



DEFENSE INFORMATION SYSTEMS AGENCY

P. O. BOX 4502
ARLINGTON, VIRGINIA 22204-4502

IN REPLY
REFER TO: Battlespace Communications Portfolio (JTE)

17 Sep 08

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of Extreme Assured Services Voice Application Local Area Network (ASVALAN) and Voice Application Local Area Network (VALAN) with Native Operating System 11.6.1.9

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006
(c) through (g), see enclosure

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Extreme ASVALAN and VALAN with Native Operating System 11.6.1.9 is hereinafter referred to as the system under test (SUT). The SUT meets all of its critical interoperability requirements and is certified as interoperable for joint use within the Defense Switched Network (DSN). The SUT is certified for joint use within the DSN with the Digital Switching Systems on the Unified Communications (UC) Approved Products List (APL) which are certified for use with an ASVALAN or VALAN. The SUT is certified to support DSN assured services over Internet Protocol as an ASVALAN. If a system meets the minimum requirements for an ASVALAN, it also meets the lesser requirements for a VALAN. However, since VALANs do not support the Assured Services Requirements detailed in reference (c), Command and Control (C2) users and Special C2 users are not authorized to be served by a VALAN. Since VALANs do not support Assured Services, they can only serve Department of Defense (DoD), non-DoD, non-governmental, and foreign government users having no missions or communications requirement to ever originate or receive C2 communications. VALAN connectivity to the DSN is not authorized until a waiver is granted by the Joint Staff for each site. The SUT is certified for joint use as a VALAN for non-C2 traffic. The principal differences between an ASVALAN and VALAN include:

- C2 traffic shall not traverse a VALAN.
- A single point of failure, which could impact more than 64 users, is permitted and switch modularity is not required for a VALAN.
- Network Management features and requirements are not required for a VALAN.
- Reliability of 99.9% is the minimum requirement for a VALAN.
- Battery backup is not required for a VALAN.

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Testing did not include video services or data applications; however, simulated data traffic was generated during testing to determine its effect on voice traffic. This certification expires upon changes that could affect interoperability, but no later than three years from the date of the original memorandum (26 April 2007).

3. The extension of this certification is based upon a desktop review. The original certification is based on interoperability testing conducted by JITC and a review of the vendor's Letters of Compliance (LoC). Testing was conducted at JITC's Global Information Grid Network Test Facility at Fort Huachuca, Arizona, from 5 February through 30 March 2007 and documented in reference (d). Review of the vendor's LoC was completed on 30 March 2007. A desktop review was requested to the Summit X450e-48P. The Summit X450e-48P utilizes the same chipsets and operating system as the Summit X450e-24P. The Summit X450e-48P provides 24 more ports than the Summit X450e-24P, which increases the processor load for passing traffic. The desktop review request was approved on 15 September 2008.

4. The overall interoperability status of the SUT is indicated in table 1. The ASVALAN and VALAN system requirements are listed in table 2. In addition to system level requirements, components that comprise the SUT must meet specific criteria to be certified for use as core, distribution, or access components. The interoperability status of the SUT components is listed in table 3. The ASVALAN and VALAN requirements used to certify the components are listed in table 4. This interoperability test status is based on the SUT's ability to meet:

a. Local Area Network system requirements specified in reference (e) verified through JITC testing and/or vendor submission of LoC.

b. Internet Protocol version 6 requirements specified in reference (e), paragraph 1.7, table 1-4, by 30 June 2008 in accordance with reference (f) verified through vendor submission of LoC signed by the Vice President of the company.

c. Assured services as defined in reference (c).

d. The overall system interoperability performance derived from test procedures listed in reference (g).

