DHCP Options

DHCP provides a framework for passing configuration information to hosts on a TCP/IP network. Configuration parameters and other control information are carried in tagged data items that are stored in the options field of the DHCP message. The data items themselves are also called options.

This appendix contains DHCP options and BOOTP vendor extensions from RFC 2132, and includes the validation type for each option, as indicated in Table 10: DHCPv4 Options by Number , on page 22.

This appendix also contains the standard Microsoft client options and several tables displaying the options sorted by categories.

- Option Descriptions, on page 1
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Option Descriptions

The following sections describe the DHCP options in detail:

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RFC 1497 Vendor Extensions

The table below lists the vendor extensions as defined in RFC 1497.

Table 1: RFC 1497 Vendor Extension Options

Option Name	No.	Length	Description
Pad	0	1 octet	Causes the subsequent fields to align on word boundaries.
End	255	1 octet	End of valid information in the vendor field. Subsequent octets should be filled with the Pad options.
Subnet Mask	1	4 octets	Client subnet mask, as per RFC 950. If both the Subnet Mask and the Router option are specified in a DHCP reply, the Subnet Mask option must be first.
Time Offset	2	4 octets	Offset of the client subnet, in seconds, from Universal Time (UT). The offset is expressed as a twos-complement 32-bit integer. A positive offset indicates a location east of the zero meridian and a negative offset indicates a location west of the zero meridian.
Router	3	4 octets minimum; multiples of 4	List of IP addresses for routers on the client subnet. Routers should be in order of preference.
Time Server	4	4 octets minimum; multiples of 4	List of RFC 868 compliant time servers available to the client. Servers should be in order of preference.
Name Server Option	5	4 octets minimum; multiples of 4	List of IEN 116 name servers available to the client. Servers should be in order of preference.
Domain Name Server	6	4 octets minimum; multiples of 4	List of Domain Name System (STD 13, RFC 1035) name servers available to the client. Servers should be in order of preference.
Log Server	7	4 octets minimum; multiples of 4	List of MIT-LCS UDP log servers available to the client. Servers should be in order of preference.
Cookie Server	8	4 octets minimum; multiples of 4	List of RFC 865-compliant cookie servers available to the client. Servers should be in order of preference.
LPR Server	9	4 octets minimum; multiples of 4	List of RFC 1179-compliant line printer servers available to the client. Servers should be in order of preference.
Impress Server	10	4 octets minimum; multiples of 4	List of Imagen Impress servers available to the client. Servers should be in order of preference.
Resource Location Server	11	4 octets minimum; multiples of 4	List of RFC 887-compliant resource location servers available to the client. Servers should be in order of preference.

Option Name	No.	Length	Description
Host Name	12	1 octet minimum	Name of the client. The name may or may not be qualified with the local domain name. See RFC 1035 for the character set restrictions.
Boot File Size	13	2 octets	Number of 512-octet blocks in the default boot file.
Merit Dump File	14	1 octet minimum	Path name of a file to which the client core image should be placed in the event the client crashes. The path is formatted as a character string consisting of characters from the NVT ASCII character set.
Domain Name	15	1 octet minimum	Domain name that the client should use when resolving hostnames through the Domain Name System.
Swap Server	16	4 octets	IP address of the client swap server.
Root Path	17	1 octet minimum	Path name that contains the client root disk. The path is formatted as a character string consisting of characters from the NVT ASCII character set.
Extensions Path	18	1 octet minimum	Uses a string to specify a file, retrievable through TFTP. The file contains information that can be interpreted in the same way as the 64-octet vendor-extension field within the BOOTP response, with these exceptions: the length of the file is unconstrained, and all references to instances of this option in the file are ignored.

IP Layer Parameters Per Host

The table below lists the options that affect the operation of the IP layer on a per-host basis.

Table 2: IP Layer Parameters Per Host Options

Option Name	No.	Length	Description
IP Forwarding Enable/Disable	19	1 octet	Specifies whether the client should configure its IP layer for packet forwarding. Values: 0=disable; 1=enable
Non-Local Source Routing Enable/Disable	20	1 octet	Specifies whether the client should configure its IP layer to allow forwarding of datagrams with non-local source routes. Values: 0=disable; 1=enable
Policy Filter	21	8 octets minimum; multiples of 8	Policy filters for non-local source routing. The filters consist of a list of IP addresses and masks that specify destination/mask pairs with which to filter incoming source routes. Any source-routed datagram whose next-hop address does not match one of the filters should be discarded by the client.

Option Name	No.	Length	Description
Maximum Datagram Reassembly Size	22	2 octets	Maximum size datagram that the client should be prepared to reassemble. Value: 576 minimum
Default IP Time-to-live	23	1 octet	Default TTL that the client should use on outgoing datagrams. Values: 1 to 255
Path MTU Aging Timeout	24	4 octets	Timeout (in seconds) to use when aging Path MTU values (defined in RFC 1191).
Path MTU Plateau Table	25	2 octets minimum; multiples of 2	Table of MTU sizes to use when performing Path MTU Discovery as defined in RFC 1191. The table is formatted as a list of 16-bit unsigned integers, ordered from smallest to largest. Value: 68 minimum

IP Layer Parameters Per Interface

The table below lists the options that affect the operation of the IP layer on a per-interface basis. A client can issue multiple requests, one per interface, to configure interfaces with their specific parameters.

Table 3: IP Layer Parameters Per Interface Options

Option Name	No.	Length	Description
Interface MTU	26	2 octets	MTU to use on this interface. The minimum legal value for the MTU is 68.
All Subnets are Local	27	1 octet	Specifies whether or not the client can assume that all subnets of the IP network to which the client is connected use the same MTU as the subnet of that network to which the client is directly connected. Values: 1=all subnets share same MTU; 0=some directly-connected subnets can have smaller MTUs
Broadcast Address	28	4 octets	Broadcast address in use on the client subnet.
Perform Mask Discovery	29	1 octet	Specifies whether or not the client should perform subnet mask discovery using ICMP. Values: 0=disable; 1=enable
Mask Supplier	30	1 octet	Specifies whether or not the client should respond to subnet mask requests using ICMP. Values: 0=do not respond; 1=respond
Perform Router Discovery	31	1 octet	Specifies whether or not the client should solicit routers using the Router Discovery mechanism defined in RFC 1256. Values: 0=disable; 1=enable
Router Solicitation Address	32	4 octets	Address to which the client should transmit router solicitation requests.

Option Name	No.	Length	Description
Static Route	33	8 octets minimum; multiples of 8	List of static routes that the client should install in its routing cache. If multiple routes to the same destination are specified, they are in descending order of priority. The routes consist of a list of IP address pairs. The first address is the destination address, and the second address is the router for the destination. The default route (0.0.0.0) is an illegal destination for a static route.

Link Layer Parameters Per Interface

The table below lists the options that affect the operation of the data link layer on a per-interface basis.

Table 4: Link Layer Parameters Per Interface Options

Option Name	No.	Length	Description
Trailer Encapsulation	34	1 octet	Specifies whether or not the client should negotiate the use of trailers (RFC 893) when using the ARP protocol. Values: 0=do not use; 1=use
ARP Cache Timeout	35	4 octets	Timeout in seconds for ARP cache entries.
Ethernet Encapsulation	36	1 octet	Specifies whether or not the client should use Ethernet Version 2 (RFC 894) or IEEE 802.3 (RFC 1042) encapsulation if the interface is an Ethernet. Value: 0=use RFC 894 encapsulation; 1=use RFC 1042 encapsulation

TCP Parameters

The table below lists the options that affect the operation of the TCP layer on a per-interface basis.

Table 5: TCP Parameter Options

Option Name	No.	Length	Description
TCP Default TTL	37	1 octet	Default TTL that the client should use when sending TCP segments. Value: minimum 1
TCP Keepalive Interval	38	4 octets	Interval (in seconds) that the client TCP should wait before sending a keepalive message on a TCP connection. The time is specified as a 32-bit unsigned integer. A value of zero indicates that the client should not generate keepalive messages on connections unless specifically requested by an application. Value: 32-bit unsigned; 0=do not generate keepalive messages unless specifically requested.
TCP Keepalive Garbage	39	1 octet	Specifies the whether or not the client should send TCP keep-alive messages with an octet of garbage for compatibility with older implementations. Values: 0=do not send; 1=send

Application and Service Parameters

The table below lists some miscellaneous options used to configure miscellaneous applications and services.

Table 6: Application and Service Parameter Options

Option Name	No.	Length	Description
Network Information Service (NIS) Domain	40	1 octet minimum	Name of the client NIS domain. The domain is formatted as a character string consisting of characters from the NVT ASCII character set.
Network Information Service (NIS) Servers	41	4 octets minimum; multiples of 4	List of IP addresses indicating NIS servers available to the client. Servers should be in order of preference.
Network Time Protocol Servers	42	4 octets minimum; multiples of 4	List of IP addresses indicating NTP servers that are available to the client. Servers should be in order of preference.
Vendor-Specific Information	43	1 octet minimum	This option is used by clients and servers to exchange vendor-specific information. The information is an opaque object of n octets, presumably interpreted by vendor-specific code on the clients and servers. The definition of this information is vendor specific. The vendor is indicated in the *dhcp-class-identifier* option. Servers not equipped to interpret the vendor-specific information sent by a client must ignore it (although it can be reported). Clients that do not receive desired vendor-specific information should make an attempt to operate without it, although they can do so (and announce they are doing so) in a degraded mode. If a vendor potentially encodes more than one item of information in this option, then the vendor should encode the option using encapsulated vendor-specific options as described here.

