

Test Design and Implementation

October 2014

Agenda

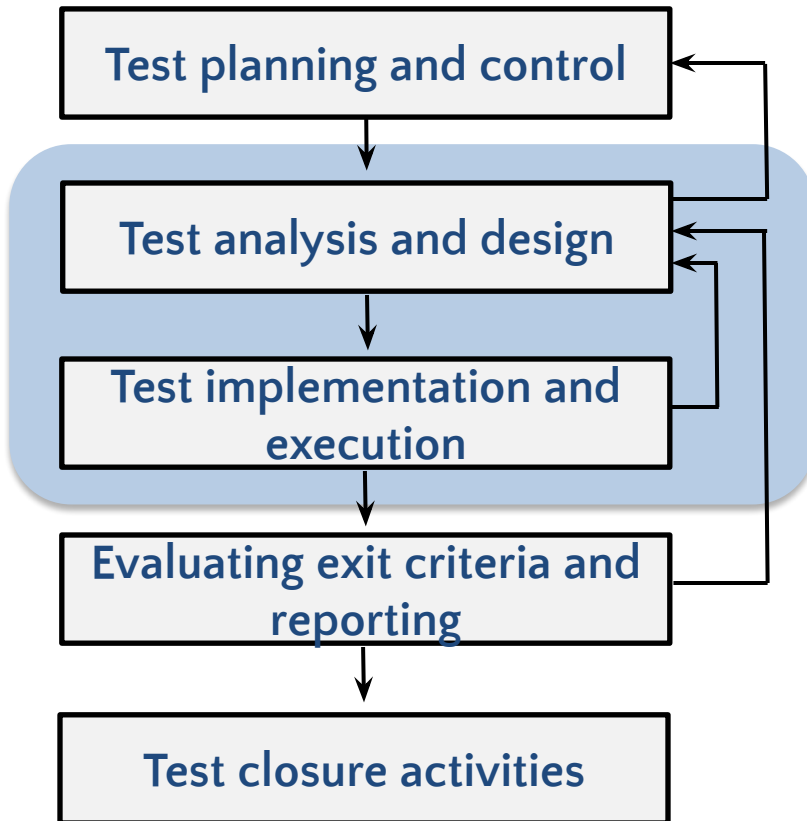
- *Test Design and Implementation process*
- *Example*
- *Test Case Management tools*
- *Zephyr for Jira*



Test Design Process

Test Design and Implementation

Fundamental Test Process



Review and Analyze
Test Basis

Identify Test Conditions

Design Tests using Test
Design Techniques

Design Test Environments

Develop and Prioritize
Test Cases

Create Test Suites

Implement Environment

Why Test Cases?

- ✓ Testing efficiency: be ready to test once the code is ready
- ✓ Early bug detection: errors in code can be prevented before the coding is done
- ✓ Test credibility: test cases are supposed part of the deliverable to the customer
- ✓ Ability to cover all parts of the requirements
- ✓ Legal documents of testing work, in case information is needed for law suits
- ✓ Ability to track history while iterations
- ✓ Usefulness while bringing in new testers

Example

Driving test is an analogy for testing. We will use it to illustrate the Test Design and Implementation process.

- ✓ Test is planned and prepared in advance: routes that cover the main driving activities are planned by examiner.
- ✓ The drivers under the test know the requirements of the test.
- ✓ Pass/Fail criteria for driving tests are well-known.
- ✓ The test is carried out to show that the driver satisfies the requirements for driving and to demonstrate that they are fit to drive.



Review and Analyze Test Basis

Review and Analyze
Test Basis

Identify Test Conditions

Design Tests using Test
Design Techniques

Design Test Environments

Develop and Prioritize
Test Cases

Create Test Suites

Implement Environment

- ✓ Review Test Basis
- ✓ Evaluate testability of the requirements and system
- ✓ Clarify requirements

Requirement to be clarified in
Driving Test:

- Emergency stop: the driver must stop the car quickly, safely and without loss of control

Identify Test Conditions

Review and Analyze
Test Basis

Identify Test Conditions

Design Tests using Test
Design Techniques

Design Test Environments

Develop and Prioritize
Test Cases

Create Test Suites

Implement Environment

- ✓ Define Test Conditions (as many as possible)
- ✓ Define test environment

Test Conditions in Driving Test:

- behavior at road junctions
- use of indicators
- ability to maneuver the car

Design Tests

Review and Analyze
Test Basis

Identify Test Conditions

Design Tests using Test
Design Techniques

Design Test Environments

Develop and Prioritize
Test Cases

Create Test Suites

Implement Environment

- ✓ Define Tests for defined Conditions

Tests for 'behavior at road junctions' Test Conditions in Driving Test:

- T-junctions
- cross roads

Design Test Environments

Review and Analyze
Test Basis

Identify Test Conditions

Design Tests using Test
Design Techniques

Design Test Environments

Develop and Prioritize
Test Cases

Create Test Suites

Implement Environment

- ✓ Design the test environment set-up and identify any required infrastructure and tools.

