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Creating CodeBuild Project (With Source)

- Navigate to CodeBuild Service and **Create a Project**
- Project configuration
  - Project name
    - Enter a name for this build project. Build project names must be unique across each AWS account.
  - Description
    - Enter an optional description of the build project on what this project is used for.
  - Build badge
    - Select to make your project's build status visible and embeddable. For more information. #Select values to run standard Amazon Linux 2 image as a managed image
- **Source provider**
  - Choose the source code provider type. Use the following lists to make selections appropriate for your source provider:

[No Source]

- If you select this option, u should enter build commands in a text editor in below **buildspec** configuration.

[Amazon S3]

Bucket : Choose the name of the input bucket that contains the source code.

S3 object key or S3 folder : Enter the name of the ZIP file or the path to the folder that contains the source code. Enter a forward slash (/) to download everything in the S3 bucket.

Source version : Enter the version ID of the object that represents the build of your input file.

[CodeCommit]

Repository

- Choose the repository you want to use.

Reference type

- Choose **Branch**, **Git tag**, or **Commit ID** to specify the version of your source code.

Git clone depth

- Choose to create a shallow clone with a history truncated to the specified number of commits. If you want a full clone, choose **Full**.

[GitHub]

Repository

- Choose **Connect using OAuth** or **Connect with a GitHub personal access token ** and follow the instructions to connect (or reconnect) to GitHub and authorize access to AWS CodeBuild.
- Choose a public repository or a repository in your account.

Source version Enter a `branch`, `commit ID`, `tag`, or reference and a commit ID. For more information.

Git clone depth Choose **Git clone depth** to create a shallow clone with a history truncated to the specified number of commits. If you want a full clone, choose **Full**.

Environment

Environment image : Choose one of the below

- To use a Docker image managed by AWS CodeBuild, choose **Managed image**, and then make selections from **Operating system**, **Runtime(s)**, **Image**, and **Image version**. Make a selection from **Environment type** if it is available.
- To use another Docker image, choose **Custom image**. For **Environment type**, choose **ARM**, **Linux**, **Linux GPU**, or **Windows** (Supported in few AWS Regions). If you choose **Other registry**, for **External registry URL**, enter the name and tag of the Docker image in Docker Hub, using the format `docker repository/docker image name`. If you choose **Amazon ECR**, use **Amazon ECR repository** and **Amazon ECR image** to choose the Docker image in your AWS account.
- To use a private Docker image, choose **Custom image**. For **Environment type**, choose **ARM**, **Linux**, **Linux GPU**, or **Windows**. For **Image registry**, choose **Other registry**, and then enter the ARN of the credentials for your private Docker image.

Privileged

- (Optional) Select **Privileged** only if you plan to use this build project to build Docker images, and the build environment image you chose is not provided by CodeBuild with Docker support. Otherwise, all associated builds that attempt to interact with the Docker daemon fail. You must also start the Docker daemon so that your builds can interact with it. One way to do this is to initialize the Docker daemon in

the `install` phase of your build spec by running the following build commands. Do not run these commands if you chose a build environment image provided by CodeBuild with Docker support.

Service role : Choose one of the following:

- If you do not have a CodeBuild service role, choose **New service role**. In **Role name**, enter a name for the new role.
- If you have a CodeBuild service role, choose **Existing service role**. In **Role ARN**, choose the service role.

Additional configuration

- **Timeout**
    - Specify a value between 5 minutes and 480 minutes (8 hours) after which CodeBuild stops the build if it is not complete.
- **VPC** If you want CodeBuild to work with your VPC:
    - For **VPC**, choose the VPC ID that CodeBuild uses.
    - For **VPC Subnets**, choose the subnets that include resources that CodeBuild uses.
    - For **VPC Security groups**, choose the security groups that CodeBuild uses to allow access to resources in the VPCs.
- **Compute** : Choose one of the available options.
- **Environment variables**
    - Enter the name and value, and then choose the type of each environment variable for builds to use.
    - CodeBuild will inject these values at Build Runtime that can be accessed inside the buildspec.yml file.

