

Changing the Appearance of BPMN 2.0 Elements

By Phil Chudley

Introduction

Sparx Systems Enterprise Architect provides a very rich modelling toolset for Business Process Model and Notation 2.0 (BPMN 2.0), which is increasing in popularity particularly amongst Business Analysts.

The BPMN 2.0 notation uses a common set of symbols, which have an icon to show their meaning, for example, the type of event that triggers the start of a business process. Each BPMN 2.0 element has a set of **tagged values** identified by the label **BPMN 2.0** in the properties dialog. The value in these **tagged values** affects the appearance of the associated element.

Enterprise Architect can generate Business Process Execution Language (BPEL) directly from BPMN 2.0 models. This code generation uses tagged values also identified by the label **BPMN 2.0**.

This use of tagged values results in a large number of them to choose from and for modellers beginning with Enterprise Architect, this prospect can be rather daunting. Sparx Systems have tried to resolve this problem by grouping the tagged values into sections, but it can be challenging to know which tagged values to use.

Business Analysts will not be using the BPEL tagged values and this article presents a tabular summary of just the tagged values, which affect the appearance of BPMN 2.0 elements. This information is in the on-line help and user guide, it is presented here for convenience.

BPMN 2.0 Elements

Activity

The **Activity** element used on **Collaboration** and **Business Process** diagrams uses the following tagged values to change its appearance.

Tagged Value Group	Tagged Value Name	Values	Effect
Activity	activityType	Task Sub-Process	Task – displays no “plus-in-box” icon Sub-Process – displays “plus-in-box” icon

Tagged Value Group	Tagged Value Name	Values	Effect
	isACalledActivity	false true	false – displays normal Activity border true – displays bold thick border
	isATransaction	false true	false – displays normal Activity border true – displays double border
	isForCompensation	false true	false – displays no “rewind” icon true – displays “rewind” icon
Task	taskType	BusinessRule Manual Receive Service Send Script User Abstract	Displays the corresponding BPMN 2.0 Task icon BusinessRule is equivalent to BPMN 2.0 Conditional
AdHoc	adHoc	false true	false – displays no “tilde” icon true – displays “tilde” icon
Loop	isSequential	false true	Only takes effect if loopCharacteristics is set to MultInstance false – displays “three vertical lines” icon true – displays “three horizontal lines” icon
	loopCharacteristics	None Standard MultInstance	None – displays no loop icon Standard – displays “counter-clockwise arrow” icon MultInstance – depends upon isSequential
Sub-Process	triggeredByEvent	false true	false – displays normal Activity border true – displays dashed border

Gateway

The **Gateway** element used on **Choreography**, **Collaboration** and **Business Process** diagrams uses the following tagged values to change its appearance.

Tagged Value Group	Tagged Value Name	Values	Effect
Gateway	gatewayType	Exclusive Complex Inclusive Parallel Event	Displays the corresponding BPMN 2.0 Gateway icon Exclusive will display icon only if markerVisible is set to true When Event is used eventGatewayType must be set to Exclusive

Event Gateway	eventGatewayType	Exclusive Parallel	Used with instantiate to indicate type of event, displays the BPMN 2.0 event-based (instantiate) gateway icon
	instantiate	false true	false – “normal” gateway true – event-based (instantiate) gateway
Exclusive Gateway	markerVisible	false true	false – gatewayType set to Exclusive does not display icon true – gatewayType set to Exclusive displays icon (recommended best practice)

Start Event

The **Start Event** element used on **Choreography**, **Collaboration** and **Business Process** diagrams uses the following tagged values to change its appearance.

Tagged Value Group	Tagged Value Name	Values	Effect
Start Event	eventDefintion	None Compensation Conditional Error Escalation Message Multiple Timer Signal ParallelMultiple	Displays the corresponding BPMN 2.0 Start Event icon NOTE Some of these values only make sense when the Start Event is used within an Event Sub-process
	isInterrupting	false true	Only used when the Start Event is used within an Event Sub-process false – displays solid border true – displays dashed border

End Event

The **End Event** element used on **Choreography**, **Collaboration** and **Business Process** diagrams uses the following tagged values to change its appearance.

Tagged Value Group	Tagged Value Name	Values	Effect
End Event	eventDefintion	None Cancel Compensation Error	Displays the corresponding BPMN 2.0 End Event icon

		Escalation Message Multiple Terminate Signal	
--	--	--	--

Intermediate Event

The **Intermediate Event** element used on **Collaboration** and **Business Process** diagrams uses the following tagged values to change its appearance.

Tagged Value Group	Tagged Value Name	Values	Effect
Intermediate Event	cancelActivity	true false	Must only be used for Boundary Intermediate Events true – displays solid double border false – displays dashed double border
	catchOrThrow	Catch Throw	Displays white icon Displays black icon (only for non-boundary intermediate events)
	eventDefintion	None Cancel Compensation Conditional Escalation Error Link Message Multiple Timer Signal ParallelMultiple	Displays the corresponding BPMN 2.0 Intermediate Event icon NOTE These settings depend upon the value of cancelActivity and if the event is a boundary intermediate event or a non-boundary intermediate event

Pools

The **Pool** element used on **Collaboration** diagrams uses the following tagged values to change its appearance, for which there are no groups.

