

VIRTUAL THREADS EN SPRING BOOT



Jesús Estenllos Loaiza Serrano 2313021

Desarrollo de Software III

Docente: Ing. Álvaro Salazar

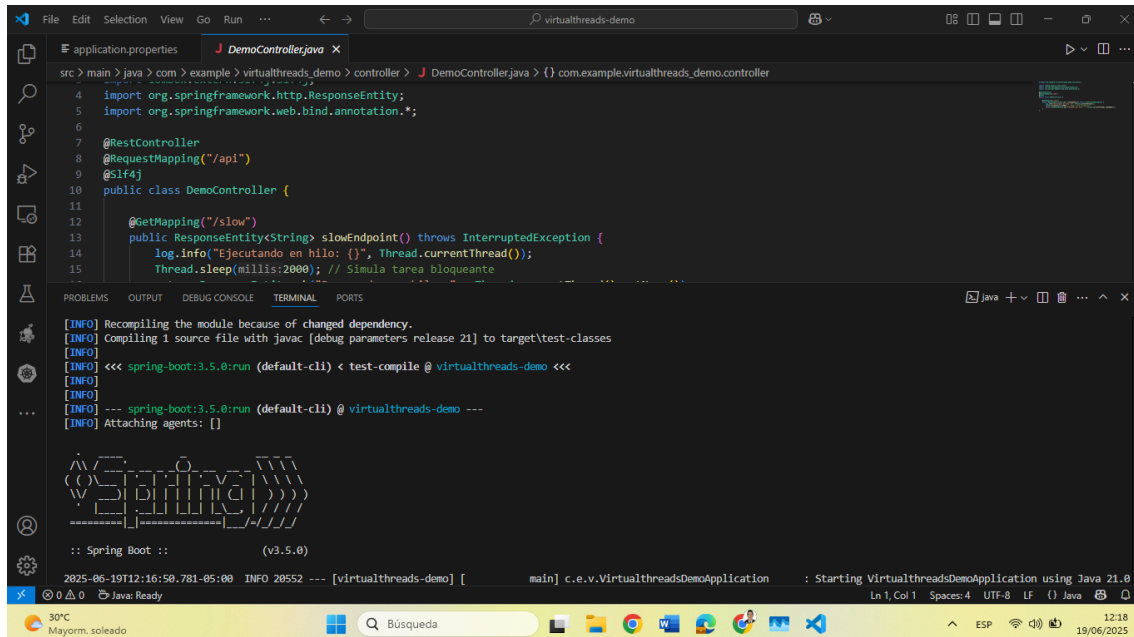
Grupo 50

Sede Tuluá

17/06/2025

microservicio Spring Boot corriendo con Virtual Threads

Java 21 (o superior) con soporte para **Virtual Threads** (Project Loom)



```
src > main > java > com > example > virtualthreads_demo > controller > DemoController.java > {} com.example.virtualthreads_demo.controller
4 import org.springframework.http.ResponseEntity;
5 import org.springframework.web.bind.annotation.*;
6
7 @RestController
8 @RequestMapping("/api")
9 @Slf4j
10 public class DemoController {
11
12     @GetMapping("/slow")
13     public ResponseEntity<String> slowEndpoint() throws InterruptedException {
14         log.info("Ejecutando en hilo: {}", Thread.currentThread());
15         Thread.sleep(2000); // Simula tarea bloqueante
16     }
17 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

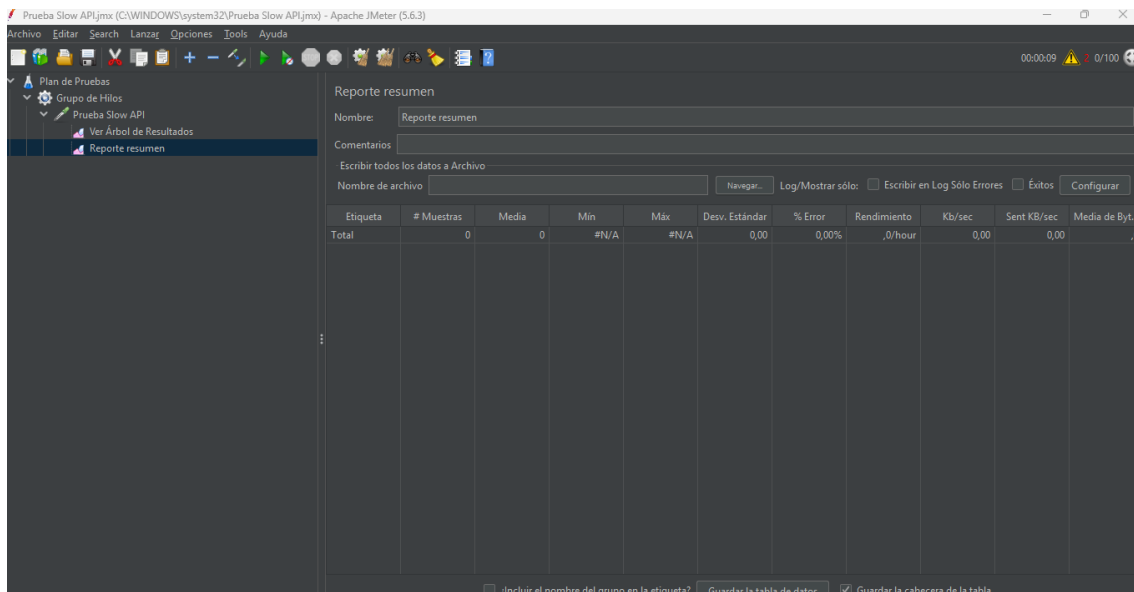
[INFO] Recompiling the module because of changed dependency.
[INFO] Compiling 1 source file with javac [debug parameters release 21] to target\test-classes
[INFO] <<< spring-boot:3.5.0:run (default-cli) < test-compile @ virtualthreads-demo <<<