Buildspec

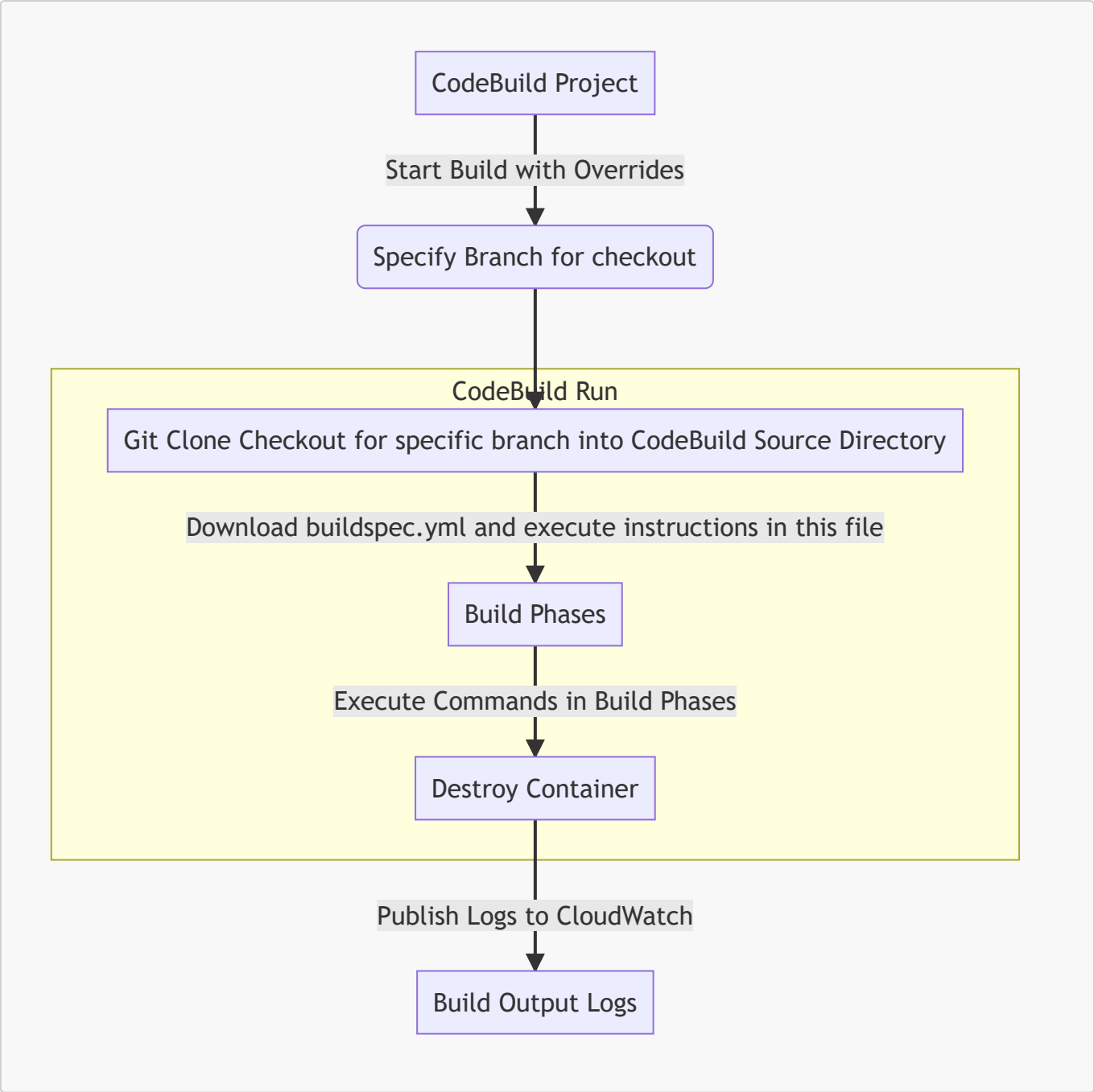
Build specifications : Do one of the following:

- If your source code includes a buildspec file, choose **Use a buildspec file**. By default, CodeBuild looks for a file named `buildspec.yml` in the source code root directory. If your buildspec file uses a different name or location, enter its path from the source root in **Buildspec name** (for example, `buildspec-two.yml` or `configuration/buildspec.yml`.
- If your source code does not include a buildspec file, choose **Insert build commands**. For **Build commands**, enter the commands you want to run in the `build` phase. and enter the commands to be executed in various phases of CodeBuild Runtime
    - **Use a buildspec file**
        - If your buildspec file uses a different name or location, enter its path from the source root here (for example, buildspec-two.yml or configuration/buildspec.yml).

CodeBuild Project Execution:

- Select `Start Build` to execute the CodeBuild Run and verify build details along with phases information.

CodeBuild Execution



- All source code will be download under : `CODEBUILD_SRC_DIR=/codebuild/output/src902430304/src/git-codecommit.ap-south-1.amazonaws.com/v1/repos/git-remote-codecommit`
- The `CODEBUILD_RESOLVED_SOURCE_VERSION` is commit id that is checked out by codebuild container.
- The CodeBuild Execution Role will have default policy with below IAM statements.

```
{
            "Effect": "Allow",
            "Resource": [
                "arn:aws:logs:ap-south-1:ACCOUNT_ID:log-group:/aws/codebuild/test-
```

```
codebuild-sample-source-project-codecommit",
                "arn:aws:logs:ap-south-1:ACCOUNT_ID:log-group:/aws/codebuild/test-
codebuild-sample-source-project-codecommit:*"
            ],
            "Action": [
                "logs:CreateLogGroup",
                "logs:CreateLogStream",
                "logs:PutLogEvents"
            ]
},
 {
            "Effect": "Allow",
            "Resource": [
                "arn:aws:codecommit:ap-south-1:ACCOUNT_ID:git-remote-codecommit"
            ],
            "Action": [
                "codecommit:GitPull"
            ]
        }
```

- Since CodeBuild Container needs to perform a `GitPull` operation, above statement should be present in IAM Role Policy.
- Modify the buildspec.yml file to include the aws cli commands and check for IAM Role permissions attached to the CodeBuild Service Role.
- Create a new branch with change in code, push the branch in the remote, execute the Build Project with specific branch name.

CodeBuild with source as Github.

- Generate PAT Token under **Github Account > Settings > Developer Settings > PAT**.
    - Enter Token Note:
    - Set Expiration days.
    - Under Select Scopes, select the repo checkbox.
    - Scroll down and click on **Generate Token**
- Navigate to CodeBuild Project, under Source configuration of CodeBuild Project, Select the Source Provider as **Github**, select the **Connect with a Github Personal Access Token** Checkbox. add the above token value in the text box and Click on **Save token**.
- Once this is saved, all github repository will be displayed in Github Repository dropdown.
- Select the repository which contains the source code, select the branch.
- Make sure the **buildspec.yml** file is present in that branch in Github.
- Execute the CodeBuild Project by specifying the branch in Github and validate if files are checked out by CodeBuild in the Execution Build Logs.

CodeBuild Notification Rule.

- Under the specific CodeBuild Project > Notify > Create a Notification Rule > Add subscriber > confirm subscriber.
- Execute the codebuild job, the Topic Subscriber should get email notification on Build Information in JSON Format.