Test Environment for Driving Test:

- Car (with or without additional stop pedal)

Equipment for measuring the time of response:

- stopwatch

Develop and Prioritize Test Cases

Review and Analyze
Test Basis

Identify Test Conditions

Design Tests using Test
Design Techniques

Design Test Environments

Develop and Prioritize
Test Cases

Create Test Suites

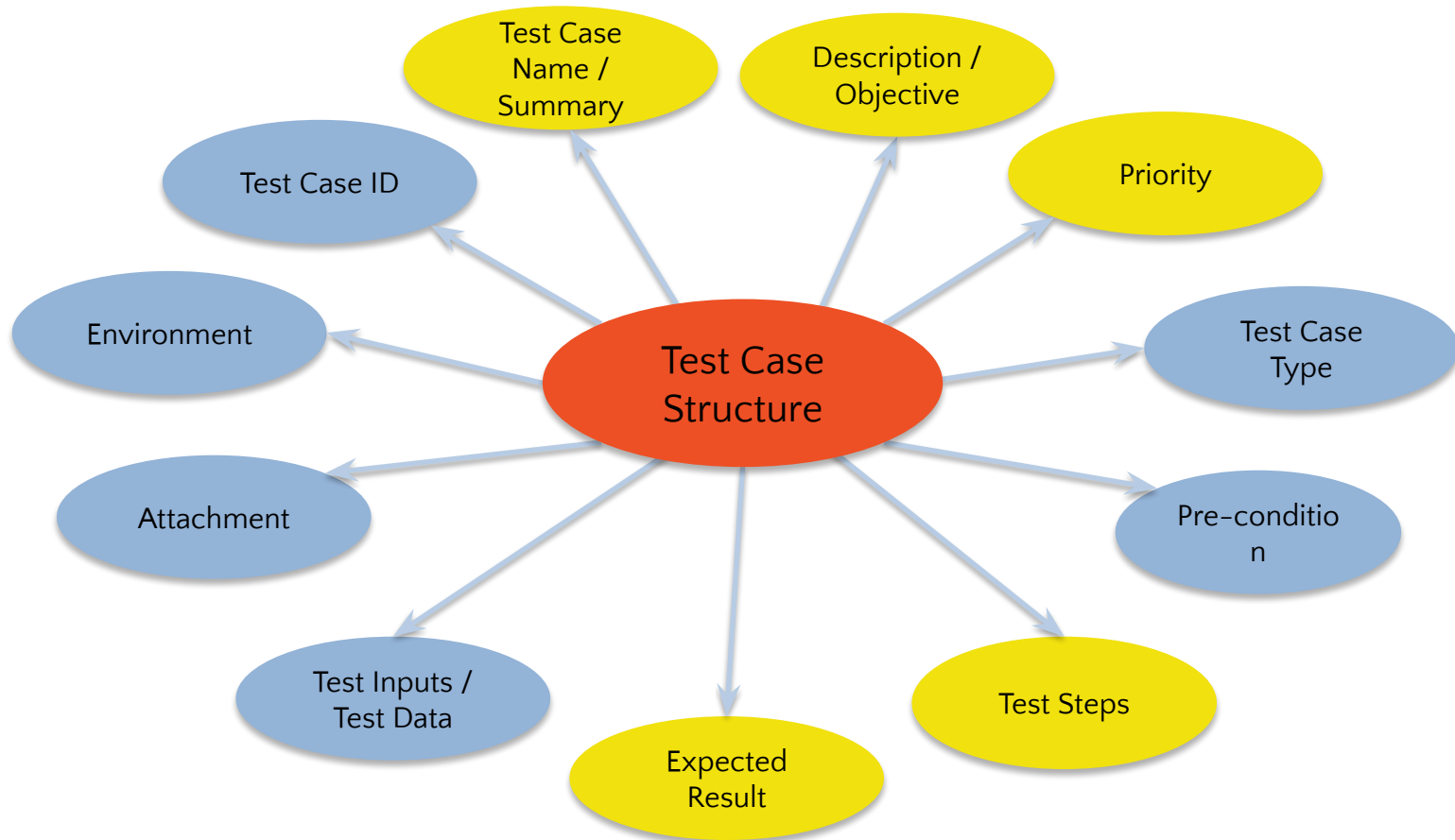
Implement Environment

- ✓ Develop and prioritize Test Cases
- ✓ Create Test Data for Test Cases
- ✓ Write instructions for carrying out the tests

Test Case for test condition 'junctions' in Driving Test:

- take the route down Mayfield Road to the junction with Summer Road and ask the driver to turn left into Summer Road and then right into Green Road, expecting that the driver checks mirrors, signals and maneuvers correctly, while remaining aware of other road users.

Test Cases development



Create Test Suites

Review and Analyze
Test Basis

Identify Test Conditions

Design Tests using Test
Design Techniques

Design Test Environments

Develop and Prioritize
Test Cases

Create Test Suites

Implement Environment

- ✓ Group Test Cases logically for Test Execution
- ✓ Create a Test Execution Schedule

Test Suite and Test Execution
Schedule for Driving Test:

- Start the car
- Movement in forward direction
- Emergency stop

Implement Test Environments

Review and Analyze
Test Basis

Identify Test Conditions

Design Tests using Test
Design Techniques

Design Test Environments

Develop and Prioritize
Test Cases

Create Test Suites

Implement Environment

- ✓ Implement and verify Test Environment

Test Environment for Driving Test:

- Car is available
- Car is equipped by additional stop pedal
- Additional stop pedal works well

Test Design and Implementation Example

Requirements: User Registration Page

- **Business Value:** I, as an Administrator user, should be able to create a simple user account to log in application.
- **Functional Requirements:** 'User Registration' page should contain three fields 'User Name', 'Password', 'Confirm Password' and two buttons – 'Save' and 'Cancel'.
- **Mock up:**

The mockup shows a 'USER REGISTRATION' form with the following elements:

- 1:** User Name input field
- 2:** Password input field
- 3:** Confirm Password input field
- 4:** Cancel button
- 5:** Save button

1 'User Name' field is limited by 10 symbols and should contain letters of Latin alphabet only. 'User Name' field is empty by default. User Name should be unique in the system.

