



D-Case EDITOR

USER'S MANUAL



Ver. 1.0.1 English

Revision History

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INDEX

1	Introduction	4
1.1	What is this manual?	4
1.2	Definition	4
1.3	Related Documents	4
2	How to Install	5
2.1	System Environment	5
2.2	Installation	5
Installing Eclipse	5	
Installing D-Case Editor Plugin	5	
Importing Pattern Project	6	
3	Basic Usage	7
3.1	Creating New Project	7
3.2	Creating D-Case Document	7
3.3	Creating Node and Link	7
3.4	Automatic Diagram Arrangement	10
4	Modules	10
4.1	What are Modules?	10
4.2	Modularization	11
4.3	Module Expansion View	12
4.4	Canceling Modularization	13
4.5	Module Management	13
4.6	Exporting Node List	14
5	Pattern	17
5.1	What is Pattern?	17
5.2	Adding Patterns	17
5.3	Pattern Node	17
6	Parameters	20
6.1	What are Parameters?	20
6.2	Parameter Definition and Setting	20
6.3	Parameters' References	21
7	Others	22
7.1	Language Setting	22
7.2	Previous Version Compatibility	22
7.3	Converting to SACM	23

1 Introduction

1.1 What is this manual?

This manual describes how to install and how to use ‘D-Case Editor’ which is an assurance case editor having type checking feature.

1.2 Definition

Term	Description
Diagram	Visualized representation of D-Case.
D-Case Document	A file which describes D-Case and/or its module.
GMF Diagram Information File	A file which represents layout information, such as position, size or color of each element in D-Case and/or its module. The filename format is ‘D-Case name or module name.dcase_diagram’ .
GMF Model Information File	A file which describes logical structure of each element in D-Case and/or its module. The filename format is ‘D-Case name or module name.dcase_model’ .
Attribute	Property information of node or link. Ex.) Name, Desc, Attachment, Userdef001～016, Etc.
Pallet viewer	A functional module which enables users to select nodes or links in D-Case Editor visually in Eclipse environment.
View	A functional module which provides tabbed information in Eclipse environment.
Preference store	A data storage area in Eclipse environment which stores plugin settings according individually in Eclipse workspace.

1.3 Related Documents

- Matsuno Yutaka, Takai Toshinori, Yamamoto Shuichiro, D-Case for beginners (in Japanese), Daitec Holdings Co., Ltd (Free of Charge), ISBN978-4-86293-079-8
- D-Case Website (<http://www.dcase.jp/>)
- The Eclipse Foundation (<http://www.eclipse.org/>)
- JRE java.com (<http://java.com>)

2 How to Install

2.1 System Environment

This manual is based on following system environment to install D-Case Editor.

*Note: GMF Runtime and OCL Classic SDK will be installed automatically together with D-Case Editor.

- Microsoft® Windows® 7 Professional SP1
- Oracle Java SE Runtime Environment 7 Update 75
- Eclipse IDE for Java Developers (4.4.2 / Luna 32bit)
- Graphical Modeling Framework(GMF) Runtime (1.8.1)
- OCL Classic SDK (5.0.2)
- Pattern project (D-CasePattern.zip)
- Extractor utility for zipped file

2.2 Installation

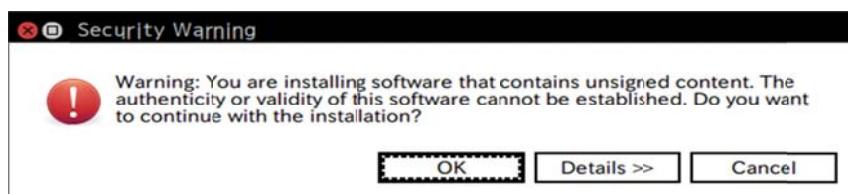
At the beginning, prepare a Windows PC in which JRE (Java Runtime Environment) has been installed.

Installing Eclipse

1. Go to Eclipse official website and click 'Downloads' to download 'Eclipse IDE for Java Developers'. This manual downloads an archive file for Windows 32bit.
2. Unzip the archive file.
3. Execute 'eclipse.exe'

Installing D-Case Editor Plugin

1. Start Eclipse.
2. Select 'Install New Software...' in 'Help' menu.
3. Type 'http://dimensions-japan.org/dcase/eclipse/' in 'Work with' area.
4. Check 'D-Case Editor' and proceed. If it does not appear, uncheck 'Group items by category'.
5. Click 'OK' when following dialogue appears.



Importing Pattern Project

1. Start Eclipse.
2. Select 'Import...' in 'File' menu.
3. Open 'General' and select 'Existing Projects into Workspace'. Then click 'Next'.
4. Check 'Select archive file' and click 'Browse...'. Then select the archive file of pattern project named 'D-CasePattern.zip'.
5. Check 'Copy projects into workspace' and click 'Finish'.

3 Basic Usage

3.1 Creating New Project

You can create new project to handle D-Case document by following steps.

1. Click 'File' menu and select 'New'→'Project'
2. Click 'General' and select 'Project' and click 'Next'.
3. Type your project name in 'Project name' and click 'Finish'.

3.2 Creating D-Case Document

You can create new D-Case document by following steps.

1. Right-click the project you just created in subsection 3.1 and select 'New'→'Other...'.
2. Open 'D-Case Editor' and select 'D-Case Diagram' and click 'Next'.
3. Input filename in 'File name' area and click 'Next'. Note that you should not rename the filename extension which is originally set as '.dcase_diagram'.
4. Click 'Finish'.

