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BUSINESS

Wholesale Connect API Gateway

Quote API User Guide

Version 1.5

Change Log

Change date	Document version number	Comments
11/2022	1.0	• This Quote API user guide has been isolated from the previous aggregated user guide document and shared as a new, singular document • Sectioning, titles, and format updated • Updated JSON structures, HTTP Header descriptions, Attribute description tables, Error response code descriptions • TOID and PacePremiseID removed from request attributes • Incident and change management section updated • FAQ section added
04/2023	1.1	• **QuoteData.Circuits.Circuit.CircuitConfiguration** 'circuitBandwidth' description updated with notice about circuit bandwidth capacity vs. access circuit bandwidth capacity (*Section 5.3*) • Amended object name formatting in attribute description tables, for greater clarity on cadence of JSON structure (*Sections 5.3; 5.4; 5.5; 5.6; 5.7; 5.8; 5.9; 5.10*) • productName value in National Ethernet request amended from 'NNE' to 'NE' (*Section 5.3*) • NTU request options updated for National Ethernet and Ethernet Extensions (*Sections 5.3; 5.5*) • **Error response changes** *(Section 6.1 Virgin Media Business response codes)***:** • Error response codes added: E0022; E0024; E0055; E0056; E0066; E0077; E0084; E0229; E0334; E0335 • Error response codes removed: E0033; E0035; E0039; E0040; E0041; E0085; E0086; E0136; E0140; E0156 • Error response code descriptions updated: P0001; E0023 • Answer for FAQ '*As a Wholesale Connect user, can you give me access to UPRN data?'* updated • Kiteworks folder links updated in sections *5.11 RAML* and *7.1 Sample test cases* • Postman file names updated in section *7.2 Postman instructions*
06/2023	1.2	• Update to NTU Type attribute in Section 5.3.
05/2024	1.3	• Time to Deliver Gross included in section 5.4 • Time to Deliver Net included in section 5.4
01/2025	1.4	• Addition of 2 new attributes to the input: Care level and AssuredInformationRate • Addition of 1 attribute to the output: CAT • Design modifications to make the attribute tables clearer • Changes to the Postman file location and testing process in section 7.
03/2026	1.5	• Removal of attributes AIR, QOS and NTU • Additional Error codes added for EoFTTP (E0341, E0342)

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1. Hello and welcome

Welcome to our Wholesale Connect API Gateway service. We're pleased to have you on board. This service will give you access to API capabilities of your choice including the ability to quote, place orders and track the status of your orders through your native systems, enabling a more seamless and automated quote to order delivery journey.

Our next generation API portfolio consists of a suite of RESTful APIs, written in JSON – a more modern, readable language that will make life that much easier for your developers. All our APIs now support four key products: National High Capacity Services and Dedicated High Capacity Services – through which you can now access bandwidths of up to 10GB, in addition to our standard National Ethernet and Ethernet Extensions products.

Our Quote API service has been designed specifically to support you in building a consolidated view of pricing and serviceability quotes from multiple suppliers, with efficiency and ease.

Our order creation Order API service will then enable you to convert the quotes you have raised into new orders, placed directly from your native systems into our order management systems, offering an additional level of automation to your order journey.

Finally, our order status tracking Order API service will introduce a brand-new, order tracking automation capability that will provide real-time completion and ad-hoc updates about the status of your order delivery at each delivery stage - removing the need to manually request updates through your Service Desk, Service Manager or Account Manager contacts.

We believe the integration of these API services will provide you with a more seamless and uninterrupted workflow across your ordering journey – significantly improving your ease of doing business with us.

You'll probably want to keep this document somewhere handy for future reference.

2. Guide Purpose

The purpose of this guide is to give you the information you need to successfully integrate and activate our RESTful Quote API service. This guide will also provide instructions on how to troubleshoot error responses. The business rules and validations that are provided in this document should be carefully considered while developing your own interface for use of our API.

Our Quote API service allows users to access Virgin Media Business pricing and serviceability quotes for the following products:

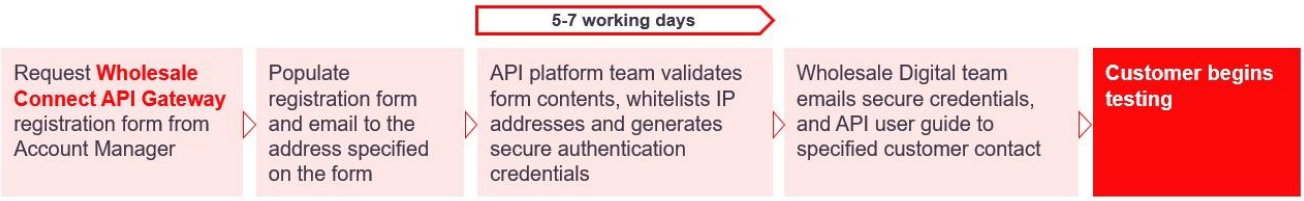
- National Ethernet;
- Ethernet Extensions;
- National High-Capacity Services (NHCS); and
- Dedicated High-Capacity Services (DHCS).

3. Getting Connected

This section of the user guide will outline how to register for our API service and a description of how your access to our service will be authenticated.

3.1 Customer registration

To formally request access to any of our API services, you'll need to complete this **registration form** and return it to the email address at the bottom of the form. The diagram below outlines this process.



To access any of our Virgin Media Business API services, you must be registered within our Wholesale Connect API Gateway and in our business systems.

Using the details provided on your registration form, our API platform team will create an internal customer account for you within our API Gateway, to which they will assign the API service(s) you wish to consume. The team will also generate and share access credentials for our API Gateway, in the form of a unique **client ID and secret key**. The registration process will also include the whitelisting of your IP addresses, as a mandatory security measure.

3.2 API Gateway authentication

Our new RESTful APIs have been developed with connectivity being authenticated and secured via an API Gateway. Our Wholesale Connect API Gateway plays a vital role in ensuring connectivity between your systems and Virgin Media Business systems is secured to the appropriate level.

The client ID and secret key credentials issued to you, during registration, will be essential to accessing our APIs, as our API Gateway will authenticate all your API requests, to ensure they have been sent with your unique credentials.

