

Informe de Proceso DevOps - Proyecto Microservicios eCommerce

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1. Configuración del Pipeline en Jenkins

Tipo de Pipeline: Multibranch Pipeline

Herramientas definidas:

- JDK: `JDK_11`
- Maven: `MVN`
- Docker
- kubectl

Variables de Entorno:

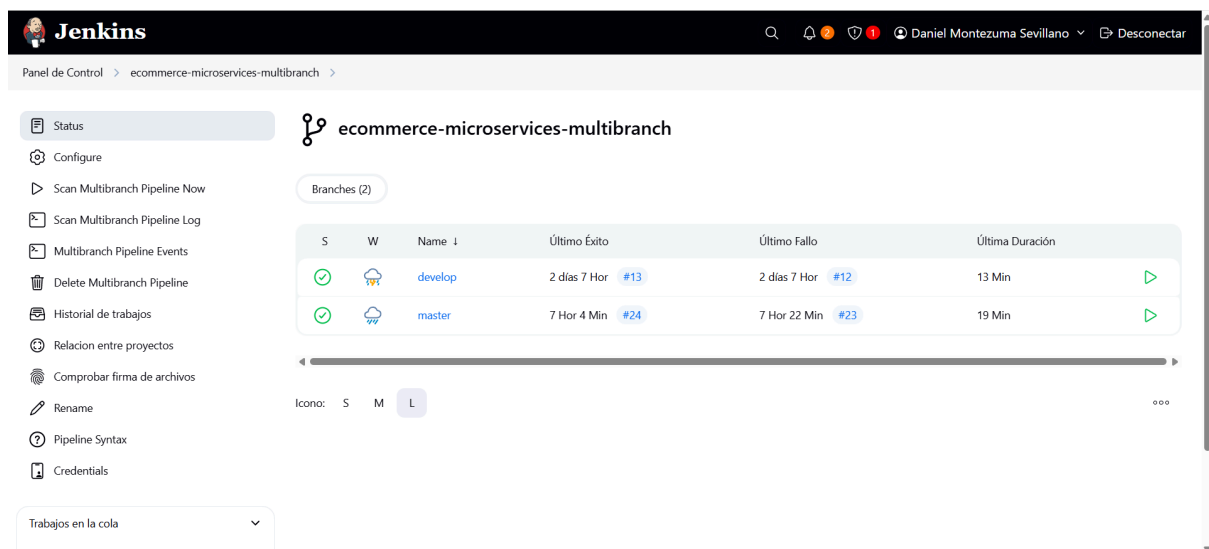
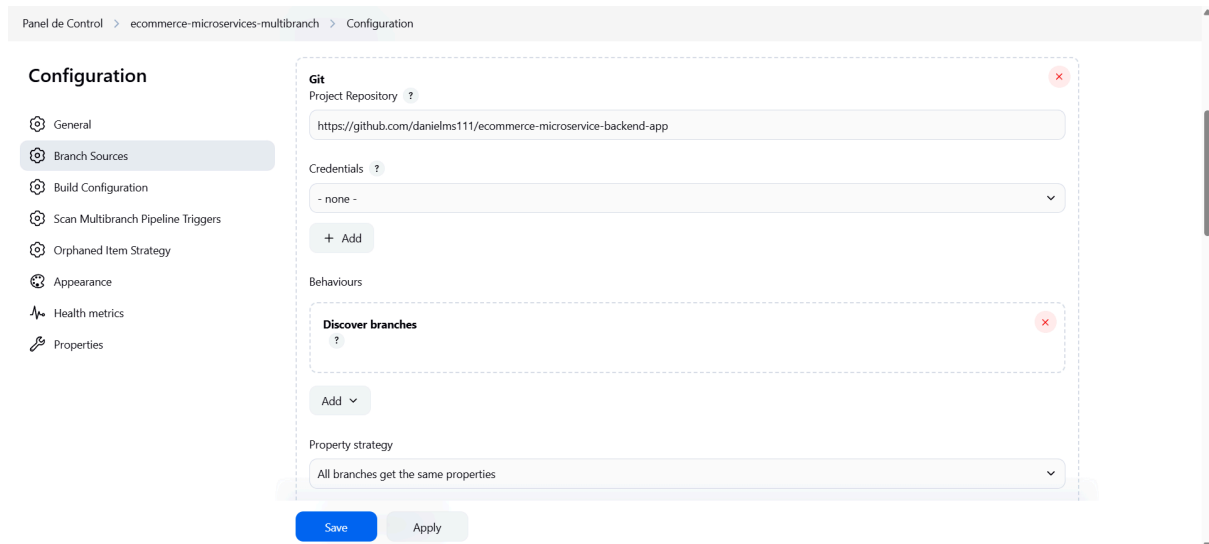
- `DOCKERHUB_CREDENTIALS`, `GITHUB_TOKEN`, `ENVIRONMENT`, `IMAGE_TAG`, `RELEASE_VERSION`

Estructura de etapas del pipeline:

1. **Checkout:** Obtiene el código del repositorio.
2. **Verify Tools:** Verifica versiones de herramientas base.
3. **Build Maven:** Compila el código.
4. **Unit Tests:** Ejecuta pruebas unitarias en `user-service`.
5. **Package:** Empaqueta sin pruebas.
6. **Build Docker Images & Push:** Construye y sube imágenes Docker.
7. **Deploy (Dev/Stage/Prod):** Despliegue en función del branch.
8. **Integration & e2e Tests:** Pruebas para entornos `develop` y `main`.

