GUIDELINE

DMS User Manual

Code	26e-HD/PM/HDCV/FSOFT
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Table of content

1   INTRODUCTION

1.1 Purpose

The goal of this document is to guide project team to understand about defect information, logging, monitoring and measuring defects using Defect Management System.

1.2 Reference

No	Code	Name of documents
1	07e-HD/PM/HDCV/FSOFT	Guideline_Software testing
2	08e-HD/PM/HDCV/FSOFT	Guideline_Software metrics
3	08e-BM/PM/HDCV/FSOFT	Template_Project database

1.3 Definitions, acronyms and abbreviations

Abbreviations/ Acronyms	Expansion	Note
DMS	Defect Management System	
QC	Quality Control	
QA	Quality Assurance	
Wdef	Weighted defect	
UCP	Use-case point	To measure project size
PM	Project Manger	
PTL	Project Technical Leader	
Model	Defect model, defect workflow	

2   DEFECT MANAGEMENT

This section gives an explanation of how to use DMS system. All Screenshots are accompanied by an explanation of the screens functionality. Where applicable a path is provided showing how the screen can be reached within the program if needed.

2.1 Login/Logout

2.1.1   Login

Path: the first screen

To access DMS, enter the user name and the password, once these have been entered click on the "Login" button.

If the wrong user name or password is entered, DMS will display a warning message:

You need to re-check your user name and password and re-type in the these textboxes above

2.1.2   Logout

Path: click "Logout" from the header menu

2.2 Manage query

2.2.1   View (Homepage)

Path: Login defaults to this screen

Clicks on the query name that you want to view, includes fixed queries, public queries and private queries.

Note:

There are some pre-defined fixed queries:

- All defects: list all defects of the project

- All Open defects: list all defects which has the status in (Error, Assigned, Fixing, Corrected) of the project

- All leakage defects: list all defects which have the status differ from "Cancel" and the QC Activity in (After Release Test / After Release Review / Acceptance Test)

2.2.2 Add query

Path: click on button Add New Query from the Homepage

Enter the query's information in each field; note that the query name is mandatory for the query then click on the "Save"
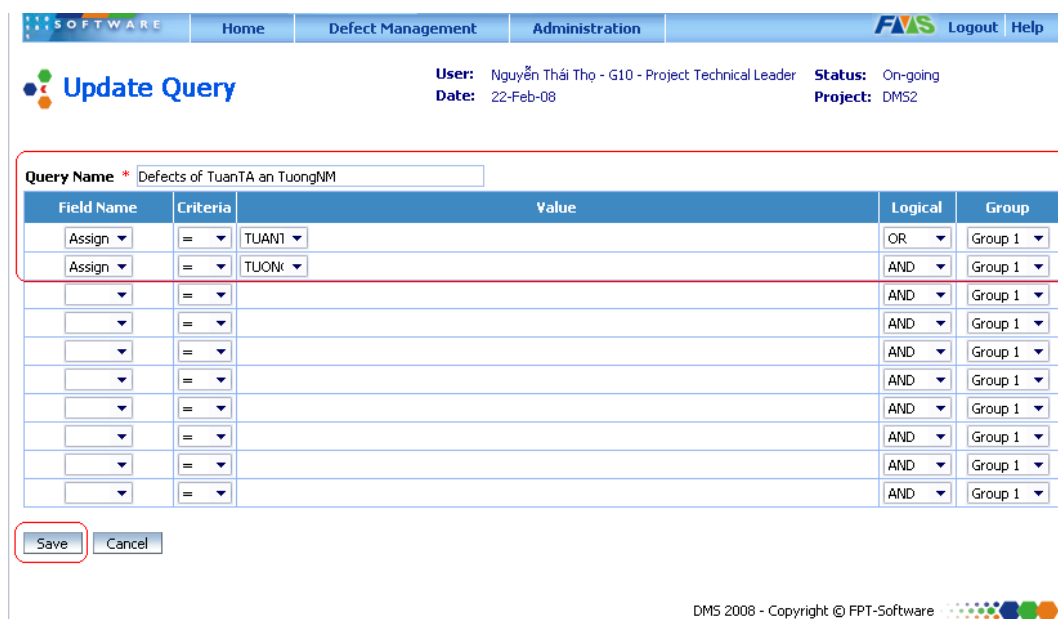
Note:

- Normal user can add only private query

- PM can add private and public query

- Only DMS Admin can add fixed query

2.2.3   Update query

Path: click on icon *Update Query from the Homepage*

Enter the new query's information in each field that you want to change then click on the "Save" to update the query information

Note:

- Normal user can update private query

- PM can update private and public query

- Only DMS Admin can update fixed query

2.2.4   Delete query

Path: Login defaults to this screen

From the Homepage screen, select query (queries) by checking on the check box (boxes) then click on button "Delete"

Note:

- Normal user can delete his/her private queries

- PM can delete private and public queries

- Only DMS Admin can delete fixed queries

2.3 *Manage defect*

2.3.1   Defect List

Path: Click on a query from the Homepage or from the menu **Defect Management/ All Defects**

After selected a query from the Homepage or from the header menu, a list of defects matching the previously chosen query criteria with the necessary information is displayed.

Search defects by criteria:

If user selected fixed query, user could filter result based on some criteria, he can use criteria filters. There are two kinds of filter:

- *Simple filter* : to search defects by the most popular criteria

- *Advanced filter*: to search defect by all criteria

Simple filter is displayed by default so if user can click on the link from the simple filter to get advanced filter.

To search defect by criteria, enter the necessary information then click the button "Search" to view the result.

2.3.2   View defect detail

Path:

- Click on the link defected from the list defects screen

After selected a defected from the list defects screen, the defect detail screen matching the previously chosen defect with the necessary information is displayed:

Add discussion, view defect history: refer to section 2.3.5

2.3.3   Add defect (Log defect)

Path:

- Click on menu Defect Management/ New Defect:
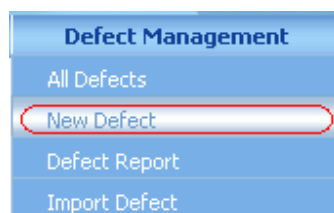
- Click on the button "Add New" from the list defect screen or defect detail screen

Add New

To create a defect, enter the defect's information in each of the defect fields

Note that all the fields with the icon ✱ are mandatory. User must fill at least these fields for a new defect.

Attach files to defect (optional):

- Click on the button "Attach file", the attachment screen will be display:

- Click the button "Browse". A file dialog box appears, select attached file then click the button "Attach" to attach the files to the selected defect:
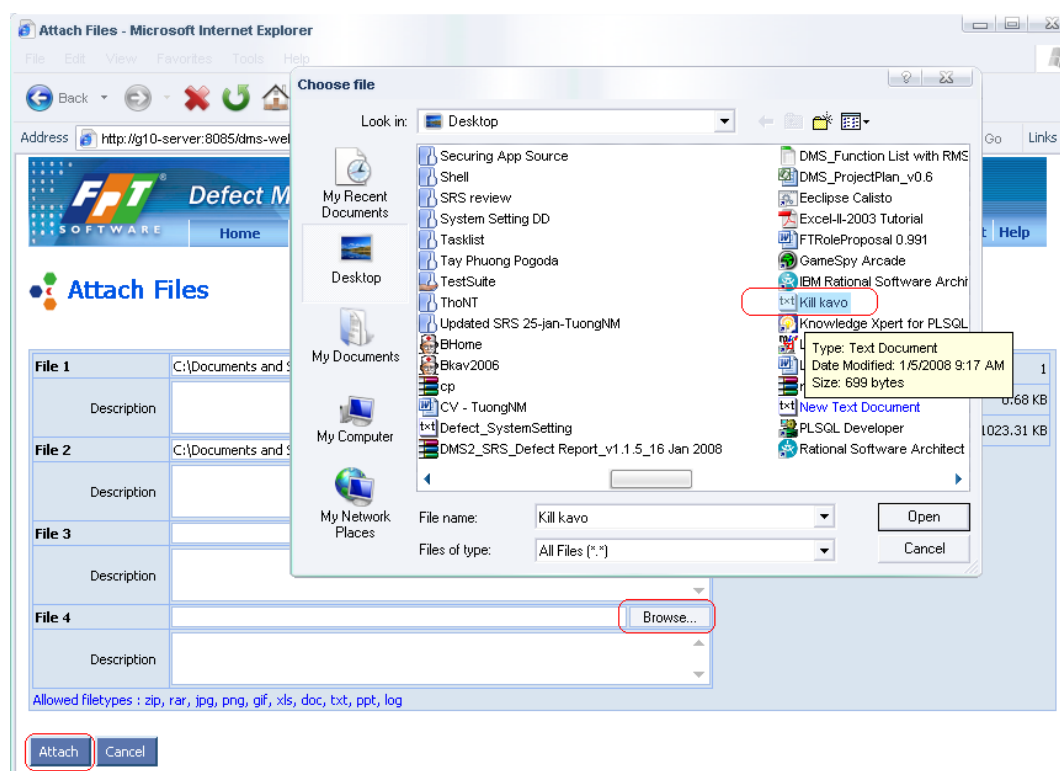
After finished all these tasks above, click the button "Save" on the add defect screen. If all information is valid, the defect will be saved into database. Otherwise, an error message will be display to remind user to re-check and correct defect information.

For more information of defect description, please refer to section Defect Description

2.3.4   Clone Defect

Path: from the defect detail screen, click the button "Clone": Clone

The Add Defect screen will be displayed with corresponding field values are cloned from the Detail Defect screen (except Discussion, Attachment, and History), and they become enable to edit (refer to add defect section for reference):

2.3.5   Update defect

Path: Click on the Icon from the list defect screen or "Update" button from the Defect Detail Screen

A screen with information of selected defect will be displayed for update. Enter the new defect's information in each field that you want to change:

Add discussion:

- User can add comments to the defect by click on the link "Discussion":

Type the comment in "Your comment" text field, and then click on the button "Add Comment"

View defect history:

- To view the history of defect, just click on the link "History":

Delete Attachment:

- Just click on the icon ❌ to delete the attached file

Open/Save attachment:

- Just click on the link file name of the attachment:
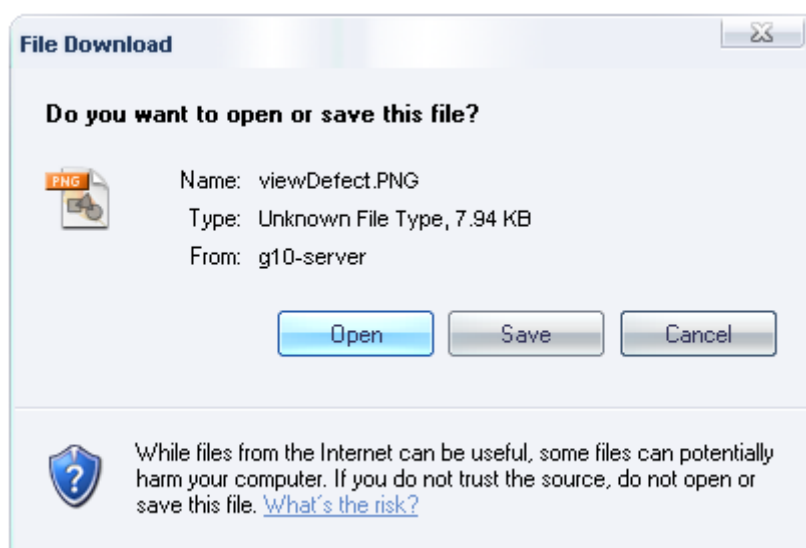
Click "Open" to open the selected attachment and "Save" to save attachment to your machine

Add more attach file:

- From the update defect screen, press the button "Attach file": refer to section 3.3.2 for the detailed description

After finished all these tasks above, click the button "Save" on the update defect screen. If all information is valid, the defect will be saved into database. Otherwise, an error message will be display to remind user to re-check and correct defect information