3.3 Creating Node and Link

Soon after creating D-Case document as described in subsection 3.2, you will see the D-Case editor as shown in Fig.1

D-Case Editor User's Manual

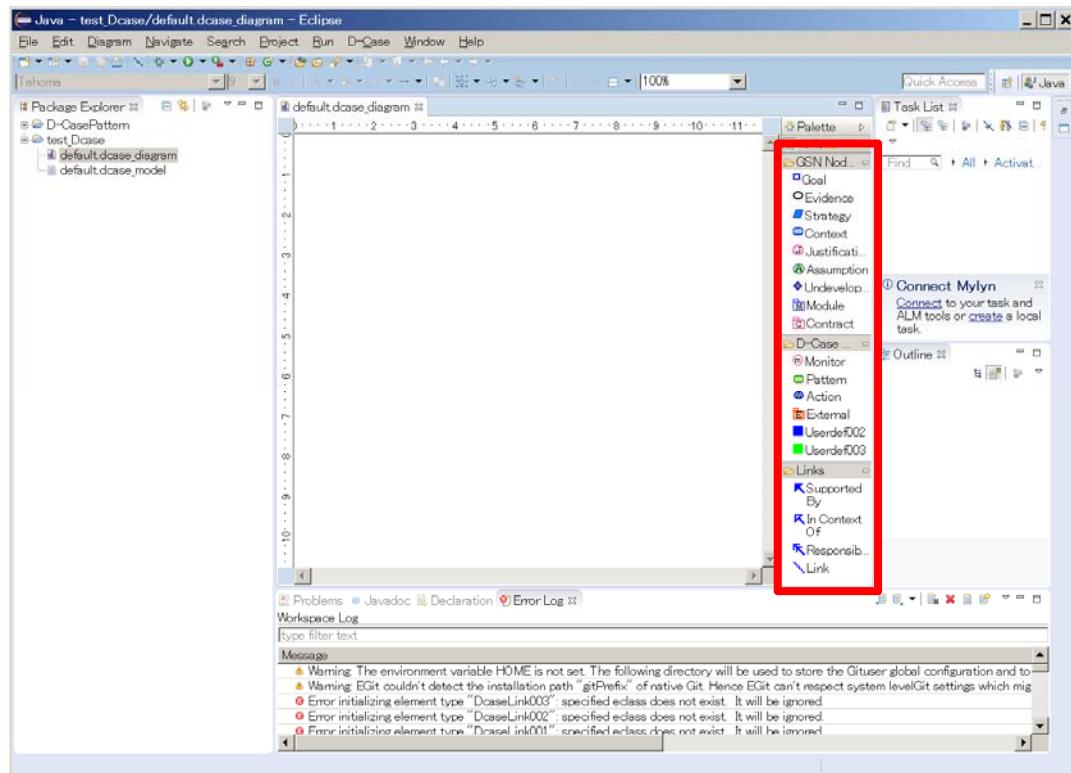


Fig.1 D-Case Editor

To add a node, select a node you need from ‘Palette’ list and click any position in a white canvas on the middle of the screen. The node will be set on that position.

To add a link which shows the relation between nodes, select a link from ‘Palette’ list in the same manner. Next, drag between nodes to be connected. Otherwise, right-click a node and select ‘Add Child’→‘Create a New Node’ and select a new node so that both nodes will be connected each other (Fig.2).

D-Case Editor User's Manual

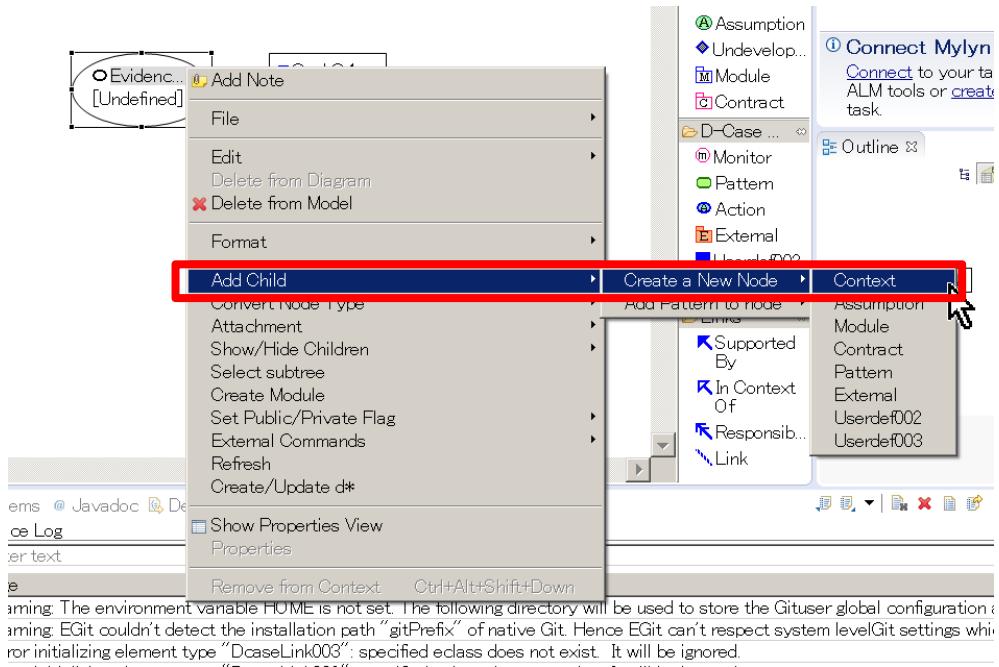
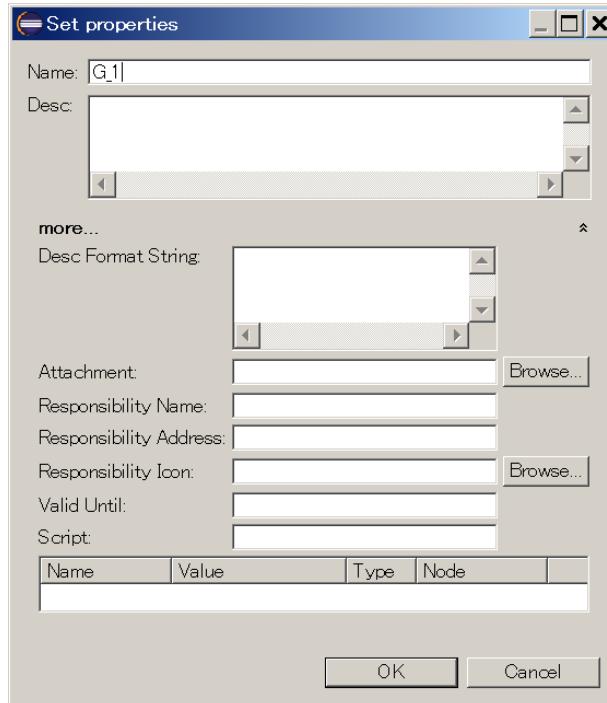


