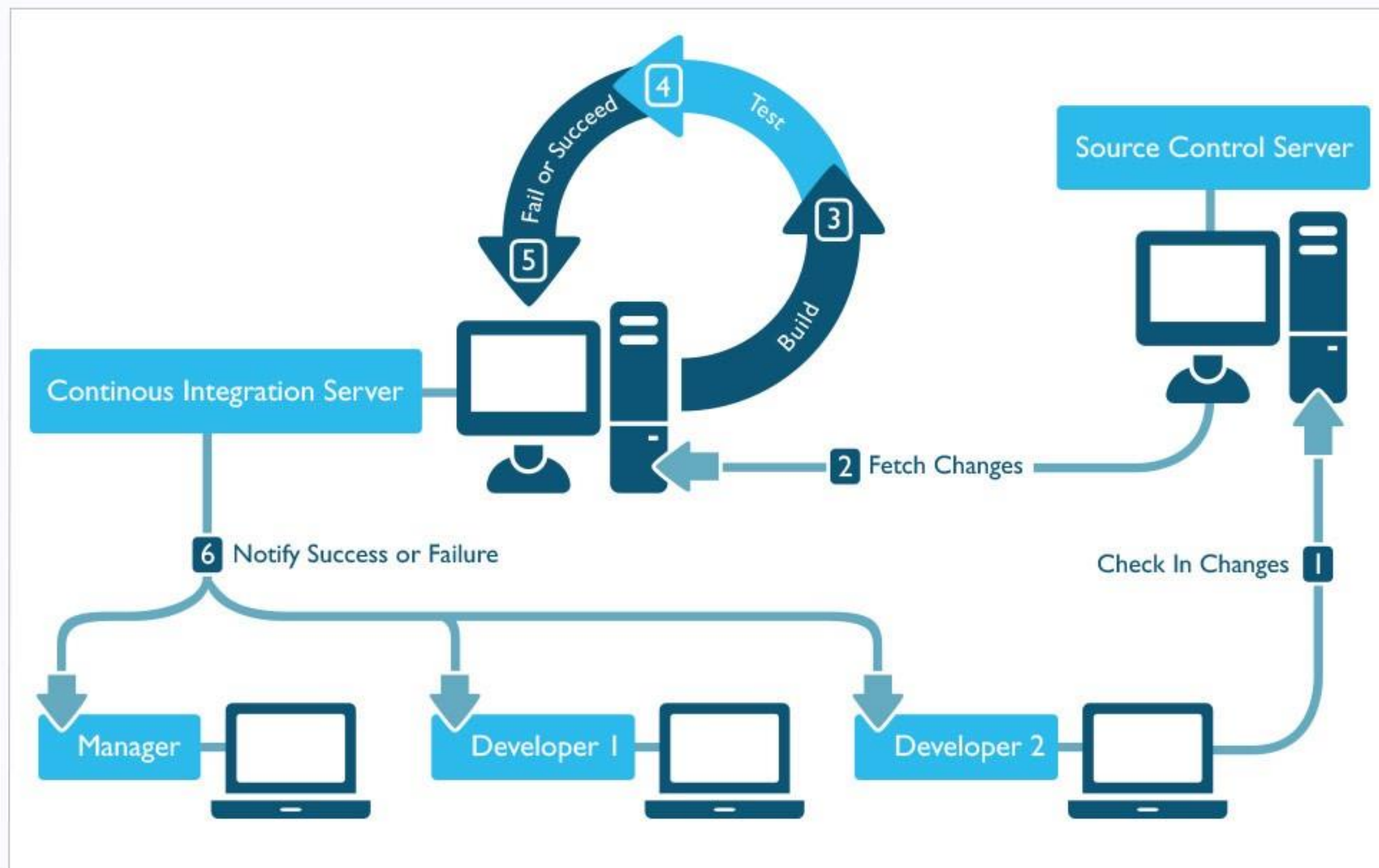


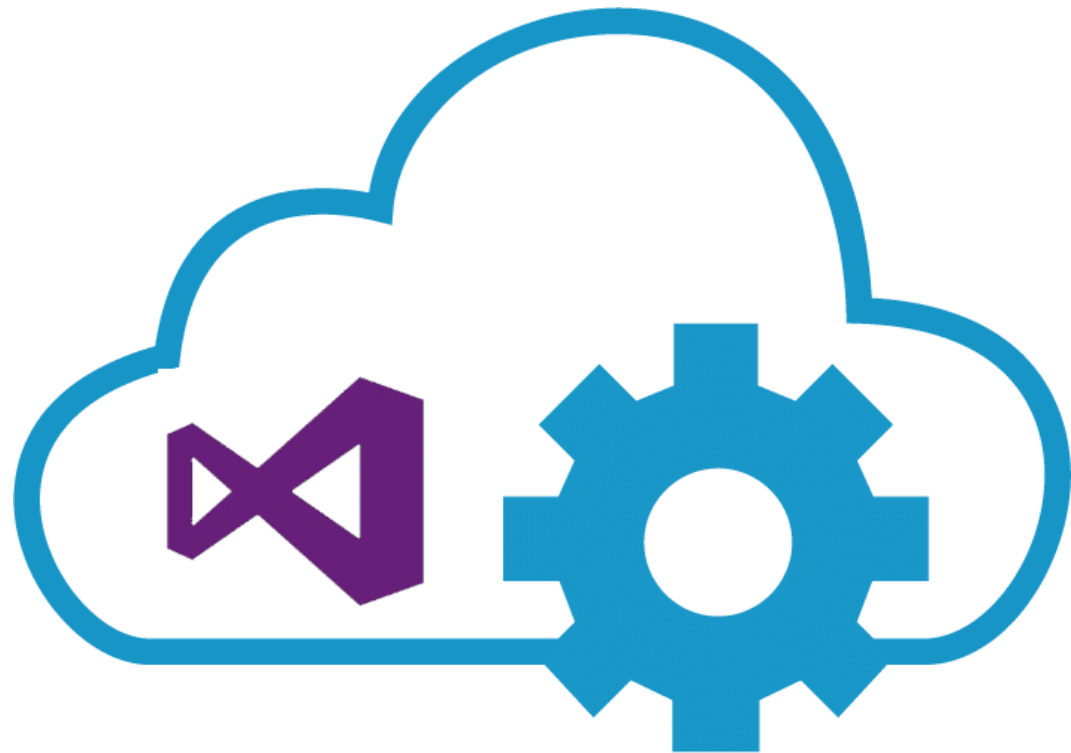
Integração Contínua





Fonte: C. Aaron Cois, **DevOps** Blog - <https://insights.sei.cmu.edu/devops/2015/01/continuous-integration-in-devops-1.html>

Integração Contínua



Visual Studio Team Services

+



Git

Integração Contínua

Terminologia (TFS vs. Git)

TFS	Git
Create workspace and get latest version	Clone
Switch workspace branch	Checkout
Checkin	Commit / Push
Pending changes	Status ou Changes no VS Team Explorer UI
Shelve	Stash
Get latest version	Pull
Label	Tag / Release
Include changes	Stage
Exclude changes	Unstage
Branch	Branch
Merge	Merge / Rebase

Integração Contínua

The image shows two overlapping screenshots of the Azure DevOps web interface. The background screenshot shows the 'Build and Release' section for a team project named 'cilab-vsts-git'. The 'Builds' tab is selected, and a red box highlights the 'Builds' link in the top navigation bar. Below the navigation bar, the 'Build Definitions' section is visible, showing a message: 'The cilab-vsts-git team project doesn't have any build definitions.' A red arrow points from the '+ New definition' button in this section to the foreground screenshot.

The foreground screenshot shows the 'Select a template' dialog. It displays a list of templates for building and running tests. The 'ASP.NET (PREVIEW)' template is highlighted, and the 'Apply' button is visible. The list of templates includes:

- .NET Desktop: Build and run tests for .NET Desktop or Windows Classic Desktop solutions. This template requires that Visual Studio be installed on the build agent.
- ASP.NET (PREVIEW): Build ASP.NET web applications.
- ASP.NET Core: Build ASP.NET Core web applications.
- ASP.NET Core (.NET Framework): Build ASP.NET Core web applications targeting the full .NET Framework.
- Azure Web App: Build, package, test and deploy your Azure Web App.
- Universal Windows Platform: Build Universal Windows Platform applications using Visual Studio.

Integração Contínua

