Continuous Integration 101

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Agenda

- What is Continuous Integration?
- What are the barriers to entry?
- So why would we want to use this?
- What is TeamCity?
- How do I get started with TeamCity?
- What is psake?
- How do I get started with TeamCity and psake?

Source Code

http://gep13.me/CIDemos

Who here currently uses Continuous Integration?

What is Continuous Integration?

A Definition…

"Continuous Integration is a software development practice where members of a team integrate their work frequently, usually each person integrates at least daily – ***leading to multiple integrations per day***. Each integration is verified by an automated build (including test) to detect integration errors as quickly as possible. Many teams find that this approach leads to significantly reduced integration problems and allows a team to develop cohesive software more rapidly."

Reference

- http://www.martinfowler.com/articles/continuousIntegration.html

Another Definition…

"CI is the embodiment of tactics that gives us, as software developers, the ability to make changes in our code, ***knowing that if we break software, we'll receive immediate feedback***… [It is] the centrepiece of software development, as it ensures the health of software through running a build with every change."

Reference

- "Continuous Integration" – Paul Duval, Addison-Wesley, 2007

What does all that mean?

Jenkins

go

cruisecontrol

TeamCity

http://en.wikipedia.org/wiki/Continuous_integration

What are the barriers to entry?

Typical reasons to not implement Continuous Integration

- It means increased maintenance
- This is too much change too fast
- It means additional hardware and software costs
- Developers should compiling and testing
- The project is too far along to add it

So, why would we want to use this?

So why would I want to implement Continuous Integration?

- Immediate feedback when there is a problem
- Reduced Risks
- Increased project visibility i.e. problems, roadblocks, current status, etc
- It is the first building block towards Deployable software (Continuous Delivery and Continuous Deployment)

What is TeamCity?

Note: I am not an affiliate of JetBrains, I just really like their products. My views are my own.

A Definition…

"TeamCity is a closed source, Java-based build management and Continuous Integration server from JetBrains"

