AWS SAM CLI Serverless on AWS

CONCEPTS

A SAM template is CloudFormation with shorthand resources (AWS::Serverless::Function). sam build prepares code, sam deploy hands the template to CloudFormation.

template.yaml SAM template
↓ sam build
.aws-sam/build built artifacts
↓ sam deploy
CloudFormation change set
↓ creates
Lambda, API, ... per stack

Local commands (local invoke, start-api) need Docker running. Run sam build first so they use the built code.

sam deploy --guided writes samconfig.toml; later runs of sam deploy need no flags.

PROJECT

sam init
Create a project interactively

sam init --runtime *<runtime>* **--name** *<name>* **--app-template** *<template>* **--no-interactive**
Create a project without prompts

sam validate
Check the template is valid

sam validate --lint
Also lint with cfn-lint

sam list resources --stack-name *<name>*
Show resources and physical IDs

sam list endpoints --stack-name *<name>*
Show API and function endpoints

BUILD

sam build
Build all functions and layers

sam build *<FunctionId>*
Build a single resource

sam build --use-container
Build in a Lambda-like container

sam build --cached --parallel
Reuse unchanged builds, build in parallel

LOCAL TESTING

sam local invoke
Run the only function once

sam local invoke *<FunctionId>* **--event** *<file>*
Run a function with an event file

sam local invoke --env-vars *<file>*
Set environment variables from JSON or .env

sam local start-api
Serve the API on localhost:3000

sam local start-api --warm-containers EAGER
Keep containers between requests

sam local generate-event *<service>* *<event>*
Print a sample event

DEPLOY

sam deploy --guided
Answer prompts, save samconfig.toml

sam deploy
Deploy using saved config

sam deploy --stack-name *<name>* **--resolve-s3 --capabilities CAPABILITY_IAM**
Deploy with no prompts

sam deploy --no-confirm-changeset
Skip the changeset prompt

sam deploy --parameter-overrides ParameterKey=*<k>***, ParameterValue=***<v>*
Set a template parameter

sam deploy --config-env *<env>*
Use a named samconfig.toml section

sam deploy --no-fail-on-empty-changeset
Exit 0 when nothing changed

sam deploy --profile *<profile>* **--region** *<region>*
Pick credentials and region

SYNC & REMOTE

sam sync --stack-name *<name>* **--watch**
Auto-sync code and infra changes

SYNC & REMOTE (cont.)

sam sync --stack-name *<name>* **--code**
Push code changes once, skip CloudFormation

sam sync --stack-name *<name>* **--code --resource-id** *<FunctionId>*
Sync a single resource

sam remote invoke *<FunctionId>* **--stack-name** *<name>*
Invoke the deployed function

sam remote invoke *<FunctionId>* **--stack-name** *<name>* **--event '***<json>***'**
Send an inline event

LOGS & TRACES

sam logs --stack-name *<name>*
Fetch recent logs for the stack

sam logs --stack-name *<name>* **--tail**
Follow logs live

sam logs -n *<FunctionId>* **--stack-name** *<name>*
Logs for one function

sam logs --stack-name *<name>* **--filter "***<pattern>***"**
Only matching log events

CONFIG & CLEANUP

sam delete
Delete the stack (prompts)

sam delete --stack-name *<name>* **--no-prompts**
Delete without asking

sam *<command>* **--debug**
Debug logging with timestamps

sam *<command>* **--help**
Show a command's options

RECIPES

First deploy

```
sam init
cd <name>
sam build
sam deploy --guided
```

Test a function locally

```
sam local generate-event s3 put > event.json
sam build
sam local invoke <FunctionId> -e event.json
```