Test Assertions for the SCA WS-BPEL Client and Implementation Version 1.1 Specification

Working Draft ~~15~~17

29 Apr 2010~~17 Mar 2010~~

Specification URIs:

This Version:

http://docs.oasis-open.org/sca-bpel/sca-bpel-1.1-test-assertions-cd01.html

http://docs.oasis-open.org/sca-bpel/sca-bpel-1.1-test-assertions-cd01.odt

http://docs.oasis-open.org/sca-bpel/sca-bpel-1.1-test-assertions-cd01.pdf (Authoritative)

Previous Version:

Latest Version:

http://docs.oasis-open.org/sca-bpel/sca-bpel-1.1-test-assertions.html

http://docs.oasis-open.org/sca-bpel/sca-bpel-1.1-test-assertions.odt

http://docs.oasis-open.org/sca-bpel/sca-bpel-1.1-test-assertions.pdf (Authoritative)

Technical Committee:

OASIS Service Component Architecture / BPEL (SCA-BPEL) TC

Chair(s):

Anish Karmarkar, Oracle

Sanjay Patil, SAP

Editor(s):

Anish Karmarkar, Oracle
Sanjay Patil, SAP
Khanderao Kand, Oracle

Related Work:

This specification is related to:

- Service Component Architecture WS-BPEL Client and Implementation Specification Version 1.1 (CD02-rev8)

Declared XML Namespace(s):

None

Abstract:

This document defines the Test Assertions for the SCA BPEL specification.

The Test Assertions represent the testable items relating to the normative statements made in the SCA Assembly specification. The Test Assertions provide a bridge between the normative statements in the specification and the conformance TestCases which are designed to check that an SCA runtime conforms to the requirements of the specification.

Status:

This document was last revised or approved by the OASIS Service Component Architecture / BPEL (SCA-BPEL) TC on the above date. The level of approval is also listed above. Check the "Latest Version" or "Latest Approved Version" location noted above for possible later revisions of this document.

Technical Committee members should send comments on this specification to the Technical Committee's email list. Others should send comments to the Technical Committee by using the "Send A Comment" button on the Technical Committee's web page at http://www.oasis-open.org/committees/sca-bpel/.

For information on whether any patents have been disclosed that may be essential to implementing this specification, and any offers of patent licensing terms, please refer to the Intellectual Property Rights section of the Technical Committee web page (http://www.oasis-open.org/committees/sca-bpel/ipr.php).

The non-normative errata page for this specification is located at http://www.oasis-open.org/committees/sca-bpel/.

Notices

All capitalized terms in the following text have the meanings assigned to them in the OASIS Intellectualoperty Rights Policy (the "OASIS IPR Policy"). The full Policy may be found at the OASIS website.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published, and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this section are included on all such copies and derivative works. However, this document itself may not be modified in any way, including by removing the copyright notice or references to OASIS, except as needed for the purpose of developing any document or deliverable produced by an OASIS Technical Committee (in which case the rules applicable to copyrights, as set forth in the OASIS IPR Policy, must be followed) or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by OASIS or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and OASIS DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY OWNERSHIP RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

OASIS requests that any OASIS Party or any other party that believes it has patent claims that would necessarily be infringed by implementations of this OASIS Committee Specification or OASIS Standard, to notify OASIS TC Administrator and provide an indication of its willingness to grant patent licenses to such patent claims in a manner consistent with the IPR Mode of the OASIS Technical Committee that produced this specification.

OASIS invites any party to contact the OASIS TC Administrator if it is aware of a claim of ownership of any patent claims that would necessarily be infringed by implementations of this specification by a patent holder that is not willing to provide a license to such patent claims in a manner consistent with the IPR Mode of the OASIS Technical Committee that produced this specification. OASIS may include such claims on its website, but disclaims any obligation to do so.

OASIS takes no position regarding the validity or scope of any intellectual property or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; neither does it represent that it has made any effort to identify any such rights. Information on OASIS' procedures with respect to rights in any document or deliverable produced by an OASIS Technical Committee can be found on the OASIS website. Copies of claims of rights made available for publication and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this OASIS Committee Specification or OASIS Standard, can be obtained from the OASIS TC Administrator. OASIS makes no representation that any information or list of intellectual property rights will at any time be complete, or that any claims in such list are, in fact, Essential Claims.