2 'Password' field should be no less than 4 symbols long and should include only numbers and letters of Latin alphabet only. 'Password' field is empty by default.

3 'Confirm Password' field should be equal to 'Password'. 'Confirm Password' field is empty by default.

4 'Cancel' button cancels account creation and closes 'User Registration' page.

5 'Save' button validates data entered into fields on 'User Registration' page and creates user account if entered data are correct; or shows error dialogs if validation fails. Validation should be provided in following order: User Name, Password, and Confirm Password.

Requirements: Error Messages

ERROR MESSAGE

Password cannot be blank.
Please fill in Password and Confirm
Password and try again.

ERROR MESSAGE

Password cannot include special
characters.
Please fill in Password and Confirm
Password and try again.

ERROR MESSAGE

Password is too short.
Please fill in Password and Confirm
Password and try again.

ERROR MESSAGE

Password and Confirm Password
do not match.
Please fill in Password and Confirm
Password and try again.

OK

ERROR MESSAGE

User Name cannot be blank.
Please fill in User Name and try again.

OK

ERROR MESSAGE

User Name is too long.
Please fill in User Name and try again.

OK

ERROR MESSAGE

User Name cannot include numbers
or special characters.
Please fill in User Name and try again.

OK

ERROR MESSAGE

User Name already exists.
Please fill in User Name and try again.

OK

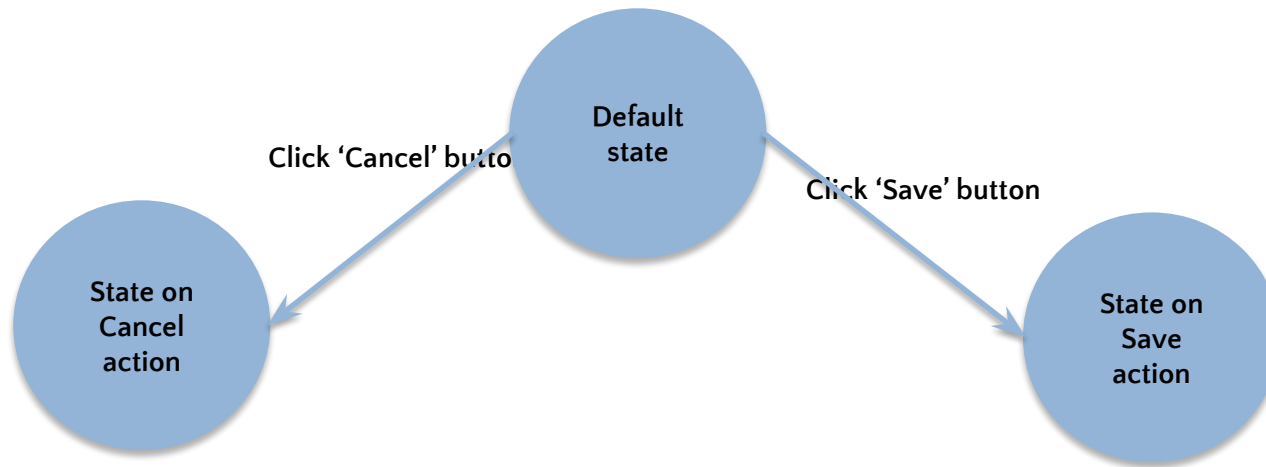
Applying State Transition Technique

'User Name' field is empty by default. 'Password' field is empty by default.

'Confirm Password' field is empty by default.

'Cancel' button cancels account creation and closes 'User Registration' page.

'Save' button creates user account if entered data are correct.

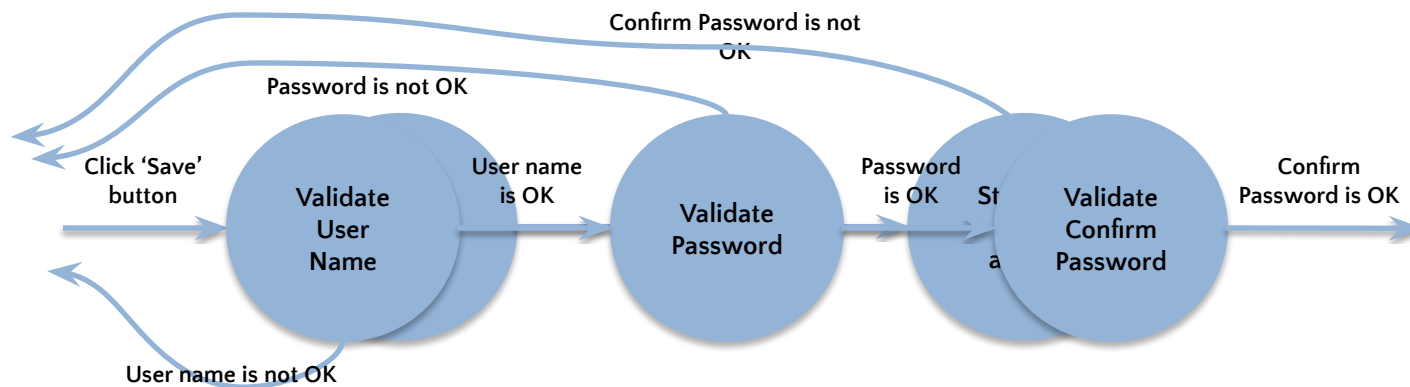


Applying State Transition Technique

Requirement	Test Name	Description
Default values	Default values on the 'User Registration' page	This test verifies that all fields on 'User Registration' page are blank by default
'Save' button functionality	Creating new user account and save	This test verifies that user account could be created if all fields on 'User Registration' page are filled with correct data; and 'User Registration' page is closed on save action
'Cancel' button functionality	Creating new user account and cancel	This test verifies that user account is not created after filling in fields on 'User Registration' page and canceling; and 'User Registration' page is closed on cancel action

Applying State Transition Technique

'Save' button validates data entered into fields on 'User Registration' page and creates user account if entered data are correct; or shows error dialogs if validation fails. Validation should be provided in following order: User Name, Password, and Confirm Password.