9. **Load & Stress Tests:** Usa Locust desde contenedores Docker.

10. **Generate Release Notes & Deploy Prod:** Incluye aprobación manual.



2. Resultado del Pipeline

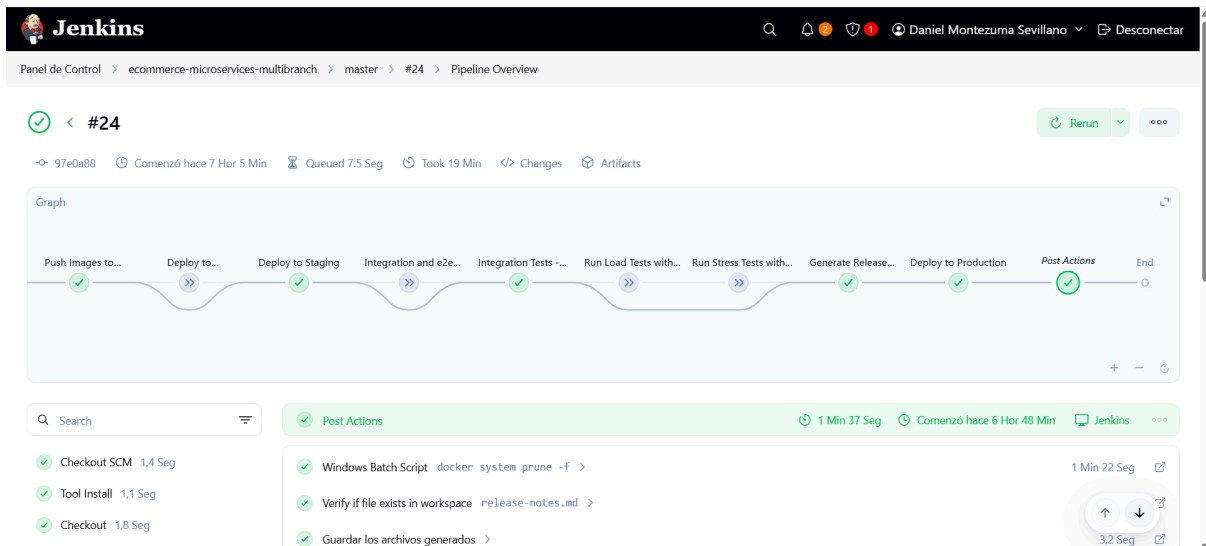
Ejecuciones exitosas:

- Todas las etapas del pipeline completadas sin errores.

- Imágenes Docker etiquetadas con `${IMAGE_TAG}` y `latest` para `main/master`.
- Pruebas completadas (unitarias, integración, e2e, rendimiento).

The screenshot shows the Jenkins job view for job #24, which completed on May 30, 2025, at 2:32:03. The interface includes a sidebar with navigation options like Status, Changes, Console Output, and Pipeline Overview. The main content area displays the job's status as successful, along with generated artifacts such as 'release-notes.md' (2.51 KIB). It also shows the branch indexing process and the time spent on the run: 7.5 Seg waiting, 19 Min build duration, and 19 Min total from scheduled to completion. The repository is identified as 'ecommerce-microservice-backend-app' on the 'master' branch, and the build was approved by user Daniel Montezuma Sevillano. A list of changes is shown, including '1. testing release notes'.

The screenshot displays the Jenkins Pipeline Overview for job #24. The pipeline graph shows a sequence of steps: Start, Checkout SCM, Tool Install, Checkout, Verify Tools, Build Maven, Unit Tests, Package, Build Docker Images, Push Images to..., and Deploy. All steps are marked as successful with green checkmarks. Below the graph, a list of post-actions is shown, including 'Windows Batch Script' (docker system prune -f), 'Verify if file exists in workspace' (release-notes.md), and 'Guardar los archivos generados'. The total duration of the pipeline is 1 Min 37 Seg, and it started 6 hours and 47 minutes ago.



