



Firmware Release Note

Project: Multistak	Previous Release: NxN1	Release: 3.10	Author: M. Widera / S.Agostini	Date: 11/12/2024
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1 Installation

1.1 REST API Version

Version 1.1.21

1.2 Bundled Robotic Code

Version 2.02

1.3 Third Party Codes

Third Party Code	Version
Bind9 dig binary	9.11.10
Drop Bear	2018.76
Lighttpd	1.4.64
Linux Kernel	3.8.6
OpenLDAP	2.4.56
OpenSSL	3.0.14
PHP	8.2.15
Python	2.7.16
SQLite	3.29.0

1.4 Programming instructions

Use remote management interface (Maintenance, Software upgrade, Firmware) for uploading .fbi image and upgrading Library stack (expansion module will be automatically upgraded together with base module if already connected and discovered).

2 Special Notes



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3 Release Status

3.1 Changes since Release NxM1

3.1.1 New Functionality

DDT No.	Description:	Severity	Code Rev.
9190	Check for NTP when configuring MFA shall be done earlier	Moderate	NxN1

3.1.2 Resolved Issues

DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
9138		more Validation of Input Data needed for NetworkConfig in BACKEND		Not enough validation was done in the backend	1. FIX\IMPROVEMENT DESCRIPTION: Added extra validation for the network settings. 2. VERIFICATION PROCEDURE: Inject a command using burp suite as described in the DDT description. This should no longer have any effect in the new version.	Moderate	NxN1
9183	Ticket#743057	Custom User Name "0" is not shown correctly in the RMI user list			1. FIX\IMPROVEMENT DESCRIPTION: show "0" as 0 instead of N/A 2. VERIFICATION PROCEDURE:	Moderate	NxN1



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DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
					check user display in configuration page on RMI		
9242		Not possible to download library logs via REST			1. FIX\IMPROVEMENT DESCRIPTION: added missing include 2. VERIFICATION PROCEDURE: try to download logs via REST GET /library/logs route	Moderate	NxN1
9244		SNMPv3 trap receiving not working with encryption protocol DES			1. FIX\IMPROVEMENT DESCRIPTION: openssl 3.0.14 rebuild with legacy and DES 2. VERIFICATION PROCEDURE: run encryption tests and SNMP v3 with MD5 /DES	Moderate	NxN1

3.1.3 Implemented Stories

DDT No.	Customer DDT	Description:	Severity	Code Rev.
8122	CR 12149	Move failure from drive that is initializing new LTO9 media	Moderate	Error! Reference source not found.N1



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3.2 Changes since Release NxL2

3.2.1 New Functionality

DDT No.	Description:	Severity	Code Rev.
9038	sADT Drive Sled Fan control (speed up from lower temperature)	Moderate	NxM1

3.2.2 Resolved Issues

DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
8923		openssl update to 3.0.14 to solve known CVEs			1. FIX/IMPROVEMENT DESCRIPTION: openssl library upgraded to 3.0.14 2. VERIFICATION PROCEDURE: Please describe in steps what has to be done to verify the change.	Moderate	NxM1



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3.3 Changes since Release NxK1

3.3.1 New Functionality

DDT No.	Description:	Severity	Code Rev.
8995	Add downgrade prevention if 2FA is active to an older Code Version which does not support it	Moderate	NxL1

3.3.2 Resolved Issues

DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
9005		SNMP baseAddress 127.0.1.1 instead of library ip in new codes with SNMP 3.5.0		Previously present patch wasn't included during update of SNMP++ third party library	1. FIX\IMPROVEMENT DESCRIPTION: now reporting again correct library IP address 2. VERIFICATION PROCEDURE: configure SNMP and check if library IP is reported again as Agent IP in the trap body instead of 127.0.1.1	Moderate	NxL1
8949	Ticket#742855	INFO EVENT Tickets are not visible in infolog.txt package		Event tickets with severity info were not added to the infolog.txt	1. FIX\IMPROVEMENT DESCRIPTION: Event tickets with severity info are now also added to the infolog.txt	Minor	NxL1



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DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
					2. VERIFICATION PROCEDURE: Generate an event ticket with severity info, download library logs and verify that the generated ticket is shown in the infolog.txt file.		

