





SpiraTeam[®] | Build Server Integration Guide Inflectra Corporation

Date: July 30th, 2015



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1. Introduction

SpiraTeam® is an integrated **Application Lifecycle Management** (ALM) system that manages your project's requirements, releases, test cases, issues and tasks in one unified environment:

SpiraTeam® contains all of the features provided by SpiraTest[®] - our highly acclaimed **test management system** and SpiraPlan® - our **agile project management** solution. With integrated customizable dashboards of key project information, SpiraTeam® allows you to take control of your entire project lifecycle and synchronize the hitherto separate worlds of development and testing.

SpiraTeam® includes the ability to integrate with a variety of continuous integration / automated build servers so that the results of automated builds can be displayed in SpiraTeam linked to the associated release or iteration. In addition, the results of automated tests and source code operations can be linked to the build events, providing traceability from a specific build to the bugs that were fixed, tests that were run and source code files that were modified.

This guide outlines how to integrate and use SpiraTest, SpiraPlan and SpiraTeam in conjunction with various build servers commonly used by software development teams. This guide assumes that the reader is familiar with both SpiraTeam and the appropriate build server being discussed. For information regarding how to use SpiraTeam, please refer to the SpiraTeam User Manual.

2. Integrating with Jenkins / Hudson

This section outlines how to use SpiraTest, SpiraPlan or SpiraTeam (hereafter referred to as SpiraTeam) in conjunction with either the Jenkins or Hudson (hereafter referred to as Jenkins) continuous integration build servers. It assumes that you already have a working installation of SpiraTest, SpiraPlan or SpiraTeam v3.2 or later and a working installation of Jenkins/Hudson v1.405 or later. If you have an earlier version of SpiraTeam, you will need to upgrade to at least v3.2.

2.1. Overview

Jenkins provides continuous integration services for software development, primarily in the Java programming language. It is a server-based system running in a servlet container such as Apache Tomcat. It supports SCM tools including CVS, Subversion, Git, Mercurial, Perforce and Clearcase, and can execute Apache Ant and Apache Maven based projects as well as arbitrary shell scripts and Windows batch commands.

When you use the SpiraTeam plugin for Jenkins, it will allow you to associate each Jenkins project with a corresponding project and release in SpiraTeam. Then, each time Jenkins creates a new build, a new build artifact will be created in SpiraTeam. Each build in SpiraTeam will be automatically linked to the incidents fixed, source code revisions committed, and any SpiraTeam tokens in the Jenkins changelog will be parsed and turned into SpiraTeam artifact hyperlinks.

2.2. Installing the SpiraTeam Plug-in for Jenkins

Go to the Inflectra website and open up the page that lists the various downloads available for SpiraTeam (<u>http://www.inflectra.com/SpiraTeam/Downloads.aspx</u>). Listed on this page will be the SpiraTeam Plug-In for Jenkins. Right-click on this link and save the Zip compressed folder to a temporary location. Open up the compressed folder and extract the spira-plugin.hpi file contained inside.

Jenkins						Q	search	0
Jenkins								ENABLE AUTO REFRESH
Sew Job	All +							add description
A People	s	w	Name (Last Success	Last Failure	Last	Duration	
Build History		-	Build JUnit	1 day 15 hr (<u>=97</u>)	1 day 16 hr (<u>#95</u>)	0.87	sec	Ø
Manage Jenkins	Icon: <u>S M</u>	IL.			Legend	RSS for all	SS for failures	RSS for just latest builds
Build Queue No builds in the queue.								
Build Executor Status								
# Status								
1 Idle 2 Idle								

Now open up a web browser and connect to your Jenkins server:

Click on the "Manage Jenkins" hyperlink, following by the "Manage Plugins" hyperlink. That will bring up the page that displays all the currently loaded plugins. Click on the "Advanced" tab:

Jenkins		Q search	0
enkins 🌖 Plugin Manager 🌖			UNICOLO
Back to Dashboard	Updates Available Installed Advanced		
Manage Jenkins	HTTP Proxy Configuration		
	Server		0
	Port		0
	User name		0
	Password		
	No Proxy Host		~ ()
	Submit	-	•
6-3	Upload Plugin		
1-1-1	You can upload a .hpi file to install a plugin from outside the central plugin repository.		
Y. SA	File:	Browse	
	Upload		
	Update Site		
N - TEI	URL http://updates.jenkins-ci.org/update-center.json		
	Submit		

Now you can click on the [Browse] button next to the section that lets you upload a new plugin to the server. Navigate to where you saved the spira-plugin.hpi plugin file and upload the SpiraTeam plugin into Jenkins. Once that has completed, click on the "Installed" tab to display the list of installed plugins:

k to Dashboard	Updates	Available Installed Advanced			
Manage Jenkins	Enabled	Name į	Version	Previously installed version	Pinned
A STREET		ant	1.1		
717		javadoc	1.0		
		CVS Plugin Integrates Jenkins with CVS version control system.	1.6		
-1		Maven Integration plugin	1.455		
		Jenkins SSH Slaves plugin	0.21		
	V	Subversion Plugin	1.34		
E		Jenkins Translation Assistance plugin	1.8		-

You will see an option to Restart Jenkins and load any recently added plugins. Click on this button and Jenkins will automatically restart once all pending jobs have been completed. Once Jenkins has restarted, you will now see the SpiraTeam plugin listed as one of the installed plugins:

Jenkins enkins Plugin Manager			9	search	0
Back to Dashboard	Updates	Available Installed Advanced			
Manage Jenkins	Enabled	Name	Version	Previously installed version	Pinnee
		ant	1.1		
		javadoc	1.0		
		CVS Plugin Integrates Jenkins with CVS version control system.			
		Maven Integration plugin	1.455		
1		Spira Plugin Plugin for Jenkins and Hudson that allows Builds to be reported back into SpiraTest, SpiraPlan or SpiraTeam	3.2.0		
	V	Jenkins SSH Slaves plugin	0.21		
N THE		Subversion Plugin	1.34		
		Jenkins Translation Assistance plugin	1.8		

2.3. Setting-Up the SpiraTeam Jenkins Plug-in

Now that the plugin has been installed, you need to go back to the Jenkins homepage and click on the "<u>Manage Jenkins</u>" hyperlink followed by the "<u>Configure System</u>" hyperlink. This will bring up the main Jenkins configuration page. Scroll down to find the "**Spira Integeration**" section:

Spira Integration		
Spira URL	http://localhost/SpiraTeam	Ø
Username	fredbloggs	Ø
Password	•••••	0
		Test Connection

Enter in the **URL** you use to access your instance of SpiraTeam, together with a valid **username** and **password**. Once you have entered the values, click on the [Test Connection] button to verify that Jenkins can connect to SpiraTeam successfully.

Once it has connected successfully, click the [Save] button at the bottom of the screen to save your connection settings.

2.4. Configuring a Jenkins Job

Now that you have setup the global SpiraTeam settings in Jenkins, next you need to associate each of your Jenkins Jobs with their corresponding SpiraTeam Project and Release/Iteration. To do this, click on the name of the Jenkins Job and then click on the "Configure" hyperlink for that Job:

Project name	Build JUnit	
Description	Dunia Johnia	
Description		
	Preview	
Discard Old Bui	ilds	
This build is particular to the second se	rameterized	0
	No new builds will be executed until the project is re-enabled.)	
	rrent builds if necessary	R
Advanced Project		
Advanced Project	toptions	Advanced
		Advanced
Source Code Mana	agement	
CVS		
None		
Subversion		
Modules	Repository URL svn://doctor/Common	0
	Local module directory (optional)	0
		Add more locations
Check-out Strateg	V Use 'svn update' as much as possible	
check-out strateg	Use svn update as much as possible Use 'svn update' whenever possible, making the build faster. But this causes the artifacts from the previous build to remain when a n	
Repository browse		
		Advanced
Save Apply		
Build periodical	lly	
Poll SCM		
Build Environmen		
Enable Spira In	ntegration	
Build		
Add build step 💌		
Post-build Action	\$	
Aggregate dow	instream test results	•
Archive the arti	ifacts	0
Build other pro		0
Publish JUnit te		
Publish Javador		
	c rints of files to track usage	•
E-mail Notificat		
	han .	

Under the section "**Build Environment**" select the checkbox marked "**Enable Spira Integration**". That will display the SpiraTeam configuration panel for this Job:

Build Environment		
🗵 Enable Spira Integrat	ion	
Spira Configuration		
Project ID	1	0
Release Version Number	1.0.0.0	0
		Verify Release

Now you need to enter the following values:

- Project ID The numeric ID of the SpiraTeam Project that the Build belongs to. (e.g. for Project PR00001 just enter 1)
- **Release Version Number** The version number of the SpiraTeam Release/Iteration that the Build belongs to. (e.g. for Release RL0004 with version number 1.0.0.0 you'd enter just 1.0.0.0)

Once you have entered in the Project ID and Release version number, click the [Verify Release] button and the plugin will connect to SpiraTeam and verify that the project exists, that the current user can connect to that project, and that the specified release/iteration exists in the project.

