



DEFENSE INFORMATION SYSTEMS AGENCY

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

3 Jul 13

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of the Cisco 3800, 3900, 2900, and 2800 Series Integrated Services Router (ISR) Edge Boundary Controller (EBC) from Internetworking Operating System (IOS) 15.1 Engineering Special (ES) 15.1(20110111:230218) [15-1-3-17-T] to IOS 15.2(4)M3

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 the Defense Information Systems Agency (DISA) Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Cisco 3845 and 3945 ISRs EBC with IOS 15.1 ES 15.1(20110111:230218) [15-1-3-17-T] are hereinafter referred to as the System Under Test (SUT). The SUT meets all of its critical interoperability requirements for joint use within the Defense Information Systems Network (DISN) as a High Availability EBC with No Loss of Active Sessions (NLAS). When an EBC meets the High Availability EBC requirements without NLAS, it is also certified as a Medium Availability without NLAS, and a Low Availability EBC. To meet the High Availability and Medium Availability EBC requirements, the SUT must be configured in a dual-chassis configuration. The Low Availability EBC requirements are met with a single chassis configuration. The SUT is certified for joint use within the DISN in both classified and sensitive-but-unclassified (SBU) networks. DISA adjudicated Test Discrepancy Reports (TDRs) open at the completion of testing to have a minor operational impact. The minor operational impact of noted discrepancies was based on the SUT's conditions of fielding during the initial transition from legacy to Internet Protocol (IP) based communications. The certification status of the SUT will be monitored and verified during operational deployment in the Department of Defense (DoD) Unified Capabilities (UC) Pilot. Any new discrepancy noted in the operational environment will be evaluated for impact on the existing certification. These discrepancies will be adjudicated to the satisfaction of DISA via a vendor Plan of Actions and Milestones (POA&M) that addresses all new critical TDRs within 120 days of identification. Testing was conducted using EBC requirements derived from the Unified Capabilities Requirements (UCR), Reference (c), and EBC test procedures, Reference (d). The Cisco 3945E, 3925, 3925E, 3825, 2951, 2921, 2911, 2901 2851, 2821, 2811, and 2801 ISRs employ the same software and similar hardware as the SUT. The JITC analysis determined these systems to be functionally identical to the SUT for interoperability certification purposes and they also certified for joint use. No other

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configurations, features, or functions, except those cited within this memorandum, are certified by JITC. This certification expires upon changes that could affect interoperability, but no later than 19 April 2014, which is three years from the date of the UC Approved Products List (APL) memorandum.

3. The extension of this certification is based upon Desktop Reviews (DTRs) 2 and 3. The original certification, documented in Reference (e), is based on interoperability testing conducted by JITC, review of the vendor's Letters of Compliance (LoC), and DISA Information Assurance (IA) Certification Authority (CA) approval of the IA configuration. Interoperability testing was conducted by JITC, Fort Huachuca, Arizona, from 11 through 22 October 2010. Final verification and validation testing was conducted by JITC, Fort Huachuca, Arizona, from 17 through 28 January 2011. Review of the vendor's LoC was completed on 13 April 2011. The DISA CIO has reviewed the IA Assessment Report for the SUT, Reference (f), and has granted an Authorization to Operate for the SUT for the DoD UC utilizing Spiral 1 Deployment. The acquiring agency or site will be responsible for the DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation. DTR 2 was requested to update the Integrated Services Router (ISR) second generation (G2) from IOS 15.1(20110111:230218) [15-1-3-17-T] to 15.2(4)M3. This IOS update requested with this DTR fixes interoperability discrepancies noted in previous testing. DTR 3 was requested to include certification as a High Availability EBC with NLAS. JITC determined V&V testing was required for both DTRs. JITC conducted interoperability testing from 28 through 11 June 2013. No new interoperability discrepancies were opened as a result of this V&V test. Three previous interoperability discrepancies were closed.

a. During the original test, certain call hold scenarios experienced one-way audio. All calls should resume the audio path after the call hold scenario. The call hold scenarios were repeated with a different EBC with no discrepancy. This discrepancy was fixed and successfully tested with DTR 2, which included IOS 15.2(4)M3.

b. During the original test, failover to the SUT secondary processor due to loss of power or Wide Area Network (WAN) connectivity, all active calls were lost and the failover took approximately 30 seconds to complete. This requirement only applies to High Availability EBCs with NLAS. This discrepancy was fixed and successfully tested with DTR 2, which included IOS 15.2(4)M3.

c. During testing for DTR 1 to include IOS 15.1.4(M)4, the SUT did not process REFER Session Initiation Protocol (SIP) messages. DTR 1 was not approved and was not added to the UC APL. However, this discrepancy was fixed and successfully tested with DTR 2, which included IOS 15.2(4)M3.

