



# Number Information Services

## **HTTP(S) Interface Specification**

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## Issue History

Issue	Date	Reason For Issue
1	30-06-14	First Issue
2	18-12-14	Added SIP message trace example
3	28-04-15	Added http interface
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5	15-12-15	Updated with new HTTP response format
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8	15-03-17	Updated for Global Coverage
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19	29-06-23	Added DNO query type.
20	10-07-23	Added US MRQ query type.
21	03-04-24	Amended US MRQ terminology.

## Table of Contents

1	Introduction .....	5
2	Accessing the NIS Service.....	5
2.1	IP Access and Target URLs.....	5
2.2	Query Authorisation.....	5
2.2.1	Recommended Authorisation Method .....	6
2.2.2	User/Pass Authentication.....	6
2.2.3	Token Authentication.....	6
2.2.4	Refreshing the Token .....	7
3	HTTP Response Codes.....	7
4	Product Selection and Customisation .....	8
4.1	Product Selection by HTTP Service Identifier .....	8
4.2	Standard Product Option .....	8
4.2.1	Reason Codes .....	8
4.2.2	GNR Response on Remote Query Failure.....	8
4.2.3	Carrier of Record Information in NPQ-GC Response.....	9
5	Query Types and Example Query/Responses.....	9
5.1	Global Number Range (GNR) Query.....	9
5.1.1	Example GNR Query/Response .....	10
5.2	Number Portability Query (NPQ) – Global Coverage .....	10
5.2.1	NPQ – GC Example Query/Response.....	10
5.3	North American Message Routing Query (USMRQ) Query .....	11
5.3.1	USMRQ Query Example Query/Response.....	11
5.4	Number Portability Query (NPQ) – Live .....	12
5.4.1	NPQ – Live Example Query/Response .....	12
5.5	Live-Routing and Live-Status Query .....	12
5.5.1	Live Services – Coverage .....	13
5.5.2	Live-Routing and Live-Status Query/Response Examples .....	13
5.6	Port History Queries.....	14
5.6.1	Port History – Onboard Countries .....	15

5.6.2	Port History – UK.....	16
5.7	Do Not Originate (DNO) Query .....	17
5.7.1	DNO Query/Response Examples.....	17
6	NIS Customer Web Portal .....	18

# 1 INTRODUCTION

This document describes the HTTP/S query interface to the XConnect Number Information Service (NIS) suite of products.

We support a number of product options where customers can query XConnect to discover information about routing, ownership and status of E.164 Telephone Numbers (TN).

The service is primarily used to support customers' Voice & SMS routing, and applications which require number validation.

Customers access our service by querying to XConnect's Global Points of Presence (PoPs).

In addition to HTTP/S, we also support SIP and ENUM query protocols.

Please see the NIS service documentation for further details of NIS technical, operational and commercial features.

## 2 ACCESSING THE NIS SERVICE

### 2.1 IP Access and Target URLs

Our query service is provided from XConnect PoPs via the public Internet.

A current list of PoPs is available from XConnect Sales or Support, and customers can choose to use any or all XConnect PoPs to minimise query latency and implement resilience.

Customers with fixed source IPs registered with XConnect can use any of the XConnect PoPs.

Customers who cannot register source IPs can only use the USA PoP (lookup2). XConnect will deploy additional 'non-registered' IP access in Europe based on customer demand.

**Note** - Access to the XConnect system when using user/pass or token authentication only (i.e., not registered fixed IPs) is more restricted (in both capacity and resilience) to minimise any impacts from DDoS attacks etc. on the overall NIS system.

All services are available from all PoPs.

### 2.2 Query Authorisation

Customer queries can be authorised in the following ways:

- **Registered IP authorisation** – customer source IP addresses are registered with XConnect and only queries originating from registered IPs are allowed.
- **User/Password Authorisation** – XConnect provides a user/password which needs to be included with each query.

- **Token** – XConnect provides a user/pass which is used to retrieve a secure token. Customers include the secure token in the query to authenticate the service. Tokens are set to expire after a defined period, depending on the service accessed, and need to be renewed periodically.

Customer authorisation preferences are captured at provisioning time.