Once it has verified successfully, click the [Save] button at the bottom of the screen to save your Job configuration settings. You are now ready to use Jenkins with SpiraTeam.

2.5. Viewing the Build Results in SpiraTeam

Now that you have associated your Jenkins job with a specific SpiraTeam project and release/iteration, you can now use Jenkins to manage your software builds and have the results of the build be reported back into SpiraTeam. For example when the 'Build JUnit' job illustrated in the previous section is executed, it will report back the following result in Jenkins:

All +						Zadd description
s	w	Name \downarrow	Last Success	Last Failure	Last Duration	
	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Build JUnit	1 day 18 hr (<u>#97</u>)	1 day 18 hr (<u>#95</u>)	0.87 sec	\bigotimes
Icon: <u>S M</u> L				Legend SRSS	i for all 🔊 RSS for failures 🔊 R	SS for just latest builds

The corresponding build entry will also be created in SpiraTeam under the specified project and release/iteration:

Incidents * Reqs & Tasks *	Test Cases * Comments	Custom Props * Test Runs *	Builds * Attachments	History *
> Refresh Apply Filter Clear	r Filter			
Build Name ▲▼	Creation Date	Status ▲▼	Last Updated 🔺	ID ▲▼
		Any 🔻		BL
Build JUnit #97	14-Mar-2012	Succeeded	14-Mar-2012	BL000045
	14-Mar-2012	14-Mar-2012	BL000044	
Build JUnit #97 - Succeeded Started by user anonymous B	uilding in workspace D:\Program F	- iles\Jenkins\jobs\Build	14-Mar-2012	BL000043
JUnit\workspace Updating svr	://doctor/Common U test.txt At re-	vision 17861	14-Mar-2012	BL000042
Build JUnit #93	14-Mar-2012	Failed	14-Mar-2012	BL000041
Build JUnit #92	8-Mar-2012	Succeeded	8-Mar-2012	BL000040
Build JUnit #89	8-Mar-2012	Mar-2012 Succeeded		BL000039
Build JUnit #88	8-Mar-2012	Succeeded	8-Mar-2012	BL000038

If you have configured your Project Home to include the list of recent builds, the build information will also be displayed on the Project Home dashboard:

	cent Builds	_						
Nam	ie	Status	Creation Date					
•	Build JUnit #97	Succeeded	3/14/2012 3:34:02 PM					
2	Build JUnit #96	Succeeded	3/14/2012 3:33:15 PM					
Build JUnit #96 Succeeded S/14/2012 S.S. IS PM Build JUnit #96 - Succeeded Succeeded S/14/2012 S.S. IS PM Build JUnit #96 - Succeeded Succeeded S/14/2012 S.S. IS PM Build JUnit #96 - Succeeded Succeeded S/14/2012 S.S. IS PM Build JUnit #96 - Succeeded Succeeded S/14/2012 S.S. IS PM Build JUnit #96 - Succeeded Succeeded S/14/2012 S.S. IS PM Build JUnit #96 - Succeeded Succeeded S/14/2012 S.S. IS PM Build JUnit #96 - Succeeded Succeeded S/14/2012 S.S. IS PM Bu Started by user anonymous Building in workspace D:\Program Files\Jenkins\jobs\Build Succeeded Bu Started by user anonymous Building in workspace D:\Program Files\Jenkins\jobs\Build Succeeded Bu Started by user anonymous Building in workspace D:\Program Files\Jenkins\jobs\Build Succeeded Bu Started by user anonymous Building in workspace D:\Program Files\Jenkins\jobs\Build Succeeded Bu Started by user anonymous Building in workspace D:\Program Files\Jenkins\jobs\Build Succeeded Bu Started by user anonymous Build Succeeded Succeeded Bu Started by user anonymous Build Succeeded Succeeded Bu Started by user anonymous build Succeeded								

Clicking on either of the hyperlinks will allow you to navigate to the Build details page inside SpiraTeam:

spiraTeam	W	elcome, System Admin	istrator Library Information S	System ▼ <u>My P</u> i	rofile <u>Administrat</u>	tion Log Out Sea	arch	
spiratean		My Page Proje	ct Home Planning	Testing	Tracking	Reporting		
Requirements Releases > Build	d Details	Iterations Planni	ng Board					
<< Back To Build List	•	Build: 🖺 Build J	Unit #97 [BL:000045	1				
Library System Release 1 Build JUnit #97	Â		ild JUnit #97	,				
🖭 Build JUnit #96			arted by user anonymou uilding in workspace D:\P		jobs\Build JUnit\w	vorkspace		*
Build JUnit #95 Build JUnit #94		U	pdating svn://doctor/Com test.txt	mon	*			
Build JUnit #93			t revision 17861					Ŧ
🕙 Build JUnit #92		Status: S	ucceeded		Creation Dat	e:	3/14/2012 3:34	:02 PM
🖭 Build JUnit #89					Last Updated	1:	3/14/2012 3:34	:04 PM
🖭 Build JUnit #88		Incidents *	Devisions #	Test Rur	-			
Build JUnit #87		Incidents *	Revisions *	Test Rur	IS			
🖭 Build JUnit #86		> Refresh Apply I	Filter Clear Filter	Show/hide columns	•			
🖭 Build JUnit #85	-	✓ U Incident Na	me 🛦 🔻	Type ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation
🕙 Build JUnit #84	-		inc	Any V				Creation
🖭 Build JUnit #83								
Build JUnit #82		🔲 🔍 🎦 <u>Cannot a</u>	dd a new book to the sys	stem Bug	Assigned	1 - Critical	Joe P Smith	4-Nov-200
街 Build JUnit #81		Show 15 🔻 rows p	er page					

This page will display the status (success / failure) and details of the build (from the Jenkins Console Output) together with a list of the associated incidents, test runs and source code revisions. The following section will explain how to use your Source Code Management (SCM) system to take advantage of the SpiraTeam plugin and automatically link incidents and source code revisions to the build information.

2.6. Working with Source Code Changesets

When your developers commit changes to your application's source into the SCM repository, they should make sure to link the commit to the appropriate artifacts in SpiraTeam. For example they may want to record that the revision fixes a specific incident or implements a specific feature (requirement).

Linking an artifact is very simple. All the developer needs to do is enter the artifact token in the following format:

[PREFIX: ID]

The first half, the Artifact Identifier, is a two-letter code that is used throughout SpiraTeam, and is visible on almost every page in the application. For example, a requirement's identifier is "RQ". Incidents are "IN", and tasks are "TK". The artifact ID is the number of the artifact. So by creating a commit message that reads:

Due to requirement [RQ:12], the code for .toString in class XMLparser was modified. This also fixed Incident [IN:1034].

SpiraTeam will automatically detect the tokens and will include links to them under the Associations tab for each revision detail in SpiraTeam.

In addition, when Jenkins creates the next build (that includes this revision), the plugin will automatically parse the revision message and convert the tokens into hyperlinks to the corresponding SpiraTeam artifact. That way, when developers view the build changelog in Jenkins, it will automatically include links to the SpiraTeam items:



Meanwhile, inside SpiraTeam, the system will use the same information to automatically link the list of associated revisions to the build record:

Incidents *	Revisions *	Test Runs				
> Refresh Apply Filter	<u>Clear Filter</u>					
✓ Revision ▲▼	Author	Su Su	ummary ▲▼	Commit Date ▲▼	Content ∆ ▲▼	Properties ∆ ▲▼
					Any 🔻	Any 🔻
17861		• Fb	xed [IN:7] and [RQ:4]	14-Mar-2012	Yes	No
Show 15 Trows per pa	age				阔 ৰ Displayin	g page 1 Sof 1 ► ►

If the commit message contains Incident tokens, the plugin will also automatically link those incidents to the appropriate build:

	Incidents *	Revisions *	Test Runs						
> <u>Re</u>	efresh <u>Apply Filte</u>	r <u>Clear Filter</u> Sho	w/hide columns	▼					
~	Incident Name	▲▼	Type ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation Date ▲▼	Owner ▲▼	Build ▲▼
			Any 🔻	Any 🔻	Any 🔻	Any 🔻		Any 🔻	Build JUnit #97 🔻
	0 🕙 <u>Cannot add a</u>	new book to the system	Bug	Assigned	1 - Critical	Joe P Smith	4-Nov-2003	Joe P Smith	Build JUnit #97
Show	v 15 🔻 rows per pa	age							ৰ ৰ Displaying

Similarly when you view the list of incidents inside SpiraTeam you will now be able to sort and filter the list by the associated build:

2		My Page	Project Home	Planning	Testing	Tracking	Reporting				
ncid	ent	s Tasks Resources Source Code								Role: Pro	ject Ow
h N	w I	ncident 🗱 Delete 🛛 🗟 Refresh 🛛 📮	Copy 🔅 Tools	Showhide columns	YEI SEL SEL	<u>lter</u>					
ispl	ayin	g 1 - 15 out of 60 incident(s) for this project									
1	18	Incident Name A V	Type ▲▼	Status ▲▼	Priority AV	Detected By ▲▼	Creation Date AV	Owner ▲▼	Build ▲▼	ID▲▼	Edit
			Any 🔻	- Any - 🔻	- Any 🔻	- Any 🔻		- Any 🔻	- Any 🔻	IN	+ Edit
21	8	Cannot log into the application	Incident	New		Fred Bloggs	1-Nov-2003		Build JUnit #92	IN000001	• Edit
2		Not able to add new author	Incident	New		Joe P Smith	1-Nov-2003		Build JUnit #92	IN000002	• Edit
		Clicking on link throws fatal error	Incident	New		Fred Bloggs	1-Nov-2003		Build 0001	IN000003	 Edit
1		Database not backing up correctly	Bug	Open		Joe P Smith	2-Nov-2003		Build 0001	IN000004	• Edit
		Cannot install system on Oracle 9i	Bug	Open	1 - Critical	Fred Bloggs	2-Nov-2003		Build 0002	IN000005	• Edit
	8	The book listing screen doesn't sort	Bug	Open	3 - Medium	Joe P Smith	2-Nov-2003		Build 0002	IN000006	 Edit
	0	Cannot add a new book to the system	Bug	Assigned	1 - Critical	Joe P Smith	4-Nov-2003	Joe P Smith	Build JUnit #97	IN000007	 Edit
		Editing the date on a book is clunky	Bug	Assigned	2 - High	Joe P Smith	4-Nov-2003	Fred Bloggs		IN000008	 Edit
		Editing the date on an author is clunky	Bug	Assigned	3 - Medium	Joe P Smith	4-Nov-2003	Joe P Smith	Build 0004	IN000009	• Edit
5		Doesn't let me add a new category	Bug	Resolved	4 - Low	Fred Bloggs	4-Nov-2003	Fred Bloggs	Build 0004	IN000010	 Edit
5		Validation on the edit book page	Bug	Resolved	1 - Critical	Fred Bloggs	15-Nov-2003	Joe P Smith	Build 0005	IN000011	 Edit
5		Quote handling issues throughout	Bug	Resolved	2 - High	Fred Bloggs	15-Nov-2003	Fred Bloggs	Build 0005	IN000012	 Edit
1		The tables get cutoff on low-res modes	Bug	Closed	3 - Medium	Joe P Smith	15-Nov-2003	Joe P Smith	Build 0005	IN000013	 Edit
3		Permissions not updating when changed	Bug	Closed	4 - Low	Joe P Smith	15-Nov-2003	Fred Bloggs	Build 0005	IN000014	 Edit
1		Session handling	Bug	Closed	1 - Critical	Joe P Smith	15-Nov-2003	Joe P Smith		IN000015	+ Edit

Congratulations! You are now able to use SpiraTeam and Jenkins to be able to manage your builds and have the build status integrated into your SpiraTeam project dashboard.

3. Integrating with TeamCity

This section outlines how to use SpiraTest, SpiraPlan or SpiraTeam (hereafter referred to as SpiraTeam) in conjunction with the JetBrains' TeamCity continuous integration build servers. It assumes that you already have a working installation of SpiraTest, SpiraPlan or SpiraTeam v4.0 or later and a working installation of TeamCity v9.0.4 or later. If you have an earlier version of SpiraTeam, you will need to upgrade to at least v4.0.

3.1. Overview

TeamCity provides continuous integration services for software development, primarily in the Java programming language. It is a server-based system running that supports a variety of different version control systems and build runners. It supports SCM tools including CVS, Subversion, Git, Mercurial, Perforce and Borland StarTeam, and can execute Apache Ant and Apache Maven based projects as well as arbitrary shell scripts and Windows batch commands.

When you use the SpiraTeam Plug-In for TeamCity, it will allow you to associate each TeamCity project with a corresponding project and release in SpiraTeam. Then, each time TeamCity creates a new build, a new build artifact will be created in SpiraTeam. Each build in SpiraTeam will be automatically linked to the incidents fixed, tasks implemented, requirements developed and source code revisions committed.

3.2. Installing the SpiraTeam Plug-in for TeamCity

Go to the Inflectra website and open up the page that lists the various downloads available for SpiraTeam (<u>http://www.inflectra.com/SpiraTeam/Downloads.aspx</u>). Listed on this page will be the SpiraTeam Plug-In for TeamCity. Right-click on this link and save the Zip compressed folder to the TeamCity's Plug-In directory (*\$TEAMCITY_USER_HOME/plugins*). After that, restart TeamCity for the plugin to take effect. It's also possible to install the Plug-In through the user interface of TeamCity via Administration > Plugins List > Upload Plugin Zip, choosing the zip-file from your file-system:

TC Projects 👳 Chan	ages Agents 1 D Build Queue 0	Administration Q
Administration > Diagno	ostics	
Project-related Settings Projects Build Time	Troubleshooting VCS Status Server Logs Internal Properties Browse Data Directory	es Logging Presets Caches Search
Disk Usage Server Health Audit User Management	Browse TeamCity data directory:	
Users Groups	Upload File	×
Integrations NuGet Tools	Path: C:\ProgramData\UetBrains\TeamCity/plugins Name: * SpiraTeam Plug-In for TeamCity File: C:\Users\TeamCity plugin.zip Browse	3
Server Administration Global Settings	Save Cancel	
Authentication Email Notifier Jabber Notifier		
Agent Cloud Diagnostics		
Backup Projects Import Licenses		
Clean-up Settings Usage Statistics		
Plugins List		

Do not forget to restart TeamCity for the plugin to take effect.

Once TeamCity has restarted, you can see the SpiraTeam Plug-In listed as one of the installed plugins:

Projects 👳 Char	nges Agents 1 🗍 Bui	ild Queue 0			Administration	Q
Administration > Plugin	s List					
Project-related Settings Projects	This TeamCity installatio Upload plugin zip Ava	n has 80 plugins ailable plugins	(including 1 external)			
Build Time	External plugins					
Disk Usage	Plugin Name	Version	Vendor	Home Path		
Server Health Audit	Spira Builder Notifier	1.0.0	Inflectra Corporation	<teamcity data<="" td=""><td>Directory>\.unpacked\S</td><td>pira</td></teamcity>	Directory>\.unpacked\S	pira

3.3. Setting-Up the SpiraTeam TeamCity Plug-in

Now that the plugin has been installed, you need to configure the Global Settings for integration with SpiraTeam. To do this, go to Administration > Spira Global Settings:

Projects 🔝 Chan	ges Agents 1	Build Queue 0	Administration
Administration > Spira (Global Settings		
Project-related Settings	Spira Config	uration	
Projects			
Build Time	Spira Learn URL:	http://localhost/Spira	
	User Name:	SpiraUser	
Disk Usage	Password:		
Server Health		Pava	
Audit		Save	
Auuit			

You will need TeamCity administrator privileges to access this configuration page. Once in the *Spira Global Settings* page, enter in the **URL** you use to access your instance of SpiraTeam, together with a valid **username** and **password**. Once you have entered the values, click on the [Save] button. TeamCity will then verify if it can connect to SpiraTeam successfully.

Once it has connected successfully, your connection settings will be saved. In case of error, follow the instructions on-screen and try again.

After setting the global configurations appropriately, you will need to enable the notifications in TeamCity. To do this, go to *My Settings & Tools,* that can be accessed through clicking your TeamCity username (top right). Once there, in the *General* tab, inside the *Watched Builds and Notifications* box, find the *Spira Notifier for TeamCity* section, and click in *Edit*.

Projects ♥ Ch	anges Agents	1 D Build Q	ueue o		teamcity 🗢
ly Settings & Tools					
General Groups Not	ification Rules				
General				Watched Builds and Notifications	
Username:	teamcity		Edit ®	Email Notifier	Edit
Name:			Luit	You are not watching any build configurations.	
Email address:				IDE Notifier	Edit
Password:				You are not watching any build configurations.	
Confirm password:				Jabber Notifier	Edit
Version Control U	sername Setti	ngs		Jabber account:	
Default for all of the VCS r		brgruber		You are not watching any build configurations.	
Deladit for all of the VC3 h	0013.	bigitubei	Edit	Spira Notifier For TeamCity	Edit
UI Settings				You are watching all projects.	\smile
Highlight my changes	and investigations			Windows Tray Notifier	Edit
 Show date/time in my f Show all personal build Add builds triggered by 	is			You are not watching any build configurations.	

Once in the page, click in *Add new Rule*. Then, inside the *Send notification when* section, select the events you want TeamCity notify SpiraTeam:

dd New Rule	
Watch:	
Builds affected by my changes	
🎾 Edit Branch Filter ®	
O Builds from the selected project	
\bigcirc Builds from the selected build configurations	
O System wide events	
Send notification when:	
☑ Build fails	
\square Ignore failures not caused by my changes	
\square Only notify on the first failed build after successful	
☑ Build is successful	
$\hfill\square$ Only notify on the first successful build after failed	
The first build error occurs	
Build starts	
Build fails to start	
Build is probably hanging	
☑ Investigation is updated	
Tests are muted or unmuted	

After selecting your preferences, click in the Save button.