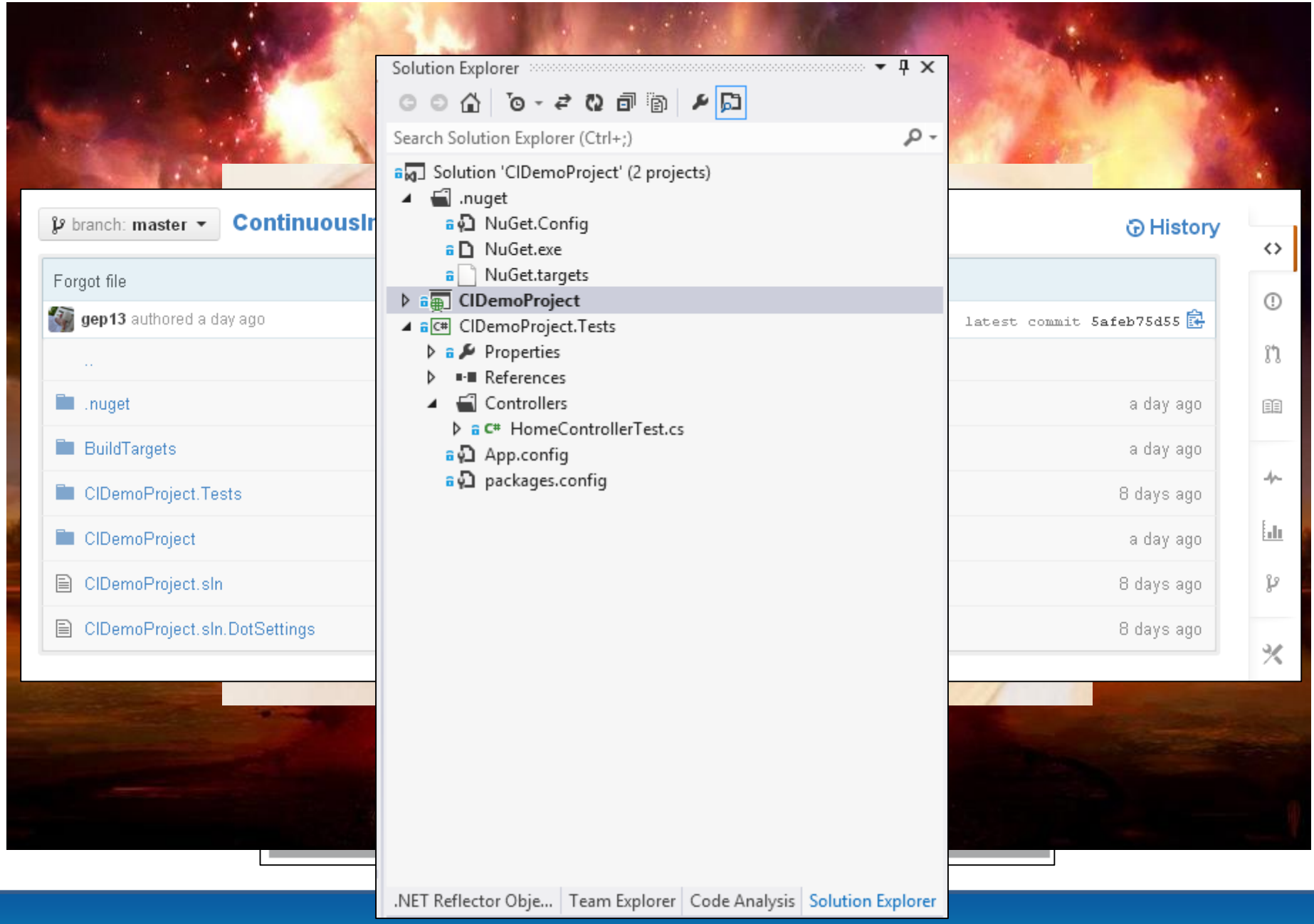
Reference

- http://en.wikipedia.org/wiki/TeamCity
- http://www.jetbrains.com/teamcity/

Notable Features

- You can perform gated commits to your source control system
- Allows running multiple builds and tests under different environments simultaneously
- Integrated code coverage, inspections, and duplicates search
- Integration with IDEs
- It’s FREE! (Up to a point, at which point there is commercial license)

How do I get started with TeamCity?


Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'CIDemoProject' (2 projects)
.nuget
NuGet.Config
NuGet.exe
NuGet.targets
CIDemoProject
CIDemoProject.Tests
Properties
References
Controllers
HomeControllerTest.cs
App.config
packages.config
.NET Reflector Obje...
Team Explorer
Code Analysis
Solution Explorer
branch: master
History
Forgot file
gep13 authored a day ago
latest commit 5afeb75d55
.nuget
BuildTargets
CIDemoProject.Tests
CIDemoProject
CIDemoProject.sln
CIDemoProject.sln.DotSettings
a day ago
a day ago
8 days ago
a day ago
8 days ago
8 days ago

Demo 1

Adding Continuous Integration to an ASP.NET MVC Project

What is psake?

A Definition…

"psake is a domain-specific language and build automation tool written in Powershell to create builds using a dependency pattern similar to Rake or MSBuild"

