



DEFENSE INFORMATION SYSTEMS AGENCY

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

11 Oct 13

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Joint Interoperability Certification of the Brocade NetIron MLX/MLXe Series Release 5.4.0

References: (a) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) Department of Defense Instruction 8100.04, "DoD Unified Capabilities (UC)," 9 December 2010
(c) through (f), see Enclosure

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

2. The Brocade NetIron NI-MLX-8 Release 5.4.0 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 Product List (APL) with the following interfaces: 100/1000Base SX/LX, 100BaseFX, 10GbaseX, and 10/100/1000BaseT. 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 comply with the Institute of Electrical and Electronics Engineers, Inc. (IEEE) 802.3i standard and the testing data collected at all other data rates. The NetIron MLX/MLXe product series listed in Table 1 employs the same software and similar hardware as the SUT. JITC analysis determined these products to be functionally identical to the SUT for interoperability certification purposes and therefore, they are also certified for joint use. The SUT meets the critical interoperability requirements set forth in Reference (c), using test procedures derived from Reference (d).

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 JITC. This certification expires upon changes that could affect interoperability, but no later than three years from the date of the original memorandum (14 January 2013).

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, and DISA Certifying Authority (CA) Recommendation. Interoperability testing was conducted by JITC, Fort Huachuca, Arizona, from 29 October through 9 November 2012. Review of the vendor's LoC was completed on 29 October 2012. The DISA CA provided a positive Recommendation on 14 January 2013 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (f). This DTR was requested to include the BR-MLX-1GFX24-X and BR-MLX-1GFX24-X-ML modules. These modules were included in the Brocade XMR ASLAN certification and were intended to be included in the MLX/MLXe since these modules can be used in either switch. Therefore, JITC recommends this DTR without further testing. Additionally, the DISA CA has approved this DTR to include the BR-MLX-1GFX24-X and BR-MLX-1GFX24-X-ML modules without further IA testing. Therefore, the original IA approval applies to this DTR and JITC approves this DTR.

4. Table 1 provides a UC APL product summary. Table 2 provides the SUT interface interoperability status and Table 3 provides the Capability Requirements (CR) and Functional Requirements (FR) status. The threshold CR/FRs 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

SUT (See note 1.)	Release	Function	Sub-component (See note 1.)
Brocade NetIron NI-MLX-8, Brocade NetIron BR-MLXe-32, Brocade NetIron BR-MLXe-16, Brocade NetIron BR-MLXe-8, Brocade NetIron BR-MLXe-4, Brocade NetIron NI-MLX-4, Brocade NetIron NI-MLX-16, Brocade NetIron NI-MLX-32	5.4.0c (See note 2.)	Core, Distribution, and Access	<u>NI-X-8-HSF-UPGRADE</u> , NI-X-SF1, NI-X-SF3, NI-X-32-SF, NI-X-4-HSF, NI-X-4-HSF-UPGRADE, NI-X-16-8 HSF, NI-X-16-HSF UPGRADE, NI-X-32-HSF, NI-X-32-HSF-UPGRADE
			<u>BR-MLX-MR2-M</u> , NI-MLX-MR, NI-MLX-32-MR, BR-MLX-MR2-X, BR-MLX-32-MR2-X
			<u>NI-MLX 10GX4</u> , NI-MLX-10GX2, BR-MLX-10GX4-X, BR-MLX-10GX4-X-ML
			<u>NI-MLX-1GX20-SFP</u> , BR-MLX-1GFX24-X (See note 3.), BR-MLX-1GFX24-X-ML (See note 3.)
			<u>NI-MLX-1GX20-GC</u> , NI-MLX-1GX48-T-A
			<u>NI-MLX-10GX8-M</u> , NI-MLX-10GX8-D, BR-MLX-10GX24-DM, BR-MLX-10GX18-DM (See note 2.), BR-MLX-10GX12-DM (See note 4.)
			<u>BR-MLX-1GCX24-X-ML</u> , BR-MLX-1GCX24-X
			<u>BR-MLX-100Gx2-X</u> , <u>BR-MLX-100Gx2-X</u> (See note 5.)
NOTES: 1. Components bolded and underlined were tested by JITC. The other components in the family series were not tested; however, they utilize the same software and similar hardware and JITC analysis determined them to be functionally identical for interoperability certification purposes and they are also certified for joint use. 2. The SUT software was updated from Release 5.4.0 to 5.4.0c with Desktop Review 2. 3. These components were added with Desktop Review 4. 4. These components were added with Desktop Review 1. 5. The 100 Gigabits per second cards were added with Desktop Review 2, which included a multi-vendor test event. These cards require Release 5.4.0c, which was also added in this Desktop Review.			

Table 1. UC APL Product Summary (continued)

LEGEND:			
APL	Approved Products List	SF	Switch Fabric
HSF	High-speed Switch Fabric	SFP	Small Form Factor Pluggable
JITC	Joint Interoperability Test Command	UC	Unified Capabilities

Table 2. SUT Interface Interoperability Status

Interface	Applicability			UCR 2008, Change 3 Reference	Threshold CR/FR (See note 1.)	Status	Remarks
	Co	D	A				
Serial	C	C	C	5.3.1.3.9	1-4, 7	Certified	The SUT met the CRs and FRs with the following standard: EIA-232.
10Base-X	C	C	C (See note 2.)	5.3.1.3.1	1-7	Certified (See note 3.)	The SUT met CRs and FRs with the following IEEE standard: 802.3i (10BaseT).
100Base-X	R	R	C (See note 2.)	5.3.1.3.1	1-7	Certified	The SUT met CRs and FRs with the following IEEE standard: 802.3u (100BaseT).
1000Base-X	R	R	C (See note 2.)	5.3.1.3.1	1-7	Certified	The SUT met CR and FRs with the following IEEE standards: 802.3ab (1000BaseT), 802.3z (1000Base-SX, 1000Base-LX).
10000Base-X	C	C	C	5.3.1.3.1	1-7	Certified	The SUT met CRs and FRs with the following IEEE standard: 802.3ae (10GBase-SR, 10GBase-LR).
100000Base-X	C	C	C	5.3.1.3.1	1-7	Certified (See note 4.)	The SUT met CRs and FRs with the following IEEE standard: 802.3ba 2010 (100Gbps).
Wireless	C	C	C	5.3.1.3.1/5.3.1.7.2	1-7	Not Tested	(See note 5.)

