

SpiraTeam[®] | Build Server Integration Guide **Inflectra Corporation**

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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. 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.

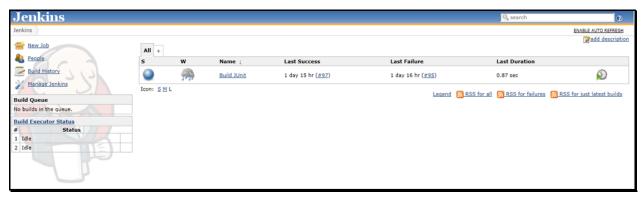
2.1. Overview

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.



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:

Imling			
Jenkins Jenkins Plugin Manager		9, search	0
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 c -	Upload Plugin		
1-1 - 5	You can upload a .hpi file to install a plugin from outside the central plugin repository.		
	File: Upload	Browse	
	Update Site		
	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:

Jenkins			9,	search	0
Jenkins Plugin Manager					
A Back to Dashboard	Updates	Available Installed Advanced			
Manage Jenkins	Enabled	Name ↓	Version	Previously installed version	Pinned
Manage Jenkins	V	ant	1.1		
412	1	javadoc	1.0		
	CVS Plugin Integrates Jenkins with CVS version control system.				
		Maven Integration plugin	1.455		
	7	Jenkins SSH Slaves plugin	0.21		
		Subversion Plugin	1.34		
	V	Jenkins Translation Assistance plugin	1.8		
	A Chan	pes will take effect when you restart Jenkins Restart Once No Jobs Are Running			

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:

enkins Nanager				search	C
Back to Dashboard	Updates	Available Installed Advanced			
Manage Jenkins	Enabled	Name (Version	Previously installed version	Pinned
Planage Jenkins	V	ant	1.1		
1115	V	javadoc	1.0		
C SV		CVS Plugin Integrates Jenkins with CVS version control system.	1.6		
	V	Maven Integration plugin	1.455		
	V	Spira Plugin Plugin for Jenkins and Hudson that allows Builds to be reported back into SpiraTest, SpiraPlan or SpiraTeam.	3.2.0		
	7	Jenkins SSH Slaves plugin	0.21		
E E	V	Subversion Plugin	1.34		
	V	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	0
Username	fredbloggs	0
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				
	Preview			~
Discard Old Build				•
This build is para	ameterized			0
Disable Build (N	o new builds will be executed until	the project is re-enabled.)		0
Execute concurr	ent builds if necessary			•
Advanced Project	Options			
			Advance	ьd
Source Code Mana	gement			
CVS	gement			
None				
 None Subversion 				
Modules	Repository URL	svn://dector/Common		
	Local module directory (optional)			
			Add more locations	
Check-out Strategy	Use 'svn update' as much as poss	ble		
	Use 'svn update' whenever possible, makin	g the build faster. But this causes the artifacts from the previous build to remain when a new build starts.		
Repository browser	(Auto)			-
			Advance	ed
Save Apply				
Build periodicall	v.			
Poll SCM	r			õ
Build Environment				
Enable Spira Int	regration			
Build				
Add build step 🕶				
Post-build Actions				
Aggregate down	stream test results			•
Archive the artif	acts			•
Build other proje	ects			•
Publish JUnit tes				•
Publish Javadoc				
	nts of files to track usage			
E-mail Notificati				õ

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:

5	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

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

Incidents *	Incidents * Reqs & Tasks * Test Cases *		* Comments Custom Props *		Test Runs * Builds *		Attachments	History *		
> <u>Refresh</u> <u>Ap</u>	Refresh Apply Filter Clear Filter									
Build Name A	7	Ci	Creation Date ▲▼ Status ▲▼ La		Last Updated ▲▼		ID ▲▼			
					Any 🔻				BL	
Build JUnit #97			-Mar-2012		Succeeded		14-Mar-2012		BL000045	
na mar	Bild JUnit #97 - Succeeded								BL000044	
	<u>7 - Succeeded</u> er anonymous Buil	ding in workspace	D:\Program File	s\Jenkins\jobs\Bu	ild	1	14-Mar-2012		BL000043	
JUnit\workspa	ce Updating svn://	/doctor/Common	J test.txt At revisi	on 17861		· · · · · · · · · · · · · · · · · · ·	14-Mar-2012		BL000042	
Build JUnit #	<u>93</u>	14	-Mar-2012		Failed		14-Mar-2012		BL000041	
Build JUnit #		8-	Mar-2012		Succeeded	8	3-Mar-2012		BL000040	
Build JUnit #89			Mar-2012		Succeeded		3-Mar-2012		BL000039	
Build JUnit #	88	8-	Mar-2012		Succeeded	8	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:

Recent Builds								
Nam	ie	Status	Creation Date					
8	Build JUnit #97	Succeeded	3/14/2012 3:34:02 PM					
۲.	Build JUnit #96	Succeeded	3/14/2012 3:33:15 PM					
2) 2) 2)	Build JUnit #96 - Succeede Bu Started by user anonymous JUnit\workspace Updating svn://doctor/Common since	Building in workspace D	:\Program Files\Jenkins\jobs\Build evision 17860 no change for					