3.4 Changes since Release NxJB

3.4.1 New Functionality

DDT No.	Description:	Severity	Code Rev.
8947	LTO9 drive temperature and humidity monitoring	Moderate	NxK1



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3.5.1 Customer change requests

DDT No.	Customer DDT	Description:	Severity	Code Rev.
8975	Ticket#742869	Add ability to detect PKCS7 certificate chains containerand extracts certs to PEM for x509 verify	Minor	NxK1



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3.5.2 Resolved Issues

DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
8308	Ticket#742130	MST: OCP Webkit ContentResendError			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>added again time diff reload of app to prevent javascript timers to be out of sync</p> <p>2. VERIFICATION PROCEDURE:</p> <p>change datetime to the future and the past ocp will reload to get in snyc with datetime again (in webkit) qt runs already monotonic</p>	Moderate	NxK1
8959		No TOTP recovery over OCP possible when failed attempts in PW rules is set to unlimited			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>TOTP Attempts range now 1-10 until account is locked, can be configured via Password Rules , default: 3</p> <p>2. VERIFICATION PROCEDURE:</p> <p>change Password Rulesand check if they lock the login if too many times provided invalid TOTP</p>	Moderate	NxK1



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DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
8960		Lock accounts if invalid password provided via REST			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>Invalid login attempts over REST will now be handled like it is defined in the Password Rules</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Set Password rules to 3 and provide invalid login data over REST, account shall be locked after 3 attempts.</p>	Moderate	NxK1



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3.6 Changes since Release NxJ2

3.6.1 New Functionality

DDT No.	Description:	Severity	Code Rev.
8933	Get Library Logs via REST	Minor	NxJB
8940	Update PHP to 8.2.15 with GD lib support	Moderate	NxJB
8520	Change "main library" to "base library module" in error message for event 2103 and 2104	Moderate	NxJ3

3.6.2 Customer change requests

DDT No.	Customer DDT	Description:	Severity	Code Rev.
8917	Ticket#742785	Ordering for Drives in "Maintenance / Download of support tickets"	Minor	NxJ9
8816	Ticket# 742597	LTO9 Wizard keeps waiting for useable drives if Media Removal Prevention is set	Minor	NxJ8
8731	Ticket# 742487	CR: Add ability to specify the key size in the wizard for generating the CSR etc.	Moderate	NxJ5



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3.6.3 Resolved Issues

DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
8941	Ticket#742841	OCP issues			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>qt-webkit-kiosk removed custom time checks due to much issues seen in the field that reloads appear in the pages (now we run cronjob to reload web page at 00:20 once a night)</p> <p>2. VERIFICATION PROCEDURE:</p> <p>check OCP behavior over long time frame and during log download on big systems</p>	Moderate	NxJB
8913	Ticket #742597	Issue with LTO-9 Wizard with PAMR			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>now using also empty drives with prevent media removal bit set</p> <p>2. VERIFICATION PROCEDURE:</p> <p>set prevent media removal bit on empty drives prior executing media init wizard</p>	Moderate	NxJA
8888		SNMPv3 trap receiving not working with encryption protocol DES			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p>	Moderate	NxJ8



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DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
					<p>updated SNMP++ to 3.5.0 and Agent++ to 4.6.0 to be compatible with new OpenSSL 3.0</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Configure SNMP v3 trap receiver to use MD5 and DES, setup library accordingly and check traps.</p>		
8113		Encryption config change does not create a config change ticket			<p>1. FIX/IMPROVEMENT DESCRIPTION:</p> <p>added config change event if Configuration > Encryption, Set Encryption was called (Event 8002)</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Change encryption mode only via Configuration > Encryption</p>	Moderate	NxJ7
8875	Ticket# 742702	Loop ID needs to be corrected			<p>1. FIX/IMPROVEMENT DESCRIPTION:</p> <p>Fixed ALPA select option LOOP ID display</p> <p>2. VERIFICATION PROCEDURE:</p>	Moderate	NxJ7



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DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
					Configure FC drive and check Hard Addressing Mode Select		

3.6.4 Implemented Stories

DDT No.	Customer DDT	Description:	Severity	Code Rev.
8879		TOTP Multi-Factor Authentication (MFA)	Serious	NxJB
7801		Error during firmware update	Minor	NxJ7
8088		OpenSSL 3.0	Moderate	NxJ7
8788		Using the IP as Subject Alternative Name (SAN)	Moderate	NxJ7