### 2.2.1 Recommended Authorisation Method

Access to the XConnect system when using user/pass or token authentication only (i.e., not registered fixed IPs) is more restricted (in both capacity and resilience) to minimise any impacts from DDoS attacks etc. on the overall NIS system.

**It is therefore recommended that:**

- **Unless it's not possible for the customer application, customers should send from fixed IP addresses registered on the XConnect system.**
  - Source IP addresses can be added and removed by raising a support request.
- **Customers with fixed IP addresses should send queries to multiple XConnect PoPs for optimal resilience.**
- **User/pass or token without fixed IP addresses should only be used where registering fixed IPs is impractical.**
  - e.g., if queries can come from undeterminable IP addresses due to the nature of the application.
- **Token is preferred to user/pass authentication for non-registered IP authentication. Customers should only use user/pass if unable to use the token method.**
  - **Note – customers using user/pass authentication for queries should be aware that this method represents a greater risk to data security. Customers using this method therefore implicitly accept this greater risk.**

Please note that customers can have multiple access types configured depending on the service, origination point and use case, and XConnect will work with the customer to determine the optimal set-up if required.

### 2.2.2 User/Pass Authentication

Customers using user/pass authentication add the user/pass provided by XConnect to each query. An example CURL is shown below:

```
curl -X GET https://lookup2.xconnect.net/query/number?service=gnr --user "username:password"
```

### 2.2.3 Token Authentication

For token authentication, customers need to retrieve a different token for each query type that they wish to use (and have contracted for).

To retrieve a token for a given service, customers send an auth request using the user/pass provided by XConnect at provisioning time, an example request to retrieve the token for the GNR query type is shown below:

<http://lookup.xconnect.net/auth?service=gnr> --user "username:password"

The system will respond with a string containing the token to use for query authentication. An example query with Token authentication is shown below:

<http://lookup2.xconnect.net/query/97226218xxx?service=gnr> --header "Authorization:Bearer ZtPy3dioJbJmhTfshW7ZXkjb2c9CqstFO7XPjufWmRJGe28bRhV8SISV0pt9oWnQ"

**Note:**

- The XConnect system will check that the service in the query is the same as the service in the token. If not, the authentication procedure will fail with an **UNAUTHORIZED** error and **"TOKEN\_DOESNT\_MATCH\_SERVICE"** status.
- The query server will check that the expiration date of this token didn't pass. If it did the authentication procedure will fail with an **UNAUTHORIZED** error and **"EXPIRED\_TOKEN"** status. The customer will then need to refresh the token by generating a new auth request.

### 2.2.4 Refreshing the Token

It is recommended that customers refresh the token at least every 8 hours to avoid loss of service when tokens expire, as it may take up to 60 seconds for a new token to be accepted by the system.

## 3 HTTP RESPONSE CODES

In response to the customer query, the system will provide one of the following HTTP responses:

Response Code	Description	Has Body
200	The number information has successfully been fetched	Y (JSON body with information fields and values see below. For example, query/response for each query type.)
400	The request is invalid	Y (error body)
403	Forbidden	Y (error body)
404	No information is available for the given number	Y (error body)
500	Internal Server Error	Y (error body)

**Note** – For customers with the Reason Code feature enabled, query 'failures' will return a 200 response with additional information on why they query 'failed' described in the Reason Code value.

## 4 PRODUCT SELECTION AND CUSTOMISATION

Our HTTP query interface supports several different products and product options.

Different products will return different responses for a given E.164 TN and may have different commercial terms and service characteristics.

In addition to standard products, XConnect can also customise responses to meet particular customer requirements. Customisation can include different data sources, response fields, and service logic.

Available standard query types are described later in this document.

### 4.1 Product Selection by HTTP Service Identifier

Our Service allows customers to choose which query type will be used by selecting a 'Service Identifier' as part of the query, using the following format:

**<https://lookup.xconnect.net/query/<number>?service=<service>>**

Note, customers need to be authorised for each service type they wish to use.

The Service Identifier for each available service type is shown in the descriptions below.

