



Prototyping and Cloud Engineering



Financial Services Industry

OPA on AWS

Customizing your platform: Adding Software Templates

FSI PACE

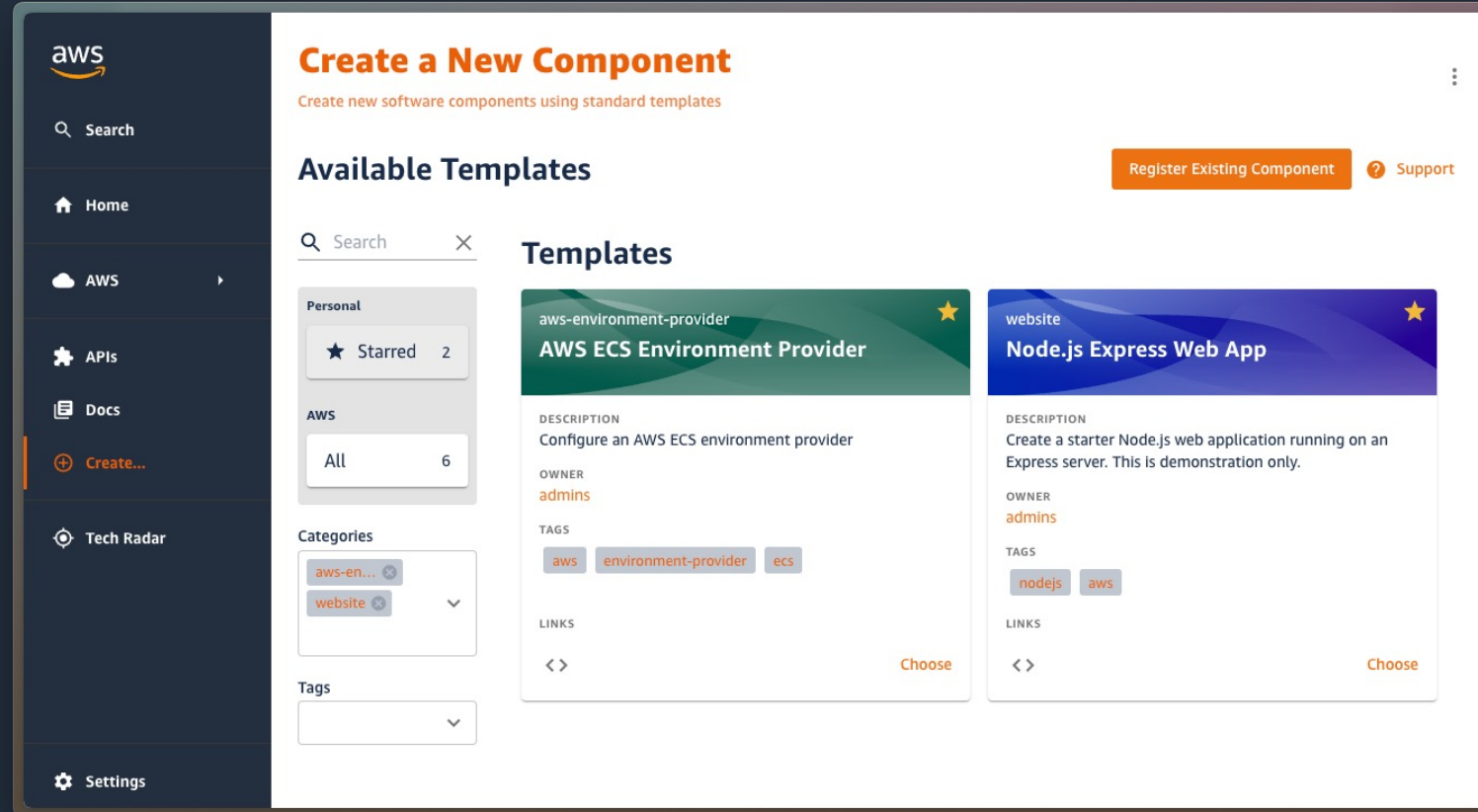
Platform Engineering Team

fsi-pace-pe@amazon.com



Orchestrate Platform and Applications

Software Templates – creating new templates



<https://backstage.io/docs/features/software-templates>

Software Template - Input

Create a New Component
Create new software components using standard templates

Node.js Express Web App

- 1 Provide basic component information**

Name *
Unique name of the component

Description
Help others understand what this service is for

Owner *
Owner of the component

Back **Next step**
- 2 Provide environment information for the application**
- 3 Choose a git repository location**

```

1 parameters:
2   - title: Provide basic component information
3   required:
4     - component_id
5     - owner
6   properties:
7     component_id:
8       title: Name
9       type: string
10      description: Unique name of the component
11      ui:field: EntityNamePicker
12      ui:autofocus: true
13    description:
14      title: Description
15      type: string
16      description: Help others understand what this service is for
17    owner:
18      title: Owner
19      type: string
20      description: Owner of the component
21      ui:field: OwnerPicker
22      ui:options:
23        catalogFilter:
24          kind:
25            - Group
26      - title: Provide environment information for the application

```

Software Template - actions

Task Activity
Activity for task: 9e501e02-7402-4e4b-b6ac-810d77e1c286

| Task Name | Status | Duration |
|---------------------------------------|--------|-----------|
| Get OPA platform information | ✓ | 0 seconds |
| Get AWS Environment Providers | ✓ | 0 seconds |
| Print the environment entity info | ✓ | 0 seconds |
| Store environment provider parameters | ✓ | 0 seconds |
| Create a Secret | ✓ | 0 seconds |
| Fetch ECS Infrastructure as Code | ✓ | 0 seconds |
| Fetch Base | ✓ | 0 seconds |
| Get AWSEnvironment entity details | ✓ | 0 seconds |
| Print the workspace | ✓ | 0 seconds |
| Publish | ✓ | 1 second |
| Create Repo Token | ✓ | 0 seconds |
| Register | ✓ | 0 seconds |

Log for Fetch Base:

