



Douane
Belastingdienst

Interface description HTG SMTP-MTA

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1 Introduction

1.1 Available interfaces

HTG, the “Handel en Transport Gateway” (Trade and Transport Gateway) (the successor of Digipoort Trade & Transport) is a generic electronic access service that allows the business community, active in the Trade and Transportation domain, to exchange electronic messages with public authorities. Whether or not HTG will function successfully depends heavily on a proper description of the interfaces to which the business community and the public authorities must be able to connect.

HTG offers the business community and the private authorities a number of interfaces based on electronic mail messages:

- SMTP-MTA (server-to-server)
- SMTP-MSA and POP3.

A description is available for each interface. This document sets out one of these interfaces, i.e. the SMTP (Simple Mail Transfer Protocol) interface for the exchange of electronic messages between mail servers (MTAs).

The following table indicates which interface descriptions apply to a specific message flow.

Message flow	Type of interface	Document
Logistic message flows for Customs and NVWA	SMTP-MTA	Interface description HTG SMTP-MTA
	SMTP-MSA/POP3	Interface description HTG SMTP-MSA and POP3
Single Window message flow for Rijkswaterstaat/NCA SSN, Border control and Customs	SMTP-MTA	Interface description HTG Single Window in addition to Interface description HTG SMTP-MTA
	SMTP-MSA/POP3	Interface description HTG Single Window in addition to Interface description HTG SMTP-MSA en POP3

Table 1: Message flows and interface descriptions

1.2 Target audience

This document is primarily intended for developers of system-to-system connections. In the business community two groups can be distinguished: reporting parties that have a legal obligation to communicate with a public authority, and dispatching organisations that offer services to help reporting parties with the communication. The term company is used in this document.

1.3 SMTP-MTA

This interface is intended for interaction with a high frequency. For interaction with a low frequency (no more than 1 interaction per connection per minute) the interfaces SMTP-MSA and POP3 offer an alternative.

To be able to use the SMTP-MTA interface the company’s MTAs (mail servers) and HTG are configured in such a way that direct SMTP connections between the MTAs are possible (server-to-server connection). This requires the configuration of a Virtual Private Network (VPN) over the internet.

1.4 Support

Support during connection setup and use is provided by the National Helpdesk Dutch Customs (NHD). See the publisher's imprint for contact details.

1.5 Outline of the document

The structure of the document is as follows. Chapter 1 contains general information. Chapter 2 contains a global process description. Chapter 3 describes the SMTP-MTA interface. Chapter 4 describes the structure of the SMTP message. The document finishes with a list of abbreviations in chapter 5.

1.6 Version history

Version	Date	Changes (draft/definitive)
1.0	14-11-2019	Definitive version.
1.01	10-12-2019	Change of title page.

2 Process description

2.1 General

Messages are sent by companies to public authorities or from public authorities to companies. Trade and Transport Gateway (Dutch: Handel en Transport Gateway, HTG with internet domain htgpoort.nl) provides the functionality required to exchange messages. Companies can be connected to the same message flow with several mail addresses. Communication between public authorities will usually occur via other interfaces.

In HTG no validation takes place on the (content of the) message, other than verification of the interface specifications as far as needed for routing and transportation (i.e. no syntax checks and no semantic checks of the payload).

HTG supports multiple message flows for several public authorities. An overview of the message flows is shown in Table 1.

Process/message flow	Public authority
Handling declarations (AGS declaration system)	Customs
Handling declarations, covenant partners (AGSC)	Customs
Handling declarations (DMS declaration system)	Customs
Handling declarations, covenant partners (DMSC)	Customs
EMCS	Customs
NCTS / Transit	Customs
CID Provision of Information	Customs
Single Window for Maritime and Aviation ¹	Rijkswaterstaat, Customs and Border Control
Pre-notification import animal products	NVWA
Pre-notification import plant products	NVWA
E-logbook fishing vessels	NVWA

Table 2: Message flows on HTG which can be delivered through SMTP

2.2 Message processing

Message processing by HTG starts with delivering the message. This results in a technical acceptance or rejection by HTG, according to the SMTP RFC's.

2.2.1 Delivery to HTG

When HTG receives a message, it will conduct checks to establish whether the message is safe to accept. HTG performs the necessary checks, such as valid authorisation, correct addressing, and maximum message length.