Applying BVA and EP Techniques

'User Name' field is limited by 10 symbols.

BVA:	0	1	10	11
	Invalid Class	Valid Class		Invalid Class
EP:	only 0	1-10		11 and bigger

'User Name' field should contain letters of Latin alphabet only.

Letters of Latin Alphabet	Numbers	Special Characters
Valid class	Invalid class	Invalid class
A-Z and a-z	0-9	@, !, #, \$, %, ^, &, *, (,), >, <, /, \, , }, {,], [, -, ~, ' , " , ;, ;, etc.

User Name should be unique in the system.

Test Item “User Registration”

Requirement	Test Name	Description
'User Name' field validation	Error dialog on saving user account with too long user name	This test verifies that error dialog appears while save action if user name length is too long: 1)boundary length – 11 characters 2)restricted length – more than 11 characters
	Error dialog on saving user account with blank 'User Name' field	This test verifies that error dialog appears while save action if 'User Name' field is blank
	Verify boundary length for user name	This test verifies that user account having user name with boundary length 1 or 10 could be created
	Error dialog on saving user account with wrong user name	This test verifies that error dialog appears while save action if 'User Name' field include: 1)special symbols; 2)numbers; 3)both
	Error dialog on saving already existing user account	This test verifies that error dialog appears while save action if user already exists in the system

Test Item “User Registration”

Requirement	Test Name	Description
'Password' field validation	Error dialog on saving user account with too short password	This test verifies that error dialog appears while save action if password length is too short: 1)boundary length – 3 characters 2)restricted length – less than 3 characters
	Error dialog on saving user account with blank 'Password' field	This test verifies that error dialog appears while save action if password is blank
	Verify boundary length for password	This test verifies that user account having password with boundary length 4 could be created
	Error dialog on saving user account with incorrect password	This test verifies that error dialog appears while save action if 'Password' field includes special symbols
'Confirm Password' field validation	Error dialog on saving user account with unequal password and confirm password	This test verifies that error dialog appears while save action if: 1) 'Confirm Password' field is blank 2) password and confirm password do not match

Test Case for 'Confirm Password' field validation



Test Design

'Confirm Password' field validation	Error dialog on saving user account with unequal password and confirm password	This test verifies that error dialog appears while save action if: 1) 'Confirm Password' field is blank 2) password and confirm password do not match
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Test Case

- ✓ Example 1 – Test Data in Test Steps
- ✓ Example 2 – Test Data in Test Data field
- ✓ Example 3 – Test Data in separate document

Test case Example 1

Test Data in Test Steps

Test Case ID: 1	Test Case Name: Creating new user account and save	Status: Pass
Test Type: Functional	Author: <First and Last Names>	Creation Date: 10/17/2010
Automation: Recommended	Priority: High	Disposition: Reviewed - Completed
Objective: This test case verifies that user account could be created if all fields on 'User Registration' page are filled with correct data; and 'User Registration' page is closed on save action.		
Pre-Conditions and Setup: Administrator user is logged to the system and 'User Registration' page is opened. If not, then run: #1 Test Function: Open 'User Registration' page as Administrator user User "TestUserB" do not exist in the system.		
#	Test Steps	Expected Result
1	Set "TestUserB" value to 'User Name' field	
2	Set "Password1" value to 'Password' field	
3	Set "Password1" value to 'Confirm Password' field	
4	Click 'Save' button on the page	'User Registration' page is closed and just added "TestUserB" user is available in the lists of users.
Test Data: None		
Attachment(s): None		

Pros

- suitable to use when test case is a candidate for automation

Cons

- not suitable for manual testing (each time test case executes the same input values)
- hard to maintain

Test case Example 2

Test Data in Test Data file

Test Case ID: 4	Test Case Name: Verify boundary length for user name	Status: Pass
Test Type: Functional	Author: <First and Last Names>	Creation Date: 10/17/2010
Automation: Recommended	Priority: Medium	Disposition: Reviewed - Completed
Objective: This test case verifies that user account having user name with boundary length 1 or 10 could be created.		
Pre-Conditions and Setup: Administrator user is logged to the system and 'User Registration' page is opened. If not, then run: #1 Test Function: Open 'User Registration' page as Administrator user Users "U" and "MyTestUser" do not exist in the system.		
#	Test Steps	Expected Result
1	Set 1# value to 'User Name' field	
2	Set 2# value to 'Password' field	
3	Set 3# value to 'Confirm Password' field	
4	Click 'Save' button on the page	Just added #1 user is available in the lists of users.
Test Data: 1# "U", "MyTestUser" 2# "Password1", "Password2" 3# "Password1", "Password2"		
Attachment(s): None		