3.4. Configuring a TeamCity Project

Now that you have setup the Global SpiraTeam and Notifications settings in TeamCity, next you need to associate each of your TeamCity Projects with their corresponding SpiraTeam Project and Release/Iteration. To do this, click on the name of a project and then click on the "Spira Project Configuration" tab for that Project:

TC Proje	Changes Agents 1 Build Queue 0				v Administration			
Project 1	(Demonstrating	SpiraTeam Plug-In f	or TeamCity)				Edit Project Settings	
Overview (Change Log Statis	stics Current Problems	Investigations	Muted Problems	Spira Project Configuration			
Spira Config	guration							
Spira URL:	http://localhost	/SpiraTeam						
TeamCity Proje	ect ID: project1							
Project ID:	PR 1							
Release Versio	n #: 1.0.0.0							
	Save							

In this page you can check the URL of the SpiraTeam Server. If it is wrong, you can change it in the Spira Global Settings menu (see section 3.3 again). It is also possible to check the Project ID associated with the project in TeamCity. This information can be useful for debugging/checking reasons.

To associate a TeamCity Project with a SpiraTeam Project, enter the following values:

- Project ID The numeric ID of the SpiraTeam Project that the Build belongs to. (e.g. for Project PR00001 just enter 1)
- **Release Version Number** The version number of the SpiraTeam Release/Iteration that the Build belongs to. (e.g. for Release RL0004 with version number 1.0.0.0 you'd enter just 1.0.0.0)

Once you have entered in the Project ID and Release version number, click the [Save] button and the plugin will connect to SpiraTeam and verify that the project exists, that the current user can connect to that project, and that the specified release/iteration exists in the project. Once it has verified successfully, it will save your Project configuration settings. In case of error, follow the instructions on-screen and try again. You are now ready to use TeamCity with SpiraTeam.

3.5. Viewing the Build Results in SpiraTeam

Now that you have associated your TeamCity Project with a specific SpiraTeam project and release/ iteration, you can now use TeamCity to manage your software builds and have the results of the build be reported back into SpiraTeam. For example when the 'BuildConfigTest' build of Project 1 illustrated in the figure bellow is executed, it will report in TeamCity:

TC	Projects v	Changes Agents 1 D Build Queue 0		TeamCity user ♥ Administ	ration Q
T	Ł			Hide Successful Configurations	Configure Visible Projects
▽ @	Project 1	Demonstrating SpiraTeam Plug-In for TeamCity			no hidden ⇔ ×
	BuildCo	nfigTest ∣ᢦ			Run ×
	#122	Success 🖙	No artifacts	No changes v momer	nts ago (17s)

The corresponding build entry will also be created in SpiraTeam under the specified project and release/iteration:

> Refresh Apply Filter Clear Filter				
splaying 1 - 15 out of 21 build(s) in this release/i	teration.			
Build Name ▲▼	Creation Date AV	Status ▲▼	Last Updated ▲▼	ID AV
		(Any 🔻		BL
	and the second se	And the second se	00 1 0015	DI 000074
Project 1 :: BuildConfigTest #122	23-Jun-2015	Succeeded	23-Jun-2015	BL:000074
Project 1 :: BuildConfigTest #122 Project 1 :: BuildConfigTest #121	23-Jun-2015 23-Jun-2015	Succeeded Succeeded	23-Jun-2015 23-Jun-2015	BL:000074 BL:000073

If you have configured your Project Home to include the list of recent builds, the build information will also be displayed on the Project Home dashboard:

Recent Builds					
Name	Status	Creation Date			
Project 1 :: BuildConfigTest #122	Succeeded	6/23/2015 2:37:56 PM			
Project 1 :: BuildConfigTest #121	Succeeded	6/23/2015 2:35:39 PM			
TestProject :: BuildConfigTest #119	Succeeded	6/19/2015 4:01:47 PM			

Clicking on either of the hyperlinks will allow you to navigate to the Build details page inside SpiraTeam:

Build: 🖺 Pro	ject 1 :: BuildConfig	Test #122 [BL	:000074]						
Name: Pi	roject 1 :: BuildConfigT	est #122							
ir ic B A C C ir	n 1 VCS root brock d=TestProject_SvnDoct operations for the VCS is BuildConfigTest) br/>VMamerica/New_York c:\TeamCity\buildAgent ArtifactsCachePublisher information from agent fi	ngesBlock VCS R itorCommonTestC root 'svn://doctor// /ill collect change '>Agent is running t\temp\buildTmp <l r bridTpckcout d file: 217a0c719f76</l 	toot details brockin, descr Common/Test is for 'svn://doc 	/>"svn://doctor/C iption: "svn: svn: _Checkin' tor/Common/Te .7.0_72-b14 sishing internal a 	Common/Te ://doctor/Co Detecting cl est_Checkin />Clearing to artifacts jent\work\21 Root: svn://	est_Checkin" {inst ommon/Test_Check hanges in VCS ro i' starting from rev emporary director />Sending using \ />Sending using \ //Ta0c719f7601ef </td <td>ance id=1, parent inter ckin", br/>Waiting for c ot 'svn://doctor/Commo ision 28924 br/>Agent y: NebPublisher br/>Sen :br/>checkout Updating fest Checkin br/>revis</br></br></br></td> <td>rnal id=1, parent completion of curr on/Test_Checkin' t time zone: nding using g sources Sion: 28919 </td> <td>rent (used in sing vcs</td>	ance id=1, parent inter ckin", br/>Waiting for c ot 'svn://doctor/Commo ision 28924 	rnal id=1, parent completion of curr on/Test_Checkin' t time zone: nding using g sources Sion: 28919 	rent (used in sing vcs
-	Succeeded	- chelo East OVAL	adata ia anah	ladehels##tanon	Creation	Date: 6/23/2016	5 2:37:56 PM	uraaalladata".uali	
Associations	Incidents	Test Run	3						
> Refresh App	ly Filter Clear Filter	Show/hide	columns	▼]					
Displaying 1 - 0 ou	1000	current build. Filt	tering results I Status ▲▼	by Build. <u>(Clear I</u> Priority		Detected By ▲▼	Creation Date AV	Owner ▲▼	ID 🗛
	Name: P Description: T Reference of the second Status: > Refresh Apple	Build: Project 1 :: BuildConfig Name: Project 1 :: BuildConfigT Description: TamCity server version in 1 VCS root-br/>chan id-TestProject_SwDoct operations for the VCS F BuildConfigTest}-bdr/>Mamerica/New York-ch/- C: TeamCity/buildAgent ArtifictScahePublisher Status: Succeeded Associations Incidents > Refresh Apply Filter Clear Filter	Build: Droject 1 :: BuildConfigTest #122 [BL Name: Project 1 :: BuildConfigTest #122 Description: TeamCity server version is 9 0.4 (build 32 in 1 VCS root br/>changesBlock VCS R id=TeatProject_SmDoctorCommonTestC operations for the VCS root SmDoctorCommonTestC operations for the VCS root AdmeticalNew York chr/>Adpent is running C. TreamCitybuildAgentNempbuildTmp ArtifactScachePublisher-Appent is zunning C. TreamCitybuildAgentNempbuildTmp ArtifactScachePublisher-Arb/>Checkoutd Status: Succeeded Associations Incidents Patrixel Clear Filter Showhide of	Build: Droject 1 :: BuildConfigTest #122 [BL:000074] Name: Project 1 :: BuildConfigTest #122 Description: TeamCity server version is 9.0.4 (build 32407) TestProject_SnubctorCommonTestCheckin, description: TestProject_SnubctorCommonTestBuildConfigTest #128 BuildConfigTest/br/>Comparison for the VCS root 'sm//doctAgent is running under JRE: 1 C:TeamCity/buildAgent!tempbuildTmp-br/>Agent is running under JRE: 1 ArtifictCachePublisherbirCheckkun, description: Status: Status: Succeeded Associations Incidents Associations Incidents Refresh Apply Filter Clear Filter Show/hide columns	Build: Project 1:: BuildConfigTest #122 [BL:000074] Name: Project 1:: BuildConfigTest #122 Description: TeamCity server version is 9.0.4 (build 32407)-btr/>Build bt1-btr/>SBUIL in 1 VCS root br/>chargesBlock VCS Root details-bt/>"sm://doctor/Common/Test Checkin, description: TeamCity server version is 9.0.4 (build 32407)-btr/>Build bt1-btr/>"sm://doctor/Common/Test Checkin, description: BuildConfigTest}-btry>Conto: Teatring to the VCS root 'sm://doctor/Common/Test Checkin, description: America?New York Contragent is unning under JRE: 1.1.0 /2-b144-btry C CitraemCitybuildAgenttempbuildTmp-btr/>agent trunning under JRE: 1.1.0 /2-b144-btry ArtifactScahePublisher.drv/>checkout drv/>checkout VCS I understand for an agent file: 217a0c71917601ef xml Status: Succeeded Associations Test Runs Patients Apply Filter Clear Filter -show/hide columns -	Build: Project 1 :: BuildConfigTest #122 [BL:000074] Name: Project 1 :: BuildConfigTest #122 Description: TeamCity sener version is 9.0.4 (build 32407)-cbr/>Build bt1 Cbr/>Status: TeamCity Sener version is 9.0.4 (build 32407)-cbr/>Sen://doctor/Common/Teigld-TestProject_SwnDotorCommonTestCheckin, description: "swn: swn://doctor/Common/Test_Checkin HeidlaConfigTest/br/>BuildConfigTest #122 Description: TeamCity Sener version is 9.0.4 (build 32407)-cbr/>Swn://doctor/Common/Test_Checkin Americal/New York-Chr/>Arbit/Sener Version und Sener Version (build 32407)-cbr/>Centrigt Low/>Checkin Sener Version (build 32407)-cbr/>Swn://doctor/Common/Test_Checkin Americal/New York-Chr/>Chr/>Chr/>Checkout directory: Chr@amCity/buildAgenttwentybuildAgenttwentybuildFirectory: Chr@amCity/buildAgenttwentybuildFirectory:	Build:	Build: Droject 1 :: BuildConfigTest #122 [BL:000074] Name: Project 1 :: BuildConfigTest #122 Description: TamcTiy server version is 9.0.4 (build 32407) cbr/>TestForget_SND/cbr/>ChangesBlock VCS Root details s/sn://doctor/CommonTest_Checking for changes cbr/>Snd/cbr/CommonTest_Checking for changes Status: Description: TamcTiy server version is 9.0.4 (build 32407) cbr/>changesBlock VCS Root details s/sn://doctor/CommonTest_Checking for changes son://doctor/CommonTest_Checking for changes son://doctor/CommonTest_Checking for revision 289244br/>Agent is checkingTestForget_Sn//doctor/CommonTest_Checking for revision 289244br/>Agent is checkingTestForget_Sn//doctor/CommonTest_Checking for revision 289244br/>Agent is checkington://doctor/CommonTest_Checking for revision 289244br/>Agent is running under JRE: 1.10.7 J2-b144-br/>Clearing temporary directory: C. Citaem/City/build/agent/temp/buildTmp-br/>agent Publishing internal atrifacts chr/>schorb/Sending using WebPublisherctor/Sending using WebPublisherctor/Sending using WebPublisherctor/Sending using WebPublishing internal atrifacts chr/Sending using WebPublisherctor/Sending u	Build: Droject 1 :: BuildConfigTest #122 [BL:000074] Name: Project 1 :: BuildConfigTest #122 Description: TeamCity server version is 9.0.4 (build 32407) TeamCity server version is 9.0.4 (build 32407) Status Status Status C: TeamCity Server version 2014 Status Status Teat Runs * Refresh Apply Filter Clear Filter - Show/hide columns - *