### 4.2 Standard Product Option

XConnect provides a number of product options which may not be desirable for all customers (depending on their application and service design). The following options can be activated on a customer account by contacting XConnect Sales or Support. Note, certain options may incur additional charges.

Also, please note that XConnect can create 'customised' query/response logic and fields returned to better suit customer applications. Customers with bespoke requirements should contact XConnect sales to discuss requirements in the first instance.

#### 4.2.1 Reason Codes

Reason codes provide additional information relating to the handling of the query within the XConnect system. This can include failure reasons (e.g., incorrect number length) and other general information. A list of current reason codes can be found in the document 'NIS Response Codes and Values' available via the customer portal or from the XConnect sales or support teams.

#### 4.2.2 GNR Response on Remote Query Failure

For certain NPQ-GC destinations and all NPQ-Live queries, XConnect generates a remote query to a third-party provider.



In the event the third-party provider fails to respond, XConnect will provide a '**Supplier Timeout**' Reason Code (if the customer has reason codes active) or '**404 – Not Found**' response with no number information.

GNR Fallback allows customers to receive GNR information when a Remote Supplier Timeout occurs, rather than the 'Not Found' response. The response will indicate that a GNR response (rather than NPQ-GC or NPQ-Live) has been provided by setting the NPDI flag to 'false' and providing a specific Reason Code (for Customers with that option activated).

### 4.2.3 Carrier of Record Information in NPQ-GC Response

Customers can request that Carrier of Record information (which is normally provided in the GNR response) is also added to the NPQ-GC response. This allows customers to see both the Carrier of Record and Current Carrier information.

## 5 QUERY TYPES AND EXAMPLE QUERY/RESPONSES

The following sections describe the various query services available through the XConnect HTTP interface.

Explanations of the fields returned for each query type can be found in the document 'NIS Response Codes and Values' available via the customer portal or from XConnect sales/support.

### 5.1 Global Number Range (GNR) Query

The GNR query runs against the XConnect Global Number Range database, which is continually maintained from national regulator data, industry body data (e.g., IR21s) and traffic testing/customer feedback.

The GNR database is also available via download, and customer portal GUI.

The GNR query 'checks' that the TN queried is:

- Correctly formatted (i.e., conforms to E.164 standards)
- Is the correct number length (i.e., falls between the min/max digits for the range)
- Is part of a positively allocated number range (i.e., the range has been allocated to a Service Provider by the national regulator – known as the Carrier of Record (CoR))

The GNR product is typically used for basic number validation (e.g., for customer sign-ups, OBR A-number validation, B-number fraud analysis) and baseline routing where Number Portability based routing information is not required.

**Note** – GNR checks that a TN is within a positively allocated number range, and **not** that the TN is positively allocated to a subscriber.

### 5.1.1 Example GNR Query/Response

The following is an example of a GNR query to a 'valid' number.

```
curl -k -X GET https://lookup.xconnect.net/query/12017773\*\*\*?service=gnr
```

```
{"tn":"12017773***","npdi":false,"npi":false,"cor":"6088","cn":"BROADWING COMMUNICATIONS, LLC - NJ","cc":"US","nt":"wireline","rc":"000"}
```

**Note** for 'invalid' numbers a suitable reason code will be returned identifying the reason the GNR query 'failed'.

## 5.2 Number Portability Query (NPQ) – Global Coverage

The NPQ-GC product returns information about the Service Provider which currently serves the queried TN, taking into account **Number Portability**.

The NPQ-GC product uses Number Portability data from a variety of sources (primarily Number Portability Central Databases (CDBs), to provide global coverage for any E.164 number.

Please see the NPQ-GC coverage sheet for a breakdown of the NPQ-GC data source type for each country.

### **Note –**

- The NPQ-GC product will return a routing result whether the number is ported or not, and whether the country queried has Number Portability or not.
- Global Number Range data is used to provide ownership information for non-ported numbers and countries with no portability.
- Queried numbers are first checked against the GNR database for validity before NPQ resolution. 'Invalid' numbers will be returned with an appropriate reason code.

NPQ-GC is typically used to support SMS or voice call routing, where knowing the 'serving' network for the B-number before routing provides cost or quality benefits for traffic termination.

