Seamless
Distribution Systems

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ERS 360^0
HOSTIF API Document

MTN NIGERIA

Version 4

Document History

Version	Date	Changes
Version 1	14-12-2018	Initial draft
Version 2	20-10-2019	Revised

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Contents

1 Overview

The ERS 3rd party API interface provides a Soap based API which acts as an intermediary to serve requests from external clients seeking services from the ERS system. The proxy takes the client request and calls ERS after mapping the request. After request execution, the proxy will convert ERS response to client's desired response and send it back to client application/system.

1.1 API Functions

Currently, the following API functions are available.

1.1.1 Available API Functions

SN	Function Name	Description
1	Vend	The interface caters for a vend (sell airtime) request from an 3PP Channels
2	Transfer	Request a credit(stock) transfer from one reseller to another (Asynchronous)
3	Lookup	Lookup request provides the optional functionality to allow for validation of the subscriber MSISDN and amount/tariff before doing a Vend.
4	QueryTx	QueryTx functionality provides the optional function to query the transaction status of a specific transaction based on sequenceNumber or ERS Reference.

1.2 HTTP Header with Basic Authentication

1.2.1 Client Context

This is a structure used in all requests to identify and authorize the client performing the transaction. In the context of an HTTPS transaction, basic access authentication is a method for a user agent/Trade Partner to provide a user name and password when making a request. In basic HTTP authentication, a request contains a header field of the form Authorization: Basic <credentials>, where credentials are the base64 encoding of id and password joined by a colon. the host interface security is based on a hybrid of HTTP BASIC-AUTH and HTTPS. Below are the applicable client context object properties.

1.2.1.1 Client Context Field Properties

SN	Field Name	Description
1	Authorization Data (Should be in base64)	The format is as follows: user:PIN Eg: `handset:1234` Encoded version is: `aGFuZHNldDoxMjM0`
2	charset	UTF-8
3	content-type	application/xml

4	SoapAction	This should reflect the type of transaction to be performed.
		`urn:QyeryTx`
		`urn:Vend`
		`urn:Transfer`

		urn:lookup

2 Vend API Function

The Vend API function is used to purchase Airtime/Databundle/Voucher for Prepaid/Postpaid Subscriber Account.

The interface caters for a vend (sell airtime) request from an ATM/Terminal Host. The vend request message will contain information such as the associated vend account MSISDN (Distributor, Subdistributor, Vendor or Agent MSISDN), the subscriber MSISDN, the amount/tariff that must be applied, and a unique sequence number associated with the Host Interface.

ERS will respond with a message containing the unique sequence number, associated vend account MSISDN, Txstatusid, associated TxStatus message, Txrefid, Subscriber balance, and the Receiver balance that was used associated with the vend account MSISDN.

If there is a sequence number failure where there is already a successful transaction in ERS with the same sequence number, ERS will respond with a sequence number failure as well as the txrefid and txstatus associated with the sequence number.

ERS provide the functionality to flag an associated vend account as auto transfer enabled. Together with this flag the capability will be provided to configure a threshold value below which an auto transfer will be triggered, and the associated auto transfer amount. The auto-transfer will take place without ERS PIN authorization

2.1 Vend Request Fields

The table below provides the field description of the relevant fields in Vend web service request.

2.1.1 Vend Request Fields

Name	Description
Request Header	The request header which include HTTP-BASIC-AUTH described above.
origMsisdn	The originator's Msisdn <xsd:destMsisdn>09062058617</xsd:destMsisdn>
destMsisdn	The destination subscriber's Msisdn <xsd:destMsisdn>09062058617</xsd:destMsisdn>
amount	Requested Vend amount <xsd:amount>100</xsd:amount>
sequence	Sequence number as received in the request. Note that no sequence number resynchronization is possible on ERS side for the Host Interface. If the sequence numbers are out of sync the HOST should set its sequence number to the sequence number + 1 received in the "lastseq" field of the response message. <xsd:sequence>138</xsd:sequence>
tariffTypeId	This represents the Type of Transaction to be performed. 1 ==> Airtime 4 ==> Postpaid 7 ==> Voucher 9,10,11,etc ==> Bundles <xsd:tariffTypeId>1</xsd:tariffTypeId>
serviceproviderId	This represents the operator (MTN) and should always be set to 1. <xsd:serviceproviderId>1</xsd:serviceproviderId>

