



Mastering AI Agents: Building Production- Ready Applications



Getting started with Amazon
Bedrock AgentCore

▼ Prerequisites

At an AWS Event (Setup)

Self paced (Setup)

Sagemaker AI Studio

Amazon Bedrock AgentCore Fundamentals (Optional)

Lab 1: Create the Agent Prototype

Lab 2: Enhance your Agent with
Memory

Lab 3: Scale with Gateway and
Identity

Lab 4: Deploy the Agent to
production with Observability

(Optional) Lab 5: Build a Customer-
Facing Frontend Application

Lab 6: Clean up

AgentCore

AgentCore Documentation

▼ AWS account access

Open AWS console
(us-west-2)

Get AWS CLI credentials

Exit event

[Event dashboard](#) > Amazon Bedrock AgentCore Fundamentals (Opti...

Amazon Bedrock AgentCore Fundamentals (Optional)

Welcome to the Amazon Bedrock AgentCore Fundamentals Workshop! This workshop will give you an overview of AgentCore, with in-depth explanations alongside code samples in Jupyter notebooks.

The need to innovate quickly has become paramount. Within just a few years, we've seen the evolution of foundation models (FMs) and generative AI workflows - from being used primarily to generate a response to a user's prompt (like answering a question or summarizing a document), to powering robust AI agents solutions that leverage FMs to reason, plan, act, learn, adapt, and orchestrate multi-agent collaboration in pursuit of user-defined goals with little human oversight. This new wave of agentic AI is further propelled by the emergence of standardized protocols such as [Model Context Protocol \(MCP\)](#) and [Agent2Agent \(A2A\)](#) that simplify and standardize how agents connect with tools and systems.

Building AI agents that can reliably perform complex tasks has become increasingly accessible thanks to open source frameworks like [Strands Agents](#) , [LangGraph](#) , [CrewAI](#) , and [LlamaIndex](#) . However, moving from a promising proof-of-concept to a production-ready agent that can scale to thousands of users presents significant challenges. Instead of being able to focus on the core features of the agent, developers and AI engineers have to spend months building foundational infrastructure for session management, identity controls, memory systems, and observability - while at the same time supporting security and compliance.

So what is Bedrock AgentCore?

Here's where AgentCore comes in. [Amazon Bedrock AgentCore](#) is an enterprise-grade suite of services designed to accelerate moving your agentic applications from POC to Production. AgentCore enables you to deploy and operate agents securely, at

scale. AgentCore services can be used together or independently and work with any framework including Strands Agents, LangGraph, CrewAI, and LlamaIndex, as well as any foundation model in or outside of Amazon Bedrock, giving you the ultimate flexibility. It serves developers and enterprises who need 1) robust, secure, and scalable infrastructure to support dynamic execution paths at runtime, 2) controls to monitor behavior, 3)

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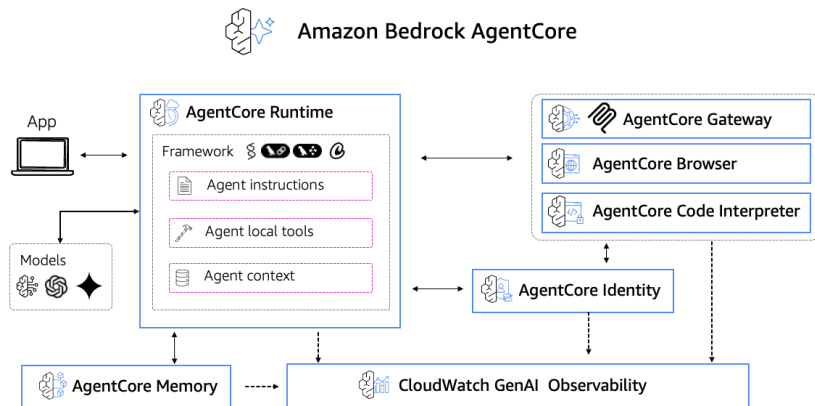
composable and work with popular open-source frameworks and any model, so you don't have to choose between open-source flexibility and enterprise-grade security and reliability.