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

spiraTeam	We	elcome, System Adm	inistrator Library Informatio	n System	▼ <u>My Pro</u>	ofile Administration	on Log Out Sea	arch	
spirarean		My Page Proj	ject Home Plannir	g	Testing	Tracking	Reporting		
Requirements Releases > Build [Details	<u>Iterations</u> <u>Plan</u>	ning Board						
<< Back To Build List	•	Build: 🖺 Build	JUnit #97 [BL:00004	151					
Library System Release 1 Build JUnit #97	<u>^</u>		Build JUnit #97						
Build JUnit #96			Started by user anonym Building in workspace D		m Files\Jenkins\j	obs\Build JUnit\wo	orkspace		~
Build JUnit #95 Build JUnit #94			Updating svn://doctor/Co U test.txt	ommon					
Build JUnit #93		.	At revision 17861			0 (I D (214 4/20 4 2 2 3 4	-
Build JUnit #92 Build JUnit #89		Status:	Succeeded			Creation Date		3/14/2012 3:34	
Build JUnit #88						Last Updated:		3/14/2012 3:34	:04 PM
🖭 Build JUnit #87		Incidents *	Revisions *		Test Runs				
Puild JUnit #86		> <u>Refresh</u> <u>Apply</u>	<u>/ Filter</u> <u>Clear Filter</u>	Sho	w/hide columns	•			
Build JUnit #85	=	V 🕘 Incident N	lame ▲▼		Type ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation I
Build JUnit #84					Any 🔻	Any 🔻	Any 🔻	Any 🔻	
Build JUnit #83		Cannot	add a new book to the s	watam	Bug	Assigned	1 - Critical	Joe P Smith	4-Nov-200
Build JUnit #82				ystem					
		Snow 15 V rows	per page						
Build JUnit #81		Show 15 Trows	per 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:

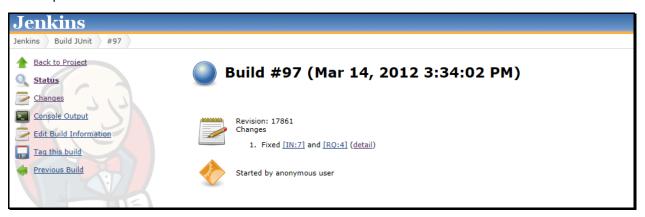
[PREFIX:ID]

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							
> <u>R</u>	> Refresh Apply Filter Clear Filter									
~	Revision ▲▼	Author A	*	Summary AV	Commit Date ▲▼	Content ∆ ▲▼	Properties ∆ ▲▼			
						Any 🔻	Any 🔻			
	A <u>17861</u>	- بينوي الد	•	Fixed [IN:7] and [RQ:4]	14-Mar-2012	Yes	No			
Sho	Show 15 ▼ rows per page 4 ≤ Displaying page 1 S of 1 ► ►									

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

	In	ncidents *	Revisions *	Test Runs	8					
	> <u>Refre</u>	esh <u>Apply Filter</u>	r <u>Clear Filter</u> Sho	w/hide columns	V					
	 Image: Image: Ima	Incident Name	▲▼	Type ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation Date ▲▼	Owner ▲▼	Build ▲▼
				Any 🔻	Any 🔻	Any 🔻 🔻	Any 🔻		Any 🔻	Build JUnit #97 🔻
	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
:	Show 1	15 🔻 rows per pa	age							🝽 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:

S	,	raTeam My Page	Project Home	Planning	Testing	Tracking	Reporting				
cide	ente	I Tasks Resources Source Code								Role: Pro	ject Ow
Ne Ne	w I	ncident 🔅 Delete 🗞 Refresh 📴 🖸	opy 🔅 <u>Tools</u>	Show/hide columns	· • • • • • • • • • • • • • • • • • • •	ter					
spla	yin	g 1 - 15 out of 60 incident(s) for this project									
/	8	Incident Name AV	Type ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation Date ▲▼	Owner ▲▼	Build ▲▼	ID ∆ ▼	Edit
			Any 🔻	Any 🔻	Any 🔻	Any 🔻 🔻		- Any 🔻	Any 🔻	IN	► Edit
	0	Cannot log into the application	Incident	New		Fred Bloggs	1-Nov-2003		Build JUnit #92	IN000001	► Edi
		Not able to add new author	Incident	New		Joe P Smith	1-Nov-2003		Build JUnit #92	IN000002	► Edi
1		Clicking on link throws fatal error	Incident	New		Fred Bloggs	1-Nov-2003		Build 0001	IN000003	► Edi
1		Database not backing up correctly	Bug	Open		Joe P Smith	2-Nov-2003		Build 0001	IN000004	► Edi
3		Cannot install system on Oracle 9i	Bug	Open	1 - Critical	Fred Bloggs	2-Nov-2003		Build 0002	IN000005	► Edi
1	0	The book listing screen doesn't sort	Bug	Open	3 - Medium	Joe P Smith	2-Nov-2003		Build 0002	IN000006	► Edi
3	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	► Edi
1	0	Editing the date on a book is clunky	Bug	Assigned	2 - High	Joe P Smith	4-Nov-2003	Fred Bloggs		IN000008	► Edi
1		Editing the date on an author is clunky	Bug	Assigned	3 - Medium	Joe P Smith	4-Nov-2003	Joe P Smith	Build 0004	IN000009	► Ed
1		Doesn't let me add a new category	Bug	Resolved	4 - Low	Fred Bloggs	4-Nov-2003	Fred Bloggs	Build 0004	IN000010	► Edi
3		Validation on the edit book page	Bug	Resolved	1 - Critical	Fred Bloggs	15-Nov-2003	Joe P Smith	Build 0005	IN000011	► Edi
1		Ouote handling issues throughout	Bug	Resolved	2 - High	Fred Bloggs	15-Nov-2003	Fred Bloggs	Build 0005	IN000012	► Edi
]		The tables get cutoff on low-res modes	Bug	Closed	3 - Medium	Joe P Smith	15-Nov-2003	Joe P Smith	Build 0005	IN000013	► Ed
]		Permissions not updating when changed	Bug	Closed	4 - Low	Joe P Smith	15-Nov-2003	Fred Bloggs	Build 0005	IN000014	► Edi
3		Session handling	Bug	Closed	1 - Critical	Joe P Smith	15-Nov-2003	Joe P Smith		IN000015	► Edi