2.3.6   Batch update

Path: *From Defect List screen, select defects for updating and click "Batch Update"button*

- The batch update screen will be display as below:

- Change necessary fields of the selected defects then click the button "Batch Update"

2.3.7   Import defects

Path: Defect Management/Import defect

The import screen will be displayed:

To import defects into system, follow these steps bellows:

- Select template type from combo box

- Download defect template file (.xls) by click on the link then fill appropriate information of defects in the template file

- Use the button to select the imported defect file

- Click the button to import defects from file to database

Note

- All imported defects will have the status *Error* if value of assign to field is blank or *Assigned if value of assign to field is not blank and valid.*

2.3.8   Export Defects

Path: From the list defects screen, click the button "Export":

The export defects screen will be display:

Export based on existed template

- Select a template from available templates list by selecting Template combo box and clicking "Use this template" button then click the button "Export":
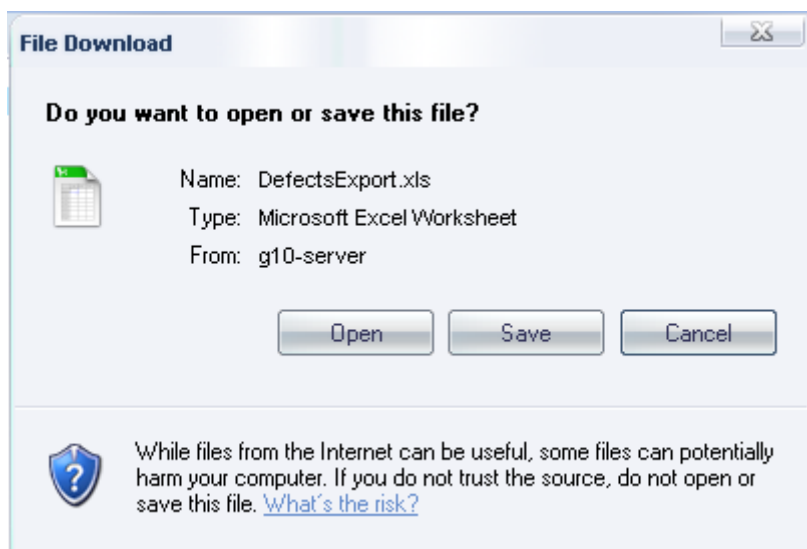
- Click on button "Open" to open the exported defects file and "Save" to save the file in local machine

Export based on customized template

- By default, Export List contains mandatory fields. As order of fields from top to bottom, fields in export list will be appropriately displayed from left to right. Source List contains remained fields of defects to be exported:
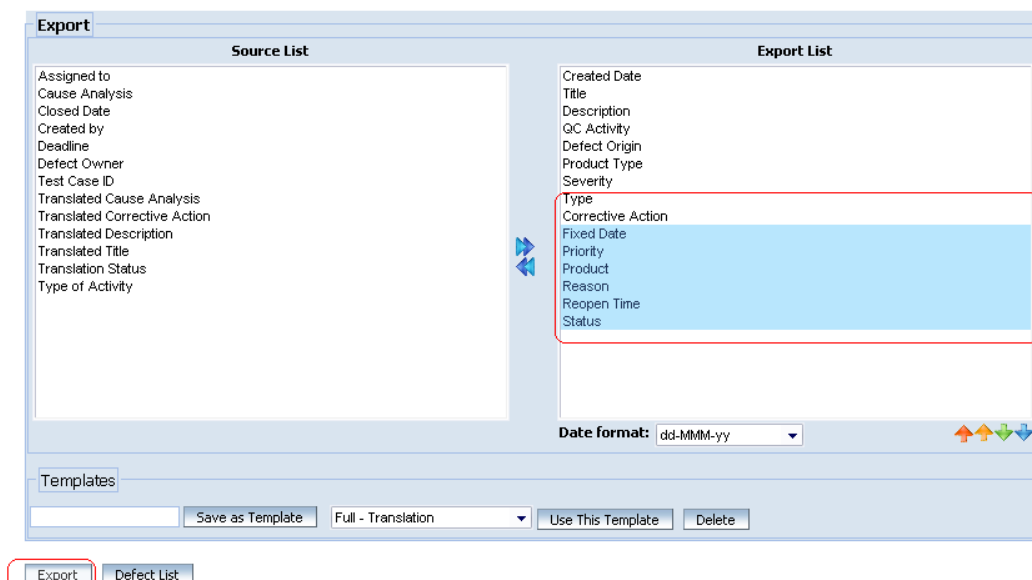
- Select items in lists and use supplied button (Move left, Move right, Move up, Move down, Move top, Move bottom) to customize export fields are their order then click the button "Export" to export defects

Save customized template as your template

- After created the customized template as description above, enter the name in template name text field then click the button "Save as template"

Delete export template

- Select a template from available templates list by selecting Template combo box and clicking "Delete" button

Note:

- Fsoft's pre-defined templates can not be deleted. Only user's template can be deleted by him

- All defects to be exported are the defects chosen from the list defects screen

2.3.9   Export defect detail

Path: *click the button "export" from the defect detail screen*

- The Open dialog is displayed as below:
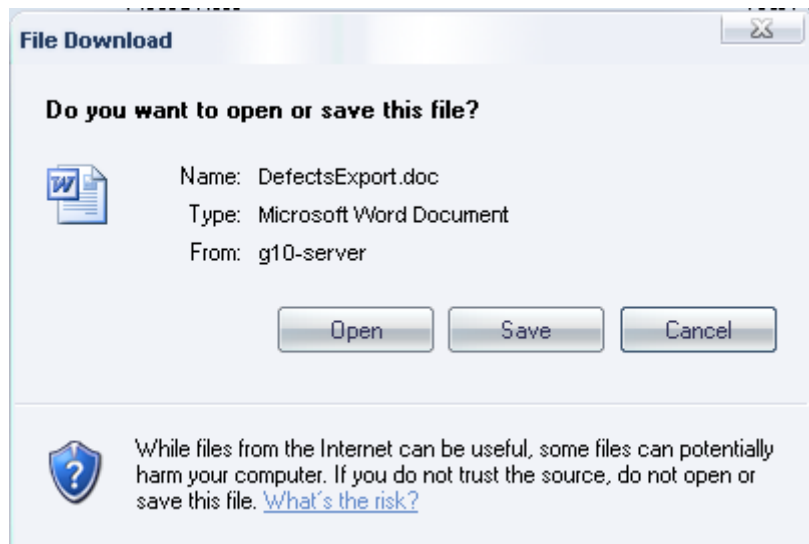
Click "Open" to open exported defect and save to save defect into local machine:

Detail Report

Defect ID: 10003042	**Created Date:** 03-Mar-08		**Product Type:** Software package	
Created by: THONT	**Product:**			
Status: Assigned	**Severity:** Medium		**Priority:** High	
Defect Origin: Coding	**QC Activity:** Integration test		**Type:** Coding logic	

Test Case ID:

Title: Title - Test 1 a

Description: Description - Test

Deadline: 09-Mar-08	**Defect Owner:** PHUONGLL		**Assigned to:** PHUONGLL	

Cause Analysis: Cause Analysis

Corrective Action: Corrective Action

Fixed Date:	**Closed Date:**	
Restriction Internal	**Translate Status** Not translated	

Note:

- All information of the selected defect will be exported, except information about discussion, defect history and attachments.

2.3.10 Move defects

Path: From the list defect screen

In order to move defects, follow these steps bellows:

- Choose defects from defect list

- Choose a destination project from combo box "Project"

- Click "Move To Project" button to move defects from current project to destination project.

Note

- This task only can be done by QA of the project. For users who are not QA, this function will be disabled

2.3.11 Translate defect

Path: From the defect detail screen, click the button "Translate"

Type all translated information for translated fields of defect into associated translation sections. Then select the translation status from the combo box then click "Save" button to update defect translation:

Comter, QA and PM of project can access this screen.

2.4 View defect report

Report function is used to analyze and evaluate defects of project basing on defect status, defect severity…, and moreover it helps manager to check progress of each Tester and Developer, … Report is performed by any user in FPT-Software Company, customer, end-user that are assigned to project.

Path: From any page, click on the menu Defect Management/ Defect Report

2.4.1   Defect general (Report all)

Path: displayed by default when user click on the menu Defect Management/ Defect Report or select value "Defect General" from the combo box "Report Type":

After the defect general report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

Severity	Open Defect						Fixed Defect							Total (Severity)
	Error	Assigned	Fixing	Corrected	Confirmed	No	Delivered	Validated	Approved	Accepted	Canceled	Closed	No	
Fatal	2	7				9					1	2	3	12
Serious	3	136				139			1		2	12	15	154
Medium	570	177	1	1		749	3	2	1	1	15	75	97	846
Cosmetic		5	1			6				1	22	181	204	210
Total (Status)	575	325	2	1		903	3	2	2	2	40	270	319	1222
Total (W.def)	1745	1286	4	3		3038	9	6	8	4	87	486	600	3638
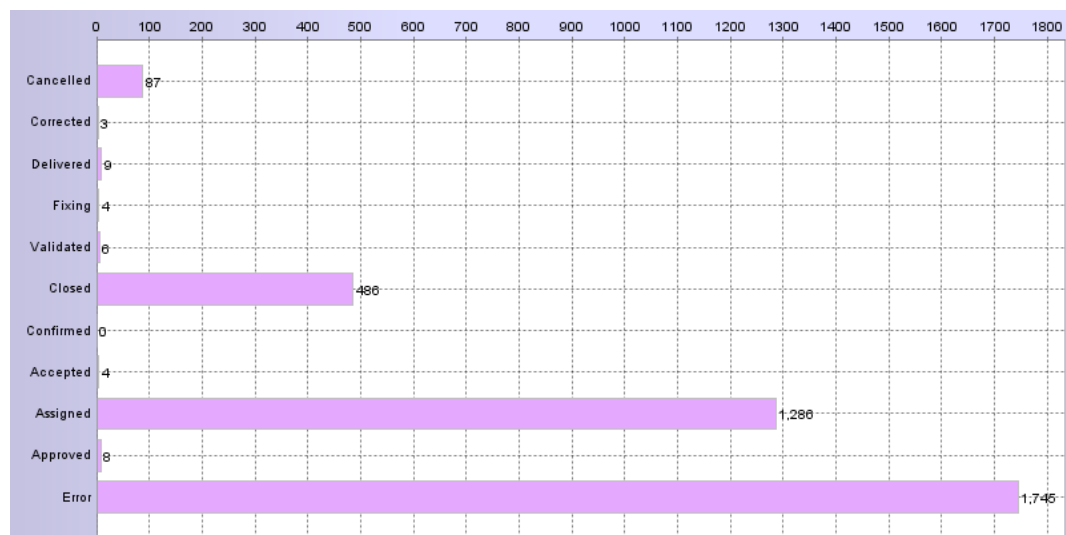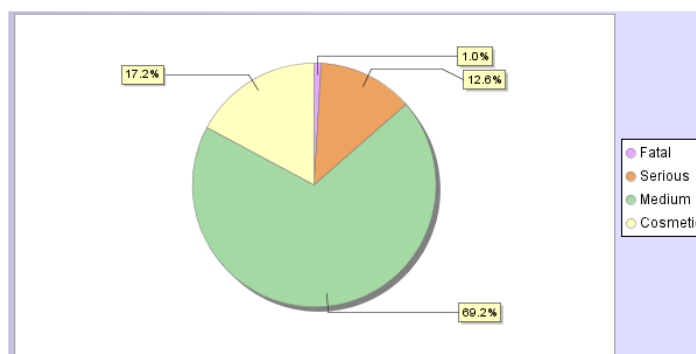
2.4.2   Defect testcase

Path: Select value "Defect By TC" from the combo box "Report Type":

After the "Defect By TC" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

2.4.3   Defect distribution

Path: Select value "Defect Distribution" from the combo box "Report Type":

