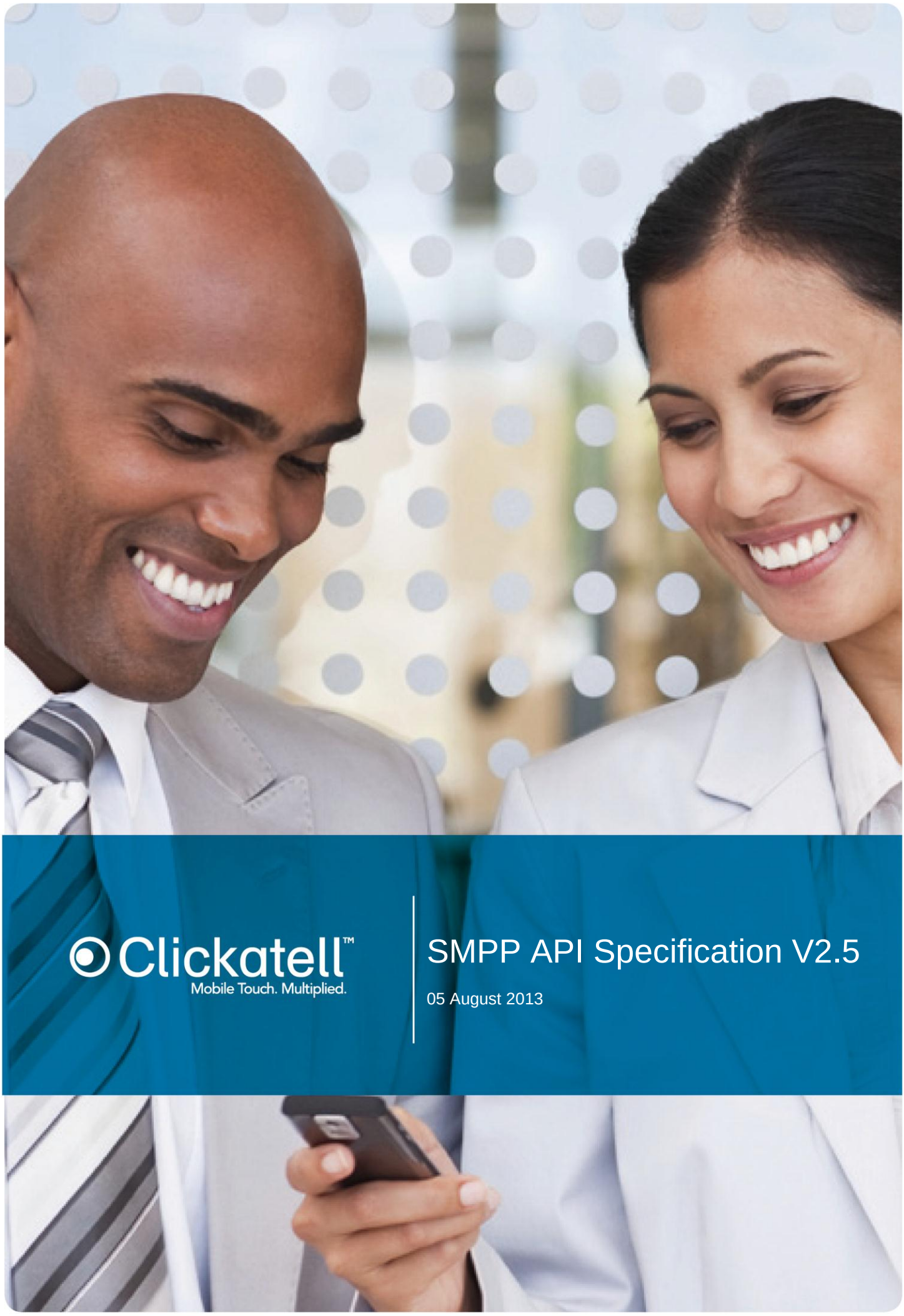

SMPP API Specification V2.5

05 August 2013

1. Contents

2. Change History

Approximately six (6) months of changes are reflected

Visit http://www.clickatell.com/downloads/smpp/Clickatell_SMPP.pdf to check for updates to this document.

