HM Revenue & Customs

Developer Guide

Transaction Engine
Document Submission Protocol

Updated 15 August 2018

Statement of Confidentiality

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Revision & Sign-Off Sheet

Change Record

Date	Author	Version	Status	Change
24 Jan 2017	HMRC	0.1	Baseline Candidate	Reworked for the HMRC Transaction Engine
28 Feb 2017	HMRC	0.2	Baseline Candidate	Following internal review
14 Mar 2017	HMRC	1.0	Baseline	Baseline
20 Mar 2017	HMRC	1.1	Baseline	ResponseEndPoint clarifications
26 Jul 2017	HMRC	1.2	Baseline	Remove digital certificate references
27 Jul 2017	HMRC	1.3	Baseline	Latest Glossary additions sorted in alphabetical order
20 Nov 2017	HMRC	1.4	Baseline	Reinserted URL's, fixed formatting
15 Aug 2018	HMRC	2.0	Baseline	MD5 method no longer accepted, updating documentation and samples to reflect this. Fixed mistake in sample 3.2.4

Document Status has the following meaning:

Drafts	-	These are documents for review and liable to significant change.
Baseline Candidate	-	The document is ready for final issuing and is only expected to have further minor updates.
Baseline	-	The document is published and is not expected to change significantly. All changes will be listed in the change record table.

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1. Introduction

1.1 Purpose of the Document

This document describes the Document Submission Protocol implementation used by the Transaction Engine. Any further refinements and modifications to this protocol will appear in subsequent revisions of this document.

1.2 Intended Readership

This document is intended for architects, 3rd party developers and other parties interested in building Transaction Engine client applications.

1.3 Glossary of Terms

See Appendix (section 7)

2. Document Submission Protocol

2.1 Document Submission Protocol

The **Document Submission Protocol (DSP)** routes business transactions (e.g. Self-Assessment tax forms) submitted from either a Department **Portal** (e.g. the HMRC Online service Web site) or directly from an **3rd party application**, through the Transaction Engine, to the appropriate HMRC system and retrieves the corresponding response.

2.2 GovTalk Protocol

DSP uses the GovTalk Message Envelope to encapsulate business transaction documents. The full description of the GovTalk 2.0 Envelope schema is available from HMRC.

GovTalk documents are XML formatted and use the UTF-8 encoding standard. Messages are transported across the network using the Hypertext Transport Protocol (HTTP). Portals, 3rd party applications and Departments must be capable of generating HTTP 1.1 POST requests and receiving and interpreting HTTP 1.1 response messages.

2.3   Document Submission Message Sequence

2.3.1   Introduction

This is the typical sequence followed when a client application submits a document to HMRC – assuming there are no errors.
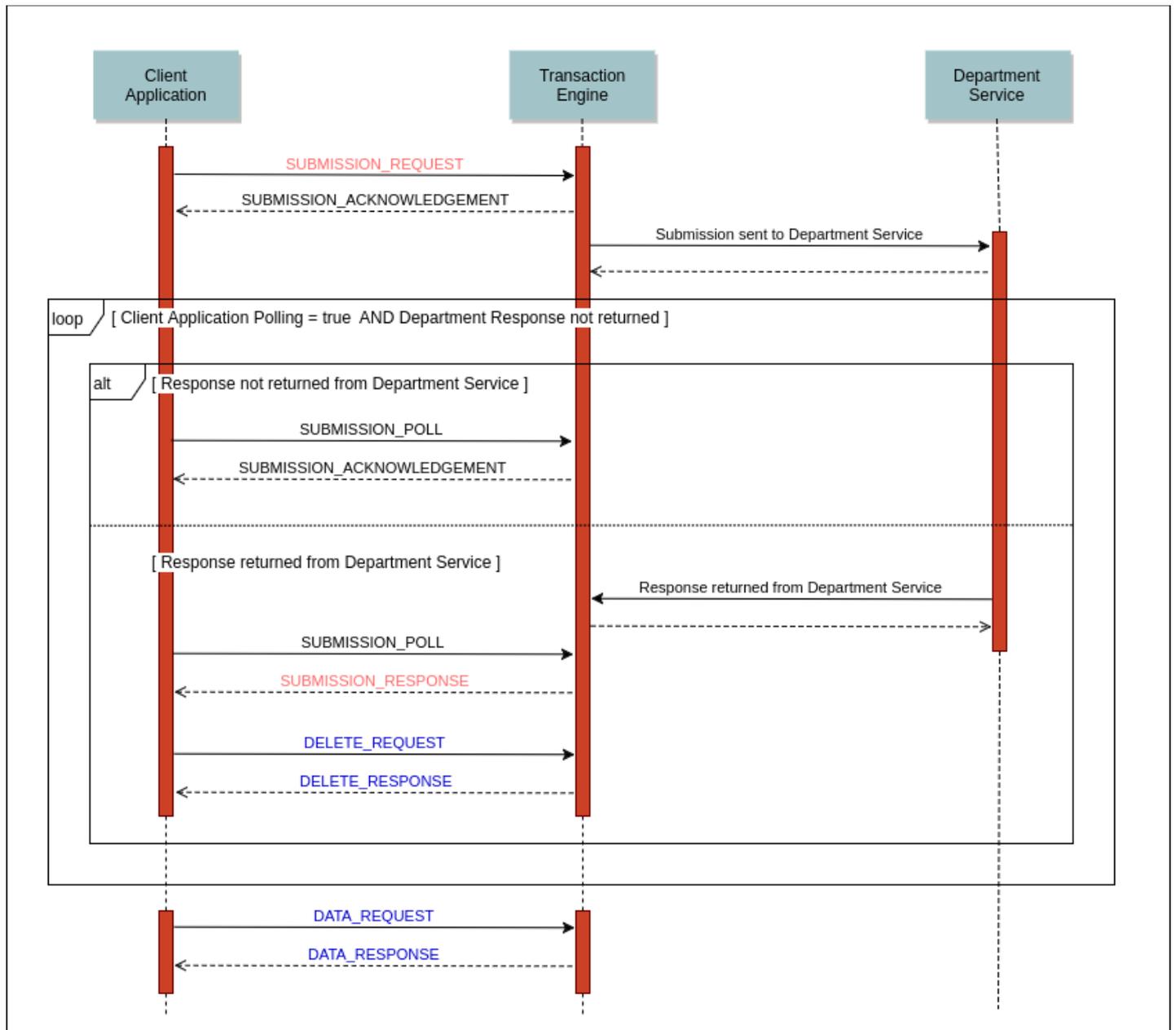
2.3.2 Submission Sequence

Step	Action
1	A SUBMISSION_REQUEST is sent to the Transaction Engine to indicate that a new document is being submitted for processing.
2	The Transaction Engine replies to the client with a SUBMISSION_ACKNOWLEDGEMENT only once it has validated the GovTalk header (include credentials if required). The

SUBMISSION_ACKNOWLEDGEMENT includes a CorrelationID to the client application which the client can use as an identifier for this document in future poll requests.

The Transaction Engine sends the submission on to the destination HMRC Service. |
3	The client application waits for the period specified in the PollInterval attribute of the GovTalk header of the SUBMISSION_ACKNOWLEDGEMENT message. Then checks the progress of the submission using the SUBMISSION_POLL message.
4	The Transaction Engine has not completed processing the message so again replies with a SUBMISSION_ACKNOWLEDGEMENT to indicate this to the client application.
5	The client application again waits for period specified in the PollInterval attribute of the GovTalk header of the SUBMISSION_ACKNOWLEDGEMENT message. Then checks the progress of the submission using the SUBMISSION_POLL message.
6	The Transaction Engine has now processed the message so replies with a SUBMISSION_RESPONSE message to indicate to the client application that it has finished processing the document.
7	Having received a SUBMISSION_RESPONSE the client application must delete the copy of the response stored on the Transaction Engine by submitting a DELETE_REQUEST message to the Transaction Engine.
8	The Transaction Engine responds to let the client application know that the message (and all associated resources) have been deleted with a DELETE_RESPONSE.
9	Although not necessary in this scenario, a client can issue a DATA_REQUEST to see the current status of any submissions sent the Transaction Engine.
10	The Transaction Engine responds with a list of submission and their current state with a DATA_RESPONSE.