3.7 Changes since Release NxJ1

3.7.1 Resolved Issues



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DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
8578	Ticket# 742346	Problem with KMIP in combination with SKLM server	Downgrade to version 1.90 solves the issue		- Now setting protocol version correctly during key retrieval using KMIP_CMD_set_protocol function call - new kmipc-2.1.1g-arm_mucross_linux-openssl-111m library from Cryptsoft included	Moderate	NxJ2

3.8 Changes since Release 2.90

3.8.1 New Functionality

DDT No.	Description:	Severity	Code Rev.
7973	Nessus finding: SESSION Cookie not regenerated if successfully logged in	Moderate	Nx91
7976	PHP Session IDs increase complexity	Moderate	Nx91
7940	Issue a "404 - Not Found" response status code for a forbidden resource	Moderate	Nx91
7964	Extended Key Usage missing in CSR for HTTPS certificate	Moderate	Nx91
8007	Add DateTime and Timezone routes to REST	Moderate	NxA1
7998	Set SNTP over REST	Moderate	NxA1
8007	Add DateTime and Timezone routes to REST	Moderate	NxB1
8031	Add support for Micron n25q256a SPI flash	Moderate	NxB1
8061	Proposed text changes for LTO-9 initialization wizard	Moderate	NxC1



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DDT No.	Description:	Severity	Code Rev.
8067	Update Lighttpd to 1.4.60 and allow Session Tickets again, disable HTTP2 make HTTP 1.1 active for now	Moderate	NxD1
8072	Update slimframework to latest 3.x version due to fixes	Moderate	NxD1
8098	LTO-9 New Media Initialization Wizard - Wording Changes	Moderate	NxE1
8217	Update lighttpd to at least 1.4.64 due to a lot of fixes	Moderate	NxG1
8260	Multiple SMTP destination for emailalerts/notification	Moderate	NxH1
8455	HTTP Strict Transport Security (HSTS) not following best practices	Minor	NxI2



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3.9.1 Customer change requests

DDT No.	Customer DDT	Description:	Severity	Code Rev.
8028	Ticket# 741722	Extend link timeout for drives to 30s	Moderate	NxB1
8077	Ticket #741820	LTO-9 New Media Initialization Wizard - Wording Changes	Moderate	NxD1
8118	CR 12141	Additional note about aborting the LTO-9 wizard on the information screen	Moderate	NxE1
8232	Ticket# 742047	Potential Security Vulnerability - 1 issue for openssl (CVE-2022-0778)	Moderate	NxH1
8259	Ticket# 742079	Add Cartridge Encryption Status to system.log	Minor	NxI1



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3.9.2 Resolved Issues

DDT No.	Customer DDT	Description	Workaround	Root cause	Solution	Severity	Code Rev.
7889	Ticket# 741524	SNMPv1 does not handle multiple community names		Trap destination community did not get added if the name of the trap is already in the list	<p>1. FIX/IMPROVEMENT DESCRIPTION:</p> <p>made trap destinations with unique name and trap tag to prevent wrong community name from frist added entry</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Setup SNMP Trap receiver and check all SNMPv1,2,3</p>	Moderate	Nx91
7997		lighttpd 1.4.58 core dumped			<p>1. FIX/IMPROVEMENT DESCRIPTION:</p> <p>updated lighttpd to 1.4.59 due to some segfault fixes</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Stress the webserver with https requests and check if this rare conditions appears</p>	Moderate	NxA1



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7996		update NTP/SNTP to version ntp-4.2.8p15			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>ntp updated to ntp-4.2.8p15 to solve several security issues and add a lot of enhancements</p> <p>2. VERIFICATION PROCEDURE:</p> <ul style="list-style-type: none"> - verify version usind sntp CLI command - verify that DUT can do time sync with sntp servers 	Moderate	NxA1
7990	Ticket# 741688	Potential Security Vulnerability for DHCP: CVE-2021-25217			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>DHCP updated to 4.1-ESV-R16-P1 to fix CVE-2021-25217</p> <p>2. VERIFICATION PROCEDURE:</p> <ul style="list-style-type: none"> - verify version usind dhcpcd --help CLI command - verify version usind dhclient --help CLI command - check that expansion units are detected properly - verify that DUT gets an IP address from DHCP server 	Moderate	NxA1



