Autonomous System (AS) Number Assignment Policies and Procedures

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Abstract

This document provides a description of Autonomous System Numbers, their assignment procedures and guidelines on how to obtain them in RIPE NCC service region.

Contents

1.0 AS Number Assignment Policies and Procedures

An Autonomous System (AS) is a group of IP networks run by one or more network operators with a single, clearly defined routing policy. When exchanging exterior routing information each AS is identified by a unique number. Exterior routing protocols such as BGP, described in RFC 1771, "A Border Gateway Protocol 4 (BGP-4)", are used to exchange routing information between Autonomous Systems. More information on RFC 1771 can be found at: ftp://ftp.ripe.net/rfc/rfc1771.txt

An AS will normally use some interior gateway protocol to exchange routing information on its internal networks.

In order to help decrease global routing complexity, a new AS Number should be used only if a new external routing policy is required. Sharing an AS Number among a set of networks that do not fall under the same organisational umbrella is possible but will sometimes require extra co-ordination among the various network administrators. (In some cases, some level of network re-engineering may be needed.) This may be the only way to implement the desired routing policy. For more information please see RFC 1930, "Guidelines for creation, selection, and registration of an Autonomous System (AS)" found at: ftp://ftp.ripe.net/rfc/rfc1930.txt

Current guidelines require a network to be multi-homed for an AS Number to be assigned. Requests must show the routing policy of the Autonomous System. The policy is defined in the following attributes as part of the aut-num object: multiple fields of "import:" (describing accepted routing information from neighbouring ASs.); multiple fields of "export:" (describing generated routing information sent to peers); one or more (optional) fields of "default:" (indicating how default routing is done).

1.1 Assignments for Internetworking Experiments

Organisations often require deployment tests for new Internet services and technologies. These require numbering resources for the duration of the test.

The policy goal of resource conservation is of reduced importance when resources are issued on a temporary basis.

1.2 Defining the Experiment

An organisation receiving numbering resources must document the experiment. This may be in the form of a current IETF Experimental RFC (see RFC 2026, Sec. 4.2.1) or an "experiment proposal" detailing the resources required and the activities to be carried out.

A single AS Number will be assigned. Where the experiment requires a variation to this rule it should be noted in the resource request forms sent to the RIPE NCC.

1.3 Publication

The experiment proposal must be made public (e.g. published on web site), upon registration of the resources by the RIPE NCC. Following the conclusion of the experiment the results must be published free of charge and free from disclosure constraints.

1.4 Non-commercial Basis

Resources issued for an experiment must not be used for commercial purposes.

1.5 Period of the Temporary Resource Registration

The resources will be issued on a temporary basis for a period of one year. Renewal of the resource's registration is possible on receipt of a new request that details any continuation of the experiment during the extended period.

The resources issued cannot be used for a commercial service following the conclusion of the experiment.

1.6 Registration

The RIPE NCC will register the resources issued in the RIPE Database.

1.7 Requesting an AS Number

Regardless of whether the AS Number is required as an experimental assignment or otherwise, the RIPE NCC assigns AS Numbers for Autonomous Systems located in the RIPE NCC service region. The AS Number will be assigned by the RIPE NCC directly to the End User, upon a request properly submitted to the RIPE NCC either directly or through a sponsoring LIR. AS Number assignments are subject to the policies described in the RIPE NCC document entitled "Contractual Requirements for Provider Independent Resources Holders in the RIPE NCC Service Region".

The RIPE NCC provides a form for AS Number requests.

1.8 Returning an AS Number

If an organisation has an AS Number that is no longer in use, it can be returned to the public pool of AS Numbers by sending a message to hostmaster@ripe.net. It can then be reassigned to another Autonomous System by the RIPE NCC.

1.9 4-Byte AS Numbers

RIPE NCC will assign 4-Byte AS Numbers according to the following timeline:

- From 1 January 2007 the RIPE NCC will process applications that specifically request 4-byte only AS Numbers and assign such AS Numbers as requested by the applicant. In the absence of any specific request for a 4-byte only AS Number, a 2-byte only AS Number will be assigned by the RIPE NCC.
- From 1 January 2009 the RIPE NCC will process applications that specifically request 2-byte only AS Numbers and assign such AS Numbers as requested by the applicant. In the absence of any specific request for a 2-byte only AS Number, a 4-byte only AS Number will be assigned by the RIPE NCC.
- From 1 January 2010 the RIPE NCC will cease to make any distinction between 2-byte only AS Numbers and 4-byte only AS Numbers, and will operate AS

Number assignments from an undifferentiated 4- byte AS Number allocation pool.

Terminology

"2-byte only AS Numbers" refers to AS Numbers in the range 0 - 65535

"4-byte only AS Numbers" refers to AS Numbers in the range 1.0 - 65535.65535 (decimal range 65,536 - 4,294,967,295)

"4-byte AS Numbers" refers to AS Numbers in the range 0.0 - 65535.65535 (decimal range 0 - 4,294,967,295)