This page will display the status (success / failure) and details of the build (imported from the TeamCity Console Output) together with a list of the associated incidents, test runs and source code revisions. The following section will explain how to use your Source Code Management (SCM) system to take advantage of the SpiraTeam plugin and automatically link incidents and source code revisions to the build information.

3.6. Working with Source Code Changesets

When your developers commit changes to your application's source into the SCM repository, they should make sure to link the commit to the appropriate artifacts in SpiraTeam. For example they may want to record that the revision fixes a specific incident or implements a specific feature (requirement).

Linking an artifact is very simple. All the developer needs to do is enter the artifact token in the following format:

[PREFIX: ID]

The first half, the Artifact Identifier, is a two-letter code that is used throughout SpiraTeam, and is visible on almost every page in the application. For example, a requirement's identifier is "RQ". Incidents are "IN", and tasks are "TK". The artifact ID is the number of the artifact. So by creating a commit message that reads:

Due to requirement [RQ:12], the code for .toString in class XMLparser was modified. This also fixed Incident [IN:1034].

SpiraTeam will automatically detect the tokens and will include links to them under the Associations tab for each revision detail in SpiraTeam.

Inside SpiraTeam, the system will use the same information to automatically link the list of associated revisions to the build record:

Associations *	Revisions *	Incidents	Test Runs				
> <u>Refresh</u> <u>Apply Fi</u>	lter <u>Clear Filter</u>						
✓ Revision Δ	v	Author ▲▼	Summar	y ▲ ▼	Commit Date ▲▼	Content ∆ ▲▼	Properties ∆ ▲▼
						Any 🔻	Any 🔻
□ <u>28796</u>		bgruber	fixed [IN:	000092]	10-Jun-2015	Yes	No
All <u>28796</u> Show 15 rows p		bgruber	fixed [IN:	000092]	10-Jun-2015	Yes	

If the commit message contains Incident tokens, the plugin will also automatically link those incidents to the appropriate build:

Associations *	Revisions *	Incidents	Test Runs			
Date	Artifact Na	ne	Creator	Comment	Artifact Type	ID
10-Jun-2015	this is a t	test bug	Fred Bloggs	fixed [IN:000092]	Incident	IN000092

Similarly when you view the list of incidents inside SpiraTeam you will now be able to sort and filter the list by the associated build:

ncidents Tasks Resources	So	urce	e Code							
New Incident 🗱 Delete	2	Refi	resh 🛛 🔁 Copy 🗱 Tools 🗸 Show/hide	e columns	▼ <u>Filter</u> •					
Displaying 1 - 15 out of 86 incide	nt(s) f	or th	iis project.							
Quick Filter 🔹	~	0	Name ▲▼	Type ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation Date ▲▼	Owner ▲▼	Build ▲▼
My Filters				Any 🔻	- Any 🔻	🛛 🖛 🗸 🖉	Any 🔻		Any 🛛	" Any
(No filters available)		U	Database constraint error	Bug	New	2 - High	System Administrator	12-Jun-2015		
Shared Filters	_	.0		Bug	New	, v		1-Jun-2015		Build 0004
Components		0	this is a bug	3		2 - High	Fred Bloggs			Build 0004
Administration		U	Rendering issue on author page.	Bug	New	2 - High	Fred Bloggs	28-May-2015		
Author Management		U	Page redirection issue on book list page	Bug	Assigned	2 - High	System Administrator	14-May-2015	Joe P Smith	
Releases		U	Timeout on home page	Bug	New	2 - High	System Administrator	13-May-2015		Build 0004
Library System Rele		U	Bug when displaying book list	Bug	New	2 - High	Fred Bloggs	8-May-2015		
E Library System Re		U	DNS error when updating author name	Bug	Assigned	2 - High	Fred Bloggs	5-May-2015	Joe P Smith	
lteration 001		U	bug on aging report	Incident	New	2 - High	System Administrator	29-Apr-2015		
lteration 002		Û	Page missing on confirmation screen	Bug	New	2 - High	Fred Bloggs	21-Apr-2015		
🗉 🗐 Library System Re		0	timeout bug on submission	Bug	New	2 - High	Fred Bloggs	16-Apr-2015		
Lteration 001		-	There is a bug in this screen	Bug	New	2 - High	Fred Bloggs	15-Apr-2015		
Lteration 002			Bug in the login page	Bug	Assigned	1 - Critical	System Administrator	13-Apr-2015	Fred Bloggs	
□ Library System Rele		Ø	System error while changing book genre	Bug	New	1 - Critical	System Administrator	13-Apr-2015		
Library System Rel			No. 10 March	Incident	New		Fred Bloggs	31-Mar-2015		
Iteration 001			incident	Incident	New		Fred Bloggs	31-Mar-2015		

Congratulations! You are now able to use SpiraTeam and TeamCity to be able to manage your builds and have the build status integrated into your SpiraTeam project dashboard.

4. Integrating with Bamboo

This section outlines how to use SpiraTest, SpiraPlan or SpiraTeam (hereafter referred to as SpiraTeam) in conjunction with the Atlassian's Bamboo continuous integration build servers. It assumes that you already have a working installation of SpiraTest, SpiraPlan or SpiraTeam v4.0 or later and a working installation of Bamboo v 5.0 or later. If you have an earlier version of SpiraTeam, you will need to upgrade to at least v4.0.

4.1. Overview

Bamboo provides continuous integration services for software development, in any programming language using any build tool. It is a server-based system running that supports a variety of different version control systems. It supports SCM tools including CVS, Subversion, and Git, and can execute Apache Ant and Apache Maven based projects as well as arbitrary shell scripts and Tomcat.

When you use the SpiraTeam Add-on for Bamboo, it will allow you to associate each Bamboo project and plan with a corresponding project/release in SpiraTeam. Then, each time Bamboo creates a new build, a new build artifact will be created in SpiraTeam. Each build in SpiraTeam will be automatically linked to the incidents fixed, tasks implemented, requirements developed and source code revisions committed.

4.2. Installing the SpiraTeam Add-on for Bamboo

Go to the Inflectra website and open up the page that lists the various downloads available for SpiraTeam (<u>http://www.inflectra.com/SpiraTeam/Downloads.aspx</u>). Listed on this page will be the SpiraTeam *Add-on* for Bamboo. Right-click on this link and save the .zip file to your local computer.