[INFO] --- spring-boot:3.5.0:run (default-cli) @ virtualthreads-demo ---
[INFO] Attaching agents: []

Spring Boot (v3.5.0)

2025-06-19T12:16:50.781-05:00 INFO 20552 --- [virtualthreads-demo] [main] c.e.v.VirtualthreadsDemoApplication : Starting VirtualthreadsDemoApplication using Java 21.0

agregar un Thread Group en JMeter

Agregar → Usuarios (Threads) → Grupo de Hilos (Thread Group)



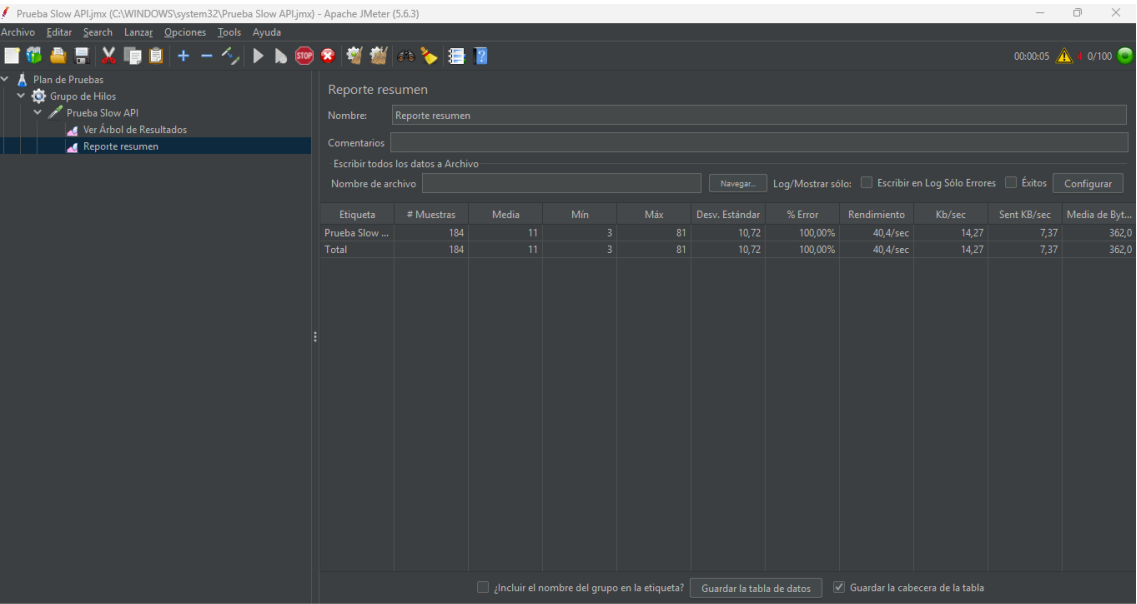
1.
 - 100 usuarios (threads)
 - Ramp-up: 10 segundos
2. Agrega un **HTTP Request**:
 - URL: `http://localhost:8080/api/slow`
 - Método: GET

3. Agrega un **View Results in Table** o **Summary Report**.

4. Ejecuta la prueba y observa:

- Tiempos de respuesta
- Errores
- Comportamiento del CPU

Reporte de resúmenes



Reporte resumen

Nombre: Reporte resumen

Comentarios:

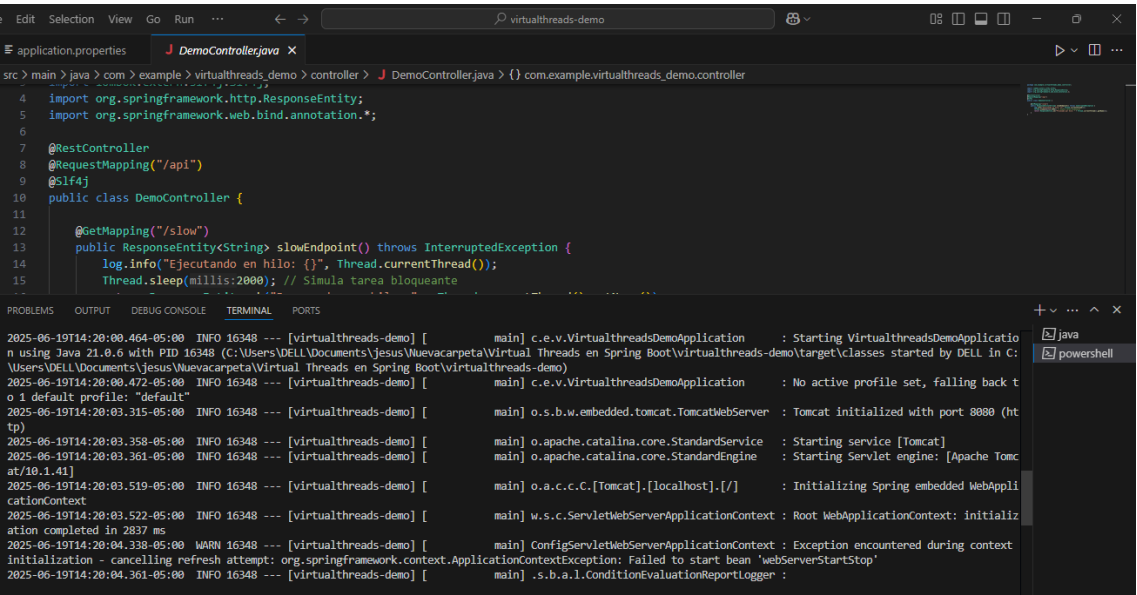
Escribir todos los datos a Archivo

Nombre de archivo: Navegar... Log/Mostrar sólo: ☐ Escribir en Log Sólo Errores ☐ Éxitos

Etiqueta	# Muestras	Media	Min	Máx	Desv. Estándar	% Error	Rendimiento	Kb/sec	Sent KB/sec	Media de Byt...
Prueba Slow ...	184	11	3	81	10,72	100,00%	40,4/sec	14,27	7,37	362,0
Total	184	11	3	81	10,72	100,00%	40,4/sec	14,27	7,37	362,0

☐ Incluir el nombre del grupo en la etiqueta? ☒ Guardar la cabecera de la tabla

Vemos los hilos