The screenshot displays the Azure DevOps web interface for a project named 'cilab-vsts-git'. The top navigation bar includes 'Dashboards', 'Build and Release', and a search bar. Below this, the 'Builds' tab is selected, showing a table of build definitions. A specific build, 'cilab-pull-requests-ci : #20170924.1', is highlighted, with the status 'in progress' indicated by a blue play button icon. A red box highlights this status, and a red arrow points from it to the build's log output. The log output shows the build process, including file uploads, artifact publishing, and post-job cleanup. The build was triggered by an initial commit 'cfc903'.

Build Definitions

Build ID or build number [+ New](#) [+ Import](#)

Mine All Definitions Queued

Recently built

	Status	Triggered by
cilab-pull-requests-ci : #20170924.1 Matheus Neder requested just now	in progress	Initial commit. cfc903 in ...

Build Log Output:

```
Uploading 5 files
File upload succeed.
Upload 'd:\a\1\1\1\1' to file container: '#/1175662/cilab-pull-requests-ci.20170924.1'
Associated artifact 12 with build 25
*****
Async Command End: Upload Artifact
*****
Finishing: Publish Artifact
*****
Starting: Post Job Cleanup
*****
Cleaning any cached credential from repository: cilab-vsts-git (Git)
git remote set-url origin https://matheusneder.visualstudio.com/_git/cilab-vsts-git
git remote set-url --push origin https://matheusneder.visualstudio.com/_git/cilab-vsts-git
*****
Finishing: Post Job Cleanup
*****
Finishing: Build
*****
```

cilab-vsts-git

Dashboards

Code

Work

Build and Release

Test

Wiki*

Search v

Overview

Work

Security

Version Control

Policies

Agent Queues

Notifications

Service Hooks

Services

Test

Release

Policies for: cilab-vsts-git > cilab-vsts-git > master

Save changes

Discard changes

☒

Protect this branch

- Code changes must be submitted via pull request
- This branch cannot be deleted
- Manage permissions for this branch on the [Security page](#)

☐

Require a minimum number of reviewers

Require approval from a specified number of reviewers on pull requests.

