



NI USSD (USSD Push)

API

V1.6



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An AAT Group Company



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Version history

Revision number	Revision Date	Author	Changes
1.0	2013-12-17	Richard de Oude	Initial document release
1.1	2014-01-27	Jon Hudson	Updated Text
1.2	2014-02-03	Jon Hudson	Updated URL
1.3	2014-03-24	Jon Hudson	Updated HTTPS URL
1.4	2014-07-29	Jon Hudson	Updated Text
1.5	2018-11-19	Jon Hudson	Updated Timeouts
1.6	2019-05-16	Jon Hudson	Updated MAP Codes (Network)

Introduction

NI USSD allows a USSD menu or simple notification to be pushed to a handset instead of the handset physically initiating the session.

Our API described in the subsequent sections makes it simple for you to push a USSD session to all networks in South Africa.

Availability

NI USSD is only available to AAT Messaging Clients who are Financial Service Providers.

NI USSD Functional Mechanism Overview

This section of the doc is to explain in general how the NI USSD Daemon goes about handling USSD sessions. NI USSD implementation centres around URL based requests and responses.

Upon creation of a new NI USSD campaign, the client is required to create the call-back URL for the NI USSD daemon. Later on in this doc, examples of the XML and an example NI USSD session is given to aid in understanding of the system.

Internals of the NI USSD Daemon

Upon the NI USSD Daemon receiving the “USSD Push”, the daemon will initiate the USSD session and will deliver the specified text to the handset. Any reply text or status change will be communicated back via an HTTP call. The client can continue the session and send back further responses.

Initiate a NI USSD Session

To initiate a NI USSD session with the end user call:

<https://ussdpush.gsm.co.za/push/>

Query String Parameters

MSISDN

The end user MSISDN (international format e.g. 27821234567)

Message

The message to send

Username

Username Credentials

Password

Password Credentials

ID

A unique integer value.

Requesttype

Prompt :message is sent to the phone and it will prompt the user to reply

Notify :message is sent to the phone, with no reply needed.

Example:

<https://ussdpush.gsm.co.za/push/?username=test&password=test&msisdn=27821231234&message=test%20message&id=12345&requesttype=prompt>

Server Response

```
<?xml version="1.0"?>
<result >
  <description>... </ description >
  <success>...</success>
  <code>..</code>
  <id>..</id>
</result>
```

Parameters

Success

If true the call succeeded, if false then the call was unsuccessful.

Description

Success was false, then this will contain an error message

Code

Error code

ID

Server transaction ID

Receiving Responses

Responses from the user will be delivered via HTTP to the URL specified in the configuration
The following values can be provided:

ID

The ID specified in the original push call

Message

The message sent from the handset

Network

Vodacom, MTN, CellC or Telkom Mobile

IMSI

If available

Type

Response, Release (session ended), Timeout (session timed out).

Timeout and release are not always provided by the network, so will only be sent if available.

Please provide the URL template in this format:

[http://..URL..?id=#id#&imsi=#imsi#&network=#network#&message=#message#&type=#type](#)

The parameter names etc can be anything, the system simply replaces the tokens.

The page must return the following xml

```
<?xml version="1.0" encoding="utf-8" ?>
<response>
<type>...</type>
<text>...</text>
</response>
```

Parameters

Type

Prompt : Send text back to the end user and prompt for a reply.

Notify : Send text back to the end user and end the session.

End : End the session.

Text

Text to send back to the end user.

NI USSD Timeouts and Character Limitations

MT (Mobile Terminating) Traffic

Networks	Characters
All	160

MO (Mobile Originating) Traffic

Network	Characters
All	160

Network Session Timeouts

The total amount of time allowed on a single NI USSD Session.

Network	Seconds
Vodacom	40
MTN	240
CellC	180
Telkom Mobile (8ta)	300

Handset Timeouts

Response received from handset to network

Network	Seconds
Vodacom	30
MTN	30
CellC	30
Telkom Mobile (8ta)	45

Application Timeouts

Response received from application to network

Network	Seconds
All	10

**All figures inclusive of VAT*

Error Codes

These MAP error codes are provided back from each MNO and passed onto you for reference.