Amazon Bedrock AgentCore eliminates the undifferentiated heavy lifting of building specialized agent infrastructure, and was designed to give you:

- **Faster time to value:** Accelerate from prototype to production with fully-managed services that eliminate infrastructure complexity, so you can bring groundbreaking agentic solutions to market faster.
- **Flexibility and choice:** Build agents your way using any framework, model, or tool — while maintaining complete control over how your agents operate and integrate with existing systems.
- **Security and trust:** Deploy with confidence using enterprise-grade security, complete session isolation, and comprehensive controls that help your agents operate reliably and securely at scale.

Key Components of Amazon Bedrock AgentCore

Amazon Bedrock AgentCore includes the following modular services that you can use together or independently:



Amazon Bedrock AgentCore Runtime

AgentCore Runtime is a secure, serverless runtime purpose-built for deploying and scaling dynamic AI agents and tools using any open-source framework (including Strands Agents, LangGraph, and CrewAI), any protocol, and any model. Runtime was built to work for agentic workloads with industry-leading extended runtime support, fast cold starts, true session isolation, built-in identity, and support for multi-modal payloads. Developers can focus on innovation while Amazon Bedrock AgentCore Runtime handles infrastructure and security—accelerating time-to-market.

Amazon Bedrock AgentCore Identity

AgentCore Identity provides a secure, scalable agent identity and access management capability accelerating AI agent development. It is compatible with existing identity providers, eliminating needs for user migration or rebuilding authentication flows. AgentCore Identity's helps to minimize consent fatigue with a secure token vault and allows you to build streamlined AI agent experiences. Just-enough access and secure permission delegation allow agents to securely access AWS resources and third-party tools and services.

Amazon Bedrock AgentCore Gateway

AgentCore Gateway provides a secure way for agents to discover and use tools along with easy transformation of APIs, Lambda functions, and existing services into agent-compatible tools. Gateway eliminates weeks of custom code development, infrastructure provisioning, and security implementation so developers can focus on building innovative agent applications. AgentCore Gateway's powerful built-in semantic search capability helps agents effectively search tools to find the most appropriate

ones for specific contexts, allowing agents to take advantage of thousands of tools while minimizing prompt size and reducing latency.

Amazon Bedrock AgentCore Code Interpreter

The AgentCore Code Interpreter tool enables agents to securely execute code in isolated sandbox environments. It offers advanced configuration support and seamless integration with popular frameworks. Developers can build powerful agents for complex workflows and data analysis while meeting enterprise security requirements.

Amazon Bedrock AgentCore Browser

The AgentCore Browser tool provides a fast, secure, cloud-based browser runtime to enable AI agents to interact with websites at scale. It provides enterprise-grade security, comprehensive observability features, and automatically scales— all without infrastructure management overhead.

Amazon Bedrock AgentCore Memory





AgentCore Memory makes it easy for developers to build context aware agents by eliminating complex memory infrastructure management while providing full control over what the AI agent remembers. Memory provides industry-leading accuracy along with support for both short-term memory for multi-turn conversations and long-term memory that can be shared across agents and sessions.


Amazon Bedrock AgentCore Observability

AgentCore Observability helps developers trace, debug, and monitor agent performance in production through unified operational dashboards. With support for OpenTelemetry compatible telemetry and detailed visualizations of each step of the agent workflow, AgentCore enables developers to easily gain visibility into agent behavior and maintain quality standards at scale.

Let's dive into them one-by-one!

Resources

- [Introducing Amazon Bedrock AgentCore: Securely deploy and operate AI agents at any scale \(preview\)](#) 
- [Amazon Bedrock AgentCore Developer Guide](#) 
- [Amazon Bedrock AgentCore Starter Toolkit](#) 
- [Amazon Bedrock AgentCore \(Preview\) FAQs](#) 

 **Workshop Tip:** Each lab builds incrementally on the previous one. Complete them in order for the best learning experience. All code and resources are provided in interactive Jupyter notebooks.

Ready to Continue? [Lab 1: Create Your First Strands Agent](#) →
Build your foundational customer support agent with essential tools for product information and policy lookups.

[Previous](#)[Next](#)