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8004	Ticket #741640	rsyslog issues - missing event reported to rsyslog server in case TCP RST has been occurred			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>updated rsyslog to 8.2106, zlib 1.2.11 and libestr 0.1.11 and libfastjson-0.99.9 added</p> <p>2. VERIFICATION PROCEDURE:</p> <p>kill rsyslog server service and check if events are again reported from the tape library without missing an event</p>	Moderate	NxB1
8062		LTO9 Optimization Wizard fails to Abort			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>Abort condition is now handled as notification to prevent timeouts. Abort in progress is now shown after abort was received. Tapes will be unloaded at the end of the process</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Run LTO9 wizard and press abort during a initialization. Abort in progress shall be shown and it shall be aborted after the init of the current cartridge</p>	Moderate	NxC1



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8066	Ticket #741769	Medium destination full error		Missing sync of drive status before trying a move to drive	<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>Now sync'ing drive status before checking drive load status in DB</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Message DRIVE_SYNC_STATUS must be observed in applications trace being sent from Mover to Drive before doing a move to drive.</p>	Moderate	NxD1
8070	Ticket#741800	Uncaught ReferenceError: cbQuickStatus is not defined - in case of connection loss			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>Fixed by checking if function exists before calling by accidental loop.</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Login and Logout on system and unplug cable from Library</p>	Moderate	NxD1
8112	Ticket#741855	LTO9 Tape Wizard shows Passed although tape init failed during final unload process			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>added check for tape init also at final tape unloads to update test exec details</p> <p>2. VERIFICATION PROCEDURE:</p>	Moderate	NxD2



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					run LTO-9 tape init with brand new tapes where the amount of tapes is larger than the amount of drives		
8100	Ticket#741800	OCP Error 205 ContentResendError			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>Added workaround if error ContentResendError occurs to reload the page and regenerate session</p> <p>2. VERIFICATION PROCEDURE:</p> <p>check OCP working correct also after at least 1 day.</p>	Moderate	NxE1
8112	Ticket#741855	LTO9 Tape Wizard shows Passed although tape init failed during final unload process			<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>added check for tape init also at final tape unloads to update test exec details</p> <p>2. VERIFICATION PROCEDURE:</p> <p>run LTO-9 tape init with brand new tapes where the amount of tapes is larger than the amount of drives</p>	Moderate	NxE1



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8186	Ticket# 741997	SNTP fails to slew if time difference is too large		parameters have changed in new sntp version lower case is now uppercase -s -S etc.	<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>fixed by adding the slew and step call -sS -M128 to slew only if time is <=128 ms different oterwise step directly</p> <p>2. VERIFICATION PROCEDURE:</p> <p>Change date/time to a older or newer one, set the sntp and verify the changed date/time</p>	Moderate	NxF1
8200		.ini File Information Disclosure		url deny was not set for these files	<p>1. FIX\IMPROVEMENT DESCRIPTION:</p> <p>extended default deny handler to prevent .ini and .dat files which are placed in rmi</p> <p>2. VERIFICATION PROCEDURE:</p> <p>all url and try to access IP/.user.ini</p>	Moderate	NxF1



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8307		MST: LOGIN/LOGOUT on OCP generates wrong Info Tickets			<p>1. FIX\IMPROVEMENT DESCRIPTION: Fixed by adding relevant data to OCP Login/Logout handling</p> <p>2. VERIFICATION PROCEDURE: Login /logout via OCP and RMI check according events</p>	Moderate	Nx11
8441		Clickjacking: CSP frame-ancestors missing			<p>1. FIX\IMPROVEMENT DESCRIPTION: added frame-ancestors 'self' to "Content- Security-Policy"</p> <p>2. VERIFICATION PROCEDURE: check response headers of HTTP</p>	Minor	Nx12
8451		Diffie-Hellman Ephemeral Key Exchange DoS Vulnerability (SSL/TLS, D(HE)ater)			<p>1. FIX\IMPROVEMENT DESCRIPTION: removed Diffie Hellman Ciphers: :DHE-RSA-AES128- GCM-SHA256 :DHE-RSA-AES256- GCM-SHA384</p> <p>due to CVE-2002-20001 and dheater tool (100% cpu load)</p> <p>2. VERIFICATION PROCEDURE:</p>	Serious	Nx12



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					use nmap --script ssl-enum-ciphers -p 443 <IP> to check ciphers and dheater to check system against CVE		
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3.9.3 Implemented Stories

DDT No.	Customer DDT	Description:	Severity	Code Rev.
7938		Cross-Site Request Forgery AppScan	Moderate	NxA1
8036		LTO9 New Tape Initialization Wizard	Moderate	NxC1