Note: A client Portal/application does not necessarily have to process each document sequentially as described above. Instead it could operate in a batch mode; submitting a number of documents over a period of time and then later using:

- DATA_REQUEST to examine the state of these submissions
- SUBMISSION_POLL to retrieve the corresponding response for each submission
- DELETE_REQUEST to delete each submission from the Transaction Engine
- SUBMISSION_REQUEST to resubmit documents with recoverable errors

2.4   End-Points

2.4.1   Transaction Engine Endpoints

Transaction Engine Endpoints (for Document Submission Protocol)
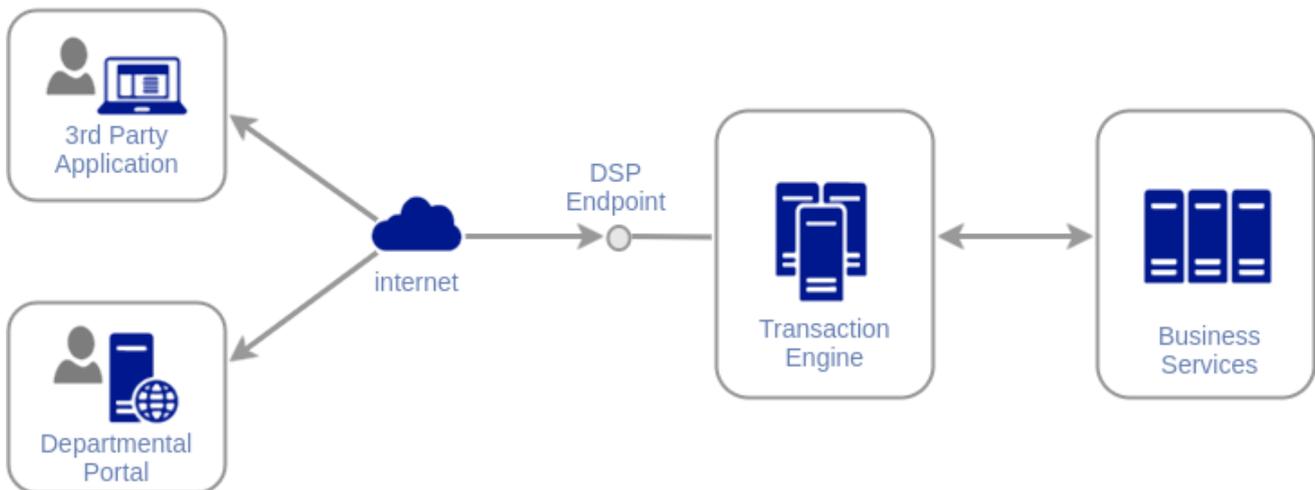
2.4.2   DSP Submission End-Point

For DSP messages issued by Portals / 3rd Party Applications to the Transaction Engine.

- Accessible over the Internet (server-side SSL/TLS connection)
- https://transaction-engine.tax.service.gov.uk/submission
- GovTalk Header
  - Sender authentication information required (*SenderDetails* and *GovTalkDetails/Key* elements) depends on the authentication level setting of the HMRC service
- GovTalk *EnvelopeVersion* is 1.0 or 2.0

3. Client Message Definitions

3.1 Messages exchanged between the Client Application and the Transaction Engine

The protocol makes extensive use of the envelope portion of the GovTalk schema (available on request from HMRC). Each document submitted to the Transaction Engine must include a Qualifier element immediately after the Class element. Together these two elements denote the message type.

Messages issued by the client application:

- SUBMISSION_REQUEST (Section 3.2)
- SUBMISSION_POLL (Section 3.4)
- DELETE_REQUEST (Section 3.7)
- DATA_REQUEST (Section 3.9)

Messages issued by the Transaction Engine:

- SUBMISSION_ACKNOWLEDGEMENT (Section3.3)
- SUBMISSION_ERROR (Section 3.5) – error detected in message received from the Client
  SUBMISSION_RESPONSE/ERROR (Section 3.6) – business response/error from HMRC
- DELETE_RESPONSE (Section 3.8)
- DATA_RESPONSE (Section 3.10)

When submitting any message type to the Transaction Engine it is the responsibility of the issuer (i.e. the Portal's or ISV application) to ensure each message conforms to the relevant syntactical rules for that particular type of message.

3.2   SUBMISSION_REQUEST

3.2.1   Message Source/Destination

Portal/Client application to the Transaction Engine

3.2.2   Processing

The SUBMISSION_REQUEST message is the initial message sent between the client application and the Transaction Engine.

This message contains the document for the HMRC back-end system in the GovTalkMessage Body. This payload in the body is opaque to the Transaction Engine and is associated with an appropriate XML namespace. The document contained within the Body element must include a single root XML node which wraps the data.

Whether the *SenderDetails* is required in the message depends on the HMRC service's **Authentication Level** (configured in the Transaction Engine) which is the minimum authentication credential an entity must have to use the service. This value is used by the Transaction Engine to determine the checking/authentication to be performed:

- **Level 1**: *SenderDetails* User ID/password is authenticated. The enrolment (identified by *Keys*) can be access either by a client enrolled in the service or an agent authorised to use the enrolment.

3.2.3   Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0**, or to **1.0** for backward compatibility.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document contained within the Body.
Qualifier	MANDATORY. Set to **request**.
Function	MANDATORY. Set to **submit**.
TransactionID	OPTIONAL. If present must conform to the XSD pattern defined in the GovTalk envelope specification (**[0-9A-F]{0,32}**). This value will be reflected in the SUBMISSION_ERROR or SUBMISSION_RESPONSE message back to the Portal/client application. It is recommended this value maintains uniqueness to assist the client (i.e. Portal or client application) with interpreting a

		response from the Transaction Engine.
AuditID		OPTIONAL. If present must conform to the XSD pattern defined in the GovTalk envelope specification (**[0-9A-F]{0,32}**). The TransactionEngine forwards this value on to the HMRC.
CorrelationID		MANDATORY. Element must be empty.
ResponseEndPoint		OPTIONAL. It is recommended that this element is not present. If present it should be empty.
Transformation		MANDATORY. Set to **XML**.
GatewayTest (section 6)		OPTIONAL. For live submissions, where element is present, it must be set to 0. For External Test Service, where element is present it must be set to 1.
GatewayTimestamp		OPTIONAL. Element must be empty.
SenderDetails		OPTIONAL. Either a **username / password** authentication block (as described below) will be included. This is the credentials of the client initiating the business message.
	EmailAddress	OPTIONAL. This allows a client to specify a SMTP notification address for the current submission. If element is omitted (or included, but left empty) then the user's email address registered with their credentials will be used.
For **username / password** authentication the following elements must be set within the SenderDetails/IDAuthentication block:		
SenderID		MANDATORY. Set to the user ID of the sender
Method		MANDATORY. Set to **clear**.
Value		MANDATORY. The Value must contain a clear text password.
GovTalkDetails		MANDATORY.
Keys		MANDATORY.
Key		OPTIONAL. Must contain the appropriate Key element/attribute entries that identify the enrolment the entity has for the document type being submitted.
TargetDetails		OPTIONAL. It is recommended that this should not be present.
Organisation		OPTIONAL. If present must be populated with a string between 1 and 64 characters in length.
GatewayValidation		OPTIONAL. It is recommended that this element is not present. **Note**: The subordinate fields of this element are not currently used by the submission protocol.
ChannelRouting		OPTIONAL. This element and any valid subordinates may be present. Application vendors may use this element and its subordinates to communicate details of their application name and version together with any specific transaction ID values for this submission.

	Note: The subordinate fields of this element are not currently used by the submission protocol but it is recommended they are populated.
GovTalkErrors	OPTIONAL. It is recommended that this element is not present.
GatewayAdditions	OPTIONAL. Element should be empty.
Body	OPTIONAL. Should contain a valid document for the specified transaction type. The document contained within this element must have a single root node associated with a default namespace other than http://www.govtalk.gov.uk/CM/envelope and must be particular to the submitted document type.

