Continuous Integration with MATLAB and GitHub Actions
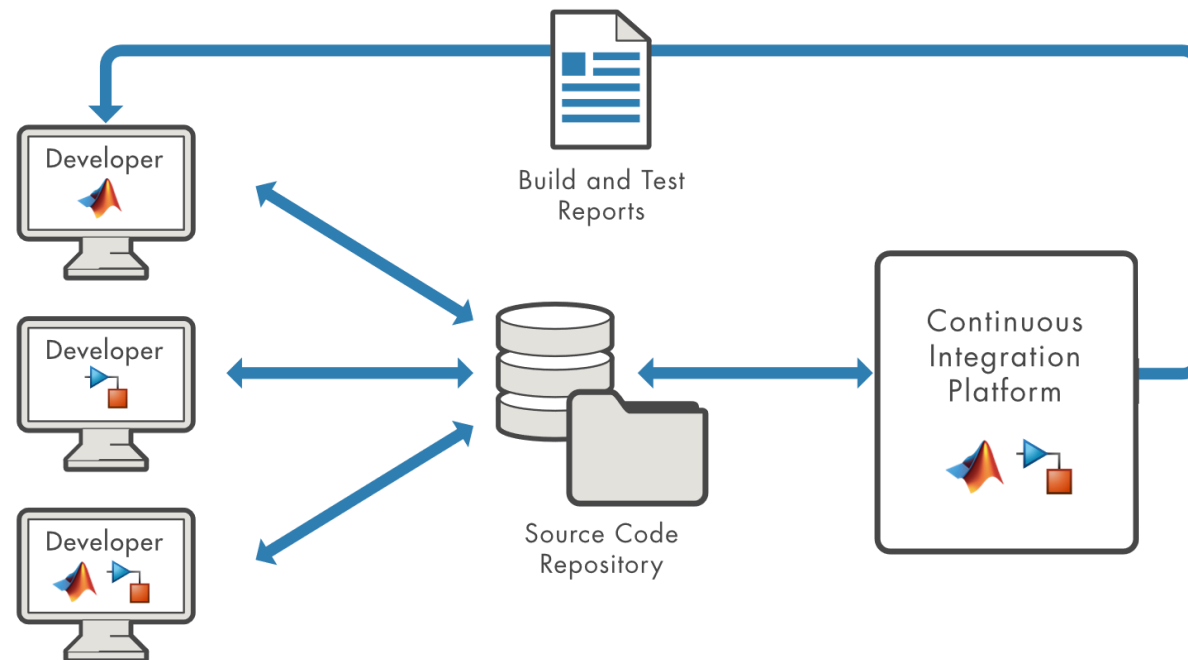
NOTE: Before we begin, please ensure you have both accounts:
- MathWorks: https://www.mathworks.com/mwaccount/register
- GitHub: https://github.com/signup
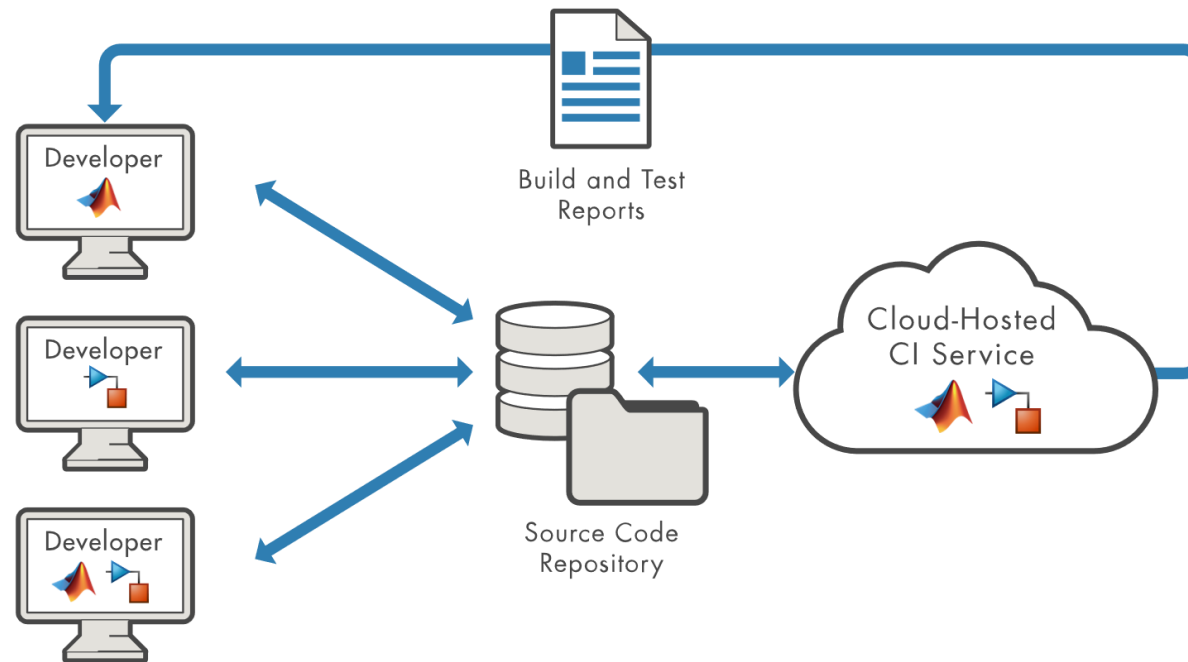
What is Continuous Integration (CI)?