Version	Date	Section	Changes to Documentation
2.5.1	12 April 2013		Document branding and menu descriptions have been amended
2.5	12 December 2012	5	Update the link to the API Guide
2.4.9	06 February 2012	14.1.2	Added the section 'Advanced Features'
2.4.8	14 December 2011	14	Added the message parameters 'mo' and 'req_feat'

3. Overview

This technical document is intended for developers who wish to use the Clickatell SMPP API for sending messages, and describes the various programming methods and commands used by developers when using this API.

The SMPP API provides a direct connection to our gateway (also known as a bind) to enable you to send a high-volume of SMS messages in a short period of time. With an SMPP connection, you're continuously connected to our gateway, and the standard protocol requires no programming if you have SMPP software installed.

To begin using this API, you need to follow the registration steps as explained below, undergo a compliance test, and send a minimum of 5000 messages a month.

Getting started:

To use this API, you need to register at (http://www.clickatell.com/register/?product=1). When you sign up for an SMPP account you will be given a username, password and api_id: keep these at hand.

- Apply for an SMPP API (Please note that registration and account setup usually takes around 24 hours, excluding weekends).
- Complete the account and product forms.
- Purchase a minimum of 5,000 SMS credits from Clickatell (or ensure you already have a balance of 5,000 credits).
- We will next update our firewall to allow you to bind. Once this is complete, we will send you an e-mail.
- Bind to our test SMPP server and test delivery.

Once you have bound successfully, and have been approved, we will migrate you onto the production servers.

It is recommended that you have an understanding of profiles before reading this document. Information is available at http://support.clickatell.com/guides/clickatell/routing.php. Please note that we request delivery acknowledgement for **every** message we send although delivery acknowledgement status will only be delivered to you if requested.

There are a number of different ways of gaining access to the gateway:

• SMTP - enabling a server or client generated email to be delivered as an SMS.
• HTTP / HTTPS - submitting either a POST or GET to the API server.
• FTP – uploading a text file to our FTP Server.
• XML – posting to our gateway using XML over HTTP/S.
• COM Object – for Windows based development.
• SOAP – submit SOAP packets over HTTP/S.
• SMPP – customers requiring a high throughput binary socket connection.

In order to reduce testing costs, Clickatell offers a test number range. Messages sent to any number on this prefix will only be charged 1/3 of a credit. Use the number 279991xxxxx (for South Africa) or 1999xxxxxxx (for the U.S.) where “xxxxx” represents any numeric string. Message statuses will be returned.

We will cover the SMPP method in this document. Additional documentation is available for the other methods.

4. Introduction

The Short Message Peer to Peer (SMPP) protocol is an open industry standard messaging protocol designed to simplify integration of data applications with wireless mobile networks. The Clickatell SMPP API offers an SMPP server connection with the Clickatell gateway using our standard authentication system and error codes. We are SMPP 3.3 & 3.4 compliant including concatenation, Unicode and concatenated Unicode.

Note: Our SMPP API should only be used for HIGH-VOLUME messaging. A minimum spend of 5000 credits or more per month is required. Credits must be purchased for testing.

Should you use less than 5000 credits on your SMPP connection then the difference will be debited from your account. If you do not have enough credits then your account will be cut from the server. Seven days prior to the end of the month you will be notified whether you have spent enough credits.

Please note: When you receive access to the live server halfway through the month, we don't enforce the minimum monthly volume of 5000 credits. Instead, there is a pro-rata allocation of credits for the rest of that month. The balance of what isn't spent is automatically deducted at the end of the month. Thereafter, you are required to spend the usual 5000 credits per month.
Our other connection methods (APIs) have no minimum volume requirement and can be set up and used in real-time.

Connecting via SMPP requires a thorough understanding of the SMPP Protocol. Please read the SMPP 3.4 specifications available from www.smsforum.net before reading the rest of this document. This document only contains information on how connect to Clickatell using SMPP.

NB: Our SMPP default character set is GSM as per the SMPP 3.4 specification. Delivery receipts will only be held for 7 days from receipt.

