

Hands-on Lab 2.3: Configuring the Pipeline

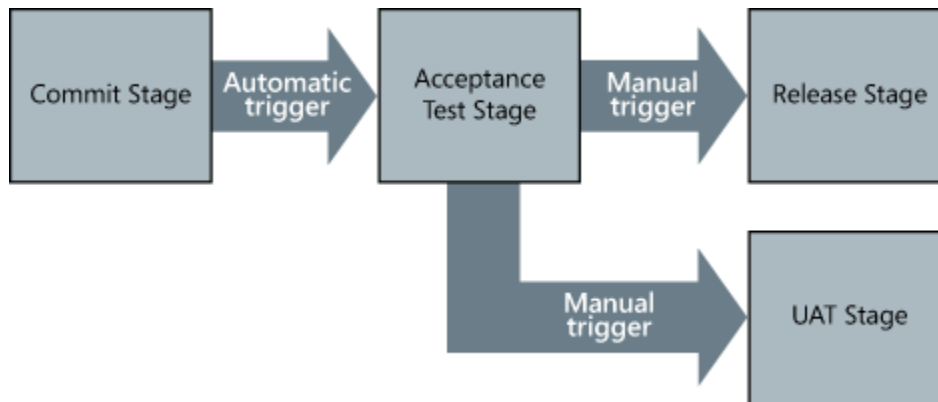


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Objectives

In parts one and two of the Orchestration HOL you orchestrated the pipeline. In part three you configure what will be an actual running instances of a pipeline that has a commit stage, an acceptance test stage, a release stage and a user acceptance test (UAT) stage. Here is the structure of the pipeline.



The commit stage automatically triggers the acceptance test stage. The release stage and the UAT stage are manually triggered.

Prerequisites

Here are the prerequisites for completing this lab.

- Complete Lab-2.2 Orchestrating the Remaining Stages.
- You will need [Microsoft Visual Studio Team Foundation Server 2013 Power Tools](#).

Note: The Power Tools may not be included on the Brian Keller VM.

Time

You should be able to complete this lab in about 40 minutes.

Exercise 1: Add the Customized Build Templates to the Project

In this exercise you add the workflow build templates that you created in the previous two labs to the project and check them in to TFS.

Task 1: Locate the Files

1. Navigate to Lab02_Orchestration\Start-Lab\TreyResearchBuildCustomization\TreyResearchBuildCustomization.
 2. Locate the following two workflow files:
 - Start_CDPipelineCommitStageProcessTemplate.xaml
 - Start_CDPipelineGenericStageProcessTemplate.xaml
-

Task 2: Copy and Rename the Files

1. Select and copy the two workflow files.
 2. Navigate to the \BuildProcessTemplates folder that was created when you created the TreyResearch team project in Lab 1.
 3. Paste the files into the folder.
 4. Rename Start_CDPipelineCommitStageProcessTemplate.xaml to CDPipelineCommitStageProcessTemplate.xaml.
 5. Rename Start_CDPipelineGenericStageProcessTemplate.xaml to CDPipelineGenericStageProcessTemplate.xaml.
 6. Check in the two xaml files to TFS.
-

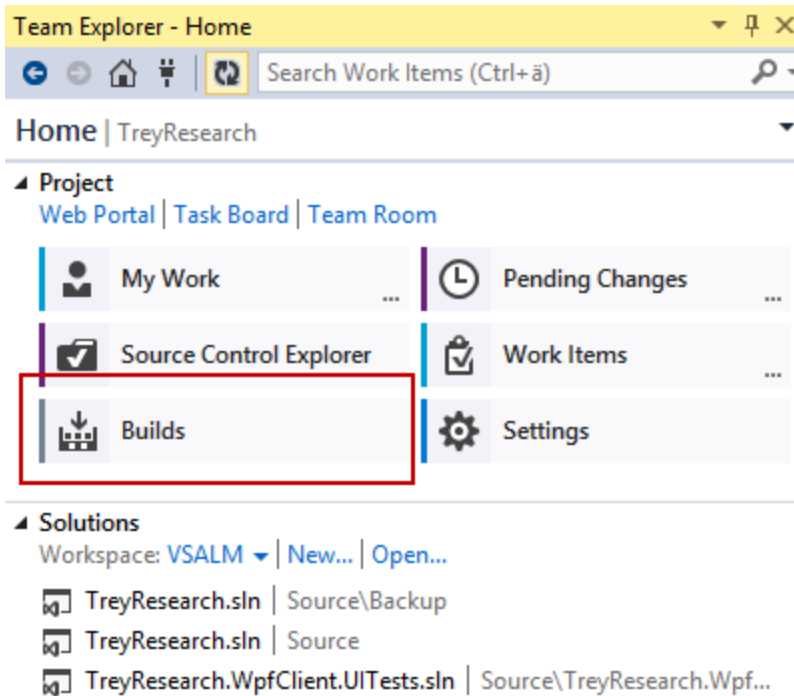
Exercise 2: Creating the Commit Stage for a Pipeline Instance

In this exercise you create the build definition for a particular commit stage that belongs to a particular pipeline instance.