☐

Check for linked work items

Encourage traceability by checking for linked work items on pull requests.

☐

Check for comment resolution

Check to see that all comments have been resolved on pull requests.

☐

Enforce a merge strategy

Require a specific type of merge when pull requests are completed.

Build validation

Validate code by pre-merging and building pull request changes

+ Add build policy

Require approval from external services

Require third party services to post successful status to complete pull requests.

+ Add service

Automatically include code reviewers

Include specific users or groups in the code review based on which files changed.

+ Add automatic reviewers

Add build policy

Build definition *

cilab-pull-requests-ci

☒ Automatic (whenever the source branch is updated)

☐ Manual

Policy requirement

☒ Required

Build must succeed in order to complete pull requests.

☐ Optional

Build failure will not block completion of pull requests.

Build expiration

☐ Immediately when master is updated

☒ After hours if master has been updated

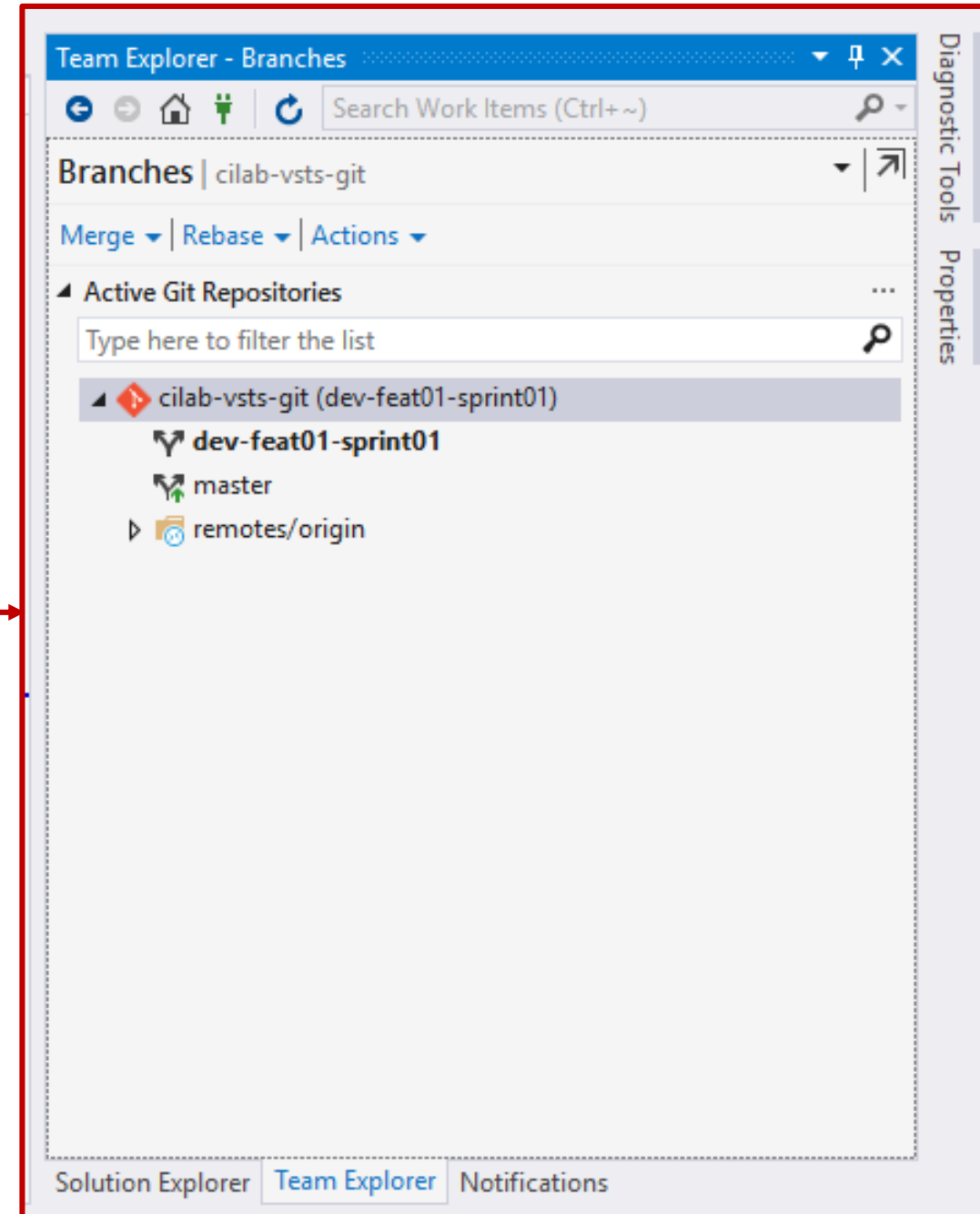
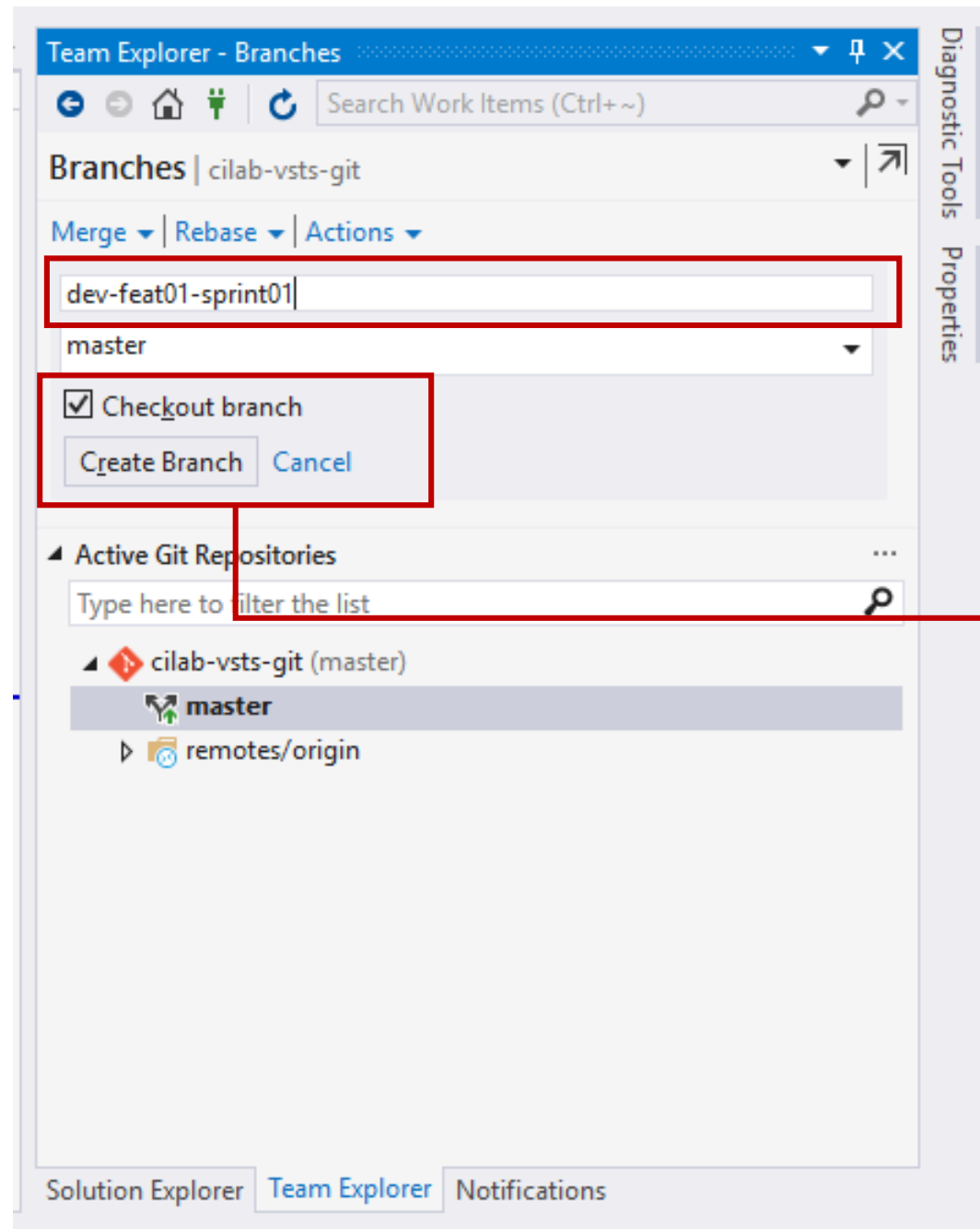
☐ Never