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.

2.7. Scheduling Test Sets Upon Successful Builds

One additional feature of the integration with SpiraTest and SpiraTeam (hereafter just SpiraTest) is the ability to have SpiraTest automatically schedule the execution of a test set whenever a build passes.

To do that, make sure the Test Set is associated with the SpiraTest release or iteration that is being built and then set the **Schedule on Build** field to "Yes" and optionally enter in the delay (after the build succeeds) that you want the test set to be scheduled for:

Dates and Times	
Creation Date:	1/1/2007 7:00:00 PM
Last Executed:	12/1/2003 5:45:20 AM
Last Updated:	1/1/2007 7:00:00 PM
Planned Date:	02/04/2007 6:00 🛗
Recurrence:	One Time
Schedule on Build:	Yes
Post-Build Delay (s):	20

This means that you don't need to separately manage your build schedule in Jenkins and your test automation schedule in SpiraTest.

3. JetBrains 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 👳 Cha	nges Agents 1 🗍 Build Queue 0	0	Administration Q
Administration > Diagn	ostics		
Project-related Settings Projects Build Time	Troubleshooting VCS Status Server Logs In Browse Data Directory	nternal Properties Logging Preset	s Caches Search
Disk Usage Server Health Audit User Management	Browse TeamCity data directory:		
Users Groups		×	
Integrations	Path: * C:\ProgramData\JetBrains\TeamC	ity/plugins	
NuGet	Name: * SpiraTeam Plug-In for TeamCity		
Tools	File: * C:\Users\TeamCity plugin.zip	Browse	
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:

TC Projects 👳 Char	nges Agents 1 🗍 Bui	ild Queue 0			Administration	Q
Administration > Plugin	is 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	Spira Builder Notifier	1.0.0	Inflectra Corporation	<teamcity [<="" data="" td=""><td>Directory>\.unpacked\Sp</td><td>oira</td></teamcity>	Directory>\.unpacked\Sp	oira
Audit				٠		

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:

Te Projects 👳 Cha	anges Agents 1	Build Queue 0	Administration
Administration > Spira	Global Settings		
Project-related Settings	Spira Config	uration	
Projects	SpiraTeam LIDL	http://localhost/Spira	
	Splia realit URL.	nup.nocanosospira	
Build Time			
Build Time Disk Usage	User Name:	SpiraUser	
ALL CONTRACTOR OF A			

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 Changes Agents	1 Build Queue 0		teamcity
y Settings & Tools General Groups Notification 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 Username Sett	inge	Jabber account:	
		You are not watching any build configurations.	
Default for all of the VCS roots:	brgruber Edit	Spira Notifier For TeamCity	Edit
UI Settings		You are watching all projects.	\bigcirc
Highlight my changes and investigations		Windows Tray Notifier	Edit
Show date/time in my timezone Show all personal builds		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:

	Spira Notifier for TeamCity (0) Windows Tray Notifier (0/1)
dd New Rule	
Watch:	
 Builds affected by my changes [®] Edit Branch Filter [®] 	
\bigcirc Builds from the selected project	
\bigcirc Builds from the selected build configurations	
O System wide events Send notification when:	
 Build fails Ignore failures not caused by my changes Only notify on the first failed build after successful Build is successful 	
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 Projects	s∣⇒ Changes Ag	gents 1 🗍 Bui	Id Queue 0		♥ A	dministration Q
🖻 Project 1 (D	emonstrating Spira	aTeam Plug-In fo	or TeamCity)			Edit Project Settings
Overview Cha	ange Log Statistics	Current Problems	Investigations	Muted Problems	Spira Project Configuration	
Spira Configu	iration					
Spira URL:	http://localhost/Spira	Team				
TeamCity Project	ID: project1					
Project ID:	PR 1					
Release Version #	£ 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:

۲	Projects 🔊	Changes Agents 1 Build Queue 0		TeamCity user	ation Q
	Ł			Hide Successful Configurations	Configure Visible Projects
▽ @	Project 1	Demonstrating SpiraTeam Plug-In for TeamCity			no hidden ♡ ×
	BuildCo	nfigTest ∣∞			Run) ×
	#122	Success	No artifacts	No changes I v moments	s ago (17s)