2.1.2 Sample Vend web service request

```
##### VEND PREPAID AIRTIME #####
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://hostif.vtm.prism.co.za/xsd">
     <soapenv:Header/>
     <soapenv:Body>
         <xsd:vend>
             <xsd:origMsisdn>2349062058470</xsd:origMsisdn>
             <xsd:destMsisdn>09062058617</xsd:destMsisdn>
             <xsd:amount>100</xsd:amount>
             <xsd:sequence>138</xsd:sequence>
             <xsd:tariffTypeId>1</xsd:tariffTypeId>
             <xsd:serviceproviderId>1</xsd:serviceproviderId>
         </xsd:vend>
     </soapenv:Body>
 </soapenv:Envelope>

##### VEND POSTPAID AIRTIME #####
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://hostif.vtm.prism.co.za/xsd">
     <soapenv:Header/>
     <soapenv:Body>
         <xsd:vend>
             <xsd:origMsisdn>2349062058470</xsd:origMsisdn>
             <xsd:destMsisdn>09062058617</xsd:destMsisdn>
             <xsd:amount>100</xsd:amount>
             <xsd:sequence>138</xsd:sequence>
             <xsd:tariffTypeId>4</xsd:tariffTypeId>
             <xsd:serviceproviderId>1</xsd:serviceproviderId>
         </xsd:vend>
     </soapenv:Body>
 </soapenv:Envelope>

##### VEND BUNDLES #####
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://hostif.vtm.prism.co.za/xsd">
     <soapenv:Header/>
     <soapenv:Body>
         <xsd:vend>
             <xsd:origMsisdn>2349062058470</xsd:origMsisdn>
             <xsd:destMsisdn>09062058617</xsd:destMsisdn>
             <xsd:amount>100</xsd:amount>
             <xsd:sequence>138</xsd:sequence>
```

```
            <xsd:tariffTypeId>9</xsd:tariffTypeId>
            <xsd:serviceproviderId>1</xsd:serviceproviderId>
         </xsd:vend>
      </soapenv:Body>
 </soapenv:Envelope>

##### VEND VOUCHER #####


<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://hostif.vtm.prism.co.za/xsd">
   <soapenv:Header/>
   <soapenv:Body>
      <xsd:vend>
         <xsd:origMsisdn>2349062058470</xsd:origMsisdn>
         <xsd:destMsisdn>09062058617</xsd:destMsisdn>
         <xsd:amount>500</xsd:amount>
         <xsd:sequence>139</xsd:sequence>
         <xsd:tariffTypeId>7</xsd:tariffTypeId>
         <xsd:serviceproviderId>1</xsd:serviceproviderId>
      </xsd:vend>
   </soapenv:Body>
</soapenv:Envelope>
```

2.2 Vend Response Fields

The response to Vend request is described below.

2.2.1 Vend Response Fields

Name	Description
return	Breakdown of this field is explained below

2.2.2 Vend Return field object breakdown

Name	Description
destBalance	The destination subscriber's account balance e.g. 6000
destMsisdn	The destination subscriber's Msisdn e.g. 27833435001
origBalance	The originator's account balance e.g. 30000
origMsisdn	The originator's Msisdn e.g. 27833435000
responseCode	The Service's status code i.e. the status of communication between the Client and Service e.g. 0 = Successful. These code's will be agreed upon.
responseMessage	The Service's status message corresponding to the responseCode e.g. "Success"

Sequence	Sequence number as received in the request.
statusId	StatusId The status of the Vend when executed on the ERS Server e.g. 0 = Successful Vend.
txRefId	The Unique Transaction Reference on the ERS Server e.g. 20181226114349939010000005

2.2.3 Sample Vend web service response

RESPONSE FOR SUCCESSFUL AIRTIME TOPUP/BUNDLE

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
    <soapenv:Header/>
    <soapenv:Body>
        <vendResponse>
            <destBalance>998860.0</destBalance>
            <destMsisdn>09062058617</destMsisdn>
            <origBalance>999360.0</origBalance>
            <origMsisdn>2349062058470</origMsisdn>
            <responseCode>0</responseCode>
            <responseMessage>Successful</responseMessage>
            <sequence>139</sequence>
            <statusId>0</statusId>
            <txRefId>20181226114554979010000006</txRefId>
            <voucherPIN>40692125281574</voucherPIN>
            <voucherSerial>600000000001</voucherSerial>
        </vendResponse>
    </soapenv:Body>
</soapenv:Envelope>
```

RESPONSE FOR FAILED VEND DUE TO INVALID TARRIFID

```
<?xml version='1.0' encoding='UTF-8'?><soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"><soapenv:Header/><soapenv:Body><vendResponse>
    <destBalance>0.0</destBalance>
    <origBalance>0.0</origBalance>
    <responseCode>310</responseCode>
    <responseMessage>INVALID TARRIF ID</responseMessage>
    <sequence>0</sequence>
    <statusId>540</statusId>
    <txRefId>20181227113913467010000012</txRefId>
</vendResponse></soapenv:Body> </soapenv:Envelope>
```

RESPONSE FOR FAILED VEND DUE TO PRODUCT NOT AVAILABLE

