UML Tool Actions - Sequence Elements Actions 1.0 Requirements Specification

1. Scope

1.1 Overview

The Sequence Elements Actions component provides the Actions related to the model elements specific to a sequence diagram. The actions are strategy implementations of the action interfaces in the Action Manager component. The provided actions are for adding / removing / copying / cutting / pasting the elements and relationships. The element is object. The relationships are create message, synchronous message, asynchronous message, return message and send signal message.

1.2 Logic Requirements

1.2.1 Add / Remove / Copy / Cut / Paste Object action

This component will provide a concrete action for each operation.

The Add / Remove / Cut / Paste actions are UndoableActions.

The Copy action is a TransientAction.

Note that the Cut action can be implemented as a CompoundUndoableAction, made of a transient Copy action (wrapped in TransientUndoableAction) and an undoable Remove action.

1.2.1.1 The Add action will be configured with:

- the Object
- the Collaboration

The action will simply add the Object to the Collaboration.

The action will also pass the element to the ProjectConfigurationManager, to apply any initial formatting.

The Object is added to the participating instances list of the collaboration instance set.

1.2.1.2 The Remove action will be configured with:

- the Object

The action will remove the element from the model. However, it is not responsible for removing the owned elements, or the relations connected to it or its owned elements.

1.2.1.3 The Copy action will be configured with:

- the Object
- the Clipboard (defaults to the system clipboard)

The action will copy the element. However, it is not responsible for copying the owned elements, or the relations connected to it or its owned elements.

The copy information will be placed in the clipboard. Note that the Copy and the Paste action must function together.

The DataFlavor of the Transferable object used should be documented.

1.2.1.4 The Cut action will be configured with:

- the Object

This action will Copy and Remove the element, as specified above.

1.2.1.5 The Paste action will be configured with:

- the Transferable content representing the Object
- the parent Collaboration (optional)

The action will paste the element into the model in the same collaboration it was in, or in the provided collaboration. It will get the information from the received Transferable object.

1.2.2 Add / Remove / Copy / Cut / Paste Create Message action

These actions are similar to the ones above. They use a Stimulus with a Procedure that has a CreateObjectAction as the Action, instead of the Object.

The link of the stimulus is added to the participating links list of the collaboration instance set.

1.2.3 Add / Remove / Copy / Cut / Paste Synchronous Message action

These actions are similar to the ones above. Only they use a Stimulus with a Procedure that has a synchronous CallOperationAction as the Action.

1.2.4 Add / Remove / Copy / Cut / Paste Asynchronous Message action

These actions are similar to the ones above. Only they use a Stimulus with a Procedure that has an asynchronous CallOperationAction as the Action.

1.2.5 Add / Remove / Copy / Cut / Paste Send Signal Message action

These actions are similar to the ones above. Only they use a Stimulus with a Procedure that has a SendSignalAction as the Action.

1.2.6 Add / Remove / Copy / Cut / Paste Return Message action

These actions are similar to the ones above. Only they use a Stimulus with a Procedure that has no Action.

1.3 Required Algorithms

None.

1.4 Example of the Software Usage

The component will be used in the TopCoder UML Tool to perform model related actions.

1.5 Future Component Direction

None.

2. Interface Requirements

2.1.1 Graphical User Interface Requirements

None.

2.1.2 External Interfaces

The design must follow the interface found in the class diagram with the component interfaces. The designer is encouraged to add to the existing interface, but not to remove anything.

2.1.3 Environment Requirements

- Development language: Java 1.5

- Compile target: Java 1.5

2.1.4 Package Structure

com.topcoder.uml.actions.model.sequence

3. Software Requirements

3.1 Administration Requirements

3.1.1 What elements of the application need to be configurable?

None.

3.2 Technical Constraints

3.2.1 Are there particular frameworks or standards that are required?

None

3.2.2 TopCoder Software Component Dependencies:

- Action Manager 1.0
- UML Model Manager 1.0
- UML Project Configuration 1.0
- UML Model components
- Configuration Manager 2.1.5 - recommended

**Please review the TopCoder Software component catalog for existing components that can be used in the design.

3.2.3 Third Party Component, Library, or Product Dependencies:

None

3.2.4 QA Environment:

- Solaris 7
- RedHat Linux 7.1
- Windows 2000
- Windows 2003

3.3 Design Constraints

The component design and development solutions must adhere to the guidelines as outlined in the TopCoder Software Component Guidelines. Modifications to these guidelines for this component should be detailed below.

3.4 Required Documentation

3.4.1 Design Documentation

- Use-Case Diagram
- Class Diagram
- Sequence Diagram
- Component Specification

3.4.2 Help / User Documentation

- Design documents must clearly define intended component usage in the 'Documentation' tab of Poseidon.