Sequence Diagram

The *Sequence Diagram* pattern creates elements and a sequence diagram that describes the time ordered interaction between three components and the messages that are called during their interaction. A Loop Interaction Operator is used to indicate a set of messages is iterated over a number of times.

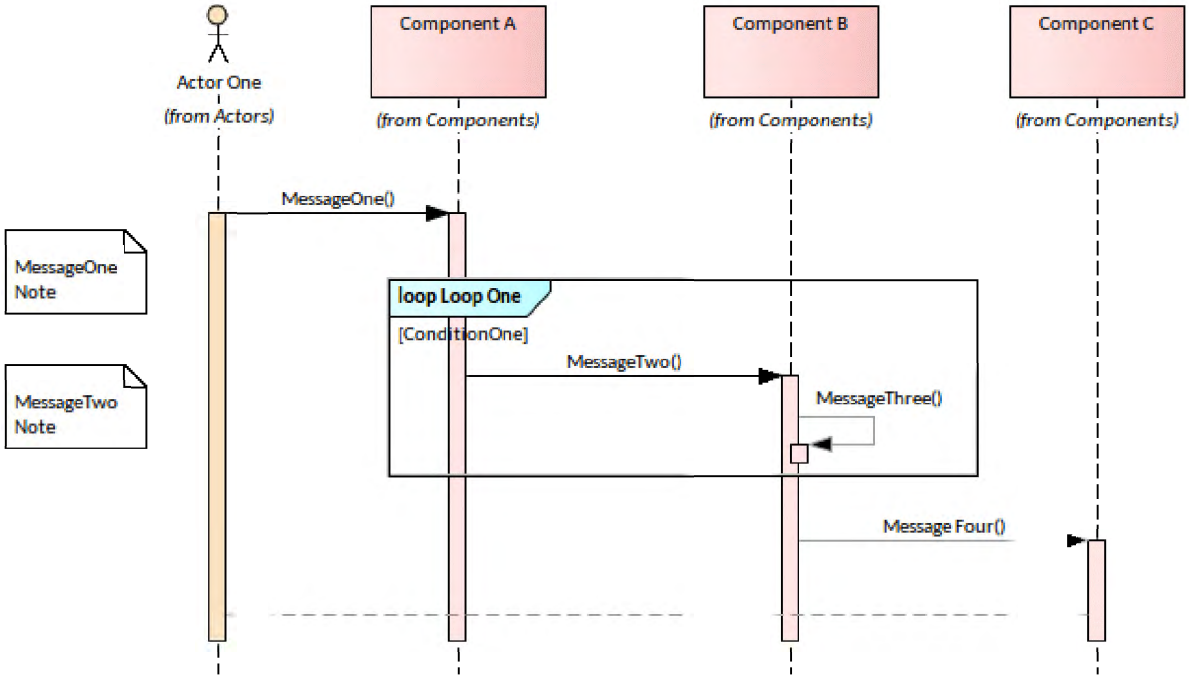

Figure 1. Shows a Sequence Diagram with three Components that interact by the exchange of messages.

Discussion

The purpose is to allow the interaction between the elements to be visualized. Designers and Implementations teams typically create the Sequence diagrams either as a design tool or for the purposes of documentation. The sequence of messages can often inform a design decision or bring clarity to a problem discovered in an operation system.

The pattern is typically used during the design or implementation phase but can also be used when an initiative has been completed and documentation is required. They can be used to visualize a complex interaction between two or more components and the messages they exchange. Sequence diagrams can also conveniently be created automatically from call stacks..

The following is a list of some things you may want to do when working with this pattern.

- Change the name of the diagram to suit the initiative.
- Change the name of the Components to suit the initiative.
- Change the names of the Component's Operations which are visible on the diagram as Messages.
- Create additional, Components and Messages that model the interactions applicable to the initiative.
- Change the text on the Note elements to be applicable to the messages to suit the initiative.

The following is a list of some of the next steps available when applying the pattern.

- Extend the diagram to include other elements that reflect the sequence that needs to be analyzed.
- Use the Visual Execution Analyzer to automatically create Sequence and to build, debug, record, profile implemented systems.
- Create additional Interaction Operators to model the sequence of message flows.
- Enable the Show Sequence Numbering option to assist in the readability of the diagram.
- Create automatically generated Documentation of the Sequence diagrams directly from the repository.

Reference

The following help topics will assist you learn about how to work with this pattern.

Sequence Diagrams

Sequence Diagram Elements

Sequence Diagram Options

Business Analysis Body of Knowledge (BABOK)

Traceability Tools

Documentation

The following are some of the tools that will be helpful when working with this pattern.

Sequence Diagram

Sequence diagrams can be used to model behavior at a classifier or an instance level. Element or Object lifelines can be displayed and they can be created and destroyed. Synchronous and Asynchronous messages are supported that can be related to classifier operations, including the sending of parameters and return values. Fragments are supported and can be used to create highly expressive diagrams. Ports and Interfaces can be represented on the diagrams, allowing complex solution architectures and designs to be modeled. There is also a facility to automatically create Sequence diagrams from a running system's stack trace, which allows powerful analysis to be performed and comprehensive and accurate documentation to be generated. For more details see the Sequence Diagram help topic.

Document Generator

The Document Generator is a powerful facility in Enterprise Architect that allows a Database Engineer or other stakeholder to create high quality corporate or technical documentation directly from the model, suitable for internal or external audiences. For more details see the Documentation help topic or the more general topic on Model Publishing.

Element Discussions

The Element Discussion facility is a fully featured collaboration tool allowing modelers and model viewers and reviewers to communicate with each other directly inside the repository. Modelers using the full client or occasional viewers using WebEA can both post and reply to discussions and communicate and engage in chat. For more details see the Element Discussions help topic.

Specification View

The Specification View can be used as a way of working with any element type in a spreadsheet or word process view. It is particularly useful when there are a large number of elements as is typically the case when describing a system of any appreciable size. For more details see the Specification View help topic.

Relationship Matrix

The Relationship Matrix provides a spreadsheet like view of two groups of elements and the relationships that exist between them. It can be a used as a powerful analysis mechanism to visually indicate how elements are related to each other and to discover which elements are missing relationships. For more details see the Relationship Matrix help topic.

Traceability Window

The Traceability Window automatically displays the relationships that exist between Use Cases and other model elements including up-process and down-process elements. The traceability tree view can be conveniently expanded to see deeper relationships and elements displayed in the window can be located in all diagrams in which they appear. For more details see the Traceability Window help topic.