The names "OASIS", [insert specific trademarked names, abbreviations, etc. here] are trademarks of OASIS, the owner and developer of this specification, and should be used only to refer to the organization and its official outputs. OASIS welcomes reference to, and implementation and use of, specifications, while reserving the right to enforce its marks against misleading uses. Please see http://www.oasis-open.org/who/trademark.php for above guidance.

Table of Contents

1 Introduction

This document defines the Test Assertions for the SCA WS-BPEL Client and Implementation Version 1.1 specification [SCA-BPEL].

The test assertions in this document follow the format defined in the OASIS Test Assertion Guidelines specification [TA-GUIDE].

1.1 Example Test Assertion

Test assertions are presented in a tabular format with rows corresponding to the entry types defined in [TA-GUIDE].

Assertion ID	SBL-TA-xxxx
Source	[SBPELyyyy]
Target	<kitchenSink/> element of composite file
Prerequisites	The <kitchenSink/> element has a @drain attribute
Predicate	The @drain attribute value of the <kitchenSink/> element is a URI that identifies a portal into the sewage system of the Domain.
Prescription Level	Mandatory
Tags	kitchenSink drain sewage

Assertion ID: Is a unique ID for the test assertion. Its format starts with a 3 letter string that identifies the specification to which it relates - "SBL" is for the SCA WS-BPEL Client and Implementation specification. This is followed by "-TA-" to indicate that this identifier is for a test assertion. This is then followed by a unique 4 digit number.

Source: Is the identifier(s) of the normative statement(s) in the specification to which this assertion relates.

Target: Identifies the target which is addressed by this assertion. This is typically some SCA document element, or other SCA artifact but possibly could identify an SCA runtime and its behaviour.

Prerequisites: Defines any prerquisites for this test assertion. The prerequisites may be defined in terms of one or more other test assertions that must be true.

Predicate: The meat of the assertion - something that should evaluate to true or false for the given target.

Prescription Level: Mandatory (for MUST requirements) or Preferred (for SHOULD requirements) or Permitted (for MAY requirements).

Tags: Zero or more labels that may be attached to this test assertion - these tags can be used to group sets of assertions.

1.2 Terminology

The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this specification are to be interpreted as described in IETF RFC 2119 [RFC 2119].

1.3 Normative References

[RFC 2119] S. Bradner. *Key words for use in RFCs to Indicate Requirement Levels*. IETF RFC 2119, March 1997. http://www.ietf.org/rfc/rfc2119.txt.

[TA-GUIDE] Test Assertion Guidelines, Draft 0.9.9.6, 16 November, 2008.

[SCA-BPEL] OASIS Committee Draft 02, "Service Component Architecture WS-BPEL Client and Implementation Specification Version 1.1," March 2009. http://docs.oasis-open.org/opencsa/sca-bpel/sca-bpel-1.1-spec-cd02.pdf

2 Test Assertions

2.1 Section 1 Test Assertions

Assertion ID	SBL-TA-1001
Source	[SBPEL1001] [SBPEL1002]
Target	The @process attribute of a <implementation.bpel> element
Prerequisites	The <component> element has a <implementation.bpel> child element
Predicate	The value of the @process attribute is a QName that identifies an executable BPEL process using SCA's artifact resolution mechanism
Prescription Level	Mandatory
Tags	“implementation.bpel” “BPEL process”

2.2 Section 2 Test Assertions

Assertion ID	SBL-TA-2001
Source	[SBPEL2001] [SBPEL2002]
Target	The component type of the BPEL process
Prerequisites	A partner link of a BPEL process that is pointed to by <implementation.bpel> has the @sca-bpel:service attribute specified
Predicate	The component type contain a <service> element that corresponds to the partner link and whose @name attribute value is the same as the @sca-bpel:service attribute value
Prescription Level	Mandatory
Tags	“component type” “service” “sca-bpel:service” “partner link”

Assertion ID	SBL-TA-2002
Source	[SBPEL2003] [SBPEL2004]
Target	The component type of the BPEL process
Prerequisites	A partner link of a BPEL process that is pointed to by <implementation.bpel> has the @sca-bpel:reference attribute specified
Predicate	The component type contains a <reference> element that corresponds to the partner link and whose @name attribute value is the same as the @sca-bpel:reference attribute value
Prescription Level	Mandatory

Tags	“component type” “reference” “sca-bpel:reference” “partner link”