Fig.2 Adding a child

You can double-click some node to change properties of the node as shown in Fig.3.



Otherwise, you can also view by clicking 'Window' → 'Other...' → 'General' → 'Properties' (Fig.4).

Fig.3 Properties

open the properties
→ 'Show View' →

D-Case Editor User's Manual

Property	Value
Info	
derived	false
editable	true
last modified	April 14, 2015 at 10:01:17 PM
linked	false
location	C:\Users\macbookpro\eclipse_workspace\test_Dcase\default.dcase_diagram
name	default.dcase_diagram
path	/test_Dcase/default.dcase_diagram
size	534 bytes

Fig.4 Properties view

3.4 Automatic Diagram Arrangement

Automatic diagram re-arrangement is available for D-Case document. Click ‘Diagram’→‘Arrange’→‘All’ to re-arrange the document automatically and vertically (Fig.5).

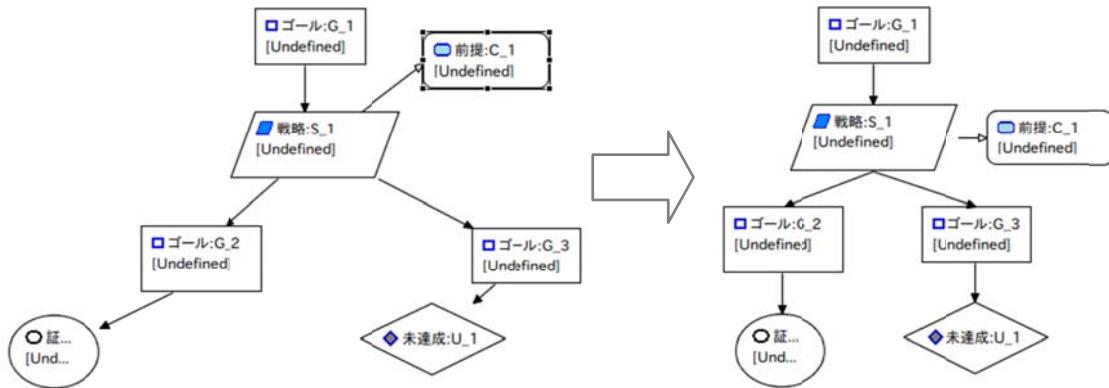


Fig. 5 Automatic arrangement of D-Case document

Also you can click ‘D-Case’→‘Arrange direction’→‘Horizontal’ to arrange the document automatically and horizontally.

4 Modules

4.1 What are Modules?

A module handles multiple sub-trees of D-Case to help users easily recognize and manage complicated D-Case having large number of nodes.

A module is composed by GMF diagram information file whose suffix is ‘dcase_model’ and by GMF model information file whose suffix is ‘dcase_model’, as with normal D-Case. When you divide a D-Case into multiple modules, two module files appear; one module file includes top node and another module file includes divided piece.

4.2 Modularization

There are two ways for modularization. One is a modularization of D-Case subtree; you can simplify complicated D-Case by substituting subtree(s) into module(s). Another is setting reference information for a Module node or Goal node (so-called Away Goal node) after adding these nodes.

To modularize D-Case subtree, right-click a root node on a sub-tree and select ‘Create Module’ as shown in Fig.6.

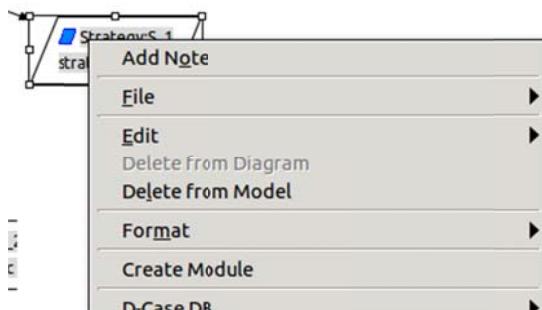


Fig. 6 Right-clicking a root node

On a diagram box (Fig.7), type your module name and click ‘OK’.



