1. "Bugzilla Metrics" Use Case: Install & Execute

"Bugzilla Metrics" is a complex and complete use case, part of the MoDisco component use cases [1] [2], that has been designed and developed in order to build different representations (i.e. visualizations) of metrics computed from bugs Bugzilla data [3] in HTML format. The generated output files are readable with a simple Web navigator, Microsoft Office Excel 2003 [4] or any SVG-supporting software [5].

The development of this use case, realized by INRIA ATLAS [6], has been supported by the IST European MODELPLEX project (MODELing solution for comPLEX software systems, FP6-IP 34081) [7].

Within this document, we will present how to install and execute the "Bugzilla Metrics" use case in order to produce some metrics visualizations from HTML input data on bugs.

1.1. Get & Install the Use Case

The complete use case is directly downloadable from [8]. The provided Zip file contains all the required material to launch its execution. Nevertheless, you have to follow the two next steps before effectively executing the use case.

1.1.1. Install Eclipse with EMF + the ATL and AM3 plugins

If you already have Eclipse with EMF and the ATL & AM3 plugins last version installed onto your computer, please directly go the next step (see section 1.1.2).

If not, you have to follow the instructions described below:

- To install Eclipse with EMF and ATL, follow the instructions provided in the "installation of ADT from source" document which is available from [9]. It is important to note the two following changes:
  - The repository path is now ***/cvsroot/technology*** instead of ***/home/technology***.
  - You have to check out all the ATL plugins, including the ***org.eclipse.gmt.atl.atl2006*** one, for getting the latest ATL version (more information on ATL 2006 is available from [10])
- To install AM3, simply follow the same process. You just have to choose the ***AM3*** folder (instead of the ***ATL*** one) and to check out the four following plugins:
  - org.eclipse.am3.core
  - org.eclipse.am3.tools.tge
  - org.eclipse.am3.ui
  - org.eclipse.am3.tools.ant

Now that you have checked out all the required plugins onto your workspace, you can launch another Eclipse in order to load the newly imported plugins and to open your development workspace.

1.1.2. Import the "BugzillaMetrics_MoDisco-UseCase" project

This subsection is about describing how to import, within your development workspace, the project that implements the “Bugzilla Metrics” use case:

- Right-click anywhere on the "Navigator" view and choose "Import...": the "Import" wizard is now opened.
- Select "General/Existing Projects into Workspace" and click on "Next" button.
- Click on "Select archive file" and "Browse..." to open the "BugzillaMetrics_MoDisco-UseCase_vX-X.zip" archive file.
- Check that the "BugzillaMetrics_MoDisco-UseCase" project is selected and click on the "Finish" button.

The ***BugzillaMetrics_MoDisco-UseCase*** project is opened into your development workspace.

1.2. Execute the Use Case

Now that you have installed all the required items, you are ready to launch the execution of the “Bugzilla metrics” use case. Note that the complete execution of the use case requires the "ATL" perspective and the "AM3 Resource Navigator" view to be opened. The "AM3 Resource Navigator" view must be used instead of the standard "Navigator" view.

1.2.1. Check the Content of the "BugzillaMetrics_MoDisco-UseCase" project

Just before performing the execution, take a look at the content of the imported project and its different folders and files:

- ***Input***: The provided input XML file stores the HTML table containing the Bugzilla data concerning the Eclipse/GMT project bugs.
  For getting the HTML page, see:
  https://bugs.eclipse.org/bugs/buglist.cgi?query_format=specific&order=relevance+desc&bug_status=__all__&product=GMT&content=
- ***Metamodels***: The metamodels, used within this use case, expressed in two different formats (the KM3 language and the Ecore XMI format).
- ***Outputs***: The sub-folders contain the generated intermediate models (you can delete these models for regenerating them, but you MUST NOT delete the sub-folders). The final output files are stored in the root (you can also delete these files for regenerating them).
- ***Transformations***: The ATL transformations developed in order to implement the different steps of the use case. The "Table2XXX" sub-folder contains the transformations used to produce models related to different visualization's formats. Its "Extractor" sub-folder contains the transformations used to build software readable files from these generated models.

The different ANT scripts (i.e. build-XXX.xml files with their build-XXX.xml.launch configuration files), which allow executing the different steps of the use case, are stored in the root of the project.

1.2.2. Perform the Use Case

The use case has to be performed by running the provided ANT scripts (that implement its different steps) calling AM3-specific ANT tasks [11].

The order and the way these scripts must be launched is specified by the following items:

1) Right-click on the "build-Discovery-Bugzilla.xml" file and "Run As" -> "Ant Build".
2) Right-click on the "build-Understanding1-Table.xml" file and "Run As" -> "Ant Build".
3) Right-click on the "build-Understanding2-Excel_HTML.xml" file and "Run As" -> "Ant Build".
4) Right-click on the "Metamodels/Table.ecore" file and "Register metamodel". Then, open the "Outputs/Table/Bugs_GMT-Table.ecore" file, change the value of the "content" attribute of the first cell of the first row of each table (by using the "Properties" view) and save the file:
    a. For the "Number of bug per severity type" table, put "Bar Chart" in order to indicate that the contained data (i.e. numbers) are designed for building a bar chart.
    b. For the "Percentage of bug per severity type" table, put "Pie Chart" in order to indicate that the contained data (i.e. percentages) are designed for building a pie chart.
5) Right-click on the "build-Understanding3-SVG.xml" file and "Run As" -> "Ant Build".

For having an overall vision of the different steps that compose this use case, you can take a look at the "BugzillaMetrics-UseCaseOverview.png" & "BugzillaMetrics-Screenshots.png" image files. For getting more details about the chain of MDE operations, you can also read the content of the provided ANT scripts.

IMPORTANT NOTE: It is possible to change the metrics which are generated by only modifying the "Transformations/Bugzilla2Metrics.atl" ATL transformation...

References

[1] The Eclipse/GMT **MoDisco** Component: http://www.eclipse.org/gmt/modisco/

[2] **MoDisco** Use Cases: http://www.eclipse.org/gmt/modisco/useCases.php

[3] **Bugzilla** Defect-Tracking System: http://www.bugzilla.org/

[4] **Microsoft Office 2003** XML Schemas: http://www.microsoft.com/office/xml/default.mspx

[5] W3C **SVG** (Scalable Vector Graphics) Specification: http://www.w3.org/Graphics/SVG/

[6] **INRIA ATLAS** Team: http://www.inria.fr/recherche/equipes/atlas.en.html

[7] The **MODELPLEX** IST European Project: http://www.modelplex-ist.org

[8] Download the **Bugzilla Metrics** Use Case:
http://www.eclipse.org/gmt/modisco/useCases/BugzillaMetrics/#download

[9] Eclipse/M2M **ATL** "Installation of ADT from source" Document: http://www.eclipse.org/m2m/atl/doc/

[10] The **ATL 2006** Wiki page: http://wiki.eclipse.org/index.php/ATL_2006

[11] The **AM3 ANT Tasks** Wiki page: http://wiki.eclipse.org/index.php/AM3_Ant_Tasks