



## 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](#) > [Prerequisites](#) > Self paced (Setup)

# Self paced (Setup)

The instructions on this page are meant for running the **Bedrock AgentCore Agents** in your own AWS account.

## Cost of the workshop



### Important

Running this workshop in your own environment will incur costs.

As you are running the workshop in your own environment, you will incur costs for the resources you launch and API calls you make. Examples include Bedrock costs including [Amazon Bedrock Knowledge Bases](#) and inference with models provided by [Amazon Bedrock](#). Costs can vary depending on the Bedrock resources you use, including the model you select, the amount of storage you utilize, and other factors. You may also incur costs if you use Amazon SageMaker Studio. We recommend that you check the official pricing pages and monitor costs. We recommend that you shut down all resources that you no longer need, when you have completed the workshop. If you are not sure about which resources you have launched in a particular notebook, then please jump to the end of the notebook for cleanup instructions.

## IAM Policy for Bedrock AgentCore Workshop

This workshop requires an IAM role that has access to Amazon Bedrock. Here is an example IAM policy to grant access to Bedrock APIs and the other policies you will need for this workshop:

### ▼ IAM Policy



```

1      {
2          "Version": "2012-10-17",
3          "Statement": [
4              {
5                  "Sid": "CoreAWSServices",
6                  "Action": [
7                      "aws-marketplace:Unsubsc
8                      "aws-marketplace:ViewSub
9                      "cloudformation:*",
10                     "cloudtrail:*",
11                     "cloudwatch:*",
12                     "cognito-identity:*",
13                     "dynamodb:*",
14                     "es:*",
15                     "events:*",
16                     "execute-api:*",
17                     "lambda:*",
18                     "logs:*",
19                     "s3:*",
20                     "ecr:*",
21                     "sagemaker:*",
22
23                     "codebuild:*",
24                     "cognito-idp:*",
25                     "ssm:*",
26                     "secretsmanager:*"
27                 ],
28                 "Effect": "Allow",
29                 "Resource": "*"
30             },
31             {
32                 "Sid": "BedrockAgentCorePerm
33                 "Effect": "Allow",
34                 "Action": [
35                     "bedrock-agentcore:Get*"
36                     "bedrock-agentcore:List*"
37                     "bedrock-agentcore:Delet
38                     "bedrock-agentcore:Creat

```

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```

41         "bedrock-agentcore:Retri
42         "bedrock-agentcore:Invok
43         "bedrock-agentcore:Updat
44         "bedrock-agentcore:Conne
45         "bedrock-agentcore:Conne
46         "bedrock-agentcore:Delet
47     ],
48     "Resource": "*"
49 },
50 {
51     "Sid": "ECRAccess",
52     "Effect": "Allow",
53     "Action": [
54         "ecr:BatchGetImage",
55         "ecr:GetDownloadUrlForLc
56         "ecr:GetAuthorizationTok
57     ],
58     "Resource": "*"
59 },
60 {
61     "Sid": "BedrockAgentCoreWork
62     "Effect": "Allow",
63     "Action": [
64         "bedrock-agentcore:GetWc
65         "bedrock-agentcore:GetWc
66         "bedrock-agentcore:GetWc
67     ],
68     "Resource": "*"
69 },
70 {
71     "Sid": "BedrockAgentCoreObse
72     "Effect": "Allow",
73     "Action": [
74         "application-signals:Stc
75     ],
76     "Resource": "*"
77 },
78 {
79     "Sid": "AmazonBedrockReadOnl
80     "Effect": "Allow",
81     "Action": [
82         "bedrock:Get*",
83         "bedrock:List*",
84         "bedrock:PutUseCaseForMc
85         "aws-marketplace:ViewSub
86     ],
87     "Resource": "*"
88 },
89 {

```

```

90         "Sid": "EC2Permissions",
91         "Effect": "Allow",
92         "Action": [
93             "ec2:DescribeVpcs",
94             "ec2:DescribeSubnets"
95         ],
96         "Resource": "*"
97     },
98     {
99         "Sid": "BedrockPolicies",
100        "Effect": "Allow",
101        "Action": [
102            "bedrock:InvokeModel",
103            "bedrock:InvokeModelWith",
104            "bedrock:TagResource",
105            "bedrock:UntagResource",
106            "bedrock:Converse",
107            "bedrock:ConverseStream",
108            "bedrock:ListFoundationM",
109            "bedrock:PutFoundationMc",
110            "bedrock:CreateFoundatic
111        ],
112        "Resource": "*"
113    },
114    {
115        "Sid": "BedrockModelSubscrip",
116        "Effect": "Allow",
117        "Action": [
118            "aws-marketplace:Subscri",
119            "aws-marketplace:Unsubsc
120        ],
121        "Resource": "*",
122        "Condition": {
123            "ForAnyValue:StringEqual": [
124                "aws-marketplace:Proc",
125                "prod-cx7ovbu5we",
126                "prod-5oba7y7jpj",
127                "prod-4dlfvry4v5",
128                "b7568428-a1ab-4",
129                "38e55671-c3fe-4"
130            ]
131        }
132    }
133 },
134 {
135     "Condition": {
136         "StringLike": {
137             "ec2:InstanceType":
138                 "*6xlarge",

```

