MIME Adapter

MIME (Multi-Purpose Internet Mail Extensions) is an extension of the original Internet e-mail protocol. Using MIME, users can exchange different kinds of data files on the Internet: audio, video, images, application programs, and other kinds, as well as the ASCII text handled in the original protocol, the Simple Mail Transfer Protocol (SMTP).

Although MIME was designed mainly for SMTP, its use today has grown beyond describing the content of email and now often includes descriptions of content type in general. In E2E Bridge context, you can use MIME with **SMTP** and **SOAP**.

With the E2E MIME Adapter, you can

- convert a MIME message (header and content) to a multipart structure (**decode**)
- convert a MIME multipart structure to a MIME message (header and content) (**encode**).

Example File (Builder project Add-ons/EMail):

⤓	<your example path>\Add-ons\EMail\uml\mime.xml

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Related Pages:

- MIME Adapter Reference
- SMTP Adapter
- SOAP Adapter

Related Documentation:

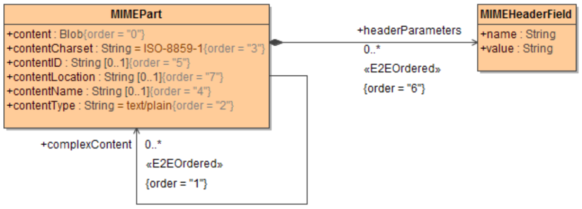
- Wikipedia: MIME
- Wikipedia: SMTP

The MIME Part Structure

The content of a MIME part that is provided as input in a SOAP request is base64 binary encoded.The class **MIMEPart** has an attribute **content** of base type **Blob** that stores base64 binary encoded values. If text is used as input for an attachment, the text string needs to be transformed to a blob first, before storing it in a **MIMEPart** object.
The **MIMEPart** class specifies another attribute **contentType**, whose default value is **text/plain**. If it applies to the content type, the **contentCharset** may be defined (default value **ISO-8859-1**).
Attribute **contentName** specifies the name of the attachment, e.g. test.txt.

MIME messages can have a hierarchical structure, which can be implemented by assigning an array of **MIMEParts** to the class attribute **complexContent**. Each **MIMEPart** can have zero or many **complexContents**.

Figure: MIME Part Structure

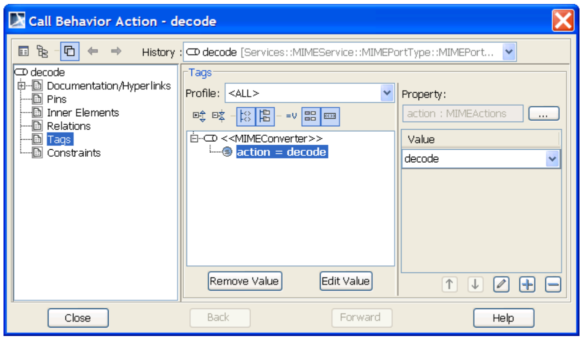

MIMEPart
+content : Blob{order = "0"}
+contentCharset : String = ISO-8859-1{order = "3"}
+contentID : String [0..1]{order = "5"}
+contentLocation : String [0..1]{order = "7"}
+contentName : String [0..1]{order = "4"}
+contentType : String = text/plain{order = "2"}
+headerParameters
0..*
«E2EOrdered»
{order = "6"}
MIMEHeaderField
+name : String
+value : String
+complexContent
0..*
«E2EOrdered»
{order = "1"}

Decoding of MIME Messages

To use the decoding functionality of the E2E MIME Converter:

1. Draw an action and stereotype it as <<MIMEConverter>>.
2. Open the specification dialog of the action and select **decode** as the value of the tag action.

Figure: Specifying the Tagged Value Decode



History : decode [Services::MIMEService::MIMEPortType::MIMEPort...

Profile: <ALL>

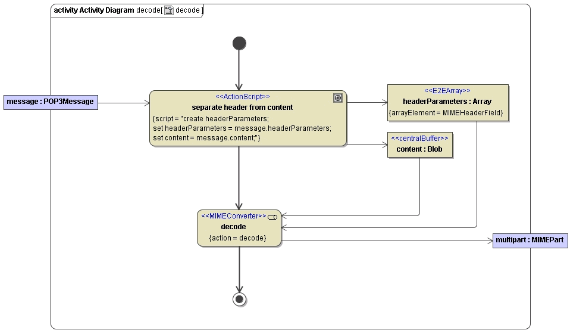
<<MIMEConverter>>
action = decode

Property: action : MIMEActions

Value
decode

In case of decoding, the E2E MIMEConverter takes two input parameters: **headerParameters** and **content**. The first one is an array of header objects of the complex type **MIMEHeaderField**. The second parameter stores the real message content, i.e. the text part of an email as well as the attachments.