Code	Description	Detail	Network
0	Operation timed out	No communication was received from the GSM network. Status of message sent is unknown. This might be a temporary error/condition.	Vodacom / CellC
1	Unknown Subscriber	The GSM network reports that the subscriber is not known to the network. This is a permanent condition.	Vodacom / CellC
9	Illegal Subscriber	The GSM network reports that the subscriber is not allowed. This is a permanent condition.	Vodacom / CellC
10	Bearer Service Not Provisioned	The GSM network reports that the bearer attempted (e.g. USSD) is not provisioned for the subscriber. This is a permanent condition.	Vodacom / CellC
11	Teleservice Not Provisioned	The GSM network reports that the bearer attempted (e.g. USSD) is not provisioned for the subscriber. This is a permanent condition.	Vodacom / CellC
12	Illegal Equipment	The GSM network reports that the subscriber equipment is not allowed. This is a permanent condition.	Vodacom / CellC
13	Call Barred (Check RICA status)	The GSM network reports that the subscriber is barred on the network. This is a permanent condition until the subscriber can be unbarred by the operator.	Vodacom / CellC
16	Illegal Supplementary Service Operation	The GSM network reports that the supplementary service is not allowed for the subscriber. This is a permanent condition.	Vodacom / CellC
17	Supplementary Service Error Status	The GSM network reports that supplementary service error. This might be a permanent condition.	Vodacom / CellC
18	Supplementary Service Not Available	The GSM network reports that the supplementary service is not available. This is a permanent condition.	Vodacom / CellC
19	Supplementary Service Subscription Violation	The GSM network reports that the supplementary service is not allowed for the subscriber. This is a permanent condition.	Vodacom / CellC
20	Supplementary Service Incompatibility	The GSM network reports that the supplementary service is not compatible. This is a permanent condition until the subscriber can rectify his handset.	Vodacom / CellC
21	Facility Not Supported	The GSM network reports that the service is not supported. This is a permanent condition.	Vodacom / CellC
27	Absent Subscriber	The GSM network reports that the subscriber is not currently reachable. This is a temporary condition.	Vodacom / CellC
29	Short Term Denial	The GSM network is denying the request based on internal policies (e.g. Rate limiting or congestion). This is a temporary condition and can be retried over the short term.	Vodacom / CellC
30	Long Term Denial	The GSM network is denying the request based on internal policies (e.g. Rate limiting or congestion). This is a temporary condition and can be retried over the long term.	Vodacom / CellC
34	Switching System Failure	An unknown error occurred in the core network during the transaction with the subscriber. This is a temporary condition.	Vodacom / CellC

35	Data Missing	Incorrect data values were sent to the GSM network. This is a permanent condition. Transaction should be retried with different/corrected values.	Vodacom / CellC
36	Unexpected Data Value	Incorrect data values were sent to the GSM network. This is a permanent condition. Transaction should be retried with different/corrected values.	Vodacom / CellC
37	Registration Failure	There was a registration failure of the subscriber during a handover procedure and the transaction could not be completed. This is a temporary condition.	Vodacom / CellC
38	Negative PW-Check	Returned in cases where a password validation is required for the supplementary service and the password is not correct. This is a permanent condition.	Vodacom / CellC
43	Number of PW Attempts Violation	Returned in cases where too many password validation attempts were made for the supplementary service and the password is not correct. This is a permanent condition.	Vodacom / CellC
71	Unknown Alphabet	The specified GSM alphabet is not known to the switch. This is a permanent condition.	Vodacom / CellC
72	USSD Busy	The GSM network reports that the subscriber is already busy on a USSD session. This is a temporary condition.	Vodacom / CellC
120	NBR SB Exceeded	N/A	Vodacom / CellC
121	Rejected by User	Transaction was aborted by the User before it could be completed. Depending on the user, this may or may not be a permanent condition.	Vodacom / CellC
122	Rejected by Network	Transaction was aborted by the network. This is a permanent condition.	Vodacom / CellC
123	Deflection to Served Subscriber	Response if the transaction was diverted by the network to a different subscriber.	Vodacom / CellC
124	Special Service Code	Use of the service code is reserved by the network operator. This is a permanent condition.	Vodacom / CellC
125	Invalid Deflected to Number	The diverted-to number does not exist on the network or is invalid. This is a permanent condition.	Vodacom / CellC
126	Max Number of Multiparty	N/A Participants Exceeded	Vodacom / CellC
127	Network Resources Not Available	Congestion or routing failure. This is a short-term temporary condition.	Vodacom / CellC
2200	SUCCESS	Success	Telkom
2201	FAIL	Unspecified internal failure	Telkom
2202	CONFIG	Could not get NIUSSD configuration	Telkom
2210	USSD_ARG_ENCODE	Failed to encode USSD-Arg	Telkom
2211	USSD_ARG_SEND_BEGIN	Failed to send TCAP BEGIN USSD-Arg	Telkom
2212	USSD_ARG_SEND_CONT	Failed to send TCAP CONTINUE USSD-Arg	Telkom
2215	USSD_ERROR	Received TCAP error while waiting for subscriber response	Telkom
2216	USSD_DHP_ERROR	Received TCAP DHP after sending USSD-Arg to HLR (e.g. TC_U_ABORT - subscriber abort)	Telkom
2217	USSD_CHP_ERROR	Received TCAP CHP after sending USSD-Arg to HLR	Telkom
2218	USSD_TIMEOUT	Timeout while waiting for subscriber response	Telkom
2219	USSD_REL_FAIL	Failed to release USSD transaction	Telkom
2220	USSD_REL_SUCCESS	Released USSD transaction	Telkom
2221	REQ_TIMEOUT	Got timeout/error waiting for next request	Telkom
2222	TERMINATE_REQ	Got a terminate request	Telkom
2223	SVC_CONT_TIMEOUT	Timeout while waiting for the next request	Telkom
2224	SVC_TERM	Received termination from services that initiated the transaction (e.g. NAV)	Telkom
2230	NIUSSD_RES_FAIL	Failed to send niussd_res to requestor	Telkom