One previous interoperability discrepancy was updated. During the original test, the SUT did not support the failover requirements specified in UCR 2008, Change 1, section 5.3.4.7.2.4.1. The SUT did support an alternative method that was successfully demonstrated in a multi-vendor test event for failover and used to draft new UCR failover requirements. The new UCR 2013

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requirement states that a Session Controller (SC) can support failover with one of the two following methods: Alternative A with failed Options ping or Alternative B with failed INVITES. The SUT only supports failover of an SC which uses Alternative B. The other SC vendors certified for use in the DISN support Alternative A. Therefore, the SUT is certified as a High Availability EBC with NLAS and with the following condition of fielding: The SUT is certified to front only a Cisco SC, which does not rely on SIP OPTION pings for failover.

Additionally, the DISA CA has approved these DTRs to include 15.2(4)M3 and certification as a High Availability EBC with NLAS without further testing. Therefore, the original IA approval applies to these DTRs and JITC approves these DTRs.

4. The interface, Capability Requirements (CR) and Functional Requirements (FR), and component status of the SUT is listed in Tables 1 and 2. The threshold Capability/Functional requirements for EBCs are established by Section 5.3.2.14 of Reference (c) and were used to evaluate the interoperability of the SUT.

Table 1. SUT Interface Interoperability Status

Interface	Critical (See note 1.)	UCR Paragraph	Threshold CR/FR Requirements (See note 2.)	Status	Remarks (See note 3.)
WAN Interfaces					
1000Base-X	No	5.3.2.4 / 5.3.3.10.1.2	1-3	Certified	IEEE 802.3z
NM Interfaces					
10Base-X	No	5.3.2.4.4	4	Certified	IEEE 802.3i and IEEE 802.3j
100Base-X	No	5.3.2.4.4	4	Certified	IEEE 802.3u
NOTES:					
1. The UCR does not define the provision of any specific interface. The SUT must minimally provide one of the WAN interfaces and one of the NM interfaces.					
2. The SUT's high-level capability and functional requirement identification (ID) numbers depicted in the 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.					
3. The SUT must meet IEEE 802.3 standards for interface provided.					
LEGEND:					
10Base-X	Generic designation for 10 Mbps Ethernet		CR	Capability Requirement	
100Base-X	Generic designation for 100 Mbps Ethernet		FR	Functional Requirement	
1000Base-X	Generic designation for 1000 Mbps Ethernet		IEEE	Institute of Electrical and Electronics Engineers	
802.3i	IEEE Ethernet standard for 10 Mbps over twisted pair		Mbps	Megabits per second	
802.3j	IEEE Ethernet standard for 10 Mbps over fiber		NM	Network Management	
802.3u	IEEE Ethernet Standard for 100 Mbps over twisted pair and fiber		SUT	System Under Test	
			UCR	Unified Capabilities Requirements	
802.3z	IEEE Ethernet standard for 1000 Mbps over fiber		WAN	Wide Area Network	

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Table 2. SUT Capability Requirements and Functional Requirements Status

CR/FR ID	Capability/ Function	Applicability (See note 1.)	UCR Paragraph	Status	Remarks (See note 2.)
1	Edge Boundary Controller Requirements				
	AS-SIP Back-to-Back User Agent	Required	5.3.2.15.1	Met	
	Call Processing Load	Required	5.3.2.15.2	Met	This was verified through the vendor's LoC.
	Network Management	Required	5.3.2.15.3 5.3.2.17	Met	This was verified through the vendor's LoC.
	DSCP Policing	Required	5.3.2.15.4	Not Met	See note 3.
	Codec Bandwidth Policing	Required	5.3.2.15.5	Not Met	See note 3.
	Availability	Required	5.3.2.15.6	Met	The SUT met the requirements for high availability with NLAS. (See notes 4 and 5.)
	IEEE 802.1Q Support	Required	5.3.2.15.7	Met	
	Packet Transit Time	Required	5.3.2.15.8	Met	This was verified through the vendor's LoC.
ITU-T H.323 Support	Conditional	5.3.2.15.9	Not Tested	The SUT offers ITU-T H.323 support; however, it was not tested and is not certified.	
2	AS-SIP Requirements				
	Requirements for AS-SIP Signaling Appliances	Required	5.3.4.7	Met	See notes 6 and 7.
	SIP Session Keep-Alive Timer	Required	5.3.4.8	Met	
	Session Description Protocol	Required	5.3.4.9	Met	
	Precedence and Preemption	Required	5.3.4.10	Met	
3	IPv6 Requirements				
	Product Requirements	Required	5.3.5.4	Partially Met	This was verified through the vendor's LoC with the exceptions listed in note 8.
4	NM Requirements				
	VVoIP NMS Interface Requirements	Required	5.3.2.4.4	Met	This was verified through the vendor's LoC.
	General Management Requirements	Required	5.3.2.17.2	Met	This was verified through the vendor's LoC.
	Requirement for FCAPS Management	Required	5.3.2.17.3	Met	This was verified through the vendor's LoC.
	NM requirements of Appliance Functions	Required	5.3.2.18	Met	This was verified through the vendor's LoC.
<p>NOTES:</p> <ol style="list-style-type: none"> The notation of 'required' refers to the high-level requirement category. These high-level CR/FR requirements refer to a detailed list of requirements provided in Reference (e), Enclosure 3. Reference (e), Enclosure 2, Paragraph 11 provides detailed information pertaining to open TDRs and associated operational impacts. The DISA adjudicated this discrepancy as having a low operational impact because vendors have until July 2011 to comply with this requirement. During the original test, failover to the SUT secondary processor due to loss of power or WAN connectivity, all active calls were lost and the failover took approximately 30 seconds to complete. This requirement only applies to High Availability EBCs with NLAS. This discrepancy was fixed and successfully tested with DTR 2, which included IOS 15.2(4)M3. The SUT was originally certified as a High Availability EBC without NLAS. The SUT was successfully tested with IOS 15.2(4)M3 with DTR 2 and NLAS requirements with DTR 3. Based on this testing, the SUT is now certified as a High Availability EBC with NLAS with IOS 15.2(4)M3. 					