Fig.7 Module name dialogue box

Then a new subtree will be created as a module and the original subtree in the D-Case will be substituted as a Module node, as shown in Fig.8.

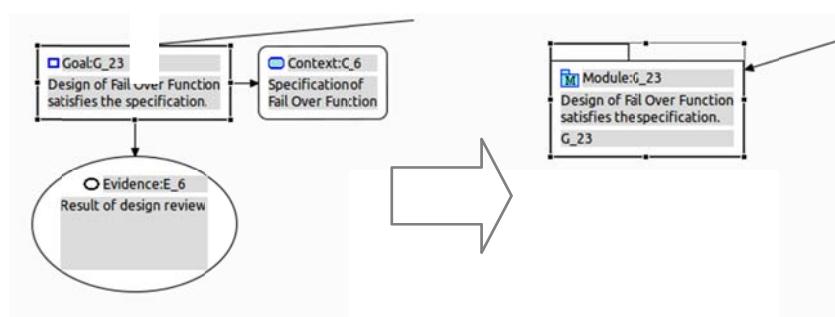


Fig.8 Modularization of subtree

To set reference information for a Module node or Goal node, right-click the added node and click ‘Attachment’→‘Select from Module...’ as shown in Fig.9.

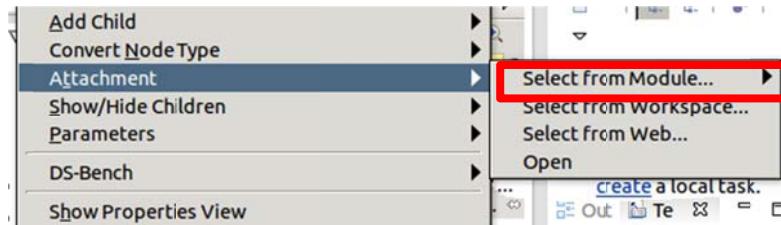


Fig.9 Module selection

Select the node from node list to be referred. Note that the node to be referred should be ‘Public node’. You can set a node as ‘Public node’ by right-clicking the node and select ‘Set Public/Private Flag’→‘Public’. If you do not want that the node will be referred, select ‘Private’.

4.3 Module Expansion View

To see details, such as referring module or node contents, of a Module node or Away Goal node, right-click the node and select ‘Show/Hide Module’→‘Show Module’ (Fig.10).

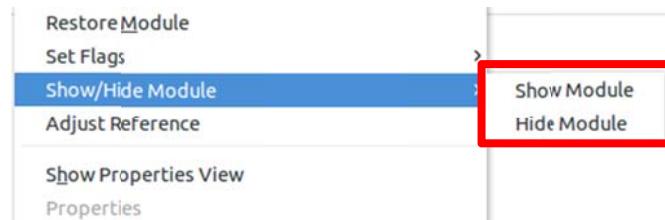


Fig.10 Module expansion menu

Then, reference information of the module will appear as shown in Fig.11. It will disappear by clicking ‘Hide Module’.

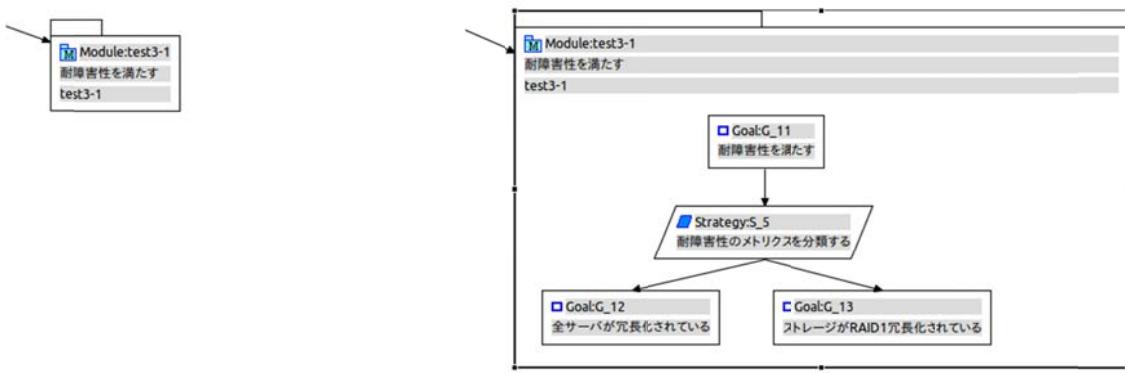


Fig.11 Module expansion view

4.4 Canceling Modularization

You can cancel a modularization and restore a Module node to an original subtree by right-clicking the Module node and select ‘Restore Module’ as shown in Fig.12. Note that the module file to be referred will not be deleted automatically in this process. To delete the module file, see next subsection.

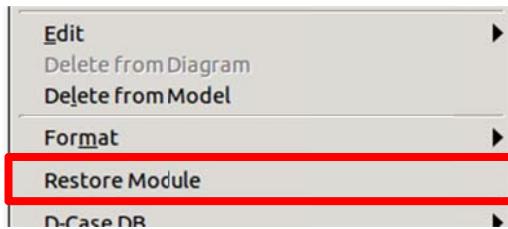


Fig.12 Canceling modularization

4.5 Module Management

The ‘Modules view’ shows list of modules and public nodes in a D-Case project and provides manipulation feature for the listed items. It helps users to understand logical relation of nodes. To see ‘Modules view’, Click ‘Window’→‘Show View’→‘Other...’, and expand ‘D-Case Editor’ menu and click ‘Modules’ as shown in Fig.13.

