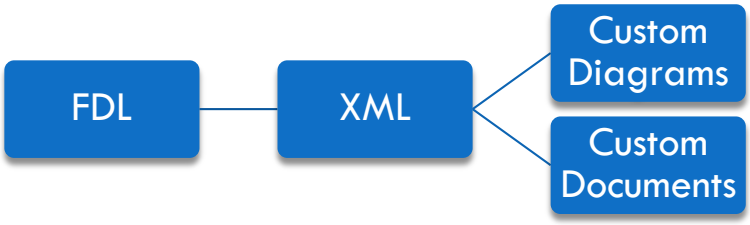
WHAT'S NEW IN EVENTSTUDIO SYSTEM DESIGNER 5

XML Export

Full XML Export

Generate XML output from the scenarios. The generate XML can be used to:

- Generate custom diagrams and documents using XSLT



Hierarchical Decomposition Filtered XML Export

Generate XML diagrams at different levels of detail:

- System level XML
- Subsystem level XML
- Module level XML
- Component level XML
- Object level XML

Interface Filtered XML Export

Generate XML files that are restricted to interactions involving a:

- System or system type
- Subsystem or subsystem type
- Module or module type
- Component or component type
- Object or object type

Regular Expression Filtered XML Export

XML output can be generated for messages and object interactions that match a specified regular expression.

System Hierarchical Decomposition Enhancements

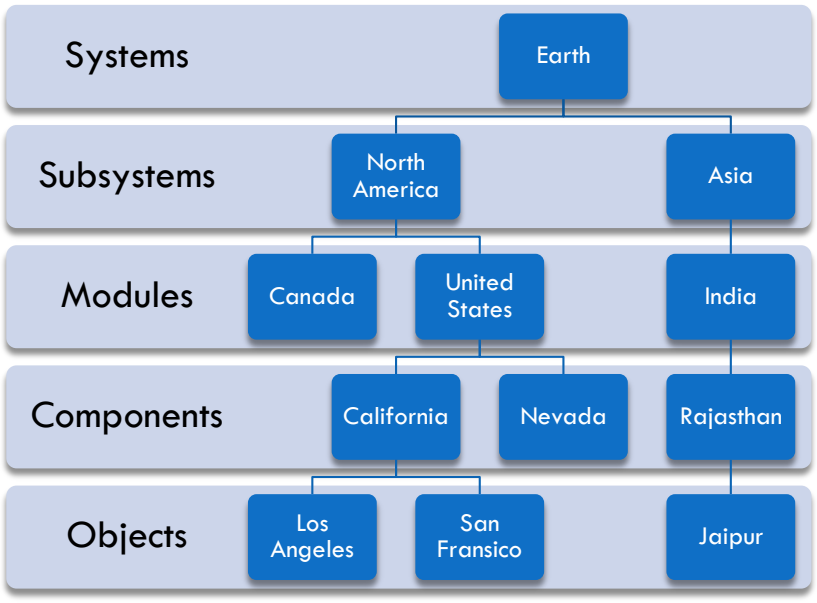
New Levels of Hierarchical Decomposition: System and Subsystem

EventStudio 4.0 supports three levels of decomposition:

- Module
- Processor/Component
- Eternal or Dynamic Object

EventStudio 5 supports five levels of decomposition:

- System
- Subsystem
- Module
- Component
- Eternal or Dynamic Object



System Level and Subsystem Level Interaction Diagrams

EventStudio 5 adds two new diagram types:

- System level interaction diagrams show only system level interactions
- Subsystem level interaction diagrams show interactions between subsystem