2240	USSD_ERROR_ABSENT_SU	Received TCAP error. Absent subscriber	Telkom
2241	USSD_ERROR_SYS_FAILU	Received TCAP error. System Failure	Telkom
2242	USSD_ERROR_USSD_BUSY	Received TCAP error. USSD session busy	Telkom
2243	USSD_ERROR_ILLEGAL_S	Received TCAP error. Illegal subscriber	Telkom
12316	<i>no description</i>	The session was aborted because of the application session timeout expired. (Pull)	MTN
12500	<i>no description</i>	An unknown error occurred.	MTN
12504	unexpectedDataValue	The error is returned by the network when it receives a parameter with an unexpected value, without type violation. This error is returned by the responder if it is not able to deal with the contents of the USSD string. (Push) (Pull)	MTN
12511	<i>no description</i>	The transaction ID specified is not valid. (Push) (Pull)	MTN
12514	<i>no description</i>	No push agent has been configured for the application. (Push)	MTN
12515	<i>no description</i>	Push functionality is not supported on this implementation. (Push)	MTN
12516	<i>no description</i>	Push initialisation failed (Push)	MTN
12520	<i>no description</i>	Menu redirection failed (Pull)	MTN
12521	<i>no description</i>	MAP Abort (Pull)	MTN
12528	<i>no description</i>	The session was aborted because of an application timeout. (Pull)	MTN
12529	<i>no description</i>	The session was aborted because of a NIM timeout. (Push) (Pull)	MTN
12530	<i>no description</i>	The session was aborted because of an application timeout after session resumption. (Pull)	MTN
12531	<i>no description</i>	The session was aborted because of a NIM timeout after session resumption. (Pull)	MTN
12550	unknownSub	The error is returned for an unknown subscriber. (Push)	MTN
12551	callBarred	This error is returned if the subscriber is barred. (Push)	MTN
12552	absentSub	The error is returned when the subscriber is absent. (Push)	MTN
12553	systemFailure	The error is returned for network element system failure. (Push)	MTN
12554	dataMissing	The error is returned for USSD push data missing. (Push)	MTN
12555	unknownAlphabet	This error is returned by the MS or the network when the alphabet/language used for the USSD operation is not known by the network or the MS. (Push)	MTN
12556	ussdBusy (Push)	This error is returned if the MS is already on a USSD session. (Push)	MTN
12557	networkError	This error is returned when network provider aborts. (Push)	MTN
12558	userAbort	This error is returned when user aborts. (Push)	MTN
12559	IllegalEquipment	This error is returned when the network returns an illegal equipment error	MTN
12560	IllegalSubscriber	This error is returned when the network returns an illegal subscriber error	MTN
12561	pushProblem	General push problem (Push)	MTN

Integration

NI USSD can be used for a multitude of purposes by a Financial Service Provider, including:

- Call Centre Authentication
- Internet Banking
- Debit Card / Credit Card protection
- Website Logins

External Links

USSD Wikipedia Link - http://en.wikipedia.org/wiki/Unstructured_Supplementary_Service_Data

Support

We've tried to put all the information we could in this Guide, but we are sure you'll have some questions.

Please email care@aat.co.za if you have any questions.