Assertion ID	SBL-TA-2003
Source	[SBPEL2005]
Target	The component type of the BPEL process
Prerequisites	The partner link of a BPEL process that is pointed to by <implementation.bpel>: a) does not have any of the attributes: @sca-bpel:ignore with a canonical value of 'true', @sca-bpel:service, or @sca-bpel:reference b) static analysis of the process determines that it is possible that the first message for the partner link will be received in a <receive> activity, the <onMessage> element of a <pick> activity or the <onEvent> element of an event handler
Predicate	The component type contains a <service> element that corresponds to the partner link
Prescription Level	Mandatory
Tags	“component type” “service” “partner link” “static analysis”

Assertion ID	SBL-TA-2004
Source	[SBPEL2006]
Target	The component type of the BPEL process
Prerequisites	a) Those specified for SBL-TA-2003 b) The name of the partner link is unique within the BPEL process
Predicate	The component type contains a <service> element that corresponds to the partner link and the @name attribute value of the <service> element is the same as the @name attribute value of the <bpel:partnerLink> element
Prescription Level	Mandatory
Tags	“component type” “service” “partner link” “static analysis”

Assertion ID	SBL-TA-2005
Source	[SBPEL2007]
Target	The component type of the BPEL process
Prerequisites	a) A partner link of a BPEL process that is pointed to by <implementation.bpel> has neither the @sca-bpel:reference or the @sca-bpel:service attribute, or the @sca-bpel:ignore attribute with a canonical value of “false” specified

	b) static analysis of the process does not determine that it is possible that the first message for the partner link will be received in a <receive> activity, the <onMessage> element of a <pick> activity or the <onEvent> element of an event handler
Predicate	The component type contains a <reference> element that corresponds to the partner link
Prescription Level	Mandatory
Tags	“component type” “reference” “partner link” “static analysis”

Assertion ID	SBL-TA-2006
Source	[SBPEL2008]
Target	The component type of the BPEL process
Prerequisites	a) A partner link of a BPEL process that is pointed to by <implementation.bpel> has neither the @sca-bpel:reference or the @sca-bpel:service attribute specified b) static analysis of the process does not determines that it is possible that the first message for the partner link will be received in a <receive> activity, the <onMessage> element of a <pick> activity or the <onEvent> element of an event handler c) The name of the partner link is unique within the BPEL process
Predicate	The component type contains a <reference> element that corresponds to the partner link and the @name attribute value of the <reference> element is the same as the @name attribute value of the <bpel:partnerLink> element
Prescription Level	Mandatory
Tags	“component type” “reference” “partner link” “static analysis”

Assertion ID	SBL-TA-2007
Source	[SBPEL2010]
Target	The component type of the BPEL process
Prerequisites	A partnerLink in the BPEL process has the @sca-bpel:multiRefFrom attribute
Predicate	The multiplicity of the <reference> that corresponds to the parnerLink, in the generated component type, is the same as the multiplicity specified by the <sca-bpel:multiRererence> child element of the variable pointed to by the @sca-bpel:multiRefFrom attribute
Prescription Level	Mandatory
Tags	“component type” “reference” “partner link” “multiplicity” “multiReference” “multiRefFrom”

Assertion ID	SBL-TA-2008
Source	[SBPEL2011]
Target	The component type of the BPEL process
Prerequisites	The partnerLink in the BPEL process: a) does not have the @sca-bpel:multiRefFrom attribute, and b) has the attribute @initializePartnerRole attribute with a value of “yes”
Predicate	The multiplicity of the <reference> that corresponds to the parnerLink, in the generated component type, is “1..1”
Prescription Level	Mandatory
Tags	“component type” “reference” “partner link” “multiplicity” “initializePartnerRole”

Assertion ID	SBL-TA-2009
Source	[SBPEL2012]
Target	The component type of the BPEL process
Prerequisites	~~The partnerLink in the BPEL process:~~ ~~a) does not have the @sca-bpel:multiRefFrom attribute, and~~ ~~b) does not have the attribute @initializePartnerRole attribute with a value of “yes”~~ ~~c) static analysis of the process determines that the first use of the partner link by any activity is in an <assign> activity that sets the partner role~~ The partnerLink in the BPEL process: a) does not map to a SCA service b) does not have a sca-bpel:ignore="true" attribute c) does not have the @sca-bpel:multiRefFrom attribute, and d) has @initializePartnerRole attribute with a value of no
Predicate	The multiplicity of the <reference> that corresponds to the parnerLink, in the generated component type, is “0..1” and the value of the attribute @wiredByImpl is “true”
Prescription Level	Mandatory
Tags	“component type” “reference” “partner link” “multiplicity”