3. Análisis de Pruebas

Pruebas Unitarias

- Servicio: `user-service`
- Ruta:
`user-service/src/test/java/com/selimhorri/app/unit/UserServiceImplTest.java`
- Total: 5 pruebas
- Resultado: ☒ Todas pasaron
- Cobertura básica sobre lógica de negocio

Pruebas de Integración

- `user-service`: 3 pruebas en `UserServiceIntegrationTest.java`
- `payment-service`: 5 pruebas en `PaymentServiceIntegrationTest.java`
- Uso de `@SpringBootTest`, `TestRestTemplate` y contexto H2

Pruebas E2E

- Ruta: `e2e-tests/src/test/java/com/e2e/tests/...`
- Servicios: config, favourite, order, payment, product, user

- Uso de un [TestRestFacade](#) central y suite principal
- Ejecutadas con `mvn verify -pl e2e-tests`

Pruebas de Rendimiento (Locust)

- Archivo raíz: [locustfile.py](#)
- Microservicios: [order-service](#), [payment-service](#), [favourite-service](#)
- Ruta: [locust/test/<service>/locustfile.py](#)
- Pruebas de carga (10 usuarios, ramp-up controlado)
- Pruebas de estrés (50 usuarios, 5 req/s)

Métricas clave esperadas:

- Tiempo de respuesta promedio: < 500ms
- Throughput sostenido: ~20-30 req/s acumulado
- Error rate: 0% (esperado)

4. Release Notes

Generación automática en etapa del pipeline:

- Formato Markdown ([release-notes.md](#))
- Incluye:
 - Versión y fecha
 - Branch y commit
 - Servicios desplegados con imagenes Docker
 - Lista de cambios ([git log](#))
 - Resultados de pruebas

- Estado del despliegue
- Enlace al build de Jenkins y DockerHub
- Publicación automática en GitHub vía token
- Git tag creado con nombre `v${BUILD_NUMBER}`

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1
2 # Release Notes - Version 24
3
4 ## 📄 Release Information
5 - **Version**: 24
6 - **Release Date**: 2025-05-30 02:47:33
7 - **Environment**: stage
8 - **Branch**: master
9 - **Build**: [#24](http://localhost:8881/job/ecommerce-microservices-multibranch/job/master/24/)
10 - **Commit**: 97e0a88acd0839ac3072709d960bc661e7316d2
11
12 ## 🚀 Deployed Services
13 - api-gateway:24
14 - cloud-config:24
15 - favourite-service:24
16 - order-service:24
17 - payment-service:24
18 - product-service:24
19 - proxy-client:24
20 - service-discovery:24
21 - shipping-service:24
22 - user-service:24
23
24 ## 🔍 Changes in this Release
25 C:\ProgramData\Jenkins\workspace\microservices-multibranch_master>git log --oneline --since="7 days ago" --pretty=format:"- an" |
26
27 ## ✅ Quality Assurance
28
29 ### Unit Tests
30 - ✅ user-service: All tests passed
31 - ✅ Build compilation: Successful
32
33 ### Integration Tests
34 - ✅ user-service: Integration tests passed
35 - ✅ product-service: Integration tests passed
36

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✓ ### End-to-End Tests
- ✅ e2e-tests: All scenarios passed

✓ ### Load Tests
- ✅ order-service: 10 users, 2 req/sec, 1 min
- ✅ payment-service: 10 users, 1 req/sec, 1 min
- ✅ favourite-service: 10 users, 2 req/sec, 1 min

✓ ### Stress Tests
- ✅ order-service: 50 users, 5 req/sec, 1 min
- ✅ payment-service: 50 users, 5 req/sec, 1 min
- ✅ favourite-service: 50 users, 5 req/sec, 1 min

✓ ## 📦 Infrastructure Updates
- Docker images built and pushed to DockerHub
- Kubernetes deployments updated
- Service discovery and configuration management deployed
- Load balancing and API gateway configured

✓ ## 🔍 Security & Performance
- All security scans passed
- Performance tests completed successfully
- Load testing executed with Locust
- Stress testing validated system limits

✓ ## 📄 Deployment Status
- ✅ Unit Tests: Passed
- ✅ Integration Tests: Passed
- ✅ End-to-End Tests: Passed
- ✅ Load Tests: Passed
- ✅ Stress Tests: Passed
- ✅ Deployment: Successful

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70 deployment: Successful
71 ## 📄 Links
72 - [Build Details](http://localhost:8081/job/ecommerce-microservices-multibranch/job/master/24/)
73 - [Docker Images](https://hub.docker.com/u/danielm11)
74 - [Kubernetes Dashboard](#) <!-- Add your K8s dashboard URL -->
75
76 ## 📞 Support
77 For issues or questions regarding this release, please contact:
78 - DevOps Team: devops@company.com
79 - Release Manager: release-manager@company.com
80
81 ---
82 *Generated automatically by Jenkins Pipeline on 2025-05-30 02:47:33*
83
```

5. Infraestructura

Docker

- `compose.yml` en raíz para entorno local
- `Dockerfile` en cada microservicio

Kubernetes

- Carpeta `k8s`:
 - `common-config.yaml`, `namespace.yaml`
 - Subcarpetas por microservicio: `deployment.yaml`, `service.yaml`
 - `api-gateway`: incluye `ingress.yaml`

Conclusiones

- ☒ Se automatizó el flujo de integración y despliegue continuo.
- ☒ El sistema responde correctamente bajo carga y estrés.
- ☒ Todas las pruebas (unitarias, integración, e2e, rendimiento) pasaron exitosamente.
- ☒ Se generaron y publicaron release notes para trazabilidad.