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Table 1. SUT Interoperability Status

System Interoperability Status			
Components	Release	Status	Remarks
Extreme Black Diamond 12804	11.6.1.9	Certified	All ASVALAN and VALAN system requirements were met when the SUT was configured in accordance with architecture provided in reference (d). Additional details about component level certification are provided in table 3. Security testing is accomplished through DISA-led Information Assurance Test teams and published in a separate report.
Extreme Black Diamond 8810	11.6.1.9		
Extreme Black Diamond 10808	11.6.1.9		
Extreme Summit X450E-24P	11.6.1.9		
Extreme Summit X450E-48P	11.6.1.9		
Extreme Black Diamond 8806	11.6.1.9		
LEGEND: ASVALAN - Assured Services Voice Application LAN DISA - Defense Information Systems Agency E - Ethernet LAN - Local Area Network P - Port SUT - System Under Test VALAN - Voice Application LAN			

Table 2. ASVALAN and VALAN System Requirements

System Requirements				
Requirement	Criteria		Reference	Critical
Delay	One-way packet delay for voice packets of an established call (signaling and media) shall be 5 ms or less averaged over any 5-minute period.		GSCR, Appendix 3, Section A.3.3.1.1	Yes
Jitter	For voice media packets, jitter shall be 5 ms or less averaged over any 5-minute period.		GSCR, Appendix 3, Section A.3.3.1.2	Yes
Packet Loss	Voice packet loss within the LAN shall not exceed 0.05% averaged over any 5-minute period.		GSCR, Appendix 3, Section A.3.3.1.3	Yes
Reliability	ASVALAN	- ASVALANs shall have a reliability of .99999 - No single point of failure for outage of more than 64 telephony subscribers - Network Path restores within 2 seconds	GSCR, Appendix 3, Section A.3.3.4.1	Yes
	VALAN	- VALANs shall have a reliability of .999	GSCR, Appendix 3, Section A.3.3.4.1	Yes
IPv6 ¹	All IP devices shall be IPv6 capable.		GSCR, Appendix 3, Section A3.2.8, Paragraph 1.7	Yes
Security ²	DIACAP (replacement for DITSCAP)/IA		GSCR, Appendix 3, Section A.3.3.4.3	Yes
LEGEND: ASVALAN - Assured Services Voice Application LAN DIACAP - DoD IA Certification and Accreditation Process DISA - Defense Information Systems Agency DITSCAP - DoD IT Security Certification and Accreditation Process DoD - Department of Defense GSCR - Generic Switching Center Requirements IA - Information Assurance IP - Internet Protocol IPv4 - Internet Protocol version 4 IPv6 - Internet Protocol version 6 IT - Information Technology LAN - Local Area Network ms - milliseconds VALAN - Voice Application LAN				
NOTES: 1 An IPv6 capable system or product, as defined in the GSCR, paragraph 1.7, shall be capable of receiving, processing, and forwarding IPv6 packets and/or interfacing with other systems and protocols in a manner similar to that of IPv4. IPv6 capability is currently satisfied by a vendor Letter of Compliance signed by the Vice President of the company. The vendor must state, in writing, compliance to the following criteria by 30 June 2008: a. Conformance with IPv6 standards profile contained in the DoD IT Standards Registry (DISR). b. Maintaining interoperability in heterogeneous environments and with IPv4. c. Commitment to upgrade as the IPv6 standard evolves. d. Availability of contractor/vendor IPv6 technical support. 2 Security testing is accomplished via DISA-led Information Assurance test teams and published in a separate report.				

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Table 3. SUT Component Interoperability Status

Component Interoperability Status					
Component	Release	Sub-component	Status	Layer (s)	Remarks
Black Diamond 12804	Native Operating System 11.6.1.9	MSM-5 66010	Certified	Core, Distribution, Access	All CRs and FRs were met.
		GM20XT 65010	Certified		
Black Diamond 8810	Native Operating System 11.6.1.9	MSMG8X 41211	Certified	Distribution	All CRs and FRs were met.
		G24X 41541	Certified		
Black Diamond 10808	Native Operating System 11.6.1.9	G20X 61011	Certified	Distribution, Access	All CRs and FRs were met.
		G60T 61030	Certified		
		MSM-1 60015	Certified		
Black Diamond 8806	Native Operating System 11.6.1.9	MSMG8X 41211	Certified	Access	All CRs and FRs were met.
		G48P 41512	Certified		
Summit X450E-24P	Native Operating System 11.6.1.9	Not Applicable	Certified	Access	All CRs and FRs were met.
Summit X450E-48P	Native Operating System 11.6.1.9	Not Applicable	Certified	Access	All CRs and FRs were met.
LEGEND:					
CRs	- Capability Requirements		MSM	- Management Supervisor Module	
E	- Ethernet		P	- Port	
FRs	- Feature Requirements		SUT	- System Under Test	
G	- Gigabit		T	- Twisted Pair	
GM	- Gigabit Module		X	- One Gigabit fiber capable	