3.2.4   Samples

The mandatory elements within the following sample submission request are shown in bold while optional elements appear in normal type.

```xml
<?xml version="1.0"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>request</Qualifier>
   <Function>submit</Function>
   <TransactionID></TransactionID>
   <CorrelationID></CorrelationID>
   <Transformation>XML</Transformation>
   <GatewayTimestamp></GatewayTimestamp>
  </MessageDetails>
  <SenderDetails>
   <IDAuthentication>
    <SenderID>user</SenderID>
    <Authentication>
     <Method>clear</Method>
     <Value>password</Value>
    </Authentication>
   </IDAuthentication>
   <EmailAddress>someone@somewhere.com</EmailAddress>
  </SenderDetails>
 </Header>
 <GovTalkDetails>
  <Keys>
   <Key Type="UTR">1234567890</Key>
  </Keys>
  <ChannelRouting>
   <Channel>
    <URI>6000</URI>
    <Product>My SA Product</Product>
```

```
      <Version>1.1</Version>
    </Channel>
  </ChannelRouting>
</GovTalkDetails>
<Body>
  <IRenvelope xmlns="http://www.govtalk.gov.uk/taxation/SA/SA100/15-16/1">
  …
  </IRenvelope>
</Body>
</GovTalkMessage>
```

3.3 SUBMISSION_ACKNOWLEDGMENT

3.3.1 Message Source/Destination

Transaction Engine to Portal/Client application

3.3.2 Processing

The SUBMISSION_ACKNOWLEDGEMENT message is returned from the Transaction Engine in response to a SUBMISSION_REQUEST and then subsequent SUBMISSION_POLL messages (until a SUBMISSON_RESPONSE or SUBMISSION_ERROR) is returned. The *CorrelationID* returned is used in the SUBMISSION_POLL message to identify the submission the client is interested in.

3.3.3 Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** to mirror the *EnvelopeVersion* value in request (i.e. SUBMISSION_REQUEST or the associated SUBMISSION_POLL)
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document contained within the Body of the originating submission.
Qualifier	MANDATORY. Set to **acknowledgment**.
Function	MANDATORY. Set to **submit**.
TransactionID	OPTIONAL. If a *TransactionID* value was provided in either a SUBMISSION_POLL it will be returned.
CorrelationID	MANDATORY. This element will contain a hexadecimal number encoded as an upper case text string of 32 characters in length (**[0-9A-F]{0,32}** This will be used with the next SUBMISSION_POLL message.
ResponseEndPoint	MANDATORY. Contains a valid HTTP end point address. The *PollInterval* attribute will be set to an integer value. The Portal/client application should issue follow-on SUBMISSION_POLL messages to this end-point after the recommended delay (in seconds) specified by the value in the *PollInterval* attribute.

	Note: The *PollInterval* is based on the average response time for document submissions of this class.
GatewayTimestamp	MANDATORY. Contains the time the message was generated.
SenderDetails	MANDATORY. Element will be empty
GovTalkDetails	MANDATORY.
Keys	MANDATORY. *Key* elements will not be present.
Body	MANDATORY. Element will be empty.

3.3.4   Samples

The mandatory elements within the following sample submission acknowledgement are shown in bold while optional elements appear in normal type.

```xml
<?xml version="1.0"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>acknowledgement</Qualifier>
   <Function>submit</Function>
   <TransactionID></TransactionID>
   <CorrelationID>46DCD4CC7E194088B99857931C185829</CorrelationID>
   <ResponseEndPoint PollInterval="10"></ResponseEndPoint>
   <GatewayTimestamp>2017-02-13T09:28:14.772</GatewayTimestamp>
  </MessageDetails>
  <SenderDetails/>
 </Header>
 <GovTalkDetails>
  <Keys/>
 </GovTalkDetails>
 <Body/>
</GovTalkMessage>
```

3.4   SUBMISSION_POLL

3.4.1   Message Source/Destination

Portal/Client Application to Transaction Engine

3.4.2   Processing

The SUBMISSION_POLL message is sent to the URL destination specified in the preceding SUBMISSION_ACKNOWLEDGEMENT message. The client can issue the SUBMISSION_POLL message after the recommended delay which is equal to at least the value in the *PollInterval* attribute supplied in the SUBMISSION_ACKNOWLEDGEMENT message.

The *CorrelationID* uniquely identifies the client.

The Class must match the Class value that was originally provided in the SUBMISSION_REQUEST which returned the *CorrelationID*. When performing a SUBMISSION_POLL The Transaction Engine checks if the given Class matches that stored in the Transaction Engine corresponding to the associated *CorrelationID*. If no match is found an error is raised.

3.4.3   Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** for backward compatibility.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document contained within the Body of the originating submission.
Qualifier	MANDATORY. Set to **poll**.
Function	MANDATORY. Set to **submit**.
TransactionID	OPTIONAL. If present must conform to the XSD pattern defined in the GovTalk envelope specification (**[0-9A-F]{0,32}**). This value is returned by the corresponding SUBMISSION_ACKNOWLEDGEMENT message.
CorrelationID	MANDATORY. Must be set to the value returned by the SUBMISSION_ACKNOWLEDGEMENT.
Transformation	MANDATORY. Set to **XML**.
GatewayTimestamp	OPTIONAL. Element must be empty.
SenderDetails	OPTIONAL. Element should be empty. It is recommended that

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	this element is not present.
GovTalkDetails	MANDATORY.
Keys	MANDATORY. *Key* elements will not be present.
Body	OPTIONAL. Element will be empty.