Tagged Value Name	Values	Effect
blackBoxPool	false true	false – displays Pool as a “white box” ready to contain Activities and other process flow elements true – displays as a “black box” resembling a UML Class element

participantMultiplicity	false	false – no icon displayed
	true	true – displays “three vertical bars” icon

Data Object

The **Data Object** element used on **Collaboration** and **Business Process** diagrams uses the following tagged values to change its appearance.

Tagged Value Group	Tagged Value Name	Values	Effect
DataObject	dataInOut	None Input Output	None – displays no icon Input – displays a hollow arrow icon Output displays a black arrow icon
	isCollection	false true	false – displays no icon true – displays “three vertical bars” icon to show data object represents a collection

Sequence Flow

The **Sequence Flow** connector drawn within **Pools** and **Lanes** on a **Collaboration** diagram uses the following tagged value to change its appearance, for which there are no groups.

Tagged Value Name	Values	Effect
conditionExpression		Text entered here will display if the conditionType is set to Expression
conditionType	None Expression Default	None – usual form of Sequence Flow connector Expression – adds a “hollow diamond” icon on the non-arrow end of the Sequence Flow connector Default – adds a “slash” icon on the non-arrow end of the Sequence Flow connector

Message Flow

The **Message Flow** connector drawn between **Pools** or elements in different **Pools** to model **B2B** communication on **Collaboration** diagrams uses the following tagged values to change its appearance, for which there are no groups.

Tagged Value Name	Values	Effect
messageVisible	None Initiating Non-Initiating	None – usual form of Message Flow Initiating – adds a “hollow envelope” icon on the Message Flow connector Non-Initiating – adds a “grey envelope” icon on the Message Flow connector

Participant

The **Participant** element drawn on **Conversation** diagrams uses the following tagged values to change its appearance, for which there are no groups.

Tagged Value Name	Values	Effect
participantMultiplicity	false	false – displays no icon
	true	true – displays “three vertical bars” icon

Conversation

The **Conversation** element drawn on **Conversation** diagrams uses the following tagged values to change its appearance, for which there are no groups.

Tagged Value Name	Values	Effect
isACallConversation	false	false – displays standard Conversation element border
	true	true – displays thick bold Conversation element border
isComposite	false	false – displays no “plus-in-box” icon
	true	true – displays “plus-in-box” icon

Choreography

The **Choreography** element drawn on **Choreography** diagrams uses the following tagged values to change its appearance.

Tagged Value Group	Tagged Value Name	Values	Effect
Choreography	choreographyType	Task Sub-Process	Task – No “plus-in-box” icon Sub-Process – “plus-in-box” icon
	isACalledChoreography	false true	false – displays standard Choreography element border true – displays thick bold Choreography border
	loopType	None Standard MultiInstanceParallel MultiInstanceSequential	None – displays no icon Standard – displays “counter-clockwise arrow” icon MultiInstanceParallel – displays “three vertical bars” icon MultiInstanceSequential – displays “three horizontal bars” icon
Participants	initiatingParticipant	participantA	Clears the grey background

Tagged Value Group	Tagged Value Name	Values	Effect
		participantB participantC participantD	colour from the corresponding participant section in the Choreography element
	numberOfParticipants	2, 3 or 4	Creates the corresponding number of participant sections in the Choreography element
Participant A	participantA	Text	The name of the first participant
	participantAMultiplicity	false true	false – displays no icon true – displays “three vertical bars” icon in the participantA section of the Choreography element
	participantARef	Selected Pool element	Navigate to a Pool within the Project Browser and the name of the Pool (prefixed by <<Pool>>) is displayed in the participantA section of the Choreography element
Participant B	participantB	Text	The name of the second participant
	participantBMultiplicity	false true	false – displays no icon true – displays “three vertical bars” icon in the participantB section of the Choreography element
	participantBRef	Selected Pool element	Navigate to a Pool within the Project Browser and the name of the Pool (prefixed by <<Pool>>) is displayed in the participantB section of the Choreography element
Participant C	participantC	Text	The name of the third participant
	participantCMultiplicity	false true	false – displays no icon true – displays “three vertical bars” icon in the participantC section of the Choreography element

Tagged Value Group	Tagged Value Name	Values	Effect
	participantCRef	Selected Pool element	Navigate to a Pool within the Project Browser and the name of the Pool (prefixed by <<Pool>>) is displayed in the participantC section of the Choreography element
Participant D	participantD	Text	The name of the fourth participant
	participantDMultiplicity	false true	false – displays no icon true – displays “three vertical bars” icon in the participantD section of the Choreography element
	participantDRef	Selected Pool element	Navigate to a Pool within the Project Browser and the name of the Pool (prefixed by <<Pool>>) is displayed in the participantD section of the Choreography element

Conclusion

This document aims to highlight those BPMN 2.0 Tagged Values used to change the appearance of BPMN 2.0 elements. It presents them grouped into tables according to BPMN 2.0 element type.

I hope you find this to be a useful and valuable resource when using Enterprise Architect for modelling business processes in BPMN2.0