Option Name	No.	Length	Description
			The encapsulated vendor-specific options field should be encoded as a sequence of code, length, and value fields of identical syntax to the DHCP options field with these exceptions: • There should not be a magic cookie field in the encapsulated vendor-specific extensions field. • Codes other than 0 or 255 can be redefined by the vendor within the encapsulated vendor-specific extensions field, but should conform to the tag-length-value syntax defined in section 2. Code 255 (END), if present, signifies the end of the encapsulated vendor extensions, not the end of the vendor extensions field. If the code 255 is not present, then the end of the enclosing vendor-specific information field is taken as the end of the encapsulated vendor-specific extensions field.
NetBIOS over TCP/IP Name Server	44	4 octets minimum; multiples of 4	List of RFC 1001/1002 NBNS name servers in order of preference.
NetBIOS over TCP/IP Datagram Distribution Server	45	4 octets minimum; multiples of 4	List of RFC 1001/1002 NBDD servers in order of preference.

Option Name	No.	Length	Description
NetBIOS over TCP/IP Node Type	46	1 octet	Allows NetBIOS over TCP/IP client, which are configured as described in RFC 1001/1002. Values: Single hexadecimal octet that identifies the client type: • 0x1=B-node (broadcast node) • 0x2=P-node (point-to-point node) • 0x4=M-node (mixed node) • 0x8=H-node
NetBIOS over TCP/IP Scope	47	1 octet minimum	NetBIOS over TCP/IP scope parameter for the client as specified in RFC 1001/1002.
X Window System Font Server	48	4 octets minimum; multiples of 4	List of X Window System Font servers available to the client. Servers should be in order of preference.
X Window System Display Manager	49	4 octets minimum; multiples of 4	List of IP addresses of systems that are running the X Window System Display Manager and are available to the client. Addresses should be in order of preference.
Network Information Service (NIS+) Domain	64	1 octet minimum	Name of the client NIS+ domain. The domain is formatted as a character string consisting of characters from the NVT ASCII character set.
Network Information Service (NIS+) Servers	65	4 octets minimum; multiples of 4	List of IP addresses indicating NIS+ servers available to the client. Servers should be in order of preference.
Mobile IP Home Agent	68	0 octet minimum; multiples of 4; expected, 4 octets containing a single home agent address	List of IP addresses indicating mobile IP home agents available to the client. Agents should be in order of preference. Value: 32-bit address; 0=no home agents available
Simple Mail Transport Protocol (SMTP) Server	69	4 octets minimum; multiples of 4	List of SMTP servers available to the client. Servers should be in order of preference.

Option Name	No.	Length	Description
Post Office Protocol (POP3) Server	70	4 octets minimum; multiples of 4	List of POP3 servers available to the client. Servers should be in order of preference.
Network News Transport Protocol (NNTP) Server	71	4 octets minimum; multiples of 4	List of NNTP servers available to the client. Servers should be in order of preference.
Default World Wide Web (WWW) Server	72	4 octets minimum; multiples of 4	List of World Wide Web (WWW) servers available to the client. Servers should be in order of preference.
Default Finger Server	73	4 octets minimum; multiples of 4	List of Finger servers available to the client. Servers should be in order of preference.
Default Internet Relay Chat (IRC) Server	74	4 octets minimum; multiples of 4	List of IRC servers available to the client. Servers should be in order of preference.
StreetTalk Server	75	4 octets minimum; multiples of 4	List of StreetTalk servers available to the client. Servers should be in order of preference.
StreetTalk Directory Assistance (STDA) Server	76	4 octets minimum; multiples of 4	List of STDA servers available to the client. Servers should be in order of preference.

DHCPv4 Extension Options

The table below lists the DHCPv4 extension options.

Table 7: DHCPv4 Extensions

Option Name	No.	Length	Description
Requested IP Address	50	4 octets	Used in a client request (DHCPDISCOVER) to allow the client to request that a particular IP address be assigned.
IP Address Lease Time	51	4 octets	Used in a client request (DHCPDISCOVER or DHCPREQUEST) to allow the client to request a lease time for the IP address. In a server reply (DHCPOFFER), a DHCP server uses this option to specify the lease time it is willing to offer. Value: seconds, as 32-bit unsigned integer

Option Name	No.	Length	Description
Option Overload	52	1 octet	Indicates that the DHCP sname or file fields are being overloaded by using them to carry DHCP options. A DHCP server inserts this option if the returned parameters will exceed the usual space allotted for options. If this option is present, the client interprets the specified additional fields after it concludes interpretation of the standard option fields. Values: 1=file field is used to hold options; 2=sname field is used to hold options; 3=both fields are used to hold options
DHCP Message Type	53	1 octet	Used to convey the type of DHCP message. The preset value is 1 (DHCPDISCOVER). Values: 1=DHCPDISCOVER; 2=DHCPOFFER; 3=DHCPREQUEST; 4=DHCPDECLINE; 5=DHCPACK; 6=DHCPNAK; 7=DHCPRELEASE; 8=DHCPINFORM; 13=LEASEQUERY
Server Identifier	54	4 octets	Used in DHCPOFFER and DHCPREQUEST messages, and can optionally be included in the DHCPACK and DHCPNAK messages. DHCP servers include this option in the DHCPOFFER in order to allow the client to distinguish between lease offers. DHCP clients use the contents of the server identifier field as the destination address for any DHCP messages unicast to the DHCP server. DHCP clients also indicate which of several lease offers is being accepted by including this option in a DHCPREQUEST message. The identifier is the IP address of the selected server.
Parameter Request List	55	1 octet minimum	Used by a DHCP client to request values for specified configuration parameters. The list of requested parameters is specified as n octets, where each octet is a valid DHCP option code as defined in this document. The client can list the options in order of preference. The DHCP server does not have to return the options in the requested order, but must try to insert the options in the order that the client requested.
Message	56	1 octet minimum	Used by a DHCP server to provide an error message to a DHCP client in a DHCPNAK message in the event of a failure. A client can use this option in a DHCPDECLINE message to indicate why the client declined the offered parameters. The message consists of n octets of NVT ASCII text, which the client can display on an available output device.
Maximum DHCP Message Size	57	2 octets	Maximum-length DHCP message that a server is willing to accept. The length is specified as an unsigned 16-bit integer. A client can use the maximum DHCP message size option in DHCPDISCOVER or DHCPREQUEST messages, but should not use the option in DHCPDECLINE messages. Value: 576 minimum
Renewal (T1) Time Value	58	4 octets	Time interval from address assignment until the client transitions to RENEWING state. Value: seconds, as 32-bit unsigned integer
Rebinding (T2) Time Value	59	4 octets	Time interval from address assignment until the client transitions to REBINDING state. Value: seconds, as 32-bit unsigned integer

Option Name	No.	Length	Description
Vendor Class Identifier	60	1 octet minimum	Used by DHCP clients to optionally identify the vendor type and configuration of a DHCP client. The information is a string of n octets, interpreted by servers. Vendors can choose to define specific vendor class identifiers to convey particular configuration or other identification information about a client. For example, the identifier can encode the client hardware configuration. Servers not equipped to interpret the class-specific information sent by a client must ignore it (although it can be reported). Servers that respond should only use option 43 to return the vendor-specific information to the client.
Client-Identifier	61	2 octets minimum	Used by DHCP clients to specify their unique identifier. DHCP servers use this value to index their database of address bindings. This value is expected to be unique for all clients in an administrative domain.

DHCP servers should treat identifiers as opaque objects. The client identifier can consist of type-value pairs similar to the *htype* /*chaddr* fields. For instance, it can consist of a hardware type and hardware address. In this case, the type field should be one of the ARP hardware types defined in STD2. A hardware type of 0 (zero) should be used when the value field contains an identifier other than a hardware address (for example, a fully qualified domain name).

For correct identification of clients, each client-identifier must be unique among the client-identifiers used on the subnet to which the client is attached. Vendors and system administrators are responsible for choosing client-identifiers that meet this requirement for uniqueness. |
TFTP Server name	66	1 octet minimum	Identifies a TFTP server when the *sname* field in the DHCP header has been used for DHCP options.
Bootfile name	67	1 octet minimum	Identifies a bootfile when the file field is the DHCP header that has been used for DHCP options.
Relay Agent Information	82		Identifies the DHCP relay agent information (see RFC 3046)
iSNS	83	14 bytes minimum	Identifies the Internet Storage Name Service (see RFC 4174)
BCMCS Controller Domain	88	Variable	List of Broadcast and Multicast Service (BCMCS) controller domains (see RFC 4280)
BCMCS Address	89	4 octets minimum	List of IP addresses for the BCMCS controller (see RFC 4280)
Lease Query Client Last Transaction Time	91	4 octets	Time of the most recent access of the client sending a DHCPLEASEQUERY (see RFC 4388).

Option Name	No.	Length	Description
Lease Query Associated IP Addresses	92	4 octets minimum	All IP addresses associated with the client specified in a particular DHCPLEASEQUERY message (see RFC 4388).