Assertion ID	SBL-TA-2010
Source	[SBPEL2013]
Target	The component type of the BPEL process

Prerequisites	~~The partnerLink in the BPEL process:~~ ~~a) does not have the @sca-bpel:multiRefFrom attribute, and~~ ~~b) does not have the attribute @initializePartnerRole attribute with a value of "yes"~~ ~~c) static analysis of the process does not determines that the first use of the partner link by any activity is in an <assign> activity that sets the partner role.~~ The partnerLink in the BPEL process: a) does not map to a service b) does not have a sca-bpel:ignore="true" attribute c) does not have the @sca-bpel:multiRefFrom attribute, and d) does not have the @initializePartnerRole attribute
Predicate	The multiplicity of the <reference> that corresponds to the parnerLink, in the generated component type, is "0..1"
Prescription Level	Mandatory
Tags	"component type" "reference" "partner link" "multiplicity"

Assertion ID	SBL-TA-2011
Source	[SBPEL2014]
Target	<binding> associated with a service that is provided by <implementation.bpel>
Prerequisites	The partnerLink in the BPEL process maps to a <sca:service> in the component type associated with the process and has the @initializePartnerRole attribute with a value of "yes"
Predicate	The configuration of the service callback uses binding, promotion and wiring that guarantees that the partner link's partner role will be initialized as soon as the partner link becomes active.
Prescription Level	Mandatory
Tags	"component type" "service" "partner link" "binding" "initializePartnerRole"

Assertion ID	SBL-TA-2011.1
Source	[SBPEL2014]
Target	<binding> associated with a reference that is provided by <implementation.bpel>
Prerequisites	The partnerLink in the BPEL process maps to a <sca:reference> in the component type associated with the process and has the @initializePartnerRole attribute with a value of "yes"
Predicate	The configuration of the reference uses binding, promotion and wiring that guarantees that the partner link's partner role will be initialized as soon as the partner link becomes active.

Prescription Level	Mandatory
Tags	“component type” “service” “partner link” “binding” “initializePartnerRole”

Assertion ID	SBL-TA-2012
Source	[SBPEL2015]
Target	The component type of the BPEL process
Prerequisites	The partnerLink in the BPEL process maps to a <sca:service> in the component type associated with the process
Predicate	The WSDL portType of the forward interface specified in the <interface.wsdl> child element of the service is the same as WSDL portType of the role pointed to by the value of the @myRole attribute of the <partnerLink>
Prescription Level	Mandatory
Tags	“component type” “service” “partner link” “interface” “portType” “role” “myRole”

Assertion ID	SBL-TA-2013
Source	[SBPEL2016]
Target	The component type of the BPEL process
Prerequisites	a) The partnerLink in the BPEL process maps to a <sca:service> in the component type associated with the process b) The partnerLinkType associated with the partnerLink has two roles
Predicate	The WSDL portType of the callback interface specified in the <interface.wsdl> child element of the service is the same as WSDL portType of the role pointed to by the value of the @partnerRole attribute of the <partnerLink>
Prescription Level	Mandatory
Tags	“component type” “service” “partner link” “interface” “portType” “role” “partnerRole” “callback”

Assertion ID	SBL-TA-2014
Source	[SBPEL2017]
Target	The component type of the BPEL process
Prerequisites	The partnerLink in the BPEL process maps to a <sca:reference> in the component type associated with the process
Predicate	The WSDL portType of the forward interface specified in the <interface.wsdl> child element of the reference is the same as WSDL portType of the role pointed to by the value of the @partnerRole attribute of

	the <partnerLink>
Prescription Level	Mandatory
Tags	“component type” “reerence” “partner link” “interface” “portType” “role” “partnerRole”

Assertion ID	SBL-TA-2015
Source	[SBPEL2018]
Target	The component type of the BPEL process
Prerequisites	a) The partnerLink in the BPEL process maps to a <sca:reference> in the component type associated with the process b) The partnerLinkType associated with the partnerLink has two roles
Predicate	The WSDL portType of the callback interface specified in the <interface.wsdl> child element of the reference is the same as WSDL portType of the role pointed to by the value of the @myRole attribute of the <partnerLink>
Prescription Level	Mandatory
Tags	“component type” “reference” “partner link” “interface” “portType” “role” “myRole” “callback”