Inside this .zip file will be a .jar file, extract the .jar file and save to a local folder on your system. After that, go to Bamboo Administration. You will need Bamboo administrator privileges to access this configuration page. Under Add-ons, click on the *Manage Add-ons* link and then on *Upload Add-on* on the left:

OBamboo My Bamboo	Build - Deploy - Reports - Create -	Search	۹ @+ ‡+ []+
Bamboo administi	ration		
BUILD RESOURCES Agents Agent matrix Executables JDKs Server capabilities Global variables	Manage add-ons You can install, update, enable, and disable add-ons here. Find new add-ons. Filter visible add-ons	$\overline{\pi}$	Upload add-on + Build a new add-on
Linked repositories Shared credentials Repository settings	→ 執 Shared Credentials		
ELASTIC BAMBOO Configuration	Audit log Bamboo update check Settings Enter safe mode The Universal Plugin Manager (v2.16.2) by Atlassian		

After that, click on *Browse* and select the .jar file extracted from the .zip archive downloaded from the Inflectra website. Then, click on *Update*.

After the installation of the SpiraTeam Add-on, you should see a welcome screen:

Installed and ready to go!	
SpiraTeam Bamboo Plugin v. by Inflectra This add-on has been installed. If you need help getting started, click the lin on documentation from the Manage add-ons screen.	nk to the add-
	Close

You will then be able to see the SpiraTeam Add-on in the User Installed Add-ons list :

Arred Credentials		
💈 Spira Team Bamboo Add-on		
This is the SpiraTeam plugin for Atlass Uninstall Disable	ian Bamboo.	
No screenshots available	Version: 1.0.0 Vendor: Inflectra Add-on key: com.inflectra.spiratest.plugins.bamboo	I of 1 modules enabled

4.3. Setting-Up the SpiraTeam Bamboo Add-on

Now that the add-on has been installed, you need to configure the settings for integration with SpiraTeam. To do this, go to the Project you want to communicate with SpiraTeam, and under the plan you want to receive notifications, click on Edit (ricon). In the Plan Configuration screen, go to the *Notifications* tab and click on Add Notification:

OBamboo M	y Bamboo	Build • Deploy • Reports • Create •	Search	۹ 🛛 🕈 🔍 ۹
	uration	rroject1 / Plan1 - Plan1 on features		🕞 Run 🔹 🎄 Actions 💌 🛛 🏘 💌
Plan Configuration Stages & jobs Default Stage i= Job1	1	Plan details Stages Repositories Triggers Audit log	Branches Dependencies Permissions Notification	ns Variables Miscellaneous
Branches	0	Notifications	Add notification	
No branches are configured. Add one through the configuration.		You can send notifications to a variety of recipients bas There is currently no instant messaging server on Add an email server or add an instant messaging	email server configured. Bamboo will not send out any notif	ications.
		There are currently no notifications set up for this plan.		

In the Add a new notification pop-up, select the appropriate event you want to receive notifications, and in the Recipient type box, select *SpiraTeam*:

Add build notificat	on			^
Event	All Builds Completed	~		
	Notification sent for every fully compl	eted build		
Recipient type	SpiraTeam	~		
URL:*	http://doctor/SpiraTeam/			
User Name:*	fredbloggs			
Password:*	•••••			
Project ID:*	8			
Release Version #:*	1.0.0.0			~

After that, you will see some new fields to fill, they are:

- URL It is the URL you use to access your instance of SpiraTeam;
- User Name: Your SpiraTeam user name;
- Password: Your SpiraTeam password;
- **Project ID** The numeric ID of the SpiraTeam Project that the Build belongs to. (e.g. for Project PR00001 just enter 1)
- **Release Version Number** The version number of the SpiraTeam Release/Iteration that the Build belongs to. (e.g. for Release RL0004 with version number 1.0.0.0 you'd enter just 1.0.0.0)

After filling this boxes with appropriate information, click on *Add* button. Bamboo will then try to connect to the SpiraTeam Server, and check the Project/Release provided info. Once it validates your information, the connection settings will be saved. In case of error, follow the instructions on-screen and try again.

4.4. Viewing the Build Results in SpiraTeam

Now that you have associated your Bamboo Project and Plan with a specific SpiraTeam project and release/iteration, you can use Bamboo to manage your software builds and have the results of the build be reported back into SpiraTeam. For example when the 'Plan1' build of TestProject 1 illustrated in the figure bellow is executed, it will report in Bamboo:

OBamboo My Bamboo Build + Deploy + Reports + Create +	Search Q 🕢 🗘 + 🛄 +
Build projects / TestProject1 / Plan1 Build #68 Demonstrating SpiraTeam Add-on features	4 0 0 0 0 0 0 0 0 0 0 0 0 0 Run + \$\$Actions +
) #68 was successful – Manual run	
Build summary Tests Commits Artifacts Logs Metadata	
Build result summary	
Details	Included in deployment project
Completed 08 Jul 2015, 2:21:43 PM – 1 hour ago	TestProject2
Duration < 1 second	No release with the artifacts of this build exists yet.
Labels None 🖉	Create release
Show more	
Write a comment	

The corresponding build entry will also be created in SpiraTeam under the specified project and release/iteration:

> <u>Refresh</u> <u>Apply Filter</u> <u>Clea</u>				
isplaying 1 - 15 out of 43 build Build Name ▲▼	(s) in this release/iteration. Creation Date ▲▼	Status AV	Last Updated ▲▼	ID ▲▼
		- Any 🔻		BL
1 TP1-P1 #68	8-Jul-2015	Succeeded	8-Jul-2015	BL:000103
🔁 <u>TP1-P1 #66</u>	8-Jul-2015	Succeeded	8-Jul-2015	BL:000101
1 TP1-P1 #65	8-Jul-2015	Succeeded	8-Jul-2015	BL:000100
1 TP1-P1 #64	7-Jul-2015	Succeeded	7-Jul-2015	BL:000097
TP1-P1 #63	7-Jul-2015	Succeeded	7-Jul-2015	BL:000096

If you have configured your Project Home to include the list of recent builds, the build information will also be displayed on the Project Home dashboard:

Nan	ne	Status	Creation Date
2	<u>TP1-P1 #68</u>	Succeeded	7/8/2015 2:21:40 PM
•	<u>TP1-P1 #66</u>	Succeeded	7/8/2015 11:18:30 AM
2	<u>TP1-P1 #65</u>	Succeeded	7/8/2015 11:11:15 AM
•	<u>TP1-P1 #64</u>	Succeeded	7/7/2015 4:33:11 PM
2	TP1-P1 #63	Succeeded	7/7/2015 3:26:52 PM

< Back To Build List Release 1.0 PT TP1-P1 #68	*	P1-P1 #68 [BL:00 TP1-P1 #68	00103]				
	A Name:	TD1 D1 #C0					
3 TP1-P1 #68		161-61 400					
s A second se	Description:	Information retrieve	d from Bamboo: hr/>Ma	nual run by <a href="http://local</td><td>host:8085/browse/user/brarube</td><td>r">Bruno Gruher	<pre><hr/> of TP1-P1-68<t< pre=""></t<></pre>		
TP1-P1 #66		at 2015-07-08 14:21	1:40.875 with durati	on of 2267 miliseconds {N			
TP1-P1 #65 אן TP1-P1 #64		dependenciesDisat	oled=false} 				
≥ TP1-P1 #63							
ITP1-P1 #62							
a) TP1-P1 #61							
🖾 🏝 TP1-P1 #60							
P1-P1 #59	Status:	Succeeded			Creation Date: 7/8/2015 2:21:4	IO PM	
2 TP1-P1 #58	Startes.	Succeeded					
					Last Updated: 7/8/2015 2:21:4	46 PM	
🐑 TP1-P1 #66	Associations	Revisions	s Incidents	Test Runs			
TP1-P1 #55 🖉							
	> <u>Refresh</u> <u>Ap</u>	<u>ply Filter Clear Filt</u>	er				
2 TP1-P1 #53 2 TP1-P1 #53	> <u>Refresh</u> <u>Ap</u>		Author	Summary ▲▼	Commit Date ▲▼	Content ∆ ▲▼	Properties ∆ ▲▼

Clicking on either of the hyperlinks will allow you to navigate to the Build details page inside SpiraTeam:

This page will display the status (success / failure) and details of the build (imported from the Bamboo Console Output) together with a list of the associated incidents, test runs and source code revisions. The following section will explain how to use your Source Code Management (SCM) system to take advantage of the SpiraTeam add-on and automatically link incidents and source code revisions to the build information.

4.5. Working with Source Code Changesets

When your developers commit changes to your application's source into the SCM repository, they should make sure to link the commit to the appropriate artifacts in SpiraTeam. For example they may want to record that the revision fixes a specific incident or implements a specific feature (requirement).

Linking an artifact is very simple. All the developer needs to do is enter the artifact token in the following format:

[PREFIX: ID]

The first half, the Artifact Identifier, is a two-letter code that is used throughout SpiraTeam, and is visible on almost every page in the application. For example, a requirement's identifier is "RQ". Incidents are "IN", and tasks are "TK". The artifact ID is the number of the artifact. So by creating a commit message that reads:

Due to requirement [RQ:12], the code for .toString in class XMLparser was modified. This also fixed Incident [IN:1034].

SpiraTeam will automatically detect the tokens and will include links to them under the Associations tab for each revision detail in SpiraTeam.

