



**Quick Start Guide**  
**USSD**

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### *Version History*

Version	Author	Contact	Date	Notes
1.0	Martin de Jager	<a href="mailto:martin@intarget.mobi">martin@intarget.mobi</a>	26/10/2015	Initial draft version for internal review
1.1	Martin de Jager	<a href="mailto:martin@intarget.mobi">martin@intarget.mobi</a>	28/10/2015	Final release version

## **1. Introduction**

The purpose to this quick start is to provide a high level overview of USSD dialogue exchange and how the process works.

This guide should be used in conjunction with the main API documentation as this guide does not cover all the configuration elements, but only the main process that must occur between Subscriber, Telco, Higate and the client application/server.

Additional resources are available from the Intarget Support Page at:

<http://integrat.freshdesk.com/solution/categories/4000003081>

Alternatively, our support desk is available for assistance by logging a ticket with:

[ticketman@intarget.mobi](mailto:ticketman@intarget.mobi)

Please include as much information including your account name, logins and description of the problem that is been faced and our Service Delivery team will assist you further.

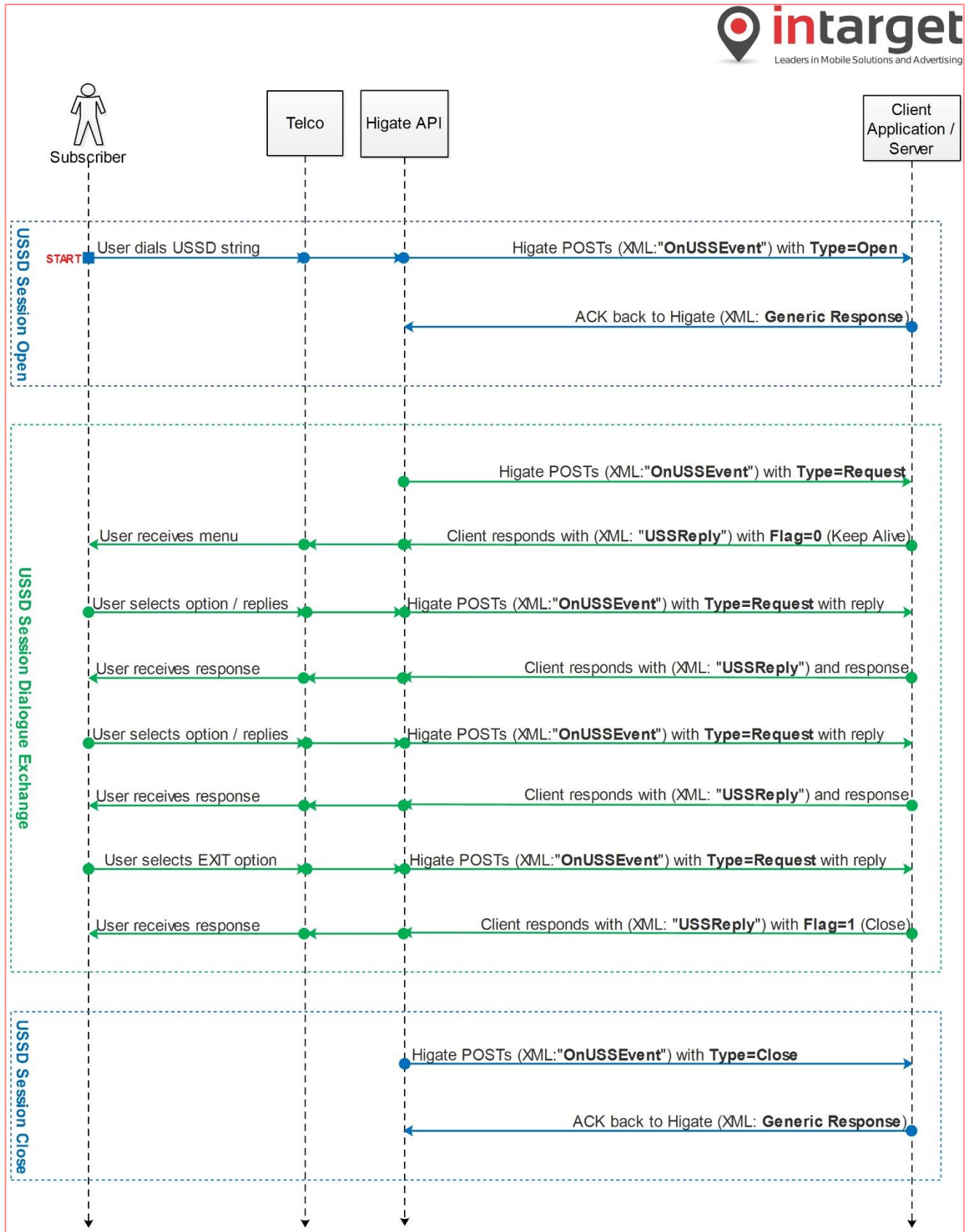
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## **2. Acronyms & Abbreviations**