You will need to pass the client ID and secret key in the http request headers for your API request, as shown in *Section 5.2* of this document. Both headers are mandatory for all your API requests.

This table displays the header name and sample values of your client ID and secret credentials:

Header name	Sample values
MWH-AppID	VMB_07645
MWH-ClientSecret	3c1fE3AA48CB46789D45Acc22c2601dB

Your credentials will be renewed at set intervals as per Virgin Media's security guidelines. You will be notified one month in advance to refresh the new credentials in your server.

In case you need any additional details related to API credentials, please contact our Digital team through your Account Manager.

4. Products

This section contains details of the Virgin Media Business products and bandwidths, for which you can access pricing and serviceability options, through this API:

National Ethernet

Circuit Bandwidth must always be less than or equal to Access Bandwidth (Access Bandwidth ≤ Circuit Bandwidth)

Access Type	Network Status	Access Circuit/Bearer Bandwidth	Circuit Bandwidth
Ethernet	On-Net Off-Net	10Mbps; 100Mbps; 1Gbps; 10Gbps	10Mbps; 20Mbps; 30Mbps; 40Mbps; 50Mbps; 60Mbps; 70Mbps; 80Mbps; 90Mbps; 100Mbps; 200Mbps; 300Mbps; 400Mbps; 500Mbps; 600Mbps; 700Mbps; 800Mbps; 900Mbps; 1Gbps; 2Gbps; 3Gbps; 4Gbps; 5Gbps; 10Gbps
EoFTTP Premium	On-Net Off-Net	100 Mbps; 200 Mbps; 500 Mbps, 1 Gbps	10Mbps; 20Mbps; 30Mbps; 40Mbps; 50Mbps; 60Mbps; 70Mbps; 80Mbps; 90Mbps; 100Mbps; 200Mbps; 300Mbps; 400Mbps; 500Mbps; 600Mbps; 700Mbps; 800Mbps; 900Mbps; 1Gbps;
EoFTTP Lite	On-Net Off-Net	100 Mbps; 200 Mbps; 500 Mbps; 1 Gbps; 2 Gbps; 5 Gbps;	10Mbps; 20Mbps; 30Mbps; 40Mbps; 50Mbps; 60Mbps; 70Mbps; 80Mbps; 90Mbps; 100Mbps; 200Mbps; 300Mbps; 400Mbps; 500Mbps; 600Mbps; 700Mbps; 800Mbps; 900Mbps; 1Gbps; 2Gbps; 3Gbps; 4Gbps; 5Gbps;

Ethernet Extensions

Access Circuit	Network Status	Access Circuit/Bearer Bandwidth	Circuit Bandwidth
Ethernet Extensions	On-Net	Not Applicable	10Mbps; 100Mbps; 1Gbps; 10Gbps

National High-Capacity Services (NHCS)

Access Circuit	Network Status	Access Circuit/Bearer Bandwidth	Circuit Bandwidth
NHCS	On-Net Off-Net	Not Applicable	10Gbps

Dedicated High-Capacity Services (DHCS)

Access Circuit	Network Status	Access Circuit/Bearer Bandwidth	Circuit Bandwidth
DHCS	On-Net	Not Applicable	10Gbps

5. Quoting

Our Wholesale Connect Quote API is a RESTful API service that enables users to generate quotes containing Virgin Media Business pricing and serviceability options for the connectivity products listed in **Section 4** of this user guide.

Based on user feedback, before reading the descriptions that follow, you may find it helpful to use the Engage portal to raise a few quotes, as many of the elements below are also presented within the Engage quote process. Our API views a network service model as consisting of:

Sites

- The location to which the service is delivered
- Most products involve two sites (an A-End & a B-End site)

Circuits

- A circuit is the site-to-site connection between one A-End and one B-End.
- Example: an EVC is an Ethernet service

This model will be reflected in the structure of your JSON request and corresponding JSON response.

If a quote is raised for a circuit between a user's site and a 3rd party site, the user's site should always be captured as the A-End site, as this will enable a more efficient ordering process.

As part of the quote process, the user can use the following search criteria for site selection:

UPRN:
This is our preferred premise identifier, the new Unique Property Reference Number provided by the Ordnance Survey which enables premise-level pricing, thereby improving quote accuracy (see Frequently Asked Questions).

X & Y Co-ordinates:

- A search will be completed using the exact co-ordinates provided.
- Where this is unavailable, the search will be expanded, to a maximum radius of 10m, until a valid record is identified. Please note that a valid postcode must be provided to ensure there is context for the X & Y coordinates.

Postcode:

- Since a postcode usually contains several premise addresses, this criterion will arbitrarily choose one of the premises - meaning the resulting quote should be regarded as indicative, with a reduced level of accuracy.
- If the chosen postcode contains either a generic Point of Interconnect (POI) or Customerspecific POI (CS POI), then this site will always be automatically selected.
- If the chosen postcode contains both a POI and a CS POI, then the site used will be the CS POI

Where a request contains more than one of the criteria listed above, the search will be completed in the following order until a valid record is identified:

- UPRN
- X & Y Co-ordinates
- Postcode

Please note that it is always necessary to pass a postcode as part of the site details section of this API service.

Quick quotes and Quick Sites

Our API also provides the ability to display Quick Quotes and Quick Sites.

These attributes are used to indicate a choice between multiple potential premises (*IsQuickSite*). In such instances, the quote should be regarded as budgetary with a reduced level of accuracy (*IsQuickQuote*).

The information in the API response is as follows:

- A Boolean attribute called *IsQuickQuote* in the Pricing element
- A Boolean attribute called *IsQuickSite* in the Site element

The logic applied is detailed in the following table:

IsQuickSite = True	IsQuickSite = False

• Site identified by postcode only • Site identified by X & Y co-ordinates and postcode (where these details identify multiple premises)	• Site identified by UPRN • Site identified by X& Y co-ordinates and postcode (where these details identify a single premise)

Ordnance Survey UPRN Data

To provide accurate pricing, we require each user to incorporate UPRN (Unique Property Reference Number) within their interface. UPRN is a unique reference assigned by the Ordnance Survey to identify every premise throughout the UK. This identifier enables pricing at a premise level which ensures better accuracy of serviceability quoting.
UPRN data is owned by the Ordnance Survey. Whilst we have signed an agreement with them to be able to share this data with you, we need to ensure that we provide access in accordance with their supporting terms and conditions. You will be required to sign an agreement before we provide you with access to this data, which you can then incorporate within your interface.

