Prerequisites for Spring Boot AWS Lightsail Deployment

2026-04-08

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1 Overview

What you'll need before deploying Spring Boot apps to AWS Lightsail:

- AWS Account and Services
- Development Environment Setup

- Command Line Tools
- Spring Boot Knowledge
- Linux and Server Basics
- Network and Security Fundamentals

This lesson ensures students have all necessary prerequisites before starting the deployment process. We'll cover accounts, tools, and foundational knowledge needed for success.

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2 AWS Account Requirements

2.1 Essential Services

- **AWS Account** with billing information
- **Lightsail Service** access
- **Optional**: Custom domain from registrar

Setup Steps:

1. Visit aws.amazon.com
2. Create account
3. Add payment method
4. Verify access

Free Tier Benefits:

- 750 hours/month (first month)
- Perfect for learning
- No upfront costs

AWS requires payment information even for free tier services. The Lightsail free tier provides excellent learning opportunities with 750 hours of usage in the first month.

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3 Java Development Environment

3.1 Core Requirements

- **JDK 17 or later**
- **Build tool**: Maven or Gradle
- **IDE**: IntelliJ IDEA, VS Code, or Eclipse

```
# Verify your setup
java -version
javac -version
mvn -version
gradle -version
```

Students should verify their Java environment is properly configured. We recommend JDK 17+ for the latest Spring Boot features and long-term support.

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4 Command Line Tools

4.1 Essential Tools

- **SSH Client**: Connect to Lightsail instances
- **Git**: Version control for your project
- **AWS CLI**: Advanced configurations (recommended)

```
# Test your tools
ssh -V
git --version
aws --version
```

SSH is critical for server management. Git is essential for project management. AWS CLI provides additional flexibility but isn't strictly required for basic deployments.

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5 Spring Boot Knowledge Prerequisites

5.1 Core Concepts You Need

Application Structure:

- Spring Boot Starters
- Application Properties
- Configuration Profiles
- Auto-configuration

Web Development:

- REST Controllers
- Database Integration
- JSON Serialization
- HTTP Methods

Students should understand basic Spring Boot concepts. We'll provide a sample application for those who need it, but familiarity with these concepts is important for troubleshooting.

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6 Linux Command Line Basics

6.1 Essential Commands

```
# File operations
ls, cd, mkdir, rm, cp, mv

# File viewing/editing
cat, less, nano, vi

# Process management
ps, kill, systemctl

# Network utilities
curl, wget, netstat
```

These Linux commands are essential for server administration. Students will use these regularly when managing their Lightsail instances and troubleshooting deployments.

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7 File Permissions and Services

7.1 System Administration Basics

File Permissions:

```
chmod 755 filename
sudo chown user:group filename
```

Service Management:

```
sudo systemctl start service-name
sudo systemctl enable service-name
sudo systemctl status service-name
```

Understanding file permissions and systemd services is crucial for Spring Boot deployment. We'll cover these in detail later, but basic familiarity helps.

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8 Network and Security Fundamentals

8.1 Key Concepts

Common Ports:

- HTTP: 80, HTTPS: 443
- SSH: 22, MySQL: 3306
- Spring Boot Default: 8080

Security Basics:

- Inbound vs. Outbound rules
- Port restrictions
- IP-based access control

Understanding ports and basic firewall concepts is essential for configuring Lightsail security groups and ensuring your application is accessible while remaining secure.

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9 Pre-Deployment Checklist

9.1 Verify Your Setup

- ☐ AWS account with billing configured
- ☐ JDK 17+ and build tools installed
- ☐ Git and SSH client working
- ☐ Basic Spring Boot knowledge
- ☐ Comfortable with command line
- ☐ Sample application ready (or will use ours)

Students should work through this checklist before proceeding. Having everything ready prevents frustration during the actual deployment process.

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10 Testing Your Environment

10.1 Quick Validation Test

Create and run a simple Spring Boot "Hello World":

```
# Create project
spring init --dependencies=web my-test-app

# Run locally
cd my-test-app
./mvnw spring-boot:run

# Test
curl http://localhost:8080
```

This quick test validates that the entire development environment is working correctly. Students should be able to create, build, and run a basic Spring Boot application before moving to deployment.

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11 Summary - Ready for Deployment

With these prerequisites in place:

- **AWS Account**: Ready for Lightsail instances
- **Development Tools**: Complete Java environment
- **Command Line Skills**: SSH, Git, Linux basics
- **Spring Boot Foundation**: Understanding core concepts
- **System Knowledge**: Permissions, services, networking

Next: Configuring Spring Boot profiles for deployment

This comprehensive preparation ensures students can follow along confidently and troubleshoot independently. Taking time to verify each requirement saves significant time and frustration during deployment.