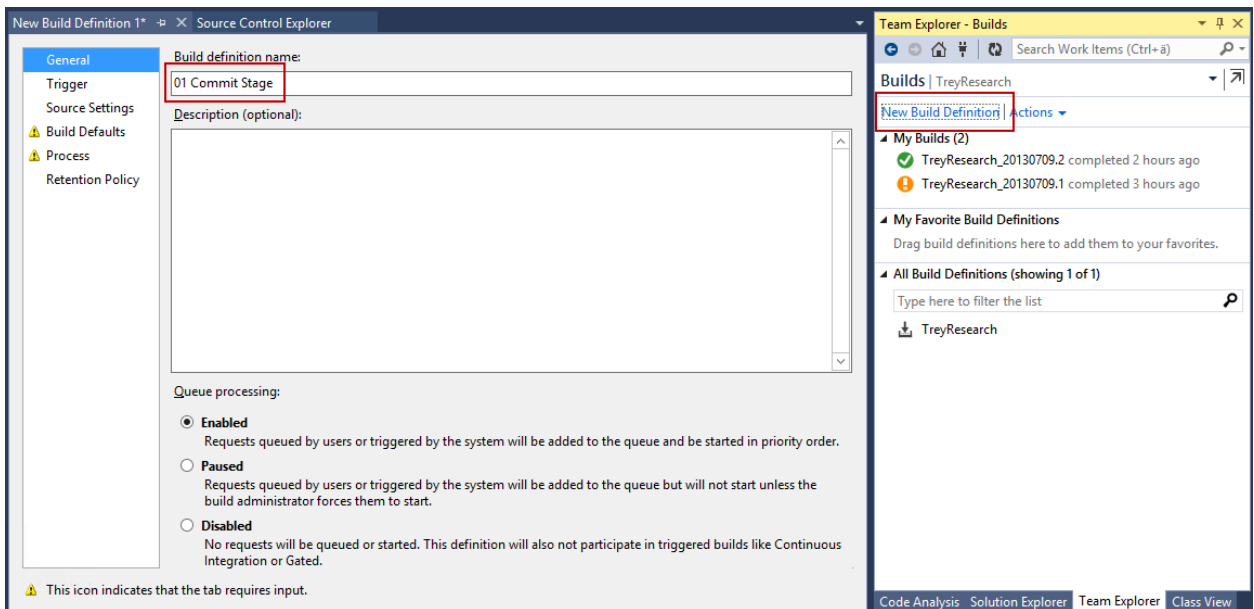
Task 1: Create the 01 Commit Stage Build Definition

In this task you create a build definition for a commit stage named 01 Commit Stage.

1. Open Visual Studio. In Team Explorer, go to the **Builds** pane.



2. Click **New Build Definition**. A new build definition appears. Name it **01 Commit Stage**.



Task 2: Set the Check-in Trigger

In this task you set the type of check-in that triggers a build.

1. Select the **Trigger** tab in the build definition.

2. Select **Continuous Integration – Build each check-in**.

01 Commit Stage* [icon] [X]

General
Trigger
Source Settings
Build Defaults
Process
Retention Policy

Select one of the following triggers:

- ☐ Manual - Check-ins do not trigger a new build
- ☒ Continuous Integration - Build each check-in
- ☐ Rolling builds - accumulate check-ins until the prior build finishes
 - ☐ Build no more often than every [] minutes.
- ☐ Gated Check-in - accept check-ins only if the submitted changes merge and build successfully
 - ☐ Merge and build up to [] submissions.
- ☐ Schedule - build every week on the following days
 - ☒ måndag ☒ tisdag ☒ onsdag ☒ torsdag ☒ fredag ☐ lördag ☐ söndag

Queue the build on the build controller at:
03:00 [v] Pacific Daylight Time (UTC -07:00)

☐ Build even if nothing has changed since the previous build

Task 3: Set the Working Folder

In this task you specify the folders to include in the build.

1. In the build definition, click the **Source Settings** tab.
2. In the **Active** row, set the source control folder to match the text highlighted in red in the following screenshot.

01 Commit Stage* [icon] [X]

General
Trigger
Source Settings
Build Defaults
Process
Retention Policy

Working folders:

Status	Source Control Folder	Build Agent Folder
Active	\$/TreyResearch/Source	\$(SourceDir)
Click here to enter a new working folder		

Task 4: Set the Build Controller and Drop Location

1. Click the **Build Defaults** tab.
2. In the **Build Controller** combo box, select the name of the build controller that you want to use for this build definition.

3. Under **Staging location**, select **Copy build output to the following drop folder (UNC path, such as \\vsalm\ffdrops\Lab02_Orchestration)**.
4. In the text box, enter the name of the drop folder. This is where the commit stage will place the binaries.

01 Commit Stage

General
Trigger
Source Settings
Build Defaults
Process
Retention Policy

Specify the build controller and staging location for this build definition. These selections may be modified by the person queuing the build.

Build controller:
VSALM - Controller

Description:

Staging location:
☐ This build does not copy output files to a drop folder
☒ Copy build output to the following drop folder (UNC path, such as \\server\share):
\\vsalm\ffdrops\Lab02_Orchestration
☐ Copy build output to the server

Task 5: Select the Build Process template

In this task you select the correct build process template.

1. Click the **Process** tab.
2. Change the build process template from the default template to **CDPipelineCommitStageProcessTemplate.xaml**. Look for it in the combo box named **Build process file (Windows Workflow XAML)**. If the template is there, select it.

01 Commit Stage* Source Control Explorer

General
Trigger
Source Settings
Build Defaults
Process
Retention Policy

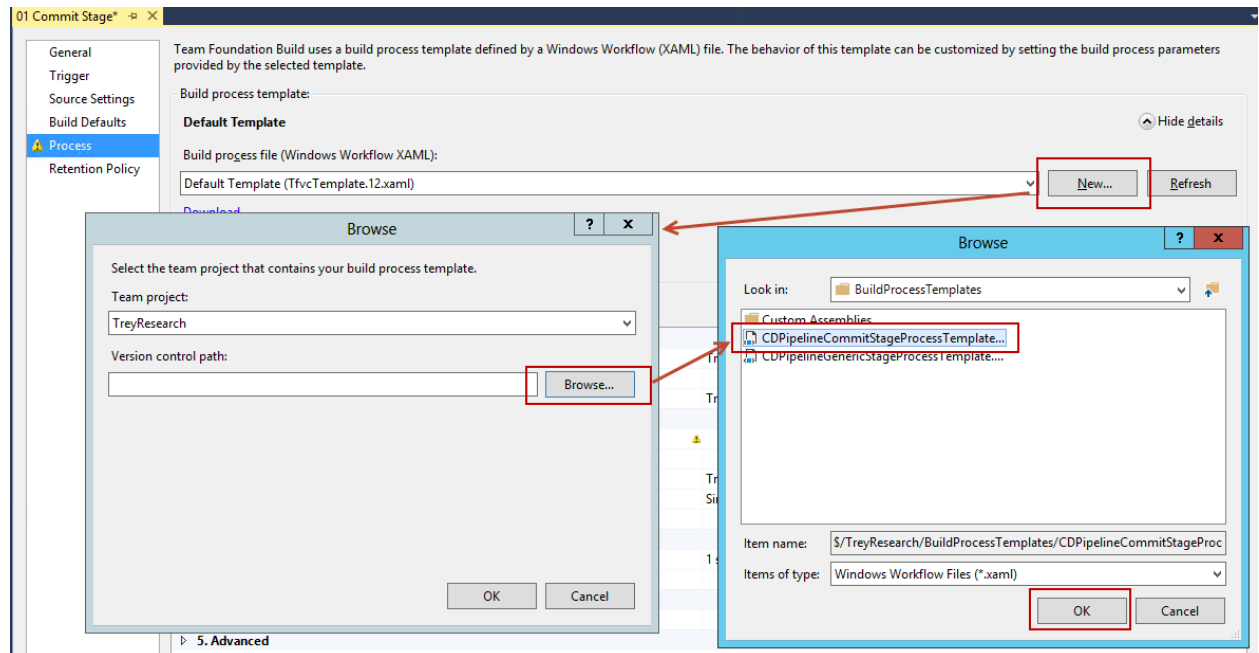
Team Foundation Build uses a build process template defined by a Windows Workflow (XAML) file. The behavior of this template can be customized by setting the build process parameters provided by the selected template.

