

Sequence Diagram Tutorial - Message and object interactions (Messages, objects, timers, resources and actions)					
United States		Canada	India	EventStudio System Designer 6	
California	Nevada	Ontario	Rajasthan		
Los Angeles	San Francisco	Las Vegas		01-Mar-13 06:39 (Page 1)	

This sequence diagram provides a visual tutorial of FDL. The tutorial is organized with visual output of the FDL statement followed by the statement.

Messages



Message Statement: Model messages interactions with parameters.

```
Message (attribute="Value", field): "Los Angeles" -> "Las Vegas"
```



Message Statement: Model messages interactions (no parameters specified in this case).

```
MessageResponse : "Los Angeles" <- "Las Vegas"
```



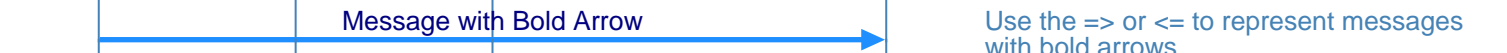
Apply tags to source and destination. Tags may be used to represent entities like port numbers and protocol stacks.

```
"Tagged Message": "Los Angeles"-tag1 => Jaipur-tag2
```



Model messages to self.

```
"Self Message" : "Las Vegas" -> "Las Vegas"
```



Use the => or <= to represent messages with bold arrows.

```
"Message with Bold Arrow" : "Los Angeles" => Jaipur
```



Model bi-directional message interactions with <-> or <=>.

```
"Bidirectional Interaction" : "Los Angeles" <-> Jaipur
```

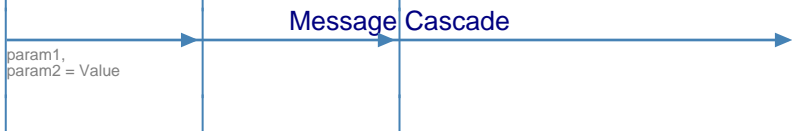
Compound Messages



Represent a chain of message interactions in a single line. Separate message names and parameters may be specified for each message interaction.

```
chain
"Message 1" (field1, field2): "Los Angeles" -> "San Francisco"
"Message 2" (attribute1=Value1, attribute2=Value2): "San Francisco" -> Jaipur
endchain
```

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Represent a chain of message interactions involving forwarding of the same message. One set of message name and parameters may be specified.

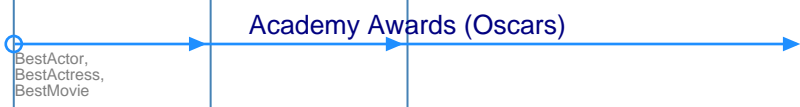
"Message Cascade" (param1, param2="Value"): "Los Angeles" -> "San Francisco" -> "Las Vegas" -> Jaipur



Cascades work for bidirectional interactions as well.

"Bidirectional Interaction Cascade" : "Los Angeles" <-> "San Francisco" <-> "Las Vegas" <-> Jaipur

Multicasts



Model multicasts using this statement. The multicast source is shown with a circle.

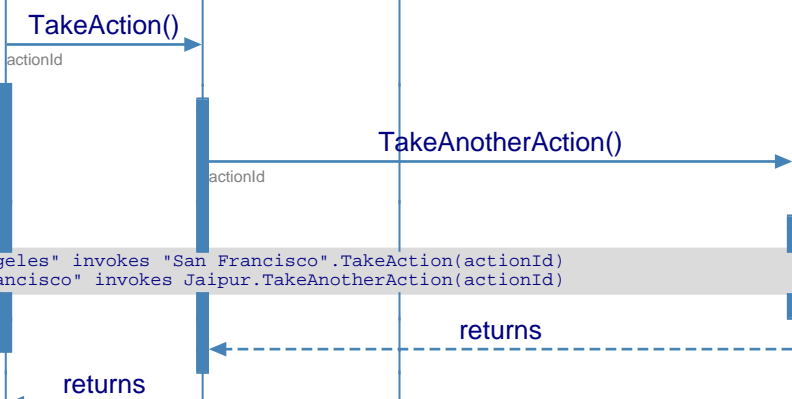
"Los Angeles" multicasts "Academy Awards (Oscars)" (BestActor, BestActress, BestMovie) to "San Francisco", "Las Vegas", Jaipur



Another multicast. This time the multicast source is not at the edge.