Inside SpiraTeam, the system will use the same information to automatically link the list of associated revisions to the build record:

Associations * Revision	s * Incidents	Test Runs			
> <u>Refresh</u> <u>Apply Filter</u> <u>Clear F</u>	ilter				
✓ Revision Δ▼	Author ▲▼	Summary ▲▼	Commit Date ▲▼	Content ∆ ▲▼	Properties ∆ ▲▼
				- Any 🔻	Any 🔻
<u>28796</u>	bgruber	fixed [IN:000092]	10-Jun-2015	Yes	No
Show 15 V rows per page				🛛 🖛 🖉 Display	ing page 1 🗳 o

If the commit message contains Incident tokens, the add-on will also automatically link those incidents to the appropriate build:

Revisions *	Incidents	Test Runs			
Artifact Nar	me	Creator	Comment	Artifact Type	ID
this is a t	test bug	Fred Bloggs	fixed [IN:000092]	Incident	IN000092
	Artifact Na	Revisions # Incidents Artifact Name This is a test bug	Artifact Name Creator	Artifact Name Creator Comment	Artifact Name Creator Comment Artifact Type

Similarly when you view the list of incidents inside SpiraTeam you will now be able to sort and filter the list by the associated build:

Incidents Tasks Resources -{} <u>New Incident</u>			: Code esh │	e columns	▼ <u>Filter</u> •						
Displaying 1 - 15 out of 86 incide	nt(s) f	or th	is project.								
Quick Filter 🔹	~	0	Name ▲▼	Type ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation Date ▲▼	Owner ▲▼	Build ▲▼	
My Filters				Any 🔻	- Any 🔻	🛛 🗐 Any 🛛 🔻	Any 🔻		Any 🔻	Any	
(No filters available)		0	Database constraint error	Bug	New	2 - High	System	12-Jun-2015			
Shared Filters	_			Ŭ		Ŭ	Administrator			0.111.000.1	
Components			this is a bug	Bug	New	2 - High	Fred Bloggs	1-Jun-2015		Build 0004	
Administration		U	Rendering issue on author page.	Bug	New	2 - High	Fred Bloggs	28-May-2015			
Author Management		۵	Page redirection issue on book list page	Bug	Assigned	2 - High	System Administrator	14-May-2015	Joe P Smith		
Real Book Management			M.	-		o. 117 1	System				
Releases		U	Timeout on home page	Bug	New	2 - High	Administrator	13-May-2015		Build 0004	
🖃 <u> Library</u> System Rele		U	Bug when displaying book list	Bug	New	2 - High	Fred Bloggs	8-May-2015			
🗉 🛄 Library System Re		0	DNS error when updating author name	Bug	Assigned	2 - High	Fred Bloggs	5-May-2015	Joe P Smith		
Literation 001		0	bug on aging report	Incident	New	2 - High	System	29-Apr-2015			
Iteration 002						Ŭ	Administrator	1			
Lteration 003			Page missing on confirmation screen	Bug	New	2 - High	Fred Bloggs	21-Apr-2015			
🗉 🛄 Library System Re		U	timeout bug on submission	Bug	New	2 - High	Fred Bloggs	16-Apr-2015			
lteration 001			There is a bug in this screen	Bug	New	2 - High	Fred Bloggs	15-Apr-2015			
Iteration 002			Bug in the login page	Bug	Assigned	1 - Critical	System Administrator	13-Apr-2015	Fred Bloggs		
Library System Rele		U	System error while changing book genre	Bug	New	1 - Critical	System	13-Apr-2015			
Library System Rel	_	-					Administrator				
Library System Rel			bad bad	Incident	New		Fred Bloggs	31-Mar-2015			
Iteration 001			incident <u>incident</u>	Incident	New		Fred Bloggs	31-Mar-2015			

Congratulations! You are now able to use SpiraTeam and Bamboo to be able to manage your builds and have the build status integrated into your SpiraTeam project dashboard.

5. Integrating with Team Foundation Server

This section outlines how to use SpiraTest, SpiraPlan or SpiraTeam (hereafter referred to as SpiraTeam) in conjunction with Microsoft's Team Foundation Server (hereafter referred to as TFS) continuous integration build server module. It assumes that you already have a working installation of SpiraTest, SpiraPlan or SpiraTeam v4.0 or later and a working installation of TFS 2013 or TFS 2015. If you have an earlier version of SpiraTeam, you will need to upgrade to at least v4.0.

5.1. Overview

TFS provides tools for managing the entire application lifecycle, including source code management, reporting, automated builds, testing and release capabilities, for example. It supports version control using either its native TFS source code management system or Git. SpiraTeam has version control plugins for both TFS native and TFS with Git source code management options.

When you use the SpiraTeam Build Server Plug-In for TFS, it will allow you to associate different TFS projects with a corresponding project and release in SpiraTeam. Then, each time TFS creates a new build, a new build artifact will be created in SpiraTeam. Each build in SpiraTeam will be automatically linked to the incidents fixed, tasks implemented, requirements developed and source code revisions committed.

5.2. Installing the SpiraTeam Build Plug-in for TFS

Go to the Inflectra website and open up the page that lists the various downloads available for SpiraTeam (<u>http://www.inflectra.com/SpiraTeam/Downloads.aspx</u>). Listed on this page will be the SpiraTeam Build Plug-In for TFS. There are two different versions of the plugin (for TFS2013 and TFS2015). Select the appropriate version, then right-click on this link and save the .zip file in your system. You will need to extract the folder and copy all the files to the TFS Plugins Directory, which is usually:

C:\Program Files\Microsoft Team Foundation Server x.x\Application Tier\Web Services\bin\Plugins

After that, TFS will automatically restart and run the SpiraTeam Build Plug-In.

5.3. Setting-Up the SpiraTeam Build Plug-in for TFS

Once you have copied the SpiraTeam Build Plug-In files to the TFS Plugins Directory, you will need to configure the plugin. To do this, you will need to open the file

DevCore.TfsNotificationRelay.dll.config

using your favorite text editor, or Visual Studio, for example. Then, find the section <bots> and the bot id="spira". In this section, you will input the information related to the SpiraTeam project you want to connect. To do this, enter the appropriate information in the " " at each correspondent value field:

```
<add name="spiraURL" value="Enter your SpiraTeam URL here"/>
<add name="spiraUser" value="Enter your SpiraTeam user name here"/>
<add name="spiraPassw" value="Enter your SpiraTeam password here"/>
<add name="spiraPnumber" value="Enter your SpiraTeam project # here "/>
<add name="spiraPvers" value="Enter your SpiraTeam release version # here"/>
```

The information you need to enter is:

- spiraURL It is the URL you use to access your instance of SpiraTeam;
- spiraUser: Your SpiraTeam user name;
- **spiraPassw**: Your SpiraTeam password;

- spiraPnumber The numeric ID of the SpiraTeam Project that the Build belongs to. (e.g. for Project PR00001 just enter 1)
- spiraPvers The version number of the SpiraTeam Release/Iteration that the Build belongs to. (e.g. for Release RL0004 with version number 1.0.0.0 you'd enter just 1.0.0.0)

Additionally, you can specify the TFS project you want to associate with the SpiraProject you have setup, entering the TFS Project name in the appropriate field inside the <eventRules> section:

teamProject= "Enter your TFS project name here"

Make sure to enter the exactly project name you have in TFS. If you leave this field blank, the associated SpiraTeam project will receive notifications from all the projects in TFS.

Here is an example of how your configuration file should look like after the setup:



If you want to receive notifications from more than one TFS project, you will need to create a bot for each TFS project inside the configuration file, and associate the TFS project with a SpiraTeam project. To do this, inside the configuration file, copy the whole block from <bot> to </bot>.

Make sure to enter a different name for this new bot, for example bot id="spira2".

Don't forget to associate this new Notificator with a TFS Project, entering the TFS project name in the teamProject field.

After setting up two TFS projects, you configuration file should look like this:



Note the differences in spiraPnumber, spiraPvers, and teamProject fields in the two bots.