Display name

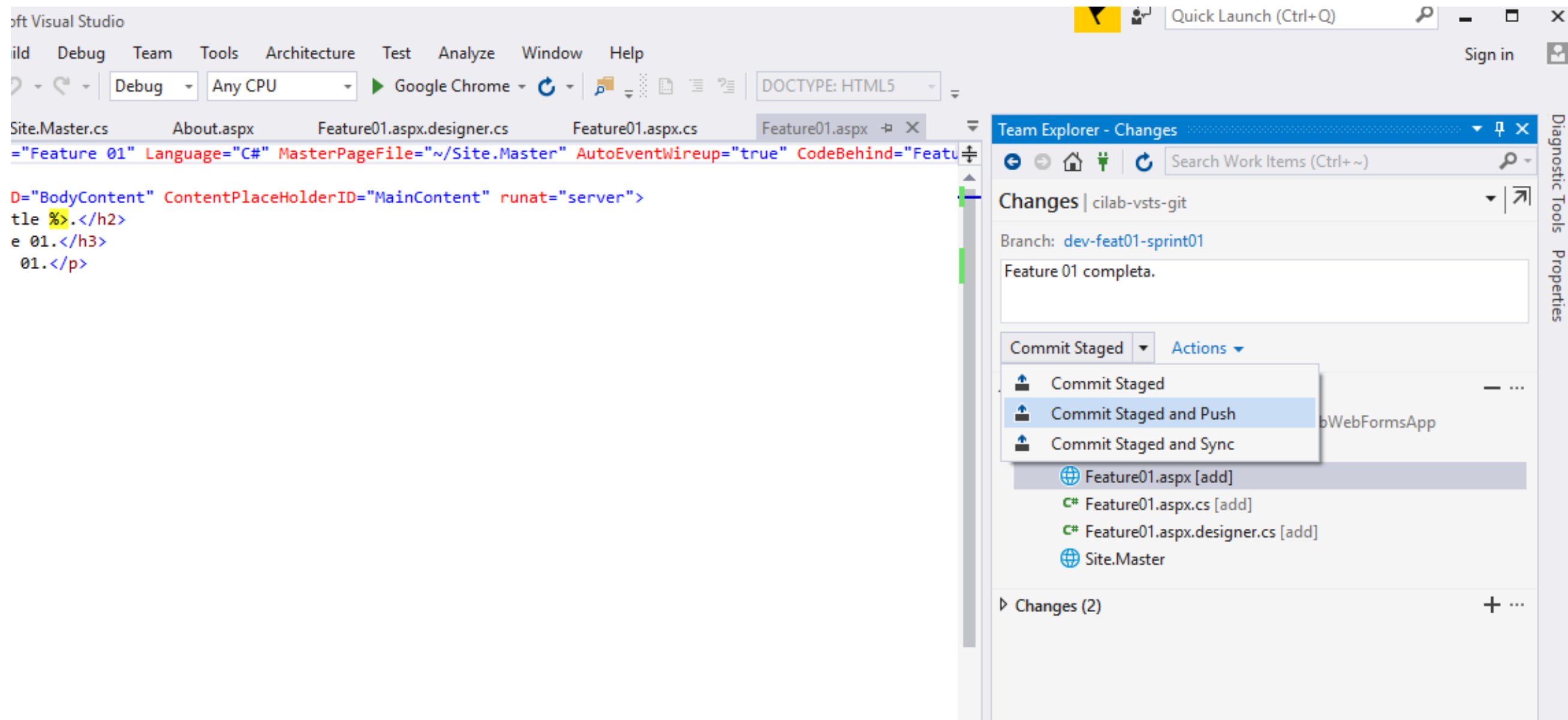
Save

Cancel

Integração Contínua



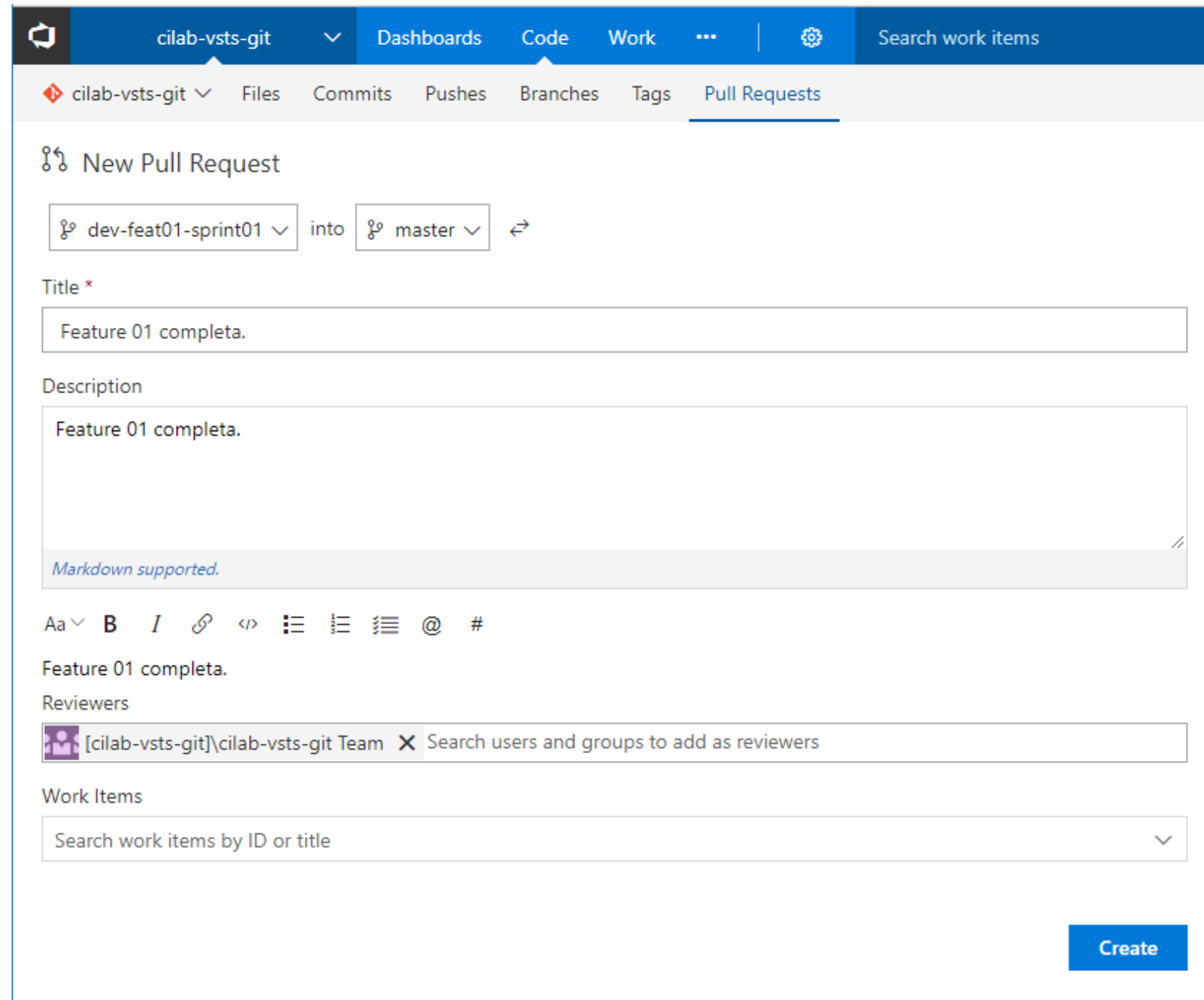
Integração Contínua



Integração Contínua

The image shows a screenshot of the GitHub web interface for a repository named 'cilab-vsts-git'. The top navigation bar includes 'Dashboards', 'Code', 'Work', and a settings icon. The left sidebar shows the repository name and a list of options: 'Files', 'Commits', 'Pushes', 'Branches', 'Tags', 'Pull Requests' (highlighted with a red box), 'New pull request', and 'Manage repositories'. The main content area is titled 'Pull Requests' and shows a notification: 'You updated dev-feat01-sprint01 3 minutes ago — Create a pull request'. Below this, there are tabs for 'Mine', 'Active', 'Completed', and 'Abandoned'. At the bottom of the page, there is a large blue button labeled 'New pull request' (highlighted with a red box) and a link 'Learn more about Pull Requests'. A red arrow points from the 'Pull Requests' option in the sidebar to the 'New pull request' button.

Integração Contínua



The screenshot shows the 'New Pull Request' page in Azure DevOps. The top navigation bar includes 'cilab-vsts-git', 'Dashboards', 'Code', 'Work', and a search bar. Below this, a secondary bar shows 'Files', 'Commits', 'Pushes', 'Branches', 'Tags', and 'Pull Requests' (which is selected). The main form area is titled 'New Pull Request' and contains several sections: a branch selection dropdown set to 'dev-feat01-sprint01' into 'master', a 'Title' field with the text 'Feature 01 completa.', a 'Description' field with the same text, a rich text editor toolbar with icons for bold, italic, link, code, list, and table, and a 'Reviewers' section with a dropdown menu showing '[cilab-vsts-git]\cilab-vsts-git Team'. At the bottom right, there is a blue 'Create' button.

Navigation: cilab-vsts-git | Dashboards | Code | Work | ... | Search work items