"San Francisco" multicasts "The Steve Jobs Show" ("One more thing...") to "Los Angeles", "Las Vegas", Jaipur

Object Interactions



Model method invocation and return.

"Los Angeles" invokes "San Francisco".TakeAction(actionId)
"San Francisco" invokes Jaipur.TakeAnotherAction(actionId)

Jaipur.TakeAnotherAction returns
"San Francisco".TakeAction returns

Object Creation and Deletion

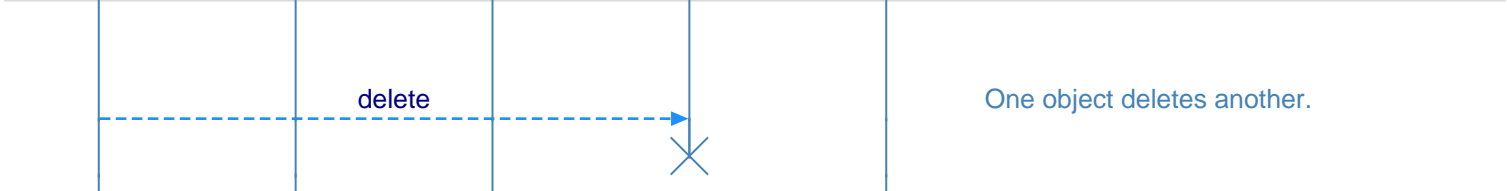


One object creates another.

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			Jaipur	

"Los Angeles" creates Ottawa(param1 = "Good Bye", param2, param3 = Value)



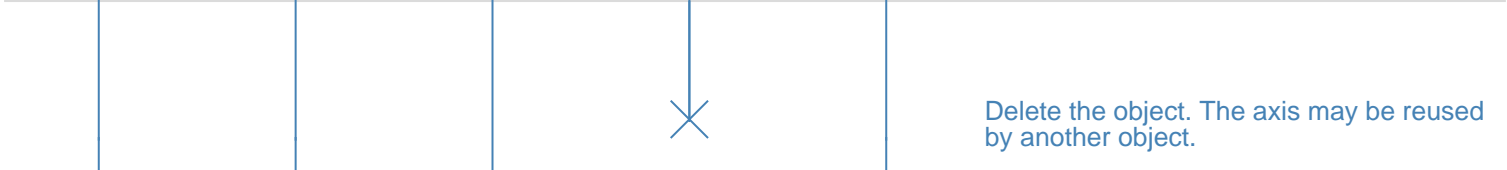
One object deletes another.

"Los Angeles" deletes Ottawa



Create object without specifying the creator. Use in sharing the same axis spot between multiple entries.

create Toronto



Delete the object. The axis may be reused by another object.

delete Toronto

Timer Management



Represent a timer start.

"San Francisco" starts SingleShotTimer



Represent a timeout.

timeout SingleShotTimer



Start a periodic timer.

"San Francisco" starts periodic PeriodicTimer



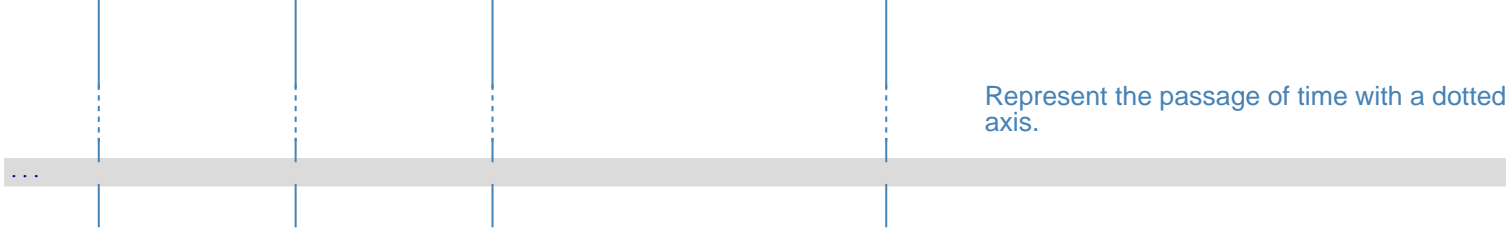
Timeout for a periodic timer. The timer stays active even after a timeout.

timeout PeriodicTimer



Model a timer stop. Works for periodic as well a single shot timers.