5.1 Quote API Environment details

We currently operate two instances of our API services: Staging (pre-production) and Production (live) environments.

We operate our Staging environment to enable prospective users to develop application code to integrate with our APIs, whilst avoiding any impact to our Live environment. Please note that response times may be notably longer in our Staging environment than in our Live environment.

Once you are happy with your application code in the Staging environment, please let us know before you deploy the changes to the Live environment, so we can ensure proactive support is in place.

These tables display the environment details required to create a quote:

Action	Environment type	Resource path	REST method	Version
Create new quote	Staging (preproduction)	exp-ws-quote/v1/stg/api/firmquote	POST	V1
	Production (live)	exp-ws-quote/v1/api/firmquote	POST	V1

Environment type	Host name	Purpose
Staging (pre-production)	https://gw-vip-n.b2b.gcp.virginmediao2.com/stg1/exp-ws-quote/v1/firmquote	Development & testing

Production (live)	https://gw-vip.b2b.gcp.virginmediao2.com/exp-ws-quote/v1/firmquote	Production usage only

5.2 HTTP Headers

This table lists the http headers that should be passed in your Quote API request. Values for nonmandatory attributes can be omitted. Please ensure that the spelling and letter casing of all mandatory attribute names, is exact, to avoid receiving an error response.

Header name	Description	Data type	Mandatory	Example value
MWH-AppID	This is the client ID authentication credential issued to you during registration	String	Yes	VMB_07645
MWH-RequestID	An identifier, unique to each request/response message, which will be used to map log and error messages against a user's request. Recommendation is to use GUID.	String	Yes	b1321522- bfc5-4b04-8004- 4b21dc06e389
MWH-RequestTimestamp	Specifies the date and time a request was created	DateTime	Yes	2021-01-17T09:30:47Z
MWH-ChannelID	Identifies the channel which is making the request. Please use the example value input to populate this header.	String	Yes	WHOLESALE
MWH-CorrelationID	A unique identifier value that is attached to request/response message, referencing a particular transaction	String	No	M4981522- bfc5-4b04- 8004-4b21dc06e389
MWH-ClientSecret	This is the secret key authentication credential issued to you during registration	String	Yes	3c1fE3AA48CB46789D45Acc22c2601dB

MWH-UserId	This is the ID which authorises your request within our pricing system and will be identical to an active username from your Engage customer account. This value will be emailed to you in addition to your clientID credential, during registration.	String	Yes	307451AkhtarA
MWH-OriginatorID	This is the API customer reference used to identify the request source. Please use your company name to populate this value as demonstrated in the example	String	Yes	VIRGIN_MEDIA_BUSINESS

5.3 National Ethernet request input

Attribute description table

	Attribute name	Type	Mandatory	Description	Value options
quoteData					
	productName	String	Yes	Name of product	NE
	quoteName	String	Yes	User specified quote name	User specified
	apiQuoteType	Number	No	Denotes the type of API user creating the quote. Default value is as shown.	Please leave blank
quoteData.quoteHeader					
	contractTerm	Number	Yes	Contract term for a quote. 1,2,3,4 or 5 year terms apply.	1;2;3;4;5
	billingFrequency	String	Yes	User specified value for billing frequency. Quarterly should be selected unless otherwise agreed with VMB.	Monthly; Quarterly; Annually
	reporting	String	No	Reporting options for the quote	Basic Network Reporting;

					Advanced Reporting; No Reporting
	layer2ControlProtocol	String	Yes	Option to select Layer 2 Control Protocol for the quote	Yes or No
	promotionCode	String	No	Promotion code for the quote, if relevant	6MonthsFree; or 3MonthsFree
quoteData.sites					
quoteData.sites.site					
	name	String	Yes	Name of site for reference. The site name specified in this attribute must be the same input given to the corresponding *siteAName* or *siteBName* name in the *circuitDetails* section. Repeat this object for multisite quotes.	User specified
quoteData.sites.site.siteDetails					
	sitePostcode	String	Yes	Postcode of the site.	User specified
	UPRN	Number	No	UPRN of the site.	User specified – please enter the integer '0' if not required
	XCoordinate	Number	No	X coordinate of the site.	User specified
	YCoordinate	Number	No	Y coordinate of the site.	User specified
	siteFlag	Boolean	No	Site flag to set visible or hidden sites. Default value as shown.	True
	useInterconnect	String	N	If "Yes", a POI (Point of Interconnect) will be used, if exists, for the given site details. If "No", a normal site will be used. If null/left blank, it will be considered as "Yes"	Yes or No
quoteData.sites.site.siteConfiguration					
	accessCircuit	String	Yes	Access circuit type	Ethernet, EoFTTP, EoFTTP Lite
	flavour	String	Yes	Flavour of the site. Passing an empty string "" will return off-net results if there is no on-net PoP available. The 'ONNET' or 'OFFNET' values will return exclusive such results. In the event that no 'ONNET' PoPs are	Empty string or: ONNET; OFFNET

				available, the E0029 “PoP not found” error response will be returned.	
	bandwidth	String	Yes	Access circuit bandwidth for the site	10 Mpbs; 100 Mbps; 1 Gbps; 10 Gbps
	careLevel	String	No	CareLevel specifies the max amount of time to resolve a fault/issue	e.g. Enhanced (EoFTTP), Premium (EoFTTP)
	primaryRouter	String	No	Primary Router for MRI	User specified
	backupRouter	String	No	Backup Router for MRI	User specified
quoteData.circuits.circuit					
	name	String	Yes	Name of the circuit to be created. Repeat this object for multi-site quotes.	User specified
quoteData.circuits.circuit.circuitDetails					
	siteAName	String	Yes	Reference name of SiteA participating in circuit. Please ensure this input mirrors the corresponding site name created in the *sites.Site* section.	User specified
	siteBName	String	Yes	Reference name of SiteB participating in circuit. Please ensure this input mirrors the corresponding site name created in the *sites.Site* section.	User specified
quoteData.circuits.circuit.circuitConfiguration					
	circuitBandwidth	String	Yes	Bandwidth configured for the circuit. Should always be less than or equal to the value for the ‘bandwidth’ attribute within the siteConfiguration object, which represents the access circuit bandwidth capacity.	See *Section 4; National Ethernet* table for options
	qoSTemplate	String	*Yes	If ‘Qos’ attribute is “Yes”, then ‘QosTemplate’ is Mandatory	Classic; Complex Data Environments; Converged