Sub-navigation: cilab-vsts-git | Files | Commits | Pushes | Branches | Tags | Pull Requests

Form Fields:

- Branches: `dev-feat01-sprint01` into `master`
- Title: Feature 01 completa.
- Description: Feature 01 completa.
- Reviewers: [cilab-vsts-git]\cilab-vsts-git Team

Buttons: Create

cilab-vsts-git

Dashboards Code Work ... Search work items

cilab-vsts-git Files Commits Pushes Branches Tags Pull Requests Fork Clone

10 **ACTIVE** Feature 01 completa.

MN Matheus Neder dev-feat01-sprint01 into master MN Approve Set auto-complete

Overview Files Updates Commits

Policies

Required
Build in progress

Work Items
No related work items

Reviewers
cilab-vsts-git Team

Description
Feature 01 completa.

Show everything

MN Add a comment...

Created by MN Matheus Neder just now

Task Groups Deployment Groups*

cilab-pull-requests-ci / Build 20170925.1 / Build

Edit build definition Cancel Queue new build... Download all logs as zip

Build Started

Build 10
Running for 19 seconds (Hosted Agent)

Console Timeline Code coverage* Tests

```

Feeds used:
  https://api.nuget.org/v3/index.json
Installed:
  25 package(s) to packages.config projects
*****
Finishing: NuGet restore
*****
Starting: Build solution
*****
Task       : Visual Studio Build
Description: Build with MSBuild and set the Visual Studio version property
Version    : 1.120.0
Author     : Microsoft Corporation
Help       : [More Information](https://go.microsoft.com/fwlink/?LinkID=613727)
*****
"D:\a\_tasks\VSBuild_71a9a2d3-a98a-4caa-96ab-affca411ecda\1.120.0\ps_modules\MSBuild\
version [15.0,16.0) -latest -format json
"D:\a\_tasks\VSBuild_71a9a2d3-a98a-4caa-96ab-affca411ecda\1.120.0\ps_modules\MSBuild\
version [15.0,16.0) -products Microsoft.VisualStudio.Product.BuildTools -latest -form
"C:\Program Files (x86)\MSBuild\14.0\bin\msbuild.exe" "d:\a\1\s\source\CiLabWebForms\
/d1:CentralLogger,"D:\a\_tasks\VSBuild_71a9a2d3-a98a-4caa-96ab-
affca411ecda\1.120.0\ps_modules\MSBuildHelpers\Microsoft.TeamFoundation.DistributedTe
  