Assertion ID	SBL-TA-20??
Source	[SBPEL2023]
Target	The component type of the BPEL process
Prerequisites	The WS-BPEL process contains a partnerLink that maps to an SCA service in the component type.
Predicate	The name of the SCA service in the component type is as defined by the algorithm in section 2.3.1 of [SCA-BPEL] specification.
Prescription Level	Mandatory

Assertion ID	SBL-TA-20??
Source	[SBPEL2023]
Target	The component type of the BPEL process
Prerequisites	The WS-BPEL process contains a partnerLink that maps to an SCA reference in the component type.
Predicate	The name of the SCA reference in the component type is as defined by the algorithm in section 2.3.1 of [SCA-BPEL] specification.
Prescription Level	Mandatory

Assertion ID	SBL-TA-2019
Source	[SBPEL2024]
Target	The component type of the BPEL process
Prerequisites	A partner link of a BPEL process that is pointed to by <implementation.bpel> has the @sca-bpel:`multiRefFrom` attribute specified.
Predicate	The component type contains a <reference> element that corresponds to the partner link and whose @name attribute value is the same as the

	@sca:reference attribute value.
Prescription Level	Mandatory

Assertion ID	SBL-TA-20??
Source	[SBPEL2025]
Target	The component type of the BPEL process
Prerequisites	A partner link of a BPEL process that is pointed to by <implementation.bpel> has the @sca-bpel:ignore attribute with a canonical value of “true”.
Predicate	The component type does not contains a <reference> or <service> element that corresponds to the partner link.
Prescription Level	Mandatory

Assertion ID	SBL-TA-20??
Source	[SBPEL2026]
Target	Runtime
Prerequisites	a) The component type associated with the BPEL process has a reference with 0..1 cardinality. b) That referenced is wired in the composite.
Predicate	The partner link that corresponds to the reference is initialized with the target specified in the wire.
Prescription Level	Mandatory

Assertion ID	SBL-TA-20??
Source	[SBPEL2026]
Target	Runtime
Prerequisites	a) The component type associated with the BPEL process has a reference with 1..1 cardinality. b) That referenced is wired in the composite.
Predicate	The partner link that corresponds to the reference is initialized with the target specified in the wire.
Prescription Level	Mandatory

2.3 Section 3 Test Assertions

Assertion ID	SBL-TA-3001
Source	[SBPEL3001]
Target	Variable declaration in WS-BPEL process definition
Prerequisites	In the WS-BPEL process definition, sca-bpel:property=”yes” is used on two or more variable declaration.
Predicate	The name of a variable used as a property of the component type is unique within the process.
Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “variable”

Assertion ID	SBL-TA-3002
Source	[SBPEL3002]
Target	Runtime
Prerequisites	a) A variable declaration has an sca-bpel property attribute b) A value is provided for the property via component configuration
Predicate	Any initialization from-spec is first evaluated and immediately after the evaluation, the value of the variable is changed to the provided property value.
Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “variable initialization from-spec” “runtime analysis”

Assertion ID	SBL-TA-3003
Source	[SBPEL3003]
Target	Component Typeof the BPEL process
Prerequisites	a) In the WS-BPEL process definition, sca-bpel:property=”yes” is used on two or more variable declaration. b) the variable has an initialization from-spec
Predicate	On component type property declaration, mustSupply=”false” is specified.
Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “variable initialization from-spec”

Assertion ID	SBL-TA-3005
Source	[SBPEL3005]
Target	Variable declaration in WS-BPEL process definition
Prerequisites	A variable has sca-bpel:multiReference extension element
Predicate	The type of variable is an element of sca-bpel:serviceReferenceList.
Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “multi value references”

Assertion ID	SBL-TA-3006
Source	[SBPEL3006]
Target	The component type of the BPEL process
Prerequisites	A variable has sca-bpel:multiReference extension element A partner link refers to that variable witth a sca-bpel:multiRefFrom attribute
Predicate	The component type includes a reference with multiplicity of either “0..n” or “1...n” corresponding to the partner link that refers to the variable with the sca-bpel:multiReference extension element.
Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “multi value references”

Assertion ID	SBL-TA-3007
Source	[SBPEL3007]
Target	The component type of the BPEL process
Prerequisites	A variable has sca-bpel:multiReference extension element A partner link refers to that variable witth a sca-bpel:multiRefFrom attribute
Predicate	The reference type in component type is determined by the partner link type and partner role attributes of the partner link.

Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “multi value references”

Assertion ID	SBL-TA-3008
Source	[SBPEL3008]
Target	Partner link element in a BPEL process
Prerequisites	Partner link has a myRole attribute referencing to a role which is the only role of a partner link type.
Predicate	Partner link element has no sca-bpel:multiRefFrom attribute declared
Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “multi value references”

Assertion ID	SBL-TA-3009
Source	[SBPEL3009]
Target	The WS BPEL Definition, partner link element
Prerequisites	Partner link has a sca-bpel:service attribute
Predicate	Partnerlink does not have the sca-bpel:multiRefFrom attribute
Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “multi value references”

Assertion ID	SBL-TA-3010
Source	[SBPEL3010]
Target	sca-bpel:multiRefFrom attribute on partnerLink element
Prerequisites	Partner link has a sca-bpel:multiRefFrom attribute.
Predicate	The value of sca-bpel:mutiRefFrom attribute refers to the name of a variable manifesting as a "sca-bpel:serviceReferenceList".
Prescription Level	Mandatory
Tags	“sca bpel extension” “sca property” “multi value references”

Assertion ID	SBL-TA-3011
Source	[SBPEL3011]
Target	partnerLink element

Prerequisites	The WS-BPEL process has: a) A variable representing a multi-valued Reference in a manner specified by the section 3.2 (see SBPEL3005). b) A partnerLink associated with the multi-valued reference via a sca-bpel:multiRefFrom attribute (see SBPEL3010, SBPEL3008 and SBPEL3009).
Predicate	The variable with the sca-bpel:multiReference extension is referenced by one and only one partnerLink element with an sca-bpel:multiRefFrom attribute.
Prescription Level	Mandatory
Tags	“sca bpel extensions” “multi-valued references”

Assertion ID	SBL-TA-3013
Source	[SBPEL3012]
Target	A WS-BPEL process definition
Prerequisites	The WS-BPEL process has: a) A variable representing a multi-valued Reference in a manner specified by the section 3.2 (see SBPEL3005). b) A partnerLink associated with the multi-valued reference via a sca-bpel:multiRefFrom attribute (see SBPEL3011, SBPEL3010, SBPEL3009 and SBPEL3008).
Predicate	At least one code path exists that copies the values from the multi-valued reference to the partner link.
Prescription Level	Mandatory
Tags	“sca bpel extension” “multi-valued references”

Assertion ID	SBL-TA-3014
Source	[SBPEL3015]

Target	partnerLink with sca-bpel:service attribute
Prerequisites	The WS-BPEL process has more than one instances of partnerLink with sca-bpel:service attribute
Predicate	The value of the sca-bpel:service attribute of the target partnerLink is not the same as that of any other partnerLink elements in the WS-BPEL process (see SBPEL2001 and SBPEL2002).
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3015
Source	[SBPEL3015]
Target	partnerLink with sca-bpel:service attribute
Prerequisites	The WS-BPEL process contains 1 or more partnerLinks with no sca-bpel:service attribute which are SCA services when analyzed through static analysis (as described by section 2.1.1)
Predicate	The value of the sca-bpel:service attribute of the target partnerLink is not the same as the name of any of the partnerLink elements identified as an SCA service via static analysis of the WS-BPEL process (see SBPEL2005 and SBPEL2006).
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3016
Source	[SBPEL3015]
Target	partnerLink with sca-bpel:service attribute
Prerequisites	The WS-BPEL process contains 1 or more partnerLinks local to a <scope> with no sca-bpel:service attribute which are SCA services when analyzed through static analysis (as described by section 2.3)
Predicate	The value of the sca-bpel:service attribute of the target partnerLink is not the same as the disambiguated name (see SBPEL2020, SBPEL2021 and SBPEL2022) of a partnerLink local to a <scope> identified as an SCA service via static analysis of the WS-BPEL process.
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3017
Source	[SBPEL3016]

