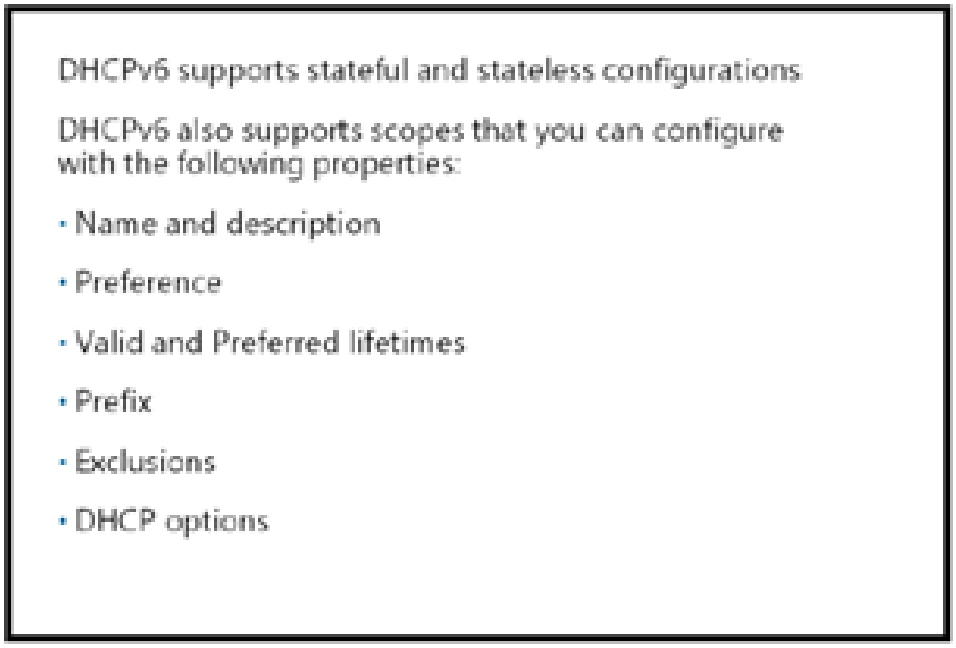
DHCP Integration With IPv6



IPv6 can configure itself without DHCP. IPv6–enabled clients have a self-assigned link-local IPv6 address. A link-local address is intended only for communications within the local network. It is equivalent to the 169.254.0.0 self-assigned addresses used by IPv4. IPv6-enabled network interfaces can, and often do, have more than one IPv6 address. For example, addresses might include a self-assigned link-local address and a DHCP-assigned global address. By using DHCP for IPv6 (DHCPv6), an IPv6 host can obtain subnet prefixes, global addresses, and other IPv6 configuration settings.

Note: You should obtain a block of IPv6 addresses from a Regional Internet Registry. There are five regional internet registries in the world. They are:

- African Network Information Centre (AfriNIC) for Africa
- Asia-Pacific Network Information Centre (APNIC) for Asia, Australia, New Zealand, and neighboring countries
- American Registry for Internet Numbers (ARIN) for Canada, many Caribbean and North Atlantic islands, and the United States
- Latin America and Caribbean Network Information Centre (LACNIC) for Latin

America and parts of the Caribbean region

- Réseaux IP Européens Network Coordination Centre (RIPE NCC) for Europe, Russia, the Middle East, and Central Asia

Stateful and Stateless Configuration

Whenever you add the DHCP server role to a Windows Server 2012 computer, you also automatically install a DHCPv6 server. Windows Server 2012 supports both DHCPv6 stateful and stateless configurations:

- Stateful configuration. Occurs when the DHCPv6 server assigns the IPv6 address to the client along with additional DHCP data.
- Stateless configuration. Occurs when the subnet router assigns IPv6 automatically, and the DHCPv6 server only assigns other IPv6 configuration settings.

DHCPv6 Scopes for IPv6

DHCPv6 scopes for IPv6 must be created separately from IPv4 scopes. IPv6 scopes have an enhanced lease mechanism and several different options. When configuring a DHCPv6 scope, you must define the properties listed in the following table.

Property	Use
Name and description	This property identifies the scope.
Prefix	The IPv6 address prefix is analogous to the IPv4 address range. It defines the network portion of the IP address.
Preference	This property informs DHCPv6 clients as to which server to use if you have multiple DHCPv6 servers.
Exclusions	This property defines single addresses or blocks of addresses that fall within the IPv6 prefix but will not be offered for lease.

Property	Use
Valid and Preferred lifetimes	This property defines how long leased addresses are valid.
DHCP options	As with IPv4, there are many available options.

Configuring an IPv6 Scope

You can use the New Scope Wizard to create IPv6 scopes:

1. In the DHCP console, right-click the **IPv6** node, and then click **New Scope**.
2. Configure a scope prefix and preference.
3. Define the starting and ending IP addresses, and any exclusions.
4. Configure the **Preferred** and **Valid** lifetime properties.
5. Activate the scope to enable it.