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Table 4. ASVALAN and VALAN Component Requirements

Core/Distribution/Access Component Requirements				
Requirement	Criteria		Reference	Critical
CoS Models	LAN components shall support IEEE 802.1p to DSCP mapping and at least one of the following: - IEEE 802.1p/Q priority tagging/VLAN tagging - DSCP - ToS		GSCR, Appendix 3, Section A.3.3.2.1	Yes
Traffic Prioritization	Traffic within LAN components shall be prioritized so that voice signaling receives highest priority, voice media second highest priority, and data lowest priority.		GSCR, Appendix 3, Section A.3.3.2.2	Yes
QoS	LAN components shall support one of the following: - Priority Queuing - Custom Queuing - Weighted Fair Queuing - Class Based Weighted Fair Queuing		GSCR, Appendix 3, Section A.3.3.3.1	Yes
Policing	LAN components shall support one of the following: - DSCP PHB - Generic Traffic Shaping - Class-Based Shaping		GSCR, Appendix 3, Section A.3.3.3.2	Yes
VLANs	LAN components shall support: - Port based VLANs - MAC address based VLANs - Protocol based VLANs		GSCR, Appendix 3, Section A.3.3.3.3	Yes
IEEE Conformance	LAN components shall support: - IEEE 802.1d – Bridging - IEEE 802.1p/Q – Priority tagging/VLAN tagging - IEEE 802.1s – Per-VLAN Group Spanning Tree - IEEE 802.1v – VLAN Classification by port and protocol - IEEE 802.1w –Rapid Reconfiguration of Spanning Tree - IEEE 802.1x – Port Based Network Access Control - IEEE 802.3ad – Link Aggregation Protocol		GSCR, Appendix 3, Section A.3.3.4	Yes
Reliability	ASVALAN	LAN components shall support: - ASVALAN components shall have a reliability of .99999 or better - Dual power supplies and dual processors (more than 64 users) - N+1 sparing for access (more than 64 users) - Redundancy protocol ¹ - 2 second path restoral	GSCR, Appendix 3, Section A.3.3.4.1	Yes
	VALAN	VALAN components shall have a reliability of .999 or better	GSCR, Appendix 3, Section A.3.3.4.1	Yes
Network Management	ASVALAN	LAN components shall support: - In-band or out-of-band management - SNMP - Measurements	GSCR, Appendix 3, Section A.3.3.4.2	Yes
	VALAN	Network Management not required for a VALAN	GSCR, Appendix 3, Section A.3.3.4.2	No
Security	LAN components shall employ the Network Infrastructure and VoIP STIGs. ²		GSCR, Appendix 3, Section A.3.3.4.3	Yes
IPv6	All IP devices shall be IPv6 capable. ³		GSCR, Appendix 3, Section A.3.2.8, Paragraph 1.7	Yes

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Table 4. ASVALAN and VALAN Component Requirements (continued)