Target	partnerLink element
Prerequisites	a) A partnerLink with sca-bpel:service attribute b) The partner link type of the partnerLink has only one role
Predicate	The partnerRole attribute of the partnerLink is not specified.
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3018
Source	[SBPEL3018]
Target	partnerLink with sca-bpel:reference attribute
Prerequisites	The WS-BPEL process has more than one instances of partnerLink with sca-bpel:reference attribute
Predicate	The value of the sca-bpel:reference attribute is not the same as that of any other partnerLink elements in the WS-BPEL process (see SBPEL2003 and SBPEL2004)
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3019
Source	[SBPEL3018]
Target	partnerLink with sca-bpel:reference attribute
Prerequisites	The WS-BPEL process contains 1 or more partnerLinks with no sca-bpel:reference attribute which are SCA references when analyzed through static analysis (as described by section 2.1.1)
Predicate	The value of the sca-bpel:reference attribute of the target partnerLink is not the same as the name of any of the partnerLink elements identified as an SCA reference via static analysis of the WS-BPEL process (see SBPEL2007 and SBPEL2008).
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3020
Source	[SBPEL3018]
Target	partnerLink with sca-bpel:reference attribute
Prerequisites	The WS-BPEL process contains 1 or more partnerLinks local to a <scope> with no sca-bpel:reference attribute which are SCA references when

	analyzed through static analysis (as described by section 2.3)
Predicate	The value of the sca-bpel:reference attribute of the target partnerLink is not the same as the disambiguated name (see SBPEL2020, SBPEL2021 and SBPEL2022) of a partnerLink local to a <scope> identified as an SCA reference via static analysis of the WS-BPEL process.
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3021
Source	[SBPEL3019]
Target	partnerLink element
Prerequisites	a) A partnerLink with sca-bpel:reference attribute b) The partner link type of the partnerLink has only one role
Predicate	The myRole attribute of the partnerLink is not the only role of the partner link type.
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3022
Source	[SBPEL3020]
Target	partnerLink element
Prerequisites	
Predicate	partnerLink element does not have more than one of the sca-bpel:ignore, the sca-bpel:service or the sca-bpel:reference attribute.
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3024
Source	[SBPEL3022]
Target	WS-BPEL process
Prerequisites	sca-bpel:requires attribute of partnerLink element
Predicate	The value of sca-bpel:requires is valid as per the specification of the sca:requires attribute defined in the SCA Policy Framework.
Prescription Level	Mandatory
Tags	“sca bpel extensions” “required intents”

Assertion ID	SBL-TA-3025
Source	[SBPEL3023]
Target	Service element of the introspected component type
Prerequisites	partnerLink element corresponding to the service element of the introspected component type has an sca-bpel:requires attribute.
Predicate	The service element in the component type has an sca:requires attribute with the same value as that of the sca-bpel:requires attribute of the corresponding partnerLink in the WS-BPEL process .
Prescription Level	Mandatory
Tags	“sca bpel extensions” “required intents”

Assertion ID	SBL-TA-3026
Source	[SBPEL3023]
Target	Reference element of the introspected component type
Prerequisites	partnerLink element corresponding to the reference element of the introspected component type has an sca-bpel:requires attribute.
Predicate	The reference element in the component type has an sca:requires attribute with the same value as that of the sca-bpel:requires attribute of the corresponding partnerLink in the WS-BPEL process .
Prescription Level	Mandatory
Tags	“sca bpel extensions” “required intents”

Assertion ID	SBL-TA-3026.1
Source	[SBPEL3024]
Target	BPEL variable

Prerequisites	
Predicate	A BPEL variable declaration does not have both the sca-bpel:property extension attribute with a value of "yes" and the sca-bpel:multiReference extension child element.
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-3027
Source	[SBPEL3025]
Target	sca-bpel:multiRefFrom attribute on partnerLink element.
Prerequisites	Partner link has a sca-bpel:multiRefFrom attribute
Predicate	The variable name referred by sca-bpel:multiRefForm is resolved using the same scoping rules as [WS-BPEL] uses to resolve variable names.
Prescription Level	Mandatory
Tags	“sca bpel extensions”

Assertion ID	SBL-TA-??
Source	[SBPEL3026]
Target	Runtime
Prerequisites	The BPEL process has: (a) sca-bpel:multiRefFrom attribute on a partnerLink element, (b) The variable referenced by the partnerLink has the sca-bpel:multiReference extension A component that uses the BPEL process as an implementation has set the target values for the multi-valued reference corresponding to that partnerLink.
Predicate	The variable is initialized using the list of endpoint references configured for the component reference.
Prescription Level	Mandatory
Tags	“sca bpel extensions” , “multiRefFrom” “multiReference”

Assertion ID	SBL-TA-??
Source	[SBPEL3027]
Target	sca-bpel:isPartnerRoleSet function
Prerequisites	
Predicate	The argument of the function is a string literal whole value is an NCName

Prescription Level	Mandatory
Tags	“sca bpel extensions” , “sca-bpel:isParnerRoleSet”