2.2.2 Confirmation of receipt

HTG accepts or rejects a message in accordance with the SMTP standards. This means that the message is technically accepted at the moment that the SMTP server (MTA) returns a "250 Ok" response in reaction to the SMTP DATA command. Additionally, a company can request during message transfer that it wants to receive a Delivery Status Notification (DSN). If the SMTP RCPT command does not contain NOTIFY values, only a (negative) DSN (failure) is returned in case of rejection. If the company also wants to receive a (positive) DSN in case of acceptance, this needs to be stated explicitly by means of the SMTP RCPT command, value NOTIFY (SUCCESS,FAILURE).

¹ Single Window uses SMTP-MTA or SMTP-MSA and POP3 interfaces for message transfer, but it has additional requirements. Therefore there is an additional interface description for Single Window.

2.2.3 Delivery to recipient

HTG handles the delivery of messages. If the message is to be delivered to a public authority, HTG will connect to the server of the public authority and after authentication and additional checks, the message will be delivered. If the message is to be delivered to a company with an SMTP MTA (server-to-server) interface, HTG will connect to that MTA and will deliver the message.

2.3 Interface

HTG offers a basic service, which can be used by companies and public authorities. The SMTP-MTA interface has been set up in such a way that this offers a platform for sending messages to HTG. The interface specification indicates which specifications (RFCs) are used for sending messages and which standards are used to construct messages.

In this interface specification, the actual content of the message that is forwarded by the interface ("the payload") is not described. There are separate Message Implementation Guides (MIGs) for each message flow, specified by the concerned public authority or authorities.

The interface specification will be further explained in the next chapter.

3 Interaction through the SMTP-MTA interface

3.1 Transport

A connection can be made with HTG in the following ways:

1. Internet
 - VPN based on IPsec
2. Diginetwerk (only for public authorities).

The Internet Assigned Numbers Authority (IANA) has assigned port 25/tcp for SMTP MTA-MTA communication. It is possible that during configuration of the VPN an alternative port number is agreed upon for the MTA of the company. The MTA of HTG will use port 25. For this interface, a connection via TLS over TCP/IP is not possible. This is possible for the SMTP-MSA and POP3 interfaces.

The SMTP protocol is a generally used message transport protocol. In this document, this protocol will be broadly outlined. The emphasis is on describing the exceptions and/or restrictions in respect of the applicable standards. See paragraph 3.5 for an overview of these standards

For SMTP-MTA, it is mandatory that the party sending the message has a fully functioning SMTP server, that is, an SMTP server that can send and receive SMTP messages and that supports the RFCs that are listed in paragraph 3.5.

3.2 Contents

An SMTP message that is exchanged between mail servers (MTAs) is compiled from the following parts:

- SMTP Envelope
- The actual message, consisting of an SMTP Header and an SMTP Body.

Below a further explanation is given about the various parts. For details, it is referred to the RFCs that are outlined in paragraph 3.5.

The SMTP envelope contains the information that is needed to route SMTP traffic between mail servers (MTAs). HTG only relays a message based on the RCPT TO element in the SMTP envelope. A company only can use HTG to send messages to public authorities, not to another company. The elements (verbs) of the envelope are described in chapter 4, Table 3.

The SMTP interface has been set up in such a way that it offers a platform for sending and receiving messages. The interface specification indicates which specifications (RFCs) are used for sending messages and which standards are used to construct messages.

In this interface specification, the actual content of the message that is sent through SMTP is not defined. There are separate Message Implementation Guides (MIGs) for each message flow, specified by the concerned public authority or authorities.

The SMTP headers contain information about the message content: who has sent the message, who is the intended recipient, the subject of the message, etc. The most commonly used elements are described in chapter 4, Table 4.

Header elements mentioned in the RFC that are allowed in the SMTP header, but that are not mentioned in Table 4 may be deleted from the message by HTG. HTG assigns its own message identifier to each outgoing message.

HTG can receive messages as single part MIME, or as multipart MIME. HTG always forwards messages as single part MIME.

Primarily, the SMTP protocol is intended for the exchange of messages between people. With respect to the HTG interface, messages are exchanged between applications (system-to-system linkage). This means that, regarding the MIME RFCs, there are a number of restrictions. These restrictions are required in order to enable message conversion from and to other interfaces:

When multipart MIME is used, the content-type is always 'multipart/mixed' and the following restrictions apply:

- There is either exactly one part available, which includes the same information as a single part
- or there are exactly two parts, the first of which is content-type text/plain and is otherwise empty, and the second part contains the same information as a single part.