Core/Distribution/Access Component Requirements																																																																																				
Requirement	Criteria		Reference	Critical																																																																																
TE	ASVALAN	- ASVALAN components shall be engineered for a maximum of 25% voice traffic per link. ⁴ - For more than 64 users, link pairs (redundant links) must be used.	GSCR, Appendix 3, Section A.3.3.4.4	Yes																																																																																
	VALAN	VALAN components shall be engineered for a maximum of 25% voice traffic per link. ⁴	GSCR, Appendix 3, Section A.3.3.4.4	Yes																																																																																
<p>LEGEND:</p> <table border="0"> <tr> <td>802.1d</td> <td>- Standard for Local and Metropolitan Area Networks: MAC Bridges</td> <td>DSCP</td> <td>- Differentiated Services Code Point</td> </tr> <tr> <td>802.1p</td> <td>- LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization</td> <td>GSCR</td> <td>- Generic Switching Center Requirements</td> </tr> <tr> <td>802.1Q</td> <td>- Standards for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks</td> <td>IEEE</td> <td>- Institute of Electrical and Electronics Engineers, Inc.</td> </tr> <tr> <td>802.1s</td> <td>- Standard for Local and Metropolitan Area Networks - Amendment 3 to 802.1Q Virtual Bridged Local Area Networks: Multiple Spanning Trees</td> <td>IP</td> <td>- Internet Protocol</td> </tr> <tr> <td>802.1v</td> <td>- Standard for Local and Metropolitan Area Networks - Virtual Bridge Local Area Networks - Amendment 2: VLAN Classification by Protocol and Port (Amendment to IEEE 802.1Q, 1998 Edition)</td> <td>IPv4</td> <td>- Internet Protocol version 4</td> </tr> <tr> <td>802.1w</td> <td>- Standard for Local and metropolitan area networks - Common Specifications - Part 3: Media Access Control (MAC) Bridges: Rapid Configuration</td> <td>IPv6</td> <td>- Internet Protocol version 6</td> </tr> <tr> <td>802.1x</td> <td>- Standard for Local and Metropolitan Area Networks Port-Based Network Access Control</td> <td>LAN</td> <td>- Local Area Network</td> </tr> <tr> <td>802.3ad</td> <td>- Standard for Information Technology – Local and Metropolitan Area Networks – Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications–Aggregation of Multiple Link Segments</td> <td>MAC</td> <td>- Media Access Control</td> </tr> <tr> <td>ASVALAN</td> <td>- Assured Services Voice Application LAN</td> <td>Mbps</td> <td>- Megabits per second</td> </tr> <tr> <td>CoS</td> <td>- Class of Service</td> <td>N</td> <td>- total VoIP users / 64</td> </tr> <tr> <td>DISA</td> <td>- Defense Information Systems Agency</td> <td>PHB</td> <td>- Per Hop Behaviors</td> </tr> <tr> <td></td> <td></td> <td>QoS</td> <td>- Quality of Service</td> </tr> <tr> <td></td> <td></td> <td>SNMP</td> <td>- Simple Network Management Protocol</td> </tr> <tr> <td></td> <td></td> <td>STIGs</td> <td>- Security Technical Implementation Guides</td> </tr> <tr> <td></td> <td></td> <td>TE</td> <td>- Traffic Engineering</td> </tr> <tr> <td></td> <td></td> <td>ToS</td> <td>- Type of Service</td> </tr> <tr> <td></td> <td></td> <td>VALAN</td> <td>- Voice Application LAN</td> </tr> <tr> <td></td> <td></td> <td>VLANs</td> <td>- Virtual LANs</td> </tr> <tr> <td></td> <td></td> <td>VoIP</td> <td>- Voice over Internet Protocol</td> </tr> <tr> <td></td> <td></td> <td>VRRP</td> <td>- Virtual Router Redundancy Protocol</td> </tr> </table> <p>NOTES:</p> <ol style="list-style-type: none"> For core and distribution components, redundancy protocol shall be the routing protocol supported. For access components, redundancy protocol shall be VRRP or equivalent protocol. Verified using the Information Assurance Test Plan. Results of the security testing are published in a separate test report generated by the DISA Information Assurance test personnel. An IPv6 capable system or product, as defined in the GSCR, paragraph 1.7, shall be capable of receiving, processing, and forwarding IPv6 packets and/or interfacing with other systems and protocols in a manner similar to that of IPv4. IPv6 capability is currently satisfied by a vendor Letter of Compliance signed by the Vice President of the company. The vendor must state, in writing, compliance to the following criteria by 30 June 2008: <ol style="list-style-type: none"> Conformant with IPv6 standards profile contained in the Department of Defense Information Technology Standards Registry (DISR). Maintaining interoperability in heterogeneous environments and with IPv4. Commitment to upgrade as the IPv6 standard evolves. Availability of contractor/vendor IPv6 technical support. Instruments connected to an access device must provide a minimum of a 10 Mbps full duplex link. For core and distribution connections, the minimum link capacity is 100 Mbps full duplex. 					802.1d	- Standard for Local and Metropolitan Area Networks: MAC Bridges	DSCP	- Differentiated Services Code Point	802.1p	- LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization	GSCR	- Generic Switching Center Requirements	802.1Q	- Standards for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks	IEEE	- Institute of Electrical and Electronics Engineers, Inc.	802.1s	- Standard for Local and Metropolitan Area Networks - Amendment 3 to 802.1Q Virtual Bridged Local Area Networks: Multiple Spanning Trees	IP	- Internet Protocol	802.1v	- Standard for Local and Metropolitan Area Networks - Virtual Bridge Local Area Networks - Amendment 2: VLAN Classification by Protocol and Port (Amendment to IEEE 802.1Q, 1998 Edition)	IPv4	- Internet Protocol version 4	802.1w	- Standard for Local and metropolitan area networks - Common Specifications - Part 3: Media Access Control (MAC) Bridges: Rapid Configuration	IPv6	- Internet Protocol version 6	802.1x	- Standard for Local and Metropolitan Area Networks Port-Based Network Access Control	LAN	- Local Area Network	802.3ad	- Standard for Information Technology – Local and Metropolitan Area Networks – Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications–Aggregation of Multiple Link Segments	MAC	- Media Access Control	ASVALAN	- Assured Services Voice Application LAN	Mbps	- Megabits per second	CoS	- Class of Service	N	- total VoIP users / 64	DISA	- Defense Information Systems Agency	PHB	- Per Hop Behaviors			QoS	- Quality of Service			SNMP	- Simple Network Management Protocol			STIGs	- Security Technical Implementation Guides			TE	- Traffic Engineering			ToS	- Type of Service			VALAN	- Voice Application LAN			VLANs	- Virtual LANs			VoIP	- Voice over Internet Protocol			VRRP	- Virtual Router Redundancy Protocol
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5. No detailed test report was developed in accordance with the Program Manager’s request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <https://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>.

