

NISTv6-r1 Capabilities Table (NCT) - November 2020							
Reference	Section	Title	Capabilities	Host	Router	Other	Flag
IPv6-Only Capabilities							
SP500-267Ar1	4.1	Install product over IPv6-only network	IPv6-Only				N
SP500-267Ar1	4.1	Product user Interface fully supports IPv6	IPv6-Only				N
SP500-267Ar1	4.1	Manage product over IPv6-only network	IPv6-Only				N
SP500-267Ar1	4.1	Update product over IPv6-only network	IPv6-Only				N
Basic Capabilities							
RFC8200		IPv6 Specification	Core	M	M		U
RFC4443		ICMPv6	Core	M	M		
RFC8201		Path MTU Discovery for IPv6	Core	M	M		U
RFC4861		Neighbor Discovery for IPv6	Core	M	M		
	8	Redirect	Core	M	M		
RFC6437		IPv6 Flow Label Specification	Core	M	M		N
RFC5942		IPv6 Subnet Model: The Relationship between Links and Subnet	Core	M	M		N
RFC6980		Security Implications of IPv6 Fragmentation with IPv6 Neighbor	Core	M	M		N
RFC7608		IPv6 Prefix Length Recommendation for Forwarding	Core		M		N
RFC4191		Default Router Preference	Core	M	M		N
RFC4884		Extended ICMP for Multi-Part Messages	Extended-ICMP				
RFC4821		Packetization Layer Path MTU Discovery	PLPMTUD				N
RFC4429		Optimistic Duplicate Address Detection (DAD) for IPv6	ND-Ext				N
RFC7527		Enhanced Duplicate Address Detection	ND-Ext				N
RFC8028		First-Hop Router Selection by Host in a Multi-Prefix Network	ND-Ext				N
RFC7048		Neighbor Unreachability Detection is Too Impatient	ND-WL				N
RFC7559		Packet-Loss Resiliency for Router Solicitations	ND-WL				N
RFC8319		Support for Adjustable Maximum Router Lifetimes per Link	ND-WL				N
RFC3971		Secure Neighbor Discovery	SEND				
RFC6494		Certificate Profile and Certificate Management for SEcure Neighbor	SEND				
RFC6495		Subject Key Identifier (SKI) SEcure Neighbor Discovery (SEND) Name	SEND				
RFC4862		IPv6 Stateless Address Autoconfig	SLAAC	M	M		
	5.3	Creation of Link Local Addresses	Core	M	M		
	5.4	Duplicate Address Detection	Core	M	M		
	5.5	Creation of Global Addresses	SLAAC	M	M		
RFC8106		IPv6 Router Advertisement Options for DNS Configuration	SLAAC	M	M		N
RFC7217		Generating Semantically Opaque Interface Identifiers with SLAAC	SLAAC	M			N
RFC4941		Privacy Extensions for IPv6 SLAAC	PrivAddr				
RFC8415		DHCPv6 Stateless (Two Message Exchange)	DHCP-Stateless				U
RFC8415		Dynamic Host Config Protocol for IPv6	DHCP-Client				U
RFC3646		DNS Configuration options for DHCPv6	DHCP-Client				
RFC3319		Dynamic Host Configuration Protocol (DHCPv6) Options for Session	DHCP-Client-Ext				N
RFC8415		DHCPv6 Prefix Delegation for Client	DHCP-Prefix				U
RFC6603		Prefix Exclude Option for DHCPv6-based Prefix Delegation	DHCP-Prefix-Ext				N
RFC6282		Compression Format for IPv6 over IEEE 802.15.4-Based Networks	6Lo				N
RFC6775		Neighbor Discovery Optimization for 6LoWPANs	6Lo				N
RFC8305		Happy Eyeballs Version 2: Better Connectivity Using Concurrency	Happy-Eyeballs				N
Addressing Capabilities							