```
src > main > java > com > example > virtualthreads_demo > controller > J DemoController.java > {} com.example.virtualthreads_demo.controller
4 import org.springframework.http.ResponseEntity;
5 import org.springframework.web.bind.annotation.*;
6
7 @RestController
8 @RequestMapping("/api")
9 @Slf4j
10 public class DemoController {
11
12     @GetMapping("/slow")
13     public ResponseEntity<String> slowEndpoint() throws InterruptedException {
14         log.info("Ejecutando en hilo: {}", Thread.currentThread());
15         Thread.sleep(millis:2000); // Simula tarea bloqueante
16     }
17 }
```

```
2025-06-19T14:20:00.464-05:00 INFO 16348 --- [virtualthreads-demo] [main] c.e.v.VirtualthreadsDemoApplication : Starting VirtualthreadsDemoApplication using Java 21.0.6 with PID 16348 (C:\Users\DELL\Documents\JesusVuevacarpeta\Virtual Threads en Spring Boot\virtualthreads-demo\target\classes started by DELL in C:\Users\DELL\Documents\JesusVuevacarpeta\Virtual Threads en Spring Boot\virtualthreads-demo)
2025-06-19T14:20:00.472-05:00 INFO 16348 --- [virtualthreads-demo] [main] c.e.v.VirtualthreadsDemoApplication : No active profile set, falling back to 1 default profile: "default"
2025-06-19T14:20:03.315-05:00 INFO 16348 --- [virtualthreads-demo] [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 8080 (http)
2025-06-19T14:20:03.358-05:00 INFO 16348 --- [virtualthreads-demo] [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2025-06-19T14:20:03.361-05:00 INFO 16348 --- [virtualthreads-demo] [main] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.41]
2025-06-19T14:20:03.519-05:00 INFO 16348 --- [virtualthreads-demo] [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2025-06-19T14:20:03.522-05:00 INFO 16348 --- [virtualthreads-demo] [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 2837 ms
2025-06-19T14:20:04.330-05:00 WARN 16348 --- [virtualthreads-demo] [main] ConfigServletWebServerApplicationContext : Exception encountered during context initialization - cancelling refresh attempt: org.springframework.context.ApplicationContextException: Failed to start bean 'webServerStartStop'
2025-06-19T14:20:04.361-05:00 INFO 16348 --- [virtualthreads-demo] [main] .s.b.a.l.ConditionEvaluationReportLogger :
```

```
src > main > resources > ≡ application.properties
1  spring.application.name=virtualthreads-demo
2
3  server.tomcat.virtual-threads-enabled=true
4  logging.level.com.example=INFO
```

Cerramos

```
≡ application.properties ● VirtualthreadsDemoApplication.java
src > main > resources > ≡ application.properties
1  spring.application.name=virtualthreads-demo
2
3  server.tomcat.virtual-threads-enabled=false
4  logging.level.com.example=INFO
```