Pros

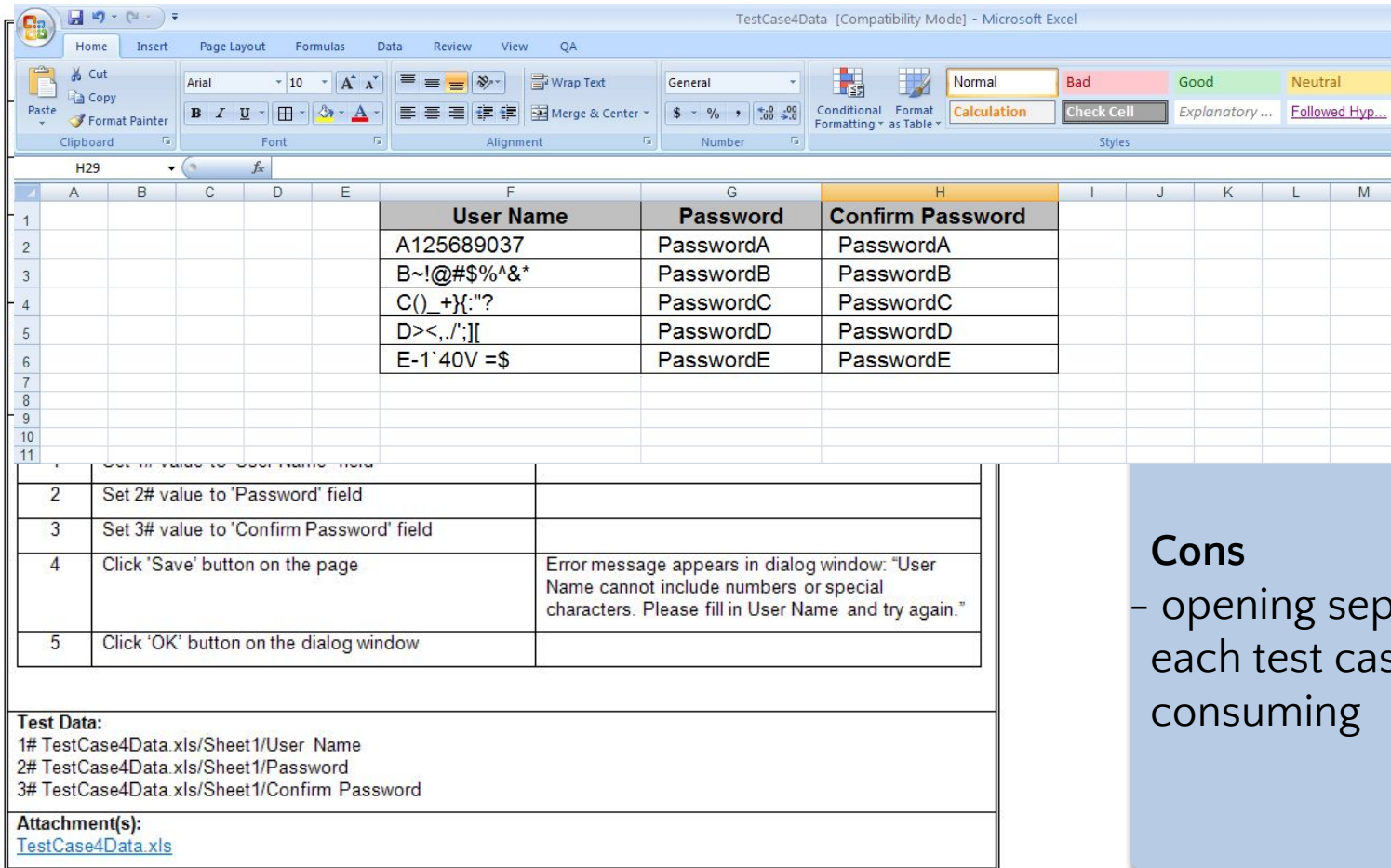
- easy to maintain
- one test case can be executed with different data and you do not need to duplicate test cases

Cons

- test data field is not readable in case of a lot of data or long values

Test case Example 3

Test Data in separate document



The screenshot shows a Microsoft Excel spreadsheet titled 'TestCase4Data [Compatibility Mode] - Microsoft Excel'. The spreadsheet has columns A through M and rows 1 through 11. The data is as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M
1						User Name	Password	Confirm Password					
2						A125689037	PasswordA	PasswordA					
3						B~!@#\$\$%^&*	PasswordB	PasswordB					
4						C()_+}{:"'?	PasswordC	PasswordC					
5						D><.,!/:;][PasswordD	PasswordD					
6						E-1`40V =\$	PasswordE	PasswordE					
7													
8													
9													
10													
11													

Below the spreadsheet is a table with 5 rows and 3 columns:

1	Set 1# value to 'User Name' field	
2	Set 2# value to 'Password' field	
3	Set 3# value to 'Confirm Password' field	
4	Click 'Save' button on the page	Error message appears in dialog window: "User Name cannot include numbers or special characters. Please fill in User Name and try again."
5	Click 'OK' button on the dialog window	

At the bottom of the screenshot, there is a section for Test Data and Attachment(s):

Test Data:
1# TestCase4Data.xls/Sheet1/User Name
2# TestCase4Data.xls/Sheet1/Password
3# TestCase4Data.xls/Sheet1/Confirm Password

Attachment(s):
[TestCase4Data.xls](#)

tain data
ate
e better

Cons
– opening separate file for each test case is time consuming

Tips and Tricks

- ✓ Write test cases for all requirements
- ✓ Write test cases with necessary detail level
- ✓ Write independent and cross-platform test cases
- ✓ Follow standard template for all test cases as well as name convention, alignment etc
- ✓ Write short test cases (up to 10-15 steps)
- ✓ Use simple English and general words
- ✓ Write test cases to quick and easy to determine the expected result
- ✓ Provide test data if possible
- ✓ Write in details SQL queries (it will save time while executing)
- ✓ Add reference to bugs and requirements
- ✓ Add some notes in case you want to convey additional information
- ✓ Highlight important things, marking them in bold or assigning them color or writing in different font

Test Case Management Tools: Zephyr for Jira

Test Case Management Tools

Test Case Management Tool – A tool that provides support to the test management and control part of a test process.

