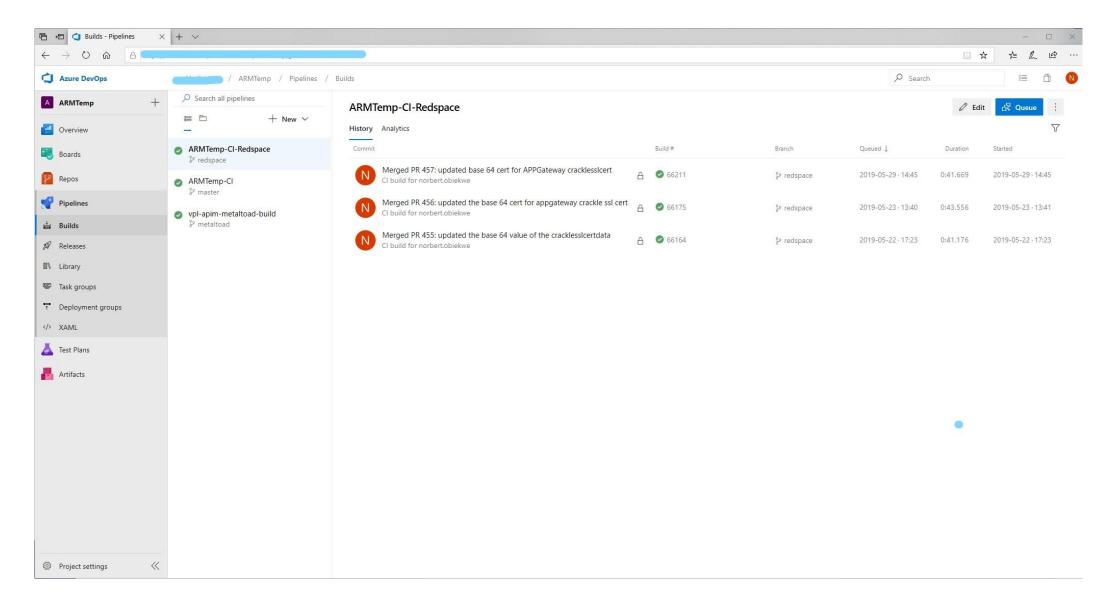


CI at work.



What is Continuous Integration





It is the process of automating the build and testing of code.



With CI system in place, every commit change to version control are integrated and verified by automated build to ensure that teams detect problems early.

CI Best pratice



As best practices, CI aims at getting codes and test changes into the shared version control repo after every task is completed.



When the CI system detects a committed or complete PR it then triggers an automated build system to get the latest code from the shared repo. That code is then built and tested to validate the full master branch which is often called a trunk.



In essence, CI system aims to keep the master branch clean.



Azure DevOps -Azure pipeline provides CI integration that can integrate across platforms, whether the build process is a hybrid or purely cloud based.

Four key pillars/elements of CI

- **1. Version control system** For source code change management and collaborations; *Git, Apache subversion*
- **2. Packet management system- I**nstall and uninstall software pkgs; *Nuget, NPM, Chocolatey, etc*
- **3. Continuous integration system** merges all dev working copies to a shared repo; *Azure devops*, *teamcity, Jenkins*
- **4. Automated build process-** creates a software build including compiling and running automated tests; *Apache Ant, Nant*
- Its up to the team to choose a platform and specific tool of their choice





- Improve code quality based on rapid feedback
- Automated testing trigger for every code change
- Reducing build times for rapid feedback and early bug detection
- Better managed technical debt and code analysis

The rapid feedback enables dev's or teams to be constantly aware of code changes and quality of the changes. Say a dev's change breaks the source code, the dev would immediately know the status from the build, unit test or other metrics. If successful integration is happening across the team, the dev would also be aware if their code change breaks the source code for other team members. This process removes the very long, and often difficult and drawn out bug inducing merges which allows organizations to deliver in a very fast pace.

 CI can be helpful in providing information on changes between builds, for traceability as well as enabling evident based track of completed work in order to have a global view on the build results.



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