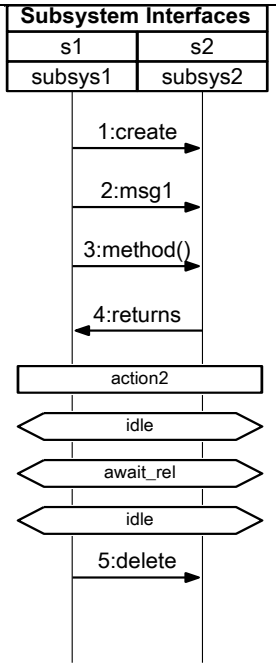


FIGURE 1 SUBSYSTEM LEVEL INTERACTION DIAGRAM

```
system: s1, s2
subsystem: subsys1 in s1, subsys2 in s2
module: mod1 in subsys1, mod2 in subsys1
module: mod3 in subsys2
component: comp1 in mod1, comp2 in mod2
component: comp3 in mod3
eternal: A in comp1, B in comp1
eternal: C in comp2
dynamic: D in comp3
feature "feature"
B creates D
msg1 : A -> D
A invokes D.method
D.method returns
D takes action "action1"
A, D take action "action2"
A, B begin action "action3"
A, B end action "action3"
B, D state = "idle"
A allocates "res1"
B, D state = "await_rel"
A frees "res1"
B, D state = "idle"
B deletes D
endfeature
```

Choose from One to Five Levels of System Decomposition

EventStudio 4.0 required a three level decomposition of the system (module, component and object).

EventStudio 5 allows you to choose from 1 to 5 levels of decomposition. You may just specify a single level model (eternal and dynamic objects only).

Model Actions and Resource Allocations at All Five Levels of Decomposition

Entities at all the five levels, systems, subsystems, modules, components and eternal or dynamic objects can perform actions, resource allocations and state transitions.

- System level actions, resource allocations and state transitions are included in system, subsystem, module, component and object interaction diagram.
- Subsystem level actions, resource allocations and state transitions are included in subsystem, module, component and object interaction diagram.
- Module level actions, resource allocations and state transitions are included in module, component and object interaction diagram.
- Component level actions, resource allocations and state transitions are included in component and object interaction diagram.

Sequence Diagram Style Enhancements

Control the Look and Feel with Default Styles

Look and feel of the display of every statement can be influenced by specifying style for the statement. Attributes like message display color, message name color, message parameter color, message name font, message name font size, parameter font, parameter font size, message display line pattern, message display line width can be defined for a particular message statement by defining a style and then applying it to the message statement. A style can be defined by using style declaration statement. Specifying style for every statement may be cumbersome in a sequence diagram. EventStudio 5 supports default style specification for different types of statements.

For example, you can define a default style for all action statements. This results in EventStudio applying the same style for all action statements if no style is associated with the statement. Refer to section on styles, themes and document layout for details on how to define default style for various statements.

Automatically Apply Styles by Regular Expression Matching Content

The regular expression match attribute in the style declaration can be used to control the look and feel of a statement. EventStudio 5 supports applying a particular style to a statement if the regular expression defined in the definition of style matches the main text content in the statement. Refer to section on styles, themes and document layout for details on how to define and apply styles with regular expressions.

Specify Color and Fonts for Block Remarks and Remarks

Block remark statement now supports style specification.

- The block remark box color can be specified by the color attribute of style associated with the statement.
- The block remark background color can be specified by background color attribute of style.
- The block remark content color can be specified by the text color attribute of style.
- The block remark text font can be specified by the font attribute of style.

More Color and Line Pattern Options in Styles

- **Background Color:** The background color in axis boxes, block remark statement, action statement, action begin and action end, continuous action statement and resource allocate/release statements can now be specified by using background color option of style.

- **Text Color:** The text color of text of message, create, delete, resource allocate, resource free, action, continuous action, block remark, remark, timer, invokes and return statements can now be specified by using text color option of style.
- **Parameter Color:** The parameter color of message, create and invokes statement parameters can now be specified by using parameter color option of style.
- **Dotted Line Pattern:** The line pattern of the message arrow can now be specified to be dotted in the line pattern option of style.

An example sequence diagram depicting various style options for different statements is shown in the figure given below.

