

[Event dashboard](#) > [Use cases](#) > [Document extraction and summarization](#) > [Scaling with serverless workflows](#) >

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Generative AI at scale: Serverless workflows for enterprise-ready apps

[Pre-requisite] Enable foundation model access in Amazon Bedrock

[Pre-requisite] Configuring the front-end application

► Playground

▼ Use cases

► Building a RAG pipeline

▼ Document extraction and summarization

► Intelligent document processing with Generative AI

▼ Scaling with serverless workflows

Building the workflow

Verifying the workflow execution

High level Code Walkthrough

Scheduling using Amazon EventBridge Scheduler (Optional)

Additional summarization techniques (Optional)

Summary

► Workshop Cleanup

▼ AWS account access

[Open AWS console \(us-west-2\)](#)

[Get AWS CLI credentials](#)

Exit event

[Claude Haiku model](#) on Amazon Bedrock, and completed the [UI configuration](#) as explained in the prerequisites section before proceeding.

To build it quick, we have placed 2 documents in the S3 bucket with the name containing s3useruploadbucket.

In this workflow

- You will iterate through the documents (objects) in S3 using Distributed Map.
- You will then use a parallel state in Step Functions to perform extraction and summarization in parallel by invoking the respective Lambda function. The reason for using a parallel state is to simultaneously execute the extraction and summarization as they are independent of each other.

Why distributed map? There can be 1000s of documents that needs to be processed. Distributed map is a purpose built iterator that can iterate millions of items in a collection at an unparallel concurrency, run business logic on these items and support configurations such as batching, concurrency and failure tolerance. If you want to learn more about distributed map, try this [workshop](#) later.

Using visual builder to build the workflow

1. Navigate to [AWS Step Functions](#) in your AWS Console. Make sure you are in the correct region.
2. If you are not on the State Machines page, choose State machines on the left side hamburger menu icon and then select **Create state machine**
3. On the *Choose a template* overlay, choose the **Blank** template and select **Select**.
4. Choose **JSONPath** as query language on the right side of the workflow configuration.

Workflow Definition >

The top level state machine properties for this workflow. [Learn more](#)

State machine query language Info

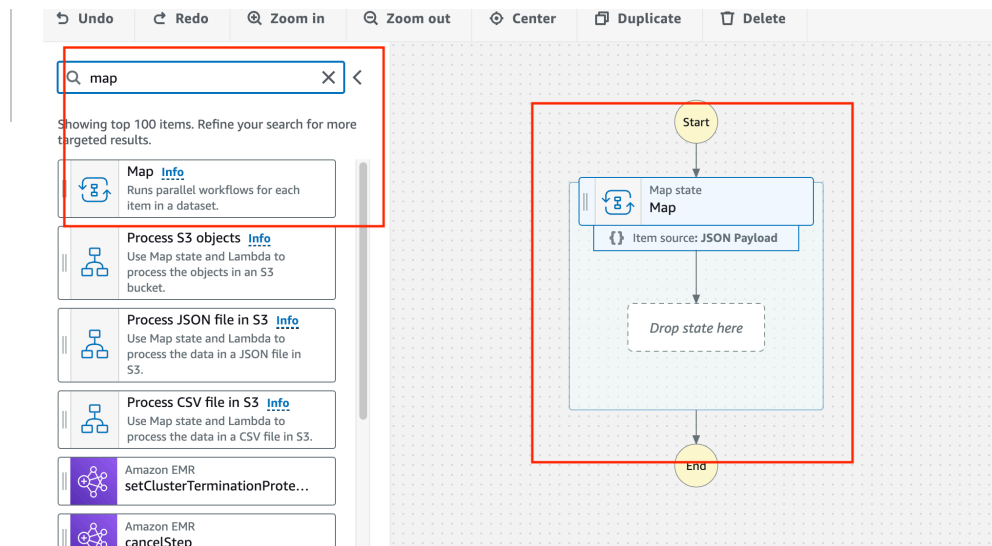
☐ JSONata - recommended
All states and fields will require valid JSONata expressions for queries and data transformations.

☒ JSONPath
New states will default to JSONPath. You can convert to JSONata on a state-by-state basis.

Comment - optional
A human-readable description of the state machine.