Microsoft Client Options

The table below lists the standard Microsoft client options.

Table 8: Microsoft DHCP Client Options

Option Name	No.	Description
dhcp-lease-time	51	14 days
domain-name	15	A domain name such as cisco.com
domain-name-servers	6	IP address of the name servers
netbios-name-servers	44	WINS server address
netbios-node-type	46	Identifies the NetBIOS client type; note that Cisco Prime Network Registrar displays a warning if it is not present
routers	3	IP address of the router for this subnet

DHCPv6 Options

The table below lists the DHCPv6 options, along with their defined data types. All the option packets include at least an option length (option-len) and a variable length data field. There can also be additional parameter settings, as described in the table. Many of these options are described in RFC 3315.

Table 9: DHCPv6 Options

Cisco Prime Network Registrar Name (Type)	No.	Description
client-identifier AT_BLOB	1	DUID identifying a client between a client and a server. See RFC 3315.
server-identifier AT_BLOB	2	DUID identifying a server between a client and a server. See RFC 3315.
ia-na AT_BLOB	3	Nontemporary Addresses option with the associated parameters and addresses. Parameters are the unique ID, time the client contacts the addresses in the IA to extend the lifetime, and time the client contacts any available server to extend the lifetime of the addresses. See RFC 3315.

Cisco Prime Network Registrar Name (Type)	No.	Description
ia-ta AT_BLOB	4	Temporary Addresses option with the associated parameters and addresses. See RFC 3315.
iaaddr AT_BLOB	5	IPv6 addresses associated with an IA_NA or IA_TA. (The IAADRR must be encapsulated in the options field of an IA_NA or IA_TA option.) The IAADDR option includes preferred and valid lifetime fields, and the options field that encapsulates the options specific to this address. See RFC 3315.
oro AT_SHORT	6	Option Request option (ORO) that identifies a list of options in a message between a client and a server. A client can include this option in a Solicit, Request, Renew, Rebind, Confirm, or Information-request message to inform the server about options the client wants from the server. A server can include this option in a Reconfigure message to indicate which option updates the client should request. See RFC 3315.
preference AT_INT8	7	A server sends this option to a client to affect what server the client selects. See RFC 3315.
elapsed-time AT_SHORT	8	A client sends this option to a server to indicate how long the client has been trying to complete a message exchange. See RFC 3315.
relay-message AT_BLOB	9	DHCP message in a Relay-forward or Relay-reply message. See RFC 3315.
auth AT_BLOB	11	Authenticates the identity and contents of a DHCP message. The parameters are the authentication protocol, the authentication algorithm, the replay detection method (RDM), and the authentication information. See RFC 3315.
server-unicast AT_IP6ADDR	12	The server sends this option to a client to indicate that the client can unicast messages to the server. See RFC 3315.
status-code AT_BLOB	13	Returns a status indication related to the DHCP message or option in which it appears. The parameters are the status code and status message. See RFC 3315.
rapid-commit AT_ZEROSIZE	14	Signals use of the two-message exchange for address assignment. See RFC 3315.
user-class AT_TYPECNT	15	Clients use this option to identify the type or category of user or applications it represents. A zero type count value field followed by user data (as a blob). See RFC 3315.
vendor-class AT_VENDOR_CLASS	16	Clients use this option to identify the vendor that manufactured the hardware on which they are running. See RFC 3315.

Cisco Prime Network Registrar Name (Type)	No.	Description
vendor-opts AT_VENDOR_OPTS	17	Clients and servers use this option to exchange vendor-specific information. The enterprise ID for the CableLabs vendor is 4491; the suboptions for CableLabs are listed in Table 4. See RFC 3315.
interface-id AT_BLOB	18	Relay agents use this option to identify the interface on which the client message is received. See RFC 3315.
reconfigure-message AT_INT8	19	The server includes this in a Reconfigure message to indicate whether the client should respond with a Renew or Information-request message. See RFC 3315.
reconfigure-accept AT_ZEROSIZE	20	Clients use this option to announce to the server whether the client is willing to accept Reconfigure messages. See RFC 3315.
sip-servers-name AT_DNSNAME	21	Domain names of the SIP outbound proxy servers for the client. See RFC 3319.
sip-servers-address AT_IP6ADDR	22	IPv6 addresses of the SIP outbound proxy servers for the client. See RFC 3319.
dns-servers AT_IP6ADDR	23	IPv6 addresses of DNS recursive name servers. See RFC 3646.
domain-list AT_DNSNAME	24	Domain names in the domain search list. See RFC 3646.
ia-pd AT_BLOB	25	IPv6 prefix delegation identity association and its associated parameters and prefixes. Parameters are the unique ID, time the client contacts the addresses in the IA to extend the lifetime, and time the client contacts any available server to extend the lifetime of the addresses. See RFC 3633.
iaprefix AT_BLOB	26	IPv6 prefixes associated with an IA_PD. The prefix must be encapsulated in the options field of an IA_PD option. Parameters are the valid and preferred lifetimes, prefix length, and the prefix. See RFC 3633.
nis-servers AT_IP6ADDR	27	List of IPv6 addresses of Network Information Service (NIS) servers available to the client. See RFC 3898.
nisp-servers AT_IP6ADDR	28	List of IPv6 addresses of NIS+ servers available to the client. See RFC 3898.
nis-domain-name AT_DNSNAME	29	Conveys the NIS domain name to the client. See RFC 3898.

Cisco Prime Network Registrar Name (Type)	No.	Description
nisp-domain-name AT_DNSNAME	30	Conveys the NIS+ domain name to the client. See RFC 3898.
sntp-servers AT_IP6ADDR	31	List of Simple Network Time Protocol (SNTP) servers available to the client. See RFC 4075.
info-refresh-time AT_TIME	32	Sets an upper bound for how long a client should wait before refreshing DHCPv6 information. See RFC 4242.
bcmcs-server-d AT_DNSNAME	33	List of BCMCS controller domains. See RFC 4280.
bcmcs-server-a AT_IP6ADDR	34	List of IPv6 addresses for the Broadcast and Multicast Service (BCMCS) controller. See RFC 4280.
geoconf-civic AT_BLOB	36	DHCP civic addresses configuration. See RFC 4776.
remote-id AT_BLOB	37	Relay agents that terminate switched or permanent circuits can add this option to identify remote hosts. See RFC 4649.
relay-agent-subscriber-id AT_BLOB	38	Allows assignment and activation of subscriber-specific actions. See RFC 4580.
client-fqdn AT_BLOB	39	DHCP client FQDN. See RFC 4704.
pana-agent AT_IP6ADDR	40	Carries a list of 32-bit (binary) IPv4 addresses indicating PANA Authentication Agents (PAAs) available to the PANA client (PaC). See RFC 5192.
new-posix-timezone AT_NSTRING	41	POSIX time zone, for example, EST5EDT4, M3.2.0/02:00,M11.1.0/02:00. See RFC 4833.
new-tzdb-timezone AT_NSTRING	42	POSIX time zone database name, for example, Europe/Zurich. See RFC 4833.
ero AT_SHORT	43	Relay agent Echo Request option to inform the server of the list of relay agent options to echo back. See RFC 4994.
lq-query AT_BLOB	44	Used only in a LEASEQUERY message; identifies the query being performed. The option includes the query type, link-address (or 0::0), and options to provide data needed for the query. See RFC 5007.

Cisco Prime Network Registrar Name (Type)	No.	Description
client-data AT_CONTAINER6	45	Encapsulates the data for a single client on a single link in a LEASEQUERY-REPLY message. See RFC 5007.
clt-time AT_TIME	46	Client last transaction time encapsulated in the *client-data* option; identifies how long ago the server last communicated with the client (in seconds). See RFC 5007.
lq-relay-data AT_BLOB	47	Used only in a LEASEQUERY-REPLY message; provides the relay agent data used when the client last communicated with the server. See RFC 5007.
lq-client-links AT_IP6ADDR	48	Used only in a LEASEQUERY-REPLY message; identifies the links on which the client has one or more bindings. It is used in reply to a query when no link-address was specified and the client is found to be on more than one link. See RFC 5007.
mip6-hnidf AT_DNSNAME	49	Defines the Home Network ID FQDN option. See RFC 6610.
mip6-vdinf AT_CONTAINER6	50	Defines the Visited Home Network Information option. See RFC 6610.
lost-server AT_DNSNAME	51	A DHCPv6 client will request a LoST server domain name in an Options Request Option (ORO) (see RFC 3315). This option contains a single domain name and must contain precisely one root label. See RFC 5223.
capwap-ac-v6 AT_IP6ADDR	52	Carries a list of 128-bit (binary) IPv6 addresses indicating one or more Control and Provisioning of Wireless Access Point (CAPWAP) Access Controllers (ACs) available to the Wireless Termination Point (WTP). Ssee RFC 5417.
relay-id AT_BLOB	53	A DHCPv6 server MAY associate Relay-ID options from Relay-Forward messages it processes with prefix delegations and/or lease bindings that result. See RFC 5460.
mos-address AT_IP6ADDR	54	Mobility Sever (MoS) IPv6 Address for DHCP v4. See RFC 5678.
mos-fqdn AT_BLOB	55	Mobility Sever (MoS) Domain Name List for DHCPv6. See RFC 5678.