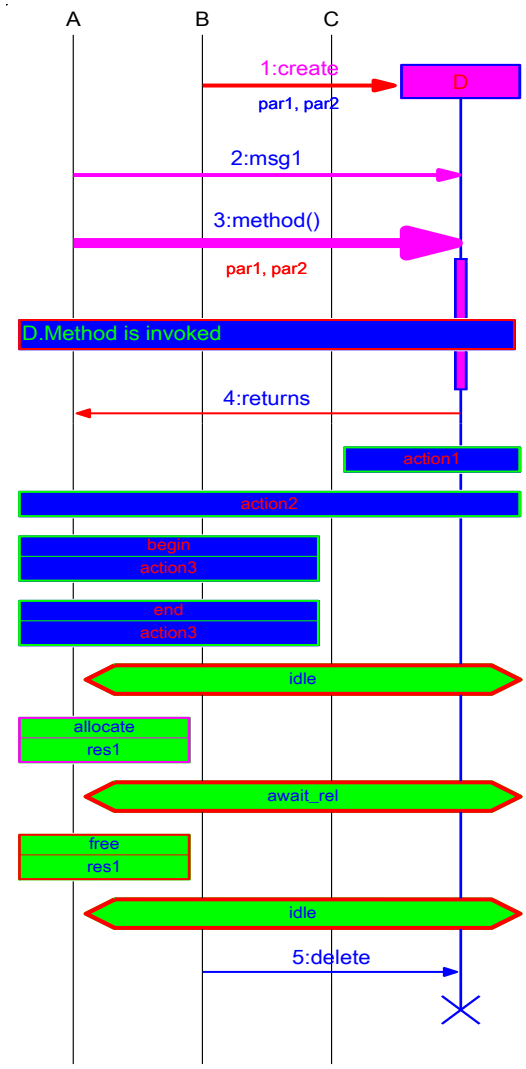
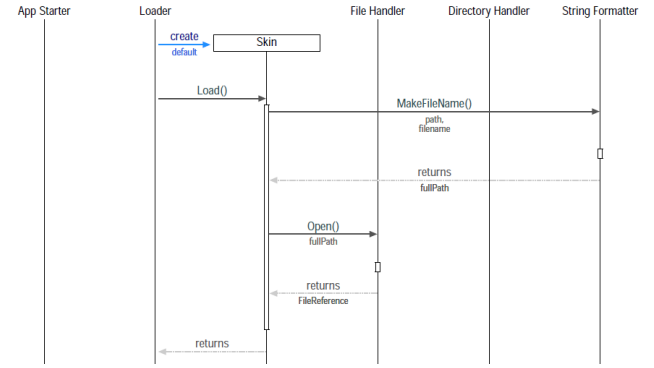


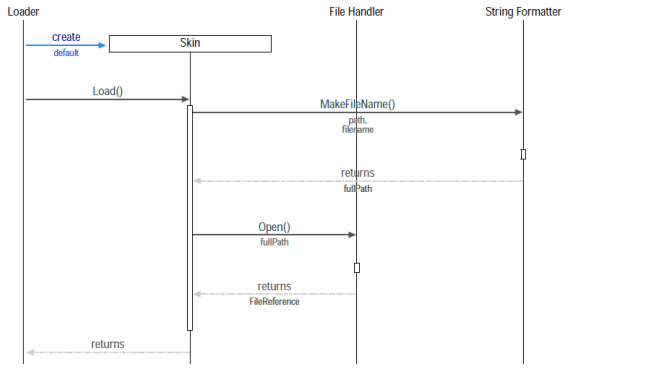
Diagram Layout Optimization

Automatically Remove Unused Instance Axes

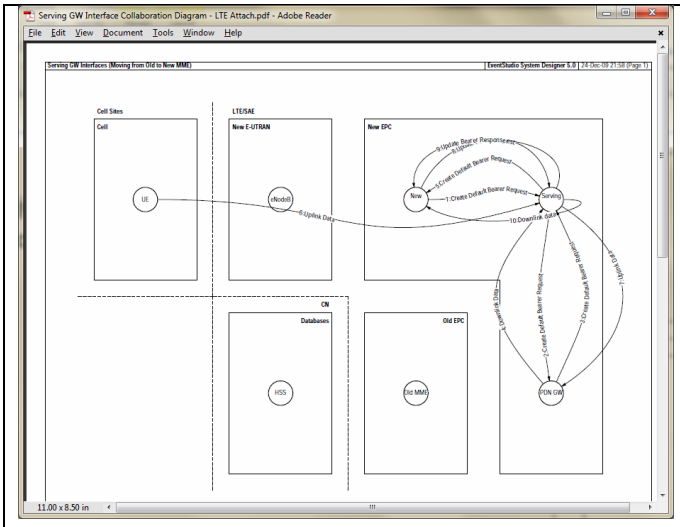
Interface diagrams and large diagrams might contain instance axis that are not used in the diagram. When unused instance axes removal is enabled, these instances are automatically removed from the diagram.



