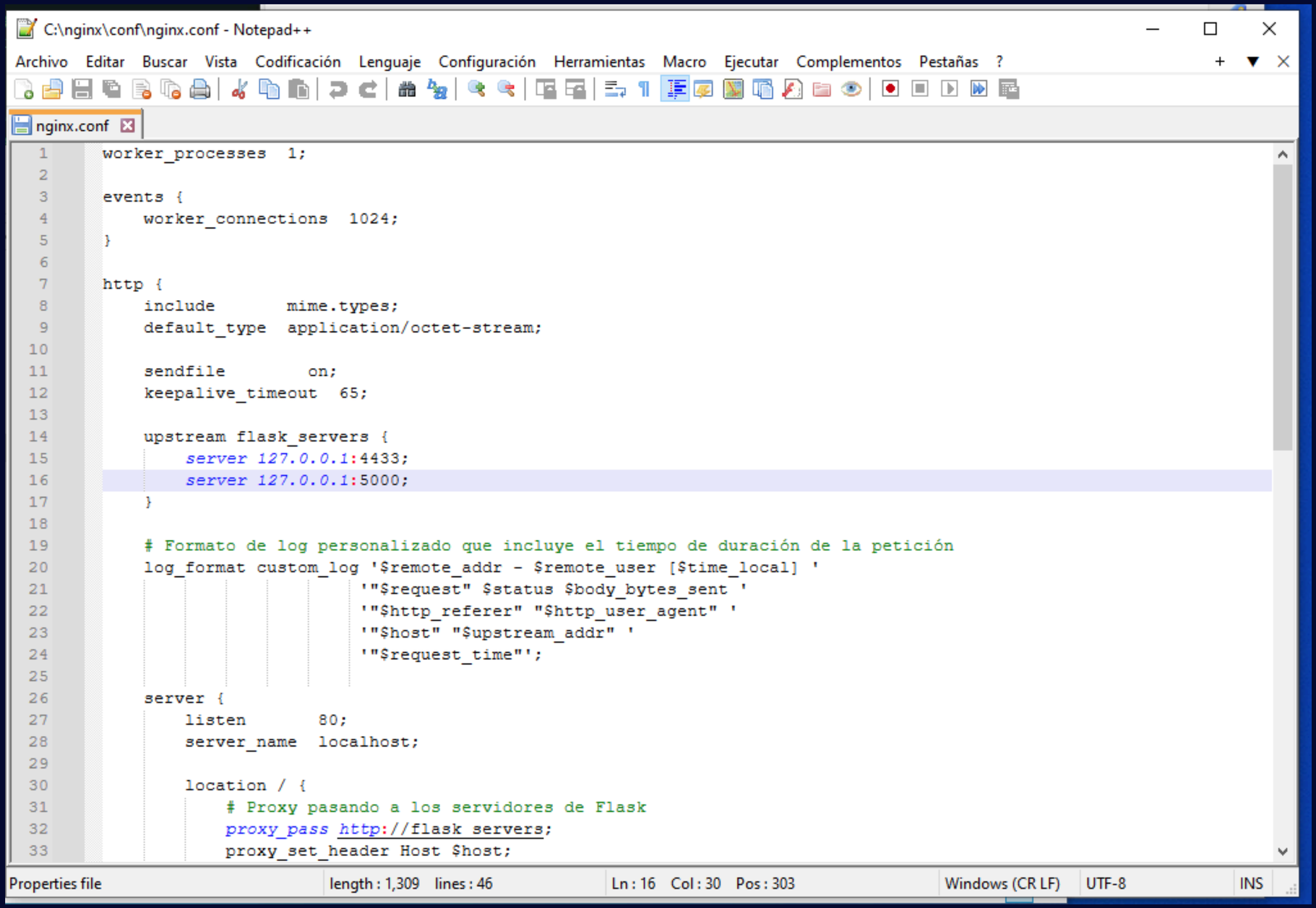
Al reducir a la mitad los recursos del servidor (1 CPU, 2 GB de RAM), y también a la mitad la carga de usuarios (700 usuarios), el tiempo de respuesta aumentó significativamente a más de 27 segundos para ambas operaciones. Esto es un deterioro sustancial y señala que la aplicación es posiblemente más sensible a la disponibilidad de CPU que a la memoria, aunque ambos son factores críticos.

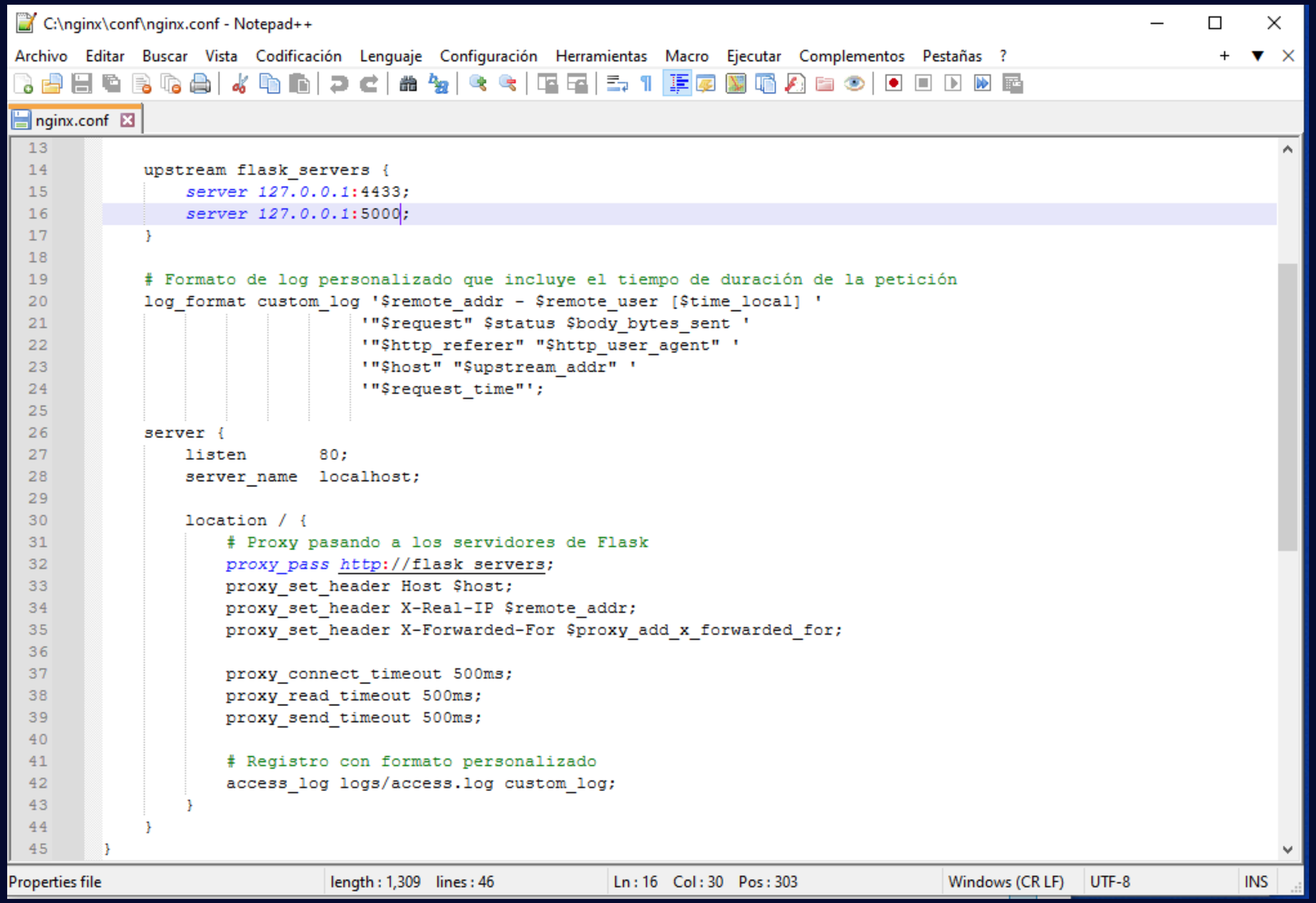
- La mejora en el tiempo de respuesta durante la "segunda vuelta" podría sugerir que hay un efecto de calentamiento en juego. Este efecto puede deberse a la caché de la base de datos que se llena, la JIT (Just-In-Time) compilation en el servidor de aplicaciones, o simplemente que ciertas operaciones iniciales pesadas ya se han realizado y no necesitan repetirse.

- Es interesante que, incluso con recursos reducidos, la segunda vuelta tuvo tiempos de respuesta de 5.6 segundos, lo cual es mejor que la primera vuelta con más recursos. Esto podría indicar que la aplicación tiene una etapa inicial pesada o que se beneficia significativamente de la caché o también debido al menor rendimiento del sistema se puede apreciar que existe una mayor cantidad de operaciones fallidas, las cuales provocarían un menor tiempo de ejecución.