- 2023-09-30T19:14:37.993Z Beginning step Fetch Base
- 2023-09-30T19:14:38.064Z info: Fetching template content from remote URL
- 2023-09-30T19:14:38.220Z info: Listing files and directories in template
- 2023-09-30T19:14:38.224Z info: Processing 10 template files/directories with input values {"app_port": "8080", "aws_e
- 2023-09-30T19:14:38.246Z info: Writing directory .backstage/ to template output path.
- 2023-09-30T19:14:38.248Z info: Writing file .dockerignore to template output path with mode 33188.
- 2023-09-30T19:14:38.264Z info: Writing file .editorconfig to template output path with mode 33188.
- 2023-09-30T19:14:38.273Z info: Writing file .gitignore to template output path with mode 33188.
- 2023-09-30T19:14:38.278Z info: Writing file .gitlab-ci.yml to template output path with mode 33188.
- 2023-09-30T19:14:38.283Z info: Writing file Dockerfile to template output path with mode 33188.
- 2023-09-30T19:14:38.285Z info: Writing directory src/ to template output path.
- 2023-09-30T19:14:38.286Z info: Writing file .backstage/catalog-info.yaml to template output path with mode 33188.
- 2023-09-30T19:14:38.290Z info: Writing file src/index.js to template output path with mode 33188.
- 2023-09-30T19:14:38.292Z info: Writing file src/package.json to template output path with mode 33188.
- 2023-09-30T19:14:38.295Z info: Template result written to /tmp/9e501e02-7402-4e4b-b6ac-810d77e1c286
- 2023-09-30T19:14:38.296Z Finished step Fetch Base

```

52 steps:
53   - id: opaGetPlatformInfo
54     name: Get OPA platform information
55     action: opa:get-platform-metadata
56   - id: opaGetAwsEnvProviders
57     name: Get AWS Environment Providers
58     action: opa:get-env-providers
59     input:
60       environmentRef: ${ parameters.environment }
61   - id: debugEnvironment
62     name: Print the environment entity info
63     action: debug:log
64     input:
65       message: ${ steps['opaGetAwsEnvProviders'].output
66   - id: createProviderPropsFiles
67     each: ${ steps['opaGetAwsEnvProviders'].output.envPr
68     name: Store environment provider parameters
69     action: roadiehq:utils:fs:write
70     input:
71       path: .awsdeployment/providers/${ steps['opaGetAws
72       }-${ each.value.envProviderName }.properties
73     content: >
74       TARGET_VPCID=${ each.value.vpcId }

