BT IPstream Max

(Covers BT IPstream Max & BT IPstream Max Premium)

Customer Handbook - Issue 7

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1 Introduction

1.1 About this Handbook

This Handbook provides assistance and useful information so that you can work with us to provide your End Users with the best possible BT IPstream Max & BT IPstream Max Premium service. It should be used in conjunction with the current BT IPstream Customer Handbook.

This Handbook is for the launched service, where the technical aspects and the service surround, including availability checkers, test tools and ordering systems may differ form those in previous trials.

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This product is ADSL based and thus **not** applicable to SDSL based services (i.e. BT IPstream Symmetric).

The Handbook refers out the majority of its contents to the existing BT IPstream Customer Handbook, and only highlights the differences to service and processes on the IPstream Max and IPstream Max Premium variants. Some items may be duplicated in both handbooks for ease of use.

For information relating to BT IPstream – Advanced Services, please refer to the BT IPstream
- Advanced Services Handbook. Please refer to:

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

Version Control

Please ensure you have the latest version of this document, see Further Information section below for the appropriate location.

Conventions used in this Handbook

This Handbook is produced for reference by BT IPstream Max Communication Providers.

The term 'End Users' relates to the final recipients of your services.

The terms 'Service Provider, 'Communication Provider' and 'You' are sometimes used as an alternative to 'Customer' where appropriate.

The term 'BT IPstream Max' or "Max" is sometimes used as an alternative to 'BT IPstream Max Premium and BT IPstream Max ' when the text is applicable to both.

Network Terminating Equipment (NTE) refers to the termination point of the BT IPstream service either at your premises or at the End User's.

Customer Premises Equipment (CPE) refers to any equipment provided at the End User's premises which is provided either by BT or you to enable the service to work e.g. modem or router.

This Handbook covers the BT IPstream Max products from BT Wholesale's Broadband portfolio; see section 3.1 of the BT IPstream Customer Handbook for a full product list.

Further Information

If you are an existing BT IPstream Customer, you can find all the information you need about the service, any future developments and the latest version of the BT IPstream Customer Handbook at:

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

Please note:
To access additional Broadband Customer information on this website it is necessary for you to register. Information on how to register can be obtained from your BT Account manager.

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Once your registration has been approved (approx 24hrs), four additional links will appear within the "Broadband" drop-down menu. I.e. Resource library, Service, Developments and News (where briefings are located). You must be logged in to the website to view this additional content.

1.2 References to the BT IPstream Customer Handbook

The BT IPstream Customer Handbook contains full details of the BT IPstream service and should be referenced in conjunction with this Handbook. General information relating to the subjects listed below can be found in the BT IPstream Customer Handbook.

BT & CUSTOMER RELATIONSHIPS
BT IPSTREAM PRODUCTS
BT IPSTREAM SERVICE ORDERING AND SUPPORT
CHANGES TO THE BT IPSTREAM SERVICE
CUSTOMER REPORTS & INVOICING
NETWORK
SECURITY & SAFETY
DOCUMENTATION
CUSTOMER SERVICE PLAN
SERVICE LEVEL AGREEMENTS/GUARANTEES

1.3 General Overview of BT IPstream & IPstream Max

The BT IPstream portfolio provides connectivity between a customers premises and multiple End Users via an IP based network or connect Communication Providers End Users directly to the Internet. These are contended services over a shared network.

BT IPstream is available to End Users within range of a Broadband equipped exchange.

The BT IPstream service is intended for Service Providers, Other Licensed Operators (OLO's) or Corporates who wish to offer IP services to End Users over BT's High Speed Data Network using DSL technology.

The End User connections are provided using ADSL technology which allows a Broadband service to co-exist with the End User's BT provided PSTN service.

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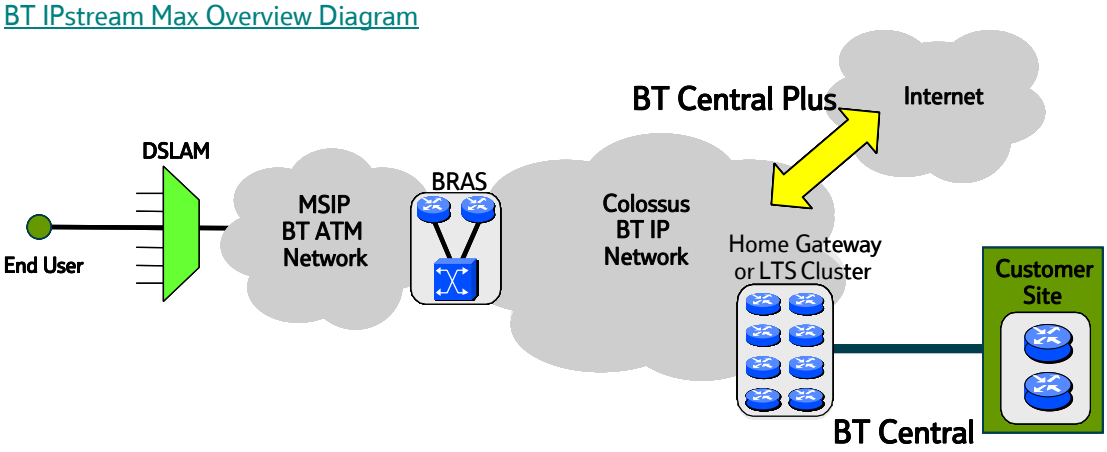
BT IPstream Max Overview Diagram



BT IPstream & BT IPstream Max is made up of two components which are sold separately, but must be used together. These are:

Customer Access Link

BT Central "classic" and L2TP options which provide an access link from the NTE in the Customer premises to the BT Network

BT Central Plus which provides direct access to the internet for your End Users. There is no BT Central access link to your premises with this option.

End User Access

BT IPstream Max and BT IPstream Max Premium

The BT IPstream Max variants of the IPstream family of product offers an End User Access element which is set up and operates at the maximum Line (DSL) Rate that the line will support (including a safety margin to allow for the normal variation in line conditions) at the time the modem (End Users CPE) trains up and attempts to synch with the BT DSLAM. Therefore based on current ADSL technology lines could support **up to** a DSL line rate (speed) of 8Mbit[1] (8128kbit/s). Therefore this product must not be sold as a 8Mbit/s service, but as a Rate Adaptive product, which could offer line rates from 288kbit/s to 8Mbit/s (8128kbit/s), dependant on line length, and line conditions. As line conditions will vary the line rate will vary and may deteriorate over time, especially if noise is induced within the home environment or on the network.

PLEASE NOTE: Throughout this document where reference is made to Rate Adaptation in relation to the BT IPstream Max and BT IPstream Max Premium products if a capped rate profile is applied to the BT IPstream Max/Max Premium product please refer to Section 4.1.1 for further details regarding the capped rate profile.

The BT IPstream Max Premium has a higher priority through the shared part of the BT IPstream network than BT IPstream Max. This means that under network congestion conditions BT a IPstream Max Premium line will receive a higher Downstream throughput than the equivalent BT IPstream Max line.

[1] Throughout the document reference to "8Mbit/s" or "up to 8Mbit/s" refers to a DSL line rate of 8128kbps

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The BT IPstream portfolio provides connectivity between your premises and multiple End Users via an IP based network or connect your End Users directly to the Internet. These are contended services over a shared network.

For further information on main BT IPstream services please refer to the BT IPstream Customer Handbook available on the BT Wholesale Broadband website:

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

1.4 Important End to End service Details

BT IPstream Max and BT IPstream Max Premium differ from standard IPstream services in the way they operate due to the fact they are Rate Adaptive on the Downstream direction (see section 4 for details of Rate Adaptation and details on how IPstream Max products operate).

This method of operating allows many lines to achieve a higher (than achieved by standard IPstream fixed rate products) Downstream DSL line rates. BT utilises the existing copper pair on which the service is to be provided to obtain most efficient line rate. It is therefore dependant on the line length, routing and conditions of the individual line on which the service is to be provided. Achievable line rate is also dependant on End User CPE, and therefore Line Rate may vary dependant of the CPE used.

However IPstream end to end services are not only dependant on the line rate, but also on the full end to end infrastructure of the service e.g.

- The Internet - controlled by neither yourself nor BT,
- Your own network - controlled by the yourself, not BT,
- The BT Central - controlled by yourself, with its performance dictated by its size and number of End Users filling it,

The service is one in which BT attempts to give the maximum stable line rate for each individual line and therefore should not be classed as a 8Mbit/s service. Many lines however may achieve line rates of 8Mbit/s (8128kbit/s), which will allow many End Users to experience higher throughput, especially during low network usage times, but this is not guaranteed.

Therefore there are some important service details that you need to be aware and must advise any End User of. Failure of your personnel to fully understand these details may lead to unrealistic expectation from End Users, and thus may result in higher fault rates and lower customer satisfaction.

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IMPORTANT

◊ IPstream Max is a "best efforts" product, and thus no guarantee is given that increased data throughput will be experienced over that of the IPstream Home/Office fixed rate services (i.e. IPstream Home/Office 2000) .

◊ Throughput of Max services operating at line rates of 2Mbit/s (2272kbit/s) or above will be similar to that of IPstream Home/Office 2000 fixed rate services at busy (high network usage) times, irrespective of line rate achieved

◊ Throughput of Max services operating at line rates below 2Mbit/s (2272kbit/s) will be similar to that of IPstream Home/Office equivalent fixed rate service (i.e. a BT IPstream Max line rate adapting to 576kbit/s should give a service no worse that the current BT IPstream Home 500 equivalent) at busy (high network usage) times.

◊ Outside busy (high network usage) times the service may take advantage of any increase in line rate (of that of a fixed rate service) to enable increased data throughput to and from the BT network to your End Users. However data throughput associated with the achieved line rate is still dependant of the usage of the BT network, your own network (including BT centrals) and internet traffic levels.

◊ Data throughput associated with the maximum line rate may not be possible on some lines provided with the Service, due to the size of the virtual path (VP) deployed in the network until such time as the average data throughput demands requires a VP to be upgraded in accordance with our (BT) standard planning rules.

◊ Particular attention should be paid to the configuration of modems connected via the Universal Serial Bus (USB) as these may cause limitations or issues on the service. USB devices can have two different transfer modes, bulk mode, and isochronous mode. Therefore it is highly recommended that you contact your CPE supplier to ensure that any USB modem is correctly configured.

◊ It is important that you check that you have appropriate drivers/firmware for any CPE (e.g. modem or router) supplied to your End Users to ensure it works at the optimum level with Rate Adaptive ADSL services. It has been found that incorrect firmware/driver versions is a major factor in incorrectly reported faults. It is your responsibility to ensure the correct firmware and/or driver are supplied to the End User before faults are reported to BT. Therefore it is highly recommended that you contact your CPE supplier to ensure that any CPE that you are to use have the correct drivers and / or firmware to give the best possible throughput and to support the IPstream Max family of services. BT reserves the right to raise charges on incorrectly reported faults where it is proven these are due to the above and BT have incurred costs in handling such faults.

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2 BT & Customer Relationships

This section tells you about your relationship with BT, our responsibilities to each other and the responsibilities we both have to your End Users.

2.1 BT's Responsibilities to You

In addition to those for the current IPstream service we will also provide:

◊ An estimation of line capability as part of the BT availability checker

◊ Notification of the likely line rates achievable once the service has been commissioned and the stabilisation period has elapsed (see details later section 4 of the document)

2.2 Your Responsibilities to BT

You are responsible for your End Users and for your contractual and billing relationship with them.

You have responsibilities both to BT and to your End Users.

Your responsibilities to BT are to:

◊ inform and educate the End User of the services terms and conditions, processes and procedures and product details.

◊ inform the End User this is a Rate Adaptive product which could offer DSL line rates of up to 8Mbit/s (8128 kbit/s), dependent on line length and line conditions . As line conditions will vary, so the line rate will vary, and may deteriorate over time, especially if noise is induced in the home environment or network .

