

FUJITSU Software

Agile+ Relief V1.1.1

A decorative horizontal band with a red-to-dark-red gradient, featuring abstract, glowing white and red lines that swirl and intersect, creating a sense of motion and technology.

Diagnosis report generation tool

Users Guide

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Preface

Agile+ Relief is an application that supports program review by analyzing source programs.

Agile+ Relief is offering the following two products of each descriptive language of the program that becomes an analysis object.

Language	Agile+ Relief product name
C/C++	Agile+ Relief C/C++
Java	Agile+ Relief J

Diagnosis report does not correspond to cooperation of CERT Option.

About This Manual

This manual describes "Diagnosis report generation tool" that generates the source diagnosis report from the result of the source program analysis of two products of Agile+ Relief.

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Chapter 1 Overview

1.1 What is Diagnosis report generation tool?

Diagnosis report generation tool diagnoses information on the source code analysis by Agile+ Relief by the following viewpoints, and generates the result as a report.

- Presence of unconfirmed problem part
- Detection tendency to message seen from quality feature and problem feature
- Maintainability/Readability seen from source metrics
- Correlation of source metrics and message
- Sufficiency of check on Agile+ Relief
- Validity of execution environment of Agile+ Relief

In the diagnosis report, it is highlighted by the color to judge the problem part easily, and, in addition, the advice of "What problem exists, and what action do you do?" can be referred to.

1.2 Use scene of Diagnosis report generation tool

The example of the use scene of the diagnosis report is described as follows.

Use as material of the program review

Background

The process where the source is checked with a static analysis tool like a Agile+ Relief tends to come to leave the development person in charge, and it is thought that the validity of the work process is not often verified. It is only a point that the static analysis tool detected even if the process is verified. The verification of the correct execution etc. is very difficult work. In an ambiguous work process, the problem is made potential by overlooking. It becomes the cause of the rework by the following process.

Use of diagnosis report

The diagnosis report diagnoses the work process of Agile+ Relief by more viewpoints. Moreover, it is devised to refer to the diagnostic outcome efficiently. On program review, the work process of Agile+ Relief can be efficiently verified by confirming the diagnosis report along with the program. Moreover, the diagnosis report can fill in the result confirmation. It is possible to use it as material that proves the completion of programming process.

Use as progress report material of programming process

Background

In project manager's standpoint, the grasp of progress by programming process is difficult, and uneasiness is inexhaustible. Only the problem in numerical respect is seen from a sense progress report and the number of steps from the person in charge, and it is because the presence of a quality and structural problem is not seen.

Use of diagnosis report

The diagnosis report is used as material of the progress regularly report from a developer. In the diagnosis report, what problem you detected by executing Agile+ Relief in addition to numerical information on the number etc. of steps can be easily confirmed.

Use as material of quality diagnosis

Background

In the software development, the bug might happen frequently by test process in the last stage, and it develop into the quality problem suddenly. The static analysis tool like Agile+ Relief might be used as one of the means of the countermeasure. However, when the static analysis tool is used only after it becomes such a situation, a large amount of message is detected in many cases. Because a lot of messages and time are limited, you will give it up too much without the result.

Use of diagnosis report

In the diagnosis report, a lot of problems that have been detected can be easily confirmed by arranging the message that Agile+ Relief detected by the viewpoint of the quality feature and the problem feature. The problem that should be dealt by priority becomes clear.

1.3 Composition of diagnosis report

The diagnosis report is generated as a file of the book form of "Microsoft(R) Office Excel(R)". The diagnosis report is composed of two or more sheets, and describes the outline of each sheet as follows.

Details of the output information of each sheet is described by using the comment function of the cell of "Microsoft(R) Office Excel(R)" in the generated diagnosis report, and refer to that, please.