Build process template:
CDPipelineCommitStageProcessTemplate.xaml Hide details

Build process file (Windows Workflow XAML):
CDPipelineCommitStageProcessTemplate.xaml
Default Template (DefaultTemplate.11.1.xaml)
Upgrade Template (UpgradeTemplate.xaml)
CDPipelineCommitStageProcessTemplate.xaml
LabDefaultTemplate.11.xaml
NewBuildProcessTemplate.xaml

Build process parameters:

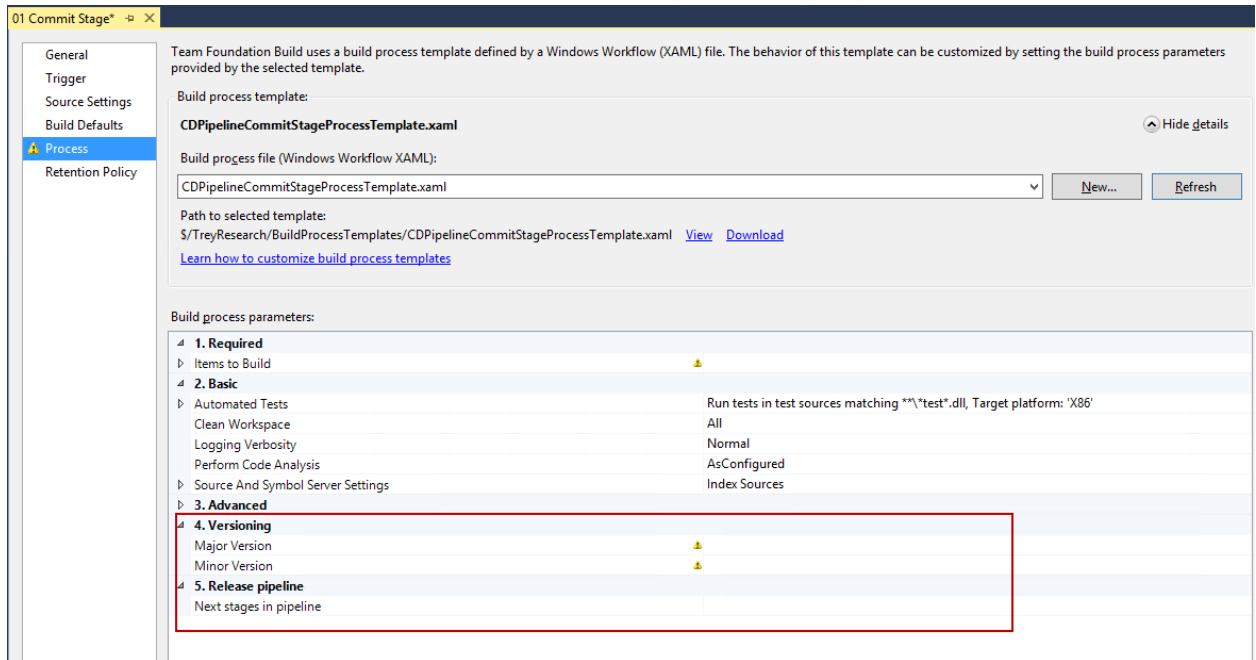
3. If the template isn't available, click **New**. The **New Build Process Template Editor** opens.
4. Click **Browse**.
5. Browse to the **CDPipelineCommitStageProcessTemplate.xaml** file. Select it.
6. Click **OK**. Wait for the template to load.



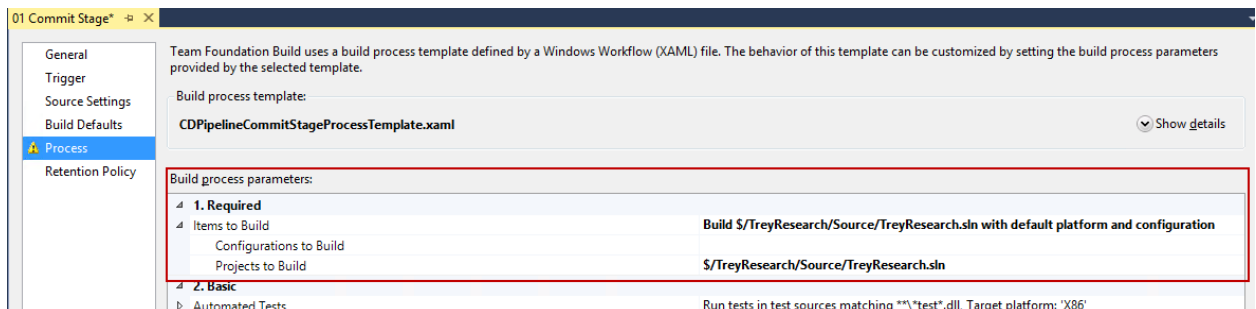
Task 6: Set the Build Process Parameters

In this task you set various build process parameters such as the items to build, the configurations to build, and the MSBuild platform to use.