Cisco Prime Network Registrar Name (Type)	No.	Description
ntp-server AT_BLOB	56	Serves as a container for server location information related to one Network Time Protocol (NTP) server or Simple Network Time Protocol (SNTP) server. This option can appear multiple times in a DHCPv6 message. Each instance of this option is to be considered by the NTP client or SNTP client as a server to include in its configuration. The option itself does not contain any value. Instead, it contains one or several suboptions that carry NTP server or SNTP server location. See RFC 5908.
access-domain AT_DNSNAME	57	Defines the domain name associated with the access network. This option contains a single domain name and, as such, must contain precisely one root label. See RFC 5986.
sip-ua-cs-domains AT_DNSNAME	58	Defines the list of domain names in the Session Initiation Protocol (SIP) User Agent Configuration Service Domains. See RFC 6011.
bootfile-url AT_NSTRING	59	Informs the client about a URL to a boot file. See RFC 5970.
bootfile-param AT_TYPECNT	60	Sent by the server to the client. It consists of multiple UTF-8 (see RFC 3629) strings for specifying parameters for the boot file. See RFC 5970.
client-arch-type AT_SHORT	61	Provides parity with the Client System Architecture Type option (option 93) defined for DHCPv4. See RFC 5970.
nii AT_BLOB	62	Provides parity with the Client Network Interface Identifier option (option 94) defined for DHCPv4. See RFC 5970.
geoloc AT_BLOB	63	Specifies the coordinate-based geographic location of the client, to be provided by the server. See RFC 6225.
aftr-name AT_DNSNAME	64	Defines a fully qualified domain name of the AFTR tunnel endpoint. See RFC 6334.
erp-local-domain-name AT_DNSNAME	65	Contains the name of the local ERP domain. See RFC 6440.
rsoo AT_CONTAINER6	66	Encapsulates whatever options the relay agent wishes to provide to the DHCPv6 server. See RFC 6422.
pd-exclude AT_BLOB	67	Used to exclude exactly one prefix from a delegated prefix. See RFC 6603.

Cisco Prime Network Registrar Name (Type)	No.	Description
vpn-id AT_BLOB	68	Used to identify a VPN. See RFC 6607.
mip6-idinf AT_CONTAINER6	69	Used by relay agents and DHCP servers to provide information about the home network identified. See RFC 6610.
mip6-udinf AT_CONTAINER6	70	Provides information about a home network specified by the DHCP server administrator. See RFC 6610.
mip6-hnp AT_BLOB	71	Defines the prefix for a home network. See RFC 6610.
mip6-haa AT_IP6ADDR	72	Used by DHCP servers and relay agents to specify the home agent IP address. See RFC 6610.
mip6-haf AT_DNSNAME	73	Specifies the Home Agent FQDN to look up one or more A or AAAA records containing IPv4 or IPv6 addresses for the home agent, as needed. See RFC 6610.
rdnss-selection AT_BLOB	74	Informs resolvers which RDNSS can be contacted when initiating forward or reverse DNS lookup procedures. See RFC 6731.
krb-principal-name AT_BLOB	75	Sent by the client to the DHCPv6 server, which uses it to select a specific set of configuration parameters, either for a client or for a Kerberos application server. See RFC 6784.
krb-realm-name AT_NSTRING	76	Specifies to a DHCPv6 server which realm the client wants to access. See RFC 6784.
krb-default-realm-name AT_NSTRING	77	Specifies a default realm name for the Kerberos system (clients and Kerberos application servers). See RFC 6784.
krb-kdc AT_BLOB	78	Provides configuration information about a KDC. See RFC 6784.
client-linklayer-address AT_BLOB	79	Indicates the client link layer address. See RFC 6939.
link-address AT_IP6ADDR	80	Indicates to the server the link on which the client is located. See RFC 6977.
radius AT_BLOB	81	Provides a mechanism to exchange authorization and identification information between the DHCPv6 relay agent and DHCPv6 server. See RFC 7037.

Cisco Prime Network Registrar Name (Type)	No.	Description
sol-max-rt AT_TIME	82	Overrides the default value of sol-max-rt. See RFC 7083.
inf-max-rt AT_TIME	83	Overrides the default value of inf-max-rt. See RFC 7083.
addrsel AT_BLOB	84	Provides the policy table and some other configuration parameters. See RFC 7078.
addrsel-table AT_BLOB	85	Provides the Address Selection Policy Table options. See RFC 7078.
v6-pcp-server AT_IP6ADDR	86	Configures a list of IPv6 addresses of a PCP server. This option supports only single instance. See RFC 7291.
dhcpv4-msg AT_BLOB	87	Carries a DHCPv4 message that is sent by the client or the server. Such messages exclude any IP or UDP headers. See RFC 7341.
dhcp4-o-dhcp6-server AT_IP6ADDR	88	Carries a list of DHCP 4o6 servers' IPv6 addresses that the client should contact to obtain IPv4 configuration. See RFC 7341.
s46-rule AT_BLOB	89	Conveys the Basic Mapping Rule (BMR) and Forwarding Mapping Rule (FMR). See RFC 7598.
s46-br AT_IP6ADDR	90	Conveys the the IPv6 address of the Border Relay. See RFC 7598.
s46-dmr	91	Conveys values for the Default Mapping Rule (DMR). See RFC 7598.
s46-v4v6bind AT_BLOB	92	Specifies the full or shared IPv4 address of the CE. The IPv6 prefix field is used by the CE to identify the correct prefix to use for the tunnel source. See RFC 7598.
s46-portparams AT_BLOB	93	Specifies optional port set information that MAY be provided to CEs. See RFC 7598.
s46-cont-mape AT_CONTAINER6	94	Specifies the container used to group all rules and optional port parameters for a specified domain (Softwire46 MAP-E domain). See RFC 7598.
s46-cont-mapt AT_CONTAINER6	95	Specifies the container used to group all rules and optional port parameters for a specified domain (Softwire46 MAP-T domain). See RFC 7598.

Cisco Prime Network Registrar Name (Type)	No.	Description
s46-cont-lw AT_CONTAINER6	96	Specifies the container used to group all rules and optional port parameters for a specified domain (Softwire46 Lightweight 4over6 domain). See RFC 7598.
4rd AT_CONTAINER6	97	Indicates the DHCPv6 option for 4rd (IPv4 Residual Deployment). See RFC 7600.
4rd-map-rule AT_BLOB	98	Indicates the Mapping-Rule Parameters of 4rd domains. See RFC 7600.
4rd-non-map-rule AT_BLOB	99	Indicates the Non-Mapping-Rule Parameters of 4rd domains. See RFC 7600.
lq-base-time AT_INT	100	Current time the message was created to be sent by the DHCPv6 server to the requestor of the Active or Bulk Leasequery if the requestor asked for the same in an Active or Bulk Leasequery request. See RFC 7653.
lq-start-time AT_INT	101	Specifies a query start time to the DHCPv6 server. See RFC 7653.
lq-end-time AT_INT	102	Specifies a query end time to the DHCPv6 server. See RFC 7653.
captive-portal AT_NSTRING	103	Informs the client that it is behind a captive portal and provides the URI to access an authentication page. See RFC 7710.
mpl-parameters AT_BLOB	104	Provides a means to distribute a configuration of an MPL Domain or a default value for all MPL Domains (a wildcard) within the network managed by the DHCP server. See RFC 7774.
ani-att AT_BLOB	105	Used for exchanging the type of access technology the client uses to attach to the network. See RFC 7839.
ani-network-name AT_NSTRING	106	Name of the access network to which the mobile node is attached. See RFC 7839.
ani-ap-name AT_NSTRING	107	Name of the access point (physical device name) to which the mobile node is attached. See RFC 7839.
ani-ap-bssid AT_BLOB	108	48-bit Basic SSSID (BSSID) of the access point to which the mobile node is attached. See RFC 7839.
ani-operator-id AT_BLOB	109	Variable-length Private Enterprise Number (PEN) encoded in a network byte order. See RFC 7839.

Cisco Prime Network Registrar Name (Type)	No.	Description
ani-operator-realm AT_NSTRING	110	Realm of the operator. See RFC 7839.
s46-priority AT_SHORT	111	Conveys a priority order of IPv4 service continuity mechanisms. See RFC 8026.
mud-url AT_NSTRING	112	Identifies the type of Thing to the network in a structured way such that the policy can be easily found with existing toolsets. See RFC 8520.
prefix64 AT_BLOB	113	Conveys the IPv6 prefix(es) to be used (for example, by an mB4) to synthesize IPv4-embedded IPv6 addresses. See RFC 8115.
relay-port AT_SHORT	135	Relay Source Port Option for DHCPv6. This requires specialized server processing and is not a "configurable" option - the option is added by a relay agent and must be echoed by the server in the Relay-Reply, and requires specialized processing in the server to return the response to the relay via the relayed packet's source port. See RFC 8357.
sztp-redirect AT_TYPECNT (list of URI strings)	136	Used to provision the client with one or more URIs for bootstrap servers that can be contacted to attempt further configuration. See RFC 8572.
s6-bind-ipv6-prefix AT_VPREFIX	137	DHCPv6 Softwire Source Binding Prefix Hint option. See RFC 8539.
ipv6-address-andsf AT_IP6ADDR	143	Allows the mobile node (MN) to locate an ANDSF server. See RFC 6153.

