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Service Component Architecture JCA Binding Specification Version 1.1

Committee Draft [04](#) / Public Review [02](#)

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- Service Component Architecture JCA Binding Specification Version 1.00 20 September 2007

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[sca-jcabinding-1.1-spec-cd04](#)

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- OASIS Committee Draft [05](#), "Service Component Architecture Assembly Model Specification Version 1.1", [January 2010](#)
<http://docs.oasis-open.org/opencsa/sca-assembly/sca-assembly-1.1-spec-cd05.pdf>
- OASIS Committee Draft 02, "SCA Policy Framework Version 1.1", February 2009
<http://docs.oasis-open.org/opencsa/sca-policy/sca-policy-1.1-spec-cd02.pdf>

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Abstract:

This document specifies the means by which SCA composites and components, as defined in the SCA Assembly Specification [SCA-Assembly], connect to and access services provided by Enterprise Information Systems (EIS). The connectivity is based on the Java EE Connector Architecture (JCA) specification version 1.5 [JCA15], and is provided via a binding.jca element which applies to the references and services of an SCA composite or SCA component.

The connection to exchange data with the EIS is characterized by two sets of configuration parameters, the connection and interaction parameters. The former set determines the location of the target system the latter determines characteristics that need to be specified to invoke one specific service available at the endpoint. JCA Binding model captures these parameters as separate sets to allow their reuse and reconfiguration.

Deleted: This document presents bindings describing access and connectivity to the services provided by the Enterprise Information System (EIS). ¶
This version of the document describes JCA Bindings thus narrowing connectivity down to the connectivity to the EIS system external to the SCA system, based on the Java EE Connector Architecture specification and implemented in Java. ¶
Further specification is necessary to define EIS Bindings between different SCA runtimes within SCA system, for example J2EE and EIS based runtimes. ¶
The binding specified in this document applies to the composite's references and services.¶

Status:

This document was last revised or approved by the OASIS Service Component Architecture / Bindings (SCA-Bindings) 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.

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1 Introduction

This document specifies the means by which SCA composites and components, as defined in the SCA Assembly Specification [SCA-Assembly], connect to and access services provided by Enterprise Information Systems (EIS). The connectivity is based on the Java EE Connector Architecture (JCA) specification version 1.5 [JCA15], and is provided via a binding:jca element which applies to the references and services of an SCA composite or SCA component.

The connection to exchange data with the EIS is characterized by two sets of configuration parameters, the connection and interaction parameters. The former set determines the location of the target system the latter determines characteristics that need to be specified to invoke one specific service available at the endpoint. JCA Binding model captures these parameters as separate sets to allow their reuse and reconfiguration.

This binding places no requirement on SCA runtimes to support bidirectional interfaces as defined by the SCA Assembly Specification [SCA-Assembly], SCA runtimes can implement support for bidirectional interfaces using extensions to the binding element.

1.1 Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC Keywords [RFC2119].

This specification uses predefined namespace prefixes throughout; they are given in the following list. Note that the choice of any namespace prefix is arbitrary and not semantically significant.

Prefix	Namespace	Notes
xs	"http://www.w3.org/2001/XMLSchema"	Defined by XML Schema 1.0 specification
sca	"http://docs.oasis-open.org/ns/opencsa/sca/200912"	Defined by the SCA specifications

Table 1-1: Prefixes and Namespaces used in this specification

1.2 Normative References

- [RFC2119] S. Bradner, *Key words for use in RFCs to Indicate Requirement Levels*, <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March 1997.
- [JCA15] J2EE Connector Architecture Specification Version 1.5 <http://java.sun.com/j2ee/connector/>
- [WSDL] E. Christensen et al, *Web Service Description Language (WSDL) 1.1*, <http://www.w3.org/TR/2001/NOTE-wsdl-20010315>, W3C Note, March 15 2001.
R. Chinnici et al, *Web Service Description Language (WSDL) Version 2.0 Part 1: Core Language*, <http://www.w3.org/TR/2007/REC-wsdl20-20070626/>, W3C Recommendation, June 26 2007.
- [SCA-Assembly] OASIS Committee Draft 05, "Service Component Architecture Assembly Model Specification Version 1.1", [January 2010](http://docs.oasis-open.org/opencsa/sca-assembly/sca-assembly-1.1-spec-cd05.pdf) <http://docs.oasis-open.org/opencsa/sca-assembly/sca-assembly-1.1-spec-cd05.pdf>
- [SCA-Policy] OASIS Committee Draft 02, "SCA Policy Framework Specification Version 1.1", February 2009 <http://docs.oasis-open.org/opencsa/sca-policy/sca-policy-1.1-spec-cd02.pdf>

Deleted: This document presents a binding describing access and connectivity to the services provided by Enterprise Information Systems (EIS). This document focuses on JCA Bindings thus narrowing connectivity down to the connectivity to the EIS system external to the SCA system, based on the J2EE Connector Architecture specification and implemented in Java. ¶ Further specification is necessary to define EIS Bindings between different SCA runtimes within SCA system, for example J2EE and EIS based runtimes. ¶ The JCA Bindings are applicable to the composite's references and services. ¶

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40 **1.3 Naming Conventions**

41 The naming conventions used by artefacts defined in this specification are:

- 42 • The naming conventions defined by section 1.3 of the SCA Assembly Specification [SCA-Assembly].
- 43 • Where the names of elements and attributes consist partially or wholly of acronyms, the letters of the
44 acronyms use the same case. When the acronym appears at the start of the name of an element or
45 an attribute, or after a period, it is in lower case. If it appears elsewhere in the name of an element or
46 an attribute, it is in upper case. For example, an attribute might be named "uri" or "jndiURL".
- 47 • Where the names of types consist partially or wholly of acronyms, the letters of the acronyms are in
48 all upper case. For example, an XML Schema type might be named "JCABinding" or "MessageID".
- 49 • Values, including local parts of QName values, follow the rules for names of elements and attributes
50 as stated above, with the exception that the letters of acronyms are in all upper case. For example, a
51 value might be "JMSDefault" or "namespaceURI".

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Deleted: This specification follows some naming conventions for artifacts defined by the specification. In addition to the conventions defined by section 1.3 of the SCA Assembly Specification [SCA-Assembly], this specification adds three additional conventions: ¶

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52 2 JCA Binding

53 The JCA binding element is defined by the pseudo-schema in Snippet 2-1.

```
54 <binding.jca initialContextFactory="xs:anyURI"?
55     jndiURL="xs:anyURI"?
56     name="NCName"?
57     requires="list of xs:QName"?
58     policySets="list of xs:QName"?
59     uri="xsd:anyURI"?>
60
61     <outboundConnection managed="xs:boolean"?
62         <resourceAdapter name="NMTOKEN" type="NMTOKEN">
63             <property name="NMTOKEN" type="NMTOKEN">*</property>
64         </resourceAdapter?>
65         <connection jndiName="xs:anyURI"? type="NMTOKEN"
66             create="always or never or ifNotExist"?>
67             <property name="NMTOKEN" type="NMTOKEN">*</property>
68         </connection>
69         <resAuth>container|application</resAuth?>
70     </outboundConnection?>
71
72     <inboundConnection>
73         <resourceAdapter name="NMTOKEN" type="NMTOKEN">
74             <property name="NMTOKEN" type="NMTOKEN">*</property>
75         </resourceAdapter>
76         <activationSpec jndiName="xs:anyURI"? type="NMTOKEN"
77             create="always or never or ifNotExist"?>
78             <property name="NMTOKEN" type="NMTOKEN">*</property>
79         </activationSpec>
80     </inboundConnection?>
81
82     <outboundInteraction>
83         <connectionSpec type="NMTOKEN">
84             <property name="NMTOKEN" type="NMTOKEN">*</property>
85         </connectionSpec?>
86         <interactionSpec type="NMTOKEN">
87             <property name="NMTOKEN" type="NMTOKEN">*</property>
88         </interactionSpec?>
89         <operation name="NMTOKEN">
90             <interactionSpec type="NMTOKEN"?>
91                 <property name="NMTOKEN" type="NMTOKEN">*</property>
92             </interactionSpec?>
93         </operation?>
94     </outboundInteraction?>
95
96     <inboundInteraction>
97         <listener type="NMTOKEN"?>
98         <inboundOperation name="NMTOKEN" selectedOperation="NMTOKEN">*</inboundOperation?>
99     </inboundInteraction?>
100     <wireFormat ... />?
101     <operationSelector ... />?
102 </binding.jca>
```