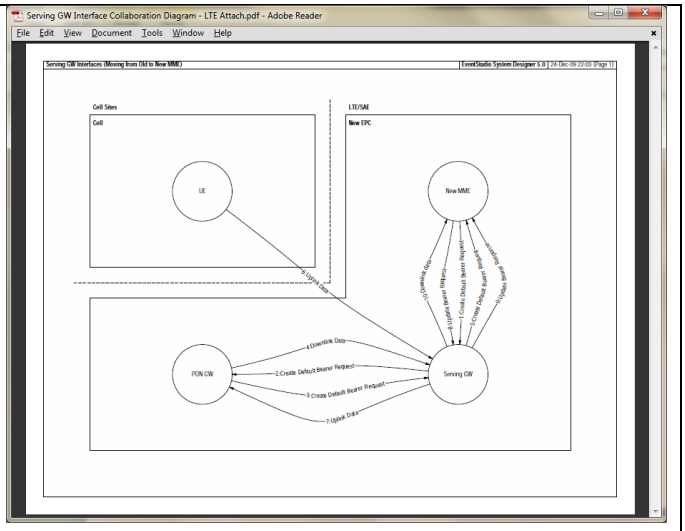
Skin object interface sequence diagram without optimization.



Skin object interface sequence diagram **with** optimization.



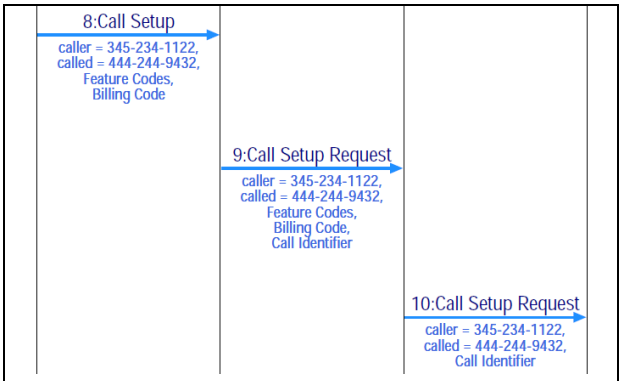
Skin object interface collaboration diagram without optimization.



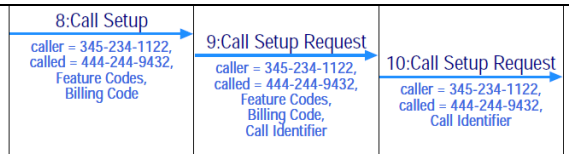
Skin object interface collaboration diagram **with** optimization.

Message Space Optimization for Long Parameter Lists

Messages with long parameter lists can result in really long sequence diagrams as the parameters take a lot of real estate in the diagrams. EventStudio now optimizes the sequence diagram rendering in such cases, saving paper by producing a more compact layout.



A message sequence with long parameter list.