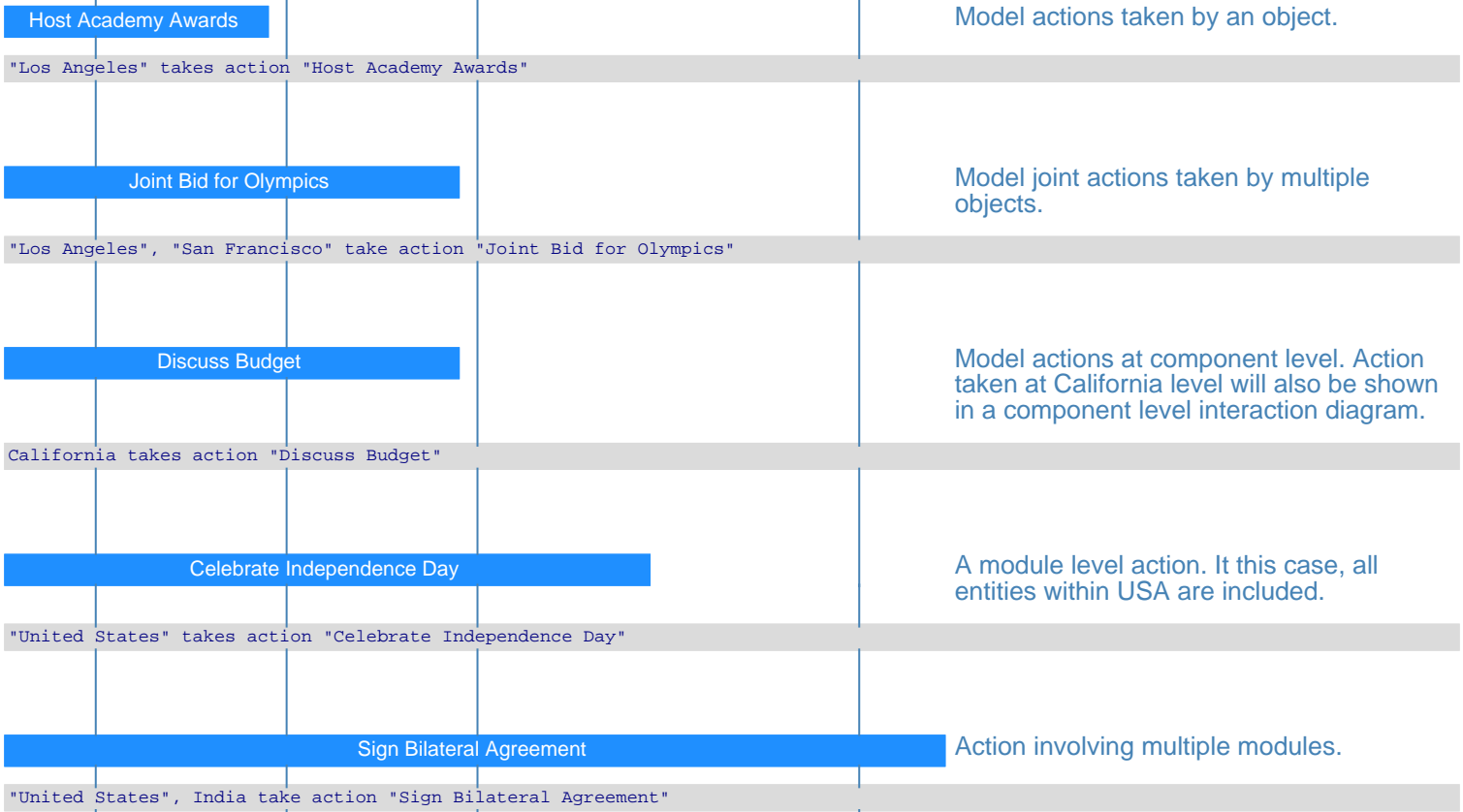
"San Francisco" stops PeriodicTimer



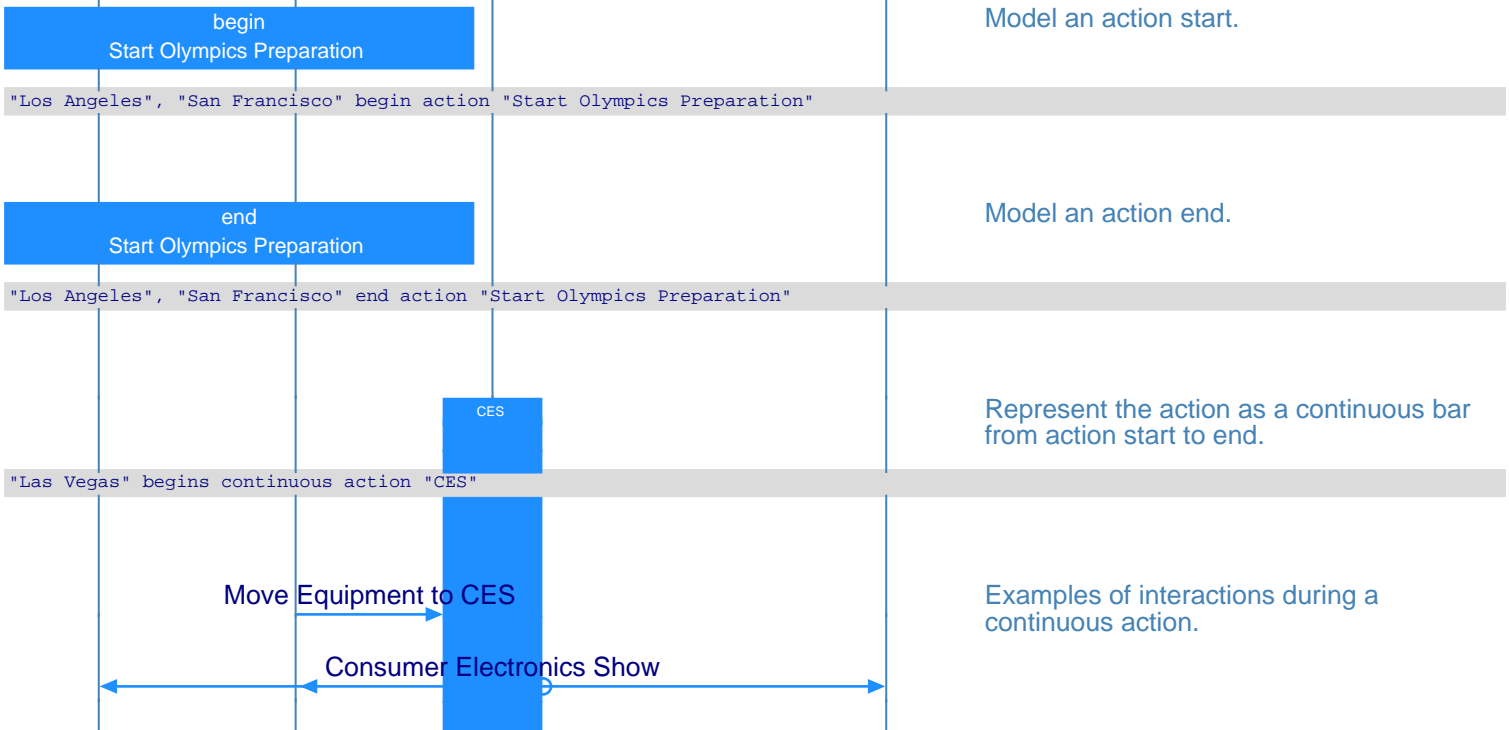
Represent the passage of time with a dotted axis.

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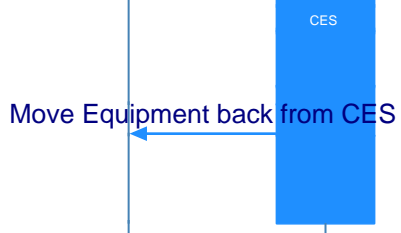
Actions



Compound Actions



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Model the end of the continuous action. Marks the end of the action bar.

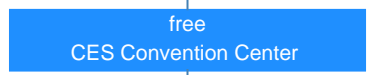
"Las Vegas" ends continuous action "CES"

Resource Management



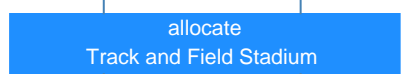
Model resource allocation.