103 Snippet 2-1: binding.jca Pseudo-Schema

104 The `binding.jca` element has the attributes:

- 105 • `binding.jca/@uri` – the binding's `@uri` attribute specifies the connection to the EIS. For a reference,
106 it defines the endpoint allowing connecting to the target EIS by providing the JNDI name under which
107 a `ConnectionFactory` is located. For a service, the `@uri` defines the endpoint to allow the EIS system

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108 to connect to the SCA system by defining the JNDI lookup name of `an` `ActivationSpec`, for example
 109 `@uri="java:comp/env/eis/TRAN_EIS"`.

110 The `@uri` attribute, the `inboundConnection` and the `outboundConnection` `element` are mutually
 111 exclusive and the SCA runtime MUST raise an error if more than one is present [BJC20001].

112 For an SCA service with a `binding.jca` element with the `@uri` attribute value specified, if the JNDI
 113 location identified by the `@uri` attribute does not locate an `Activation Spec` the SCA runtime MUST
 114 raise an error [BJC20021].

115 For an SCA reference with a `binding.jca` element with the `@uri` attribute value specified, if the JNDI
 116 location identified by the `@uri` attribute does not locate a `Connection Factory` the SCA runtime MUST
 117 raise an error [BJC20022].

- 118 • `/binding.jca/@initialContextFactory` – the name of the JNDI initial context factory.
 119 The `@initialContextFactory` attribute MUST NOT be specified if the `@uri` attribute is not present
 120 [BJC20002].
- 121 • `/binding.jca/@jndiURL` – the URL for the JNDI provider.
 122 The `@jndiURL` attribute MUST NOT be specified if the `@uri` attribute is not present [BJC20003].
- 123 • `/binding.jca/@name` - as defined in the `SCA Assembly Specification` [SCA-Assembly].
- 124 • `/binding.jca/@requires` - as defined in the `SCA Assembly Specification` [SCA-Assembly].
- 125 • `/binding.jca/@policySets` - as defined in the `SCA Assembly Specification` [SCA-Assembly].
- 126 • `/binding.jca/outboundConnection` – defines the outbound connection characteristics.
 127 The `outboundConnection` element MUST NOT be specified for services [BJC20004].
- 128 • `/binding.jca/outboundConnection/@managed` – determines whether the interaction with the EIS
 129 system is to be performed in the managed or non-managed mode. If the value is true (default), the
 130 JNDI name is used to obtain connection to the EIS and use adapter in the managed mode. If the
 131 value is false, the connection information is used to invoke adapter in the non-managed mode i.e. by
 132 creating instance of the `ManagedConnectionFactory` and using it to create `Connection`. For the full
 133 description of the managed and non-managed mode refer to section 6.9 of the `JCA 1.5 specification`
 134 [JCA15].
- 135 • `/binding.jca/outboundConnection/resourceAdapter` – specifies the name, type and properties of
 136 the `Resource Adapter Java` bean.
 137 The SCA runtime MAY restrict valid properties of the outbound connection's `Resource Adapter Java`
 138 bean depending on the deployment platform [BJC20005].
 139 The `outboundConnection/resourceAdapter` element MUST NOT be specified when the
 140 `@managed` attribute value is "false" [BJC20006].
- 141 • `/binding.jca/outboundConnection/resourceAdapter/@type` – the fully qualified name of the class
 142 implementing the `JCA ResourceAdapter` interface.
 143 If the `outboundConnection/resourceAdapter/@type` attribute is specified and the named `Java`
 144 class cannot be located or does not implement the `javax.resource.spi.ResourceAdapter` interface the
 145 SCA runtime MUST raise an error [BJC20028].
- 146 • `/binding.jca/outboundConnection/resourceAdapter/@name` – the optional name that uniquely
 147 identifies the existing instance of the resource adapter.
- 148 • `/binding.jca/outboundConnection/resourceAdapter/property` – contains the subset of the
 149 properties of the `Resource Adapter Java Bean` that need to be set in order to access specified EIS
 150 service. The full list of `Resource Adapter` properties can be obtained by introspecting the `Java Bean`.
- 151 • `/binding.jca/outboundConnection/connection` – specifies the properties of the connection factory
 152 used to create connections to the service endpoint.
- 153 • `/binding.jca/outboundConnection/connection/@type` – the fully qualified name of the class
 154 implementing the `JCA ManagedConnectionFactory` interface.

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155 If the `outboundConnection/connection/@type` attribute is specified and the named Java class
156 cannot be located or does not implement the `javax.resource.cci.ConnectionFactory` interface the SCA
157 runtime MUST raise an error [BJC20027].

158 • `/binding.jca/outboundConnection/connection/@jndiName` – the JNDI name of the connection
159 factory that the binding uses to connection to the EIS. The behavior of this attribute is determined by
160 the value of the `@create` attribute:

161 If the `@create` attribute value for an `outboundConnection/connection` or
162 `inboundConnection/activationSpec` element is `"always"` and the `@jndiName` attribute is
163 present and the resource cannot be created at the location specified by the `@jndiName` attribute,
164 then the SCA runtime MUST raise an error [BJC20007].

165 If the `@create` attribute value for an `outboundConnection/connection` or
166 `inboundConnection/activationSpec` element is `"always"` and the `@jndiName` attribute is not
167 present and the resource cannot be created, then the SCA runtime MUST raise an error
168 [BJC20008].

169 If the `@jndiName` attribute is omitted this specification places no restriction on the JNDI location
170 of the created resource.

171 If the `@create` attribute value for an `outboundConnection/connection` or
172 `inboundConnection/activationSpec` element is `"ifNotExist"` then the `@jndiName` attribute
173 MUST specify the location of the possibly existing resource [BJC20013].

174 If the `@create` attribute value for an `outboundConnection/connection` or
175 `inboundConnection/activationSpec` element is `"ifNotExist"` and the resource does not exist at
176 the location identified by the `@jndiName` attribute, but cannot be created there then the SCA
177 runtime MUST raise an error [BJC20014].

178 If the `@create` attribute value for an `outboundConnection/connection` or
179 `inboundConnection/activationSpec` element is `"ifNotExist"` and the `@jndiName` attribute
180 refers to an existing resource that is not a connection factory of the appropriate type or an
181 activation spec of the appropriate type respectively then the SCA runtime MUST raise an error
182 [BJC20018].

183 If the `@create` attribute value for an `outboundConnection/connection` or
184 `inboundConnection/activationSpec` element is `"never"` then the `@jndiName` attribute MUST
185 specify the location of the existing resource [BJC20019].