[Comment Example]



1.3.1 Title

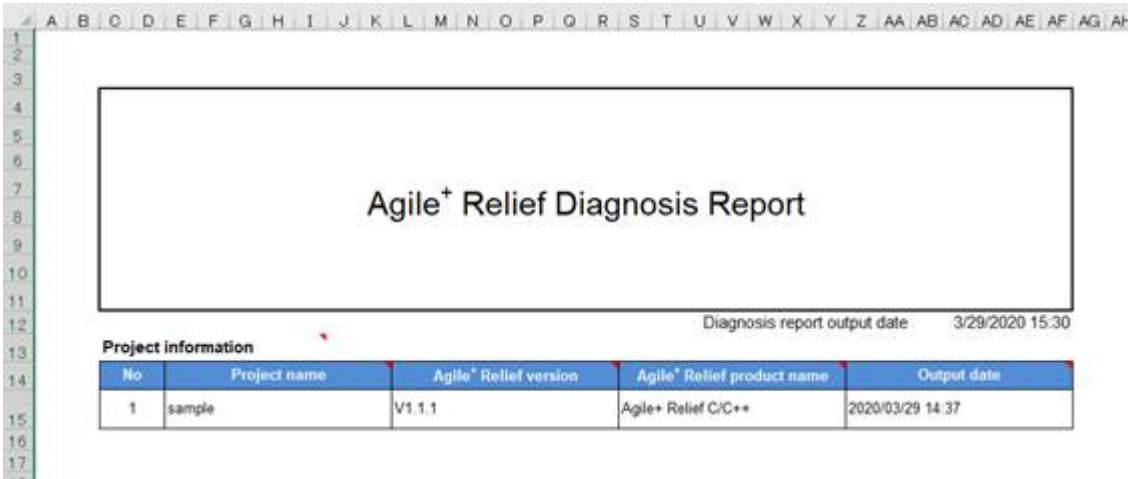
[Sheet name]

Title

[Description]

This sheet is a cover of the diagnosis report. The list of the name of the project of the Agile+ Relief C/C++ and the Java project of Eclipse reported with the diagnosis report has been described.

[Image]



1.3.2 General diagnosis report

[Sheet name]

Diagnosis_C, Diagnosis_J

[Description]

This sheet is a start page to see the diagnosis report. This sheet is generated about each asset of the C/C++ program and the Java program. Because the problem item is marked to yellow, the presence of the problem and advice to each problem can be easily confirmed. In addition, it is possible to cooperate to the part where it describes the problem more concretely.

[Image]

General diagnosis report

1. Generalization

Diagnosis result: **NG**

Opinion and comments:

2. Diagnosis report

(1) List of indication messages diagnosis report

Confirm	Advice
	List of indication messages has unapproved items. Make sure all items, approve them.
	A lot of indications of maintainability have been detected. Please ensure that there is no description reduces the readability, that there is no description reduces maintainability.
	There is a lot of same thing of the cause when a lot of same points have been detected. Please find keyword pattern that becomes a feature if some points are confirmed and the cause is the same. If the keyword pattern is used, other same points can be confirmed. Moreover, there is a possibility being detected for a lot of same messages depending on the characteristic of the project. In that case, please examine whether to apply.

- Approve status of indication messages

Status	Amount
Approved indication messages	0
Not approved indication messages	183
Total	183

- Tendency to detection of indication message

1. Tendency to detection of quality characteristic

1.3.3 List of indication messages diagnosis report

[Sheet name]

MessageList_C, MessageList_J, MessageList_Guideline

*MessageList_Guideline is a peculiar sheet to the evidence of the Agile[®] Relief C/C++.

[Description]

This sheet is a list of the message detected with Agile[®] Relief. Please examine the action of the program correction etc. about the message marked in yellow.

[Image]

List of indication messages diagnosis report

Option functions
Take in past diagnosis report.

(1) Overview of diagnosis status

Status	Amount
Approved indication messages	0
Not approved indication messages	183
Total	183

Authorizer: _____ Authorized date: _____
Authorizer comment: _____

(2) Detail of diagnosis status
- List of indication messages

No.	Approve	Project name	File	Line	Group	Message ID	Message
1		sample	C:\src\sample\sample1.c	2	b	per0508	The external variable "Retry" that can be used in the function "lockopn" in line 11 of "C:\src\sample\sample1.c".
2		sample	C:\src\sample\sample1.c	2	b	per0637	The external variable "Retry" is declared outside a function.
3		sample	C:\src\sample\sample1.c	3	b	per0508	The external variable "Rty" that can be used in the function "lockopn" in line 11 of "C:\src\sample\sample1.c".
4		sample	C:\src\sample\sample1.c	3	b	per0637	The external variable "Rty" is declared outside a function.
5		sample	C:\src\sample\sample1.c	4	b	per0508	The external variable "Retry" that can be used in the function "lockopn" in line 11 of "C:\src\sample\sample1.c".

