DEFENSE INFORMATION SYSTEMS AGENCY
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IN REPLY REFER TO: Joint Interoperability Test Command (JTE) 24 October 2022

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Joint Interoperability Certification of Aruba, a Hewlett Packard Enterprise company, 5400R Switch Series with Software Release 16.11

References: (a) Department of Defense Instruction 8100.04, "DoD Unified Capabilities (UC)," 9 December 2010
(b) Office of the Department of Defense Chief Information Officer, "Department of Defense Unified Capabilities Requirements 2013, Change 2," September 2017
(c) through (f), see Enclosure

1. Certification Authority. Reference (a) establishes the Joint Interoperability Test Command (JITC) as the Joint Interoperability Certification Authority for the Department of Defense Information Network (DoDIN) products, Reference (b).

2. Conditions of Certification. The Aruba, a Hewlett Packard Enterprise company, 5400R Switch Series with Software Release 16.11, hereinafter referred to as the System Under Test (SUT), meets the critical requirements of the Unified Capabilities Requirements, Reference (b), as an Assured Services Local Area Network Core, Distribution, and Layer 2/Layer 3 (L2/L3) Access Switch and is certified for joint use with the conditions described in Table 1. This certification expires upon changes that affect interoperability, but no later than the expiration date specified in the DoDIN Approved Products List (APL) memorandum.

This extension of the certification is for Desktop Review (DTR) 3. DTR 3 was requested to update the SUT Software Release version from 16.08 to 16.11. See Paragraph 4 for additional details.

Table 1. Conditions

Description	Operational Impact	Remarks
UCR Waivers		
None.		

(Table continues next page.)

Table 1. Conditions (continued)

Description		Operational Impact	Remarks
TDR#	**Conditions of Fielding**		
ANI-0719-002	The SUT 5400R 24-port POE+ J9986A blade does not fully support auto negotiation IAW IEEE 802.3ab. The SUT does not default to half duplex for the conditions specified in IEEE 802.3ab. CoF: SUT must be deployed in topologies with fully IEEE 802.3ab compliant devices.	Minor with CoF	See note 1.
ANI-0719-004	The SUT 5400R 8-port POE+ J9995A blade does not fully support force mode negotiation IAW IEEE 802.3ab. The SUT could not be force mode configured in to 100Mbps half-duplex to either duplex at 10Mbps. CoF: SUT must be deployed in topologies with fully IEEE 802.3ab compliant devices.	Minor with CoF	See note 1.
TDR#	**Open Test Discrepancies**		
003	The SUT 5400R chassis lacks a 1+1 redundant switch fabric.	Minor	See note 2.

NOTE(S):
1. TDR ANI-0719-002: DISA adjudicated this discrepancy as minor with CoF.
2. TDR ANI-0719-004: DISA adjudicated this discrepancy as a UCR Change requirement with minor operational impact.

LEGEND:

802.ab	1000BaseT Ethernet over twisted pair at 1 Gbps	Mbps	Megabits per second
BaseT	Mbps (Baseband Operation, Twisted Pair) Ethernet	POA&M	Plan of Action and Milestones
CoF	Condition of Fielding	POE+	Power Over Ethernet Plus Specification
DISA	Defense Information Systems Agency	SUT	System Under Test
Gbps	Gigabits per second	TDR	Test Discrepancy Report
IAW	In Accordance With	UCR	Unified Capabilities Requirements
IEEE	Institute of Electrical and Electronics Engineers		

3. Interoperability Status. Table 2 provides the SUT interface interoperability status, Table 3 provides the Capability Requirements and Functional Requirements status, and Table 4 provides the DoDIN APL Product Summary, to include subsequent DTR updates.