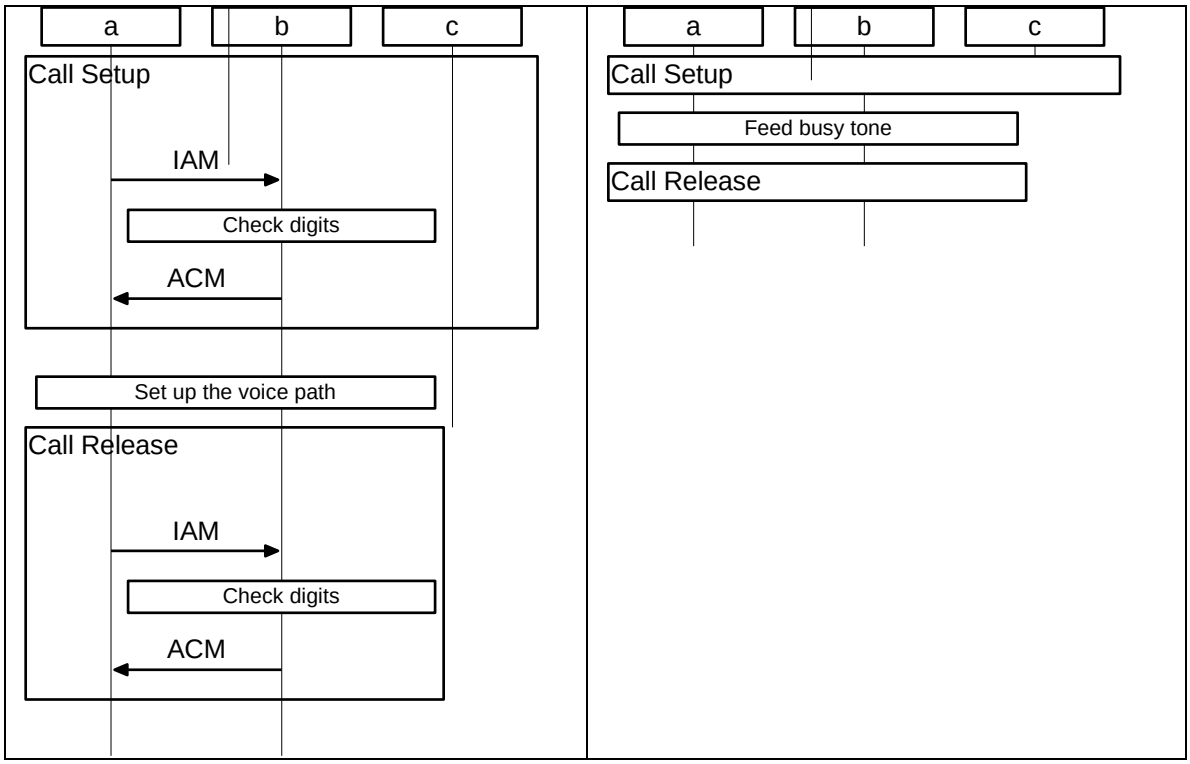
The same sequence after message space optimization.

Minimize Diagram Width and Length for Microsoft Word

EventStudio 5 supports an option to limit the width of EMF images generated by it based on the total number of columns and selected remark width. When this option is selected, EventStudio does not auto expand the column width to fill the specified paper size. This feature helps in generating compact EMF images that can be inserted in Microsoft Word documents.

EventStudio 5 supports an option to limit the length of EMF images generated by it based on the length of the content on the page. When this option is selected, EventStudio minimizes the length of the page to the end of the content. This feature helps in generating compact EMF images that can be inserted in Microsoft Word documents.

Group Interactions with the Sequence Statement



```
module: Module_01
component: Component_01 in Module_01
eternal: a in Component_01, b in Component_01, c in Component_01
feature "Sequence Grouping"
  sequence "Call Setup"
     IAM : a -> b
     b takes action "Check digits"
     ACM : a <- b
  endsequence
  case
     leg "Called Party Free":
       a, b take action "Set up the  voice path"
     leg "Called Party Busy":
       a, b take action "Feed busy tone"
  endcase
  a, b participate in sequence "Call Release"
     REL : a -> b
     RLC : a <- b
  endsequence
endfeature
```

Group Interactions in to Sequences

EventStudio 5 supports sequence-endsequence block statement to group multiple statements. The sequence blocks are represented as shown in the figure above ("Call Setup" sequence).

Group Interactions between Entities

A sequence can also be defined between a group of entities. The display is as shown in the figure above ("Call Release" sequence).

Auto Minimize Sequence When Repeated in Scenarios

EventStudio 5 supports an option for minimizing sequence blocks every time a sequence block statement is encountered or sequence block is encountered after its first occurrence. The minimized version of the sequence block is a box with sequence name inside it in the display as shown in the figure given below.

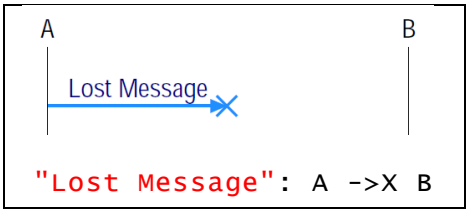
Click on PDF to View Minimized Sequence

EventStudio 5 supports link from minimized sequence block to sequence block display on its first time occurrence by clicking on the minimized sequence block display box in PDF sequence diagrams.