1.3.4 Source code metrics diagnosis report

[Sheet name]

Metrics_C, Metrics_J

[Description]

This sheet is a result of the diagnosis of the number of lines of the program, number of function/method, and the complexity, etc. Please confirm the item marked by dyeing by the viewpoint of maintainability and readability.

In the diagnosis, the presence of abnormality is judged based on the threshold set beforehand. The threshold can be changed. Please refer to "2.1.1 Customize diagnosis report template" for the change of the threshold.

[Image]

Source code metrics diagnosis report										
Option functions			Legend							
Take in past diagnosis report..			Unconfirmed		Exceeded violation values		Exceeded warning values			
(1) Overview of diagnosis status										
- File metrics										
Status		Number of files								
Approved violation/warning metrics		0								
Not approved violation/warning metrics		0								
No problem		5								
Total		5								
- Function metrics										
Status		Number of functions								
Approved violation/warning metrics		0								
Not approved violation/warning metrics		2								
No problem		10								
Total		12								
(2) Detail of diagnosis status										
- File metrics										
No	Approve	Project name	File	Diagnostic Index		All step size	Executed step size	Number of functions	Number of violation messages	Number of defect messages (per line)
				Violation value(→)	Warning value(→)					
1	-	sample	C:\src\sample\sample.h	-	-	12	10	0	0	0.00
2	-	sample	C:\src\sample\sample1.c	-	-	49	39	2	43	1.13
3	-	sample	C:\src\sample\sample2.c	-	-	30	26	1	21	0.81

1.3.5 Rule implementation status diagnosis report

[Sheet name]

CheckStatus_Rule_C, CheckStatus_Rule_J, CheckStatus_Guideline

*CheckStatus_Guideline is a peculiar sheet to the evidence of the Agile® Relief C/C++.

[Description]

This sheet is a result of diagnosing the difference of the rule checked with each file. Please confirm about the item marked by dyeing.

[Image]

Rule implementation status diagnosis report

Option functions:

Legend: Unconfirmed Rule NOT applied

(1) Overview of diagnosis status

Status	Amount
Approved rule not applied files	0
Not approved rule not applied files	0
No problem	5
Total	5

Authorizer: _____ Authorized date: _____
 Authorizer comment: _____

(2) Detail of diagnosis status
 - List of rule implementation status

No	Approve	Project name	File	Number of un-checked rules	List of un-checked
1	-	sample	C:\src\sample\sample1.c	0	
2	-	sample	C:\src\sample\sample2.c	0	
3	-	sample	C:\src\sample\sample3.c	0	
4	-	sample	C:\src\sample\sample4.c	0	
5	-	sample	C:\src\sample\sample.h	0	

1.3.6 Source code check status diagnosis report

[Sheet name]

CheckStatus_File_C, CheckStatus_File_J

[Description]

This sheet is a result of diagnosing the presence of the execution of Agile[®] Relief and the difference of the option specified with each file in the Agile[®] Relief execution. Please confirm about the item marked by dyeing.

[Image]

Source code check status diagnosis report

Option functions:

Legend: Unconfirmed Un-checked or Checked by different conditions

(1) Overview of diagnosis status

Status	Amount
Approved files	0
Not approved files	1
No problem	4
Total	5

Authorizer: _____ Authorized date: _____
 Authorizer comment: _____

(2) Detail of diagnosis status
 - List of source code check status

No	Approve	Project name	File	Check status	Analyzed date		Tool
					Year	Month	
1	-	sample	h	Un-checked	2013/3/29	14:36	2
2	-	sample	C:\src\sample\sample1.c	Checked	2013/3/29	14:36	2
3	-	sample	C:\src\sample\sample2.c	Checked	2013/3/29	14:36	2
4	-	sample	C:\src\sample\sample3.c	Checked	2013/3/29	14:36	2
5	-	sample	C:\src\sample\sample4.c	Checked	2013/3/29	14:36	2

Chapter 2 Perform Diagnosis report generation tool

2.1 Preparations

2.1.1 Customize diagnosis report template

In the diagnosis of the source metrics, the problem part is detected by comparing it with the threshold set beforehand. The threshold of default is set to the diagnosis report template that Agile[®] Relief offers. Please go according to the following procedures when you change the threshold.



The diagnosis report template is the one sharing in the development project. It becomes impossible to verify the diagnostic outcome by the same standard when the developer uses each template. Before using the Diagnosis report generation tool, please prepare the common diagnosis report template.