◊ inform the End User where a capped rate profile is applied to BT IPstream Max and BT IPstream Max Premium that the product is not rate adaptive (with the exception of upstream on the capped 500 profile) and special provisions apply as set out in section 4.1.1.

◊ inform and educate End Users that this is a "best efforts" product .

◊ inform and educate End User that throughput of Max services operating at lines rates of 2Mbit/s or above will be similar to that of current BT IPstream Home/Office 2000 fixed rate services at busy (high network usage time), irrespective of RA line rate achieved

◊ inform and educate End Users that throughput of Max services operating at below 2Mbit/s will be similar to that of current BT IPstream Home/Office equivalent fixed rate service (i.e. a line rate adapting to 500kbit/s should give a service no worse that the current IPstream 500 equivalent) at busy (high network usage time).

◊ inform and educate End Users that the ability to take advantage of any increase in line rate to enable increased data throughput to and from the BT network to your End Users, is dependant on the actual network capacity available at that time and that data throughput

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equal to the maximum line rate may not initially be reached on some lines provided with the Service.

- ◊ Provide End User details and agreed dates for any re-grade from current IPstream services to the Max service .
- ◊ Nominate a 24 hour contact number and details
- ◊ Tell us of any change to your details or circumstances
- ◊ To continue to remit payment of outstanding invoices as per contractual terms
- ◊ Notify us of any changes in service to an End User
- ◊ Work with us to co-ordinate visits to End Users
- ◊ Advise BT when powering down or working on your network and equipment
- ◊ Ensure you have adequate product knowledge and technical capability to be able to support the services supplied.
- ◊ Work with us to ensure a timely and accurate flow of product information to your End Users and employees to ensure that the market does not receive misinformation or speculation regarding the BT IPstream Max services. This is particularly important around the difference between throughput and line rate, and the fact that the line rate will vary.
- ◊ Ensure you are able to source CPE that has the ability to use the rate adaptation functionality used on the IPstream Max products (and which forms parts of the ADSL specification G.992.1). Note: Limitations on some CPE may reduce the line rates achievable, or may not operate correctly with the IPstream service. It is your responsibility to check for limitations that any CPE supplied with you service. BT reserves the right to charge you if a fault has been reported to BT that is in fact an issue with your supplied CPE.
- ◊ Ensure that any limitation of your CPE is known and communicated to your End Users to ensure that services are not wrongly passed to BT as faulty.
- ◊ Ensure that your End Users are aware that any CPE data throughput issues are your responsibility, and not that of BT's.
- ◊ Before submitting a throughput fault to BT, please ask your End User to carry out at one speed test (preferably more).These tests can be carried out via BT's Speed tester (http://speedtester.bt.com) or another reliable source (i.e. your own tester).

Your Nominated Contacts

We will need the names and contact details of the people who will be responsible for running your service. They will be our main contacts and they will report any faults and problems to us.

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2.3 BT's Responsibility to the End User

We will refer any BT IPstream enquiries or complaints from your End Users to you, the owning Service Provider. We will liaise with you in the first instance to resolve the problem.

If necessary, we will write to or call End Users directly about any changes to the provision or repair of the service, we will comply with the Data Protection Act with regards to any End User data we hold. We may contact your End User directly to confirm the time of our arrival for appointments.

When the End Users contract with you stops, direct contact between the End User and us can exist separately, if we need to recover equipment installed by BT as part of the BT IPstream service.

During any BT IPstream Max repair visits and liaison with the End User, we will not try to sell our products or discuss competing Broadband products.

2.4 Your Responsibility to the End User

It is your responsibility, as the owning Service Provider, to ensure your End Users possess all the requirements stated in the table below (See End User Guides for further detail).

BT IPstream Max	BT IPstream Max Premium
Operating systems that support the End User CPE	Operating systems that support the End User CPE
An interface which supports the End User CPE	An interface which supports the End User CPE
The correct drivers for the End User CPE	The correct drivers for the End User CPE

Your responsibilities to your End Users are to:

- ◊ Provide Service Support for provision, repair and billing.
- ◊ Clarify and confirm arrangements for conversion of the current service to the IPstream Max variant
- ◊ Inform them of the limitation set on the services.
- ◊ Inform them of the order types supported, as follows:
  - Provide
  - Cease
  - Cancel
  - Conversion (ISDN2 and Home Highway)Home Highway
  - Generic Modify (Modify & SP Migration order types)
  - Simultaneous Provide/BB Movers
  - Singleton EU migrations (Supported by SP Migration order type 'GM') – allows non Max EU to migrate to another Service Provider who is on the Max trial
  - Change Maintenance (Supported by Modify order type 'GM')

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- Generic Modify to and from IPstream Max (Supported only by Modify order type 'GM')

◊ Clarify and confirm arrangements for fault reporting and repair of the service. Make it clear to the End User that you, as the Service Provider, are the initial point of contact for all BT IPstream Max problem/fault reports

◊ Ensure that your End Users have adequate information to prepare for service

◊ Continue to manage the billing between you and your End Users

◊ Make sure that End Users understand that a BT provided PSTN line is required to support the BT IPstream service so if the PSTN service is ceased then the trial BT IPstream Max service is also ceased.

◊ Notify your End Users of any planned service disruption

◊ Notify your End Users that after installation of a BT IPstream service they may notice a slight change to how their phone sounds. This is quite normal for ADSL lines and is not a fault.

◊ Provide any device(s) as required to deliver your service at their premises and make sure that it is fully compatible with the BT IPstream Max and/or BT IPstream Max Premium services.

◊ Make sure they have any other equipment they will need for delivery of your service.

◊ Make sure they have an understanding of what will happen when our service is enabled.

◊ Handle any payment follow-up / debt collection of End Users.

◊ Clearly manage End User expectation and relationships such that all enquiries and communications are directed to you and not BT.

◊ Provide a fully trained support helpdesk, particularly for the End User installations and for fault reception.

◊ BT IPstream Max and BT IPstream Max Premium support for CPE, modems, routers and micro-filters.

References to other Sections

Further information relating to the BT & Customer relationship is contained within the documents that are referenced from section 9 of this Handbook.

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3 BT IPstream Max Products

This section gives you an overview of BT IPstream Max Products and its related features. For all BT Central details pleased refer to the BT IPstream Customer Handbook.

3.1 Basic Product Matrix

BT IPstream End User Products	NTE / CPE	Installation
Description	Notes	
BT IPstream Max	No BT provided CPE # - Wires only Product	Self – Install
End User access for a single PC	Rate adaptive 288kbit/– 8Mbit/s (8128Kbit/s) Downstream[2] Rate adaptive 64kbit/s- 448kbit/s Upstream Incompatible with BT Central 512k, 1M & 2Mbit/s.	
BT IPstream Max Premium	No BT provided CPE # - Wires only Product	Self – Install
SOHO, SME access for a small LAN	Rate adaptive 288kbit/– 8Mbit/s (8128Kbit/s) Downstream Rate adaptive 64kbit/s- 832kbit/s Upstream Incompatible with BT Central 512k, 1M & 2Mbit/s.	

◊ Notes :

- where a capped rate profile is applied to BT IPstream Max and BT IPstream Max Premium the product is not rate adaptive (with the exception of upstream on the capped 500 profile) and special provisions apply as set out in section 4.1.1.
- .Rates shown here are based on the DSL line rates (speeds) including ATM overheads.
- During low network usage times, the service will take advantage of this increase in line rate to enable increased throughput to and from the BT network to your End Users. However when there is high usage of the network (during peak times of the day), the service may on occasions give a service equal to that you would have got on a standard IPstream service working at the same DSL line rate i.e.
  - a BT IPstream Max with a line rate of 2272kbit/s may give the same service as a BT IPstream Home 2000 service at peak times or

[2] The service will be configured to be rate adaptive from 160 kbit/s – 8 Mbit/s (8128Kbit/s line rate) Downstream but it will only be offered on lines capable of supporting at least 250kbit/s (288kbit/s line rate).

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- a BT IPstream Max Premium with a line rate of 576kbit/s may give the same service as a BT IPstream Office 500 service at peak times.

3.2 BT IPstream Max End User Products

BT IPstream End User products provide the link that goes from an End User premises via a dedicated DSL line to the local exchange, to a BT Broadband Access Server in the BT network.

The End User products are provided using ADSL technology which allows a Broadband service to co-exist with the End User's BT provided PSTN service.

BT IPstream Max

The BT IPstream Max product is provided to support a consumer focused requirement which is self installed by the End User.

BT IPstream Max has a G.DMT (Wires only) presentation End User Interface. Subject to section 4.15, this means:

◊ No CPE is provided by BT as part of this service.

◊ The ADSL connection is terminated on a standard PSTN master socket.

◊ There is no requirement for a BT engineer to visit the End Users premises.

◊ You must provide the End User with micro-filters and an ADSL modem or router in order for the service to be used.

◊ The installation must be carried out either by the End User, by yourselves or one of your agents.

The End User service is available in the following Downstream/Upstream bandwidth (including ATM overheads):

Rate adaptive 288kbit/s – 8128kbit/s Downstream
Rate adaptive 64kbit/s- 448kbit/s Upstream

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BT IPstream Max Premium

The BT IPstream Premium series of products is provided to support a business focused requirement which is self installed by the End User.

BT IPstream Max Premium has a G.DMT (Wires only) presentation End User Interface this means:

◊ No CPE is provided by BT as part of this service.

◊ The ADSL connection is terminated on a standard PSTN master socket.

◊ There is no requirement for a BT engineer to visit the End Users premises.

◊ You must provide the End User with micro-filters and an ADSL modem or router in order for the service to be used.

◊ The installation must be carried out either by the End User, by yourselves or one of your agents.

The End User service is available in the following Downstream/Upstream bandwidths (including ATM overheads).

Rate adaptive 288kbit/s – 8128kbit/s Downstream
Rate adaptive 64kbit/s- 832kbit/s Upstream

BT IPstream Max Premium has been designed to provide better service performance in terms of data throughput than that of the BT IPstream Max service. Please see section 4 “How BT IPstream Max products operate” under section 4.12 “Downstream Throughput – Expected End User Experience” for further details.

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4 How BT IPstream Max products operate

BT IPstream Max and BT IPstream Max Premium products have major differences on how they operate over that of fixed rate IPstream products (i.e. IPstream Home 2000). This section highlights the how these products operate to give services of Downstream line rates of up to 8128kit/s Downstream.

4.1 BT Rate Adaptation/ Rate Adaptive

◊ BT IPstream Max products are Rate Adaptive, which maximise (within preset upper and lower limits) the Upstream & Downstream capability of a conventional telephone line by adapting the data rate according to the line conditions. Where a capped rate profile is applied to BT IPstream Max and BT IPstream Max Premium the product is not rate adaptive (with the exception of upstream on the capped 500 profile) and that special provisions apply as set out in section 4.1.1.

◊ The following highlights important details on how the rate adaptation operates.

◊ The rate adaptive Line Rate (both Upstream and Downstream) is a "best efforts" service and depends primarily on line length and noise conditions, although other factors can also contribute. These include the End User CPE, internal End User wiring and the incorrect/non use of ADSL filters.

◊ In general it is likely that Rate Adaptive products provide higher Upstream and Downstream data rates for End User's who are closer to a Broadband enabled exchange, with lower rates for End User's who are further away.

◊ Though there is a relationship (they are subject to the same line conditions for example) between the Upstream and Downstream rates they rate adapt independently.

◊ Rate Adaptive (RA) line rate (speed) is purely the rate which is set up between the DSLAM and the End Users CPE, and should not be confused with the end to end data throughput for the end to end service you are providing over the IPstream Max End User Access (EUA).