RFC4291		IPv6 Addressing Architecture	Addr-Arch	M	M		
RFC4007		IPv6 Scope Addressing Architecture	Addr-Arch	M	M		
RFC4193		Unique Local IPv6 Unicast Addresses	Addr-Arch	M	M		
RFC3879		Deprecating Site Local Addresses	Addr-Arch	M	M		
RFC2526		Reserved IPv6 Subnet Anycast Addresses	Addr-Arch	M	M		
RFC6724		Default Address Selection for IPv6	Addr-Arch	M	M		U
RFC5952		A Recommendation for IPv6 Address Text Representation	Addr-Arch	M	M		N
RFC7136		Significance of IPv6 Interface Identifiers	Addr-Arch	M	M		N
RFC6164		Using 127-Bit IPv6 Prefixes on Inter-Router Links	Addr-Arch		M		N
RFC7346		IPv6 Multicast Address Scopes	Addr-Arch	M	M		N
RFC7078		Distributing Address Selection Policy Using DHCPv6	Addr-Arch & DHCP-Client				U
RFC3972		Cryptographically Generated Addresses (CGA)	CGA				
RFC4581		(CGA) Extension Field Format	CGA				
RFC4982		(CGA) Support for Multiple Hash Algorithms.	CGA				

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Network Support Capabilities							
RFC3596		DNS Extension for IPv6	DNS-Client				
RFC2671		DNS Mechanisms for DNS (EDNS0)	DNS-Client				
RFC3226		DNSSEC and IPv6 DNS MSG Size Reqs	DNS-Client				
RFC3986		URI: Generic Syntax	URI				
RFC6874		Representing IPv6 Zone Identifiers in Address Literals and Uniform	URI				
RFC5905		NTP Client Functions	NTP-Client				N
RFC5905		NTP Server Functions	NTP-Server				N
RFC3596		DNS Server Functions	DNS-Server				
RFC8415		DHCPv6 Server Functions	DHCP-Server				U
RFC3646		DNS Configuration options for DHCPV6	DHCP-Server				U
RFC5460		DHCPv6 Bulk LeaseQuery	DHCP-Server-Ext				N
RFC3319		Dynamic Host Configuration Protocol (DHCPv6) Options for Session	DHCP-Server-Ext				N
RFC8415		DHCPv6 Relay Agent Functions	DHCP-Relay				N
Routing Capabilities							
RFC5340		OSPF for IPv6	OSPF				U
RFC5613		OSPF Link-Local Signaling	OSPF				N
RFC4552		Authentication/Confidentiality for OSPFv3	OSPF-IPsec				
RFC7166		Supporting Authentication Trailer for OSPFv3	OSPF-Auth				N
RFC5838		Support of Address Families in OSPFv3	OSPF-Ext				N
RFC6845		OSPF Hybrid Broadcast and Point-to-Multipoint Interface Type	OSPF-Ext				N
RFC6860		Hiding Transit-Only Networks in OSPF	OSPF-Ext				N
RFC8362		OSPFv3 Link State Advertisement (LSA) Extensibility	OSPF-Ext				N
RFC5185		OSPF Multi-Area Adjacency	OSPF-Ext				N
RFC7949		OSPFv3 over IPv4 for IPv6 Transition	OSPF-Trans				N
RFC5187		OSPFv3 Graceful Restart	OSPF-Graceful				N
RFC8379		OSPFv3 Graceful Link Shutdown	OSPF-Graceful				N
RFC5308		Routing IPv6 with IS-IS	IS-IS				N
RFC5304		IS-IS for Cryptographic Auth	IS-IS-Auth				N
RFC5310		IS-IS Generic Cryptographic Auth	IS-IS-Auth				N
RFC7775		IS-IS Route Preference for Extended IP and IPv6 Reachability	IS-IS-Ext				N
RFC6232		Purge Originator Identification TLV for IS-IS	IS-IS-Ext				N
RFC6233		IS-IS Registry Extension for Purges	IS-IS-Ext				N
RFC5301		Dynamic Hostname Exchange Mechanism for IS-IS	IS-IS-Ext				N