186 If the `@create` attribute value for an `outboundConnection/connection` or
187 `inboundConnection/activationSpec` element is `"never"` and the resource is not present at the
188 location identified by the `@jndiName` attribute, or the location refers to a resource of an incorrect
189 type then the SCA runtime MUST raise an error [BJC20020].

190 • `/binding.jca/outboundConnection/connection/property` → contains the subset of the properties of
191 the Managed Connection Factory Java Bean that need to be set in order to access specified EIS
192 service. The full list of Managed Connection Factory properties can be obtained by introspecting the
193 Java Bean.

194 • `/binding.jca/outboundConnection/connection/@create` → indicates whether the element containing
195 the attribute should be created when the containing composite is deployed. Valid values are
196 `"always"`, `"never"` and `"ifNotExist"`. `"always"` indicates that new resources are created for use by this
197 binding. `"never"` indicates that existing resources are used and none created. `"ifNotExist"` indicates
198 that if the resources already exist those are used, otherwise new ones are created. Refer to the
199 `outboundConnection/connection/@jndiName` attribute for a detailed definition of each case. The
200 default value is `"ifNotExist"`.

201 If the `@create` attribute value for an `outboundConnection/connection` or
202 `inboundConnection/activationSpec` element is `"always"` and the `@jndiName` attribute is not
203 present and the resource cannot be created, then the SCA runtime MUST raise an error [BJC20008].

204 • `/binding.jca/outboundConnection/connection/resAuth` → specifies the authentication mechanism
205 used by the resource adapter in the managed environment. Valid values are `"container"` and
206 `"application"`. `"container"` indicates that the SCA runtime takes the responsibility for configuring and

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- 207 [managing the EIS sign-on; "application"](#) indicates that the security details specified via the
 208 [outboundConnection/connectionSpec](#) element are used instead. If this element is omitted then no
 209 authentication is required by this binding definition.
- 210 • [/binding.jca/outboundInteraction](#) – defines characteristics of the outbound interaction.
 211 [The outboundInteraction](#) element MUST NOT be specified for services [BJC20009].
 - 212 • [/binding.jca/outboundInteraction/connectionSpec](#) – specifies client-level connection properties to
 213 be used when creating a connection. The ConnectionSpec object is used in several patterns that
 214 justify its definition in the interaction binding.
 - 215 • [/binding.jca/outboundInteraction/connectionSpec/@type](#) – the fully qualified name of the class
 216 implementing [javax.resource.cci.ConnectionSpec](#) interface to be used when creating a connection.
 217 If the [outboundInteraction/connectionSpec/@type](#) attribute is specified and the named Java class
 218 cannot be located or does not implement the [javax.resource.cci.ConnectionSpec](#) interface the SCA
 219 runtime MUST raise an error [BJC20030].
 - 220 • [/binding.jca/outboundInteraction/connectionSpec/property](#) – specifies the set of client-level
 221 connection properties to be used when creating a connection, e.g. user name or password.
 - 222 • [/binding.jca/outboundInteraction/interactionSpec](#) – specifies the interaction properties that apply
 223 to all operations that do not have one defined via an [operation](#) element.
 224 When an operation is invoked via a reference with a [binding.jca](#) element, if there is an
 225 [outboundInteraction/operation](#) element whose [@name](#) attribute matches the name of the operation
 226 being invoked, the SCA runtime MUST use the values supplied by the [interactionSpec](#) child of the
 227 operation element instead of the [interactionSpec](#) child of the [binding.jca](#) element, if any
 228 [BJC20025].
 - 229 • [/binding.jca/outboundInteraction/interactionSpec/@type](#) – the fully qualified name of the class
 230 implementing the [javax.resource.cci.InteractionSpec](#) interface.
 231 If the [outboundInteraction/interactionSpec/@type](#) attribute is specified and the named Java class
 232 cannot be located or does not implement the [javax.resource.cci.InteractionSpec](#) interface the SCA
 233 runtime MUST raise an error [BJC20032].
 - 234 • [/binding.jca/outboundInteraction/interactionSpec/property](#) – specifies the set of interaction
 235 properties.
 - 236 • [/binding.jca/outboundInteraction/operation](#) – specifies [interactionSpec](#) properties for individual
 237 operations in the interface associated with the binding.
 - 238 • [/binding.jca/outboundInteraction/operation/@name](#) – the name of the operation in the interface
 239 for which the [interactionSpec](#) properties apply.
 240 The value of the [outboundInteraction/operation/@name](#) attribute MUST be unique within the
 241 [outboundInteraction](#) element and MUST match the name of one of the operations in the containing
 242 service's or reference's interface [BJC20026].
 - 243 • [/binding.jca/outboundInteraction/operation/interactionSpec](#) – specifies the interaction properties
 244 for the named operation.
 - 245 • [/binding.jca/outboundInteraction/operation/interactionSpec/@type](#) – the fully qualified name of
 246 the class implementing the [javax.resource.cci.InteractionSpec](#) interface.
 247 If the [outboundInteraction/operation/interactionSpec/@type](#) attribute is specified and the named
 248 Java class cannot be located or does not implement the [javax.resource.cci.InteractionSpec](#) interface
 249 the SCA runtime MUST raise an error [BJC20033].
 - 250 • [/binding.jca/inboundConnection](#) – defines the inbound connection characteristics.
 251 [The inboundConnection](#) element MUST NOT be specified for references [BJC20010].
 - 252 • [/binding.jca/inboundConnection/resourceAdapter](#) – specifies the name, type and properties of the
 253 Resource Adapter Java bean.

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254 The SCA runtime MAY restrict valid properties of the inbound connection's Resource Adapter Java
 255 bean depending on the deployment platform [BJC20011].

256 The `inboundConnection/resourceAdapter` element MUST NOT be specified when the `@managed`
 257 attribute is "false" [BJC20012].

- 258 • `/binding.jca/inboundConnection/resourceAdapter/@type` – the fully qualified name of the class
 259 implementing the ResourceAdapter interface.

260 If the `inboundConnection/resourceAdapter/@type` attribute is specified and the named Java class
 261 cannot be located or does not implement the `javax.resource.spi.ResourceAdapter` interface the SCA
 262 runtime MUST raise an error [BJC20029].

- 263 • `/binding.jca/inboundConnection/resourceAdapter/@name` – the optional name that uniquely
 264 identifies the existing instance of the resource adapter.
- 265 • `/binding.jca/inboundConnection/activationSpec` – identifies the activation spec that the binding
 266 uses to connect to an EIS. The attributes of this element follow the rules defined for the
 267 `outboundConnection/connection` element.
- 268 • `/binding.jca/inboundConnection/activationSpec/@type` – the fully qualified name of the class
 269 implementing the ActivationSpec interface.

270 If the `inboundConnection/activationSpec/@type` attribute is specified and the named Java class
 271 cannot be located or does not implement the `javax.resource.spi.ActivationSpec` interface the SCA
 272 runtime MUST raise an error [BJC20031].

- 273 • `/binding.jca/inboundConnection/activationSpec/@jndiName` – the JNDI name of the activation.
 274 The behaviour of this attribute is determined by the value of the `@create` attribute as defined for the
 275 `outboundConnection/connection/@jndiName` attribute.
- 276 • `/binding.jca/inboundConnection/activationSpec/@create` – indicates whether the element
 277 containing the attribute should be created when the containing composite is deployed. Valid values
 278 are "always", "never" and "ifNotExist". "always" indicates that new resources are created for use by
 279 this binding; "never" indicates that existing resources are used and none created; "ifNotExist"
 280 indicates that if the resources already exist those are used, otherwise new ones are created. Refer to
 281 the `outboundConnection/connection/@jndiName` attribute for a detailed definition of each case.
 282 The default value is "ifNotExist".