					Applications; Multi Media Application; Advanced Environments

Request JSON structure


```
{
    "quoteData": {
        "productName": "NE",
        "quoteName": "Test_NE_041021_877",
        "apiQuoteType": 2,
        "quoteHeader": {
            "contractTerm": "2",
            "billingFrequency": "Annually",
            "qOS": "No",
            "layer2ControlProtocol": "Yes",

        },
        "sites": {
            "site": [
                {
                    "name": "Site1",
                    "siteDetails": {
                        "sitePostcode": "E11AA",
                        "UPRN": 6181916,
                        "XCoordinate": null,
                        "YCoordinate": null,
                        "siteFlag": true,
                        "useInterconnect": "Yes"
                    },
                    "siteConfiguration": {
                        "accessCircuit": "Ethernet",
                        "bandwidth": "10 Mbps",
                        "flavour": "",
```

```
                    "NTU": "Alcatel 8 Port",
                    "serviceReporting": "No Reporting",
                    "primaryRouter": "ASR1001X-10G-K9 + SLASR1-AIS SKU 10010718",
                    "backupRouter": "ASR1001X-10G-K9 + SLASR1-AIS SKU 10010718"
                }
            },
            {
                "name": "Site2",
                "siteDetails": {
                    "sitePostcode": "E114AA",
                    "UPRN": 0,
                    "XCoordinate": 0,
                    "YCoordinate": 0,
                    "siteFlag": true,
                    "useInterconnect": "Yes"
                },
                "siteConfiguration": {
                    "accessCircuit": "Ethernet",
                    "bandwidth": "10 Mbps",
                    "flavour": "",
                    "NTU": "Alcatel 8 Port",
                    "serviceReporting": "No Reporting",
                    "primaryRouter": "",
                    "backupRouter": ""
                }
            }
        ]
    },
    "circuits": {
        "circuit": [
            {
                "name": "Site1-Site2",
                "circuitDetails": {
                    "siteAName": "Site1",
                    "siteBName": "Site2"
                },
                "circuitConfiguration": {
                    "circuitBandwidth": "4 Mbps",
                    "qoSTemplate": ""
                }
            }
        ]
    }
} }
```


5.4 National Ethernet response output

Attribute description table

Object Name	Attribute Name	Type	Description
quotePricing			
	customerID	Number	Engage customer ID used to request this quote
	quoteID	Number	Internal Quote ID for this quote
	productName	String	Product name
	responseCode	String	Output response code
	isQuickQuote	Boolean	Boolean to denote quick quote option
	layer2ControlProtocol	String	Yes or No
	quoteValidity	Number	Validity of the quote
quotePricing.sites			
quotePricing.sites.site			
	name	String	User specified name of the site created
	siteType	String	Value options: CustomerSpecificPOI,
			GenericPOI or Normal
	accessFlavour	String	AccessFlavour: Onnet or Offnet
	netStatus	String	NetStatus for the Site (specifies distance-toduct related serviceability of the site). Response options are: Lit Building; Serviceable Building; Near Net >100m Dig, Priced Offnet; Offnet
	TimetoDeliverGross	Int	Gross mean Time To Deliver in days for the site (displayed only for onnet sites)
	TimetoDeliverNet	Int	Net mean Time To Deliver in days for the site (displayed only for onnet sites)
	CAT	Decimal	Delivery category including specifics
	isQuickSite	Boolean	Boolean to denote quick quote option
quotePricing.circuits.circuit			
	name	String	Name of the circuit to be created
	siteAName	String	Reference name of AEnd site participating in circuit

	siteBName	String	Reference name of BEnd site participating in circuit
quotePricing.totalPricing			
	oneOff	Number	Total install cost
	annualRental	Number	Total rental cost
	promotionCode	String	Defines the promotion applied, if relevant
	promotionalSavingOverTerm	Number	Defines the promotion value, if relevant
	TCV	Number	Specifies the Tariff Summary

Response JSON structure


```
{
  "customerID": 72262,
  "quoteID": 34748242,
  "productName": "NE",
  "responseCode": "P0001",
  "isQuickQuote": true,
  "layer2ControlProtocol": "Yes",
  "quoteValidity": 30,
  "sites": {
      "site": [
          {
              "name": "E11AA - SECOND FLOOR 180-206 WHITECHAPEL ROAD LONDON - 6181916",
              "siteType": "Normal",
              "accessFlavour": "On Net",
              "netStatus": "Lit Building",
              "TimetoDeliverGross": 21,
              "TimetoDeliverNet": 46
              "CAT": 1.2,
              "isQuickSite": false
          },
          {
              "name": "E114AA - 3 BRAILEY HOUSE 485 GROVE GREEN ROAD LEYTONST - 10093563781",
              "siteType": "Normal",
              "accessFlavour": "On Net",
              "netStatus": "Serviceable Building",
              "isQuickSite": true
          }
      ]
  },
  "circuits": {
      "circuit": [
          {
              "siteAName": "E11AA - SECOND FLOOR 180-206 WHITECHAPEL ROAD LONDON - 6181916",
              "siteBName": "E114AA - 3 BRAILEY HOUSE 485 GROVE GREEN ROAD - 10093563781",
              "name": "Site1-Site2"
```

```
            }
        ]
    },
    "totalPricing": {
        "oneOff": 61406.79,
        "annualRental": 3398,
        "TCV": 68202.79
    }
}
```