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

> Refresh Apply Filter Clear Filter				
isplaying 1 - 15 out of 21 build(s) in this release/i	teration			
Build Name 🔺 🔻	Creation Date ▲▼	Status ▲▼	Last Updated ▲▼	ID AV
		- Any - 🔻		BL
		Ownersday	23-Jun-2015	BL:000074
Project 1 :: BuildConfigTest #122	23-Jun-2015	Succeeded	23-001-2013	
 Project 1 :: BuildConfigTest #122 Project 1 :: BuildConfigTest #121 	23-Jun-2015 23-Jun-2015	Succeeded	23-Jun-2015	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:

< Back To Build List	Build: 🖺 Pro	ject 1 :: BuildConfig	gTest #122 [BL	:000074]						
Release 1.0	Name: P	Project 1 :: BuildConfig	Test #122							
Project 1:: BuildConfigTest #122 Project 1:: BuildConfigTest #121 TestProject :: BuildConfigTest #119 TestProject :: BuildConfigTest #118 TestProject :: BuildConfigTest #117 TestProject :: BuildConfigTest #115	ii ii E	TeamCity server version in 1 VCS root br/>char id=TestProject_SvnDoc operations for the VCS 	ngesBlock VCS Ro ctorCommonTestC root 'svn://doctor/(Vill collect change: />Agent is running	oot details beckin, descrip Common/Test_ s for 'svn://doct 	"svn://doctor/Cor tion: "svn: svn://d Checkin' Det or/Common/Test 7.0_72-b14 	mmon/Test loctor/Com ecting cha Checkin' s learing ten facts 	Checkin" {ins mon/Test_Che nges in VCS ro starting from re nporary directo Sending using	ance id=1, parent in ckin"} Waiting t ot 'svn://doctor/Con ision 28924 	nternal id=1, pare for completion of o nmon/Test_Check gent time zone: Sending using	nt current in' (used in
TestProject :: BuildConfigTest #114	/ ii	ArtifactsCachePublishe	file: 217a0c719f76	01ef.xml c	heckout VCS Roo	ot: svn://do	ctor/Common/	Fest_Checkin 	evision: 28919 <br< th=""><th>/>Using</th></br<>	/>Using
	/ ii	information from agent f	file: 217a0c719f76	01ef.xml c	heckout VCS Roo debals##teamait	ot: svn://do offected@test Creation D	ctor/Common/	Fest_Checkin br/>r/>r 5 2:37:56 PM	evision: 28919 <br< td=""><td>/>Using</td></br<>	/>Using
TestProject :: BuildConfigTest #113 TestProject :: BuildConfigTest #112 TestProject :: BuildConfigTest #111	, ii	information from agent f	file: 217a0c719f76	01ef.xml br/>c	heckout VCS Roo debals##teamait	ot: svn://do offected@test Creation D	ictor/Common/ icticValue kaus ate: 6/23/201	Fest_Checkin br/>r/>r 5 2:37:56 PM	evision: 28919 <br< td=""><td>/>Using</td></br<>	/>Using
TestProject :: BuildConfigTest #113 TestProject :: BuildConfigTest #112 TestProject :: BuildConfigTest #111 TestProject :: BuildConfigTest #110 TestProject :: BuildConfigTest #109	Status:	information from agent 1 Succeeded	file: 217a0c719f76 7 	01ef.xml br/>c	heckout VCS Roo debals##teamait	ot: svn://do offected@test Creation D	ictor/Common/ icticValue kaus ate: 6/23/201	Fest_Checkin br/>r/>r 5 2:37:56 PM	evision: 28919 <br< td=""><td>/>Using</td></br<>	/>Using
TestProject :: BuildConfigTest #113 TestProject :: BuildConfigTest #112 TestProject :: BuildConfigTest #111 TestProject :: BuildConfigTest #110 TestProject :: BuildConfigTest #108 TestProject :: BuildConfigTest #108 TestProject :: BuildConfigTest #107 TestProject :: BuildConfigTest #107 TestProject :: BuildConfigTest #107	Status: Associations > <u>Refresh</u> Appl	Information from agent 1 Succeeded Incidents	file: 217a0c719f76 Zchr/S East SV/Lu Test Runs Show/hide c	01ef.xml br/>condete in enable	heckout VCS Roo dechetz ###aannaits	ot: svn://do	ictor/Common/ icticValue kaus ate: 6/23/201	Fest_Checkin br/>r/>r 5 2:37:56 PM	evision: 28919 <br< td=""><td>/>Using</td></br<>	/>Using
TestProject :: BuildConfigTest #113 TestProject :: BuildConfigTest #112 TestProject :: BuildConfigTest #111 TestProject :: BuildConfigTest #110 TestProject :: BuildConfigTest #100 TestProject :: BuildConfigTest #108 TestProject :: BuildConfigTest #107	Status: Associations > <u>Refresh</u> Appl	Information from agent to subscript a second descent of the second descent of the second descent desce	file: 217a0c719f76 Zchr/S East SV/Lu Test Runs Show/hide c	01ef.xml br/>condete in enable	heckout VCS Roo dechetz ###aannaits	ot: svn://do utbuild@tet Creation D Last Updat	ictor/Common/ icticValue kaus ate: 6/23/201	Fest_Checkin 5 2:37:56 PM 5 2:38:15 PM	evision: 28919 br	/>Using 4777.0"