Therefore there is always exactly one meaningful part present. For this part the content parameters apply that are described in chapter 4, Table 5.

3.3 Security

Sessions are secured at the level of the VPN connection.

3.3.1 Non-repudiation

HTG logs which path a message has taken from sender to recipient, along with the point in time of processing. HTG also logs that the server of the recipient (company or public authority) has successfully accepted a message ('SMTP OK').

3.3.2 Authenticity

Authentication of the sender and recipient are handled for this interface at transport level, which means when the VPN connection is established, not at the SMTP level.

3.3.3 Confidentiality

Message encryption is not set up at interface level. As HTG has nothing to do with the content of a message, payload encryption can be prescribed by the flow owner (public authority).

3.3.4 Integrity

HTG does not process the contents of the message, other than a technical integrity check, in so far as needed for transportation.

3.4 Examples

The examples included here show an incoming, and an outgoing message. The SMTP headers are shown in blue, MIME headers in green and the body in red.

3.4.1 SMTP message sent to HTG

The example below shows an incoming message containing a multipart MIME with two body parts: the first is empty and the second contains a text/plain body part.

```
Date: Thu, 29 Aug 2019 13:29:57 +0100 (CET)
From: <systeem@nl.bedrijf.com>
To: <postbus@htpoort.nl>
Subject: EDI-Message
MIME-Version: 1.0
Message-Id: <0908271329580A.02960@dna370.w2k.bedrijf.com>
Content-Type: Multipart/Mixed;
```

```
boundary="_vLAGzZmiiwgcHANSqmIDnfGRqrQc"

--_vLAGzZmiiwgcHANSqmIDnfGRqrQc
Content-Type: Text/Plain
Content-Transfer-Encoding: 7bit
--_vLAGzZmiiwgcHANSqmIDnfGRqrQc
Content-Type: Text/Plain
Content-Transfer-Encoding: base64
Content-Disposition: attachment; filename="IE040601.TXT"

TG9yZW0gaXBzdW0gZG9sb3Igc2l0IGFtZXQsIGNvbml1Y3RldHVyIGFkaXBpc2ljaw5nIGVsaXQs
IHNlZCBkbyBlaXVzbW9kIHRlbXBvciBpbmNpZGlkdW50IHV0IGxhYm9yZSBldCBkb2xvcmUgbWFn
bmEgYWxpclVhLiBvdCBlbmltIGFkIGlpbmltIHZlbmlhbSwgcXVpcyBub3N0cnVkiGV4ZXJjaXRh
dGlvbiB1bGxhbWNvIGxhYm9yaXMGbmlzaSBldCBhbGlxdWlwIGV4IGVhIGNvbWlwZG8gY29uc2Vx
dWF0LiBEdWlwZIGFldGUgaXJlcmUgZG9sb3IgaW4gcmlwcmVoZW5kZXJpdCBpb2B2b2x1cHRhdGUg
dmVsaXQgZXNzZSBjaWxsZW0gZG9sb3JlIGVlIGZlZ2lhdCBudWxsYSBwYXJpYXR1ci4gRXhjZXB0
ZXVyaXNpbnQgb2NjYWVjYXQgY3VvaWRhdGF0IG5vbiBwcm9pZGVudCwgc3VudCBpb2B2b2x1cHRhdGUg
dWkga2ZmaWNpYSBkZXNlcnuVudCBtb2xsaXQgYW5pbSBpZCBlc3QgbGFib3J1bS4=

--_vLAGzZmiiwgcHANSqmIDnfGRqrQc--
```

3.4.2 SMTP message sent by HTG

The example below shows a message sent by Customs, in single part MIME format.

Return-Path: dms@preprod.htpoort.nl
Date: Tue, 13 Aug 2019 14:31:39 +0100 (CET)
From: dms@preprod.htpoort.nl
To: postbus@bedrijf.nl
Message-ID: <1357621189.221370.1550064699663@htg.belastingdienst.nl>
Subject: [v=DMS.NL][a=NL001234567.01.05][k=ceb7984759c94ed3952abec812d4579f][s=0]
MIME-Version: 1.0
Content-Type: APPLICATION/octet-stream
Content-Transfer-Encoding: base64
Content-Disposition: attachment; filename="12bb331d-ceb8-41d3-9191-4d943bc91455.txt"