Step 1. Copy diagnosis report template file

Copy diagnosis report template file that provided by Agile[®] Relief to any folder. Diagnosis report template file exist in following folder.

```
<Agile® Relief install folder>\PGReliefCom\EvidenceTool\PGRReport_Template.xlsxm
```

Step 2. Open diagnosis report template file

Open diagnosis report template file that is copied by step 1. A set part of the threshold is in the following two sheets.

Set sheet name	Kind of threshold
Metrics_C	Threshold concerning C/C++ program
Metrics_J	Threshold concerning Java program

Step 3. Change the threshold

Change the threshold on set sheet of threshold that described by step 2. The change part is a cell enclosed in a red line in the following figures. Each item that sets the threshold is explained in the cell where the title of the item in the diagnosis report template is described by using the comment function of the cell of "Microsoft(R) Office Excel(R)" in the generated diagnosis report.

[Threshold concerning file](Figure is Metrics_C sheet.)

Diagnostic index	Violation value(>=)	Warning value(>=)	All step size	Executed step size	Number of functions	Number of indication messages	Number of detect messages (per line)
			-	4000	-	-	-
			-	2000	-	-	-

[Threshold concerning function (or method)](Figure is Metrics_C sheet.)

Diagnostic index	Violation value(>=)	Warning value(>=)	All step size	Executed step size	Nesting levels	Complexity 1	Complexity 2	goto	return	break	continue	if1	while1	dowhile1	for1	switch1	if2	while2	dowhile2	for2	switch2	Number of indication messages	Number of detect messages (per line)
			600	400	20	50	-	2	-	-	-	20	20	20	20	20	-	-	-	-	-	-	-
			400	200	10	20	-	1	-	-	-	10	10	10	10	10	-	-	-	-	-	-	-

There are "Violation value" and "Warning value" in the threshold, and the level of the problem can be divided into two stages. The threshold of both need not always be set.

Explains the value that can be set as a threshold as follows.

Value that can be set	Meaning
Integral Values	The value of 0 or more is set when want to check the violation and the warning. Violation value sets a value that is bigger than warning value.
-(hyphen)	When neither the violation nor warning are checked, "-" is set.

Step 4. Share diagnosis report template

The diagnosis report template is saved and closes when the change of the threshold is completed according to step 3.

The diagnosis report template is necessary for executing the Diagnosis report generation tool. The customized diagnosis report template is distributed to the member of the development project or it stores in the file server etc. and it shares.

2.1.2 Output Evidence

The Diagnosis report generation tool inputs the evidence file generated with the function of the output of the evidence of the Agile⁺ Relief C/C++ or Agile⁺ Relief J, and generates the diagnosis report. Therefore, please prepare the evidence file before using the Diagnosis report generation tool. Please refer to the following manuals for details of the evidence output function.

Product Name	Manual
Agile ⁺ Relief C/C++	Help of Agile ⁺ Relief [Agile ⁺ Relief Usage]-[Output Evidence]
Agile ⁺ Relief J	Code check Operation Guide 3.5 Output Code check Evidence

2.2 Generate diagnosis report

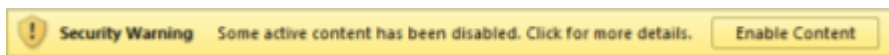
The Diagnosis report generation tool is executed, and the diagnosis report is generated. Please operate it according to the following steps.

Step 1. Run Diagnosis report generation tool

Please run the Diagnosis report generation tool from the start menu or the start screen(since Windows(R) 8.1, Windows Server(R) 2012) of Windows(R). "Microsoft(R) Office Excel(R)" runs, and the Diagnosis report generation tool is displayed.

Step 2. Make the macro effective

The Diagnosis report generation tool is being offered as VBA macro of "Microsoft(R) Office Excel(R)". When the Diagnosis report generation tool is started, the message of the security warning might be displayed. For that case, please click [Enable Content] button and make the macro effective.



Step 3. Generate diagnosis report

Please execute the Diagnosis report generation tool, and generate the diagnosis report. Please execute the Diagnosis report generation tool according to the procedure described in "Diagnosis report generation" sheet in the Diagnosis report generation tool.

Chapter 3 Cautions

Please refer to "Diagnosis report generation" sheet in the Diagnosis report generation tool for notes and output messages concerning the Diagnosis report generation tool.