Table 2. SUT Interface Status

Interface (See note 1.)	Applicability (ASLAN)			Status	Remarks
	Co	D	A		
Network Management Interfaces (See note 2.)					
IEEE 802.3i (10BaseT UTP)	C	C	C	Not Tested	See note 3.
IEEE 802.3u (100BaseT UTP)	C	C	C	Not Tested	See note 3.
IEEE 802.3ab (1000BaseT UTP)	C	C	C	Met	
Access (User) Interfaces (See note 2.)					
IEEE 802.3i (10BaseT UTP)	C	C	C	Partially Met	See note 4.
IEEE 802.3u (100BaseT UTP)	C	C	C	Partially Met	See note 4.
IEEE 802.3u (100BaseFX)	C	C	C	Not Tested	See note 5.
IEEE 802.3ab (1000BaseT UTP)	C	C	C	Met	
IEEE 802.3z (1000BaseX Fiber)	C	C	C	Met	
IEEE 802.3bz (2.5/5GBaseX)	O	O	O	Not Tested	See note 5.
IEEE 802.3ae (10GBaseX)	C	C	C	Met	
IEEE 802.3by (25GBaseX)	O	O	O	Not Tested	See note 5.
IEEE 802.3ba (40GBaseX)	O	O	O	Met	See note 6.
IEEE 802.3cd (50GBaseX)	O	O	O	Not Tested	See note 5.
IEEE 802.3ba (100GBaseX)	O	O	O	Not Tested	See note 5.

(Table continues next page.)

Table 2. SUT Interface Status (continued)

Interface (See note 1.)	Applicability (ASLAN)			Status	Remarks
	Co	D	A		
Uplink (Trunk) Interfaces (See note 2.)					
IEEE 802.3ab (1000BaseT UTP)	C	C	C	Not Tested	See note 5.
IEEE 802.3z (1000BaseX Fiber)	C	C	C	Met	See note 7.
IEEE 802.3bz (2.5/5GBaseX)	O	O	O	Not Tested	See note 5.
IEEE 802.3ae (10GBaseX)	C	C	C	Met	See note 7.
IEEE 802.3by (25GBaseX)	O	O	O	Not Tested	See note 5.
IEEE 802.3ba (40GBaseX)	O	O	O	Met	
IEEE 802.3cd (50GBaseX)	O	O	O	Not Tested	See note 5.
IEEE 802.3ba (100GBaseX)	O	O	O	Not Tested	See note 5.

NOTE(S):
1. Table 3 depicts the SUT high-level requirements. Table 3-2 in Enclosure 3 of Reference (c) provides a detailed list of requirements.
2. Core, Distribution, and Access products must minimally support one of the interfaces listed in this table as conditional for the given role. Other rates and standards may be provided as optional interfaces.
3. Testing on management ports was performed on the 1 Gbps interfaces. JITC analysis determined the 10BaseX and 100Base X interfaces are low risk for certification based on the vendor's Letter of Compliance (LoC) compliance with the IEEE 802.3i and 802.3u standards and the testing data collected at higher data rates.
4. Testing on all Access (User) ports was performed on the 1G and the 1/10G copper interfaces. JITC analysis determined the 10BaseX and 100Base X rates worked well on the 1G interfaces except for the auto negotiation and force mode port parameters. The SUT met the interface requirements with the exceptions as noted in Table 1. DISA adjudicated these exceptions as minor with the condition of fielding.
5. The SUT does not support this conditional/optional interface.
6. This interface was tested during DTR 1 test event.
7. All Uplink (Trunk) testing was performed on the 40 Gbps interfaces. JITC analysis determined the 1000BaseX and 10GBase X interfaces are low risk for certification based on the vendor's LoC compliance with the IEEE 802.3u and 802.3ab standards and the testing data collected at higher data rates.

LEGEND:

A	Access	Gbps	Gigabits per second
ASLAN	Assured Services Local Area Network	IEEE	Institute of Electrical and Electronics Engineers
BaseFX	Mbps Ethernet over Fiber	JITC	Joint Interoperability Test Command
BaseT	Mbps (Baseband Operation, Twisted Pair) Ethernet	LoC	Letter of Compliance
BaseX	Mbps Ethernet over Fiber or Copper	Mbps	Megabits per second
C	Conditional	O	Optional
Co	Core	SUT	System Under Test
D	Distribution	TDR	Test Discrepancy Report
GBaseX	Gbps Ethernet over Fiber or Copper	UTP	Unshielded Twisted Pair

Table 3. SUT Capability Requirements and Functional Requirements Status

CR/FR ID	UCR Requirement (See notes 1 and 2.)	UCR 2013, Change 2 Reference	Status
1	General LAN Switch and Router Product Requirements (R)	7.2.1	Met
2	LAN Switch and Router Redundancy Requirements (R)	7.2.2	Met
3	LAN Product Requirements Summary (R)	7.2.3	Met
4	Multiprotocol Label Switching (O)	7.2.4	Not Tested (See note 3.)
5	IPv6 (R)	Section 5	Met (See note 2.)