```

139         "*8xlarge",
140         "*10xlarge",
141         "*12xlarge",
142         "*16xlarge",
143         "*18xlarge",
144         "*24xlarge",
145         "f1.4xlarge",
146         "x1*",
147         "z1*",
148         "*metal"
149     ]
150 }
151 },
152 "Resource": [
153     "arn:aws:ec2:*:*:instance/*",
154 ],
155 "Action": "ec2:RunInstances"
156 "Effect": "Deny",
157 "Sid": "DenyXXLInstances"
158 },
159 {
160     "Resource": [
161         "arn:aws:ec2:*:*:*/*",
162     ],
163     "Action": [
164         "ec2:ModifyReservedInstances",
165         "ec2:PurchaseHostReservations",
166         "ec2:PurchaseReservedInstances",
167         "ec2:PurchaseScheduledInstances",
168     ],
169     "Effect": "Deny",
170     "Sid": "DontBuyEC2Reservations"
171 },
172 {
173     "Resource": [
174         "arn:aws:rds:*:*:*/*",
175     ],
176     "Action": [
177         "rds:PurchaseReservedDBInstances",
178     ],
179     "Effect": "Deny",
180     "Sid": "DontBuyRDSReservations"
181 },
182 {
183     "Resource": [
184         "arn:aws:dynamodb:*:*:*/*",
185     ],
186     "Action": [
187         "dynamodb:PurchaseReservedInstances",

```

```

188         ],
189         "Effect": "Deny",
190         "Sid": "DontBuyDynamodbReser
191     },
192     {
193         "Sid": "PassRoleToBedrock",
194         "Effect": "Allow",
195         "Action": [
196             "iam:*"
197         ],
198         "Resource": [
199             "arn:aws:iam::*:role/*",
200             "arn:aws:iam::*:policy/*
201         ]
202     },
203     {
204         "Resource": "arn:aws:iam::*:
205         "Action": "iam:PassRole",
206         "Effect": "Allow",
207         "Sid": "PassRole"
208     },
209     {
210         "Sid": "DenyBedrockModelAcce
211         "Effect": "Deny",
212         "Action": [
213             "bedrock:InvokeModel",
214             "bedrock:InvokeModelWith
215             "bedrock:ListFoundationM
216             "bedrock:PutFoundationMc
217             "bedrock:CreateFoundatio
218         ],
219         "Resource": [
220             "arn:aws:bedrock:::four
221             "arn:aws:bedrock:::four
222             "arn:aws:bedrock:::four
223             "arn:aws:bedrock:::four
224             "arn:aws:bedrock:::four
225             "arn:aws:bedrock:::four
226             "arn:aws:bedrock:::four
227             "arn:aws:bedrock:::four
228             "arn:aws:bedrock:::four
229             "arn:aws:bedrock:::four
230             "arn:aws:bedrock:::four
231             "arn:aws:bedrock:::four
232             "arn:aws:bedrock:::four
233         ]
234     }
235
236

```

```
]
}
```

### Important

If you are running this workshop in SageMaker Studio, add this policy to the SageMaker role. If you are running the workshop in your own environment, ensure your user/role has these permissions.

You also must add following AWS managed policies:

```
arn:aws:iam::aws:policy/AmazonSageMakerFullAccess
arn:aws:iam::aws:policy/AmazonBedrockLimitedAccess
```

And add following "Trusted entities", in "Trust relationships" tab:

### ▼ Trust Policy

```
1  {
2      "Version": "2012-10-17",
3      "Statement": [
4          {
5              "Effect": "Allow",
6              "Principal": {
7                  "Service": "sagemaker.amazonaws.com"
8              },
9              "Action": "sts:AssumeRole"
10         },
11         {
12             "Effect": "Allow",
13             "Principal": {
14                 "Service": "cloudformation.amazonaws.com"
15             },
16             "Action": "sts:AssumeRole"
17         }
18     ]
19 }
```



```
]
}
```

## Local JupyterLab Environment Quick Start guide

Follow the instructions to create a dedicated development environment to run JupyterLab interface locally from your workstation. Everything you need will be stored within the `amazon-bedrock-agentcore-samples` directory in a locally cloned copy of the samples repository

Open a terminal and clone the amazon bedrock agentcore samples repository `git clone https://github.com/aws-labs/amazon-bedrock-agentcore-samples.git`

You will need to install the pre-requisites for deploying your agent into AgentCore Runtime.

- Install and setup AWS CLI, [instructions](#) .
- Install Docker or Finch and make sure that you Docker or Finch is running
- For better package control it is strongly recommended that you create a virtual environment to run your applications. `uv` tool is a high-speed package and project manager for Python. We recommend using `uv` to manager your environment here. You can install `uv` with the instructions from [here](#) . Once you have `uv` installed, open a terminal, ensure that `amazon-bedrock-agentcore-samples` is your working directory, then create and activate a new virtual environment using the following commands:

1. `uv python install 3.10`
2. `uv venv agentcore-samples --python 3.10`



3. `source agentcore-samples/bin/activate` (on windows run `.\agentcore-samples\Scripts\activate.bat`)

4. `uv init`

- Next, add the required packages to your active uv environment:

```
uv add pip --active
```

- Next, install the lab infrastructure components (dynamodb, cognito, lambda, bedrock knwoledgebase with s3 vector, etc). Run the `prereq.sh` script from the direcotory `amazon-bedrock-agentcore-samples/01-tutorials/07-AgentCore-E2E`


```
chmod +x ./scripts/prereq.sh
```

`./scripts/prereq.sh` (on windows run `powershell.exe -File scripts\prereq.ps1`)

- You can start a Jupyter notebook instance from your uv environment using:

```
uv run --active --with jupyter jupyter lab
```

The Jupyter notebooks containing the end-to-end labs are in the `01-tutorials/07-AgentCore-E2E` subdirectory.

 Python version must be greater than 3.10.

**Congratulations! Now, you can start the workshop.**

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