5. Getting started

In order to use the Clickatell gateway you need a Clickatell account and at least one registered connection (API sub-product instance) between your application and our gateway. Each connection method is known as a sub-product (of our API product). Here’s how:

Step 1 - register for a Clickatell account

If you do not already have a Clickatell Central account, you need to register for one. If you already have a Clickatell Central account, proceed to Step 2 for instructions on how to edit an API connection on your account.

• Go to http://www.clickatell.com/products/sms_gateway.php, and choose the appropriate API sub-product (connection method) you wish to use.
• Click on the registration hyperlink.
• Select the Account type you would like to use (Local or International)
• Enter your personal information to complete the registration form
• Accept Terms & Conditions
• Click Continue - an email containing your login details will be sent to the email address you have provided

Step 2 – Login to your account

When you have logged in you will be on the Clickatell Central landing page. You will receive 10 free credits which you can use to test the Clickatell Gateway. Please note that for security reasons these 10 credits contain pre-set Clickatell content.

A HTTP API will be added to your account for you. This will allow you to start testing the Clickatell Gateway immediately. You can purchase credits when you are ready to start sending personalised messages.

Step 3 – Adding an SMPP API to your account

To add a SMPP API to your account, select **APIs** from the main menu and then select **Setup a new API** from the submenu. Click the Add SMPP API button on the Setup API page that opens. You can then complete all the required details to configure your API.

Note: For more information on managing your API connections within your Clickatell account see our API guide at http://www.clickatell.com/help-support/developer-apis/clickatell-api/

Step 4 – Obtain a connection to the compliance test server

- An automated response will be sent to you via email on submitting the application form. This will register a SMPP connection for you and send an application form to our support staff.
- Your application will be manually reviewed and you will be advised via email when Clickatell has accepted your account for testing.
- Once your test account is live, you will be given access on the Clickatell firewall to smpp.clickatell.com.

The test period is valid for one month.

Step 5 – Undergo a compliance test

After three weeks, an automated email will notify you that you have one week left for testing. A compliance test must be arranged before the end of this period by emailing smpp@clickatell.com. A further email will be sent 24 hours before any connection termination, requesting an immediate response. A failure to respond may result in termination, as per Clickatell's general procedures.

The following conditions will be tested in the compliance test:

- You remain bound for 48 hours, unless our server is restarted.
- You only attempt one bind for transmitter/receiver or transceiver.
- You need to bind as a transmitter and receiver or just as a transceiver. If you bind as a transmitter only, then the **registered_delivery** setting must be set to 0.
- When we disconnect either a transmitter/receiver, you rebind automatically.
- Your **enquire_link** interval is set to 55-57 seconds.
- Your **submit_sm** PDUs are correctly formatted.
- You are able to handle **deliver_sm** PDUs
- When we send a **deliver_sm**, we get a **deliver_sm** response.
- Your SMPP application must automatically try to reconnect every 30 to 60 seconds after being disconnected.

Step 6 – Commercial SMPP connection setup

If you pass the compliance test, a connection will be configured on the production SMPP server, and you will be required to migrate your commercial traffic to this server.

6. Monitoring

We actively monitor each SMPP connection. If there are any non-critical errors, we will email you to remedy these within one working day. Failure to do so will result in the account being moved back to testing on the compliance test server.

If your ESME is critically malfunctioning and affects our service levels, you will be notified and your connection disabled.

7. Billing

There is a monthly minimum of 5000 credits, per month, that needs to be spent in order to maintain a Production SMPP account. At the end of the month you will be billed for any deficit should this occur.

For example: You spent 500 credits in a particular month. We will deduct a further 4500 credits at the end of the monthly cycle to make up the shortfall. This may result in your account having a negative balance. Your account will be disabled until this shortfall is paid.