3.4.4 Samples

The mandatory elements within the following sample submission poll are shown in bold while optional elements appear in normal type.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>poll</Qualifier>
   <Function>submit</Function>
   <CorrelationID>46DCD4CC7E194088B99857931C185829</CorrelationID>
   <Transformation>XML</Transformation>
  </MessageDetails>
 </Header>
 <GovTalkDetails>
  <Keys/>
 </GovTalkDetails>
</GovTalkMessage>
```

3.5   SUBMISSION_ERROR

3.5.1   Message Source/Destination

Transaction Engine to Portal/Client application

3.5.2   Processing

The SUBMISSION_ERROR message can be returned for all client initiated messages.

- SUBMISSION_REQUEST
- SUBMISSION_POLL
- DELETE_REQUEST
- DATA_REQUEST

The *GovTalkErrors* element will describe the error(s). The SUBMISSION_ERROR will only be generated when the client message cannot be processed by the Transaction Engine. This may include syntax checks on the entire *GovTalkMessage*.

This message can be returned by the Transaction Engine for a number of reasons:
- An invalid document is submitted that fails DSP schema/protocol validation
- The Transaction Engine has been disabled for scheduled downtime of a back-end system – an internal error.
- The back-end system does not respond in a timely manner.
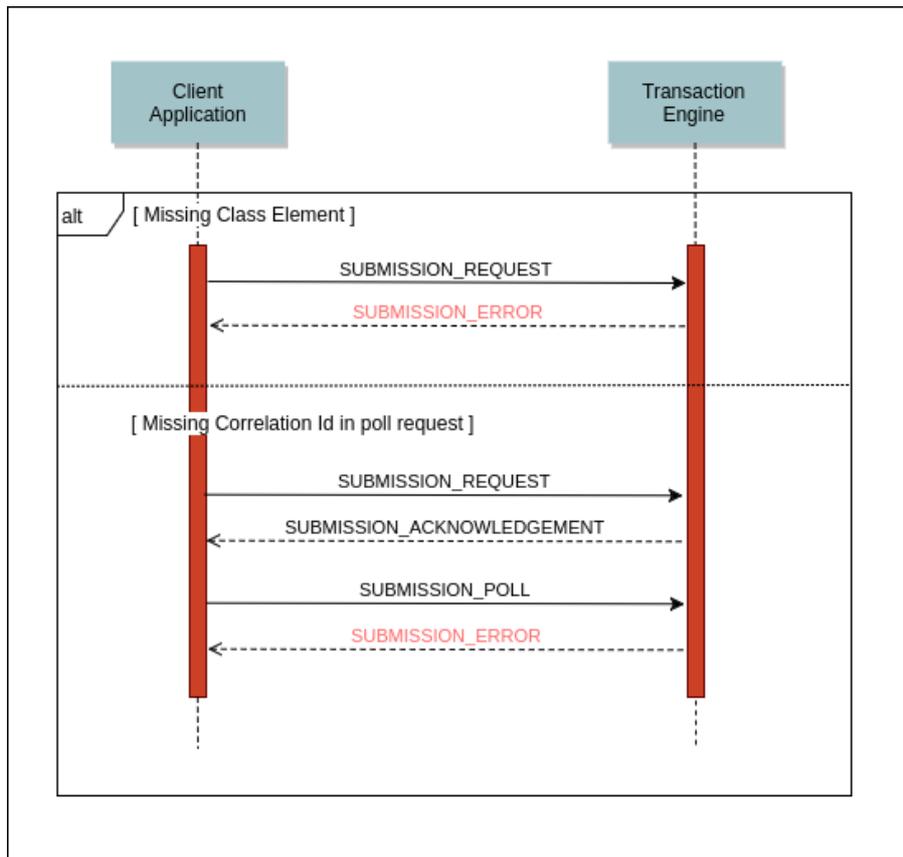
For example, as illustrated, the initial SUBMISSION_REQUEST may be missing the Class element, or a SUBMISSION_POLL may be missing a *CorrelationID*. Either of these errors is classed as fatal since the Transaction Engine does not have sufficient information to process the message. In this case, the Transaction Engine will return a SUBMISSION_ERROR message with an *Error*/*Type* of **fatal**.

The behaviour of the client system depends on the point at which the error occurred. If the error occurred on a SUBMISSION_REQUEST, the client should correct the error and resubmit the message. If it occurs later in the sequence, the client application must continue the sequence using the value of *CorrelationID* from the original SUBMISSION_RESPONSE.

Note: the DATA_REQUEST verb can be used to identify those submission sequences that have not completed successfully.

3.5.3   **Message Structure**

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** to mirror the *EnvelopeVersion* value in client message that failed.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of document for which the

	error is raised. If the error was encountered before this is determined the generic **UndefinedClass** value will be returned.
Qualifier	MANDATORY. Set to **error**.
Function	MANDATORY. Set to **submit**.
TransactionID	MANDATORY. If the client SUBMISSION_REQUEST supplied a TransactionID it will be returned in this element.
CorrelationID	MANDATORY. Depends on the message that caused the error: • For SUBMISSION_REQUEST – Provided by the Transaction Engine • For SUBMISSION_POLL – This would normally be the value provided in the previous SUBMISSION_ACKNOWLEDGE • For DELETE_REQUEST - This would normally be the value provided in the associated SUBMISSION_RESPONSE • For DATA_REQUEST - Provided by the Transaction Engine
ResponseEndPoint	MANDATORY. Contains a valid HTTP end point address. The *PollInterval* attribute will be set to an integer value. The Portal/client application can issue follow-on messages to this end-point after the recommended delay (in seconds) which is indicated by the value in the *PollInterval* attribute.
GatewayTimestamp	MANDATORY. Contains the time the message was generated.
SenderDetails	MANDATORY. Element will be empty
GovTalkDetails	MANDATORY.
Keys	MANDATORY. *Key* elements will not be present.
GovTalkErrors	MANDATORY. Can include multiple *Error* elements.
Error/RaisedBy	MANDATORY. Set to **Gateway** for backward compatibility.
Error/Number	MANDATORY. Contains a published error code value.
Error/Type	MANDATORY. Set to **fatal**.
Error/Text	MANDATORY. Contains additional information which should be of assistance in correcting the problem.
Error/Location	MANDATORY. Contains location related information – can be empty.
Body	MANDATORY. Element will be empty.

3.5.4   Samples

The mandatory elements within the following sample submission error are shown in bold while optional elements appear in normal type.

```xml
<?xml version="1.0"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>error</Qualifier>
   <Function>submit</Function>
   <TransactionID></TransactionID>
   <CorrelationID>46DCD4CC7E194088B99857931C185829</CorrelationID>
   <ResponseEndPoint PollInterval="10"></ResponseEndPoint PollInterval>
   <GatewayTimestamp>2017-02-13T09:28:14.772</GatewayTimestamp>
  </MessageDetails>
  <SenderDetails />
 </Header>
 <GovTalkDetails>
  <Keys />
  <GovTalkErrors>
   <Error>
    <RaisedBy>Gateway</RaisedBy>
    <Number>1020</Number>
    <Type>fatal</Type>
    <Text>A meaningful description of the error</Text>
    <Location></Location>
   </Error>
  </GovTalkErrors>
 </GovTalkDetails>
 <Body />
</GovTalkMessage>
```

3.6   SUBMISSION_RESPONSE / ERROR

Once the Department has processed the client SUBMISSION_REQUEST it will respond to the Transaction Engine with either a:

- Business Response (Section 3.6.1)
- Error Response (Section 3.6.2)

This response is forwarded on to the client.

This message may include a GovTalkMessage Body payload returned from the back-end system. This payload is opaque to the Transaction Engine and will be associated with an appropriate XML namespace. The document contained within the Body element must therefore include a single root XML node which wraps the returned data.

3.6.1   Business Response

3.6.1.1 Message Source/Destination

Transaction Engine to Portal/Client application

3.6.1.2 Processing

Once the Transaction Engine has received the response corresponding to the original SUBMISSION_REQUEST message back from the Department back-end system, the Transaction Engine will respond to the next SUBMISSION_POLL message, containing the matching *CorrelationID*, with the appropriate SUBMISSION_RESPONSE message.

This message may include a *GovTalkMessage* Body payload returned from the back-end system. This payload is opaque to the Transaction Engine and will be associated with an appropriate XML namespace. The document contained within the Body element must therefore include a single root XML node which wraps the returned data.

The client may request the response document more than once by issuing additional SUBMISSION_POLL messages before finally deleting the response with a DELETE_REQUEST message. This would be necessary, for example, if the client encountered a transmission error during the previous SUBMISSION_POLL and received an HTTP error.

Note: The elements in the message are mostly populated from the Business Response received from the Department.

3.6.1.3 Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** to mirror the *EnvelopeVersion* value in the associated SUBMISSION_POLL.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document contained within the Body of the originating submission – supplied in the SUBMISSION_REQUEST.
Qualifier	MANDATORY. Set to **response**.
Function	MANDATORY. Set to **submit**.
TransactionID	MANDATORY. If the SUBMISSION_REQUEST supplied a *TransactionID* it will be returned in this element. Otherwise element will be empty.
CorrelationID	MANDATORY. Populated with *CorrelationID* associated with original submission (i.e. returned in the SUBMISSION_ACKNOWLEDGMENT). This value is used in the DELETE_REQUEST message.
ResponseEndPoint	MANDATORY. Contains a valid HTTP end point address. The *PollInterval* attribute will be set to an integer value. The Portal/client application can issue follow-on messages (e.g. DELETE_REQUEST or DATA_REQUEST) to this end-point.
Transformation	MANDATORY. Set to **XML**.
GatewayTimestamp	MANDATORY. Contains the time the message was generated.
SenderDetails	MANDATORY. Element will be empty
GovTalkDetails	MANDATORY.
Keys	MANDATORY. *Key* elements will not be present.
TargetDetails	OPTIONAL.
Organisation	OPTIONAL. Populated with the *Organisation* element in the business response message returned from HMRC. If present it will contain a string between 1 and 64 characters in length.
GatewayValidation	OPTIONAL. Populated with the GatewayValidation element/sub-elements in the business response message returned from HMRC.
Body	MANDATORY. The Body element may be empty or contain a valid business document returned from the back-end system. If

	a document is included it must have a single root node associated with another namespace specific to the submitted document type

3.6.1.4 Samples

The mandatory elements within the following sample submission business response are shown in bold while optional elements appear in normal type.