Message Enhancements

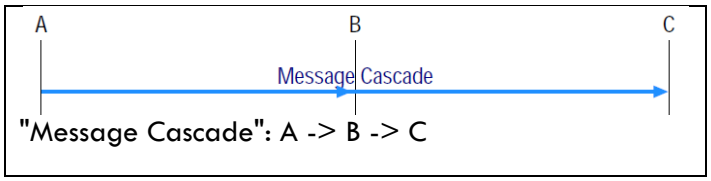
Model Message Loss

Lost messages can be clearly depicted with this statement.



Model Message Cascades

Model message sequences where the same message is forwarded across multiple objects. This message cascade is modeled with a single message statement.



Object Interaction Enhancements

Hierarchically Classify Object Interactions

EventStudio 5 supports dynamic object create and delete across components. It also supports "invokes" and "returns" statements across components. Since it supports hierarchical decomposition at the level of component, module, subsystem and system, inter-component, inter-module, inter-subsystem and inter system interaction sequence diagrams shall be enhanced to display create, delete, invokes and returns statement.

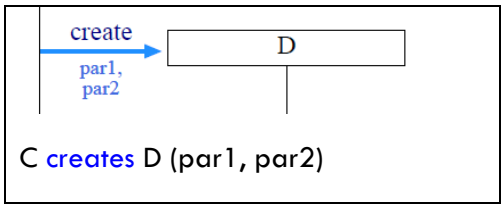
Generate Object Interaction Diagrams at Different Levels of Abstraction

EventStudio 5 can generate sequence diagrams and collaboration diagrams at 5 different levels:

1. Full detail
2. Component level
3. Module level
4. Subsystem level
5. System level

Specify Object Creation Parameters

Now you can specify the parameters with the create statement. Now you can model object creation, right down to the constructor parameters.



Large Scale System Modeling

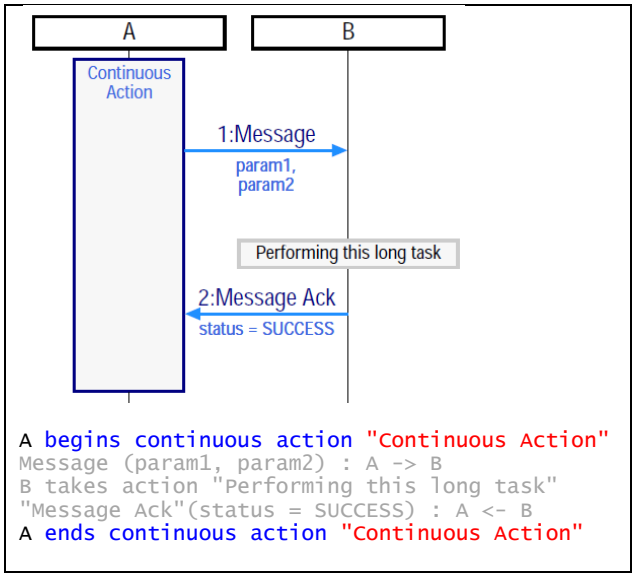
Share a Single Instance Axis between Multiple Objects

EventStudio 5 allows many dynamic objects to share the same single instance axis slot. This can be achieved by separating the dynamic objects by the pipe (|) symbol in dynamic object declaration statement. The scenario should make sure that only one of these multiple dynamic objects is active at any time. A dynamic object axis begins at object create and ends at object delete. Dynamic object create is displayed by create message from creator object to the dynamic object box if light weight header is selected. If image based header is selected, the dynamic object image is drawn instead of a box. Dynamic object delete is depicted by delete message from source object followed by a cross at axis end. Anonymous dynamic object create and

delete are also supported by EventStudio 5. The display of multiple objects sharing a single instance axis is as shown below.

Anonymous Object Create and Delete

Dynamic axis begin can be achieved by anonymous object create. The display is similar to object created by a creator object with the difference that the create message arrow is not drawn. Dynamic axis end can be achieved by anonymous object delete. The display is similar to the object delete by a source object with the difference that the delete message arrow is not drawn. The anonymous create and delete display is as shown in the figure drawn below.




```
A begins continuous action "Continuous Action"
Message (param1, param2) : A -> B
B takes action "Performing this long task"
"Message Ack"(status = SUCCESS) : A <- B
A ends continuous action "Continuous Action"
```

Model Continuous Actions

Model actions that have a distinct beginning and ending can be depicted with the new continuous action support. The actions are represented as shown in the sequence diagram on the left.

