



To: RosettaNet Members  
From: RosettaNet Technical Office  
Subject: RosettaNet Implementation Framework, v1.1  
Technical Recommendation #1 – Use of File Attachments

The implementation of a Technical Recommendation is optional. A Technical Recommendation describes features or enhancements not yet available in a published version of the subject specification. Features or enhancements described by a Technical Recommendation may be, but are not guaranteed to be, included in a future release of the subject specification.

A Technical Recommendation is obsolete once the features or enhancements it describes are included in an official release; at that time, implementation of those features is required. A Technical Recommendation can also be deemed obsolete if the subject requirement no longer exists or if improvements in technology provide another way to address the requirement.

This Technical Recommendation describes how to package and reference file attachments in PIP 2A9 using RNIF v1.1. This recommendation is being issued to promote consistency and interoperability between software implementations supporting PIP 2A9 using RNIF v1.1.

It is possible to implement support for PIP 2A9 without supporting this Technical Recommendation. However, not implementing this recommendation may limit the universe of trading partners within which a solution can interoperate.

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## 1 File Attachments

Business requirements dictate that certain PIPs must use file attachments to provide important supporting information that cannot be expressed within the traditional XML service content. These file attachments can be plain text files but might also be binary image files, proprietary format files, and other data that cannot easily be expressed in XML.

## **1.1 Issue**

The published RNIF v1.1 specification does not explicitly specify how file attachments should be packaged or referenced. In order to promote consistency and interoperability between software implementations, RosettaNet is issuing this proactive recommendation.

## **1.2 Terminology**

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this Recommendation are to be interpreted as described in RFC 2119.

## **1.3 Packaging Attachments**

Each attachment is a separate MIME body part in the action message and must have the MIME content-ID attribute specified. These body parts must follow the existing body parts in the RosettaNet Object, namely the Preamble, Service Header, and the Service Content. If the message is to be signed, the entire RosettaNet Object including the attachments must be signed.

## **1.4 Referencing Attachments**

As mentioned above, attachments to the service content are sent as separate MIME body parts in the same action message. This method packages and ships the service content and attachments together. However, RosettaNet recognizes that is sometimes necessary to refer to attachments from within the service content. Since action messages (specified by RosettaNet or otherwise) are defined independently of the RosettaNet Implementation Framework, this recommendation defines a standard way to refer to attachments from within XML service content and leaves it up to the service content DTD developer to make use of this mechanism.

The DTD should specify the "href" attribute for each XML element that can reference an attachment. It should also specify whether or not use of this attribute is optional or mandatory for a particular element.

The "href" attribute value must be the cid-url (as specified by RFC 2111) of the attachment.

## **1.5 Example**

Here is an example from a service content DTD:

```
<!ELEMENT AnyElement (#PCDATA)>
<!ATTLIST AnyElement
  href CDATA #IMPLIED>
```

An instance of the element “AnyElement” would then refer to the attachment as follows:

```
<AnyElement href="cid:<cid-of-attachment>"> ...
</AnyElement>
```

Where, <cid-of-attachment> is the value of the content-ID MIME header for the attachment.

For example, if the MIME part packaging of an attachment in a RosettaNet message occurs as follows:

```
--RN-Boundary-
Content-Type: image/gif
Content-Transfer-Encoding: Base64
Content-ID: <00180792811xyz@xyz.rosettanet.org>

[Attachment data goes here]

--RN-Boundary-
```

Then the corresponding instance of the element “AnyElement” in the service content requiring access to the attachment would refer to the attachment as follows:

```
<AnyElement href="cid:00180792811xyz@xyz.rosettanet.org">
</AnyElement>
```

## 1.6 *Unpackaging and Validation*

This section does not apply to synchronous responses as defined by Technical Recommendation #2.

Body parts that follow the Preamble, Service Header, and the Service Content must be treated as attachments. Each attachment body part must specify the content-id for the attachment. If the content-id is missing or invalid, the receiver should send a General Exception back to the requester.

Validation should be performed in accordance with Technical Advisory #1 for RNIF v1.1. However, it is important to note:

1. If the PIP requires the receiver to send a receipt acknowledgment back to the sender, the message digest must be calculated on the entire RosettaNet Object including the attachments.
2. Each attachment must be referenced by one or more XML elements in the Service Content. Also, every non-null value for an “href” attribute must refer to an attachment that is actually present. This verification is part of “content validation” or “perform action” steps as described by Technical Advisory #1 for RNIF v1.1.

If this verification fails and the sender expects a response, the receiver should send back a General Exception.

If this verification fails and the sender does not expect a response, the receiver should initiate a Notification of Failure PIP.

## 1.7 *Compliance*

- Attachments can only be referenced by XML elements that support the “href” attribute as specified in the DTD.
- The MIME content-ID attribute must be specified for all attachments.
- The format `cid:<value>` must be used for the value of the “href” attribute.
- Multiple elements can refer to the same attachment.

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## 2 Additional Comments

The RNIF 2.0: Core Specification addresses these packaging and referencing requirements.