

# STATE CHART DIAGRAM

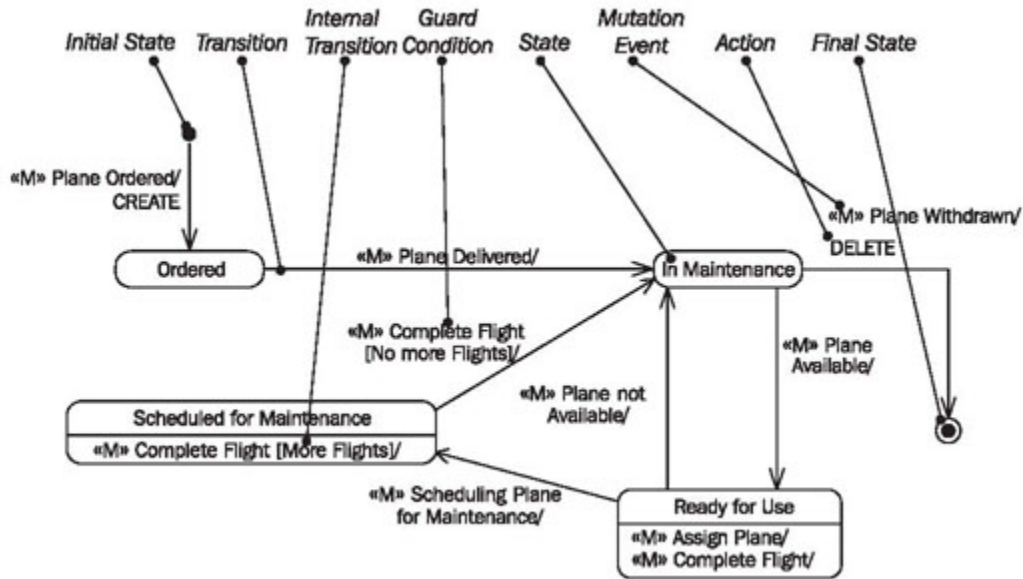


Figure 4.47 Elements of the statechart diagram

In statechart diagrams, as shown in Figure 4.47, we work with the following elements:

## Initial State

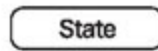
The initial state represents the source of all objects:



It is not a normal state, because objects in this state do not yet exist.

## State

The state of an object is always determined by its attributes and associations. States in statechart diagrams represent a *set* of those value combinations, in which an object *behaves the same* in response to events:



Therefore, not every modification of an attribute leads to a new state.

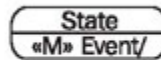
## Transition

A transition represents the change from one state to another:



## Internal Transition

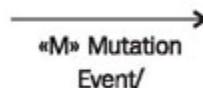
An internal transition is a transition from one state to itself. This means that the object handles the event without changing its state:



The events that initiate the internal transition are listed in the lower part of the state symbol. For instance, a frequent flyer card object in the state normal remains in the state normal when the event«M» add miles occurs.

## Mutation Event

A mutation event is the initiator of a transition from one state to another, or for an internal transition, where the state remains the same:



## Action

An action is the activity of an object that is initiated by an event:

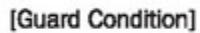


«M» Event/Action

An action describes what the object does in response to the event. This description can be textual or formalized.

## Guard Condition

A guard condition is a condition that has to be met in order to enable the transition to which it belongs:



[Guard Condition]

Guard conditions can be used to document that a certain event, depending on the condition, can lead to different transitions.

## Final State

The final state represents the end of an object's existence:



A final state is not a real state, because objects in this state do not exist anymore.

Source : <http://sourcemaking.com/uml/modeling-it-systems/the-behavioral-view/statechart-diagram>