◊ A feature of the RA service is that an End Users CPE will automatically re-train on occasions (i.e. lose synch, and then regain synch). This is not a fault: it is a function of Rate Adaptation. Automatic (forced) re-trains of End Users' CPE to the DSLAM occur when the line no longer supports the previously set up line rate (i.e. it is below the noise threshold set for the rate).

◊ The End User's CPE will not automatically re-train when the line improves and can support a higher line rate. Therefore, before reporting an End User line rate related problem, it is strongly suggested that a manual re-synch of the CPE is conducted to see if the line can now support a higher line rate. However there may be a time lag between a higher line rate being achieved, and the BT BRAS changing to allow for any possible increase in throughput.

◊ Re-training of the "End Users" CPE (i.e. modem, router) may cause a service outage of up 2 minutes (average of 1 minute). Line Rates can rate adapt in 32Kbit steps and thus some line rate changes will not necessitate a change in BT BRAS profile. Therefore to reduce the amount of line rate change reporting , line rates will only be report if it has caused a BT BRAS profile change.

◊ During the first 10 days of the service, BT will be calculating the stable line rate. The line is designed to continue to work at a line rate of 288kbit/s or above throughout this time. If line rate falls below 288kbit/s, or if the line loses synch, then we will accept this as a fault.

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◊ BT will accept line rate faults during the stabilisation period which are up to 2272kbit/s in the following circumstances:

- The line rate is below that of pre- BT IPstream Max product where a re-grade has occurred
- Significant fluctuations in downstream line rate occur which result in line rates consistently less then 2272kbit/s
- The downstream line rate falls below 288kbit/s

Communication Providers are reminded that Dynamic Line Management is at its most active during the first three days from the service becoming live and reporting line rate faults during this time should be avoided if possible.

◊ BT will aim to inform you (via Broadband Customer Reports) of the Maximum Stable (End User line) Rate within 10 days of the Order Delivery Date providing at least one synchronisation of the End User's CPE to the BT DSLAM has been recorded. If no synchronisation has been recorded during the first 10 days a rolling 10 day period follows (i.e. every tenth day), until a synchronisation event is recorded..

◊ BT will not be able to establish a Maximum Stable Rate until the appropriate End User CPE has been installed and commissioned by you, and is synched up to the DSLAM so measurements of line rate can be taken during the stabilisation period. However this is dependant on the End user connecting and synching up to the service (see section 4.4 Maximum Stable Rate).

4.1.1 Capped Rate Profiles

Capped Rate Profile

A capped rate profile is a fixed rate profile which can be applied to the BT IPstream Max services to manage:

A) Regrades where the Line Rate is estimated to be lower than that of the current BT ADSL fixed rate product
B) Chronic Lines

Capped rate profiles are currently set at ADSL downstream line rates for both BT IPstream Max and BT IPstream Max Premium versions of:

576kbit/s
1152kbit/s
2272kbit/s

Capped rate profiles applied by BT are not rate adaptive. Please note that the BT IPstream Max and Max Premium products capped at 576kbit/s will benefit from rate adaptation upstream as defined in SIN 386 and reproduced as a table in Section 4.10 of this handbook.

Throughput experienced on capped rate profiles will be equivalent to that of the BT IPstream Home and Office fixed rate products.

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(A) Regrades where the Line Rate is estimated to be lower than that of the current BT ADSL fixed rate product

BT's Broadband systems have been developed to identify during the regrade process to BT IPstream Max, lines that may not achieve a line rate the same as that experienced on their current BT ADSL fixed rate product.

Lower Line Rate Visibility

Visibility that a line may achieve a line rate lower than the current BT ADSL fixed rate product requires the use of XML in conjunction with BT's Broadband Availability Checker (version 12 or later).

When pre-qualifying lines prior to regrade to BT IPstream Max, version 12 of the Broadband Availability Checker provides a flag via the XML interface indicating that a line may achieve a line rate lower than the current BT ADSL fixed rate product. For details please see Briefing 304 dated 15th November 2006. Pre-notification visibility is only available to XML users.

For Communication Providers not using XML tools the notification prior to regrade is not available.

Automatic Capping

Automatic capping using capped rate profiles is a feature which requires Communication Providers to opt in. Customers who do not opt-in to the feature will continue to follow the current regrade process which in some instances may result in line rates lower than the line rate of the previous ADSL fixed rate product. '

Automatic capping is available to all Communication Providers and identifies end users' lines that BT estimates may achieve a line rate lower than that of their current BT ADSL fixed rate product. This is performed as part of the regrade process from BT fixed rate ADSL services to BT IPstream Max products.

All regrade orders where lines are estimated to be lower than their current line rate and a Communication Provider has chosen to Opt-in to the process, BT will automatically apply a capped rate profile.

The capped rate profile that will be applied will be the same as that of the product you are regrading an end user's line from.

For example:
An end user has an existing BT IPstream Home 2000 product. BT's systems have estimated that on regrade to BT IPstream Max the potential line rate would be 1.5Mbit/s due to rate adaptation (although higher rates may be occasionally experienced). During the regrade process BT will automatically apply a capped rate profile at 2272kbit/s to ensure the end user maintains their current level of service. i.e. the line rate of 2272kbits associated with a BT IPstream Home 2000 product.

A BBCR report is generated which contains details of any lines in a 24 hour window that have been capped under this process. Communication Providers can use the details to sell or provide value-add services such as an engineering visit to inspect and rectify any problem wiring, CPE or filters before re-submitting such circuits again to be placed on a IPstream Max rate adaptive profile

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Opting-in

Communication Providers wishing to opt-in should send an e-mail request to bbct@bt.com to allowing 10 working days notice before the facility becomes live. The e-mail request should have the words " **Opt-in to automatic-capping request**" in the subject field.

Within the body of the text the requester should state clearly the following information:

- The name of the Communication Provider being represented
- The name and position within the company of the requesting person
- E-mail address of the requesting person
- Telephone contact details of the requesting person

This information is required should BT need to contact you regarding the process. E-mail addresses that cannot be sent to an individual (e.g. tech@provider.com) cannot be accepted.

BT will notify you of when the capped rate profile functionality will become available and again once the functionality has become live.

Please note that by opting-in to this facility (which we aim to implement within 10 working days) all lines identified as being likely to have a lower line rate if regraded to BT IPstream Max will automatically be processed with a capped rate profile. Prior to this any regrade orders received will be processed as normal .

Opting Out

Communication Providers may decide to Opt Out from this process by sending an e-mail request to bbct@bt.com giving 10 working days notice. The e-mail request should have the words " **Opt-Out of automatic-capping request**" in the subject field.

Within the body of the text the requester should state clearly the following information:

- The name of the Communication Provider being represented
- The name and position within the company of the requesting person
- E-mail address of the requesting person
- Telephone contact details of the requesting person

This information is required should BT need to contact you regarding the process. E-mail addresses that cannot be sent to an individual (e.g. tech@provider.com) cannot be accepted.

Confirmation will be sent to you to acknowledge your Opt-out request and again when BT has removed the automatic facility for applying capped rate profiles. Until this point qualifying lines will continue to be capped. Any previously capped lines will remain capped until remedial activity has been completed on them.

Moving capped rate profile lines to BT IPstream Max rate adaptive profiles

Once any remedial work has been completed Communication Providers should raise an **SCR** (Slow Connection Rate) fault to BTW requesting that the cap be removed and the line be started as a BT IP stream Max line. In the fault report notes, the Communication Providers should also detail the remedy that has been applied to stabilise the line. BTW will uncap the line and pass back to the reporting Communication Provider for a retest.

If the line is accepted as OK on retest BTW will start the line on a BT IPstream Max Rate Adaptive profile for the commencement of the stabilisation period. The line is now subject to the normal features, processes and behaviours of the BT IPstream Max product as described in this handbook.

The high level process flow below shows the flows and options within the process.

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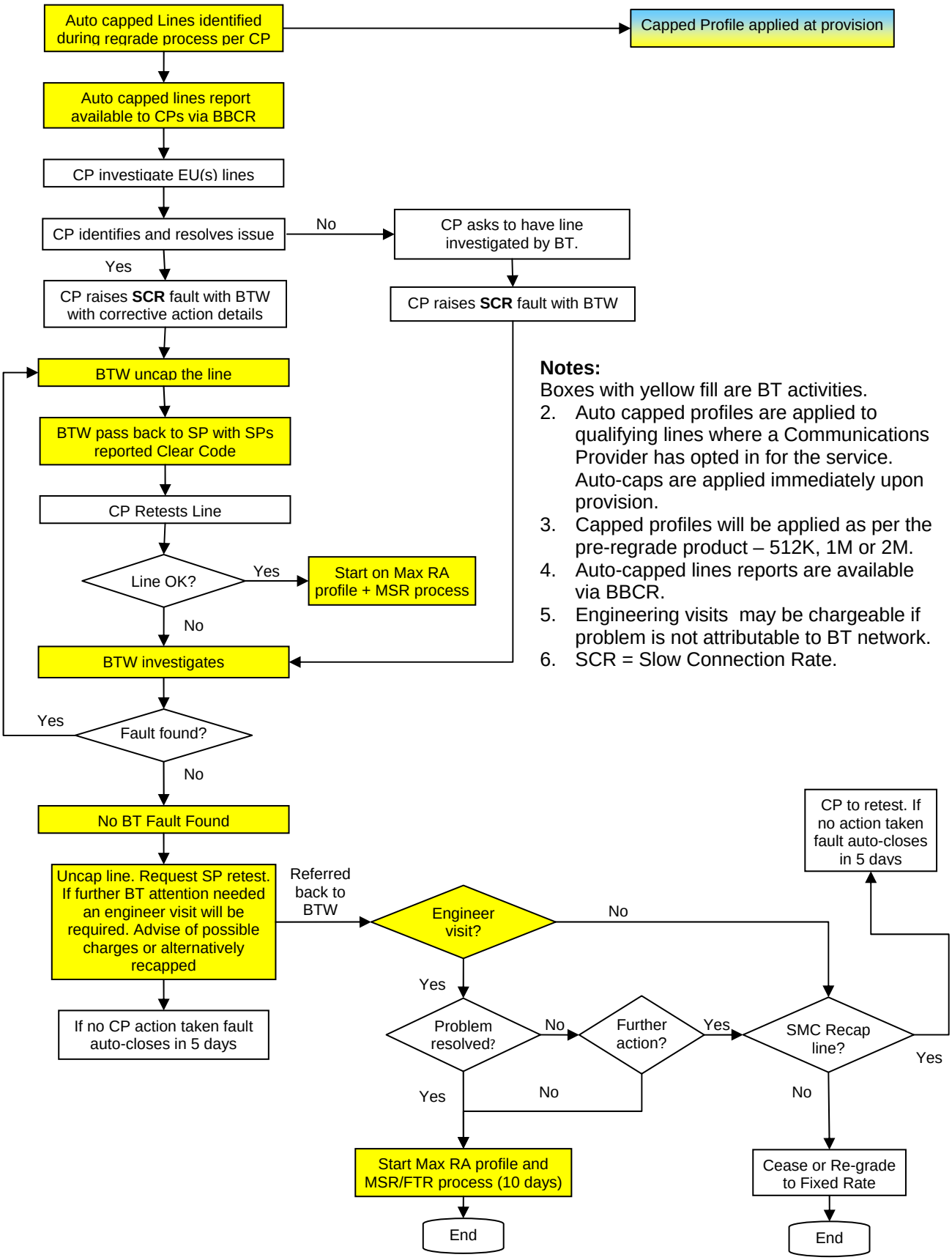
BT Wholesale – BT Broadband Max – Lower Line Rate on regrade Auto-Capping Process



Notes:

Boxes with yellow fill are BT activities.

2. Auto capped profiles are applied to qualifying lines where a Communications Provider has opted in for the service. Auto-caps are applied immediately upon provision.
3. Capped profiles will be applied as per the pre-regrade product – 512K, 1M or 2M.
4. Auto-capped lines reports are available via BBCR.
5. Engineering visits may be chargeable if problem is not attributable to BT network.
6. SCR = Slow Connection Rate.