Option Tables

The following tables display the DHCP options in various ways. They show the options sorted numerically, by Cisco Prime Network Registrar name, and by category.

DHCP options have a prescribed format and allowed values for their option parameters. Table 10: DHCPv4 Options by Number , on page 22 lists each DHCP option and parameter type (in the Validation column). The parameter formats and allowed values come from the DHCP and Internet RFCs. All the DHCP options appear, but clients control only some, and the CLI only others.

Options by Number

The table below shows the DHCPv4 options sorted by option number, and includes the validation type. (See Table 12: Validation Types , on page 41 for details on the option validation types found in the Validation column.) A **0+** in the Comments column means a repeat count of zero or more occurrences, **1+** means one or

more occurrences, **2n** means multiple occurrences in multiples of 2. Comments also indicate whether the option includes suboptions, and, if so, how many.

Tip   For the syntax for adding more complex option data values for suboptions, see Adding Complex Values for Suboptions.

Table 10: DHCPv4 Options by Number

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
0	pad	Pad	AT_NOLEN	See RFC 2132.
1	subnet-mask	Subnet Mask	AT_IPADDR	See RFC 2132.
2	time-offset	Time Offset	AT_STIME	Replaced by tz-options (RFC 4833). See RFC 2132.
3	routers	Router	AT_IPADDR	1+ See RFC 2132.
4	time-servers	Time Server	AT_IPADDR	1+ See RFC 2132.
5	name-servers	Name Server	AT_IPADDR	1+ See RFC 2132.
6	domain-name-servers	Domain Server	AT_IPADDR	1+ See RFC 2132.
7	log-servers	Log Server	AT_IPADDR	1+ See RFC 2132.
8	cookie-servers	Quotes Server	AT_IPADDR	1+ See RFC 2132.
9	lpr-servers	LPR Server	AT_IPADDR	1+ See RFC 2132.
10	impress-servers	Impress Server	AT_IPADDR	1+ See RFC 2132.
11	resource-location-servers	RLP Server	AT_IPADDR	1+ See RFC 2132.
12	host-name	Host Name	AT_NSTRING	See RFC 2132.

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
13	boot-size	Boot File Size	AT_SHORT	See RFC 2132.
14	merit-dump	Merit Dump File	AT_NSTRING	See RFC 2132.
15	domain-name	Domain Name	AT_NSTRING	See RFC 2132.
16	swap-server	Swap Server	AT_IPADDR	See RFC 2132.
17	root-path	Root Path	AT_NSTRING	See RFC 2132.
18	extensions-path	Extension File	AT_NSTRING	See RFC 2132.
19	ip-forwarding	Forward On/Off	AT_BOOL	See RFC 2132.
20	non-local-source-routing	SrcRte On/Off	AT_BOOL	See RFC 2132.
21	policy-filters	Policy Filter	AT_IPADDR	2n See RFC 2132.
22	max-dgram-reassembly	Maximum DG Assembly	AT_SHORT	See RFC 2132.
23	default-ip-ttl	Default IP TTL	AT_RANGEBYTE	See RFC 2132.
24	path-mtu-aging-timeout	MTU Timeout	AT_TIME	See RFC 2132.
25	path-mtu-plateau-tables	MTU Plateau	AT_RANGESHORT	1+ See RFC 2132.
26	interface-mtu	MTU Interface	AT_RANGESHORT	See RFC 2132.
27	all-subnets-local	MTU Subnet	AT_BOOL	See RFC 2132.
28	broadcast-address	Broadcast Address	AT_IPADDR	See RFC 2132.
29	perform-mask-discovery	Mask Discovery	AT_BOOL	See RFC 2132.
30	mask-supplier	Mask Supplier	AT_BOOL	See RFC 2132.
31	router-discovery	Router Discovery	AT_BOOL	See RFC 2132.
32	router-solicitation-address	Router Request	AT_IPADDR	See RFC 2132.
33	static-routes	Static Route	AT_IPADDR	2n See RFC 2132.
34	trailer-encapsulation	Trailers	AT_BOOL	See RFC 2132.
35	arp-cache-timeout	ARP Timeout	AT_TIME	See RFC 2132.
36	ieee802.3-encapsulation	Ethernet	AT_BOOL	See RFC 2132.

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
37	default-tcp-ttl	Default TCP TTL	AT_RANGEBYTE	See RFC 2132.
38	tcp-keepalive-interval	Keepalive Time	AT_TIME	See RFC 2132.
39	tcp-keepalive-garbage	Keepalive Data	AT_BOOL	See RFC 2132.
40	nis-domain	NIS Domain	AT_NSTRING	See RFC 2132.
41	nis-servers	NIS Servers	AT_IPADDR	1+ See RFC 2132.
42	ntp-servers	NTP Servers	AT_IPADDR	1+ See RFC 2132.
43	vendor-encapsulated-options	Vendor Specific	AT_BLOB	NM See RFC 2132.
44	netbios-name-servers	NetBIOS Name Server	AT_IPADDR	1+ See RFC 2132.
45	netbios-dd-servers	NetBIOS Distribution Server	AT_IPADDR	1+ See RFC 2132.
46	netbios-node-type	NetBIOS Node Type	AT_RANGEBYTE	See RFC 2132.
47	netbios-scope	NetBIOS Scope	AT_NSTRING	See RFC 2132.
48	font-servers	X Window Font	AT_IPADDR	1+ See RFC 2132.
49	x-display-managers	X Window Manager	AT_IPADDR	1+ See RFC 2132.
50	dhcp-requested-address	Address Request	AT_IPADDR	See RFC 2132.
51	dhcp-lease-time	Address Time	AT_TIME	NM See RFC 2132.
52	dhcp-option-overload	Overload	AT_OVERLOAD	See RFC 2132.
53	dhcp-message-type	DHCP Message Type	AT_MESSAGE	NM (See the DHCP Message Type option in Table 7: DHCPv4 Extensions , on page 9) See RFC 2132.

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
54	dhcp-server-identifier	DHCP Server ID	AT_IPADDR	See RFC 2132.
55	dhcp-parameter-request-list	Parameter List	AT_INT8	0+ See RFC 2132.
56	dhcp-message	DHCP Message	AT_NSTRING	NM See RFC 2132.
57	dhcp-max-message-size	DHCP Maximum Message Size	AT_SHORT	NM See RFC 2132.
58	dhcp-renewal-time	Renewing Time	AT_TIME	NM See RFC 2132.
59	dhcp-rebinding-time	Rebinding Time	AT_TIME	NM See RFC 2132.
60	dhcp-class-identifier	Class Identifier	AT_NSTRING	See RFC 2132.
61	dhcp-client-identifier	Client Identifier	AT_BLOB	See RFC 2132.
62	netwareip-domain	NetWare/IP Domain	AT_NSTRING	See RFC 2242.
63	netwareip-information	NetWare/IP Option	AT_BLOB	See RFC 2242.
64	nis+-domain	NIS Domain Name	AT_NSTRING	See RFC 2132.
65	nis+-servers	NIS Server Address	AT_IPADDR	1+ See RFC 2132.
66	tftp-server	TFTP Server Name	AT_NSTRING	See RFC 2132.
67	boot-file	Bootfile Name	AT_NSTRING	See RFC 2132.
68	mobile-ip-home-agents	Mobile IP Home Agent	AT_IPADDR	0+ See RFC 2132.
69	smtp-servers	SMTP Server	AT_IPADDR	1+ See RFC 2132.
70	pop3-servers	POP3 Server	AT_IPADDR	1+ See RFC 2132.
71	nntp-servers	NNTP Server	AT_IPADDR	1+ See RFC 2132.

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
72	www-servers	WWW Server	AT_IPADDR	1+ See RFC 2132.
73	finger-servers	Finger Server	AT_IPADDR	1+ See RFC 2132.
74	irc-servers	IRC Server	AT_IPADDR	1+ See RFC 2132.
75	streettalk-servers	StreetTalk Server	AT_IPADDR	1+ See RFC 2132.
76	streettalk-directory-assistance-servers	STDA Server	AT_IPADDR	1+ See RFC 2132.
77	dhcp-user-class-id	User Class ID	AT_TYPECNT	Suboptions (2) See RFC 3004.
78	slp-directory-agent	Service Location Protocol Directory Agent	AT_BLOB	Suboptions (2) See RFC 2610.
79	slp-service-scope	SLP Service Scope	AT_BLOB	Suboptions (2) See RFC 2610.
80	rapid-commit	Rapid Commit	AT_ZEROSIZE	See RFC 4039
81	client-fqdn	Client FQDN	AT_BLOB	Suboptions (4) See RFC 4702
82	relay-agent-info	Relay Agent Information	AT_BLOB	For suboptions, see Table 3 See RFC 3046
83	iSNS	Internet Storage Name Service (RFC 4174)	AT_BLOB	Suboptions (7) See RFC 4174
85	nds-servers	NDS Servers	AT_IPADDR	1+ See RFC 2241
86	nds-tree	NDS Tree Name	AT_NSTRING	See RFC 2241
87	nds-context	NDS Context	AT_NSTRING	See RFC 2241