5.5 Ethernet Extensions request input

Attribute description table

Object name	Attribute name	Type	Mandatory	Description	Value options
quoteData					
	productName	String	Yes	Name of product	EE
	quoteName	String	Yes	User specified quote name	User specified
	apiQuoteType	Number	No	Denotes the type of API user creating the quote. Default value is as shown.	3 -Test user
quoteData.quoteHeader					
	contractTem	Number	Yes	Contract term for a quote. 1,2,3,4 or 5 year terms apply.	1;2;3;4; 5
	billingFrequency	String	Yes	User specified value for billing frequency. Quarterly should be selected unless otherwise agreed with VMB.	Monthly; Quarterly; Annually
	promotionCode	String	No	Promotion code for the quote	6MonthsFree; or 3MonthsFree
quoteData.sites					
quoteData.sites.site					
	name	String	Yes	Name of site for reference.	User specified

quoteData.sites.site.siteDetails					
	sitePostcode	String	Yes	Postcode of the site	User specified
	UPRN	Number	No	UPRN of the site	User specified – please enter the integer ‘0’ if not required
	XCoordinate	Number	No	X coordinate of the site	User specified
	YCoordinate	Number	No	Y coordinate of the site	User specified
	siteFlag	Boolean	No	Site flag to set visible or hidden sites. Default value as shown	True
quoteData.circuits					
quoteData.circuits.circuit					
	name	String	Yes	Name of the circuit to be created. Recommende d format is: [Site 1] – [Site 2], as shown in JSON structure.	User specified
quoteData.circuits.circuit.circuitDetails					
	siteName	String	Yes	*quoteData.site s.site* object.	User specified
quoteData.circuits.circuit.circuitConfiguration					
	flavour	String	No	Flavour of the Site	Onnet; Offnet
	NTU	String	No	NTU for the site	Alcatel 8 Port; Alcatel 24 Port Single Power; Alcatel 24 Port Dual Power; Alcatel High Bandwidth Single Power; Alcatel High Bandwidth Dual Power; Existing
	circuitBandwidth	String	Yes	Bandwidth configured for the circuit.	See *Section 4; Ethernet Extensions* table

Request JSON structure

```
{
  "quoteData": {
    "productName": "EE",
    "quoteName": "TCS_Test_EE_645",
    "apiQuoteType": 2,
    "quoteHeader": {
      "contractTerm": "4",
      "billingFrequency": "Quarterly",
      "promotionCode": "6 Months Free"
    },
    "sites": {
      "site": [
        {
          "name": "Site1",
          "siteDetails": {
            "sitePostcode": "E11AA",
            "UPRN": null,
            "XCoordinate": null,
            "YCoordinate": null,
            "siteFlag": true
          }
        },
        {
          "name": "Site2",
          "siteDetails": {
            "sitePostcode": "E11AB",
            "UPRN": null,
            "XCoordinate": null,
            "YCoordinate": null,
            "siteFlag": true
          }
        }
      ]
    },
    "circuits": {
      "circuit": [
        {
          "name": "Site1-Site2",
          "circuitDetails": {
            "siteA": {
              "siteName": "Site1"
            },
            "siteB": {
              "siteName": "Site2"
            }
          },
          "circuitConfiguration": {
            "circuitBandwidth": "100 Mbps"
          }
        }
      ]
    }
  }
}
```

5.6 Ethernet Extensions response output

Attribute description table

Object Name	Attribute Name	Type	Description
	customerId	Number	Engage customer ID used to request this quote
	quoteId	Number	Internal Quote ID for this quote
	productName	String	Product name
	responseCode	String	Output response code
	isQuickQuote	Boolean	Boolean to denote quick quote option
	quoteValidity	Number	Validity of the quote
quotePricing.circuits			
	name	String	User specified name of the circuit to be created.
quotePricing.circuits.circuit			
quotePricing.circuits.circuit.siteA / B			
	name	String	User specified name of SiteA/SiteB participating in circuit
	accessFlavour	String	Site Access Flavour: Onnet or Offnet
	netStatus	String	Net Status for the Site
	isQuickSite	Boolean	Boolean to denote quick quote option
quotePricing.totalPricing			
	oneOff	Number	Total install cost
	annualRental	Number	Total rental cost
	promotionCode	String	Defines the promotion applied, if relevant
	promotionalSavingOve rTerm	Number	Defines the promotion value, if relevant
	TCV	Number	Specifies the Tariff Summary

Response JSON structure


```
{
    "customerID": 1234,
    "quoteID": 34748243,
    "productName": "EE",
    "responseCode": "P0001",
    "isQuickQuote": true,
    "quoteValidity": 30,
    "circuits": {
        "circuit": [
            {
                "name": "Site1-Site2",
                "siteA": {
                    "name": "E11AA - THIRD FLOOR 192-206 WHITECHAPEL ROAD LONDON - 6714664",
                    "accessFlavour": "On Net",
                    "netStatus": "Serviceable Building",
                    "isQuickSite": true
                },
                "siteB": {
                    "name": "E11AB - FLAT 23 WOOL HOUSE 74 BACK CHURCH LANE LONDON - 6211427",
"accessFlavour": "On Net",
                    "netStatus": "Serviceable Building",
                    "isQuickSite": true
                }
            }
        ]
    },
    "totalPricing": {
        "oneOff": 3050,
        "annualRental": 1346.52,
        "TCV": 8436.08
    } }
```


5.7 NHCS request input

Attribute description table

Object Name	Attribute Name	Type	Mandatory	Description	Value Options
quoteData					
	productName	String	Yes	Name of product	NHCS
	quoteName	String	Yes	Name of quote to be created	User specified
	apiQuoteType	Number	No	Denotes the Type of API user creating the quote. Default Value is as shown.	3 -Test user

quoteData.quoteHeader					
	contractTerm	Number	Yes	Contract term for a quote. 1,2,3, 4 or 5 year terms apply.	1;2;3;4;5
	billingFrequen cy	String	Yes	User specified value for billing frequency. Quarterly should be selected unless otherwise agreed with VMB.	Monthly; Quarterly; Annually
quoteData.sites					
quoteData.sites.site					
	name	String	Yes	Name of site for reference. The site name specified in this attribute must be the same input given to the corresponding *siteAName* or *siteBName* name in the *circuitDetails section.*	User specified
quoteData.sites.site.siteDetails					
	sitePostcode	String	Yes	Postcode of the site	User specified
	UPRN	Number	No	UPRN of the site	User specified – please enter the integer ‘0’ if not required
	XCoordinate	Number	No	X coordinate of the site	User specified
	YCoordinate	Number	No	Y coordinate of the site	User specified
	siteFlag	Boolean	No	Site flag to set visible or hidden sites. Default value shown.	True
quoteData.circuits.circuit					
	name	String	Yes	Name of the circuit to be created. Recommended format is: [Site 1] – [Site 2], as shown in JSON structure.	User specified
quoteData.circuits.circuit.circuitDetails					