283 If the `@create` attribute value for an `outboundConnection/connection` or
 284 `inboundConnection/activationSpec` element is "ifNotExist" and the resource does not exist at the
 285 location identified by the `@jndiName` attribute, but cannot be created there then the SCA runtime
 286 MUST raise an error [BJC20014].

- 287 • `/binding.jca/inboundInteraction` – defines characteristics of the inbound interaction.

288 The `inboundInteraction` element MUST NOT be specified for references [BJC20015].

- 289 • `/binding.jca/inboundInteraction/listener/@type` – the fully qualified name of the listener interface
 290 supported by this group of interactions.

291 If the `inboundInteraction/listener` element is not specified, the SCA runtime MUST use the default
 292 `javax.resource.cci.MessageListener` interface from the JCA specification [BJC20016].

293 If the `inboundInteraction/listener/@type` attribute is specified and the named Java class cannot be
 294 located or does not implement the `javax.resource.cci.MessageListener` interface the SCA runtime
 295 MUST raise an error [BJC20034].

- 296 • `/binding.jca/inboundInteraction/inboundOperation` – maps the name of the EIS event received by
 297 ResourceAdapter to the name of the operation in the interface.
- 298 • `/binding.jca/inboundInteraction/inboundOperation/@name` – the name of the operation in the
 299 interface.

300 The value of the `inboundInteraction/inboundOperation/@name` attribute MUST match the name of
 301 one of the operations in the containing service's or reference's interface [BJC20023].

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- 302 | • [/binding.jca/inboundInteraction/inboundOperation/@selectedOperation](#) – the value generated
303 | by the [operationSelector](#) that corresponds to the operation in the service or reference interface
304 | identified by the [operationProperties/@name](#) attribute.
305 | **The value of the [inboundInteraction/inboundOperation/@selectedOperation](#) attribute MUST be**
306 | **unique across the [inboundInteraction](#) element [BJC20024].**
- 307 | • [/binding.jca/wireFormat](#) – identifies the wire format used by requests and responses sent or
308 | received by this binding as defined in the [SCA Assembly Specification \[SCA-Assembly\]](#). ← --- Formatted: List Bullet
- 309 | • [/binding.jca/operationSelector](#) – identifies the operation selector used when receiving requests for
310 | a service as defined in the [SCA Assembly Specification \[SCA-Assembly\]](#).
- 311 | **The [binding.jca](#) element MUST conform to the XML schema defined in [sca-binding-jca-1.1.xsd](#)**
312 | **[BJC20017].**

313 2.1 Extensibility

314 The JCA Binding allows further customization of the binding element and its subelements with vendor
315 specific attributes or elements. This is done by providing extension points in the schema; refer to
316 Appendix A, “JCA XML Binding Schema: [sca-binding-jca-1.1.xsd](#)” for the locations of these extension
317 points.

318

3 Policy

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The JCA Specification [JCA15] does not define generic Resource Adapter characteristics that could be set using [standard policy intents as defined in the SCA Policy Specification \[SCA-Policy\]](#). This specification places no requirements on the intents that are listed as either [@alwaysProvides](#) or [@mayProvides](#) in the *bindingType* for *binding.jca*.

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4 Operation Selectors and Wire Formats

324 In general JCA resource adapters deal with records. There is not usually a built-in concept of “operation”
325 that corresponds to that defined in a [WSDL \[WSDL\]](#) portType. Records have a format which corresponds
326 in some way to the schema of an input or output message of an operation in the interface of a service or
327 reference, however additional Resource Adapter-specific information is required in order for an SCA
328 runtime to know how to identify the operation and understand the format of records.

329 The process of identifying the operation to be invoked is **operation selection**; the information that
330 describes the contents of messages is a **wire format**. The binding element as described in the [SCA
331 Assembly Specification \[SCA-Assembly\]](#) provides the means to identify specific operation selection via
332 the **operationSelector** element and the format of messages received and to be sent using the
333 **wireFormat** element.

334 When a service with a JCA binding receives a message, the SCA runtime resolves the name of the
335 operation in the service’s interface that is to be invoked by using the **operationSelector** and
336 **inboundInteraction** elements defined for the binding. The resolved operation name is defined as follows:

- 337 • If the selected operation name generated by the **operationSelector** matches the value of an
338 **inboundInteraction/inboundOperation/@selectedOperation** attribute then the resolved operation
339 name is the value of the **inboundInteraction/inboundOperation/@name** attribute.
- 340 • Otherwise the resolved operation name is the selected operation name generated by the
341 **operationSelector**.

342 When a message is received at an SCA service with JCA binding and the resolved operation name is in
343 the target component’s interface, the SCA runtime MUST invoke the target component using the resolved
344 operation name [BJC40001].

345 When a message is received at an SCA service with JCA binding and the resolved operation name is not
346 in the target component’s interface the SCA runtime MUST raise an error [BJC40002].

347 This specification does not define default behavior for the operation selection or wire format of a JCA
348 binding. This choice had been made because the implementations of generic Record interfaces that
349 define the data exchanged between JCA adapter and its client are specific to a particular adapter and,
350 unlike JMS, cannot be used in a generic manner.

351 No standard means is provided for linking the **wireFormat** or **operationSelector** elements with the
352 runtime components that implement their [behavior](#).

353

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<#>Binding Properties¶

The JCA Binding contains properties necessary to interact with the EIS system, properties that are, however, not related to the service location or type of services available. Such properties ought to be configurable but not require overwriting connection or interaction elements. Examples of such properties are user ID or password. ¶
The binding.jca element contains connectionInfo attribute that specifies the name of the binding.jca element in the definition file. ¶

```

.<reference
name="EISHelloWorldReference">¶
..<binding.jca
connectionInfo="JCA_Services">¶
..</binding.jca>¶
.</reference>¶

```

This element can contain the interaction properties, for example properties of the connectionSpec. ¶

```

.<definitions
targetNamespace="http://acme.com" ¶
...xmlns="http://docs.oasis-
pen.org/ns/opencsa/sca/200903">¶
..<binding.jca
name="JCA_Services">¶
...<outboundInteraction>¶
...<connectionSpec
name="FAConnectionSpec">¶
...<property
name="group">GROUP1</property>¶
...<property
name="userid">SYSAD</property>¶
...<property
name="password">SYSAD</property>¶
...</connectionSpec>¶
... [198]

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404 </binding.jca>
405 </reference>

406 [Snippet 5-3: Example Binding that Creates a Resource](#)

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Deleted: <#>Existing Resources specified in the definition file¶

This sample shows the resources specified in the definitions file and referred to by the binding elements. The definitions file contains the following¶

```
<definitions
targetNamespace="http://
/acme.com"¶
. . .
xmlns="http://docs.oasis-
pen.org/ns/opencsa/sca/
200903">¶
¶
. <binding.jca
name="JCA_Inbound">¶
. . <inboundConnection>¶
. . . <resourceAdapter
name="FAResourceAdapter
">¶
. . . . <property
name="logDrive">D</prop
erty>¶
. . . </resourceAdapter>¶
. . . <activationSpec.nam
e="FAActivationSpec">¶
. . . . <property
name="directory_type">t
emp</property>¶
. . . . <property
name="drive">C</propert
y>¶
. . . </activationSpec>¶
. . </inboundConnection>¶
. </binding.jca>¶
</definitions>¶
```

The service with the JCA Bindings uses the connectionInfo attribute to identify the resources in the definition file¶