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:

			Test Runs	* Incidents	Associations * Revision
				ter	Refresh Apply Filter Clear F
▲▼ Properties ∆ ▲▼	Content ∆ ▲▼	Commit Date ▲▼	Summary ▲▼	Author A	✓ Revision Δ▼
Any 🔻	Any 🔻				
No	Yes	10-Jun-2015	fixed [IN:000092]	bgruber	☐ ▲ <u>28796</u>
	Yes M	10-Jun-2015	fixed [IN:000092]	bgruber	→ <u>28796</u> how 15 ▼ rows per page

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	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							
♣ New Incident ※ Delete	P2	Refi	resh 🛛 🗗 Copy 🛛 🎇 Tools 🗸 🕞 Show/hide	e columns	Filter •					
Displaying 1 - 15 out of 86 incide	ent(s) f	or th	nis project.							
Quick Filter 🔹	 Image: A second s	U	Name ▲▼	Type ▲▼	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		Ø	this is a bug	Bua	New	2 - Hiah	Fred Bloggs	1-Jun-2015		 Build 0004
Components	H	0	Rendering issue on author page.	Bug	New	2 - High	Fred Bloggs	28-May-2015		Dana 0004
Administration	H	-		•			System			
Author Management Book Management		U	Page redirection issue on book list page	Bug	Assigned	2 - High	Administrator	14-May-2015	Joe P Smith	
Releases		Ø	Timeout on home page	Bug	New	2 - High	System 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		U	DNS error when updating author name	Bug	Assigned	2 - High	Fred Bloggs	5-May-2015	Joe P Smith	
lteration 001		0	bug on aging report	Incident	New	2 - High	System Administrator	29-Apr-2015		
Lteration 003		Ø	Page missing on confirmation screen	Bug	New	2 - High	Fred Bloggs	21-Apr-2015		
🗉 🗐 Library System Re		Ø	timeout bug on submission	Bug	New	2 - High	Fred Bloggs	16-Apr-2015		
Literation 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 Library System Rel		Ø	System error while changing book genre	Bug	New	1 - Critical	System Administrator	13-Apr-2015		
Library System Rel			E bad	Incident	New		Fred Bloggs	31-Mar-2015		
Iteration 001			Mincident	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.

3.7. Scheduling Test Sets Upon Successful Builds

One additional feature of the integration with SpiraTest and SpiraTeam (hereafter just SpiraTest) is the ability to have SpiraTest automatically schedule the execution of a test set whenever a build passes.

To do that, make sure the Test Set is associated with the SpiraTest release or iteration that is being built and then set the **Schedule on Build** field to "Yes" and optionally enter in the delay (after the build succeeds) that you want the test set to be scheduled for:

Dates and Times	
Creation Date:	1/1/2007 7:00:00 PM
Last Executed:	12/1/2003 5:45:20 AM
Last Updated:	1/1/2007 7:00:00 PM
Planned Date:	02/04/2007 6:00 🛗
Recurrence:	One Time
Schedule on Build:	Yes
Post-Build Delay (s):	20

This means that you don't need to separately manage your build schedule in Jenkins and your test automation schedule in TeamCity.

4. Atlassian 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:

Bamboo My Bamboo	Build 🗸	Deploy -	Reports -	Create -			Search	Q	? -	\$ -	<u>.</u> -
Bamboo administ	ration										
BUILD RESOURCES Agents Agent matrix Executables JDKs Server capabilities Global variables	You	can install, u	38 35 	e, and disable ad	ld-ons here. Find ne	w add-ons.		T Upload add-on)+ Buil	d a new	Q add-on
Linked repositories Shared credentials Repository settings	5	🂠 Shared	l Credentials								
ELASTIC BAMBOO Configuration			Bamboo upda iin Manager (v2.1	ate check Se (6.2) by Atlassian	ttings Enter safe	e mode					

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 link to on documentation from the Manage add-ons screen.	the add-
	Close

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

💠 Shared	Credentials		
💈 SpiraTe	eam Bamboo Add-on		
This is the S Uninstall	biraTeam plugin for Atlassia	n Bamboo.	
Nos	screenshots available	Version: 1.0.0 Vendor: Inflectra Add-on key: com.inflectra.spiratest.plugins.bamboo	1 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:

()Bamboo M	y Bamboo	Build - Deploy - Reports - Create -	Search	1 Q @- \$- 🜅-
	uration	roject1 / Plan1 - Plan1 in features	0000000000	🛛 🥥 🕨 💿 Run 🗸 🎄 Actions 👻 🐟 🗸
Plan Configuratior Stages & jobs	1	Plan details Stages Repositories Triggers	Branches Dependencies Permissions	Notifications Variables Miscellaneous
Default Stage I≣ Job1		Audit log Plan configuration saved successfully.		
Branches	0	Notifications		Add notification
No branches are co Add one through the	0	You can send notifications to a variety of recipients bas	sed on specific build events.	
configuration.		① There is currently no instant messaging server or Add an email server or add an instant messaging		out any notifications.
		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 notificati	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 - Cree	search Q 🕐 - 💭 -
Build projects / TestProject1 / Plan1 Build #68 Demonstrating SpiraTeam Add-on features	 4 O O O O O O O O O O O O Run + Actions +
) #68 was successful – Manual run	
Build summary Tests Commits Artifacts Logs Metadata	
Build result summary	
Details Completed 08 Jul 2015, 2:21:43 PM – 1 hour ago Duration < 1 second Labels None & Show more	Included in deployment project TestProject2 No release with the artifacts of this build exists yet. Create release
Write a comment	