	siteAName	String	Yes	Reference name of Site A participating in circuit. Please ensure this input mirrors the corresponding site name created in the *sites.Site* section.	User specified
	siteBName	String	Yes	Reference name of Site B participating in circuit. Please ensure this input mirrors the corresponding site name created in the *sites.Site* section.	User specified
quoteData.circuits.circuit.circuitConfiguration					
	circuitBandwidth	String	Yes	Bandwidth configured for circuit.	User specified. See *section 4; NHCS* table for options.
	noOfManaged Services	Number	Yes	Number of services that need to be configured. The number of services allowed is up to 4.	1, 2, 3, 4
	flavour	String	No	'ONNET' or 'OFFNET' filter for optical configuration.	ONNET; OFFNET;

Request JSON structure

```
{
  "quoteData": {
    "productName": "NHCS",
    "quoteName": "NHCS_Test_091121_111",
    "apiQuoteType": 2,
    "quoteHeader": {
      "contractTerm": "3",
      "billingFrequency": "Annually"
    },
    "sites": {
      "site": [
        {
          "name": "Site1",
          "siteDetails": {
            "sitePostcode": "E11AA",
            "UPRN": null,
            "XCoordinate": null,
            "YCoordinate": null,
```

```
            "siteFlag": true
          }
        },
        {
          "name": "Site2",
          "siteDetails": {
            "sitePostcode": "E11AB",
            "UPRN": 6211390,              "XCoordinate": null,
            "YCoordinate": null,
            "siteFlag": true
          }
        }
      ]
    },
    "circuits": {
      "circuit": [
        {
          "name": "Site1-Site2",
          "circuitDetails": {
            "siteAName": "Site1",
            "siteBName": "Site2"
          },
          "circuitConfiguration": {
            "circuitBandwidth": "10 Gbps",
            "noOfManagedServices": "3",
            "flavour": "ONNET"
          }
        }
      ]
    }
  }
```


5.8 NHCS response output

Attribute description table

Object Name	Attribute Name	Type	Description
quotePricing			
	customerId	Number	Engage customer ID used to request this quote
	quoteId	Number	Internal Quote ID for this quote
	product	String	Product name
	responseCode	String	Output response code
	forceID	String	Opportunity ID for the quote

	isQuickQuote	Boolean	Boolean to denote quick quote option
	quoteValidity	Number	Validity of the quote
quotePricing.circuits			
quotePricing.circuits.circuit			
	bandwidth	String	Bandwidth configured for circuit
	noOfManagedServic es	Number	Number of services that is configured
	name	String	Name of the circuit created
quotePricing.circuits.circuit.siteA / B			
	name	String	Name of Site A participating in the circuit
	accessFlavour	String	Access Flavour of Site A/B
	netStatus	String	NetStatus of Site A/B
	isQuickSite	Boolean	Boolean to denote quick site option
	siteType	String	Specifies type as ‘Normal’ or ‘CoLo’ sites
	system	String	Specifies system as ‘New’ or ‘Existing’
totalPricing			
	oneOff	Number	Total upfront install cost
	annualRental	Number	Total annual rental cost

Response JSON structure


```
{
  "customerID": 1234,
  "quoteID": 34748244,
  "productName": "NHCS",
  "responseCode": "P0001",
  "isQuickQuote": true,
  "quoteValidity": 30,
  "circuits": {
    "circuit": [
      {
        "noOfManagedServices": "3",
        "bandwidth": "10 Gbps",
        "name": "Site1-Site2",
        "siteA": {
          "name": "E11AA - THIRD FLOOR 192-206 WHITECHAPEL ROAD LONDON - 6714664",
          "accessFlavour": "On Net",
          "netStatus": "Serviceable Building",
          "isQuickSite": true,
          "siteType": "Normal",
          "system": "New"
        },
        "siteB": {
          "name": "E11AB - FLAT 7 WOOL HOUSE 74 BACK CHURCH LANE LONDON - 6211390",
"accessFlavour": "On Net",
          "netStatus": "Serviceable Building",
          "isQuickSite": false,
          "siteType": "Normal",
          "system": "New"
        }
      }
    ]
  },
  "totalPricing": {
    "oneOff": 0,
    "annualRental": 34500
  } }
```


5.9 DHCS request input

Attribute description table

Object Name	Attribute Name	Type	Mandatory	Description	Value options
	productName	String	Yes	Name of product	DHCS
	quoteName	String	Yes	Name of quote to be created	User specified
	apiQuoteType	Number	No	Denotes the Type of API user creating the quote. Default value is as shown.	3 -Test user

quoteData.quoteHeader					
	contractTerm	Number	Yes	Contract term for a quote. 1,2,3,4 or 5 year terms apply.	1;2;3;4;5
	billingFrequency	String	Yes	User specified value for billing frequency. Quarterly should be selected unless otherwise agreed with VMB.	Monthly; Quarterly; Annually
quoteData.sites.site					
	name	String	Yes	Name of site for reference. The site name specified in this attribute must be the same input given to the corresponding *siteAName* or *siteBName* name in the *circuitDetails section.*	User specified
quoteData.sites.site.siteDetails					
	sitePostcode	String	Yes	Postcode of the site	User specified
	UPRN	Number	No	UPRN of the site	User specified – please enter the integer ‘0’ if not required
	XCoordinate	Number	No	X coordinate of the site	User specified
	YCoordinate	Number	No	Y coordinate of the site	User specified
	siteFlag	Boolean	No	Site flag to set visible or hidden sites. Default value shown.	True
quoteData.circuits					
quoteData.circuits.circuit					
	name	String	Yes	Name of the circuit to be created. Recommended format is: [Site 1] – [Site 2], as shown in JSON structure.	User specified
quoteData.circuits.circuit.circuitDetails					
	siteAName	String	Yes	Reference name of Site A participating in circuit. Please ensure this input mirrors the corresponding site name created in the *sites.Site* section.	User specified

	siteBName	String	Yes	Reference name of Site B participating in circuit. Please ensure this input mirrors the corresponding site name created in the *sites.Site* section.	User specified
quoteData.circuits.circuit.circuitConfiguration					
	filterSize	String	Yes	Number of channels required	4 or 8
	noOfManagedWavelengths	Number	Yes	Number of managed wavelengths which must not exceed the number of channels required	1;2;3;4;5;6;7 or 8
	circuitBandwidth	String	Yes	Bandwidth configured for circuit	User specified. See *section 4; DHCS* table for options.

