



DEFENSE INFORMATION SYSTEMS AGENCY

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IN REPLY
REFER TO: Joint Interoperability Test Command (JTE)

8 Mar 13

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of the Hewlett-Packard (HP) 5400zl Series from Release K.15.04.0003 to Release K.15.09.0009

References: (a) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008
(c) through (f), see Enclosure

1. References (a) and (b) establish Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.
2. The HP 5406zl with Release K.15.04.0003 is hereinafter referred to as the System Under Test (SUT). The SUT meets all of its critical interoperability requirements and is certified for joint use within the Defense Information Systems Network (DISN) as an Assured Services Local Area Network (ASLAN) Core, Distribution, and Layer 2/Layer 3 Access switch. The SUT is certified as interoperable for joint use with other ASLAN components listed on the Unified Capabilities (UC) Approved Products List (APL) with the following interfaces: 1000 Base-SX, 1000Base-LX, 10Gbase-SR, 10Gbase-LR, 10/100/1000BaseT. JITC tested all of these interfaces with the exception of the 10BaseT interface. JITC analysis determined the 10BaseT interface is low risk for certification based on the vendor's Letter of Compliance (LoC) to the Institute of Electrical and Electronics Engineers (IEEE) 802.3i standard and the testing data collected at all other data rates. The SUT meets the critical interoperability requirements set forth in Reference (c), using test procedures derived from Reference (d). The 5412zl switch employs the same software and hardware as the SUT. JITC analysis determined this system to be functionally identical to the SUT for interoperability certification purposes and it is also certified for joint use.

The SUT is certified to support Assured Services within an ASLAN. If a component meets the minimum requirements for deployment in an ASLAN, it also meets the lesser requirements for deployment in a non-ASLAN. Non-ASLANs are "commercial grade" and provide support to Command and Control (C2) (ROUTINE only calls) (C2(R)) or non-C2 voice subscribers. When deployed in a non-ASLAN, the SUT may also be used to receive all levels of precedence, but is limited to supporting calls that are originated at ROUTINE precedence only. Non-ASLANs do not meet the availability or redundancy requirements for C2 or Special C2 users and therefore are not authorized to support precedence calls originated above ROUTINE.

No other configurations, features, or functions, except those cited within this document, are certified by the JITC. This certification expires upon changes that affect interoperability, but no

later than 5 October 2014, which is three years from the date of the original UC APL memorandum.

3. The extension of this certification is based upon Desktop Review (DTR) 4. The original certification, documented in Reference (e), is based on interoperability testing conducted by JITC, review of the vendor's LoC, DISA adjudication of open test discrepancy reports (TDRs), and DISA CA Recommendation. Interoperability testing was conducted by JITC, Fort Huachuca, Arizona, from 31 May through 8 July 2011. Review of the vendor's LoC was completed on 30 June 2011. DISA adjudication of open TDRs was completed on 26 July 2011. The DISA CA provided a positive Recommendation on 21 September 2011 based on the security testing completed by DISA-led Information Assurance (IA) test teams and published in a separate report, Reference (f). This DTR was requested to add two 10 Gigabits per second (Gbps) modules (J9546A and J9538A) and update the software from Release K.15.04.003 to K.15.09.0009 to address previously documented interoperability and IA issues. JITC determined this DTR would require Interoperability and IA Verification and Validation (V&V) testing. JITC conducted DTR testing from 1 through 12 October 2012 and from 10 through 14 December 2012. Two TDRs were closed, one previous TDR remained open, and one new TDR was identified as discussed in the subparagraphs below.

a. The SUT met all Class of Service requirements with the following exception: the Open Shortest Path First version 3 (OSPFv3) Internet Protocol version 6 (IPv6) Differentiated Services Code Point (DSCP) values are incorrectly marked with a DSCP value of 0. This discrepancy was originally adjudicated as having a minor operational impact based on the vendor's submission of a Plan of Action and Milestones (POA&M). During V&V testing it was again verified that the OSPF v3 DSCP values are incorrectly marked. DISA has accepted and approved the vendor's new POA&M and adjudicated this discrepancy as having a minor operational impact.