5.4. Viewing the Build Results in SpiraTeam

Now that you have associated your TFS Project with a specific SpiraTeam project and release/ iteration, you can now use TFS to manage your software builds and have the results of the build be reported back into SpiraTeam. For example when the 'ConsoleApplication1_B' build of 'Project 1' illustrated in the figure bellow is executed, it will report in TFS:

HOME CODE WORK BUILD		
© Actions →	All build definitions Queued Completed Deployed	
 My favorites No favorite build definition found. Team favorites 	Queue build	
	ස ල්ප් O Name	Build Definition Build Quality
No team build definition found.	- 8uild01_20150729.1	Build01
Build definitions	ConsoleApplication1_B_20150728.9	ConsoleApplication1_B
All build definitions	ConsoleApplication1_B_20150728.8	ConsoleApplication1_B
Build01	ConsoleApplication1_B_20150728.7	ConsoleApplication1_B
ConsoleApplication1_B	ConsoleApplication1_B_20150728.6	ConsoleApplication1_B
consoleApplication11_b	ConsoleApplication1_B_20150728.5	ConsoleApplication1_B
	ConsoleApplication1_B_20150728.4	ConsoleApplication1_B
	ConsoleApplication1_B_20150728.3	ConsoleApplication1_B

The corresponding build entry will also be created in SpiraTeam under the specified project and release/iteration:

> Refresh Apply Filter Clear Filter				
Displaying 1 - 15 out of 60 build(s) in this release/iteration.				
Build Name ▲▼	Creation Date ▲▼	Status ▲▼	Last Updated ▲▼	ID ▲▼
		Any 🔻		BL
Project01 #ConsoleApplication1 B 20150728.9	28-Jul-2015	Failed	28-Jul-2015	BL:000122
Project01 #ConsoleApplication1_B_20150728.8	28-Jul-2015	Succeeded	28-Jul-2015	BL:000120
Project01 #ConsoleApplication1_B_20150728.7	28-Jul-2015	Succeeded	28-Jul-2015	BL:000118
Project01 #ConsoleApplication1_B_20150728.6	28-Jul-2015	Succeeded	28-Jul-2015	BL:000117
Project01 #ConsoleApplication1_B_20150728.5	28-Jul-2015	Succeeded	28-Jul-2015	BL:000116
Project01 #ConsoleApplication1 B 20150728.4	28-Jul-2015	Succeeded	28-Jul-2015	BL:000115

If you have configured your Project Home to include the list of recent builds, the build information will also be displayed on the Project Home dashboard:

Recent Builds		
Name	Status	Creation Date
Project01 #ConsoleApplication1_B_20150728.9	Succeeded	7/28/2015 11:50:46 AM
Project01 #ConsoleApplication1_B_20150728.8	Succeeded	7/28/2015 11:38:02 AM
Project01 #ConsoleApplication1_B_20150728.7	Succeeded	7/28/2015 11:35:07 AM
Project01 #ConsoleApplication1_B_20150728.6	Succeeded	7/28/2015 11:19:16 AM
Project01 #ConsoleApplication1_B_20150728.5	Succeeded	7/28/2015 11:15:56 AM

Clicking on either of the hyperlinks will allow you to navigate to the Build details page inside SpiraTeam:

Back To Build List 🔹 Build: 🕙	Project01 #ConsoleAp	plication1_B_2015	0728.9 [BL:000	122]				
Release 1.0 Ame:	Project01 #ConsoleAppli	ication1 B 20150728.9	9					
Project01#ConsoleApplication1 Project01#ConsoleApplication1 Project01#ConsoleApplication1 Project01#ConsoleApplication1 Project01#ConsoleApplication1 Project01#ConsoleApplication1 Project01#ConsoleApplication1	Information retrieved from <pre></pre>	licrosoft.TeamFoundati es.Identity.IdentityDesc 3_20150728.9 br/> with Collection/Project01/_b	on.Server.Core.Tea criptor,System.Strin h URL http://vm- puild#buildUri=vstfs:	mFoundationTeam, ng] and project ///Build/Build/104&_	Nicrosoft.TeamFounda collection DefaultColl	ation.Server.Cor ection for	Project01	
Project01 #Build01_20150728.6								
Project01 #Build01_20150728.6 Project01 #Build01_20150728.1 Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_	Succeeded				7/28/2015 11:50:46 7/28/2015 11:51:05			
Project01 #Build01_20150728.1 Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_ Application20150724.2		Incidents	Test Runs					
Project01 #Build01_20150728.1 Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_ Project01 #Build01_20150724.2 Association	ns Revisions #							
Project01 #Build01_20150728.1 Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_ Project01 #Build01_20150724.2 Project01 #Build01_20150724.1 Project01 #Build01_20150724.1		Incidents						
Project01 #Build01_20150728.1 Project01 #ConsoleApplication1 Project01 #ConsoleApplication1 Project01 #ConsoleApplication1 Project01 #Build01_20150724.2 Project01 #Build01_20150724.1 Project01 #Build01_20150724.1 Project01 #ConsoleApplication1 Project01 #ConsoleApplication1 Project01 #ConsoleApplication1 Project01 #ConsoleApplication1 Project01 #ConsoleApplication1 Project01 #ConsoleApplication1	ns Revisions #	Show/hide columns	3 V	Last Updated:				
Project01 #Build01_20150728.1 Project01 #ConsoleApplication1_ Project01 #ConsoleApplication1_	ns Revisions * Apply Filter Clear Filter 0 out of 0 incident(s) in the	Show/hide columns	3 V	Last Updated:		AM	Progress	D D

This page will display the status (success / failure) and details of the build (imported from the TFS Console Output) together with a list of the associated incidents, test runs and source code revisions. The following section will explain how to use your Source Code Management (SCM) system to take advantage of the SpiraTeam plugin and automatically link incidents and source code revisions to the build information.

5.6. Working with Source Code Changesets

When your developers commit changes to your application's source into the SCM repository, they should make sure to link the commit to the appropriate artifacts in SpiraTeam. For example they may want to record that the revision fixes a specific incident or implements a specific feature (requirement).

Linking an artifact is very simple. All the developer needs to do is enter the artifact token in the following format:

[PREFIX: ID]

The first half, the Artifact Identifier, is a two-letter code that is used throughout SpiraTeam, and is visible on almost every page in the application. For example, a requirement's identifier is "RQ". Incidents are "IN", and tasks are "TK". The artifact ID is the number of the artifact. So by creating a commit message that reads:

Due to requirement [RQ:12], the code for .toString in class XMLparser was modified. This also fixed Incident [IN:1034].

SpiraTeam will automatically detect the tokens and will include links to them under the Associations tab for each revision detail in SpiraTeam.

Inside SpiraTeam, the system will use the same information to automatically link the list of associated revisions to the build record:

Associations * Revision	s * Incidents	Test Runs			
> <u>Refresh</u> <u>Apply Filter</u> <u>Clear F</u>	Filter				
✓ Revision Δ▼	Author ▲▼	Summary ▲▼	Commit Date ▲▼	Content ∆ ▲▼	Properties ∆ ▲▼
				Any 🔻	Any 🔻
□ [▲] <u>28796</u>	bgruber	fixed [IN:000092]	10-Jun-2015	Yes	No
Show 15 Trows per page				🛯 🖛 Display	ing page 1 🗳

If the commit message contains Incident tokens, the plugin will also automatically link those incidents to the appropriate build:

Associations #	Revisions *	Incidents	Test Runs			
Date	Artifact Na	me	Creator	Comment	Artifact Type	ID
10-Jun-2015	this is a t	test bug	Fred Bloggs	fixed [IN:000092]	Incident	IN000092

Similarly when you view the list of incidents inside SpiraTeam you will now be able to sort and filter the list by the associated build:

ncidents Tasks Resources	s So	urce	e Code									
P <u>New Incident</u>	ø	Refr	resh 🛛 🔁 Copy 🗱 Tools 🔻 🛛 – Show/hide	e columns	Filter •							
Displaying 1 - 15 out of 86 incide	nt(s) f	or th	is project.									
Quick Filter 🔹	~	0	Name ▲▼	Туре ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation Date	Owner ▲▼		Build ▲▼	
My Filters				Any 🔻	- Any 🔻	Any 🔻	Any 🔻		Any	▼	Any	
(No filters available)		U	Database constraint error	Bug	New	2 - High	System Administrator	12-Jun-2015				
Shared Filters			this is a bug	Bug	New	2 - Hiah	Fred Bloggs	1-Jun-2015			Build 0004	
Components			Rendering issue on author page.	Bug	New	2 - High	Fred Bloggs	28-May-2015			Dullu 0004	
Administration							System					
Author Management		U	Page redirection issue on book list page	Bug	Assigned	2 - High	Administrator	14-May-2015	Joe P Smith			
Releases		U	Timeout on home page	Bug	New	2 - High	System Administrator	13-May-2015			Build 0004	
Library System Rele		0	Bug when displaying book list	Bug	New	2 - High	Fred Bloggs	8-May-2015				
🗉 🛅 Library System Re		0	DNS error when updating author name	Bug	Assigned	2 - High	Fred Bloggs	5-May-2015	Joe P Smith			
Iteration 001		U	bug on aging report	Incident	New	2 - High	System Administrator	29-Apr-2015				
Lteration 003		0	Page missing on confirmation screen	Bug	New	2 - High	Fred Bloggs	21-Apr-2015				
🗉 🗐 Library System Re		0	timeout bug on submission	Bug	New	2 - High	Fred Bloggs	16-Apr-2015				
Iteration 001			There is a bug in this screen	Bug	New	2 - High	Fred Bloggs	15-Apr-2015				
Iteration 002			Bug in the login page	Bug	Assigned	1 - Critical	System Administrator	13-Apr-2015	Fred Bloggs			
Gibrary System Rele Library System Rel		Ø	System error while changing book genre	Bug	New	1 - Critical	System Administrator	13-Apr-2015				
Library System Rel			Note:	Incident	New		Fred Bloggs	31-Mar-2015				
Iteration 001			incident	Incident	New		Fred Bloggs	31-Mar-2015				

Congratulations! You are now able to use SpiraTeam and TFS to be able to manage your builds and have the build status integrated into your SpiraTeam project dashboard.

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