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
88	bcmcs-servers-d	BCMCS Controller Domain (RFC 4280)	AT_DNSNAME	1+ See RFC 4280
89	bcmcs-servers-a	BCMCS Address	AT_IPADDR	1+ See RFC 4280
90	authentication	Authentication	AT_BLOB	Suboptions (5) See RFC 3118
91	lq-client-last-transaction-time	Lease Query Client Last Transaction Time	AT_TIME	See RFC 4388
92	lq- associated-ip	Lease Query Associated IP Addresses	AT_IPADDR	1+ See RFC 4388
93	pxe-client-arch		AT_SHORT	See RFC 4578
94	pxe-client-network-id		AT_BLOB	Suboptions (2) See RFC 4578
95	ldap-url		AT_NSTRING	See RFC 3679
97	pxe-client-machine-id		AT_BLOB	Suboptions (2) See RFC 4578
98	user-auth		AT_NSTRING	See RFC 2485
99	geoconf-civic	Civic Addresses Configuration	AT_BLOB	See RFC 4776
100	posix-timezone	IEEE 1003.1 String	AT_NSTRING	See RFC 4833
101	tzdb-timezone	Time Zone Database	AT_NSTRING	See RFC 4833
109	dhcp4o6-s46-saddr	DHCP 4o6 Softwire Source Address	AT_IP6ADDR	See RFC 8539
112	netinfo-parent-server-addr		AT_IPADDR	See RFC 3679
113	netinfo-parent-server-tag		AT_NSTRING	See RFC 3679
114	initial-url		AT_NSTRING	See RFC 3679
116	auto-configure	Autoconfiguration	AT_RANGEBYTE	See RFC 2563
117	name-service-search	Name Service Search	AT_SHORT	1+ See RFC 2937

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
118	subnet-selection	Subnet Selection	AT_IPADDR	See RFC 3011
119	domain-search	Domain Search	AT_DNSNAME	1+ See RFC 3397
120	sip-servers	SIP Servers	AT_BLOB	Suboptions (2) See RFC 3361
121	classless-static-route	Classless Static Route	AT_BLOB	See RFC 3442
122	cablelabs-client-configuration	CableLabs Client Configuration	AT_BLOB	Suboptions (10) (see the Table 3) See RFC 3495
123	geo-conf	GeoConf Option	AT_BLOB	See RFC 6225
124	v-i-vendor-class	Vendor-Identifying Vendor Class	AT_VENDOR_CLASS	NM See RFC 3925
125	v-i-vendor-opts	Vendor-Identifying Vendor-Specific Info	AT_VENDOR_OPTS	See also the cablelabs-125 suboptions in Table 3 See RFC 3925
128	mcns-security-server	--	AT_IPADDR	See RFC 4578
136	pana-agent		AT_IPADDR	1+ See RFC 5192
137	lost-server		AT_DNSNAME	See RFC 5223
138	capwap-ac-v4		AT_IPADDR	1+ See RFC 5417
139	mos-address		AT_BLOB	Suboptions (3) 0+ See RFC 5678
140	mos-fqdn		AT_BLOB	Suboptions (3) 0+ See RFC 5678
141	sip-ua-cs-domains		AT_DNSNAME	0+ See RFC 6011

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
142	andsf-v4	Access Network Discovery and Selection Function	AT_IPADDR	See RFC 6153
143	sztp-redirect	DHCPv4 SZTP Redirect	AT_TYPECNT	0+ See RFC 8572
144	geoloc	Geospatial Location with Uncertainty	AT_BLOB	See RFC 6225
145	forcerenew-nonce-capable	Forcerenew Nonce Authentication	AT_INT8	1+ See RFC 6704
146	rdnss-selection	RDNSS Selection	AT_BLOB	Suboptions (4) See RFC 6731
150	tftp-server-address	TFTP	AT_IPADDR	1+ See RFC 5859
151	status-code		AT_BLOB	Suboptions (2) See RFC 6926
152	base-time		AT_DATE	See RFC 6926
153	start-time-of-state		AT_TIME	See RFC 6926
154	query-start-time		AT_DATE	See RFC 6926
155	query-end-time		AT_DATE	See RFC 6926
156	dhcp-state		AT_INT8	See RFC 6926
157	data-source		AT_INT8	See RFC 6926
158	v4-pcp-server	Port Control	AT_BLOB	Suboptions (2) See RFC 7291
159	v4-portparams		AT_BLOB	Suboptions (3) See RFC 7618
160	captive-portal	DHCP Captive-Portal	AT_NSTRING	See RFC 7710
161	mud-url	IPv4 MUD URL	AT_NSTRING	See RFC 8520
162	cisco-client-requested-host-name	Cisco	AT_NSTRING	See RFC 3942

No.	Cisco Prime Network Registrar Name	Protocol Name	Validation	Comments
163	cisco-client-last-transaction-time	Cisco	AT_INT	See RFC 3942
185	vpn-id	VPN Identifier	AT_BLOB	NM: Suboptions (2) See RFC 3942
209	pxelinux-config-file		AT_NSTRING	See RFC 5071
210	pxelinux-path-prefix		AT_NSTRING	See RFC 5071
211	pxelinux-reboot-time		AT_TIME	See RFC 5071
212	6rd		AT_BLOB	Suboptions (4) See RFC 5969
213	access-domain		AT_NSTRING	See RFC 5986
220	subnet-alloc	Subnet Allocation	AT_TIME	Suboptions (5) See RFC 6656
221	cisco-vpn-id	Cisco VPN Identifier	AT_NSTRING	Suboptions (2) See RFC 6607
251	cisco-auto-configure	Cisco Autoconfiguration	AT_RANGEBYTE	
255	end	End	AT_NOLEN	NM See RFC 2132

Options by Cisco Prime Network Registrar Name

The table below lists the DHCP options by Cisco Prime Network Registrar name. (For each option validation type, cross-reference it by number to and check the Validation column.)

Table 11: DHCP Options by Cisco Prime Network Registrar Name

Cisco Prime Network Registrar Name	No.	Option Name	Category
4rd	97	IPv4 Residual Deployment via IPv6 (4rd)	DHCPv6
4rd-map-rule	98	4rd Map Rule	DHCPv6
4rd-non-map-rule	99	4rd Non Map Rule	DHCPv6

Cisco Prime Network Registrar Name	No.	Option Name	Category
6rd	212	IPv6 Rapid Deployment on IPv4 Infrastructures (6rd)	DHCPv4
access-domain	213	Access Network Domain Name	DHCPv4
access-domain	57	Access Network Domain Name	DHCPv6
addrsel	84	Address Selection	DHCPv6
addrsel-table	85	Address Selection Policy Table	DHCPv6
aftr-name	64	AFTR tunnel endpoint domain name	DHCPv6
all-subnets-local	27	All Subnets Are Local	Interface
andsf-v4	142	ANDSF IPv4 Address for DHCPv4	DHCPv4
ani-ap-bssid	108	DHCPv6 Access-Point-BSSID	DHCPv6
ani-ap-name	107	DHCPv6 Access-Point-Name	DHCPv6
ani-att	105	DHCPv6 Access-Technology-Type	DHCPv6
ani-network-name	106	DHCPv6 Network-Name	DHCPv6
ani-operator-id	109	DHCPv6 Operator-Identifier	DHCPv6
ani-operator-realm	110	DHCPv6 Operator-Realm	DHCPv6
arp-cache-timeout	35	ARP Cache Timeout	Interface
associated-ip	92	Lease Query Associated IP	DHCPv4
auth	11	Authentication	DHCPv6
authentication	90	Authentication	DHCPv4
auto-configure	116	Auto-Configuration	DHCPv4
base-time	152	base-time	DHCPv4
bcmcs-server-a	34	BCMCS Address v6	DHCPv6
bcmcs-server-d	33	BCMCS Controller Domain v6	DHCPv6
bcmcs-servers-a	89	BCMCS Address	DHCPv4
bcmcs-servers-d	88	BCMCS Controller Domain	DHCPv4
boot-file	67	Bootfile Name	BOOTP
boot-size	13	Boot File Size	BOOTP
bootfile-param	60	Boot File Parameters	DHCPv6

Cisco Prime Network Registrar Name	No.	Option Name	Category
bootfile-url	59	Boot File Uniform Resource Locator (URL)	DHCPv6
broadcast-address	28	Broadcast Address	Interface
cablelabs-client-configuration	122	CableLabs Client Configuration	DHCPv4
captive-portal	103	Captive-Portal DHCPv6	DHCPv6
captive-portal	160	Captive-Portal DHCPv4	DHCPv4
capwap-ac-v4	138	CAPWAP AC	DHCPv4
capwap-ac-v6	52	CAPWAP AC	DHCPv6
cisco-auto-configure	251	Cisco Autoconfiguration	DHCPv4
cisco-client-last-transaction-time	163	Cisco Client Last Transaction Time	DHCPv4
cisco-client-requested-host-name	162	Cisco Client Requested Host Name	DHCPv4
cisco-vpn-id	221	Cisco VPN Identifier	DHCPv4
classless-static-route	121	Classless Static Route	DHCPv4
client-arch-type	61	Client System Architecture Type	DHCPv6
client-data	45	Leasequery Reply Client Data	DHCPv6
client-fqdn	81	DHCP Client FQDN	DHCPv4
client-fqdn	39	DHCP Client FQDN	DHCPv6
client-identifier	1	Client Identifier	DHCPv6
client-last-transaction-time	91	Leasequery Client Last Transaction Time	DHCPv4
client-linklayer-address	79	DHCPv6 Client Link-Layer Address	DHCPv6
clt-time	46	Leasequery Client Last Transaction Time	DHCPv6
cookie-servers	8	Cookie Server	BOOTP
data-source	157	data-source	DHCPv4
default-ip-ttl	23	Default IP Time-to-Live	Host IP
default-tcp-ttl	37	TCP Default TTL	Interface
dhcp-class-identifier	60	Vendor Class Identifier	DHCPv4