```

Software Template – OPA custom Actions

opa:get-platform-metadata

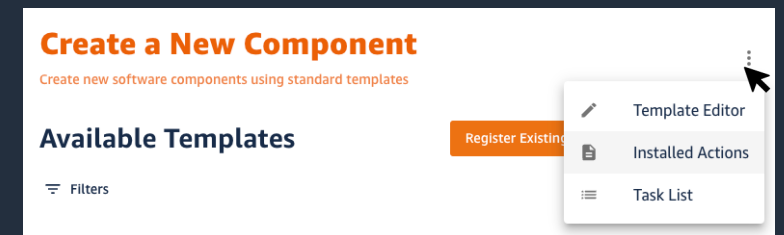
opa:get-platform-parameters

opa:get-env-providers

opa:create-secret

opa:createRepoAccessToken:gitlab

https://{OPA_HOSTNAME}/create/actions



Software Template – OPA custom Actions

opa:get-platform-metadata

Retrieves information about the platform account where Backstage and OPA on AWS run

opa:get-platform-parameters

- AWS region

opa:get-env-providers

opa:create-secret

opa:createRepoAccessToken:gitlab

Software Template – OPA custom Actions

opa:get-platform-metadata

Retrieves AWS SSM Parameter Store values for the OPA on AWS platform

opa:get-platform-parameters

- `/opa` prefixed parameters such as pipeline-role and platform-role

opa:get-env-providers

opa:create-secret

opa:createRepoAccessToken:gitlab

Software Template – OPA custom Actions

opa:get-platform-metadata

opa:get-platform-parameters

opa:get-env-providers

opa:create-secret

opa:createRepoAccessToken:gitlab

Given an AWS Environment entity reference as input, it retrieves information about the Environment including an array of AWS environment providers' information

```
{
  envName: string,
  envShortName: string,
  envRef: string,
  envDeploymentManualApproval: boolean,
  envProviders: [
    envProviderName: string,
    envProviderType: string,
    envProviderPrefix: string,
    account: string,
    region: string,
    vpcId: string,
    publicSubnets: [ ],
    privateSubnets: [ ],
    assumedRoleArn: string
  ]
}
```


Software Template – OPA custom Actions

opa:get-platform-metadata

Creates a new Secrets Manager secret for a given input name.

opa:get-platform-parameters

opa:get-env-providers

opa:create-secret

opa:createRepoAccessToken:gitlab

Software Template – OPA custom Actions

opa:get-platform-metadata

Creates a GitLab repository access token and stores the value in a given Secrets Manager secret

opa:get-platform-parameters

opa:get-env-providers

opa:create-secret

opa:createRepoAccessToken:gitlab

Software Template – Environment Provider structure

Common Steps:

- opa:get-platform-metadata
- opa:get-platform-parameters
- fetch:template (base)
- fetch:template (IaC)
- publish:gitlab
- catalog:register

See the aws-ecs-environment-provider sample in the backstage-reference folder of the open source repo

Software Template – Application structure

Common Steps:

- opa:get-platform-metadata
- opa:get-env-providers
- opa:create-secret
- fetch:template (base)
- fetch:template (IaC)
- publish:gitlab
- opa:createRepoAccessToken
- catalog:register

See the example-nodejs sample in the backstage-reference folder of the open source repo



Thank you!



Orchestrate Platform and Applications

fsi-pace-pe@amazon.com