```
<?xml version='1.0' encoding='UTF-8'?><soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"><soapenv:Header/><soapenv:Body><vendResponse>
    <destBalance>0.0</destBalance>
    <destMsisdn>09062058617</destMsisdn>
    <origBalance>0.0</origBalance>
```

```
    <origMsisdn>2349062058470</origMsisdn>
    <responseCode>1</responseCode>
    <responseMessage>This specific product is not available</responseMessage>
    <sequence>140</sequence>
    <statusId>540</statusId>
    <txRefId>20181227113913467010000012</txRefId>
</vendResponse></soapenv:Body> </soapenv:Envelope>
```

3 Transfer API Function

The Transfer API function transfers credit/stock from one reseller to another reseller by calling transfer API.

3.1 Transfer Fields

The table below provides the field description of relevant fields in Transfer web service request.

3.1.1 Transfer Request Fields

Name	Description
Request Header	The request header which include HTTP-BASIC-AUTH described above.
cellNumber	The originator's Msisdn. Should exist on ERS <xsd:cellNumber>2349062058470</xsd:cellNumber>
destCellNumber	The destination Reseller's Msisdn <xsd:destCellNumber>2349062058475</xsd:destCellNumber>
amount	Requested Vend amount <xsd:amount>100</xsd:amount>
sequence	Sequence number as received in the request. Note that no sequence number resynchronization is possible on ERS side for the Host Interface. If the sequence numbers are out of sync the HOST should set its sequence number to the sequence number + 1 received in the "lastseq" field of the response message. <xsd:sequence>138</xsd:sequence>
txTypeId	Set this to 1 <xsd:txTypeId>1</xsd:txTypeId>

3.1.2 Sample Transfer web service request

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://hostif.vtm.prism.co.za/xsd">
     <soapenv:Header/>
     <soapenv:Body>
         <xsd:transfer>
             <xsd:cellNumber>2349062058470</xsd:cellNumber>
             <xsd:destCellNumber>2349062058475</xsd:destCellNumber>
             <xsd:amount>100</xsd:amount>
             <xsd:sequence>134</xsd:sequence>
             <xsd:txTypeId>1</xsd:txTypeId>
         </xsd:transfer>
     </soapenv:Body>
 </soapenv:Envelope>
```

3.2 Transfer Response Fields

The response to Transfer response is described in the table below.

3.2.1 Sample Transfer Service Response Fields

Name	Description
return	Breakdown of this field is explained below

3.2.2 Transfer Response return field breakdown

Name	Description
destMsisdn	The destination subscriber's Msisdn e.g. 27833435001
origMsisdn	The originator's Msisdn e.g. 27833435000
origBalance	The originator Msisdn balance after transfer
responseCode	The Service's status code i.e. the status of communication between the Client and Service e.g. 0 = Successful. These code's will be agreed upon.
responseMessage	The Service's status message corresponding to the responseCode e.g. "Success"
Sequence	Sequence number as received in the request.
statusId	The status of the Vend when executed on the ERS Server e.g. 0 = Successful Transfer.
txRefId	The Unique Transaction Reference on the ERS Server e.g. 20181226114349939010000005

3.2.3 Sample Transfer web service response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Body>
      <xsd:transferResponse xmlns:xsd="http://hostif.vtm.prism.co.za/xsd">
         <xsd:sequence>134</xsd:sequence>
         <xsd:statusId>0</xsd:statusId>
         <xsd:txRefId>20191023131229239010042 23</xsd:txRefId>
         <xsd:origMsisdn>2349062058470</xsd:origMsisdn>
         <xsd:destMsisdn>2349062058475</xsd:destMsisdn>
         <xsd:responseCode>0</xsd:responseCode>
         <xsd:responseMessage>Successful</xsd:responseMessage>
         <xsd:origBalance>37868.0</xsd:origBalance>
      </xsd:transferResponse>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

4 Lookup API Function

The Lookup request provides the optional functionality to allow for validation of the subscriber MSISDN and amount/tariff before doing a Vend.

4.1 Lookup Request Fields

The table below provides the field description of relevant fields in lookup web service request.