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Customer Notifications

Communication Providers are notified of any lines that have a capped rate profile applied under this "lower line rate" process by the DSL Max Capped Circuit Detail Report in Broadband Customer Report (BBCR). Details are available in the Broadband Customer Reporting user guide.

Fault Reporting

See section 5.3 of this handbook and the BT IPstream Customer handbook.

(B) Chronic Lines

Chronic lines are those which have been identified as having excessive re-train attempts in a 24 hour period. The qualifying threshold level is communicated to Communication Providers via Broadband Customer Briefings in the normal manner. Chronic lines present a heavy load on our systems and provide a poor experience for end users.

The impact can be very severe and BT has introduced a process for dealing with these Chronic Lines which is set out in the contractual instruction issued by BT in briefing 156 dated 23rd June 2006.

Capped rate profiles are used in this instance to assist in trying to stabilise a line by attempting to reduce the excessive resynch attempts. The owning customer is notified with details of the problem line and what is required to assist in restoring the line to a fully rate adaptive BT IPstream Max service where possible.

Full details of this process can be found in Briefing 156 dated 23rd June 2006 available at *http://www.btwholesale.com > Homepage > Communities > Broadband* .

Once lines have been investigated, remedied and where possible the BT IPstream Max rate adaptive service restored, lines will undergo a new stabilisation period with new Maximum Stable Rate and Fault Threshold Rates being set at the end of the period.

For lines to be restored to BT IPstream Max services after remedial action as described above the affected lines should be raised as an End User Poor Performance fault (EPP) as per the Chronic Line process detailed in the above briefing.

Both Chronic and Auto-capped line details are available in the Broadband Customer Reporting (BBCR) DSL Max Capped Circuit Detail Report

4.2 Downstream Line Rate

- The Downstream DSL Line Rate will rate adapt up to a maximum of 8Mbit/s (8128Kbit/s), dependent on line length and noise conditions. As this varies BT will only be able to obtain the actual rate based on last synch event captured (i.e. each time the End User's CPE is syncs up with the BT DSLAM a synch event is recorded) at the time BT polls the DSLAM.
- BT will make available any changes on this reported line rate to you via the Broadband Customer Reports (BBCR) via the "Line Rate Delta Report" further details of which are set out in section 5 of this Handbook
- BT will supply reports (via Broadband Customer Reports) that allows you to build up your own profile on how the service is operating, and will assist you in deciding if the line is not operating

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within range and thus should be reported as a fault. It will also assist you in deciding if any changes need to be made within your own network, in order to maintain your End User service.

4.3 Upstream Line Rate

◊ BT will allow BT IPstream Max to rate adapt within the pre-described range of 64kbit/s-448kbit/s

◊ BT will allow IPstream Max Premium to rate adapt within the pre-described range of 64kbit/s-832kbit/s.

◊ No guarantee of Upstream rate will be given, and therefore you should expect Upstream line rates (speeds) to fall anywhere within the range i.e. no Maximum Stable Rate or Fault Threshold Rates are set in the Upstream direction

◊ BT will not accept as an Upstream Line Rate fault any services that are experiencing Upstream rates of 64kbit/s or above.

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4.4 Maximum Stable Rate (MSR)

The Maximum Stable Rate (MSR) provides you with an **indication** of the likely maximum stable line rate that a line will achieve but may operate between the minimum and maximum line rate defined by the product during the life of the service. However the MSR is an indication, **not** a physical limit and the line will continue to rate adapt to the highest stable speed it can irrespective of the MSR set.

The MSR is calculated for any line where a synchronisation event is received within 10 days of the service Order Delivery Date. This is the date when the BT IPstream Max service is available from BT for use. If no synchronisation event is received during the first 10 days, subsequent 10 day rolling periods are commenced to allow for the first synchronisation event to be captured. Subsequent 10 day periods will roll on if no synch event is received.

During the stabilisation period until a service's MSR and Fault Threshold Rate (FTR) are set following a synchronisation event being recorded, holding values of 2272kbit/s will be set for both MSR and FTR. These values are replaced by the service's actual MSR and FTR values when they become available.

The actual line rate achieved at any moment in time will generally be at or below the MSR, but may occasionally rate adapt above this level. The MSR operates as follows:

◊ BT will monitor the achieved Downstream Rate Adaptive rate over the first 10 days from the Order Delivery Date of the service to ascertain the Maximum Stable Rate achieved on the line. The line rate is rounded down to the next lower BRAS profile rate as per the table in Section 4.7 Fault Threshold Rate. This rate is the highest rate you should expect the service to adapt to under normal conditions, and will be supplied to you on day 10 of the service.[3]

◊ As the Maximum Stable Rate is calculated during the first 10 days of service the End User's CPE must have been connected during that period and have synced up to the BT's DSLAM at least once (it is recommended this is for a period of at least 15 minutes). If this has not been achieved, no Maximum Stable Rate (and associated Fault Threshold Rate (FTR)) will be set and faults only accepted if the line rate is below 288kbit/s or as described in section 4.1 of this handbook up to 2272kbit/s . BT will attempt, on a rolling 10 day period (i.e. every tenth day), to set the Maximum Stable Rate if this could not be set initially.

◊ The longer the period that the End User CPE has been synchronised with the BT DSLAM (either as one continuous period, or several periods due to turning off/on their CPE), then the more accurate the Maximum Stable Rate set will be. Those End Users who have not been synced up for extended periods of time to allow BT to monitor the performance over different days, and during different times of the day, may (at BTs discretion and not at Communication Providers request) have their Maximum Stable Rate changed once this information becomes available.

◊ Where a capped rate profile has been applied the Maximum Stable Rate and Fault Threshold Rate values will be the same as the capped rate profile values. i.e. 2272, 1152 or 576kbit/s as appropriate.

Things to emphasise concerning Maximum Stable Rate:

[3] To enable BT to calculate the Maximum Stable Rate at day 10, the End Users CPE must be connected and synced up to BT's equipment (DSLAM) within 10 days of the Order Delivery Date.

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◊ The Maximum Stable Rate is not a physical limit but only an indication of the likely maximum stable Downstream line rate that may be reached, and to assist in calculating the Fault Threshold Rate (see Fault Threshold Rate detailed below).

◊ A line rate above the MSR may occasionally be achieved but should not be expected.

◊ Maximum Stable Rates are designed to be set for the lifetime of the service, and will only be changed if BT cannot any longer support the current Fault Threshold Rate on an individual line. At that stage you will be given the choice to cease the service or to accept the recalculation of MSR (and thus the FTR) to a lower figure.

◊ Lines will normally operate within the range of the Maximum Stable Rate and Fault Threshold Rate, and therefore no Line Rate fault will be accepted by BT if the line operating in this range.

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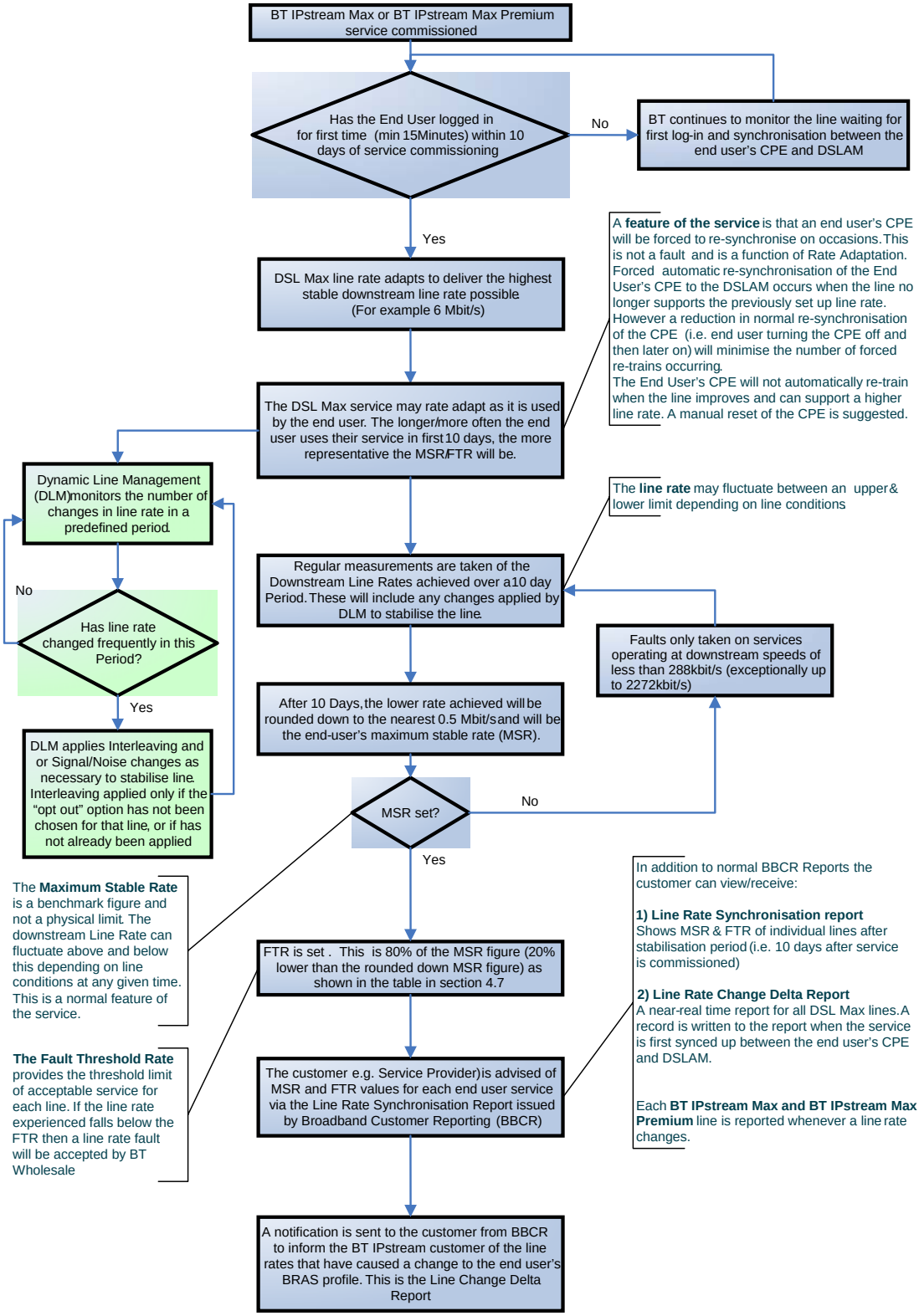
4.5 Maximum Stable Rate (MSR) Flowchart

The following flow chart gives an overview of the process of setting the MSR



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4.6 Example of Maximum Stable Rates (MSR)

The example below uses approximate figures for ease of illustration.

◊ At commissioning, a service rate adapts to 5.3Mbit/s

◊ Over a 10 day period, this varies between 5.5Mbit/s and just above 5.3Mbit/s. The Maximum Stable Rate is calculated to be 5.3Mbit/s. This is rounded down to the nearest ½ Mbit/s (for lines above 2272kbit/s). In this case, 5Mbit/s. The Fault Threshold Rate is calculated based on 20% of the Maximum Stable Rate. In this case, 3.6Mbit/s.

◊ Therefore, the normal operating range is deemed to be 5Mbit/s – 3.6Mbit/s.

4.7 Fault Threshold Rate (FTR)

The BT IPstream Max products are Rate Adaptive which means the line rate will vary (up and down) over time due to normal variation in line conditions and characteristics. A reduction in line rate of up to 20%, (as shown in the following table) should be expected during normal operation of the service. This lower limit will be known as the Fault Threshold Rate.

During the stabilisation period until a service's MSR and FTR are set following a synchronisation event being recorded, holding values of 2272kbit/s will be set for both MSR and FTR. These values are replaced by the service's actual MSR and FTR values when they become available.