### 5.2.1 NPQ – GC Example Query/Response

The following shows an example of a successful NPQ-GC query/response.

```
curl -k -X GET https://lookup.xconnect.net/query/972525441\*\*\*?service=npq
```

```
{"tn":"972525441***","npdi":true,"npi":true,"cic":"PL","cn":"Pelephone","cc":"IL","nt":"wireless","mcc":"425","mnc":"03","rc":"000"}
```

### **Note :**

- If the NPQ-GC query 'fails' to return routing information, a suitable reason code will be returned highlighting the failure reason.
- If customers have the 'Fallback to GNR' option enabled, routing information based on GNR data will be returned, NPDI will be set to 'false', and a suitable reason code will be returned.

## 5.3 North American Message Routing Query (USMRQ) Query

The US MRQ is used today by the North American messaging ecosystem to identify if an OTT/MVNO messaging service has been assigned to a given subscriber number so that SMS and MMS messages can be routed effectively to both text-enabled fixed-line numbers (OTT) and mobile numbers allocated to a virtual (MVNO) operator.

Typically, numbers in the MRQ will be allocated to registered NPAC/NANPA Service Providers and then 'leased' to Over the Top providers or MVNOs, resulting in multiple ownership of a given number.

Customers may need to know both the NPAC owner, and the MRQ owner depending on their use case.

XConnect access the MRQ via remote query to the database host.

The XC USMRQ returns both the US NPAC Data (which returns the current Service Provider listed in NPAC/NANPA) and the current service provider listed in our source of additional remote message routing information. In the case where a number is not allocated in this additional source the owner may be the same as in the NPAC.

### 5.3.1 USMRQ Query Example Query/Response.

The following shows an example of a successful USMRQquery/response.

[https://lookup2.xconnect.net/pi/134741483\\*\\*?service=usosr](https://lookup2.xconnect.net/pi/134741483**?service=usosr)

```
{"tn": "134741483**", "npdi": true, "npi": true, "rn": "+19142976199", "cic": "4006", "cn": "LEVEL 3 COMMUNICATIONS, LLC - NY", "cc": "US", "nt": "wireline", "acic": "88405220", "acn": "GoogleTalk",}}
```

#### Note:

- The **acic** and **acn** field shows the XConnect Carrier Identification Code (CIC) and name for the Service Provider listed in our additional remote routing information.
- A full CIC list which maps CICs to names and other attributes can be downloaded from the customer web portal.
- acic and cic may have the same value if the TN is not allocated in our additional remote routing information.
- All other fields are returned from the US NPAC/NANPA query as described in the NPQ-GC query service.

## 5.4 Number Portability Query (NPQ) – Live

The NPQ-Live product is based on live MNO Home Location Register (HLR) lookups and is therefore suitable for applications which require 'real-time' updated information for routing vs NPQ-GC which is typically MNP database-based, with 24-hour updates from the MNP database provider.

In addition to routing information, NPQ-Live returns HLR status information including for example if the number is 'unknown' or 'absent' in the mobile network. This can be used to 'validate' numbers before transacting with the end-user customer (e.g., before sending an SMS, or calling from a call centre etc).

As the NPQ-Live product is based on HLR responses (which are controlled by the destination MNO), coverage is limited to mobile numbers only, and coverage varies by country and network.

**Note** – due to the nature of HLR queries, NPQ-Live coverage is provided as 'best efforts' and coverage may change intermittently outside of XConnect's control.

Please also note – while NPQ-Live will continue to be supported, new customers will be signed up to the new Live Routing or Live Status queries which provide improved performance vs NPQ-Live.

### 5.4.1 NPQ – Live Example Query/Response

The following shows an example of a successful NPQ-Live query/response.

```
curl -k -X GET https://lookup.xconnect.net/query/972525441\*\*\*?service=live
```

```
{"tn":"972525441***","cc":"IL","nt":"wireless","mcc":"425","mnc":"03","rc":"000"}
```

#### Note:

- If the NPQ-Live query 'fails' to return routing information, a suitable reason code will be returned highlighting the failure reason.
- Mapping of the HLR query 'status' response (e.g., if a subscriber is unknown) will be reflected in the reason code field, and no routing information is returned (e.g., MCC and MNC fields will not be present if the HLR query returns unknown subscriber).

