

[Insert as new section after section 3]

#### 4 Non-Addressable Endpoints

There are a number of messaging scenarios where one-side of the communication is not directly addressable by the other side. Examples can include clients behind NAT firewalls, and systems where IP addresses are dynamically allocated. Reliable messaging is important in these situations, because such environments can be inherently less reliable than infrastructures where both ends have permanently available endpoints. The WSRM specification supports these scenarios by allowing both an RM Source and an RM Destination to use an anonymous endpoint address.

An RM Source MAY use an anonymous endpoint address for the <wsrm:acksTo> address, and application and protocol messages in a Sequence MAY use an anonymous endpoint address for their <wsa:replyTo> address.

An RM Destination MAY provide a <wsrm:Offer> associated with an anonymous address. For example, a client may offer a sequence for responses. In this case, the RM Source cannot initiate communication with the RM Destination, and so communication is only possible on a back-channel when the RM Destination initiates the communication.

#### 4.1 GetMessage

The RM Destination MAY request messages from the RM Source using the <wsrm:GetMessage> element, which allows the RM Source to deliver application or protocol messages.

The following exemplar defines the <wsrm:GetMessage> syntax:

```
<wsrm:GetMessage ...>
  <wsrm:Identifier>...</wsrm:Identifier>
  <wsa:MessageID>...</wsa:MessageID> ?
  ...
</wsrm:GetMessage>
```

##### /wsrm:GetMessage

This element requests a message from the RM Source for a given Sequence that matches the specified correlation criteria specified in the child elements.

##### /wsrm:GetMessage/wsrm:Identifier

This required element specifies the Sequence Identifier of the Sequence. When the RM Source receives this message it MUST respond with either a <wsrm:NoMessage/> (see below) or a message for the RM Destination. The message MUST be either an application message associated with the Identifier or a WSRM protocol message associated with the Identifier. If the Identifier does not match any known Sequence then the receiver MUST generate a wsrm:UnknownSequence Fault.

##### /wsrm:GetMessage/wsa:MessageID

This element, if present, specifies the WS-Addressing MessageID of a previously sent request message. Any message returned as a response to the GetMessage request MUST contain a WS-Addressing wsa:RelatesTo header referencing this MessageID.

##### /wsrm:GetMessage/{any}

This is an extensibility mechanism to allow different (extensible) types of information, based on a schema, to be passed. The extensibility elements SHOULD specify criteria which the RM Source uses to identify messages to be returned to the RM Destination. The RM Destination SHOULD fault if it cannot process the extensibility elements.

##### /wsrm:GetMessage/@{any}

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the element.

The response message MAY include a `wsa:RelatesTo` Header referencing the `wasm:GetMessage` message.

If a message matching all the specified criteria is available then the response MUST contain that message. If no message matching all the specified criteria is available then a `wasm:NoMessage` is returned.

The following exemplar defines the `<wasm:NoMessage>` syntax:

```
<wasm:NoMessage ...> ... </wasm:NoMessage>
```

`/wasm:NoMessage`

This element indicates that no matching message was found.

`/wasm:NoMessage/{any}`

This is an extensibility mechanism to allow different (extensible) types of information, based on a schema, to be passed.

`/wasm:NoMessage/@{any}`

This is an extensibility mechanism to allow additional attributes, based on schemas, to be added to the element.

*[Please note the following section is an optimization designed to remove the requirement to create an outbound sequence when it isn't needed]*

#### 4.2 Supporting reliable responses or out-only message exchange patterns.

The WSRM specification is designed to compose with any message exchange pattern. There are cases where reliability is only required on out messages, for example in a subscription or in the case of an “unreliable in, reliable out” exchange. In these cases, when the client has an anonymous endpoint, the RM Source cannot initiate communication with the RM Destination.

In this model, an RM Destination MAY offer a sequence without requesting an outgoing sequence, by sending a `<wasm:Offer>` (see above) element in the body of a message. In turn the RM Source MAY accept the offer. If the RM Source accepts the offered Sequence, it MUST respond with a `<wasm:Accept>` element. In the case the offer is not accepted the RM Source MUST respond with an empty SOAP Body element.

The following exemplar shows the use of the `<wasm:Offer>` used without a `<wasm:CreateSequence>`:

```
<wasm:Offer ...>
  <wasm:Identifier ...> xs:anyURI </wasm:Identifier>
  <wasm:Endpoint> wsa:EndpointReferenceType </wasm:Endpoint>
  <wasm:Expires ...> xs:duration </wasm:Expires> ?
  ...
</wasm:Offer>
```

The following exemplar shows the use of the `<wasm:Accept>` used without a `<wasm:CreateSequenceResponse>`:

```
<wasm:Accept ...>
  <wasm:AcksTo ...> wsa:EndpointReferenceType </wasm:AcksTo>
  ...
</wasm:Accept>
```