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

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

Name		Status	Creation Date	
	<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	

equirements Planning Board	Releases > Duild Details	Documents					Role: Mana
< Back To Build List	🔻 🛛 Build: 🖺 T	P1-P1 #68 [BL:00	0103]				
Release 1.0	A Name:	TP1-P1 #68					
🐴 <u>TP1-P1 #68</u>	Description:	Information retriever	l from Bamboo: hr/>Ma	nual run hv. <a hrof="http://l</td><td>ocalhost:8085/browse/user/brgrube</td><td>r">Bruno Gruberc/a>	<hr/> hr/> of TP1_P1_68 <h< td=""></h<>		
TP1-P1 #66					> {ManualBuildTriggerReason.user		SUNZ OF IT THE POOND
TP1-P1 #65		dependenciesDisab	led=false} 				
TP1-P1 #64							
TP1-P1 #63 TP1-P1 #62							
365 TD1 D1 #61							
m TP1-P1 #60	0.000				Outside Date: 700017.004	40 DM	
TP1-P1 #60 TP1-P1 #69	Status:	Succeeded			Creation Date: 7/8/2015 2:21:	40 PM	
TP1-P1 #61 TP1-P1 #60 TP1-P1 #60 TP1-P1 #69 TP1-P1 #69 TP1-P1 #68 TP1-P1 #68 TP1-P1 #67	Status:	Succeeded			Creation Date: 7/8/2015 2:21: Last Updated: 7/8/2015 2:21:		
型 TP1-P1 #60 型 TP1-P1 #69 型 TP1-P1 #68 型 TP1-P1 #58 ■ TP1-P1 #57			Insidente	Test Pure			
TP1-P1 #60 TP1-P1 #69 TP1-P1 #58 TP1-P1 #58 TP1-P1 #57 TP1-P1 #56	Status: Associations		Incidents	Test Runs			
TP1-P1 #60 TP1-P1 #59 TP1-P1 #58 TP1-P1 #58 TP1-P1 #57 TP1-P1 #56 TP1-P1 #56 TP1-P1 #55	Associations			Test Runs			
TP1-P1 #60 TP1-P1 #59 TP1-P1 #58 TP1-P1 #58 TP1-P1 #56 TP1-P1 #56 TP1-P1 #56 TP1-P1 #56	Associations > <u>Refresh</u> A	Revisions	21		Last Updated: 7/8/2015 2:21:2	46 PM	Properties 6 A V
≝ TP1-P1 #60 ≝ TP1-P1 #69 ≝ TP1-P1 #58	Associations	Revisions		Test Runs			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:

Ass	cciations * Revisions *	Incidents Test	Runs			
> <u>Re</u>	resh Apply Filter Clear Filter					
~	Revision ∆ ▼	Author A V	Summary ▲▼	Commit Date ▲▼	Content ∆ ▲▼	Properties ∆ ▲▼
					Any 🔻	Any 🔻
	A 28796	bgruber	fixed [IN:000092]	10-Jun-2015	Yes	No
Show	15 Trows per page				🛯 🖛 Displayin	g page 🚹 🗳 of 1 🕨

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

Associations *	Revisions *	Incidents	Test Runs			
Date	Artifact Name		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			esh Copy I Tools - Show/hide	e columns	▼ <u>Filter</u> •							
Displaying 1 - 15 out of 86 incide	nt(s) fo	or th	is project.									
Quick Filter 🔻	\checkmark	0	Name ▲▼	Type ▲▼	Status ▲▼	Priority ▲▼	Detected By ▲▼	Creation Date	Owner ▲▼	Build	▲▼	
My Filters				Any 🔻	Any 🔻	Any 🔻	Any 🔻		Any	🔻 🗕 – An	ý	
(No filters available)		0	Database constraint error	Bug	New	2 - High	System Administrator	12-Jun-2015				
Shared Filters				Due .	New	0. 10eb		1-Jun-2015		Duild	0004	
Components			this is a bug	Bug		2 - High	Fred Bloggs			Bulla	0004	
Administration		0	Rendering issue on author page.	Bug	New	2 - High	Fred Bloggs	28-May-2015				
Author Management		Ø	Page redirection issue on book list page	Bug	Assigned	2 - High	System Administrator	14-May-2015	Joe P Smith			
Real Management		ທ	×1	Due	New	0 U.s.	System	13-May-2015		Duild	0004	
Releases			· · · ·	Bug	New	2 - High	Administrator	13-Way-2015		Dulia	0004	
🗆 <u>ि</u> Library System Rele		Ø	Bug when displaying book list	Bug	New	2 - High	Fred Bloggs	8-May-2015				
🗉 🗐 Library System Re		Ø	DNS error when updating author name	Bug	Assigned	2 - High	Fred Bloggs	5-May-2015	Joe P Smith			
Lteration 001			bug on aging report	Incident	New	2 - High	System Administrator	29-Apr-2015				
Lteration 002	_			-		, v						
Lteration 003			Page missing on confirmation screen	Bug	New	2 - High	Fred Bloggs	21-Apr-2015				
Library System Re Iteration 001		Ø	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				
lteration 002			Bug in the login page	Bug	Assigned	1 - Critical	System Administrator	13-Apr-2015	Fred Bloggs			
E Library System Rele		0	System error while changing book genre	Bug	New	1 - Critical	System Administrator	13-Apr-2015				
Library System Rel			Nad Sector	Incident	New		Fred Bloggs	31-Mar-2015		_		
Library System Rel V			incident	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.