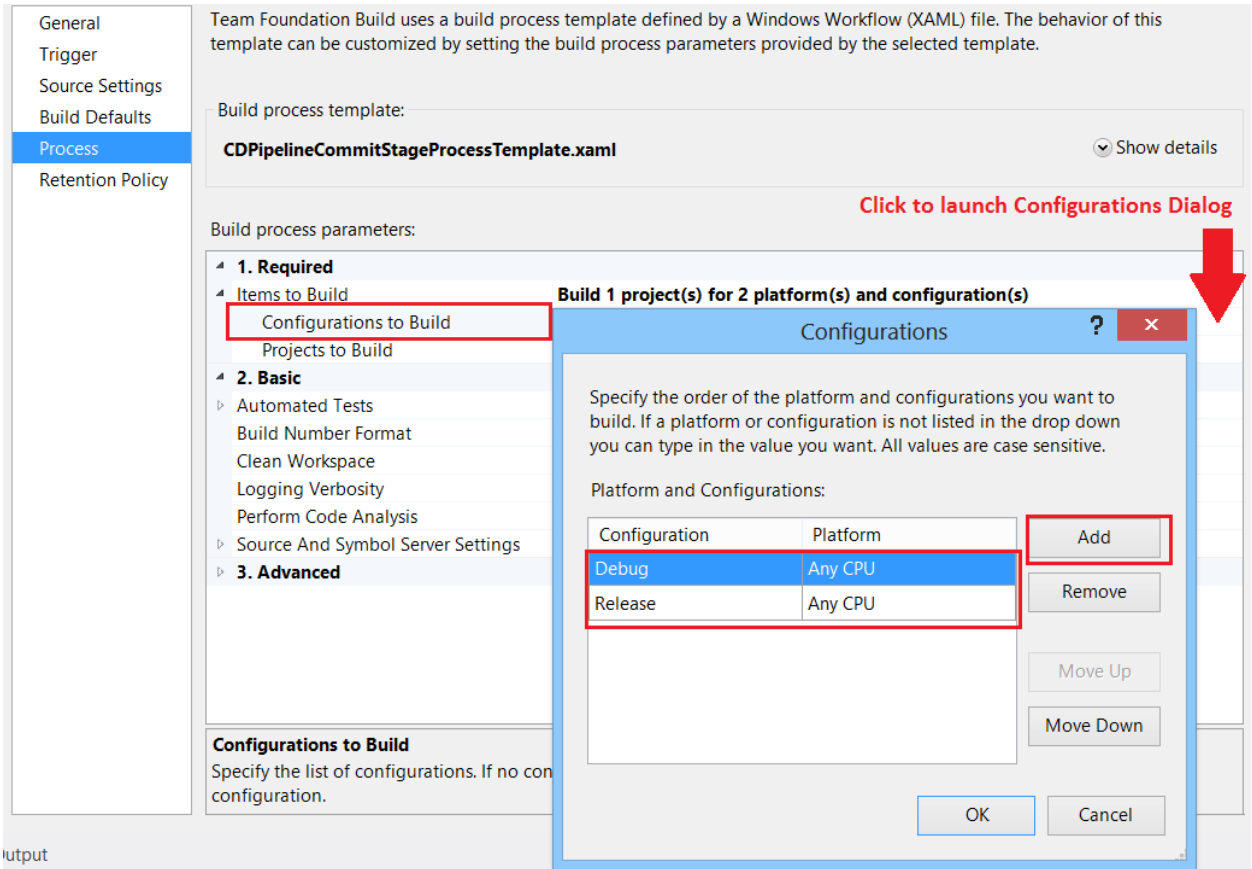
1. Notice that the **Versioning** section contains the arguments you created in Lab2.1 Orchestrating the Commit Stage.



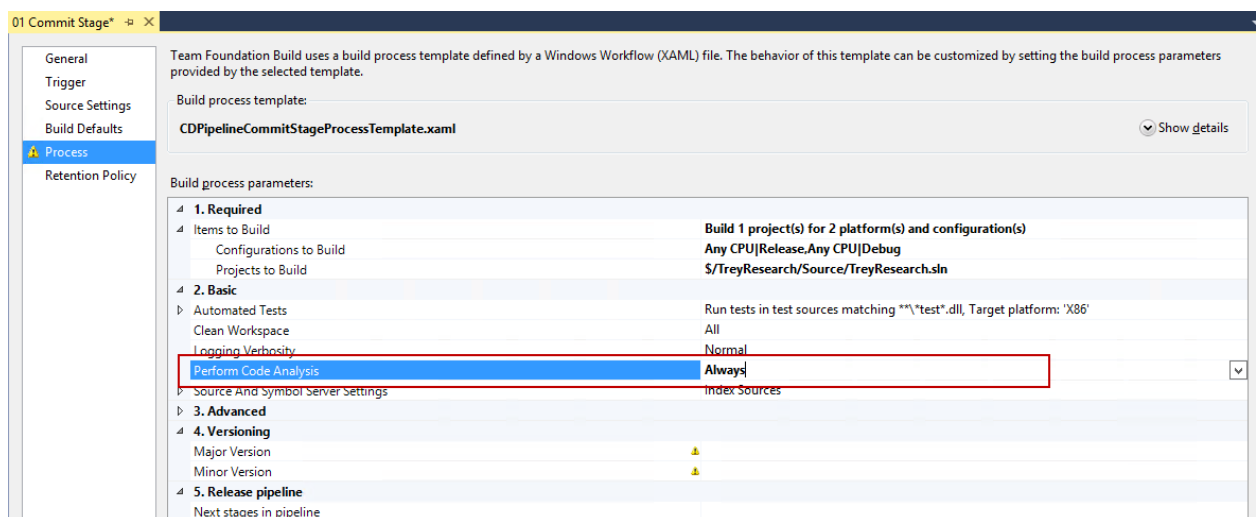
- Go to the **Required** section of **Build process parameters**. For **Items to Build**, browse to **TreyResearch.sln** and select it.



- Click the **ellipses (...)** in the **Configurations to Build** row. The **Configurations** dialog box appears.
- In the Configuration column, Click **Add**. Select **Release**. Set platform to **Any CPU**.
- (Optional) Click **Add**. Select **Debug**. The debug configuration is only used to investigate problems with the application.
- Click **OK**.



- Go to the **Basic** section of **Build process parameters**. Set the **Perform Code Analysis** parameter to **Always**. Performing code analysis in the commit stage is, in general, a good practice to follow.