NOTE(S):
1. The annotation of "required" refers to a high-level requirement category. Enclosure 3 of Reference (c) addresses the applicability of each sub-requirement.
2. A JITC-led Cybersecurity test team conducted Security testing and published the results in a separate report, Reference (d).
3. The SUT does not support this optional requirement.

(Table continues next page.)

Table 3. SUT Capability Requirements and Functional Requirements Status
(continued)

LEGEND:			
CR	Capability Requirement	LAN	Local Area Network
FR	Functional Requirement	O	Optional
ID	Identification	R	Required
IPv6	Internet Protocol version 6	SUT	System Under Test
JITC	Joint Interoperability Test Command	UCR	Unified Capabilities Requirements

Table 4. DoDIN APL Product Summary

Product Identification				
Product Name	Aruba, a Hewlett Packard Enterprise company 5400R Switch Series			
Software Release	16.11 (See note 1.)			
UCR Product Type(s)	ASLAN Core, Distribution, and L2/L3 Access Switch (See note 2.)			
Product Description	An Ethernet Switch that provides Ethernet services for the Assured Services Local Area Network (ASLAN). It consists of interface modules capable of 1GbaseT with up to 30 Watts of Power over Ethernet (PoE+) support on 24 ports, 1G Small Form-factor Pluggable (SFP) fiber ports, 10G SFP+ fiber ports and 40G Quad Small Form-factor Pluggable (QSFP+) fiber ports as well as Multi-Gigabit ports capable of switching between 1G/2.5G/5G/10G Base-T depending on bandwidth load. The chassis has 2 to 4 power supply bay depending on model that accepts a variety of power supplies depending on user need. Switching functions VSF stacking for virtualizing two chassis together, Border Gateway Protocol (BGP), and Open Shortest Path First (OSPF) Routing, Tunneled Node to tunnel all network traffic to a network controller for detailed control of what the connected device can communicate with and visibility to all traffic, robust Quality of Service (QoS), and IPv6.			
DoDIN Certified Function	**Component** (See note 3.)	Sub-Component (See note 3.)	**Tested Version** (See note 1.)	**Remarks**
ASLAN Core, Distribution, and L2/L3 Access	**Aruba 5400R**	**J9827A**, J9821A, J9822A	16.11	
		J9986A, J9987A, J9988A, J9989A		
		J9993A, **J9995A**, **9996A**, J9990A, J9991A, J9992A		

NOTE(S):
1. The SUT was initially certified with Software Release version 16.04. Subsequent DTRs updated the Software Release version as follows: DTR 1 - from 16.04 to 16.08; DTR 3 -from 16.08 to 16.11.
2. With DTR 1, the capability of the SUT was updated from L2-only Access switch to Core, Distribution, and L2/L3 Access switch based on testing conducted by JITC 8 July – 2 August 2019 with the 16.08 Software Release version.
3. Components bolded and underlined were tested by JITC. The other components in the family series were not tested; however, JITC certified the other components for joint use because they utilize the same software and similar hardware as tested and certified components and JITC analysis determined they were functionally identical for interoperability certification purposes.