- Microsoft Test Manager
 - JIRA TCM Solution
 - TestLink
 - TestLog
- ✓ Ability to create new and effectively manage existing Test Cases
- TestRail
- ✓ Ability to track history, Test Case executions, total run time, and estimate workload
- Redmine
 - Fitness
- ✓ Ability to organize and categorize your Test Cases by Product, Component, Test Type, Test Component and Test Subcomponent
- Borland Silk
 - Qmetry
- ✓ Versioning of Test Cases
- Zephyr
- ✓ Group Test Cases into Test Cycles
- Excel
- ✓ Presence of search and filter capabilities
- ✓ Ability to link Test Cases with requirements, defects and vice versa
- ✓ Metrics gathering, reports creation, etc.

Zephyr for Jira

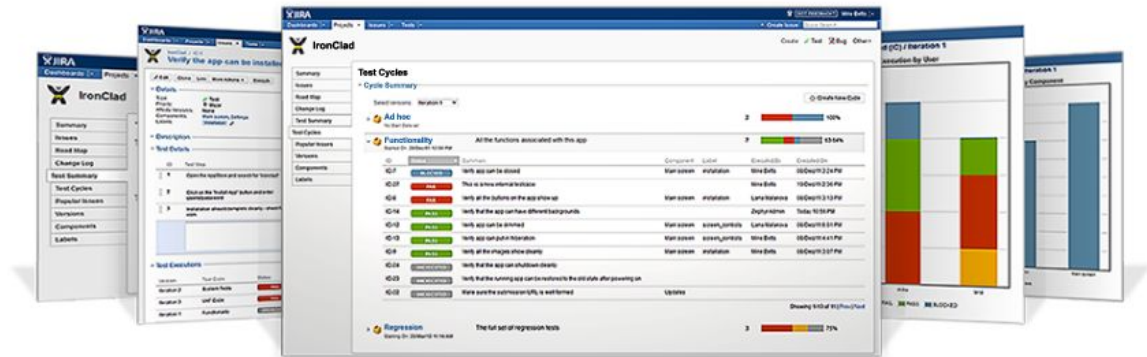
Zephyr for JIRA is an add-on application that augments JIRA 5 and 6, providing cost-effective, highly sophisticated test management capabilities right inside your JIRA.

Term	Description
Test	A test case. This issue-type has default issue workflow and this can be turned on or off. By default, it is off
Test Summary	High level summary and counts of all the tests that have been created in a particular project, grouped in various ways.
Test Cycle	A grouping of executed or unexecuted tests. More than one test cycle can exist for a <i>Version</i> .
Execution	When a test is run and its result or status is recorded.
Execution statuses	Pass, Fail, Blocked, WIP (Work In Progress), Unexecuted are default statuses. Custom statuses can be added.

Zephyr for Jira

Major features include:

- ✓ Create, view, edit and clone tests
- ✓ Link to stories, tasks, requirements etc.
- ✓ Plan test execution cycles
- ✓ Execute tests
- ✓ File defects
- ✓ Track quality metrics
- ✓ Create custom dashboards
- ✓ Perform advanced searches using ZQL



Create a Test

Create an Issue with Issue Type “Test”:

Case 1

The image shows two overlapping screenshots of the JIRA Stage interface. The top screenshot, labeled 'Case 1', displays the 'Create Issue' form with the following fields: Project (set to ~TCM Test), Issue Type (set to Test), Summary (empty), Security Level (All), Priority (Medium), Due Date (empty), Component/s (empty), Affects Version/s (empty), Fix Version/s (empty), Assignee (Automatic), and Environment (empty). The bottom screenshot, labeled 'Case 2', shows the same interface but with the 'Details' section expanded, displaying: Type: Test, Priority: High, Affects Version/s: None, Component/s: component1, Labels: None, and Environment: Environment 1. The 'Create Issue' form is also visible in the background of Case 2.

Case 2

Create a Test

Add Test Steps to the Test:



~TCM Test / TESTTCMA-526

Creating new user account and save

- Edit
- Comment
- Clone
- More Actions ▾
- Resolve Issue
- Workflow ▾
- Execute



Details

Type:	Test	Status:	Open (View Workflow)
Priority:	High	Resolution:	Unresolved
Affects Version/s:	None	Fix Version/s:	None
Component/s:	component1	Security Level:	All
Labels:	None		
Environment:	Environment 1		

Description

This Test case verifies that user account could be created if all fields on 'User Registration' page are filled with correct data; and 'User Registration' is closed on save action.