## 5.5 Live-Routing and Live-Status Query

The Live-Routing and Live-Status queries use 'live' data sources to provide information on the current Service Provider and 'status' of mobile TNs.

Live information may be derived from MNO HLR queries, MNO APIs, or other 'live' data sources – depending on the country and specific mobile network 'serving' the TN.

The aim of the Live services is to provide current information rather than information derived from MNP databases or other 'non-live' numbering information sources.

There are two variants of the Live service:

- **Live-Routing**
  - Returns the current Service Provider for the TN based on a remote query.
  - If the remote query fails, the system will provide the best routing information available to XConnect e.g., from Global Number Range data.
- **Live-Status**
  - Provides all the information from the Live-Routing query, with additional information on subscriber status e.g., Unknown, Absent as derived from the network data source.

**Please note that Live-Routing and Live-Status queries are expected to replace the current NPQ-Live service for new customers.**

### 5.5.1 Live Services – Coverage

The nature of live services (particularly when HLR query services are used) means that coverage, performance, and capacity is variable and can change frequently depending on the actions of the Mobile networks.

XConnect attempts to mitigate this performance variation by using a wide range of 'live' data source providers to maximise coverage at the individual MNO network level. This includes periodic testing of every mobile network across every 'live' data provider to find the 'best' current coverage and query routing plan.

However, certain networks (or numbers within a network) may be unreachable and data accuracy returned by the network can vary. **Live services are therefore provided on a 'best-efforts' basis.**

On request, XConnect can provide a network based (MCC/MNC) coverage list for live services, which includes the latest round of test results showing tested coverage.

### 5.5.2 Live-Routing and Live-Status Query/Response Examples

The Live-Routing query returns the current Service Provider serving the TN along with other validation and routing information, as shown below:

```
curl -k -X GET https://lookup.xconnect.net/pi/4474125835\*\*?service=liveRouting
```

```
{ "tn" : "4474125835**", "cc" : "GB", "mcc" : "234", "mnc" : "20", "npdi" : true, "npi" : false, "nt" : "wireless", "nv" : "000", "rc" : "000" }
```

The Live-Status query adds information on TN status, as received from the live data source, as shown below:

```
curl -k -X GET https://lookup.xconnect.net/pi/4474125835\*\*?service=liveStatus
```

```
{ "tn" : "4474125835**", "cc" : "GB", "mcc" : "234", "mnc" : "20", "npdi" : true, "npi" : false, "nt" : "wireless", "nv" : "000", "ns" : "000", "rc" : "000" }
```

The only difference between Live-Routing and Live-Status response and functionality is the addition of the NS= (Number Status) field in the Live-Status response.

This allows XConnect to differentiate services where live data sources provide routing information but not status information, but provide greater coverage, quality or cost advantages.

Customers who require both routing and status information should use the Live-Status query, customers who only require routing information should use the Live-Routing query.

Please see the 'XConnect NIS Response fields and Values' document for definition and value of each field.

**Note:**

- The Number Validation (NV) field shows the results of screening the TN against XConnect Global Number Range data. If the NV field is not 000 (i.e., a valid number), then routing and status fields will not be provided.
- If the remote query to the MNO network 'fails' to provide routing information, routing information will be returned from XConnect GNR data. NPDI will be set to false, and an appropriate Reason Code will be presented.

## 5.6 Port History Queries

The Port History service allows customers to query a TN to retrieve information about when the TN was last ported and how often the number has been ported in a given period.

Port history is typically used as part of a customers' risk assessment suite for fintech applications.

There are two variants of the port history service depending on the particular country datasource:

- **Onboard countries –**
  - Where XConnect has onboarded the MNP database for a particular country.
  - Port history is derived from the (usually daily) updates to the database.
  - See the 'Port History Coverage' document for details of onboard databases and the length of history available.
- **Remote countries –**
  - Where XConnect provides port history using traffic records from NIS service queries, or where XConnect can query a remote provider's port history service.
  - Currently only available for the UK market.