b. During V&V testing, it was noted that the SUT incorrectly tagged the Virtual Router Redundancy Protocol (VRRP) Internet Protocol version 4 (IPv4) DSCP traffic. The SUT is required to tag all signaling traffic at 48 and be able to tag any value 0-63. The SUT incorrectly tags the VRRP IPv4 DSCP traffic at 0. DISA has accepted and approved the vendor's new POA&M and adjudicated this discrepancy as having a minor operational impact.

c. During the initial certification test, the Department of Defense Information Technology Standards Registry (DISR) profile protocols were met with vendor's LoC and/or testing with the following minor exception adjudicated by DISA with the vendor's submission of a POA&M. The vendor's submitted LoC stated that their SUT cannot set the full range of OSPFv3 dead interval. This discrepancy was verified to be fixed during V&V testing.

d. During the initial certification test, IPv6 failover exceeded the 5 second requirement (5.1 seconds) with a link failover to the Brocade ASLAN component. This discrepancy was adjudicated by DISA as having a minor operational impact based on the vendor's submission of a POA&M. This discrepancy was verified to be fixed during V&V testing.

The DISA CA provided a positive recommendation for these DTRs on 7 March 2013, based on the security testing completed DISA-led IA test teams and published in a separate report, Reference (f). Therefore, JITC approves these DTRs.

4. Table 1 provides a Unified Capabilities Approved Products List (UC APL) product summary. The interface, Capability Requirements (CR) and Functional Requirements (FR), and component status of the SUT is listed in Tables 2 and 3. The threshold Capability/Functional requirements for ASLAN components are established by Section 5.3.a of Reference (c) and were used to evaluate the interoperability of the SUT.

Table 1. UC APL Product Summary

Component ¹	Release	Sub-Component ²	Certification Applicability		
			Core	Distribution	Access
HP 5406zl HP 5412zl	K.15.04.0003	J8712A	Yes	Yes	Yes
		J9306A			
		J8713A			
		J8702A			
		J9547A			
		J9307A			
		J9478A			
		J9308A			
		J9536A			
		J9535A			
		J9637A			
		J9534A			
		J9478A			
		J8706A			
		J8708A			
		J8707A			
		J9309A			
		J9536A			
		J9535A			
		J9537A			
		J9637A			
		J8705A			
		J9534A			
		J9478A			
		J9547A			
		J9550A			
		J9549A			
		J9548A			
		J8707A			
		J9548A			
		J9536A			
		J9535A			
		J9549A			
J9637A					
J9534A					
J9550A					
J8705A					
J9546A ³					
J9538A ³					

Table 1. UC APL Product Summary (continued)

NOTES:			
1. JITC tested the HP 5406zl and the sub-components which are bolded and underlined. JITC is certifying the other listed components and sub-components because they employ the same software and similar hardware as the SUT.			
2. The J8707A and J9309A four port modules are statically mapped with a 14.4 Gbps channel per ASIC. There are two ASICs per module; one is assigned to ports 1 and 4 and one is assigned to ports 2 and 3. Therefore, to meet the 50 percent non-blocking requirements only two ports can be assigned at a time in the following combinations: ports 1 and 2, 1 and 3, 2 and 4 or 3 and 4.			
3. The two new 10 Gbps modules (J9546A and J9538A) were successfully tested with Desktop Review 4.			
LEGEND:			
APL	Approved Products List	JITC	Joint Interoperability Test Command
ASIC	Application-Specific Integrated Circuit	UC	Unified Capabilities
Gbps	Gigabit per second		

