

***IP Address  
Assignment Policy  
And Agreement***

***For TelstraClear  
External  
Customers***

**TelstraClear**

**Now's Good**

**This document (“Policy”) sets out TelstraClear’s policy for assigning IP address space to customers and the obligations of the customer who uses IP addresses assigned by TelstraClear, or has accepted the terms and conditions of this Policy by signing below or agreeing to a related Service Description (the “Customer”).**

Please refer to the glossary at the end of this Policy for an explanation of certain terms used in this Policy.

## **IP Addresses – number of addresses per prefix length**

The following table sets out the prefix lengths of IP addresses that TelstraClear may assign to the Customer depending on the Customer’s requirements, and the number of addresses and useable addresses associated with each prefix length.

The number of usable addresses is always two fewer than the total number of addresses for the prefix. This is because the network address (all zeroes) and the broadcast address (all ones) cannot be used for addressing purposes.

Prefix length	Number of addresses	Number of usable addresses	Common names
/32	1	0 <sup>1</sup>	Host route
/31	2	0 <sup>2</sup>	
/30	4	2	Stub network
/29	8	6	
/28	16	14	
/27	32	30	
/26	64	62	
/25	128	126	
/24	256	254	Class C in classful jargon.

<sup>1</sup> This prefix length is generally only used for host routes.

<sup>2</sup> A /31 prefix length can be used for point-to-point links when using routers supporting this functionality. In this special case, two usable addresses are indeed available. TelstraClear is currently using /30 blocks for all Customer point-to-point links.

## Assignment Categories

Depending on the Customer's requirements, the Customer will be assigned a variable sized assignment or a fixed size assignment. These are explained as follows:

### *Variable sized assignments*

These are assignments for products and plans that require a variable number of IP addresses (depending on the Customer's requirements). Variable sized assignments are always of size /29 or larger.

### *Fixed size assignments*

These are assignments for products and plans that always require a known fixed amount of IP addresses. The following assignments fall into this category: stub networks, ISP dialup<sup>3</sup>, ISP on-net broadband, ISP off-net broadband, and Business HSI. Fixed size assignments are always of sizes /30 (stub) or /32 (single IP address).

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## General Policy Points

### *IP address "ownership"*

IP addresses are not owned by the Customer or TelstraClear, but are managed by APNIC Pty Ltd ("APNIC") which manages address space in the Asia Pacific region.

### *TelstraClear must adhere to APNIC policies*

TelstraClear must adhere to the APNIC member policies posted at <http://www.apnic.net/docs/policy/add-manage-policy.html> and <http://www.apnic.net/docs/policy/ipv4-guidelines.html>. The Customer must comply with all such policies that apply to it, and must ensure that it is not responsible for TelstraClear failing to comply with such policies.

### *TelstraClear retain administrative control of address space*

IP addresses assigned by TelstraClear to the Customer remain under the administrative control of TelstraClear and can therefore be revoked, changed, or re-assigned at TelstraClear's sole discretion. Further, APNIC may ask TelstraClear to hand back address space. In such cases, where such address space has been assigned to the Customers, the Customer must promptly return it to TelstraClear.

### *All /29 assignments or larger must be registered with the APNIC Whois database*

All assignments of size /29 or larger must be registered with the APNIC Whois database. TelstraClear will register these assignments and provide Customer information relating to that assignment to APNIC. APNIC may publish such Customer information on the Whois database. The Customer must ensure that such information it gives to TelstraClear is kept up to date so that the information TelstraClear provides to APNIC is up to date.

### *IP address assignment requires TelstraClear access product*

Only Customers who purchase internet access from TelstraClear are allowed to receive an IP address assignment from TelstraClear. This is an APNIC policy requirement.

### *Access termination > IP address assignment termination*

If a Customer terminates its internet access service with TelstraClear, or such internet access service is terminated for any other reason, the Customer must return the address space immediately to TelstraClear, and TelstraClear will cease to route and advertise the IP address on behalf of the Customer. Under no circumstance will the Customer be allowed to retain the address space after termination of internet access services. This is an APNIC policy requirement.

<sup>3</sup> Please note that all of the assignments that occur from a pool are more like leases or licensed than assignments in the legal sense. The Customer is leased or licensed an IP address (static or dynamic) for the duration of the session but gains no ownership rights and must return the IP address at the end of the session.