4.6. Scheduling Test Sets Upon Successful Builds

One additional feature of the integration with SpiraTest and SpiraTeam (hereafter just SpiraTest) is the ability to have SpiraTest automatically schedule the execution of a test set whenever a build passes.

To do that, make sure the Test Set is associated with the SpiraTest release or iteration that is being built and then set the **Schedule on Build** field to "Yes" and optionally enter in the delay (after the build succeeds) that you want the test set to be scheduled for:

Dates and Times	
Creation Date:	1/1/2007 7:00:00 PM
Last Executed:	12/1/2003 5:45:20 AM
Last Updated:	1/1/2007 7:00:00 PM
Planned Date:	02/04/2007 6:00 🛗
Recurrence:	One Time
Schedule on Build:	Yes
Post-Build Delay (s):	20

This means that you don't need to separately manage your build schedule in Bamboo and your test automation schedule in SpiraTest.

5. Microsoft Azure DevOps Pipelines

This section outlines how to use SpiraTest, SpiraPlan or SpiraTeam (hereafter referred to as SpiraPlan) in conjunction with Microsoft's Azure DevOps continuous integration platform called **Azure DevOps Pipelines**. It assumes that you already have a working installation of SpiraPlan v5.0 or later and have already setup Microsoft Azure DevOps Pipelines. If you have an earlier version of SpiraTeam, you will need to upgrade to at least v5.0.

5.1. Overview

Microsoft Azure DevOps 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 Spira Build Server Extension for Azure DevOps, it will allow you to associate different Azure DevOps projects with a corresponding project and release in SpiraPlan. Then, each time a DevOps pipeline creates a new build, a new build artifact will be created in SpiraPlan. 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 Azure DevOps

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 Azure DevOps Pipeline Plug-In. When you click on the link on this page, it will take you to the Azure DevOps Marketplace, where you can install the Spira extension into your DevOps instance:

Visual Studio Marketplace	
Azure DevOps > Azure Pipelines > Spira extension for Azure DevOps	
Spira extension for Azure DevOps Inflectra 6 installs ★★★★★ (0) Free Get it free	
Overview Q & A Rating & Review	
Spira Extension for Azure DevOps	Categories
	Azure Pipelines
Brief Overview	Tags
Auomatically create builds in SpiraTest/Team/Plan when they complete in DevOps.	build Build task ci test execution
Don't have Spira?	Works with Azure DevOps Services
lf you do not have a Spira subscription, fear not! You can get a 30 day free trial for our flagship ALM product SpiraPlan. No credit card needed.	Azure DevOps Server
Guide Basics	Version 1.0
This guide assumes you are familiar with Azure DevOps Pipelines and have already installed our plugin from the	Released on 7/15/2019, 2:06:13 PM Last updated 7/15/2019, 2:18:02 PM Publisher Inflectra
DevOps marketplace.	

After that, the plugin will be available in your instance of Azure DevOps.

5.2. Authenticating with Spira

In DevOps, open the project you would like to have builds sync with Spira. Go to Project Settings > Pipelines > Service Connections

Under Service connections, click the "New service connection" button and click "SpiraPlan Configuration." Under connection name, put something helpful like SpiraPlan Fred Bloggs

For SpiraPlan URL put the 'root' directory of your Spira instance, not including the end slash. For username, put the username you use to sign-in to Spira. For RSS Token, go to your user profile page in Spira, enable RSS Feeds and copy the token into DevOps. Now verify the connection by clicking "Verify connection," if you entered everything correctly, you're good to go!

5.3. Adding the Spira Build Task

Now in the pipeline you would like to add Spira support to, open the pipeline's YAML file and in the assistant to the right, search "Spira" and select "Export data to Spira" Select the service connection name you put in earlier, enter the ID of the project in Spira you would like your results sent to, the ID of the release you would like the builds to be associated with, and the base url of your DevOps instance (like <u>https://dev.azure.com/fabrikam</u> or <u>https://fabrikam.visualstudio.com</u>)