"Las Vegas" allocates "CES Convention Center"



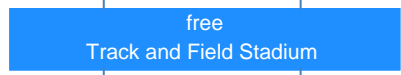
Free the resource. EventStudio will warn you if a allocated resource is not freed.

"Las Vegas" frees "CES Convention Center"



A joint resource allocation.

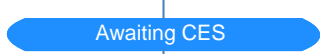
"Los Angeles", "San Francisco" allocate "Track and Field Stadium"



A joint resource free.

"Los Angeles", "San Francisco" free "Track and Field Stadium"

State Transitions



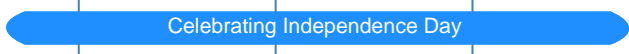
Change the state of an object.

"Las Vegas" state = "Awaiting CES"



Change the joint state of two objects.

"Los Angeles", "San Francisco" state = "Awaiting Olympics"



State specified at module level. The state transition will be included in module level and component level diagrams as well.

"United States" state = "Celebrating Independence Day"

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Hyperlinks (PDF only)

Olympics Opening Ceremony

Click on action box to visit the Olympics website. A different style has been applied with the style prefix [hyperlink].

[hyperlink] "Los Angeles", "San Francisco" take action "Olympics Opening Ceremony" <http://www.olympic.org/>

SCTP Datagram

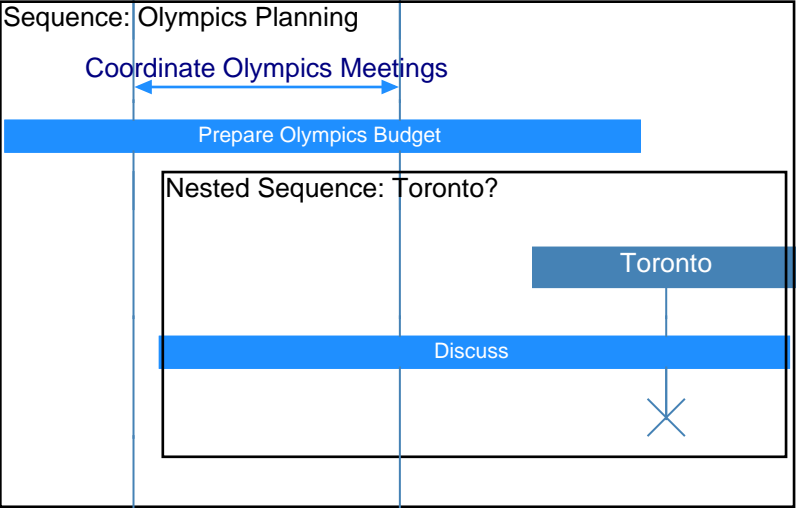
Click on the message name to get details about the message. [hyperlink] style prefix has also been applied.

[hyperlink] "SCTP Datagram" : "San Francisco" -> "Las Vegas" <http://en.wikipedia.org/wiki/Stream_Control_Transmission_Protocol>

Sequence Diagram Tutorial - Scenarios and sequences (Multiple scenario handling and sequence groupings)

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A sequence with specified participants (shown expanded).



Sequences group messages and interactions

Sequences may be nested.

```

sequence "Sequence: Olympics Planning"
    "Coordinate Olympics Meetings" : "San Francisco" <-> "Los Angeles"
    "San Francisco", "Los Angeles" take action "Prepare Olympics Budget"
    sequence "Nested Sequence: Toronto?"
        create Toronto
        "San Francisco", Toronto take action "Discuss"
        delete Toronto
    endsequence
endsequence
    
```

Sequence Diagram Tutorial - Scenarios and sequences (Multiple scenario handling and sequence grouping 2)

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A compressed sequence. Clicking on the compressed sequence takes you to the expanded version.

Sequence: Olympics Planning

```
sequence "Sequence: Olympics Planning"  
  "Coordinate Olympics Meetings" : "San Francisco" <-> "Los Angeles"  
  "San Francisco", "Los Angeles" take action "Prepare Olympics Budget"  
  sequence "Nested Sequence: Toronto?"  
    create Toronto  
    "San Francisco", Toronto take action "Discuss"  
    delete Toronto  
  endsequence  
endsequence
```