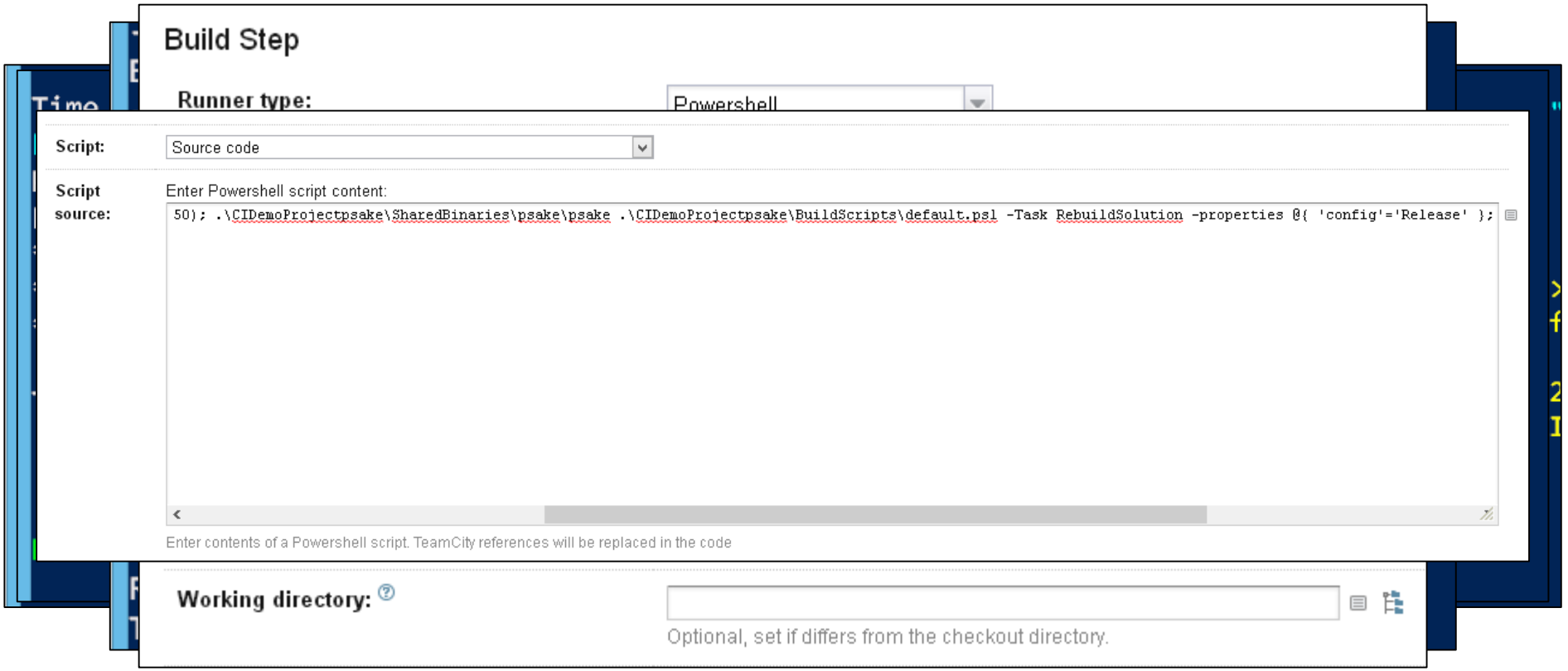
Reference

- http://en.wikipedia.org/wiki/Psake
- https://github.com/psake/psake

```xml
<Project xmlns="http://schemas.microsoft.com/developer/msbuild/2003">
  <PropertyGroup Condition="$(Configuration) == 'Release'">
    <DebugSymbols>false</DebugSymbols>
    <DebugType />
    <OutputPath>Bin/Release</OutputPath>
  </PropertyGroup>

  <ItemGroup>
    <Compile Include="Program.cs" />
  </ItemGroup>

  <Target Name="Rebuild" DependsOnTargets="Clear;Build">
  </Target>
```

```
  $psake.use_exit_on_error = $true

properties {
        $config = 'Debug';
        $base_dir = Resolve-Path .
        $sln_file = '$base_dirWindowsFormsApplication.sln'
        $output_dir = Join-Path -Path $base_dir -ChildPath "output" | Resolve-Path
}

 Task -Name Default -Depends Clear, Build -Description "Clears all build artifacts and builds the solution"

Task -Name Clear -Description "Clears all build artifacts" -Action {
    Remove-Item $output_dir -Recurse -Force
}

Task -Name Build -Description "Builds the solution file" -Action {
    if(!(Test-Path $output_dir)) {
        New-Item $output_dir
    }

    exec {
        msbuild $sln_file /t:Clean /p:Configuration=$config
    }
}
```

How do I get started with TeamCity and psake?


Build Step
Runner type:
Powershell
Script:
Source code
Script source:
Enter Powershell script content:
50); .\CIDemoProjectpsake\SharedBinaries\psake\psake .\CIDemoProjectpsake\BuildScripts\default.psl -Task RebuildSolution -properties @{ 'config'='Release' };
Enter contents of a Powershell script. TeamCity references will be replaced in the code
Working directory:
Optional, set if differs from the checkout directory.