```xml
<?xml version="1.0"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class> HMRC-SA-SA100</Class>
   <Qualifier>response</Qualifier>
   <Function>submit</Function>
   <TransactionID></TransactionID>
   <CorrelationID>46DCD4CC7E194088B99857931C185829</CorrelationID>
   <ResponseEndPoint PollInterval="10"></ResponseEndPoint>
   <Transformation>XML</Transformation>
   <GatewayTimestamp>2017-02-13T09:28:14.772</GatewayTimestamp>
  </MessageDetails>
  <SenderDetails />
 </Header>
 <GovTalkDetails>
  <Keys />
 </GovTalkDetails>
 <Body>
  <!-- A valid Body payload with a namespace declaration on the first element -->
  <SuccessResponse xmlns="http://www.inlandrevenue.gov.uk/SuccessResponse">
  …
  </SuccessResponse>
 </Body>
</GovTalkMessage>
```

3.6.2   Business Error Response

3.6.2.1 Message Source/Destination

Transaction Engine to Portal/Client application

3.6.2.2 Processing

A Business Response Error occurs when a document submitted to the Transaction Engine passes all schema/protocol validation performed by the Transaction Engine and then, when forwarded to the Department, is rejected because it does not conform to the business logic required by the back-end system – typically as a result of inconsistent data values provided in the XML elements in the Body.
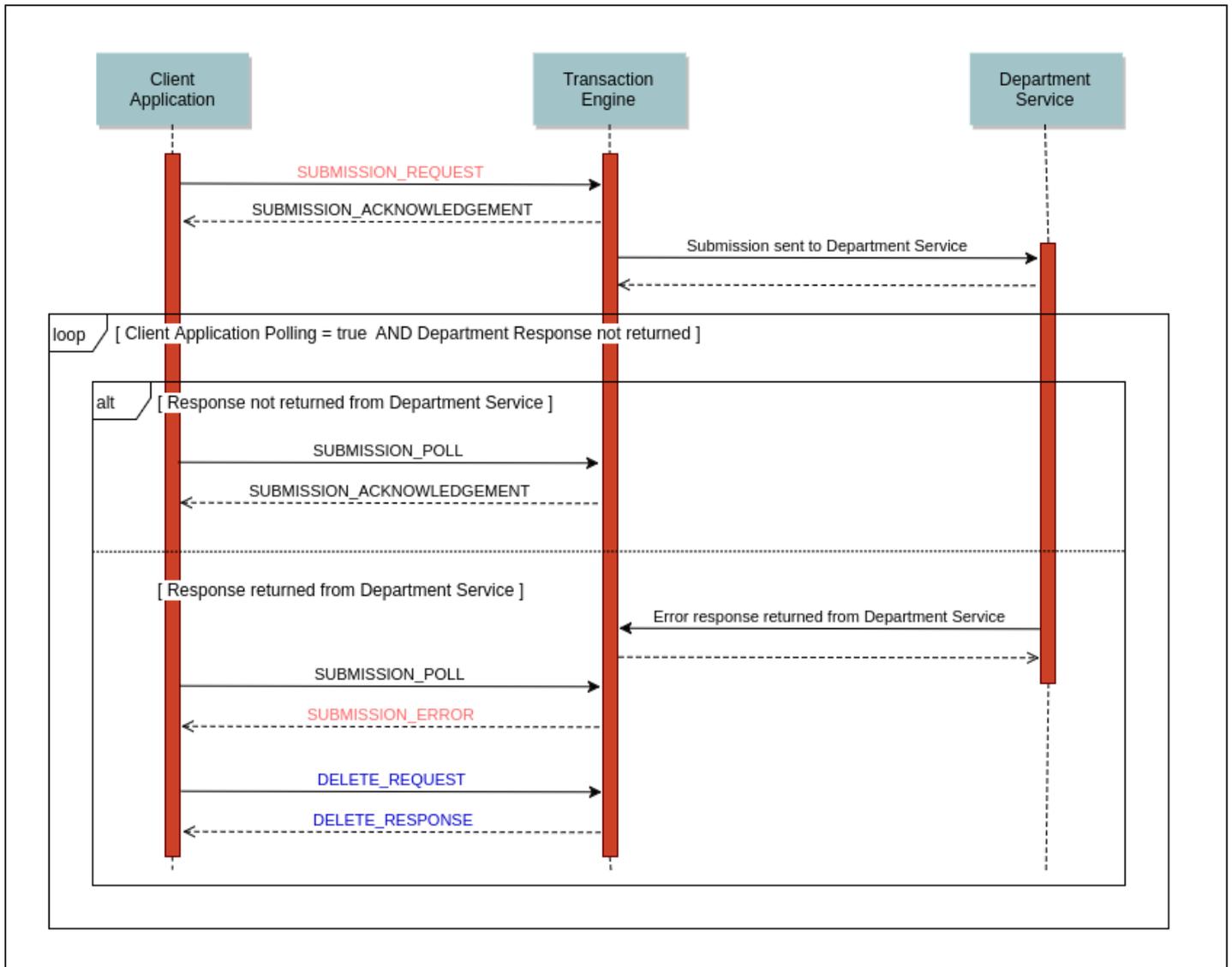
As illustrated, the Transaction Engine returns a Business Response Error message (with an *Error*/*Type* of **business** or **fatal**) to the client. The client must continue with the protocol sequence until a DELETE_RESPONSE has been received. The client should correct the error and re-submit as a new transaction.

Note: The elements in the message are mostly populated from the Business Error Response received from the Department.

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3.6.2.3 Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** to mirror the *EnvelopeVersion* value in the associated SUBMISSION_POLL.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document contained within the Body of the originating submission – supplied in the SUBMISSION_REQUEST.
Qualifier	MANDATORY. Set to **error**.
Function	MANDATORY. Set to **submit**.
TransactionID	MANDATORY. If the SUBMISSION_REQUEST supplied a *TransactionID* it will be returned in this element. Otherwise element will be empty.
CorrelationID	MANDATORY. Populated with *CorrelationID* associated with original submission (i.e. returned in the SUBMISSION_ACKNOWLEDGMENT). This value is used in the DELETE_REQUEST message.
ResponseEndPoint	MANDATORY. Contains a valid HTTP end point address. The *PollInterval* attribute will be set to an integer value. The Portal/client application can issue follow-on messages (e.g. DELETE_REQUEST or DATA_REQUEST) to this end-point.
Transformation	MANDATORY. Set to **XML**.
GatewayTimestamp	MANDATORY. Contains the time the message was generated.
SenderDetails	MANDATORY. Element will be empty
GovTalkDetails	MANDATORY.
Keys	MANDATORY. *Key* elements will not be present.
TargetDetails	OPTIONAL.
Organisation	OPTIONAL. Populated with the *Organisation* element in the business response message returned from HMRC. If present it will contain a string between 1 and 64 characters in length.
GatewayValidation	OPTIONAL. Populated with the GatewayValidation element/sub-elements in the business response message returned from HMRC.
ChannelRouting	OPTIONAL. Populated with the ChannelRouting element/sub-elements in the business response message returned from HMRC.

		HMRC use this element and its sub-ordinates to communicate details of their application name and version together with any specific transaction ID values for this submission.
GovTalkErrors		MANDATORY. Can include multiple *Error* elements.
	Error/RaisedBy	MANDATORY. Set to **department**.
	Error/Number	MANDATORY. This should be set to the value associated with the *Error/Type* (i.e. **3000** or **3001**).
	Error/Type	MANDATORY. Set to **fatal** (for 3000) or **business** (for 3001).
	Error/Text	OPTIONAL. Contains additional information which should be of assistance in correcting the problem.
	Error/Location	OPTIONAL. Contains location related information.
Body		MANDATORY. For **business** *Error/Type* the Body can contain detailed department specific error information. This structure of this data conforms to the Error-Response schema (Section 5). This data is transparent to the Transaction Engine.

3.6.2.4 Samples

The mandatory elements within the following sample business error response are shown in bold while optional elements appear in normal type.