4.1.1 Lookup Request Fields

Name	Description
Request Header	The request header which include HTTP-BASIC-AUTH described above.
origMsisdn	The originator's Msisdn. Should exist on ERS <xsd:cellNumber>2349062058470</xsd:cellNumber>
destMsisdn	The destination Subscribers Msisdn <xsd:destCellNumber>2349062058475</xsd:destCellNumber>
amount	Requested Vend amount <xsd:amount>100</xsd:amount>
tariffTypeId	This represents the Type of Transaction to be performed. 1 ==> Airtime 4 ==> Postpaid 7 ==> Voucher 9,10,11,etc ==> Bundles <xsd:tariffTypeId>1</xsd:tariffTypeId>

4.1.2 Sample Lookup web service request

```
<?xml version='1.0' encoding='UTF-8'?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
    <soapenv:Header/>
    <soapenv:Body>
        <tns:lookup xmlns:tns="http://axiom.service.quickstart.samples/xsd">
            <tns:origMsisdn>2348031010000</tns:origMsisdn>
            <tns:destMsisdn>2348031010999</tns:destMsisdn>
            <tns:amount>100</tns:amount>
            <tns:tariffTypeId>1</tns:tariffTypeId>
        </tns:lookup>
        </soapenv:Body>
</soapenv:Envelope>
```

4.2 Lookup Response Fields

The response to Lookup response is described in the table below.

4.2.1 Lookup Response Fields

Name	Description
return	Breakdown of this field is explained below

4.2.2 Lookup return field breakdown

Name	Description
balance	Partners available balance
destMsisdn	The receivers MSISDN
message	Status: Success/Failed
statusId	The status of the Vend when executed on the ERS Server e.g. 0 = Successful Vend.

4.2.3 Sample RequestTransfer web service response

```
<?xml version="1.0" encoding="UTF-8"?>
  <LookupResponse>
     <balance>0</balance>
     <destMsisdn>string</destMsisdn>
     <message>SUCCESS</message>
     <statusId>0</statusId>
  </LookupResponse>
```

5 QueryTx API Function

The QueryTx API function provides the optional function to query the transaction status of a specific transaction based on sequenceNumber or ERS Reference.

5.1 QueryTx Request Fields

The table below provides the field description of relevant fields in QueryTx web service request.

5.1.1 QueryTx Request Fields

Name	Description
context	The client context object
sequence	Check transaction status using the clients sequence number <xsd:sequence>139</xsd:sequence>
txRef	Check Transaction status using ERS Reference <xsd:txRef>20181226114554979010000006</xsd:txRef>

5.1.2 Sample QueryTx web service request

```
###### CHECK TRANSACTION STATUS USING CLIENTS SEQUENCE NUMBER ######
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://hostif.vtm.prism.co.za/xsd">
     <soapenv:Header/>
     <soapenv:Body>
         <xsd:querytx>
             <xsd:sequence>139</xsd:sequence>
         </xsd:querytx>
     </soapenv:Body>
 </soapenv:Envelope>


###### CHECK TRANSACTION STATUS USING ERS REFERENCE ######
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://hostif.vtm.prism.co.za/xsd">
     <soapenv:Header/>
     <soapenv:Body>
         <xsd:querytx>
             <xsd:txRef>20181226114554979010000006</xsd:txRef>
         </xsd:querytx>
     </soapenv:Body>
 </soapenv:Envelope>
```

5.2 QueryTx Response Fields

The response to QueryTx is described in the table below.

5.2.1 QueryTx Response Fields

Name	Description
return	Breakdown of this field is explained below

5.2.2 GetTransactionStatusResponse return field breakdown

Name	Description
Message	Status: Success/Failed
status	The status of the Vend when executed on the ERS Server e.g. 0 = Successful Vend.

5.2.3 Sample GetTransactionStatusResponse web service response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
     <soapenv:Header/>
     <soapenv:Body>
         <queryTxResponse>
             <message>SUCCESSFUL</message>
             <statusId>0</statusId>
         </queryTxResponse>
     </soapenv:Body>
 </soapenv:Envelope>
```

6 Result Codes

Result Code	Result Description
0	Successful
3	Server Error
106	Sequence Number Check Failed
201	Invalid Originator MSISDN
202	Invalid Destination MSISDN
301	Insufficient Airtime
302	Invalid Airtime Amount
306	Product out of Stock
401	You have crossed your maximum limit in single transaction
540	This specific product is not available
1001	Topup Failed
1002	No Connection Available to AIRCS3
1003	Subscriber MSISDN Barred
1004	Invalid MSISDN
1007	Temporary invalid MSISDN
1008	Invalid transaction
1070	Authentication Error

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Seamless Distribution Systems enables digital distribution for service providers across the globe through our multi-access transaction platform that offers an all-encompassing approach to e-transactions.