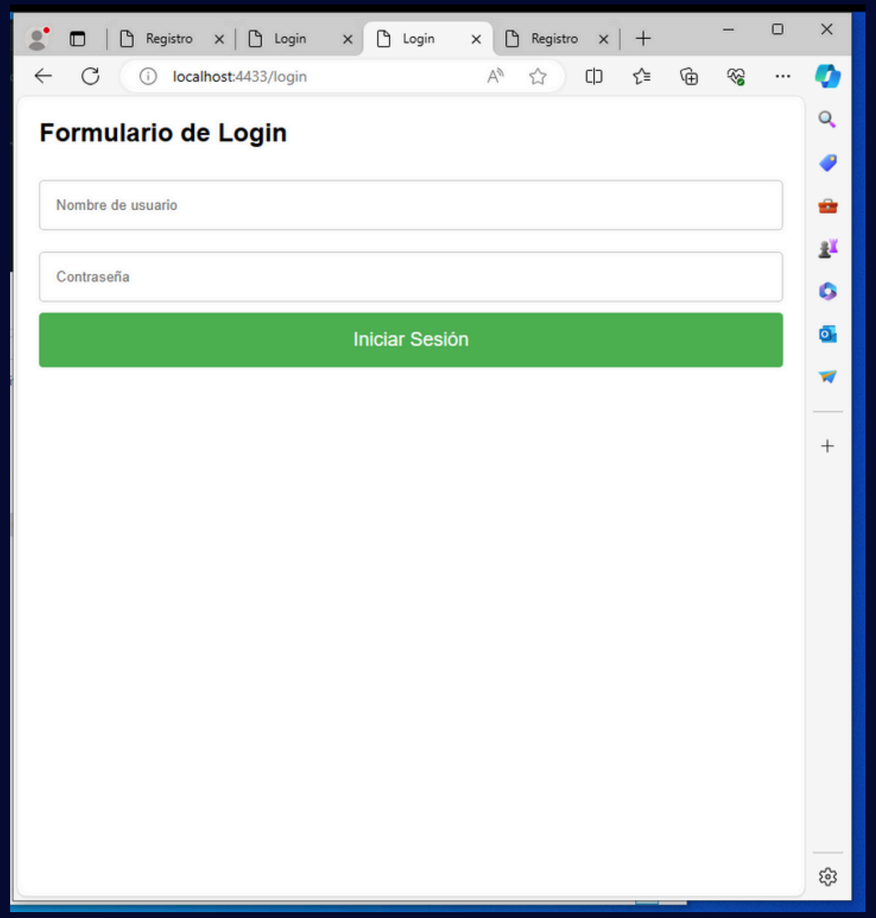
NGINX

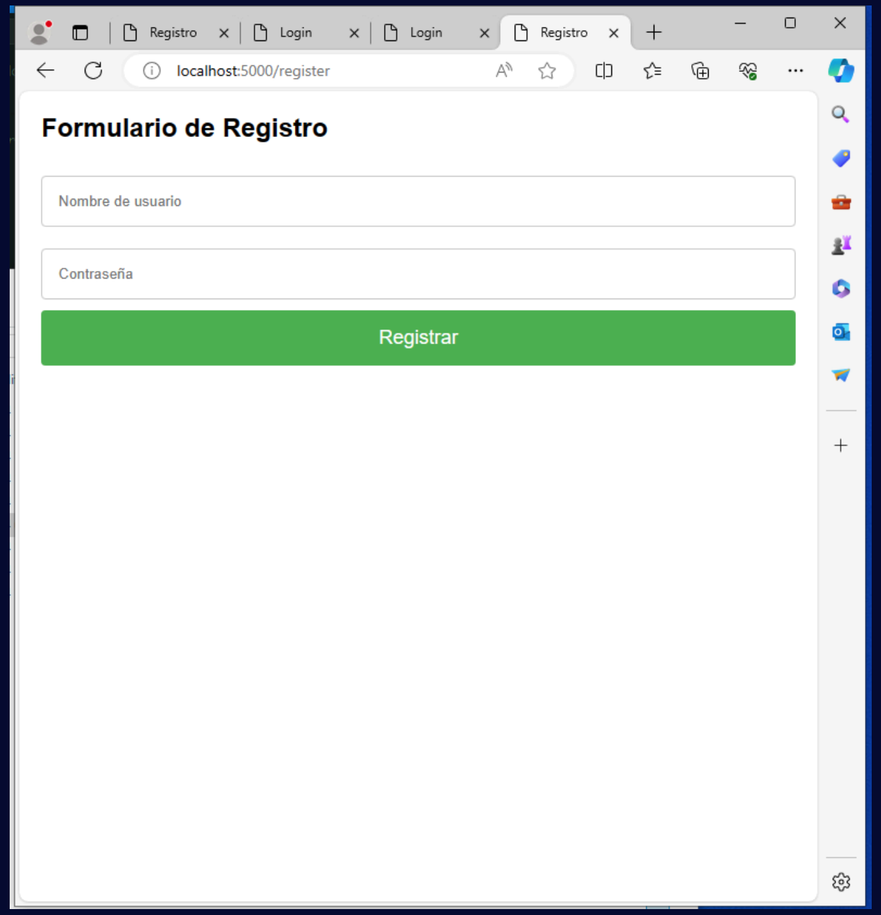

Command Prompt - nginx
Microsoft Windows [Version 10.0.19045.4170]
(c) Microsoft Corporation. All rights reserved.
C:\Users\JULIORUIZ>taskkill /F /IM nginx.exe
SUCCESS: The process "nginx.exe" with PID 2768 has been terminated.
SUCCESS: The process "nginx.exe" with PID 9424 has been terminated.
C:\Users\JULIORUIZ>cd..
C:\Users>cd..
C:\>cd nginx
C:\nginx>nginx


C:\nginx\conf\nginx.conf - Notepad++
Archivo Editar Buscar Vista Codificación Lenguaje Configuración Herramientas Macro Ejecutar Complementos Pestañas ?
nginx.conf
worker_processes 1;
events {
worker_connections 1024;
}
http {
include mime.types;
default_type application/octet-stream;
sendfile on;
keepalive_timeout 65;
upstream flask_servers {
server 127.0.0.1:4433;
server 127.0.0.1:5000;
}
# Formato de log personalizado que incluye el tiempo de duración de la petición
log_format custom_log '$remote_addr - $remote_user [$time_local] '
'"$request" $status $body_bytes_sent '
'"$http_referer" "$http_user_agent" '
'"$host" "$upstream_addr" '
'"$request_time"';
server {
listen 80;
server_name localhost;
location / {
# Proxy pasando a los servidores de Flask
proxy_pass http://flask_servers;
proxy_set_header Host $host;
Properties file
length : 1,309 lines : 46
Ln : 16 Col : 30 Pos : 303
Windows (CR LF)
UTF-8
INS

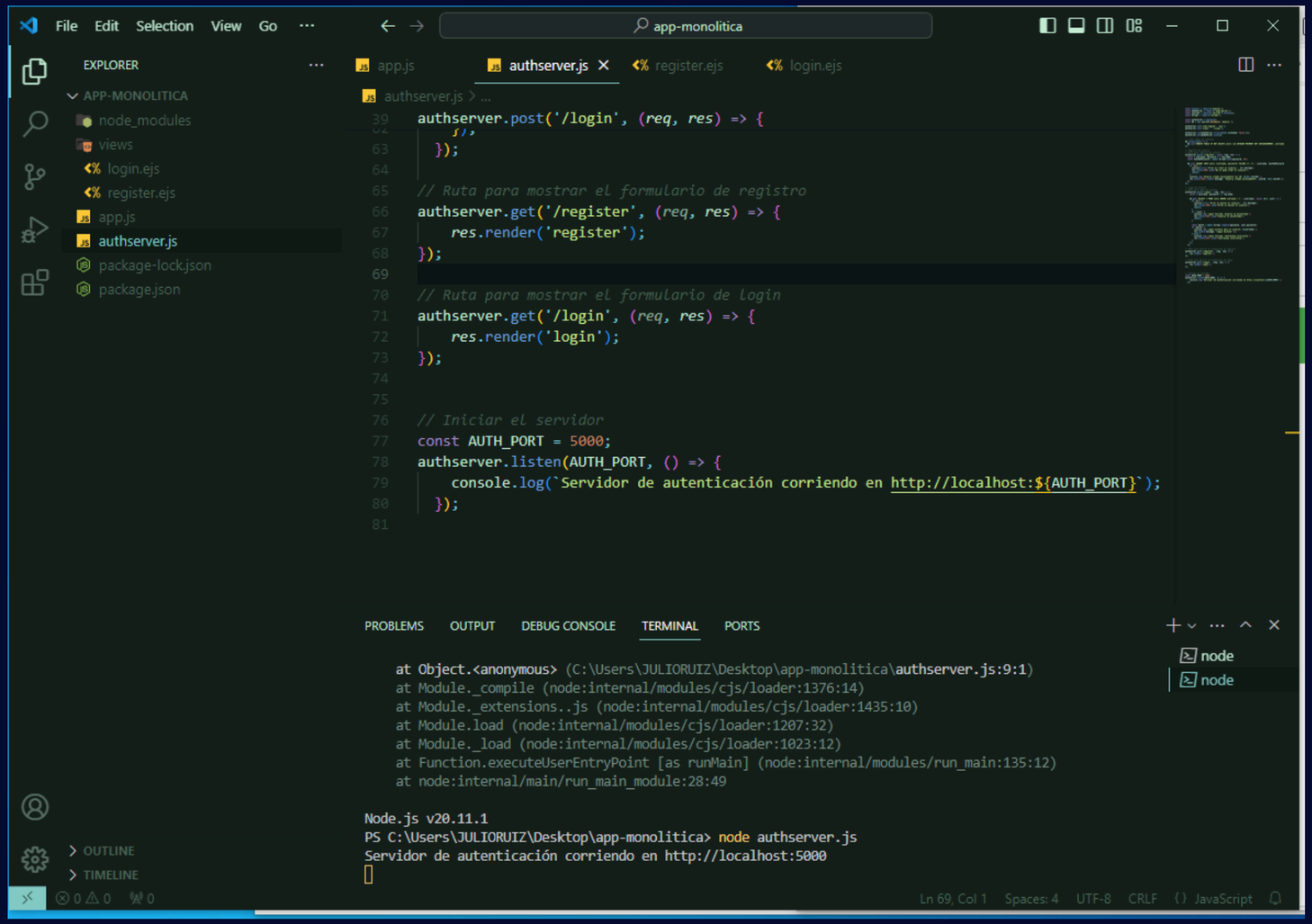

C:\nginx\conf\nginx.conf - Notepad++
Archivo Editar Buscar Vista Codificación Lenguaje Configuración Herramientas Macro Ejecutar Complementos Pestañas ?
nginx.conf
13
14 upstream flask_servers {
15 server 127.0.0.1:4433;
16 server 127.0.0.1:5000;
17 }
18
19 # Formato de log personalizado que incluye el tiempo de duración de la petición
20 log_format custom_log '$remote_addr - $remote_user [$time_local] '
21 '"$request" $status $body_bytes_sent '
22 '"$http_referer" "$http_user_agent" '
23 '"$host" "$upstream_addr" '
24 '"$request_time"';
25
26 server {
27 listen 80;
28 server_name localhost;
29
30 location / {
31 # Proxy pasando a los servidores de Flask
32 proxy_pass http://flask_servers;
33 proxy_set_header Host $host;
34 proxy_set_header X-Real-IP $remote_addr;
35 proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
36
37 proxy_connect_timeout 500ms;
38 proxy_read_timeout 500ms;
39 proxy_send_timeout 500ms;
40
41 # Registro con formato personalizado
42 access_log logs/access.log custom_log;
43 }
44 }
45 }
Properties file
length : 1,309 lines : 46
Ln : 16 Col : 30 Pos : 303
Windows (CR LF)
UTF-8
INS