8. (Only if you are implementing the Advanced Phone options) Go to the **Advanced** section of **Build process parameters**. Set the **MSBuild Platform** parameter to **X86**. This setting is required to support the Windows Phone 8 component of the Trey Research application.

01 Commit Stage* X

General
Trigger
Source Settings
Build Defaults
Process
Retention Policy

Team Foundation Build uses a build process template defined by a Windows Workflow (XAML) file. The behavior of this template can be customized by setting the build process parameters provided by the selected template.

Build process template:
CDPipelineCommitStageProcessTemplate.xaml Show details

Build process parameters:

Projects to Build	
2. Basic	
Automated Tests	Run tests in test sources matching "***test*.dll, Target platform: 'X86'
Clean Workspace	All
Logging Verbosity	Normal
Perform Code Analysis	Always
Source And Symbol Server Settings	Index Sources
3. Advanced	
Agent Settings	Use agent where Name=* and Tags is empty; Max Wait Time: 04:00:00
Analyze Test Impact	True
Associate Changesets and Work Items	True
Create Work Item on Failure	True
Disable Tests	False
Get Version	
Label Sources	True
MSBuild Arguments	
MSBuild Multi-Proc	True
MSBuild Platform	X86
Private Drop Location	
Solution Specific Build Outputs	False
4. Versioning	

9. Go to the **Versioning** section of **Build process parameters**. Set both the **Major Version** and **Minor Version** parameters to **0**.

01 Commit Stage* X

General
Trigger
Source Settings
Build Defaults
Process
Retention Policy

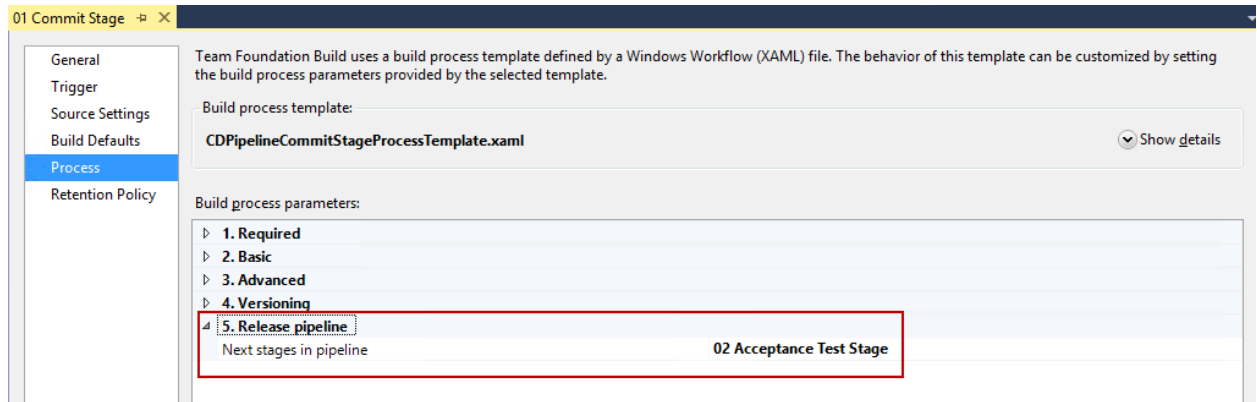
Team Foundation Build uses a build process template defined by a Windows Workflow (XAML) file. The behavior of this template can be customized by setting the build process parameters provided by the selected template.

Build process template:
CDPipelineCommitStageProcessTemplate.xaml Show details

Build process parameters:

1. Required	
2. Basic	
3. Advanced	
4. Versioning	
Major Version	0
Minor Version	0
5. Release pipeline	

10. Go to the **Release Pipeline** section of **Build process parameters**. For the parameter array **Next stages in pipeline**, under **String[] Array**, add **02 Acceptance Test Stage**. This is the next stage of the pipeline.



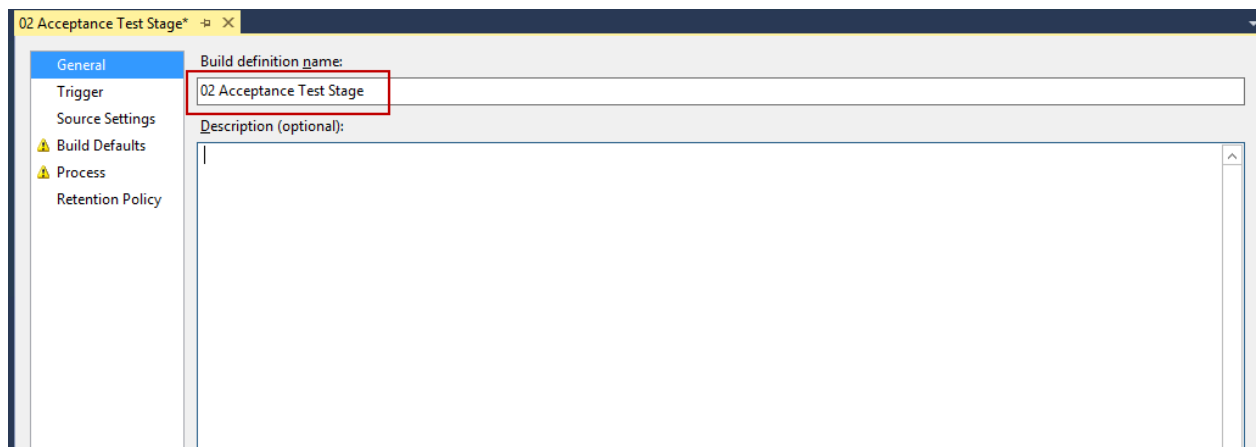
11. Save your work.

Exercise 3: Creating the Acceptance Test Stage for a Pipeline Instance

In this exercise you create a build definition for a particular acceptance test stage that belongs to a particular pipeline instance.

Task 1: Create the 02 Acceptance Test Stage Build Definition

1. Create a new build definition and name it **02 Acceptance Test Stage**. You can follow the same steps that you used in exercise 2, task 1. The following screen shot shows the **General** tab of the build definition.



2. In the commit stage the **Trigger** and **Source** were explicitly set. For this stage nothing needs to change in the **Trigger** and **Source Settings** tabs. The acceptance test stage uses the default setting of **Manual** and uses the source settings that you already configured.