Request JSON structure


```
{
  "quoteData": {
    "productName": "DHCS",
    "quoteName": "DHCS_Test_prodapt_786_check",
    "apiQuoteType": 3,
    "quoteHeader": {
      "contractTerm": "2",
      "billingFrequency": "Annually"
    },
    "sites": {
      "site": [
        {
          "name": "Site1",
          "siteDetails": {
            "sitePostcode": "E114AA",
            "UPRN": 6714664,
            "XCoordinate": null,
            "YCoordinate": null,
            "siteFlag": true
          }
        },
        {
          "name": "Site2",
          "siteDetails": {
            "sitePostcode": "E147BN",
            "UPRN": 6352392,
            "XCoordinate": null,
            "YCoordinate": null,
```

```
            "siteFlag": true
          }
        }
      ]
    },
    "circuits": {
      "circuit": [
        {
          "name": "Site1-Site2",
          "circuitDetails": {
            "siteAName": "Site1",
            "siteBName": "Site2"
          },
          "circuitConfiguration": {
            "filterSize": "4",
            "noOfManagedWavelengths": "3",
            "circuitBandwidth": "10 Gbps"
          }
        }
      ]
    }
  }
}
```


5.10 DHCS response output

Attribute description table

Object Name	Attribute Name	Type	Description
	customerId	Number	Engage customer ID used to request this quote.
	quoteId	Number	Internal Quote ID for this quote
	product	String	Product name
	responseCode	String	Output response code
	isQuickQuote	Boolean	Boolean to denote quick quote option
	quoteValidity	Number	Validity of the quote
quotePricing.circuits			
quotePricing.circuits.circuit			
	name	String	Name of the circuit created
	filterSize	Number	Number of channels required

	noOfManagedWavelengths	Number	Number of managed wavelengths
	bandwidth	String	Bandwidth configured for circuit
	systemSize	String	Defines the size of the system as ‘Small 1’or ‘Small 2’.
quotePricing.circuits.circuit.siteA/B			
	name	String	Name of Site A/B participating in the circuit.
	netStatus	String	Net Status of Site A/B.
	isQuickSite	Boolean	Boolean to denote quick site option.
quotePricing.totalPricing			
	oneOff	Number	Total upfront install cost
	annual Rental	Number	Total annual rental cost

Response JSON structure


```
{
   "customerID": 1234,
   "quoteID": 34748245,
   "productName": "DHCS",
   "responseCode": "P0001",
   "isQuickQuote": false,
   "quoteValidity": 30,
   "circuits": {
       "circuit": [
           {
               "filterSize": "4",
               "noOfManagedWavelengths": "3",
               "bandwidth": "10 Gbps",
               "systemSize": "Small 1",
               "name": "Site1-Site2",
               "siteA": {
                   "name": "E11AA - THIRD FLOOR 192-206 WHITECHAPEL ROAD LONDON - 6714664",
                   "netStatus": "Serviceable Building",
                   "isQuickSite": false
               },
               "siteB": {
                   "name": "E147BN - UNIT 2 TO 4 INDUSTRIAL ESTATE THOMAS ROAD LON - 6352392",
                   "netStatus": "Serviceable Building",
                   "isQuickSite": false
               }
           }
       ]
   },
   "totalPricing": {
```

```
        "oneOff": 19997,
        "annualRental": 13897
    }
}
```

6. Response codes

API responses are classified into various HTTP status codes. The industry standard definitions for all HTTP codes can be found **in this section** of the World Wide Web Consortium website.

The important status code categories for our Wholesale Connect API services, are described in this table:

HTTP code	Description
200	You will receive HTTP200 for all success scenarios
400	All business errors have been mapped to the HTTP400 error code, for ease. E.g., Business error 10701 denotes “Site mismatch. Site <postcode> does not exist in the quote <quoteId>”
401	Invalid credentials. This error code indicates that the supplied clientId and secret credentials have either been expired or are incorrect.
429	Typical responses for when there are too many requests per second. If you need to raise this value, please reach out to your account manager.
500	Any system error or connectivity issues have been classified under HTTP 500.

6.1 Virgin Media Business response codes

The displayed business service error response codes (‘E’ numbers) will be shown under the **http400** response code, in the API response; while the success response (‘P’ number) will be shown under the **http200** response code:

Response code	Description
P0001	Request is valid and successful – available products will be returned
E0006	Provided customerID is incorrect
E0008	Unable to create the quote
E0009	At least one site must be provided
E0010	Invalid circuitDetails
E0013	Invalid postcode
E0014	Invalid billingFrequency
E0015	Check bandwidth - bandwidth not supported
E0019	A-end and B-end sites cannot be the same
E0020	Invalid flavour
E0021	Invalid contract term
E0022	This product is not supported for Offnet site configuration
E0023	A-end and B-end site postcodes do not exist within the same franchise for NHCS. Please try DHCS product instead.