◊ BT will not accept a line rate (speed) fault on any services that are operating within this band (between Maximum Stable Rate and the Fault Threshold Rate).

◊ The only exception to the above are on those lines that do not yet have a Maximum Stable Rate set and thus no Fault Threshold Rate and fall below 288kbit/s or as per section 4.1 of the Handbook (i.e. during the first 10 days of service, or where these could not be set due to the End Users CPE not being synced up to the BT DSLAM).

The following table shows the MSR and FTR rates used based on values for all applicable BRAS profiles. Actual thresholds will be shown on the line rate reports on Broadband Customer Reporting (BBCR) against each service. For any given Maximum Stable Rate, BT will not normally accept a line rate fault unless the reported line rate falls below the associated "Fault Threshold Rate".

NOTE: We will use a single set of BRAS profiles that align with the Maximum Stable Rates as highlighted in the "BRAS Downstream Payload Rates" table in section 4.10, under the column "Downstream BRAS ATM Rates (kbit/s)"

NOTE: Where a capped rate profile has been applied the Maximum Stable Rate and Fault Threshold Rate values will be the same as the capped rate profile values. i.e. 2272, 1152 or 576kbit/s as appropriate.

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Maximum Stable Rate (DSL line Rate) (kbit/s) (as indicated on day 10)	Fault Threshold Rate* (DSL line Rate) (DSL Line Rate in kbit/s -based on a 20 % Margin)
288*	**288**
416	**332**
576	**460**
864	**691**
1152	**921**
1440	**1152**
1728	**1382**
2016	**1612**
2272	**1817**
2848	**2278**
3424	**2739**
4000	**3200**
4544	**3635**
5120	**4096**
5696	**4556**
6240	**4992**
6816	**5452**
7392	**5913**
7968	**6374**
8128	**6502**

* below the minimum noise margin the service will not lose synch unless line rate falls to below 160kbit/s and at this stage no service will be provided. Any line that loses synch completely and does not regain synch within 10 minutes should be reported as a fault.

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If a line falls below the Fault Threshold Rate for more than an accumulative 8 hours in a weekly period (i.e. approx 5%) then BT will take as a fault and investigate the reason behind this.

A noise spike on the line may cause the service to rate adapt to a lower rate than the Fault Threshold Rate, and a manual re-train of the End User CPE (i.e. resetting the CPE) may cause the line to re-train at a higher rate. However there's a time lag before the profile on the BRAS will reflect this increase in line rate. BT will monitor the line for a minimum of 3 days to ensure that the line can continue to support that higher rate before the BT BRAS profile is increased. This is to limit the number of times the BRAS rate is changed to ensure a more stable service, especially if changes to the line rate are continually attempting to change the BT BRAS profile.

On the first train up of the End Users CPE after successful commissioning of a service, the BT systems will adjust the BT BRAS profile based on the DSL line rate at that time, and should achieve this within 75 minutes. This overrides the 3 days monitoring of the line rate if the BT BRAS profile requires to be raised up after that initial train up. After this initial synch up, the 3 day rule then applies to upward changes of BT BRAS profiles.

4.8 BT BRAS Configuration

The actual throughput of any BT IPstream service is dependant on the BT BRAS profile set within the BT network. With the IPstream Max products, it is important therefore to keep the BT BRAS profile in line with the line rate to ensure the best possible throughput for a given line rate (i.e. not to throttle the data throughput at the BT BRAS). This is done via Internal BT systems, which change the BT BRAS profile to one of a set of profiles which best matches the line rate.

◊ BT BRAS profiles above the adsl2000 profile are set at ½ Mbit/s steps. The effective throughput of BT IPstream Max will be in multiples of ½ Mbit/s, based on the line rate.

◊ BT BRAS profiles below adsl2000 (down to and including adsl500) are set at ¼ Mbit/s. The effective throughput of BT IPstream Max will be in multiples of ¼ Mbit/s, based on the line rate.

◊ BT BRAS profiles below adsl500 are adsl350, adsl250 and adsl135. The latter is the BRAS profile for the lowest working line rate for BT IPstream Max services, 160kbit/s.

◊ During normal operations (after the initial synch up) when DSL line rate decreases, the BT BRAS profile is changed to match the RA line rate as soon as possible, and usually within 75 minutes. This is to ensure throughput from you End User does not exceed the capability of the actual End User Access.

◊ During normal operations (after the initial synch up) when DSL line rate increases it could take up to 3 days before the BRAS profile is changed to match the RA line rate. This is to allow BT to monitor the line rate to ensure it will continue to support that BT BRAS profile over a period of time, and thus reduce the number of times a BT BRAS profile is changed

◊ On provision the default BT BRAS profile is set at 2Mbit/s, although BT systems may re-set this soon after commissioning to a BRAS profile that aligns with the actual line rate achieved.

◊ When initially reconfiguring the service to a RA profile (i.e. first synch up after commissioning of the service) it could take up to 75 minutes before the BT BRAS profile is changed to match the RA line rate. During this time the BT IPstream Max End User could be limited to 288kbit/s on both new and re-graded services. For a re-graded service it is likely that the BT BRAS profile will be set to a similar level to that of the re-graded service (i.e. 500kbit/s for a BT IPstream 500 re-grade), dependant on line conditions at the time

◊ On the first train up of the End User CPE after successful commissioning of a service, the BT systems will adjust the BT BRAS profile based on the DSL line rate at that time, and should achieve this within 75 minutes. This overrides the 3 days monitoring of the line rate if the BT

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BRAS profile requires to be raised up after that initial train up. After this initial synch up, the 3 day rule then applies to upward changes of BT BRAS profiles. See section 4.9 - BT BRAS Configuration Flowchart

◊ Actual line rates (speeds) may on occasions be below that set on the BT BRAS (due to a lag between the Rate Adaptation occurring and BT BRAS being re-configured), therefore DSLAM could discard excessive data in an uncontrolled manner . BT will attempt to minimise this during the normal operation of the service

◊ A noise spike on the line may cause the service to rate adapt to a lower rate than the Fault Threshold Rate, and a manual re-train of the End User CPE (i.e. resetting the CPE) may cause the line to re-train at a higher rate. However there's a time lag before the profile on the BT BRAS will reflect this increase in line rate. BT will monitor the line for a minimum of 3 days to ensure that the line can continue to support that higher rate before the BT BRAS profile is increased. This is to limit the number of times the BT BRAS rate is changed to ensure a more stable service, especially if changes to the line rate are continually attempting to change the BT BRAS profile.

◊ Where capped rate profiles have been applied a single BRAS profile is allotted to these services to match the line rate of the capped profile applied. Further details are shown in the table captioned as "Capped Rate Profiles - Line Rates and ATM Payload Rates" in Section 4.10

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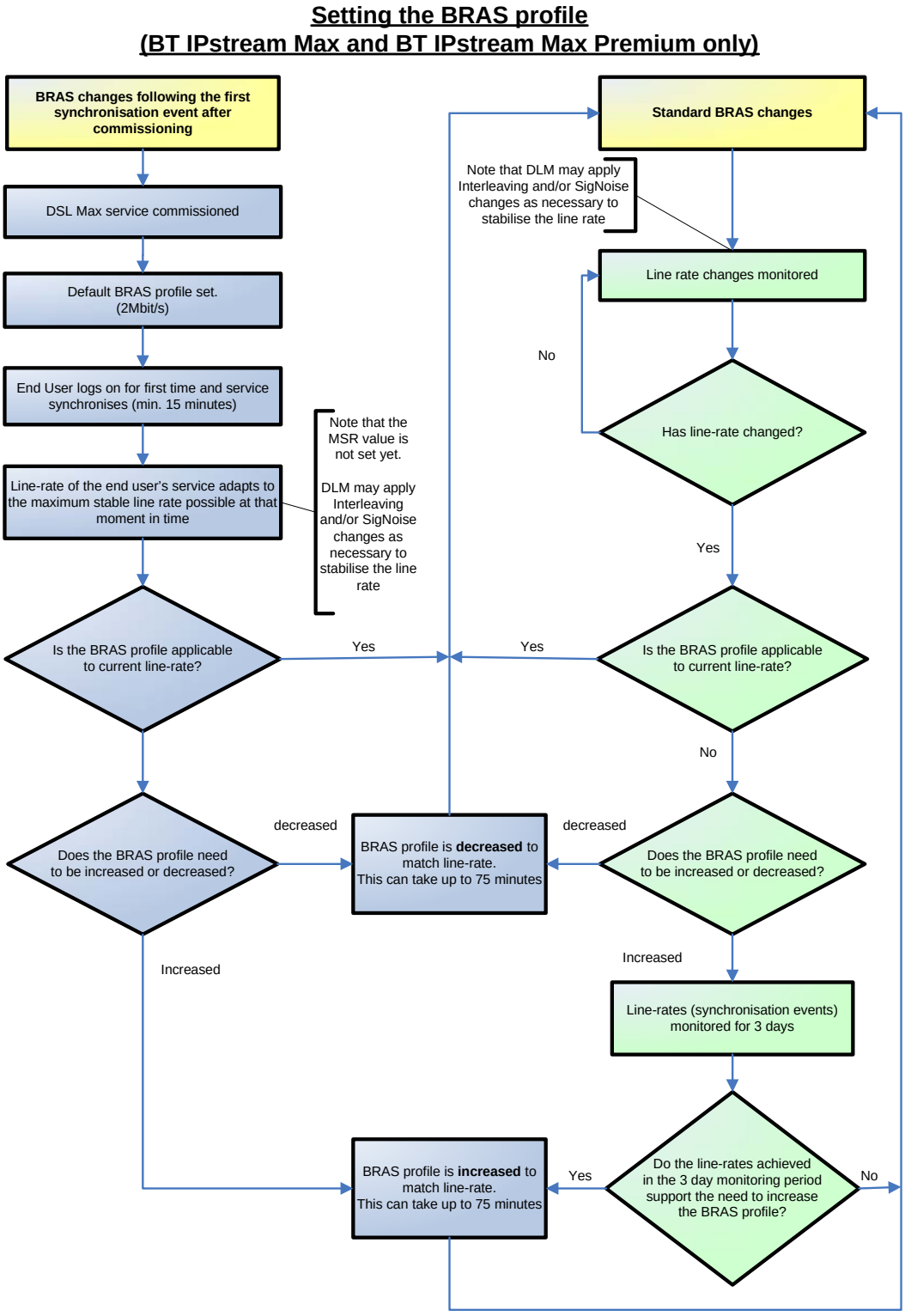
4.9 BT BRAS Configuration Flowchart

Below is a flowchart outlining the configuration process.



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4.10 BRAS Downstream Payload Rates

Below is a list of reported Downstream BRAS Payload bit rates based on the rate adaptation that occurs on the line. The BT BRAS ATM Rate (AAL5 Payload) is the maximum TCP/IP throughput rate theoretically possible (subject to the limitations explained in section 1.2) at a given line rate, but in practice multiple TCP sessions would be required to achieve this level. Typically using a single session a maximum of 85% of this rate could be achieved, dependant on type of traffic, and configuration of your End User CPE/service.

Downstream DSL Line Rate* (kbit/s)		Downstream BRAS (ATM) bit rate** (kbit/s)	Downstream BRAS ATM Rate (kbit/s) (AAL5 Payload)
Minimum	Maximum		
160	*256*	*138*	*135*
288	**384**	**256**	**250**
416	**544**	**370**	**350**
576	**832**	**512**	**500**
864	**1120**	**768**	**750**
1152	**1408**	**1024**	**1000**
1440	**1696**	**1280**	**1250**
1728	**1984**	**1536**	**1500**
2016	**2240**	**1792**	**1750**
2272	**2816**	**2048**	**2000**
2848	**3392**	**2560**	**2500**
3424	**3968**	**3072**	**3000**
4000	**4512**	**3584**	**3500**
4544	**5088**	**4096**	**4000**
5120	**5664**	**4608**	**4500**
5696	**6208**	**5120**	**5000**
6240	**6784**	**5632**	**5500**
6816	**7360**	**6144**	**6000**
7392	**7936**	**6656**	**6500**
7968	**8096**	**7168**	**7000**
8128	**8128**	**7320**	**7150**

* The line rates (speeds) indicated here are the line rate ranges that must be achieved to receive the indicated BRAS ATM bit rate.