4433, 5000

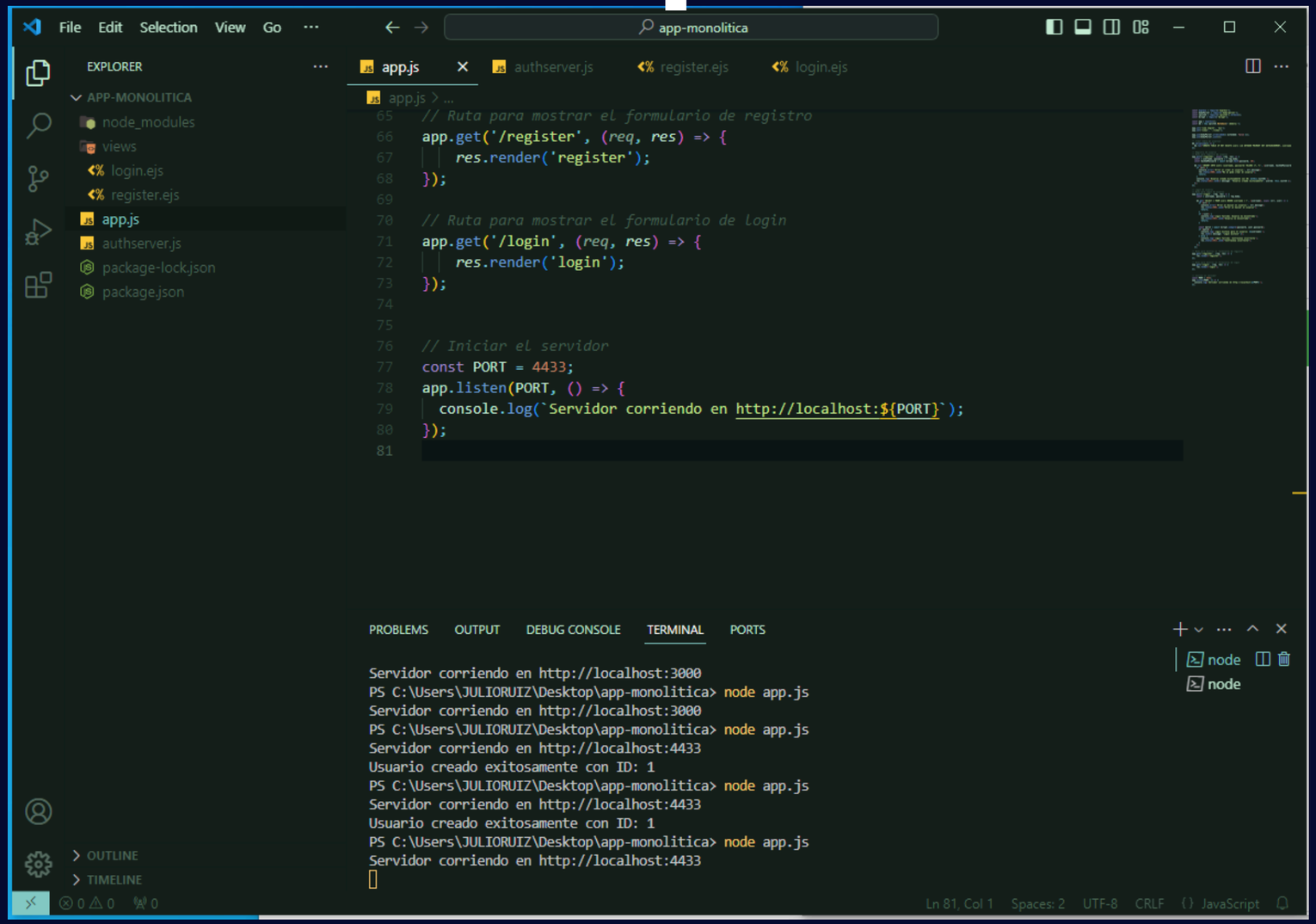

Registro
Login
Login
Registro
localhost:4433/login
Formulario de Login
Nombre de usuario
Contraseña
Iniciar Sesión


Registro
Login
Login
Registro
localhost:5000/register
Formulario de Registro
Nombre de usuario
Contraseña
Registrar

Utilizando puerto 5000



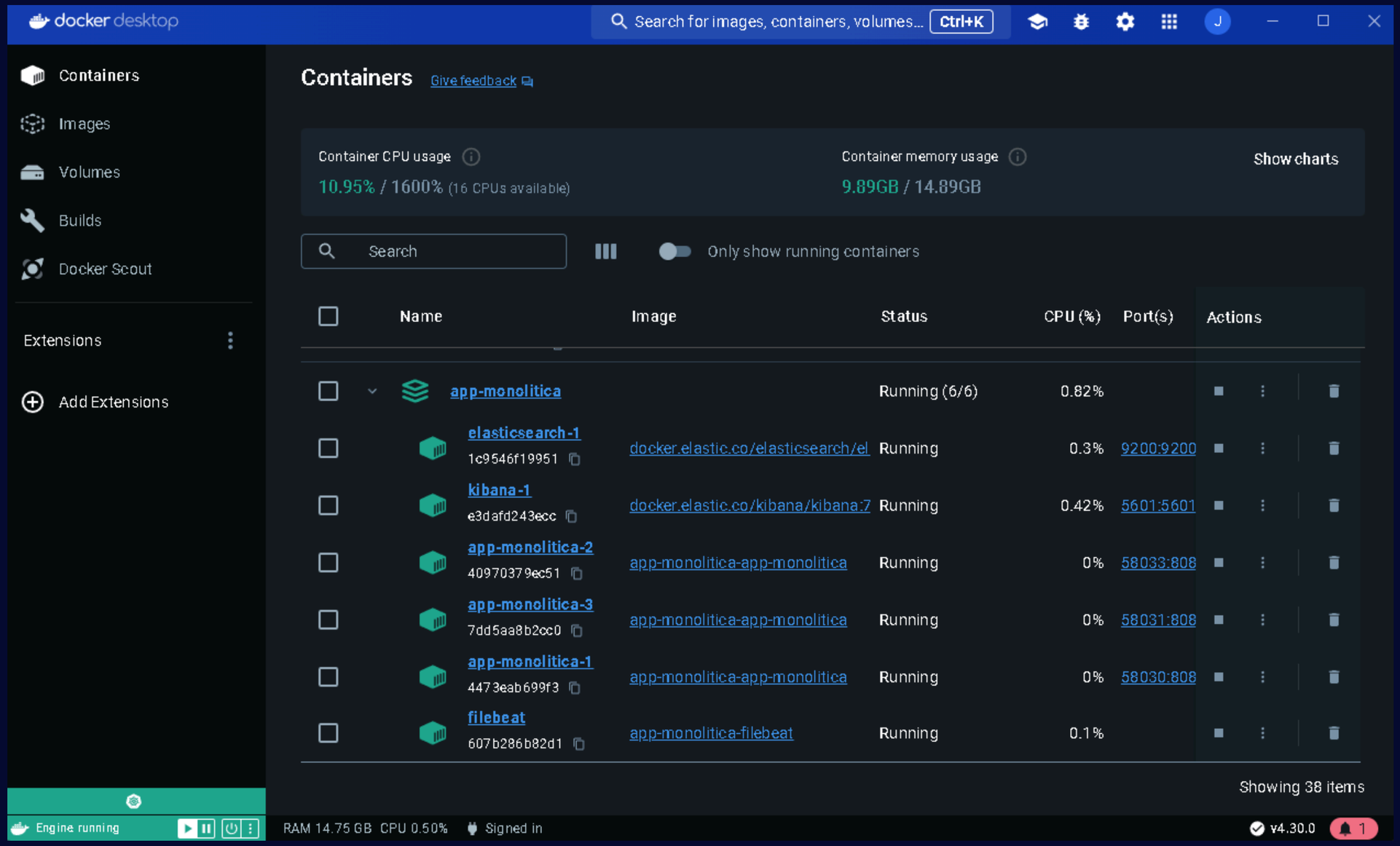
Utilizando puerto 4433



Conclusión

La implementación de Nginx como un balanceador de carga en nuestra aplicación web ofrece una solución efectiva para lograr el escalado horizontal, agregando más instancias de servidores para manejar una mayor carga de trabajo. Al utilizar Nginx como balanceador de carga, pudimos distribuir de manera equitativa el tráfico entrante entre múltiples servidores backend, lo que mejoró en el rendimiento, la disponibilidad y la escalabilidad de nuestra aplicación.

Contenedores de app monolitica


docker desktop
Search for images, containers, volumes... Ctrl+K
Containers
Images
Volumes
Builds
Docker Scout
Extensions
Add Extensions
Containers
Give feedback
Container CPU usage
10.95% / 1600% (16 CPUs available)
Container memory usage
9.89GB / 14.89GB
Show charts
Search
Only show running containers
Name
Image
Status
CPU (%)
Port(s)
Actions
app-monolitica
Running (6/6)
0.82%
elasticsearch-1
1c9546f19951
docker.elastic.co/elasticsearch/el
Running
0.3%
9200:9200
kibana-1
e3dafd243ecc
docker.elastic.co/kibana/kibana:7
Running
0.42%
5601:5601
app-monolitica-2
40970379ec51
app-monolitica-app-monolitica
Running
0%
58033:808
app-monolitica-3
7dd5aa8b2cc0
app-monolitica-app-monolitica
Running
0%
58031:808
app-monolitica-1
4473eab699f3
app-monolitica-app-monolitica
Running
0%
58030:808
filebeat
607b286b82d1
app-monolitica-filebeat
Running
0.1%
Showing 38 items
Engine running
RAM 14.75 GB CPU 0.50%
Signed in
v4.30.0
1