RFC5120		M-ISIS: Multi Topology (MT) Routing in Intermediate System to	IS-IS-MT				N
RFC4271		BGP-4	BGP				
RFC4760		BGP Multi-Protocol Extensions	BGP				
RFC2545		BGP Multi-Protocol Extensions for IPv6 IDR	BGP				
RFC5492		Capabilities Advertisement with BGP-4	BGP				N
RFC6286		Autonomous-System-Wide Unique BGP Identifier for BGP-4	BGP				N
RFC6608		SubCodes for BGP Finite State Machine Error	BGP				N
RFC6793		BGP Support for Four-Octet Autonomous System (AS) Number Space	BGP				N
RFC7606		Revised Error Handling for BGP UPDATE Messages	BGP				N
RFC7607		Codification of AS 0 Processing	BGP				N
RFC7705		Autonomous System Migration Mechanisms and Their Effects on the	BGP				N
RFC8212		Default External BGP (EBGP) Route Propagation Behavior without	BGP				N
RFC4456		BGP Route Reflection	BGP-Reflect				N
RFC4724		Graceful Restart Mechanism for BGP	BGP-Graceful				N
RFC5575		Dissemination of Flow Specification Rules	BGP-FlowSpec				N
RFC7674		Clarification of the Flowspec Redirect Extended Community	BGP-FlowSpec				N
RFC6811		BGP Prefix Origin Validation	BGP-OV				N
RFC8481		Clarifications to BGP Origin Validation Based on Resource Public Key	BGP-OV				N
RFC8097		BGP Prefix Origin Validation State Extended Community	BGP-OV				N
RFC8210		The Resource Public Key Infrastructure (RPKI) to Router Protocol	BGP-OV				N
RFC4761		Virtual Private LAN Service (VPLS) Using BGP for Auto-Discovery and	BGP-VPLS				N
RFC7432		BGP MPLS-Based Ethernet VPN	BGP-EVPN				N
RFC4659		BGP-MPLS IP Virtual Private Network (VPN) Extension for IPv6 VPN	BGP-6VPE				N
RFC6565		OSPFv3 as a Provider Edge to Customer Edge (PE-CE) Routing Protocol	BGP-6VPE				N
RFC6515		IPv6 Infrastructure Addresses in BGP Updates for Multicast VPN	BGP-MVPN				N
RFC7506		IPv6 Router Alert Option for MPLS (OAM)	MPLS				N
RFC7552		Updates to LDP for IPv6	MPLS				N
RFC7084		Core Requirements for IPv6 Customer Edge Routers	CE-Router				N
	4.5	Ingress Filtering (BCP38)	CE-Router				N
RFC6092		Recommended Simple Security Capabilities in Customer Premises	CE-Router				N
RFC5798		Virtual Router Redundancy Protocol (VRRP) Version 3 for IPv4 and IPv6	VRRP				N

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Security Capabilities							
RFC4301		Security Architecture for the IP	IPsec				
RFC4301		IPsec - Security Gateway Functions	IPsec-VPN				
RFC4303		Encapsulating Security Payload (ESP)	IPsec				
RFC4303		Encapsulating Security Payload (ESP)	IPsec-VPN				
RFC7296		Internet Key Exchange Protocol Version 2 (IKEv2)	IPsec				U
RFC7296		IKEv2 - Secure Gateway Functions	IPsec-VPN				U
RFC8221		Cryptographic Algorithm Implementation Requirements and Usage	IPsec				U
RFC8221		Cryptographic Algorithm Implementation Requirements and Usage	IPsec-VPN				U
RFC8221	5	AES-CCM with a 8 octet ICV	IPsec-IoT				N
RFC8221	5	AES-CCM with a 8 octet ICV	IPsec-IoT-VPN				N
RFC8221	5	CHACHA20_POLY1305	IPsec-CHACHA				N