```
<service
name="JCAHelloWorldServ
ice">¶
. <binding.jca
connectionInfo="
JCA_Inbound ">¶
. . <inboundInteraction>¶
. . . <listener>MyInbound
Listener</listener>¶
... [213]
```

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408 6 Conformance

409 The XML schema pointed to by the RDDL document at the namespace URI, defined by this specification,
410 are considered to be authoritative and take precedence over the XML schema defined in the appendix of
411 this document. There are two categories of artifacts for which this specification defines conformance:

- 412 a) SCA JCA Binding XML Document
- 413 b) SCA Runtime

414 6.1 SCA JCA Binding XML Document

415 | An SCA JCA Binding XML document is an SCA Composite Document, or an SCA ComponentType
416 Document, as defined by the [SCA Assembly specification Section 13.1 \[SCA-Assembly\]](#), that uses the
417 *binding.jca* element.

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418 | An SCA JCA Binding XML document MUST be a conformant SCA Composite Document, or an SCA
419 ComponentType Document, as defined by the [SCA Assembly Specification \[SCA-Assembly\]](#), and MUST
420 comply with all statements in Appendix B: "Conformance Items" related to elements and attributes in an
421 SCA JCA Binding XML document, notably all "MUST" statements have to be implemented.

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422 6.2 SCA Runtime

423 An implementation that claims to conform to the requirements of an SCA Runtime defined in this
424 specification has to meet the following conditions:

- 425 1. The implementation MUST comply with all statements in Appendix B: "Conformance Items"
426 related to an SCA Runtime, notably all "MUST" statements have to be implemented
- 427 2. The implementation MUST conform to the [SCA Assembly Model Specification Version 1.1 \[SCA-Assembly\]](#), and to the [SCA Policy Framework Version 1.1 \[SCA-Policy\]](#)
- 428 3. The implementation MUST reject an SCA JCA Binding XML Document that is not conformant per
429 Section 6.1
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A. JCA XML Binding Schema: sca-binding-jca-1.1.xsd

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```

<?xml version="1.0" encoding="UTF-8"?>
<!-- Copyright (C) OASIS (R) 2005, 2010. All Rights Reserved.
      OASIS trademark, IPR and other policies apply. -->
<schema xmlns="http://www.w3.org/2001/XMLSchema"
  targetNamespace=" http://docs.oasis-open.org/ns/opencsa/sca/200912"
  xmlns:sca=" http://docs.oasis-open.org/ns/opencsa/sca/200912"
  elementFormDefault="qualified">

  <include schemaLocation="sca-core-1.1-cd05.xsd" />

  <complexType name="JCABinding">
    <complexContent>
      <extension base="sca:Binding">
        <sequence>
          <element name="outboundConnection"
            type="sca:JCAOutboundConnection" minOccurs="0" />
          <element name="inboundConnection"
            type="sca:JCAInboundConnection" minOccurs="0" />
          <element name="outboundInteraction"
            type="sca:JCAOutboundInteraction" minOccurs="0" />
          <element name="inboundInteraction"
            type="sca:JCAInboundInteraction" minOccurs="0" />
          <element name="property" type="sca:Property" minOccurs="0"
            maxOccurs="unbounded"/>
          <element ref="sca:extensions" minOccurs="0" maxOccurs="1"/>
        </sequence>
        <attribute name="initialContextFactory" type="anyURI"
          use="optional"/>
        <attribute name="jndiURL" type="anyURI" use="optional"/>
      </extension>
    </complexContent>
  </complexType>

  <simpleType name="JCACreateResource">
    <restriction base="string">
      <enumeration value="always" />
      <enumeration value="never" />
      <enumeration value="ifNotExist" />
    </restriction>
  </simpleType>

  <simpleType name="ResAuth">
    <restriction base="string">
      <enumeration value="container" />
      <enumeration value="application" />
    </restriction>
  </simpleType>

  <complexType name="JCAOutboundConnection">
    <sequence>
      <element name="resourceAdapter" type="sca:ResourceAdapter"
        minOccurs="0" />
      <element name="connection" type="sca:Connection" />
      <element name="resAuth" type="sca:ResAuth" minOccurs="0" />
      <any namespace="##other" processContents="lax" minOccurs="0"
        maxOccurs="unbounded" />
    </sequence>
    <attribute name="managed" type="boolean" use="optional"
      default="true" />
    <anyAttribute namespace="##other" processContents="lax" />
  </complexType>

```

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Deleted: <attribute name="connectionInfo" type="anyURI" use="optional" />¶

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```

491 <complexType name="JCAInboundConnection">
492   <sequence>
493     <element name="resourceAdapter" type="sca:ResourceAdapter" />
494     <element name="activationSpec" type="sca:ActivationSpec" />
495     <any namespace="##other" processContents="lax" minOccurs="0"
496       maxOccurs="unbounded" />
497   </sequence>
498   <anyAttribute namespace="##other" processContents="lax" />
499 </complexType>
500 <complexType name="JCAOutboundInteraction">
501   <sequence>
502     <element name="connectionSpec" type="sca:ConnectionSpec"
503       minOccurs="0" />
504     <element name="interactionSpec" type="sca:InteractionSpec"
505       minOccurs="0" />
506     <element name="operation" type="sca:Operation" minOccurs="0" />
507     <any namespace="##other" processContents="lax" minOccurs="0"
508       maxOccurs="unbounded" />
509   </sequence>
510   <anyAttribute namespace="##other" processContents="lax" />
511 </complexType>
512 <complexType name="JCAInboundInteraction">
513   <sequence>
514     <element name="listener" type="string" minOccurs="0" />
515     <element name="inboundOperation" type="sca:InboundOperation"
516       minOccurs="0" maxOccurs="unbounded" />
517     <any namespace="##other" processContents="lax" minOccurs="0"
518       maxOccurs="unbounded" />
519   </sequence>
520   <anyAttribute namespace="##other" processContents="lax" />
521 </complexType>
522 <complexType name="ResourceAdapter">
523   <sequence>
524     <element name="property" type="sca:Property" minOccurs="0"
525       maxOccurs="unbounded" />
526     <any namespace="##other" processContents="lax" minOccurs="0"
527       maxOccurs="unbounded" />
528   </sequence>
529   <attribute name="name" type="NMTOKEN" use="optional" />
530   <attribute name="type" type="NMTOKEN" use="required" />
531   <anyAttribute namespace="##other" processContents="lax" />
532 </complexType>
533 <complexType name="Connection">
534   <sequence>
535     <element name="property" type="sca:Property" minOccurs="0"
536       maxOccurs="unbounded" />
537     <any namespace="##other" processContents="lax" minOccurs="0"
538       maxOccurs="unbounded" />
539   </sequence>
540   <attribute name="jndiName" type="anyURI" use="optional" />
541   <attribute name="type" type="NMTOKEN" use="required" />
542   <attribute name="create" type="sca:JCACreateResource" use="optional"
543     default="ifNotExist" />
544   <anyAttribute namespace="##other" processContents="lax" />
545 </complexType>
546 <complexType name="ActivationSpec">
547   <sequence>
548     <element name="property" type="sca:Property" minOccurs="0"
549       maxOccurs="unbounded" />
550     <any namespace="##other" processContents="lax" minOccurs="0"
551       maxOccurs="unbounded" />
552   </sequence>
553   <attribute name="jndiName" type="anyURI" use="optional" />
554   <attribute name="type" type="NMTOKEN" use="required" />

```

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```

555     <attribute name="create" type="sca:JCACreateResource" use="optional"
556         default="ifNotExist"/>
557     <anyAttribute namespace="##other" processContents="lax" />
558 </complexType>
559 <complexType name="Operation">
560     <sequence>
561         <element name="interactionSpec" type="sca:InteractionSpec"
562             minOccurs="0" />
563         <any namespace="##other" processContents="lax" minOccurs="0"
564             maxOccurs="unbounded" />
565     </sequence>
566     <attribute name="name" type="NMTOKEN" use="required" />
567     <anyAttribute namespace="##other" processContents="lax" />
568 </complexType>
569 <complexType name="InboundOperation">
570     <sequence>
571         <any namespace="##other" processContents="lax" minOccurs="0"
572             maxOccurs="unbounded" />
573     </sequence>
574     <attribute name="name" type="NMTOKEN" use="required" />
575     <attribute name="selectedOperation" type="string" use="required" />
576     <anyAttribute namespace="##other" processContents="lax" />
577 </complexType>
578 <complexType name="ConnectionSpec">
579     <sequence>
580         <element name="property" type="sca:Property" minOccurs="0"
581             maxOccurs="unbounded" />
582         <any namespace="##other" processContents="lax" minOccurs="0"
583             maxOccurs="unbounded" />
584     </sequence>
585     <attribute name="type" type="NMTOKEN" use="required" />
586     <anyAttribute namespace="##other" processContents="lax" />
587 </complexType>
588 <complexType name="InteractionSpec">
589     <sequence>
590         <element name="property" type="sca:Property" minOccurs="0"
591             maxOccurs="unbounded" />
592         <any namespace="##other" processContents="lax" minOccurs="0"
593             maxOccurs="unbounded" />
594     </sequence>
595     <attribute name="type" type="NMTOKEN" use="required" />
596     <anyAttribute namespace="##other" processContents="lax" />
597 </complexType>
598
599     <element name="binding.jca" type="sca:JCABinding"
600         substitutionGroup="sca:binding" />
601 </schema>