8. Supported PDUs

We support the following Protocol Description Units (PDUs)

Client To Server	Server to Client
bind_transmitter	bind_transmitter_resp
bind_receiver	bind_receiver_resp
bind_transceiver	bind_transceiver_resp
submit_sm	submit_sm_resp
enquire_link	enquire_link_resp
query_sm	query_sm_resp
deliver_sm_resp	deliver_sm_resp

9. Authentication

Your **system_id** and password are the same as your standard Clickatell account username and password. You must set your **system_type** to be the API ID of your SMPP account.

Parameter Name	Description	Restrictions
system_id	Your Clickatell Central account username	
password	Your Clickatell Central account password	A maximum of 8 characters. See SMPP specification for more information
system_type	The system_type of SMPP sub-product you created*	

*To create an API ID go to Products within your online account, choose SMPP and create a SMPP sub-product instance.

Note: If you have 3 unsuccessful login (bind) attempts to Clickatell, you will not be able to connect for 180 seconds.

10. TON and NPI

10.1 Destination address

Please set **ton** = 1 and **npi** = 1

10.2 Source address

Ton and NPI are auto-detected. Note that alphanumeric Sender ID is not available on all networks. Sender IDs need to be registered within your account before they can be used. Supported networks can viewed via our coverage lists on our website.

11. Message Payload

Message Payload is one of the optional SMPP 3.4 TLV (tag-length-value) parameters supported by our SMPP server. The *message_payload* TLV enables the transmission of up to 64K octets.

Use this parameter, instead of using the *short_message* field, for applications that need to send messages longer than 254 octets. In this case, the *sm_length* field should be set to zero and the *message_payload* parameter should be populated with both the message length value and user data.

Note: The *short_message* and *message_payload* fields must not be used simultaneously.

12. Enquire Link

Please set your **enquire_link** requests to from 55 to 57 seconds.

13. Custom message parameters

14.1 Table of parameters

There are a variety of custom messaging and SMS features supported by the gateway, which can be activated by including a number of vendor-specific TLV's. These TLV's are displayed in the table below.
Note: The implementation is defined in the SMPP V3.4 standard document.

Name	Parameter name	Short description	Default value	Restricted values	Code and Type
Maximum credits	max_credits	Overrides the maximum charge specified online in "profiles". It works within the bounds of the profiles. In other words a profile must exist for the maximum credit that you set.	As per profiles	0.8,1,1.5,2,2.5,3.	0x1401 C-Octet String
Delivery queue	queue	Delivers the message through one of three queues assigned to each client account. Messages in the highest priority queue will be delivered first.	3	1, 2,3 1 is highest priority.	0x1402 Integer
Gateway escalation	escalate	Prompts an escalation to an alternative route, if messages are queued on the least-cost route.	0	0 - off 1 - Escalate immediately to an alternative route if messages are queued on the least-cost route.	0x1403 Integer
Client message ID	cliMsgId	Client message ID defined by user for message tracking.		Up to 33 alphanumeric characters. No spaces.	0x1404 C-Octet String
Mobile originated	mo	We route via a pre-defined carrier to enable the ability for a reply to be received back. This is only applicable to clients that have subscribed to a two-way messaging service.	1	0 - Off 1 – Enable Reply	0x1405 Integer
Required Features	req_feat	Some parameters and features are not set as "required" by default, and may be dropped if the least-cost route does not support them. This parameter allows you to ensure that the features set when an SMS is sent are supported by the gateway used.	Automatically set if you specific a source address	Read detailed description of parameter.	0x1406 Integer

14.1.1 Required features (req_feat)

This parameter specifies the features that must be present in order for message delivery to occur. If all features are not present, the message will not be delivered. This prevents SMS messages arriving at a destination via the least-cost gateway, without certain features. This would, for instance, prevent the dropping of a Sender ID.

This means that we will not route messages through a gateway that cannot support the required features you have set. For certain message types, we always set the required feature bitmask where relevant. These are FEAT_8BIT, FEAT_UDH, FEAT_UCS2 and FEAT_CONCAT.

This parameter is set using a combined decimal number to refer to the additional required features.