	FestProject	
⁹ ma	ister V 🛛 🕹 TestProject / azure-pipelines.yml	
12	steps:	
13	- task: NodeTool@0	
14	inputs:	
15	versionSpec: '10.x'	
16	displayName: 'Install Node.js'	
17	- script:	
18	npm install	
19	npm-test	
20	<pre>displayName: 'npm install and test'</pre>	
21	 task: PublishTestResults@2 	
22	<pre>condition: succeededOrFailed()</pre>	
23	inputs:	
24	testRunner: JUnit	
25	<pre>testResultsFiles: '**/junitresults-*.</pre>	xml*
26	- task: spira-build-task@0	
27	<pre>condition: succeededOrFailed()</pre>	
28	- inputs:	
29	connectedService: 'SpiraPlan Admin'	
30	project: '2'	
31	releaseId: '20'	
32	baseUrl: 'https://dev.azure.com/infle	ctra
33	buildNumber: '\$(Build.BuildNumber)'	
34	buildStatus: '\$(Agent.JobStatus)'	
35	buildId: '\$(Build.BuildId)'	
36	sourceVersion: '\$(Build.SourceVersion) '
37	projectName: '\$(System.TeamProject)'	12.1

The other fields are used internally by the plugin and should be left as-is - DO NOT CHANGE THEM. Click "Add" and add the condition: succeededOrFailed() above inputs in the YAML snippet. This makes sure that the Spira task can access the current build status. Now move the spira-build-task YAML Snippet to the end of the file so that it's executed last. This will make sure that the final result of the build gets recorded in Spira.

Here is an example YAML file:

```
trigger:
- master
pool:
  vmImage: 'ubuntu-latest'
steps:
- task: NodeTool@0
  inputs:
    versionSpec: '10.x'
  displayName: 'Install Node.js'
- script: |
    npm install
    npm test
  displayName: 'npm install and test'
- task: PublishTestResults@2
  condition: succeededOrFailed()
  inputs:
    testRunner: JUnit
    testResultsFiles: '**/junitresults-*.xml'
- task: spira-build-task@0
  condition: succeededOrFailed()
  inputs:
    connectedService: 'SpiraPlan Fred Bloggs'
    project: '2'
    releaseId: '20'
    baseUrl: 'https://dev.azure.com/inflectra'
    buildNumber: '$(Build.BuildNumber)'
    buildStatus: '$(Agent.JobStatus)'
    buildId: '$(Build.BuildId)'
    sourceVersion: '$(Build.SourceVersion)'
    projectName: '$(System.TeamProject)'
```

If everything had been configured correctly a new build in DevOps will create a new build in Spira!

5.4. Viewing the Build Results in SpiraTeam

Now that you have associated your Azure DevOps pipeline with a specific SpiraTeam project and release/ iteration, you can now use Azure DevOps to manage your software builds and have the results of the build be reported back into SpiraPlan. For example, when a DevOps Pipeline runs, it will report in Azure DevOps something like the following:

8 #20190712.6: Update azure-pipelines.yml for Azure Pipelines
Manually run fri at 12:35 pm by Inflectra 🚸 TestProject 🦻 master 🕴 650988b
Logs Summary Tests
Job Pool: Hosted Ubuntu 1604 - Agent: Hosted Agent
Prepare job • succeeded
Initialize job - succeeded
Checkout · succeeded
Install Node.js • succeeded
opm install and test + 1 error
Sash exited with code '1'.
PublishTestResults · succeeded
🥏 spirabuildtask · succeeded
Post-job: Checkout · succeeded
Sinalize Job • succeeded
Report build status + succeeded

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

Sample	Release					
10.0.0	[RL:20] Type. [*] Hajor Release	 Status[®] Planne 	d Operations •			
 Overview 	🛡 Incidents # 🕴 Reqs & T	asks 🔶 Test Cases 🎲 Test	Ars #. 📄 Attachments	为 History #		
leople		Properties		Dates and Times		
Creator.* Owner	 System Administrator None 	Version #.* Operating System	10:00 Please Select	Creation Date: Last Updated	6/10/2019 12:20:34 P 6/10/2019 12:20:38 P	PM
		ServiceNow Data Synt ID		Start Date.*	6/10/2019 7/10/2019	j
				# Resources." Non-Working (person days)."	0	
				Plan Effort	104.0h	
etailed inform	ation			Available Effort:	184.0h	
🖉 Refresh		Displaying 1 - 11 out of 11 build(s) in th				
Build Name # 1	r	Creation Date +*	Status + *	Last Updated + *	0.4.4	
Filter		12-34-2019	- kny w	12-34-2019	84. 84,32	
20190712.6 20190712.5		12-3.4-2019	Falled	12-34-2019	85.31	
0 20190712.4		12-344-2019	Failed	12-346-2019	81.30	
		12-346-2019	Failed	12-346-2019	81.29	

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:

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:



This page will display the status (success / failure) and details of the build.

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

5.7. Scheduling Test Sets Upon Successful Builds

One additional feature of the integration with SpiraPlan is the ability to have SpiraPlan automatically schedule the execution of a test set whenever a build passes.

To do that, make sure the Test Set is associated with the SpiraPlan release or iteration that is being built and then set the **Schedule on Build** field to "Yes" and optionally enter in the delay (after the build succeeds) that you want the test set to be scheduled for:

Dates and Times	
Creation Date:	1/1/2007 7:00:00 PM
Last Executed:	12/1/2003 5:45:20 AM
Last Updated:	1/1/2007 7:00:00 PM
Planned Date:	02/04/2007 6:00 🛗
Recurrence:	One Time
Schedule on Build:	Yes
Post-Build Delay (s):	20

This means that you don't need to separately manage your build schedule in Azure DevOps and your test automation schedule in SpiraPlan.

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