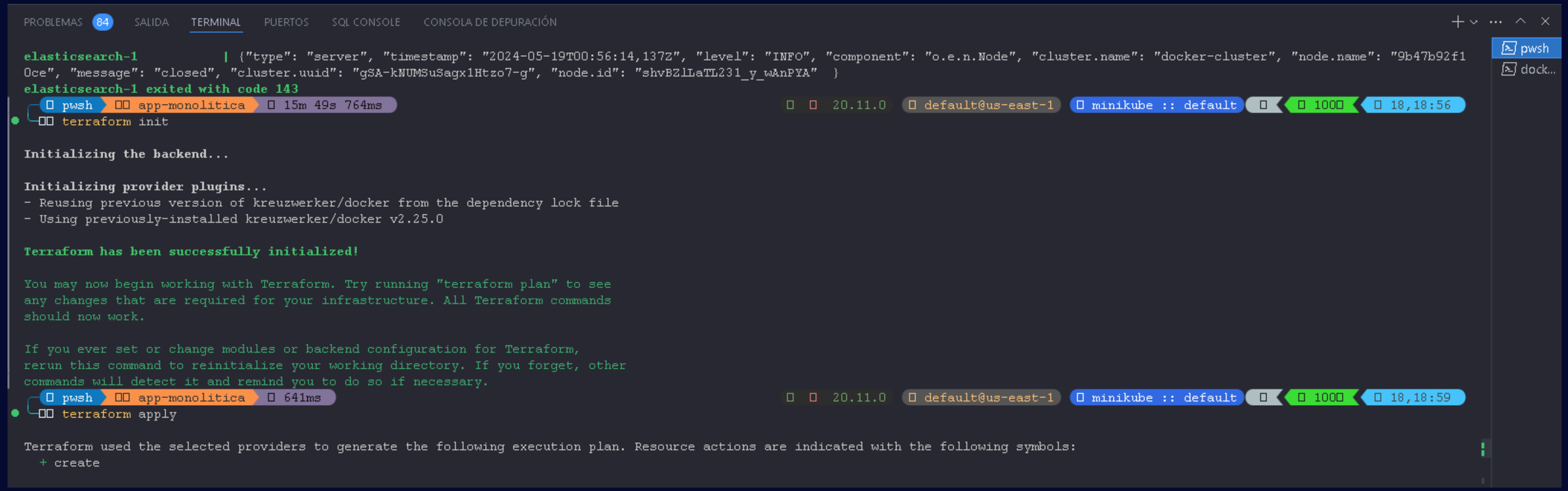
Gestionar el despliegue y escalamiento

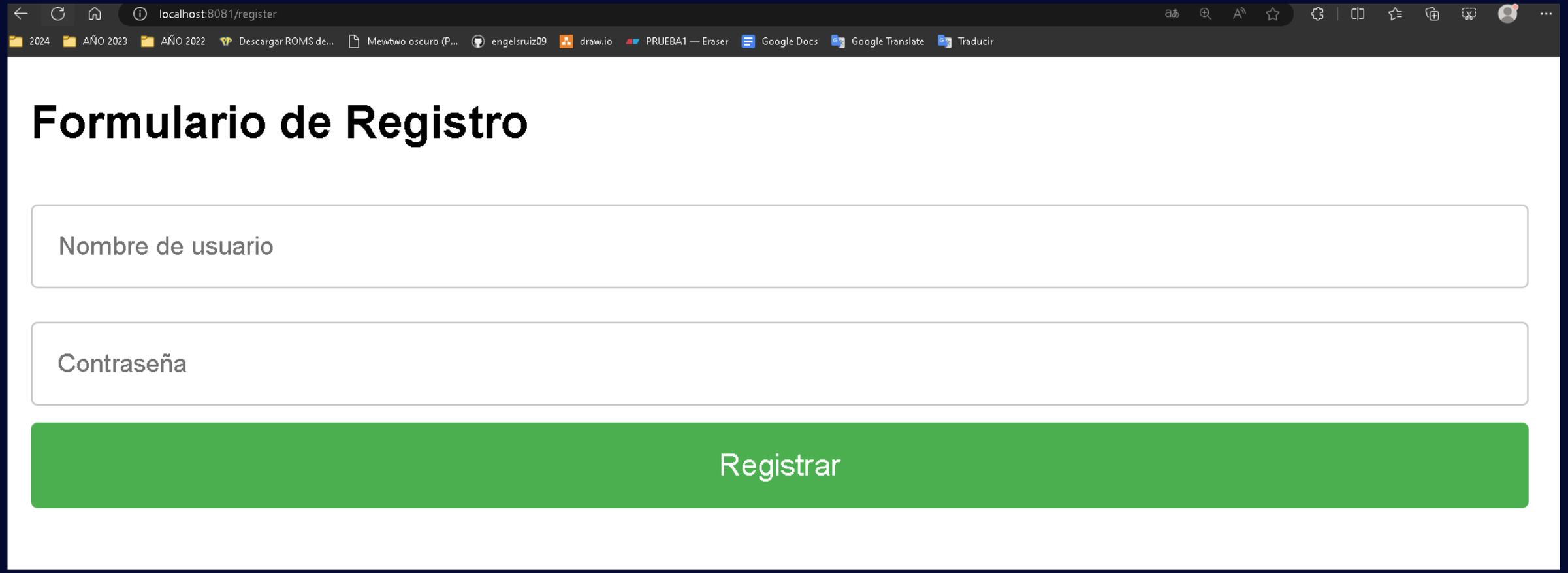
docker-compose.yml

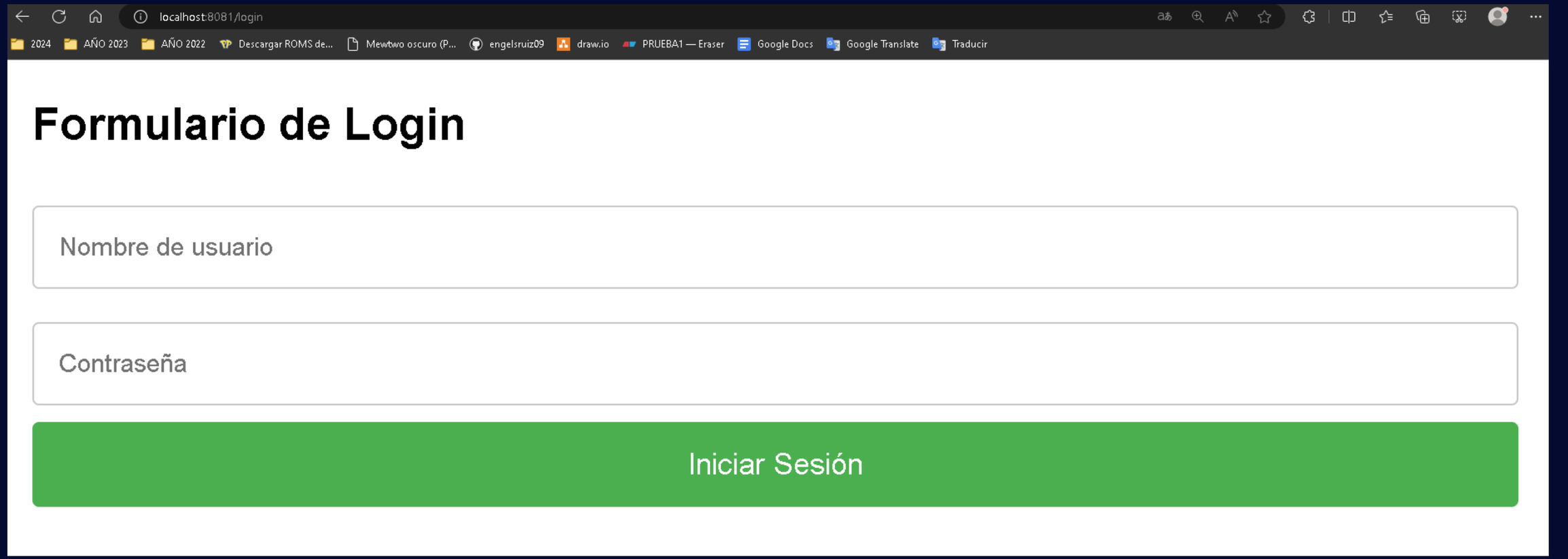
```yaml
services:
  filebeat:
    depends_on:

  app-monolitica1:
    build:
      context: C:\\Users\\julio\\Desktop\\app-monolitica
      dockerfile: Dockerfile
    environment:
      - PORT=8081
    ports:
      - "8081:8081"
    depends_on:
      - elasticsearch
    volumes:
      - ./app-monolitica-logs:/src/logs
    deploy:
      resources: #vertical
        limits:
          cpus: '2.0'
          memory: 2048M

  app-monolitica2:
```