```xml
<?xml version='1.0' encoding='UTF-8'?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>error</Qualifier>
   <Function>submit</Function>
   <TransactionID></ TransactionID>
   <CorrelationID>46DCD4CC7E194088B99857931C185829</CorrelationID>
   <ResponseEndPoint PollInterval="10"></ResponseEndPoint>
   <Transformation>XML</Transformation>
   <GatewayTimestamp>2017-02-15T16:05:56.523</GatewayTimestamp>
  </MessageDetails>
  <SenderDetails />
 </Header>
 <GovTalkDetails>
  <Keys />
```

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```xml
  <GovTalkErrors>
   <Error>
    <RaisedBy>Department</RaisedBy>
    <Number>3001</Number>
    <Type>business</Type>
    <Text>The submission of this document has failed due to departmental specific business logic in the Body tag.</Text>
   </Error>
  </GovTalkErrors>
 </GovTalkDetails>
 <Body>
  <ErrorResponse xmlns= SchemaVersion="2.0">
   <Application>
    <MessageCount>1</MessageCount>
   </Application>
   <Error>
    <RaisedBy>System</RaisedBy>
    <Number>5005</Number>
    <Type>business</Type>
    <Text>Keys in the GovTalkDetails do not match those in the IRheader.</Text>
    <Location>/hd:GovTalkMessage[1]/hd:Body[1]/MTR:IRenvelope[1]/MTR:IRheader[1]/MTR:Keys[1]/MTR:Key[1]</Location>
   </Error>
   <!-- There may be many errors, not just a single error. -->
  </ErrorResponse>
 </Body>
</GovTalkMessage>
```

3.7 DELETE_REQUEST

3.7.1 Message Source/Destination

Portal/Client application to the Transaction Engine

3.7.2 Processing

This message should be sent by the client to the Transaction Engine:

- To signify it has processed a Business response message it obtained (by polling) from the Transaction Engine. If the DELETE_REQUEST message is not sent the Transaction Engine will automatically delete the resources related to the *CorrelationID* within 60 days.
- To signify it has processed a Business Error response message it obtained (by polling) from the Transaction Engine. If the DELETE_REQUEST message is not sent the Transaction Engine will automatically delete the resources related to the *CorrelationID* within 30 days.

The *CorrelationID* specifies the message to be deleted from the Transaction Engine. The Class must match the Class value that was obtained in the Business/Business Error response (or SUBMISSION_ERROR that returned the *CorrelationID*). When performing a DELETE_REQUEST the Transaction Engine checks if the given Class matches that stored in the Transaction Engine for that particular *correlationID* – if no match is found an error will be returned.

In response to the DELETE_REQUEST message, the Transaction Engine can return either a DELETE_RESPONSE or a SUBMISSION_ERROR message. If the client receives a SUBMISSION_ERROR message it must process any standard errors in the normal way and then reissue the DELETE_REQUEST message. If the error indicates the *CorrelationID* cannot be found (typically error code 2000) then the client can cease sending the DELETE_REQUEST message.

Note: If the client issues a DELETE_REQUEST message before a Business/Business Error response or SUBMISSION_RESPONSE has been returned from the Transaction Engine the resources associated with the transaction on the Transaction Engine will be removed. This will not prevent the original submission from being sent to the backend system – there are no associated recall semantics. If the client issues this request the implication is that the client no longer wishes to progress the submission via the Transaction Engine and will reconcile the transaction through some other means.

3.7.3 Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** for backward compatibility.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document to be

		deleted from the Transaction Engine.
	Qualifier	MANDATORY. Set to **request**.
	Function	MANDATORY. Set to **delete**.
	TransactionID	OPTIONAL. Must conform to the XSD pattern defined in the GovTalk envelope specification (**[0-9A-F]{0,32}**).
		It is recommended that it should be set to the value present in the SUBMISSION_RESPONSE.
		This value will be returned in the subsequent DELETE_RESPONSE.
	CorrelationID	MANDATORY. Must be set to the value returned by the associated SUBMISSION_RESPONSE.
	Transformation	MANDATORY. Set to XML.
	GatewayTest (Section 6)	OPTIONAL. For live submissions, where element is present, it must be set to 0. For External Test Service, where element is present it must be set to 1.
	GatewayTimestamp	OPTIONAL. Element will be empty
SenderDetails		OPTIONAL. Element will be empty
GovTalkDetails		OPTIONAL.
	Keys	OPTIONAL. *If Key elements are present they will be ignored.*
Body		OPTIONAL. Element should be empty.

3.7.4   Samples

The mandatory elements within the following sample delete request are shown in bold while optional elements appear in normal type.

```xml
<?xml version="1.0"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>request</Qualifier>
   <Function>delete</Function>
   <CorrelationID>46DCD4CC7E194088B99857931C185829</CorrelationID>
   <Transformation>XML</Transformation>
  </MessageDetails>
  <SenderDetails/>
 </Header>
 <GovTalkDetails>
  <Keys/>
 </GovTalkDetails>
 <Body/>
```

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```
</GovTalkMessage>
```

3.8   DELETE_RESPONSE

3.8.1   Message Source/Destination

Transaction Engine to Portal/Client application

3.8.2   Processing

This message will be returned by the Transaction Engine in response to the DELETE_REQUEST message from the client application once all the resources relating to a CorrelationID have been successfully deleted.

3.8.3   Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** to mirror the *EnvelopeVersion* value in the associated DELETE_REQUEST.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document deleted from the Transaction Engine – supplied in the DELETE_REQUEST.
Qualifier	MANDATORY. Set to **response**.
Function	MANDATORY. Set to **delete**.
TransactionID	MANDATORY. If the DELETE_REQUEST supplied a *TransactionID* it will be returned in this element.
CorrelationID	MANDATORY. Populated with the value from the DELETE_REQUEST.
ResponseEndPoint	MANDATORY. Contains a valid HTTP end point address. The *PollInterval* attribute will be set to an integer value. Note: This element and its value has no significance here and should be ignored
GatewayTimestamp	MANDATORY. Contains the time the message was generated.
SenderDetails	MANDATORY. Element will be empty
GovTalkDetails	MANDATORY.
Keys	MANDATORY. *Key* elements will not be present.
Body	MANDATORY. Element will be empty.

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3.8.4 Samples

The mandatory elements within the following sample submission delete response are shown in bold while optional elements appear in normal type.

```xml
<?xml version="1.0"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>response</Qualifier>
   <Function>delete</Function>
   <TransactionID></TransactionID>
   <CorrelationID>291466B985C443AC90D6CA705DCA113F</CorrelationID>
   <ResponseEndPoint PollInterval="10"></ResponseEndPoint>
   <GatewayTimestamp>2017-02-13T09:33:31.256</GatewayTimestamp>
  </MessageDetails>
  <SenderDetails/>
 </Header>
 <GovTalkDetails>
  <Keys/>
 </GovTalkDetails>
 <Body></Body>
</GovTalkMessage>
```

3.9   DATA_REQUEST

3.9.1   Message Source/Destination

Portal/Client application to the Transaction Engine

3.9.2   Processing

The DATA_REQUEST message enables a client to request the details of the document submissions that the Transaction Engine is currently handling for them. The Class of the document filters the returned list of CorrelationIDs to that type of document. The client can also indicate date/time ranges to further narrow the search.

The client may send a DATA_REQUEST message if it has not received a reply from the Transaction Engine after the PollInterval timeout value supplied on the previous Transaction Engine message (SUBMISSION_ACKNOWLEDGEMENT, SUBMISSION_RESPONSE or ERROR_RESPONSE) has expired.

The DATA_REQUEST message must be authenticated, and therefore requires the same credentials to be presented by the Portal/client application as were used when submitting the original document.

The DATA_RESPONSE message returned from the Transaction Engine will list the documents that matched the criteria in the DATA_REQUEST. The client can therefore determine if the submitted document is being handled by the Transaction Engine by virtue of the fact that the document appears in the DATA_RESPONSE. Documents that have been deleted from the Transaction Engine will not appear in the DATA_RESPONSE. The client should act promptly on documents if concerned about their status - for example the Transaction Engine will remove:

- Successful Business responses received from the Department after 60 days
- Business Error responses received from the Department after 30 days

The results set, if any, produced by a DATA_REQUEST will be contained in the body elements of a DATA_RESPONSE message.

3.9.3   Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** for backward compatibility.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document being queried. This class filters the returned list of CorrelationIDs currently being handled by the Transaction Engine.

Qualifier	MANDATORY. Set to **request**.
Function	MANDATORY. Set to **list**.
TransactionID	OPTIONAL. If present must conform to the XSD pattern defined in the GovTalk envelope specification (**[0-9A-F]{0,32}**). This value will be reflected in the DATA_RESPONSE message. It is recommended this value maintains uniqueness to assist the client with interpreting a response from the Transaction Engine.
CorrelationID	MANDATORY. Element must be empty.
Transformation	MANDATORY. Set to **XML**.
GatewayTest (Section 6)	OPTIONAL. For live submissions, where element is present, it must be set to 0. For External Test Service, where element is present it must be set to 1.
GatewayTimestamp	OPTIONAL. Element must be empty.
SenderDetails	MANDATORY. Element will be empty
For **username / password** authentication the following elements must be set within the SenderDetails/IDAuthentication block:	
SenderID	MANDATORY. Set to supplied client account name
Method	MANDATORY. Set to **clear**.
Value	MANDATORY. The Value must contain a clear text password.
GovTalkDetails	MANDATORY.
Keys	MANDATORY. Any *Key* elements will be ignored.
GovTalkErrors	OPTIONAL. It is recommended that this element is not present.
Body	OPTIONAL. May be populated with any Date/Time constraints for the query and whether to return identifier information. **Note**: If Body element is not included all document submissions for the specified class will be returned.
StatusRequest	OPTIONAL. If included, this element can (but does not need to) be scoped by a different namespace; urn:gateway/statusrequest. **Note**: If this element is not included the subordinate elements below can still be included directly in the Body (see 3.9.4).
IncludeIdentifiers	OPTIONAL. If included must have a value of 0 or 1. If set to a value of 1 the DATA_RESPONSE message will return identifier information for outstanding submissions. If set to a value of 0 the DATA_RESPONSE message will NOT return identifier information for outstanding submissions. **Note**: For backward compatibility this element can be omitted and identifier information will NOT be returned.

	StartDate	OPTIONAL. Set to a valid date, of the format dd/mm/yyyy.
	StartTime	OPTIONAL. Set to a valid time, of the format hh:mm:ss. If this element is used a valid StartDate must also be set.
	EndDate	OPTIONAL. Set to a valid date, of the format dd/mm/yyyy. If this element is used a valid StartDate must also be set which must be earlier than or the same as the value in EndDate.
	EndTime	OPTIONAL. Set to a valid time of the format hh:mm:ss. If this element is used a valid EndDate must also be set. If the same start and end date are used this time must be later than the start time.

3.9.4   Samples

The mandatory elements within the following sample data request are shown in bold while optional elements appear in normal type.