<b>Acronym / Abbreviation</b>	<b>Description</b>
USSD	Unstructured Supplementary Service Data
USSD NI	Network Initiated USSD (Push)
MSISDN	Mobile Station International Subscriber Directory Number Cell phone Number
API	Application Programming Interface Technical integration
DLR	Deliver Receipt that is sent to the nominated call back URL providing status details
ACK	Acknowledgement (in reference to API communications)
Call-back URL	The web address that Higate will send notifications, status updates and etc.
Time-out	Time out refers to the cut off time before any communication is regarded as failed

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### 3. Process Flow – Technical



The above flow covers the technical aspects of the USSD process. The above and below mentioned XML Schemas can be found under the *XML Examples* section (Page 7).

#### USSD Session Open

The session is started when the subscriber dials the USSD string. This is routed through the Telco to the Higate platform and in turn to clients call back URL with the XML Schema “**OnUSSEvent**”, note that in the XML, the ‘**type**’ field will be set to “**open**”.

The client call back then needs to respond to the post with the generic response status (<**Response status\_code**="0">). This is referred to as the **ACK**.

At this point, *the session is opened*.

#### USSD Session Dialogue Exchange

Once the session has been opened, Higate then POSTs the same XML schema “**OnUSSEvent**” and the ‘**type**’ field is then set to “**Request**” which means the Higate platform is waiting for the client’s response to begin the dialogue exchange.

The client then responds with the XML Schema “**USSReply**” and sets the flag field to **0** which instructs Higate to keep the session open. In this same XML, the ‘**TEXT**’ field is where the menu or communication text is entered and displayed to the user.

The user then receives this text or menu and can select options or reply directly (based on what content is been sent to the user). Once the user replies with a menu number or text, this is sent back to the client call back URL in the XML Schema “**OnUSSEvent**” and the content that the user replied with is located within the ‘**TEXT**’ field.

The above flow shows the process been repeated twice for illustration purposes but indicates how the dialogue operates between the subscriber, Higate platform and Client Server/Application. If the client application were to send a reply to this, the reply is again done with the XML Schema “**USSReply**” with the flag field still been set to **0** (keep alive).

The last reply from client to user then sets the ‘**flag**’ parameter in the XML Schema “**USSReply**” to **1**. This now closes the USSD Session Dialogue Exchange.

At this point, *the session is closed*.

#### USSD Session Close

Once the flag parameter in the ‘**USSReply**’ Schema has been set to **1** (close the session). The Higate platform POSTs to the clients call back the XML Schema “**OnUSSEvent**” with the ‘**type**’ field set to ‘**Close**’.

The client call back then needs to respond to the post with the generic response status (<**Response status\_code**="0">).

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## **5. Important Information**

Some important information to note on the above flows and USSD in general:

USSD is a real time service that requires instant responses to dialogue requests. It is highly recommended that the USSD service be configured on a dedicated Higate login to separate it from any other bearers like SMS, OBS and VSR.

The call back interface has limited capacity and the delivery of real time USSD requests can be influenced by for example bulk SMS messaging. The resulting delays can cause the USSD session to expire before the reply is received.

