



Council Working Group – International Internet related public policy issues

Source: United States of America

Internet Protocol Numbering Principles

Introduction

As a means to foster the debate within the Council Working Group on International Internet-Related Public Policy Issues (CWG-IIRPPI), the United States puts forward its “Internet Protocol Numbering Principles”. The United States Government published these five principles via the National Telecommunications and Information Administration (NTIA) Blog on December 3, 2012 to clearly articulate its policy position on the development of Internet technical standards and policies related to Internet Protocol (IP) numbers.

1. Background

IP numbers underpin and connect broadband and IP-based network infrastructures. Without IP numbers, we could not attach computers and smartphones to the Internet, and we could not route traffic to and from those devices. Without an adequate supply of these numbers, we could not design cloud computing networks or the smart grid. As we move to a world of innovation where virtually everything can be networked to everything else, we need to ensure a sufficient supply of IP numbers.

When the Internet Protocol was first developed in the early 1970’s, few of the scientists and technologists involved could have predicted what IP would mean for network development and the incredible innovation it would spur. Version 4, or IPv4, was developed in the early ‘80s by the technical wizards of the Internet Engineering Task Force (IETF). Who would have expected that the 4.3 billion IPv4 numbers would not be enough for future networks? Who could have forecast the explosive growth of the Internet and the need for billions of devices to be attached to these networks? Thankfully, many of those same technical experts – being rather clever people - have been worrying about the size of the IPv4 number pool for quite a while. They began to work on the “next generation” protocol known as IPv6. And it’s good they did because we are running out of IPv4 numbers. As opposed to IPv4, IPv6 supports 340 trillion trillion trillion possible numbers – and it represents a new generation of technology for network growth and development and innovation.

As we continue to transition to this next-generation Internet routing system, it is important to clarify the United States Government’s (USG) position on the development of Internet technical standards and policies:

- We continue to believe that the proper model for the development of Internet technical standards and policies, including those related to IP numbers, is the multistakeholder model.
 - The five Regional Internet Registries (RIRs), via their multistakeholder processes, are responsible for developing policies for the use of IP numbers within their respective specific geographic regions.
 - The American Registry for Internet Numbers (ARIN) is the RIR for Canada, many Caribbean and North Atlantic islands, and the United States. The USG participates in the development of and is supportive of the policies, processes, and procedures agreed upon by the Internet technical community through ARIN.
 - The USG supports and encourages the uptake and adoption of IPv6 throughout the IP value chain, and strives to be an early adopter as evident in Office of Management and Budget (OMB) Directives for U.S. federal agency IPv6 implementation.
 - Consistent with the policies developed through the current multistakeholder model, the USG believes that all IP numbers are allocated for use on a needs basis and should be returned to the numbering pool when no longer needed.
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