```xml
<?xml version="1.0"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>request</Qualifier>
   <Function>list</Function>
   <CorrelationID/>
   <Transformation>XML</Transformation>
  </MessageDetails>
  <SenderDetails>
   <IDAuthentication>
    <SenderID>user</SenderID>
    <Authentication>
     <Method>clear</Method>
     <Value> password</Value>
    </Authentication>
   </IDAuthentication>
  </SenderDetails>
 </Header>
 <GovTalkDetails>
  <Keys/>
 </GovTalkDetails>
 <Body>
  <IncludeIdentifiers>1</IncludeIdentifiers>
  <StartDate>27/11/2016</StartDate>
  <StartTime>13:00:00</StartTime>
  <EndDate>28/11/2016</EndDate>
  <EndTime>17:00:00</EndTime>
 </Body>
</GovTalkMessage>
```

3.10   DATA_RESPONSE

3.10.1   Message Source/Destination

Transaction Engine to Portal/Client application

3.10.2   Processing

The DATA_RESPONSE message is returned from the Transaction Engine in response to a DATA_REQUEST message from the client.

The results set, if any, produced will be contained in the Body elements of a DATA_RESPONSE message. However, if the response is an error the response message will be in the format of the submission error message described in the SUBMISSION_ERROR.

Note: Documents whose resources have been deleted from the Transaction Engine cannot be seen even if a time window is specified.

3.10.3   Message Structure

GovTalkMessage	MANDATORY. A default namespace specified as "http://www.govtalk.gov.uk/CM/envelope".
EnvelopeVersion	MANDATORY. Set to **2.0** or to **1.0** to mirror the *EnvelopeVersion* value in the associated DATA_REQUEST.
Header	MANDATORY.
MessageDetails	MANDATORY.
Class	MANDATORY. Identifies the class of XML document being queried – supplied in the DATA_REQUEST.
Qualifier	MANDATORY. Set to **response**.
Function	MANDATORY. Set to **list**.
TransactionID	MANDATORY. If the DATA_REQUEST supplied a *TransactionID* it will be returned in this element.
CorrelationID	MANDATORY. Element will be empty.
ResponseEndPoint	MANDATORY. Contains a valid HTTP end point address. The *PollInterval* attribute will be set to an integer value. **Note**: This element and its value has no significance here and should be ignored
GatewayTimestamp	MANDATORY. Contains the time the message was generated.

SenderDetails	MANDATORY. Element will be empty
GovTalkDetails	MANDATORY.
Keys	MANDATORY. *Key* elements will not be present.
Body	MANDATORY. Element will be empty.
StatusReport	MANDATORY. Header element for report results
SenderID	MANDATORY. Can be empty
StartTimeStamp	MANDATORY. Starting date and time for report. Can be empty.
EndTimeStamp	MANDATORY. End date and time for report. Can be empty.
StatusRecord	OPTIONAL. Detailed results. Included if any results are returned. Each Status Record includes the following 5 elements.
TimeStamp	MANDATORY. Date and time when the message was originally received.
CorrelationID	MANDATORY. CorrelationID for message upon which reported status change occurred.
TransactionID	MANDATORY. TransactionID if supplied in SUBMISSION_REQUEST message. Otherwise it is empty.
Identifiers	OPTIONAL. This element is present if the *IncludeIdentifiers* element in the DATA_REQUEST message has a value of **1**. This Identifiers element includes one or more Identifier sub-elements. **Note**: For backward compatibility, if the *IncludeIdentifiers* element is not included in the DATA_REQUEST message, or has a value of **0**, this element will not be present.
Status	MANDATORY. Latest status change recorded for a given message. Will be one of the following: • SUBMISSION_ACKNOWLEDGE (the document has been acknowledged by the Transaction Engine and is awaiting processing by the Government Department) • SUBMISSION_ERROR (the document was submitted and found to be in error) • SUBMISSION_RESPONSE (the document has completed processing and is awaiting client SUBMISSION_POLL/DELETE_REQUEST)

3.10.4   Samples

The mandatory elements within the following sample submission data response are shown in bold while optional elements appear in normal type.

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```xml
<?xml version="1.0"?>
<GovTalkMessage xmlns="http://www.govtalk.gov.uk/CM/envelope">
 <EnvelopeVersion>2.0</EnvelopeVersion>
 <Header>
  <MessageDetails>
   <Class>HMRC-SA-SA100</Class>
   <Qualifier>response</Qualifier>
   <Function>list</Function>
   <TransactionID></TransactionID>
   <CorrelationID></CorrelationID>
   <ResponseEndPoint PollInterval="10"></ResponseEndPoint>
   <GatewayTimestamp>2017-02-13T09:32:25.147</GatewayTimestamp>
  </MessageDetails>
  <SenderDetails/>
 </Header>
 <GovTalkDetails>
  <Keys/>
 </GovTalkDetails>
 <Body>
  <StatusReport>
   <SenderID />
   <StartTimeStamp>27/01/2017 13:00:00</StartTimeStamp>
   <EndTimeStamp>28/11/2017 17:00:00</EndTimeStamp>
   <StatusRecord>
    <TimeStamp>30/01/2017 10:58:46</TimeStamp>
    <CorrelationID>EDD8B2F6C21E4B5BAD43B3C085144549</CorrelationID>
    <TransactionID />
    <Identifiers>
     <Identifier Type="UTR">1234567890</Identifier>
    </Identifiers>
    <Status>SUBMISSION_RESPONSE</Status>
   </StatusRecord>
   <StatusRecord>
    <TimeStamp>30/01/2017 10:59:09</TimeStamp>
    <CorrelationID>3F051EA3BF8A47A4BB8A3EB37781201E</CorrelationID>
    <TransactionID />
    <Identifiers>
     <Identifier Type="UTR">1234567890</Identifier>
    </Identifiers>
    <Status>SUBMISSION_RESPONSE</Status>
   </StatusRecord>
  </StatusReport>
 </Body>
</GovTalkMessage>
```

APPENDICES

4. Appendix A: Error-Return Codes

4.1   Errors Raised by the Transaction Engine

The actual textural description given by Transaction Engine may include additional verbose information to assist in diagnosing issues.