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6. The JITC point of contact is Mr. Edward Mellon, DSN 879-5159, commercial (520) 538-5159, FAX DSN 879-4347, or e-mail to Edward.Mellon@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0624901.

FOR THE COMMANDER:



for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

Enclosure a/s

Distribution (electronic mail):

Joint Staff J-6

Joint Interoperability Test Command, Liaison, TE3/JT1

Office of Chief of Naval Operations, CNO N6F2

Headquarters U.S. Air Force, Office of Warfighting Integration & CIO, AF/XCIN (A6N)

Department of the Army, Office of the Secretary of the Army, DA-OSA CIO/G-6 ASA (ALT), SAIS-IOQ

U.S. Marine Corps MARCORSYSCOM, SIAT, MJI Division I

DOT&E, Net-Centric Systems and Naval Warfare

U.S. Coast Guard, CG-64

Defense Intelligence Agency

National Security Agency, DT

Defense Information Systems Agency, TEMC

Office of Assistant Secretary of Defense (NII)/DOD CIO

U.S. Joint Forces Command, Net-Centric Integration, Communication, and Capabilities
Division, J68

Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

- (c) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, "Policy for Department of Defense Voice Services," 23 September 2001
- (d) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of Extreme Assured Services Voice Application Local Area Network (ASVALAN) and Voice Application Local Area Network (VALAN) with Native Operating System 11.6.1.9," 26 April 2007
- (e) Defense Information Systems Agency (DISA), "Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR), Appendix 3, Errata Change 2," 14 December 2006
- (f) Executive Office of the President, "Transition Planning for Internet Protocol version 6 (IPv6)," 2 August 2005
- (g) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006