PROBLEMAS 12 SALIDA TERMINAL PUERTOS SQL CONSOLE CONSOLA DE DEPURACIÓN

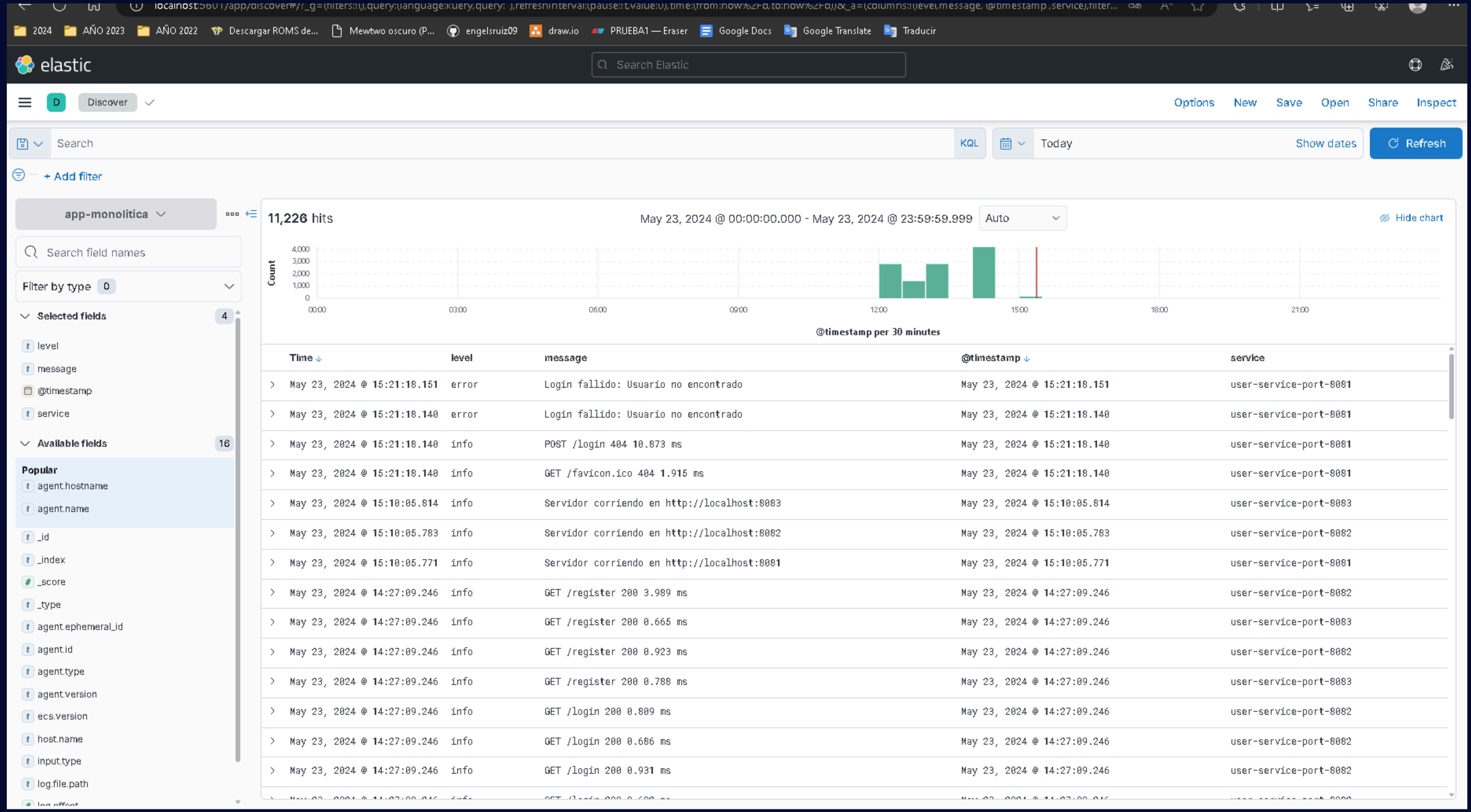
app con terraform


PROBLEMAS 84
SALIDA
TERMINAL
PUERTOS
SQL CONSOLE
CONSOLA DE DEPURACIÓN
pwsh
dock...
elasticsearch-1 | {"type": "server", "timestamp": "2024-05-19T00:56:14,137Z", "level": "INFO", "component": "o.e.n.Node", "cluster.name": "docker-cluster", "node.name": "9b47b92f1
Oce", "message": "closed", "cluster.uuid": "gSA-kNUMSuSagx1Htzo7-g", "node.id": "shvBZlLaTL231_y_wAnPYA" }
elasticsearch-1 exited with code 143
pwsh app-monolitica 15m 49s 764ms
20.11.0
default@us-east-1
minikube :: default
100
18,18:56
terraform init
Initializing the backend...
Initializing provider plugins...
- Reusing previous version of kreuzwerker/docker from the dependency lock file
- Using previously-installed kreuzwerker/docker v2.25.0
Terraform has been successfully initialized!
You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.
If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
pwsh app-monolitica 641ms
20.11.0
default@us-east-1
minikube :: default
100
18,18:59
terraform apply
Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create


localhost:8081/register
2024
AÑO 2023
AÑO 2022
Descargar ROMS de...
Mewtwo oscuro (P...
engelsruiz09
draw.io
PRUEBA1 — Eraser
Google Docs
Google Translate
Traducir
Formulario de Registro
Nombre de usuario
Contraseña
Registrar


localhost:8081/login
2024
AÑO 2023
AÑO 2022
Descargar ROMS de...
Mewtwo oscuro (P...
engelsruiz09
draw.io
PRUEBA1 — Eraser
Google Docs
Google Translate
Traducir
Formulario de Login
Nombre de usuario
Contraseña
Iniciar Sesión

Elastic serch
gráfico de logs


elastic
Search Elastic
Discover
Options
New
Save
Open
Share
Inspect
Search
KQL
Today
Show dates
Refresh
+ Add filter
app-monolitica
Search field names
Filter by type 0
Selected fields 4
level
message
@timestamp
service
Available fields 16
Popular
agent.hostname
agent.name
_id
_index
_score
_type
agent.ephemeral_id
agent.id
agent.type
agent.version
ecs.version
host.name
input.type
log.file.path
11,226 hits
May 23, 2024 @ 00:00:00.000 - May 23, 2024 @ 23:59:59.999
Auto
Hide chart
Count
@timestamp per 30 minutes
Time
level
message
@timestamp
service
May 23, 2024 @ 15:21:18.151 error Login fallido: Usuario no encontrado May 23, 2024 @ 15:21:18.151 user-service-port-8081
May 23, 2024 @ 15:21:18.140 error Login fallido: Usuario no encontrado May 23, 2024 @ 15:21:18.140 user-service-port-8081
May 23, 2024 @ 15:21:18.140 info POST /login 404 10.873 ms May 23, 2024 @ 15:21:18.140 user-service-port-8081
May 23, 2024 @ 15:21:18.140 info GET /favicon.ico 404 1.915 ms May 23, 2024 @ 15:21:18.140 user-service-port-8081
May 23, 2024 @ 15:10:05.814 info Servidor corriendo en http://localhost:8083 May 23, 2024 @ 15:10:05.814 user-service-port-8083
May 23, 2024 @ 15:10:05.783 info Servidor corriendo en http://localhost:8082 May 23, 2024 @ 15:10:05.783 user-service-port-8082
May 23, 2024 @ 15:10:05.771 info Servidor corriendo en http://localhost:8081 May 23, 2024 @ 15:10:05.771 user-service-port-8081
May 23, 2024 @ 14:27:09.246 info GET /register 200 3.989 ms May 23, 2024 @ 14:27:09.246 user-service-port-8082
May 23, 2024 @ 14:27:09.246 info GET /register 200 0.665 ms May 23, 2024 @ 14:27:09.246 user-service-port-8083
May 23, 2024 @ 14:27:09.246 info GET /register 200 0.923 ms May 23, 2024 @ 14:27:09.246 user-service-port-8082
May 23, 2024 @ 14:27:09.246 info GET /register 200 0.788 ms May 23, 2024 @ 14:27:09.246 user-service-port-8083
May 23, 2024 @ 14:27:09.246 info GET /login 200 0.809 ms May 23, 2024 @ 14:27:09.246 user-service-port-8082
May 23, 2024 @ 14:27:09.246 info GET /login 200 0.686 ms May 23, 2024 @ 14:27:09.246 user-service-port-8082
May 23, 2024 @ 14:27:09.246 info GET /login 200 0.931 ms May 23, 2024 @ 14:27:09.246 user-service-port-8082

localhost:5601/app/dashboards#/view/08f6b5a0-1932-11ef-9eab-8785a193c9ea?_g=(filters:!(),refreshInterval:(pause:!t,value:0),time:(from:now%2Fd,to:now%2Fd))

2024 | AÑO 2023 | AÑO 2022 | Descargar ROMS de... | Mewtwo oscuro (P... | engelsruiz09 | draw.io | PRUEBA1 — Eraser | Google Docs | Google Translate | Traducir

elastic

Search Elastic

Dashboard > DASHBOARD-PROYECTO

Search | KQL | Today

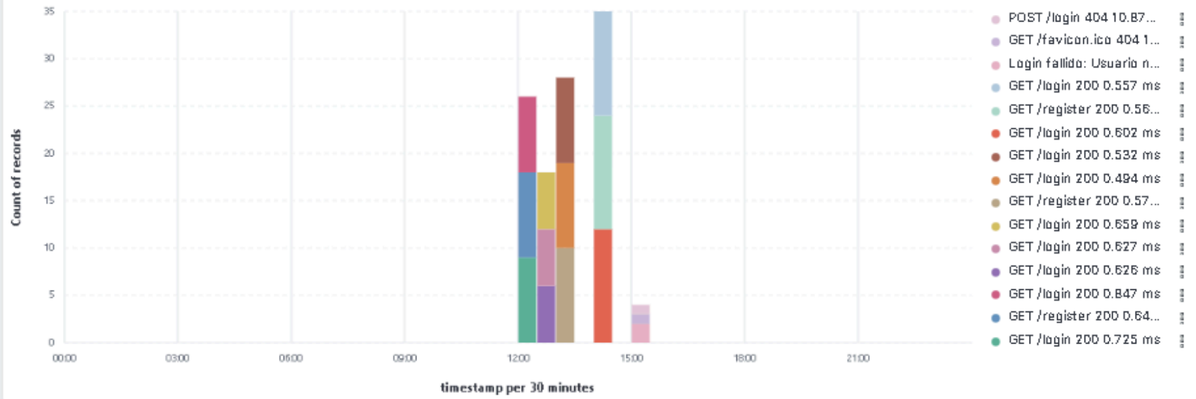
+ Add filter

Total de Registros Procesados

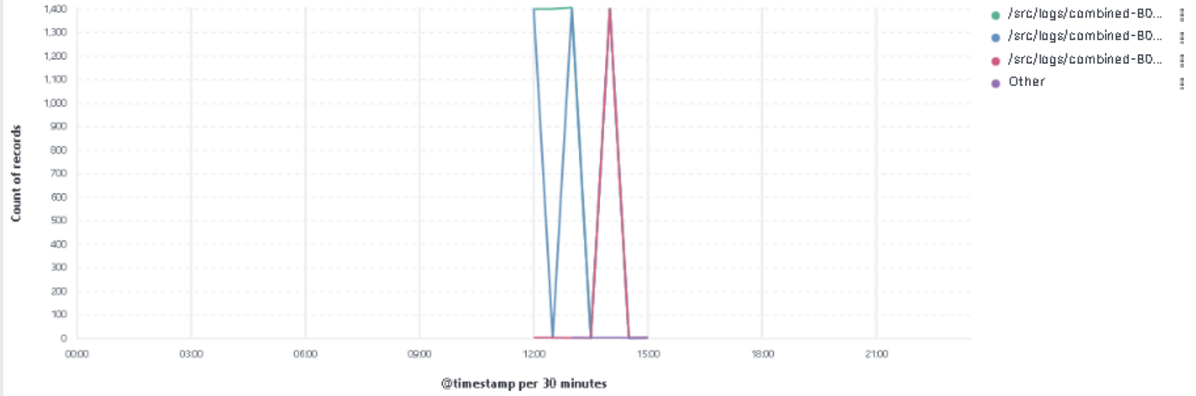
11,226

Count of records

Tabla de los logs más recientes



Actividad de Logs por Puerto



anyone. See https://www.elastic.co/guide/en/elasticsearch/reference/7.15/security-minimal-setup.html to enable security."

Warning: 299 Elasticsearch-7.15.0-79d65f6e357953a5b3cbcc5e2c7c21073d89aa29 "Elasticsearch built-in security features are not enabled. Without authentication, your cluster could be accessible to anyone. See https://www.elastic.co/guide/en/elasticsearch/reference/7.15/security-minimal-setup.html to enable security."

Warning: 299 Elasticsearch-7.15.0-79d65f6e357953a5b3cbcc5e2c7c21073d89aa29 "Elasticsearch built-in security features are not enabled. Without authentication, your cluster could be accessible to anyone. See https://www.elastic.co/guide/en/elasticsearch/reference/7.15/security-minimal-setup.html to enable security."

