

Building Advanced Agentic Systems on AWS

AWS Classroom Training

Course description

In this course, you'll learn about implementing production-ready multi-agent systems using Amazon Bedrock AgentCore, covering multi-agent patterns, context optimization techniques, security configurations, and monitoring frameworks. You will examine the skills needed to move beyond proof-of-concept to scalable, secure, and observable agentic AI implementations. The course prepares you to design and deploy advanced agentic systems ready for real-world production environment.

- Course level: Advanced
- Duration: 1 day

Activities

This course includes presentations, hands-on lab, and group exercises.

Course objectives

In this course, you will learn to:

- Analyze scenarios that require multi-agent architectures.
- Describe primary multi-agent communication patterns and their use cases.
- Configure agent-as-tool patterns for production deployments.
- Implement memory sharing using available platform capabilities.
- Implement context management strategies for production workloads.
- Design context compression and optimization mechanisms.
- Optimize resource usage and cost management across multi-agent systems.
- Configure policy-based access control using AgentCore Policy Engine.
- Implement VPC integration for secure agent deployments.
- Implement distributed tracing and monitoring across multi-agent systems.
- Establish comprehensive agent evaluation frameworks.
- Configure integration patterns for enterprise observability systems
- Establish comprehensive audit trails and compliance monitoring.
- Integrate agentic systems with production APIs and services.
- Design deployment strategies for production environments.
- Assess production readiness and establish continuous improvement processes.

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Intended audience

This course is intended for:

- Software developers seeking intermediate knowledge for building advanced agentic AI systems
- Technical professionals exploring AI capabilities and interested in building advanced agentic AI systems.
- Development teams building advanced agentic AI solutions.

Prerequisites

We recommend that attendees of this course have:

- Agentic AI Foundations
- Building Agentic AI with Amazon Bedrock AgentCore

Course outline

Module 1: Multi-Agent Architecture and Communications Patterns

- Single agent limitations and multi-agent benefits
- Instructor Demonstration: Building and Deploying Intelligent Financial Agents with Amazon Bedrock Strands and AgentCore - Task 1: Building a Personal Budget Assistant with Strands Agents
- Multi-agent communication patterns
- Memory and state management
- Instructor Demonstration: Building and Deploying Intelligent Financial Agents with Amazon Bedrock Strands and AgentCore - Task 2: Building a Multi-Agent System for Complex Financial Analysis
- Instructor Demonstration: Building and Deploying Intelligent Financial Agents with Amazon Bedrock Strands and AgentCore

Module 2: Context Engineering and Performance Optimization

- Context as finite resource
- Context optimization techniques
- Tool design for context efficiency

Module 3: Security and Compliance Implementation

- Production Identity and Access Management
- VPC integration and network security

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Module 4: Production Monitoring, Observability, and Evaluation

- Monitoring architecture
- AgentCore evaluation
- Enterprise observability integration
- Instructor Demonstration: Building and Deploying Intelligent Financial Agents with Amazon Bedrock Strands and AgentCore - Task 3: Deploying Production-Ready Agents with Amazon Bedrock AgentCore

Module 5: Well-Architected Agentic AI Systems

- Applying the Well-Architected framework
- Well-Architected deployment
- Production readiness

Module 6: Course Wrap-up

- Next steps and additional resources
- Course summary