Command Line Enhancements

Specify Conditional Defines at Command Line

Script the conditional compilation defines via command-line, thus generating different versions of the document automatically.

Define Include Paths from Command Line

Change the header files by just changing the include path. Generate different versions of the document by just selecting a new set of header files from the command line.

Other Enhancements

Object wise Summary Enhancements

The layout of object wise summary document has been modified in EventStudio 5. The document covers all scenarios in order. Under each scenario, action remark table is depicted for each object.

Unit Test Procedure Enhancements

The layout of unit test procedure document has been modified in EventStudio 5. The document covers all scenarios with legs taken is depicted in order. Under this, unit tests are covered in the form of action result table.

Hyperlink Support Extended to all Action Statements

All action statements i.e. action, action begin, action end, resource allocate, resource free and state statements now support user definable hyperlinks.

Simplified EMF File Update

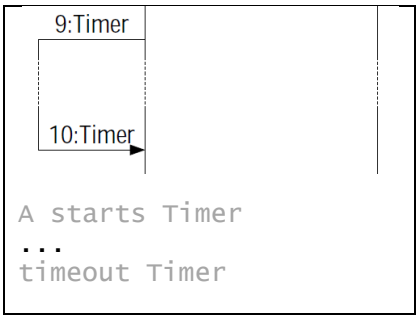
The EMF file naming has been modified to ease the update of EMF files after small additions.

Component Box in Light Weight Header

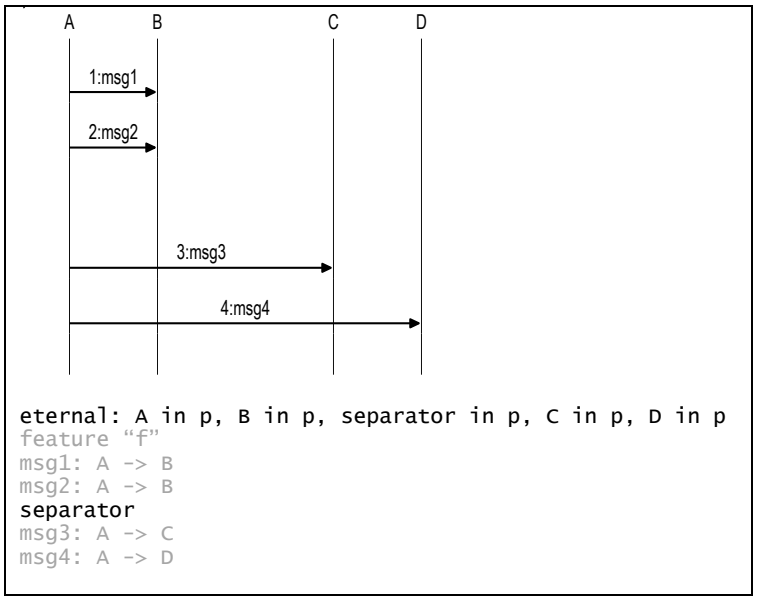
EventStudio 5 supports displaying a box around all the objects of a component when component box option is selected for light weight header. An example is shown in the figure given below.

Model Passage of Time

Passage of time can be depicted with three dots in the FDL. The display of the statement contains all the object axis, exiting timer axis and continuous action axis if present, to be dotted for a fixed length. The representation of time elapsed is shown on the right.



Control Horizontal and Vertical Spacing with Separators



EventStudio 5 supports controlling horizontal space by inserting separator as an eternal object in a component where horizontal space of the size of an eternal object for the given document is desired. The effect can be seen beautifully in the case of light weight header. An example is shown in the figure on the left. An object space has been left between objects B and C.

EventStudio 5 supports controlling vertical space by inserting separator statement in the FDL file. The space of the size of a message statement is left vertically as a result of this statement. The representation of vertical spacing is shown between two message statements in the figure on the left.

Copy possible theme options values as comment

A theme statement based on the current settings can be automatically copied to the clipboard using the Tools->Copy Options as Theme command. EventStudio 5 supports copying all possible theme options values as comment to the clipboard followed by current theme options settings for layout and fonts.