Test Details

	Test Step	Test Data	Expected Result
⋮	1 Set 1# value to 'User Name' field	1# "MyTestUser"	
⋮	2 Set 2# value to 'Password' field	2# "Password1"	Enter Expected Result  
⋮	3 Set 3# value to 'Confirm Password' field	3# "Password1"	
⋮	4 Click 'Save' button on the page		Jusr added #1 is available on the list of users
	<input type="text"/>	<input type="text"/>	<input type="text"/> <input type="button" value="Add"/>

Create a Test

Clone existing Test:

Case 3

~TCM Test / TESTTCMA-526
Creating new user account and save

Edit Comment **Clone** More Actions ▾ Resolve Issue Workflow ▾ Execute

Details

Type: Test Status: → Open (View Workflow)
Priority: ↑ High
Affects Version/s: None
Component/s: component1
Labels: None
Environment: Environment 1

Description

This Test case verifies that user account could

Test Details

Test Step	
1	Set 1# value to 'User Nar
2	Set 2# value to 'Passwor
3	Set 3# value to 'Confirm Password' field 3# "Password1"
4	Click 'Save' button on the page Just added #1 is available on the list of users

Clone:

Enter the summary of the clone issue ...

⚠ You do not have the "Modify Reporter" permission. You will be the reporter of the clone issue.

Summary* CLONE - Creating new user account and save

Create Cancel

Link to Stories



~TCM Test / TESTTCMA-526

Creating new user account and save

[Edit](#) [Comment](#) [Clone](#) [More Actions](#) [Resolve Issue](#) [Workflow](#) [Execute](#)

Description

This Test case verifies that user account could be created if all fields on 'User Registration' page are filled with correct data; and 'User Registration' is closed on save action.

Test Details

	Test Step	Test Data	Expected Result
1	Set 1# value to 'User Name' field	1# "MyTestUser"	
2	Set 2# value to 'Password' field	2# "Password1"	
3	Set 3# value to 'Confirm Password' field	3# "Password1"	
4	Click 'Save' button on the page		Jusr added #1 is available on the list of users

Add

Test Executions

Version	Test Cycle	Status	Defects	Executed By	Executed On
This test has not been executed yet. Click here or on the Execute button above to start.					

Issue Links

is a test for [TESTTCMA-532 I](#), as an Administrator user, should be able to create a simple user account to log in application.



Plan Test Cycle

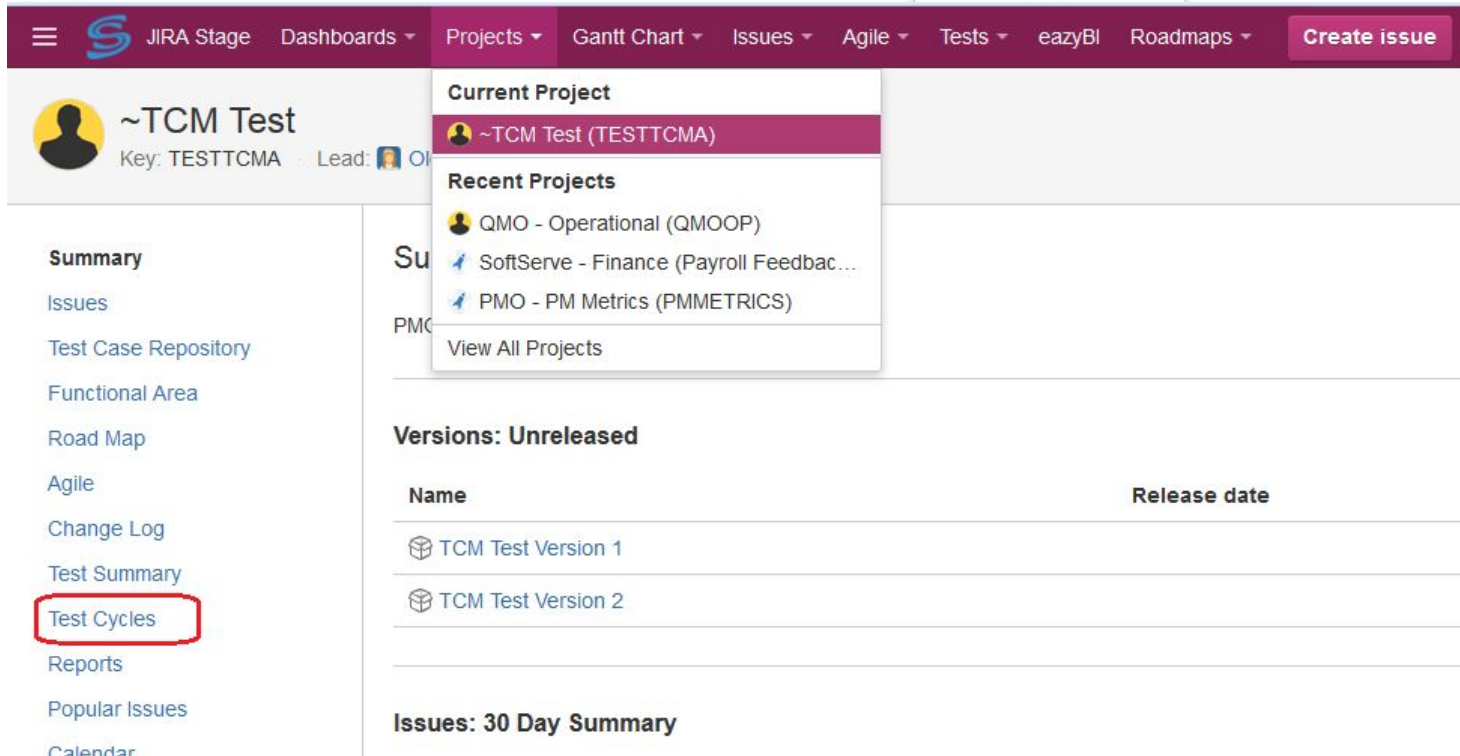
Open existing Test Cycles:

Case 1



The screenshot shows the JIRA interface with the 'Tests' dropdown menu open. The menu options are: Search Tests, Create a Test, Plan Test Cycle (highlighted), Search Test Executions, and Manage Execution Filters. The main header includes navigation links for JIRA Stage, Dashboards, Projects, Gantt Chart, Issues, Agile, Tests, easyBI, Roadmaps, and a 'Create issue' button. The main content area shows a user profile for '~TCM Test / TESTTCMA-526' and the issue title 'Creating new user account and save'. Below the title are buttons for Edit, Comment, Clone, More Actions, Resolve Issue, and Workflow.