```

- Test Assemblies
- Publish symbols path
- Publish Artifact
- Post Job Cleanup

Integração Contínua

The screenshot displays the 'Pull Requests' page for a repository named 'cilab-vsts-git'. The pull request is titled 'Feature 01 completa.' and is in an 'ACTIVE' state. It was created by 'Matheus Neder' (MN) and aims to merge the 'dev-feat01-sprint01' branch into the 'master' branch. The interface includes a top navigation bar with tabs for 'Dashboards', 'Code', 'Work', and a search bar. Below the navigation bar, there are tabs for 'Files', 'Commits', 'Pushes', 'Branches', 'Tags', and 'Pull Requests'. The 'Pull Requests' tab is selected. On the right side of the pull request header, there are buttons for 'Approve' and 'Complete', with the 'Complete' button highlighted by a red rectangle. On the left side, there is a 'Policies' section, also highlighted by a red rectangle, showing a 'Required' policy with a green checkmark and the text 'Build succeeded'. Below the 'Policies' section, there are sections for 'Work Items' (showing 'No related work items') and 'Reviewers' (showing 'cilab-vsts-git Team'). The main content area on the right contains a 'Description' box with the text 'Feature 01 completa.', a 'Show everything' dropdown, a comment box with the placeholder 'Add a comment...', and a 'Created by' section showing 'Matheus Neder' (MN) with the timestamp 'just now'.

Navigation Bar: cilab-vsts-git, Dashboards, Code, Work, Search work items

Repository: cilab-vsts-git

Pull Request: 10 ACTIVE Feature 01 completa.

Author: MN Matheus Neder

Branches: dev-feat01-sprint01 into master

Actions: Approve, Complete

Policies: Required, Build succeeded

Work Items: No related work items

Reviewers: cilab-vsts-git Team

Description: Feature 01 completa.

Comments: Add a comment...

Created by: MN Matheus Neder, just now

Description

Feature 01 completa.

Show everything

MN

Add a comment...

MN

Matheus Neder

2 minutes ago

Necessário adicionar testes unitários.

MN

Write a reply...

Resolve

2

MN

Matheus Neder pushed 1 commit creating update 2

just now

7ac744ae

Conteúdo corrigido!

matheusneder@g... just now

MN

Matheus Neder

20 minutes ago

Necessário corrigir o conteúdo da página da Feature 01. Gentileza rever a especificação da feature para maiores detalhes.

Resolved

MN

Matheus Neder

7 minutes ago

```
[TestMethod]
0 references | 0 changes | 0 authors, 0 changes | 0 exceptions
public void TestMethod1()
{
    Assert.Equals(1, 2);
}
```

Help

designer.cs

Feature01.aspx.cs

TestMethod1()

Team Explorer - Changes

Search Work Items (Ctrl+~)

Changes | cilab-vsts-git

Branch: dev-feat01-sprint01

Testes unitários adicionados.

Commit Staged

Actions

Commit Staged

Commit Staged and Push

Commit Staged and Sync

C# AssemblyInfo.cs [add]

C# CiLabWebFormsApp.Tests.csproj [add]

packages.config [add]

C# UnitTest1.cs [add]

Changes (5)

C:\temp\cilab-vsts-git\source

CiLabWebFormsApp

C# Feature01.aspx.cs *

Integração Contínua

The screenshot displays a GitHub Pull Request (PR) for the repository 'cilab-vsts-git'. The PR is titled 'Feature 01 completa.' and is in the 'ACTIVE' state. It was created by Matheus Neder, pushing from the 'dev-feat01-sprint01' branch to the 'master' branch. The PR is marked as 'All resolved' and has an 'Approve' button. A 'Set auto-complete' button is also visible.

On the left sidebar, the 'Policies' section is highlighted with a red box. It shows a 'Required' policy named 'Build in progress' with a play icon. Below this, the 'Work Items' section shows 'No related work items'. The 'Reviewers' section shows the 'cilab-vsts-git Team'.

The main content area shows the PR description 'Feature 01 completa.' and a list of comments. A red box highlights a comment by Matheus Neder stating 'Matheus Neder pushed 1 commit creating update 3' with the commit hash 'f2b78da7' and the message 'Testes unitários adicionados.' The comment is dated 'just now'.

Below the highlighted comment, there is a comment from Matheus Neder dated '7 minutes ago' stating 'Necessário adicionar testes unitários.' This comment is marked as 'Resolved'. Below this, another comment from Matheus Neder dated 'just now' states 'Correção realizada no commit f2b78da7'. A 'Reactivate' button is visible at the bottom of the comments section.