After the "Defect Distribution" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

2.4.4   Defect leakage

Path: Select value "Defect Leakage" from the combo box "Report Type":

After the "Defect Leakage" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

Product Type	Product	Leakage					%	Total				
		F	S	M	C	W		F	S	M	C	W
Architectural design	DMS2_HLD_v1.0			1	4	7	46.7%			1	12	15
Database											1	1
					7	7	17.9%		5	1	11	39
	All Products				7	7	17.5%		5	1	12	40
Design prototype											1	1
Detailed design	DMS2_DDD_DefectManagement_v1.0				3	3	9.7%			9	4	31
	DMS2_DDD_SystemSetting_v1.0									2		6
	DMS2_DDD_Others_v1.0								2	3	2	21
	DMS2_DDD_Import_v1.0								5	3	4	38
	DMS2_DDD_QueryManagement_v1.0								1	10	6	41
	All Products				3	3	2.2%		8	27	16	137
Integration test case	DMS2_Testcase_v1.0	2				20	43.5%	2		6	8	46
Others					1	1	100%				1	1
Project database											1	1
Software module								3	124	3	11	670
Software package	DMS2_SourceCode_v1.0				5	5	3.1%		1	27	75	161
								3	731	4		2212
	All Products				5	5	0.2%		4	758	79	2373
SRS	DMS2_SRS_DefectManagement_v1.0									1	17	20
	DMS2_SRS_SystemSetting_v1.0									1		1
	DMS2_SRS_Others_v1.0										2	2
	DMS2_SRS_Import_v1.0										15	15
	DMS2_SRS_QueryManagement_v1.0										2	2
	DMS2_SRS_DefectReport_v1.0									4	5	17
											2	2
	All Products									5	44	59
Test data											1	1
Unit test case									1			5
	Total	2		1	20	43	1.3%	5	142	801	186	3349
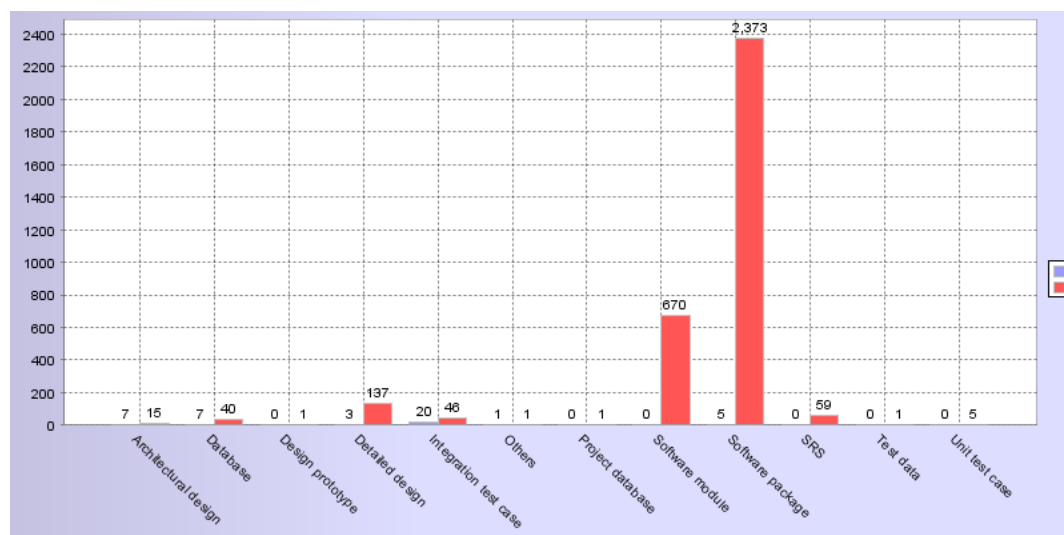
2.4.5 Defect owner tracking

Path: Select value "Defect Owner Tracking" from the combo box "Report Type":

After the "Defect Owner Tracking" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

Owner	Unit Test		Integration Test		System Test		Acceptance Test		Regression Test		After Release Test		Code Review		Others		Total (W.def)
	No	W.def	No	W.def	No	W.def	No	W.def	No	W.def	No	W.def	No	W.def	No	W.def	
BAHX			1	1											27	41	42
DUNGCT	13	23	1	3			1	1					3	5	3	3	35
HIEUNK1	8	16	4	6			1	1			2	2	4	4	24	34	63
HUYNT			1	3													3
PHUONGLL			2	2											21	41	43
QUANGNH	1	1													2	2	3
QUANLA1	1	3	3	3			1	1			4	4			15	17	28
THONT	4	8	1	1											3	3	12
THUYTTT											2	20					20
TUANTA															5	7	7
TUONGNM															34	96	96
Total	27	51	13	19			3	3			8	26	7	9	134	244	352
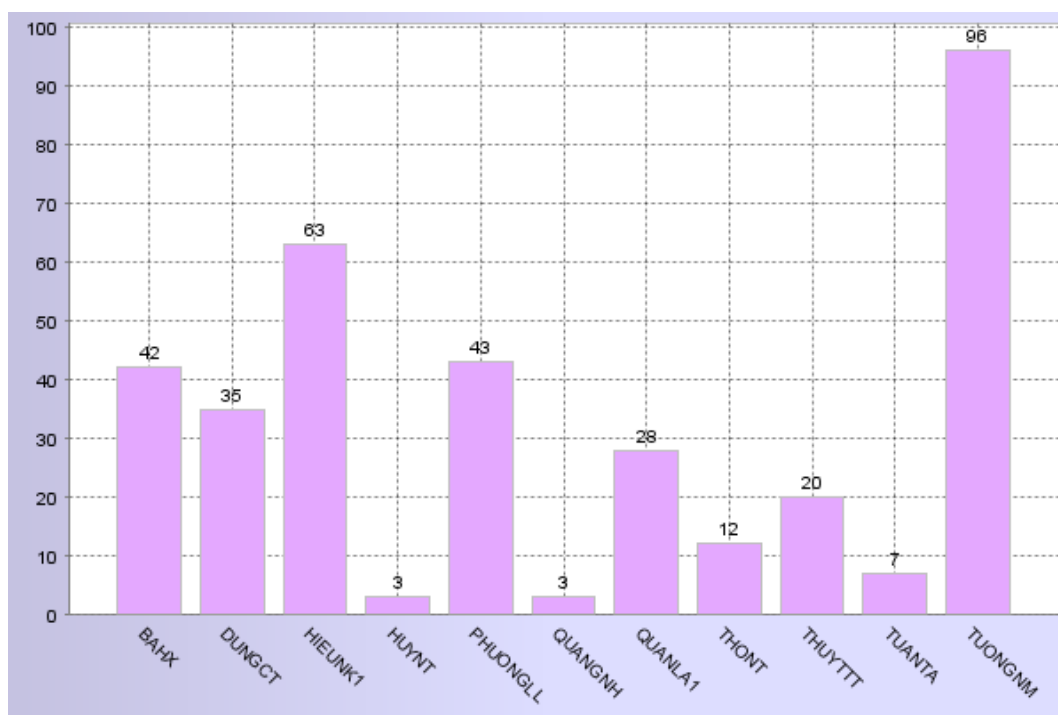
2.4.6 Defect progress

Path: Select value "Defect Progress" from the combo box "Report Type":

After the "Defect Progress" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

Developer	Open						Corrected					
	F	S	M	C	No	W	F	S	M	C	No	W
BAHX			3	19	22	28			1	1	2	4
DUNGCT		4	9	8	21	55			2	2		2
HIEUNK1	1	1	10	22	34	67			1	3	4	6
QUANGNH			1	2	3	5						
QUANLA1				2	2	2						
THONT			13	12	25	51	2	7	4	13		35
TUONGNM				1	1	1						
Total	1	5	36	66	108	209		2	9	10	21	47

Developer Progress Report
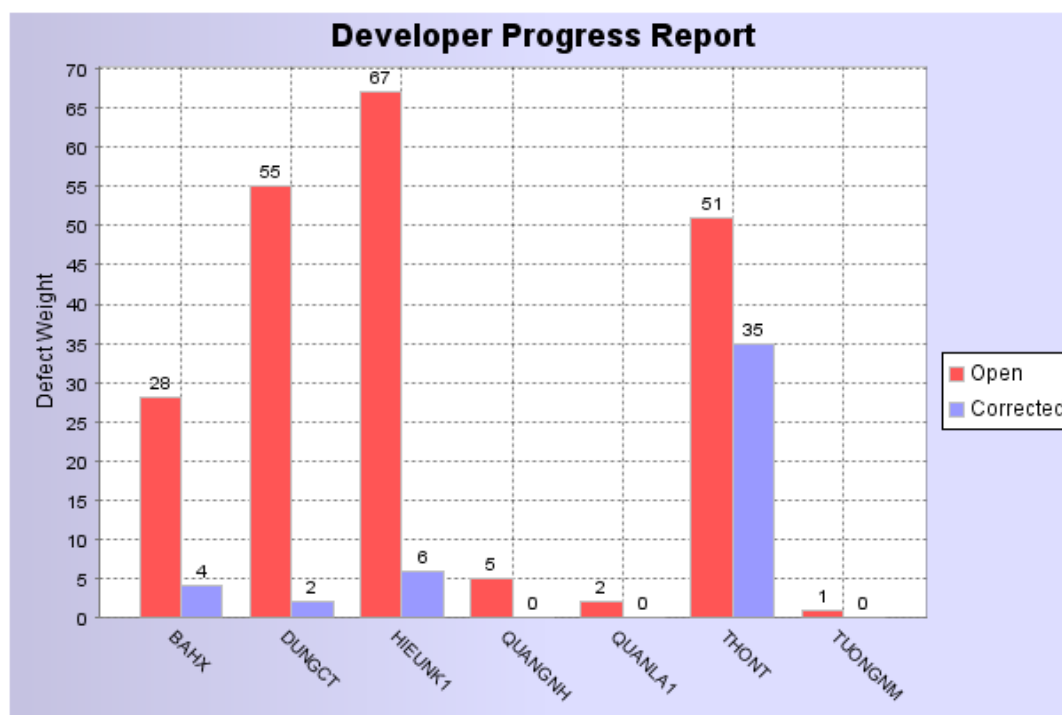
Tester	Corrected						Tested					
	F	S	M	C	No	W	F	S	M	C	No	W
PHUONGLL		2	7	4	13	35	1	3	16	56	76	129
Total		2	7	4	13	35	1	3	16	56	76	129

Tester Progress Report
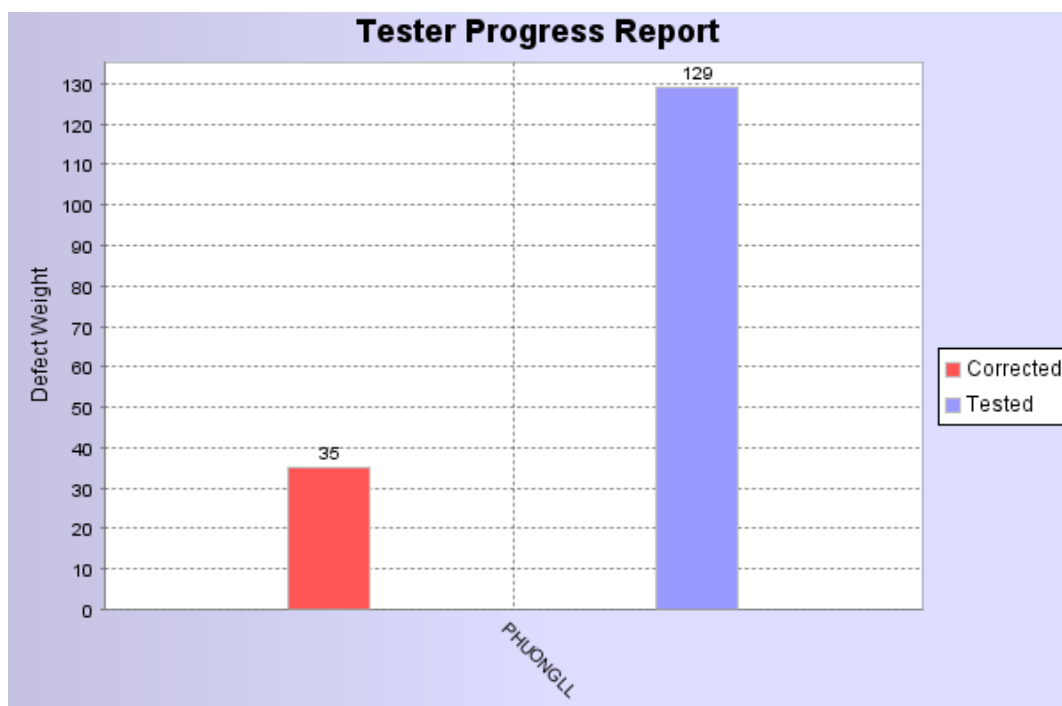
2.4.7   Defect re-open