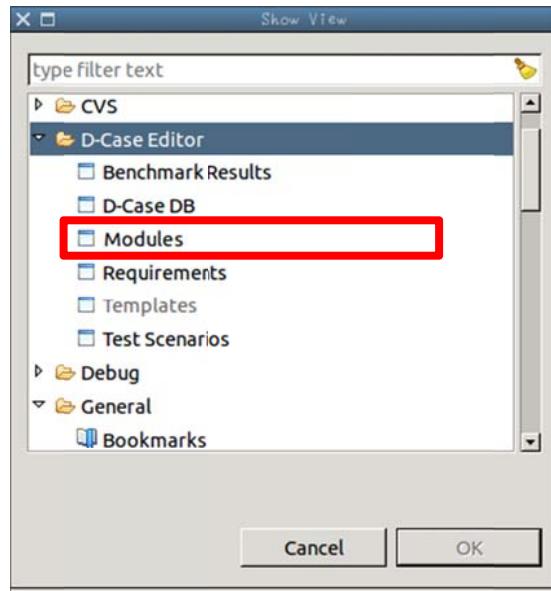


Fig.13 Modules view selection

Fig.14 shows an example of Modules view.

Name	Node#	Link#	Reference
main	9	0	
main/G_1		1	test5/G_9
main2	6	1	main/D_1
main2/G_5		0	

Fig.14 Modules view

Modules view lists module name, public node name, number of nodes in the module, number of links and referring source node (module name and node name).

You can open a module by double-clicking it. You can delete a module by clicking 'X' only if the module is not referred (e.g. number of links is 0).

4.6 Exporting Node List

To export a node list, select 'File' → 'Convert File Type' → 'From GMF to Text' as shown in Fig.15.

D-Case Editor User's Manual

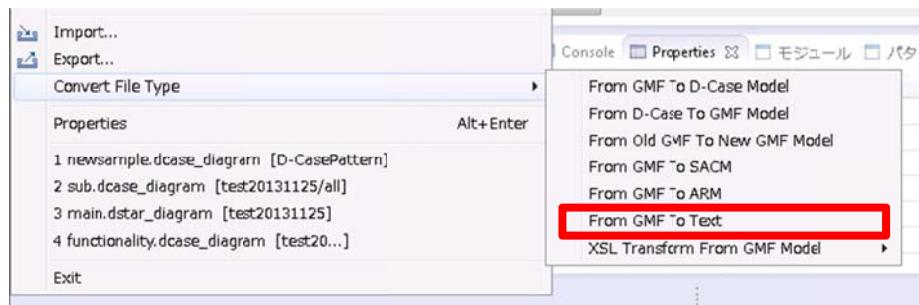


Fig.15 Exporting node list

Then the wizard will appear (Fig.16).

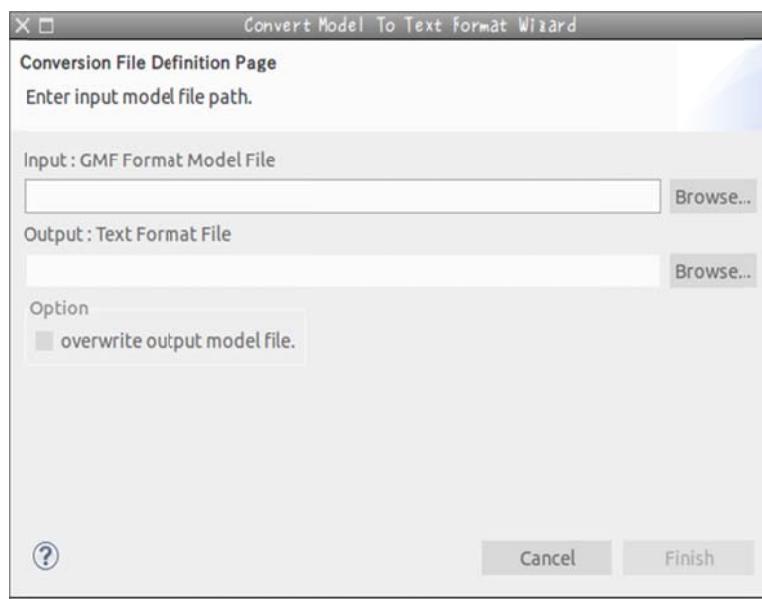


Fig.16 File exporting wizard

Input a GMF model information file name and text file name for exporting and click 'Finish'.

Following is the example of the text file. It contains one node information on one line; node name, Desc and Attachment (Referent).

[Goal]

“G_11”, “fault-tolerance satisfaction” , ””

“G_12”, “redundancy of all servers” , ””

“G_13”, “RAID1 redundancy of storages” , ””

[Strategy]

“S_5”, “classification of fault-tolerance metrics” , ””

[Module]

“M_1”, ””, “module1”

Omitted below...

5 Pattern

5.1 What is Pattern?

You can set 'Patterns' for a D-Case to be used frequently. D-Case Editor handles 'Patterns' in 'D-Case pattern' project.

5.2 Adding Patterns

To add a pattern on a diagram, right-click any position in the diagram and select 'Add Pattern' as shown in Fig.17, and select a pattern to be added from a list.

