

UML State Diagrams

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Overview

- 1 Purpose
- 2 Notational Elements
 - State Nodes
 - Transition edges
 - Control Nodes
- 3 Tutorial

- Model state dependent activities

- State Nodes
- Transition Edges
- Control Nodes

Initial Node



- Starting point
- A state diagram may at most have one initial node

Final Node



- Point where system terminates
- A state diagram may have many final nodes

State Node



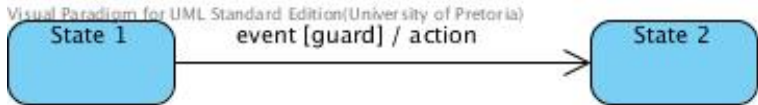
- Represent a state
- Can contain another state diagram (infinitely)

Composite State



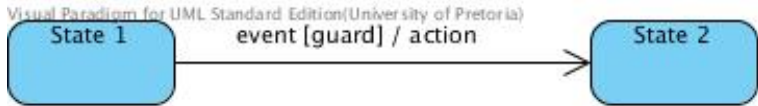
- Need not have a name (line & text above)
- If nameless it must include detailed flow

Transition Edge



- Indicate transition between state
 - Should indicate the event that triggers the transition (text)
 - May have a guard condition that is a prerequisite for transition (text in [])
 - May have an action that is executed during transition (method name after /)

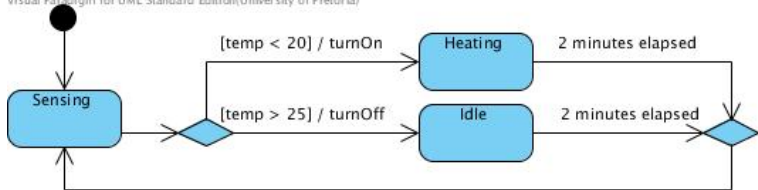
Transition Edge



- If a transition is shown without an event it triggers immediately.
- If an event happens for which there is no transition, nothing happens.

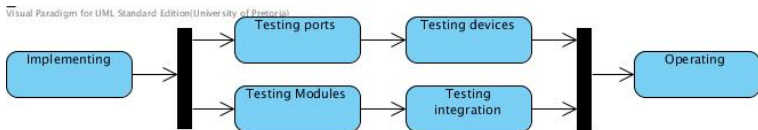
Decision and Merge

Visual Paradigm for UML Standard Edition(University of Pretoria)



- Alternate flows
- Need guard conditions for the alternatives

Fork and Join



- Parallel flows
- Both paths are executed at the same time by different threads
- Join fires only after all flows have reached it. Synchronisation point

Signal Action

Visual Paradigm for UML Standard



- Generates an event that can trigger a transition in any other state in the diagram to fire as a result of this event.

Visualise the states of a torch that is operated with an on-off switch. When the torch is switched on, it shines yellow. It can only be switched off if the switch is turned off while the torch is shining red. The torch will start shining red when it is switched on while it was shining yellow. If the torch is switched off when shining yellow, it starts shining white. If it is turned off while shining white, it starts shining yellow.

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