Warning: 299 Elasticsearch-

Gráfico de barras de conteo de logs por nivel de severidad

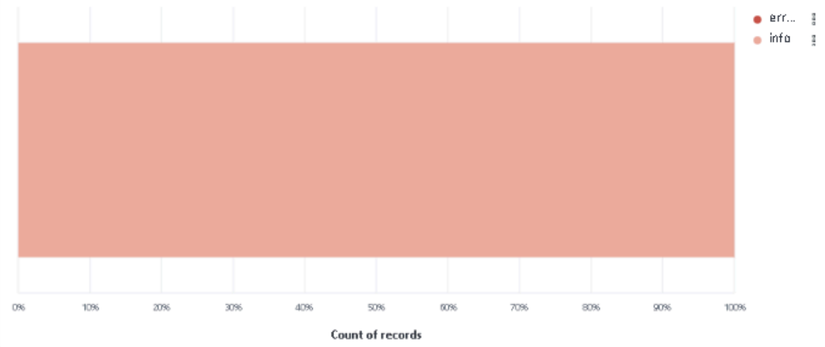


Gráfico de líneas de la frecuencia de logs a lo largo del tiempo

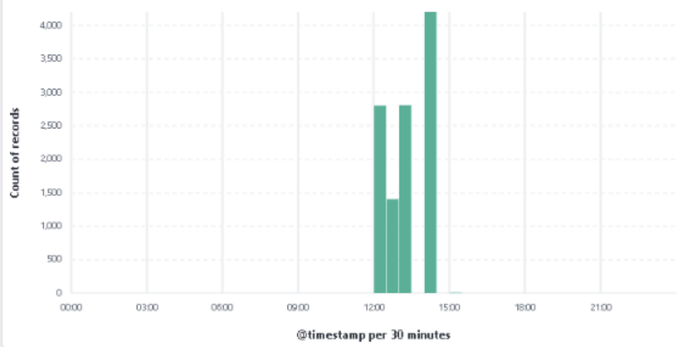


Gráfico de áreas para comparar los volúmenes de logs de diferentes servicios

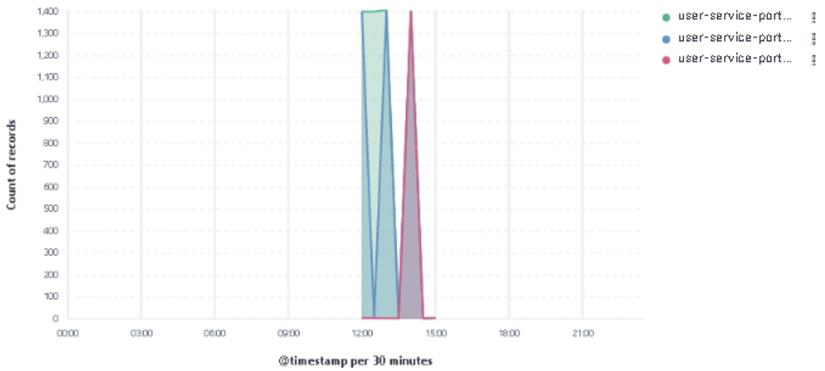
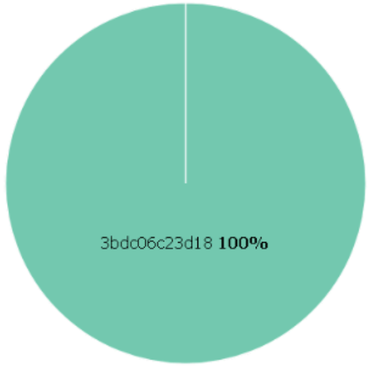
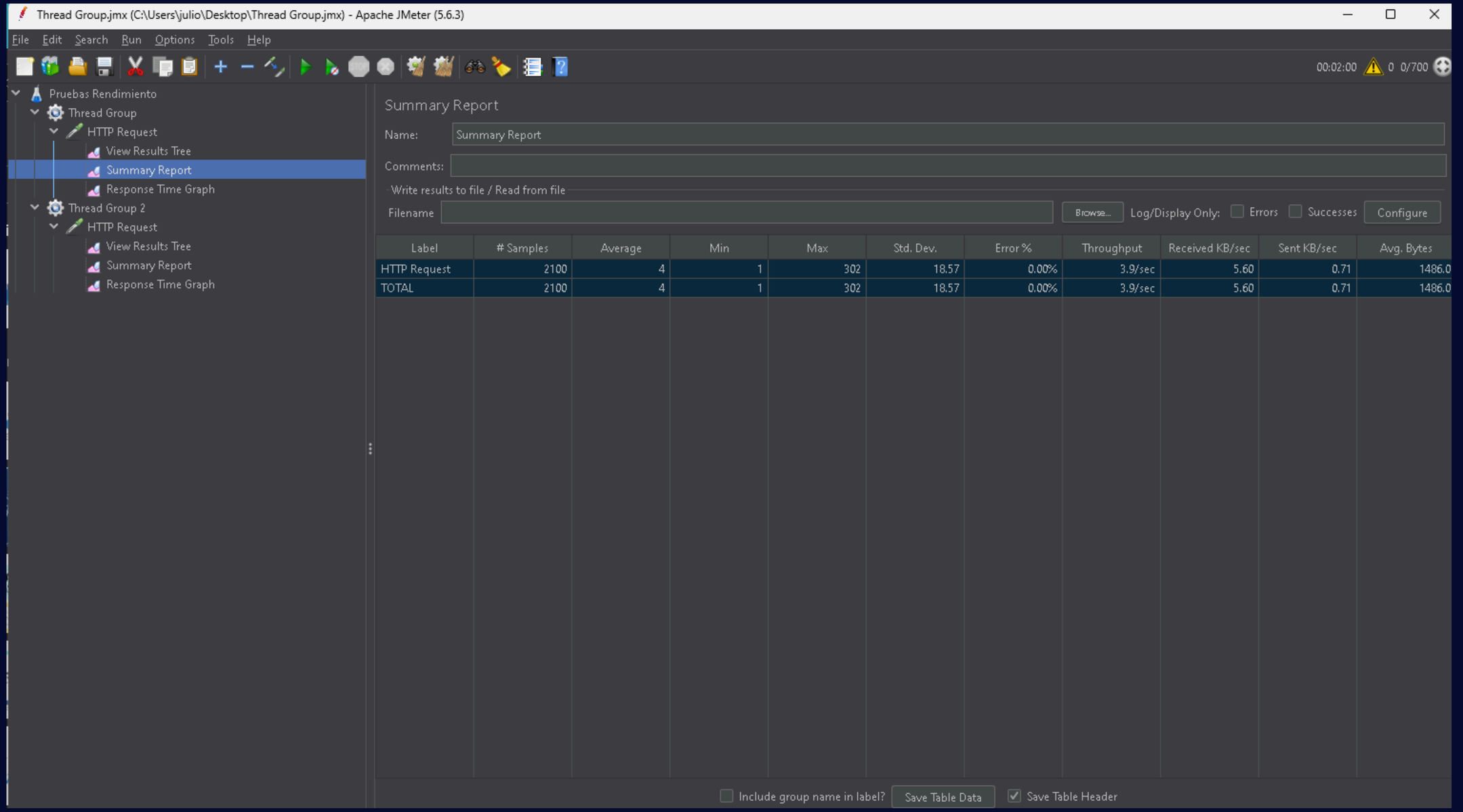
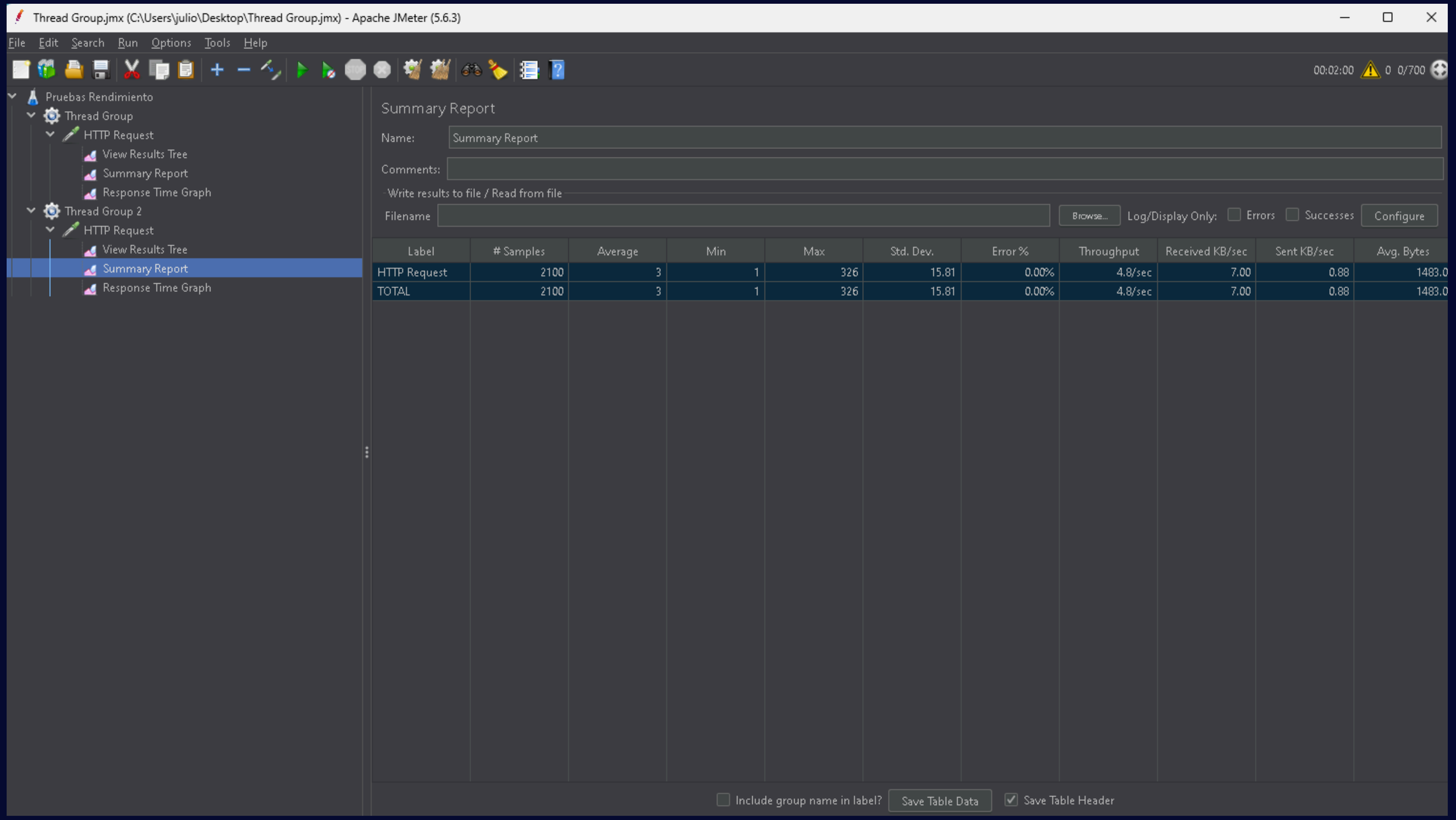