Case 2



The screenshot shows the JIRA interface with the 'Test Cycles' option highlighted in the left sidebar menu. The sidebar menu includes: Summary, Issues, Test Case Repository, Functional Area, Road Map, Agile, Change Log, Test Summary, Test Cycles (highlighted), Reports, Popular Issues, and Calendar. The main content area shows the 'Current Project' dropdown menu open, listing '~TCM Test (TESTTCMA)' as the current project and several recent projects: QMO - Operational (QMOOP), SoftServe - Finance (Payroll Feedbac..., and PMO - PM Metrics (PMMETRICS). Below the project list is a 'Versions: Unreleased' section with a table showing two versions: TCM Test Version 1 and TCM Test Version 2. The table has columns for 'Name' and 'Release date'. At the bottom, there is an 'Issues: 30 Day Summary' section.

Plan Test Cycle

Add Test to Test Cycles:

The screenshot displays a web application interface for managing test cycles. At the top, there's a 'Test Cycles' header and a 'Cycle Summary' section. A dropdown menu shows 'Select Versions: TCM Test Version 1'. A '+ Create New Cycle' button is visible in the top right. Below this, there are two main sections: 'Full Regression' and 'Ad hoc'. The 'Full Regression' section shows a table of test cycles with columns for ID, Status, and Summary. The 'Ad hoc' section shows a 'No Start Date set' and a 'Build:' field. A modal dialog titled '"Add Tests" Status:' is open in the center, displaying an information icon and the following text: 'The following just happened: Tests added: TESTTCMA-526. These Tests could not be added. Invalid: -. Belongs to another project: -. Already present in this Test Cycle: -. Not a Test: -'. A 'Close' button is at the bottom right of the modal. In the background, a table with columns 'Component', 'Label', 'Executed By', and 'Executed On' is partially visible, showing rows for 'component1' and progress bars with values like '0 0%' and '11 5.07%'.






Plan Test Cycle

Create a new Test Cycles:

Test Cycles

▼ Cycle Summary

Select Versions: TCM Test Version 1 ▾ + Create New Cycle

▶  Full Regression Started On: 01/Oct/14	Set of Tests to be executed in Full Regression Build: Environment:	0  0%
▶  Smoke No Start Date set	Cycle for Smoke testing Build: Environment:	No Tests
▶  Ad hoc No Start Date set	Build: Environment:	11  5.07%

Test Execution in Zephyr for Jira

JIRA Dashboards Projects Issues Tests Create Issue Quick Search

IronClad Key: IC Lead: Zephyr Admin

Summary Issues Road Map Change Log Test Summary Test Cycles Popular Issues Versions Components Labels

Test Cycles

▼ Cycle Summary Select Versions: Iteration 1 + Create New Cycle

Functionality Major features of Iteration 1 (all 8 stories) will get tested in this cycle 30 58.18%

Started On: 18/Mar/12 Build: 766 Environment: QA1

ID	Status	Summary	Defect	Component	Label	Executed By	Executed On
IC-1	FAIL	Verify the app can be installed from the AppStore	-	Main screen	Installation	Zephyr Admin	04.05.12 18.04
IC-3	PASS	Verify the app can be launched	-	Main screen	Installation	Zephyr Admin	04.05.12 18.05
IC-6	PASS	Verify app starts cleanly	-	Main screen	Installation	Zephyr Admin	10.05.12 15.53
IC-7	BLOCKED	Verify app can be closed	-	Main screen	Installation	Mike Belts	08.12.11 12.24
IC-8	FAIL	Verify all the buttons on the app show up	-	Main screen	Installation	Lana Malakova	08.12.11 12.13
IC-9	PASS	Verify all the images show cleanly	-	Main screen	Installation	Mike Belts	08.12.11 12.07
IC-10	UNEXECUTED	Verify that the app can be upgraded	-	Main screen	upgrades		
IC-12	PASS	Verify app can be dimmed	-	Main screen	screen_controls	Lana Malakova	08.12.11 15.01
IC-13	PASS	Verify app can put in hibernation	-	Main screen	screen_controls	Mike Belts	08.12.11 13.41
IC-14	PASS	Verify that the app can have different backgrounds	IC-11			Zephyr Admin	21.01.12 19.56

Showing 1-10 of 44 | Prev | Next

Regression The full set of regression tests and more 7 100%

Started On: 23/Mar/12 Build: 766 Environment: QA2

Final Sanity Tests Final tests on Staging before we push this out. Test on all major browsers. 12 63.16%

Started On: 18/Apr/12 Build: 766 Environment: Staging

Test Progress monitoring in Zephyr





*Empowering your Business
through Software Development*

Thank you

US OFFICES

Austin, TX
Fort Myers, FL
Boston, MA
Newport Beach, CA
Salt Lake City, UT

EUROPE OFFICES

United Kingdom
Germany
The Netherlands
Ukraine
Bulgaria

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Toll-Free: 866.687.3588
Office: 239.690.3111

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Tel: 0207.544.8414

GERMAN TELEPHONE

Tel: 0692.602.5857