Information available between onboard and remote sources may vary due to the nature of the data source.

## 5.6.1 Port History – Onboard Countries

Port history for onboard countries is derived from updates to XConnect onboard MNP databases. Typically, MNP databases are updated daily.

There are two query variants for onboard countries:

- **History** – allows the customers to determine the amount of times a TN has ported within a specified period of days.
- **Last Ported** – allows the customer to determine when a TN was last ported and which Service Provider now serves the number.

### 5.6.1.1 Port History Query/Response Example

The following shows an example port history query/response where the customer specifies the TN and number of days to search and the system returns the number of times the TN has ported in that period.

[http://lookup.xconnect.net/pi/407435985\\*\\*?service=ports&days=1000](http://lookup.xconnect.net/pi/407435985**?service=ports&days=1000)

```
{"tn":"40743598530","ports":"2","rc":"000"}
```

#### Note –

- Customers enter the number of days to be 'searched' in the ports&days query field – 1000 shown in the example.
- If the period is longer than the available history in the database, history will be returned from the earliest available date as specified in the coverage sheet.
- If the number is not covered by the service an appropriate Reason Code will be returned and the remaining fields will not be provided.

### 5.6.1.2 Last Ported Query/Response Example

The last ported query allows the customer to determine whether a TN is ported and when the date of the last port was.

[https://lookup.xconnect.net/pi/411356497\\*\\*?service=ported](https://lookup.xconnect.net/pi/411356497**?service=ported)

```
{"tn":"411356497**","valid":"Y","nt":"wireless","npi":true,"cor":"88401837","cic":"88403073","lastPorted":"26/06/2018","rc":"000"}
```

#### Note –

- Valid – tests whether the number is valid against Global Number Range. If Valid=N then no other fields except RC are returned. RC will provide an appropriate Reason Code for the valid failure.
- The NPI flag indicates whether the number is currently ported (true=ported).
- If the number is not ported the Carrier of Record (COR – the number range holder) and Carrier Identification Code (CIC) will be the same and Last Ported date is set to DD/MM/YYYY.
- If the number is ported the CIC will show the current Service Provider.
- The current list of Carrier Identification Code (CIC) mapping to Service Provider names is available via the customer web portal.

## 5.6.2 Port History – UK

As there is no Central Number Portability database in the UK, XConnect has created a Port History service based on analysis of our NIS traffic records to UK Mobile Telephone Numbers.

The database to support UK Port History (UKPH) is created through analysis of relevant XConnect NIS query traffic to the UK. i.e., for selected numbers queried on the XConnect system for any service, the system checks whether there is a change in the current service provider and updates the database with the change (if there was a change), and records when the number was 'last seen' by the system.

The UK Port History (UKPH) service returns the last port date, the service provider ported 'from', and the service provider ported 'to' for UK mobile numbers.

Please note the following:

- As the service is populated through traffic records, the last port date provided by the service is the date XConnect saw the change, which is not necessarily the date the change happened.
- In addition to the 'change' date, the service will also return the 'last seen' date, irrelevant of whether last seen was a change, allowing customers to see the last time the number was checked.
- Some numbers will not be in the database (if they have never been queried) and an appropriate reason code will be returned in this case.

### 5.6.2.1 UK Port History Query/Response Examples

The following shows example query/response for UK Port History queries.

#### **Number In the Database – Ported Since the Database Began**

```
curl -X GET http://lookup.xconnect.net/pi/4477748174\*\*?service=ukported
```

```
{ "tn" : "4477748174**", "phdbpcic" : "88260671", "phdbccic" : "88260589", "changeSeen" : "01/05/2022", "lastSeen" : "23/06/2022", "
```

The pcic identifies the previous carrier, and ccic identifies the current carrier.

#### **Number in Database – Not Ported Since the Database Began**

```
curl -X GET http://lookup2.xconnect.net/pi/4475902240\*\*?service=ukported
```

```
{ "tn" : "4475902240**", "phdbpcic" : "88260589", "phdbccic" : "88260589", "changeSeen" : "01/05/2022", "lastSeen" : "12/06/2022", "rc" : "000" }
```

Both the pcic and ccic are the same since the database was created.