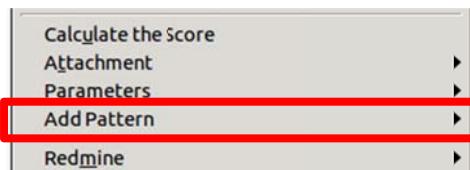


Fig.17 AddPattern menu for a diagram

To add a pattern under a node, right-click any node and select 'Add Child' → 'Add Pattern to node' as shown in Fig.18, and select a pattern to be added from a list.

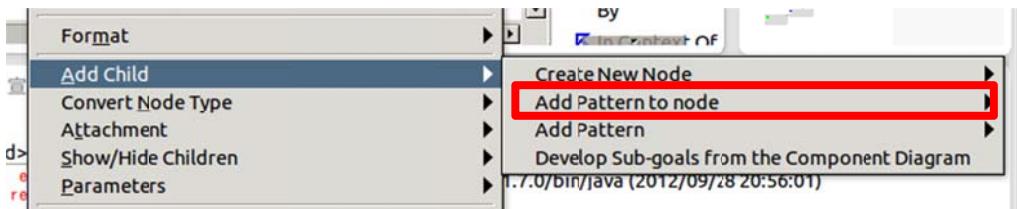


Fig.18 Pattern adding menu

5.3 Pattern Node

You can add multiple patterns using 'Pattern' node in a subtree having a root node which is linked with the Pattern node by 'InContextOf' link.

Pattern node has SubType property whose value would be 'Parameter', 'Loop', 'Choice' or 'Multiplicity'. For more information about 'Parameter' property, see Section 6.

'Loop' property is used to add target subtree as a pattern onto some leaf node repeatedly as shown in Fig.19. You can select the leaf node to be modified by clicking a node and select 'AttributeDialog' → 'LeafNode' property'. A dialogue will ask you the number of loop of pattern addition when you add patterns

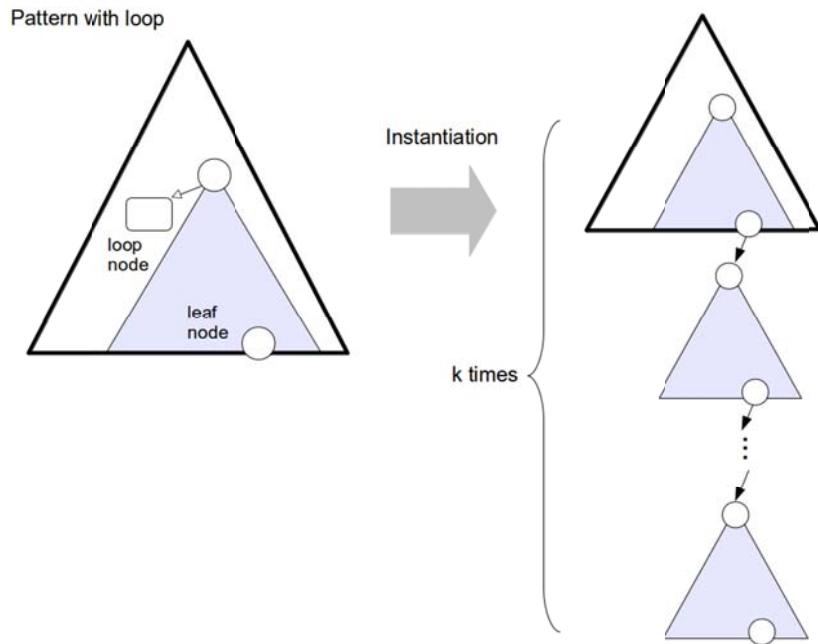


Fig.9 Loop process

'Choice' property is used to add a part of target subtree as a pattern as shown in Fig.20 where n is number of nodes in target subtree. You can set n, i and j properties on 'AttributeDialog'.

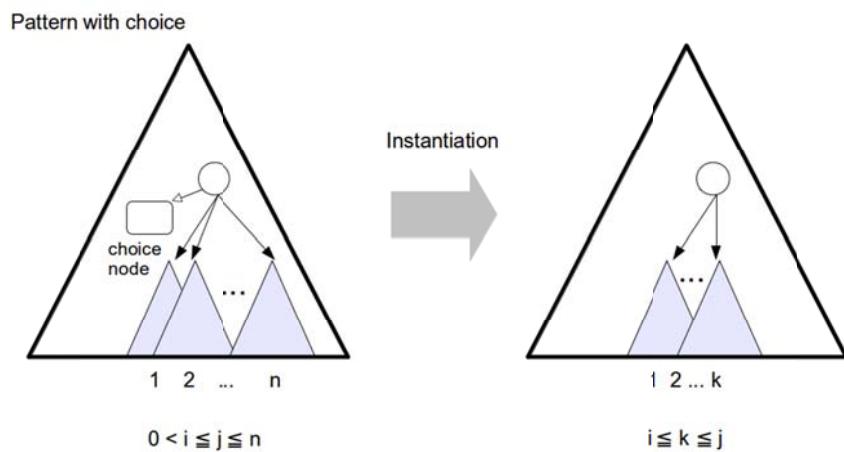


Fig.20 Choice process

'Multiplicity' is used to add patterns by duplicating target subtree as shown in Fig.21. You can set i and j properties on 'AttributeDialog'.