** This is the maximum payload rate achievable (and set at the BT BRAS). It is dependant on network throughput, and thus generally only achievable at very low network usage times and is subject to the network constraints as detailed in section 1.2.

The row in the table above which greyed out shows the BRAS Payload rates of services that Rate Adapt below the minimum line rate supported by the product, but have still synced up at these lower rates. Lines operating at this level can be reported out as a "Low Line Rate" fault.

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	EUA Upstream		EUA Downstream	
	User Data Rate (kbit/s) *(DSL line rate)*	ATM Payload Rate (kbit/s)	User Data Rate (kbit/s) (DSL line rate)	ATM Payload Rate (kbit/s)
Max – Capped Rate Profile 500	Adaptive 64-288 kbit/s	Adaptive 57-256 kbit/s	576 kbit/s	Up to 512 kbit/s
Max – Capped Rate Profile 1000	288 kbit/s	Up to 256 kbit/s	1152 kbit/s	Up to 1024 kbit/s
Max – Capped Rate Profile 2000	288 kbit/s	Up to 256 kbit/s	2272 kbit/s	Up to 2048 kbit/s
Max Premium – Capped Rate Profile 500	Adaptive 64-288 kbit/s	Adaptive 57-256 kbit/s	576 kbit/s	Up to 512 kbit/s
Max Premium – Capped Rate Profile 1000	288 kbit/s	Up to 256 kbit/s	1152 kbit/s	Up to 1024 kbit/s
Max Premium – Capped Rate Profile 2000	288 kbit/s	Up to 256 kbit/s	2272 kbit/s	Up to 2048 kbit/s

Capped Rate Profiles - Line and ATM Payload Rates

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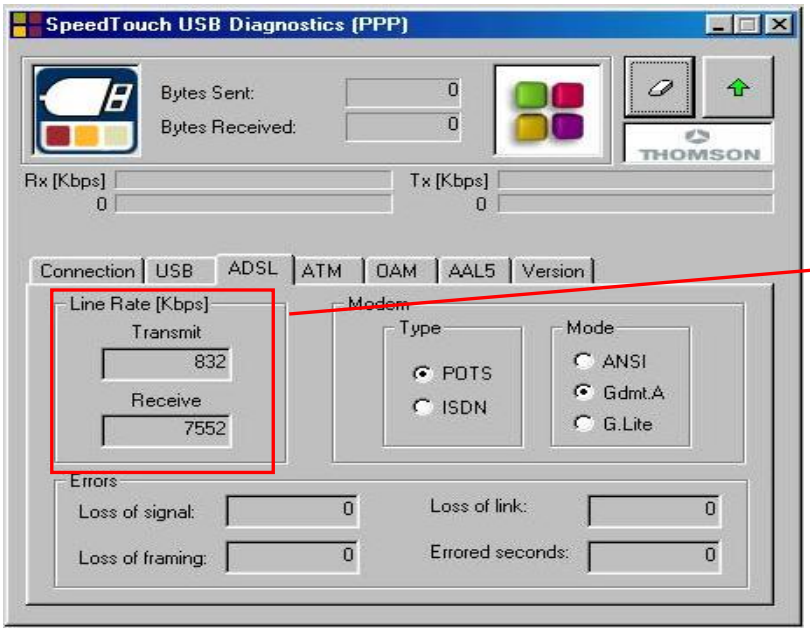
4.11 (DSL) Line Rate Indication

Line Rates are those that would normally be indicated on the End User's CPE (i.e. Router or Modem) as the Receive, the Downstream or Download line rate. These are the line rates that the End Users CPE has negotiated and synced up to the BT DSLAM. These do not show the actual throughput of the services, just the Line Rate, and thus an indication of the maximum possible throughput (including any overheads – i.e. ATM, IP etc) achievable on that line at that point in time. Please refer to the table in section 4.12 which shows the throughput rates that should be expected at the line rates indicated.



Upstream Line Rate 832kbit/s

Downstream Line Rate 7,552kbit/s

4.12 Downstream Throughput – Expected End User Experience

Having initially expressed BT IPstream End User performance on our network in terms of "contention ratios", BT has progressed to a situation where performance on IPstream Max products will be described in terms of 'End User experience' rather than "contention ratios".

We will articulate the expected service performance in terms of data throughput which will provide you with a more accurate indication of End User experience. The following tables show this with figures based on efficient fill of the underlying transport layers in the IP packets. These are based on sustained download rates over a number of minutes and not an instantaneous measure of throughput.

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BT IPstream Max	
Rate Adapting at a Downstream DSL line rate of:	Downstream IP throughput range*
288kbit/s	50 - 250kbit/s
above 288kbit/s up to 576kbit/s	50 - 500kbit/s
at or above 576kbit/s up to 1152kbit/s	200 - 1000kbit/s
at or above 1152kbit/s up to 2272kbit/s	400 - 2000kbit/s
at or above 2272kbit/s up to 8128kbit/s	600* - 7150kbit/s

* for 90% of time through the BRAS.

BT IPstream Max Premium	
Rate Adapting at a Downstream DSL line rate of:	Downstream IP throughput range*
288kbit/s	100 - 250kbit/s
above 288kbit/s up to 576kbit/s	100 - 500kbit/s
at or above 576kbit/s up to 1152kbit/s	400 - 1000kbit/s
at or above 1152kbit/s up to 2272kbit/s	800 - 2000kbit/s
at or above 2272kbit/s up to 8128kbit/s	1200* - 7150kbit/s

* for 90% of time through the BRAS.

** IMPORTANT NOTES ON DOWNSTREAM IP THROUGHPUT RANGE*

- *These are BT Wholesale BT IPstream Max product rates which may be further limited by any speed control facility.*
- *The maximum possible IP throughput rate is limited to the actual line rate achieved through rate adaptation (i.e. approx 90- 95% of the current DSL line rate is the maximum possible IP throughput, irrespective of the upper limit shown in the table). This figure can only be achieved under multiple TCP sessions.*
- *The maximum IP throughput rate based on the DSL line rate – see previous bullet point) may be achieved during low network usage times where the service can take advantage of any increase in line rate achieved above that of a fixed line rate service. Whilst this is the case, data throughput equal to the maximum line rate may not initially be reached on some lines provided with the Service due to the size of the virtual path (VP) deployed in the network and until such time as the average data throughput demands requires a VP to be upgraded in accordance with our standard planning rules*

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- For BT IPstream Max users synchronising at 2272kbit/s or above the BT network through the BRAS will provide a minimum of 2Mbit/s throughput for 90% of the time.
- For BT IPstream Max Premium users synchronising at 3424kbit/s or above the BT network through the BRAS will provide a minimum of 3Mbit/s throughput for 90% of the time.
- For the majority of the time the End User Access products should perform over the BT network within the range of Downstream IP throughputs described above (up to the maximum the EUA will support based on RA line rate, and any limiting factors within the BT network).
- Outside busy (high network usage) times the service may take advantage of any increase in line rate (of that of a fixed rate service) to enable increased data throughput to and from the BT network to your End Users. However data throughput associated with the achieved line rate is still dependant of the usage of the BT network, your own network (including BT centrals) and internet traffic levels.
- It should be noted that actual performance of the BT IPstream Max product varies depending on the behaviour of other End Users sharing the network components. We do operate capacity management processes to upgrade capacity in the BT network where performance consistently does not meet these performance levels.
- Throughput issues for IPstream Max services operating at lines rates of 2Mbit/s or above shall be dealt with in line with the current available process for BT IPstream Home 2000.
- The throughput during congestion time of Max services operating at below 2Mbit/s will be similar to that of current IPstream Home/Office equivalent fixed rate service (i.e. a line rate adapting to 576Kbit/s should give a service no worse that the current IPstream 500 equivalent) .
- Throughput issues for Max services operating at lines rates below 2Mbit/s shall be dealt with in the same manner as provided for End User Access options other than Home 2000

4.13 Slow Throughput Performance

There are a number of factors that affect the data throughput rate that an End User receives and should be considered for any suspected speed related faults. These can be split into six main areas:-

- The Internet - controlled directly by neither you nor BT,
- Your own network - controlled by you, not BT,
- The BT Central - controlled by you, with its performance dictated by its size and number of End Users filling it,
- The End User Access product type - controlled by BT,
- End user speed control systems - controlled by you
- The BT network (i.e. internal VP sizes and number of End Users per VP - based on BT's standard "planning rules" for the services) – controlled by BT,

Where an End User suspects that their line is performing below the lower threshold of the ranges outlined in the tables above, a speed test should be conducted on the line. Communication Providers should request that their End Users perform a speed test, preferably using the BT Speed Test tool (http://speedtester.bt.com).

If the rates of the speed test are below the lower thresholds described in proceeding tables, or the diagnostics or structured questions have indicated a speed fault may exist, the suspected fault can be submitted to BT Wholesale.

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Please note that the BT Speed Test will not currently work for installations where the End Users' equipment is configured for 'No NAT'. For 'No NAT' scenarios, an alternative speed test result should be provided.

4.14 Dynamic Line Management (DLM)

Dynamic Line Management effectively enables BT the fine 'tuning' of a line's performance to ultimately provide an improvement in the quality of service delivered to the End User.

◊ Detailed historical performance data will be gathered periodically from lines to identify those which are performing badly. These lines may then be re-configured automatically (if possible) to give an improvement in their overall performance and stability. This re-configuration will result in a short break (typically 20 seconds) in End User service.

◊ It is possible that re-configuration of a line could occur daily until a stable configuration is found although it is expected that the majority of poorly performing lines will only require one or two re-configurations before reaching a stable point.

◊ The DLM process may also result in a decrease in line rate, but this will only occur where a line is identified as performing badly at a higher rate.

◊ DLM may also use interleaving (see below) to fix problem lines and this will result in an increase in the delay over the connection, which may affect delay sensitive services.

◊ Notification will be provided to you whenever a change is made as part of the DLM process. The DLM process may also be applied manually as part of the standard repair process following an End User fault report.

◊ In some cases the line rate achieved on the BT IPstream Max & BT IPstream Max Premium products will be lower than the End User may have had from a fixed rate since the DLM process is optimised on stability and performance rather than raw line rate.

NOTE: A reduction in achievable line rate could be in the range of 800kbit/s per re-configuration made in an attempt to stabilise the line by adjusting the SNR (Signal to noise ratio). However, it is not expected any line rate reduction will be apparent, if the introduction of interleaving alone is sufficient to stabilise the line (as detailed in section 4.15).

NOTE: If a BT IPstream Max or Max Premium product is placed on a capped rate profile it will be excluded from DLM.

4.15 Interleaving

Interleaving is a feature of the ADSL (G.992.1) specification, which can be enabled on any individual line to improve its overall (error) performance and stability. Interleaving effectively introduces powerful error correction algorithms, which in some cases can make the difference between a line working well or not at all. In addition, interleaving can provide a significant improvement in the quality of service experienced by the End User particularly for error sensitive services like video.

◊ Interleaving will only be used on BT IPstream Max and IPstream Max Premium EUA options.

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◊ The default setting for BT IPstream Max & BT IPstream Max Premium EUA options is set as "Auto", which gives BT the ability to apply interleaving automatically to assist in the stabilisation of a service.

◊ It is possible for you to opt-in or to opt-out of interleaving via the tick box on the eCo screen. This can be done a point of provision or in life (post provision).