### *Charging for IP address space*

The APNIC member policies prohibit TelstraClear from charging the Customer for IP addresses themselves. However, TelstraClear may charge the Customer for services related to managing the assignment and international advertisement.

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## **Assignment of IP Address Space**

### *All assignment requests must follow the standard service order process*

All variable sized assignment requests must be made via the standard service order process. Routing changes in the network are required should the application be successful.

### */29 block can be allocated without justification*

A Customer can be allocated a /29 or smaller without written justification of their requirement for IP address space. However, if the Customer already has one or more assignments, these will be taken into account. In other words, the size of all assignments made to the Customer will be factored in. For example, if the Customer has a /29 and requests another /29, a written justification is required, since that Customer would have a total of a /28 should the assignment be approved.

### */28 or larger assignments require justification*

The Customer must provide a written justification of how the address space is to be used for all assignments of size /28 or larger. The justification must include a network diagram.

### */24 or larger > second opinion request*

Any allocation request of size /24 or larger must initiate a second opinion request to APNIC. TelstraClear will apply to APNIC on behalf of the Customer, assuming TelstraClear agrees with it also. If APNIC turns down the second opinion request, the assignment will not be made to the Customer. This is beyond the control of TelstraClear.

### */23 or larger > Customer may get address space from APNIC*

Customers having or requesting a total of a /23 (or larger) assignment may be able to get portable address space directly from APNIC. Customers are encouraged to do so.

### */22 or larger > Customer should get address space from APNIC*

Customers having or requesting a total of a /22 (or larger) assignment may be able to get portable address space directly from APNIC. Customers are strongly encouraged to do so.

### */21 or larger > Customer must get address space from APNIC*

Customers having or requesting a total of a /21 (or larger) assignment must get portable address space directly from APNIC.

### *Route aggregation*

Where a Customer requests an initial /29 (or other size) assignment and then later asks for another /29 (or other size), TelstraClear may choose to revoke the initial assignment and issue one contiguous /28 assignment. This is to maximise the opportunity to aggregate routes. Should this happen, the Customer is required to return the relevant address space and have new address space assigned by TelstraClear.

### *Contiguous address space assignment*

TelstraClear may choose to not assign contiguous address space when a Customer with a current assignment requests further address space<sup>4</sup>.

<sup>4</sup> In other words, TelstraClear cannot guarantee that a Customer receives contiguous address space when provided with multiple assignments. As a matter of fact, most Customers today having multiple assignments do have discontinuous ones.

### *Customer specific reverse DNS records*

Customers can request specific reverse DNS records for their assignments. For example, a Customer may want to have the forward and reverse DNS records for their mail server match.

### *Reverse DNS delegation (for /24 or larger)*

Customers can request the reverse delegation for assigned /24 blocks to point to the Customer's name servers.

### *Multi-homed Customers must use portable address space*

Customers that are multi-homed must apply for portable address space directly from APNIC. . To do this, the Customer can apply for a 'non-member' membership from APNIC. <http://www.apnic.net/services/non-member/> The Customer can refer to this policy <http://www.apnic.net/docs/corpdocs/non-membership-agreement.html> and the information found here [http://www.apnic.net/member/non\\_member/](http://www.apnic.net/member/non_member/).

### *AS Numbers*

Customers that require a public ASN (autonomous system number) are usually multi-homed, or about to become multi-homed. In this case, they should refer to the above paragraph relating to multi-homed Customers.

### *Current APNIC minimum assignment policy*

Currently APNIC will not assign a block smaller than a /21. When requesting a block smaller than a /21, the Customer must be able to justify a /23 immediately, and a show a forecast requiring a /22 in 12 months time. To do this, the Customer can apply for a 'non-member' membership from APNIC through the following link: <http://www.apnic.net/services/non-member/>.

### *APNIC turn-around times for second opinion request*

It takes APNIC a minimum of 48 hours to process a second opinion request.

### *TelstraClear turn-around times for Customer IP address requests*

TelstraClear anticipates (but does not guarantee) that it will take approximately 5 days to process an IP address request. TelstraClear may, however, process an IP address request faster than this (provided the address request is for less than a /24). If a second opinion request is required, this will take a minimum of an extra 5 days.