Gráfico de pastel de logs por hostname

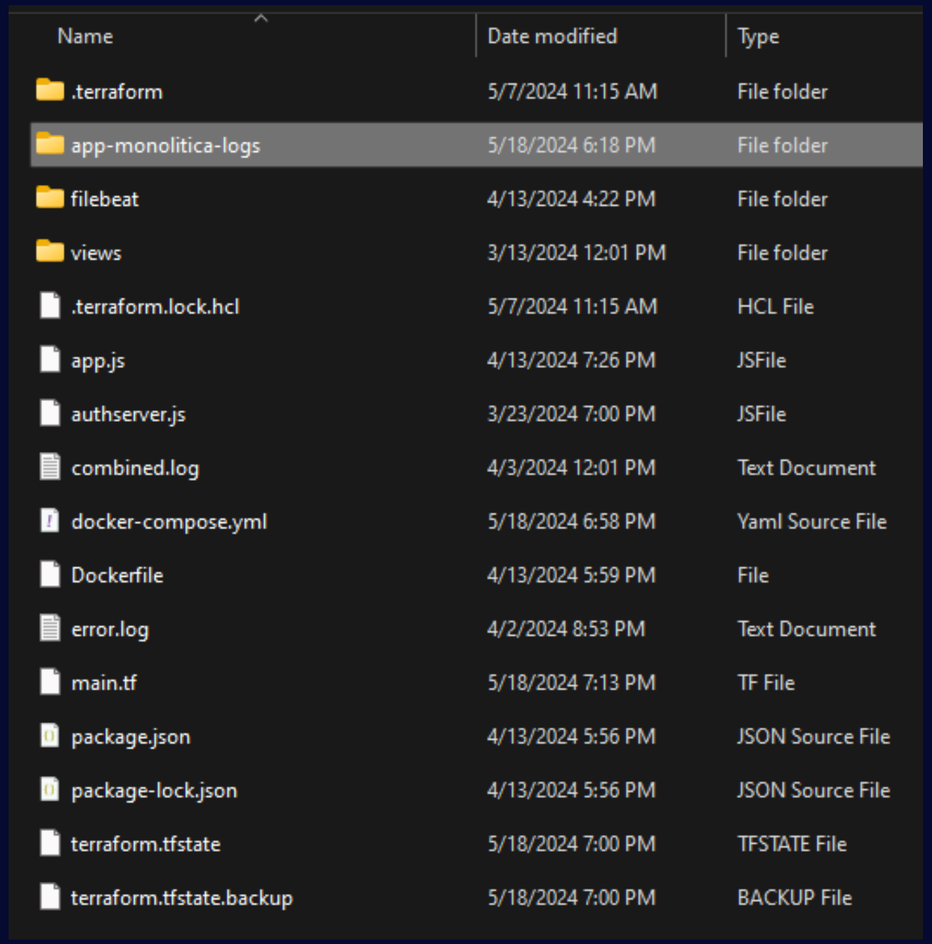


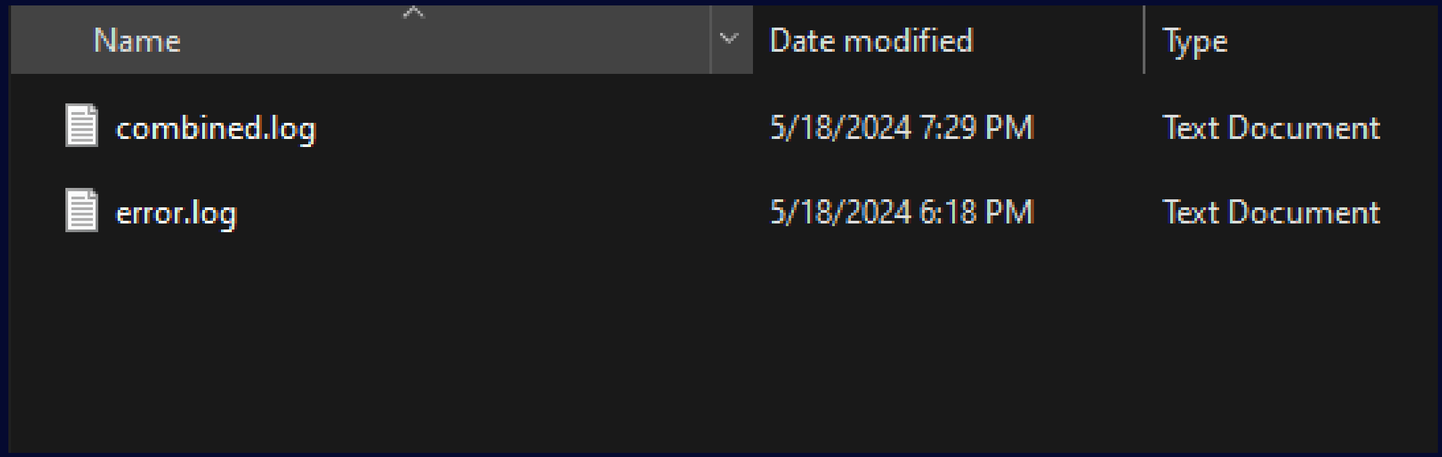
Pruebas de solicitudes para graficación


Thread Group.jmx (C:\Users\julio\Desktop\Thread Group.jmx) - Apache JMeter (5.6.3)
File Edit Search Run Options Tools Help
00:02:00 0 0/700
Pruebas Rendimiento
Thread Group
HTTP Request
View Results Tree
Summary Report
Response Time Graph
Thread Group 2
HTTP Request
View Results Tree
Summary Report
Response Time Graph
Summary Report
Name: Summary Report
Comments:
Write results to file / Read from file
Filename
Browse...
Log/Display Only: Errors Successes
Configure
Label # Samples Average Min Max Std. Dev. Error % Throughput Received KB/sec Sent KB/sec Avg. Bytes
HTTP Request 2100 4 1 302 18.57 0.00% 3.9/sec 5.60 0.71 1486.0
TOTAL 2100 4 1 302 18.57 0.00% 3.9/sec 5.60 0.71 1486.0
Include group name in label?
Save Table Data
Save Table Header


Thread Group.jmx (C:\Users\julio\Desktop\Thread Group.jmx) - Apache JMeter (5.6.3)
File Edit Search Run Options Tools Help
00:02:00 0 0/700
Pruebas Rendimiento
Thread Group
HTTP Request
View Results Tree
Summary Report
Response Time Graph
Thread Group 2
HTTP Request
View Results Tree
Summary Report
Response Time Graph
Summary Report
Name: Summary Report
Comments:
Write results to file / Read from file
Filename
Browse...
Log/Display Only:
Errors
Successes
Configure
Label # Samples Average Min Max Std. Dev. Error % Throughput Received KB/sec Sent KB/sec Avg. Bytes
HTTP Request 2100 3 1 326 15.81 0.00% 4.8/sec 7.00 0.88 1483.0
TOTAL 2100 3 1 326 15.81 0.00% 4.8/sec 7.00 0.88 1483.0
Include group name in label?
Save Table Data
Save Table Header

Archivo de logs


Name
Date modified
Type
.terraform
5/7/2024 11:15 AM
File folder
app-monolitica-logs
5/18/2024 6:18 PM
File folder
filebeat
4/13/2024 4:22 PM
File folder
views
3/13/2024 12:01 PM
File folder
.terraform.lock.hcl
5/7/2024 11:15 AM
HCL File
app.js
4/13/2024 7:26 PM
JSFile
authserver.js
3/23/2024 7:00 PM
JSFile
combined.log
4/3/2024 12:01 PM
Text Document
docker-compose.yml
5/18/2024 6:58 PM
Yaml Source File
Dockerfile
4/13/2024 5:59 PM
File
error.log
4/2/2024 8:53 PM
Text Document
main.tf
5/18/2024 7:13 PM
TF File
package.json
4/13/2024 5:56 PM
JSON Source File
package-lock.json
4/13/2024 5:56 PM
JSON Source File
terraform.tfstate
5/18/2024 7:00 PM
TFSTATE File
terraform.tfstate.backup
5/18/2024 7:00 PM
BACKUP File


Name
Date modified
Type
combined.log
5/18/2024 7:29 PM
Text Document
error.log
5/18/2024 6:18 PM
Text Document

Elasticidad y Autoscaling Horizontal de Pods (HPA)

```
Normal  Started    13s   kubelet            Started container app-monolitica
 pwsh  app-monolitica  122ms                                  20.11.0  default@us-east-1  minikube :: default    100  25,12:05
 docker tag app-monolitica-app-monolitica1:latest jaerc09/app-monolitica-app-monolitica1:latest
 pwsh  app-monolitica  157ms                                  20.11.0  default@us-east-1  minikube :: default    100  25,12:05
 docker push jaerc09/app-monolitica-app-monolitica1:latest
The push refers to repository [docker.io/jaerc09/app-monolitica-app-monolitica1]
71aedb3f6cc3: Layer already exists
a9720f0731e4: Layer already exists
0cb85ee947b8: Layer already exists
2fadc2cae20f: Layer already exists
4f781ec356c4: Layer already exists
58a0b3da8427: Layer already exists
280d371b7440: Layer already exists
f2d41d232990: Layer already exists
734c0f0b65c2: Layer already exists
8845ab872c1c: Layer already exists
d7d4c2f9d26b: Layer already exists
bbe1a212f7e9: Layer already exists
latest: digest: sha256:c63664a061aca55eba13d3f1e92269f257a2103728f9088c96c0aa25a88285e7 size: 2842
 pwsh  app-monolitica  4s 263ms                               20.11.0  default@us-east-1  minikube :: default    100  25,12:06
 kubectl apply -f deployment.yaml
```

pwsh

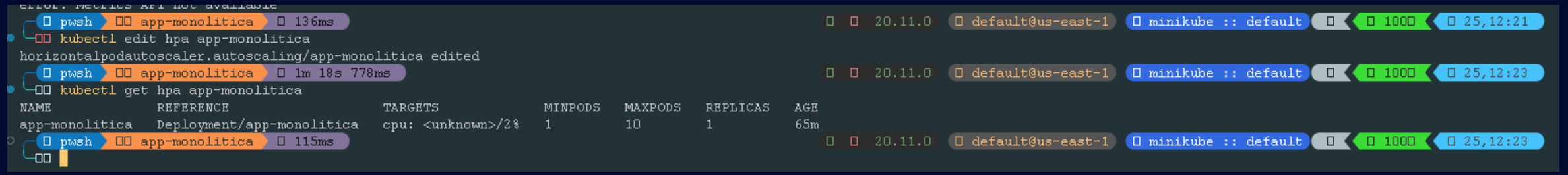
```
 pwsh   app-monolitica   4s 263ms                                    20.11.0   default@us-east-1   minikube :: default     1000   25,12:06
╰─  kubectl apply -f deployment.yaml
deployment.apps/app-monolitica unchanged
 pwsh   app-monolitica   220ms                                       20.11.0   default@us-east-1   minikube :: default     1000   25,12:06
╰─  kubectl describe pod -l app=app-monolitica
Name:             app-monolitica-6f8fb8f677-22l7d
Namespace:        default
Priority:         0
Service Account:  default
Node:             minikube/192.168.49.2
Start Time:       Sat, 25 May 2024 12:03:22 -0600
Labels:           app=app-monolitica
```