◊ Interleaving increases the delay over the Broadband connection[4], which can affect some delay sensitive services and therefore its use needs to be considered carefully. In general, interleaving will have no effect on bit rate so End Users should not see any reduction in rate as a result of enabling interleaving[5].

NOTE: If a BT IPstream Max or Max Premium product is placed on a capped rate profile it will be excluded from having interleaving applied and will be set to Fast mode.

4.16 Interleaving "Opt In" & "Opt Out"

◊ The default Interleaving status of any new provide, or re-grade/migration from a non BT "Max" service is "Auto". This means a service is provisioned with Interleaving off, but BT will automatically apply it if required in order to stabilise a service or as part of the fault rectification process.

◊ The default Interleaving status of any re-grade/migration from another BT IPstream Max service is that of the previous service. This means a service is provisioned with Interleaving status unchanged . Therefore if "Auto" was selected on the previous service, and subsequently interleaving was applied to stabilise the line, on re-grading to another "Max" service (i.e. BT IPstream Max to BT IPstream Max Premium) the re-graded service would also have interleaving applied.

◊ Options to "opt in" or "opt out" are available on the Gateway for Service Providers both at the point of provision and post provision. If neither is chosen the default interleaving permission of either "Auto" or " No Change" will be applied, as applicable.

◊ Using the Gateway the interleaving option is set on a per order basis via the Interleaving permission field.

NOTE: If a BT IPstream Max or Max Premium product is placed on a capped rate profile it will be excluded from having interleaving applied and therefore the customer preference will not be applied whilst on the capped rate profile. The service will be provided as Fast mode.

[4] The typical additional round trip delay as a result of enabling interleaving is around 20ms, although delays of up to 40 ms may be seen on some lines depending on the serving DSLAM.

[5] Applying interleaving however will reduce the maximum possible line rate achievable from 8128kbit/s to 7616kbit/s. This ceiling will only effect those lines capable of rate adapting to over 7616kbit/s without interleaving applied

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For New Provide orders

Interleaving Permission Option to select	Interleaving Status	
Auto	Auto	*Default value*
No	Opt Out	
Yes	Opt In	

For Modify Orders

Interleaving Permission Option to select	Interleaving Status	
No Change	As per previous service (if applicable)	*Default value*
Auto	Auto	
No	Opt Out	
Yes	Opt In	

4.16.1 Opt In – Interleaving On

◊ Opt In (or interleaving on) at point of provision is to allow you to request that interleaving is permanently applied to a particular service. This could be due to your knowledge about the application the End User is to use which may be improved by having interleaving applied.

◊ The Opt In option is also available on the Gateway for Service Providers post provision to allow you to request that interleaving is permanently applied to a particular service. If already applied as part of service stabilisation or fault rectification this option ensures it in not removed in the future, unless directed by you otherwise. This could be due to a customer complaint or knowledge about the application the End User uses.

◊ Interleaving does offer the potential of significant improvements to End User service and could reduce faults being reported from End Users. It may also reduce the initial period of stabilisation when a IPstream Max service is provided, and thus End Users early life experience of the service could be improved.

4.16.2 Opt Out – Interleaving Off

◊ "Opt Out" (or interleaving off) at point of provision is to allow you to request that interleaving is never applied to a particular service. This could be due to your knowledge about the application the End User is to use which may be impacted by having interleaving applied.

◊ The "Opt Out option" is also available on the Gateway for Service Providers post provision to allow you to request that interleaving is never applied to a particular service, or if already applied, to have it removed and not re-applied in the future. This could be due to a customer complaint or knowledge about the application the End User uses.

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◊ As stated above, it is possible to Opt Out of allowing interleaving to be used on individual lines; however we would recommend that this "opt out" option is considered carefully since interleaving does offer the potential of significant improvements to End User service and could reduce faults being reported from End Users. Without using Interleaving to stabilise a line, other methods may be used (Signal to Noise Ratio),which could lead to a reduction of the achievable line rate (and thus subsequent reduction in the maximum stable rate of that line).

As part of fault diagnostics, we may also apply Interleaving temporarily to ascertain if this cures the fault but if you have opted out of Interleaving we will remove Interleaving before clearing the fault, unless otherwise agreed with yourself.

4.17 USB modem configuration

Due to limitations on the PC implemented Universal Serial Bus (USB) you need to be aware of the following when re-sourcing, and configuring End User CPE modems connected via the Universal Serial Bus (USB).

◊ For End User CPE modems connected via the Universal Serial Bus (USB) particular attention should be paid to the configuration of both the USB transfer mode and the default TCP window size otherwise throughput issues may result.

◊ USB devices can have two different transfer modes, bulk mode, and isochronous mode. Bulk mode uses the available USB bandwidth, and isochronous mode reserves the bandwidth it requires. This means that modems operating in bulk mode can suffer from rate limiting, as the modem is unable to match the USB rate to the DSL rate. This is due to USB1 only having ~11Mbit/s half-duplex bandwidth for all devices on the channel.

◊ The fix may be to switch the modem from bulk mode into isochronous mode, however not all modems support isochronous mode. Some modems may be upgradeable to resolve the problem, others may have to be replaced if the best throughput is to be achieved.

◊ It may be that by changing these settings on a particular modem could also result in a reduction of speed, or other problems.

It is highly recommended that to you contact your modem supplier to ensure that any USB modems you use are configured correctly to give the best possible throughput.

4.18 Customer Premises Equipment (CPE) & Drivers/Firmware

CPE is not provided by BT as part of the BT IPstream Max or BT IPstream Max Premium services and therefore it must be sourced by yourself or directly by you End User. It is therefore important that you are aware of the following in respect to End User CPE and the need to ensure correct driver and/or firmware are being used.

◊ Individual CPE's implementation of hardware, firmware, drivers and/or software may impact on the highest Line Rates achievable on a given line. Therefore different combinations may give different results if used on the same line.

◊ Changing End Users' CPE (or associated hardware, firmware, drivers and/or software) during the life of the service may lead to a change to Line Rates achieved. Therefore you and your End Users must be aware of this fact, and take this into consideration when reporting a reduction in Line Rate when changing CPE. If in doubt please re-check the line with the original CPE to see if this rectifies the problem.

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- ◊ It is important that you check that you have appropriate drivers/firmware for any CPE (e.g. modem or router) supplied to your End Users as part of your service to ensure it works at the optimum level with Rate Adaptive ADSL services.
- ◊ It is important that you check that End Users have appropriate drivers/firmware for any CPE (e.g. modem or router) supplied by themselves in order to operate your service.
- ◊ It has been found that incorrect firmware/driver versions is a major factor in incorrectly reported faults. It is your responsibility to ensure the correct firmware and/or drivers are being used by the End User before faults are reported to BT.
- ◊ BT reserves the right to charge you for abortive work caused by faults incorrectly reported to BT which subsequently prove to be due to incorrect CPE drivers and/or firmware.
- ◊ BT reserves the right to charge you for abortive work caused by faults incorrectly reported to BT which subsequently prove to be due to problems associated with End Users CPE , End Users internal wiring, or incorrect/non use of ADSL filters.

It is highly recommended that you contact the End User CPE supplier to ensure that any CPE that are to be used by your End Users have the correct drivers and/or firmware to give the best possible throughput and to support the BT IPstream Max family of services.

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5 BT IPstream Max Service Ordering and Support

This section gives you information about how to take up the IPstream Max service. Information on ordering your BT Central(s) are contained in the current BT IPstream Customer Handbook, and is therefore not addressed in this document.

5.1 Order Entry Criteria

You will be informed which exchanges are capable of supporting the "Max" products. The Availability Checker (V9 or above) will indicate which lines are capable of supporting the "Max" services. Please note during any mass migration of End Users (ie via Generic Modify re-grades) to "Max" products it may be necessary to constrain End User order volumes to protect the BT systems from being overloaded. This constraint will be shared across all Communication Providers.

In order to apply for (order) BT IPstream Max the following criteria must be met:

◊ You must have already contracted to the BT IPstream Service

◊ You must be on either a UBC or CBC pricing option (Max service is not available with standard pricing)

◊ Your aggregate products (e.g. BT Centrals) , must be-able to support higher bandwidths ADSL products in the numbers you plan to order.

◊ The End User line must terminate in a "Max" enabled exchange.

◊ BT has estimated, via the Broadband Availability Checker, that the line will support the BT IPstream Max services . Line qualification is based on current 250kbit/s (288kbit/s line rate) services that fulfil the line characteristics needed to support the BT IPstream Max products.

◊ You have agreed and signed up to the Terms & Conditions for IPstream.

◊ You have agreed, and informed your End Users that the services will be maintained at Standard Care, unless you have opted (at additional cost) for Enhanced Care level.

Order Types Supported

- Provide
- Cease
- Cancel
- Conversion (ISDN2 and Home Highway)
- Generic Modify (supported by Modify & SP Migration order types)
- Simultaneous Provide/BB Movers
- Singleton EU migration (supported by SP Migration order type 'GM') – allows non Max EU to migrate to another Service Provider, who is on the Max trial
- Change Maintenance (Supported by Modify order type 'GM')
- Generic Modify to and from IPstream Max (supported **only** by Modify order type 'GM')

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5.2 End User Service Ordering

You must request individual lines to be provided/re-graded to the IPstream Max variant. The standard lead time for a provision, re-grades etc are the same as standard IPstream End User services (e.g. IPstream Home 2000) and therefore . However the following needs to be noted

5.2.1 Standard / Generic Modify Re-grades

◊ Standard re-grades are not available for the BT IPstream Max & IPstream Max Premium products

◊ Re-grades can only be ordered via Generic Modify. Bulk Regrades can be completed via the Broadband Bulk Change Tool (BBCT) Further information can be found at *http://www.btwholesale.com > Homepage > Communities > Broadband*.

◊ Your systems and interfaces must work to Genetic Modify re-grades in order to be-able to automate the placing of re-grade orders

5.2.2 USB 500 and S re-grades

Where a re-grade is requested from a BT IPstream USB 500 or S End User Access to a BT IPstream Max or BT IPstream Max Premium:

◊ End User CPE will be dealt with and subject to the same conditions as the current re-grade of a BT IPstream USB 500 or S End User Access to a Home or Office End User Access under the Conditions of BT IPstream Service; and

◊ re-grades from BT IPstream Max or BT IPstream Max Premium to BT IPstream USB 500 or S End User Accesses will not be possible. If the Customer wishes to downgrade such BT IPstream Max or BT IPstream Max Premium End User Accesses, these can only be downgraded to BT IPstream Home or BT IPstream Office End User Access provided under the Conditions of BT IPstream Service.

◊ If a re-grade from a BT IPstream USB or S End User Access fails, it may not be possible for it to be reverted back to its original service. Under these circumstances you will need to request a BT IPstream Home or BT IPstream Office End User Access to be provided under the Conditions of BT IPstream Service.

5.2.3 Availability Checker

For full information regarding the availability checker and its use please see section 4.5 of the BT IPstream Customer Handbook

For Communication Providers using XML for ordering, version 12 of BT's Broadband Availability Checker raises a flag when it identifies lines that may achieve a lower line rate on regrading to BT IPstream Max services. When used for pre-qualifying this will allow you to discuss with your end user whether to progress the regrade order or to offer other services to attempt to improve the user's environment.

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For example: an end user has line with an existing BT Home 2000 product, the Broadband Availability Checker has estimated that if the line is regraded to BT IPstream Max the line rate is likely to be 1.5Mbit/s. The checker will return a flag to indicate that a lower line rate may be experienced.

5.2.4 Automated ordering (eCo)

Automated ordering detailed in the main BT IPstream Customer Handbook. However please refer to section 4.15 of this document concerning the ability to chose Interleaving at the point of provision.

5.2.5 End User order rejection

End User order rejection is detailed in the BT IPstream Customer Handbook.