Cisco Prime Network Registrar Name	No.	Option Name	Category
dhcp-client-identifier	61	Client-Identifier	Basic
dhcp-lease-time	51	IP Address Lease Time	Lease Information, MS DHCP Client
dhcp-max-message-size	57	Maximum DHCP Message Size	DHCPv4
dhcp-message	56	Message	DHCPv4
dhcp-message-type	53	DHCP Message Type	DHCPv4
dhcp-option-overload	52	Option Overload	DHCPv4
dhcp-parameter-request-list	55	Parameter Request List	DHCPv4
dhcp-rebinding-time	59	Rebinding (T2) Time Value	Lease Information, MS DHCP Client
dhcp-renewal-time	58	Renewing (T1) Time Value	Lease Information, MS DHCP Client
dhcp-requested-address	50	Requested IP Address	DHCPv4
dhcp-server-identifier	54	Server Identifier	DHCPv4
dhcp-state	156	State of IP Address	DHCPv4
dhcp-user-class-id	77	User Class ID	DHCPv4
dhcp4-o-dhcp6-server	88	DHCP 4o6 Server Address	DHCPv6
dhcp4o6-s46-saddr	109	DHCP 4o6 Softwire Source Address	DHCPv4
dhcpv4-msg	87	DHCPv4 Message	DHCPv6
dns-servers	23	DNS Recursive Name Server	DHCPv6
domain-list	24	Domain Search List	DHCPv6
domain-name	15	Domain Name	Basic, MS DHCP Client
domain-name-servers	6	Domain Name Server	Basic, MS DHCP Client
domain-search	119	Domain Search	DHCPv4
elapsed-time	8	Elapsed Time	DHCPv6
end	255	End	DHCPv4
ero	43	Relay Agent Echo Request Option	DHCPv6
erp-local-domain-name	65	Local ERP domain name	DHCPv6

Cisco Prime Network Registrar Name	No.	Option Name	Category
extensions-path	18	Extensions Path	BOOTP
finger-servers	73	Finger Server	Servers
font-servers	48	X Window System Font Server	Servers
forcerenew-nonce-capable	145	Forcerenew Nonce Authentication	DHCPv4
geo-conf	123	GeoConf	DHCPv4
geoconf-civic	99	Civic Addresses Configuration	DHCPv4
geoconf-civic	36	Civic Addresses Configuration	DHCPv6
geoloc	63	Geolocation	DHCPv6
geoloc	144	Geospatial Location with Uncertainty	DHCPv4
host-name	12	Host Name	Basic
ia-na	3	Identity Association for Nontemporary Addresses	DHCPv6
ia-pd	25	Prefix Delegation	DHCPv6
ia-ta	4	Identity Association for Temporary Addresses	DHCPv6
iaaddr	5	IA Address	DHCPv6
iaprefix	26	IA Prefix	DHCPv6
ieee802.3-encapsulation	36	Ethernet Encapsulation	Interface
impress-servers	10	Impress Server	BOOTP
inf-max-rt	83	Max Information-Request Timeout	DHCPv6
info-refresh-time	32	Information Refresh Time	DHCPv6
initial-url	114	URL	DHCPv4
interface-id	18	Interface Identifier	DHCPv6
interface-mtu	26	Interface MTU	Interface
ip-forwarding	19	IP Forwarding Enable/Disable	Host IP
ipv6-address-andsf	143	ANDSF IPv6 Address	DHCPv6
irc-servers	74	IRC Server	Servers
iSNS	83	iSNS	DHCPv4

Cisco Prime Network Registrar Name	No.	Option Name	Category
krb-default-realm-name	77	Kerberos Default Realm Name	DHCPv6
krb-kdc	78	Kerberos KDC	DHCPv6
krb-principal-name	75	Kerberos Principal Name	DHCPv6
krb-realm-name	76	Kerberos Realm Name	DHCPv6
ldap-url	95	Lightweight Directory Access Protocol (LDAP) Servers	DHCPv4
link-address	80	Link Address	DHCPv6
log-servers	7	Log Server	Servers
lost-server	51	Location-to-Service Translation (LoST) Server DHCPv6	DHCPv6
lost-server	137	LoST Server DHCPv4	DHCPv4
lpr-servers	9	LPR Server	Servers
lq-associated-ip	92	Leasequery Associated IP Address	DHCPv4
lq-base-time	100	Leasequery Base Time	DHCPv6
lq-client-last-transaction-time	91	Leasequery Client Transaction Time	DHCPv4
lq-client-links	48	Leasequery Client Link Reply	DHCPv6
lq-end-time	102	Leasequery End Time	DHCPv6
lq-query	44	Leasequery	DHCPv6
lq-relay-data	47	Leasequery Relay Agent Reply	DHCPv6
lq-start-time	101	Leasequery Start Time	DHCPv6
mask-supplier	30	Mask Supplier	Interface
max-dgram-reassembly	22	Maximum Datagram Reassembly Size	Host IP
mcns-security-server	128	--	Servers
merit-dump	14	Merit Dump File	DHCPv4
mip6-haa	72	MIPv6 Home Agent Address	DHCPv6
mip6-haf	73	MIPv6 Home Agent FQDN	DHCPv6
mip6-hnidf	49	MIPv6 Home Network ID FQDN	DHCPv6
mip6-hnp	71	MIPv6 Home Network Prefix	DHCPv6

Cisco Prime Network Registrar Name	No.	Option Name	Category
mip6-idinf	69	MIPv6 Identified Home Network Information	DHCPv6
mip6-udinf	70	MIPv6 Unrestricted Home Network Information	DHCPv6
mip6-vdinf	50	MIPv6 Visited Home Network Information	DHCPv6
mobile-ip-home-agents	68	Mobile IP Home Agent	Servers
mos-address	139	MoS IPv4 Address	DHCPv4
mos-address	54	MoS IPv6 Address	DHCPv6
mos-fqdn	140	MoS Domain Name List	DHCPv4
mos-fqdn	55	MoS Domain Name List	DHCPv6
mpl-parameters	104	MPL Parameters	DHCPv6
mud-url	161	IPv4 MUD URL	DHCPv4
mud-url	112	IPv6 MUD URL	DHCPv6
name-servers	5	Name Server	BOOTP
name-service-search	117	Name Service Search	DHCPv4
nds-context	87	NDS Context	NetWare Client
nds-servers	85	NDS Servers	NetWare Client
nds-tree	86	NDS Tree Name	NetWare Client
netbios-dd-servers	45	NetBIOS over TCP/IP Datagram Distribution Server	WINS/NetBIOS
netbios-name-servers	44	NetBIOS over TCP/IP Name Server	WINS/NetBIOS, MS DHCP Client
netbios-node-type	46	NetBIOS over TCP/IP Node Type	WINS/NetBIOS, MS DHCP Client
netbios-scope	47	NetBIOS over TCP/IP Scope	WINS/NetBIOS, MS DHCP Client
netinfo-parent-server-addr	112	NetInfo Parent Server Address	DHCPv4
netinfo-parent-server-tag	113	NetInfo Parent Server Tag	DHCPv4
netwareip-domain	62	NetWare/IP Domain Name	NetWare Client

Cisco Prime Network Registrar Name	No.	Option Name	Category
netwareip-information	63	NetWare/IP Information	NetWare Client
new-posix-timezone	41	POSIX time zone string	DHCPv6
new-tzdb-timezone	42	POSIX time zone database name	DHCPv6
nii	62	Client Network Interface Identifier	DHCPv6
nis+-domain	64	NIS+ Domain	Servers
nis+-servers	65	Network Information Service (NIS+) Servers	Servers
nis-domain	40	NIS Domain	Servers
nis-domain-name	29	NIS Domain Name	DHCPv6
nis-servers	41	Network Information Service (NIS) Servers	Servers
nis-servers	27	NIS Servers	DHCPv6
nisp-domain-name	30	NIS+ Domain Name	DHCPv6
nisp-servers	28	NIS+ Servers	DHCPv6
nntp-servers	71	NNTP Server	Servers
non-local-source-routing	20	Non-Local Source Routing	Host IP
ntp-server	56	Message	DHCPv6
ntp-servers	42	NTP Servers	Servers
option-time	8	Option Time	DHCPv6
oro	6	Option Request Option	DHCPv6
pad	0	Pad	DHCPv4
pana-agent	40	PANA Authentication Agent DHCPv6	DHCPv6
pana-agent	136	PANA Authentication Agent DHCPv4	DHCPv4
path-mtu-aging-timeout	24	Path MTU Aging Timeout	Host IP
path-mtu-plateau-tables	25	Path MTU Plateau Table	Host IP
pd-exclude	67	Prefix Exclude	DHCPv6
perform-mask-discovery	29	Perform Mask Discovery	Interface
policy-filters	21	Policy Filter	Host IP