Path: Select value "Defect Re-open" from the combo box "Report Type":

After the "Defect Re-open" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

No	Fatal	Serious	Medium	Cosmetic	Total
One Time	9	150	828	185	1172
Re-open 1	1	1	1	2	5
Re-open 2	1		2		3
Re-open 3				1	1
More than 3		1			1
Total	11	152	831	188	1182
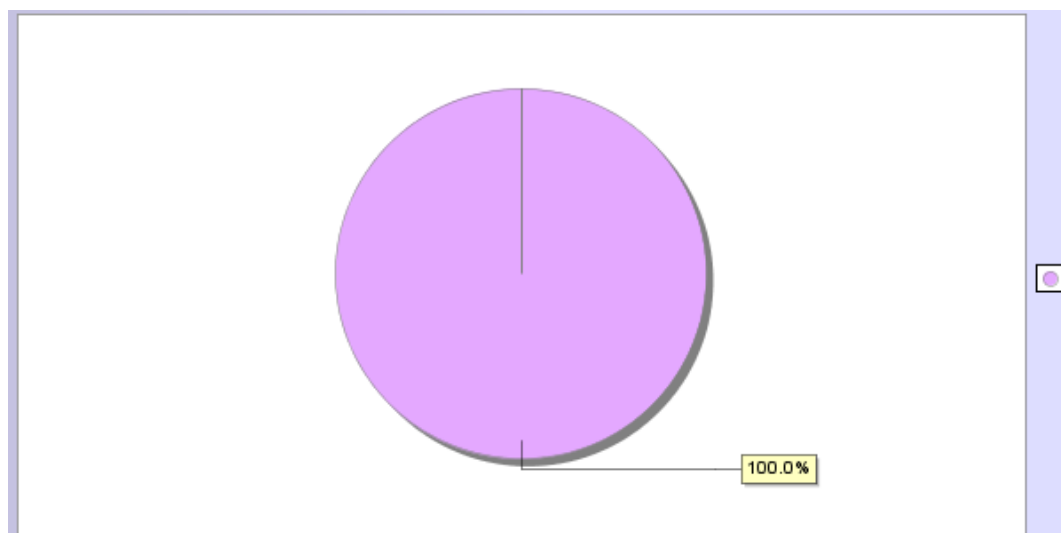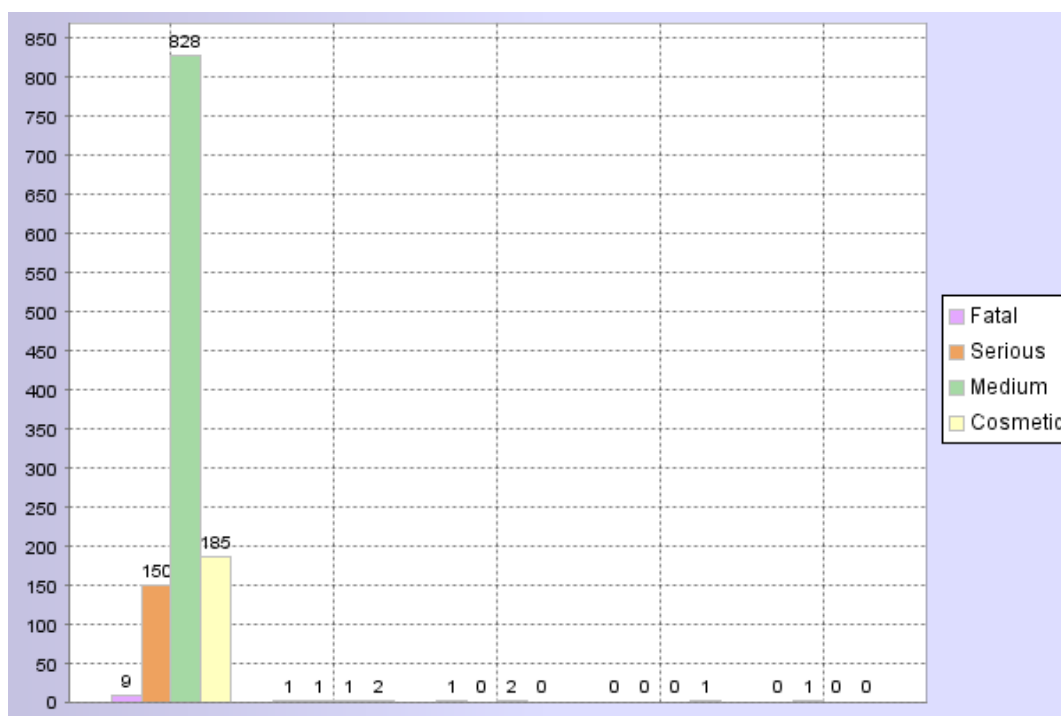
2.4.8   Defect summary

Path: Select value "Defect Summary" from the combo box "Report Type":

After the "Defect Summary" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

Product Type	Product	Planned Defect	Re-planned Defect	Actual Defect	Deviation
Database				1	1
Detailed design	DMS2_DDD_QueryManagement_v1.0			20	20
Software module				95	95
Software package	DMS2_SourceCode_v1.0			1	1
				57	57
	All Products			58	58
Total				174	174
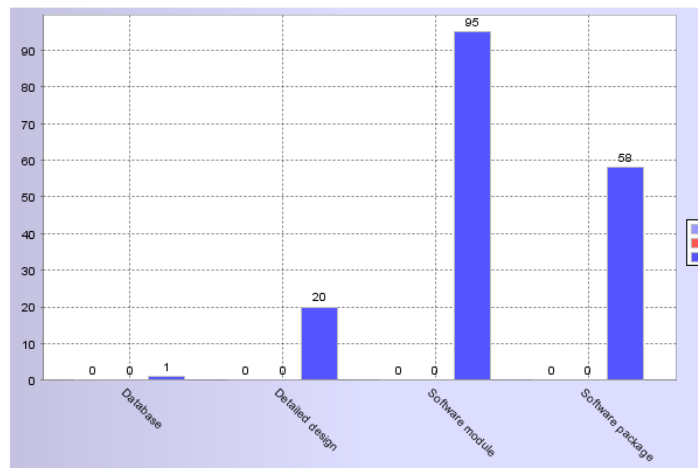
Click the link "Actual Defect" to view detailed reports, by default, the actual detailed defect by QC Activity report is displayed:

Product Type	Product	Document	Prototype Review	Code Review	Unit Test	Integration Test	System Test	Acceptance Test	Others
Database					1				
Detailed design	DMS2_DDD_QueryManagement_v1.0	16							4
Software module					95				
Software package	DMS2_SourceCode_v1.0					1			
						57			
	All Products					58			
Total		16			96	58			4
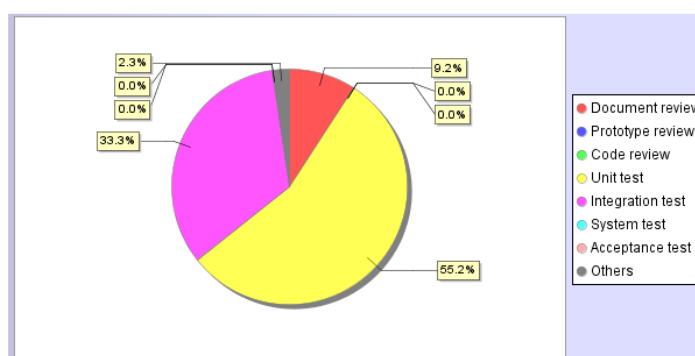
From the combo box "Actual Detail Defect", select the value "By Defect Origin" to view the actual detailed defect by Defect Origin:

Actual Detail Defect By Defect Origin ▼
By QC Activity
By Defect Origin

Product Type	Product	Requirement				Design				Coding				Test				Other			
		F	S	M	C	W	F	S	M	C	W	F	S	M	C	W	F	S	M	C	W	F	S	M	C	W
Database															1	1										
Detailed design	DMS2_DDD_QueryManagement_v1.0						1	4	3	20													
Software module													19			95								
Software package	DMS2_SourceCode_v1.0														1	1								
													19			57								
	All Products													19			58								
Total							1	4	3	20		19	19	2	154								

2.4.9   Defect tracking

Path: Select value "Defect Tracking" from the combo box "Report Type":

After the "Defect Tracking" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

Product Type	Product	By Reviewing					By Testing					By Other					Total		Fixed Defect				
		F	S	M	C	W	F	S	M	C	W	F	S	M	C	W	No	W	F	S	M	C	W
Acceptance note				2		6											2	6					
Database				1		3		1			5						2	8					
Design prototype				1		3											1	3					
Integration test case	DMS2_Testcase_v2.0			6	4	22											10	22			2	2	8
				22	9	75											31	75					
	All Products			28	13	97											41	97			2	2	8
Software module				1		3			4	9	21						14	24				1	1
Software package	DMS2_SourceCode_v1.0								1		3						1	3					
	DMS2_SourceCode_v2.0		1	6		23	1		1		13						9	36		1	3		14
				21		63		1	7	5	31						34	94			1		3
	All Products	1		27		86	1	1	9	5	47						44	133	1	4			17
SRS	DMS2_SRS_Import_v1.1.1			1		3											1	3					
				1		3											1	3			1		3
	All Products			2		6											2	6			1		3
Total		1		62	13	204	1	2	13	14	73						106	277	1	7		3	29

