

Unique Addresses are Good

Status of this Memo

This memo provides information for the Internet community. This memo does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

Abstract

The IAB suggests that while RFC 1597 establishes reserved IP address space for the use of private networks which are isolated and will remain isolated from the Internet, any enterprise which anticipates external connectivity to the Internet should apply for a globally unique address from an Internet registry or service provider.

Introduction

With the advent of RFC 1466 and RFC 1597 the criteria for the allocation of unique IP numbers and the reservation of unique IP numbers have been defined. The IAB and the IANA wish to offer guidance to the Internet registries as to the application of these two documents. The author submits this document as an informational RFC on behalf of the Internet Architecture Board and the IANA.

Guidance to Internet Registries

RFC 1466 lists the criteria to which Internet registries should conform. One of the criteria is that the Internet registry is committed to allocate IP numbers according to the guidelines established by the IANA and the IR. Those guidelines (for Classes A, B, and C addresses) are documented in RFC 1466.

Internet Registries have agreed to comply with the guidelines established by RFC 1466 and therefore, if an organization meets the size requirement for the requested address(es) and submits an engineering plan, the organization has fulfilled the necessary requirements. The Internet Registry will make the allocation based on the established criteria.

The preconditions defined in RFC 1466 are limited to number of hosts and subnets as well as an engineering plan. The existence of private address space (RFC 1597) shall not prevent an enterprise from obtaining public address space according to the allocation criteria (currently, RFC 1466).

An enterprise may be required by a Internet registry to submit an engineering plan documenting a realistic deployment schedule and reasonable attention to conservation of address space to support the size of the enterprise's request for globally unique IP addresses.

It is perfectly appropriate for an Internet registry to inform an organization of the provisions of RFC 1597. Any organization considering the use of private network numbers should carefully consider the potential advantages and possible problems as discussed in RFCs 1597 and 1627.

RFC 1597 establishes reserved IP address space for the use of private networks which are isolated and will remain isolated from the Internet. Thus RFC 1597 documents a way that private enterprises may assure that their networks will remain segregated from the Internet. The addresses designated in RFC 1597 should not be routed by the Internet.

Any enterprise with a significantly large number of hosts which might require external connectivity to the Internet at the IP layer should apply for a block of globally unique addresses from an Internet registry. Enterprises with a small to medium number of hosts that require external connectivity to the Internet at the IP layer should expect to use globally unique addresses for these hosts, assigned to them by their current Internet service provider from its own assigned addresses, if it has such addresses to distribute.

If an enterprise with a small to medium number of hosts desires unique IP addresses, and is unable to obtain them under reasonable conditions from a service provider, or has no service provider, the Internet registries are recommended to assign such addresses without conditions with respect to service provider selection. The registries should make clear to the enterprise that when the enterprise decides to connect to the Internet, the assigned addresses are no guarantee of Internet-wide IP connectivity. In fact, some service providers may require renumbering as a condition of connectivity.

Any organization which anticipates having external connectivity is encouraged to apply for a globally unique IP address. Globally unique addresses are necessary to differentiate between destinations on the Internet. One must understand, however, that the globally

unique address by itself does not necessarily guarantee global connectivity. Individual network service providers may place restrictions on what addresses they will or will not route based on operational limitations.

References

- [1] Gerich, E., "Guidelines for Management of IP Address Space", RFC 1466, Merit Network Inc., May 1993.
- [2] Rekhter, Y., Moskowitz, B., Karrenberg, D., and G. de Groot, "Address Allocation for Private Internets", RFC 1597, T.J. Watson Research Center, IBM Corp., Chrysler Corp., RIPE NCC, RIPE NCC, March 1994.

Security Considerations

Security issues are not discussed in this memo.

Author's Address

Elise Gerich
Merit Network Inc.
4251 Plymouth Road
Ann Arbor, MI 48105

Phone: +1 313 764 9430
Fax: +1 313 747 3745
EMail: epg@merit.edu

