Sequence Diagram Lite Cheat Sheet

A sequence diagram shows the timeline for a single thread of operation of all or part of a system. As UML and SysML sequence diagrams are slightly different, to create a SysML sequence diagram you have to use the ribbon at the top of MagicDraw and select Diagrams which allows you to select a SysML diagram (figure 1).

Figure 1 Creating a new SysML diagram.

In earlier versions of SysML, alternatives, loops and options were not possible on a diagram but in the most recent version they are, by simply dragging the frame over the part of the diagram affected (figure 2).
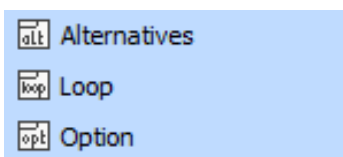

Figure 2 Available options for logic flow.

An example of looping can be seen on the medical analyzer diagram on the backside of this sheet.

Messages are passed between objects. The objects associated with a sequence diagram can either be created by dragging and dropping onto the diagram, by dragging an object from the toolbar. Messages are of several types (figure 3).

- simple message between two objects, e.g. "hello",
- a call message which is a request,
- a reply message which is a response to a call message,
- a message to self, or "I am busy doing something"

Figure 3 Types of messages

The blue bar that appears on a timeline of an object is meant to show that the object is busy, or the focus of attention in the process. The idea is that as time flows from top to bottom, at any time only one object should be busy.
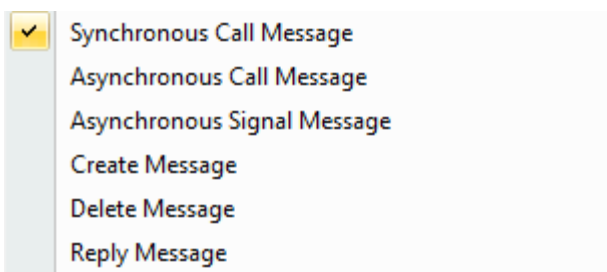

Figure 4 Specifying asynchronicity

Sometimes replies are asynchronous, that is, in response to a call or request, the reply may not be immediate but come some time later. By default, all messages are synchronous, so to make a message asynchronous you can right click on the message and then select the appropriate property from the drop-down menu (figure 4)

On the back side of this sheet you can see the high-level operation of a medical analyzer in normal use. Note the use of looping to show the processing of multiple samples in a run. The objects shown in the diagram were created with a physical block diagram and then dropped from the containment tree onto the sequence diagram pallete.
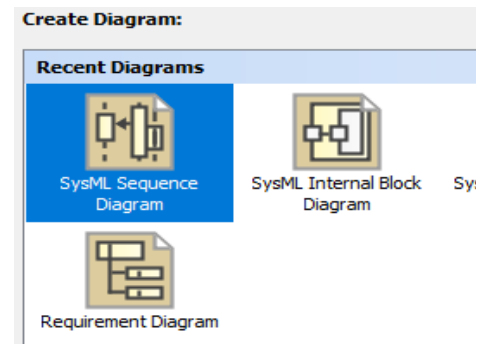
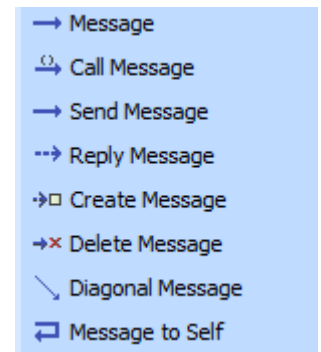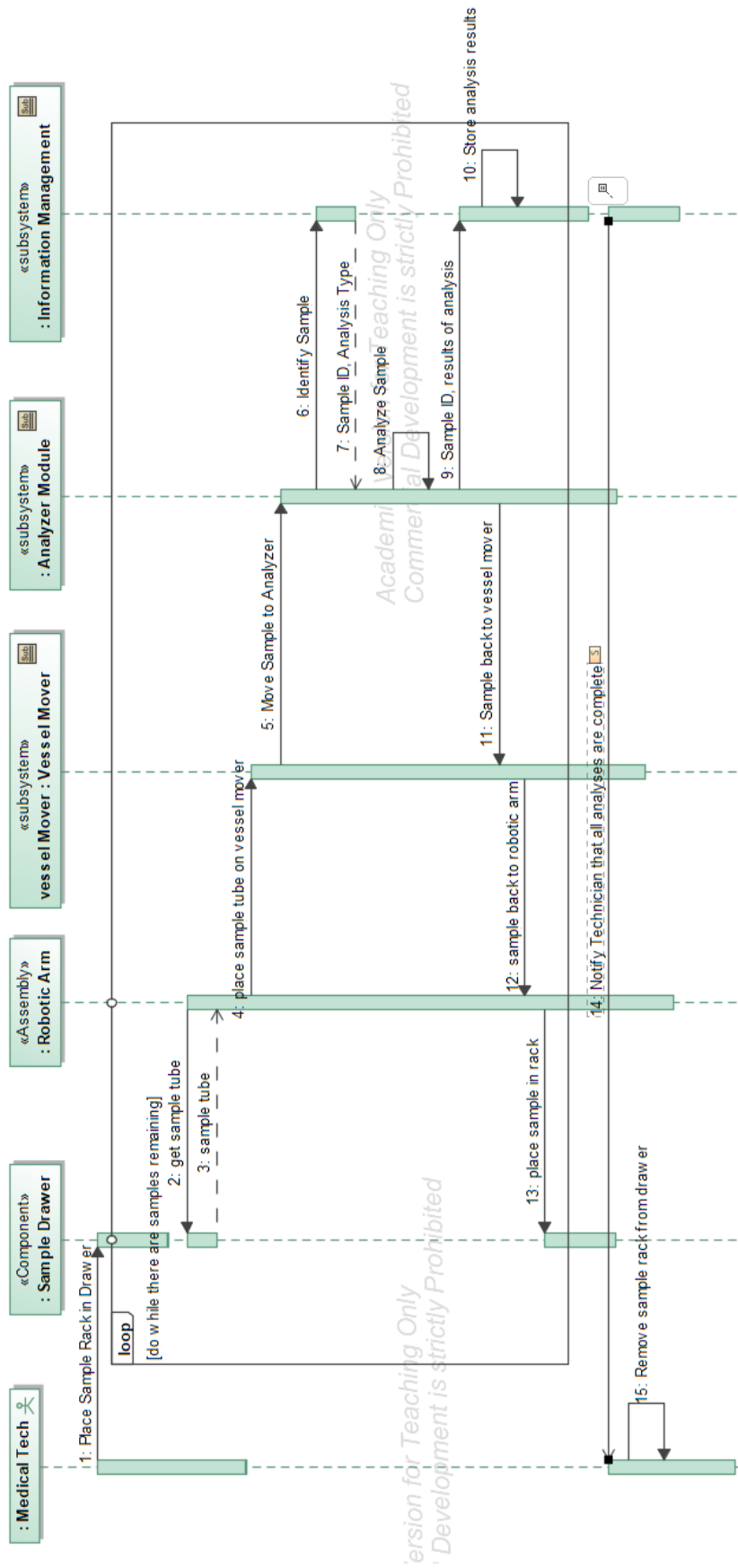*Figure 5 Hospital Analyzer High Level Operation*