Cisco Prime Network Registrar Name	No.	Option Name	Category
pop3-servers	70	POP3 Server	Servers
posix-timezone	100	IEEE 1003.1 String	DHCPv4
preference	7	Preference	DHCPv6
prefix64	113	Prefix64	DHCPv6
pxe-client-arch	93	Client System Architecture Type	DHCPv4
pxe-client-machine-id	97	Client Machine Identifier	DHCPv4
pxe-client-network-id	94	Client Network Interface Identifier	DHCPv4
pxelinux-config-file	209	Configuration File	DHCPv4
pxelinux-path-prefix	210	Path Prefix	DHCPv4
pxelinux-reboot-time	211	Reboot Time	DHCPv4
query-end-time	155	query-end-time	DHCPv4
query-start-time	154	query-start-time	DHCPv4
radius	81	DHCPv6 RADIUS	DHCPv6
rapid-commit	80	Rapid Commit	DHCPv4
rapid-commit	14	Rapid Commit	DHCPv6
rdnss-selection	74	RDNSS Selection DHCPv6	DHCPv6
rdnss-selection	146	RDNSS Selection DHCPv4	DHCPv4
reconfigure-accept	20	Reconfigure Accept	DHCPv6
reconfigure-message	19	Reconfigure Message	DHCPv6
relay-agent-info	82	DHCP Relay Agent Information	DHCPv4
relay-agent-subscriber-id	38	Relay Agent Subscriber ID	DHCPv6
relay-id	53	Relay ID	DHCPv6
relay-message	9	Relay Message	DHCPv6
relay-port	135	Relay Source Port	DHCPv6
remote-id	37	Relay Agent Remote ID	DHCPv6
resource-location-servers	11	Resource Location Server	BOOTP
root-path	17	Root Path	BOOTP

Cisco Prime Network Registrar Name	No.	Option Name	Category
router-discovery	31	Perform Router Discovery	Interface
router-solicitation-address	32	Router Solicitation Address	Interface
routers	3	Router	Basic, MS DHCP Client
rsoo	66	Relay-Supplied Options	DHCPv6
s46-br	90	Softwire46 (S46) Border Relay (BR)	DHCPv6
s46-cont-lw	96	S46 Lightweight 4over6 Container	DHCPv6
s46-cont-mape	94	S46 MAP-E Container	DHCPv6
s46-cont-mapt	95	S46 MAP-T Container	DHCPv6
s46-dmr	91	S46 Default Mapping Rule (DMR)	DHCPv6
s46-portparams	93	S46 Port Parameters	DHCPv6
s46-priority	111	S46 Priority	DHCPv6
s46-rule	89	S46 Rule	DHCPv6
s46-v4v6bind	92	S46 IPv4/IPv6 Address Binding	DHCPv6
s6-bind-ipv6-prefix	137	DHCPv6 Softwire Source Binding Prefix Hint	DHCPv6
server-identifier	2	DHCPv6 Server Identifier	DHCPv6
server-unicast	12	Server Unicast	DHCPv6
sip-servers	120	SIP Servers	DHCPv4
sip-servers-name	21	SIP Servers Domain Name List	DHCPv6
sip-servers-address	22	SIP Servers IPv6 Address List	DHCPv6
sip-ua-cs-domains	141	SIP UA Configuration Service Domains	DHCPv4
sip-ua-cs-domains	58	SIP User Agent Configuration Service Domains	DHCPv6
sip-ua-cs-domains	141	SIP User Agent Configuration Service Domains	DHCPv4
slp-directory-agent	78	SLP Directory Agent	DHCPv4
slp-service-scope	79	SLP Service Scope	DHCPv4
smtp-servers	69	SMTP Server	Servers

Cisco Prime Network Registrar Name	No.	Option Name	Category
sntp-servers	31	SNTP Configuration	DHCPv6
sol-max-rt	82	SOL_MAX_RT	DHCPv6
start-time-of-state	153	start-time-of-state	DHCPv4
static-routes	33	Static Route	Interface
status-code	13	Status Code	DHCPv6
status-code	151	Status Code	DHCPv4
streettalk-directory-assistance-servers	76	STDA Server	Servers
streettalk-servers	75	StreetTalk Server	Servers
subnet-alloc	220	Subnet Allocation	DHCPv4
subnet-mask	1	Subnet Mask	Basic
subnet-selection	118	Subnet Selection	DHCPv4
swap-server	16	Swap Server	BOOTP
sztp-redirect	143	DHCPv4 SZTP Redirect	DHCPv4
sztp-redirect	136	DHCPv6 SZTP Redirect	DHCPv6
tcp-keepalive-garbage	39	TCP Keepalive Garbage	Interface
tcp-keepalive-interval	38	TCP Keepalive Interval	Interface
tftp-server	66	TFTP Server Name	Servers
tftp-server-address	150	TFTP Server Address	Servers
time-offset	2	Time Offset	BOOTP
time-servers	4	Time Server	BOOTP
trailer-encapsulation	34	Trailer Encapsulation	Interface
tzdb-timezone	101	TZ Database String	DHCPv4
user-auth	98	User Authentication	DHCPv4
user-class	15	User Class	DHCPv6
v-i-vendor-class	124	Vendor Identifying Vendor Class	DHCPv4
v-i-vendor-opts	125	Vendor Identifying Vendor Options	DHCPv4
v4-pcp-server	158	DHCPv4 PCP server	DHCPv4

Cisco Prime Network Registrar Name	No.	Option Name	Category
v4-portparams	159	DHCPv4 Port Parameters	DHCPv4
v6-pcp-server	86	DHCPv6 PCP Server	DHCPv6
vendor-class	16	Vendor Class	DHCPv6
vendor-encapsulated-options	43	Vendor Specific Information	DHCPv4
vendor-opts	17	Vendor Specific Information	DHCPv6
vpn-id	68	VPN Identifier	DHCPv6
vpn-id	185	VPN Identifier	DHCPv4
www-servers	72	WWW Server	Servers
x-display-managers	49	X Window System Display Manager	Servers

Option Validation Types

The table below defines the DHCP option validation types. Note that you cannot use some of them to define custom options.

Table 12: Validation Types

Validation	Description—Web UI Equivalent
AT_BLOB	List of binary bytes—binary
AT_BOOL	Boolean—boolean
AT_CONTAINER6	DHCPv6 Option Container (not usable for custom options)
AT_DATE	Bytes representing a date—date
AT_DNSNAME	DNS name—DNS name
AT_INT	Unsigned 32-bit integer—unsigned 32-bit
AT_INT8	8-bit integer—unsigned 8-bit
AT_INTI	Unsigned 32-bit integer (Intel)—unsigned 32-bit (Intel)
AT_IPADDR	32-bit IP address—IP address
AT_IP6ADDR	128-bit IPv6 address—IPv6 address
AT_MACADDR	Bytes representing a MAC address—MAC address
AT_MESSAGE	Unsigned 8-bit message (not usable for custom options)
AT_NOLEN	No length (used for PAD and END only)

Validation	Description—Web UI Equivalent
AT_NSTRING	Sequence of ASCII characters—string
AT_OVERLOAD	Overload bytes (not usable for custom options)
AT_RANGEBYTE	Range of bytes (not usable for custom options)
AT_RANGESHORT	Range of shorts (not usable for custom options)
AT_RDNSNAME	Relative DNS name—relative DNS name
AT_SHORT	Unsigned 16-bit integer—unsigned 16-bit
AT_SHRTI	Unsigned 16-bit integer (Intel)—unsigned 16-bit (Intel)
AT_SINT	Signed 32-bit integer—signed 32-bit
AT_SINT8	8-bit integer—signed 8-bit
AT_SINTI	Signed 32-bit integer (Intel)—signed 32-bit (Intel)
AT_SSHORT	Signed 16-bit integer—signed 16-bit
AT_SSHRTI	Signed 16-bit integer (Intel)—signed 16-bit (Intel)
AT_STIME	Signed 32-bit signed integer representing time—signed time
AT_STRING	Unrestricted sequence of ASCII characters—string
AT_TIME	Unsigned 32-bit integer representing time—unsigned time

AT_TYPECNT	Type requiring two child definition: size of the type field, and type of data—counted-type:
	
	For the DHCPv4 dhcp-user-class-id option (77), the repeating pattern is:
	
	`[ len (1 byte) ] [ data, of single type ]`
	
	For the DHCPv6 user-class option (15), the repeating pattern is:
	
	`[ len (2 byte) ] [ data, of single type ]`

AT_VENDOR_CLASS	Vendor-class option (enterprise ID followed by opaque data; if DHCPv4, enterprise ID is followed by EID length)—vendor-class
AT_VENDOR_OPTS	Vendor-specific options data (enterprise ID followed by TLVs of vendor-specific data; if DHCPv4, enterprise ID is followed by EID length)—vendor-opts
AT_VPREFIX	IPv6 variable-length prefix
AT_ZEROSIZE	32 bits of zero size (no longer used for PAD and END)

Note AT_TIME takes the value entered in seconds, by default. For example, if you enter 60, it is taken as 60 seconds and if you enter 60s/60m/2h, it is taken as 60 seconds/60 minutes/2 hours and displayed as 60s/60m/2h.