About DHCPv6 Options

DHCPv6 options provide configuration and service information to IPv6 clients. Just like IPv4 options, IPv6 options appear as variable length fields at the end of the DHCPv6 messages. Just as in IPv4, the NIOS appliance supports the following options in the DHCPv6 options space:

- **Predefined options**: These are the option codes defined in RFC 3315. You cannot redefine these options or delete them from the DHCP option space. Option codes 1-48 are reserved and cannot be used to define custom options.
- **Custom options**: These are option codes 49 to 254. They are not defined by IETF standards and are available for private use. You can use these option codes to provide configuration or service information that none of the predefined options provide.

You can also create option spaces to define new groups of options. For example, you can create additional option spaces to define vendor specific options, which are encapsulated in DHCPv6 option 17. When an IPv6 client requests vendor specific options, it makes a request using the vendor specific options (option 17). The DHCP server then responds with the list of replies for the various options encapsulated into option 17. Note that custom options defined in the DHCP option space are included in the options section of the DHCP messages that DHCP servers and clients exchange.

You can apply options globally at the Grid level, or more specifically at the member, network, range, host and roaming host levels.

Configuring DHCPv6 Options

To use DHCPv6 options, you can do the following:

- Configure one or more option spaces, as described in the next section Defining IPv6 Option Spaces.
- Define custom options in the predefined DHCPv6 option space or add options to an option space that you configured. For more information, see Configuring Custom DHCP Options.
- Specify values for the options and apply them to the Grid, or to a member, network, fixed address, host, or roaming host. For more information, see Applying DHCPv6 Options.

Defining IPv6 Option Spaces

DHCP members support the DHCPv6 option space by default. You can create additional option spaces to provide additional configuration or service information.

To add a custom option space:

1. From the Data Management tab, select the DHCP tab -> Option Spaces tab.
2. Click the Add icon -> IPv6 Option Space.
3. In the IPv6 Option Space wizard, do the following:
   - **Name**: Enter the name of the option space.
   - **Enterprise Number**: Enter the vendor's Enterprise Number that is registered with IANA.
   - **Comment**: Enter useful information about the option space.
   - **Options**: Click the Add icon to add options. For additional information, see the next section, Configuring Custom DHCP Options.
4. Save the configuration and click Restart if it appears at the top of the screen.

After you create an option space and add options to it, you can apply the options as described in Applying DHCPv6 Options.

Configuring Custom IPv6 DHCP Options

You can define custom options in the DHCP option space or in an option space that you configured, as follows:

1. From the Data Management tab, select the DHCP tab -> Option Spaces tab.
2. Select either the DHCPv6 option space or an IPv6 option space that you configured, and then click the Edit icon.
3. In the Option Space editor, click the Add icon to add a custom option. In the new row, complete the following:
   - **Name**: Enter the name of the custom DHCP option.
   - **Code**: Enter a number from 1 to 65535 to add a custom option in the DHCP option space or in an IPv6 option space that you have configured.
   - **Type**: Select the option type (such as ipv6-address, text, boolean, and string as described in Table 26.2).

   Click the Add icon to add more options.
4. Save the configuration.
Applying DHCPv6 Options

You can apply some options at the Grid or member level, and some options to specific networks, shared networks, fixed addresses and roaming hosts. When you apply an option, you select the object to which the option is applied, such as the Grid, member, or network, and then specify a value for the option.

Use the following guidelines when specifying option values:

- Enter false or true for a Boolean Flag type value.
- Enter an ASCII text string, or enter a series of octets specified in hex, separated by colons.
- Separate multiple values by commas. For example, to enter multiple IP addresses for netbios-name-servers, enter a comma between each IP address.

DHCPv6 options support the same data types as DHCP IPv4 options. For more information about the data types, see DHCP Option Data Types.

To apply DHCP options:

1. Grid: From the Data Management tab, select the DHCP tab, and then select Grid DHCP Properties from the Toolbar.
   - Member: From the Data Management tab, select the DHCP tab -> Members tab -> Members -> member check box, and then click the Edit icon.
   - Network: From the Data Management tab, select the DHCP tab -> Networks tab -> Networks -> network check box, and then click the Edit icon.
   - Network Container: From the Data Management tab, select the IPAM tab -> network_container check box, and then click the Edit icon.
   - Fixed Address: From the Data Management tab, select the DHCP tab -> Networks tab -> Networks -> network -> fixed_address check box, and then click the Edit icon.
   - Host Address: From the Data Management tab, select the DHCP tab -> Networks tab -> Networks -> network -> host_record check box, and then click the Edit icon.
   - Roaming Host: From the Data Management tab, select the DHCP tab -> Networks tab -> Roaming Hosts -> roaming_host check box, and then click the Edit icon.

2. In the DHCP Properties editor, select the IPv6 DHCP Options and complete the following:
   - Custom IPv6 DHCP Options: In the first field, select one of the following from the drop-down list:
     - DHCPv6: Select this to apply DHCPv6 options.
     - DHCP: Select this to apply DHCP options (dhcp-renewal-time or dhcp-rebinding-time).

   In the second field, click the Choose option arrow and select an option from the list. In the third field, enter a value for the selected option. Note that certain options have predefined data types and their values must be entered in a specific format. For information about the data types, see DHCP Option Data Types.

   Click + to add another option, or click - to delete a previously specified option. When overriding an option, enter the new value for the selected option.

   Note that if you created an option space, this section displays a list of option spaces in the first drop-down menu, so you can select the option space of the option you want to define.

3. Save the configuration and click Restart if it appears at the top of the screen.