Table 2. SUT Interface Interoperability Status

Interface	Applicability			UCR 2008, Change 2 Reference	Threshold CR/FR ¹	Status	Remarks
	Co	D	A				
10Base-X	C	C	C ²	5.3.1.3.1	1-6	Met ³	SUT met CRs and FRs with the following IEEE Standard: 802.3i
100Base-X	R	R	C ²	5.3.1.3.1	1-6	Met	SUT met CRs and FRs with the following IEEE Standard: 802.3u (100Base-T)
1000Base-X	R	R	C ²	5.3.1.3.1	1-6	Met	SUT met CR and FRs with the following IEEE Standards: 802.3ab (1000Base-T), 802.3z (1000Base-SX, 1000Base-LX)
10000Base-X	C	C	C	5.3.1.3.1	1-6	Met	SUT met CRs and FRs with the following IEEE Standard: 802.3ae (10GBASE-SR, 10GBASE-LR)
802.11a	C	C	C	5.3.1.3.1/5.3.1.7.2	1-6	Not Tested ⁴	
802.11b	C	C	C	5.3.1.3.1/5.3.1.7.2	1-6	Not Tested ⁴	
802.11g	C	C	C	5.3.1.3.1/5.3.1.7.2	1-6	Not Tested ⁴	
802.11n	C	C	C	5.3.1.3.1/5.3.1.7.2	1-6	Not Tested ⁴	
802.16	C	C	C	5.3.1.3.1/5.3.1.7.2	1-6	Not Tested ⁴	

NOTES:

- The SUT high-level CR and FR ID numbers depicted in the Threshold CRs/FRs column can be cross-referenced in Table 2. These high-level CR/FR requirements refer to a detailed list of requirements provided in Reference (e), Enclosure 3.
- Core and Distribution products must minimally support 100Base-X (802.3u) and 1000Base-X (802.3z). Access products must minimally support one of the following standards: 802.3i (10BaseT), 802.3j (10BaseF), 802.3u (100BaseT/F), 802.3z (1000BaseF), or 802.3ab (1000BaseT). Other rates and standards may be provided as conditional interfaces.
- JITC tested all these interfaces with the exception of the 10BaseT interface. JITC analysis determined the 10BaseT interface is low risk for certification based on the vendor's Letter of Compliance (LoC) to the IEEE 802.3i and the testing data collected at all other data rates.
- The SUT does not support this interface. This interface is not required for a core, distribution, or access switch.

LEGEND:

A	Access	ID	Identification
C	Conditional	IEEE	Institute of Electrical and Electronic Engineers
Co	Core	JITC	Joint Interoperability Test Command
CR	Capability Requirement	LoC	Letter of Compliance
D	Distribution	SUT	System Under Test
FR	Functional Requirement	UCR	Unified Capabilities Requirements

Table 3. SUT CRs and FRs Status

CR/FR ID	Capability/ Function	Applicability ¹	UCR Reference	Status	Remarks
1	General Performance Parameters				
	Performance Parameters	Required	5.3.1.3	Met	
	Port Interface Rates	Required	5.3.1.3.1	Met	
	Port Parameter Requirements	Required	5.3.1.3.2	Met	
	Class of Service Markings	Required	5.3.1.3.3	Partially Met ^{2,3}	
	VLAN Capabilities	Required	5.3.1.3.4	Met	
	Protocols	Required	5.3.1.3.5	Met ⁴	
	QoS Features	Required	5.3.1.3.6	Met	
	Network Monitoring	Required	5.3.1.3.7	Met	
	Security	Required	5.3.1.3.8	Met ⁵	
2	E2E Performance Requirements				
	Voice Services	Required	5.3.1.4.1	Met ⁶	
	Video services	Required	5.3.1.4.2	Met ⁶	
	Data services	Required	5.3.1.4.3	Met ⁶	
3	NM Requirements				
	Configuration Control	Required	5.3.1.6.1	Met	
	Operational Changes	Required	5.3.1.6.2	Met	
	Performance Monitoring	Required	5.3.1.6.3	Met	
	Alarms	Required	5.3.1.6.4	Met	
	Reporting	Required	5.3.1.6.5	Met	
4	Engineering Requirements				
	Physical Media	Required	5.3.1.7.1	Met ⁷	
	Traffic Engineering	Required	5.3.1.7.3	Met ⁷	Configured with four queues, each set to 25% of total bandwidth.
	Availability	Required	5.3.1.7.6	Met	100% availability during test.
	Redundancy	Required	5.3.1.7.7	Met ⁸	
5	MPLS				
	MPLS Requirements	Conditional	5.3.1.8.4.1	Not Tested ⁹	
	MPLS VPN Augmentation to VLANs	Conditional	5.3.1.8.4.2	Not Tested ⁹	
6	IPv6 Requirements				
Product Requirements	Required	5.3.5.4	Met		