```

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B. Conformance Items

603

This section contains a list of conformance items for the SCA JCA Binding specification.

Conformance ID	Description
[BJC20001]	The <code>@uri</code> attribute, the <code>inboundConnection</code> and the <code>outboundConnection</code> element are mutually exclusive and the SCA runtime MUST raise an error if more than one is present
[BJC20002]	The <code>@initialContextFactory</code> attribute MUST NOT be specified if the <code>@uri</code> attribute is not present
[BJC20003]	The <code>@jndiURL</code> attribute MUST NOT be specified if the <code>@uri</code> attribute is not present
[BJC20004]	The <code>outboundConnection</code> element MUST NOT be specified for services
[BJC20005]	The SCA runtime MAY restrict valid properties of the outbound connection's Resource Adapter Java bean depending on the deployment platform
[BJC20006]	The <code>outboundConnection/resourceAdapter</code> element MUST NOT be specified when the <code>@managed</code> attribute value is "false"
[BJC20007]	If the <code>@create</code> attribute value for an <code>outboundConnection/connection</code> or <code>inboundConnection/activationSpec</code> element is "always" and the <code>@jndiName</code> attribute is present and the resource cannot be created at the location specified by the <code>@jndiName</code> attribute, then the SCA runtime MUST raise an error
[BJC20008]	If the <code>@create</code> attribute value for an <code>outboundConnection/connection</code> or <code>inboundConnection/activationSpec</code> element is "always" and the <code>@jndiName</code> attribute is not present and the resource cannot be created, then the SCA runtime MUST raise an error
[BJC20009]	The <code>outboundInteraction</code> element MUST NOT be specified for services
[BJC20010]	The <code>inboundConnection</code> element MUST NOT be specified for references
[BJC20011]	The SCA runtime MAY restrict valid properties of the inbound connection's Resource Adapter Java bean depending on the deployment platform
[BJC20012]	The <code>inboundConnection/resourceAdapter</code> element MUST NOT be specified when the <code>@managed</code> attribute is "false"
[BJC20013]	If the <code>@create</code> attribute value for an <code>outboundConnection/connection</code> or <code>inboundConnection/activationSpec</code> element is "ifNotExist" then the <code>@jndiName</code> attribute MUST specify the location of the possibly existing resource
[BJC20014]	If the <code>@create</code> attribute value for an <code>outboundConnection/connection</code> or <code>inboundConnection/activationSpec</code> element is "ifNotExist" and the resource does not exist at the location identified by the <code>@jndiName</code> attribute, but cannot be created there then the SCA runtime MUST raise an error
[BJC20015]	The <code>inboundInteraction</code> element MUST NOT be specified for references
[BJC20016]	If the <code>inboundInteraction/listener</code> element is not specified, the SCA runtime MUST use the default <code>javax.resource.cci.MessageListener</code> interface from the

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	JCA specification
[BJC20017]	The binding.jca element MUST conform to the XML schema defined in sca-binding-jca-1.1.xsd
[BJC20018]	If the @create attribute value for an outboundConnection/connection or inboundConnection/activationSpec element is "ifNotExist" and the @jndiName attribute refers to an existing resource that is not a connection factory of the appropriate type or an activation spec of the appropriate type respectively then the SCA runtime MUST raise an error
[BJC20019]	If the @create attribute value for an outboundConnection/connection or inboundConnection/activationSpec element is "never" then the @jndiName attribute MUST specify the location of the existing resource
[BJC20020]	If the @create attribute value for an outboundConnection/connection or inboundConnection/activationSpec element is "never" and the resource is not present at the location identified by the @jndiName attribute, or the location refers to a resource of an incorrect type then the SCA runtime MUST raise an error
[BJC20021]	For an SCA service with a binding.jca element with the @uri attribute value specified, if the JNDI location identified by the @uri attribute does not locate an Activation Spec the SCA runtime MUST raise an error
[BJC20022]	For an SCA reference with a binding.jca element with the @uri attribute value specified, if the JNDI location identified by the @uri attribute does not locate a Connection Factory the SCA runtime MUST raise an error
[BJC20023]	The value of the inboundInteraction/inboundOperation/@name attribute MUST match the name of one of the operations in the containing service's or reference's interface
[BJC20024]	The value of the inboundInteraction/inboundOperation/@selectedOperation attribute MUST be unique across the inboundInteraction element
[BJC20025]	When an operation is invoked via a reference with a binding.jca element, if there is an outboundInteraction/operation element whose @name attribute matches the name of the operation being invoked, the SCA runtime MUST use the values supplied by the interactionSpec child of the operation element instead of the interactionSpec child of the binding.jca element, if any
[BJC20026]	The value of the outboundInteraction/operation/@name attribute MUST be unique within the outboundInteraction element and MUST match the name of one of the operations in the containing service's or reference's interface
[BJC20027]	If the outboundConnection/connection/@type attribute is specified and the named Java class cannot be located or does not implement the javax.resource.cci.ConnectionFactory interface the SCA runtime MUST raise an error
[BJC20028]	If the outboundConnection/resourceAdapter/@type attribute is specified and the named Java class cannot be located or does not implement the javax.resource.spi.ResourceAdapter interface the SCA runtime MUST raise an error
[BJC20029]	If the inboundConnection/resourceAdapter/@type attribute is specified and the named Java class cannot be located or does not implement the javax.resource.spi.ResourceAdapter interface the SCA runtime MUST raise an error