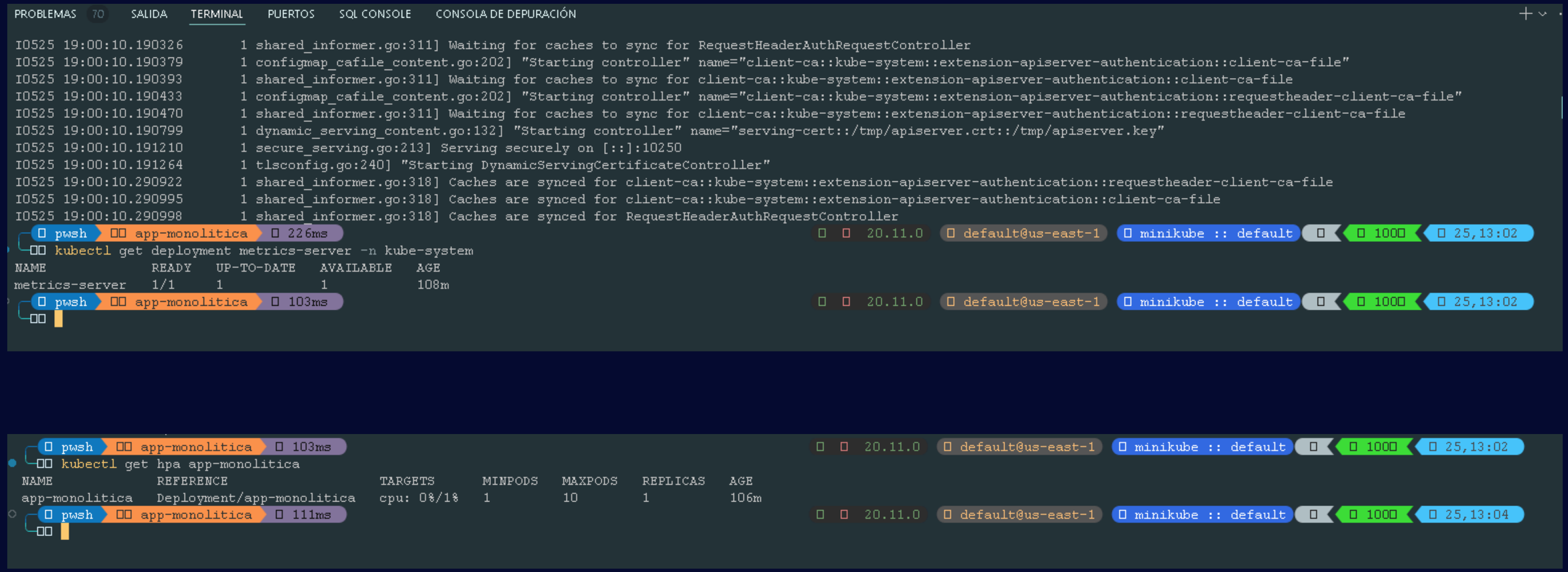
```
pwsh  app-monolitica  126ms                                  20.11.0  default@us-east-1  minikube :: default  100  25,12:06
kubectl get deployment app-monolitica
NAME              READY   UP-TO-DATE   AVAILABLE   AGE
app-monolitica    1/1     1            1           50m
```

```
pwsh  app-monolitica  109ms                                  20.11.0  default@us-east-1  minikube :: default  100  25,12:07
kubectl autoscale deployment app-monolitica --cpu-percent=10 --min=1 --max=10
Error from server (AlreadyExists): horizontalpodautoscalers.autoscaling "app-monolitica" already exists
```

```
pwsh  app-monolitica  127ms                                  20.11.0  default@us-east-1  minikube :: default  100  25,12:07
kubectl get hpa
NAME              REFERENCE                    TARGETS              MINPODS   MAXPODS   REPLICAS   AGE
app-monolitica    Deployment/app-monolitica    cpu: <unknown>/10%   1         10        1          49m
```


pwsh
app-monolitica
133ms
20.11.0
default@us-east-1
minikube :: default
1000
25,12:07
kubectl port-forward deployment/app-monolitica 8080:8080
Forwarding from 127.0.0.1:8080 -> 8080
Forwarding from [::1]:8080 -> 8080
Handling connection for 8080
pwsh
kube...
pwsh


pwsh
app-monolitica
136ms
20.11.0
default@us-east-1
minikube :: default
1000
25,12:21
kubectl edit hpa app-monolitica
horizontalpodautoscaler.autoscaling/app-monolitica edited
pwsh
app-monolitica
1m 18s 778ms
20.11.0
default@us-east-1
minikube :: default
1000
25,12:23
kubectl get hpa app-monolitica
NAME REFERENCE TARGETS MINPODS MAXPODS REPLICAS AGE
app-monolitica Deployment/app-monolitica cpu: <unknown>/2% 1 10 1 65m
pwsh
app-monolitica
115ms
20.11.0
default@us-east-1
minikube :: default
1000
25,12:23


PROBLEMAS 70
SALIDA
TERMINAL
PUERTOS
SQL CONSOLE
CONSOLA DE DEPURACIÓN
I0525 19:00:10.190326 1 shared_informer.go:311] Waiting for caches to sync for RequestHeaderAuthRequestController
I0525 19:00:10.190379 1 configmap_cafile_content.go:202] "Starting controller" name="client-ca::kube-system::extension-apiserver-authentication::client-ca-file"
I0525 19:00:10.190393 1 shared_informer.go:311] Waiting for caches to sync for client-ca::kube-system::extension-apiserver-authentication::client-ca-file
I0525 19:00:10.190433 1 configmap_cafile_content.go:202] "Starting controller" name="client-ca::kube-system::extension-apiserver-authentication::requestheader-client-ca-file"
I0525 19:00:10.190470 1 shared_informer.go:311] Waiting for caches to sync for client-ca::kube-system::extension-apiserver-authentication::requestheader-client-ca-file
I0525 19:00:10.190799 1 dynamic_serving_content.go:132] "Starting controller" name="serving-cert::/tmp/apiserver.crt::/tmp/apiserver.key"
I0525 19:00:10.191210 1 secure_serving.go:213] Serving securely on [::]:10250
I0525 19:00:10.191264 1 tlsconfig.go:240] "Starting DynamicServingCertificateController"
I0525 19:00:10.290922 1 shared_informer.go:318] Caches are synced for client-ca::kube-system::extension-apiserver-authentication::requestheader-client-ca-file
I0525 19:00:10.290995 1 shared_informer.go:318] Caches are synced for client-ca::kube-system::extension-apiserver-authentication::client-ca-file
I0525 19:00:10.290998 1 shared_informer.go:318] Caches are synced for RequestHeaderAuthRequestController
pwsh
app-monolitica
226ms
20.11.0
default@us-east-1
minikube :: default
1000
25,13:02
kubectl get deployment metrics-server -n kube-system
NAME READY UP-TO-DATE AVAILABLE AGE
metrics-server 1/1 1 1 108m
pwsh
app-monolitica
103ms
20.11.0
default@us-east-1
minikube :: default
1000
25,13:02
pwsh
app-monolitica
103ms
20.11.0
default@us-east-1
minikube :: default
1000
25,13:02
kubectl get hpa app-monolitica
NAME REFERENCE TARGETS MINPODS MAXPODS REPLICAS AGE
app-monolitica Deployment/app-monolitica cpu: 0%/1% 1 10 1 106m
pwsh
app-monolitica
111ms
20.11.0
default@us-east-1
minikube :: default
1000
25,13:04

```
pwsh  app-monolitica  111ms                                    20.11.0  default@us-east-1  minikube :: default  100  25,13:04
 kubectl get hpa app-monolitica
NAME              REFERENCE                    TARGETS       MINPODS   MAXPODS   REPLICAS   AGE
app-monolitica    Deployment/app-monolitica    cpu: 1%/1%    1         10        10         109m
pwsh  app-monolitica  104ms                                    20.11.0  default@us-east-1  minikube :: default  100  25,13:07
```

```
pwsh  app-monolitica  104ms                                    20.11.0  default@us-east-1  minikube :: default  100  25,13:07
 kubectl get pods -l app=app-monolitica
NAME                                READY   STATUS    RESTARTS   AGE
app-monolitica-6f8fb8f677-2217d     1/1     Running   0          66m
app-monolitica-6f8fb8f677-5gh9r     1/1     Running   0          3m32s
app-monolitica-6f8fb8f677-7ctlg     1/1     Running   0          3m17s
app-monolitica-6f8fb8f677-7mqds     1/1     Running   0          3m17s
app-monolitica-6f8fb8f677-9whlg     1/1     Running   0          3m2s
app-monolitica-6f8fb8f677-b297d     1/1     Running   0          3m17s
app-monolitica-6f8fb8f677-dbj46     1/1     Running   0          3m32s
app-monolitica-6f8fb8f677-fsv59     1/1     Running   0          3m2s
app-monolitica-6f8fb8f677-m5sgd     1/1     Running   0          3m17s
app-monolitica-6f8fb8f677-qbblx     1/1     Running   0          3m32s
pwsh  app-monolitica  182ms                                    20.11.0  default@us-east-1  minikube :: default  100  25,13:09
```

```
pwsh  app-monolitica  182ms                                    20.11.0  default@us-east-1  minikube :: default  100  25,13:09
 kubectl get pods -l app=app-monolitica
NAME                                READY   STATUS    RESTARTS   AGE
app-monolitica-6f8fb8f677-2217d     1/1     Running   0          112m
pwsh  app-monolitica  104ms                                    20.11.0  default@us-east-1  minikube :: default  100  25,13:55
```