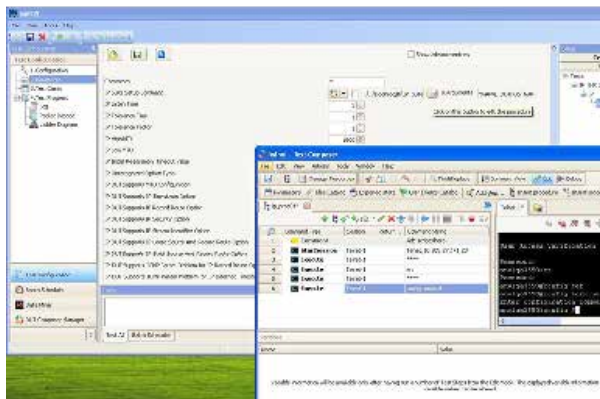




IxANVL



Ixia's IxANVL validates layer 2-7 network devices for protocol conformance to industry standards. It is an essential tool for protocol conformance certification and solid protocol stack implementation. Testing is accomplished via protocol interaction with the device under test (DUT) to verify that it behaves properly under both valid and invalid scenarios.

Trusted by customers for more than 16 years, IxANVL offers the most accepted set of conformance test suites in the industry. Unlike other companies offering conformance testing, Ixia provides direct technical support in major markets. IxANVL runs on Windows and Linux workstations, as well as Ixia's scalable hardware platform.

IxANVL is the only test suite in the industry that provides an accurate and detailed list of expected test steps and protocol behavior. This enables rapid analysis and correlation with actual DUT behavior during test execution and faster discovery of the reason for a test failure.

Comprehensive Protocol Coverage

- Includes 10,000+ protocol conformance test cases across 100+ test suites
- Offers testing coverage for IPv4, IPv6, bridging, routing, MPLS, multicast, VPN technologies, high availability, Carrier Ethernet, fiber channel, UDP, TCP, and application layer protocols like HTTP and SIP
- Supports 160+ IETF/ITU-T specifications

Integrated Device Under Test Configuration

- Incorporates configuration changes into test runs
- Records manual DUT configuration
- Plays recordings back for debugging
- Supports foreground and background execution modes

Easy to Use

- Intuitive user interface
- Logs multi-level results with Ethernet-like packet decodes and ladder diagram for easy troubleshooting
- Automates tests
- Schedules batch runs
- Stores multiple configurations
- Creates reports for subsequent analysis

Flexible Licensing

- Source license offers complete editing control
- Binary license offers fixed framework at lower cost
- Floating license permits test-suite sharing among multiple workstations/users



Supported Protocols

	IxANVL Test Suites	Target Protocols	Reference Specification	Test Case Count	Required Test Interfaces
IPv6 Test Suites	IPv6 Core	IPv6	RFC 2460, 2464	111	2
		IPv6CP	RFC 2472	17	1
		ICMPv6	RFC 4443	46	2
	IPv6 Advanced	NDP	RFC 4861	228	2
		Generic Packet Tunneling	RFC 2473	46	2
		AutoConfig	RFC 4862	37	2
		V6oV4	RFC 4213, 2529, 3056, 3068	66	2
		PMTU	RFC 1981	10	1
		IP Router Alert	RFC 2711	13	2
	Mobile IPv6	Home Agent	RFC 3775	159	2
		Correspondence Node	RFC 3775	153	1
		Mobile Node	RFC3775	95	2
	GRE	GRE	RFC 2890, 2784	29	2
	DHCPv6	DHCP Client	RFC 3315	103	1
		DHCP Server	RFC 3315	141	2
IPv4 Test Suites	IPv4	IPv4	RFC 791, parts of 1122, 1812	70	2
		ICMP	RFC 792 , parts of 1812	32	2
	DHCPv4	DHCP Client	RFC 2131	90	2
		DHCP Server	RFC 2131	74	2
Routing	IP RIP	RIP	RFC 2453	53	2
		IPGW	RFC 1812, 1122	18	2
	RIPng	RIPng	RFC 2080	60	2
	OSPF Core	OSPF	RFC 1583, 2328	312	3
	OSPF Extensions	Opaque LSA, NSSA, DB Overflow, Stub Router Ext	RFC 2370, 3101, 1765, 3137	56	3
		OSPF TE	RFC 3630	54	2
	OSPFv3	OSPFv3	RFC 5340, parts of RFC 2328	328	3
	OSPF-GR	OSPFv2-GR	RFC 3623	56	2
	VRRP	VRRP	RFC 3768	83	2
	BGP4 Core	BGP	RFC 4271	183	3
	BGP4 Extensions	BGP-OSPF, Communities, Route Flap Damping, Route Reflection, Route Refresh, Confederations	RFC 1403, 1997, 2439, 2918, 4456, 5065, 1771, 4360	147	3
	BGP Plus	BGP+ with IPv6	RFC 4271, 4760, 2545	200	3
	BGP 4-Byte AS	4-byte AS for BGP and BGPPlus	RFC 4893	50	3
	ISIS	ISIS	RFC 1195, ISO/IEC; 10589: 1992(E)	229	2
	ISIS	ISIS-TE	RFC 3784	31	1
	ISISv6	ISIS-v6	ISO/IEC 10589: 1992(E), RFC 3719, 1195, 5308	221	2
TCP Test Suites	TCP Core	TCP	RFC 793, 1122, 2460	179	2
	TCP Advanced	Slow Start, Congestion Control, PMTU Disc, MD5	RFC 2001, 2581, 1191, 2385, 2463, 1981	48	1
	TCP High Performance	Ext for High Performance, Selective Ack	RFC 1323, 2018	48	1
UDP Test Suite	UDP	UDP	RFC 768, 1122	35	1