RFC8221	5	CHACHA20_POLY1305	IPsec-CHACHA-VPN				N
RFC8221	6	AUTH_HMAC_SHA2_512_256	IPsec-SHA-512				N
RFC8221	6	AUTH_HMAC_SHA2_512_256	IPsec-SHA-512-VPN				N
RFC8247		Algorithm Implementation Requirements and Usage Guidance for the	IPsec				U
RFC8247		Algorithm Implementation Requirements and Usage Guidance for the	IPsec-VPN				U
RFC8247	2.1	AES-CCM with a 8 octet ICV	IPsec-IoT				N
RFC8247	2.1	AES-CCM with a 8 octet ICV	IPsec-IoT-VPN				N
RFC8247	2.1	CHACHA20_POLY1305	IPsec-CHACHA				N
RFC8247	2.1	CHACHA20_POLY1305	IPsec-CHACHA-VPN				N
RFC8247	2.2	PRF_HMAC_SHA2_512	IPsec-SHA-512				N
RFC8247	2.2	PRF_HMAC_SHA2_512	IPsec-SHA-512-VPN				N
RFC8247	2.3	AUTH_HMAC_SHA2_512_256	IPsec-SHA-512				N
RFC8247	2.3	AUTH_HMAC_SHA2_512_256	IPsec-SHA-512-VPN				N
RFC8247	2.2	PRF_AES128_XCBC	IPsec-IoT				N
RFC8247	2.2	PRF_AES128_XCBC	IPsec-IoT-VPN				N
RFC8247	2.3	AUTH_AES_XCBC_96	IPsec-IoT				N
RFC8247	2.3	AUTH_AES_XCBC_96	IPsec-IoT-VPN				N
RFC4250		The Secure Shell (SSH) Protocol Assigned Numbers	SSHV2				N
RFC4251		The Secure Shell (SSH) Protocol Architecture	SSHV2				N
RFC4252		The Secure Shell (SSH) Authentication Protocol	SSHV2				N
RFC4253		The Secure Shell (SSH) Transport Layer Protocol	SSHV2				N
RFC4254		The Secure Shell (SSH) Connection Protocol	SSHV2				N
RFC5246		TLS 1.2	TLS				N
RFC6176		Prohibiting Secure Sockets Layer (SSL) Version 2.0	TLS				N
RFC7465		Prohibiting RC4 Cipher Suites	TLS				N
RFC7568		Deprecating Secure Sockets Layer Version 3.0	TLS				N
RFC5746		Transport Layer Security (TLS) Renegotiation Indication Extension	TLS				N
RFC8446		TLS 1.3	TLS-1.3				N
Transition Mechanism Capabilities							
RFC2473		Generic Packet Tunneling in IPv6	Tunneling-IP				
RFC6936		Applicability Statement for the Use of IPv6 UDP Datagrams with Zero	Tunneling-UDP				N
RFC7676		IPv6 Support for Generic Routing Encapsulation (GRE)	GRE				N
RFC6333		Dual-Stack Lite Broadband Deployments Following IPv4 Exhaustion	DS-Lite				N
RFC7596		Lightweight 4over6: An Extension to the Dual-Stack Lite Arch.	LW4over6				N
RFC7597		Mapping of Address and Port with Encapsulation (MAP-E)	MAP-E				N
RFC7599		Mapping of Address and Port using Translation (MAP-T)	MAP-T				N
RFC6877		464XLAT: Combination of Stateful and Stateless Translation	XLAT				N
RFC7915		IP/ICMP Translation Algorithm	XLAT				N
RFC6146		Stateful NAT64: Network Address and Protocol Translation	NAT64				N
RFC6147		DNS64: DNS Extensions for Network Address Translation from IPv6	DNS64				N
RFC4798		Connecting IPv6 islands over IPv4 MPLS (6PE)	6PE				
RFC6830		The Locator/ID Separation Protocol (LISP)	LISP				N

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Network Management Capabilities							
RFC3411		SNMP v3 Management Framework	SNMP				
RFC3412		SNMP Message Process and Dispatch	SNMP				
RFC3413		SNMP Applications	SNMP				
RFC3414		User-based Security Model for SNMPv3	SNMP				
RFC4293		MIB for the IP	SNMP				