Because the call back interface has dedicated channels for each login. It will prevent call back traffic for other bearers delaying USSD related traffic.

Note that you can only respond on a **“Request”** and not on **“Open”** and **“Close”** events. Also note that the reply is synchronous (directly on the call-back).

A USSD session can be closed for various reasons. The CLOSE event is used to notify the client that a session has been closed. The timeout between requests and responses from both the application and handset sides should never exceed 10 seconds or the session will time out.

The following are typical scenarios where a session has been closed:

1. Terminated by subscriber when the clients selects Exit instead of Reply on the handset
  2. Handset took too long to respond
  3. Forced closed by application by setting the ‘flag’ to 1 in the reply.
  4. Network (Time to Live) TTL expiry. A USSD session has a limited time to live. This value is network specific but is typically 120 seconds.
  5. Application is too slow in responding – if no reply is received on a request the Higate system will force the session closed with a generic error message. This is to prevent the network operator from forcing the session closed with a cryptic error message.
  6. Total time of the session exceeds 3 minutes
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## 6. XML Examples

Note that details pertaining to the username, password, service code, reply tag are listed in the routing configuration that is supplied by the Account Manager. Please refer to the main API documentation for configurable fields within the XML. The below serves as examples only.

```
<Message>
<Version Version="1.0" />
<Version Version="1.0" />
<Response Type="OnUSSEvent">
  <SystemID>Higate</SystemID>
  <UserID>USERNAME</UserID>
  <Service>SERVICECODE</Service>
  <Network ID="1" MCC="" MNC="" />
  <OnUSSEvent Type="Open">
    <USSContext SessionID="12345678" NetworkSID="2576443669"
    MSISDN="27613177895" Script=""
    ConnStr="*120*99*123#" />
    <USSText Type="TEXT"></USSText>
  </OnUSSEvent>
</Response>
</Message>
```

**OnUSSEvent (type=Open) –**  
 Open event for USSD

```
<Message>
<Version Version="1.0" />
<Response Type="OnUSSEvent">
  <SystemID>Higate</SystemID>
  <UserID>USERNAME</UserID>
  <Service>SERVICECODE</Service>
  <Network ID="1" MCC="655" MNC="001" />
  <OnUSSEvent Type="Request">
    <USSContext SessionID="12345678" NetworkSID="2576443669"
    MSISDN="27613177895" Script=""
    ConnStr="*120*99*123#" />
    <USSText Type="TEXT">REQ</USSText>
  </OnUSSEvent>
</Response>
</Message>
```

**OnUSSEvent (type=Request) –**  
 USSD Request/Response

```
<Message>
  <Version Version="1.0" />
  <Request Type="USSReply" SessionID="12345678" Flags="0">
    <UserID Orientation="TR">USERNAME</UserID>
    <Password>PASSWORD</Password>
    <USSText Type="TEXT">Welcome the this USSD session</USSText>
  </Request>
</Message>
```

**USSReply** – Client response with session open flag

```
<Message>
  <Version Version="1.0" />
  <Request Type="USSReply" SessionID="12345678" Flags="1">
    <UserID Orientation="TR">USERNAME</UserID>
    <Password>PASSWORD</Password>
    <USSText Type="TEXT">Good Bye</USSText>
  </Request>
</Message>
```

**USSReply** – Client response with session close flag

```
<Message>
  <Version Version="1.0" />
  <Response Type="OnUSSEvent">
    <SystemID>Higate</SystemID>
    <UserID>USERNAME</UserID>
    <Service>SERVICECODE</Service>
    <Network ID="1" MCC="" MNC="" />
    <OnUSSEvent Type="Close">
      <USSContext SessionID="12345678" NetworkSID="2576443669"
      MSISDN="27613177895" Script=""
      ConnStr="*120*99*123#"/>
    </OnUSSEvent>
  </Response>
</Message>
```

**OnUSSEvent (type=Close)** – Close event for USSD

```
<Response status='0' />
```

**Client Success Response** – Client ACK Response to Higate POSTs on the call back URL



## **8. Frequently Asked Questions**

**Q: Where do I get my account login credentials, service codes, reply tags and etc. that are required for the XML fields?**

A: These details are provided to you in the routing configuration that is sent by your account manager or Ticketman.

