3. Indicating Use of WS-Addressing

This specification supports a mechanism for indicating, in a WSDL description, that the endpoint conforms to the WS-Addressing specification. That mechanism uses WS-Policy Framework [*WS Policy 1.5 - Framework*].

3.1 WS-Policy Assertions

The mechanism for indicating that a binding or endpoint conforms to the WS-Addressing specification is through the use of the Web Services Policy - Framework [*WS Policy 1.5 - Framework*] and Web Services Policy - Attachment [*WS Policy 1.5 - Attachment*] specifications. This specification defines three policy assertions.

For WSDL 1.1, these assertions may be attached to `wsdl11:port` or `wsdl11:binding`. For WSDL 2.0, they may be attached to `wsdl20:endpoint` or `wsdl20:binding`.

3.1.1 Addressing Assertion

The wsam:Addressing policy assertion is a nested policy container assertion. The meaning of this assertion, when present in a policy alternative, is that WS-Addressing is required to communicate with the subject. In order to indicate that the subject supports WS-Addressing but does not require its use, an additional policy alternative should be provided which does not contain this assertion. This may be done in WS-Policy compact form by adding the attribute wsp:Optional="true" to the wsam:Addressing assertion.

3.1.2 AnonymousResponses Assertion

The wsam:AnonymousResponses element MAY be used as a policy assertion nested within the wsam:Addressing assertion in accordance with the rules laid down by WS-Policy Framework 1.5 section 4.3.2.

The appearance of this element within a policy alternative indicates that the subject requires any request message that has responses to include response endpoint EPRs that contain the anonymous URI ("http://www.w3.org/2005/08/addressing/anonymous") as the value of [address]. In other words, the subject requires that response instances are sent using the anonymous URI.

The None URI ("http://www.w3.org/2005/08/addressing/none") may appear as the value of [address] in place of the anonymous URI; this value MUST be accepted.

The absence of the wsam:AnonymousResponses policy assertion within a policy alternative, indicates that the subject will not accept request messages with response endpoint EPRs that contain the anonymous URI as an address.

3.1.3 NonAnonymousResponses Assertion

The wsam:NonAnonymousResponses element MAY be used as a policy assertion nested within the Addressing assertion in accordance with the rules laid down by WS-Policy Framework 1.5 section 4.3.2.

The appearance of this element within a policy alternative indicates that the subject requires any request message that has responses to include response endpoint EPRs that contain something other than the anonymous URI as the value of [address]. In other words, the subject requires that response instances are sent using a non-anonymous address URI. This assertion is deliberately vague; its presence indicates that some non-anonymous addresses is required for instances of response messages, but doesn't constrain what such an address might look like. A receiver can still reject a request that contains an address that it doesn't understand or that requires a binding it doesn't support.

The None URI ("http://www.w3.org/2005/08/addressing/none") may appear as a non-anonymous address; this value MUST be accepted.

The absence of the wsam:NonAnonymousResponses policy assertion within a policy alternative, indicates that the subject will not accept request messages with response endpoint EPRs that contain a non anonymous URI as an address.

3.1.4 Examples (Compact Form)

Example 3-1. Subject supports WS-Addressing, no response allowed
```
<wsp:Policy>
    <wsam:Addressing wsp:Optional="true">
        <wsp:Policy/>
    </wsam:Addressing>
</wsp:Policy>
```

Example 3-2. Subject requires WS-Addressing, no responses allowed
```
<wsp:Policy>
    <wsam:Addressing>
        <wsp:Policy/>
    </wsam:Addressing>
</wsp:Policy>
```

Example 3-4. Subject requires WS-Addressing, requires either anonymous or non-anonymous response EPRs
```
<wsp:Policy>
    <wsam:Addressing>
        <wsp:Policy>
            <wsp:ExactlyOne>
                <wsam:AnonymousResponses/>
                <wsam:NonAnonymousResponses/>
            </wsp:ExactlyOne>
        </wsp:Policy>
    </wsam:Addressing>
</wsp:Policy>
```

Example 3-5. Subject requires WS-Addressing and non-anonymous response EPRs

```
<wsp:Policy>
    <wsam:Addressing>
        <wsp:Policy>
            <wsam:NonAnonymousResponses/>
        </wsp:Policy>
    </wsam:Addressing>
</wsp:Policy>
```