Task 2: Change the Build Defaults

In this task you change the staging location.

1. Select the **Build Defaults** tab.
2. For **Staging location**, select **This build does not copy output files to a drop folder**.

The screenshot shows the '02 Acceptance Test Stage' configuration window with the 'Build Defaults' tab selected. The 'Build controller' is set to 'VSALM - Controller'. The 'Staging location' section has three radio button options: 'This build does not copy output files to a drop folder' (which is selected and highlighted with a red box), 'Copy build output to the following drop folder (UNC path, such as \\server\share):' (with an empty text field below it), and 'Copy build output to the server'.

Task 3: Select the Build Process Template

In this task you select the correct build process template.

1. Select the **Process** tab.
2. Change the build process template from the default template to **CDPipelineGenericStageProcessTemplate.xaml**. You can follow the same steps that you used in exercise 2, task 5. The following screenshot shows the **Process** tab of the build definition.

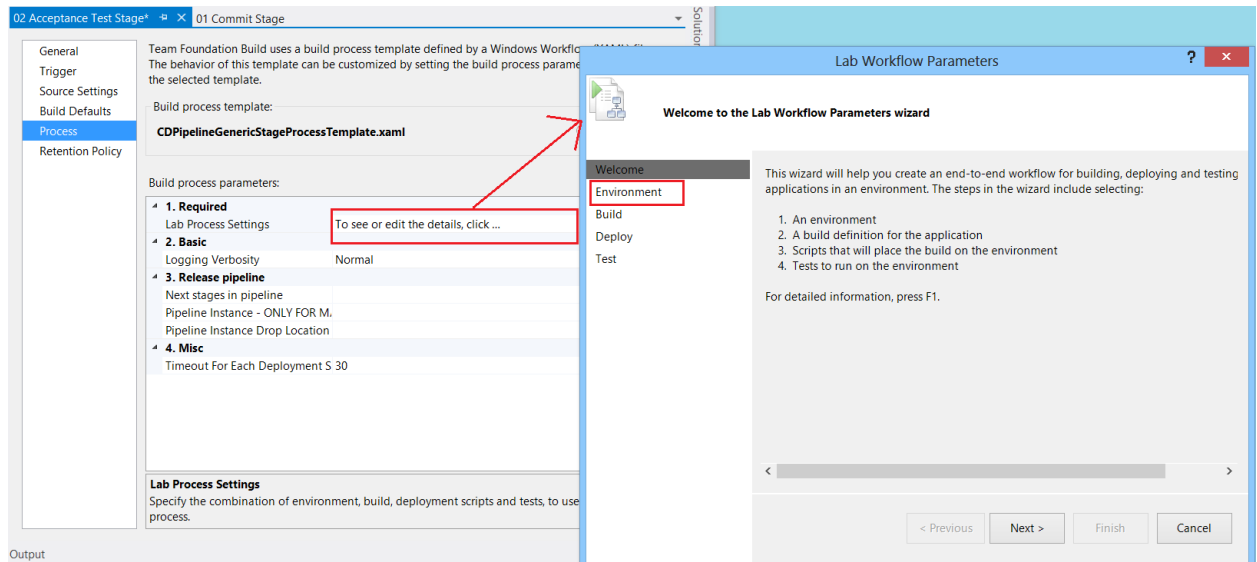
The screenshot shows the '02 Acceptance Test Stage' configuration window with the 'Process' tab selected. The 'Build process template' is set to 'CDPipelineGenericStageProcessTemplate.xaml' (highlighted with a red box). Below this, the 'Build process parameters' section is expanded, showing a table of parameters. The parameters are grouped into four sections: 1. Required, 2. Basic, 3. Release pipeline, and 4. Misc. The 'Release pipeline' section is expanded, showing 'Next stages in pipeline', 'Pipeline Instance - ONLY FOR MANUALLY TRIGGERED STAGES', and 'Pipeline Instance Drop Location - ONLY FOR MANUALLY TRIGGERED STAG'. The 'Misc' section shows 'Timeout For Each Deployment Script (in Minutes)' set to 30.

Build process parameters:	
1. Required	
Lab Process Settings	To see or edit the details, click ...
2. Basic	
Logging Verbosity	Normal
3. Release pipeline	
Next stages in pipeline	
Pipeline Instance - ONLY FOR MANUALLY TRIGGERED STAGES	
Pipeline Instance Drop Location - ONLY FOR MANUALLY TRIGGERED STAG	
4. Misc	
Timeout For Each Deployment Script (in Minutes)	30

Task 4: Set the Build Process Parameters

In this task you set various build process parameters such as the test environment and the versioning values.

1. Select the **Process** tab. In the **Required** section, click the ellipses (...). The **Lab Workflow Parameters** wizard opens. Click **Next**.



- Add the test environment. (To set up a new environment in Lab Management refer to **Lab 1 – StartingPoint**, exercise 5. If there is no environment, the acceptance test stage throws an error.) Click **Next**.

Note: For more information on creating lab environments see [Creating Lab Environments](#).