Ratio of Type of Activity

Defect Tracking Report - Product Type
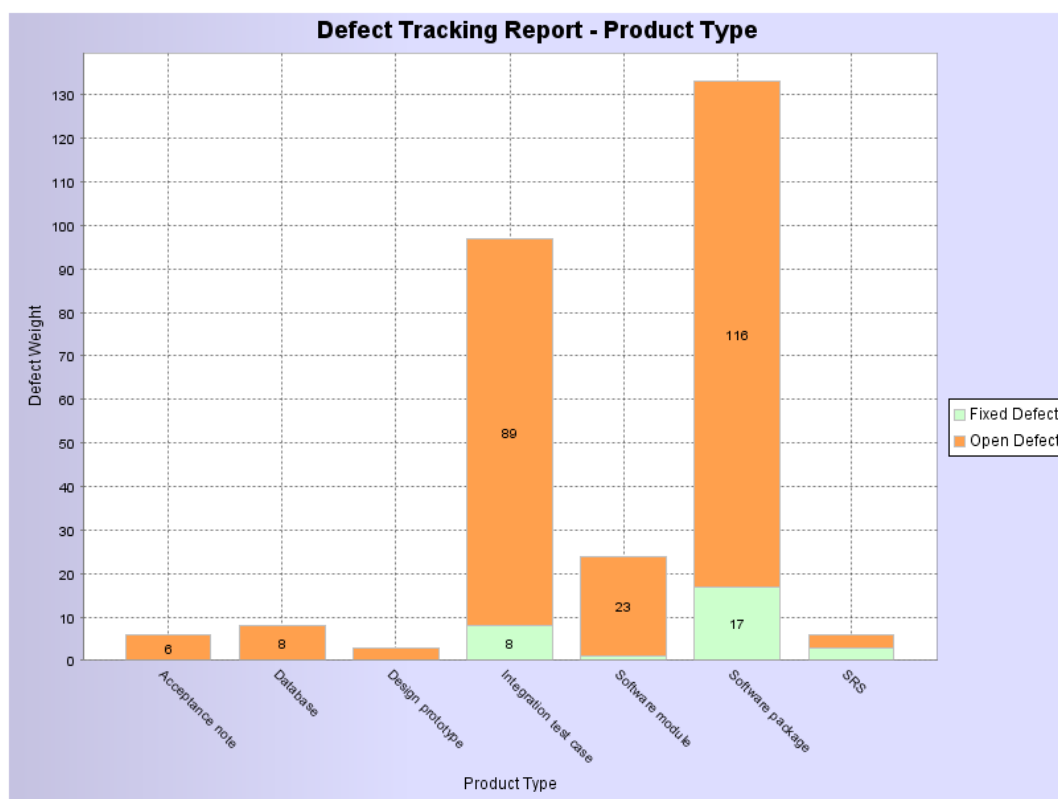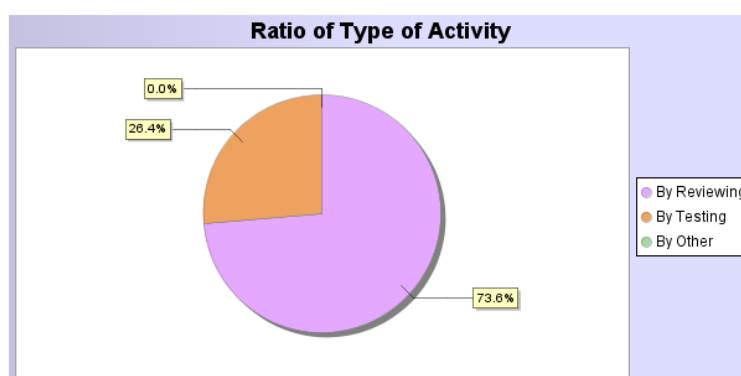
2.4.10 Defect trend

Path: Select value "Defect Trend" from the combo box "Report Type"

After the "Defect Trend" report screen is displayed, Enter information related to report in each filter: From Date/ Time Interval/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:
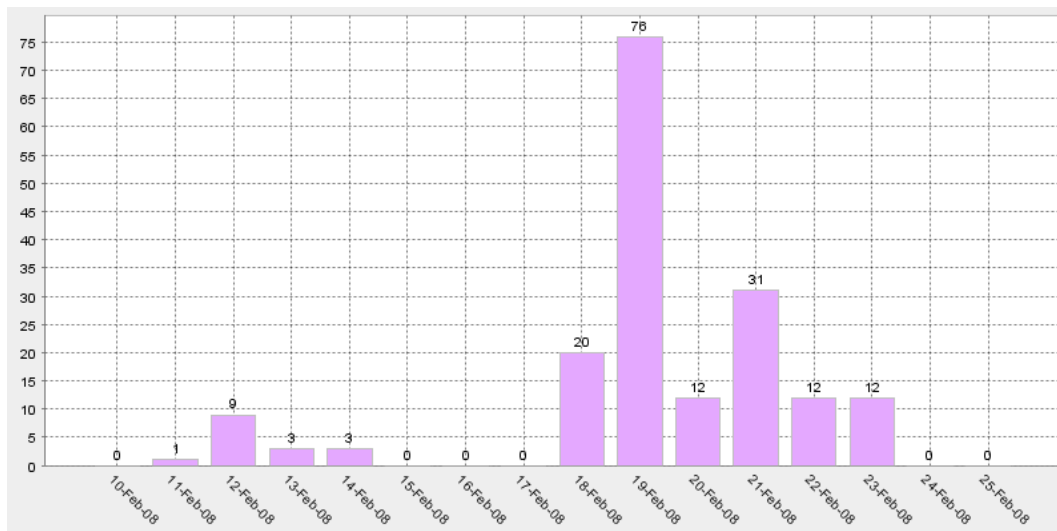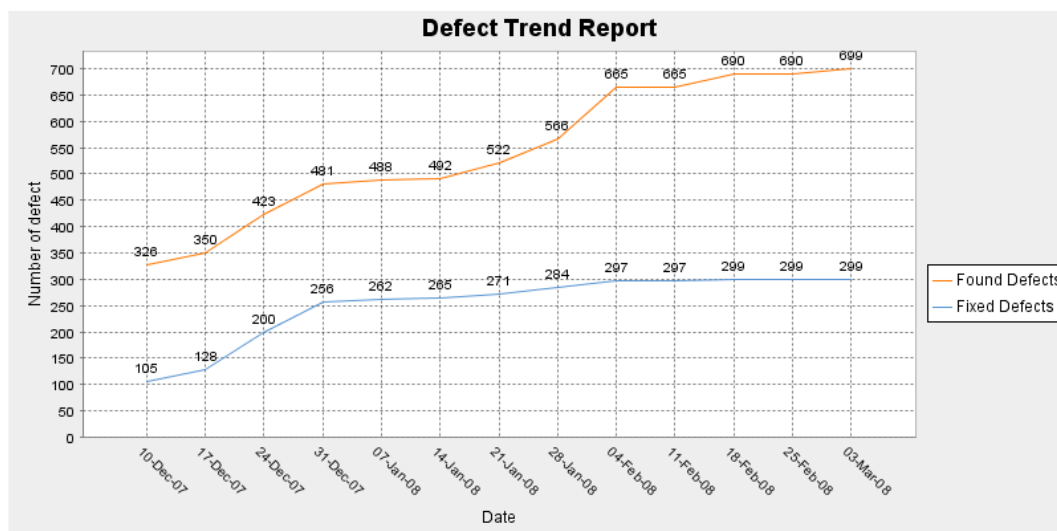
2.4.11 Defect type report

This kind of report support user to view the distribution of problems happened in project. To determine which problems should be analyzed to find root causes and take preventive actions.

Path: Select value "Defect Type" from the combo box "Report Type":

After the "Defect Type" report screen is displayed, Enter information related to report in each filter: From Date/ To Date/ Product Type/ Product and keep Report Type field then click the button "Report" to view the associated report:

(TBD for imaged)

3   ADMINISTRATION

3.1   DMS setting

3.1.1   DMS Mail Setting

Path: from any page, select the menu Administration/DMS Setting/Mail Setting

This screen permits DMS administrator to configure Mail setting: when there is any change related to defect (add new, update…), system will base on Mail setting to define to whom it will send notification mail. The setting is the default setting for all projects in DMS but PM of a project can change manually in Project Setting – Mail Setting function.

After the appearance of DMS Mail Setting, select and check the checkboxes for mail setting then click the button "Save" to register setting for the system

Type	Value	Assignee	Creator	PM	PTL	QA	Owner	Others
Change	Assignee							PhuongLL@fsoft.com.vn
Status	Error	✔	✔					PhuongLL@fsoft.com.vn
	Confirmed							
	Assigned			✔				
	Fixing							PhuongLL@fsoft.com.vn
	Corrected							
	Delivered		✔					
	Validated							
	Approved			✔	✔			
	Closed							
	Cancelled							
	Accepted							
Severity	Fatal							
	Serious	✔						
Priority	Immediately				✔			
	High						✔	

3.1.2   DMS Workflow Setting

Path: from any page, select the menu Administration/DMS Setting/Workflow Setting

3.1.2.1   Workflow List Screen

Path: displayed by default when entering DMS workflow setting function

Apply Workflow:

- Select appropriate workflow from the Workflow List screen then click the button "Apply Workflow". The selected workflow will be use by default for all projects in DMS

Delete Workflow:

- Click the Icon ✖ in order to delete the selected workflow. If the workflow was used by any project, it cannot be deleted. Otherwise, a confirm dialog appears "Do you really want to delete this workflow?"

+ Click "Yes" to delete the workflow

+ Click "No" to cancel delete and return to workflow list screen

3.1.2.2   Create workflow

Path: click the button "Create Workflow" on the Workflow list screen

- Enter necessary information into related fields of new workflow then click the button "Save Workflow" to register the new workflow into system

WorkFlow Definition

User: Nguyễn Thái Thọ - G10 - Project Technical Leader   Status: On-going
Date: 25-Feb-08   Project: DMS2

WorkFlow Name *	Mixed workflow for Fsoft, France customer and End-User
Description	This WF is created for european projects
Allowed Members	PM

Current Status	Next Status										
	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Error		✔	✔	✔	✔	✔	✔	☐	✔	✔	✔
Assigned	✔		✔	✔	✔	☐	✔	☐	✔	☐	✔
Fixing	✔	✔		✔	✔	☐	☐	☐	☐	✔	✔
Corrected	✔	✔	✔		✔	✔	☐	☐	☐	✔	✔
Delivered	✔	✔	✔	✔		☐	✔	✔	☐	☐	✔
Validated	✔	✔	✔	✔	✔		☐	☐	☐	☐	☐
Approved	✔	✔	✔	✔	✔	☐		✔	✔	✔	✔
Closed	✔	✔	✔	✔	✔	☐	✔		✔	☐	☐
Confirmed	✔	✔	✔	✔	✔	☐	✔	☐		☐	✔
Cancelled	✔	✔	✔	✔	✔	✔	☐	☐	✔		☐
Accepted	✔	✔	✔	✔	✔	✔	☐	☐	☐	✔	

Save WorkFlow   cancel

WorkFlow Name *	Mixed workflow for Fsoft, France customer and End-User
Description	This WF is created for european projects
Allowed Members	CUSTOMER

Current Status	Next Status										
	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Error		✔	☐	☐	☐	☐	☐	☐	☐	☐	☐
Assigned	☐		☐	☐	☐	☐	☐	☐	☐	☐	☐
Fixing	☐	☐		☐	☐	☐	☐	☐	☐	☐	☐
Corrected	☐	☐	☐		☐	☐	☐	☐	☐	☐	☐
Delivered	☐	☐	☐	☐		☐	☐	☐	☐	☐	☐
Validated	☐	☐	☐	☐	☐		☐	☐	☐	☐	☐
Approved	✔	✔	☐	☐	☐	☐		☐	☐	☐	☐
Closed	☐	☐	☐	☐	☐	☐	☐		☐	☐	☐
Confirmed	✔	☐	☐	☐	☐	☐	☐	☐		☐	☐
Cancelled	☐	☐	☐	☐	☐	☐	☐	☐	☐		☐
Accepted	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Save WorkFlow   cancel

Note:

- Workflow Name: is mandatory for the workflow

- Allowed Members: multiple roles can be set up for the workflow, and at least one role must be set in a new workflow

3.1.3 Defect lifecycle (model)

There are some lifecycles which have been defined by Admin of system. PM can select one of models to apply for his project.

Workflow of one defect starts with **"Error"** status and end of the lifecycle with **"Closed"** status. Depend on which model is selected; there are several steps in a defect lifecycle as follows:

- *Open defect:* A defect is found and must be recorded in DMS by a submitter (typically reviewer or tester). The defect will be logged in DMS with defect status **"Error"** and other related information.

- *Analysis defect:* (defect type, origin, severity, etc.)

  - If it is confirmed as defect, assign appropriate person to fix the defect. Generally assigned member is also the author of the document or code in which the defect has been found. The defect status is changed to **"Assigned".**

  - If the defect can be accepted (by customer) without any corrective action, the defect status will be changed to **"Accepted"** (normally by PTL, based on setting of the system)

  - If the defect is logged inappropriately, the defect status will be changed to **"Cancelled"** (normally by PTL, based on setting of the system)

  - If we need more information to analyze the defect, its status will be changed to **"Confirmed"** (normally by PM/PTL, based on setting of the system)

- *Consider the defect:* Assignee will analyze his assigned defect. If it is defect, he will fix it and change the defect status to **Fixing**. If it is not a defect, he changes status to **Confirmed**.