- Continuous Integration is the process of automating the building and testing of code

CI helps you develop better code, faster!

What is Continuous Integration (CI)?

- Continuous Integration is the process of automating the building and testing of code

CI helps you develop better code, faster!

Free MATLAB CI support for public GitHub repositories

- MathWorks provides free CI support for MATLAB and Simulink if:
  1. your code and models are publicly available on GitHub and a supported CI platform
  2. you don't use any coder or compiler products (e.g., MATLAB Coder, MATLAB Compiler)

- Currently supported CI platforms:
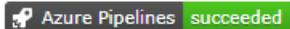 - Azure DevOps
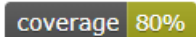 - Circle CI
  - GitHub Actions
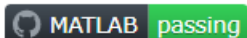 - Travis CI

Today's workshop

Getting started with our CI configuration examples

- Check out our example GitHub repo:
  - https://github.com/mathworks/ci-configuration-examples
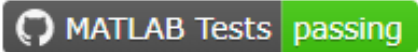
- The example repository provides:
  - A quick start guide
  - Ready-to-use CI configuration files
  - Example MATLAB code and tests
  - CI badge examples, with helpful links

MATLAB CI Configuration Examples

This repository shows how to run MATLAB tests with a variety of continuous integration systems.

CI Platform	Badges	Badge Help
Azure DevOps	Azure Pipelines succeeded / coverage 80%	Blog with helpful information for setting up Azure DevOps badges
CircleCI	circleci passing	CircleCI documentation for setting up badges
GitHub Actions	MATLAB passing	GitHub Actions documentation for setting up badges
Travis CI	build passing	Travis CI documentation for setting up badges

Badges

GitHub® Actions	
Badges (static examples)	MATLAB Tests passing
Badge Code	[![MATLAB] (https://github.com/*GITHUB_USERNAME*/*GITHUB_REPO_NAME*/workflows/*GITHUB_WORKFLO* (https://github.com/*GITHUB_USERNAME*/*GITHUB_REPO_NAME*/actions? query=workflow%3A*GITHUB_WORKFLOW_NAME*)
Badge Help	GitHub Actions documentation for setting up badges

- Copy-paste the badge code into your README.md file
- Replace the *VARIABLES* with your values