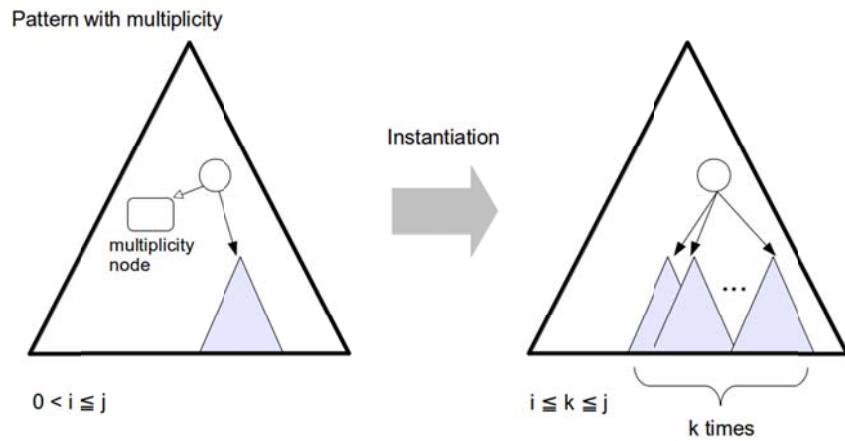


Fig.21 Multiplicity process

6 Parameters

6.1 What are Parameters?

Parameters are used to abstract modules and/or patterns to re-use them easily on various D-Case systems. You can define Parameters and set their values on ‘Pattern’ node. The Parameters you created can be used in a tree having a root node which refers Pattern node by ‘InContextOf’ link. If modularized, you can track all parameters by tracking parent modules. If multiple parameters have a same name, closer node parameters are used.

6.2 Parameter Definition and Setting

To define Parameters, right-click a Pattern node and select ‘Parameters’→‘Define Parameters...’ as shown in Fig.22.

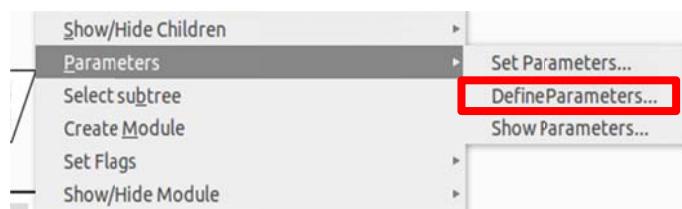


Fig.22 Parameter definition menu

Then a parameter setting dialogue appears (Fig.23).

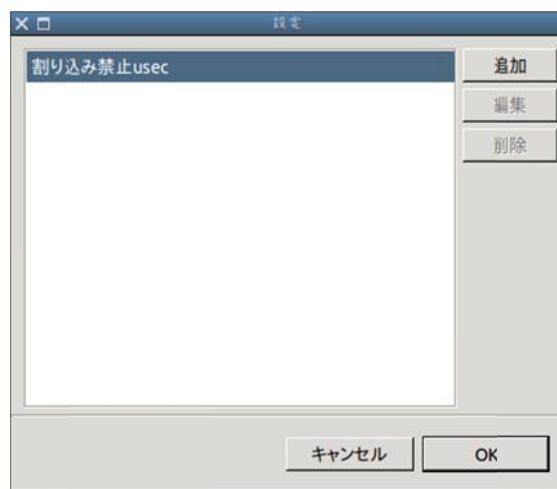


Fig.23 Parameter setting dialogue

Click ‘Add’ to add parameters by typing parameter name, value and type.

Click ‘Edit’ to modify the definition of a Parameter.

Click ‘Delete’ to erase the Parameter.

To change values of Parameter, right-click the Pattern node and select ‘Parameters’→‘Set

Parameters...' and re-type values on a dialogue.

6.3 Parameters' References

In 'AttributeDialog', 'Desc' attribute is set according to 'Desc Format String' attribute; string value written in '{parameter name}' formatted text in 'Desc Format String' attribute will also be used in 'Desc' attribute as a parameter value. 'AttributeDialog' also lists available parameters in a node as shown in Fig.24.

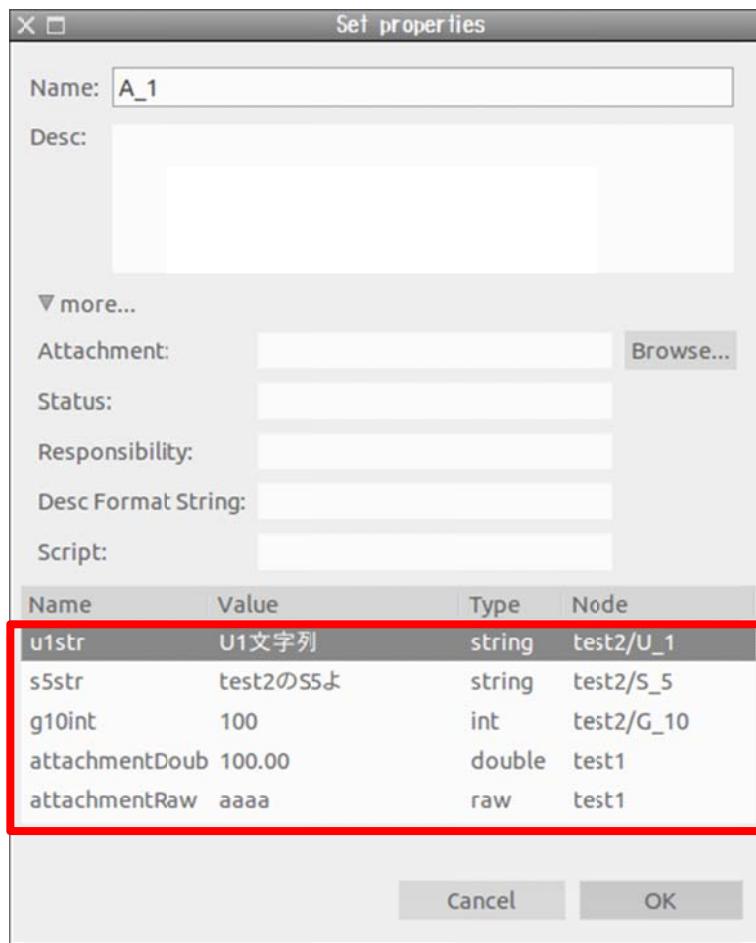


Fig.24 AttributeDialog (Set properties)

The dialogue shows parameter name, value, type and node information ('module name / node name' formatted), and does not show parameter information which is not able to be referred.