- *Complete fixed defect:* After fixed defect, assignee changes the defect status to **"Corrected".**

- *Test the defect by Fsoft:* Tester or PTL re-tests "**Corrected"** defect. If the bug is fixed successfully then defect status will be changed to **"Closed"** with internal model (refer to model 1), or change to "**Delivered"** with external model (refer to model 2 & 3). Otherwise to **"Assigned"**. System will count re-opened times of each defect to report. The "**Delivered'** status can be customized and be used if customer and end user can log in DMS. (refer to model 2 or 3)

- *Confirmed by Customer:* After Customer tests the defect in the customer environment and if the defect is fixed successfully. The defect status is changed to **"Validated"** (Refer to model 2 or 3). Otherwise to **"Confirmed".**

- *Confirmed by End-user:* End user tests the defect in the end-user's environment. If the defect is fixed successfully, the defect status is changed to **"Approved"**. Otherwise to **"Confirmed"**

- *Close the defect:* with model 1 (Internal), the "**Closed"** status will be used by PTL or tester after re-test and determine that defect is passed. With model 2 or 3 (External), the defect status is changed to **"Closed"** after PTL receives the confirmation from customer or end user to closed the defect.

- The "**Confirmed" status is used when team needs clear information of defect with stakeholders**. After confirming, if it is defect and re-produces successfully then PM re-assigns or accepts or cancels the defect, refer to Analysis step above.

- **Note**: ability to change from one status to any status is configured flexibly by PM in DMS project workflow setting (refer to 3.2.2 for the details).

The pre-defined models are showed as diagrams below:

3.1.3.1   Model 1: Lifecycle for internal defect (Fsoft only)

3.1.3.1.1   Defect workflow

3.1.3.1.2 Defect status flow

Change Status with PM/PTL

Current Status	Next Status							
	Error	Assigned	Fixing	Corrected	Closed	Confirmed	Cancelled	Accepted
Error		X				X	X	X
Assigned			X			X	X	X
Fixing				X		X		
Corrected					X	X		
Closed								
Confirmed		X					X	X
Cancelled								
Accepted								

Change Status with Creator

Current Status	Next Status							
	Error	Assigned	Fixing	Corrected	Closed	Confirmed	Cancelled	Accepted
Error		X				X	X	
Assigned			X			X	X	
Fixing				X		X		
Corrected					X	X		
Closed								
Confirmed		X					X	
Cancelled								
Accepted								

Change Status with Assignee

Current Status	Next Status							
	Error	Assigned	Fixing	Corrected	Closed	Confirmed	Cancelled	Accepted
Error								
Assigned			X			X		
Fixing				X		X		
Corrected						X		
Closed								
Confirmed								
Cancelled								

Accepted								

	Next Status							
Current Status	Error	Assigned	Fixing	Corrected	Closed	Confirmed	Cancelled	Accepted
Error		X				X		
Assigned						X		
Fixing						X		
Corrected					X	X		
Closed								
Confirmed		X						
Cancelled								
Accepted								

Change Status with **Tester**

	Next Status							
Current Status	Error	Assigned	Fixing	Corrected	Closed	Confirmed	Cancelled	Accepted
Error		X				X		
Assigned						X		
Fixing						X		
Corrected					X	X		
Closed								
Confirmed		X						
Cancelled								
Accepted								

Change Status with **QA** Role

	Next Status							
Current Status	Error	Assigned	Fixing	Corrected	Closed	Confirmed	Cancelled	Accepted
Error		X	X	X		X		
Assigned			X	X		X		
Fixing				X		X		
Corrected						X		
Closed								
Confirmed		X						
Cancelled								
Accepted								

Change Status with **Owner** Role

3.1.3.2   Model 2: Defect lifecycle for Fsoft & customer

3.1.3.2.1   Defect workflow

3.1.3.2.2 Defect status flow

Change Status with **PM/PTL**	Next Status									
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Error		X						X	X	X
Assigned			X					X	X	X
Fixing				X				X		
Corrected					X		X	X		
Delivered						X		X		
Validated							X	X		
Closed										
Confirmed		X							X	X
Cancelled										
Accepted										

Change Status with **Creator**	Next Status									
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted

Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Error		X						X	X	
Assigned			X					X	X	
Fixing				X				X		
Corrected					X		X	X		
Delivered								X		
Validated								X		
Closed										
Confirmed		X							X	
Cancelled										
Accepted										

Next Status

Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Error										
Assigned			X					X		
Fixing				X				X		
Corrected								X		

Change Status with Assignee

Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Delivered								X		
Validated								X		
Closed										
Confirmed										
Cancelled										
Accepted										

Change Status with Tester

Current Status	Next Status									
	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Error		X						X		
Assigned								X		
Fixing								X		
Corrected					X		X	X		
Delivered								X		
Validated								X		
Closed										

Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Confirmed		X								
Cancelled										
Accepted										

Change Status with **QA** Role	**Next Status**									
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Error		X						X		
Assigned								X		
Fixing								X		
Corrected					X		X	X		
Delivered								X		
Validated								X		
Closed										
Confirmed		X								
Cancelled										
Accepted										

Change Status with **Owner** Role	**Next Status**									
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Error		X	X	X				X		
Assigned			X	X				X		
Fixing				X				X		
Corrected								X		
Delivered								X		
Validated								X		
Closed										
Confirmed		X								
Cancelled										
Accepted										

Change Status with **Customer** Role	**Next Status**									
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Closed	Confirmed	Cancelled	Accepted
Error								X		X
Assigned								X		X

	1	2	3	4	5	6	7	8	9	10
Fixing								X		
Corrected								X		
Delivered					X			X		
Validated						X		X		
Closed										
Confirmed		X								X
Cancelled										
Accepted										

3.1.3.3 Model 3: Defect lifecycle for FSOFT, customer & end-user

3.1.3.3.1 Defect workflow

3.1.3.3.2 Defect status flow

	Next Status										
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Error		X							X	X	X
Assigned			X						X	X	X
Fixing				X					X		
Corrected		X			X			X	X		
Delivered						X			X		
Validated							X		X		
Approved								X	X		
Closed											
Confirmed		X								X	X
Cancelled											
Accepted											

*Change Status with **PM/PTL***

	Next Status										
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Error		X							X	X	

*Change Status with **Creator** role*

Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Assigned			X						X	X	
Fixing				X					X		
Corrected					X		X		X		
Delivered									X		
Validated									X		
Approved								X	X		
Closed											
Confirmed		X								X	X
Cancelled											
Accepted											

					Next Status						
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Error											
Assigned			X						X		
Fixing				X					X		
Corrected									X		
Delivered									X		

Change Status **Assignee**

	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Validated									X		
Approved									X		
Closed											
Confirmed											
Cancelled											
Accepted											

	Next Status										
Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Error		X							X		
Assigned									X		
Fixing									X		
Corrected					X			X	X		
Delivered									X		
Validated									X		
Approved									X		
Closed											
Confirmed		X									
Cancelled											
Accepted											

Left label for the second section: Change Status with **Tester**

Change	**Next Status**

	Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Status with **QA** Role	Error		X							X		
	Assigned									X		
	Fixing									X		
	Corrected					X			X	X		
	Delivered									X		
	Validated									X		
	Approved									X		
	Closed											
	Confirmed		X									
	Cancelled											
	Accepted											
	Next Status											
	Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Change Status with **Owner** Role	Error		X	X	X					X		
	Assigned			X	X					X		
	Fixing				X					X		
	Corrected									X		
	Delivered									X		

Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Validated						▨			X		
Approved							▨		X		
Closed								▨			
Confirmed		X							▨		
Cancelled										▨	
Accepted											▨

Change Status with **Customer** Role	Next Status										
	Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
	Error	▨								X		X
	Assigned		▨							X		X
	Fixing			▨						X		
	Corrected				▨					X		
	Delivered					▨	X			X		
	Validated						▨			X		
	Approved							▨		X		
	Closed								▨			
	Confirmed		X							▨	X	X
	Cancelled										▨	
	Accepted											▨

Change Status with **End-**	Next Status										
	Current Status	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted

user Role	Error	Assigned	Fixing	Corrected	Delivered	Validated	Approved	Closed	Confirmed	Cancelled	Accepted
Error	▦								X		X
Assigned		▦							X		X
Fixing			▦						X		
Corrected				▦					X		
Delivered					▦				X		
Validated						▦	X		X		
Approved							▦		X		
Closed								▦			
Confirmed		X							▦	X	X
Cancelled										▦	
Accepted											▦

3.1.3.4   Model 4: Defect lifecycle for FSOFT

3.1.3.4.1   Defect workflow

This is the model of current DMS. This model was created to use internally only and FSOFTers will use it easily because there is just some small differences from current DMS:

1. Status "Pending" was changed to "Corrected"

2. Status "Tested" was changed to "Closed"
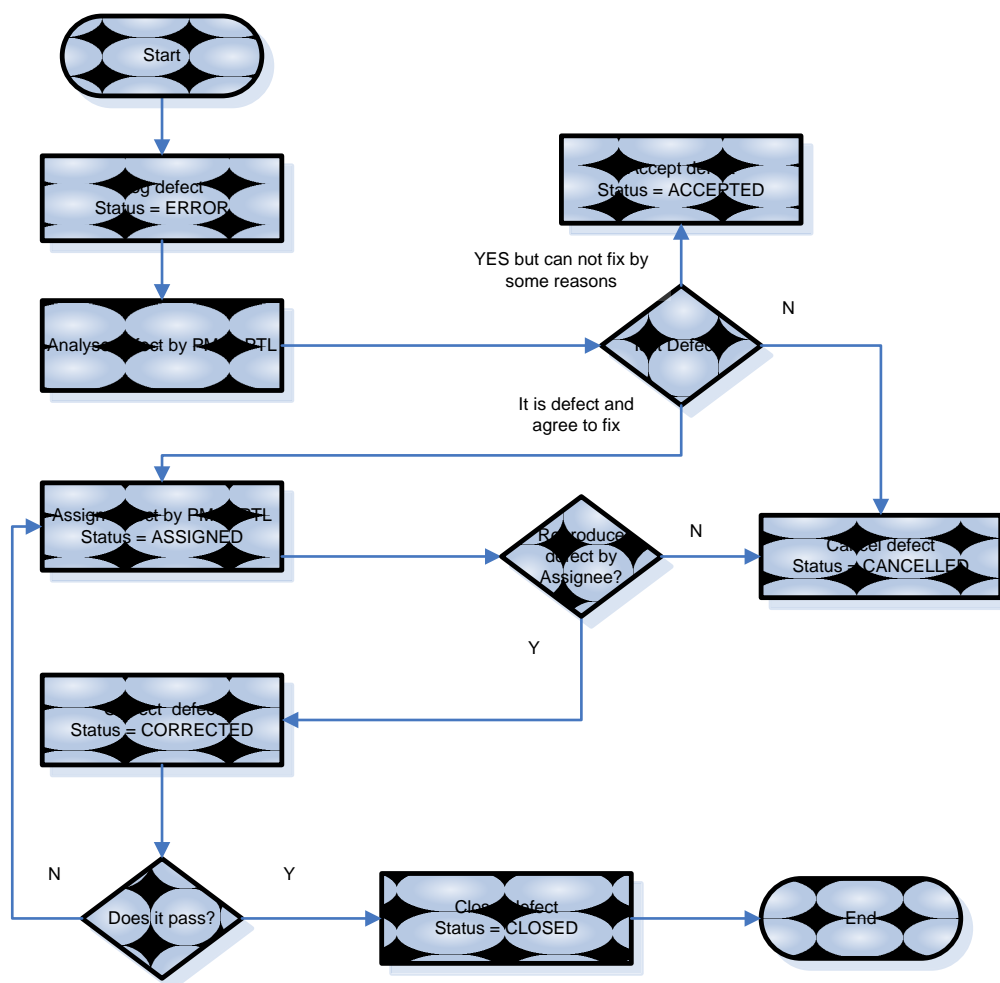
3.1.3.4.2   Defect status flow

	Next Status					
	Current Status	Error	Assigned	Corrected	Closed	Cancelled	Accepted
Change Status with **PM/PTL**	Error		X	x	x	X	X
	Assigned	x		X	x	X	X
	Corrected	X	X		X	x	