Integração Contínua

The screenshot displays the Azure DevOps interface for a build named 'cilab-pull-requests-ci / Build 20170925.4'. The build status is 'Build failed'. The left sidebar shows the build steps, with 'Test Assemblies' highlighted in red. The main area shows the build summary, including a bar chart indicating the build failed. The 'Tests' tab is active, showing a table of test results. The table has columns for 'Test', 'Failing since', 'Failing build', and 'Duration'. The first row shows '0/1 Passed - VSTest Test Run release any...' with a duration of 0:00:00.096. The second row shows 'TestMethod1' with a duration of 0:00:00.096. The 'TestMethod1' row is highlighted in red. To the right of the table, the details for 'TestMethod1' are shown, including the error message: 'Assert.Fail failed. Assert.Equals should not be used for Assertions. Please use Assert.AreEqual & overloads instead.' and the stack trace: 'at CiLabWebFormsApp.Tests.UnitTest1.TestMethod1() in'.

Build failed

Build 20170925.4 %
Ran for 71 seconds (Hosted), completed 102 seconds ago

Summary Timeline Artifacts Code coverage* Tests

Total tests 1 (+1) Failed tests 1 (+1) Pass percentage 0% (+0%) Run duration 316ms (+316ms) Test failures Test duration

Test

Test	Failing since	Failing build	Duration
0/1 Passed - VSTest Test Run release any...			0:00:00.096
TestMethod1 New	2 minutes ago	Current build	0:00:00.096

TestMethod1
Failed on FACTORYVM-AZ177
Duration 0:00:00.096, 2 minutes ago
[View History](#)

Error message

Assert.Fail failed. Assert.Equals should not be used for Assertions. Please use Assert.AreEqual & overloads instead.

Stack trace

at CiLabWebFormsApp.Tests.UnitTest1.TestMethod1() in

Attachments (0)
No attachments

Bugs (0)
No linked bugs

Integração Contínua

The screenshot displays the Azure DevOps interface for a pull request. The top navigation bar includes tabs for 'Dashboards', 'Code', 'Work', 'Build and Release', and a search bar. The pull request is titled '10 ACTIVE Feature 01 completa.' and is being merged from 'dev-feat01-sprint01' into 'master'. The 'Policies' section on the left shows a required policy 'Build succeeded' with a green checkmark. The 'Description' section contains the text 'Feature 01 completa.' and a list of comments and approvals. A dropdown menu is open next to the 'Complete' button, showing options: 'Complete', 'Set auto-complete', and 'Abandon'. A red box highlights the 'Complete' option. A dialog box titled 'Complete pull request' is open in the foreground, showing the merged PR text 'Merged PR 10: Feature 01 completa.' and the description 'Feature 01 completa.'. The dialog includes checkboxes for 'Complete linked work items after merging' (unchecked), 'Delete dev-feat01-sprint01 after merging' (checked), and 'Squash changes when merging' (unchecked). A red box highlights the 'Delete dev-feat01-sprint01 after merging' checkbox. The 'Complete merge' button is highlighted with a red box.

cilab-vsts-git

Dashboards Code Work Build and Release

Search work items

cilab-vsts-git Files Commits Pushes Branches Tags Pull Requests Fork Clone

10 ACTIVE Feature 01 completa.

Matheus Neder dev-feat01-sprint01 into master

All resolved Approve Complete

Overview Files Updates Commits

Policies

Required

Build succeeded

Work Items

No related work items

Reviewers

cilab-vsts-git Team via Matheus Neder

Matheus Neder Approved

Description

Feature 01 completa.

Show everything

Add a comment...

Approved by Matheus Neder

Matheus Neder joined as a reviewer

Matheus Neder pushed 1 commit

3ac38c54 Teste corrigido.

Matheus Neder pushed 1 commit

Complete pull request

Merged PR 10: Feature 01 completa.

Feature 01 completa.

Complete linked work items after merging

Delete dev-feat01-sprint01 after merging

Squash changes when merging Learn more

Complete merge Cancel

Integração Contínua

The screenshot shows the Azure DevOps interface for the repository 'cilab-vsts-git'. The 'master' branch is selected. The commit history is displayed in a table with columns: Graph, Commit, Message, Author, and Authored Date. A red box highlights the last six commits, which are all authored by 'matheusneder@g...'. The commits show a sequence of updates: 'Initial commit.', 'Feature 01 completa.', 'Conteúdo corrigido!', 'Testes unitários adicionados.', 'Incluído projeto de testes na Solution.', and 'Teste corrigido.', followed by a merge of PR 10.

Graph	Commit	Message	Author	Authored Date
	fbfdcce2	Merged PR 10: Feature 01 completa.	Matheus Neder	2 minutes ago
	3ac38c54	Teste corrigido.	matheusneder@g...	8 minutes ago
	ac8bfe7d	Incluído projeto de testes na Solution.	matheusneder@g...	21 minutes ago
	f2b78da7	Testes unitários adicionados.	matheusneder@g...	25 minutes ago
	7ac744ae	Conteúdo corrigido!	matheusneder@g...	44 minutes ago
	08faa254	Feature 01 completa.	matheusneder@g...	an hour ago
	cfc9031	Initial commit.	matheusneder@g...	5 hours ago