4.2   Major Errors

Error Code	Description
1000	System failure. The submission of this document has failed due to an internal system error.
1001	The submitted XML document either failed to validate against the GovTalk schema for this class of document or its body was badly formed.

4.3   Errors in Submission

Error Code	Description
1002	Authentication Failure.
1020	The submitted document contains an entry for CorrelationID, which is a reserved system field. This field should be left empty.
1035	The submitted document contains an invalid entry for CorrelationID. If the Function field contains the value **delete**, then the CorrelationID field must be populated.
1038	The submitted document contains an invalid entry for StartDate and/or StartTime. StartDate and StartTime must precede EndDate and/or EndTime.
1039	The submitted document contains an invalid entry for any one of the following fields StartDate, StartTime, EndDate or EndTime.
1040	The submitted document contains an inconsistent value entry for the specified method.
1042	The submitted document does not contain a populated Body
1046	Authentication Failure. The supplied user credentials failed validation for the requested service.
1047	MD5 is not supported, please contact your software supplier.

4.4 Messages Referring to Transaction Engine Services

Error Code	Description
2000	The Transaction Engine could not locate a record for the supplied correlation ID: the submission may have been deleted or the correlation ID may be invalid. If you have not received a response you should resubmit the document.
2001	The document exceeds the maximum permitted size.
2002	The document does not contain the minimum required data.
2005	The Transaction Engine has not received an acknowledgement of your submission from the back-end system within the permitted timescale. Either resubmit or contact the appropriate organisation directly to determine if your submission has been accepted.

4.5 Messages Referring to HMRC Services

Error Code	Description
3000	The processing of your document submission failed. Please re-submit
3001	The submission of this document has failed due to departmental specific business logic in the Body element.

5. Appendix C: Error-Response Schema (Business Errors)

Errors returned in the Body of a **Business Error Response** message use this schema

```xml
<?xml version="1.0"?>
<!-- Developed by Office of the e-Envoy, www.e-envoy.gov.uk. Conforms to
  w3c http://www.w3.org/TR/XMLSchema -->
<xsd:schema targetNamespace="http://www.govtalk.gov.uk/CM/errorresponse"
  xmlns:err="http://www.govtalk.gov.uk/CM/errorresponse"
xmlns:gt="http://www.govtalk.gov.uk/CM/core"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
  attributeFormDefault="unqualified" version="2.0" id="Error-Response">
  <xsd:annotation>
    <xsd:documentation>This schema is used for errors returned by business
      systems. In these circumstances, the header contains a sin element of
      type "business" and the Body contains further information.
    </xsd:documentation>
    <xsd:appinfo>
      <gt:KeyWords>business, error, response</gt:KeyWords>
    </xsd:appinfo>
  </xsd:annotation>
  <xsd:element name="ErrorResponse">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element ref="err:Application" minOccurs="0" />
        <xsd:element name="Error" maxOccurs="unbounded">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="RaisedBy" type="xsd:string" />
              <xsd:element name="Number" type="xsd:integer"
                minOccurs="0" />
              <xsd:element name="Type" type="xsd:string" />
              <xsd:element name="Text" type="xsd:string" minOccurs="0"
                maxOccurs="unbounded" />
              <xsd:element name="Location" type="xsd:string"
                minOccurs="0" />
              <xsd:element ref="err:Application" minOccurs="0" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:sequence>
      <xsd:attribute name="SchemaVersion" use="required" />
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="Application">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:any namespace="##any" processContents="lax" minOccurs="0"
          maxOccurs="unbounded" />
      </xsd:sequence>
      <xsd:anyAttribute namespace="##any" />
    </xsd:complexType>
```

```
    </xsd:element>
</xsd:schema>
```

6. Appendix D: External Test Service

The Transaction Engine provides a test service which allows Independent Software Vendors (ISVs) to test their applications. Support is provided for the DSP protocol – so applications can submit business transaction (business forms)

The test service gives developers the opportunity to test the mechanisms used for communicating with the Transaction Engine before working with the live system. It also allows developers to test that their applications conform to the rules governing the format of messages that can be accepted by the Transaction Engine.

The test service provides sufficient functionality to enable developers to submit documents and receive reports on their progress through the system in the same way as in the live version of the system. The test service is located at https://test-transaction-engine.tax.service.gov.uk/submission.

The Test Service imposes a number of constraints on the client document submissions. In some cases these are not consistent with the live Transaction Engine service:

- Every effort will be made to keep the behaviour of the live Transaction Engine and the Test Service consistent. From time to time minor discrepancies may occur as the result of ongoing maintenance.
- Submissions to the Test Service that include the optional GatewayTest element must have its value set to "1".
- Confirmation emails will not be issued from the External Test Service

7. Appendix E: Glossary

Term	Description
Authentication	The process of validating the credential information (User ID/password).
Authentication Level	Specified for each service (based on HMG Authentication Levels): • Level 1: At lease a User ID/Password is required to access service transactions/forms
Base64 Encoding	Encodes binary values into characters. Each 6-bit value (i.e. 0-63 in decimal) is converted into a character set comprising of a 64character alphabet. This alphabet consisting of alphabet characters (A–Z, a–z), numerals (0–9), and the "+" and "/" symbols.
Content type	Content type will be application/xml.
Correlation ID	A unique identifier assigned by the Transaction Engine. For example a correlation ID is returned in response to a document (form) submission. This can be used (in DSP) to poll for the response.
HTTPS (HyperText Transfer Protocol Secure)	Employs the Secure Socket Layer (SSL) protocol to provide a secure HTTP communication channel over the Internet between the user's computer (browser or application) and the Portal/ Transaction Engine, and between the Portal and the Transaction Engine.
Identifiers (also referred to keys)	Uniquely identifies a user (credential) within a service. Identifiers for a service are typically a subset of the known facts.
IP Addresses	HMRC can not provide the IP address for the Transaction Engine URLs.
ISV (Independent Software Vendors) Application	From the Transaction Engine perspective this is an application (written by an ISV – e.g. Sage) that runs on a client (e.g. a PC) that can use, the facilities offered by the Transaction Engine – in particular the document submission protocol (DSP) to submit transactions/forms to services hosted by government departments, Local authorities or other authorised organisations. For example, an accounting or tax self assessment application submitting appropriate business forms through the Transaction Engine to HRMC. The user (i.e. individual, organisation user or agent) authentication credentials attached to the submitting form will be checked by the Transaction Engine.
Known Facts	Pieces of information required by a service from a user that only the user should know. During the service enrolment process (or when a user has forgotten their User ID/password/security phrase), the known fact values supplied by the user are checked against a reference set of known facts to verify who the user is to the service.
Namespace	In a XML schema, used to uniquely qualify element names – thereby avoiding potential name conflicts with elements of the same name in other XML schemas (vocabularies).
Password	An alphanumeric string used in conjunction with a User ID for

	authentication. The user chooses the password when their account is created
Portal	A Portal typically refers to a web Portal (i.e. web site).
Service	Consists of a grouping of one or more transactions. A service represents the lowest level of granularity by which access is granted. A service specifies the minimum authentication level a credential must have to access (see/enrol) in the service. See Authentication level.
Service Owner	The service owner is HMRC
SSL (Secure Sockets Layer)	Protocol uses Public Key Infrastructure (PKI) technology to provide encrypted communication over the Internet. It is used by the HTTPS access method.
Transaction Engine	Core component that provides an interface to enable electronic forms and requests to be submitted to service owners.
User ID	A unique alphanumeric string generated at registration (not selected by the user) that is used in conjunction with a password for authentication.
XML (Extensible Markup Language)	A specification designed especially for the definition, transmission, validation, and interpretation of data between organisations.
XML Schema	Describes a particular XML syntax. It defines the structure of the document in terms of elements and sub-elements, whether they are optional or not and the number of times they can be repeated. It also specifies any attributes associated with an element.