**Q: Are there other configurable elements to the XML schema's used?**

A: Yes, however, these are only provided in the main HTTP API documentation.

**Q: How many characters may the reference number in our submissions be?**

A: Reference numbers should not exceed 10 characters.

**Q: We are not receiving POSTs from the Higate platform, what could be the problem?**

A: If you are on shared hosting, please check with your ISP that you are not been blocked on port 8888. Also check that the correct response is been sent back to Higate on POSTs. The technical / Service Delivery teams can assist you in checking message statuses.

**Q: Do we have access to a test account?**

A: Yes, your account manager will allocate a test account for testing applications.

**Q: Do we need a call back URL for testing?**

A: Yes, as this is necessary for programming logic on client side.

**Q: Is HTTPS supported?**

A: No, the Higate platform only supports standard HTTP.

**Q: Is there a way to view the transaction logs of our USSD session?**

A: Yes, the Higate Web interface provides a front end to request all transaction status results, credits and etc. This URL is available at: [www.higate.co.za](http://www.higate.co.za) and your account manager would have provided you with the login credentials for the front end (please note that Front End and Higate Login credentials are different).

**Q: What format must a MSISDN prefix follow for South Africa?**

A: The standard normalisation for South African numbers is 27 (removing the zero) and should look like this:  
27821239876

**Q: What are the network ID's for Each Telco?**

A: *Vodacom = 1, MTN = 2, CellC = 3 & Telkom Mobile = 15*

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## 9. References

Client Support Page: <http://integrat.freshdesk.com/solution/categories/4000003081>

API Documentation: <http://integrat.freshdesk.com/solution/folders/4000011469>

Technical Information (Error Codes, Network ID's): <http://integrat.freshdesk.com/solution/folders/4000011470>

Fault Logging & Support: <http://integrat.freshdesk.com/solution/articles/4000054484>

Additional / Advanced Higate Information: <http://integrat.freshdesk.com/solution/articles/4000053161>

South African Telco Business Rules: <http://integrat.freshdesk.com/solution/folders/4000011536>

Compliance / Product Portal Guides: <http://integrat.freshdesk.com/solution/folders/4000011536>

## 10. Service Testing

Intarget will provide a test account for initial integration and testing while your application is still under development and an allocated Service Delivery Agent will assist in testing the whole process from opt-in to opt-out. Additional testing is done once the account is ready to go live.

Please note that testing requests must be sent to [ticketman@intarget.mobi](mailto:ticketman@intarget.mobi) and a testing slot will be allocated for the following day. Also please note that any testing that exceeds more than one service will be chargeable. Your account manager will arrange these costs with you prior testing.

## 11. Technical Assistance / Escalations

All technical assistance requests must be logged with [ticketman@intarget.mobi](mailto:ticketman@intarget.mobi). Please note that as Intarget handles multiple territories and clients. We will require your account name and details on the issue been experienced. Any failure to do so will prolong the process of assistance to you.

As per your SLA agreement with your account manager, the below is an escalation route for fault logging queries:

Escalation Route	Contact Number	Contact Email
First Line Support / Ticketman	+ 27 82 511 7837	<a href="mailto:ticketman@intarget.mobi">ticketman@intarget.mobi</a>
NOC/Service Delivery Supervisor – Martin de Jager	+ 27 82 310 4136	<a href="mailto:martin@intarget.mobi">martin@intarget.mobi</a>
CTO – Marius du Plessis	+ 27 74 485 6025	<a href="mailto:marius@intarget.mobi">marius@intarget.mobi</a>

Please note that Intarget does not assist with development or testing queries after 4pm and on weekends/public holidays. Clients are required to always log a support request after hours and on weekends as well as contacting First Line Support and providing the ticket number.