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	<u>error</u>
[BJC20030]	If the <u><i>outboundInteraction/connectionSpec/@type</i></u> attribute is specified and the named Java class cannot be located or does not implement the <u>javax.resource.cci.ConnectionSpec</u> interface the SCA runtime MUST raise an <u>error</u>
[BJC20031]	If the <u><i>inboundConnection/activationSpec/@type</i></u> attribute is specified and the named Java class cannot be located or does not implement the <u>javax.resource.spi.ActivationSpec</u> interface the SCA runtime MUST raise an <u>error</u>
[BJC20032]	If the <u><i>outboundInteraction/interactionSpec/@type</i></u> attribute is specified and the named Java class cannot be located or does not implement the <u>javax.resource.cci.InteractionSpec</u> interface the SCA runtime MUST raise an <u>error</u>
[BJC20033]	If the <u><i>outboundInteraction/operation/interactionSpec/@type</i></u> attribute is specified and the named Java class cannot be located or does not implement the <u>javax.resource.cci.InteractionSpec</u> interface the SCA runtime MUST raise an <u>error</u>
[BJC20034]	If the <u><i>inboundInteraction/listener/@type</i></u> attribute is specified and the named Java class cannot be located or does not implement the <u>javax.resource.cci.MessageListener</u> interface the SCA runtime MUST raise an <u>error</u>
[BJC40001]	When a message is received at an SCA service with JCA binding and the <u>resolved operation name is in the target component's interface</u> , the SCA runtime MUST invoke the target component using the <u>resolved operation name</u>
[BJC40002]	When a message is received at an SCA service with JCA binding and the <u>resolved operation name is not in the target component's interface</u> the SCA runtime MUST raise an <u>error</u>

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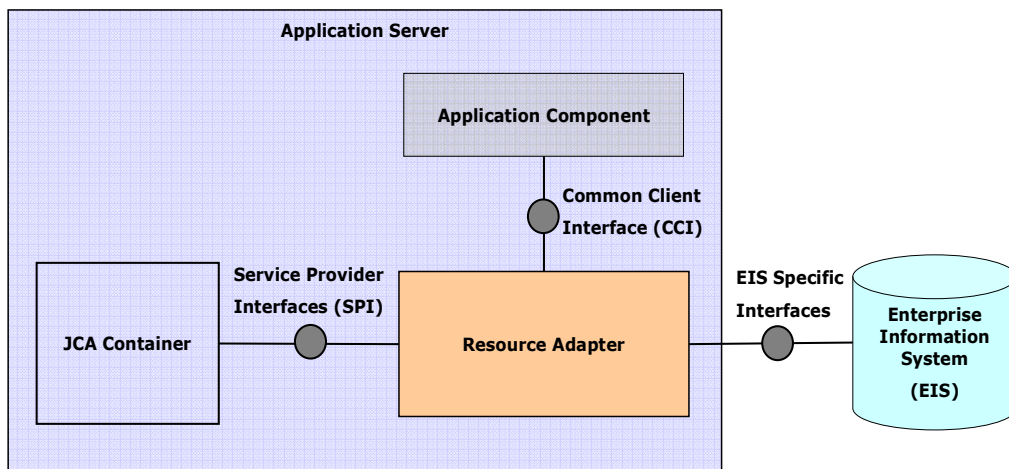
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604 **C. Java EE Connector Architecture**

605 **C.1 Introduction**

606 The connector architecture specification defines set of contracts that allow interoperability of the resource
607 adapters and application server environments. The specification also defines set of client interfaces that
608 can be optionally supported by the adapter and allow the use of adapter functionality by the application
609 clients. The following figure illustrates the relationships of these interfaces.

610



611

612 The SPI defines the following management contracts that give adapter consistent view of the
613 infrastructure provided by the server and give sever consistent view of all the adapters thus helping with
614 integration of adapters and servers.

615 Lifecycle management allows application server to control the startup of the adapter and
616 notification to allow it to shutdown in an orderly fashion

- 617 • Work management allows the adapter to use the server resources such as threads in an efficient
618 way and allows server to manage system resources appropriately.
- 619 • Connection management lets the server control the pooling, reusing and caching of the physical
620 connections to the EIS system thus allowing for better scalability.
- 621 • Transactions allow the server to control EIS resource managers and provide application clients
622 with the transactional access to external resources.
- 623 • Security contract allow for secure access to the EIS systems with security information configured
624 and provided by the application server
- 625 • Message inflow contract allows Resource Adapter to deliver events initiated by the EIS system to
626 the application component executing on the application server.
- 627 • Transaction inflow contract allow the application server to participate and execute in the context
628 of the transaction initiated by the EIS system.

629 The CCI defines set of interfaces to access EIS functionality, through the resource adapter, from the
630 application client. The CCI also provides access to some of the SPIs for transactions and security
631 management to allow for executions of clients running in the non-managed mode, without the presence of
632 the Application Server.

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633 C.2 Selected JCA CCI Interfaces

634 Record

```
635     public interface javax.resource.cci.Record
636         extends java.lang.Cloneable, java.io.Serializable {
637
638     public String getRecordName();
639         public void setRecordName(String name);
640     public void setRecordShortDescription(String description);
641     public String getRecordShortDescription();
642         public boolean equals(Object other);
643         public int hashCode();
644         public Object clone() throws CloneNotSupportedException;
645     }
```

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647 Interaction

```
648
649     public interface javax.resource.cci.Interaction {
650
651         public Connection getConnection();
652         public void close() throws ResourceException;
653         public boolean execute(InteractionSpec ispec,
654             Record input, Record output) throws ResourceException;
655         public Record execute(InteractionSpec ispec,
656             Record input) throws ResourceException;
657     }
658
```

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659 MessageListener

```
660
661     interface javax.resource.cci.MessageListener {
662
663         Record onMessage(Record inputData) throws ResourceException;
664     }
```

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666 **D. Acknowledgements**

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

669 **Participants:**

Participant Name	Affiliation
Bryan Aupperle	IBM
Ron Barack	SAP AG
Michael Beisiegel	IBM
Henning Blohm	SAP AG
David Booz	IBM
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Jean-Sebastien Delfino	IBM
Laurent Domenech	TIBCO Software Inc.
Jacques Durand	Fujitsu Limited
Mike Edwards	IBM
Billy Feng	Primeton Technologies, Inc.
Nimish Hathalia	TIBCO Software Inc.
Simon Holdsworth	IBM
Eric Johnson	TIBCO Software Inc.
Uday Joshi	Oracle Corporation
Khanderao Kand	Oracle Corporation
Anish Karmarkar	Oracle Corporation
Nickolaos Kavantzias	Oracle Corporation
Mark Little	Red Hat
Ashok Malhotra	Oracle Corporation
Jim Marino	Individual
Jeff Mischkinsky	Oracle Corporation
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Simon Nash	Individual
Sanjay Patil	SAP AG
Plamen Pavlov	SAP AG
Peter Peshev	SAP AG
Piotr Przybylski	IBM
Luciano Resende	IBM
Tom Rutt	Fujitsu Limited
Vladimir Savchenko	SAP AG
Scott Vorthmann	TIBCO Software Inc.
Tim Watson	Oracle Corporation
Owen Williams	Avaya, Inc.