TG9yZW0gaXBzdW0gZG9sb3Igc2l0IGFtZXQsIGNvbnn1Y3RldHVyIGFkaXBpc2ljaW5nIGVsaXQs
IHN1ZCBkbyBlaXVzbW9kIHRlbXBvcilBpbmNpZGlkdW50IHV0IGxhYm9yZSBldCBkb2xvcmlUgWFn
bmEgYWxpclVhLiBvdCBlbmltIGFkIGlpbmltIHZlbmlhbSwgcXVpcyBub3N0cnVkiGV4ZXJjaXRh
dGlvbiB1bGxhbWNvIGxhYm9yaXMGbmlzaSBldCBhbGlxdWlwIGV4IGVhIGNvbWlwZG8yY29uc2Vx
dWF0LiBEdWlwZIGFldGUGaXJlcmUgZG9sb3IgaW4gcmVwcmVoZW5kZXJpdCBpbilB2b2x1cHRhdGUG
dmVsaXQgZXNzZSBjaWxsdW0gZG9sb3JlIGVlIGZlZ2lhdCBudWxsYSBwYXJpYXR1ci4gRXhjZXB0
ZXVyaXNpbnQgb2NjaWVvYXQgY3VvaWRhdGF0IG5vbiBwcm9pZGVudCwgc3VudCBpbilBjdWxwYSBx
dWkqb2ZmaWNNpYSBkZXNlcnuVudCBtb2xsaXQgY3VvaW5pSBpZCBld3QqbGFib3JlbnS4=

3.5 Standards

3.5.1 Normative RFCs for electronic messaging

Standard	Reference
Simple Message Transfer Protocol (SMTP)	https://tools.ietf.org/html/rfc5321
SMTP Service Extension for Delivery Status Notification	https://tools.ietf.org/html/rfc3461
SMTP Service Extension for Remote Message Queue Starting	https://tools.ietf.org/html/rfc1985

3.5.2 Normative RFCs for message transport

Standard	Reference
Internet Message Format	https://tools.ietf.org/html/rfc5322
MIME part 1 – Format of Internet Message Bodies	https://tools.ietf.org/html/rfc2045
MIME part 2 – Media Types	https://tools.ietf.org/html/rfc2046
MIME part 3 – Message Header Extensions for non-ASCII Text	https://tools.ietf.org/html/rfc2047
Media Type Specifications and Registration Procedures	https://tools.ietf.org/html/rfc4288
Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures	https://tools.ietf.org/html/rfc4289
MIME part 5 – Conformance Criteria and Examples	https://tools.ietf.org/html/rfc2049
Communicating Presentation Information in Internet Messages: Content- Disposition Header Field	https://tools.ietf.org/html/rfc2183

3.6 Preconditions

These are already described in the RFC protocol standards and in this interface description.

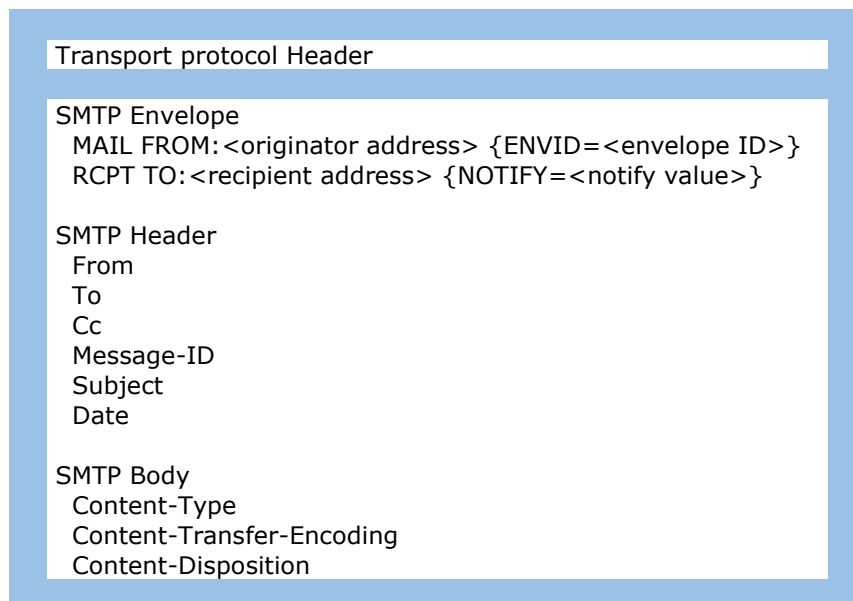
3.7 Email addresses

Email addresses are supplied after an account has been issued.