Assertion ID	SBL-TA-??
Source	[SBPEL3028]
Target	sca-bpel:isPartnerRoleSet function
Prerequisites	
Predicate	The argument of the function points to an in-scope parrnerLink in the BPEL process.
Prescription Level	Mandatory
Tags	“sca bpel extensions” , “sca-bpel:isParnerRoleSet”

Assertion ID	SBL-TA-??
Source	[SBPEL3029]
Target	sca-bpel:isPartnerRoleSet function
Prerequisites	A sequence as follows: a) An attempt to access the partnerRole using a from-spec results in a bpel:uninitializedPartnerRole standard fault b) sca-bpel:isParnerRoleSet function is called with an argument value that points to the same parnerLink used in the partnerRole above
Predicate	The return value of the function returns false
Prescription Level	Mandatory
Tags	“sca bpel extensions” , “sca-bpel:isParnerRoleSet”

2.4 Section 5 Test Assertions

Assertion ID	SBL-TA-??
Source	[SBPEL5001]
Target	BPEL process
Prerequisites	Configuration of an SCA BPEL extension is incorrect
Predicate	An error is raised
Prescription Level	Mandatory

Tags	“sca bpel extensions” , “sca-bpel:isParnerRoleSet”

Assertion ID	SBL-TA-??
Source	[SBPEL5002]
Target	Runtime
Prerequisites	The SCA WS-BPEL document has errors in it that are detectable using static analysis
Predicate	An error is raised at deployment time
Prescription Level	Advisory
Tags	“sca bpel extensions” , “sca-bpel:isParnerRoleSet”

3 Cross Mapping of Conformance Statements to Assertions

Conformance statement	Test Assertion
SBPEL1001, SBPEL1002	SBL-TA-1001
SBPEL2001, SBPEL2002	SBL-TA-2001
SBPEL2003, SBPEL2004	SBL-TA-2002
SBPEL2005	SBL-TA-2003
SBPEL2006	SBL-TA-2004
SBPEL2007	SBL-TA-2005
SBPEL2008	SBL-TA-2006
SBPEL2010	SBL-TA-2007
SBPEL2011	SBL-TA-2008
SBPEL2012	SBL-TA-2009
SBPEL2013	SBL-TA-2010
SBPEL2014	SBL-TA-2011
SBPEL2015	SBL-TA-2012
SBPEL2016	SBL-TA-2013
SBPEL2017	SBL-TA-2014
SBPEL2018	SBL-TA-2015
SBPEL2020	SBL-TA-2016
SBPEL2021	SBL-TA-2017
SBPEL2022	SBL-TA-2018
SBPEL2024	SBL-TA-2019
SBPEL3001	SBL-TA-3001
SBPEL3002	SBL-TA-3002
SBPEL3003	SBL-TA-3003
SBPEL3004	SBL-TA-3004
SBPEL3005	SBL-TA-3005
SBPEL3006	SBL-TA-3006
SBPEL3007	SBL-TA-3007
SBPEL3008	SBL-TA-3008
SBPEL3009	SBL-TA-3009
SBPEL3010	SBL-TA-3010
SBPEL3010.1	SBL-TA-3027
SBPEL3011	SBL-TA-3011, SBL-TA-3012
SBPEL3012	SBL-TA-3013
SBPEL3015	SBL-TA-3014, SBL-TA-3015, SBL-TA-3016
SBPEL3016	SBL-TA-3017
SBPEL3018	SBL-TA-3018, SBL-TA-3019, SBL-TA-3020
SBPEL3019	SBL-TA-3021
SBPEL3020	SBL-TA-3022

Conformance statement	Test Assertion
SBPEL3021	SBL-TA-3023
SBPEL3022	SBL-TA-3024
SBPEL3023	SBL-TA-3025, SBL-TA-3026

4 Conformance

There are no conformance statements relating to the Test Assertions.

Appendix A. Acknowledgments

The following individuals have participated in the creation of this specification and are gratefully acknowledged

Participants:

- [Participant name, affiliation | Individual member]
- [Participant name, affiliation | Individual member]
- [Participant name, affiliation | Individual member]

Appendix B. Revision History

Revision	Date	Editor	Changes Made
11	06/15/09	Mike Edwards	Added TA SBL-TA-3026 for normative statement SBPEL3021
13	10/28/09	Najeeb Andrabi	Added TA SBL-TA-2019 for normative statement SBPEL2004.1 Added TA SBL-TA-2027 for normative statement SBPEL3010.1