NOTES:

1. The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Reference (e), Enclosure 3. The SUT does not need to provide conditional requirements. However, if a capability is provided, it must function according to the specified requirements.
2. The SUT met all Class of Service requirements with the following exception: OSPFv3 IPv6 DSCP values are incorrectly marked with a DSCP value of 0. This discrepancy was originally adjudicated as having a minor operational impact based on the vendor's submission of a POA&M. However, during testing it was verified that the OSPF v3 DSCP values are incorrectly marked. DISA has accepted and approved the vendor's new POA&M and adjudicated this discrepancy as having a minor operational impact.
3. During testing for DTR 4, it was noted that the SUT incorrectly tagged the VRRP IPv4 DSCP traffic. The SUT is required to tag all signaling traffic at 48 and be able to tag any value 0-63. The SUT incorrectly tags the VRRP IPv4 DSCP traffic at 0. DISA has accepted and approved the vendor's new POA&M and adjudicated this discrepancy as having a minor operational impact.
4. The DISR profile protocols were met with vendor's LoC and/or testing with the following minor exception adjudicated by DISA with a vendor's submission of a POA&M. The vendor's submitted LoC stated that their SUT cannot set the full range of OSPFv3 dead interval. This discrepancy was verified to be fixed during DTR testing.
5. Refers to IA requirements for UCR 2008, Change 2, Section 5.4. Detailed IA requirements are included in Reference (e).
6. This requirement was verified and met using simulated voice, video, and data traffic in an operational emulated environment to meet E2E requirements. The SUT must be deployed in accordance with deployment guide and engineering guidelines provided in UCR 5.3.1.4.

Table 3. SUT CRs and FRs Status (continued)

NOTES (continued):

7. This requirement was met with the following stipulations: It is the site's responsibility to configure the SUT in a manner which meets the engineering requirements listed in Section 11.2 d. of Reference (e), Enclosure 2 and that does not create a single point of failure which could impact more than 96 C2 users.
8. This requirement was met with the following exceptions: IPv6 failover exceeded the 5 second requirement (5.1 seconds) with a link failover to the Brocade ASLAN component. This discrepancy was adjudicated by DISA as having a minor operational impact based on vendor's submission of a POA&M. This discrepancy was verified to be fixed during DTR testing.
9. MPLS is conditional for a core, distribution, or access switch.

LEGEND:

ASLAN	Assured Services Local Area Network	LoC	Letter of Compliance
C2	Command and Control	MPLS	Multiprotocol Label Switching
CR	Capability Requirement	NM	Network Management
DISA	Defense Information Systems Agency	OSPFv3	Open Shortest Path First version 3
DTR	Desktop Review	POA&M	Plan of Action and Milestones
E2E	End-to-End	QoS	Quality of Service
FR	Functional Requirement	SUT	System Under Test
IA	Information Assurance	UCR	Unified Capabilities Requirements
ID	Identification	VLAN	Virtual Local Area Network
IPv4	Internet Protocol version 4	VPN	Virtual Private Network
IPv6	Internet Protocol version 6	VRRP	Virtual Router Redundancy Protocol

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). 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 <http://jit.fhu.disa.mil> (NIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: disa.meade.ns.list.unified-capabilities-certification-office@mail.mil. All associated data is available on the DISA UCCO website located at <http://www.disa.mil/ucco/>.

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the HP 5400zl Series with Release K.15.04.0003

6. The JITC point of contact is CPT James Torres, DSN 879-5575, commercial (520) 538-5575, FAX DSN 879-4347, or e-mail to james.m.torres.mil@mail.mil. JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The UCCO tracking number for the SUT is 1036202.

FOR THE COMMANDER:

Enclosure a/s


for RICHARD A. MEADOR
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ADDITIONAL REFERENCES

- (c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008, Change 2," 31 December 2010
- (d) Joint Interoperability Test Command, "ASLAN Component Test Plan (UCTP)," November 2010
- (e) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of the Hewlett-Packard (HP) 5400zl Series with Release K.15.04.0003," 29 September 2011
- (f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of HP 5406zl Series Release (Rel.) K.15.04.0003 (Tracking Number 1036202)," Draft