3.8 Limitations

Technical limitations of the interface are supplied after an account has been issued.

4 Message specification



Element	Specification
MAIL FROM: <originator address> {ENVID=<envelope ID>}	The sender of the mail (originator address). Each mail has exactly one sender. If a receipt confirmation is requested a unique ID has to be included (envelope ID).
RCPT TO: <recipient address> {NOTIFY=SUCCESS,FAILURE}	The recipient of the mail (recipient address). Each mail has exactly one recipient. The NOTIFY option can be used to indicate if the MTA must send a receipt confirmation and/or a delivery failure notification. Depending on the HTG environment the mail is being sent to, there are the following choices: <message type>@preprod.htpoort.nl <message type>@htpoort.nl
DATA ²	The message content (SMTP headers and body).

Table 3: SMTP Envelope

² See Table 4 and Table 5 for the definition of SMTP headers and body.

Element	Specification
From	Address of the sender of the message.
To	Address of the recipient of the message. Depending on the HTG environment the mail is being sent to, there are the following choices: <message type>@preprod.htpoort.nl <message type>@htpoort.nl
(Cc)	Since exactly one recipient is allowed, usage of Cc (and Bcc) is not allowed.
Message-ID	A unique identification of the message. The sender can set the message identification, provided that it is unique. If there is no message ID, HTG will add its own message ID.
Subject	A description of the subject of the message. This element is given to the recipient of the message.
Date	The transmission date of the message provided by the sender.

Table 4: SMTP Headers

Element	Value	Explanation
Content-Type	text/plain; charset=us-ascii	Preferred value for text-based messages. Other values are permitted for charset ³ . If there is no value, "us-ascii" is assumed. The supported values mentioned here are valid for the SMTP-MTA interface. In the Message Implementation Guide (MIG) of a message flow more strict requirements can apply. Windows Code Pages (CPxxxx) may not be referenced, because they cannot be interpreted on non-Windows systems.
	application/edifact	Alternative for messages in EDIFACT format.
	application/xml	Alternative for messages in XML format.
	application/octet-stream	application/octet-stream has to be used to transmit binary files.
Content-Transfer-Encoding	base64	Preferred value.
	quoted-printable	Alternative for base64.
	7bit	Permitted, but it is not recommended. Is unsuitable for binary data and text with ASCII values in excess of 127. CR/LF details can be lost upon conversion to base64. If the parameter Content-Transfer-Encoding is absent or the value is not entered, this is always interpreted as '7bit'.
Content-Disposition	attachment Filename=<bestandsnaam>. <extensie>	HTG always replaces the filename with a unique ID. If the parameter is absent or the value is not entered, HTG generates a unique filename with extension .txt. Note: A 'name' can also be entered for the parameter Content-Type. Use of that field is advised against in accordance with RFC 2183.

Table 5: SMTP Body

³ In any case, the following character sets are supported: "us-ascii", "UTF-8", "ISO-8859-1" (Latin1, West European), "ISO-8859-15" (Latin9, West European + Euro).

5 Abbreviations

Abbrev.	Meaning
AGS	Aangiftesysteem (Dutch abbreviation), declaration system
CID	Comfort Informatie Douane (Dutch), application provisioning information
DMS	Douaneaangiften Management Systeem (Dutch), further development of AGS
DSN	Delivery Status Notification, an automated message from a mail system
EMCS	Excise Movement and Control System
HTG	Handel en Transport Gateway (Dutch), Trade and Transport Gateway
IANA	Internet Assigned Numbers Authority
IETF	Internet Engineering Task Force
IP	Internet Protocol, a fundamental Internet standard
MIG	Message Implementation Guide
MSA	Message Submission Agent, software used when receiving email from client
MTA	Mail Transfer Agent, software that transfers e-mail between computers
NCTS	New Computerised Transit System
NHD	National Helpdesk Dutch Customs
NVWA	Netherlands Food and Consumer Product Safety Authority (Dutch abbreviation)
POP3	Post Office Protocol - Version 3
RFC	Request for Comments, technical and organisational notes about the internet
SASL	Simple Authentication and Security Layer, authentication framework
SMTP	Simple Mail Transfer Protocol
SW	Single Window, single reporting intended for multiple public authorities
TCP	Transmission Control Protocol, a fundamental Internet standard
TLS	Transport Layer Security, a protocol for secure computer network communication
VPN	Virtual Private Network, method to extend a private network across a public network