

# IPv6 Support in Netrounds

**Netrounds supports IPv6 across most of its testing capabilities and is equipped to operate in an IPv6 environment.**

It has long been apparent that version 4 of the Internet Protocol (IPv4) is insufficient for today's needs. Its 4.3 billion addresses, once thought adequate for anything the future might bring, are not sufficient in a world where not only computers, but also a plethora of other devices, such as smartphones and tablets, are connected to the Internet.

IPv6 was designed to come to the rescue. This version of the protocol expands the address space to an astronomical size of  $2^{128} = 3.4 \times 10^{38}$ . It also handles packets more efficiently, tightens security, and allows internet service providers to shrink their routing tables by making them more hierarchical.

While techniques such as NAT (network address translation) have extended the life span of IPv4 up to the present day, the last few years have seen increased adoption of IPv6 particularly among carrier networks and ISPs. In the long term, it is likely to entirely replace IPv4.

## IPv6 Testing and Monitoring with Netrounds

Netrounds supports IPv6 for all of the most **fundamental testing and monitoring tasks**, as detailed in the table below.

Network performance	IPTV and OTT video	Internet performance	Reflector-based
UDP	IPTV MPEG	DNS	Ping
TCP	IPTV channel zapping	HTTP	BWPing <sup>1</sup>
Multicast UDP			ETH-DM, ETH-LB, ETH-SLM
VoIP UDP			

IPv6-specific protocols are supported wherever relevant, such as the MLD (Multicast Listener Discovery) protocol for IPTV channel zapping.

IPv6 is also supported for a wide range of **transparency** tests. Among these, a dedicated IPv6 test is provided which verifies IPv6 header integrity: that is, it checks that IPv6 packets are not dropped or blocked in the network. The IPv6 test also verifies transparency for a number of IPv6 protocols:

<sup>1</sup> Test only (not available in monitors).

- Multicast Listener Discovery (MLD), Versions 1 and 2
- ICMPv6 with packet types Router Solicitation, Router Advertisement, Neighbor Solicitation, Neighbor Advertisement
- ICMPv6 Echo
- DHCPv6 Solicit

## IPv6 Support in Test Agents

Netrounds Test Agents are fully equipped to operate in an IPv6 environment. Test Agents can also be **managed** from an on-premise Control Center over an IPv6 connection as well as over an IPv4 one. This enables management of Test Agents in an all-IPv6 network.

IPv6 **address assignment** for Test Agent interfaces can be configured in any of the following ways:

- *Dynamic (DHCP)*: An IPv6 address is assigned by a DHCP server. Optionally, a vendor ID can be supplied indicating the vendor type and configuration of the DHCP client.
- *SLAAC*: The Test Agent self-assigns an IPv6 address by means of Stateless Address Autoconfiguration (SLAAC).
- *Static*: A static IPv6 address is assigned to the Test Agent.

The Test Agent can connect to an **NTP server** over IPv6. Whether to allow this is governed by a setting in the Test Agent configuration.

When a **virtual Test Agent** is configured via cloud-init, the same IPv6 settings are configurable in the cloud-config file.

## Test Agent Utilities

The Test Agent local console has a suite of utilities which are equally applicable for IPv4 and IPv6. Among these we may mention:

- **ICMP Ping** can be run directly from the Test Agent towards a destination address. This is useful when troubleshooting Test Agent connectivity, for instance the management connection to the Netrounds server.
- **Traceroute** can likewise be run towards a destination address to trace the route (path) through the IP network and measuring packet transit delays. This function, too, is useful when troubleshooting Test Agent connectivity.

## Questions about this Feature Brief?

For more information on how Netrounds IPv6 capabilities can enhance your network, please contact Netrounds Sales ([sales@netrounds.com](mailto:sales@netrounds.com)) or your authorized reseller, or visit our website at [www.netrounds.com](http://www.netrounds.com).