E0024	circuitBandwidth should not be greater than the accessCircuit bandwidth of the participating sites.
E0026	All sites have not been included in circuit details
E0027	Duplicate site name
E0028	Duplicate circuit name
E0029	PoP (Point of Presence) not found
E0030	Postcode not found
E0031	Duplicate quoteName
E0032	Duplicate site name for this customer
E0042	Quote is not priced. AIM not generated.
E0044	Unable to retrieve quote details
E0046	Invalid coordinates
E0049	User ID not found
E0050	Invalid user ID
E0055	A minimum of two sites is required for this product
E0056	accessCircuit bandwidth is mandatory
E0064	Circuit bandwidth is mandatory
E0066	qoSTemplate not provided
E0072	Invalid input for qoSTemplate
E0077	accessCircuit bandwidth is incompatible with circuitBandwidth
E0079	quoteName cannot be left blank
E0080	Site name cannot be left blank
E0081	Distance not supported for this product. Check all circuits and verify postcodes/UPRN/coordinates.
E0083	Site name can only contain the following characters: "[A-Z] [a-z] [0-9] #&. -@.”
E0084	There are no MetNet enabled PoPs for this circuit configuration which can support the features requested at the selected bandwidth. Please reduce the Access Bandwidth or remove the QoS Template.
E0095	AIM status is failed. Unable to retrieve quote details.
E0100	Bandwidth not supported. Allowable bandwidth range for NE Product is 10 Mbps, 100 Mbps,1Gbps and 10 Gbps. Please check input bandwidths.
E0106	This quote contains circuits in which mapping for the PoPs of sites is missing.
E0128	Invalid NTU option
E0129	Invalid End To End Reporting option
E0174	Invalid billingFrequency
E0175	Customer does not exist
E0196	This customer is not assigned to current user
E0186	Pricing cannot be generated
E0229	Offnet provider timeout exception
E0277	Site count must be less than the maximum site count
E0284	UPRN must be a numeric value
E0285	UPRN length cannot exceed 12 digits
E0289	Bandwidth not supported
E0290	Error while configuring sites
E0292	Invalid UPRN
E0298	Sites in this quote are obsolete. Pricing cannot be generated.
E0300	Invalid JSON is provided for the product
E0301	Mandatory values are absent in the input JSON

E0304	The postcode for this site needs additional information like UPRN, and X, Y coordinates
E0305	The postcode for this EVC/Circuit need additional information like UPRN, PremiseId,X, Y coordinates
E0334	noOfManagedServices is not supported
E0335	filterSize is not supported
E0341	Invalid Assured Information Rate
E0342	One or more EoFTTP sites are configured with more than one circuit
E0343	One or more sites cannot be configured with EoFTTP

7. Using our Postman collections

We have made it easier for you to start testing with our Staging server by pre-compiling a set of sample test cases, in the form of a Postman collection.

7.1 Sample test cases

This link will re-direct you to our Quote API Postman Collection folder which contains a Postman collection of test cases. Here you will find an example Success Request, and the corresponding postman collection which you can download and run in your postman application.

7.2 Postman instructions

Follow the steps below to set-up your Postman application for use of our sample Postman collections. These can be used to fire sample API requests and responses:

Step 1: If you don't already have the Postman application, please **download**, and install the free tool onto your desktop/laptop device.

Step 2: Import the postman collection in the link above by clicking the **'Import'** button on the Postman tool, or by dragging the file into the folder section.

Step 3: Now import *exp-ws-quote_v2.0.postman_collection* as per step 2.

Step 4: Ensure you check the headers are populated with the correct values, including your AppID, Client Secret and UserID.

Step 5: Now, click run, and you will see a response and corresponding response code in the bottom of the UI.

*If you have any questions, please get in touch with our **Wholesale Digital** team via your Account or Service Manager.*

8. Incident and change management

This section outlines the API incident and change management processes associated with our Wholesale Connect Quote API service.

8.1 Incident management process

It's crucial that we work together to resolve issues as quickly as possible when they arise.

When raising an issue with your API service, it's important that we receive:

- the input request data (contained within the JSON structure);
- the output response data (contained within the JSON structure);
- your customer ID;
- any other associated detail relating to a specific order(s).

This information can be sent by email to your Account Manager.

Having this information available to analyse, will speed up the troubleshooting process and help us get to the root cause quicker.

Although our API support team has a 5 working day SLA for incident resolution, we will aim to resolve your issue as quickly as we can.

To minimise the impact to your business - while awaiting the resolution of your issue - please use our **Engage customer portal** to continue generating pricing and serviceability quotes.

8.2 Change management process

Should you be planning any changes to your IP network configuration, please do notify us in advance so that we can whitelist any new IP addresses on our authorisation and authentication platform. We don't want you to lose connectivity, but it will not be possible to gain connectivity to the service for any IP addresses that haven't been whitelisted by us.

9. Frequently asked questions

Based on feedback from our prospective and current API users, we have collated some frequently asked questions and answers, you may find helpful:

Q. What does the Wholesale Connect Quote API service offer?

A. Our service allows users to access Virgin Media Business pricing and serviceability, for our connectivity products, through their native systems. This is achieved where the user integrates our API into their existing user interface, with the aim of building an aggregated view of pricing and serviceability quotes - from multiple suppliers, for multiple products – within their user interface.

Q. Am I also able to place orders via with this API service?

A. No. We have two separate Wholesale Connect Order API services which allow you to place orders and track the delivery status of your orders, respectively.

Q. Do I need to register separately for these services?

A. No. One key benefit of our Wholesale Connect API Gateway is the one-time registration process. Once registered for any Wholesale Connect API service, the same credentials can be used to access all other services. However, please notify us when you're ready to integrate additional APIs so we can add them to your client account - without this, you won't have access to their API environments..

Q. For how long is a quote, created through your API service, valid?

A. Each quote is valid for 30 calendar days unless otherwise agreed.

Q. How can I ensure that I am validating the price correctly?

A. The JSON response will include the total install and annual rental prices for your quote, within the *QuotePricing.TotalPricing* object.

Q. When I go to place my order, why is the price I am quoted sometimes different to the price in my initial quote?

A. To ensure accurate pricing, we recommend all Wholesale Connect Quote API users include UPRN - a unique premise identifier from Ordnance Survey - in their interface. Without UPRN, pricing is based on less precise data like street name or postcode, which can lead to differences when quotes convert to premise-level pricing via our Order API or Engage portal.

Q. How can I access the UPRN data?

A. We currently offer UPRN data via manual database downloads or the UPRN API.

Q. Will VMB provide support to develop or maintain an external user interface?

A. Our support team is always ready to help, if there are any queries relating to our Wholesale Connect API service or JSON code. As every user interface is unique, we do not offer a specific service around development and maintenance of external interfaces.

Q. What other API services are currently available?

A. We offer five key API services, some with multiple endpoints:

- Quote API
- Order Creation API
- Submit Order API
- Network Management API
- Fault Management API

If you're interested in using any of these APIs, please contact the Wholesale Digital team via your Account Manager.

We're always open to feedback. Whether we've missed out information you think would be useful to know, something doesn't make sense, or something simply doesn't look right within this user guide, please let us know!