Lab Workflow Parameters

Specify the environment where the application is deployed

Welcome

Environment

Build

Deploy

Test

Environment name: Testing+Staging+Production

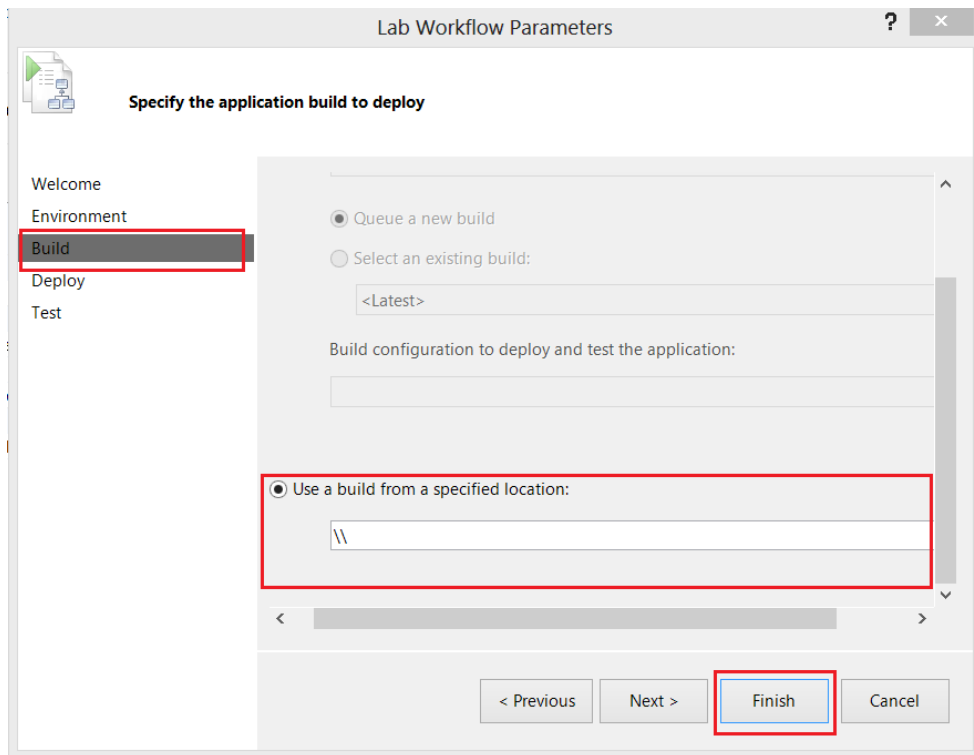
☐ Revert to a specific snapshot of the environment

Snapshot name: ...

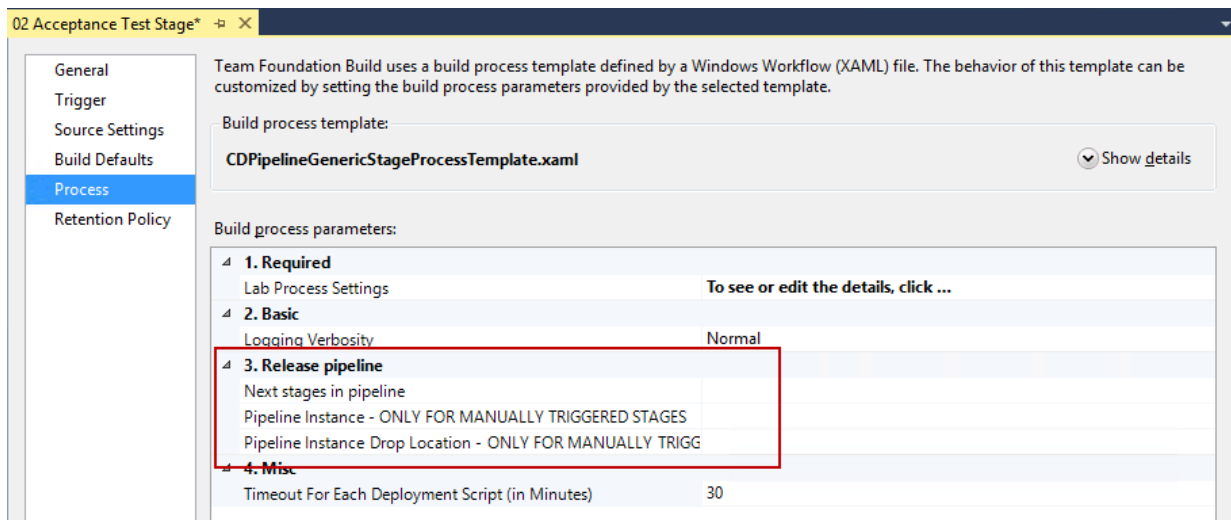
i This option is available only for virtual environments.

< Previous Next > Finish Cancel

2. The **Build** tab should be selected. Select **Use a build from a specified location**. Provide a fake value for the parameter. The parameter isn't actually used. Click **Finish**. Save your work.



You have now configured the acceptance test stage. Because this stage uses the default **Manual** setting, the build location is passed as a parameter from the commit stage. Because the stages that follow the acceptance test stage are manually triggered, the **Next stages in pipeline** parameter is left empty for now.