E.g.: 32 + 512 = 544 – Numeric sender ID and Flash SMS both required.
The value you would set to ensure that Flash and numeric sender ID are both supported, would therefore be ***544.***
To ensure that delivery acknowledgment and alphanumeric IDs are supported you would use the value ***8240*** (16 + 32 + 8192)***.***

Hex value	Decimal	Feature	Description
0x0001	1	FEAT_TEXT	Text – set by default.
0x0002	2	FEAT_8BIT	8-bit messaging – set by default.
0x0004	4	FEAT_UDH	UDH (Binary) - set by default.
0x0008	8	FEAT_UCS2	UCS2 / Unicode – set by default.
0x0010	16	FEAT_ALPHA	Alpha source address (from parameter).
0x0020	32	FEAT_NUMER	Numeric source address (from parameter).
0x0200	512	FEAT_FLASH	Flash messaging.
0x2000	8192	FEAT_DELIVACK	Delivery acknowledgments.
0x4000	16384	FEAT_CONCAT	Concatenation – set by default.

14.1.2 Advanced features

Clickatell offers SMPP users the ability to implement some of the advanced features that are available to other Clickatell API's.

These advanced features can be accessed through the Clickatell Central interface and can be set as follows:

Message Settings	Description
Force Sender ID	If enabled, your sender ID will be set as a required feature when an SMS is sent. If you do not specify a sender ID, the setting will be ignored.
Enable Auto Re-route	If enabled, your message will instantly be escalated to an alternative route if there are queued messages on the least cost route
Maximum Credit Cost	If enabled the maximum charge specified in your online profile will be overridden. Note: A profile must exist for the maximum credits that you set

Message Settings	Description
Message Priority	Messages are delivered through one of three queues that are delivered to your client account. If this feature is enabled the messages that you have set with the highest priority queue will be delivered first.
Enable Two-way	If enabled messages will be routed through a pre-defined carrier to ensure they can be replied to. Note: this is only applicable if you have subscribed to a two-way messaging service and your two-way number is set as the source address.

Please note that if you send a message with Clickatell specific TLV parameters, these advanced settings will be overridden.

14. Appendix A: Error codes

The following list of error messages are generated by the Clickatell gateway during a validation phase before we accept the message. These error messages are sent back to your application. There will be no message charge if these errors are generated when sending a message. Data regarding messages that do not pass initial validation will not be included in your Clickatell Central reports.

SMPP Error Code	Hex Value	Description
SMPP_ESME_ROK	0x00000000	No Error
SMPP_ESME_RINVMSGLEN	0x00000001	Message Length is invalid
SMPP_ESME_RINVCMDLEN	0x00000002	Command Length is invalid
SMPP_ESME_RINVCMDID	0x00000003	Invalid Command ID
SMPP_ESME_RINVBNDSTS	0x00000004	Incorrect BIND Status for a given command
SMPP_ESME_RALYNBD	0x00000005	ESME Already in Bound State
SMPP_ESME_RINVREGDLVFLG	0x00000007	Invalid Registered Delivery Flag
SMPP_ESME_RSYSERR	0x00000008	System Error
SMPP_ESME_RINVSRCADR	0x0000000A	Invalid Source Address
SMPP_ESME_RINVDSTADR	0x0000000B	Invalid Destination Address
SMPP_ESME_RINVMSGID	0x0000000C	Message ID is invalid
SMPP_ESME_RBINDFAIL	0x0000000D	Bind Failed
SMPP_ESME_RINVPASWD	0x0000000E	Invalid Password
SMPP_ESME_RINVSYSID	0x0000000F	Invalid System ID
SMPP_ESME_RMSGQFUL	0x00000014	Message Queue Full
SMPP_ESME_RINVESMCLASS	0x00000043	Invalid esm_class field data
SMPP_ESME_RINVSRCTON	0x00000048	Invalid Source address TON
SMPP_ESME_RINVSYSTYP	0x00000053	Invalid system_type field
SMPP_ESME_RTHROTTLED	0x00000058	Throttling error (ESME has exceeded allowed message limits)
SMPP_ESME_RINVSCHED	0x00000061	Invalid Scheduled Delivery Time
SMPP_ESME_RINVEXPIRY	0x00000062	Invalid message validity period (Expiry Time)
SMPP_ESME_RX_T_APPN	0x00000064	ESME Receiver Temporary APP Error Code
SMPP_ESME_RX_P_APPN	0x00000065	ESME Receiver Permanent APP Error Code
SMPP_ESME_RX_R_APPN	0x00000066	ESME Receiver Reject Message Error Code
SMPP_ESME_ROPTPARNOTALLWD	0x000000C1	Optional Parameter not allowed
SMPP_ESME_RINVPARLEN	0x000000C2	Invalid Parameter Length
SMPP_ESME_RUNKNOWNERR	0x000000FF	Unknown Error
SMPP_ESME_ROUTERR	0x00000400	Can refer to any one of the following: Cannot route message/ routing error * Number Delisted Number Blocked