Demo 2

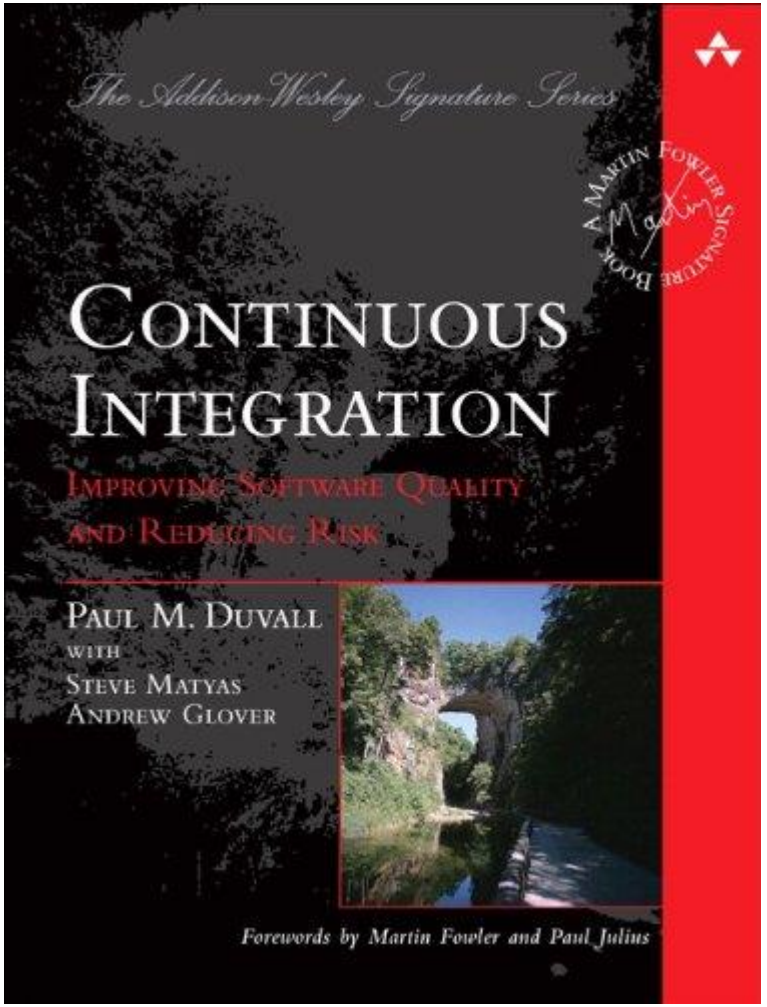
Adding Continuous Integration to an ASP.NET MVC Project using psake

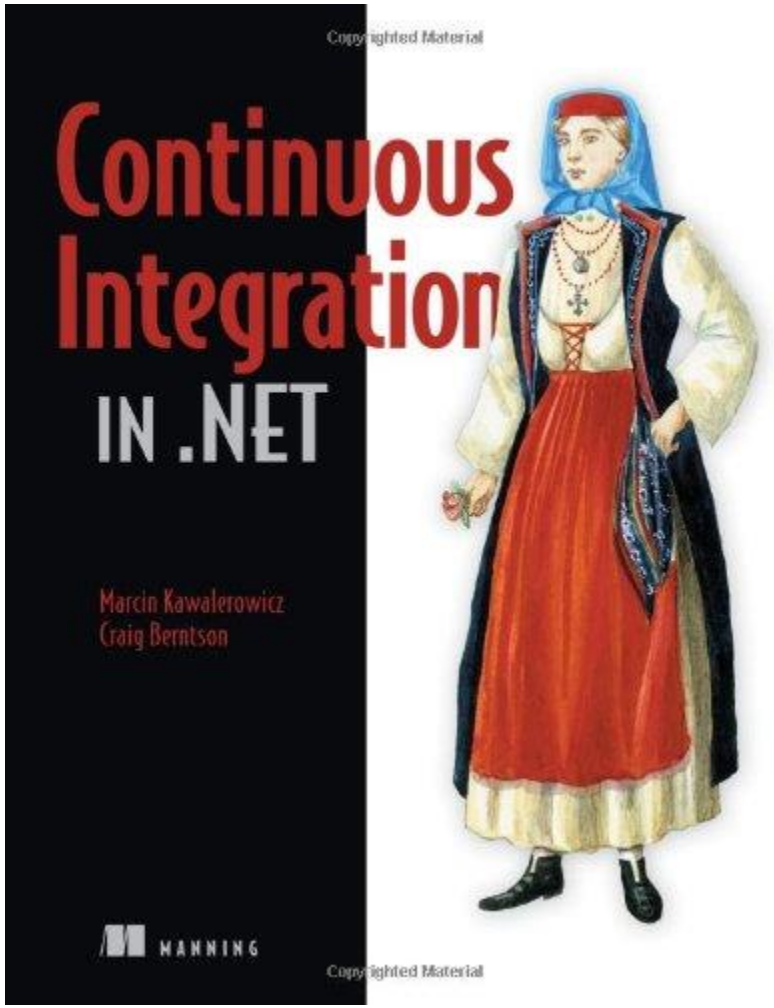
“Continuous Integration: Improving Software Quality and Reducing Risk”

- Martin Fowler Signature Books

Paul M. Duvall

http://gep13.me/cibook1





"Continuous Integration in .Net"
- Manning

Marcin Kawalerowicz and Craig Berntson

http://gep13.me/cibook2

Questions?

Feel free to email me any additional questions at

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