### *TelstraClear turn-around times for second opinion requests*

It takes TelstraClear a minimum of 5 days to process a second opinion request.

### *TelstraClear will never assign more than a /22 to Customers (1024 addresses)*

Customers requiring a /21 or larger must apply for address space directly from APNIC.

### *Customers can have their own forward DNS records for assignments*

Even though TelstraClear adds both forward and reverse DNS records for all assignments, Customers can (of course) add their own forward records pointing to addresses within their assignment. These DNS records and zones can be managed by the Customer itself or by the Customer purchasing a TelstraClear product, such as clear.net DNS+.

### *Reverse DNS delegation of blocks smaller than /24*

Blocks smaller than /24 can be delegated using a mechanism outlined in RFC 2317. TelstraClear does currently not support this type of delegation.

## Agreement

I, \_\_\_\_\_  
(name and position)

\_\_\_\_\_  
(contact phone number or email)

of \_\_\_\_\_  
(company if applicable)

agree to the above terms and conditions.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Name of TelstraClear Business Consultant: \_\_\_\_\_

# Glossary

## *Allocated address space*

Allocated address space is address space that is distributed to IRs or other organisations for the purpose of subsequent distribution by them.

## *Assigned address space*

Assigned address space is address space that is delegated to an ISP or end-user, for specific use within the Internet infrastructure they operate. Assignments must only be made for specific, documented purposes and may not be sub-assigned.

## *Assignment window*

The assignment window indicates the maximum number of addresses that an LIR (such as TelstraClear) may assign to an end Customer without first seeking a second opinion from APNIC. If an LIR wishes to make an assignment that exceeds its assignment window, the LIR (TelstraClear) must first submit a second opinion request to its RIR (APNIC). The TelstraClear assignment window is currently /25. (The largest assignment window given to any LIR is /19).

## *ASN - Autonomous System Number*

An Autonomous System (AS) is a group of IP networks having a single clearly defined routing policy, run by one or more network operators. A public AS has a globally unique number, an Autonomous System number (ASN), associated with it; this number is used in both the exchange of exterior routing information (between neighbouring Autonomous Systems), and as an identifier of the AS itself. There are two types of Autonomous System numbers; Public AS numbers and Private AS numbers. More information regarding AS numbers is detailed in RFC1930.

## *Business HSI*

See “Business High Speed Internet”

## *Business High Speed Internet*

The TelstraClear ISP business broadband plans (cable and ADSL) that Customers can sign up to.

## *FR*

Frame Relay. A WAN technology used for Customer access.

## *IR - Internet Registry*

An Internet Registry (IR) is an organisation that is responsible for distributing IP address space to its members or Customers and for registering those distributions.

## *HSI - High Speed Internet*

The TelstraClear ISP residential broadband plans (cable and ADSL) that Customers can sign up to.

## *ISP*

Internet Service Provider.

## *LIR - Local Internet Registry*

A Local Internet Registry (LIR) is generally an Internet Service Provider (ISP), and may assign address space to its own network infrastructure and to users of its network services. LIR Customers may be other “down-stream” ISPs, which further assign address space to their own Customers.

### *Multi-homed*

Customers who purchase access from TelstraClear and other providers for diversity reasons.

### *Off-net*

A Customer that is not using an access method directly provided by TelstraClear. For example: Telecom Jetstream.

### *On-net*

A Customer that is using an access method directly provided by TelstraClear. For example: HFC cable.

### *RIR - Regional Internet Registry*

Regional Internet Registries (RIRs) are established under the authority of IANA to serve and represent large geographical regions. Their primary role is to manage, distribute, and register public Internet address space within their respective regions. Currently, there are four RIRs: APNIC, RIPE NCC, LACNIC, and ARIN, although a small number of additional RIRs may be established in the future.

### *Second opinion request*

A second opinion request is the process that is used to seek the RIR's (APNIC's) approval for assignments that exceed the LIR's (TelstraClear's) assignment window. The LIR (TelstraClear) must receive the RIR's (APNIC's) approval of the second opinion request before it can make assignments exceeding its assignment window.

### *SSR*

Spread Spectrum Radio. A wireless WAN technology used for Customer access.

### *TCL*

TelstraClear Limited

### *TCNZ*

Telecom New Zealand Limited