SMPP Error Code	Hex Value	Description
		Sender ID error
SMPP_ESME_NOCR	0x00000401	Out of credit
SMPP_ESME_MAXCR	0x00000402	Max Credit Exceeded
SMPP_ESME_ACCFROZ	0x00000403	Account Frozen
SMPP_ESME_DATAERR	0x00000404	Bad Data
SMPP_ESME_GENERR	0x00000405	ESME Client Error
SMPP_ESME_RSYSERR	0x00000008	System Error

Cannot route message *
This implies that our gateway is not currently routing messages to this network prefix. Please support@ with the number in question.

15. Appendix B: Message statuses

These are message statuses that are generated after the Clickatell gateway has accepted the message for delivery. Data regarding messages passing initial validation and accepted for delivery will be included in your Clickatell Central reports.

Number	Hex	Description	Detail
001	0x001	Message unknown	The message ID is incorrect or reporting is delayed.
002	0x002	Message queued	The message could not be delivered and has been queued for attempted redelivery.
003	0x003	Delivered to gateway	Delivered to the upstream gateway or network (delivered to the recipient).
004	0x004	Received by recipient	Confirmation of receipt on the handset of the recipient.
005	0x005	Error with message	There was an error with the message, probably caused by the content of the message itself.
006	0x006	User cancelled message delivery	The message was terminated by a user (stop message command) or by our staff.
007	0x007	Error delivering message	An error occurred delivering the message to the handset.
008	0x008	OK	Message received by gateway.
009	0x009	Routing error	The routing gateway or network has had an error routing the message.
010	0x00A	Message expired	Message has expired before we were able to deliver it to the upstream gateway. No charge applies.
011	0x00B	Message queued for later delivery	Message has been queued at the gateway for delivery at a later time (delayed delivery).
012	0x00C	Out of credit	The message cannot be delivered due to a lack of funds in your account. Please re-purchase credits.
014	0x00E	Maximum MT limit exceeded	The allowable amount for MT messaging has been exceeded.

16. Terminology

17. **Receiving Messages:** A message sent (originating) from a mobile handset to an application via Clickatell.
18. **Sending Messages:** A message sent from an application to (terminating on) a mobile handset via Clickatell.
19. **Premium rated message:** A mobile user is charged a premium for the message that they send to a particular short or long code. This service is not available in all regions; please contact an Account Manager for more information.
20. **Revenue share:** This refers to the portion of the premium charge associated with a premium rated message, which is passed on to the content provider.
21. **Content provider:** This is the Clickatell customer who is offering one or more services that are usually premium rated SMS system.
22. **Customer:** A registered Clickatell customer utilising the Clickatell API for message delivery and receipt.
23. **Sender ID:** The "from" address that appears on the user's handset. This is also known as the message originator or source address. A Sender ID must be registered within your account and approved by us before it may be used.
24. **Destination address**: The mobile number/MSISDN of the handset to which the message must be delivered. The number should be in international number format, e.g. country code + local mobile number, excluding the leading zero (0).
25. **Source address:** See 'Sender ID' above.
26. **Short code:** A short number which is common across all the operators for a specific region.
27. **Subscriber:** The mobile network subscriber who owns the mobile number (MSISDN) which will send or receive SMSs, or be billed for premium rated services.
28. **Upstream gateway:** A network operator, third party or our own short message service centre (SMSC).

29. Contact Details

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