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Table 2. SUT Capability Requirements and Functional Requirements Status

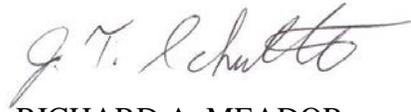
NOTES (continued):			
6. During the original test, certain call hold scenarios experienced one-way audio. The call hold scenarios were repeated with a different EBC with no discrepancy. This discrepancy was fixed and successfully tested with DTR 2, which included IOS 15.2(4)M3.			
7. During the original test, the SUT did not support the failover requirements specified in UCR 2008, Change 1, section 5.3.4.7.2.4.1. The SUT did support an alternative method that was successfully demonstrated in a multi-vendor test event for failover and used to draft new UCR failover requirements. The new UCR 2013 requirement states that an LSC/SC can support failover with one of the two following methods: Alternative A with failed Options ping or Alternative B with failed INVITES. The SUT only supports failover of an LSC/SC which uses Alternative B. The other LSC/SC vendors certified for use in the DISN support Alternative A. Therefore, the SUT is certified with the following condition of fielding: The SUT is certified to front a Cisco LSC/SC, which does not rely on Alternative A for failover.			
8. The LoC stated non-compliance with traffic engineering requirements listed in UCR 2008 Change 1 Section 5.3.5.4.11 paragraph 34. Per DISA clarification dated 21 April 2011, this requirement correlates to UCR 2008 Change 1 Section 5.3.2.15.5 (Codec Bandwidth Policing) which is a new requirement since UCR 2008, therefore the vendor has until July 2011 to comply with this requirement. DISA stated their intent to update this disparity in the next UCR errata change.			
LEGEND:			
802.1Q	IEEE VLAN tagging standard	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
AS-SIP	Assured Services Session Initiation Protocol	JITC	Joint Interoperability Test Command
CR	Capabilities Requirement	LoC	Letters of Compliance
DISA	Defense Information Systems Agency	LSC	Local Session Controller
DISN	Defense Information Systems Network	NLAS	No Loss of Active Sessions
DSCP	Differentiated Services Code Point	NM	Network Management
EBC	Edge Boundary Controller	NMS	NM System
FCAPS	Fault, Configuration, Accounting, Performance, and Security	PoAM	Plan of Actions and Milestones
FR	Functional Requirement	RFC	Request for Comment
H.323	ITU-T recommendation that defines audio-visual session protocols	SC	Session Controller
ID	Identification	SIP	Session Initiation Protocol
IEEE	Institute of Electrical and Electronics Engineers	SS	Softswitch
IOS	Internetwork Operating System	SUT	System Under Test
IPsec	Internet Protocol Security	UCR	Unified Capabilities Requirements
IPv6	Internet Protocol version 6	VVoIP	Voice and Video over Internet Protocol
		WAN	Wide Area Network

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). 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 website located at <http://www.disa.mil/Services/Network-Services/UCCO>.

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6. The JITC point of contact is Capt Jonathan Kim, DSN 879-5182, commercial (520) 538-5182, FAX DSN 879-4347, or e-mail to jonathan.s.kim.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 0922204.

FOR THE COMMANDER:



for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

Enclosure a/s

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ADDITIONAL REFERENCES

- (c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008, Change 1," 22 January 2010
- (d) Joint Interoperability Test Command, "Unified Capabilities Test Plan (UCTP)," October 2010
- (e) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of the Cisco 3800, 3900, 2900, and 2800 Series Integrated Services Router (ISR) Edge Boundary Controller (EBC) with Internetworking Operating System (IOS) 15.1 Engineering Special (ES) 15.1(20110111:230218) [15-1-3-17-T]," 12 May 2011
- (f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Cisco 3845 Release (Rel.) Internetwork Operating System (IOS) 15.1(2)YB4 (Tracking Number 0922204)," Draft