	Error	Assigned	Corrected	Closed	Cancelled	Accepted
Closed	x	x			x	
Cancelled	x	x				
Accepted	x	x			x	

Change Status with Creator

	Next Status					
Current Status	Error	Assigned	Corrected	Closed	Cancelled	Accepted
Error		X			X	
Assigned			X		X	
Corrected	x	X		X		
Closed	x	x				
Cancelled	x	x				
Accepted						

Change Status with Assignee *(Defect is assigned to Developer but Developer is not person who creates this defect)*

	Next Status					
Current Status	Error	Assigned	Corrected	Closed	Cancelled	Accepted
Error						
Assigned			X			
Corrected						
Closed						
Cancelled						
Accepted						

Change Status with Tester

	Next Status					
Current Status	Error	Assigned	Corrected	Closed	Cancelled	Accepted
Error		X			x	
Assigned						
Corrected	x	X		X		
Closed	x	x				
Cancelled	x	x				
Accepted						

Test change Status with QA Role

	Next Status					
Current Status	Error	Assigned	Corrected	Closed	Cancelled	Accepted
Error		X			x	x
Assigned						
Corrected	x	X		X		
Closed	x	x				
Cancelled	x	x				

Accepted	x	x			x	
Test change Status with **Owner** Role	**Next Status**					
	Current Status	Error	Assigned	Corrected	Closed	Cancelled	Accepted
	Error		X				
	Assigned			X			
	Corrected						
	Closed						
	Cancelled						
	Accepted						

3.2 Project setting

3.2.1 Project Mail Setting

Path: from any page, select the menu Administration/Project Setting/Mail Setting

This screen permits PM to configure Mail setting for his project: when there is any change related to defect (add new, update…), system will base on Mail setting to define to whom it will send notification mail.

After the appearance of Project Mail Setting, select and check the checkboxes for mail setting then click the button "Save" to register setting for the system or click the button "Cancel" to cancel the setting

Mail Setting

User: Trần Anh Tuấn - G10 - Project Manager   Status: On-going
Date: 25-Feb-08   Project: DMS2

Type	Value	Assignee	Creator	PM	PTL	QA	Owner	Others
Change	Assignee	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
Status	Error	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
	Assigned	☑	☑	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
	Fixing	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
	Corrected	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
	Delivered	☐	☑	☑	☐	☐	☐	PhuongLL@fsoft.com.vn
	Validated	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
	Approved	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
	Closed	☐	☑	☐	☑	☐	☐	PhuongLL@fsoft.com.vn
	Confirmed	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
	Cancelled	☐	☐	☐	☑	☐	☐	PhuongLL@fsoft.com.vn
	Accepted	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
Severity	Fatal	☐	☑	☑	☐	☐	☐	PhuongLL@fsoft.com.vn
	Serious	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
Priority	Immediately	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn
	High	☐	☐	☐	☐	☐	☐	PhuongLL@fsoft.com.vn

Save   Switch to Default   Cancel

Switch to Default:

- Click the button "Switch to Default"; all values of project mail setting will be reset by associated DMS mail setting values

3.2.2   Project Workflow Setting

Path: displayed by default when entering Project workflow setting function

WorkFlow List

User: Trần Anh Tuấn - G10 - Project Manager   Status: On-going
Date: 25-Feb-08   Project: DMS2

Choose Workflow for Project

#	Default	Name	Description
1	○	MODEL 1 – INTERNAL FSOFT	Model 1 includes 8 status: Error, Assigned, Fixing, Corrected, Closed, Confirmed, Cancelled, Accepted. Model 2 is used by Internal FSoft
2	○	MODEL 2: FSOFT and CUSTOMER	Model 2 includes 10 status: Error, Assigned, Fixing, Corrected, Delivered, Validated, Closed, Confirmed, Cancelled, Accepted. Model 2 is used by Internal FSoft and Customer
3	○	MODEL 3 – FSOFT, CUSTOMER and END-USER	Model 3 includes 11 status: Error, Assigned, Fixing, Corrected, Delivered, Validated, Approved, Closed, Confirmed, Cancelled, Accepted. Model 2 is used by Internal FSoft and Customer and End-user.
4	○	MODEL 4 – CURRENT DMS	Model 4 includes 7 status: Error, Assigned, Corrected, Closed, Confirmed, Cancelled, Accepted. Model 4 is used by Internal FSoft and same with current DMS.
5	●	Work Flow Model 3 - FSoft + Customer + End - user – Approved by QA	There are 11 status: 1. Error 2. Assigned 3. Fixing 4. Corrected 5. Delivered 6. Validated 7. Approved 8. Closed 9. Confirmed 10. Cancelled 11. Accepted

Apply WorkFlow

Select appropriate workflow from the Workflow List screen then click the button "Apply Workflow". The selected workflow will be use for the selected project.

4   APPENDIX

4.1 Defect Concept

4.1.1 Definition

A defect is any error (bug) found by testing and reviewing activities (All errors found by internal reviewer, external reviewer, customer or end-user).

If you consider fixing regarding any recommendation, this recommendation should be logged as a defect in DMS, too.

4.1.2 Defect description

The following table lists information related to defect:

(A = auto-generated, M = Mandatory, O = Optional, N/A: Not Assigned)

#	Data	Description of the Data	Max length	M/A/O
1	Project code	Code of the project in which the defect occurs		M
2	Defect ID	This is ID of the defect. This number is automatically generated whenever a new defect is added. Defect ID counter will not be reset.		M/A
3	Created By	Person who logged the defect, generally the person who found the defect such as tester or reviewer. This field cannot be changed.		M
4	Detected by	Account of person who found the defect.		O
5	Role	Role of person who detected the defect		O
6	Assigned To	Person who has responsibility to correct the defect, typically the author		O
7	Status	Current status of the defect		M
8	Severity	How serious the defect will affect on software program		M
9	Priority	How urgent the defect needs to be fixed		M
10	Created Date	Date on which the defect is found		M/A
11	Deadline	Date on which the defect should be fixed		O
12	Fixed Date	Date on which the defect is fixed		O/A
13	Closed Date	Date on which the defect is closed. It is automatically filled with current date when defect status is changed to Tested.		M/A
14	QC Activity	The QC activity in which the defect is found		M

#	Data	Description of the Data	Max length	M/A/O
15	Defect Origin	Software process in which the defect is caused		M
16	Product Type	Type product in which the defect is found.		M
17	Product	Name of product in which the defect is found.		O
18	Type	Classification of the defect follow the structure of the defect itself		M
19	Test Case ID	Test Case ID in which found the defect	150	O
20	Title	A short & brief description of the defect for quick recognition what the problem	150	M
21	Description	Full description of the defect, including following items: **Steps to Reproduce:** <Describe steps to reproduce the defect> **End Result:** <The actual result after perform steps to reproduce defects> **Expected Result:** <The state of being expected> **Additional Regression:** <More information about the defect: for example the defect also happened in module/function B, C,D etc.>	1200	M
22	Cause Analysis	Root cause of the defect or the reason why the defect occurred	1200	O
23	Corrective Action	Actions/steps to correct the defect	1200	O
24	History	Tracking the status changes of defect. It includes the date and person who has changed status of defect. The history is		A

#	Data	Description of the Data	Max length	M/A/O
		automatically generated and cannot be changed.		
25	Attached files	Extra files that come with the defect may be an image for illustration or source code file. Total attachment size cannot exceed 1Mb.		O
26	Re-open times	The numbers of re-open times of the defect		A
27	Restriction	To indicate that defect is belonged to internal user or external user		M (internal)
28	Reason	Reason if user changes defect status to "Accepted" or "Cancelled"		O
29	Translation status	Indicate the translation status of a defect		M (not translated)
30	Discussion	User comments about a defect	1200	O
31	Attachment's description	Description of an attachment	300	O

4.2 Defect related metrics and concepts

#	Name	Unit	Description
1	Open defects	Number of Def ()	Number of actual open defects in DMS, counting defects with defect status = Error, Assigned or Fixing.
2	Open weighted defects	Wdef	Actual open defects in DMS **but with weight for each Defect Severity**, counting defects with defect status = Error, Assigned or Fixing.
3	Total defects	Number of def	Number of actual defects in DMS, counting defects with all defect status **except Cancelled.**

#	Name	Unit	Description
4	Total weighted defects	Wdef	Total actual defects in DMS **but with weight for each Defect Severity**, counting defects with all defect status **except Cancelled.**
5	Defect rate	Wdef/UCP	Total actual weighted defects divided by actual project size (Ex: UCP, LOC, FP…).
6	Leakage	Wdef/UCP	Total actual leakage divided by actual project size (Ex: UCP, LOC, FP…).
7	Review effectiveness	Wdef/pd	Weighted defects found by review for each person-day.
8	Test effectiveness	Wdef/pd	Weighted defects found by test for each person-day.
9	Defect removal efficiency	%	Review efficiency + test efficiency
10	Review efficiency	%	Percentage of weighted defects found by review on total weighted defects of project.
11	Test efficiency	%	Percentage of weighted defects found by test on total weighted defects of project.
12	Estimated defects	Wdef	Weighted defects planned to be found in a project. Estimated defects = Estimated size in UCP x Defect rate of Norm
13	Re-estimated defects	Wdef	Weighted defects planned to be found in a project after re-planning. Re-estimated defects = Re-estimated size in UCP x Defect rate of Norm.
14	To be removed defects	Wdef	(Re-)Estimated size x Defect rate of Norm – Planned leakage.
15	Possible leakage	Wdef	Actual size((Re-)Estimated size) x Defect rate of Norm – (Total actual weighted defects – Total actual Fixing defects)
16	Defect status (Used in Fsoft	%	Planned weighted defects to be found/ Actual weighted defects found.

#	Name	Unit	Description
	Insight: weekly/milestone reports)		

4.3 Defect Origin

Defect Origin indicates the actual process that caused the defect.

Following table is the list of defect origin:

#	Defect Origin	Description
1	Administration	Defects originate from activities that relate to Administration process.
2	Coding	Defects originate from either of the following code, debug activities.
3	Collaborator Management	Defects originate from activities that relate to Collaborator Management process.
4	Configuration Management	Defects originate from activities that relate to Configuration Management process. Examples: Defects from reviewing CM Plan, setting CM environments, etc.
5	Contract Management	Defects originate from activities that relate to Contract Management process.
6	Correction	Defects originate from activities that relate to Correction process.
7	Customer Support	Defects originate from activities that relate to Customer Support process.
8	Deployment	Defects originate from activities that relate to Deployment process.
9	Design	Defects occur in design documents, either ADD or HLD or DDD (LLD), mainly focus on logic of these documents. Defects come from reviewing or testing design documents/prototype or while reviewing code or test cases, found design errors.
10	Document	Defects occur in documents (SRS, design documents, test

#	Defect Origin	Description
	Control	plan, test cases, test report, etc.). Mainly these defects are about template, formatting, versioning (newest from QMS & wrong version increment), etc.
11	Facility Management	Defects originate from activities that relate to Facility Management process.
12	IS Management	Defects originate from activities that relate to IS Management process.
13	Internal Audit	Defects originate from activities that relate to Internal Audit process. These defects are called NCs. However, they are now logged to NCMS instead of DMS.
14	Management Review	Defects originate from activities that relate to Management Review process.
15	Other	Defects that appear to be unable to map with any other process.
16	Prevention	Defects originate from activities that relate to Prevention process.
17	Process Improvement	Defects originate from activities that relate to Process Improvement process.
18	Project Management	Defects originate from activities that relate to Project Management process.
19	Quality Control	Defects originate from activities that relate to Quality Control process.
20	Quality Planning	Defects originate from activities that relate to Quality Planning process.
21	Recruitment	Defects originate from activities that relate to Recruitment process.
22	Requirement	Defects occur in requirement documents, either URD, SRS, mainly focus on logic of these documents. Defects come from reviewing or testing requirement documents/prototype or while reviewing design, code or test cases, found requirement errors.
23	Retirement	Defects originate from activities that relate to Retirement

#	Defect Origin	Description
		process.
24	Staff Management	Defects originate from activities that relate to Staff Management process.
25	Student Management	Defects originate from activities that relate to Student Management process.
26	Subcontract Management	Defects originate from activities that relate to Subcontract Management process.
27	Technology Management	Defects originate from activities that relate to Technology Management process.
28	Test	Defects occur in test documents or testing activities (lack of test cases, tester misunderstands specs, tester does not follow test cases, incorrect test data creation, bugs in test scripts, etc.)
29	Training	Defects originate from activities that relate to Training process.

