ANDREW M. CUOMO
Governor

Empire State Plaza
P.O. Box 2062
Albany, NY 12220-0062
www.its.ny.gov

BRIAN DIGMAN
NYS Chief Information Officer
Director, Office of IT Services

New York State Information Technology Standard	**No:** NYS-S97-008
Standard Name: NYeNet IP Addressing Policy	**Updated:** 11/27/2012
	Issued By: NYS ITS State Chief Information Officer Director Office of IT Services **Policy Owner:** Division of Enterprise Networking & Telecommunications (Client Services)

1.0 Purpose and Benefits of the Standard

The intent of this Policy Document is to provide a better understanding of the plans for IP addressing and routing of data on New York's statewide network, the NYeNet, and to act as a guideline for State and Local government agencies that are currently implementing, or have plans to implement an IP network.

2.0 Enterprise IT Policy Statement

Details regarding the authority to establish enterprise IT standards can be found in NYS ITS Policy NYS-PO8-002, Authority to Establish State Enterprise Information Technology (IT) Policy, Standards and Guidelines.
Details regarding the criteria for establishing enterprise IT standards can be found in NYS P02-001, Process for Establishing & Implementing Statewide Technology Policies & Standards.

3.0 Scope of the Policy

This Standard is applicable to entities that connect to the NYeNet.

4.0 Policy Statement

IP Addressing

Communications Standard

The State has established that the Transmission Control Protocol/Internet Protocol (TCP/IP) will be the primary and standard protocol set for routing on the NYeNet. TCP/IP describes a set of inter-networking protocols, defining a standard method for the transmission of data between disparate networks. TCP/IP is also required to enable the adoption of numerous other "standard" data processing systems such as File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP). Implementation of information exchange standards, such as EDI, is greatly facilitated by a standard communications protocol. TCP/IP is the glue that holds the entire public Internet together. The creation of a New York State IntraNet will require the same adhesive.

TCP/IP Addressing Approach

Use of TCP/IP requires that each unit or device in a network have a unique IP address. This holds true for any network, no matter how large or small. Similar to the phone system, every computer directly attached to the public Internet has a unique address, its own unique "phone number". The dynamic growth of the Internet has severely taxed the original IP addressing scheme first deployed for the Internet many years ago. The valid public Internet address spaces that would be required to build a statewide, integrated network for NYS are no longer available and have not been available for quite some time. Therefore, it is necessary that a private TCP/IP address scheme be developed for State and Local government use.

Standard TCP/IP addressing is simply a hierarchical naming scheme that allows for the unique identification of each device in a network. The address ranges in TCP/IP are commonly referred to as Class "A," Class "B," and Class "C." A Class "C" address range will provide 256 unique TCP/IP addresses for use in identifying network components. This may be adequate for many small users, but obviously falls far short of meeting a statewide need. A Class "B" address range will provide 65,536 unique addresses for naming network devices. It is actually 256 contiguous Class C addresses. This is adequate for much larger networks, but would still fall short for a statewide network. The largest address range is a Class "A" which is actually 256 contiguous Class B addresses, providing approximately 16.5 million unique addresses which will be more than adequate for a statewide network.

Principals that should be considered when planning IP address usage include:

a. Agencies can use either Internet Registered IP addresses, Class A, B or C private addresses.

b. Any existing Private Class C addresses that may be in use now (for example at a local level) that conflict with NYeNet usage will have to be resolved prior to connecting to the NYeNet.

c. It is recommended that when registered IP addresses are used, that the same network address space not be used both on the NYeNet and on the Internet. For example, if an agency uses Class C address 204.115.21.x for Internet service, it is recommended that they not use the same Class C address for NYeNet service. Note: This is being proposed primarily to ease the task of certain "class sensitive" servers and firewalls. If additional addresses are needed, it might be possible to acquire and use a registered Class C for NYeNet public servers.

d. The NYS Office of Information Technology Services (ITS) will provide a means for coordinating use of the private addresses used in the NYeNet. This will include a method for resolving conflicts when they arise. To request IP Addresses from the ITS, an agency must fill out an IP Address Request form and either fax or mail the form to the ITS.

A copy of this form is available at http://www.cio.ny.gov/forms/supfrmipaddressreq.html. E mail the completed form to: nyenet-orders@cio.ny.gov.

When requesting IP addresses, a request form needs to be filled out for each physical location that IP addresses are needed. When using the private address space, the participating agencies must agree to use only those addresses assigned by the NYeNet.

e. The network has been divided into many areas in an attempt to keep the routing tables relatively small on the routers connecting to the NYeNet. The private Class A address space has been distributed in subnet groups among these areas to allow the routers to take advantage of routing table summarization.

f. The NYC Department of Information Technology and Telecommunications (DOITT) also plans on using the private Class A address space in building the City's Intranet.

g. To ease the overall administration process associated with address assignments, a database has been created that will keep track of what addresses have been assigned, who requested the address, where the addresses will be used and who the contact is if there is a problem relating to distributed addresses.

h. A group of Class C IP addresses are reserved for use by the counties. As a county agency requests IP addresses they will be taken from the reserved pool for that county.

5.0 Policy Compliance

This policy is effective upon connection to the NYeNet.

6.0 Definitions of Key Terms

A complete listing of defined terms for NYS Information Technology Policies, Standards, and Best Practice Guidelines is available in the "NYS Information Technology Policies, Standards, and Best Practice Guidelines Glossary at: (http://www.its.ny.gov/policy/glossary.htm)."

7.0 Contact Information

Submit all inquiries and requests for future enhancements regarding this policy to:

Attention: Policy Owner
Division of Enterprise Networking & Telecommunications (Client Services)
NYS Office of Information Technology Services
State Capitol, ESP, P.O. Box 2062
Albany, NY 12220

Questions may also be directed to your ITS Customer Relations Manager at:
Customer.Relations@cio.ny.gov

The State of New York Enterprise IT Policies may be found at the following website:
http://www.its.ny.gov/tables/technologypolicyindex.htm

8.0 Revision Schedule and History

Date	Description of Change
12/18/1997	Original Policy Issued.
03/01/2005	Contact information and form updated.
11/04/2009	Reformatted and updated to reflect current CIO, agency name, logo and style.
09/12/2012	Reformatted and updated to reflect current CIO, agency name, logo and style.
11/27/2012	Republished
11/27/2014	Scheduled Review

9.0 Related Document