	IxANVL Test Suites	Target Protocols	Reference Specification	Test Case Count	Required Test Interfaces
MPLS	MPLS	Label Encapsulation	RFC 3032	59	2
	RSVP-TE	RSVP-TE	RFC 3209, draft-ietf-mpls-rsvp-lsp-tunnel-07	87	3
	RSVP-TE	RSVP-TE P2MP	RFC 4875	48	3
	LDP	LDP	RFC 3036	329	3
	mLDP	mLDP P2MP	draft-ietf-mpls-ldp-p2mp-10	97	4
	LSP-Ping-Tr	LSP Ping and Traceroute	RFC 4379	128	2
	VCCV	Pseudo wire VCCV	RFC 5085	70	2
	L2VPN (PWE3)	PWE3-Control	RFC 4447	69	2
		PWE3-Encapsulation	RFC 4448, 4618, 4717, 4385, 4623	78	2
	VPLS	VPLS	RFC 4762	58	4
	VPLS-BGP	VPLS with BGP AD and signalling	RFC 4761	46	4
	L3 VPN	L3 VPN	RFC 4364	101	3
MPLS-TP	MPLS-TP-Y1731-CC-LD	MPLS-TP-Y1731-CC-LD	RFC 5586 (GACH), draft-bhh-mpls-tp-oam-y1731-06.txt, ITU-T-REC Y.1731-200605-I	85	1
	MPLS-TP-IETF-CC-CV-LD	MPLS-TP-IETF-CC-CV-LD	RFC 5586 (GACH), draft-ietf-mpls-loss-delay-01, draft-ietf-mpls-tp-on-demand-cv-02, draft-ietf-mpls-tp-cc-cv-rdi-03	210	1
	MPLS-TP-G.8031-APS-Y.1731	MPLS-TP-G.8031-APS-Y.1731	G.8031_Y.1342-2006-06	140	2
Multicasting Test Suites	IGMP	IGMPv2	RFC 2236	49	2
		IGMPv3	RFC 3376	153	2
	DVMRP	DVMRP	draft-ietf-idmr-dvmrp-v3-07	66	3
	PIM	Dense Mode	draft-ietf-pim-dm-new-v2-04	162	3
		Sparse Mode, SSM	RFC 4601, draft-ietf-pim-sm-bsr-12	327	3
	PIMv6	Sparse Mode	draft-ietf-pim-sm-v2-new-12, draft-ietf-pim-sm-bsr-12	283	3
	MLD	MLDv1	RFC 2710	98	2
		MLDv2	RFC 3810	202	2
High Availability	BFD	BFD Base, BFD Generic, BFD-v4v6-1hop for OSPFv2/v3, ISIS and BGP BFD-MPLS	drafts draft-ietf-bfd-base-09.txt, draft-ietf-bfd-generic-05.txt, draft-ietf-bfd-v4v6-1hop-09.txt, draft-ietf-bfd-mpls-07.txt	178	3
Layer 4-7 Test Suite	HTTP	HTTP Server	RFC 2616	346	1
	Telnet	Telnet Client/Server	RFC 854	43	1
IP Storage Suites	iSCSI	iSCSI Target	RFC 3720	210	1
		iSCSI Initiator	RFC 3720	205	1
VPN Test Suites	IPsec AH	MD5, SHA	RFC 4301, 4302	58	2
	IPsec ESP	MD5, SHA, DES, 3DES, Blowfish, AES	RFC 4301, 4303, 2403, 2404, 2405	72	2
	IPsec IKE	ISAKMP, IKE	RFC 2407, 2408, 2409	373	2
	IPsec AH / IPv6	MD5, SHA, IPsec v6	RFC 4301, 4302	66	2
	IPsec ESP / IPv6	MD5, SHA, DES, 3DES, Blowfish, AES	RFC 4301, 4303, 2404, 2405, 2406, 2403	74	2
	IPsec IKE / IPv6	ISAKMP, IKE	RFC 2407, 2408, 2409	384	2
	IKEV2	IKEV2, DES, 3DES, AES-128, 256, 192, MD5, SHA, DH-768, 1024, 1536, 2048, 3072	RFC 4306	189	2
	L2TP	L2TP	RFC 2661	105	1
	PPTP	PPTP	draft-ietf-pppext-pptp-02	55	1