4.4 Severity

For defects found by review activities, there are 04 severities as follows:

#	Severity	Description	Weight	Example
1	Fatal	Major errors in documents that cause failure of the application or the building of the application	10	– Misunderstanding major features of customer requirements, that causes rework of whole or major parts of application (for example: main functionalities, application environments, business rules, etc.) – Design does not cover major requirements (ADD & DB design); system architecture or database design is not support the building of application & maintainability – Test documents do not cover major requirement specifications

#	Severity	Description	Weight	Example
2	Serious	Major errors in document s that cause failure in functionalities or failure to achieve quality objectives	5	− Do not update related documents (design, test docs) when SRS/design is changed − Misunderstanding customer requirements that causes rework of design & coding on 01 or several complicated modules − Documents lack one or more customer requirements − Design is insufficient to create robust & reliable application − Design does not cover all detailed & possible situations that requirements describe (ADD & DB design) − Lack test cases for a module or several modules − Do not have test cases for abnormal cases − Incorrect information in reports caused intentionally

#	Severity	Description	Weight	Example
3	Medium	Minor errors in documents that cause problems during the building of the application or document rework	3	– Use wrong templates of project or supplied by customers – Spelling mistakes in Japanese documents, using wrong English words & grammar structures that make receivers easily misunderstand – Do not follow pre-defined document conventions of project – Misunderstanding customer requirements, that causes rework of design & coding on 01 or several simple modules – Documents lack some detailed descriptions for requirements – Design does not cover all detailed & possible situations that requirements describe (class & screen design) – Test cases do not cover all requirements & design specs but all requirements for test are mentioned – Do not have enough or suitable test cases for abnormal cases – Incorrect or old information in reports caused by mistakes

#	Severity	Description	Weight	Example
4	Cosmetic	Very minor defects, no way to affect the functionalities of the product but still cause rework of the documents	1	– Spelling mistakes in English documents (such as hyphenation, incorrect plural form, wrong grammar structures, lexical errors, etc.) but do not affect understanding of the receivers – MS Office document conventions (format such as font type, font weight, font size, subscript or superscript, page layout, etc.; typing rules such as spacing, hyphenation, parentheses, punctuation, capitalization, etc.; style such as multiple fonts or bullets at the similar places, different styles by different people, wrong headings, etc.) are not followed – Use out-of-date versions of templates – Do not use correct document naming conventions – Document layout does not support understanding easily

For defects found by testing activities, there are 04 severities as follows:

#	Severity	Description	Weight	Example
1	Fatal	– A major issue where a large piece of functionality or major system component is completely broken. – There is no workaround and testing cannot continue.	10	– The system/ application crashes permanently. – Irrecoverable database corruption.
2	Serious	– Major function or	5	– Security: users belong role A

#	Severity	Description	Weight	Example
		system component does not work, work incorrectly or is documented incorrectly. − Security problem is assigned depending on priority of functions in the project.		can see/perform functions (menu item) of role B, etc.
3	Medium	Minor function does not work or works incorrectly or is documented incorrectly.	3	− Any special cases included invalid data, boundary value, etc. for major function returns incorrectly. − Redundant outputs − Performance effects
4	Cosmetic	Very minor defects, no way to affect the functionalities of the product.	1	− Typing mistakes − A spelling/grammatical error on a GUI screen/message. − Align text, fields, forms, labels. − Incorrect Tab index, set default button, set default cursor, short key, etc. − Coding standard: name of object, variables, comments, etc.

4.5 Priority

There are 04 priorities, depending on how urgent you rate the defect (need to fix early or may be fixed later).

#	Priority	Description
1	Immediately	Defect should be fixed right away or within 01 day after logging
2	High	Defect should be considered fixing within 02 - 04 days after logging

#	Priority	Description
3	Normal	Defect should be considered fixing within 05 - 08 days after logging
4	Low	Defect can be delayed (to be fixed later when appropriate)

4.6 Defect Type

This field is used to group defects by classifying types of problem. Defect Type is mandatory.

#	Type	Description/Type of content	Example
1	Coding	1.1 Register error	- Code reviewer sees the problems on Transaction on handling "Transaction started for reading need not be committed as other methods can make use of it. It is done in addTask and updateTask."
		1.2 Command error	
		1.3 Compile error	- Incorrect assignment: "Author wanted to assign the value of existing vector to another vector. The assigning is not done correctly. It creates a new vector of the existing vector size."
		1.4 Name / branch place error	
		1.5 Coding standard	
		1.6 Hard code	
		1.7 Redundancy code	
		1.8 Logic of code	- When does Unit testing the problem is Null Value acceptance: Need to check whether null values are allowed.
		1.9 Other error in code	
2	Functionality	2.1 Feature missing	
		2.2 Incomplete function	
		2.3 Wrong function	
3	User Interface	3.1 Layout error	Layout of application different with screen design like image, color...
		3.2 Label, message wrong	
		3.3 Position/Size wrong	
4	Document	4.1 Grammar error	

#	Type	Description/Type of content	Example
		4.2 Format/template wrong	
		4.3 Error in documentation	Didn't document correctly while grammatical still right (use wrong words, sentences used not described the correct purposes) …
5	Design issues	5.1 Logic deployment error from function	
		5.2 Data flow error	
		5.3 Interface error between modules	
		5.4 Table design error	
		5.5 Domain design error	
6	Others	Not in any of the existing types.	Poor processing speed, error when running in other environments, …

4.7 *Defect logging for test project*

Action	Defect Description	QC Activity	Defect Origin	Work Product	Severity	Defect Type
Test case creation	Format, template (layout, version, record of change, spelling, etc.)	Document Review	Document Control	Test case & test data	Cosmetic	Document
	Test case content (test condition, action, expected results, etc. is incorrect or lack)	Document Review	Requirement	Test case & test data	Medium	Functionality
	Test case does not cover all situations (lack of test cases)	Document Review	Requirement	Test case & test data	Medium	Functionality
	Redundant test cases (duplicate, incorrect test cases, etc.)	Document Review	Document Control	Test case & test data	Cosmetic	Document
Test data creation	Wrong test data (redundant, lack of test data or incorrect test data)	Document Review /Other review	Requirement	Test case & test data	Medium	Functionality
Test	Errors found when reviewing test scripts	Code review	Test	Test script	Medium	Functionality

Action	Defect Description	QC Activity	Defect Origin	Work Product	Severity	Defect Type
scripts/test program	Test scripts report wrong results	Document review	Test	Test script	Medium/Serious	Functionality
Test execution	Test environment setup (incorrect OS, browser, locale, etc.)	Integration Test/ System Test/ Regression test	Test/Configuration management	Test report	Medium	Functionality
	Do not follow test case/test procedure	Integration Test/ System Test/ Regression test	Test	Test report	Medium	Functionality
	Do not use correct test input	Integration Test/ System Test/ Regression test	Test	Test report	Medium	Functionality
	Misunderstand expected results	Integration Test/ System Test/ Regression test	Test	Test report	Medium	Functionality
	Do no execute test case(s)	Integration Test/ System Test/ Regression test	Test	Test report	Serious	Functionality

Action	Defect Description	QC Activity	Defect Origin	Work Product	Severity	Defect Type
Test report	Format, template (layout, version, record of change, spelling, etc.)	Document Review	Document Control	Test report	Medium	Document
	Test case is not executed/not passed but is reported as passed	Document Review	Test	Test report	Serious/ Medium	Document
	Test cases are not N/A as reported	Document Review	Test	Test report	Medium	Document

4.8 Relationship of fields in DMS

#	Parent	Child	Note
1	QC activities	Work products	Work product will be filter follow selected QC activities
2	Work products	Defect Origin	Defect origin will be filter follow selected Work products
3	Type of activity	QC activities	For each type of activities user can mapping with QC activities in DMS.

4.8.1 Type of Activity & QC Activity

#	Type of Activity	QC Activity
1	Review	- Document review - Code review - After release review - Prototype review - Other review
2	Test	- Unit test - Integration test - System test - Acceptance test - Regression test - After release test - Other test - Prototype test
3	Inspection	- Quality gate inspection - Final inspection - Unit Test inspection - Other inspection

#	Type of Activity	QC Activity
4	Audit	- Baseline audit - Other audit

4.8.2 Work Product & Defect Origin

(TBD)

4.8.3 QC Activity & Work Product

#	QC Activity	Work Product
1	Baseline audit	- CM Plan - Baseline Report - Project Database
2	Other audit	All products except products of Baseline audit
3	Document review	- Acceptance note - Architectural design - Baseline report - CM Plan - Coding convention - DP Report - Detailed Design - Handover Note - Installation manual - Integration Test case - Integration Test plan - Integration Test report - Test data - Meeting minutes - Project plan - Proposal

#	QC Activity	Work Product
		- Project record
		- Project report
		- SRS
		- Test case
		- Test Plan
		- Test Report
		- System Description
		- System Test case
		- System Test plan
		- System Test report
		- URD
		- Unit Test case
		- Unit Test plan
		- Unit Test report
		- Use case
		- User manual
		- WO
4	Code review	- Software package
		- Software module
5	After release review	All products
6	Prototype review	- Requirement prototype
		- Design prototype
7	Other review	All products
8	Unit test	- Software module
		- Test script
		- Database
9	Integration test	- Software package
		- Test script

#	QC Activity	Work Product
10	System test	- Database - Software package - Test script
11	Acceptance test	- Database - Software module - Software package - Test script
12	Regression test	- Database - Software module - Software package - Test script
13	After release test	- Database - Software module - Software package - Test script
14	Other test	- Database - Design prototype - Others - PCB - Plan - Record - Report - Requirement Prototype - Resource and environment - Review record
15	Prototype test	- Requirement prototype - Design prototype
16	Quality gate inspection	All products

#	QC Activity	Work Product
17	Final inspection	- Architectural design
		- Coding convention
		- Detailed Design
		- Design Prototype
		- Installation manual
		- Integration Test case
		- Integration test report
		- Test data
		- Project Plan
		- Project report
		- Proposal
		- Release Note
		- Requirement Prototype
		- SRS
		- Test script
		- Test Plan
		- Test Report
		- Software package
		- System Description
		- System Test case
		- System test report
		- Unit Test case
		- Unit Test report
		- Use case
		- User manual
18	Other inspection	All products
19	UT inspection	- Software module
		- Test script

#	QC Activity	Work Product
		- Test data
		- Unit Test case
		- Unit test plan
		- Unit Test report
		- Database

Approver	Reviewer	Creator
Nguyen Lam Phuong	**Nguyen Van Anh**	**Ho Huyen Nga**