A look at the GitHub Actions configuration

```
...

16  jobs:
17    # This workflow contains a single job called "build"
18    build:
19      # The type of runner that the job will run on
20      runs-on: ubuntu-latest
21
22      # Steps represent a sequence of tasks that will be executed as part of the job
23      steps:
24        # Checks-out your repository under $GITHUB_WORKSPACE, so your job can access it
25        - uses: actions/checkout@v2
26
27        # Sets up MATLAB on the GitHub Actions runner
28        - name: Setup MATLAB
29        uses: matlab-actions/setup-matlab@v1
30
31        # Runs a set of commands using the runners shell
32        - name: Run all tests
33          uses: matlab-actions/run-tests@v1
34          with:
35            source-folder: code

...
```
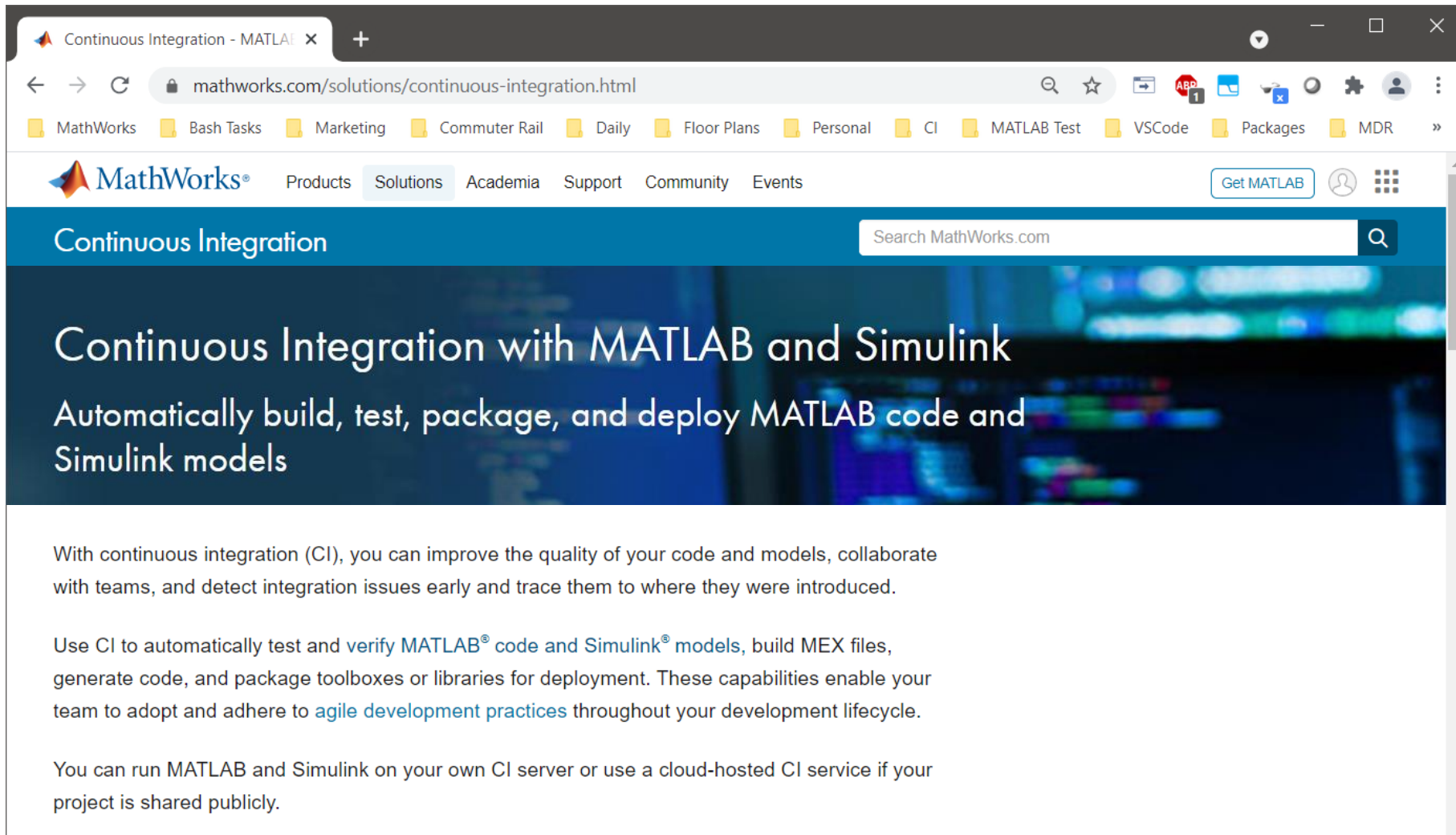
Check out your code

Make MATLAB available

Run all tests

Learn more about CI with MATLAB and Simulink

https://www.mathworks.com/solutions/continuous-integration.html

Summary

- MathWorks offers free CI support for public MATLAB GitHub repositories

- Getting started with CI is easy with our plugins and example code!

Get started with CI and MATLAB today!