Click a parameter to copy the 'Name' onto the clip board. Double-click the parameter to copy '{Name}' onto the clip board, that may be useful to set 'Desc Format String' attribute.

7 Others

7.1 Language Setting

D-Case Editor is a multilingual application. It runs in Japanese or English mode according to your Windows system setting. To change the language mode, set an option for Eclipse on command line as followings.

Japanese mode

```
$ eclipse -nl ja
```

English mode

```
$ eclipse -nl en
```

If you want to see all Eclipse menu in Japanese except D-Case Editor, you also can install ‘Pleiades’ from following URL.

<http://mergedoc.sourceforge.jp/>

7.2 Previous Version Compatibility

Without file format converting, you cannot directly open D-Case data (GMF diagram information file and GMF model information file) created by previous version if D-Case Editor (before version 0.8.15), since previous version has different schematic data from current version. To convert the file format from previous version to current version, select ‘File’→‘Convert File Type’→‘From Old GMF to New GMF Model’ as shown in Fig.25.

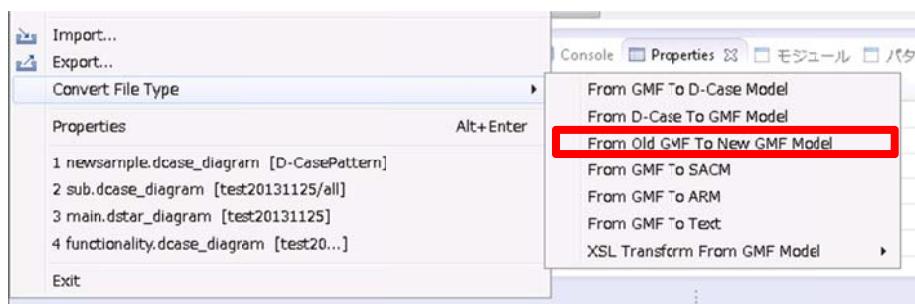


Fig.25 File format transforming

Then, the converting wizard appears (Fig.26).

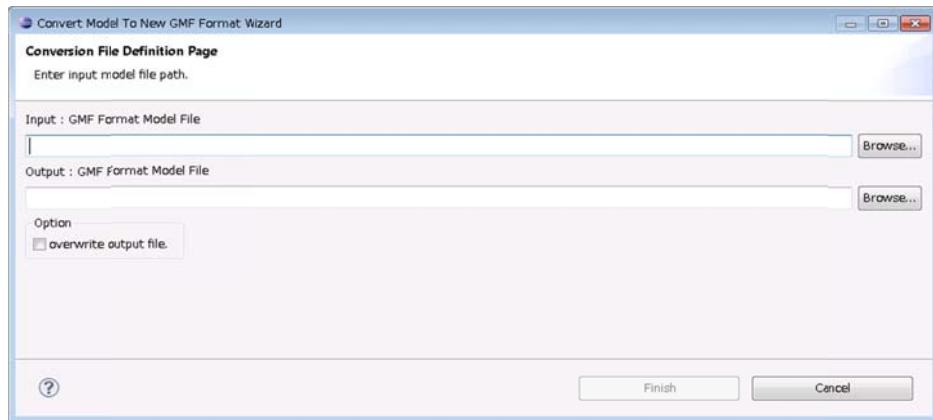


Fig.26 File converting wizard

Type or select previous version GMF model information file, and set output filename and click ‘Finish’. After that, right-click the GMF model information file and select ‘Initialize dcase_diagram diagram file’ as shown in Fig.27.

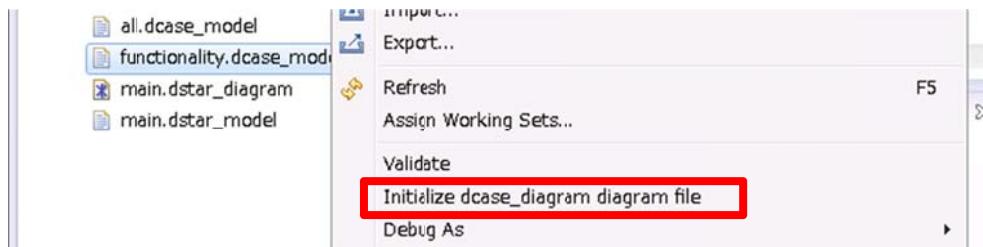


Fig.27 Initializing D-Case diagram file

To prevent confusion in Modules view or d*, you should not store both old version file and new version file in a same project.

7.3 Converting to SACM

To convert D-Case document to SACM (Structured Assurance Case Metamodel) file, as shown in Fig.25, select ‘File’→‘Convert File Type’, and select ‘From GMF to SACM’.

If you want to create expanded SACM which supports Parameters, select ‘From GMF to ARM’.