Additionally an order will be rejected if :

◊ The line is not in a BT IPstream Max enabled area. We will normally tell you if this is the case within two working days. Where additional tests are required this will normally be within four working days

5.2.6 Care Levels

Both Standard and Enhanced Care levels are applicable to BT IPstream Max and BT IPstream Max Premium products. Standard and Enhanced Care levels are detailed in the BT IPstream Customer Handbook.

5.2.7 Ordering – General

All other ordering items including the following are detailed in the BT IPstream Customer Handbook.

Manual Ordering on Existing PSTN line,
Manual Ordering - BT IPstream Max or BT IPstream Max Premium Movers and Simultaneous PSTN End User order rejection,
Cancelling an End User order,
Escalating issues relating to End User conversion,
End User appointments,
Service Connection,

5.3 End User Fault Reporting

End User Fault Reporting is as detailed in the BT IPstream Customer Handbook.

However additionally you need to be aware of the following

Please note that where a line has a capped rate profile applied only the last bullet point in this section applies.

◊ Automatic (forced) re-trains of Customer CPE to the BT DSLAM occur when the line no longer supports the previously set up line rate (i.e. below the noise threshold set for the line rate). However, it does not automatically re-train when the line improves and can support a higher

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line rate. Therefore before reporting an End User line rate related problem it is strongly suggested that a manual re-synch of the End User CPE is conducted to see if the line can now support a higher line rate. However there is a time lag before the profile on the BT BRAS will reflect this increased in line rate.

◊ As the service is Rate Adaptive, the service may rate adapt to a lower speed and re-synchronise. Therefore it is important when reporting a fault out of "no synch", that this is not due to a loss and re-synch. Any service reported as no synch will be automatically checked for synch, and the fault reject if the line has subsequently synched up . Therefore you need to ensure that the correct fault is reported , i.e. either intermittent synch, or no/loss of synch to ensure the correct actions can be undertaken and fault rectification times minimised. Note – No synch is when a service has lost synch and not regained it (even momentarily) for a period of time , e.g. for 30 minutes.

◊ If you need to report a fault, please include details of End User equipment type and model. This will allow us to identify any related causes, and may improve fault rectification times.

◊ If your End User experiences a low DSL line rate, this could be the result of transient line conditions. In this instance, re-training the End User CPE may increase the line rate. This is because Rate Adaptation only automatically rate adapts downwards. If it is not possible or practical to try this remedy, or if it does not resolve the issue, please report the fault in the normal way.

◊ During the first 10 days of the service from the Order Delivery Date we will be stabilising the line and calculating the Maximum Stable Rate. The line should continue to work at a line rate (not to be confused with the data throughput which is affected by contention in the network) of 2272kbit/s or above throughout this time. If the line rate (not data throughput) falls below 2272kbit/s (or as per section 4.1 of this Handbook), or if the line loses synch during this period, then we will accept this as a fault.

◊ During the first ten days, and particularly when the service is first synced up after commissioning, the service may experience a lower level of service (i.e. higher error rate, more synch losses) as we try and ascertain the optimum setting to give the highest and most stable line rate. End Users need to made aware of this if reporting a fault during this time

◊ If the line can no longer support the service within the 20% Fault Threshold Rate, then the fault report is closed and you will be given the choice to either have the Maximum Stable Rate re-calculated and continue service, or cease the service at no charge. If you choose to continue service, a new Maximum Stable Rate will be calculated within the following 10 days and you will be notified of this by day 10. Before we notify you of the new Maximum Stable Rate, a fault will not be accepted unless the DSL line rate falls below 2272kbit/s (or as per section 4.1 of this Handbook). Once this process is completed the service will not be deemed faulty until the DSL line rate falls to 20% below the new Maximum Stable Rate.

◊ If the line can no longer support the service above 288Kbit/s (line rate) you will be informed and can choose to cease the services at no cost.

◊ When BT tests the service either during provision or during a fault, we may do so at various positions on the route, rather than only at the point where the End User's CPE is located. This may result in an incorrect Line Rate being recorded and reported back to you. However, the next time the End User logs onto their service, after the testing has been completed, the line should synch up to the actual rate where the End User CPE is located and this line rate will be reported to you via the Customer Reports. Please note there will be an interval of at least 15 minutes between the BT testing being completed and the line rate being captured, after the End User has re-synced their CPE. Therefore, we suggest that you do not configure/re-test your network until you have either received confirmation of provision from us or the fault has been closed.

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◊ In relation to throughput issues please see section 4.12 & 4.13 of this document.

◊ Where lines have had a capped rate profile applied under the automatic capping process (section 4.1.1) or those classified as Chronic lines, faults must be reported as per fixed rate line faults. These are detailed in the BT IPstream Customer handbook.

Once lines have BT IPstream Max rate adaptive profiles assigned the normal arrangements for fault reporting shall apply.

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The following information with respect of End User fault reporting can be found in the IPstream Customer Handbook available at

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

Reporting faults using the BT Wholesale electronic Gateway,
Planned Engineering works to the Gateway,
Emergency Outage effecting the Gateway,
Reporting faults using the eCo electronic Gateway,
Reporting faults using XML Repair,
Reporting faults on BT IPstream for Communication Providers who do not use eCo or XML,
Escalating issues relating to End User repair

5.4 End User Structured Questions

End User Structured questions are detailed in the main BT IPstream Customer Handbook

additional structured questions applicable to BT IPstream Max products are available form

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

5.5 Service Test Pages

The following information with respect of End User fault reporting can be found in the IPstream Customer Handbook available at

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

Service Diagnostic Tools
Issues & Complaints
Line Problem Resolution Using Service Specific Front Plate

5.6 Charging Options

Services will only be available for those Communication Providers on UBC or CBC charging options, as outline in the BT price list.

All other charges applicable to the service under the standard BT IPstream conditions will be applicable (domain name change , care level change etc) Please refer to the main BT IPstream Customer Handbook

5.7 Customer Reporting & Invoicing

This section gives details of Customer reports and how we will invoice you for the services we provide.

All current reports and invoicing applicable for IPstream services (applicable to fixed rate and Max services) are detailed in the main BT IPstream Customer Handbook. Additional reports will be available for IPstream Max services are contained within the *Broadband Customer Reporting Release 2 - Individual User* guide available at

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

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The Following section gives a basic outline of these additional reports:

5.7.1 IPstream Max Specific Reports

Below is an overview of the additional reports, but these are subject to change and thus you should refer to the Broadband Customer Reporting Release 2 - Individual User documentation for the up to date details

Line Rate Synchronisation Report

Report showing the Maximum Stable Rate and the Fault Threshold Rate of BT IPstream Max and BT IPstream Max Premium circuits when the rate has stabilised.

A record is included in the report if the speed has been synchronised for the first time or has been re-synchronised following clearance of a fault.

Line Rate Change Delta Report

Report giving an update for all IPstream Max & IPstream Max Premium circuits for the SP for which a Line Rate Change (either Upstream or Downstream) has been applied.

A record is written to the report when the line is first synced up and thereafter the line is reported whenever there is a change of speed.

A circuit is included for the first time in the report if there has been a change of Upstream or Downstream Line Rate.

This also shows the current BRAS profile name.

Current Service Details Report

Report giving current service details for all BT IPstream Max and BT IPstream Max Premium circuits within 1 working day of a request from the SP via email (in CSV format).

This report is limited within the BT Application to prevent the number of reports running at any one time, and is scheduled to run overnight. If more reports than specified in the Broadband Customer Reports documentation have been scheduled for the same date that you request you will not be able to schedule the report for the selected date.

Max End User Summary Report

Report showing service details for an individual BT IPstream Max or BT IPstream Max Premium circuit by specifying the Network or Service Id for that circuit. Additionally a date may be specified to view only changes for a particular day. This also shows the current BRAS profile name and synch rates and timestamps.

Please note : A maximum of number of records will be displayed as outlined in the *Broadband Customer Reporting - Individual User* guide.

Service Profile Report

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Report showing profile changes for all BT IPstream Max and BT IPstream Max Premium circuits , i.e. Noise Margin and/or Run Mode on a daily basis.

DSL Max Capped Circuit Detail Report

This report replaces the DSL Max Auto Capped Circuit Report. It shows details of both Chronic and Auto-capped lines. The type of capping applied is identified in the Capped Reason field as either "Chronic" or "Auto" accordingly. The Headline Downstream rate (IP rate) is also shown for the capped profile.

The report is covers lines being capped within a 24 hour period and is available for up to 14 days from when the capped rate profile was automatically applied.

5.8 Terms and Conditions

The terms and conditions are contained in the standard BT IPstream Terms and Conditions and is available from:

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

If there is any difference between the BT IPstream Terms and Conditions and this Handbook, the BT IPstream Terms and Conditions take precedence.

5.9 Supplier and Service Provider Notifications

Service Information Notes are as applicable to standard BT IPstream services as detailed in the BT IPstream Customer Handbook.

All SINs that are applicable are detailed in the BT IPstream Customer Handbook.

5.10 Customer Requirements Forms & Guides

The standard IPstream Max Customer Requirements Forms (CRFs) and associated guides for End User Orders have been amended to included in the BT IPstream Max & BT IPstream Max Premium products.

All BT IPstream Customer Requirements Forms (CRFs) for End User, BT Central and BT Central Plus Services are available on the BT Wholesale Broadband website as specified in the main BT IPstream Customer Handbook.

The order cannot be progressed if the CRF is incorrect or incomplete, and will incur a delay in the lead-time. All CRFs and associated Guides are available from:

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

5.11 End User Guides

There is no specific End User Guide for this service. All relevant information is contained in this document, or those referred out within it.

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

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5.12 RADIUS Accounting Data

The option of RADIUS End User accounting data is a supported feature on all BT Centrals except for BT Central 155Mbit/s L2TP and BT Central Plus.

Please refer to the BT IPstream Customer Handbook for further details.

However you need to be aware that only setting RADIUS accounting data transfer attributes 42, 43, 47 and 48 may lead to issues with high speed broadband services. Therefore you may need to request the Gigaword attributes (52 & 53) to be set.

Further Information is available in SIN 329 from:

http://www.sinet.bt.com

You can request the Gigaword attributes to be set via BT Central CRF in the "Additional Information" field; further clarification on completing the CRF is available in the Guide to Completing the BT Central CRF these are available from the Customer Requirement Forms (CRF) section of the BT Wholesale Broadband website:

http://www.btwholesale.com > Homepage > Communities > Broadband >IPstream Documentation

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6 Document History

This section provides a brief description of the changes between this issue of the BT IPstream Max Customer Handbook and the previous issue. Please refer to the main body of the document for full descriptions of each topic.

Description	Ref. Section
First issue	All Sections
Second issue – Availability checker detail removed to Main IPstream Handbook and cross referenced and subsequent numbering corrections in section 5.	Section 5.2.3 on
Third issue – addition of reference to IPstream Advanced Services Handbook	Section 1.1
Fourth issue – changes to the description of Maximum Stable Rate and its setting; addition of acceptance of line rate faults up to 2272kbit/s during the stabilisation period. Also includes addition of Max Capped Rate profiles for lines estimate to have a lower line rate on regrade. High level Process added for the Max capped Rate profiles	Section 4.4 and 4.1, 5.3 & other references throughout as identified in CHIN. Subsection 4.1.1 added
Fifth Issue - Changes to reporting of capped profiles in BBCR. Addition of BRAS profile names in BBCR reports. Replacement of the DSL Max Auto Capped Report by the DSL Max Capped Circuit Detail Report. Change of URL for Terms and Conditions	Section 4.1.1 Section 5.7.1 Section 5.8
Sixth issue - Changes to FTR calculation & values.	Section 4.5 Section 4.6 Section 4.7 Section 5.3
Seventh issue – addition of intermediate BRAS profiles below adsl 2000. Change of statement on throughput values for Rate Adaptive products	Section 4.2 Section 4.4 Section 4.6 Section 4.7 Section 4.8 Section 4.10 Section 4.12

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