LEGEND:			
APL	Approved Products List	L	Layer
ASLAN	Assured Services Local Area Network	OSPF	Open Shortest Path First
BaseT	Mbps (Baseband Operation, Twisted Pair) Ethernet	PoE+	Power over Ethernet
BGP	Border Gateway Protocol	QoS	Quality of Service
CS	Cybersecurity	QSFP+	Quad Small Form-factor Pluggable
DoDIN	Department of Defense Information Network	R	Redundant
DTR	Desktop Review	SFP	Small Form-factor Pluggable
G	Gigabyte	SUT	System Under Test
GbE	Gigabit Ethernet	UCR	Unified Capabilities Requirements
GT	Gig-T	v	version
IPv6	Internet Protocol version 6	VSF	Virtual Switching Framework
JITC	Joint Interoperability Test Command		

4. Test Details. This extension of the certification is based upon DTR 3. The original certification, documented in Reference (c), was based on interoperability (IO) testing, review of the Vendor's Letters of Compliance (LoC), Defense Information Systems Agency (DISA) adjudication of open Test Discrepancy Reports (TDRs), and the DISA Certifying Authority Recommendation for the inclusion on the DoDIN APL. JITC conducted testing at the Global Network Test Facility, Fort Huachuca, Arizona from 16 July 2018 through 3 August 2018, using test procedures derived from Reference (e), and completed review of the Vendor's LoC on 3 August 2018. A JITC-led CS test team conducted Security testing and published the results in a separate report, Reference (d). Enclosure 2 of Reference (c) documents the test results and describes the tested network and system configurations. Enclosure 3 of Reference (c) provides the detailed interface, capability, and functional requirements and test results

DTR 3 was requested to update the SUT Software Release version from 16.08 to 16.11.

JITC analysis determined no additional CS or IO testing was required because the software update to implement minor security enhancements and feature updates did not change the certified IO features and functions or approved CS posture of the SUT. In addition, analysis of this DTR request was based on current UCR 2013 Change 2 test procedures, Reference (f). Furthermore, there were no past due CS or IO Vendor Plan of Action and Milestones (POA&Ms).

Based on analysis, no change to the certified SUT IO features and functions, and no past due Vendor POA&Ms, JITC approves DTR 3.

In addition, the current CS posture of the SUT is documented in a separate report, Reference (d).

5. Additional Information. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Sensitive but Unclassified Internet Protocol Data (formerly known as NIPRNet) e-mail. Interoperability status information is available via the JITC System Tracking Program (STP). STP is accessible by .mil/.gov users at https://stp.fhu.disa.mil/. Test reports, lessons learned, and related testing documents and references are on the JITC Industry Toolkit (JIT) at https://jit.fhu.disa.mil/. Due to the sensitivity of the information, the CS Assessment Package containing the approved configuration and deployment guide must be requested directly from the DoDIN Approved Products Certification Office (APCO) via e-mail: disa.meade.ie.list.approved-products-certification-office@mail.mil. All associated information is available on the DISA APCO website located at https://aplits.disa.mil/.

JITC Memo, JTE, Extension of the Joint Interoperability Certification of Aruba, a Hewlett Packard Enterprise company, 5400R Switch Series with Software Release 16.11

6. Point of Contact (POC). JITC POC: Ms. Jenna Valenzuela; commercial phone (520) 538-5436, DSN 879-5436; e-mail address: jenna.s.valenzuela.civ@mail.mil; mailing address: Joint Interoperability Test Command, ATTN: JTE2 (Ms. Jenna Valenzuela), P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The APCO tracking number for the SUT is 1802504.

FOR THE COMMANDER:

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Enclosure a/s

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ADDITIONAL REFERENCES

(c) Joint Interoperability Test Command (JITC) Memo, JTE, "Joint Interoperability Certification of the Aruba 5400R Switch Series, Software Release 16.04," 28 August 2018
(d) JITC, "Cybersecurity Assessment Report for Aruba, a Hewlett Packard Enterprise (HPE) company, 5400R Switch Series, Software Release 16.11, Tracking Number (TN) 1802504," September 2022
(e) JITC, "Assured Services Local Area Network (ASLAN) and Non-ASLAN Test Procedures Version 1.2 for Unified Capabilities Requirements (UCR) 2013 Change 2," November 2017
(f) JITC, "Assured Services Local Area Network (ASLAN) and Non-ASLAN Test Procedures Version 1.1 for Unified Capabilities Requirements (UCR) 2013 Change 2," April 2022 (Draft)