	IxANVL Test Suites	Target Protocols	Reference Specification	Test Case Count	Required Test Interfaces
PPP Test Suites	PPP	LCP, PPP, PPP in HDLC	RFC 1661, 1662	111	2
		Authentication (PAP, CHAP)	RFC 1334, 1994	37	1
	IPCP	IPCP	RFC 1332	19	2
	VJ	VJ Compression	RFC 1144	48	2
	PPPoE	PPP over Ethernet	RFC 2516	75	2
	Multilink PPP	MPPP	RFC1717, 1990	59	3
	Multilink PPP	Multi-class Extension	RFC 2686	9	3
Carrier Ethernet	MEF9	MEF9	MEF1, MEF9, Iometrix Test Plan version 1.4	247	6
	EtherCFM	Ethernet CFM	IEEE P802.1ag/D8.1 2007	246	3
	EtherOAM	Ethernet OAM	IEEE 802.3-ah-2004	166	3
	MEF OAM	MEF21 OAM	MEF 21 Abstract Test Suite for UNI Type 2	187	2
	Service OAM	Y.1731	ITU-T Y.1731 05/2006, IEEE P802.1ag/D8.1 June 8, 2007	106	2
	Provider BB	PBB	IEEE 802.1ah D4.2 2005	55	2
	MEF Service OAM	MEF Service OAM	ATS for UNI Type 2 Part 3 - Service OAM	157	2
	MEF ELMI	MEF ELMI	D00063_004 ATS for UNI Type 2 Part 2 ELMI TC MEF 16	239	2
Bridging	G8031	G.8031 1:1 protection	Ethernet Automatic Protection Switching — ITU-T G8031/Y.1342	283	3
	STP	802.1d	IEEE Std. 802.1D-1998	53	3
	RSTP	802.1w	IEEE Std. 802.1D-2004	126	4
	EAPOL	802.1x, MD5, TLS, TTLS	IEEE 802.1x-2004	83	3
	MSTP	802.1s	IEEE 802.1Q-2005	247	4
	LLDP	LLDP	IEEE 802.1AB 2005	104	3
	DCBX	DCBX	DCB Capability Exchange Protocol Specification (Rev 1.0), DCB Capability Exchange Protocol Base Specification (Rev 1.01)	92	1
	Mcast Snooping	IGMP/MLD Snooping	RFC 4541	42	3
	VLAN	802.1q, GMRP, GVRP	IEEE Std. 802.1Q-2005	161	4
	LACP	802.3ad	IEEE Std. 802.3-2002 Clause 43	118	4
	QinQ	QinQ	IEEE 802.1ad 2005	127	2
	MVRP/MMRP	MVRP, MMRP	IEEE Std 802.1ak-2007	321	3
VoIP	SIP	SIP Server	RFC 3261	297	2
	FIP	FCoE Initialization Protocol	FCoE Initialization Protocol, FIBRE CHANNEL BACKBONE-5, Rev 1.04, Prepared by the INCITS, T11/Project 1871-D	169	1
Fiber Channel over Ethernet (FCoE)	FCoE FCF	FCoE FCF	FIBRE CHANNEL LINK SERVICES, Rev 2.11, Prepared by the INCITS, T11/Project 2103-D	56	1
RMON Test Suites	RMON	Ethernet General	RFC 1757 RFC 1757	116 372	1 1
Toolkits	TCP Toolkit		N/A	4	1
	SNMP Toolkit	Toolkit & sample tests only	N/A	9	1

For more information, go to <http://www.ixiacom.com/products/ixanvl/index.php>.