NOTES:

1. The SUT high-level CR and FR ID numbers depicted in the Threshold CRs/FRs column can be cross-referenced in Table 3. These high-level CR/FR requirements refer to a detailed list of requirements provided in Enclosure 3.
2. 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.
3. The 10BaseT interface was not tested, but was certified through analysis and the vendor's LoC. JITC analysis determined the 10BaseT interface is low risk for certification based on the vendor's LoC to the IEEE 802.3i and the testing data collected at all other data rates.
4. This interface was included with Desktop Review 2, which included the 100 Gbps cards listed in Table 1 and the SUT software was update from Release 5.4.0 to 5.4.0c.
5. The SUT does not support this interface. This interface is not required for a core, distribution, or access switch.

LEGEND:

802.3ab	1000BaseT Gbps Ethernet over twisted pair at 1 Gbps (125 Mbps)	EIA-232	Standard for defining the mechanical and electrical characteristics for connecting Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) data communications devices
802.3ae	10 Gbps Ethernet		
802.3i	10BaseT Mbps over twisted pair		
802.3j	10 Mbps over fiber	FR	Functional Requirement
802.3u	Standard for carrier sense multiple access with collision detection at 100 Mbps	Gbps	Gigabits per second
802.3z	Gigabit Ethernet Standard	ID	Identification
A	Access	IEEE	Institute of Electrical and Electronics Engineers
C	Conditional	JITC	Joint Interoperability Test Command
Co	Core	LoC	Letters of Compliance
CR	Capability Requirement	Mbps	Megabits per second
D	Distribution	R	Required
EIA	Electronic Industries Alliance	SUT	System Under Test
		UCR	Unified Capabilities Requirements

Table 3. SUT CRs and FR Status

CR/FR ID	Capability/Function	Applicability (See note 1.)	UCR Reference	Status
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	Met
	VLAN Capabilities	Required	5.3.1.3.4	Met
	Protocols	Required	5.3.1.3.5	Met
	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	
2	E2E Performance Requirements			
	Voice Services	Required	5.3.1.4.1	Met (See note 2.)
	Video services	Required	5.3.1.4.2	Met (See note 2.)
	Data services	Required	5.3.1.4.3	Met (See note 2.)
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 (See note 3.)
	Wireless	Conditional	5.3.1.7.2	Not Tested
	Traffic Engineering	Required	5.3.1.7.3	Met (See note 3.)
	Availability	Required	5.3.1.7.6	Met (See note 3.)
	Redundancy	Required	5.3.1.7.7	Met (See notes 2, 3.)
5	MPLS			
	MPLS Requirements	Conditional	5.3.1.8.4.1	Not Tested
	MPLS VPN Augmentation to VLANs	Conditional	5.3.1.8.4.2	Not Tested
6	IPv6 Requirements			
	Product Requirements	Required	5.3.5.4	Met
7	Information Assurance			
	Information Assurance	Required	5.4	Met (See note 4.)
<p>NOTES:</p> <ol style="list-style-type: none"> 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 system under test does not need to provide conditional requirements. However, if a capability is provided, it must function according to the specified requirements in order to be certified for that capability. 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 Change 3, paragraph 5.3.1.4. 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 Reference (e), Enclosure 2, Section 11.2 d and that does not create a single point of failure which could impact more than 96 C2 users. Security is tested by DISA-led Information Assurance test teams and the results published in a separate report, Reference (f). 				

Table 3. SUT CRs and FR Status (continued)

LEGEND:			
C2	Command and Control	NM	Network Management
CR	Capability Requirement	POA&M	Plan of Action and Milestones
DISA	Defense Information Systems Agency	QoS	Quality of Service
E2E	End-to-End	RFC	Request For Comment
FR	Functional Requirement	SUT	System Under Test
IPSec	Internet Protocol Security	UCR	Unified Capabilities Requirements
IPv6	Internet Protocol version 6	VLAN	Virtual Local Area Network
LACP	Link Aggregation Control Protocol	VPN	Virtual Private Network
MPLS	Multiprotocol Label Switching		

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 <http://www.disa.mil/Services/Network-Services/UCCO>.

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.a.mellon.civ@mail.mil. JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The UCCO tracking number for the SUT is 1223002.

FOR THE COMMANDER:



for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

Enclosure a/s

JITC Memo, JTE, Extension of the Joint Interoperability Certification of the Brocade NetIron
MLX/MLXe Series Release 5.4.0

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ADDITIONAL REFERENCES

- (c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008, Change 3," September 2011
- (d) Joint Interoperability Test Command, "Assured Services Local Area Network (ASLAN) Component Test Plan (UCTP)," November 2010
- (e) Joint Interoperability Test Command, Memo, JTE, "Joint Interoperability Certification of the Brocade NetIron MLX/MLXe Series Release 5.4.0," 14 January 2013
- (f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Brocade MLX Release 5.4.0 (Tracking Number 1223002)," 25 January 2013