Figure: Decoding Example – A Received POP3 Message


activity Activity Diagram decode[decode]
message : POP3Message
<<ActionScript>>
separate header from content
{script = "create headerParameters;
set headerParameters = message.headerParameters;
set content = message.content;"}
<<E2EArray>>
headerParameters : Array
{arrayElement = MIMEHeaderField}
<<centralBuffer>>
content : Blob
<<MIMEConverter>>
decode
{action = decode}
multipart : MIMEPart

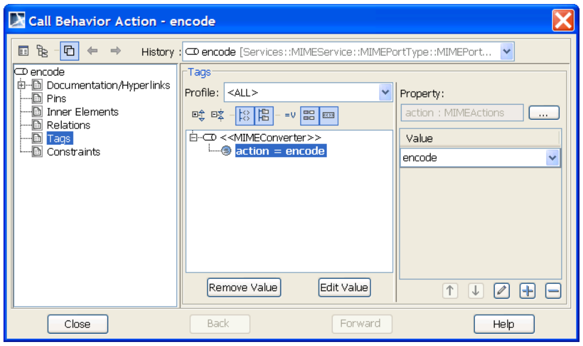
The purpose of the decode action of the MIME converter is to separate the Blob into parts. The parts are encapsulated in output parameter **multipart**, that is of the type **MIMEPart** (as to the class structure refer to the figure above).

Encoding of MIME Messages

To use the encoding functionality of the E2E MIME Converter:

1. Draw an action and stereotype it as <<MIMEConverter>>.
2. Open the specification dialog of the action and select **encode** as the value of the tag action.

Figure: Specifying the Tagged Value Encode



Call Behavior Action - encode

History : encode [Services::MIMEService::MIMEPortType::MIMEPort...

Profile: <ALL>

Property: action : MIMEActions

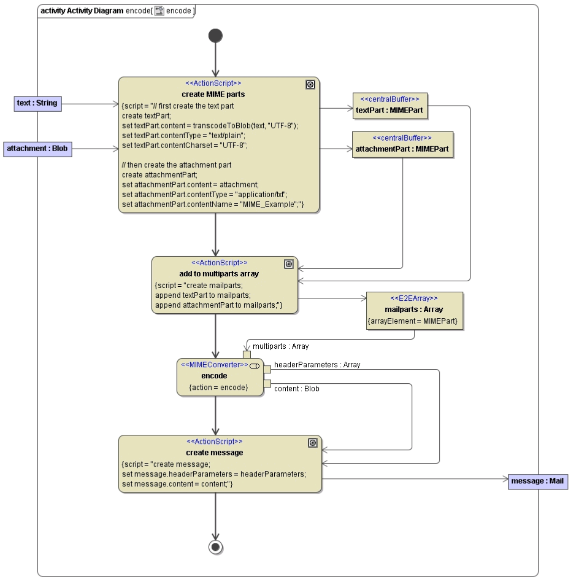
<<MIMEConverter>>
action = encode

Value: encode

In the encoding case, the MIME converter takes an array of **MIMEPart** object as a single input parameter. The name of the input parameter must be **multipart/multiparts**. The figure below illustrates how the MIME parts can be created and stored in a single object of type **Array**. Generally, each MIME part represents part of a message (e.g. one **MIMEPart** object stores the plain text of an email message, another the attachment). The content of a **MIMEPart** object is always stored as a **Blob**.

The MIME converter provides two output parameters: **headerParameters** and **content**. The first is an array of **MIMEHeaderField** objects, the latter is a **Blob** containing all the MIME parts.

Figure: Encoding Example – A Content for Mailing



```
{script = "// first create the text part
create textPart;
set textPart.content = transcodeToBlob(text, "UTF-8");
set textPart.contentType = "text/plain";
set textPart.contentCharset = "UTF-8";

// then create the attachment part
create attachmentPart;
set attachmentPart.content = attachment;
set attachmentPart.contentType = "application/txt";
set attachmentPart.contentName = "MIME_Example";"}
```

```
{script = "create mailparts;
append textPart to mailparts;
append attachmentPart to mailparts;"}
```

```
{script = "create message;
set message.headerParameters = headerParameters;
set message.content = content;"}
```

The header parameters and the content can be stored in any object (e.g. **message**) and then passed on to an activity for e.g. sending it over SMTP (for details about how to use the E2E SMTP Adapter refer to SMTP Adapter).