State Modeling

The *State Modeling* pattern creates elements and a State Machine diagram for a simple State Model. One state has nested Sub-States and Triggers and Guards have been defined for the important Transitions.

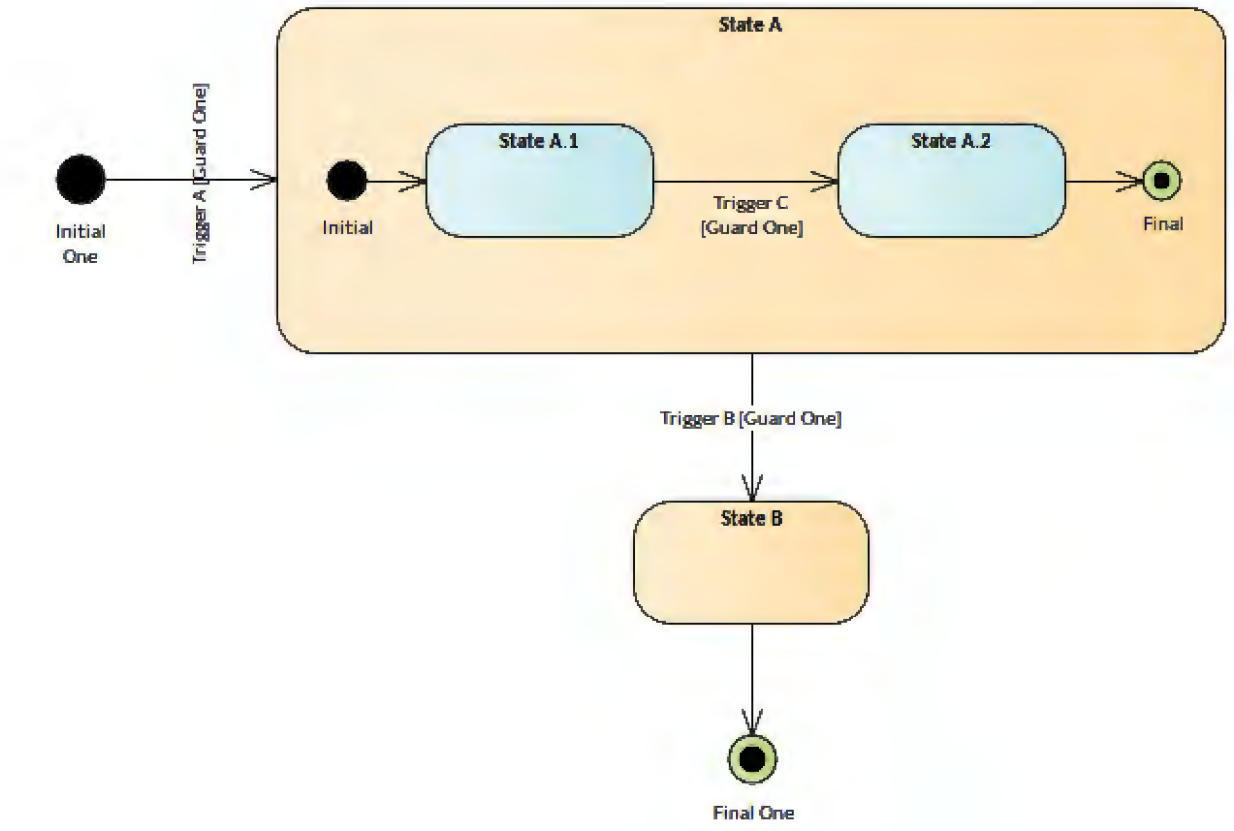

Figure 1. Shows a State Machine diagram with Triggers and Guards defined on the transitions.

Discussion

The purpose of the pattern is to allow Business Analysts. Technologists and other Stakeholders to models the significant states an object can transition to. The stateMachine diagram (or Table) allows the modeler to define the States and the

Transitions including what Triggers the transition and a conditions that determines whether State can be transitioned to or not.

State Modeling can be used at any point during an initiative but most typically are used when important Objects, Classes or Subsystems need to be analyzed to understand their behavior.

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 States to suit the initiative
- Change the Transitions including the source and target States and their Triggers and Guards.
- Add Entry, DO and Exit Actions to the States to model the Behavior that occurs when a State is transitioned to.

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

- Create a simulation of the State Machine to allow other stakeholders to visualize the State Transitions.
- Create an Executable State Machine to allow programming code to be generated that emulates the State Transitions.
- Convert the StateMachine diagram to a StateMachine Table as an alternative way of viewing the States and their Transitions.

Reference

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

State Machines

State Modeling

StateMachine Table

State Machine Diagram

Modeling Executable State Machines

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.

State Machine Diagram

A StateMachine diagram is a powerful way of presenting information about the lifetime of a business or technical entity. It can be used to describe the important conditions (States) that occur in an entity's lifetime or cycles. Typically only entities that have important stages in their lifetime are modeled with StateMachine diagrams. The entity is said to transition from one State to another as specified by the StateMachine. Triggers and Events can be described that allow the state transition to occur and Guards can be defined that restrict the change of state. Each State can define the behaviors that occur on entry, during and exit from the State. For more details see the State Machine Diagram help topic.

StateMachine Table

A StateMachine table is a variant of a StateMachine diagram. It displays the information of the StateMachine in table form, and is a method of specifying the discrete behavior of a finite state-transition system; that is, what state the StateMachine moves to and the conditions under which the transition takes place. For more details see the StateMachine Table 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.