#### **Number not in DB**

```
curl -X GET http://lookup2.xconnect.net/pi/447590224095?service=ukported
```

```
{ "tn" : "447590224095", "phdbpcic" : "88260589", "phdbccic" : "88260589", "rc" : "116" }
```

If the number is not in the database, pcic and ccic will be the Carrier of Record, and Reason Code 116 is returned.



## 5.7 Do Not Originate (DNO) Query

DNO query enables customers to specifically check the validity of an A-number (i.e. the originating number) by screening the number against both XConnect Global Number Range (GNR) data, and Do Not Originate (DNO) lists.

- GNR screening checks that the number is the correct length and is part of a range that is allocated to a Service Provider.
  - GNR provides global coverage.
- DNO screening checks whether the number is on a Do Not Originate list.
  - Current DNO coverage is for the US only using the SOMOS USA Realnumber DNO database which is onboarded to XConnect PoPs.
  - XConnect expects to offer other national DNO lists as these become available.
  - For an up-to-date list of DNO country coverage, check with XConnect Sales or Support.

Examples of DNO use cases include number validation/risk assessment in ecommerce application, and regulatory compliance.

### 5.7.1 DNO Query/Response Examples.

A number validation query returns the results of screening the number against GNR and DNO. The following shows query response examples for various scenarios.

#### 5.7.1.1 A Number Valid on GNR and Not DNO.

[http://lookup.xconnect.net/pi/124080524\\*\\*?service=dno](http://lookup.xconnect.net/pi/124080524**?service=dno)

```
"tn" : "124080524**", "nv" : "000", "nt" : "wireless", "cor" : "4036", "dno" : "0", "rc" : "000"
```

#### Note –

- NV field shows the results of screening vs GNR, in this case the number passes screening and NV is set to 000.
- DNO field shows the results of screening vs DNO lists, in this case the number is not on a DNO list and DNO is set to 0.
- For remaining field definitions and all valid values, see XConnect NIS Response Fields and Values document available from support or the Customer web portal.

#### 5.7.1.2 A Number Invalid vs GNR

<http://lookup.xconnect.net/pi/1240?service=dno>

```
"tn" : "1240", "nv" : "001", "dno" : "2", "rc" : "005"
```

#### Note –

- NV field shows the results of screening vs GNR, in this case the number is too short and NV is set to 001.

- DNO field shows the results of screening vs DNO lists, as the number is invalid it is not screened against DNO, so DNO = 2.
- For remaining field definitions and all valid values, see XConnect NIS Response Fields and Values document available from support or the Customer web portal.

### 5.7.1.3 A Number Valid vs GNR and on DNO List.

[http://lookup.xconnect.net/pi/180020126\\*\\*?service=dno](http://lookup.xconnect.net/pi/180020126**?service=dno)

```
{ "tn" : "180020126**", "nv" : "000", "nt" : "service", "cor" : "88404673", "dno" : "1", "dnot" : "1", "rc" : "000" }
```

#### Note –

- NV field shows the results of screening vs GNR, in this case the number is valid and NV is set to 000.
- DNO field shows the results of screening vs DNO lists, in this case the number is on the US DNO list and DNO is set to 1.
  - Note the US DNO list includes a 'type' definition representing the source of the DNO marking. This is shown in the DNOT field, in this case DNO Type is 1 – manually set by a Service Provider.
- For remaining field definitions and all valid values, see XConnect NIS Response Fields and Values document available from support or the Customer web portal.

## 6 NIS CUSTOMER WEB PORTAL

Through our web portal, our customers have the ability to do the following, depending on services purchased:

- Raise support tickets and information requests to the XConnect NOC
- Access reports on NIS query usage
- Generate individual test queries
- Generate batch queries
- Access the GNR download and GNR GUI features
- Access the latest product documentation.
- Access the latest Carrier Identification Code list, which contains CIC to Carrier Name mappings
- Request additional Portal Logins

Web portal access is provided to a named individual only. Additional logins can be requested via the portal, or by contacting XConnect support.