RFC4292		MIB for IP Forwarding Table	SNMP				
RFC4022		MIB for TCP	SNMP				
RFC4113		MIB for UDP	SNMP				
RFC4087		IP Tunnel for MIB	SNMP & Tunneling				
RFC4807		MIB for IPsec Policy Database Configuration	SNMP & IPsec				
RFC3289		MIB for DiffServ	SNMP & DiffServ				
RFC6241		Network Configuration Protocol (NETCONF)	NETCONF				N
RFC8344		A YANG Data Model for IP Management	NETCONF				N
RFC8343		A YANG Data Model for Interface Management	NETCONF				N
RFC8348		A YANG Data Model for Hardware Management	NETCONF				N
RFC8349		A YANG Data Model for Routing Management	NETCONF				N
Multicast Capabilities							
RFC3810		MLD Version 2 for IPv6	SSM				
RFC3810		Ability to Join/Leave Group with ASM	Multicast	M	M		
RFC3306		Unicast-Prefix-based IPv6 Mcast Addresses	Multicast	M	M		
RFC3307		Allocation Guidelines for IPv6 Mcast Adrrs	Multicast	M	M		
RFC7371		Updates to the IPv6 Multicast Addressing Architecture	Multicast	M	M		N
RFC4607		Source-Specific Multicast for IP	SSM				
RFC4604		MLDv2 for Source Specific Multicast (SSM)	SSM				
RFC7761		PIM-SM	PIM-SM				U
RFC5059		Bootstrap Router (BSR) Mechanism for Protocol Independent Multicast	PIM-SM				U
RFC5796		Authentication and Confidentiality in Protocol Independent Multicast	PIM-SM-IPsec				N
RFC5015		Bidirectional Protocol Independent Multicast (BIDIR-PIM)	PIM-SM-BiDir				N
Quality of Service Capabilities							
RFC2474		Differentiated Services (DiffServ)	DiffServ				
RFC3140		Per Hop Behavior (PHB) Identification Codes	DiffServ				
RFC2597		Assured Forwarding PHB Group	DiffServ				
RFC3246		An Expedited Forwarding PHB	DiffServ				
RFC3247		Supplemental Info for the New EF PHB	DiffServ				
RFC3168		Explicit Congestion Notification (ECN) to IP	ECN				
Link Specific Capabilities							
RFC2464		IPv6 over Ethernet	Link=Ethernet				
RFC5072		IPv6 over PPP	Link=PPP				
RFC7428		IPv6 over ITU-T G.9959 Networks (Zwave)	Link=G.9959				N
RFC7668		IPv6 over BLUETOOTH(R) Low Energy	Link=Bluetooth				N
RFC8163		Transmission of IPv6 over Master-Slave/Token-Passing Networks	Link=BACnet				N
RFC4944		Transmission of IPv6 Packets over IEEE 802.15.4 Networks	Link=6LoWPAN				N
Application and Services Capabilities							
SP500-267Ar1	4.12	Application/Service Specific Functions over IPv6-only network.	App-Serv=[TBD]				
Switch Capabilities							
RFC7610		DHCPv6-Shield: Protecting against Rogue DHCPv6 Servers	DHCPv6-Guard				N
RFC6105		IPv6 Router Advertisement Guard	RA-Guard				N
RFC7113		Implementation Advice for IPv6 Router Advertisement Guard (RA-	RA-Guard				N
RFC4541		Considerations for Internet Group Management Protocol (IGMP) and	MLD-Snooping				N
Network Protection Capabilities							
SP500-267Ar1	4.14.4	Firewall Requirements	FW				U
SP500-267Ar1	4.14.5.1	Intrusion Detection System	IDS				U
SP500-267Ar1	4.14.5.2	Intrusion Prevention	IPS				U
SP500-267Ar1	4.14.4.2	Application Firewall	APFW				U