Building and Managing Pipelines

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Overview

- Setting up a project structure
- Using pipeline parameters
- Arranging jobs in a pipeline
- How to trigger pipelines
- Managing and changing pipelines
- Monitoring running pipelines
- Troubleshooting
- Where to learn more

Concourse Building Blocks

Resource	Resource Type	Task
Job	Pipeline	Build

```
`-- ci

    |-- assets

    |   |-- manifest-dev.yml

    |   `-- manifest-prod.yml

    |-- pipeline.yml

    |-- scripts

    |   |-- script1.sh

    |   |-- script2.sh

    |   `-- script3.sh

    `-- tasks

        |-- task1.yml

        `-- task2.yml
```

◄ **Thoughtfully lay out your Concourse artifacts**

◄ **Create a structure to organize scripts and tasks**

◄ **Consider directories for things like containers, template variables, and deployment manifests**

About Pipeline Parameters

Pull sensitive or environmental values out of the pipeline with parameters

Declared parameters are mandatory and there are no default values

Set parameters via fly CLI or external file

Demo

Create placeholders for sensitive values in the pipeline
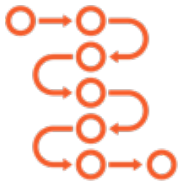
Load parameters via the command line

Put parameters into a local file

Arranging Jobs in a Pipeline

Jobs are chained together based on the `passed` **attribute**

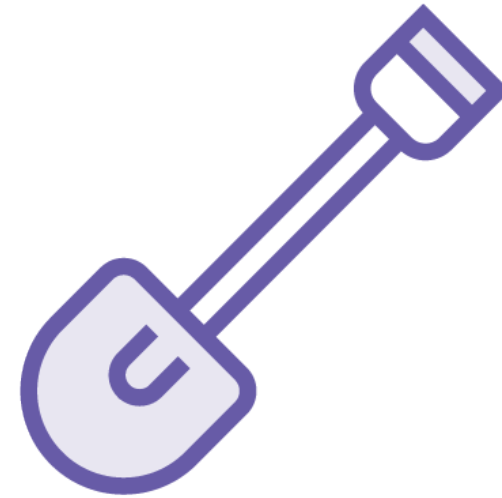Can keep jobs from running at the same time using `serial_group` tags

Associate related jobs using a group **designation**
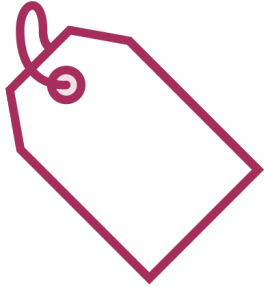
Mechanisms for Triggering Pipelines
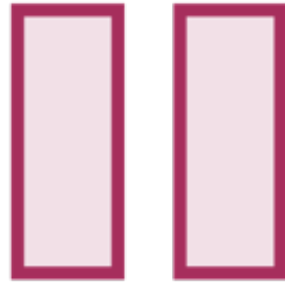
Dependent resource changes

Trigger manually via Dashboard, webhook, or fly CLI

Managing and Changing Your Pipelines

Rename pipelines

Pause a pipeline

Expose pipelines

Hide pipelines

Order pipelines

Version a pipeline

Demo

Manually trigger an individual job

See a case of when a job triggers another job

Change our pipeline to run automatically upon resource change

Monitoring Running Pipelines

The Dashboard offers a high density overview of pipeline health

Nodes emit metrics compatible with Prometheus, Datadog, New Relic and more

Want to watch metrics for Concourse overall (e.g. builds started), web nodes (e.g. database queries), worker nodes (e.g. disk usage), volumes (e.g. volumes created), and containers (e.g. count).

Concourse Troubleshooting

What can go wrong?

Workers out of disk space

Container limit reached

Job doesn't start

Check the environment

fly containers

fly workers

fly volumes

Check the pipelines

fly builds

fly watch

fly intercept

fly execute

Demo

Review what the Dashboard shows us

Check which containers are running

Intercept a recently used container

Where to Learn More

https://concourse-ci.org

https://blog.concourse-ci.org

https://github.com/concourse/concourse

https://stackoverflow.com/questions/tagged/concourse

https://concoursetutorial.com

Summary

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Monitoring running pipelines

Troubleshooting

Where to learn more