RIPE ncc

Temporary Special Guidelines for

Allocation and Assignment

of former class A addresses.

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ABSTRACT

In order to encourage a transition to the classless use of former class A address space, the RIPE NCC proposes a temporary test period during which Local Registries and their customers can start to use parts of these addresses. Additional allocation and assignment procedures will apply during this test period.

Background

Before the introduction of classless inter-domain routing CIDR [RFC1519], the unicast IP address space was divided into three ranges called A, B and C each assotiated with a routing prefix length of 8, 16 and 24 bits respectively. In this context IP addresses are often called class A, B or C addresses depending on the range:

0.0.0.0 - 127.255.255.255 used to be called class A addresses

128.0.0.0 - 191.255.255.255 used to be called class B addresses

192.0.0.0 - 223.255.255.255 used to be called class C addresses

There were two more ranges reserved initially. For the understanding of this document they are irrelevant.

With CIDR, the prefix length information is carried in the routing protocols and it is technically insignificant which particular range an address belongs to.

However, for the readability of this document we will use the historic terms class A, class B and class C.

As long as classful routing protocols or obsolete TCP/IP host implementations are being used, the class (as implied by the particular range) of the address can become significant because either it determines prefix length in routing or other assumptions are being made from the class of the address. Classful software can be configured to work properly by using subnetting [RFC950] or basing configurations on the prefix length implied by the address class.

The Internet registries, regional and local, have been assigning addresses out of the class C range for the last years because this was believed to cause the least problems with obsolete classful software on the perimeter of the Internet.

However there is only a limited amount of unallocated class C address space available. More than 50% of the class C address space is allocated and some parts of the remaining ranges are reserved by IANA. Currently the largest amount of unallocated addresses is in class A space. Therefore regional Internet registries will at some point have to use allocations from this range.

In April 1995 an experiment started to find out if classless use of class A addresses would create any significant problems with respect to routing. The aim of this experiment is described in RFC1797. The experiment ran for 6 months and was considered a success.The results of are described in RFC1879 including possible problems and solutions.

RIPE Community Initiative

To promote the use of classless addressing the RIPE NCC has taken the initiative to give local IRs in its service region a choice of allocations either from class C or class A space.

At the 26th RIPE meeting held in Amsterdam in January 1997 the RIPE community welcomed this initiative and expressed their interest in assigning this type of addresses to their customers. There was consensus that in order to encourage usage of class A address space, additional allocation and assignment guidelines should be implemented for a fixed period of time. The RIPE NCC circulated a proposal in March 1997. The feedback is incorporated in this document.

The following sections will describe the special allocation procedures the RIPE NCC proposes. These have been approved by IANA and coordinated with the other regional Internet registries.

Special Allocation Rules

From April 1997 until December 1997 special guidelines will apply to the allocation and assignment of class A address space. These guidelines are additions to the regular procedures [currently ripe-140].

During this time any organisation established as Local Internet Registry (LIR) in the service region of the RIPE NCC may request an additional allocation of class A address space.

This means that for a limited amount of time any LIR can hold two allocations of the same size: one from class C address space (currently 193.0.0.0/8, 194.0.0.0/8, 195.0.0.0/8) and one from class A (62.0.0.0/8).

In order to limit the adverse effect of these special allocations on routing table growth, global routing annnouncements for this address space should be kept at an absolute minimum. Ideally each allocation will be announced via just one prefix. Additional prefixes should only be announced globally if this is technically necessary.

Once a LIR has obtained an allocation from class A space in addition to an existing allocation from class C space the following rules apply:

1. If the address space from a class A allocation is entirely assigned, another class A allocation can be requested.

2. If the address space from a class C allocation is entirely assigned, another class A or class C allocation can be requested.

This means that a LIR can have two class A allocations or one allocation of each class but never two class C allocations.

After the expiration of the special period, the usual allocation policies will apply, i.e. every LIR can only hold one open allocation of a maximum of a /16 at a time. This means that first all allocations the LIR has at this point in time must be finished before additional address space can be allocated.

If the LIR has at this point decided that it will not continue assigning from class A address space it has the option of returning the whole range of class A addresses allocated to it. It can then request an additional class C allocation once the previously allocated class C addresses are entirely assigned.

Special Assignment Guidelines

In order to motivate not only LIRs to use class A address space, but also end-users to use class A address space in their networks special assignment policies apply until the end of the special period.

1. A temporary assignment from class A space in addition to an already existing assignment can be made without detailed documentation so that the end-user can experiment with these addresses. If the end-user does not have an assignment yet, the assignment will have to be made according to the normal procedures (currently described in ripe-140).

2. This additional assignment can have up to the same size of the total previously assigned address space but not more than a /19.

3. The class A address space must be returned by the end-user to the appropriate Internet registry 6 months after the assignment or the usage of the addresses must be documented properly according to normal assignment rules [currently ripe-140].

   The duration of a temporary assignement can be agreed with the end-user and/or specified by the LIR.

   The validity of the assignment expires in any case at the end of 1997.

   If the LIR decides to continue to assign addresses from a class A space allocation, then the assignments have to be converted to regular assignments. Otherwise the entire allocation must be returned to the RIPE NCC.

   The conversion to a regular assignment involves completing and filing documentation according to the "European IP Address Space Request Form" [currently ripe-141] and adjusting the size of the assignment if necessary. The documentation does not need to be submitted to the RIPE NCC. However, the RIPE NCC may decide to review it at any time.
   Note: As per these rules address space assignments can be justified by returning an equivalent amount of addresses as well as by documenting new use.

4. The LIR is obliged to clearly inform the address space user about the special rules that apply to the additional assignment before it is made. LIRs are encouraged to advise users to plan ahead.

5. All assignments no matter from which allocation must be registered in the RIPE database also during the special period.

Conclusion

In order to promote classless addressing and to address the shortage of class C address space, the RIPE NCC proposes to give all LIRs in its service region the chance to prepare for the final transition to classless addressing and the use of class A address space.

This document proposes to create special guidelines for addresses from class A space until the end of 1997. After this period it is expected that more registries are prepared to assign class A address space to their customers as as well as to their own networks.