A description of my state machine

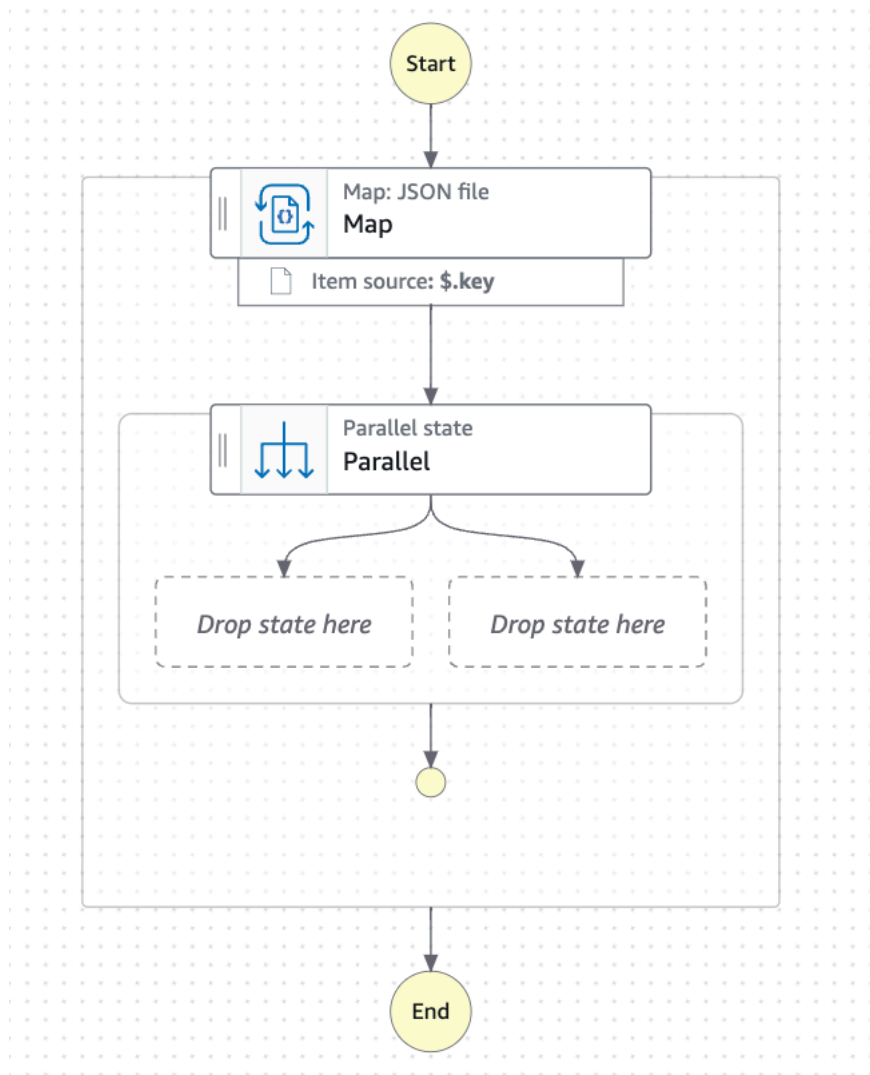
5. Under the Action tab, search for **Map** and drag and drop the map action into the Workflow Studio Canvas.



6. Click on the Map state and select **Distributed - New** as the processing mode on the right pane and configure the Distributed Map state with the following values.

Setting	Value	Comment
State name	Document Processing	
Processing mode	Distributed - new	
Item source	Amazon S3	
S3 item source	JSON File in S3	
S3 bucket	Choose Get bucket and prefix at runtime from state input	
Bucket Name	\$.input_bucket	
Key	\$.key	
Set concurrency limit	1	Because of workshop restrictions, you will run the process in serial though Distributed map can run at a concurrency of 10K!
Child execution type	Standard	If an iteration can complete in 5 minutes, prefer Express workflow. For the workshop, you choose Standard for the console experience.

7. Under the Action tab, search for **Parallel** Action. Drag and drop the parallel action into the Workflow Studio Canvas. Parallel step runs the actions in the step in parallel.



ⓘ Ensure that the Parallel state is nested within the Map state to properly execute parallel actions for each item in the map iteration.

► **Incorrect Placement**

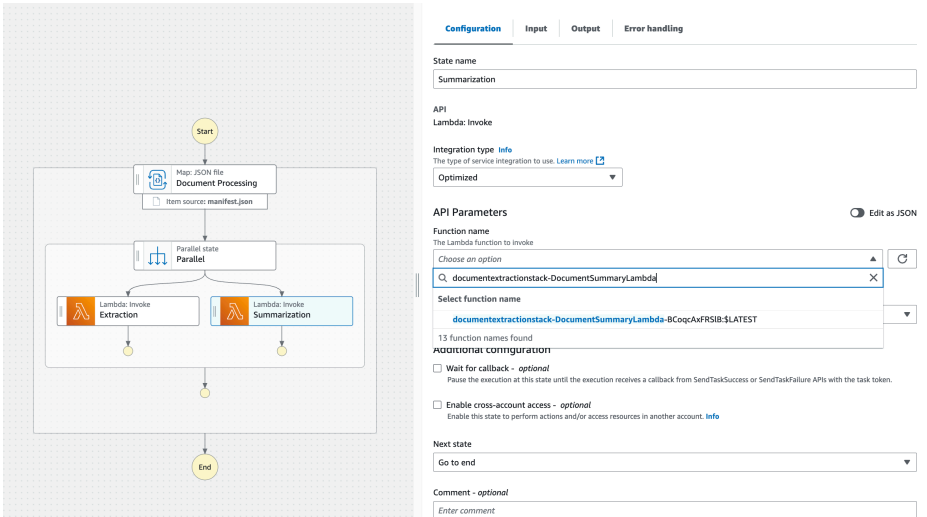
8. Under the Action tab, search for **Lambda Invoke**. Drag and drop the **Lambda Invoke** action in one of the parallel states. Select that Lambda state within the Distributed Map state. Configure the state with the following values.

Setting	Value
State name	Extraction
Function name	Search for DocumentExtractionLambda and select the function

9. Repeat the previous step and drop another Lambda invoke into the parallel state. Configure the state with the following values.

Setting	Value
State name	Summarization
Function name	Search for DocumentSummaryLambda and select the function

10. Your workflow should look similar to the screenshot below.



Configure the workflow

- 1. Select the Config tab next to the state machine name at the top of the page and edit the state machine name: DocumentProcessingWorkflow
- 2. Choose an existing role containing DocumentProcessingSfnRole as Execution role
- 3. Leave the rest of the defaults and select **Create**.

i In the next section, you'll execute the workflow and view the results of the document extraction and summarization process.

Previous

Next