3.1.5 Examples (Normal Form)

Example 3-6. Subject supports WS-Addressing, no responses allowed

```
<wsp:Policy>
    <wsp:ExactlyOne>
        <wsp:All/>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All/>
                    </wsp:ExactlyOne>
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
    </wsp:ExactlyOne>
</wsp:Policy>
```

Example 3-7. Subject requires WS-Addressing, no responses allowed

```
<wsp:Policy>
    <wsp:ExactlyOne>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All/>
                    </wsp:ExactlyOne>
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
    </wsp:ExactlyOne>
</wsp:Policy>
```

Example 3-9. Subject supports WS-Addressing, and requires either anonymous or non-anonymous response EPRs

```
<wsp:Policy>
    <wsp:ExactlyOne>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All>
                            <wsam:AnonymousResponses/>
                        </wsp:All>
                    </wsp:ExactlyOne>
```

```
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All>
                            <wsam:NonAnonymousResponses/>
                        </wsp:All>
                    </wsp:ExactlyOne>
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
    </wsp:ExactlyOne>
</wsp:Policy>
```

Example 3-10. Subject requires WS-Addressing and non-anonymous response EPRs

```
<wsp:Policy>
    <wsp:ExactlyOne>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All>
                            <wsam:NonAnonymousResponses/>
                        </wsp:All>
                    </wsp:ExactlyOne>
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
    </wsp:ExactlyOne>
</wsp:Policy>
```

3.1.6 Finding Compatible Policies

When a client is looking for an endpoint with compatible policy, one common method used is to take the policy intersection between the policy which the client is looking for, and the policy asserted in the WSDL document; a non-empty intersection is sought. The policy used by the client must be written carefully to avoid unexpected results. This is most obvious when the client is not looking for explicit support of a particular kind of response; failing to take care could mean missing a compatible policy.

Consider the following example, where we have a client who does not want any responses, and a WSDL for an endppoint which states that the endpoint requires anonymous responses.

Example 3-11. Client looking for an endpoint which supports Addressing, WSDL states explicit requirement for anonymous responses

```
<wsp:Policy>
    <wsam:Addressing>
        <wsp:Policy/>
```

```
        </wsam:Addressing>
</wsp:Policy>
```

The client's policy (above) states the requirement for Addressing, but only the "none" URI is allowed for response EPRs.

```
<wsp:Policy>
    <wsam:Addressing>
        <wsp:Policy>
            <wsam:AnonymousResponses/>
        </wsp:Policy>
    </wsam:Addressing>
</wsp:Policy>
```

The policy attached to the endpoint in the WSDL (above) requires anonymous responses. The intersection of this policy with the client's policy will be empty, so the client will miss a compatible endpoint.

```
<wsp:Policy>
    <wsam:Addressing>
        <wsp:Policy>
            <wsam:AnonymousResponses wsp:Optional="true"/>
        </wsp:Policy>
    </wsam:Addressing>
</wsp:Policy>
```

This is what the client's policy could be; by stating that the wsam:AnonymousResponses assertion is optional requirement, there will be a non-empty intersection with endpoint policies that do and do not contain this assertion.

```
<wsp:Policy>
    <wsp:ExactlyOne>
        <wsp:All/>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All/>
                    </wsp:ExactlyOne>
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All>
                            <wsam:AnonymousResponses/>
                        </wsp:All>
                    </wsp:ExactlyOne>
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All>
                            <wsam:NonAnonymousResponses/>
                        </wsp:All>
                    </wsp:ExactlyOne>
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
        <wsp:All>
            <wsam:Addressing>
                <wsp:Policy>
                    <wsp:ExactlyOne>
                        <wsp:All>
                            <wsam:AnonymousResponses/>
                            <wsam:NonAnonymousResponses/>
                        </wsp:All>
                    </wsp:ExactlyOne>
                </wsp:Policy>
            </wsam:Addressing>
        </wsp:All>
    </wsp:ExactlyOne>
</wsp:Policy>
```

Example 3-9. Subject requires WS-Addressing, requires explicit support of anonymous or non-anonymous response EPRs