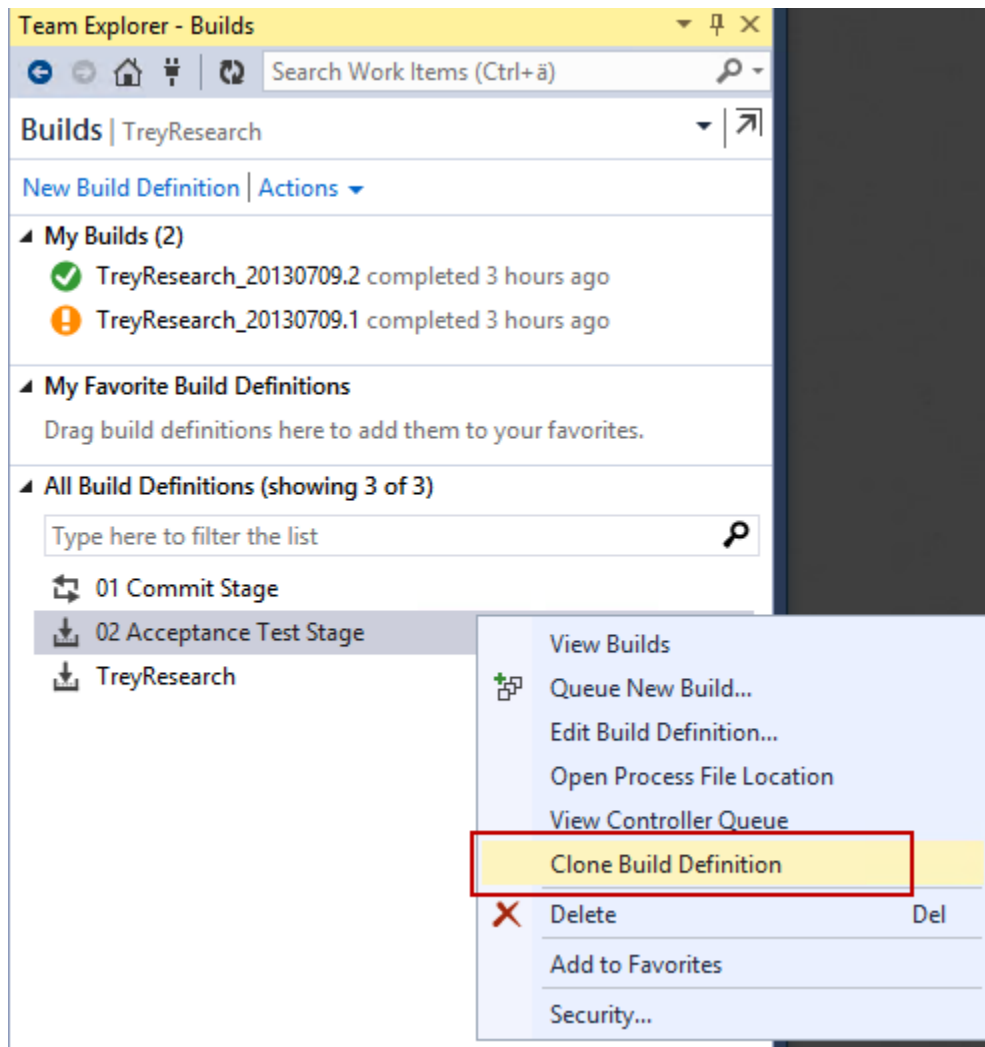
Exercise 4: Adding the Manual Stages

In this exercise you add the release stage and the UAT stage. They are both manually triggered. These stages are configured the same way as the 02 Acceptance Test Stage, so you can clone them from that build definition.

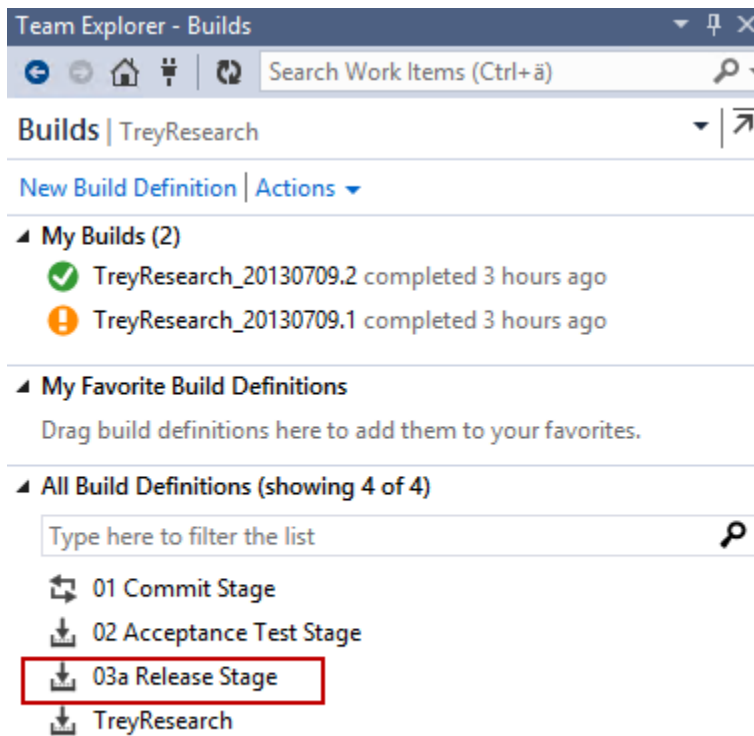
Task 1: Add the Manual Stage 03a Release Stage

In this task you add the definition for the release stage. You do this by using **Clone Build Definition**, which is included in Team Foundation Server 2012 Power Tools.

1. Right-click on the build definition named 02 Acceptance Test Stage. Click **Clone Build Definition**.



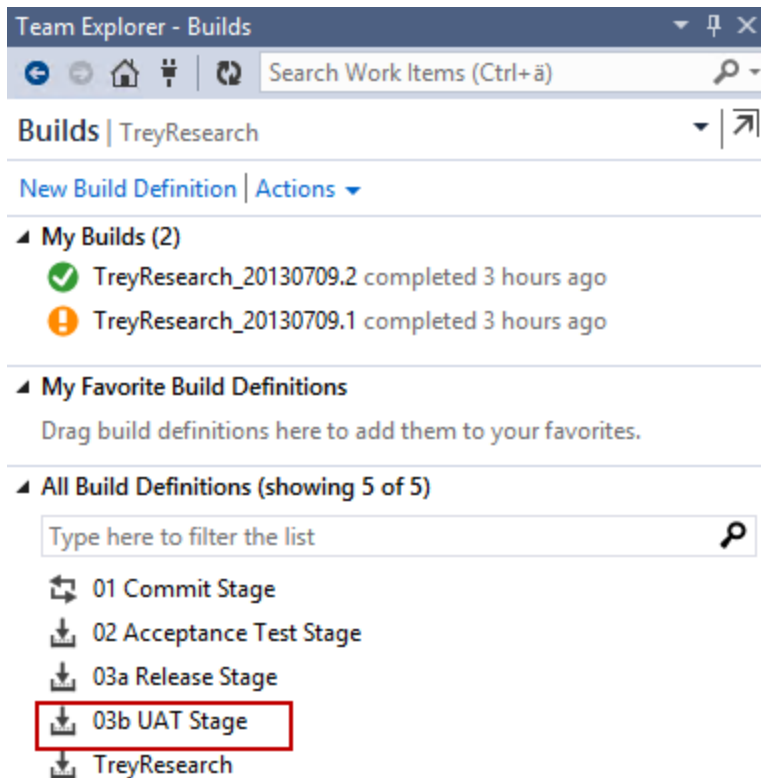
2. Rename the cloned build definition to **03a Release Stage** and save it.



Task 2: Add the Manual Stage 03b UAT Stage

In this task you add the definition for the UAT stage.

1. Right-click on the build definition named **02 Acceptance Test Stage** and clone it.
2. Rename the cloned build definition to **03b UAT Stage** and save it.



Summary

In this HOL you added the customized build templates that you created in the earlier labs to your project. You then defined a particular commit stage that belongs to a particular pipeline instance. You set the trigger so that a build occurs if there is a check-in. You also set the working folder, the build controller, and the drop location. Finally you set the build process parameters.

Next, you repeated the process for a particular acceptance test stage. You created its build definition, changed the build defaults and set the build process parameters.

Finally, you added two manually triggered stages. One is the release stage and the other is the UAT stage.

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