

O2 MOBILE BROADBAND TRAFFIC MANAGEMENT KEY FACTS INDICATOR*

Section 1: Traffic management in relation to your broadband product (not including during busy times and places to manage network congestion see Section 2)																
Name of broadband product: All Consumer Mobile Broadband and Mobile phone tariffs (Pay Monthly and Pay & Go); And More Tariffs (20GB and 40GB) (Pay Monthly Only)																
<i>Use and availability of services, content, application and protocols on this product</i>																
Are any services, content, applications or protocols always blocked on this product?*	N															
If so what?	N/A															
Are any services, content, applications or protocols always slowed down?	N															
If so what?	N/A															
Are any services, content, applications or protocols always prioritised?	Y															
If so what?	Emergency voice traffic															
Are any managed services delivered on this product?	N															
If so, what? What impact?	N/A															
<i>Data caps and downloads</i>																
What are the download/upload limits or data usage caps on this product?	See http://www.o2.co.uk/shop/all-tariffs See below for And More Tariffs															
Is traffic management used to manage compliance with data caps and download limits?	Y															
Under what circumstances?	<p align="center"><u>And More tariff before 1 September 2017</u></p> <table border="1"> <thead> <tr> <th></th> <th>The standard available speed</th> <th>Half the available speed</th> <th>A quarter of the available speed</th> <th>An eighth of the available speed</th> </tr> </thead> <tbody> <tr> <td>20GB And More Tariff usage</td> <td>Up to 20GB</td> <td>20GB - 25GB</td> <td>25GB - 30GB</td> <td>30GB</td> </tr> <tr> <td>40GB And More Tariff usage</td> <td>Up to 40GB</td> <td>40GB - 50GB</td> <td>50GB - 60GB</td> <td>60GB+</td> </tr> </tbody> </table> <p align="center"><u>And More tariff on or after 1 September 2017</u></p> <p>For our And More tariff, once the monthly data allowance is reached, data can continue to be used, but at a reduced speed, until the next contract month begins. During this reduced speed period, certain services may be slow or may not work.</p> <p><u>Other mobile tariffs</u></p> <p>For all our other mobile phone tariffs, a customers' service will cease when their monthly tariff allowance is consumed and until they begin a new charging month or additional allowance is purchased.</p> <p><u>USB Dongles</u></p> <p>For USB Dongle customers', the service will cease when the data cap is reached until additional data allowance is purchased.</p>		The standard available speed	Half the available speed	A quarter of the available speed	An eighth of the available speed	20GB And More Tariff usage	Up to 20GB	20GB - 25GB	25GB - 30GB	30GB	40GB And More Tariff usage	Up to 40GB	40GB - 50GB	50GB - 60GB	60GB+
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Level of speed reduction?	See above.															
Duration of speed reduction?	See above.															
Is traffic management used in relation to heavy users?	Y															
Under what circumstances?	Customers whose use is so excessive that other customers are detrimentally affected will be warned to adjust their usage or risk disconnection.															
Level of speed reduction?	N/A															
Duration of speed reduction?	N/A															

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Section 2: Traffic management to optimise network utilisation (what happens during busy times and places in addition to traffic management as described in section 1)			
Is traffic management used during peak hours?		N	
When are typical peak hours?	Weekdays:	Weekends:	
What type of traffic is managed during these periods?***			
<i>Traffic type</i>	<i>Blocked</i>	<i>Slowed down</i>	<i>Prioritised</i>
Peer to Peer (P2P)			
Newsgroups			
Browsing/email			
VOIP (Voice over IP)			
Gaming			
Audio streaming			
Video streaming			
Music downloads			
Video downloads			
Instant messaging			
Software updates			
Is traffic management used to manage congestion in particular locations?			Y
If so how?	<u>Roaming within The European Union</u> O2 Pay Monthly Customers roaming within The EU may experience limited throughput of up to 1Mbit/s for data services during seasonal traffic peaks, which could slow some services down. <u>Roaming outside The European Union</u> O2 Travel customers roaming outside The EU who exceed 50Mb of data per day will experience limited throughput for web browsing, e-mail, social networking, video and VPN services, which may slow these services down. O2 Travel customers' roaming outside The EU who use Peer to Peer, file transfer, network storage or gaming applications or services, will be provided with limited throughput which will slow these services down.		

* This KFI gives an overview of typical traffic management practices undertaken on this product; it does not cover circumstances where exceptional external events may impact on network congestion levels.

**This excludes any service, content, application or protocol that an ISP is required to block by UK law and child abuse images as informed by the list provided by the Internet Watch Foundation.

***If no entry is shown against a particular traffic type, no traffic management is typically applied to it, though overall network management rules shall apply.

**** In addition to the above practices, O2 also modifies some traffic to optimise the end-user experience. The rationale for doing so is to make best use of network capacity to support real-time applications and make efficient use of data allowances.

Glossary

Traffic management:

Traffic management is the term used to describe a range of technical practices undertaken to manage traffic across networks.

The different outcomes achieved by the use of technical practices can include:

- the prioritisation of certain types of traffic in busy times or busy areas to ensure that it is of an adequate quality
- the slowing down of certain traffic types that are not time-critical at busy times or busy places

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- ensuring compliance with a consumer's contract, for example slowing down of traffic for the heaviest users
- supporting the delivery of managed services, for example to ensure a guaranteed quality of service for a specific piece of content

Managed services: The majority of internet traffic is delivered on a "best efforts" basis. A managed service, on the other hand is one whereby an ISP offers "quality of service" that can guarantee a certain level of performance, so that the content, service or application can be delivered without risk of degradation from network congestion. Such a quality of service arrangement can be made between an ISP and a content or service provider or directly between an ISP and the consumer.

Best Efforts: This phrase relates to the delivery of internet traffic where traffic management is applied without distinctions based on the source of that traffic.

Slowed down: This outcome is achieved by the deployment of technologies that can decrease the priority of traffic types deemed to be non-time critical on the network e.g. slowing down traffic such as downloads during busy times and busy periods.

Prioritised: This outcome is achieved by the deployment of technologies that increase the priority given to certain traffic types, e.g. time-critical traffic such as video. This outcome can also be achieved as a consequence of slowing down other selected traffic which reduces the overall data flow on the network.

Heavy users: Heavy users can cause peak traffic volumes to exceed the engineered maximum load. In practice this refers to a very small proportion of users of a network whose use is excessive to the extent that it impacts on other users.

For information from Ofcom on Traffic Management, visit
https://www.ofcom.org.uk/_data/assets/pdf_file/0012/6042/traffic.pdf