

June 19, 2014 Meeting

Agenda

- Review changes to Standard C-3.
- Review Professional Team's comments on 2011 Standard C-3.
- Devise plan of action to address Professional Team's comments and updated standard.
- Provide references to documentation and tools for creating the required diagrams.

Standard C-3: Model Architecture and Component Design

The modeling organization shall maintain and document (1) detailed control and data flow diagrams and interface specifications for each software component, (2) schema definitions for each database and data file, and *(3) diagrams illustrating model-related flow of information and its processing by modeling organization personnel or team*. Documentation shall be to the level of components that make significant contributions to the model output.

2011 Submission – Professional Team’s Comments

Emphasized with the modeler the importance of following procedures when producing flowcharts:

- a) Adherence to a flowchart standard for all flowcharts, whether internal to the modeler’s organization or public.
- b) Differentiating control versus data flow in the flowchart.
- c) Full labeling of all flowchart components, including the nodes and arrows.

The Professional Team pointed to Figure 16 (Flowchart of the Interior Damage Module) and Figure 18 (Exterior and Interior Damage Assessment for MHB) as examples that required clarification.

Verified that flowcharts are control flow, rather than data flow charts. Verified that the modeler’s use of joins (i.e., where two control flows merge) and forks (i.e., where two control flows split) represent semantics associated with concurrent processes.

2013 Submission

- Address Professional Team’s comments regarding C-3, item 1 above.
- Each team needs to create UML diagrams showing the model-related flow of information within the component: meteorology, engineering, statistics, actuarial, and computer science.
- CS team will create a UML diagram illustrating a modeling service (data processing) for reference.

Guidelines

- Differentiate control versus data flow diagrams.
- Label the components. In the case of a data flow diagram, the labels of the arrows should specify the data that is flowing.
- Use the appropriate symbols and use them consistently. This cheat sheet may come handy: <http://www.breezetreec.com/images/flow-chart-symbols.png>
- All control flow diagrams should have a starting point and an ending point. Additionally, arrows should go from one particular shape to another instead of to an enclosed collection of shapes. It should be possible to follow the entire process without any external guidance.
- Avoid overlapping connection arrows. When it is not possible, add the crossover bump at the intersection point.
- Follow a consistent color scheme and style for all diagrams. For example, always use dashed lines when enclosing a subcomponent in the control and data flow diagrams.
- Use joins (where two control flows merge) and forks (where two control flows split) to represent concurrent processes.
- Regarding the diagrams illustrating model-related flow of information (C-3, item 3) (See example at the end of the document):
 - Identify the data and the actors (roles) involved.

- For the sake of clarity, number the data flow sequence.
- Include a brief description (one or two lines) of the process being illustrated.
- If abbreviations/acronyms need to be used to save space and the reader is likely to be unfamiliar with them, add a legend at the bottom of the diagram specifying what they stand for.

References

- UML tutorials:
 - http://www.lamri.com/files/resources/UML2_seminar.pdf
 - http://www.tutorialspoint.com/uml/uml_tutorial.pdf
- UML tool:
 - UML stencil for Microsoft Visio: this template provides standard UML 2.x symbols.
 - Templates: <http://softwarestencils.com/uml/index.html>
 - Tips: <http://softwarestencils.com/tips/index.html> (The section on “stereotypes” is helpful if using Microsoft Visio 2000 or a later version).
- UML Information Flow Diagrams (C-3, item 3):
 - <http://www.uml-diagrams.org/information-flow-diagrams/scheduled-workflow-example.html?context=ifl-examples>
 - <http://www.uml-diagrams.org/information-flow-diagrams.html>
 - <http://www.uml-diagrams.org/information-flow-elements.html>