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E. Revision History

671 [optional; should not be included in OASIS Standards]

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Revision	Date	Editor	Changes Made
1	2008-01-16	Anish Karmarkar	Applied the OASIS template + related changes to the Submission
2	2008-08-06	Piotr Przybylski	Updates for consistency with JMS Binding and to resolve the following: BINDINGS-13 BINDINGS-14 BINDINGS-28 BINDINGS-30 BINDINGS-32 BINDINGS-38
cd01-rev1	2008-10-16	Simon Holdsworth	Updates to resolve following issues: BINDINGS-41
cd01-rev2	2008-10-20	Piotr Przybylski	Update for RFC2119 conformance Updated to resolve following issues: BINDINGS-53
cd02	2009-02-16	Simon Holdsworth	Renamed and applied editorial issues
cd02-rev1	2009-05-22	Simon Holdsworth	Updates to resolve issue BINDINGS-63 (conformance statement numbering) Updated assembly namespace to 200903
cd02-rev2	2009-05-22	Simon Holdsworth	Updates to resolve following issues: BINDINGS-22 BINDINGS-45 BINDINGS-58 BINDINGS-69 Fixed errors in schema
cd02-rev3	2009-06-19	Simon Holdsworth	Updates to resolve following issues: BINDINGS-75 Added acknowledgements
cd02-rev4	2009-06-24	Simon Holdsworth	Updates to resolve following issues BINDINGS-78 Renamed document to old form Editorial fixes around external references; changed all links to hyperlinks

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cd02-rev5	2009-06-24	Simon Holdsworth	Fixed broken cross-reference
cd03	2009-06-29	Simon Holdsworth	Update name to cd03
cd03-rev1	2010-01-24	Simon Holdsworth	Editorial fix to schema name Updates to resolve issues: BINDINGS-88 BINDINGS-89 BINDINGS-107
cd03-rev2	2010-02-17	Bryan Aupperle	Added captions for figures
cd03-rev3	2010-02-22	Simon Holdsworth	Updated for resolutions to issues: BINDINGS-101 BINDINGS-102 Updated assembly namespace Updates for editorial action items: 20091015-3: no change to copyright (currently consistent with all other SCA specs) 20091015-4: clarified the text describing the JCA binding 20091015-5: removed "further specification" text 20091015-7: duplication in abstract and introduction: no changes made 20091015-8: removed non-normative references section 20091015-9: cleaned up naming conventions section 20091015-10: cleaned up some phrases that used "allows" 20091015-11: clarified uses of the @uri attribute 20091015-12: no changes made (currently consistent with all other SCA specs) Fixed documentation of connectionSpec, interactionSpec and inboundOperation elements to include explicit bullets for the elements' children
cd03-rev4	2010-03-15	Simon Holdsworth	Updated to resolve issues: BINDINGS-120 BINDINGS-121 BINDINGS-122 BINDINGS-123
cd03-rev5	2010-03-18	Simon Holdsworth	Updated to resolve issues: BINDINGS-125 Editorial cleanup

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			Updated Assembly references to CD05 Fixed SCA namespace definition to 200912
cd03-rev6	2010-04-16	Simon Holdsworth	Updated to resolve issue BINDINGS-129
cd04	2010-04-30	Simon Holdsworth	Rename and fix acknowledgements, fix Assembly link to cd05

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[6.1 Minimal JCA Binding](#)

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6.2 Existing resources.....

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6.3 Resource Creation

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6.4 Existing Resources specified in the definition file

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```
connectionInfo="QName"?
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/binding.jca/outboundInteraction/operation element gathers characteristics of one operation of the service, the data bindings of the inbound and outbound arguments as well as interaction type and the properties.

/binding.jca/inboundConnection

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specifies the name of the class implementing javax.resource.spi.ActivationSpec interface and its properties

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/binding.jca/inboundConnection/activationSpec/@name – if the @create attribute is “never”, the name uniquely identifies an existing instance of the activation spec.

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behaviour.		

Binding Properties

The JCA Binding contains properties necessary to interact with the EIS system, properties that are, however, not related to the service location or type of services available. Such properties ought to be configurable but not require overwriting connection or interaction elements. Examples of such properties are user ID or password.

The `binding.jca` element contains `connectionInfo` attribute that specifies the name of the `binding.jca` element in the definition file.

```
<reference name="EISHelloWorldReference">
  <binding.jca connectionInfo="JCA_Services">
    </binding.jca>
  </reference>
```

This element can contain the interaction properties, for example properties of the `connectionSpec`.

```
<definitions targetNamespace="http://acme.com"
  xmlns="http://docs.oasis-
pen.org/ns/openca/sca/200903">
  <binding.jca name="JCA_Services">
    <outboundInteraction >
      <connectionSpec name="FAConnectionSpec">
        <property name="group">GROUP1</property>
        <property name="userid">SYSAD</property>
        <property name="password">SYSAD</property>
      </connectionSpec>
      ...
    </outboundInteraction>
  </binding.jca>
</definitions>
```

In the example above, the `connectionSpec` element specifies all the properties it overwrites in place and needs to be updated when there is a need to modify any of the properties. This could be inefficient at times and the method of passing properties from the bindings is defined. To get the value from the bindings, the property specifies the source attribute as follows.

```
<outboundInteraction >
  <connectionSpec
    name="connector.file.outbound.FAConnectionSpec">
    <property name="group">GROUP1</property>
    <property name="userid">SYSAD</property>
    <property name="password" source="$password"/>
  </connectionSpec>
</outboundInteraction>
```

The property value is the specified in the binding element that refers to the element in the definitions file.

```
<reference name="JCAHelloWorldReference">
  <binding.jca connectionInfo="JCA_Services">
    <property name="password">SYSAD</property>
  </binding.jca>
</reference>
```

The properties can also be specified by the composite, in that case the reference or service would contain the source attribute pointing to the property of the composite:

```
<composite xmlns="http://docs.oasis-pen.org/ns/openca/sca/200903
```

```
        name="EISHelloworld">

        <reference name="EISHelloWorldReference">
        <binding.jca connectionInfo="JCA_Services">
            <property name="userid" source="$UID"/>
        </binding.jca>
        </reference>

        <property name="UID">SYSAD</property>
    </composite>
```

The indirection level of the binding, required even if the property value is specified in the composite prevents introducing hidden dependencies between the composite and definitions file

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Existing Resources specified in the definition file

This sample shows the resources specified in the definitions file and referred to by the binding elements. The definitions file contains the following

```
<definitions targetNamespace="http://acme.com"
  xmlns="http://docs.oasis-
  pen.org/ns/opencsa/sca/200903">

  <binding.jca name="JCA_Inbound">
    <inboundConnection>
      <resourceAdapter name="FAResourceAdapter">
        <property name="logDrive">D</property>
      </resourceAdapter>
      <activationSpec name="FAActivationSpec">
        <property name="directory_type">temp</property>
        <property name="drive">C</property>
      </activationSpec>
    </inboundConnection>
  </binding.jca>
</definitions>
```

The service with the JCA Bindings uses the connectionInfo attribute to identify the resources in the definition file

```
<service name="JCAHelloWorldService">
  <binding.jca connectionInfo=" JCA_Inbound ">
    <inboundInteraction>
      <listener>MyInboundListener</listener>
      <inboundOperation name="hello" nativeOperation="TXPN"/>
      <inboundOperation name="bye"
        nativeOperation="ETXPRN"/>
    </inboundInteraction>
  </binding.jca>
</service>
```

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@connectionInfo attribute and the		
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elements		
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name value MUST be unique within		
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The SCA runtime SHOULD raise an error if the connection/@create attribute value is "always" and the element with the given name already exists		
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The SCA runtime SHOULD raise an error if the *activationSpec/@create* attribute value is "always" and the element with the given name already exists

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interpret it as a listener implementing